FCC&IC
RF Test Report

Product Name:
LTE/HSPA+/HSUPA/HSDPA/UMTS/GSM/GPRS/EDGE Mobile Phone with Bluetooth

Model Number: HUAWEI U9202L-3, U9202L-3

Report No: SYBH(Z-RF) 016082012-2002
FCC ID:QISU9202L-3
IC ID: 6369A-U9202L3

Reliability Laboratory of Huawei Technologies Co., Ltd.

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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.
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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.

Applicant:	Huawei Technologies Co., Ltd.
Address:	Administration Building, Headquarters of Huawei Technologies Co., Ltd., Bantian, Longgang District, Shenzhen, 518129, P.R.C
Date of Receipt Test Item:	Aug.06, 2012
Start Date of Test:	Aug.09, 2012
End Date of Test:	Aug.29, 2012
Test Result:	Pass

	Date	Name	Signature
Approved By Senior Engineer	Sept.,19, 2012	Dai Linjun	Dai Linjun
Reviewed By	Sept.,19, 2012	Cousy Xu	Cousy XU
Operator	Sept.,19, 2012	Huang Qiuliang	Huang Qiuliang

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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 IC RSS-Gen Issue 3 IC RSS-133 Issue 5
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 Environment Condition	
Ambient Temperature:	20 – 25 °C
Ambient Relative Humidity:	45 – 55 %
Atmospheric Pressure:	101 kPa

2 Summary

Table 1 Summary of results

Test Case	FCC Part No.	Requirements	Result
PCS Band			
Transmitter Output Power	2.1046 & 24.232	Peak EIRP not exceed 2 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 &24.238	Below -13 dBm/1%*EBW, in 1 MHz range	Pass
Spurious Emission at Antenna Terminals	2.1051 & 24.238	Below -43 dBm/1 kHz, 9 kHz to 150 kHz Below -33 dBm/10 kHz, 150 kHz to 30 MHz Below -13 dBm/1 MHz, 30 MHz to 10th 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

Table 2 Summary of results

Test Case	IC Standard No.	Requirements	Result
PCS Band			
Transmitter Output Power	RSS-Gen, §4.8; RSS-133, §6.4	EIRP not exceed 2 W Peak-to-average ratio not exceed 13 dB	Pass
Modulation Characteristics	RSS-133, §6.2	Digital modulation	Pass
Occupied Bandwidth	RSS-Gen, §4.6	(Not specified)	Pass
Band Edges Compliance	RSS-Gen, §4.9; RSS-133, §6.5	Below -13 dBm/1%*EBW, in 1 MHz range	Pass
Spurious Emission at Antenna Terminals	RSS-Gen, §4.9; RSS-133, §6.5	Below -43 dBm/1 kHz, 9 kHz to 150 kHz Below -33 dBm/10 kHz, 150 kHz to 30 MHz Below -13 dBm/1 MHz, 30 MHz to 5th harmonics	Pass
Field Strength of Spurious Radiation	RSS-Gen, §4.9; RSS-133, §6.5	Below -13 dBm/1 MHz	Pass
Frequency Stability	RSS-Gen, §4.7; RSS-133, §6.3	Maintained within the tolerances of ±1.0 ppm	Pass
Receiver Spurious Emissions (Conducted)	RSS-Gen, §4.10; RSS-Gen, §6; RSS-133, §6.6	Below 2 nW/4 kHz (-57 dBm/4 kHz), for 30 MHz - 1000 MHz Below 5 nW/MHz (-53 dBm/MHz), for above 1 GHz	Pass

3 Product Description

3.1 Production Information

3.1.1 General Description

HUAWEI U9202L-3, U9202L-3 is subscriber equipment in the LTE/UMTS/GSM system. The LTE frequency band is Band IV and Band XVII. The HSPA+/HSUPA/HSDPA/UMTS frequency band is Band I, Band II, Band IV and Band V. Only Band II can be used in this report. The GSM/GPRS/EDGE frequency band includes GSM850 and DCS1800 and PCS1900, but only PCS1900MHz band test data included in this report. The Mobile Phone implements such functions as RF signal receiving/transmitting, LTE/UMTS/GSM 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 3 Board Information

LTE/HSPA+/HSUPA/HSDPA/UMTS/GSM/GPRS/EDGE Mobile Phone with Bluetooth		
HUAWEI U9202L-3, U9202L-3		
Board and Module		
Hardware Version	Software Version	Description
Ver.B	U9202L-3V100R001C00B116	Main board of Mobile Phone

3.1.3 Adapter Technical Data

AC/DCAdapter Model	HW-050100U3W
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: 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: 30dBm; UMTS system: 22dBm;
Channel Spacing(s) / Bandwidth(s)	GSM system: 200 kHz UMTS system: 5 MHz
Designation of Emissions	GSM system: 247KGXW (GMSK modulation), 250KG7W (8PSK modulation) UMTS system: 4M19F9W

4.3 Antenna Gain

Antenna Gain(dBi)	1.5

4.4 Power Supply

Specification	Description
Power Supply Type	Directly Connected to DC /AC Power Supply
Input to EUT (DC power)	DC Voltage Nominal: ⎓ 3.7 V DC Voltage Range: ⎓ 3.5 V to 4.2 V
Input to EUT (AC power)	AC Voltage Nominal: ~ 120 V (50/60 Hz) AC Voltage Range: ~100-240V

5 General Test Conditions / Configurations

5.1 RF Channels under Test

Test Mode	TX / RX	RF Channel		
		Bottom (B)	Middle (M)	Top (T)
TM1/TM2	TX	Channel 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

Note:
HSPA+ implementation of this device, 16QAM is not used for uplink. The uplink Category and release number is same as HSUPA, RF test is evaluation is not required.

5.3 Test Environments

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 voltages
VN= nominal voltage
VH= upper extreme test voltage

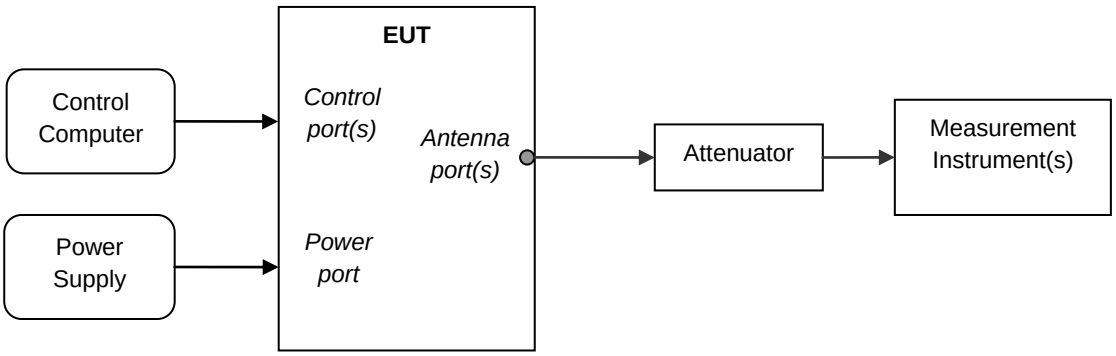
TN= normal temperature

5.4 Test Setups

5.4.1 General Test Setup Configurations

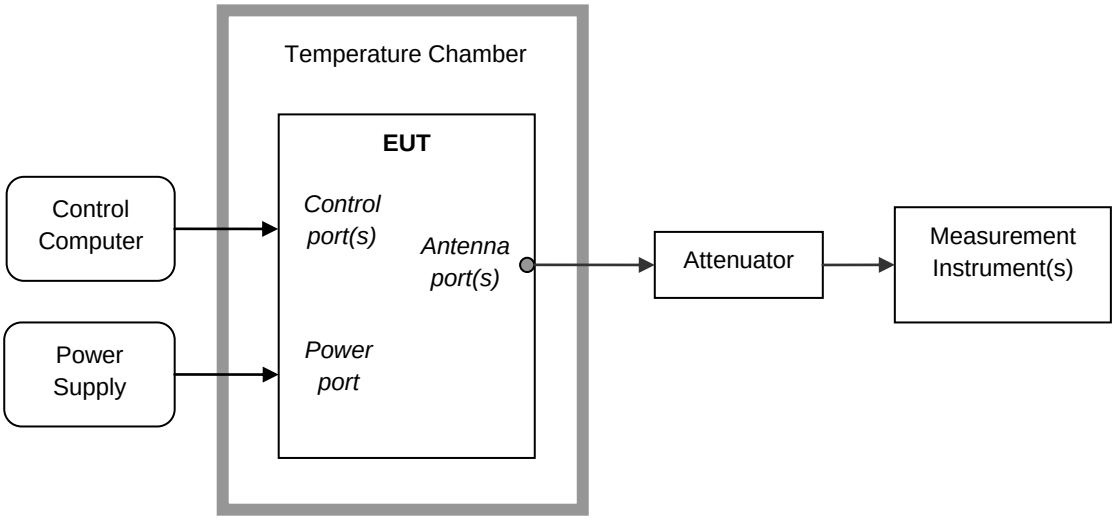
Configuration	Description
Test Antenna Ports	Until otherwise declared, all TX tests are ONLY performed at the main Transmitter antenna port (e.g. TRXA, TXA and so on) of the EUT, and all RX tests are ONLY performed at the main Receiver antenna port (e.g. TRXA, RXA and so on) of the EUT.
Multiple RF Sources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

5.4.2 Test Setup 1



Note
A peak to average ratio measurement is performed at the conducted port of the EUT. For WCDMA and LTE signals, the spectrum analyzers Complementary Cumulative Distribution Function (CCDF) measurement profile is used to determine the largest deviation between the average and the peak power of the EUT in a given bandwidth. The CCDF curve shows how much time the peak waveform spends at or above a given average power level. The percent of time the signal spends at or above the level defines the probability for that particular power level. For GSM signals, an average and a peak trace are used on a spectrum analyzer to determine the largest deviation between the average and the peak power of the EUT in a bandwidth greater than the emission bandwidth. The traces are generated with the spectrum analyzer set to zero span mode.

5.4.3 Test Setup 2



5.4.4 Test Setup 3

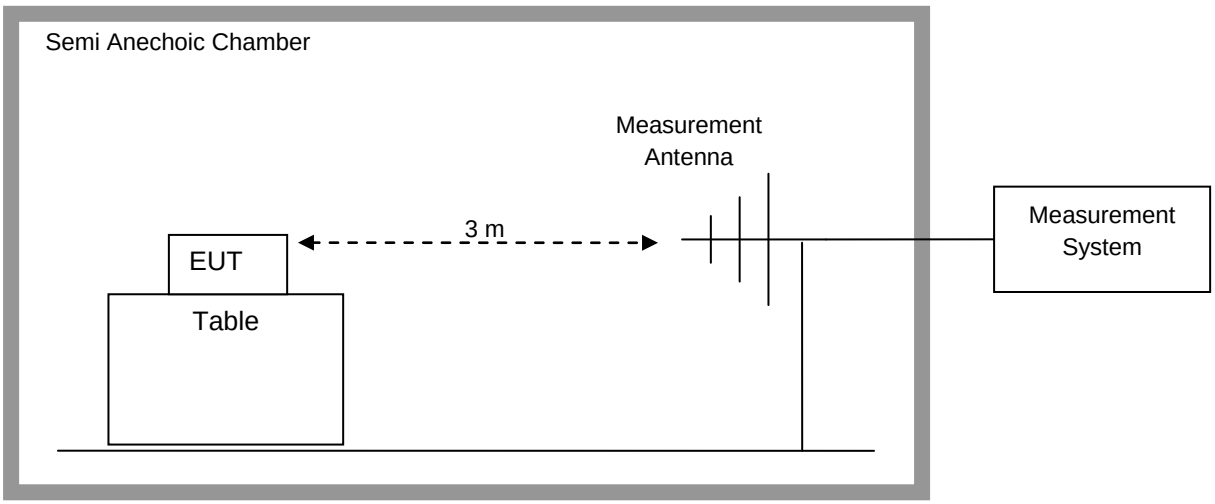
NOTE1: Effective radiated power (ERP) or Effective Isotropic radiated power (EIRP) refers to the EUT radiation power output, assuming all emissions are radiated from half-wave dipole antennas or horn antennas.

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

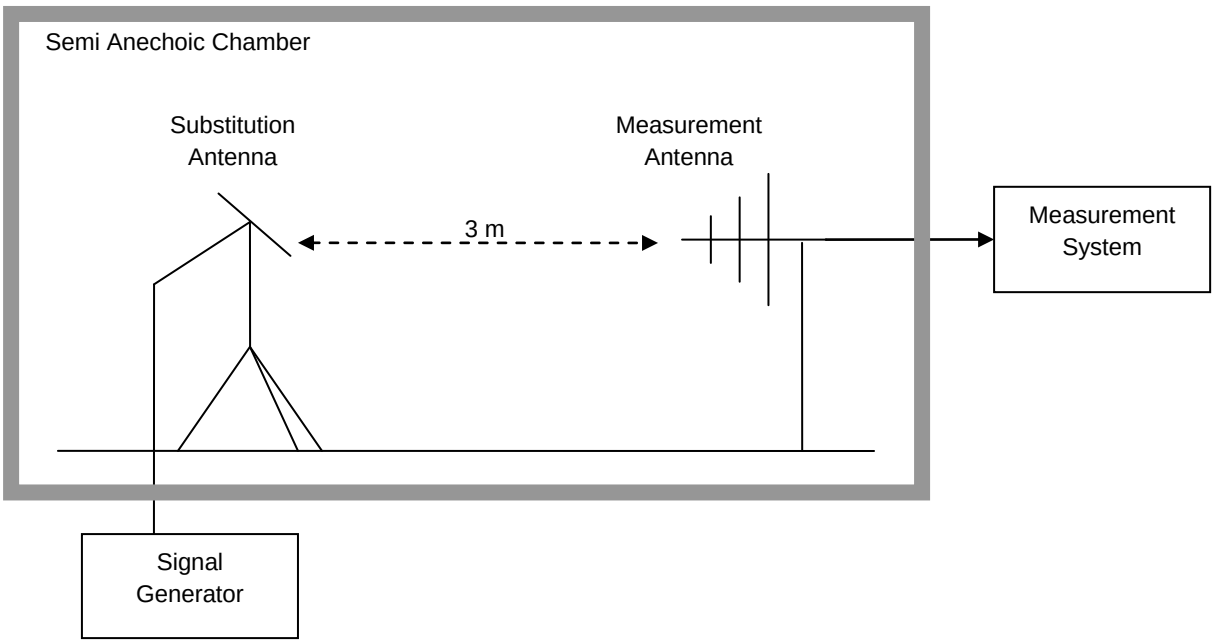
1. Connect the test system according to the following figure. EUT is running for 30 minutes before test, and measurement instruments are warming-up for 30 minutes.
2. Set up communication link between Universal radio communication tester and EUT, set EUT working frequency, and control EUT to transmit 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 1: Pre-test



Step 2: Substitution method to verify the maximum 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)	B, M, T
	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)	B, M, T
	Test Mode	TM1/TM2/TM3
Band Edges Compliance	Test Configuration	Ambient Temperature & Rated Voltage
	Test Setup	Test Setup 1
	Detector	RMS
	RF Channels (TX)	B, T
	Test Mode	TM1/TM2/TM3
Spurious Emission at Antenna Terminals	Test Configuration	Ambient Temperature & Rated Voltage
	Test Setup	Test Setup 1
	Detector	PK
	RF Channels (TX)	B, M,T
	Test Mode	TM1/TM2/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, VH and VN Voltage at Ambient Temperature.
	Test Setup	Test Setup 2
	RF Channels (TX)	M

Test Case	Test Conditions	
	Test Mode	TM1/TM2/TM3
Receiver Spurious Emissions	Test Configuration	Ambient Temperature & Rated Voltage
	Test Setup	Test Setup 3
	Detector	QP,PK, AV
	RF Channels (TX)	M
	Test Mode	TM1/TM2/TM3/TM4/TM5

6 Main Test Instruments

Table 4 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	117341	Jan., 12.2013
Universal Radio Communication Tester	Agilent	E5515C	MY50260239	Aug., 30,2013
Spectrum Analyzer	Agilent	E4440A	MY49420179	Jul., 17,2013
Signal Analyzer	Agilent	N9020A	MY52090652	Jul., 17,2013
Signal Analyzer	R&S	FSQ31	200021	Sept., 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

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	Field Strength of Spurious Radiation	Appendix F
7	Frequency Stability	Appendix G
8	Receiver Spurious Emissions	Appendix H
9	Photos of Test Setup	Appendix I

NOTE: The Appendix I only photos of test setup for Field Strength of Spurious Radiation and Receiver Spurious Emissions, no test data.

8 Measurement Uncertainty

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

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

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

Appendix A

Transmitter Output Power

According to FCC Part 2.1046 & Part24.232 & RSS-133

Conducted Power of Transmitter

		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		30.45	33	30.52	33	30.63	33
TM2		27.01	33	26.94	33	26.92	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		21.98	33	21.99	33	21.72	33
TM4	Case1	21.04	33	21.01	33	20.74	33
	Case2	20.92	33	20.77	33	20.75	33
	Case3	20.29	33	20.11	33	19.99	33
	Case4	20.13	33	20.14	33	20.01	33
TM5	Case1	20.29	33	20.16	33	19.82	33
	Case2	17.63	33	17.75	33	17.29	33
	Case3	19.67	33	19.31	33	19.35	33
	Case4	19.81	33	19.59	33	19.46	33
	Case5	20.86	33	19.93	33	20.32	33

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

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		2.98	13	3.11	13	3.05	13
TM2		2.88	13	2.96	13	3.01	13
TEST CONDITIONS		Channel9262(L)		Channel9400(M)		Channel9538(H)	
		1852.4MHz		1880.0MHz		1907.6MHz	
		dB		dB		dB	
T_{nom} / V_{nom}		Measured	Limit	Measured	Limit	Measured	Limit
TM3		3.35	13	3.40	13	3.37	13
TM4	Case1	3.26	13	3.29	13	3.28	13
	Case2	3.31	13	3.28	13	3.24	13
	Case3	3.26	13	3.21	13	3.22	13
	Case4	3.36	13	3.34	13	3.33	13
TM5	Case1	3.15	13	3.13	13	3.15	13
	Case2	3.25	13	3.24	13	3.24	13
	Case3	3.18	13	3.15	13	3.13	13
	Case4	3.31	13	3.32	13	3.31	13
	Case5	3.34	13	3.33	13	3.35	13

Effective Isotropic Radiated Power of Transmitter (EIRP)

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	31.95	Horn Ant.	28.25	4.5	1	31.75	33	Pass
TM1	1880.0	32.02	Horn Ant.	28.32	4.5	1	31.82	33	Pass
TM1	1909.8	32.13	Horn Ant.	28.13	4.8	1	31.93	33	Pass
TM2	1850.2	28.51	Horn Ant.	24.81	4.5	1	28.31	33	Pass
TM2	1880.0	28.44	Horn Ant.	24.74	4.5	1	28.24	33	Pass
TM2	1909.8	28.42	Horn Ant.	24.42	4.8	1	28.22	33	Pass
TM3	1852.4	23.48	Horn Ant.	20.14	4.5	1	23.64	33	Pass
TM3	1880.0	23.49	Horn Ant.	20.01	4.5	1	23.51	33	Pass
TM3	1907.6	23.22	Horn Ant.	19.22	4.8	1	23.02	33	Pass

Note1: a, For getting the EIRP (Efficient Isotropic Radiated Power) in substitution method, the following formula should take to calculate it,

EIRP [dBm] = SGP [dBm] – Cable Loss [dB] + Gain [dBi]

b, SGP=Signal Generator Level

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

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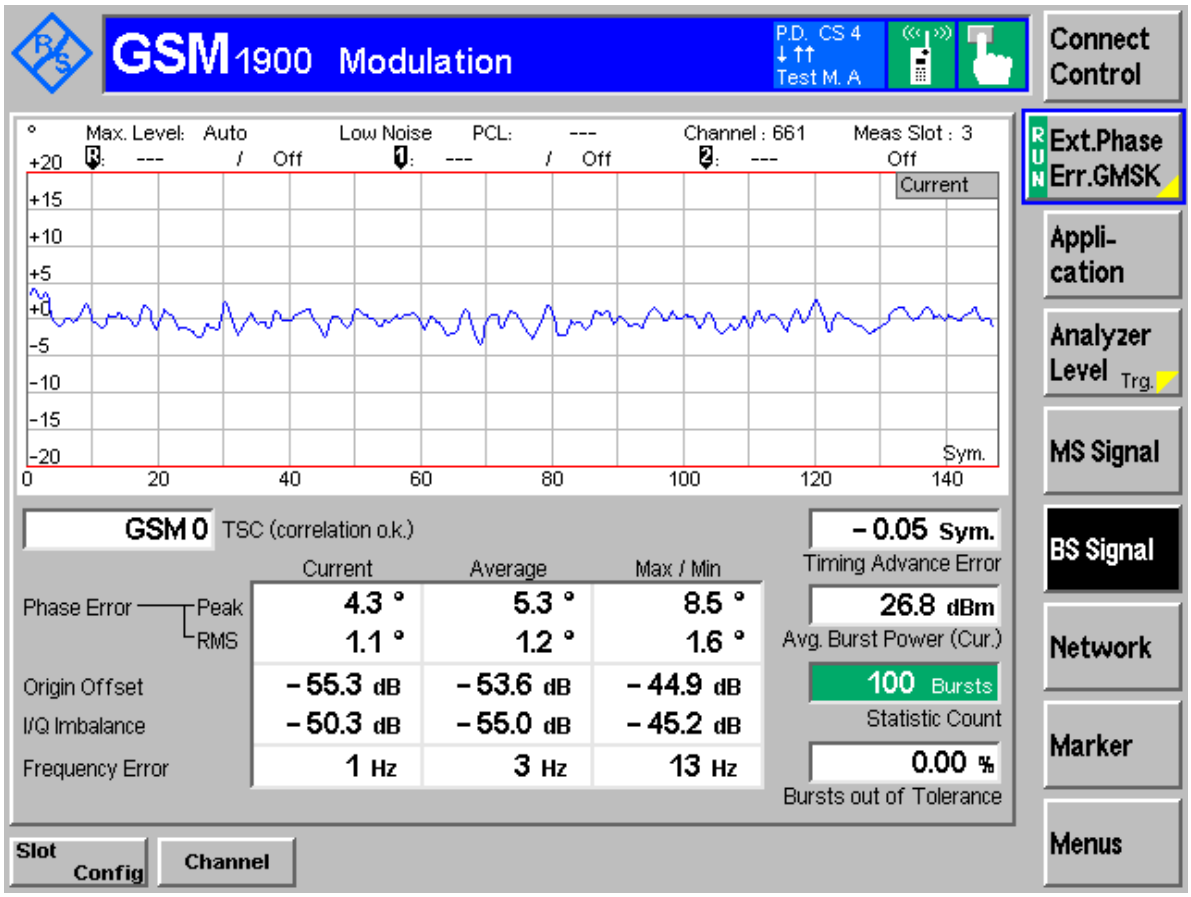
Appendix B

Modulation Characteristics

According to FCC Part 2.1047 & RSS-133

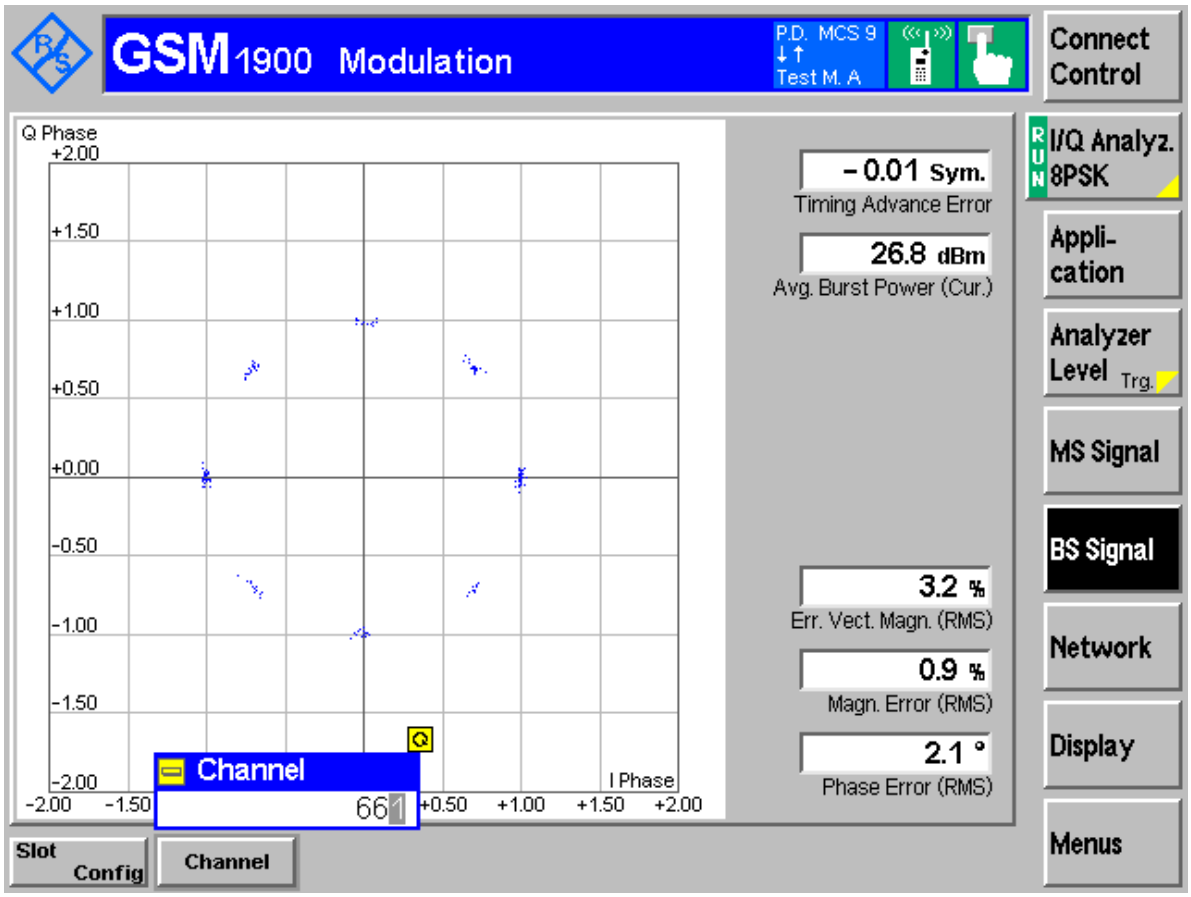
TM1:GPRS/GSM

Channel 661



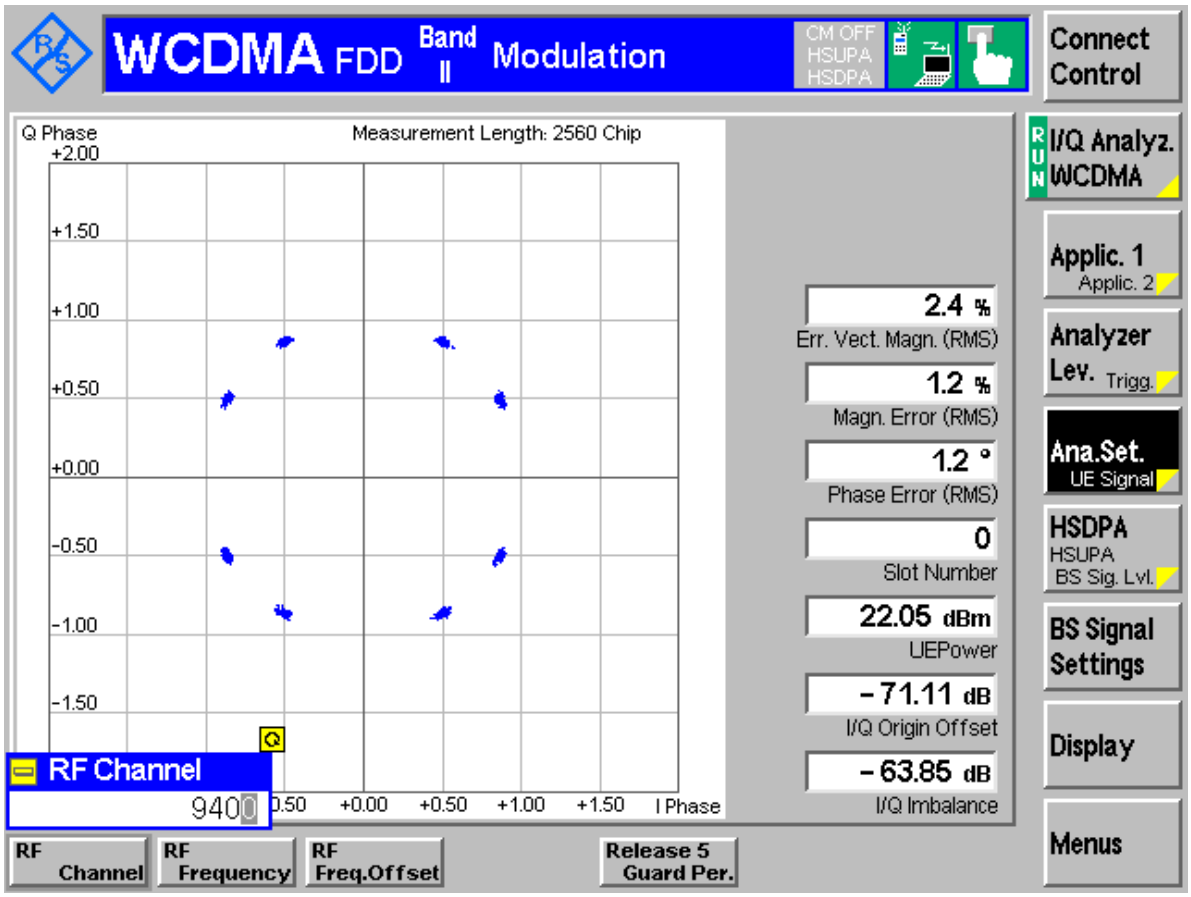
TM2:EDGE

Channel 661



TM3: WCDMA

Channel 9400



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Appendix C

Occupied Bandwidth

According to FCC Part 2.1049 & RSS-133

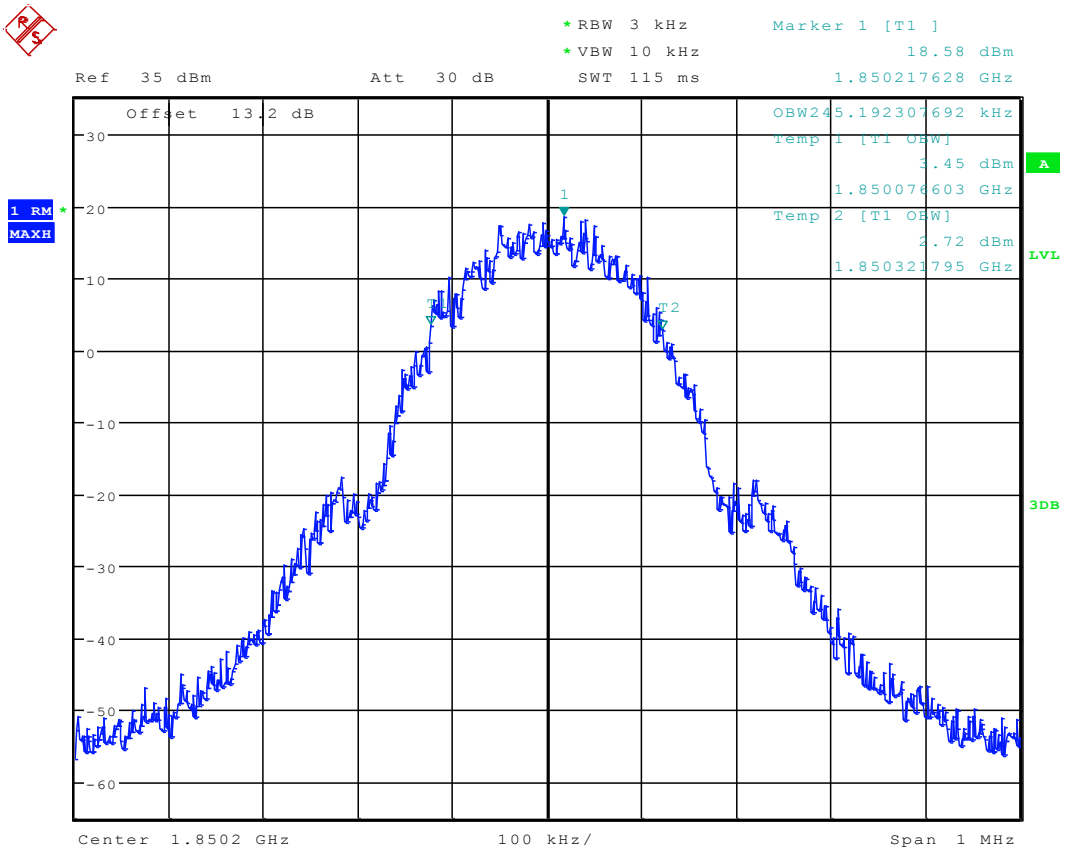
Result Table

Table 1 Measurement Results

Test Mode	RF Channel	Occupied Bandwidth [kHz]	Verdict
TM1	512	245.20	Pass
	661	243.59	Pass
	810	246.80	Pass
TM2	512	237.18	Pass
	661	250.00	Pass
	810	246.20	Pass
Test Mode	RF Channel	Occupied Bandwidth [MHz]	Verdict
TM3	9262	4.17	Pass
	9400	4.19	Pass
	9538	4.17	Pass

TM1:GPRS/GSM

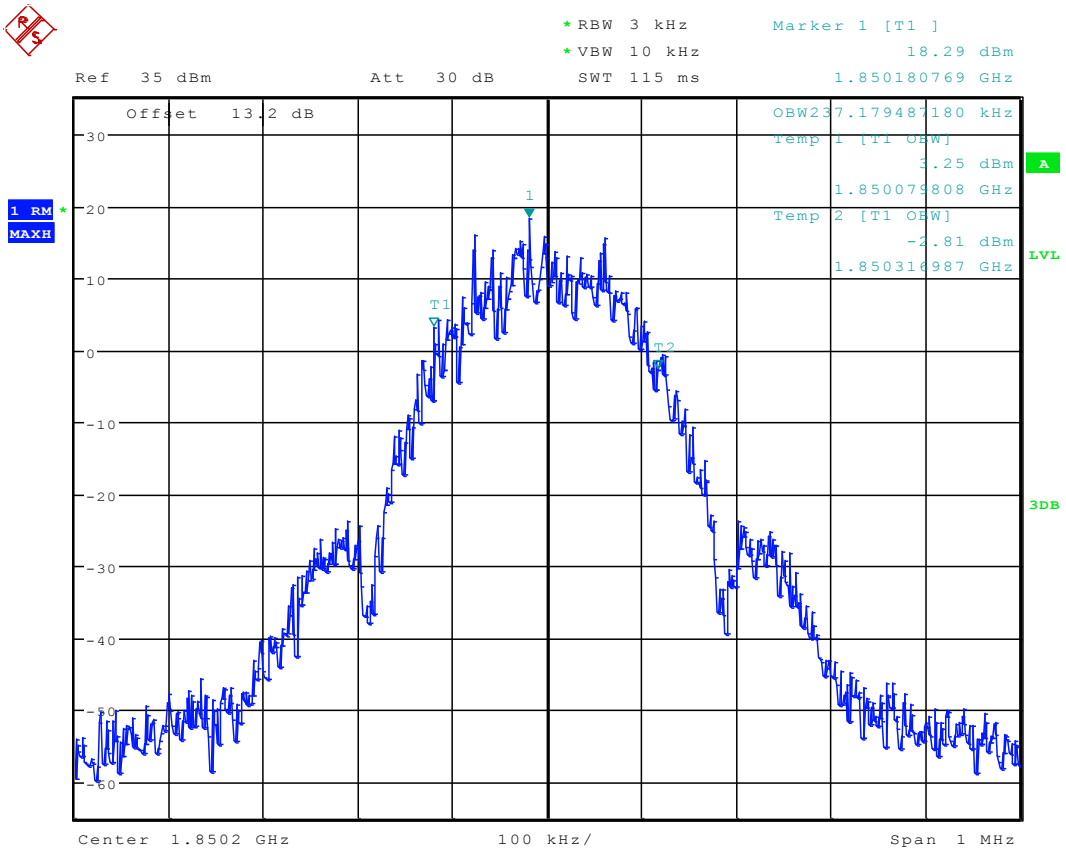
Channel 512



Date: 18.SEP.2012 15:55:30

TM2:EDGE

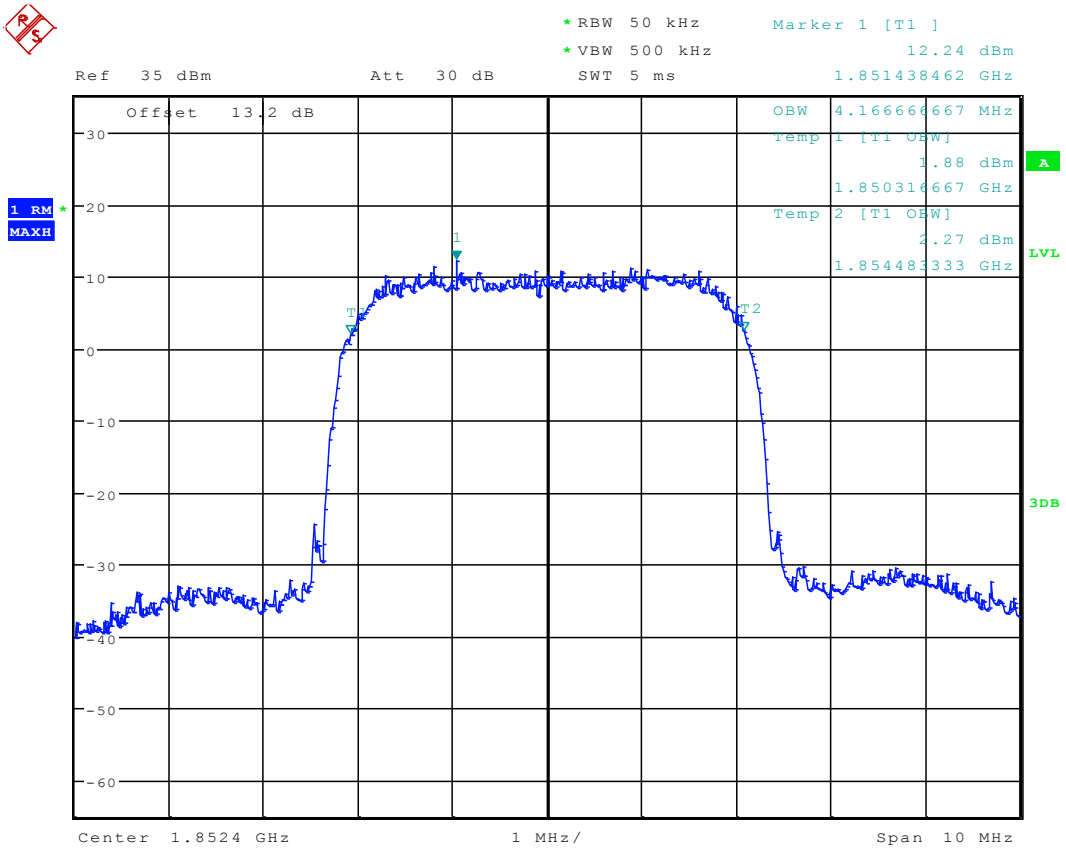
Channel 512



Date: 18.SEP.2012 16:00:57

TM3: WCDMA

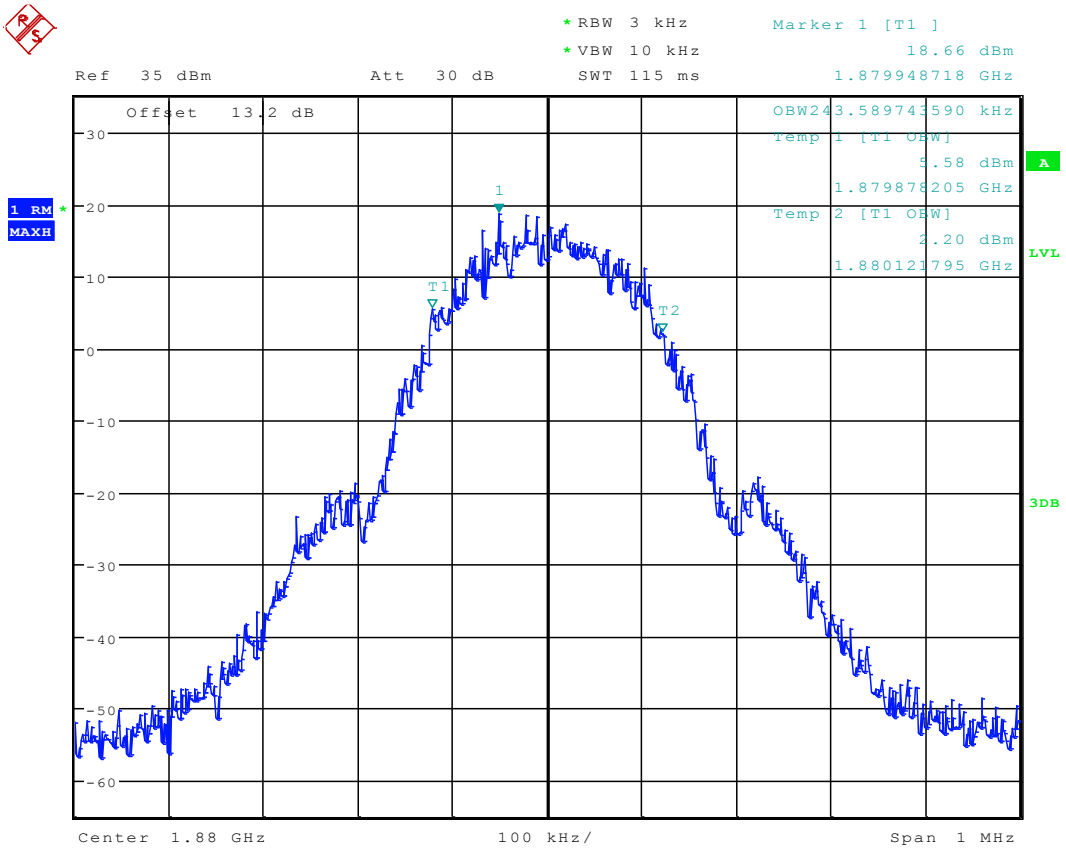
Channel 9262



Date: 18.SEP.2012 16:03:07

TM1:GPRS/GSM

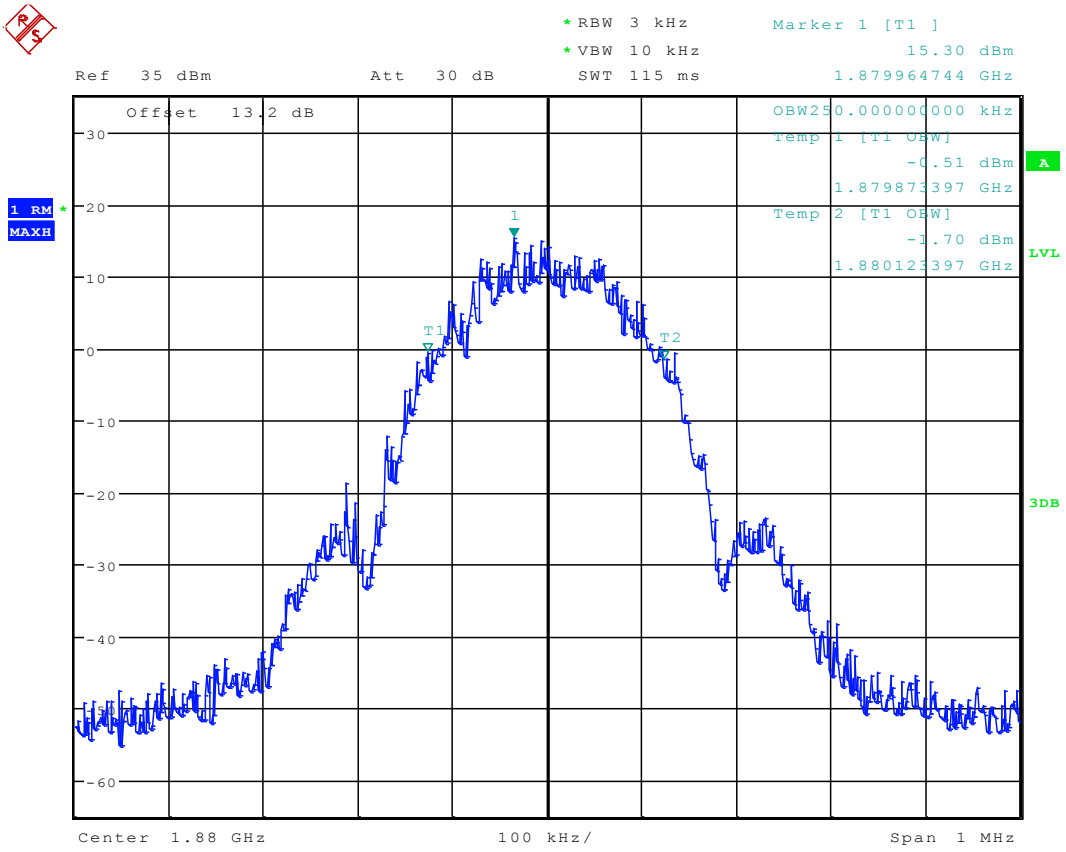
Channel 661



Date: 18.SEP.2012 15:55:43

TM2:EDGE

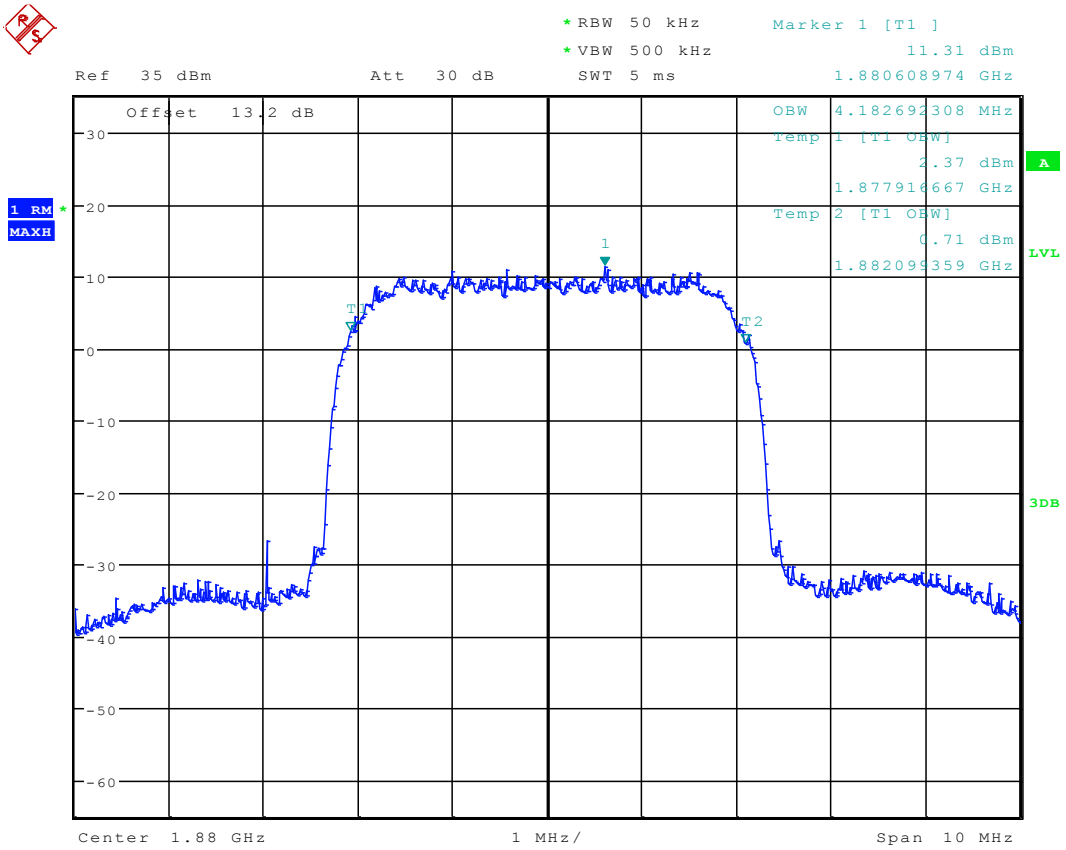
Channel 661



Date: 18.SEP.2012 16:01:10

TM3: WCDMA

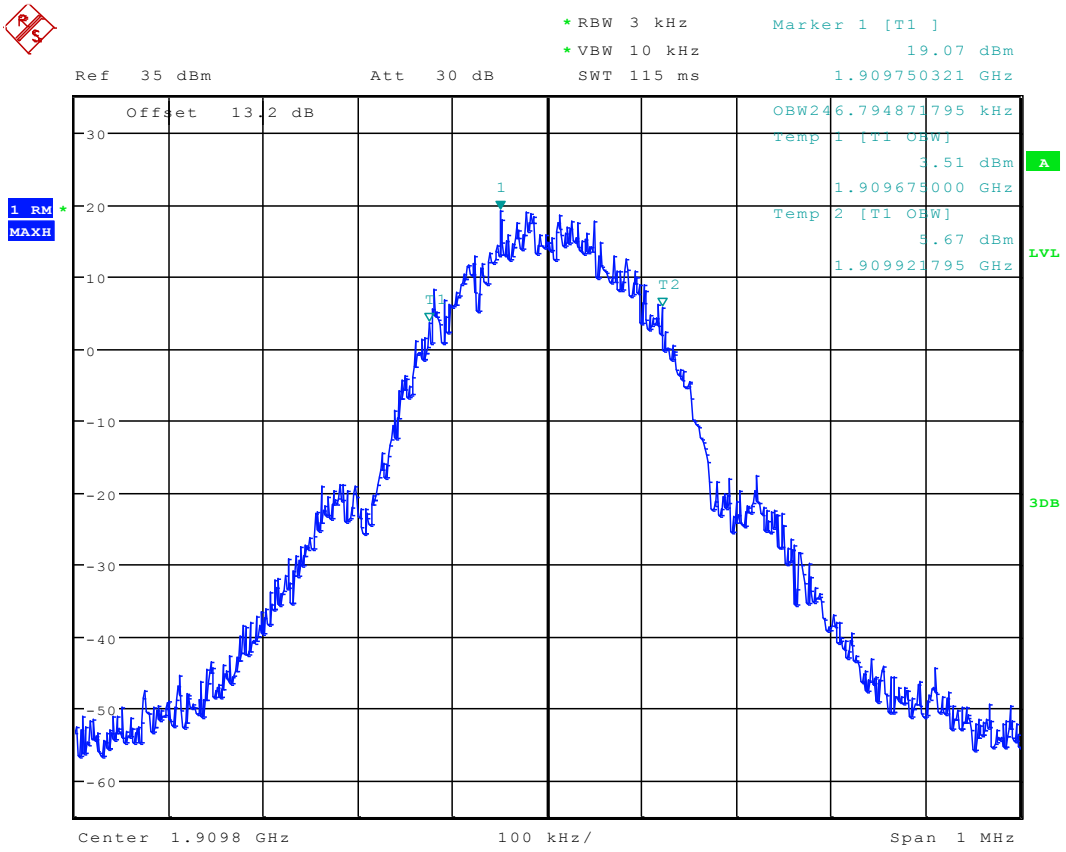
Channel 9400



Date: 18.SEP.2012 16:03:21

TM1: GPRS/GSM

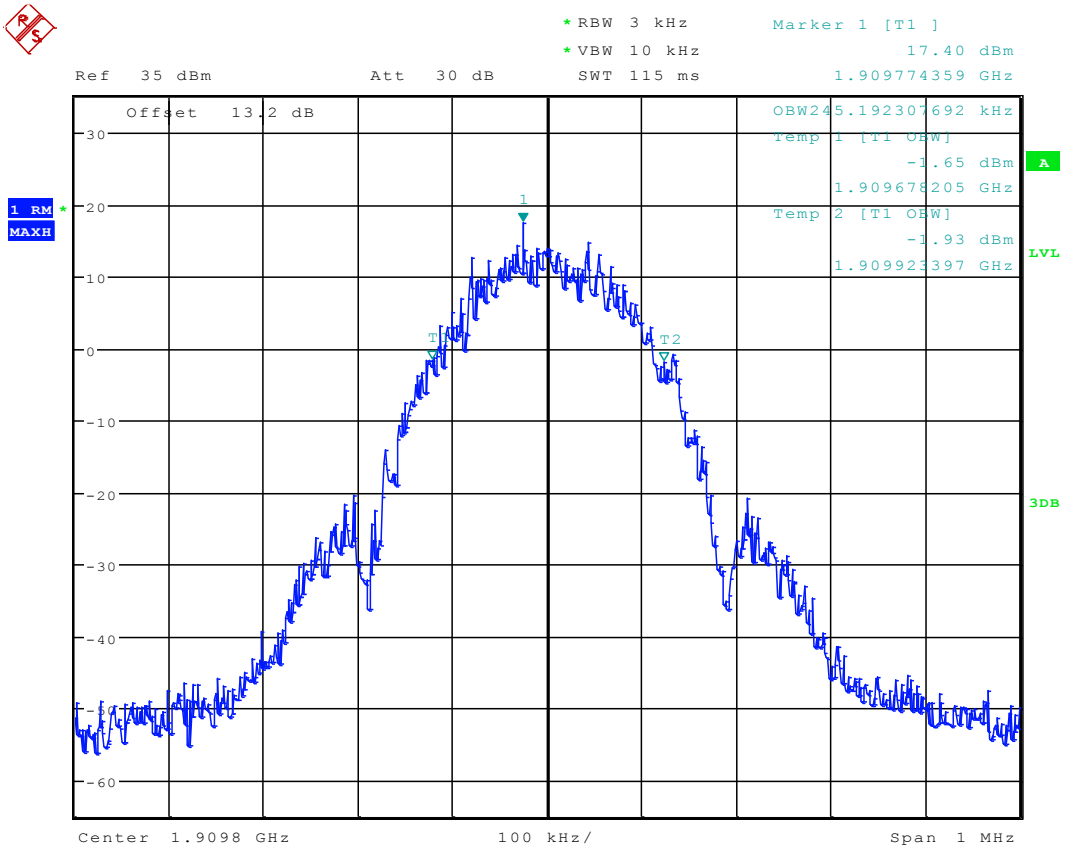
Channel 810



Date: 18.SEP.2012 15:55:57

TM2:EDGE

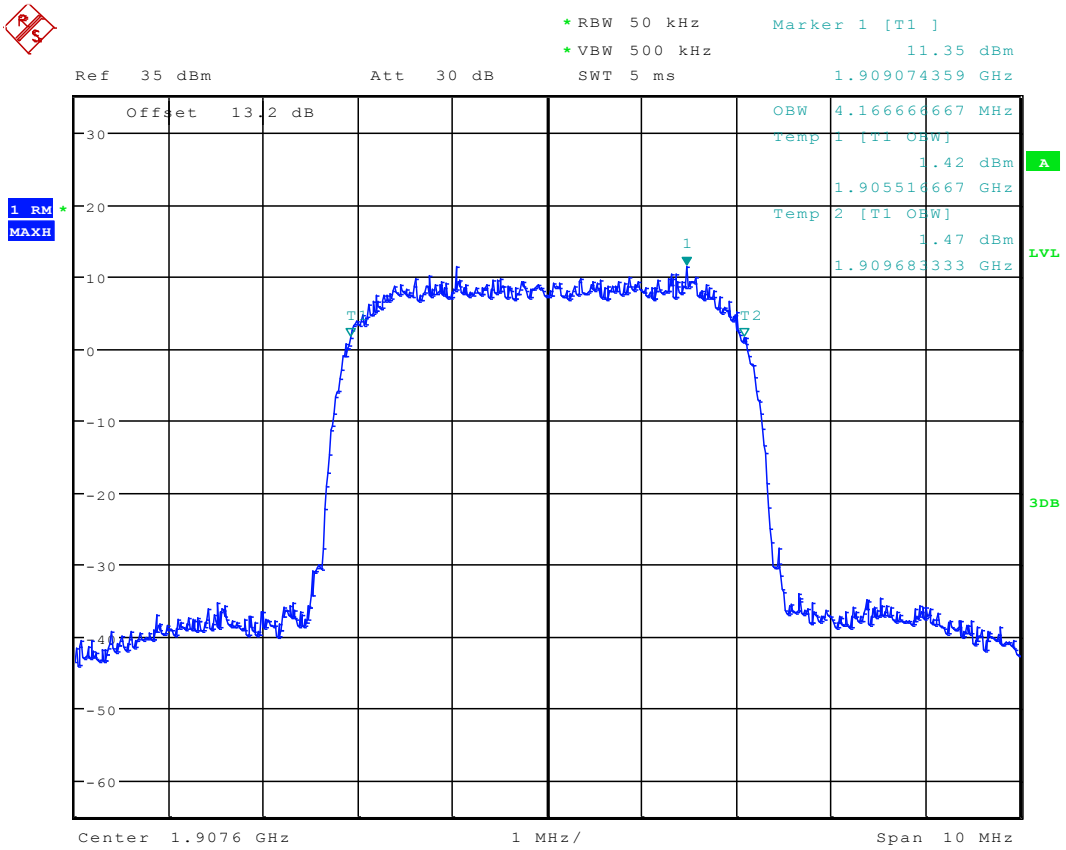
Channel 810



Date: 18.SEP.2012 16:01:24

TM3: WCDMA

Channel 9538



Date: 18.SEP.2012 16:03:34

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

Appendix D

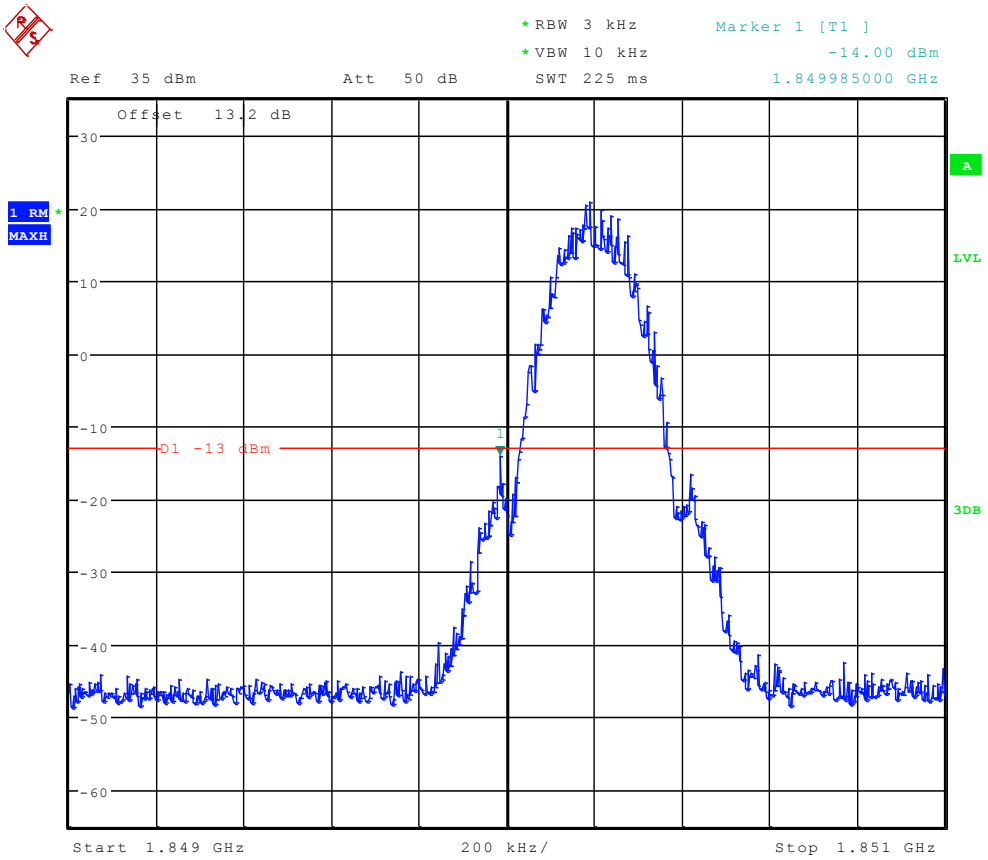
Band Edges Compliance

According to FCC Part 2.1051 & Part24.238 & RSS-133

TM1:GPRS/GSM

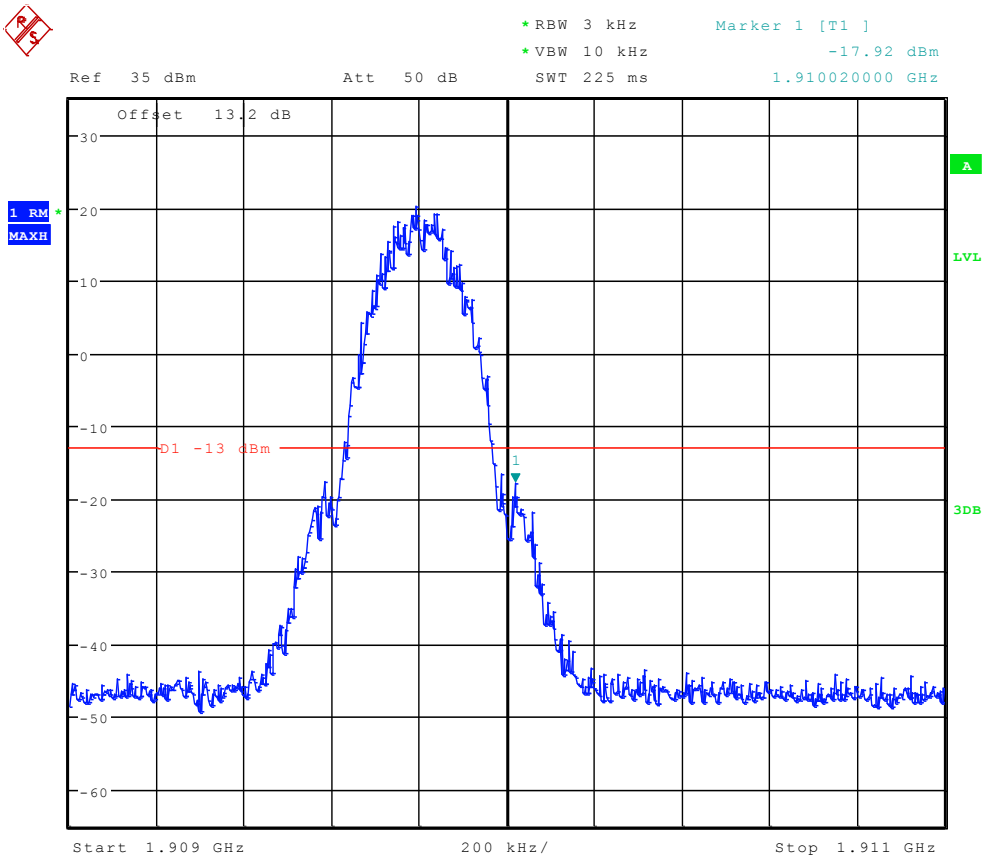
Left Edge

Channel 512



Date: 11.AUG.2012 17:11:30

Right Edge
Channel 810

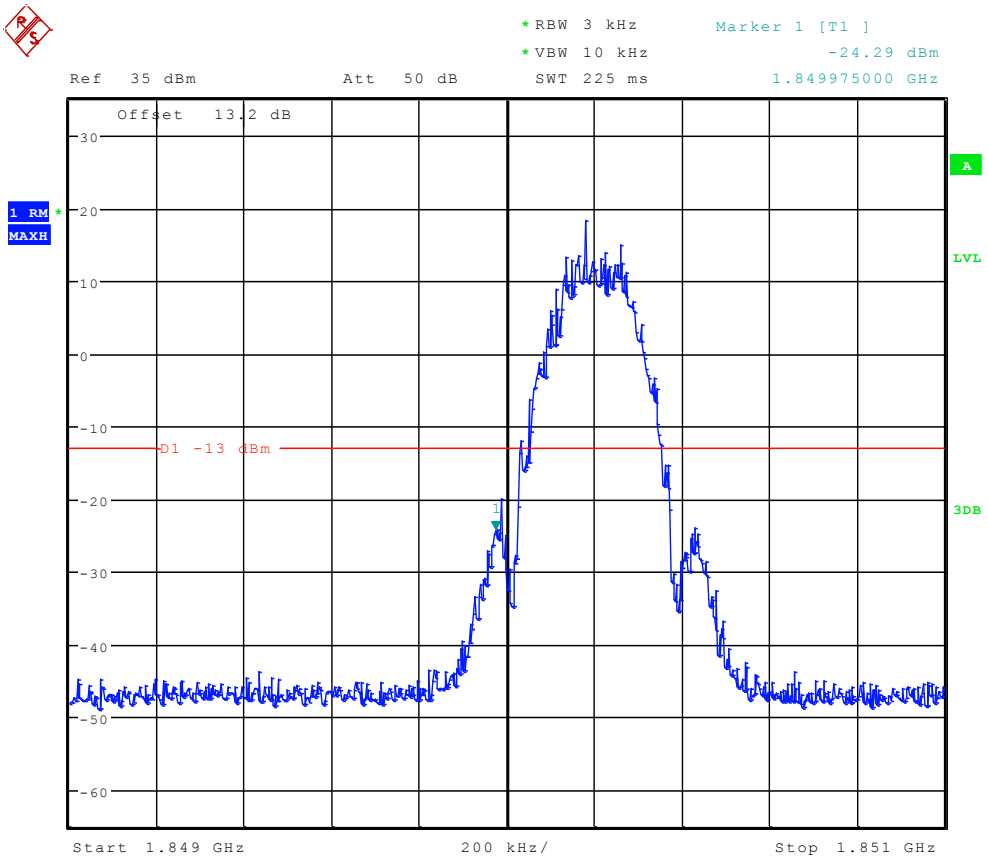


Date: 11.AUG.2012 17:11:52

TM2:EDGE

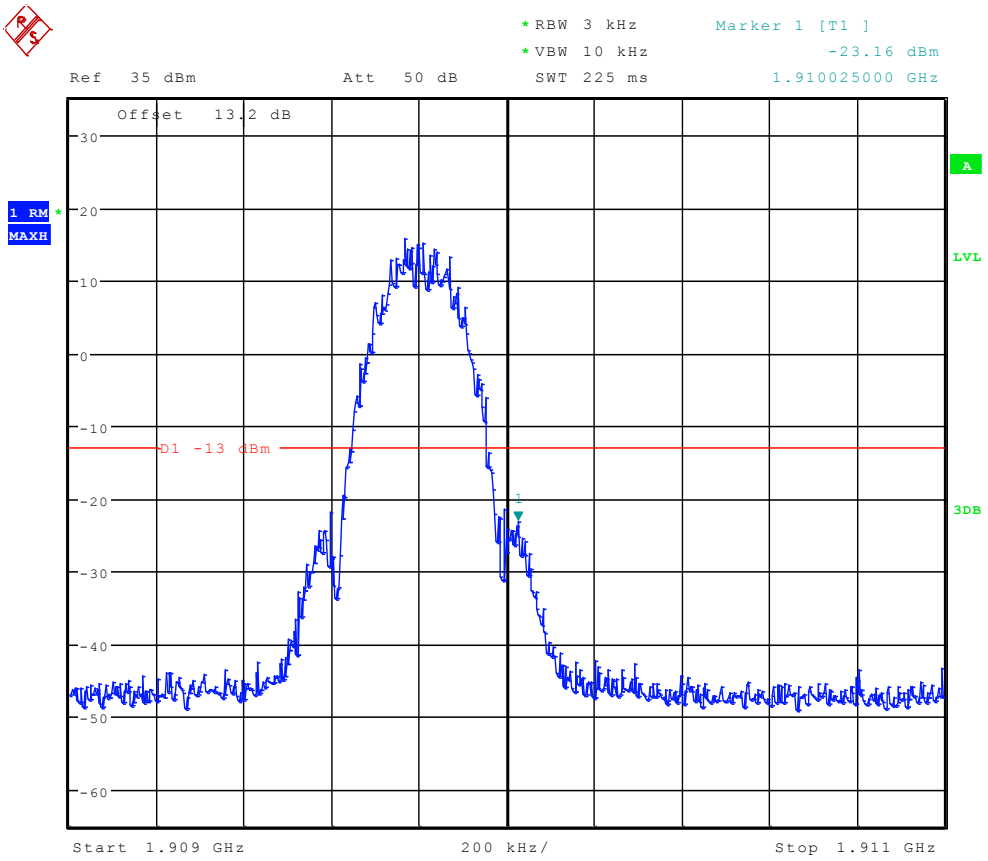
Left Edge

Channel 512



Date: 11.AUG.2012 16:59:28

Right Edge
Channel 810

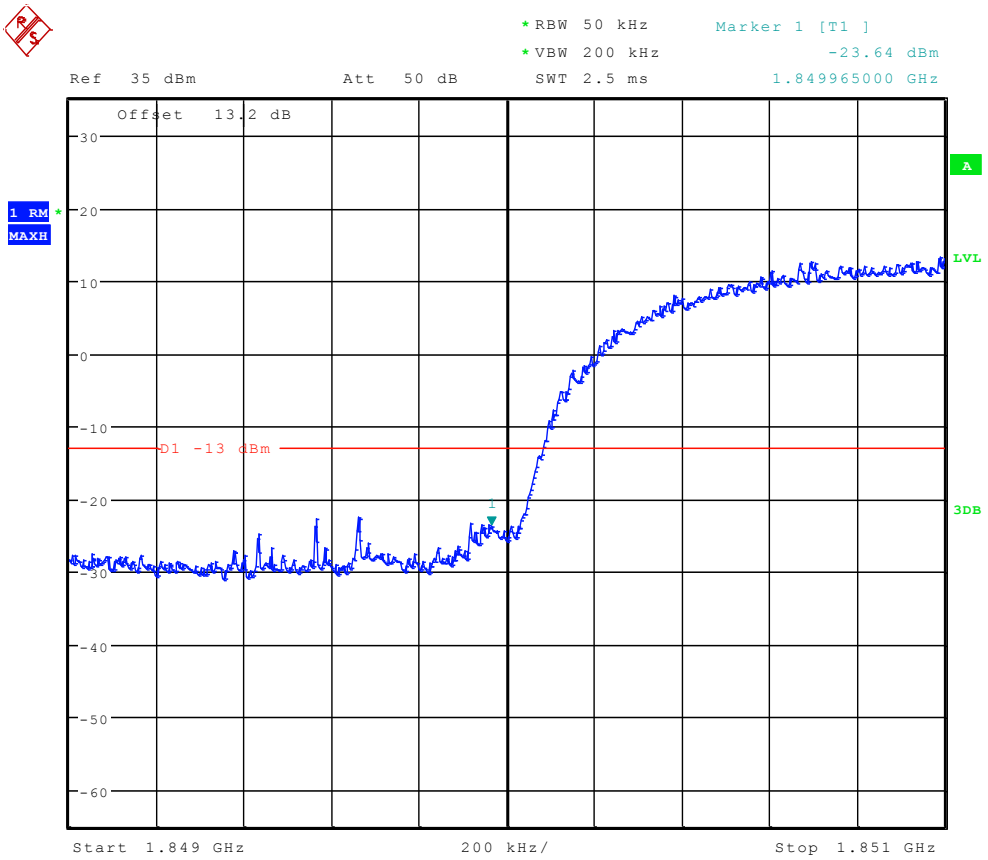


Date: 11.AUG.2012 16:59:50

TM3: WCDMA

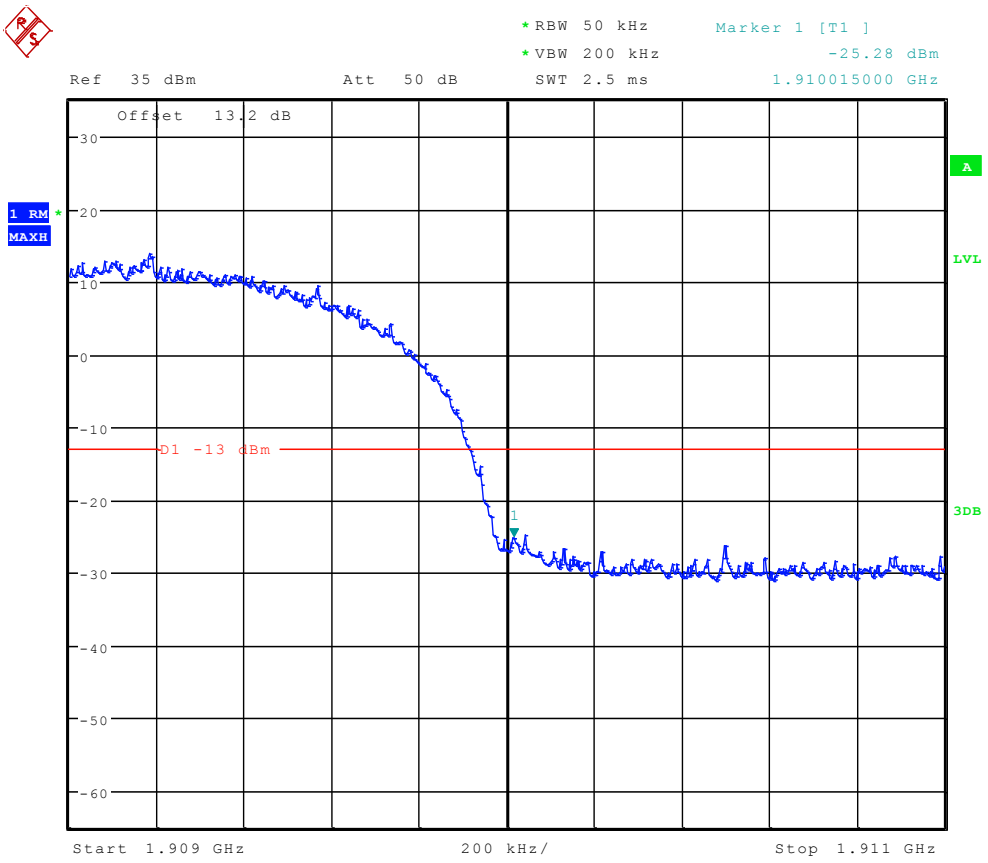
Left Edge

Channel 9262



Date: 11.AUG.2012 17:05:43

Right Edge
Channel 9538



Date: 11.AUG.2012 17:05:56

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

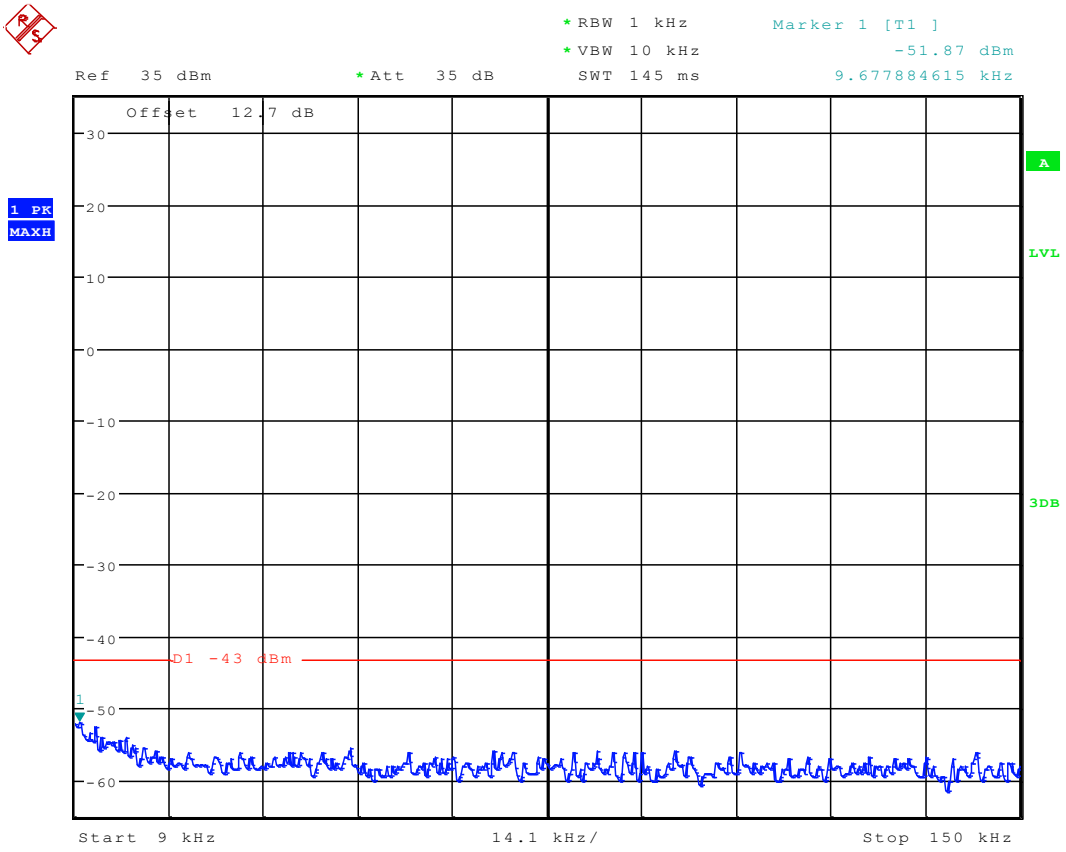
Appendix E

Spurious Emission at Antenna Terminal

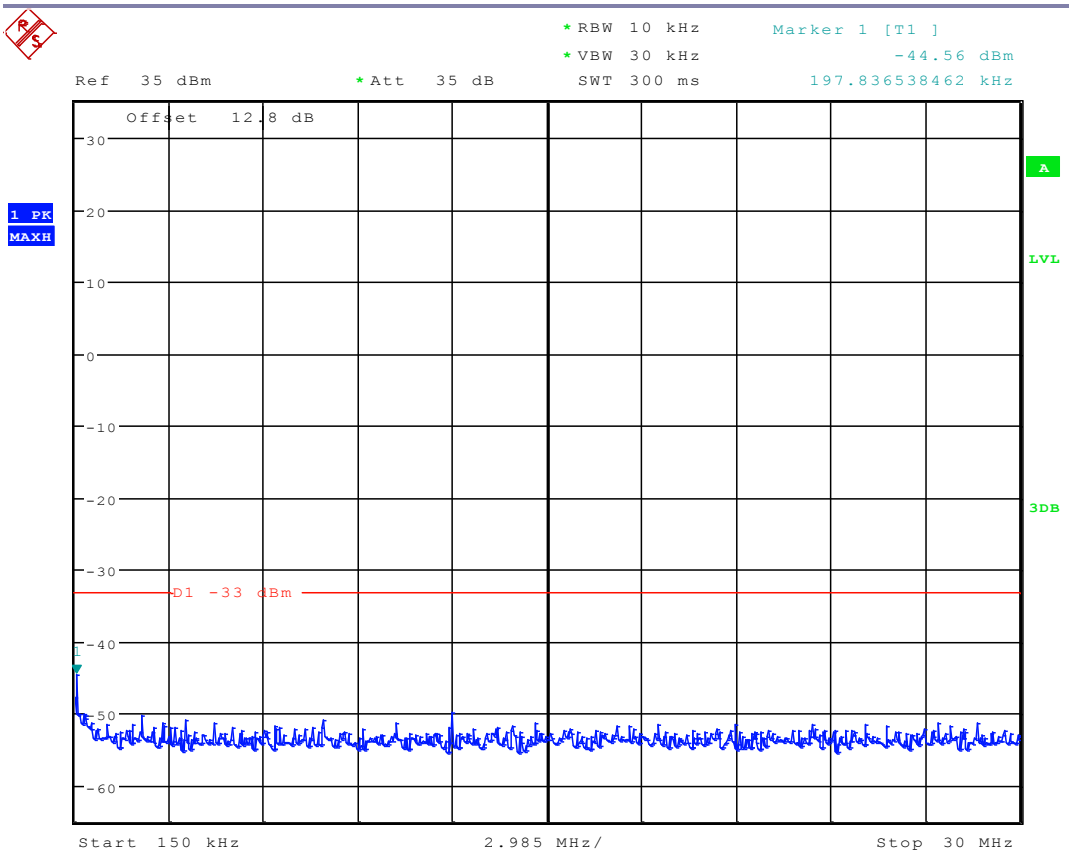
According to FCC Part 2.1051 & Part24.238 & RSS-133

TM1:GPRS/GSM

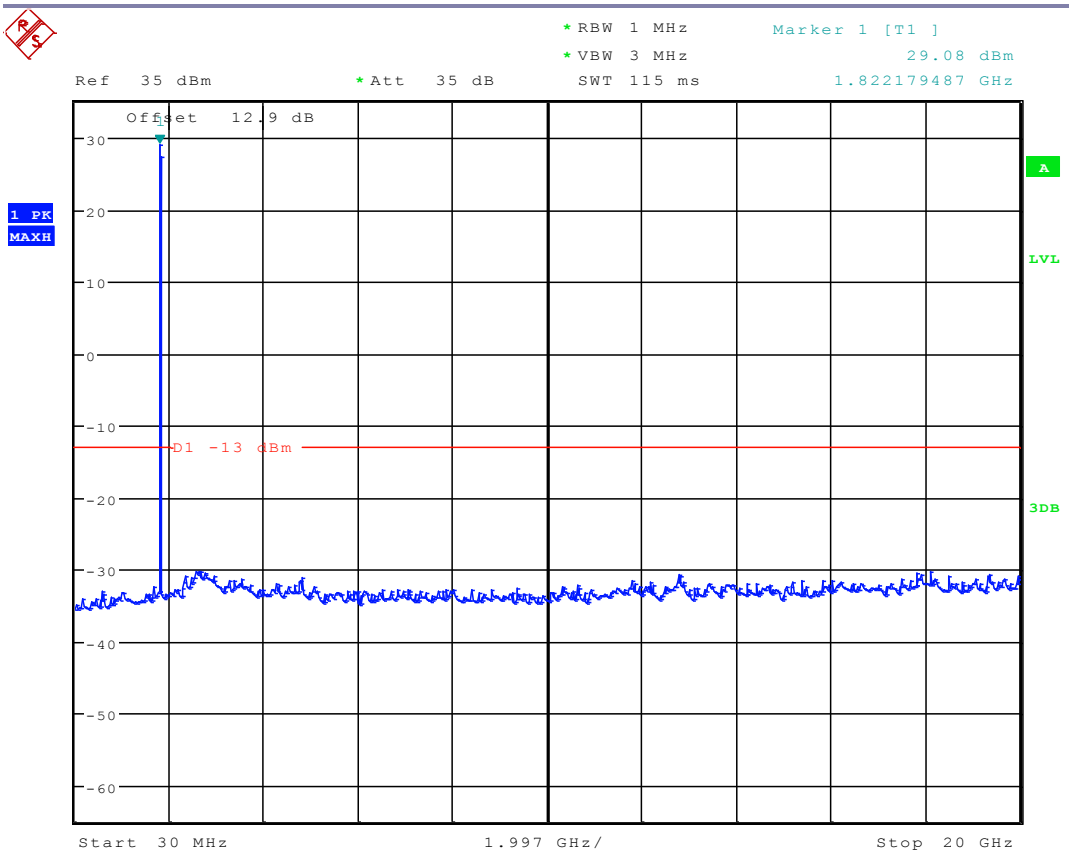
Channel 512



Date: 17.SEP.2012 10:14:09

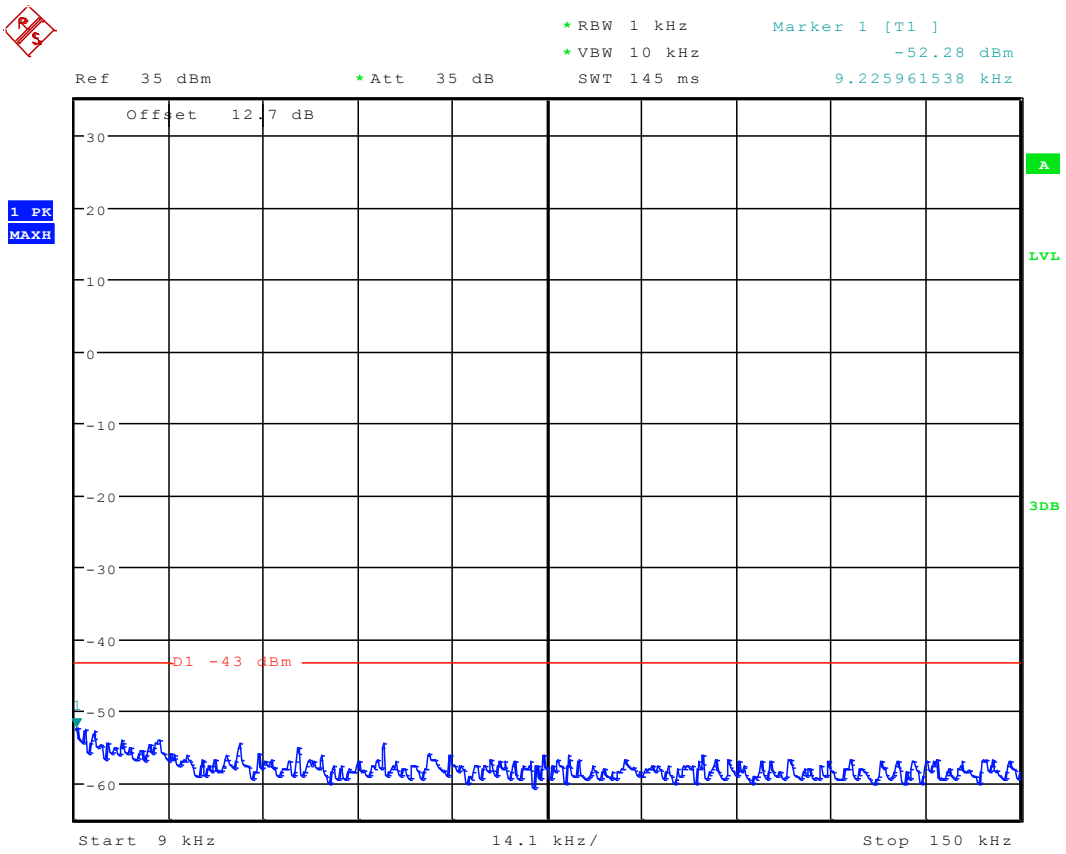


Date: 17.SEP.2012 10:14:53

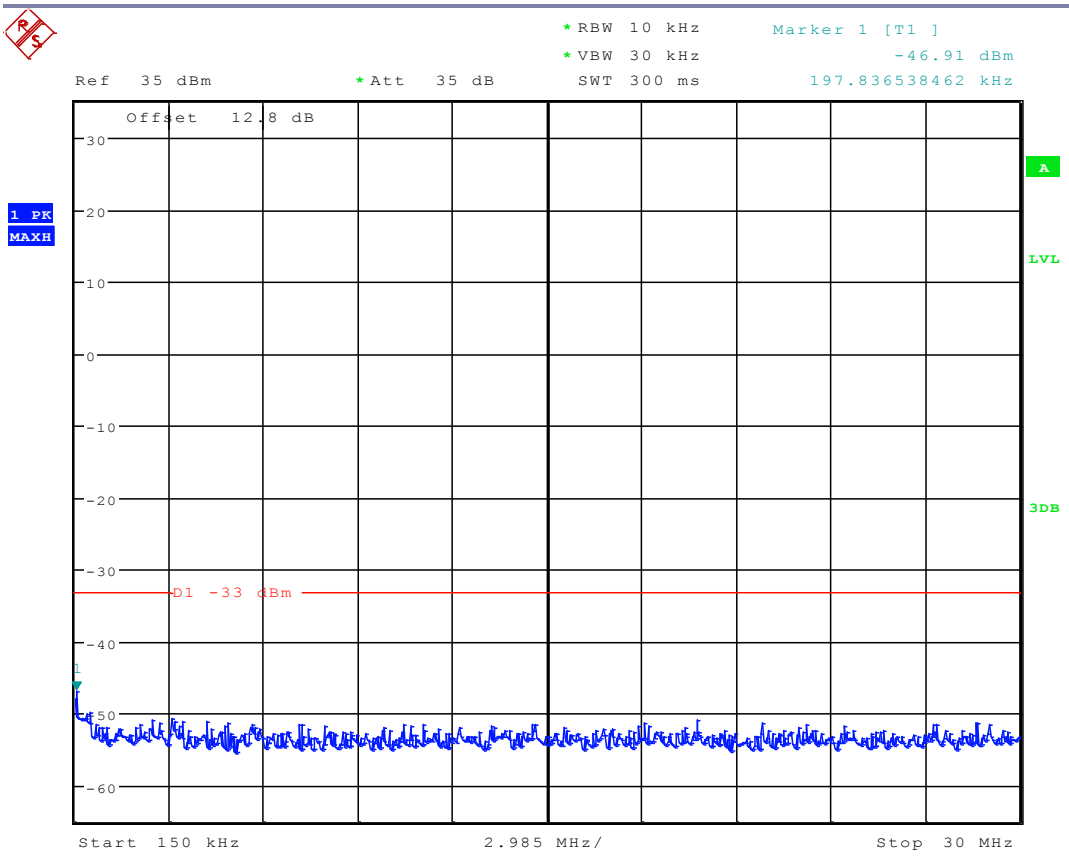


Date: 17.SEP.2012 10:15:38

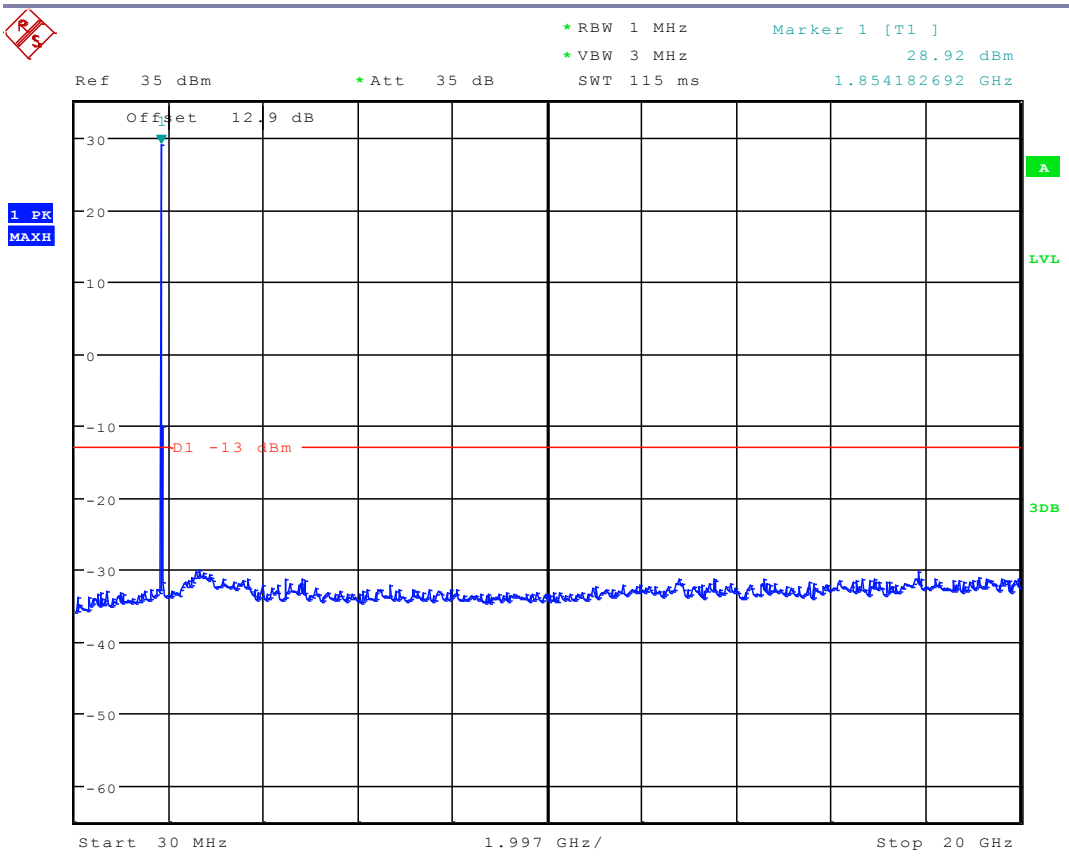
Channel 661



Date: 17.SEP.2012 10:14:24

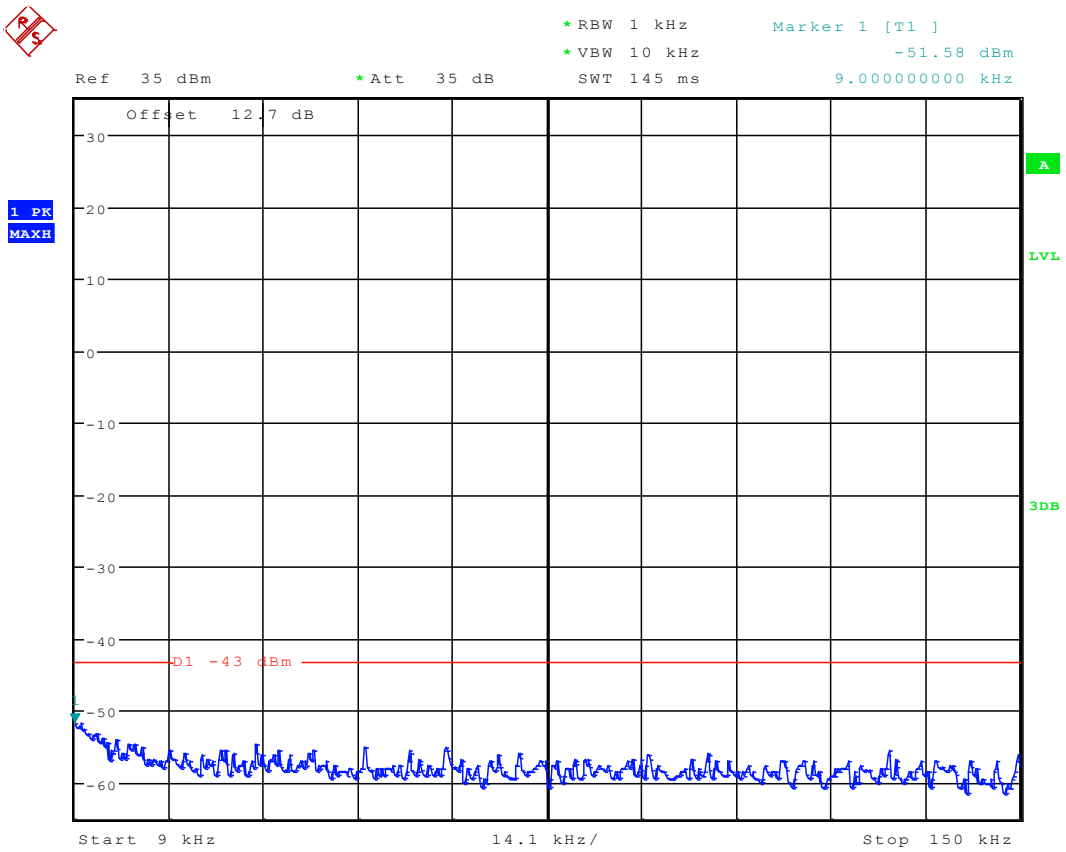


Date: 17.SEP.2012 10:15:08



Date: 17.SEP.2012 10:15:52

Channel 810



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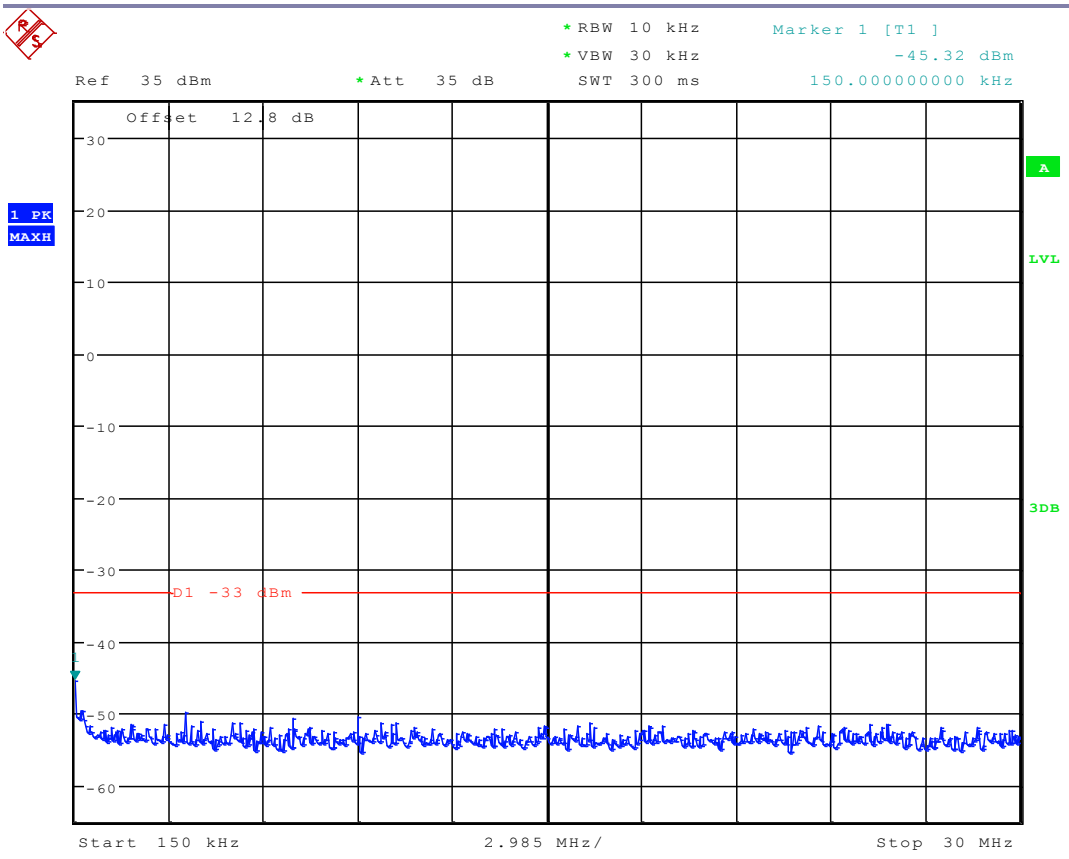
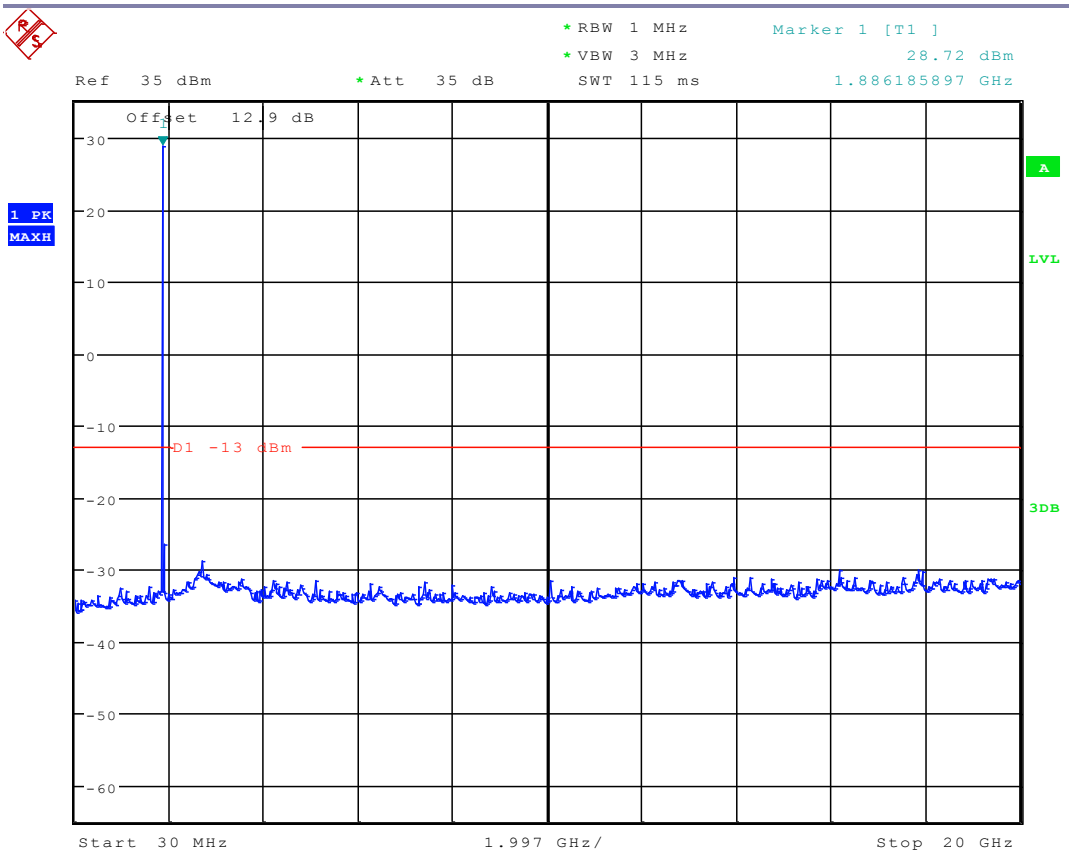


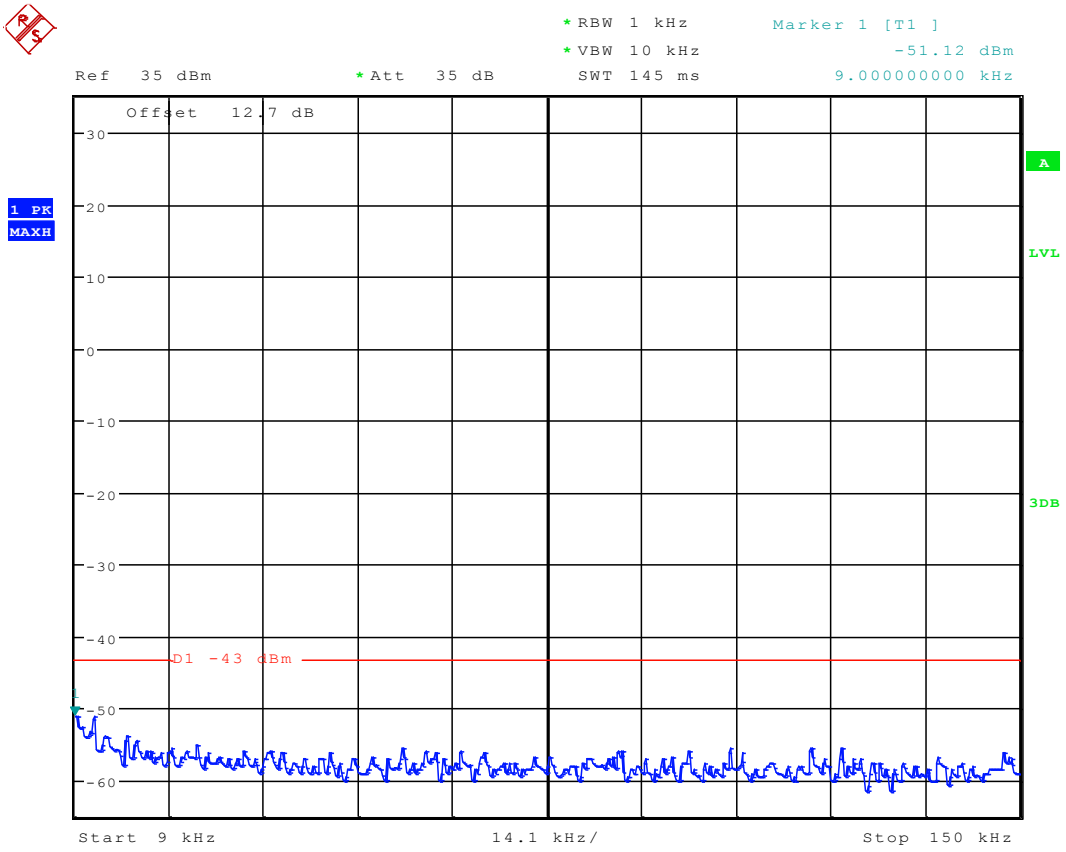
Date: 17.SEP.2012 10:15:22



Date: 17.SEP.2012 10:16:07

TM2:EDGE

Channel 512



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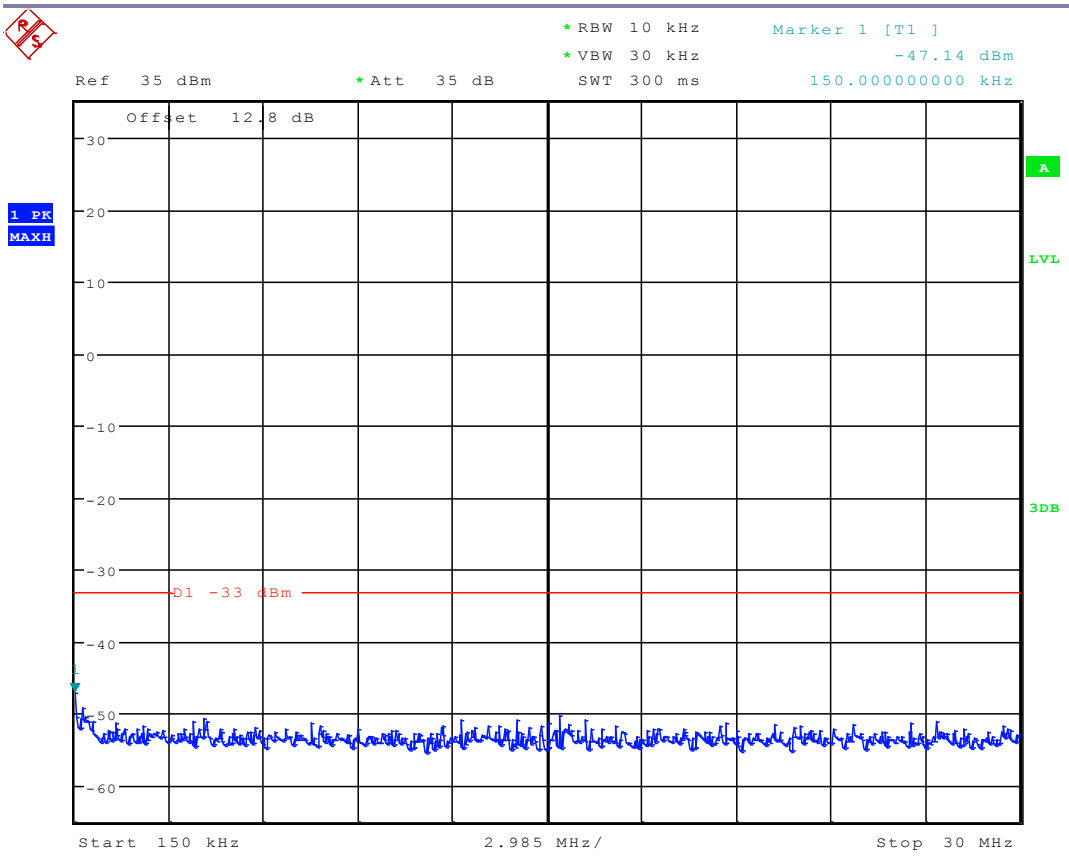
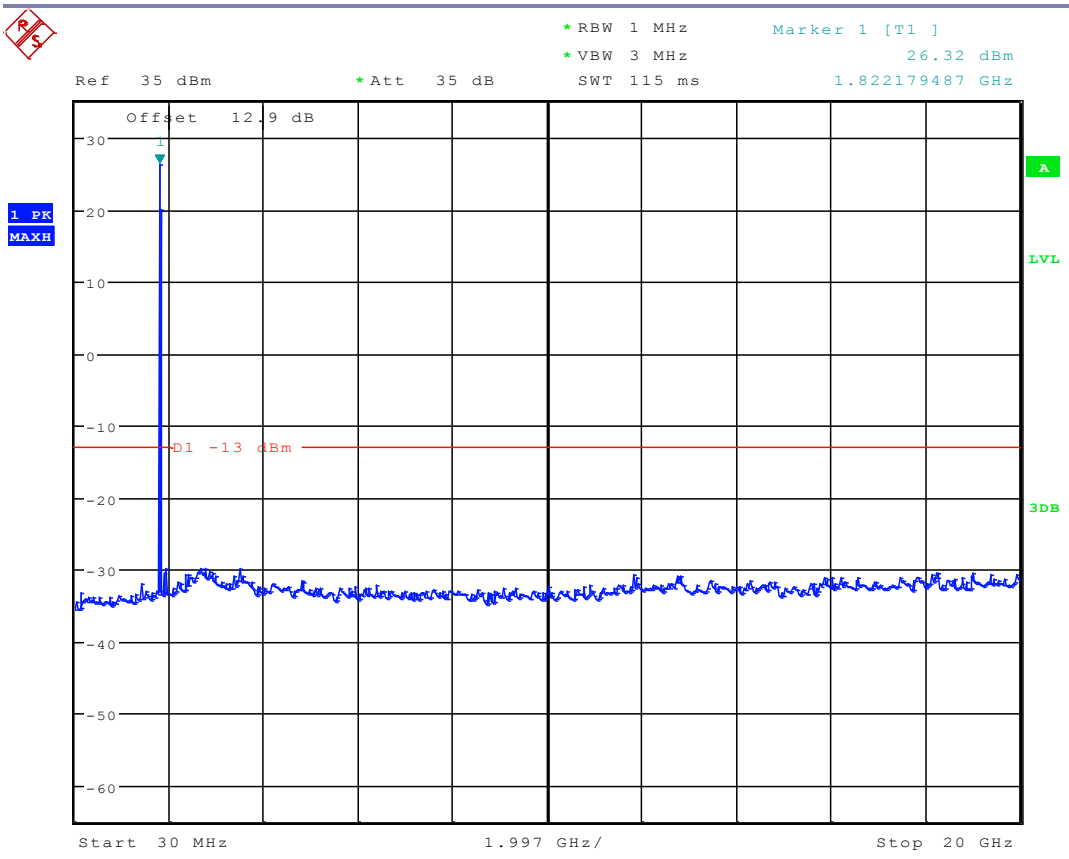
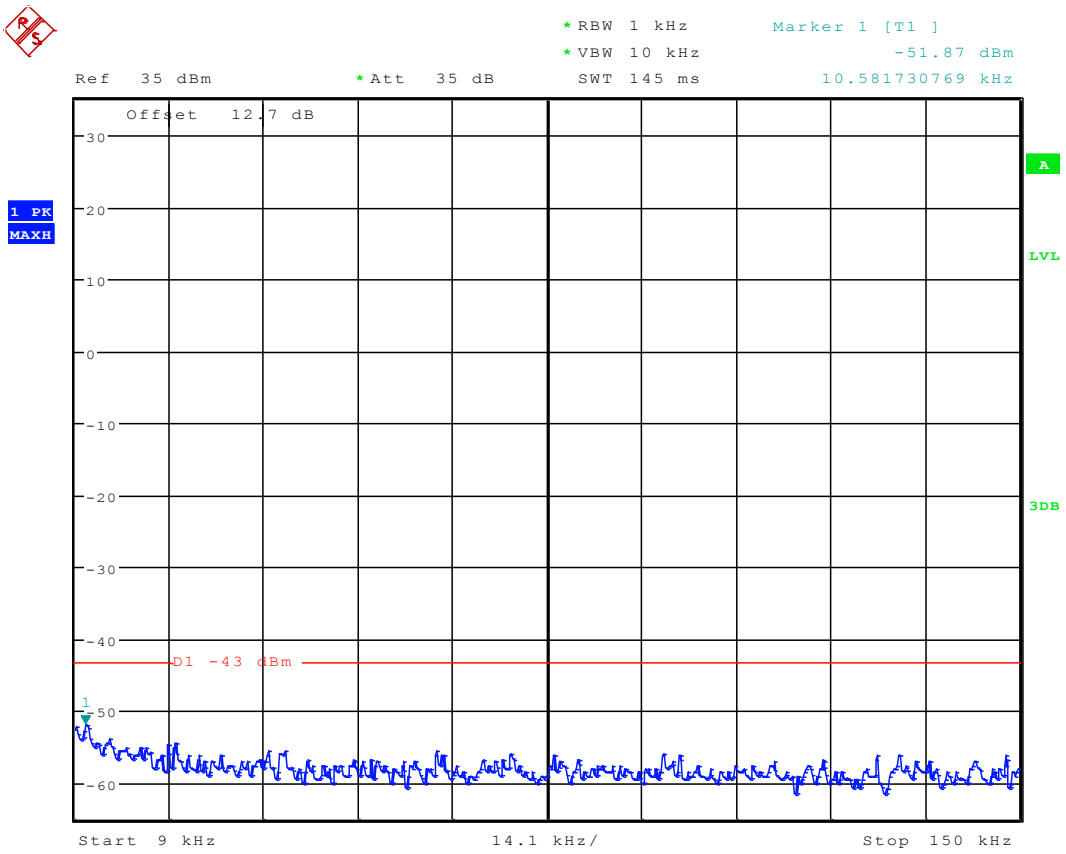


Date: 17.SEP.2012 10:23:02

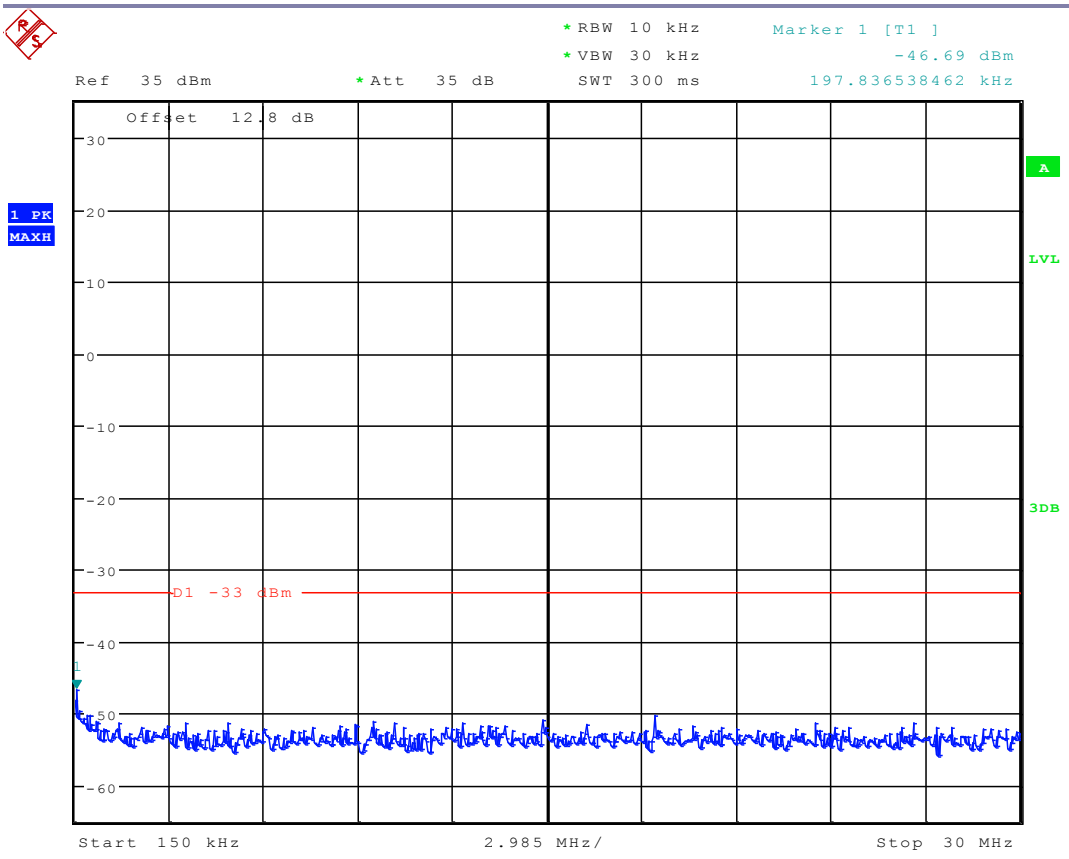


Date: 17.SEP.2012 10:23:56

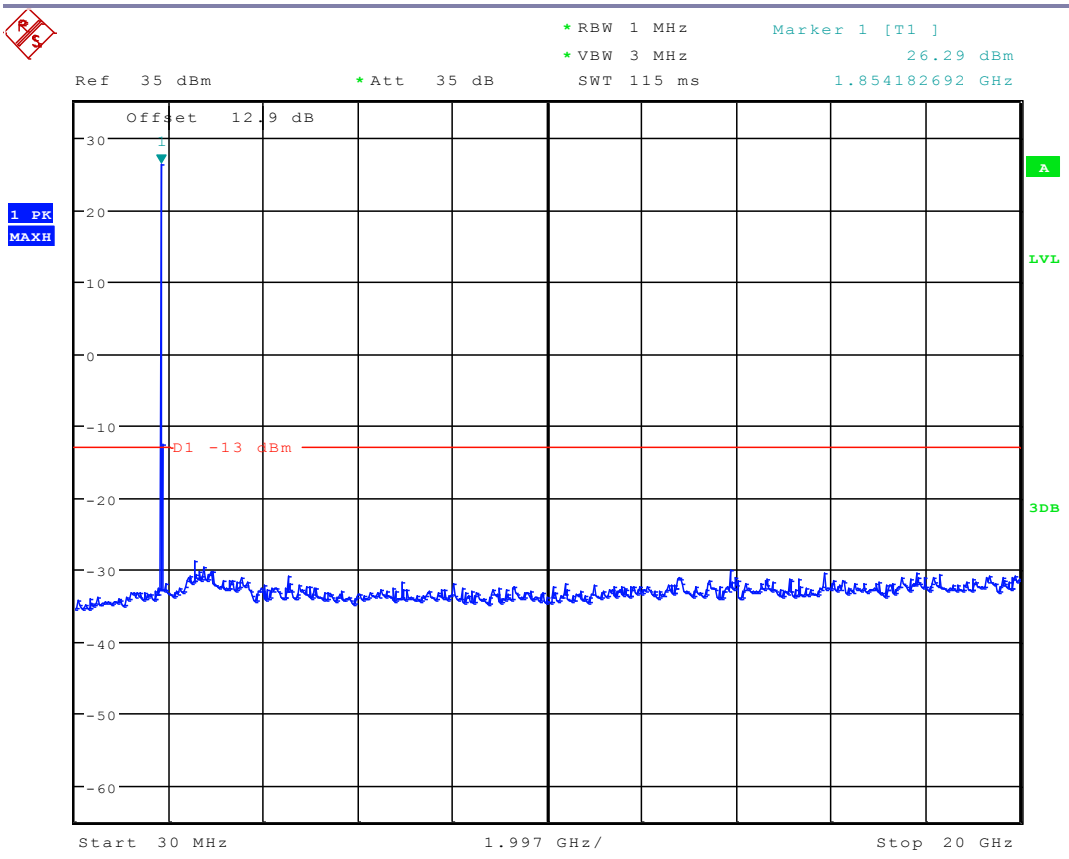
Channel 661



Date: 17.SEP.2012 10:22:32

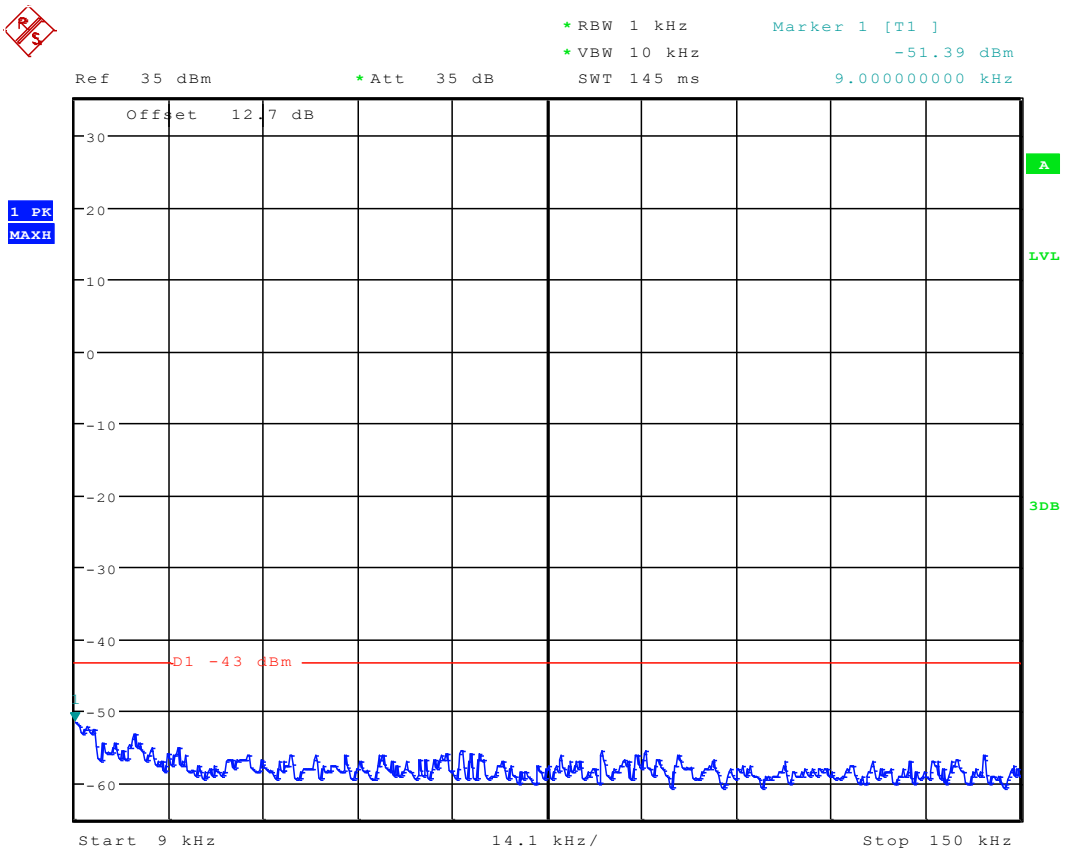


Date: 17.SEP.2012 10:23:16

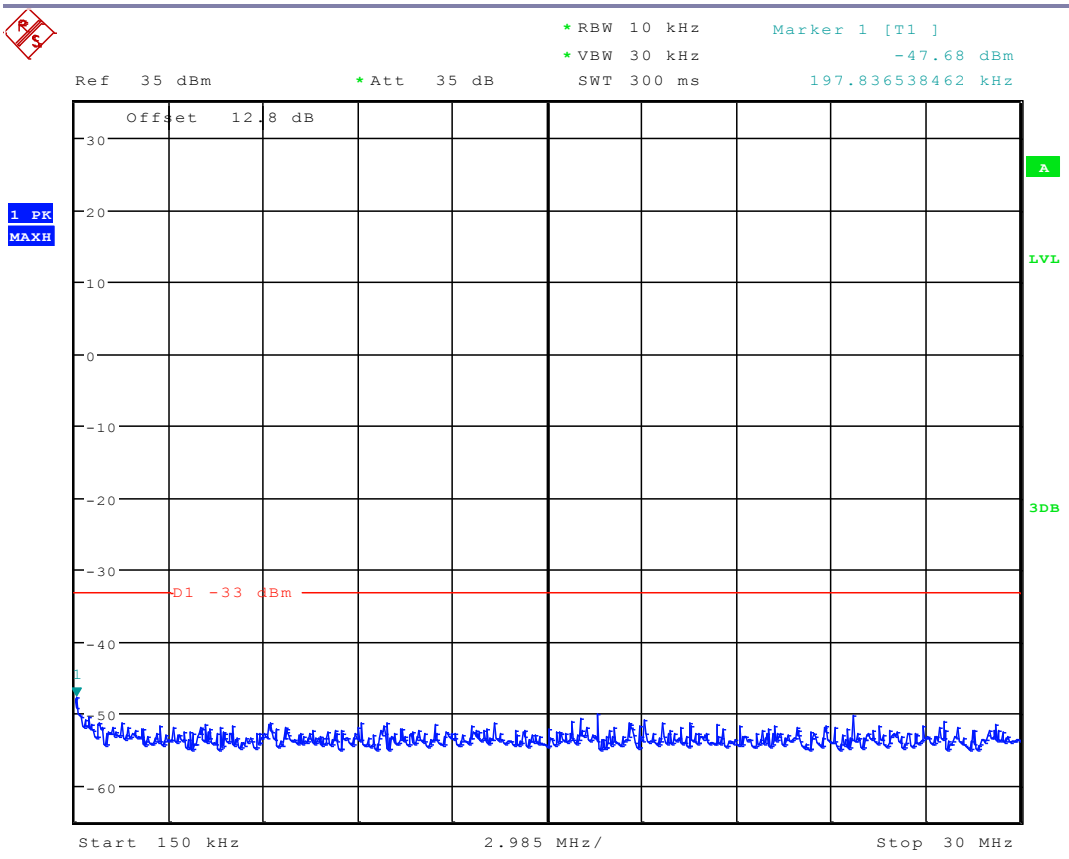


Date: 17.SEP.2012 10:24:11

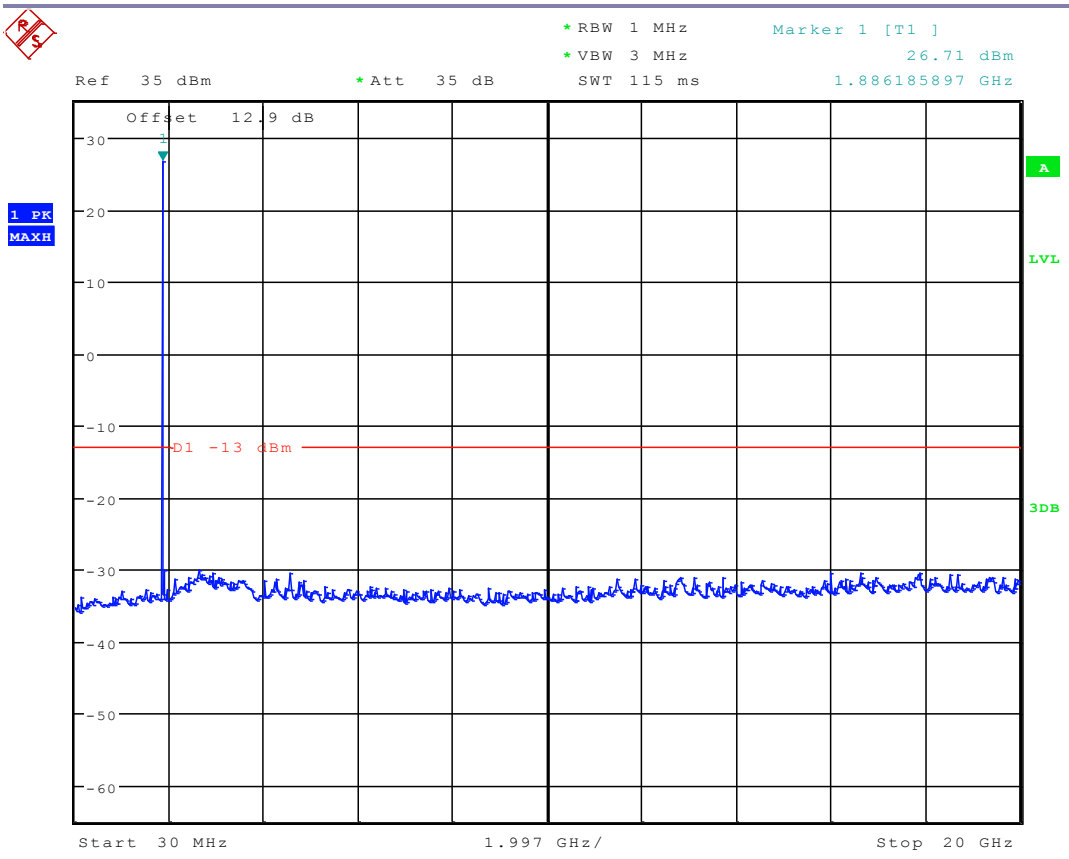
Channel 810



Date: 17.SEP.2012 10:22:47



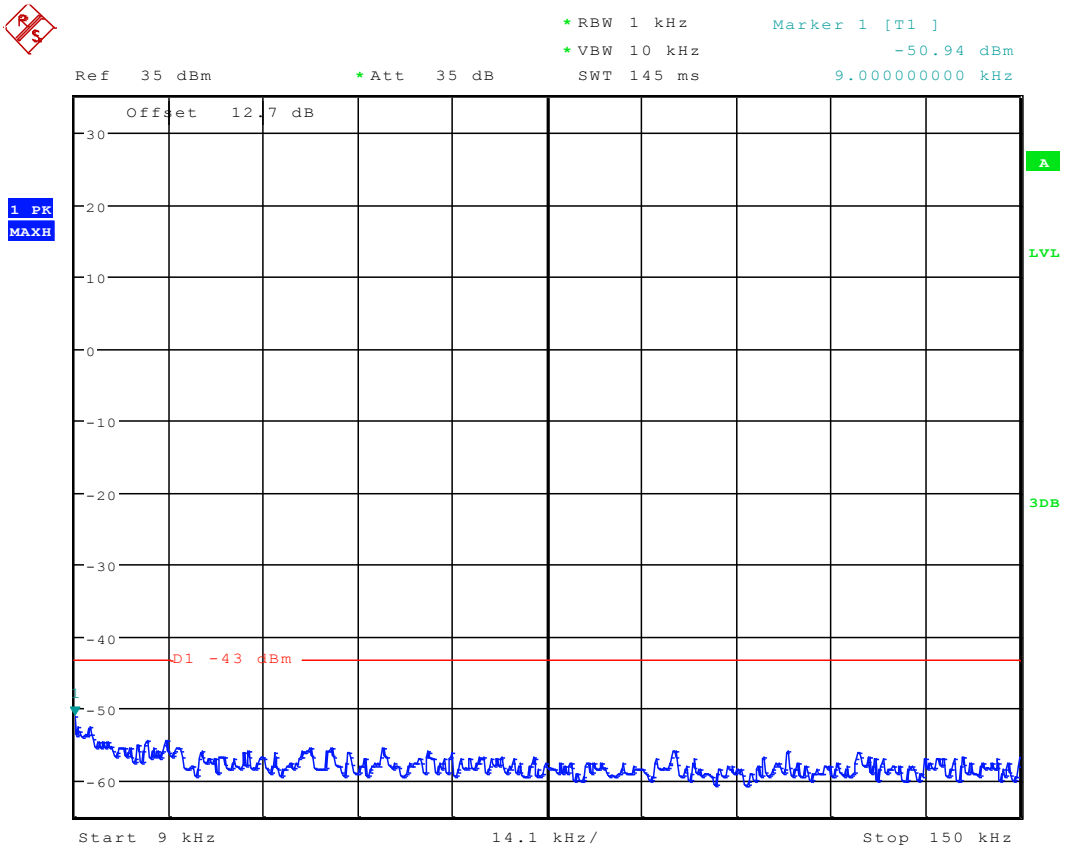
Date: 17.SEP.2012 10:23:31



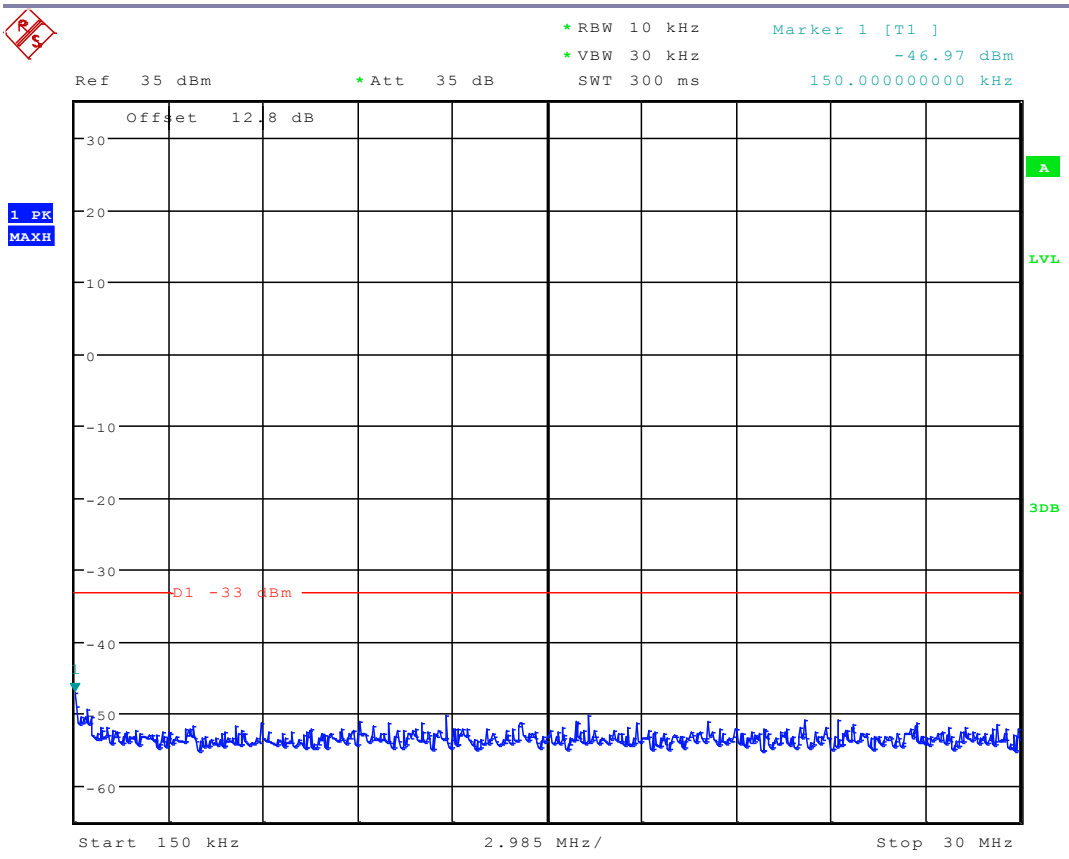
Date: 17.SEP.2012 10:24:25

TM3: WCDMA

Channel 9262



Date: 17.SEP.2012 10:26:34



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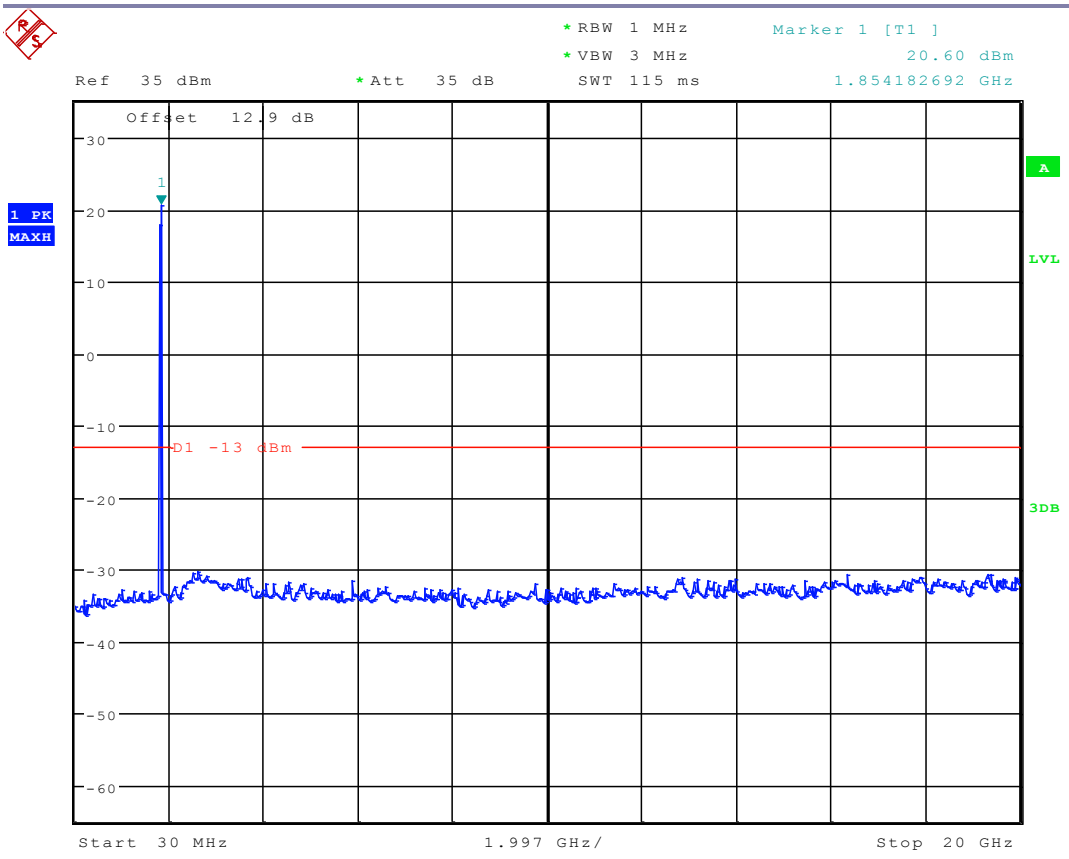
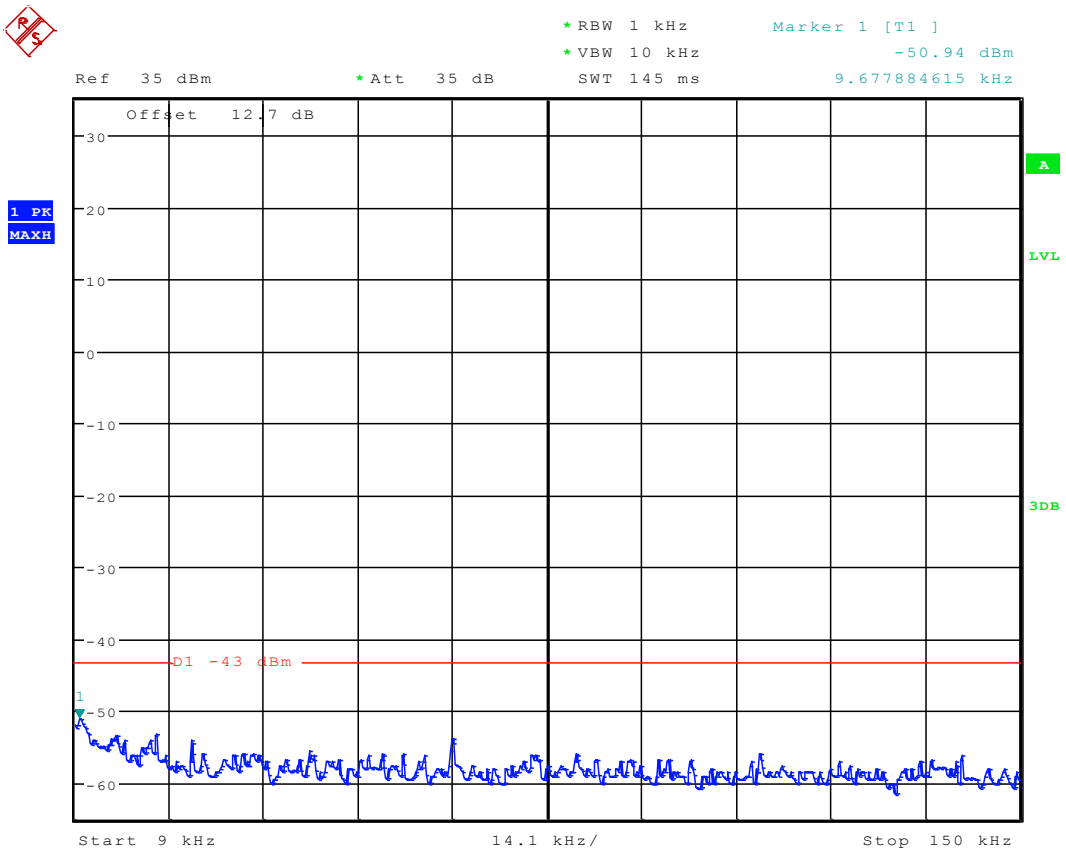
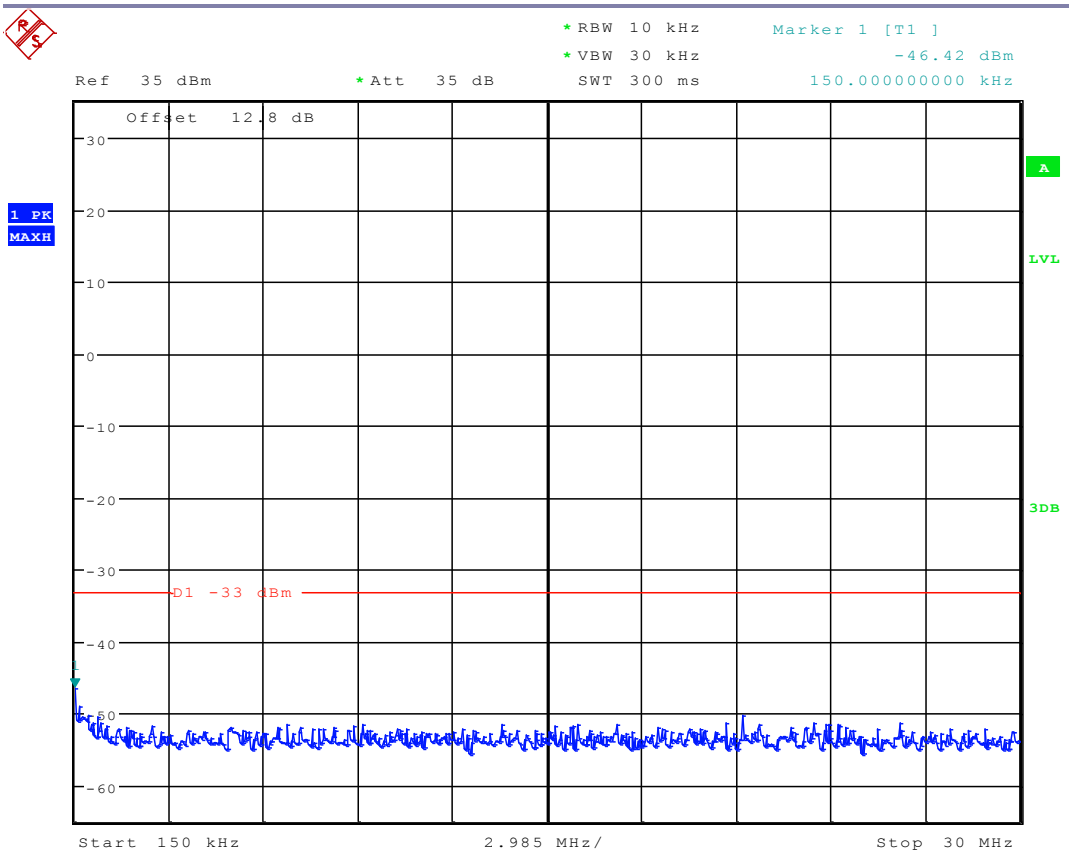


Date: 17.SEP.2012 10:28:02

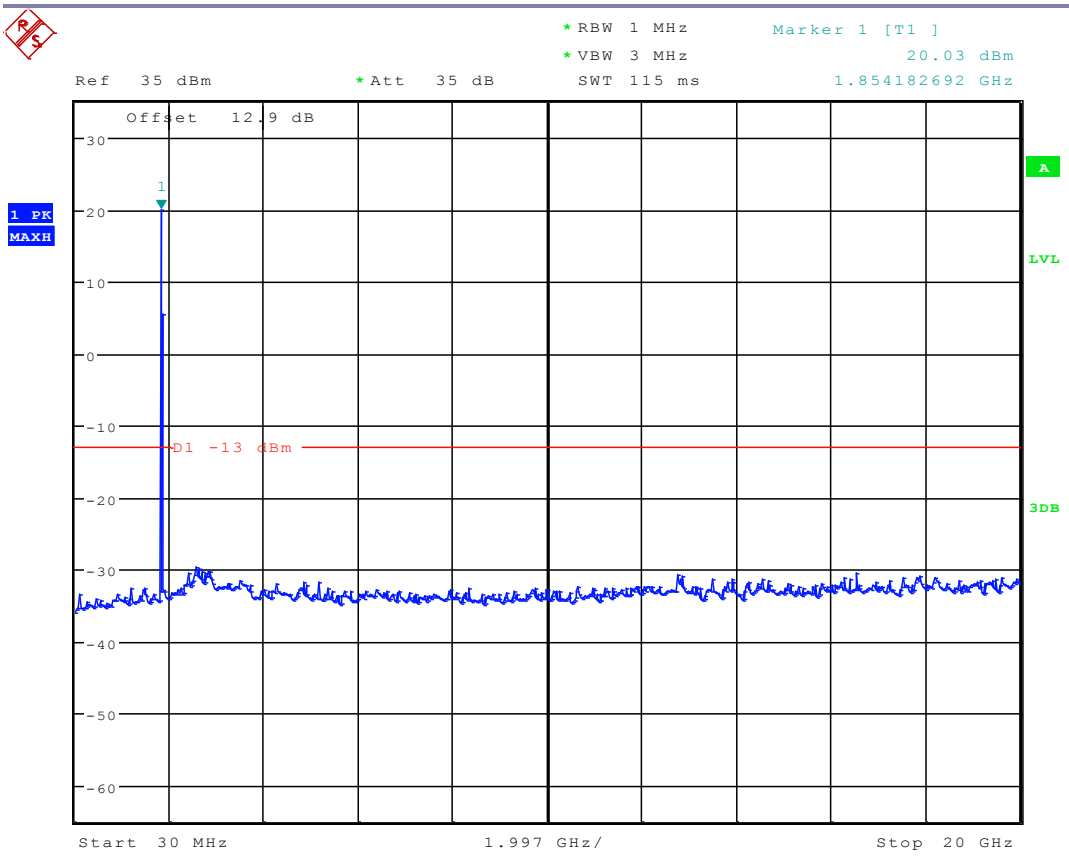
Channel 9400



Date: 17.SEP.2012 10:26:48

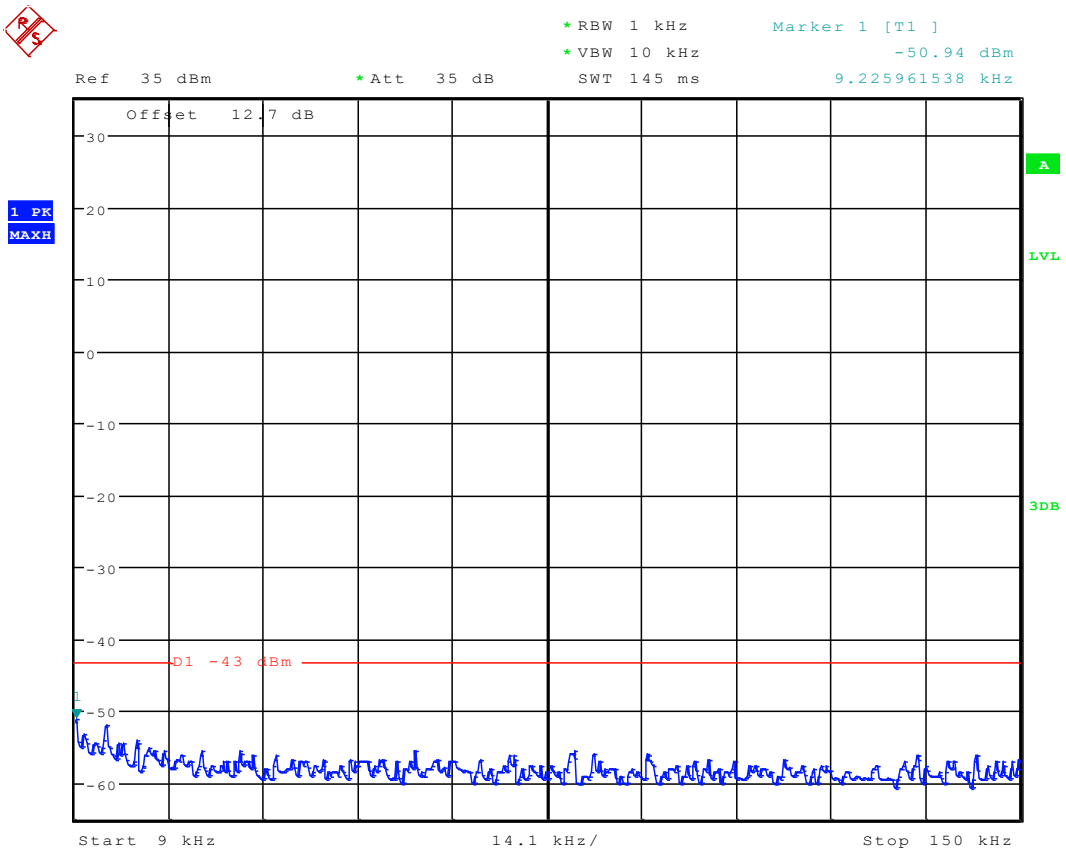


Date: 17.SEP.2012 10:27:32

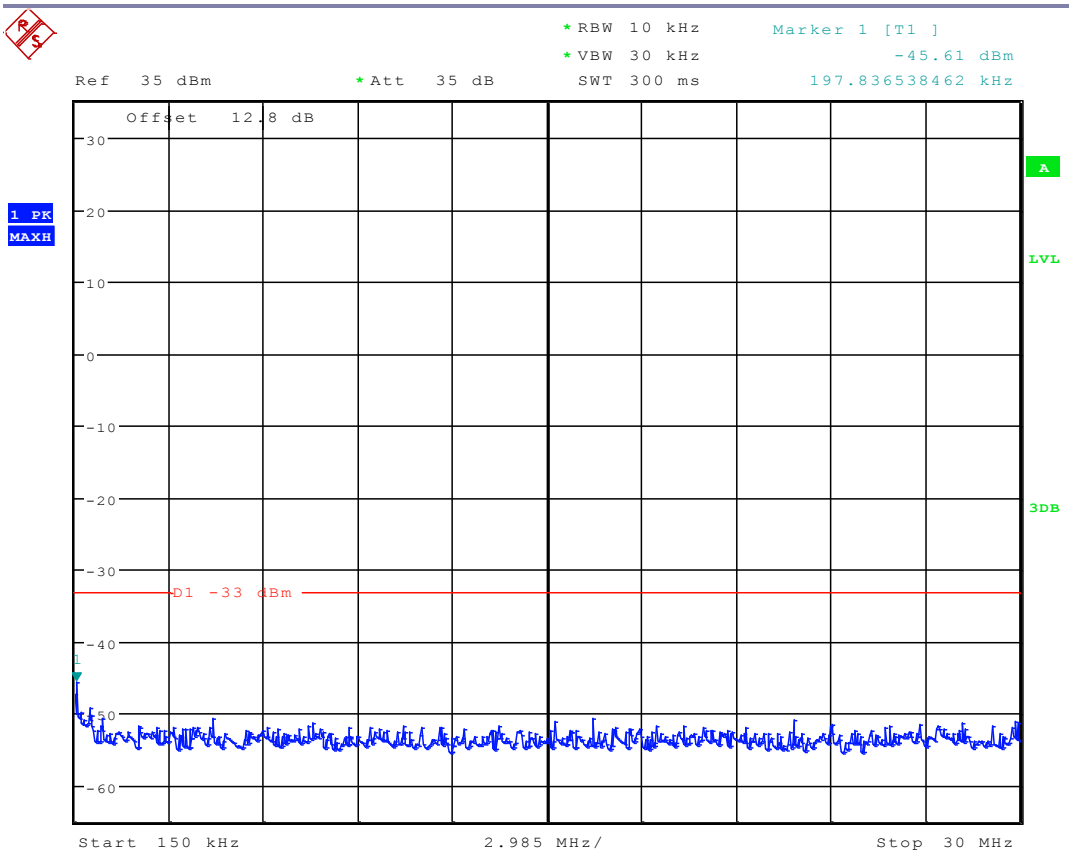


Date: 17.SEP.2012 10:28:16

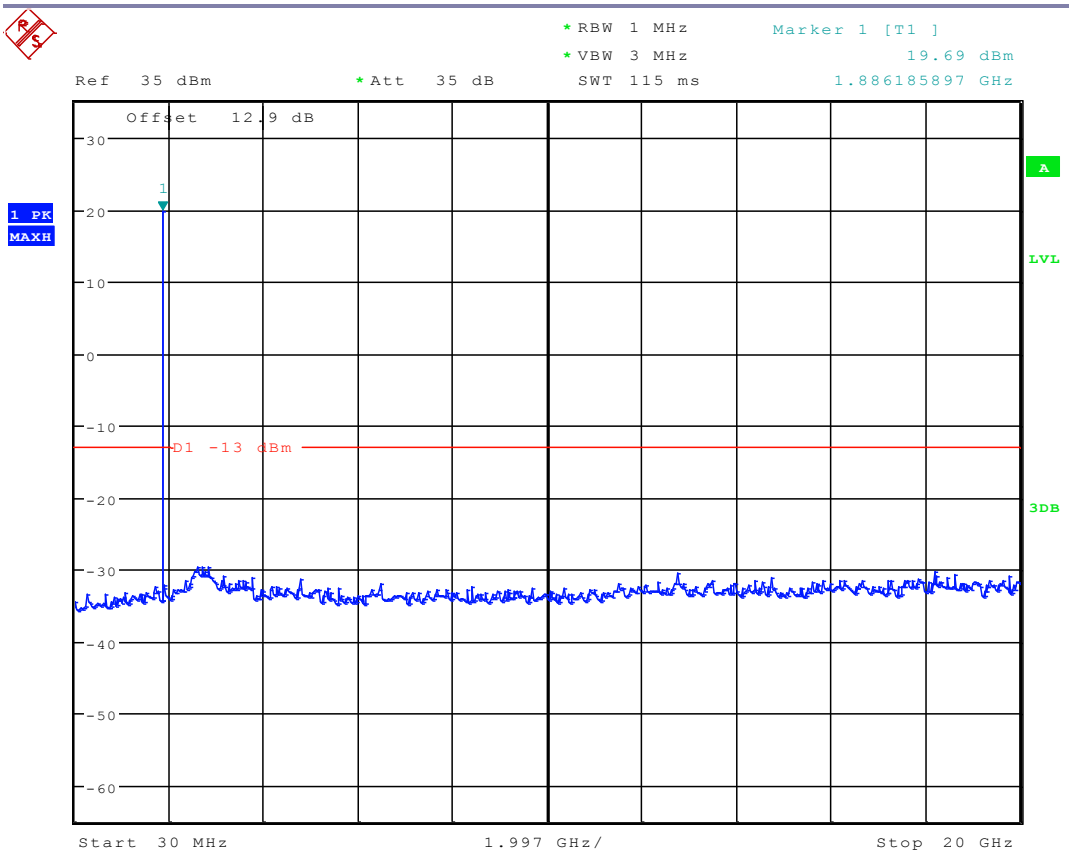
Channel 9538



Date: 17.SEP.2012 10:27:03



Date: 17.SEP.2012 10:27:47



Date: 17.SEP.2012 10:28:31

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

Appendix F

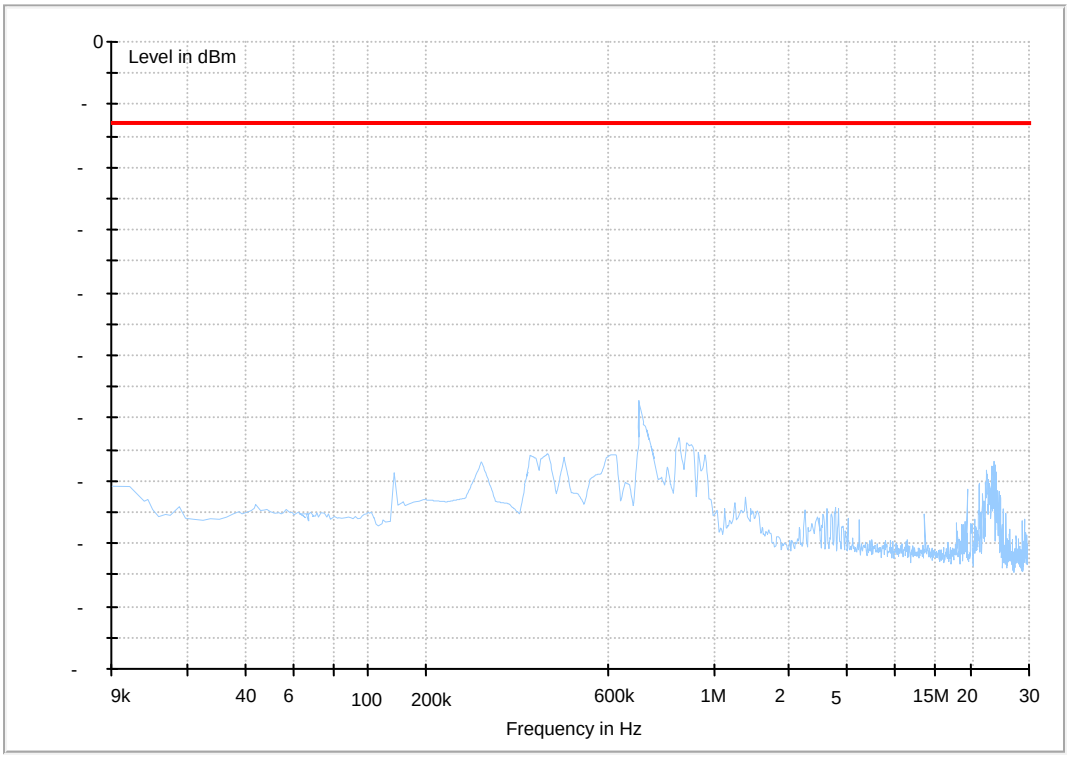
Radiated spurious emission

According to FCC Part 2.1053& Part 24.238 & RSS-133

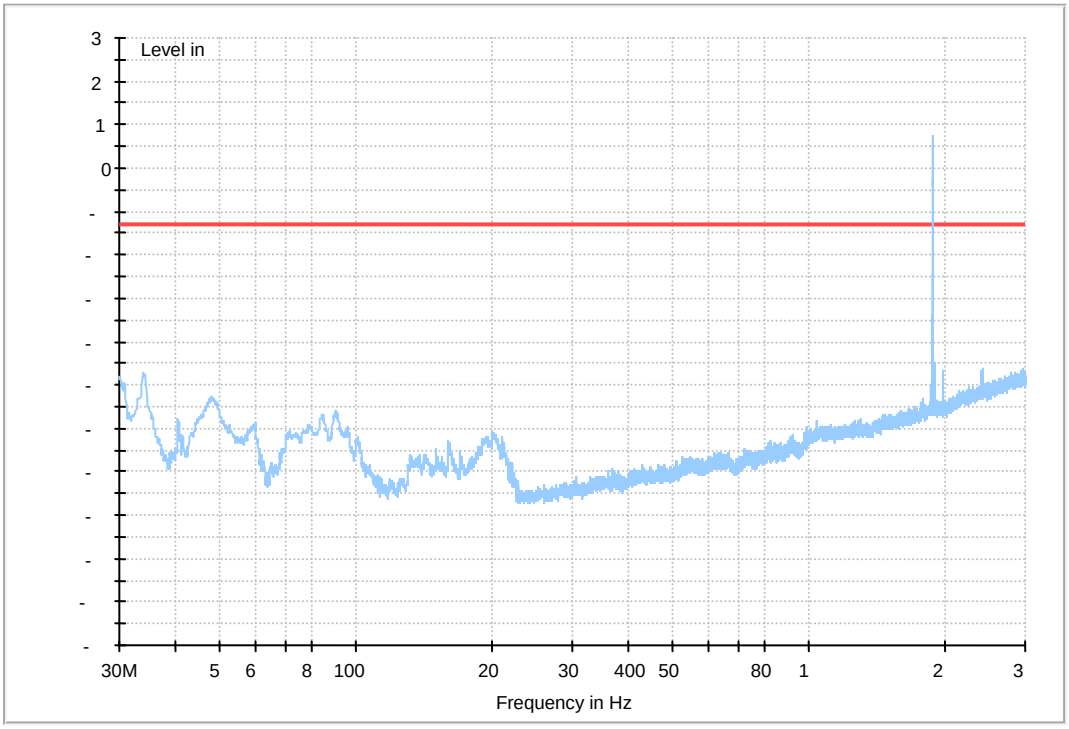
Note: 1. Simultaneous transmission was investigated and no new emissions were found.
2. RBW ≥ 1MHz, VBW > 3 x RBW.

GSM1900

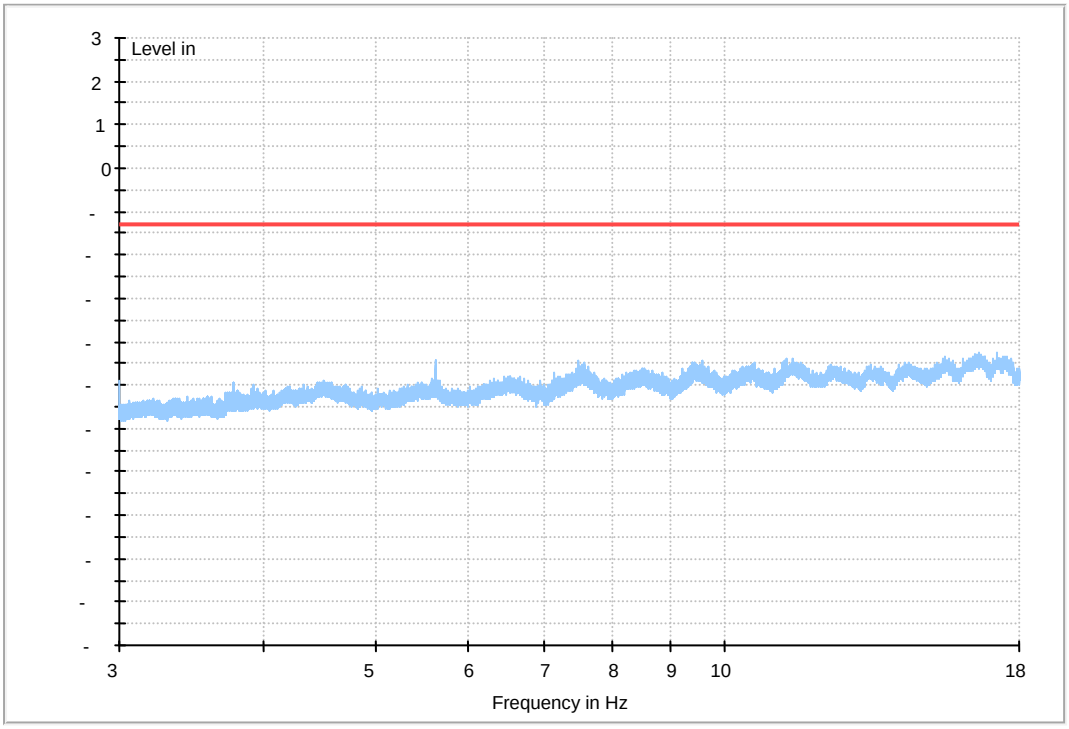
Traffic Mode (9kHz-30MHz)



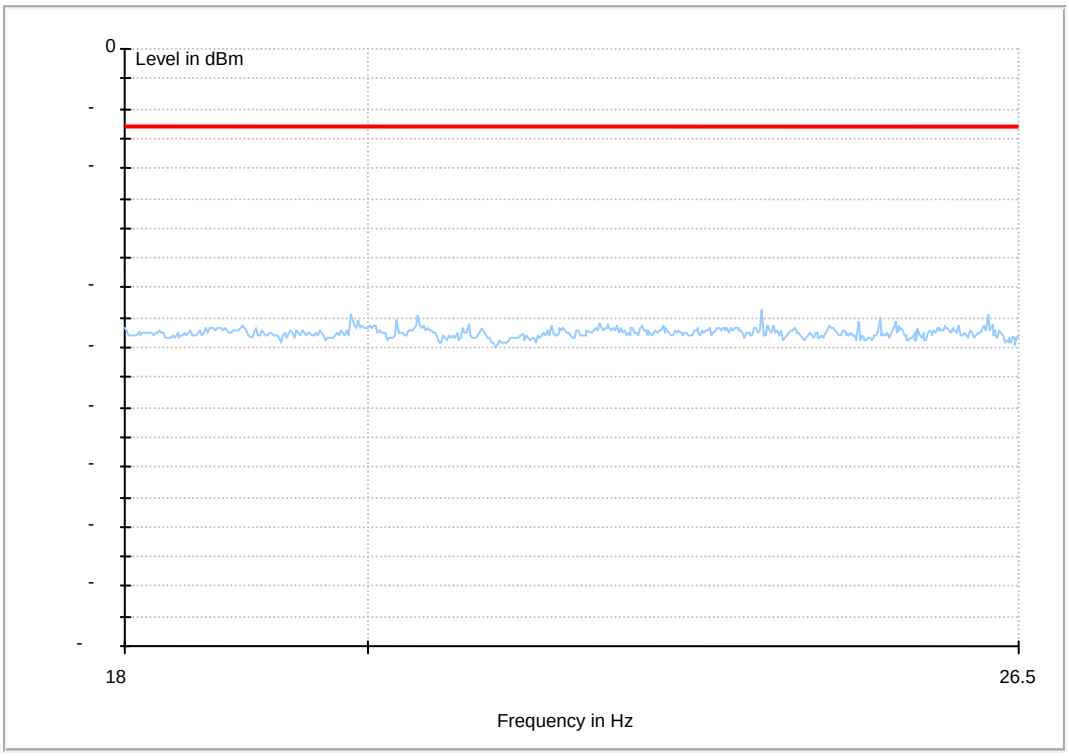
Traffic Mode (30MHz~3GHz)



Traffic Mode (3GHz~18GHz)

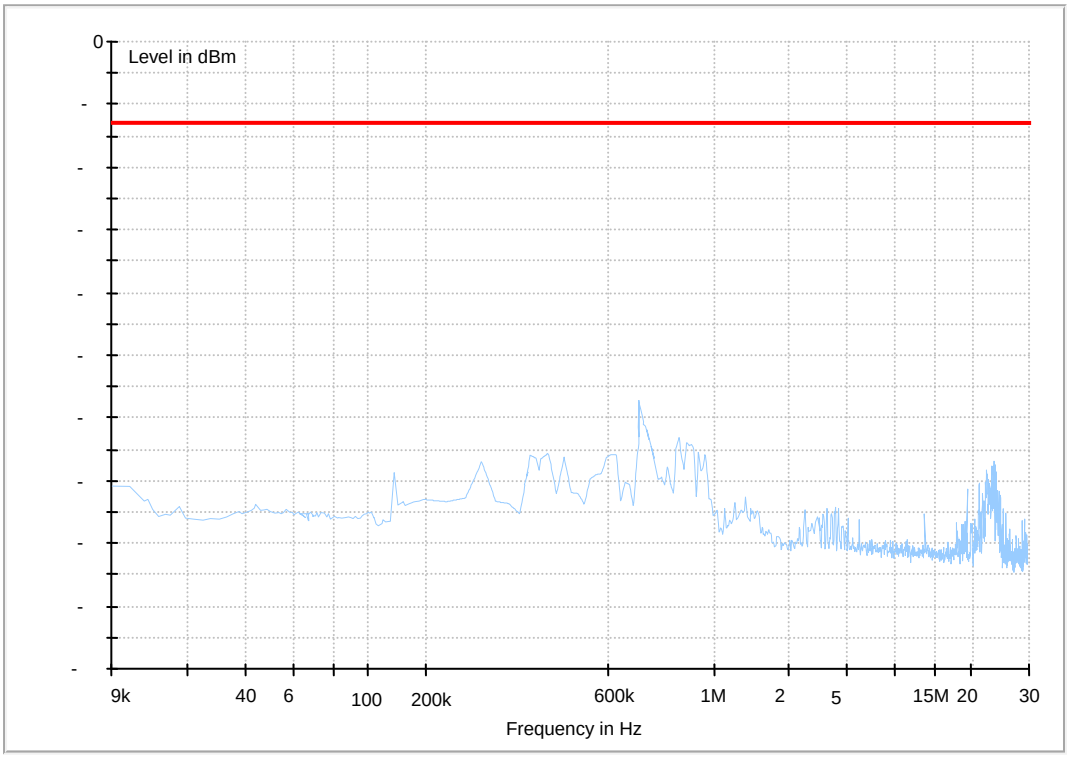


Traffic Mode (18GHz-26.5GHz)

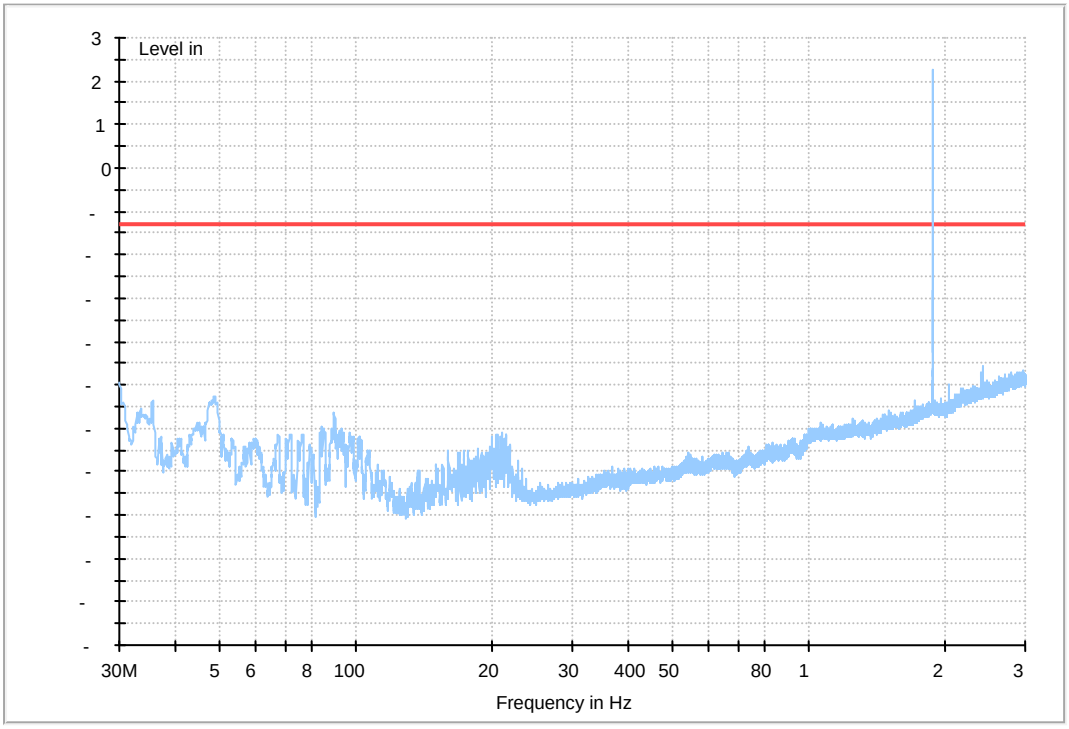


GPRS1900

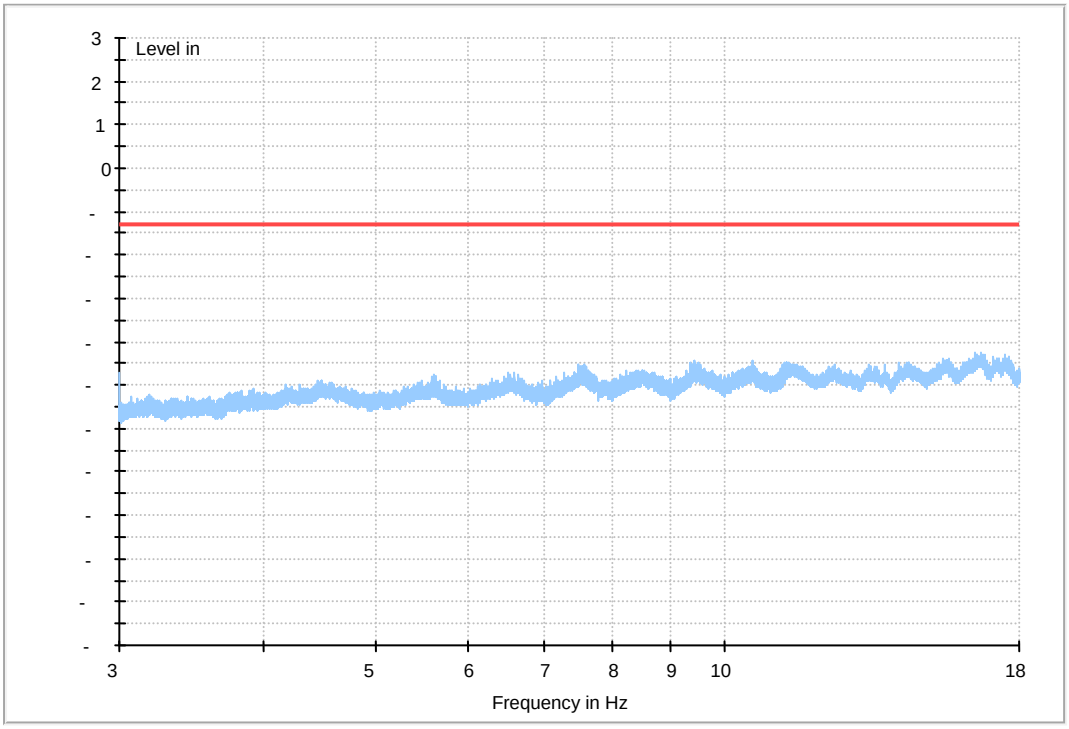
Traffic Mode (9kHz-30MHz)



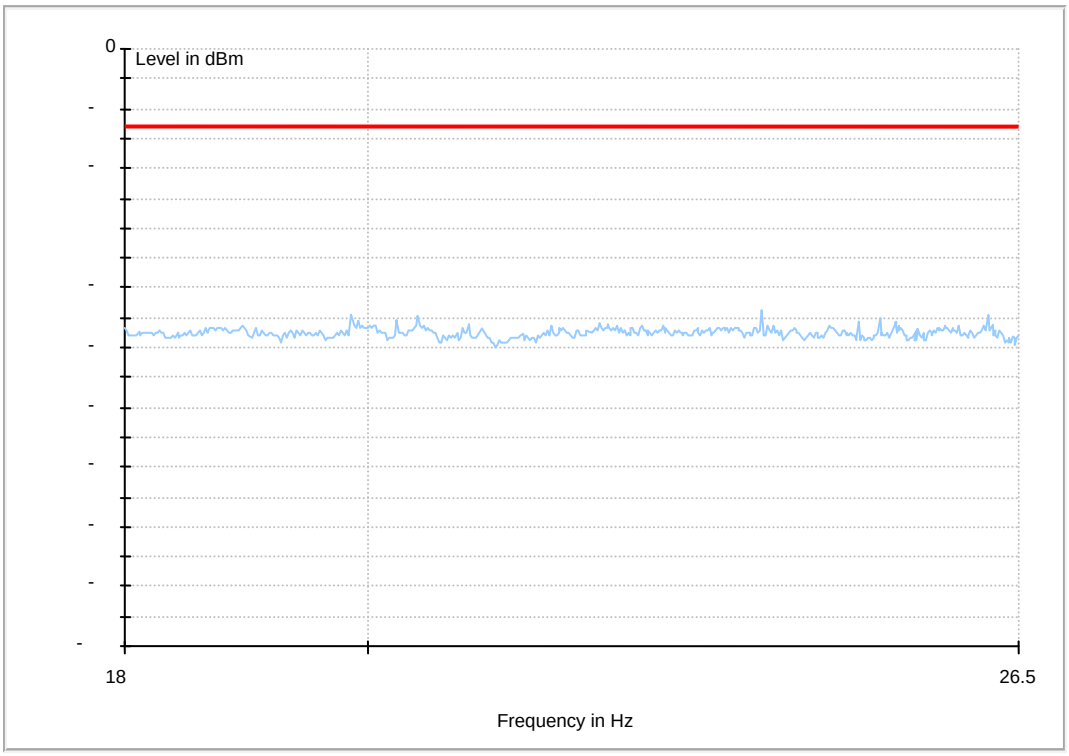
Traffic Mode (30MHz~3GHz)



Traffic Mode (3GHz~18GHz)

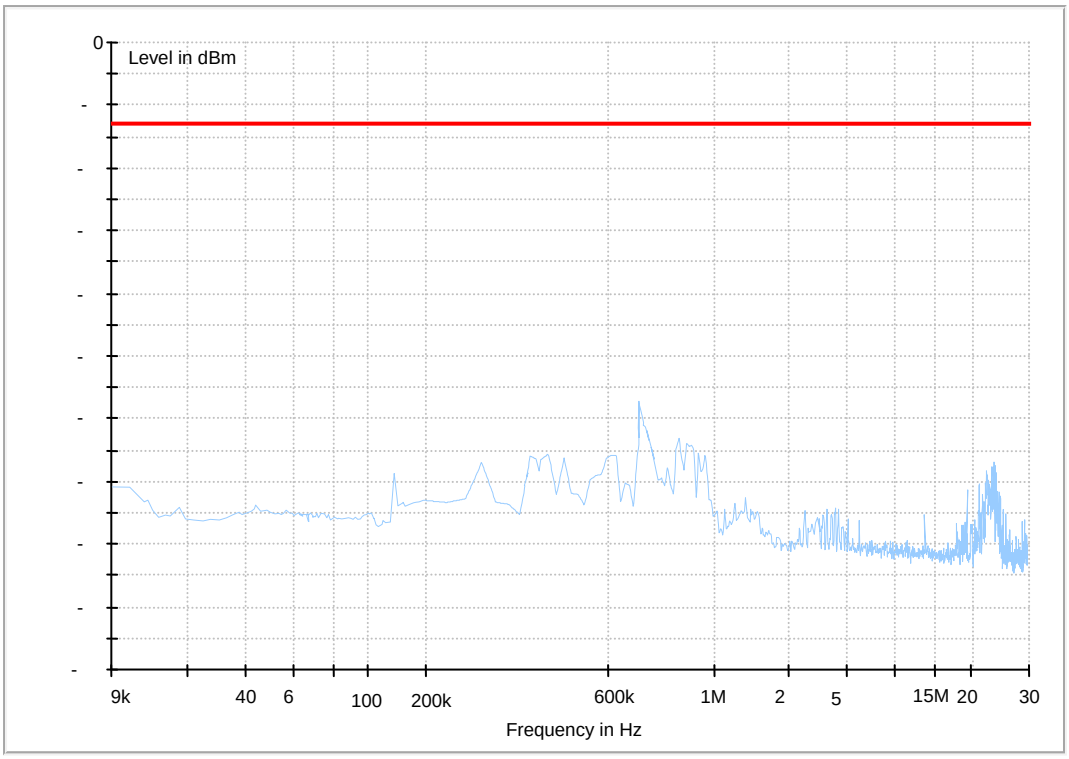


Traffic Mode (18GHz-26.5GHz)

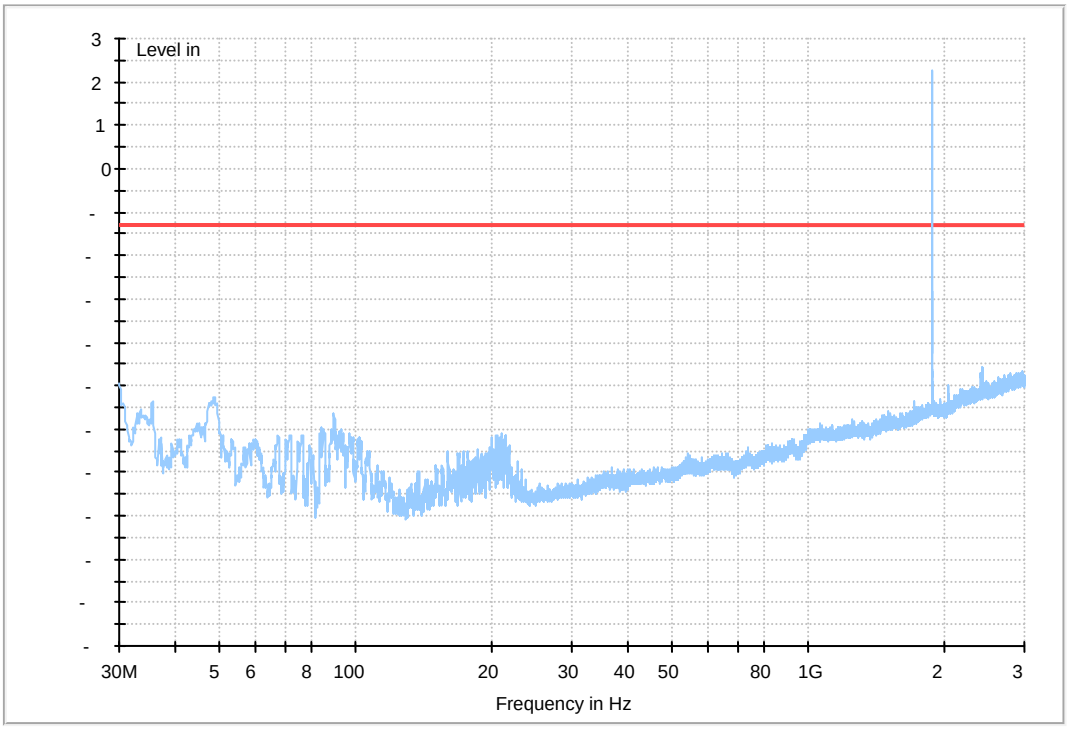


EDGE1900

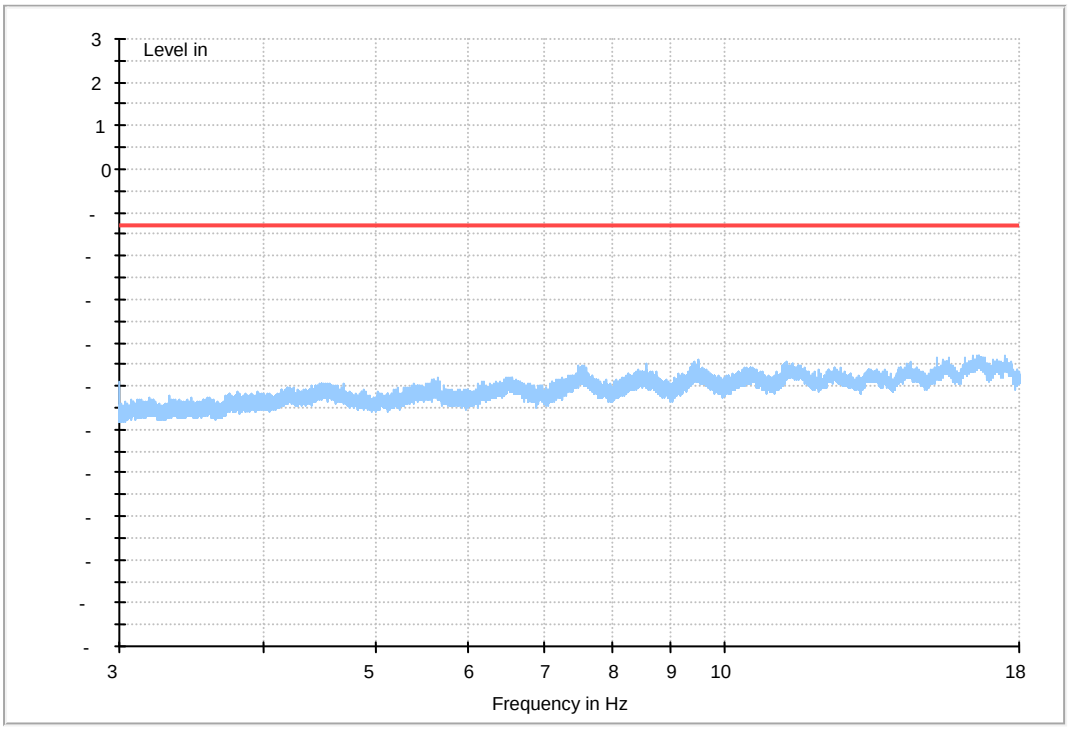
Traffic Mode (9kHz-30MHz)



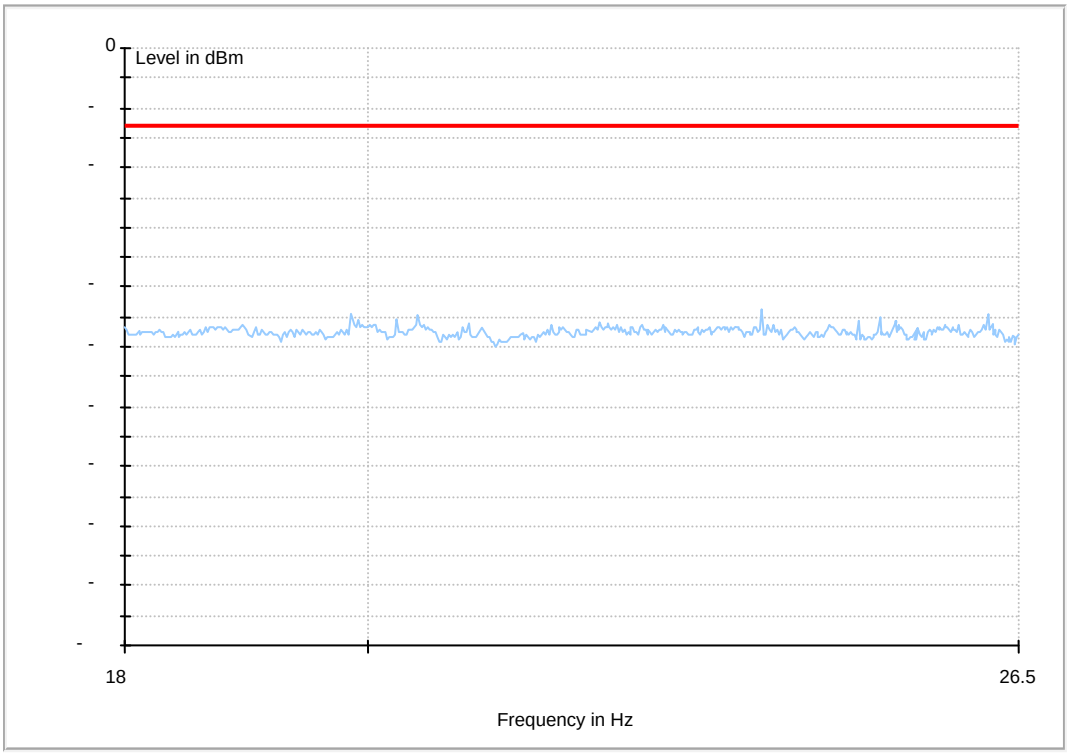
Traffic Mode (30MHz~3GHz)



Traffic Mode (3GHz~18GHz)

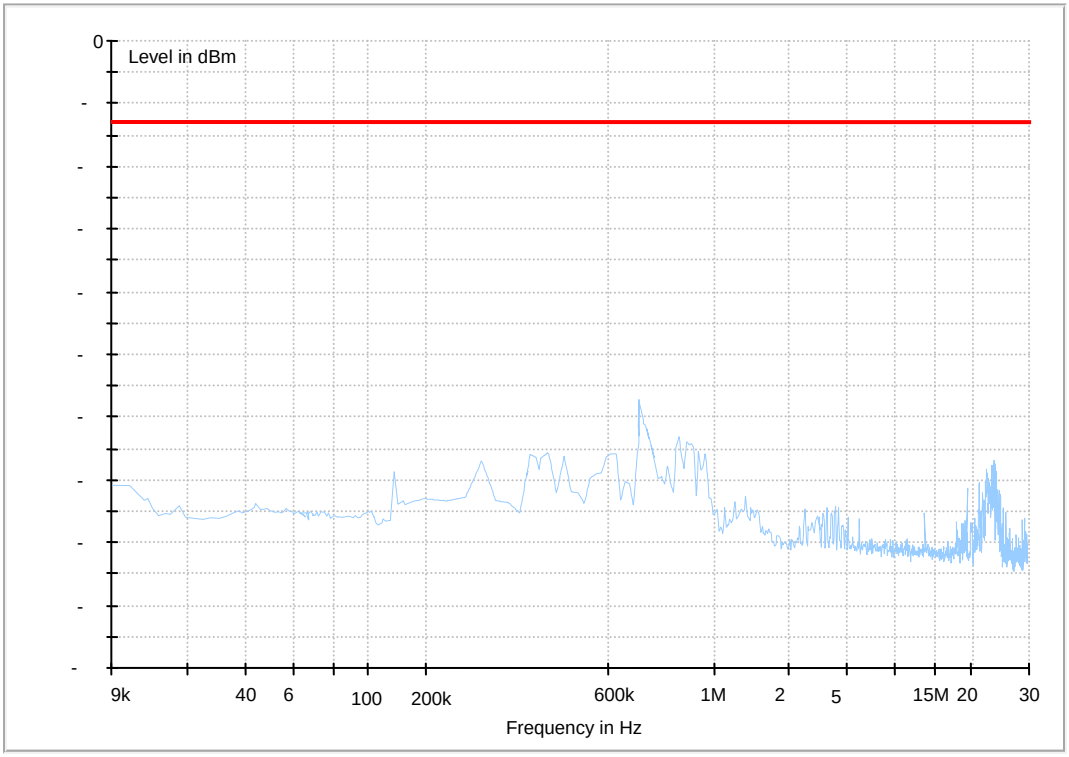


Traffic Mode (18GHz-26.5GHz)

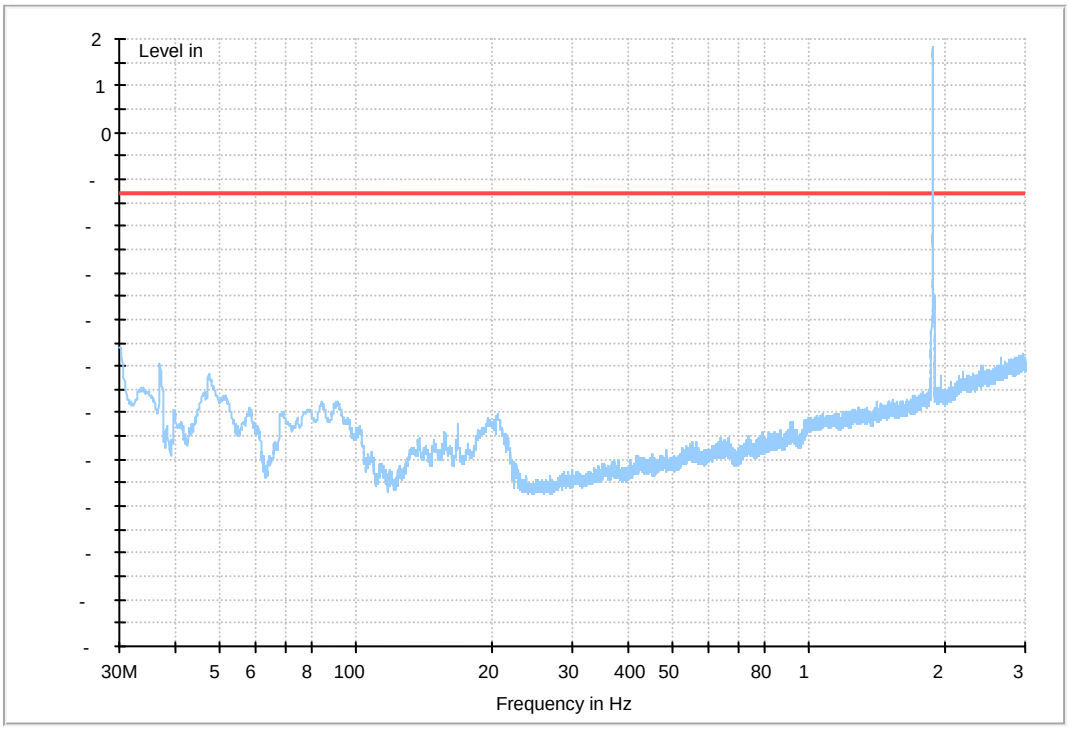


WCDMA Band II

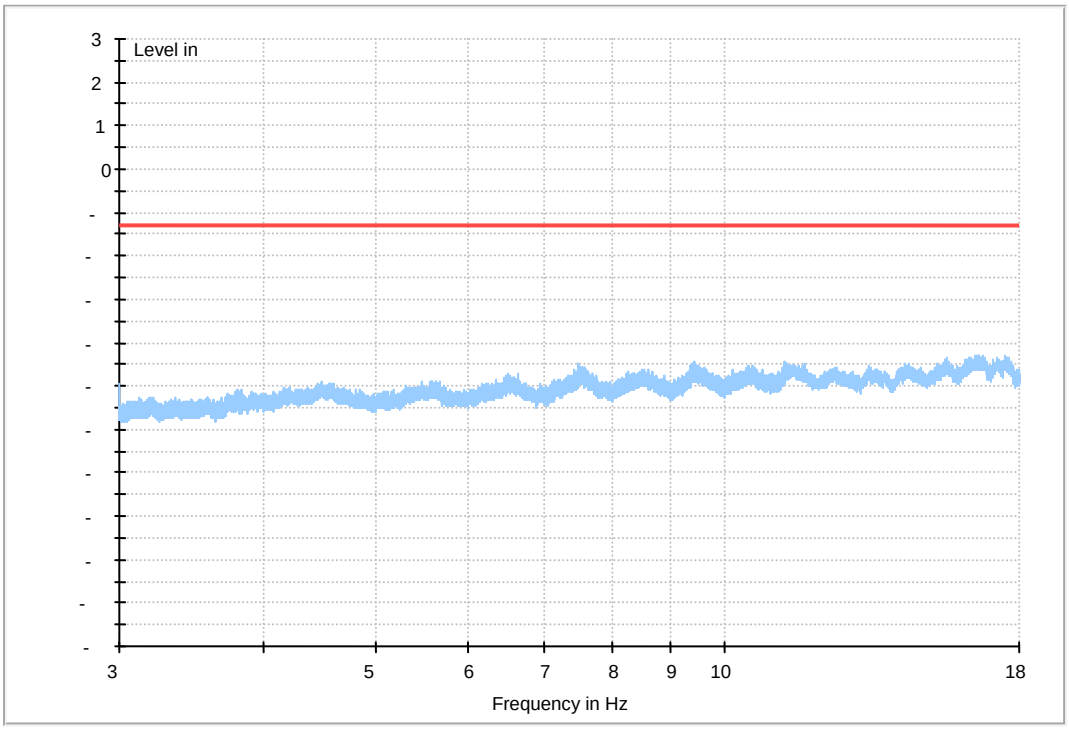
Traffic Mode (9kHz-30MHz)



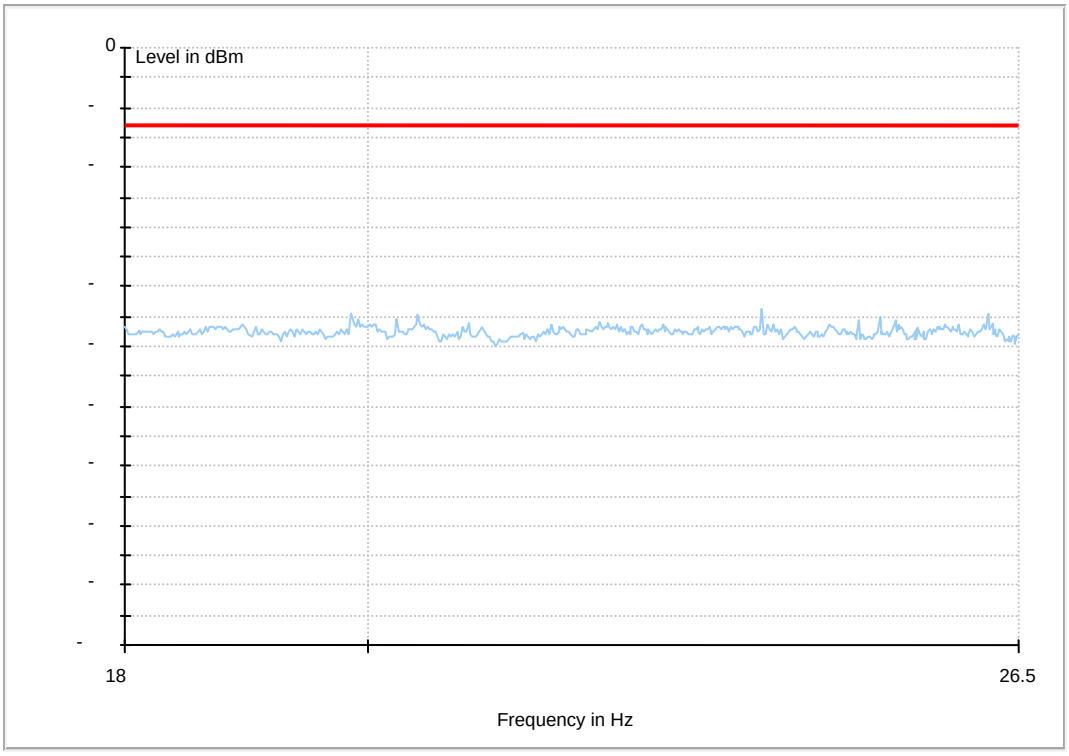
Traffic Mode (30MHz~3GHz)



Traffic Mode (3GHz~18GHz)

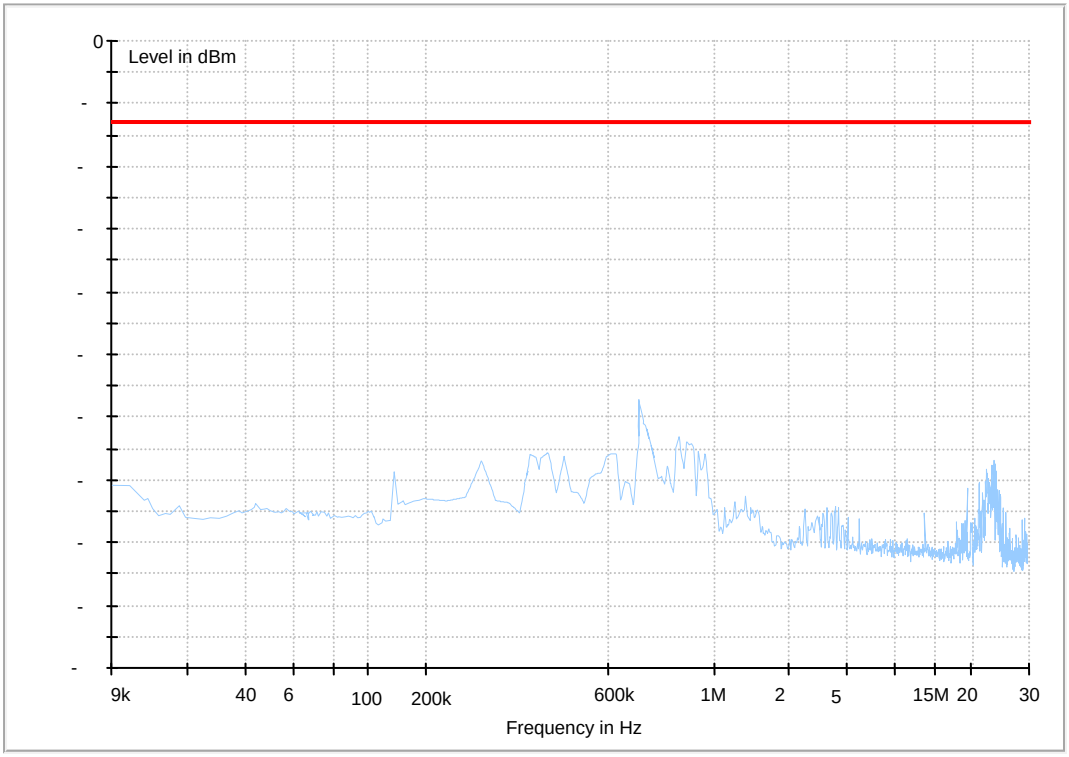


Traffic Mode (18GHz-26.5GHz)

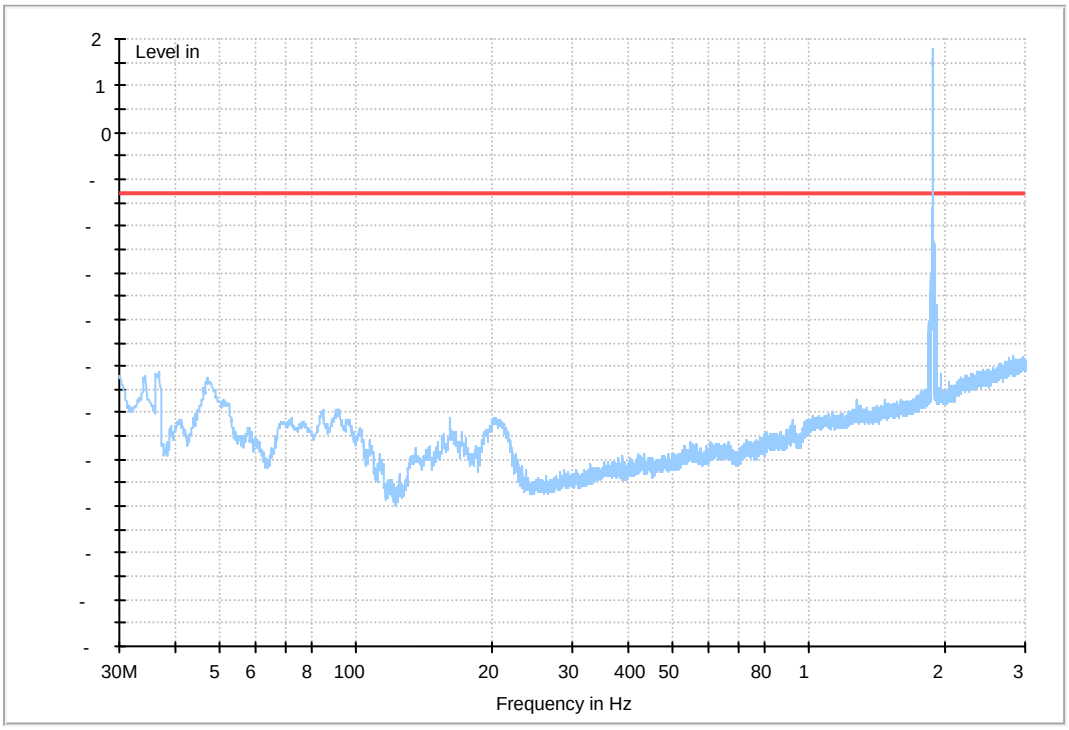


HSDPA Band II

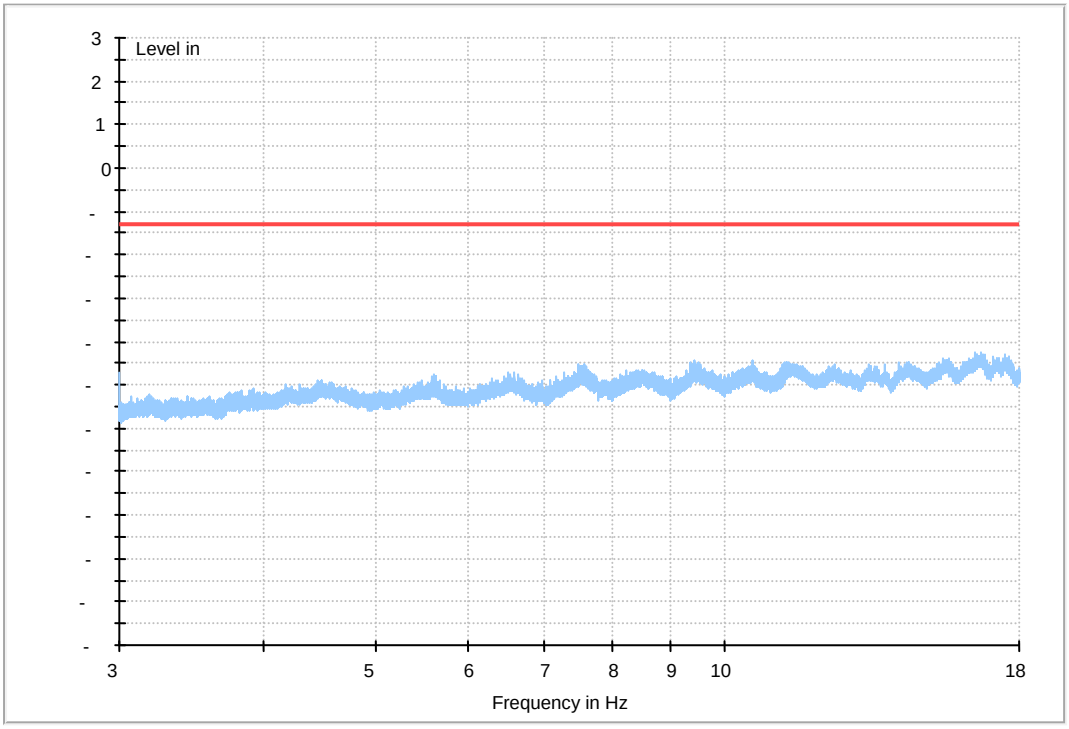
Traffic Mode (9kHz-30MHz)



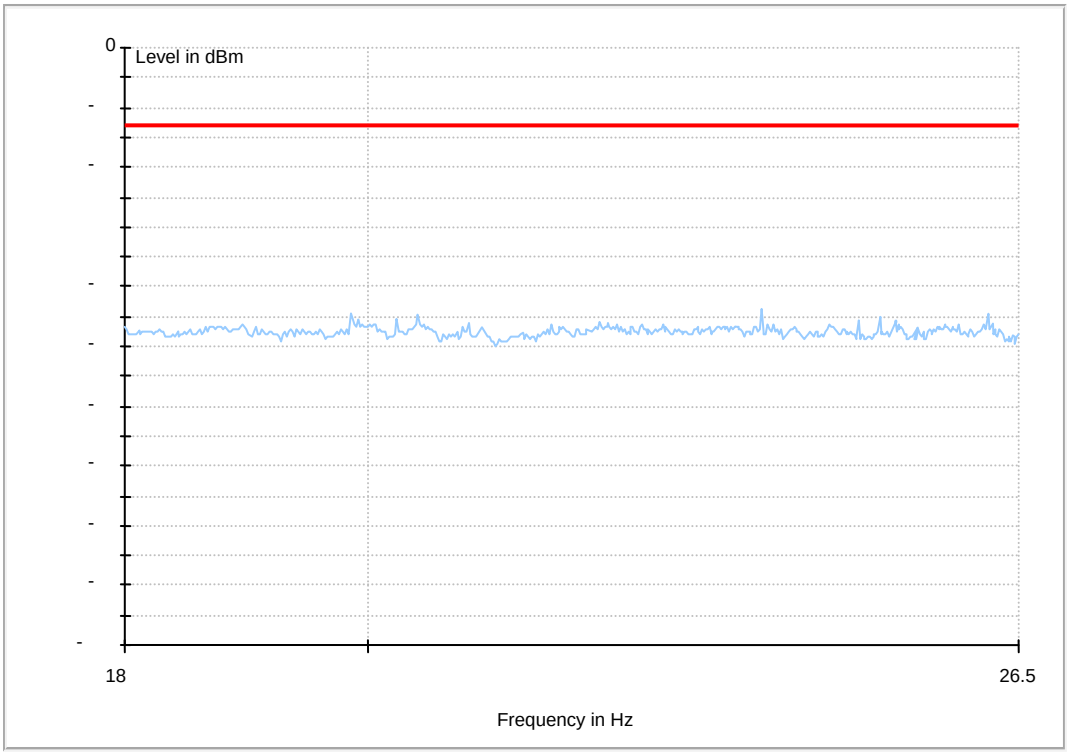
Traffic Mode (30MHz~3GHz)



(3GHz~18GHz)

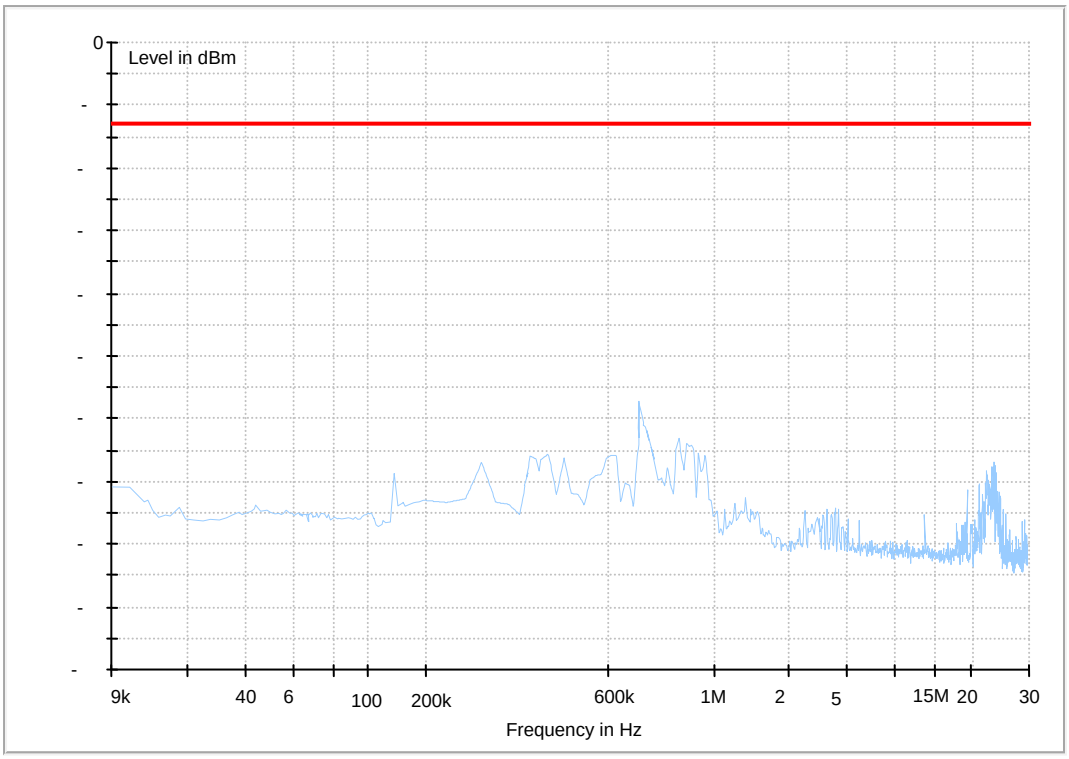


Traffic Mode (18GHz-26.5GHz)

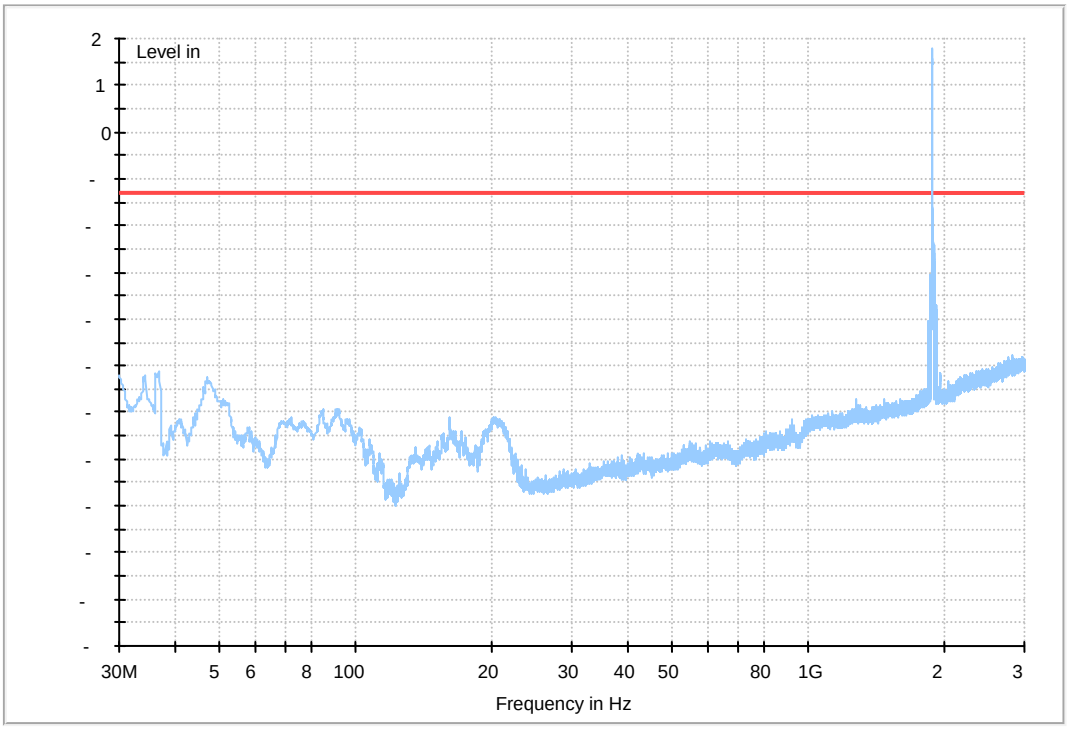


HSUPA Band II

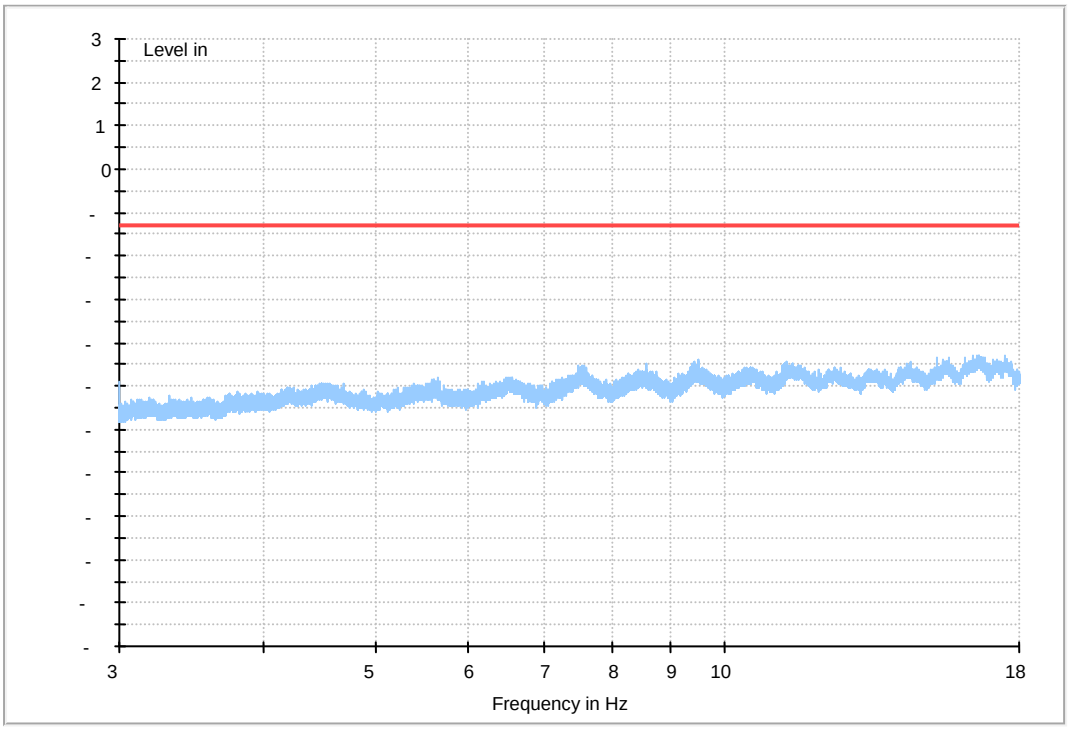
Traffic Mode (9kHz-30MHz)



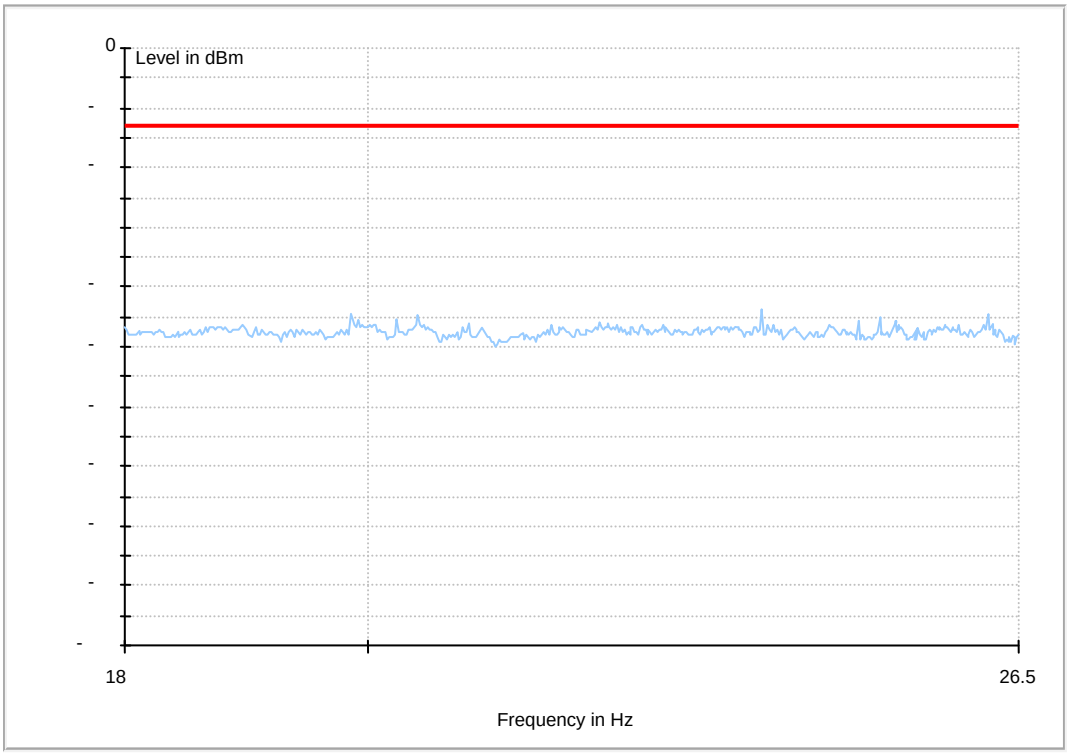
Traffic Mode (30MHz~3GHz)



Traffic Mode (3GHz~18GHz)



Traffic Mode (18GHz-26.5GHz)



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

Appendix G

Frequency Stability

According to FCC Part 2.1055 & Part 24.235 & RSS-133

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	24	0.01277	---	±2.5	Pass
			-20 °C	-18	-0.00957	---	±2.5	Pass
			-10 °C	-24	-0.01277	---	±2.5	Pass
			0 °C	23	0.01223	---	±2.5	Pass
			10 °C	-13	-0.00691	---	±2.5	Pass
			20 °C	27	0.01436	---	±2.5	Pass
			30 °C	-19	-0.01011	---	±2.5	Pass
			40 °C	20	0.01064	---	±2.5	Pass
			50 °C	16	0.00851	---	±2.5	Pass
TM 2	M	VN	-30 °C	24	0.01277	---	±2.5	Pass
			-20 °C	23	0.01223	---	±2.5	Pass
			-10 °C	13	0.00691	---	±2.5	Pass
			0 °C	-24	-0.01277	---	±2.5	Pass
			10 °C	27	0.01436	---	±2.5	Pass
			20 °C	-18	-0.00957	---	±2.5	Pass
			30 °C	-10	-0.00532	---	±2.5	Pass
			40 °C	16	0.00851	---	±2.5	Pass
			50 °C	18	0.00957	---	±2.5	Pass
TM 3	M	VN	-30 °C	-18	-0.00957	---	±2.5	Pass
			-20 °C	-7	-0.00372	---	±2.5	Pass
			-10 °C	24	0.01277	---	±2.5	Pass
			0 °C	28	0.01489	---	±2.5	Pass
			10 °C	-18	-0.00957	---	±2.5	Pass
			20 °C	23	0.01223	---	±2.5	Pass
			30 °C	-16	-0.00851	---	±2.5	Pass
			40 °C	25	0.01330	---	±2.5	Pass
			50 °C	-20	-0.01064	---	±2.5	Pass

Frequency Error vs. Voltage:

Test Mode	RF Ch.	Temp.	Volt.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Freq. vs. 20 °C [ppm]	Limit [ppm]	Verdict
TM 1	M	20 °C	VL	13	0.00691	---	±2.5	Pass
			VN	11	0.00585	---	±2.5	Pass
			VH	8	0.00426	---	±2.5	Pass
TM 2	M	20 °C	VL	27	0.01436	---	±2.5	Pass
			VN	28	0.01489	---	±2.5	Pass
			VH	-22	-0.01170	---	±2.5	Pass
TM 3	M	20 °C	VL	-15	-0.00798	---	±2.5	Pass
			VN	18	0.00957	---	±2.5	Pass
			VH	21	0.01117	---	±2.5	Pass

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

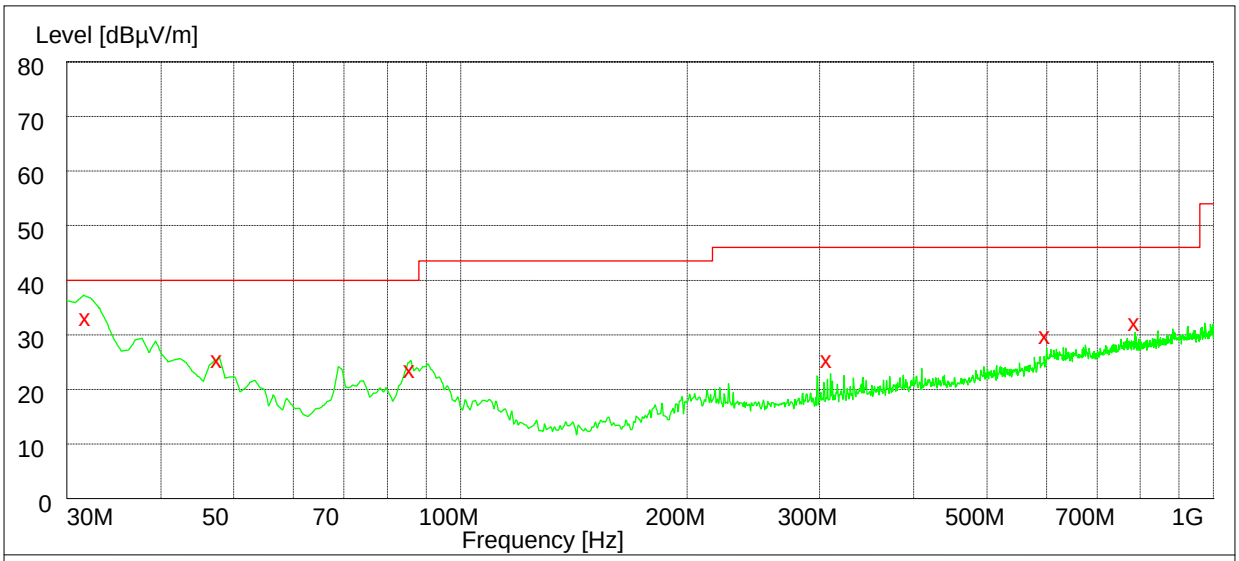
Appendix H

Receiver Spurious Emissions

According to RSS-133

This test was carried out in all the test modes, Here only the worst test result was shown.

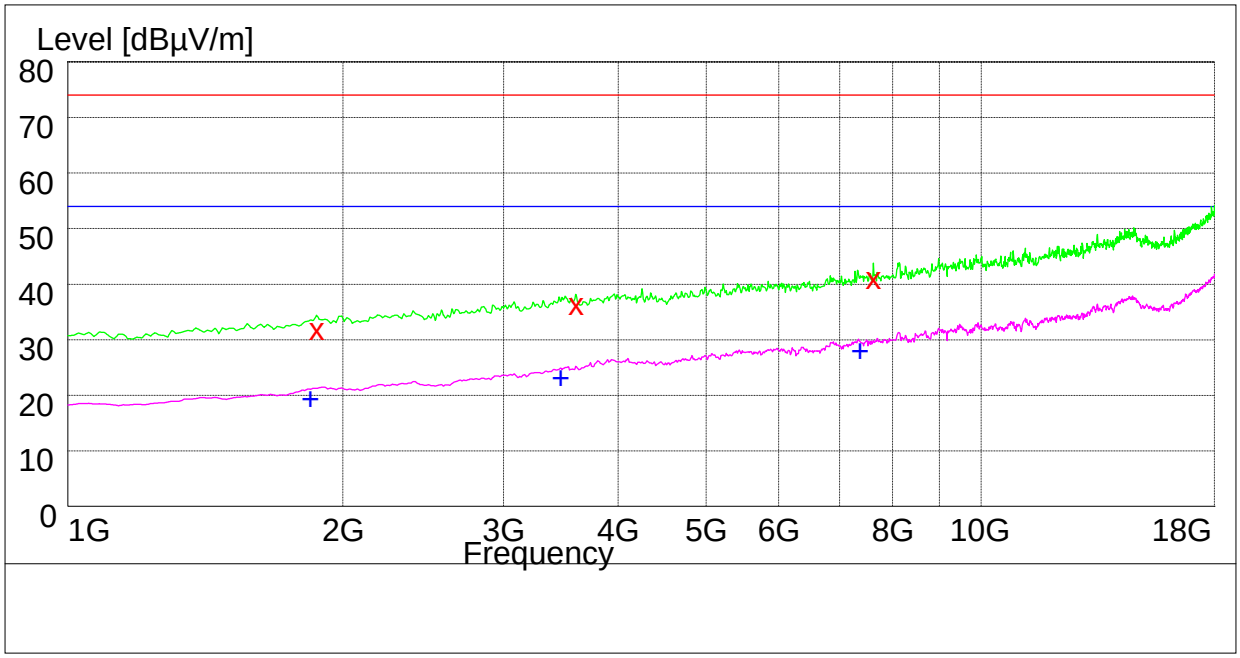
30MHz-1GHz



MEASUREMENT RESULT: QP Detector

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Height cm	Azimuth deg	Polarisation
31.860000	32.40	14.6	40.0	7.6	100.0	318.00	VERTICAL
47.700000	24.60	15	40.0	15.4	100.0	72.00	VERTICAL
85.920000	22.90	11.2	40.0	17.1	146.0	115.00	VERTICAL
307.200000	24.60	15.2	46.0	21.4	100.0	276.00	HORIZONTAL
599.700000	29.10	21.3	46.0	16.9	147.0	357.00	VERTICAL
786.840000	31.40	23.4	46.0	14.6	100.0	346.00	VERTICAL

1GHz-18GHz



MEASUREMENT RESULT: PK Detector

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Height cm	Azimuth deg	Polarisation
1874.900000	31.90	-12.3	74.0	42.1	100.0	104.00	HORIZONTAL
3602.600000	36.40	-5.6	74.0	37.6	100.0	261.00	VERTICAL
7624.200000	41.20	4.2	74.0	32.8	100.0	133.00	VERTICAL

MEASUREMENT RESULT: AV Detector

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Height cm	Azimuth deg	Polarisation
1836.100000	19.40	-12.6	54.0	34.6	100.0	262.00	VERTICAL
3454.100000	23.10	-6.2	54.0	30.9	100.0	4.00	VERTICAL
7343.700000	28.00	3.1	54.0	26.0	100.0	229.00	VERTICAL

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