



FCC RF Test Report

**Product Name: HSDPA/UMTS/GPRS/GSM/EDGE Mobile Phone
with Bluetooth**

Model Number: HUAWEI U8651S, U8651S, Summit

**Report No: SYBH(Z-RF)002022012-2007
FCC ID:QISU8651S**

Reliability Laboratory of Huawei Technologies Co., Ltd.

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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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Applicant: Huawei Technologies Co., Ltd.
Address: Huawei Base, Bantian, Longgang District, Shenzhen
 518129, P.R. China
Date of Receipt Test Item: Jan.10, 2012
Start Date of Test: Jan.10, 2012
End Date of Test: Jan.17, 2012

Test Result: Pass

Approved By Senior Engineer Aug. 07, 2012 Dai Linjun *Dai Linjun*
 Date Name Signature

Reviewed By Aug.07, 2012 Cousy Xu *Cousy XU*
 Date Name Signature

Operator Aug.07, 2012 Huang Qiuliang *Huang Qiuliang*
 Date Name Signature



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1 General Information

1.1 Applied Standard

Applied Rules: 47 CFR FCC Part 2:2011, Subpart J
47 CFR FCC Part 22:2011, Subpart H

1.2 Test Location

Test Location 1: Reliability Laboratory of Huawei Technologies Co., Ltd.
Address: Huawei Base, Bantian, Longgang District, Shenzhen 518129, P.R.
China

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

Cellular Band			
Test Case	FCC Part No.	Requirements	Result
Transmitter Output Power	2.1046 & 22.913	ERP not exceed 7 W	Pass
Modulation Characteristics	2.1047	Digital modulation	Pass
Occupied Bandwidth	2.1049	(Not specified)	Pass
Band Edges Compliance	2.1051 & 22.917	Below -13 dBm/1%*EBW, in 1 MHz range	Pass
Spurious Emission at Antenna Terminals	2.1051 & 22.917	Below -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 th harmonics	Pass
Field Strength of Spurious Radiation	2.1053 & 22.917	Below -13 dBm/100 kHz	Pass
Frequency Stability	2.1055 & 22.355	Maintained within the tolerances of ± 2.5 ppm	Pass

3 Product Description

3.1 Production Information

3.1.1 General Description

HUAWEI U8651S, U8651S, U8651, Astro subscriber equipment in the WCDMA/GSM system. The HSDPA/UMTS frequency band is Band IV and Band II and Band V. The GSM/GPRS/EDGE frequency band includes GSM850 and GSM900 and DCS1800 and PCS1900, but only GSM850 and WCDMA BAND V test data included in this report. The Mobile Phone implements such functions as RF signal receiving/transmitting, HSDPA/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.

The difference between U8651S and U8651T is showed in the following table.

	U8651S	U8651T
GSM four bands	the same	the same
WCDMA bands	WCDMA1900/AWS/850	WCDMA1900/AWS/850
FLASH	the same	the same
PCB	the same	the same
Appearance	the difference	the difference
Bluetooth mode	the same	the same
WLAN mode	the same	the same
BT/ WLAN antenna	the same	the same
GSM/ WCDMA antenna	the same	the same
External camera	the same	the same
internal camera	the same	the same
Adapter	the same	the same
Battery	the same	the same
Chipset	the same	the same
Memory	the same	the same
Form factor	Bar type, Internal antenna	Bar type, Internal antenna
RF Parameter	The same RF Parameter in the same band	The same RF Parameter in the same band
BT RF Parameter	the same	the same
Dimension	the same	the same
Weight	the same	the same
Bluetooth	the same	the same



External camera	the same	the same
Main Frequency NV	The same NV in the same band	The same NV in the same band
BT conducted power	the same	the same
WIFI conducted power	the same	the same

So U8651S RF test data refer to U8651T RF report .

3.1.2 Board

Table 1 Board Information

HSDPA/UMTS/GPRS/GSM/EDGE Mobile Phone with Bluetooth		
HUAWEI U8651S, U8651S, Summit		
Board and Module		
Hardware Version	Software Version	Serial Number
HD4U865M	U8651S100R001USAC85B2 9	L7M7ND1270400132

3.1.3 Adapter

AC/DC Adapter Model	HW-050100U1W
Manufacturer	Huawei Technologies Co., Ltd.
Input Voltage	~100-240V 50/60Hz 0.2A
Output Voltage	5V  1A
Rated Power	5W

3.1.4 Battery

Name	Manufacture	Description
Rechargeable Li-ion	Huawei Technologies Co., Ltd.	Battery Model: HB5K1H Rated capacity: 1400mAh Nominal Voltage:  +3.7V Charging Voltage:  +4.2V

4 Test Description

4.1.1 Supported Frequency Range

Characteristics	Description
Downlink	869 to 894 MHz;
Uplink	824 to 849 MHz

4.1.2 Transmitter / Receiver Characteristics

Characteristics	Description
System Type	GSM UMTS
TX Output Power (per Antenna Port)	GSM system: 33dBm UMTS system: 24dBm
Channel Spacing(s) / Bandwidth(s)	GSM system: 200 kHz UMTS system: 5 MHz
Designation of Emissions	GSM system: 249KGXW (GMSK modulation), 246KG7W (8PSK modulation) UMTS system: 4M18F9W

4.1.3 Antenna Gain

Antenna Gain(dBi):	-2
Antenna Gain(dBd):	-4.15

4.1.4 Power Supply

	Description
Power Supply Type	Directly Connected to DC /AC Power Supply
Input to Adapter (DC power)	DC Voltage Nominal: \equiv +3.7V DC Voltage Range: \equiv +3.6 V to +4.2V

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 128	Channel 192	Channel 251
		824.2MHz	837.0MHz	848.8MHz
	RX	Channel 128	Channel 192	Channel 251
		869.2MHz	882.0MHz	893.8MHz
TM3/TM4/TM5	TX	Channel 4132	Channel 4182	Channel 4233
		826.4MHz	836.4MHz	846.6MHz
	RX	Channel 4357	Channel 4407	Channel 4458
		871.4MHz	881.4MHz	891.6MHz

5.2 Test Modes

Test Mode	Test Modes Description
TM1	GSM/GPRS, GMSK modulation
TM2	EDGE, 8PSK modulation
TM3	WCDMA QPSK modulation
TM4	HSDPA 16QAM modulation

5.3 Test Environments

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

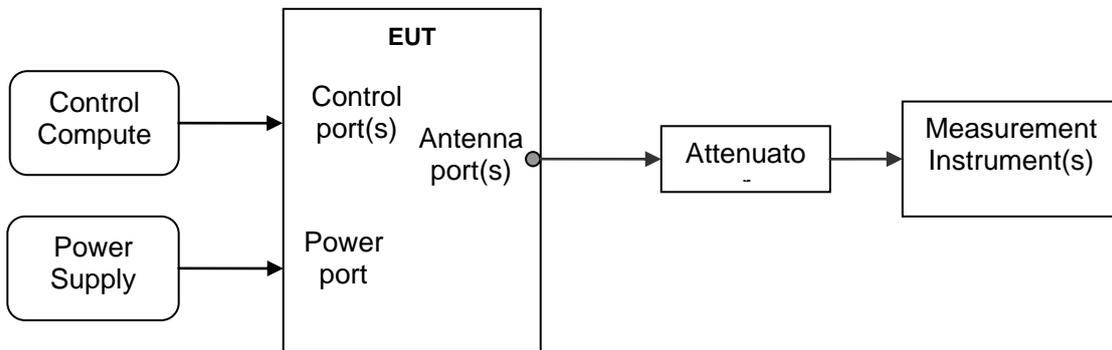
NOTE: VL= lower extreme test voltages
VN= nominal voltage
VH= upper extreme test voltage
TN= nominal temperature

5.4 Test Setups

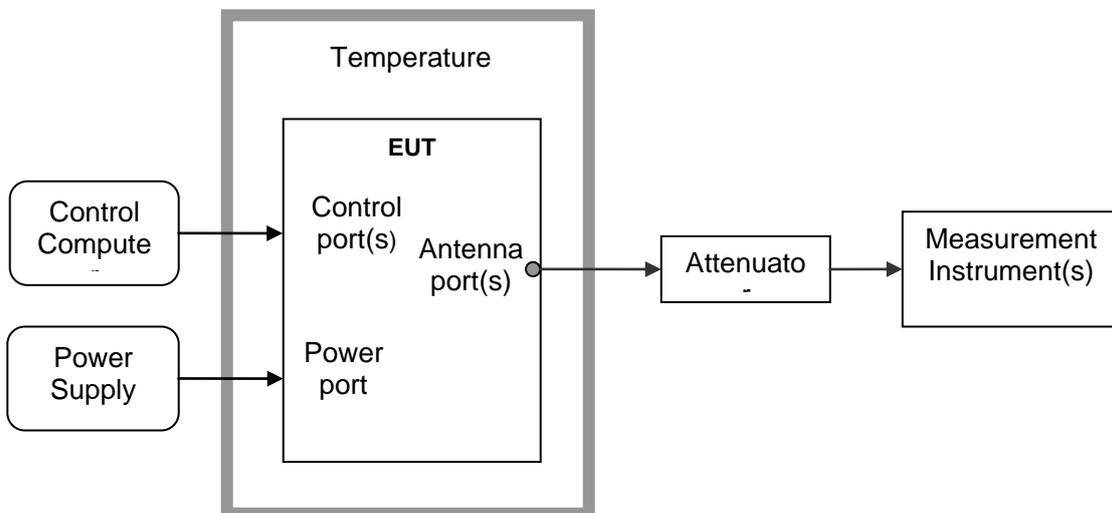
5.4.1 General Test Setup Configurations

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



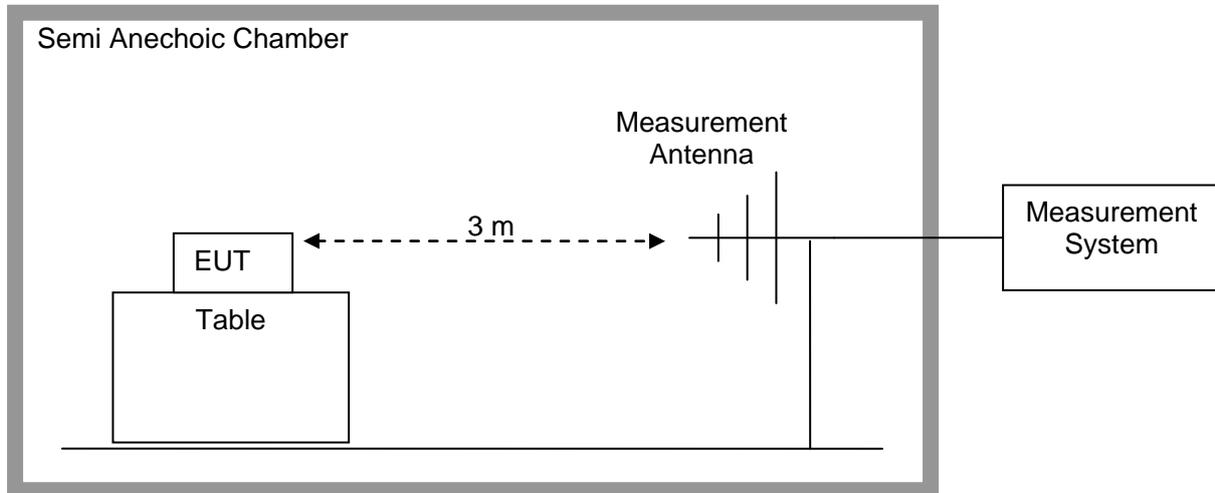
5.4.3 Test Setup 2



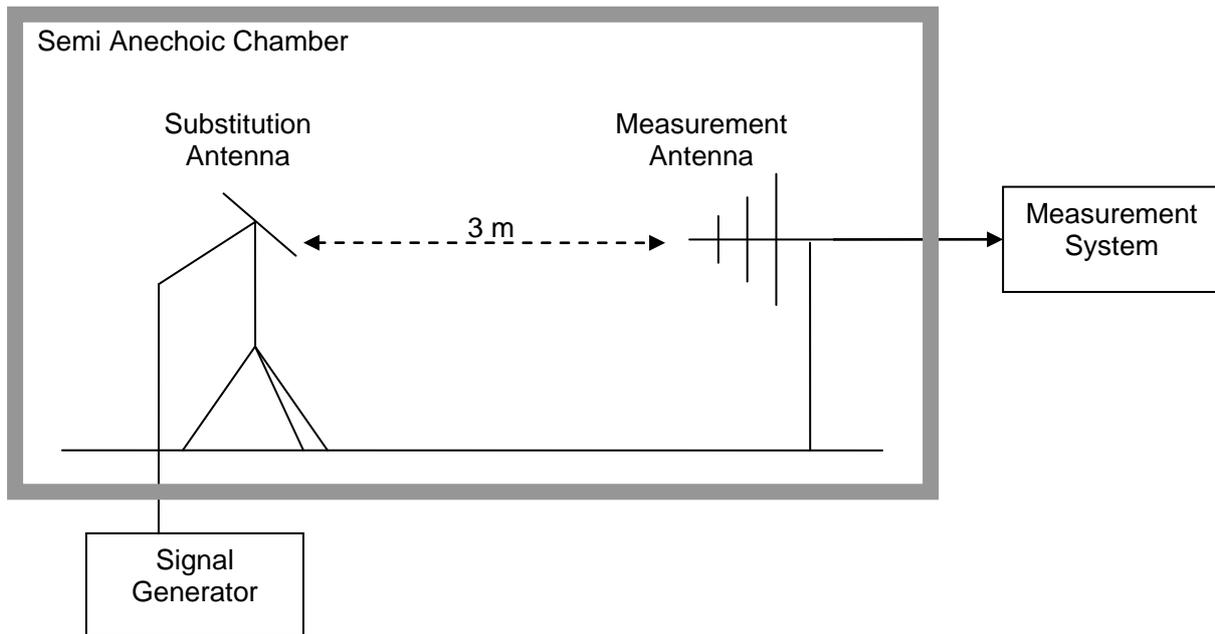
5.4.4 Test Setup 3

NOTE: Effective radiated power (ERP) refers to the radiation power output of the EUT, assuming all emissions are radiated from half-wave dipole antennas.

Step 1: Pre-test



Step 2: Substitution method to verify the maximum ERP



5.5 Test Conditions

Test Case	Test Conditions	
Transmitter Output Power	Test Configuration	Ambient Temperature & Rated Voltage
	Test Setup	Test Setup 1 & Setup 3
	Detector	RMS
	RF Channels (TX)	B, M, T
	Test Mode	TM1/TM2/TM3/TM4
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)	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
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



Test Case	Test Conditions	
	RF Channels (TX)	M
	Test Mode	TM1/TM2/TM3

6 Main Test Instruments

Table 2 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	Apr.20,2012
Signal Analyzer	R&S	FSQ31	200021	Sep.27,2012
Temperature Chamber	WEISS	WKL64	24600294	Jan.03,2013
Signal generator	Agilent	E8257D	MY49281095	Jul.9.2012
Test receiver	R&S	ESU26	100150	May.29.2012
Tunable Dipole	Schwarzbeck	D69250-UHAP/D69250-VHAP	919/1009	Jan.29.2012
Tunable Dipole	Schwarzbeck	D69250-UHAP/D69250-VHAP	979/917	Jan.29.2012
Horn Antenna	R & S	HF906	100683	May.15, 2012
Horn Antenna	R & S	HF906	100684	Jul.01, 2012
Broadband Antenna	Schwarzbeck	VULB 9163	9163-357	May.15, 2012
Broadband Antenna	Schwarzbeck	VULB 9163	9163-356	May.15, 2012



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: The Appendix H only photos of Test Setup, 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 & Part 22.913
& RSS-132



Conducted Power of Transmitter

Table 1 Measurement Results

		RF Output Power (Conducted)					
TEST CONDITIONS		Channel128(B)		Channel192(M)		Channel251(T)	
		824.2MHz		837.0MHz		848.8MHz	
		dBm		dBm		dBm	
T_{nom} / V_{nom}		Measured	Limit	Measured	Limit	Measured	Limit
TM1		31.42	38.50	31.52	38.50	31.53	38.50
TM2		27.11	38.50	27.23	38.50	27.26	38.50
TEST CONDITIONS		Channel4132(B)		Channel4182(M)		Channel4233(T)	
		826.4MHz		836.4MHz		846.6MHz	
		dBm		dBm		dBm	
T_{nom} / V_{nom}		Measured	Limit	Measured	Limit	Measured	Limit
TM3		22.12	38.50	21.96	38.50	22.16	38.50
TM4	Case1	22.03	38.50	21.85	38.50	22.01	38.50
	Case2	21.85	38.50	21.71	38.50	21.87	38.50
	Case3	21.35	38.50	21.19	38.50	21.4	38.50
	Case4	21.42	38.50	21.4	38.50	21.37	38.50



Peak-to-Average Ratio

Measurement Results

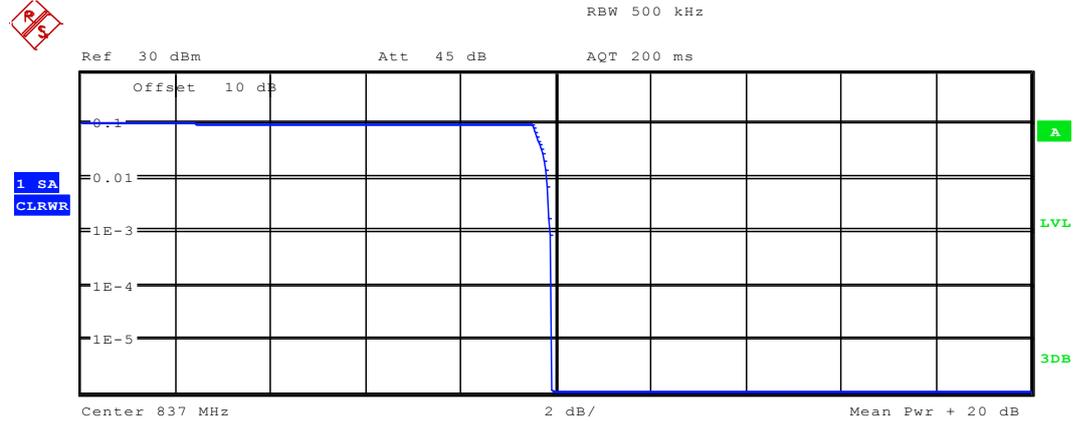
TEST CONDITIONS		Channel512(B)		Channel661(M)		Channel810(T)	
		1850.2MHz		1880.0MHz		1909.8MHz	
		dBm		dBm		dBm	
T_{nom} / V_{nom}		Measured	Limit	Measured	Limit	Measured	Limit
TM1		9.86	13.0	9.91	13.0	9.46	13.0
TM2		9.34	13.0	9.78	13.0	9.65	13.0
TEST CONDITIONS		Channel9262(B)		Channel9400(M)		Channel9538(T)	
		1852.4MHz		1880.0MHz		1907.6MHz	
		dBm		dBm		dBm	
T_{nom} / V_{nom}		Measured	Limit	Measured	Limit	Measured	Limit
TM3		3.45	13.0	3.81	13.0	3.26	13.0
TM4	Case1		13.0		13.0		13.0
	Case2		13.0		13.0		13.0
	Case3		13.0		13.0		13.0
	Case4		13.0		13.0		13.0



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



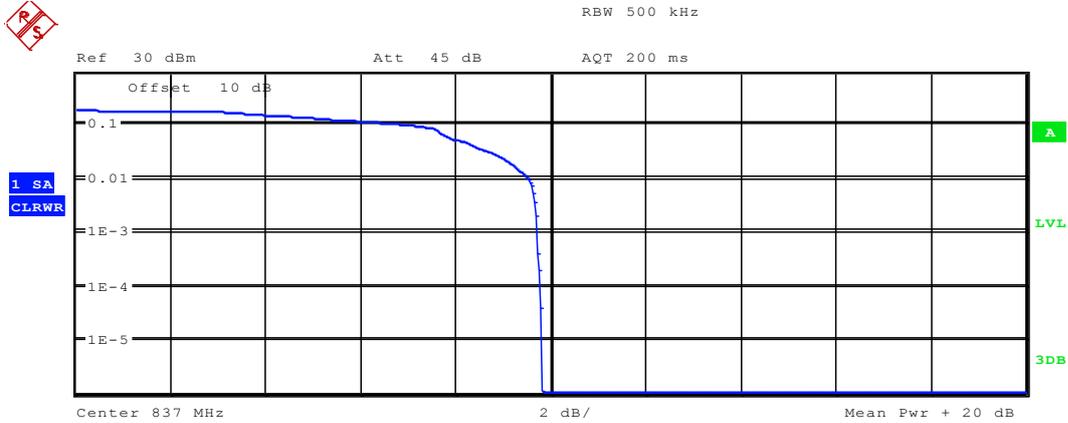
Complementary Cumulative Distribution Function
 NOF samples: 100000, Usable BW: 424kHz

Trace 1	
Mean	14.53 dBm
Peak	24.44 dBm
Crest	9.92 dB
10 %	9.52 dB
1 %	9.84 dB
.1 %	9.90 dB
.01 %	9.94 dB

Date: 24.FEB.2012 17:34:03



TM2



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

Trace 1		
Mean	11.26	dBm
Peak	21.06	dBm
Crest	9.80	dB
10 %	7.21	dB
1 %	9.55	dB
.1 %	9.74	dB
.01 %	9.81	dB

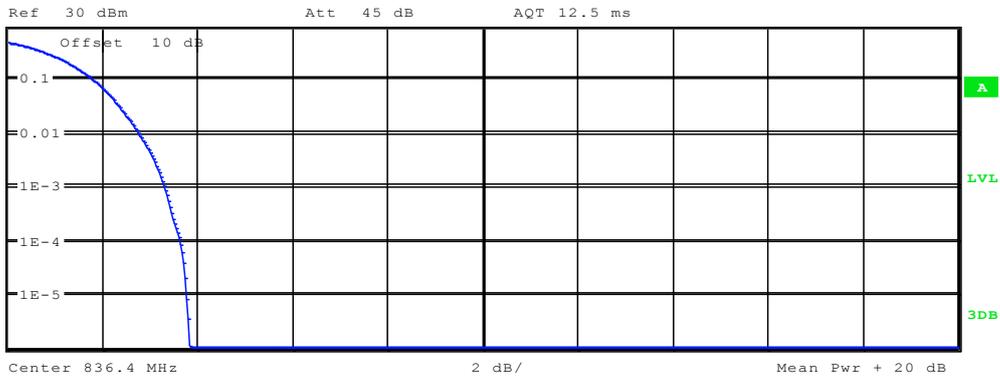
Date: 24.FEB.2012 17:37:03



TM3/TM4



RBW 5 MHz



Complementary Cumulative Distribution Function
 NOF samples: 100000, Usable BW: 7.1MHz

		Trace 1	
Mean		14.40	dBm
Peak		18.23	dBm
Crest		3.83	dB
10 %		1.79	dB
1 %		2.76	dB
.1 %		3.30	dB
.01 %		3.65	dB

Date: 24.FEB.2012 17:42:51



Effective Radiated Power of Transmitter (ERP)

Table 2 Substitution Results

Test Mode	Freq. [MHz]	Meas. Level [dBm]	Substitution Antenna Type	SGP [dBm]	Substitution Gain [dBd]	Cable Loss [dB]	Substitution Level (ERP) [dBm]	FCC limit [dBm]	Result
TM1	824.2	27.27	Dipole Ant.	30.6	-2.75	0.6	27.25	38.5	Pass
TM1	837.0	27.37	Dipole Ant.	30.84	-2.87	0.6	27.37	38.5	Pass
TM1	848.8	27.38	Dipole Ant.	30.77	-2.85	0.6	27.32	38.5	Pass
TM2	824.2	22.96	Dipole Ant.	26.3	-2.75	0.6	22.95	38.5	Pass
TM2	837.0	23.08	Dipole Ant.	26.49	-2.87	0.6	23.02	38.5	Pass
TM2	848.8	23.11	Dipole Ant.	26.6	-2.85	0.6	23.15	38.5	Pass
TM3	826.4	17.97	Dipole Ant.	21.29	-2.75	0.6	17.94	38.5	Pass
TM3	836.4	17.81	Dipole Ant.	21.32	-2.87	0.6	17.85	38.5	Pass
TM3	846.6	18.01	Dipole Ant.	21.47	-2.85	0.6	18.02	38.5	Pass

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

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

b, SGP=Signal Generator Level

The END



Appendix B

Modulation Characteristics

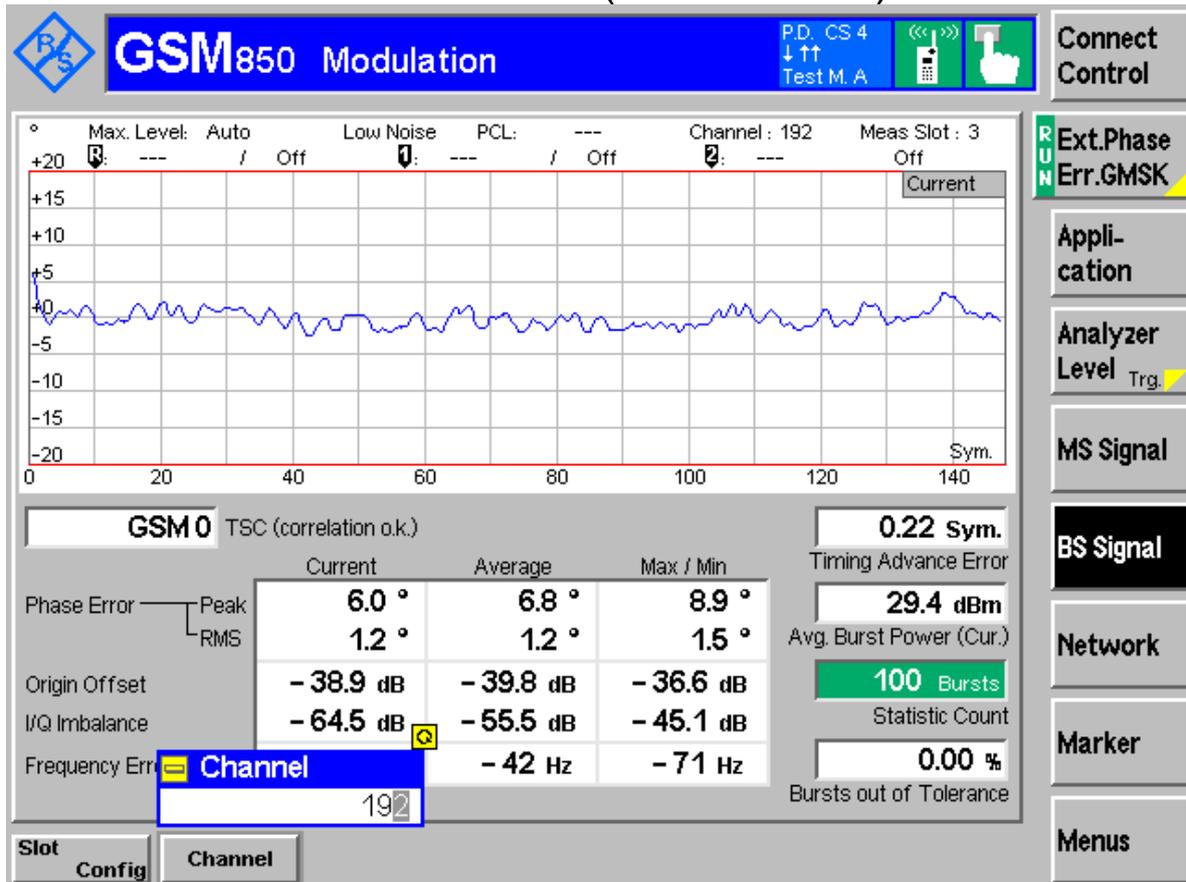
According to FCC Part 2.1047 & Part22 Subpart H



1 Test Plot

1.1 Test Mode = TM 1

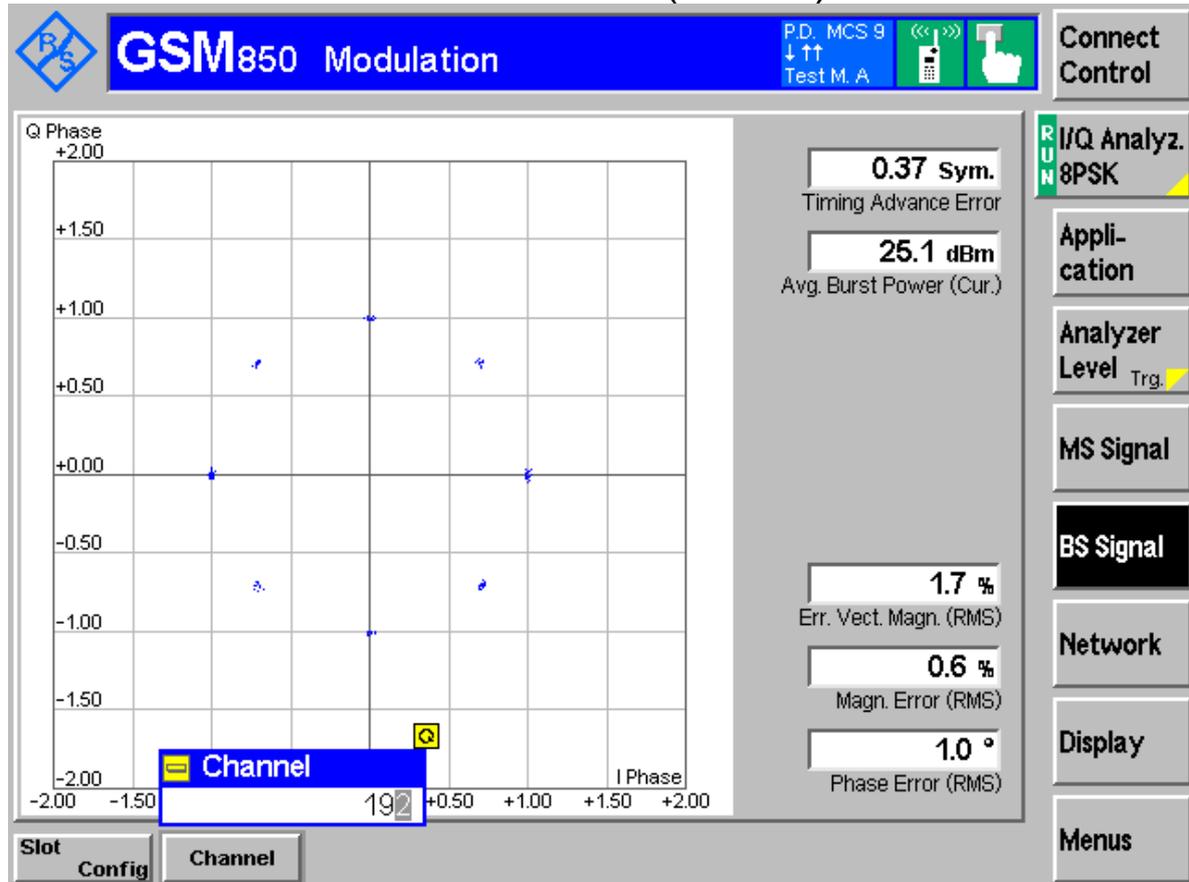
Channel 192 (GPRS/GSM)





1.2 Test Mode = TM 2

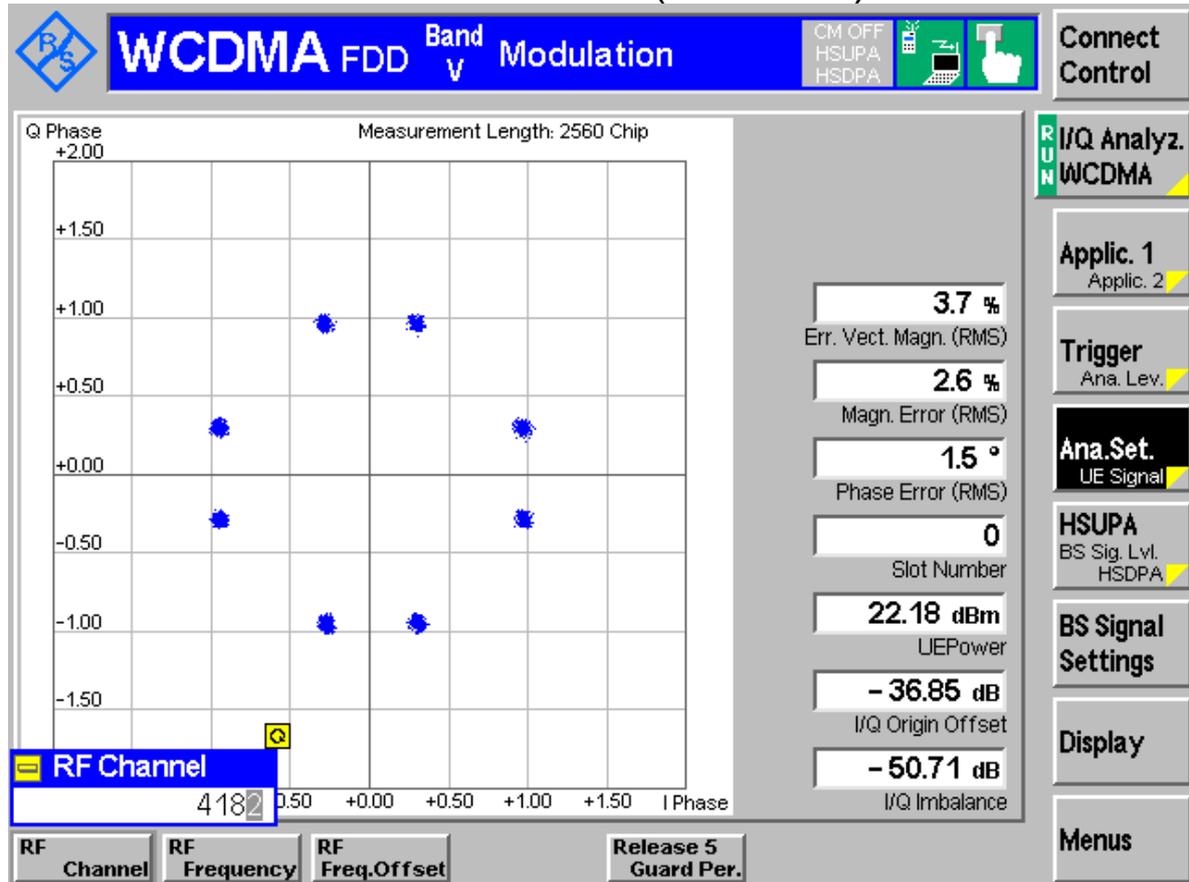
Channel 192 (EDGE)





1.3 Test Mode = TM 3

Channel 4182 (WCDMA)



The END



Appendix C

Occupied Bandwidth

According to FCC Part 2.1049 & Part 22 Subpart H



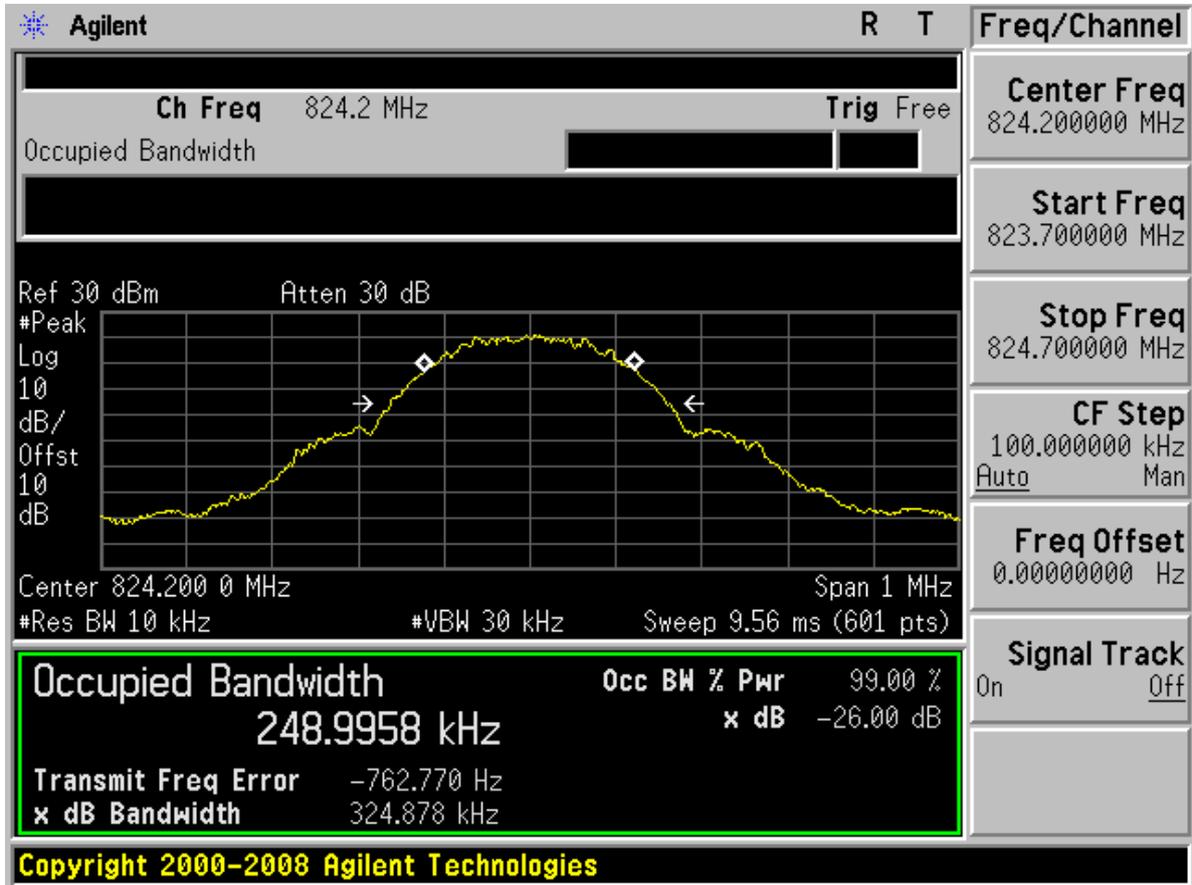
Result Table

Table 1 Measurement Results

Test Mode	RF Channel	Occupied Bandwidth [kHz]	-26dB BW [kHz]	Verdict
TM1	128	249.0	324.9	Pass
	192	246.8	319.6	Pass
	251	241.2	316.5	Pass
TM2	128	245.6	317.7	Pass
	192	243.2	316.0	Pass
	251	240.8	320.7	Pass
Test Mode	RF Channel	Occupied Bandwidth [MHz]	-26dB BW [MHz]	Verdict
TM3	4132	4.17	4.66	Pass
	4182	4.17	4.65	Pass
	4233	4.18	4.66	Pass

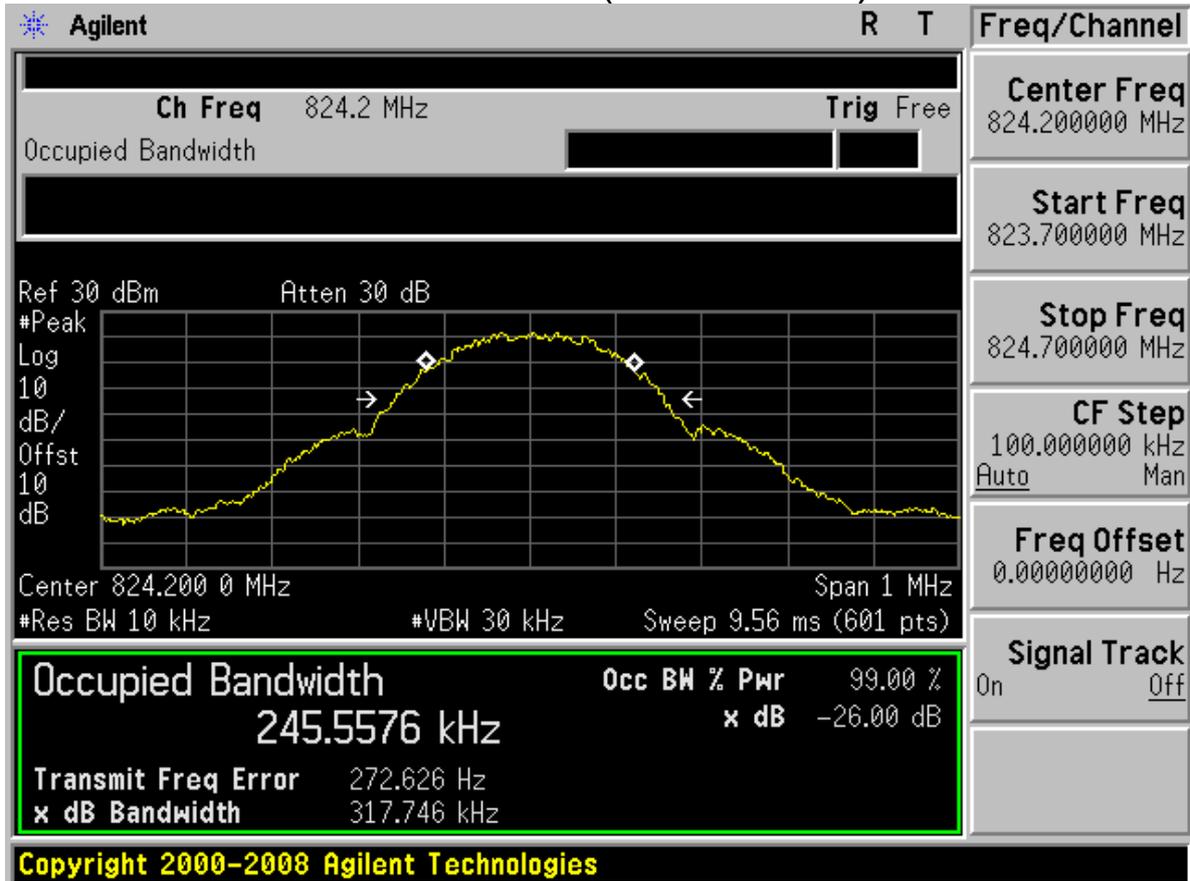


Channel 128(TM1:GPRS/GSM)



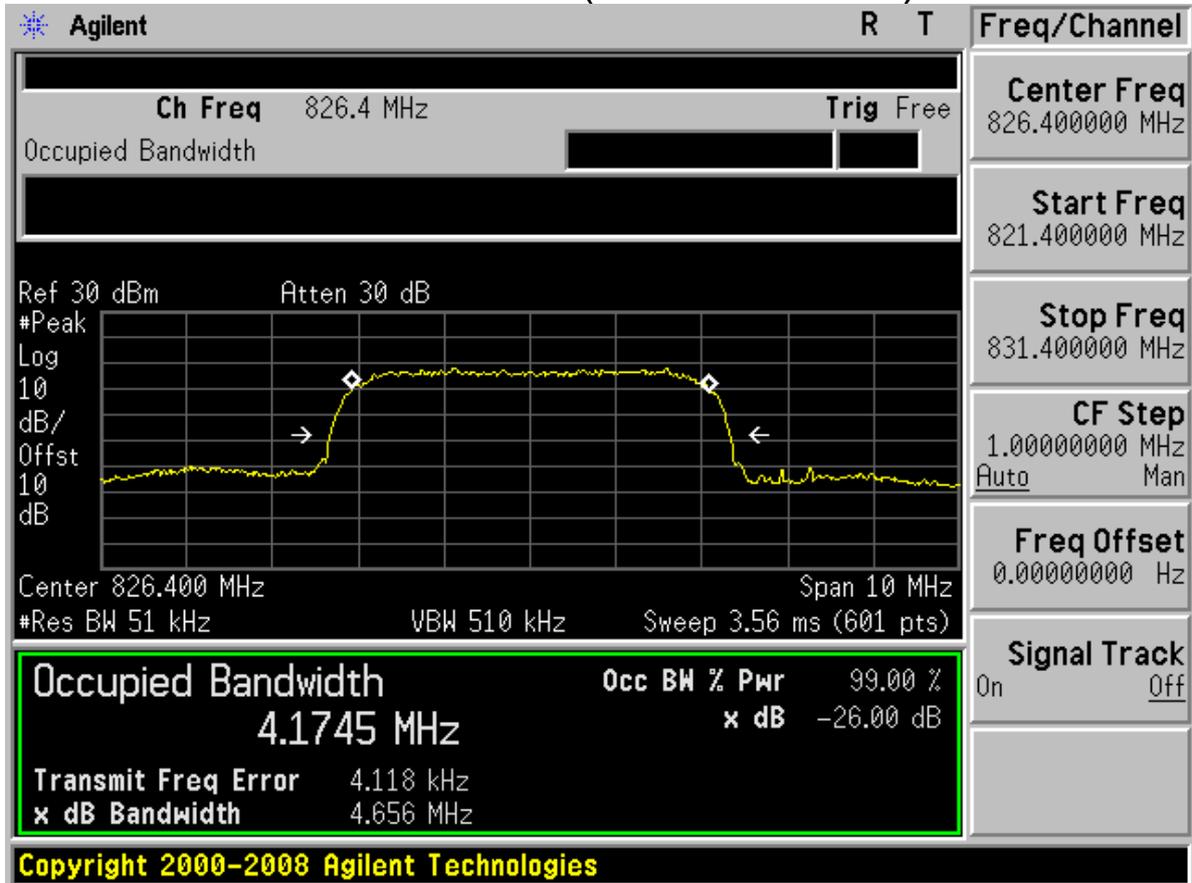


Channel 128(TM2:EDGE)



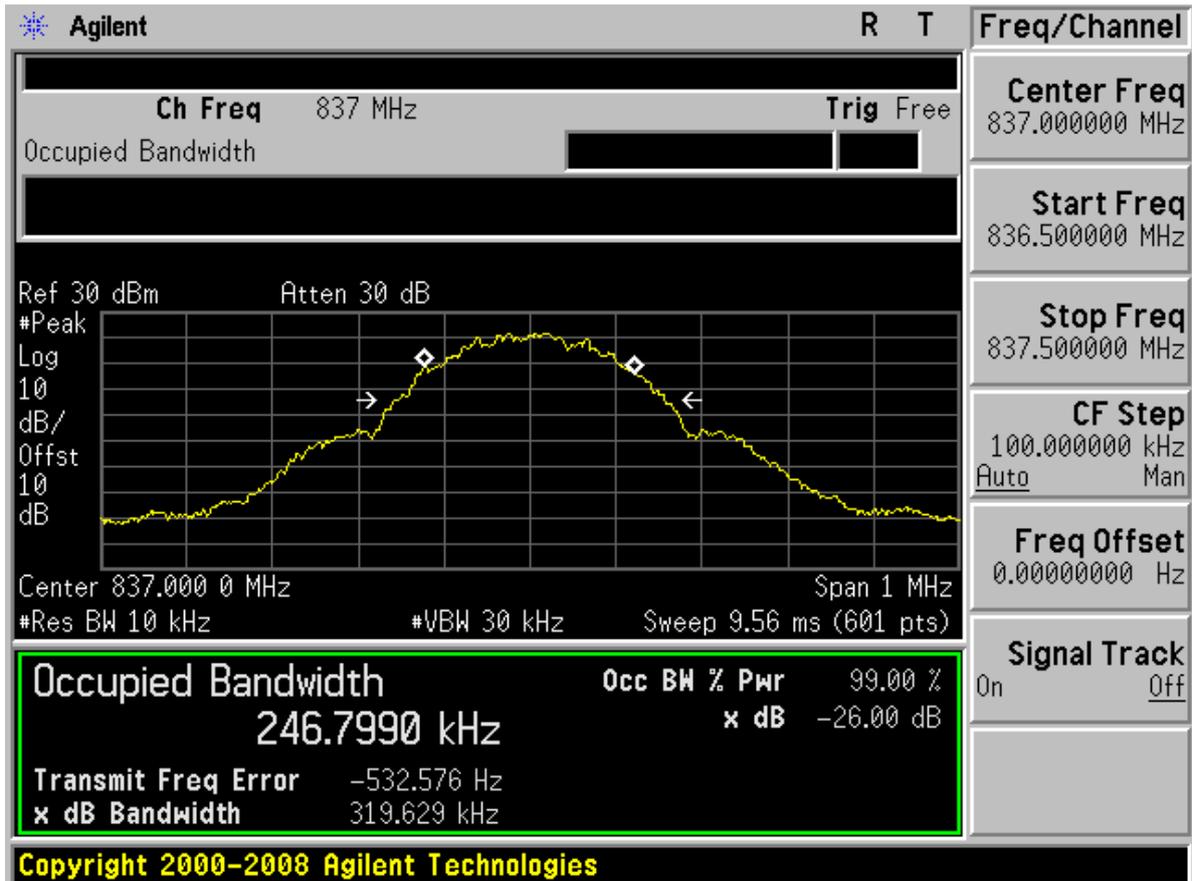


Channel 4132(TM3: WCDMA)



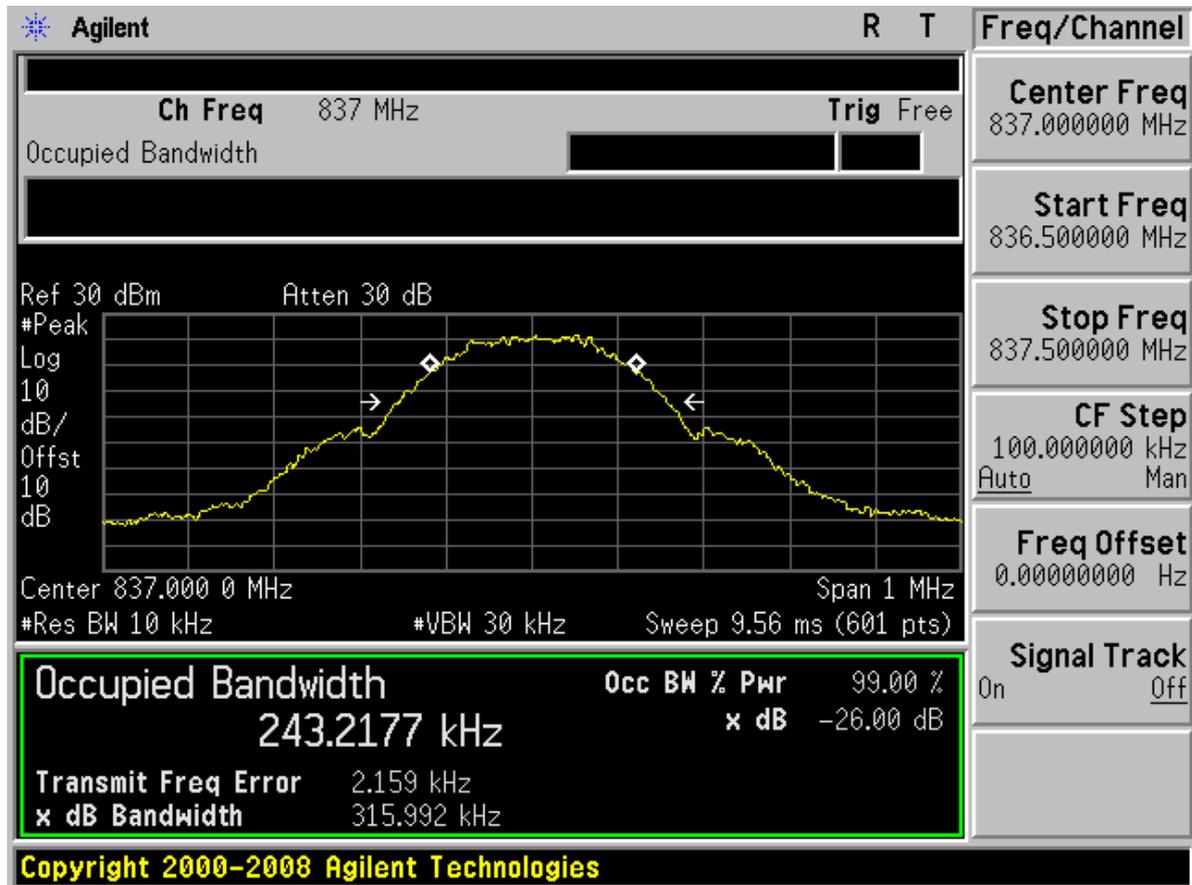


Channel 192(TM1:GPRS/GSM)

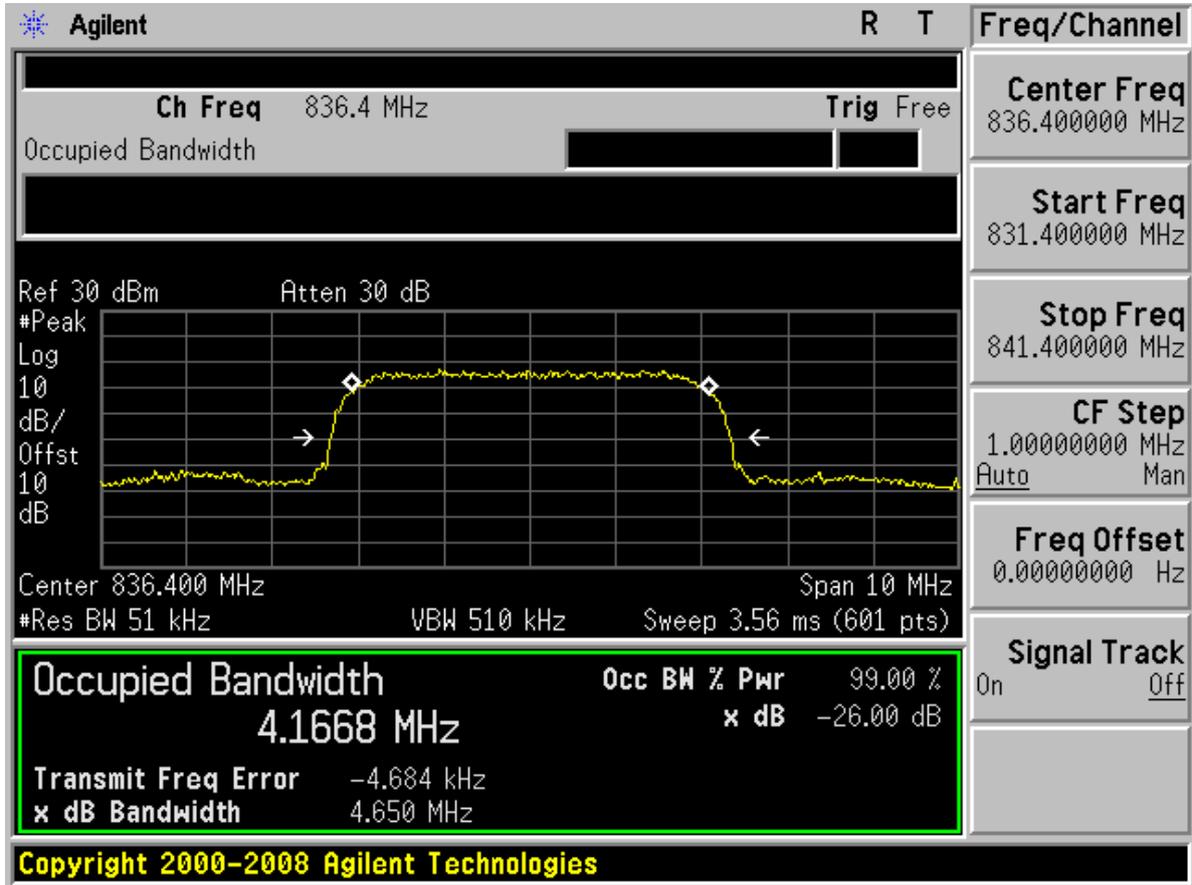




Channel 192(TM2:EDGE)



Channel 4182(TM3: WCDMA)



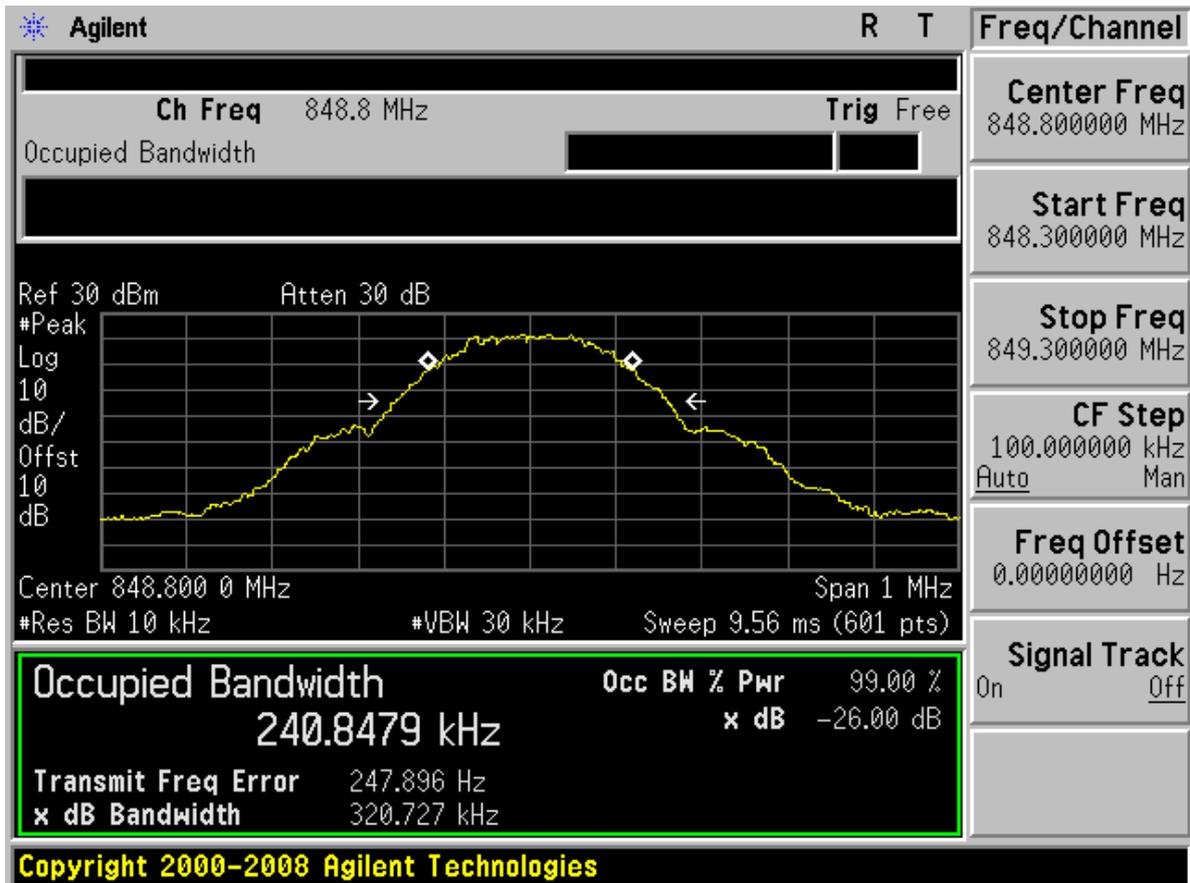


Channel 251(TM1:GPRS/GSM)



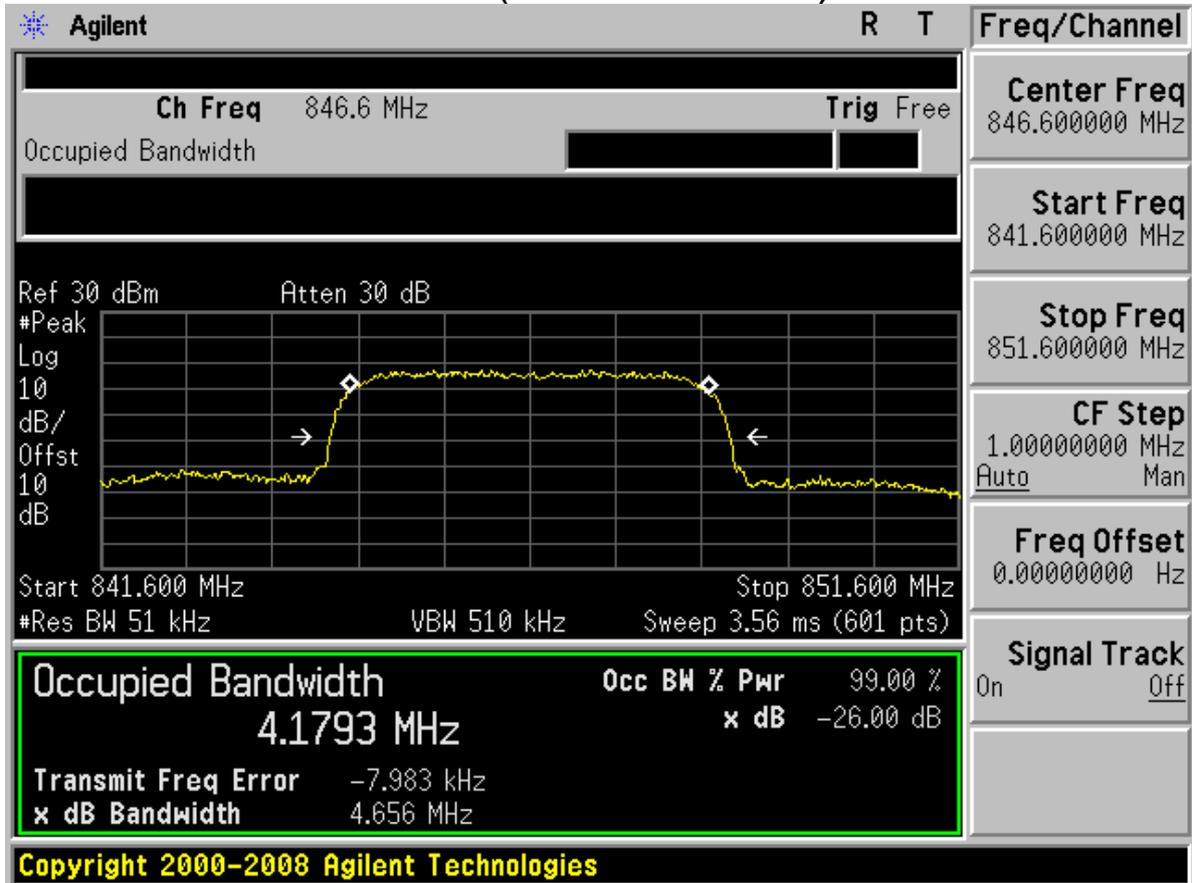


Channel 251(TM2:EDGE)





Channel 4233(TM3: WCDMA)



The END



Appendix D

Band Edges Compliance

According to FCC Part 2.1051 & Part 22 Subpart H



26dB Occupied Bandwidth

Note: All relevant operation modes have been tested, and the widest case data is included in this table.

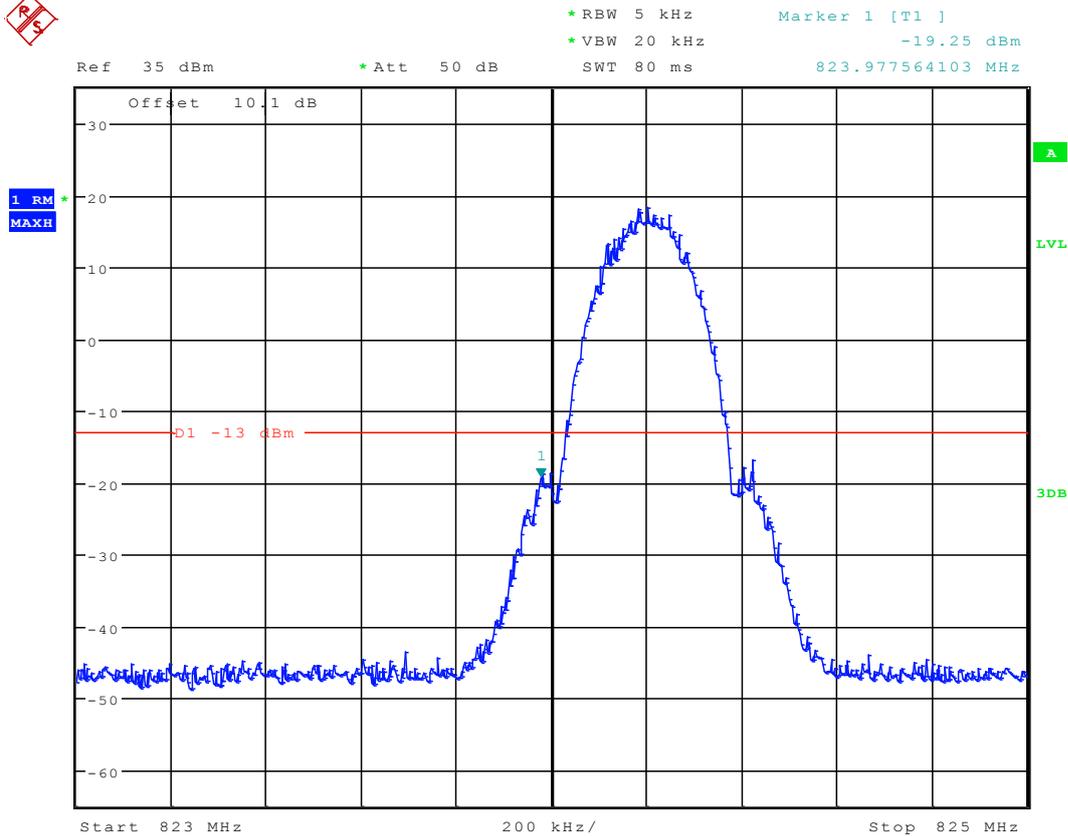
Mode	-26dB BW [kHz]	RBW to Measure Band Edge [kHz]
TM1/TM2	324.9	≥ 3.25 , used 5
TM3	4660	≥ 46.6 used 50



TM1:GPRS/GSM

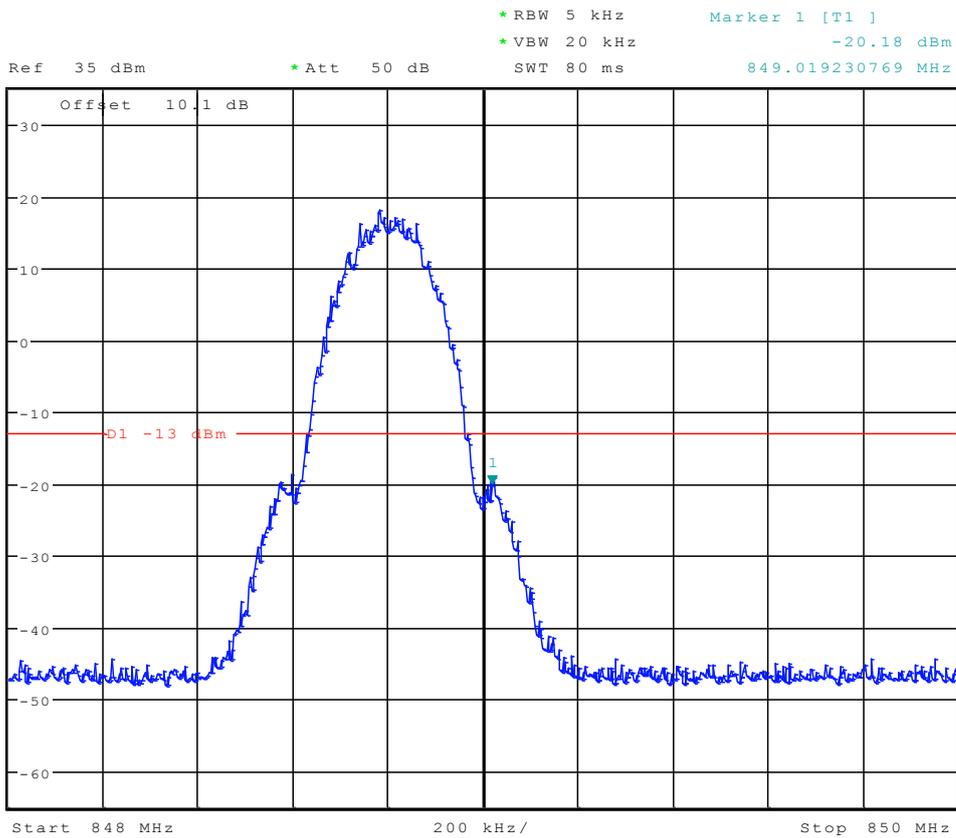
Left Edge

Channel 128





Right Edge Channel 251

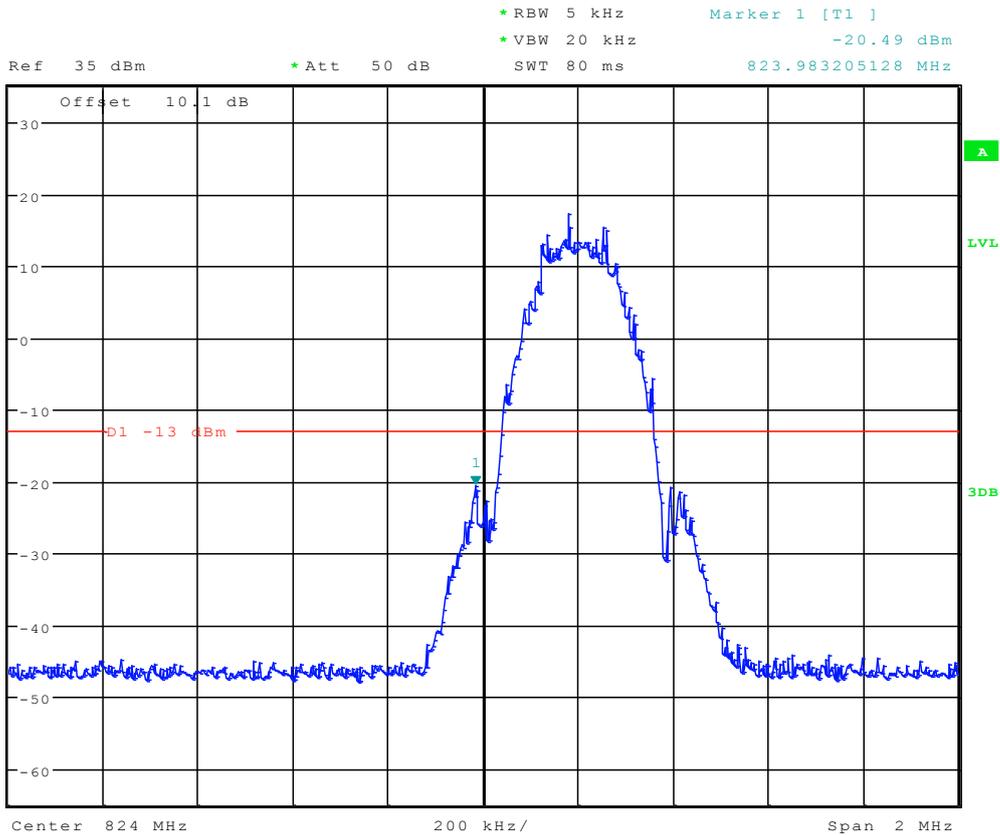




TM2:EDGE

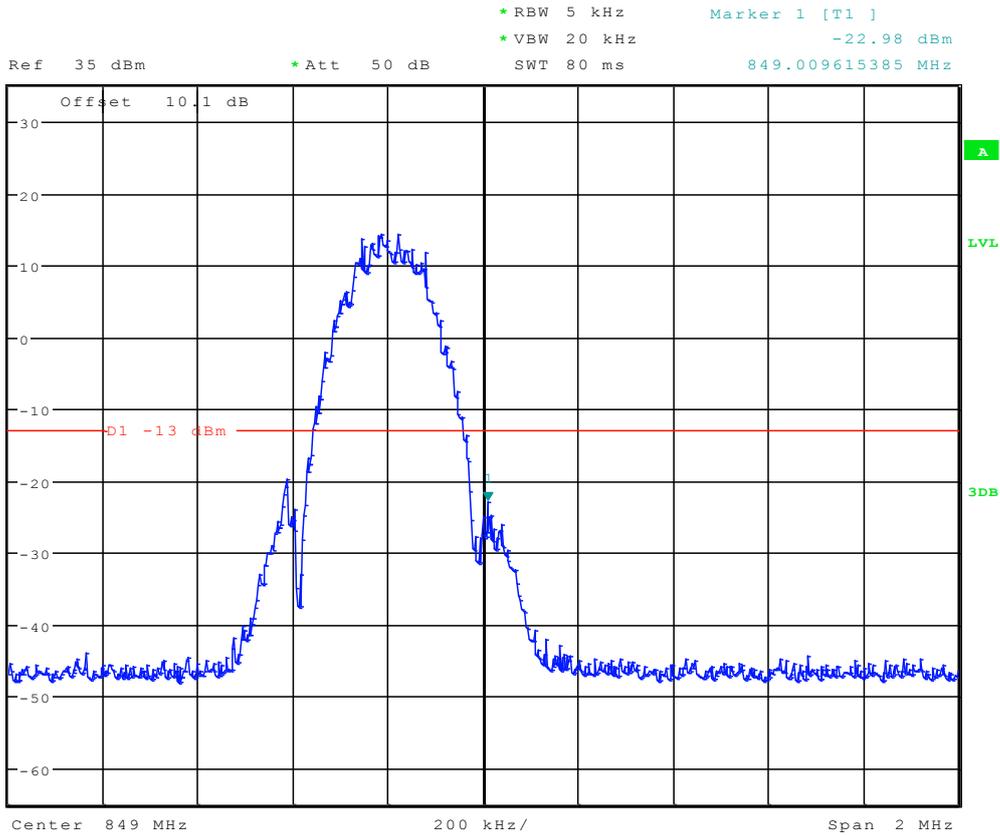
Left Edge

Channel 128





Right Edge Channel 251





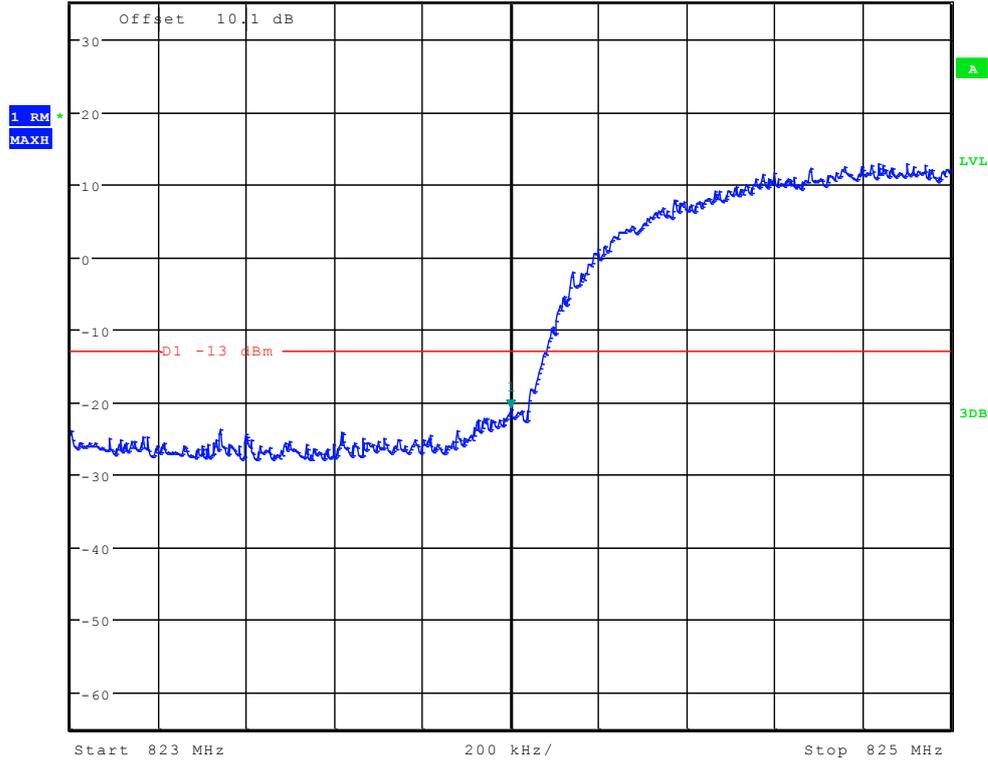
TM3: WCDMA

Left Edge

Channel 4132

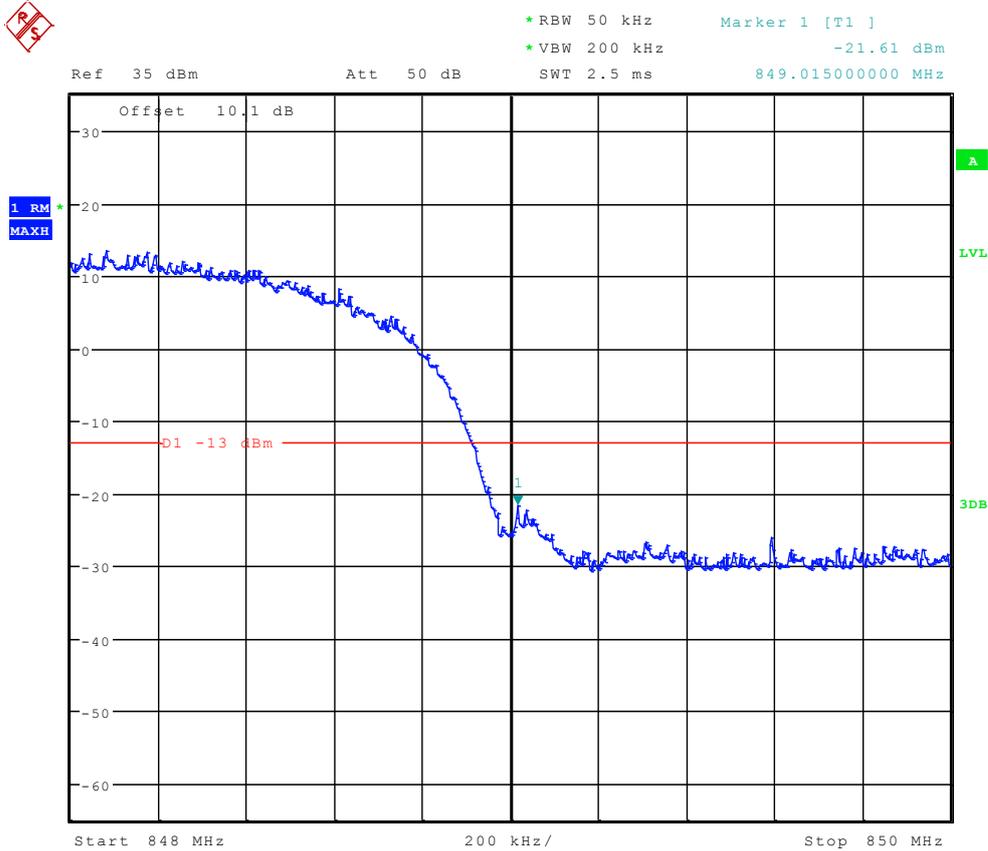


Ref 35 dBm Att 50 dB RBW 50 kHz Marker 1 [T1] -20.96 dBm
SWT 2.5 ms 824.000000000 MHz





Right Edge Channel 4233



The END



Appendix E

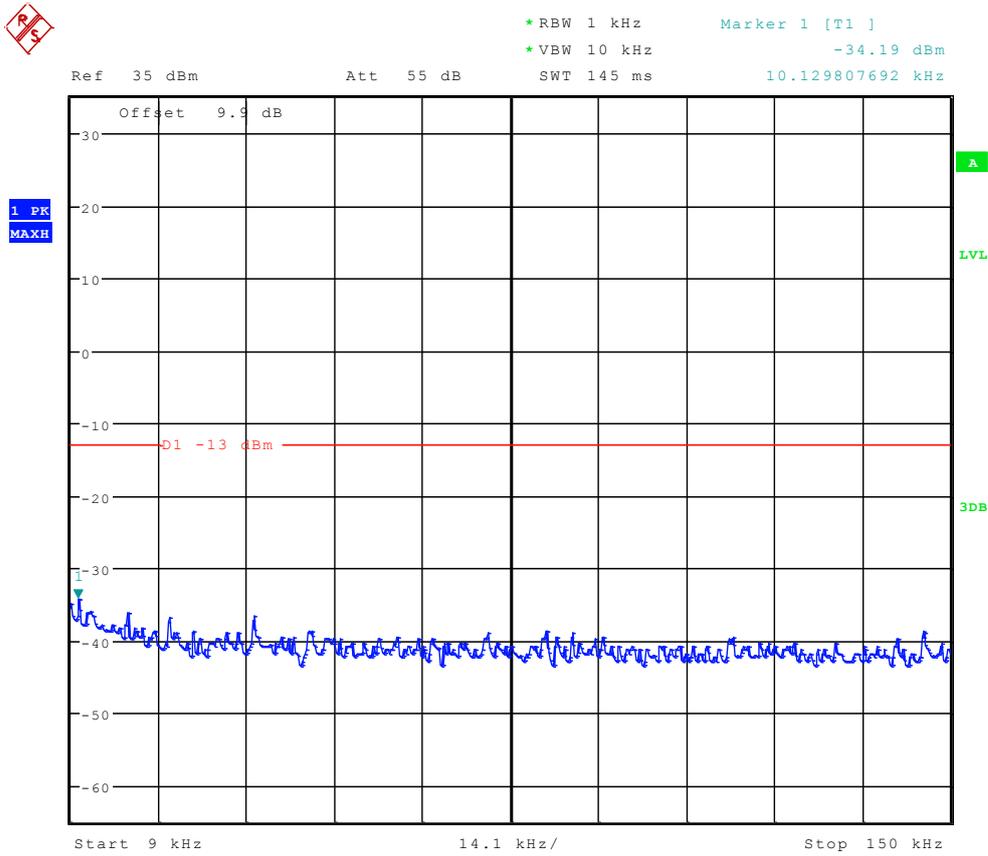
Spurious Emission at Antenna Terminal

According to FCC Part 2.1051 & Part 22 Subpart H



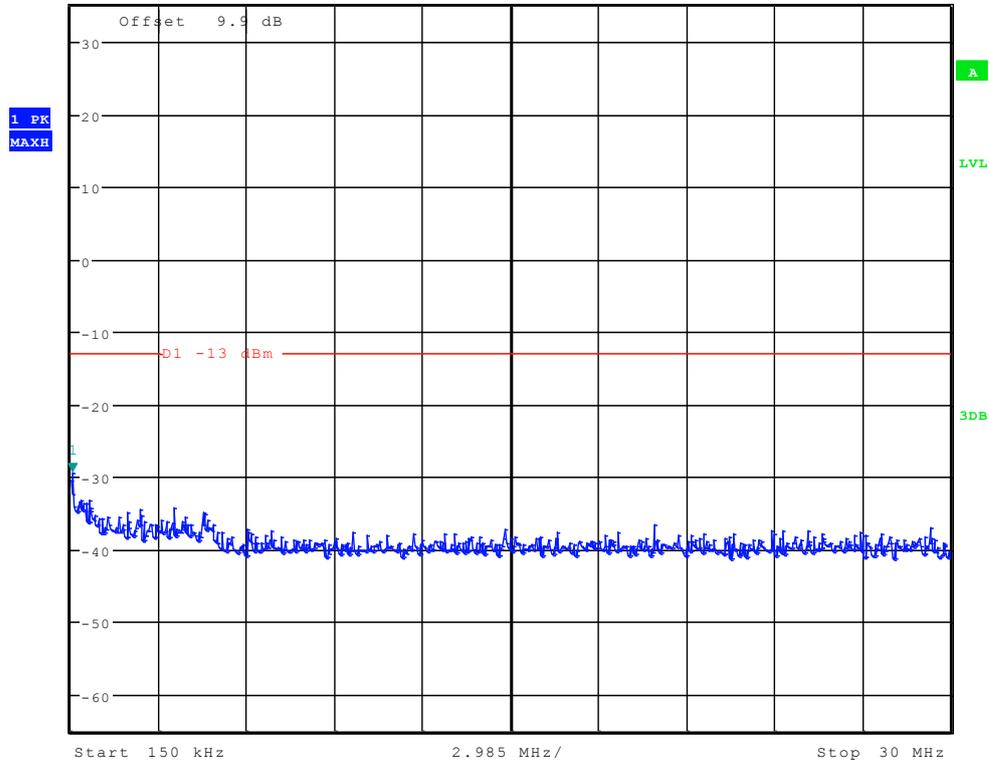
TM1: GPRS/GSM

Channel 128



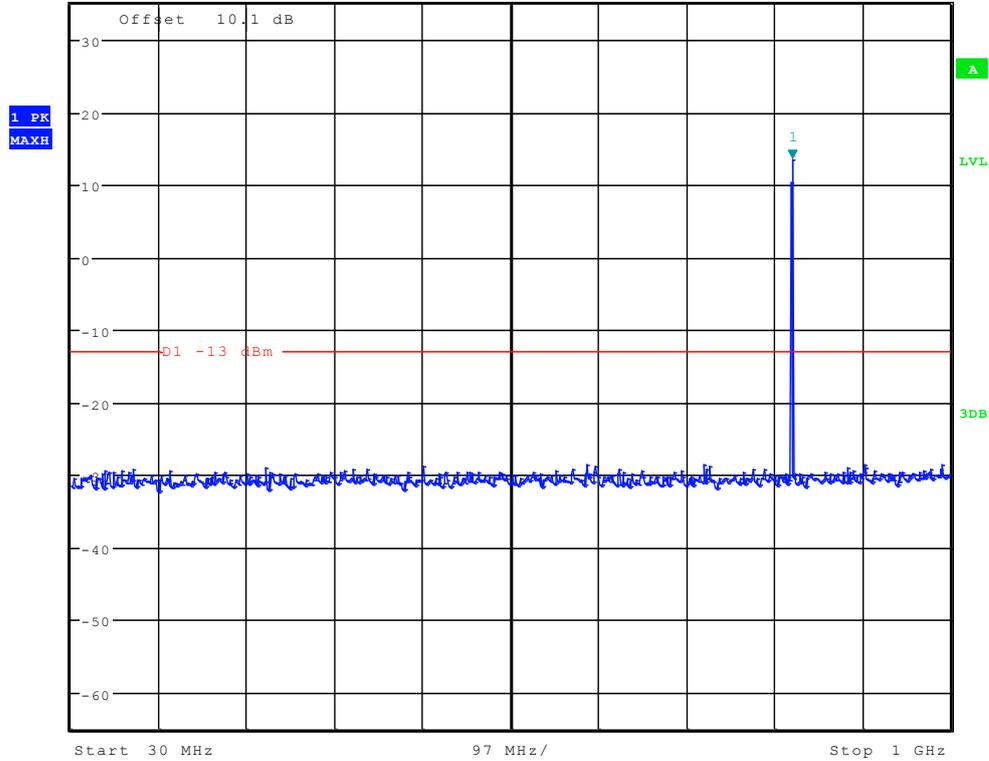


Ref 35 dBm Att 55 dB SWT 300 ms 197.836538462 kHz
*RBW 10 kHz Marker 1 [T1]
*VBW 30 kHz -29.48 dBm



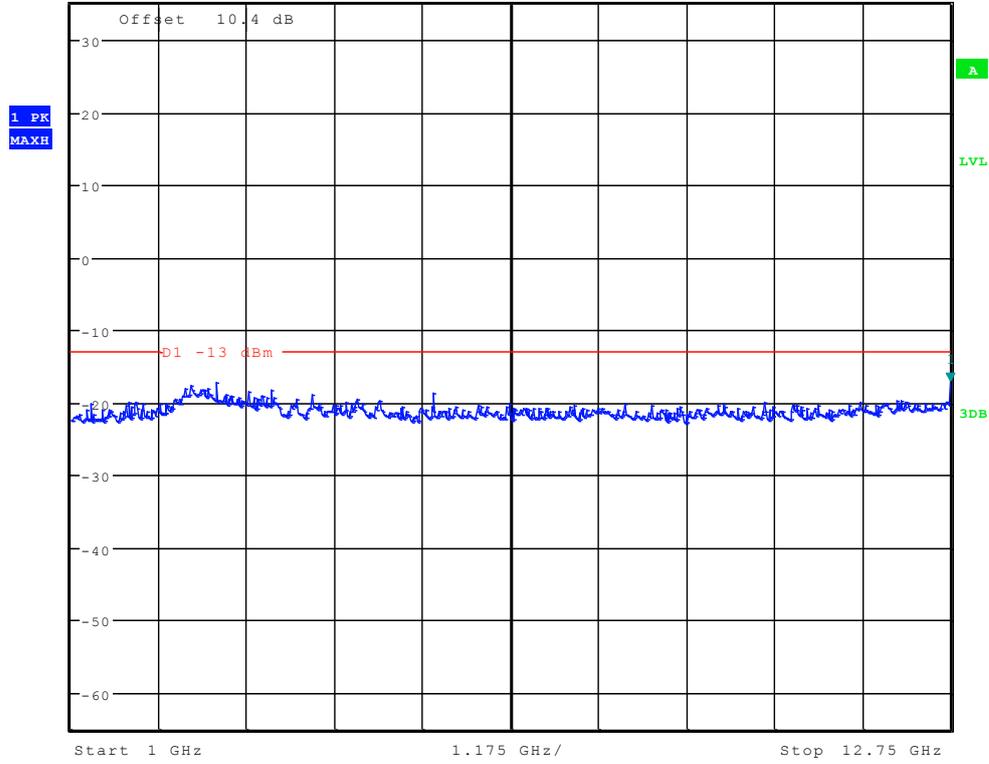


Ref 35 dBm Att 50 dB SWT 100 ms 825.897435897 MHz
*RBW 100 kHz Marker 1 [T1]
*VBW 300 kHz 13.42 dBm





*RBW 1 MHz Marker 1 [T1]
*VBW 3 MHz -17.12 dBm
Ref 35 dBm Att 50 dB SWT 70 ms 12.75000000 GHz

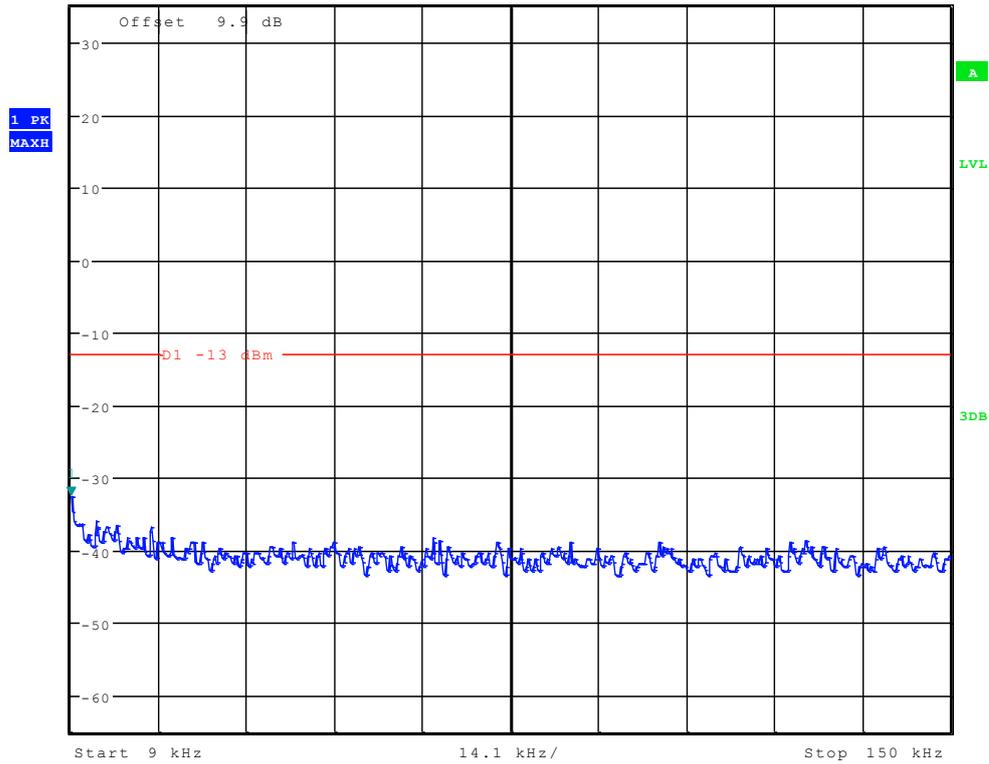




Channel 192

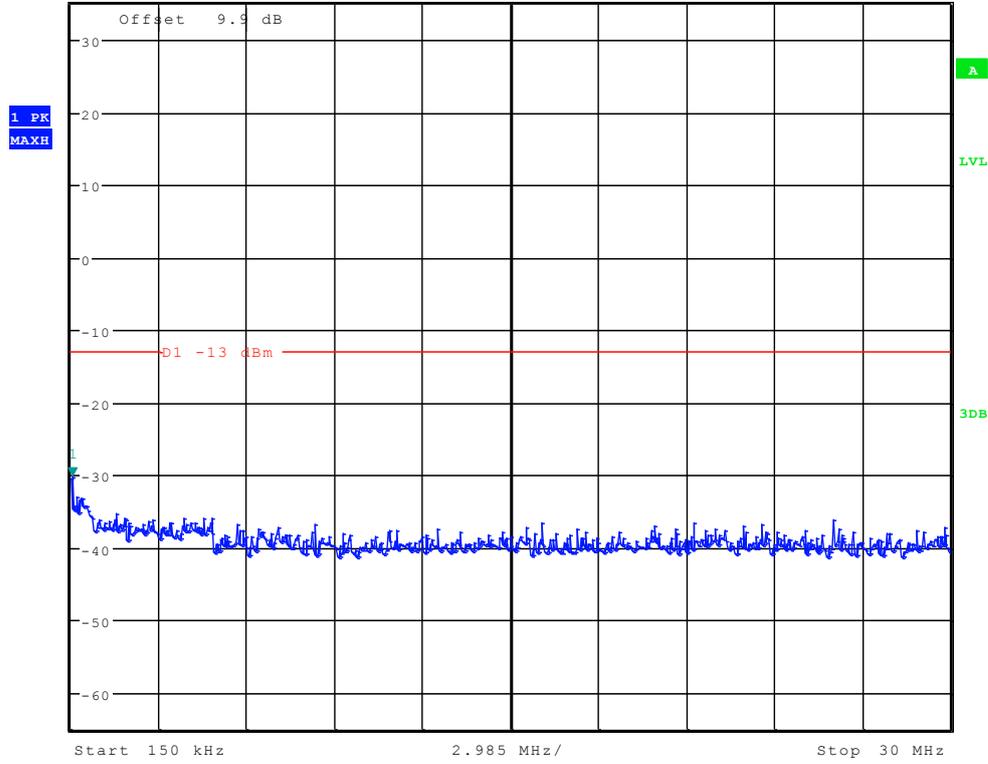


*RBW 1 kHz Marker 1 [T1]
 *VBW 10 kHz -32.50 dBm
 Ref 35 dBm Att 55 dB SWT 145 ms 9.000000000 kHz



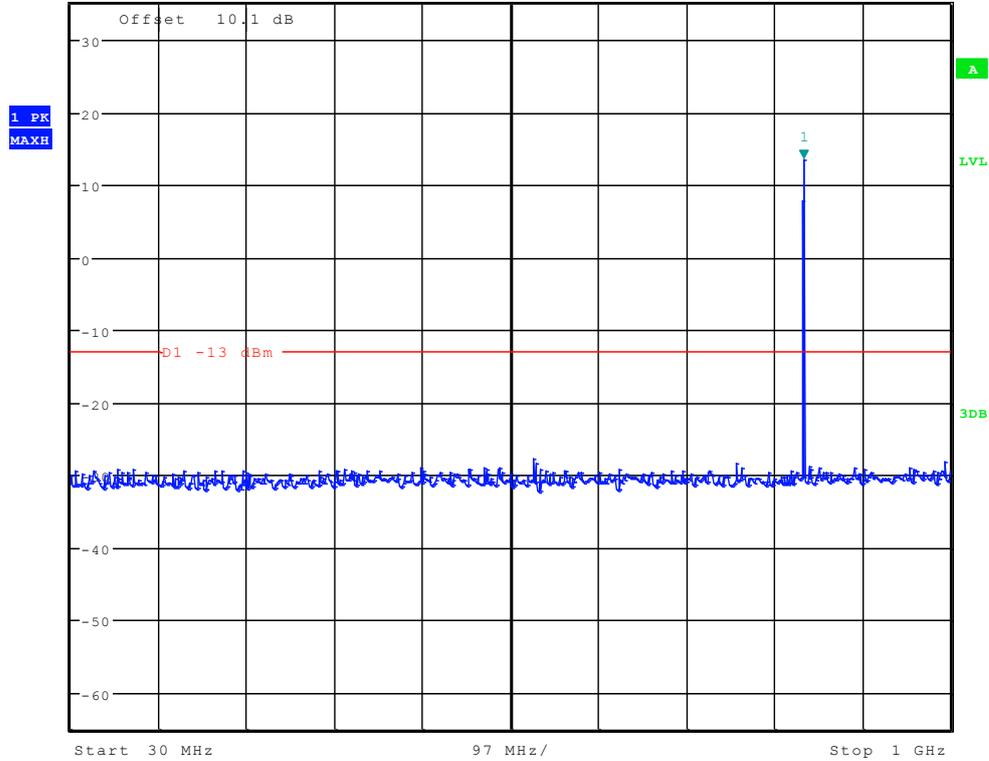


Ref 35 dBm Att 55 dB SWT 300 ms 197.836538462 kHz
*RBW 10 kHz Marker 1 [T1]
*VBW 30 kHz -30.28 dBm



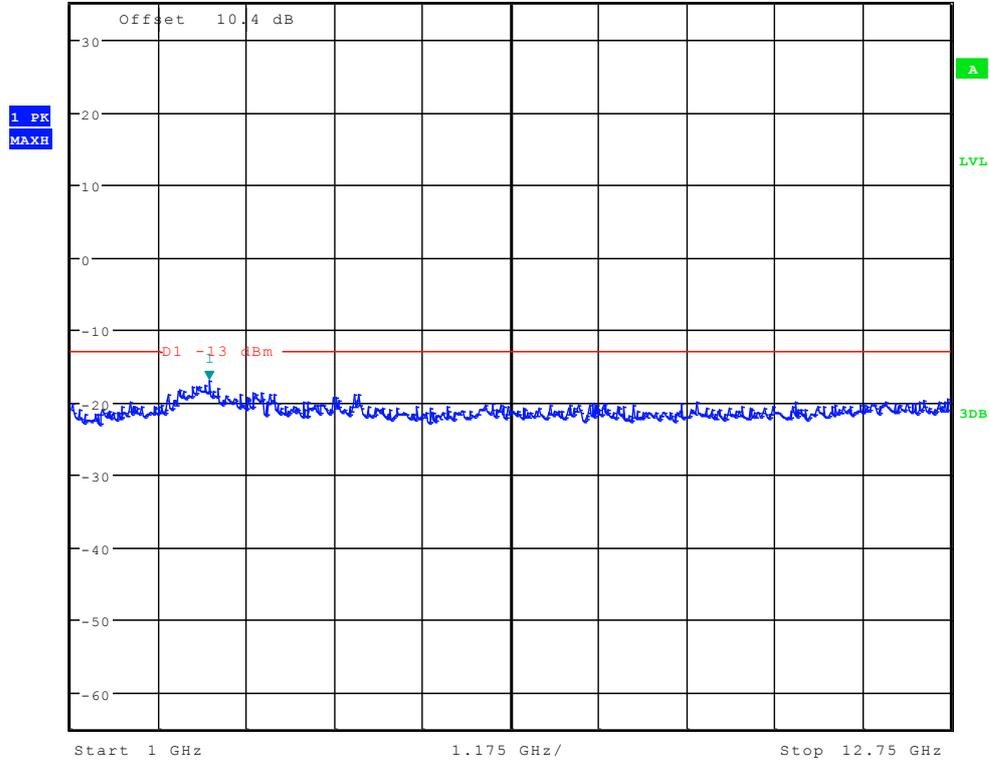


Ref 35 dBm Att 50 dB SWT 100 ms 838.333333333 MHz
*RBW 100 kHz Marker 1 [T1] 13.38 dBm
*VBW 300 kHz



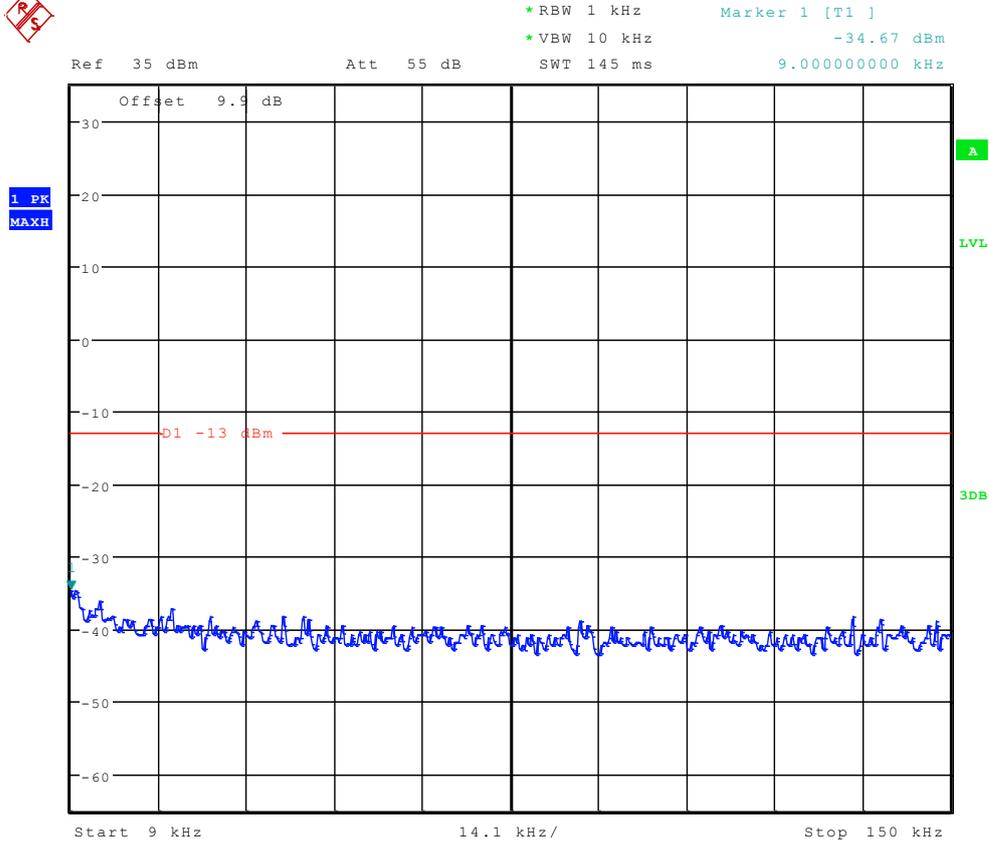


*RBW 1 MHz Marker 1 [T1]
 *VBW 3 MHz -17.09 dBm
 Ref 35 dBm Att 50 dB SWT 70 ms 2.845352564 GHz



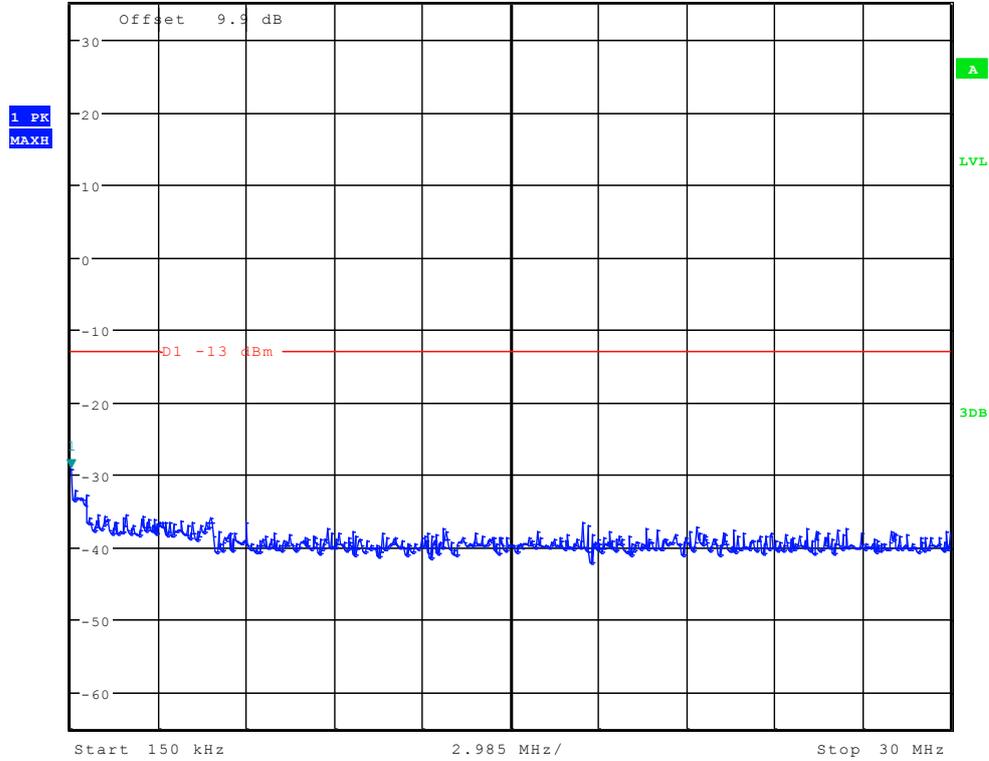


Channel 251



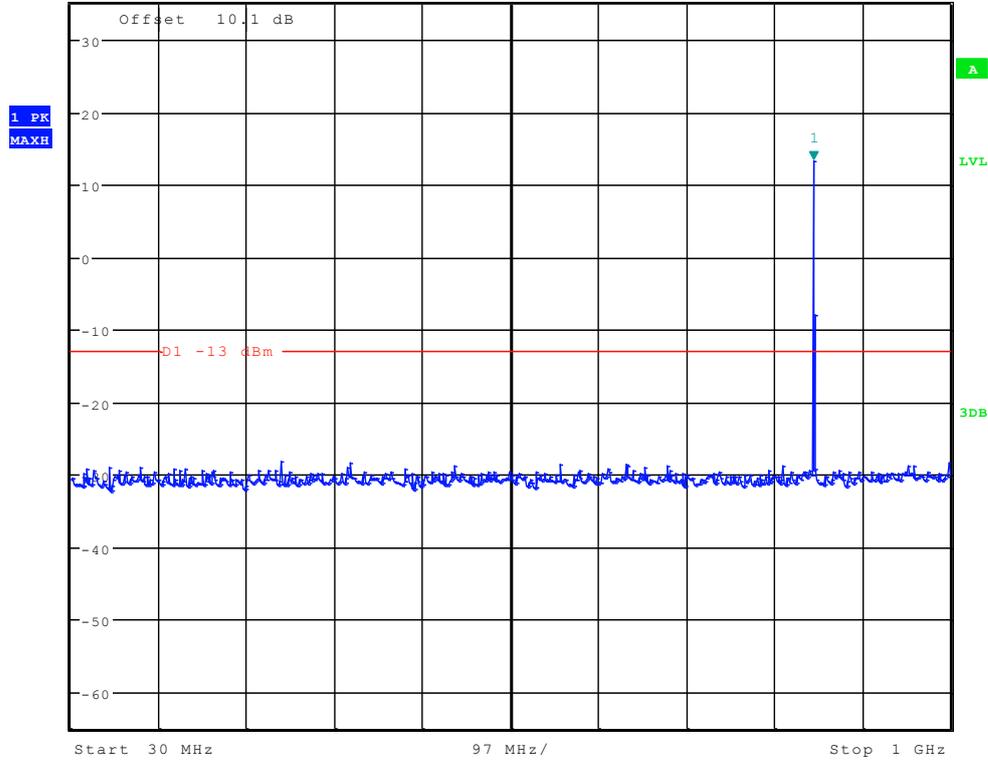


Ref 35 dBm Att 55 dB SWT 300 ms 150.00000000 kHz
*RBW 10 kHz Marker 1 [T1]
*VBW 30 kHz -29.21 dBm



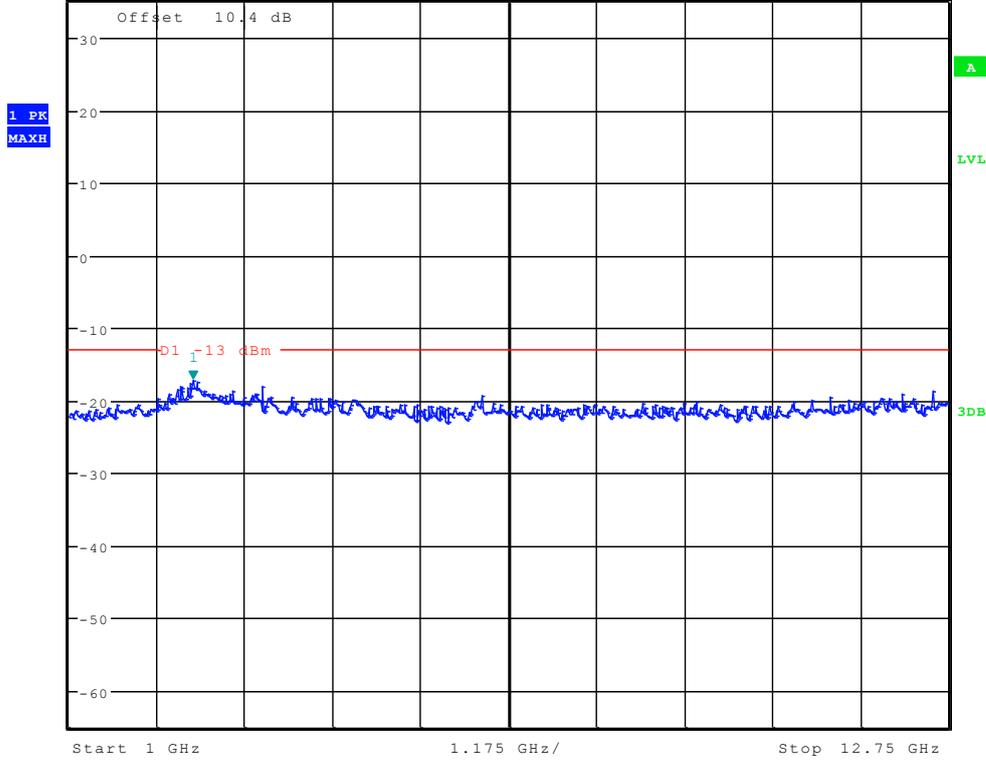


Ref 35 dBm Att 50 dB SWT 100 ms
*RBW 100 kHz Marker 1 [T1] 13.33 dBm
*VBW 300 kHz 849.214743590 MHz





* RBW 1 MHz Marker 1 [T1]
* VBW 3 MHz -17.22 dBm
Ref 35 dBm Att 50 dB SWT 70 ms 2.657051282 GHz

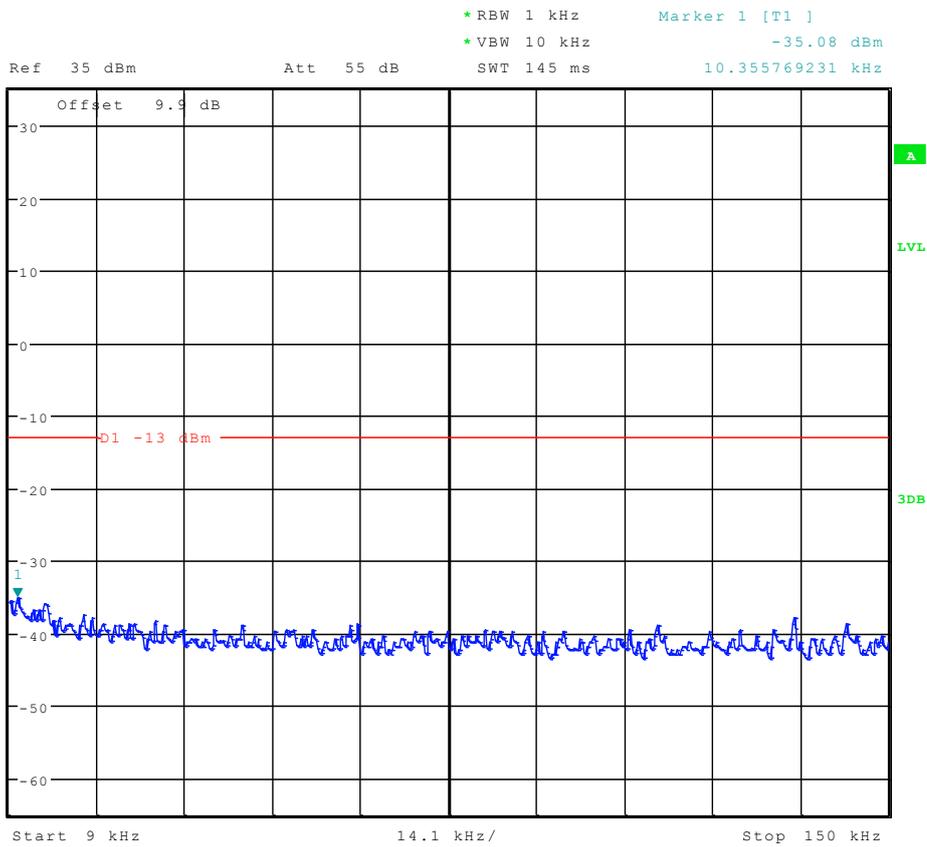




TM2: EDGE Channel 128

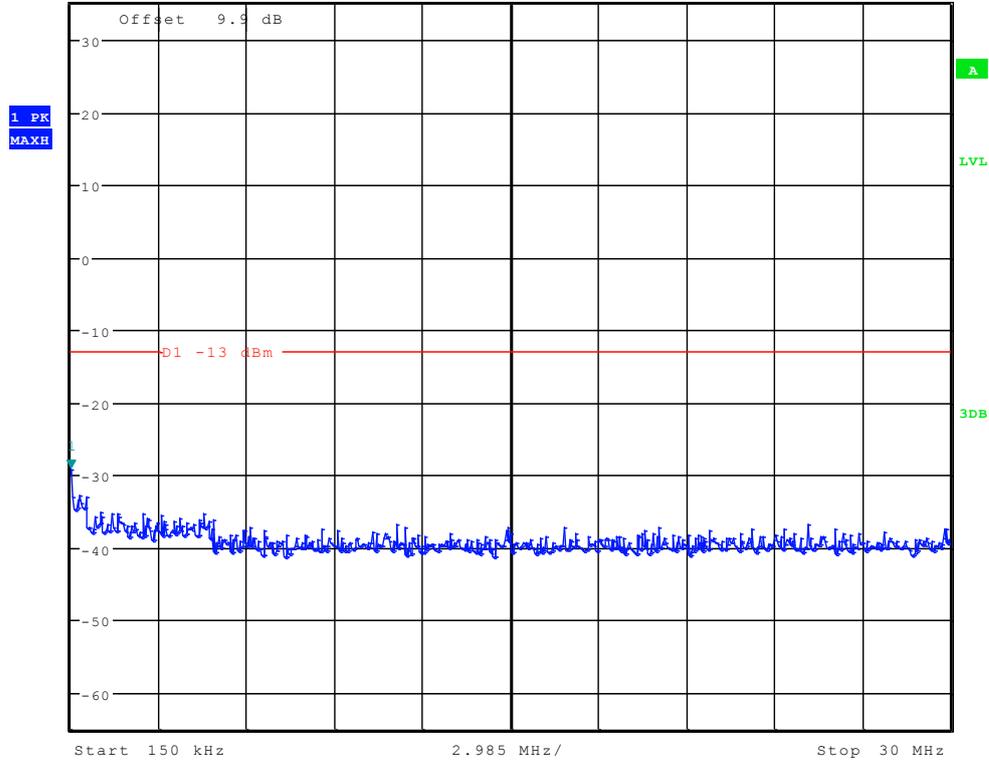


1 PK
MAXH



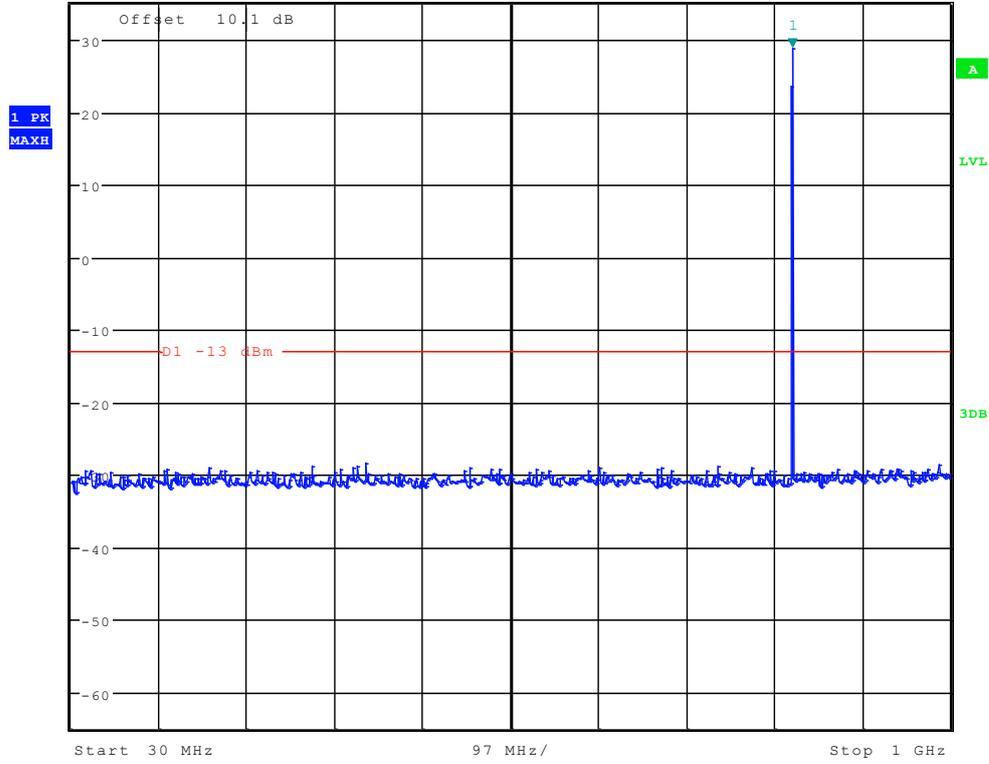


Ref 35 dBm Att 55 dB SWT 300 ms 150.00000000 kHz
*RBW 10 kHz Marker 1 [T1]
*VBW 30 kHz -29.16 dBm



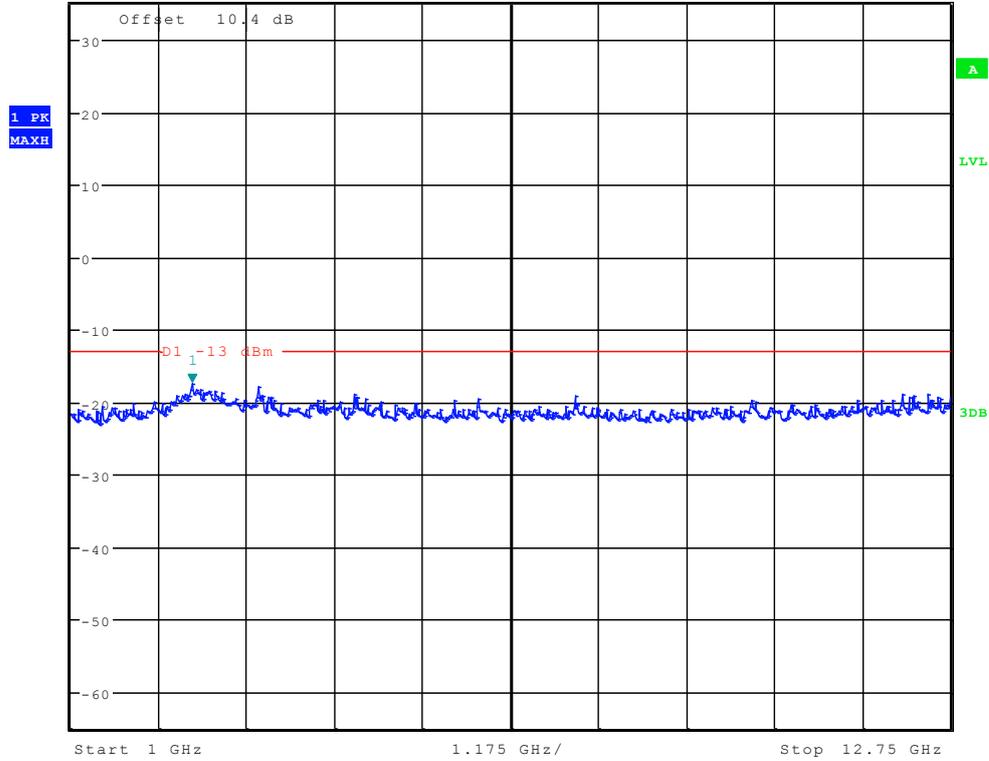


Ref 35 dBm Att 50 dB SWT 100 ms
*RBW 100 kHz Marker 1 [T1] 28.82 dBm
*VBW 300 kHz 825.897435897 MHz



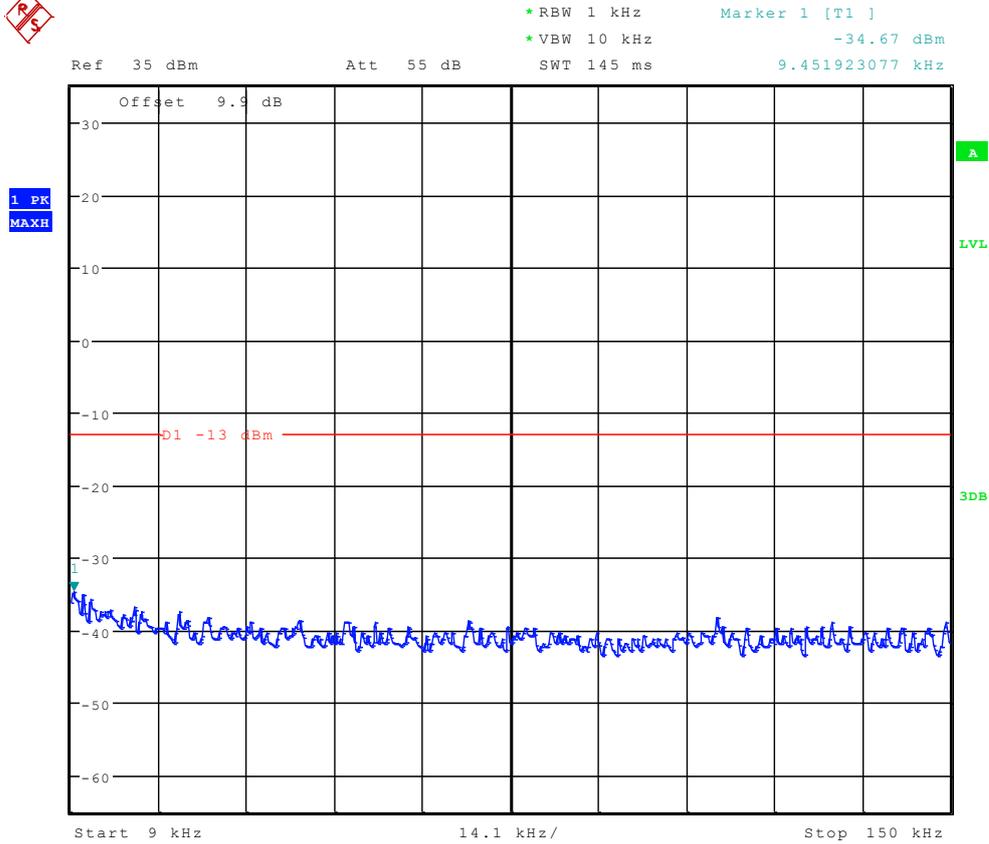


Ref 35 dBm Att 50 dB SWT 70 ms
*RBW 1 MHz Marker 1 [T1] -17.41 dBm
*VBW 3 MHz 2.619391026 GHz



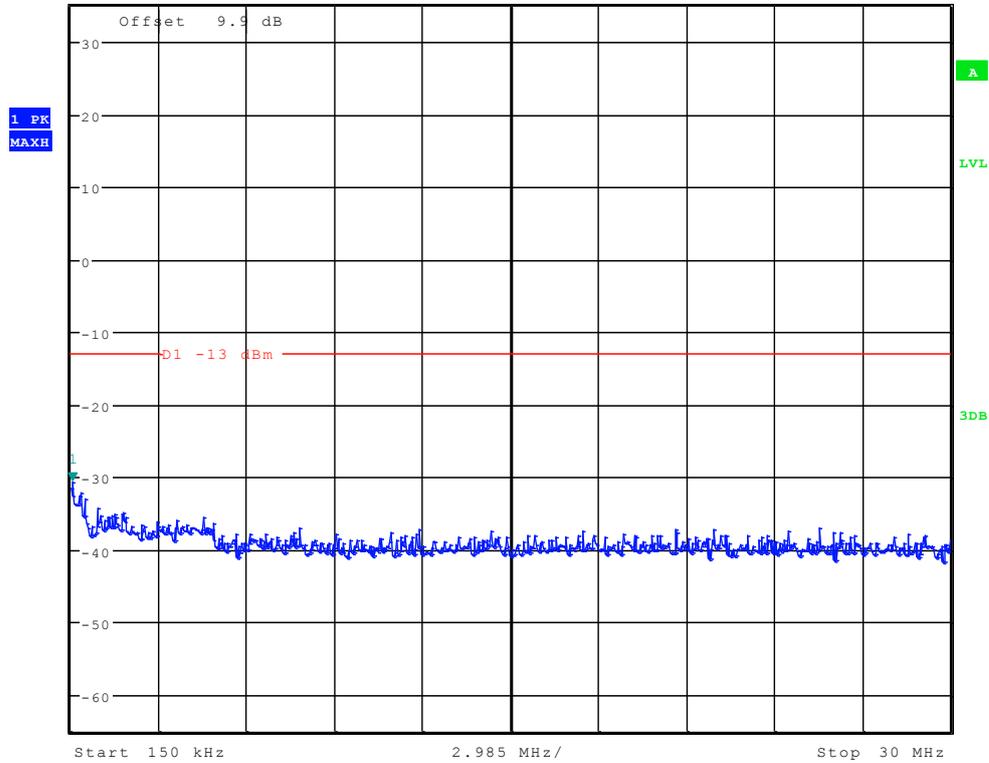


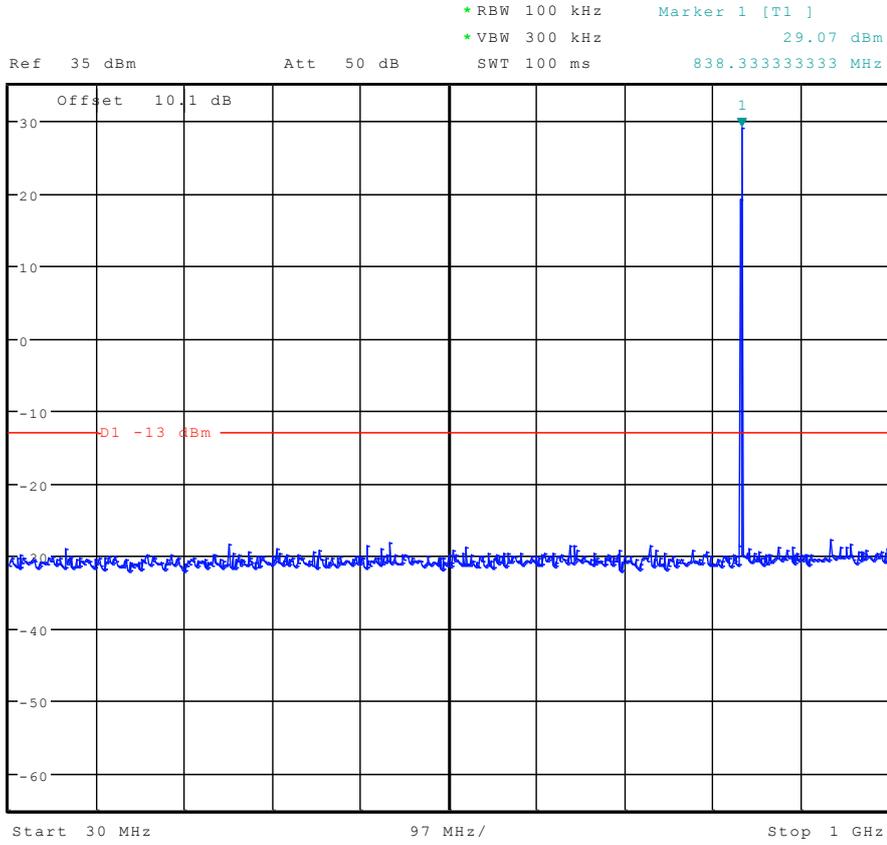
Channel 192





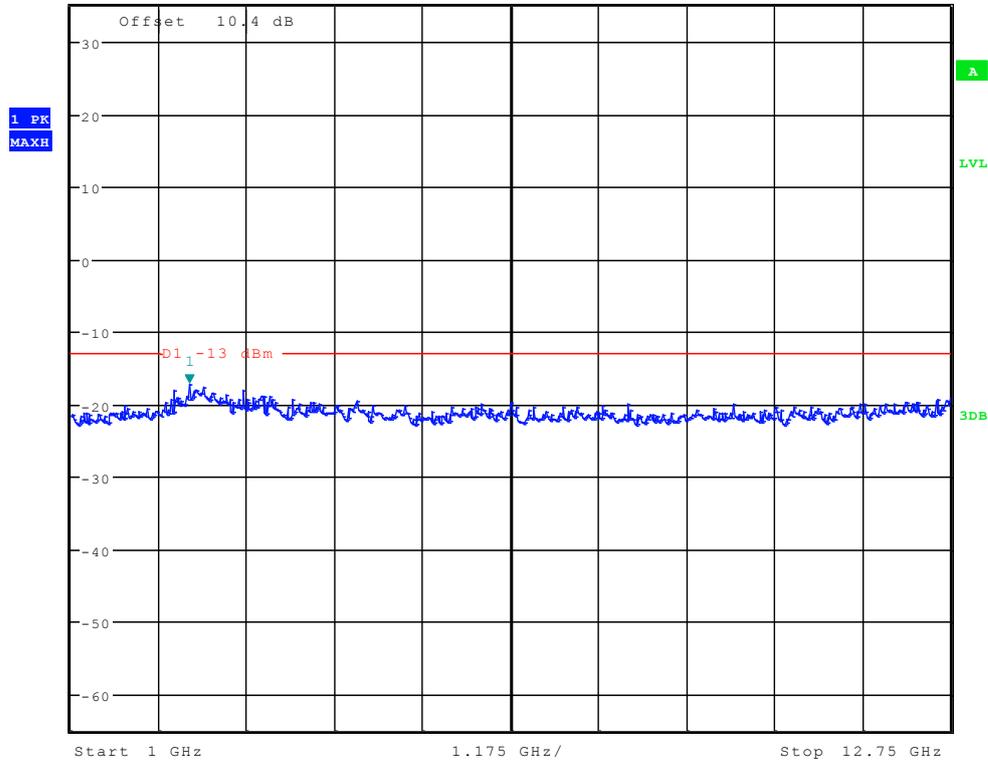
Ref 35 dBm Att 55 dB SWT 300 ms 197.836538462 kHz
*RBW 10 kHz Marker 1 [T1]
*VBW 30 kHz -30.70 dBm





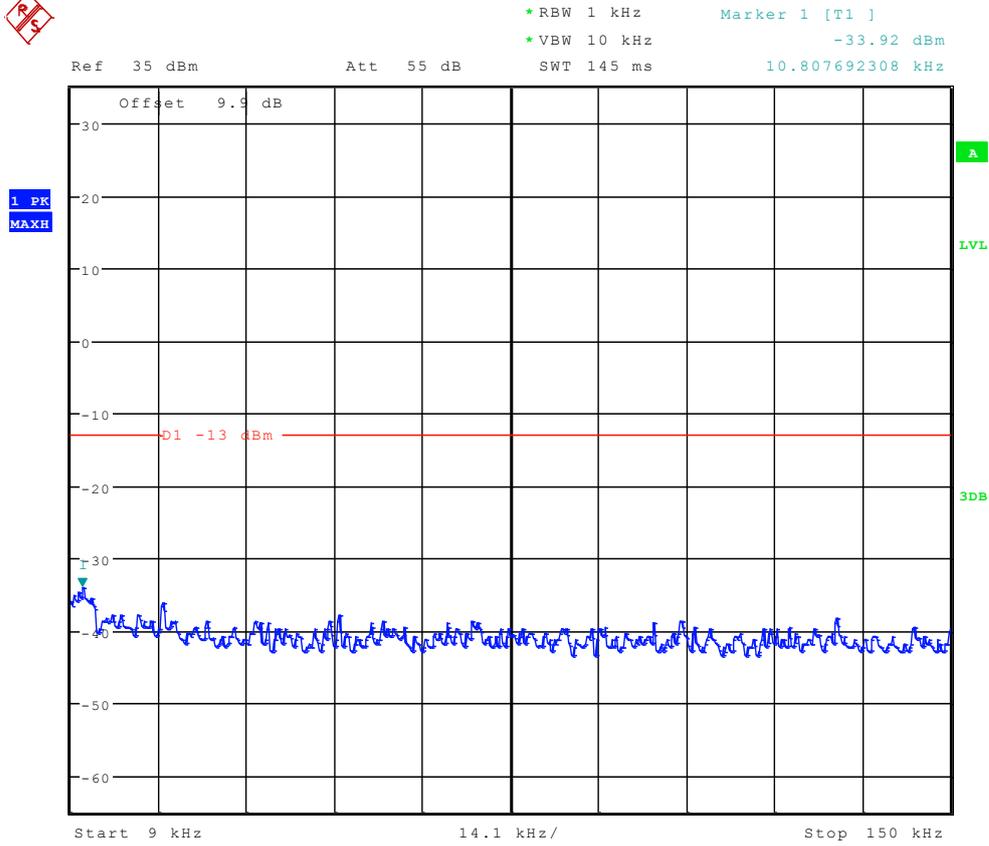


Ref 35 dBm Att 50 dB SWT 70 ms
*RBW 1 MHz Marker 1 [T1] -17.14 dBm
*VBW 3 MHz 2.581730769 GHz



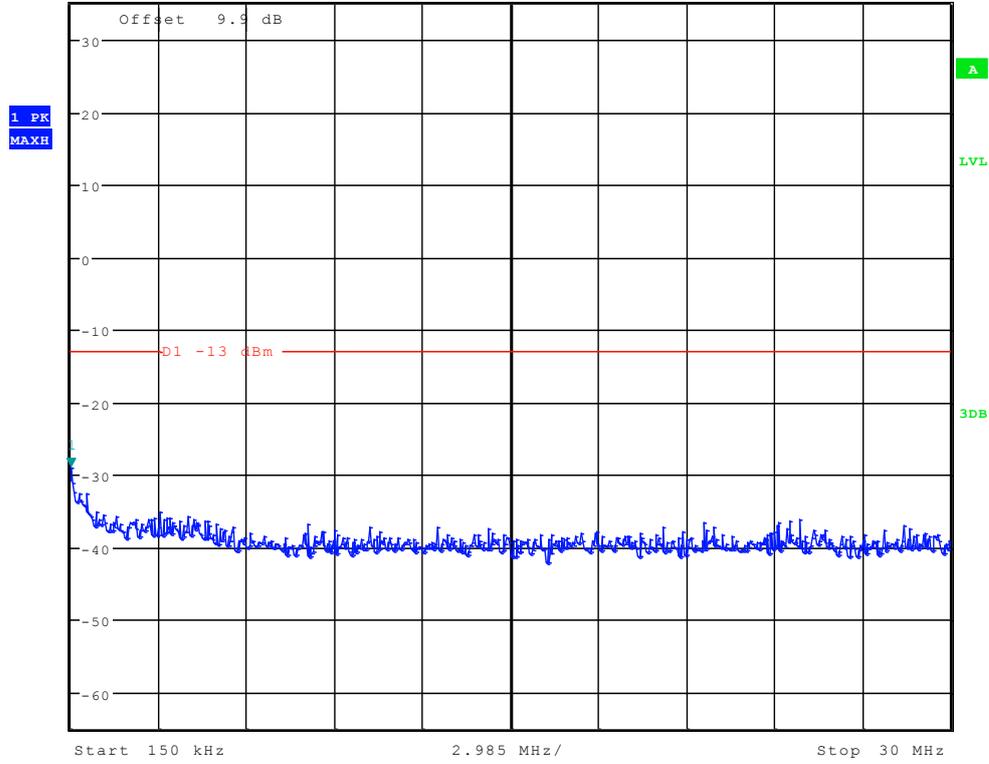


Channel 251



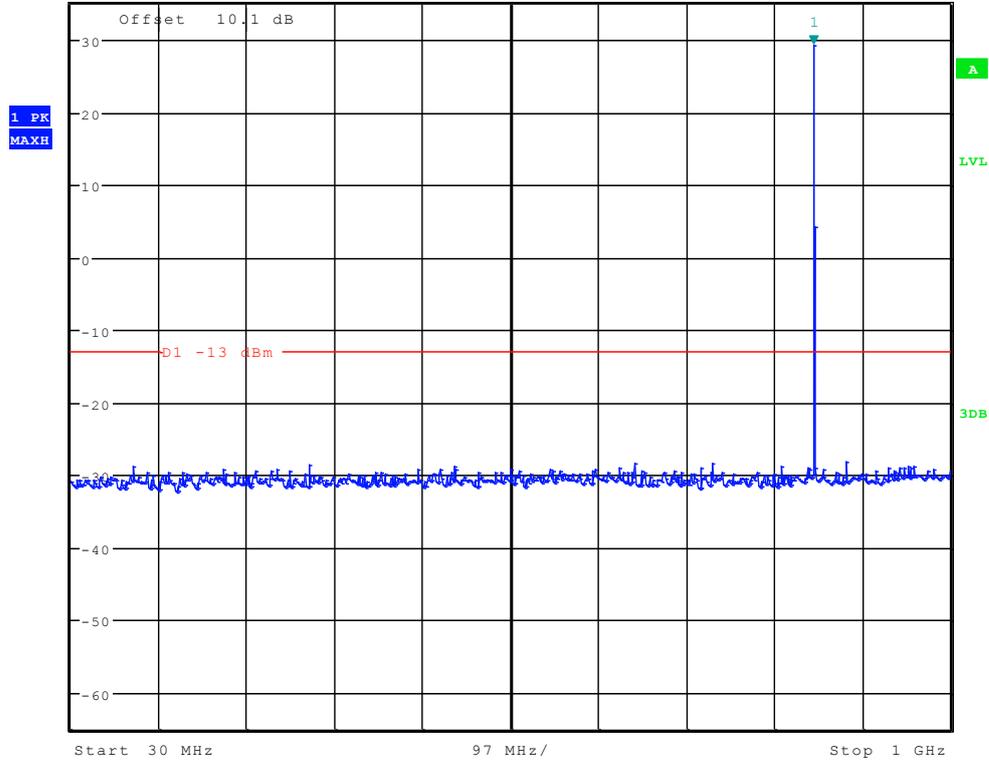


Ref 35 dBm Att 55 dB SWT 300 ms 150.00000000 kHz
*RBW 10 kHz Marker 1 [T1]
*VBW 30 kHz -29.00 dBm



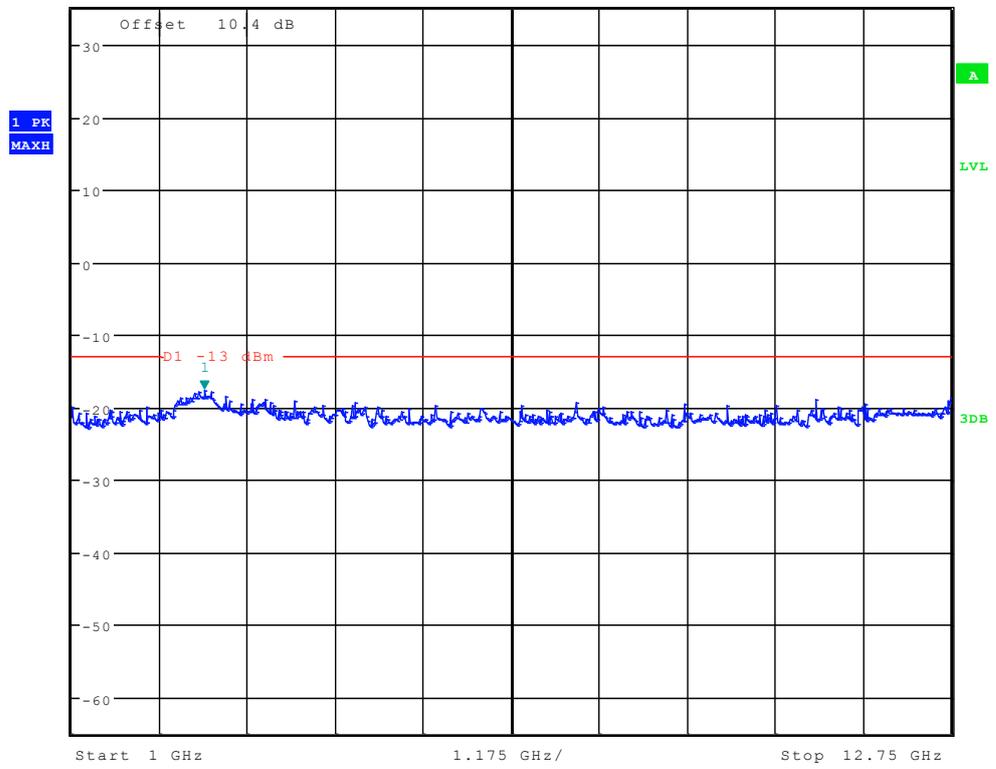


Ref 35 dBm Att 50 dB SWT 100 ms 849.214743590 MHz
*RBW 100 kHz Marker 1 [T1] 29.13 dBm
*VBW 300 kHz



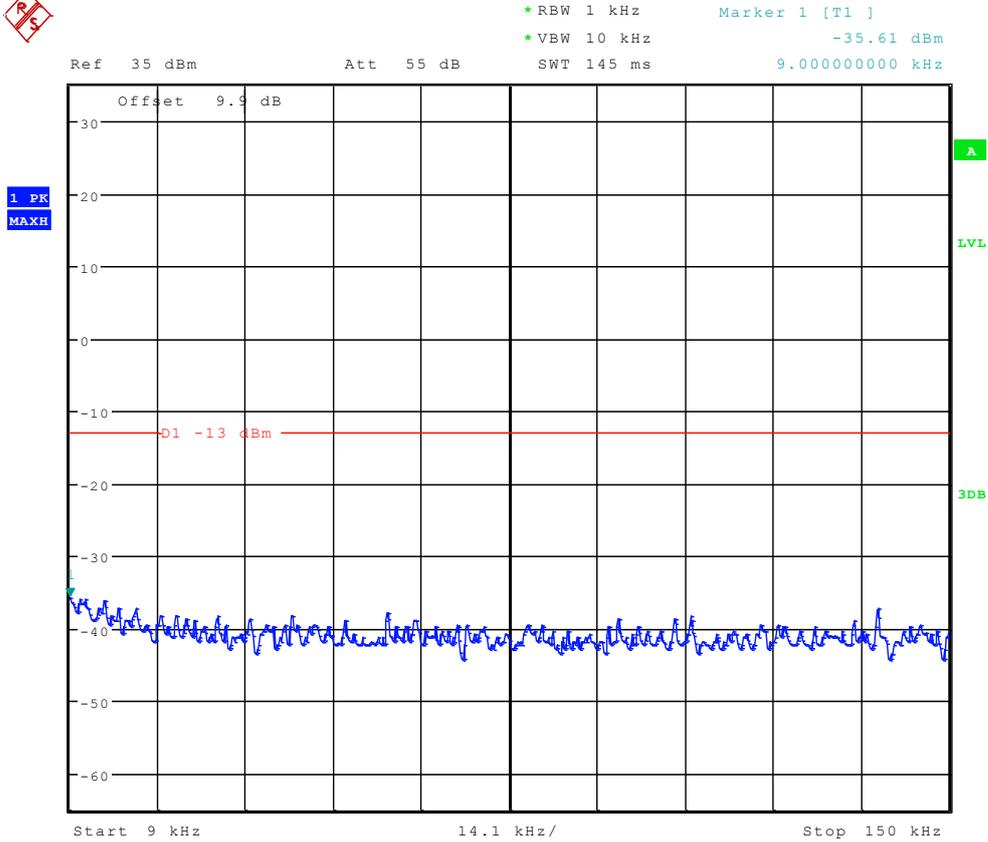


* RBW 1 MHz Marker 1 [T1]
 * VBW 3 MHz -17.68 dBm
 Ref 35 dBm Att 50 dB SWT 70 ms 2.770032051 GHz



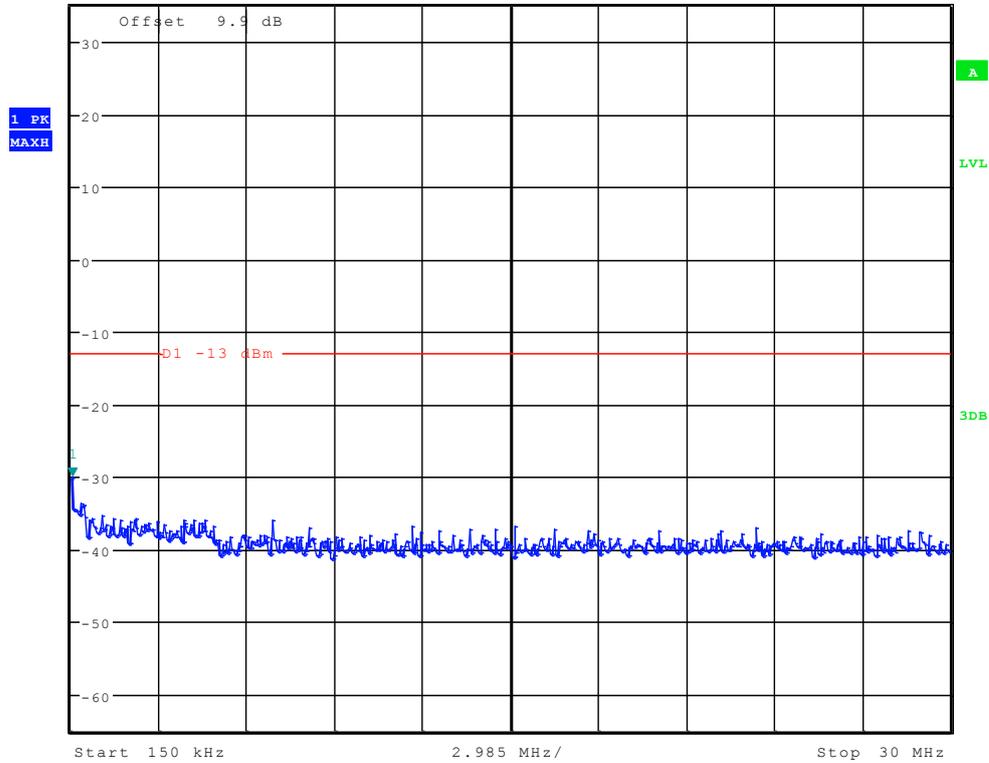


TM3: WCDMA Channel 4132



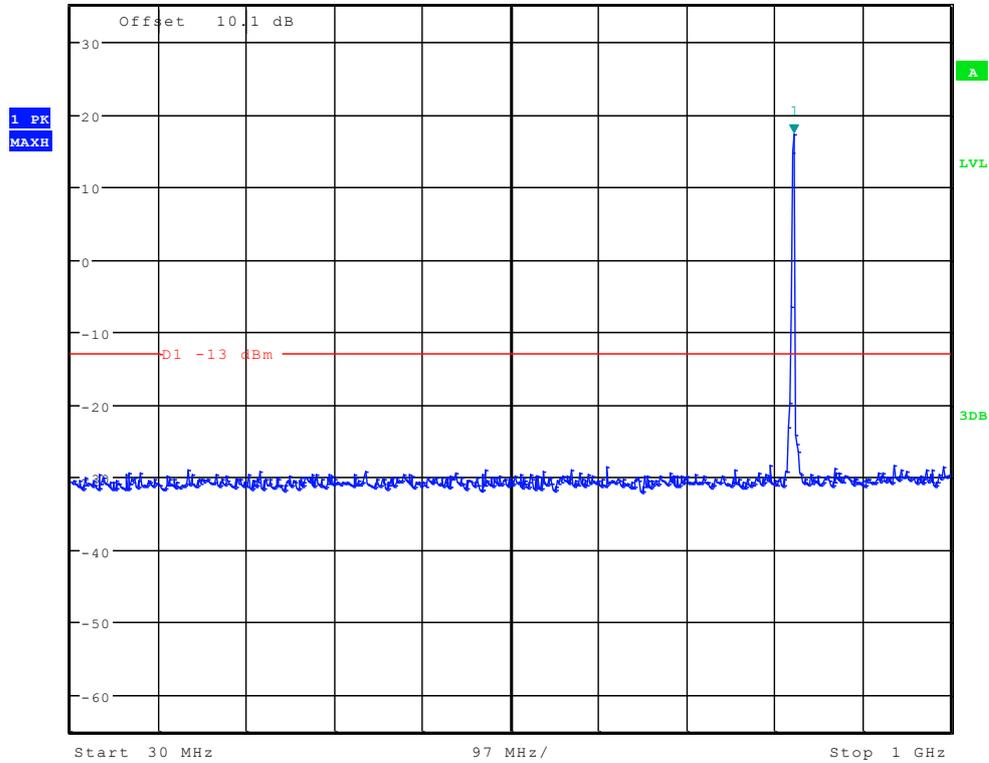


Ref 35 dBm Att 55 dB SWT 300 ms 197.836538462 kHz
*RBW 10 kHz Marker 1 [T1]
*VBW 30 kHz -30.10 dBm



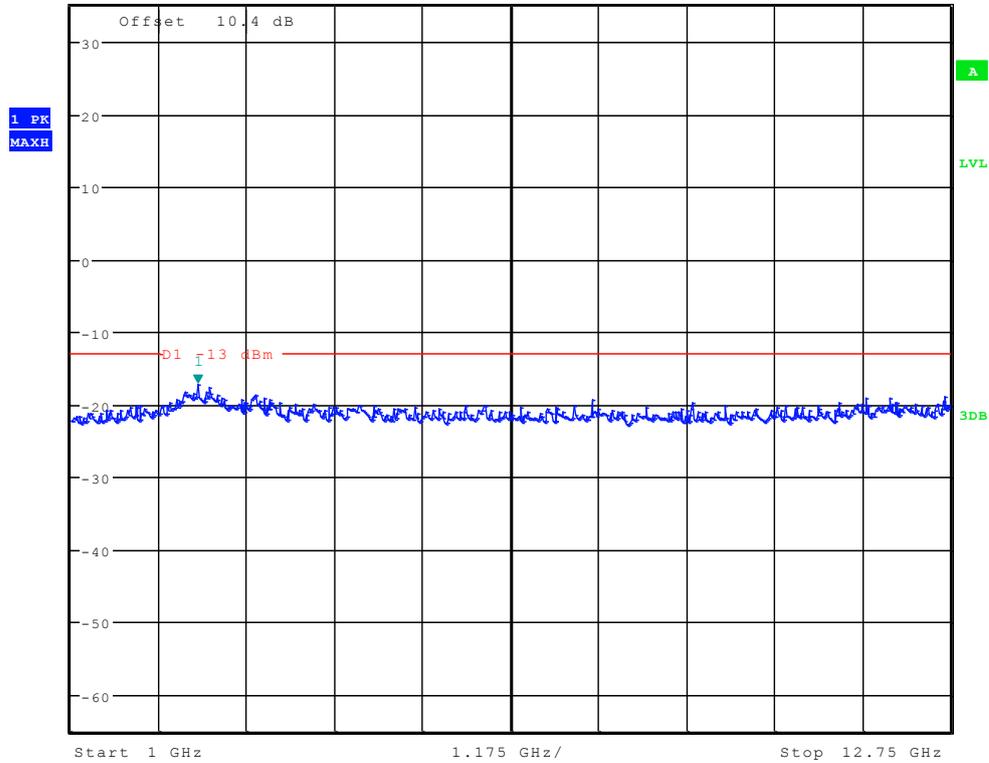


Ref 35 dBm Att 50 dB SWT 100 ms 827.451923077 MHz
*RBW 100 kHz Marker 1 [T1] 17.32 dBm
*VBW 300 kHz





Ref 35 dBm Att 50 dB SWT 70 ms
*RBW 1 MHz Marker 1 [T1] -17.29 dBm
*VBW 3 MHz 2.694711538 GHz

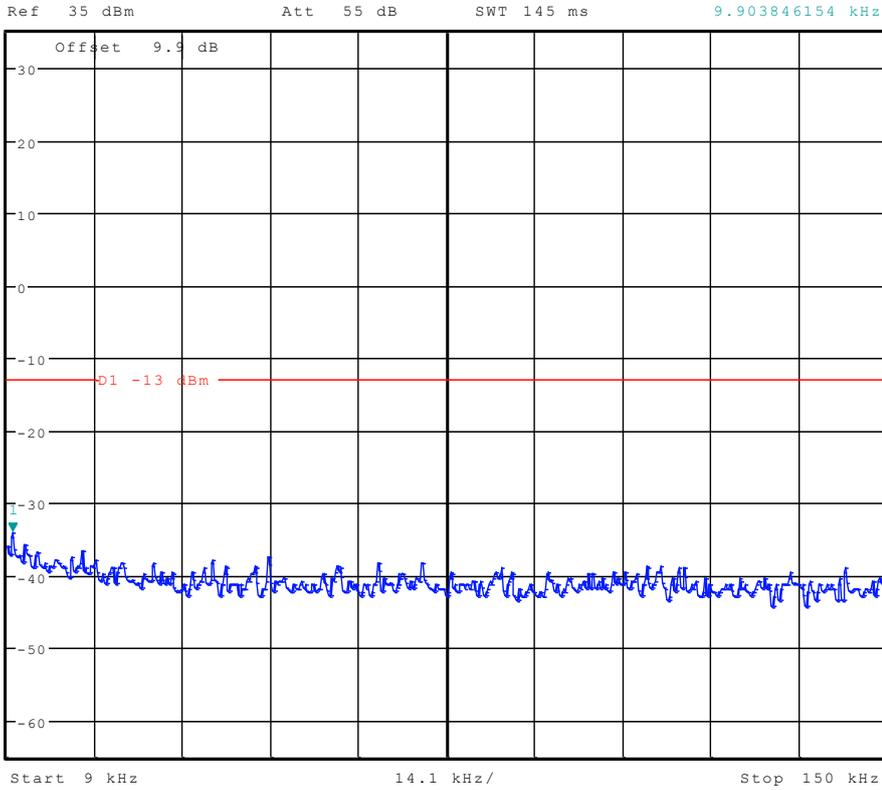




Channel 4182

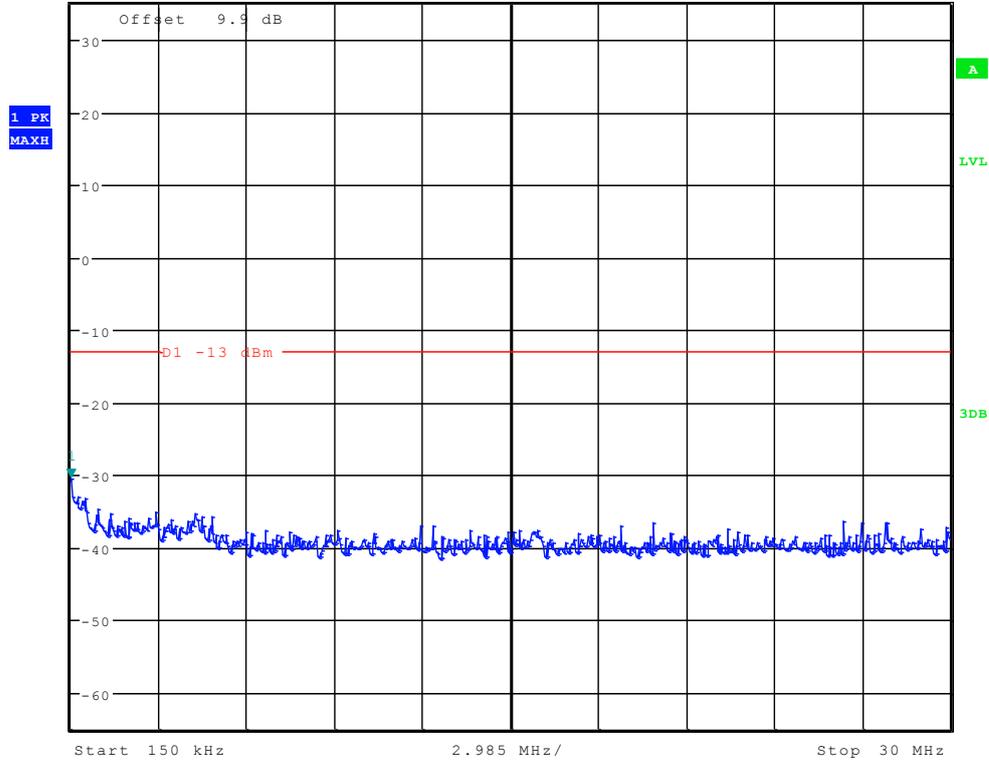


*RBW 1 kHz Marker 1 [T1]
*VBW 10 kHz -33.92 dBm
SWT 145 ms 9.903846154 kHz



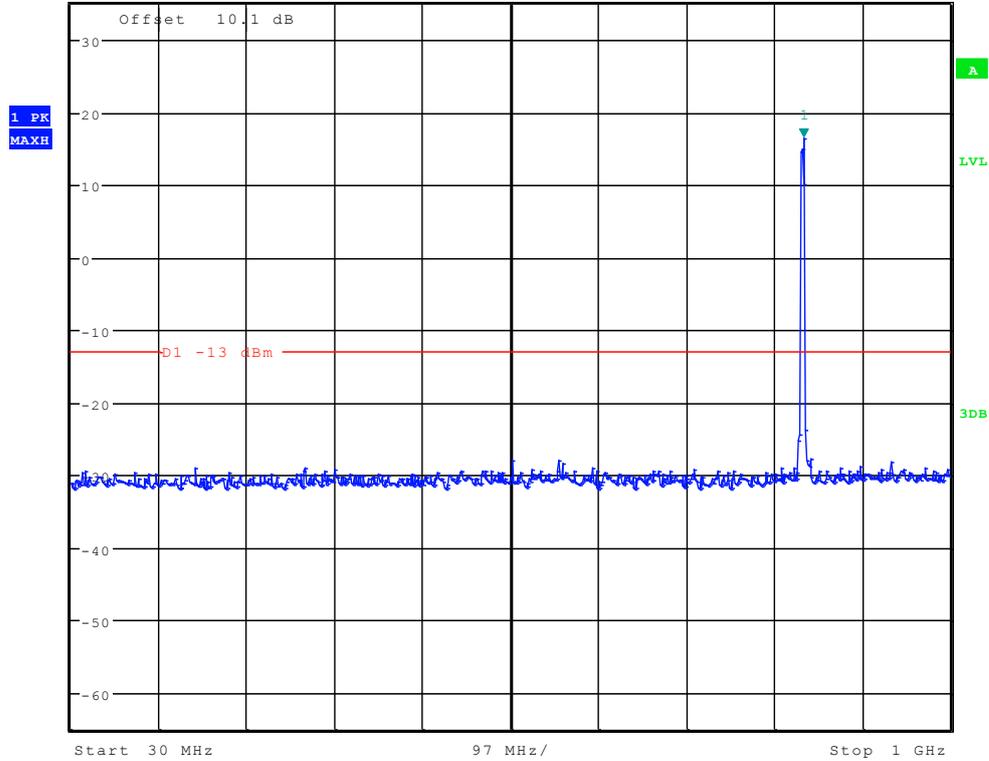


Ref 35 dBm Att 55 dB SWT 300 ms 150.00000000 kHz
*RBW 10 kHz Marker 1 [T1]
*VBW 30 kHz -30.46 dBm



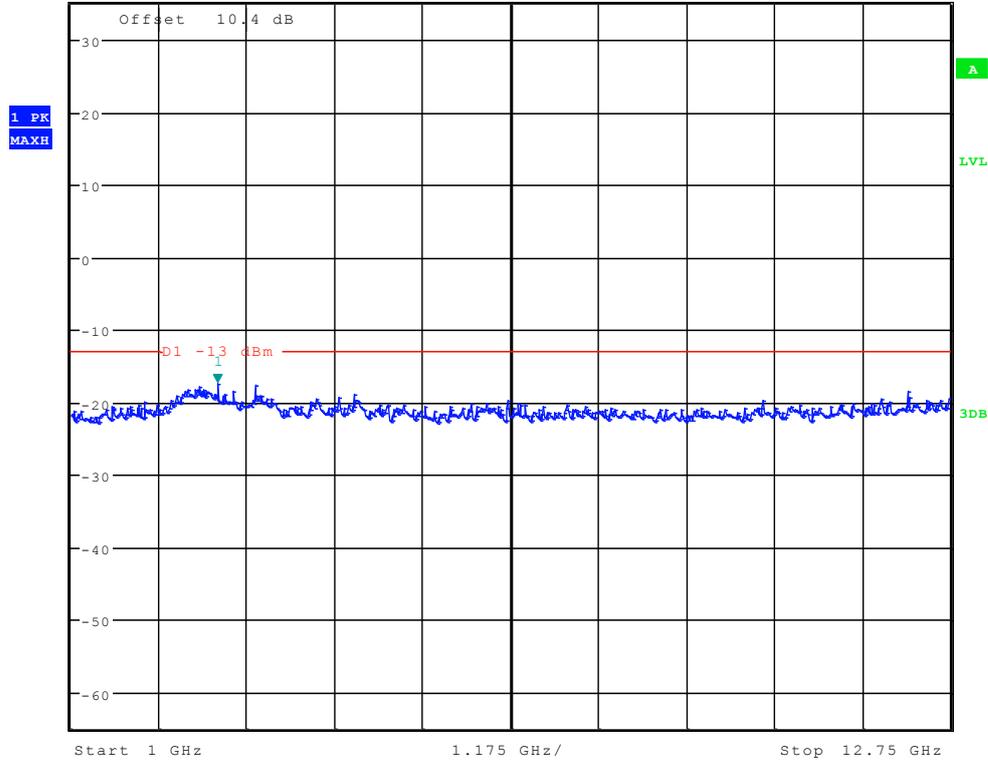


Ref 35 dBm Att 50 dB SWT 100 ms 838.333333333 MHz
*RBW 100 kHz Marker 1 [T1] 16.47 dBm
*VBW 300 kHz





Ref 35 dBm Att 50 dB SWT 70 ms
*RBW 1 MHz Marker 1 [T1] -17.40 dBm
*VBW 3 MHz 2.958333333 GHz

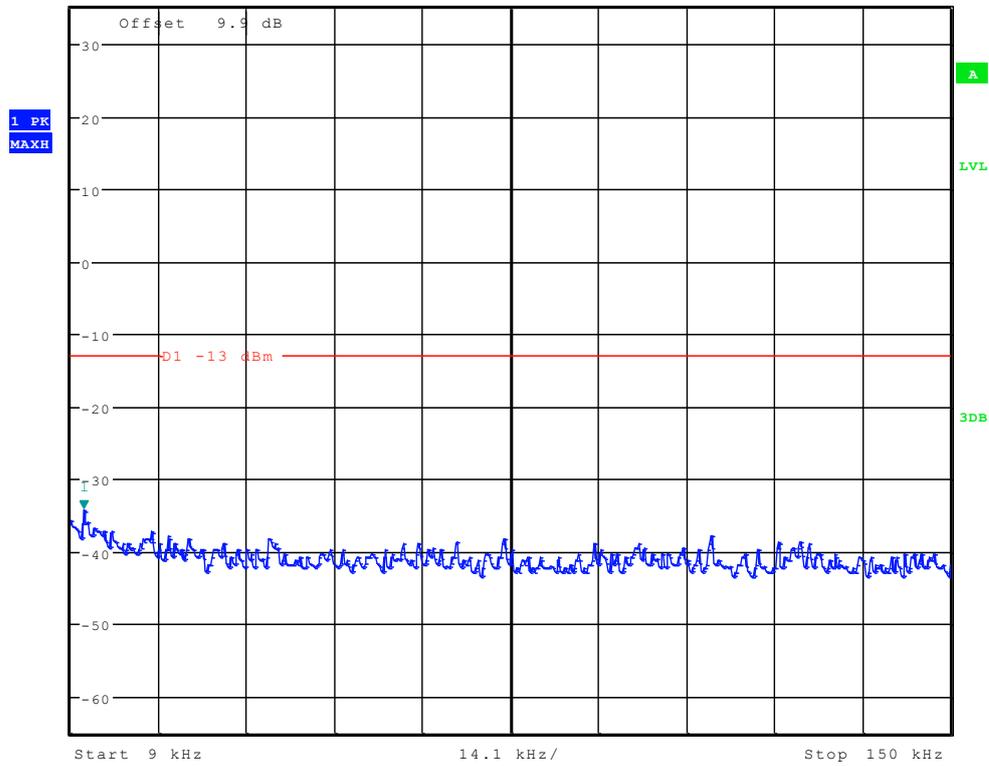




Channel 4233

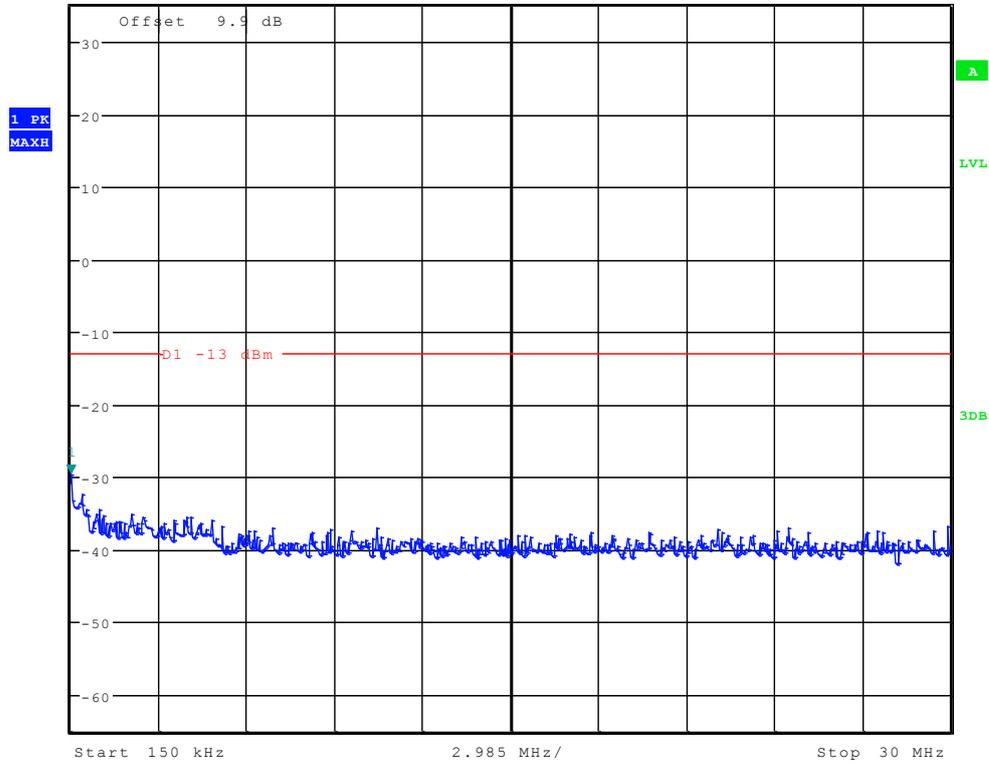


*RBW 1 kHz Marker 1 [T1]
 *VBW 10 kHz -34.19 dBm
 Ref 35 dBm Att 55 dB SWT 145 ms 11.033653846 kHz



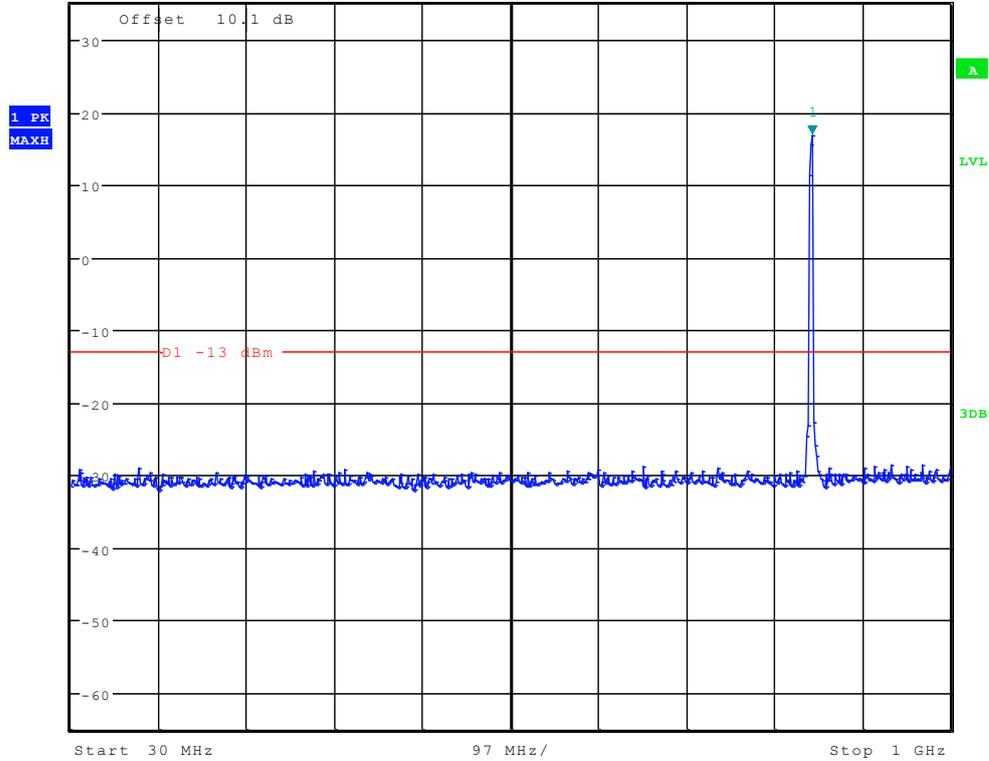


Ref 35 dBm Att 55 dB SWT 300 ms 150.00000000 kHz
*RBW 10 kHz Marker 1 [T1]
*VBW 30 kHz -29.59 dBm



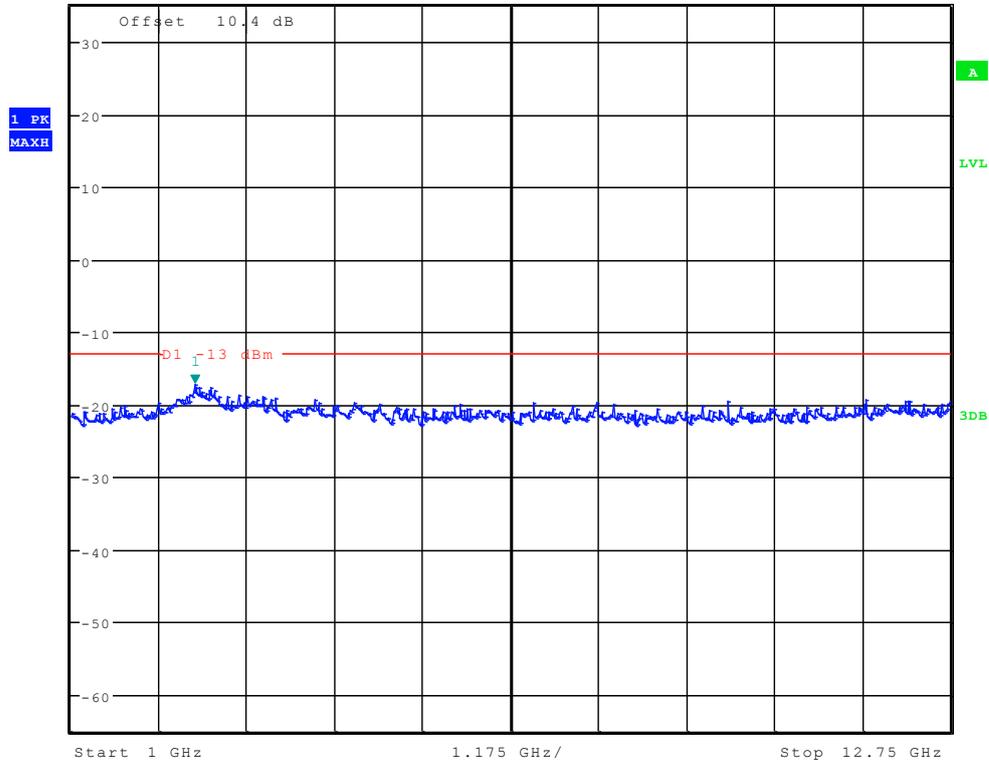


Ref 35 dBm Att 50 dB SWT 100 ms 847.660256410 MHz
*RBW 100 kHz Marker 1 [T1] 16.77 dBm
*VBW 300 kHz





Ref 35 dBm Att 50 dB SWT 70 ms
*RBW 1 MHz Marker 1 [T1] -17.13 dBm
*VBW 3 MHz 2.657051282 GHz



The END



Appendix F

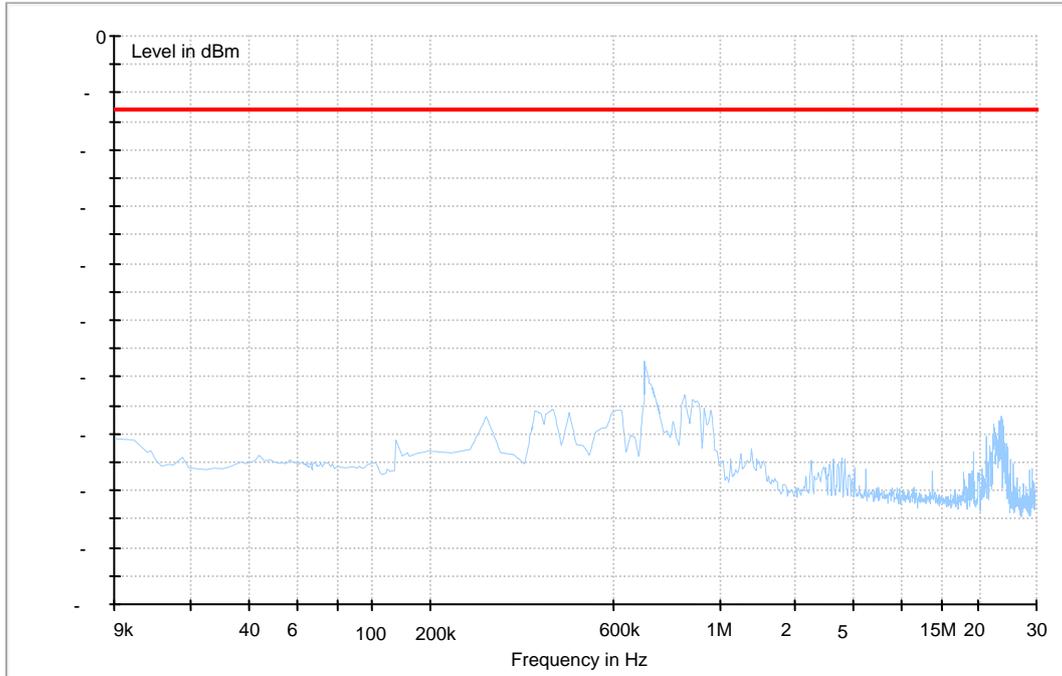
Field Strength of Spurious Emissions

According to FCC Part 2.1053 & Part 22.917



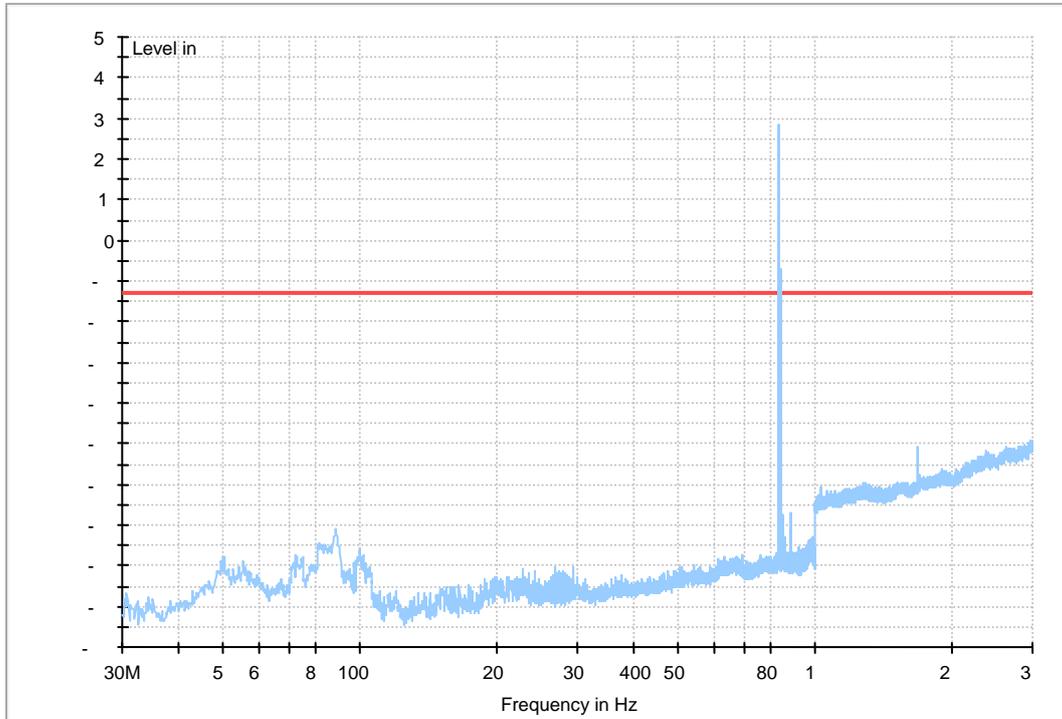
GSM 850

Traffic Mode (9kHz-30MHz)



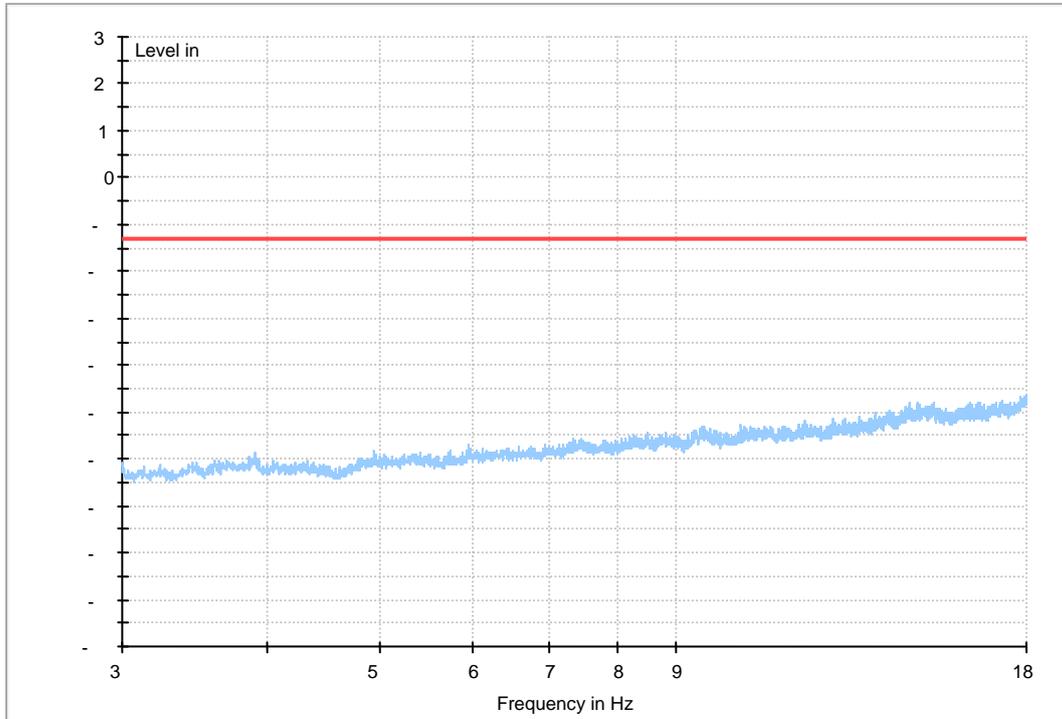


Traffic Mode (30MHz-3GHz)





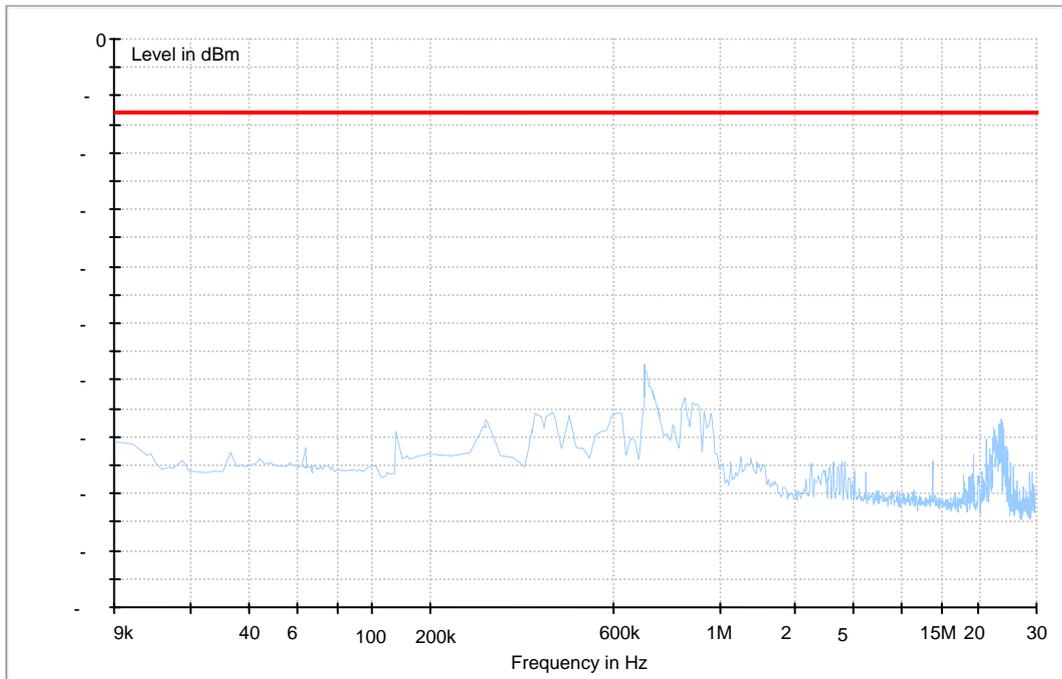
Traffic Mode (3GHz-18GHz)





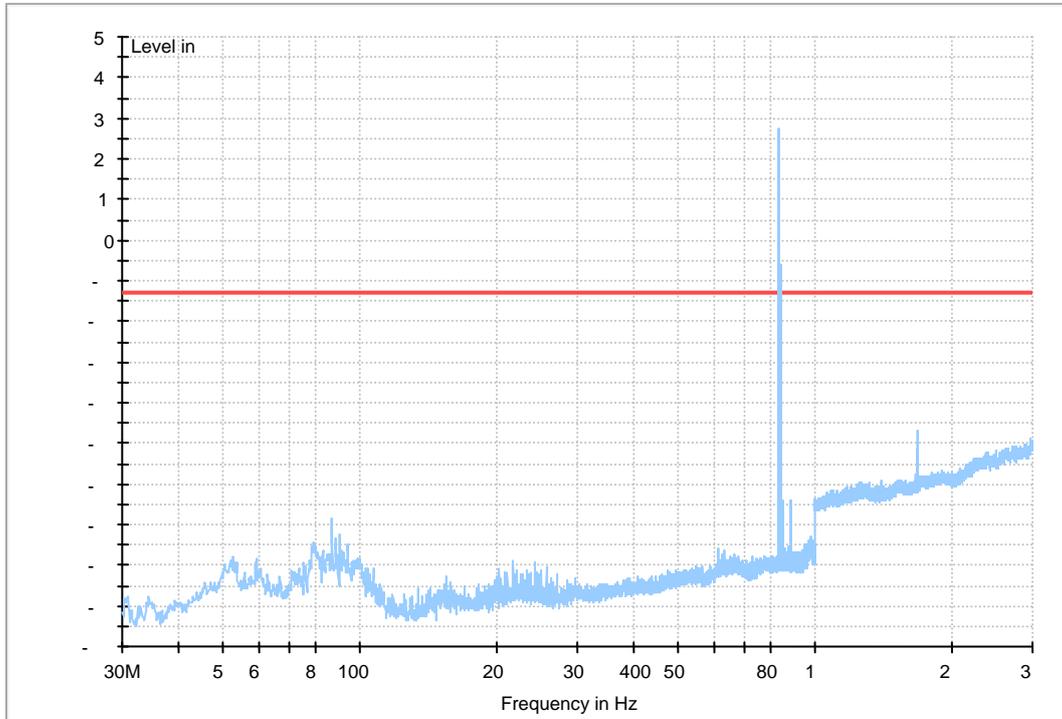
GPRS 850

Traffic Mode (9kHz-30MHz)



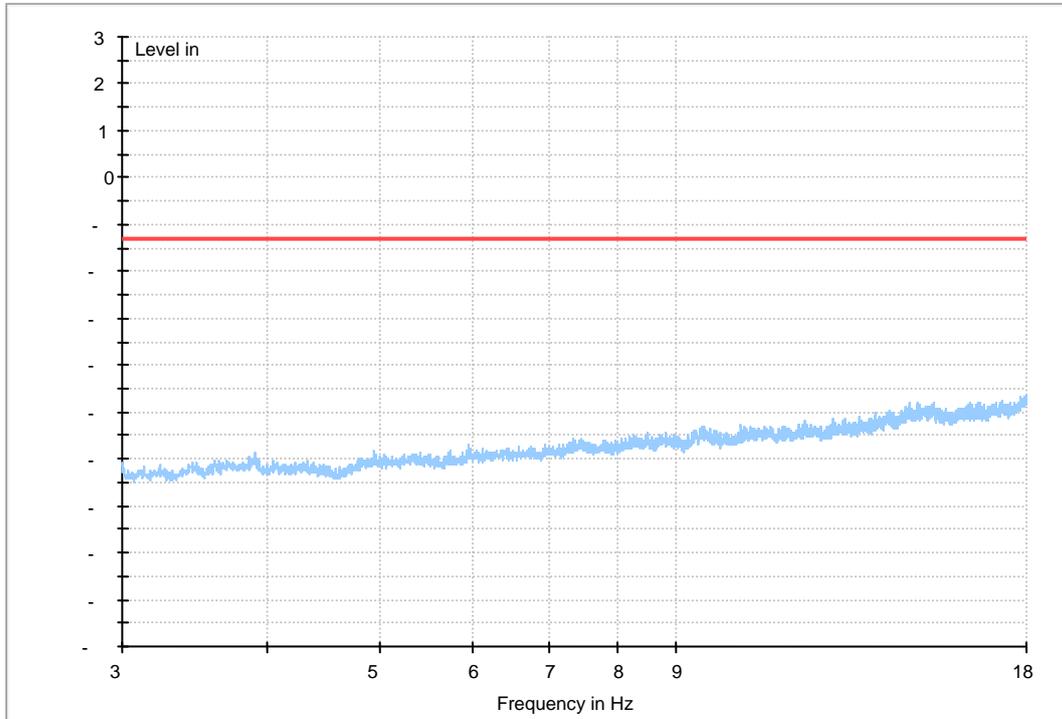


Traffic Mode (30MHz-3GHz)





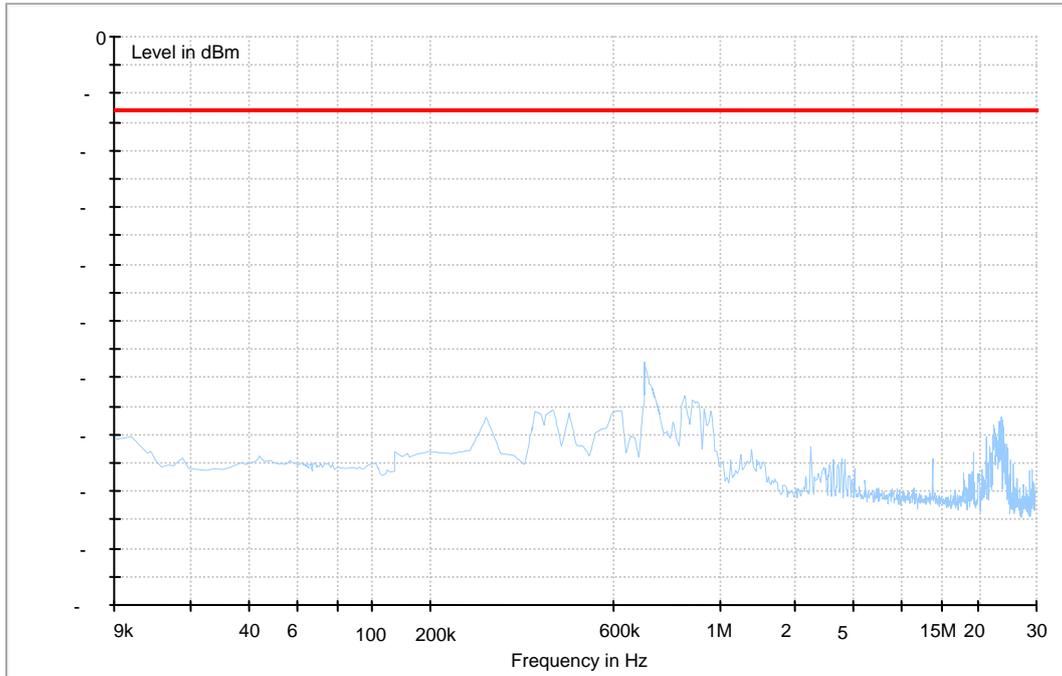
Traffic Mode (3GHz-18GHz)





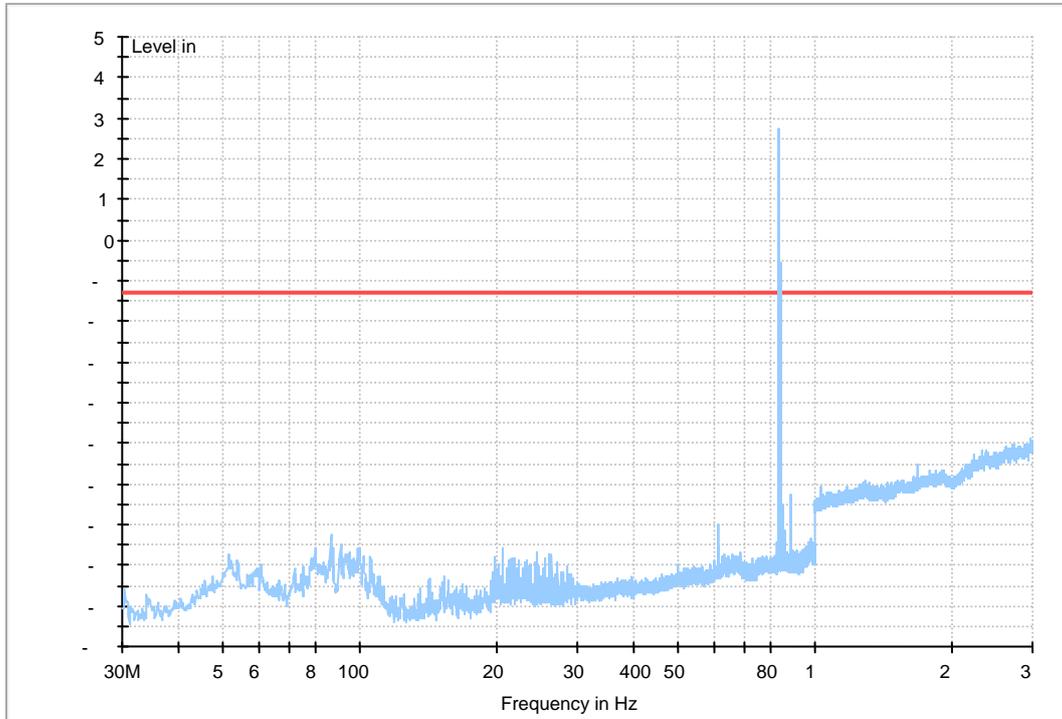
EDGE 850

Traffic Mode (9kHz-30MHz)



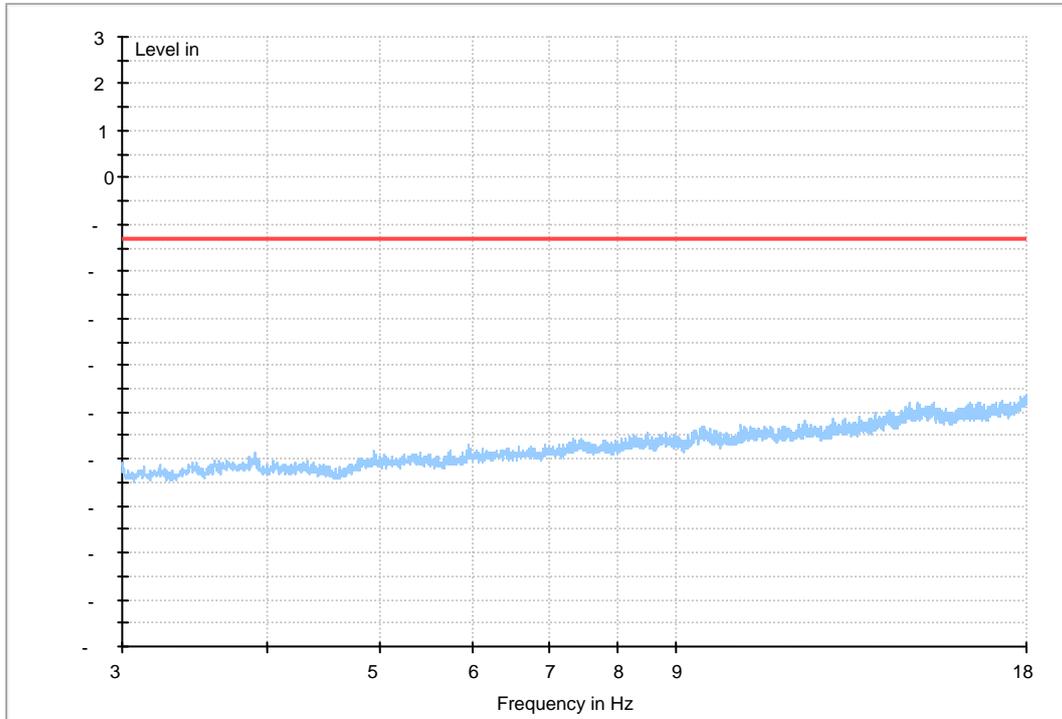


Traffic Mode (30MHz-3GHz)





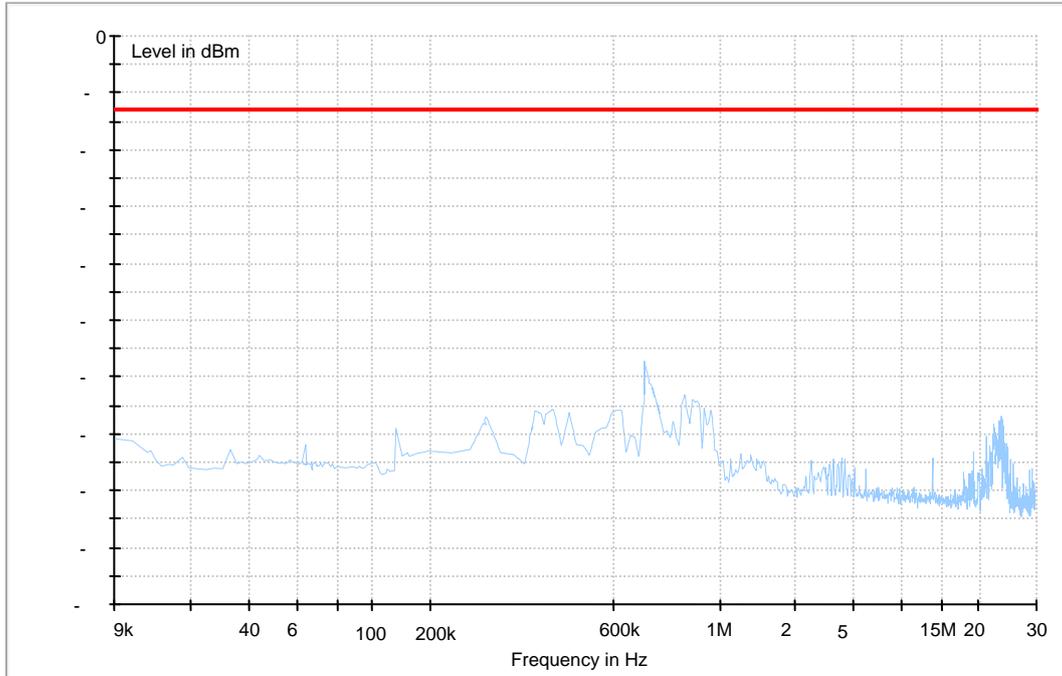
Traffic Mode (3GHz-18GHz)





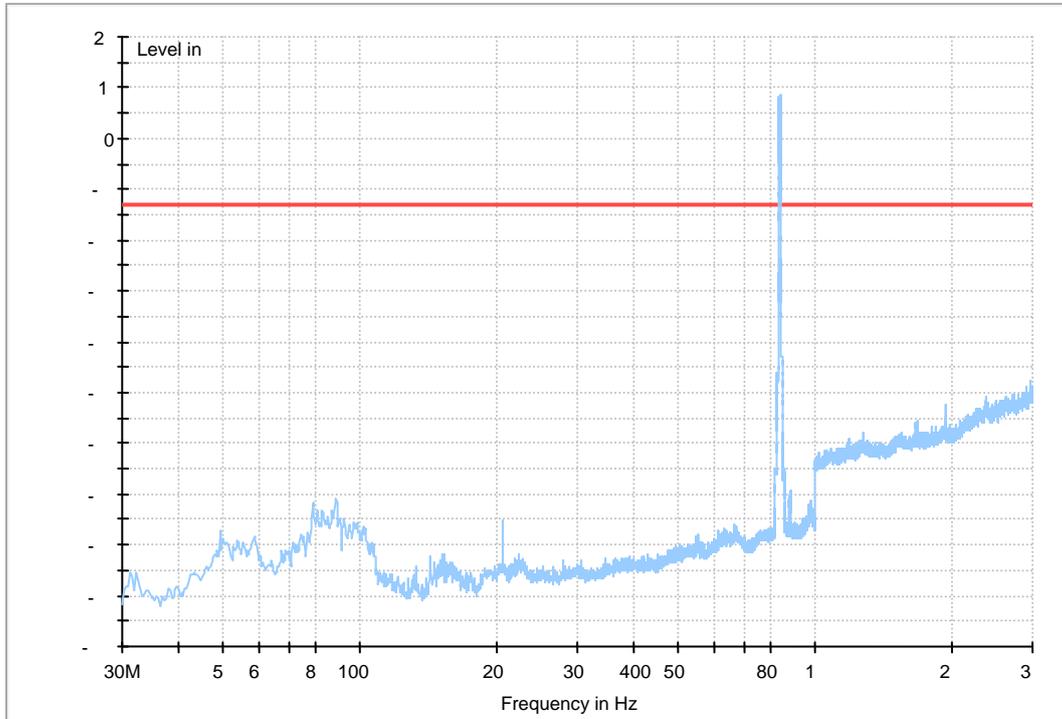
WCDMA 850

Traffic Mode (9kHz-30MHz)



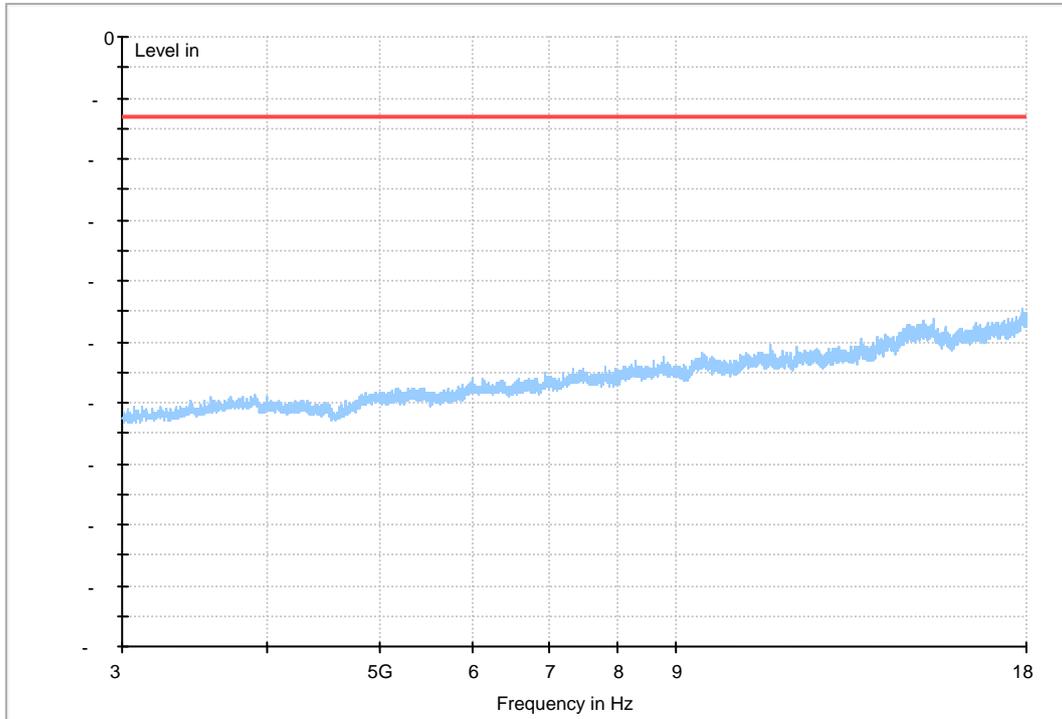


Traffic Mode (30MHz-3GHz)





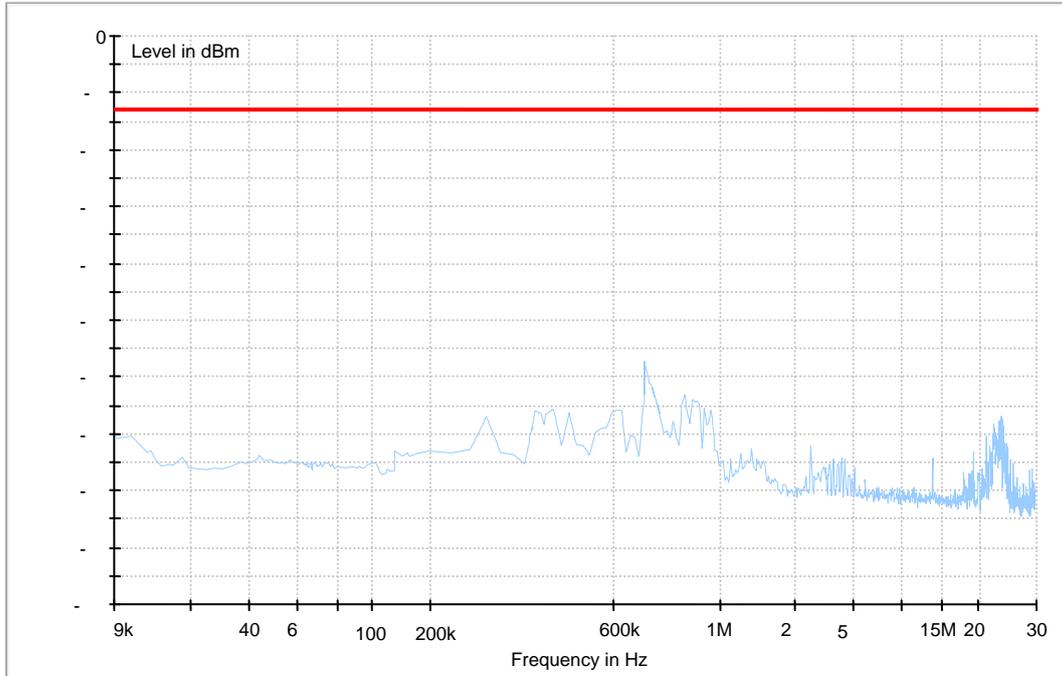
Traffic Mode (3GHz-18GHz)





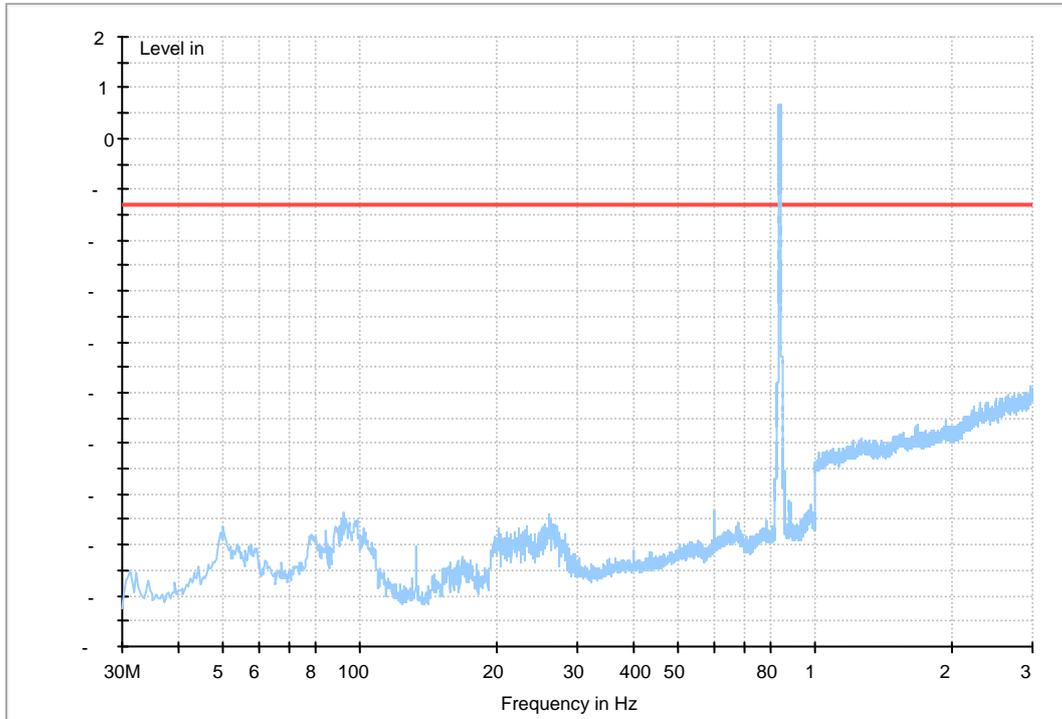
HSDPA 850

Traffic Mode (9kHz-30MHz)



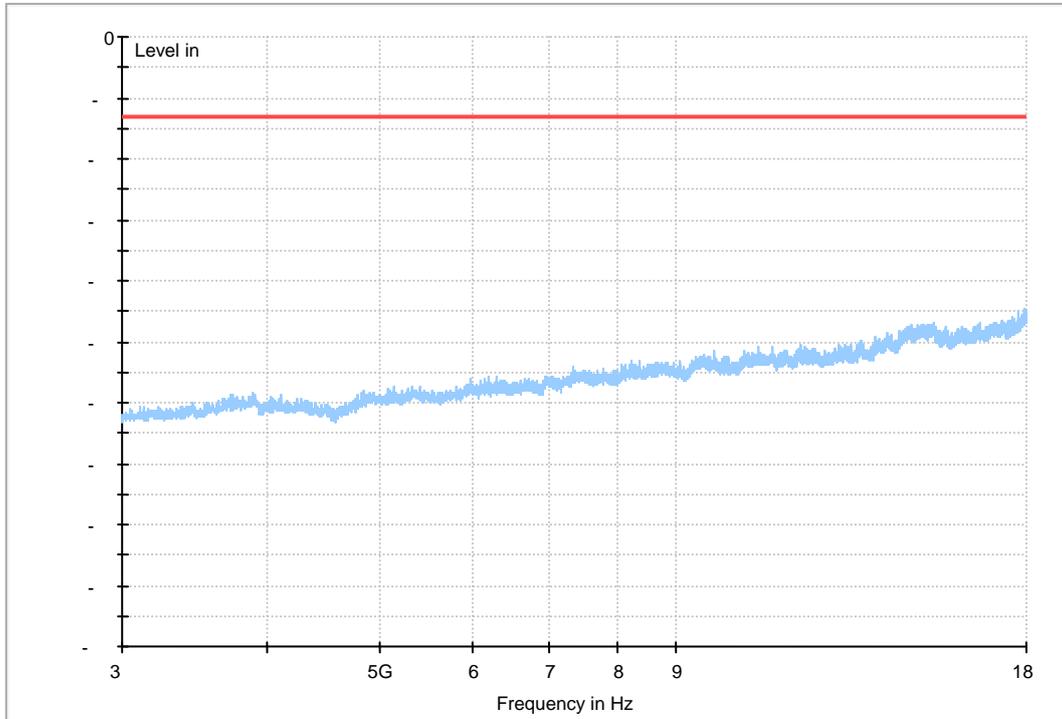


Traffic Mode (30MHz-3GHz)





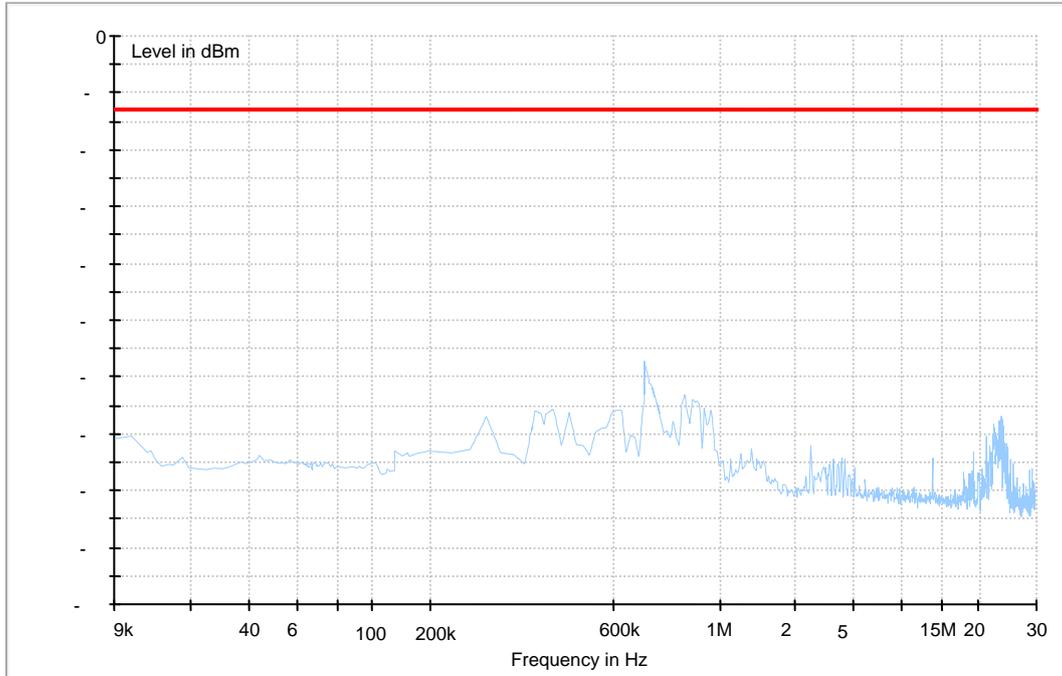
Traffic Mode (3GHz-18GHz)





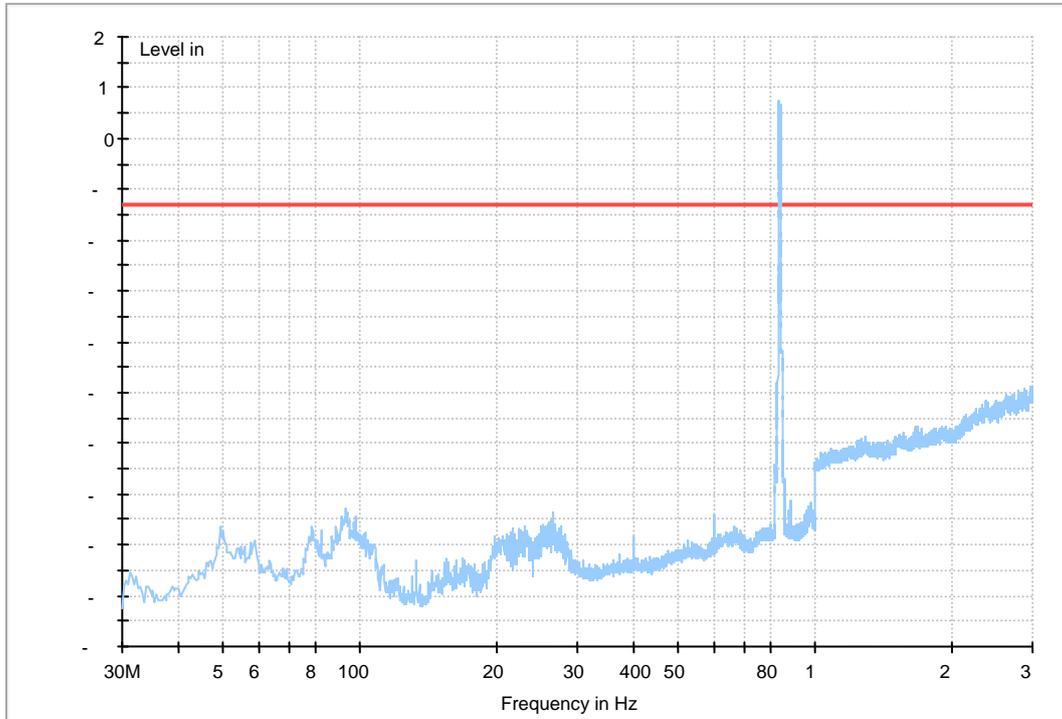
HSUPA 850

Traffic Mode (9kHz-30MHz)



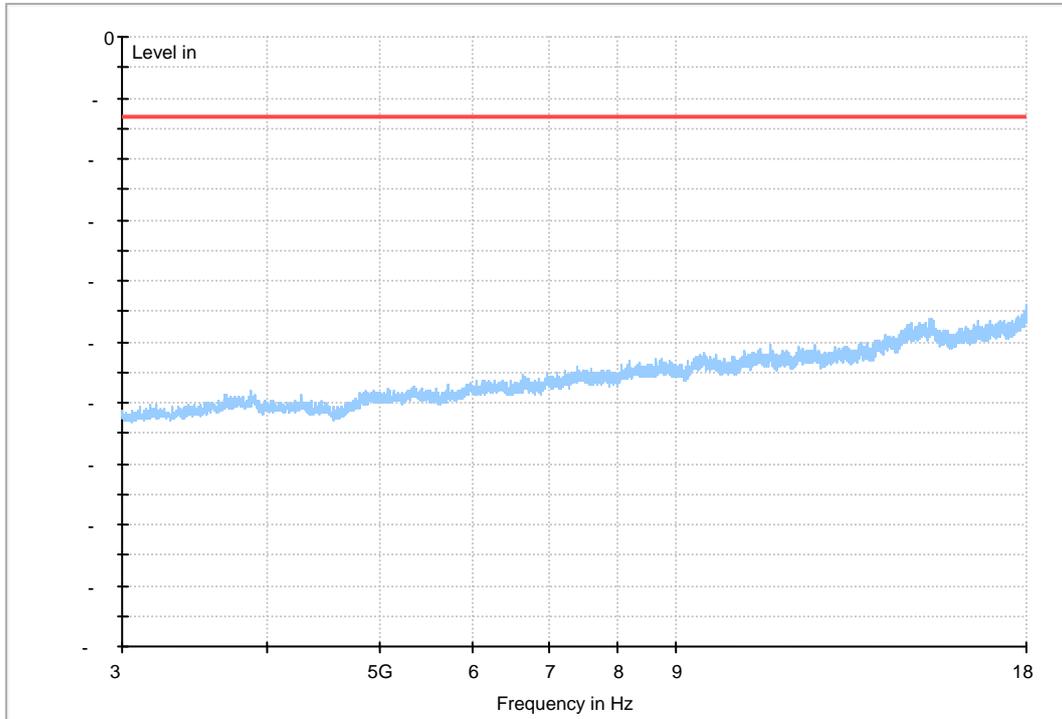


Traffic Mode (30MHz-3GHz)





Traffic Mode (3GHz-18GHz)



The END



Appendix G

Frequency Stability According to FCC Part 2.1055& Part 22.355



Frequency Error vs. Temperature:

Test Mode	RF Ch.	Volt.	Temp.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Freq. vs. 20 °C [ppm]	Limit [ppm]	Verdict
TM 1	M	100%	-30 °C	11	0.013142	---	±2.5	Pass
			-20 °C	14	0.016726	---	±2.5	Pass
			-10 °C	-17	-0.02031	---	±2.5	Pass
			0 °C	7	0.008363	---	±2.5	Pass
			10 °C	16	0.019116	---	±2.5	Pass
			20 °C	-14	-0.01673	---	±2.5	Pass
			30 °C	-16	-0.01912	---	±2.5	Pass
			40 °C	9	0.010753	---	±2.5	Pass
			50 °C	-19	-0.0227	---	±2.5	Pass
TM 2	M	100%	-30 °C	9	0.010753	---	±2.5	Pass
			-20 °C	-14	-0.01673	---	±2.5	Pass
			-10 °C	13	0.015532	---	±2.5	Pass
			0 °C	-19	-0.0227	---	±2.5	Pass
			10 °C	10	0.011947	---	±2.5	Pass
			20 °C	12	0.014337	---	±2.5	Pass
			30 °C	-10	-0.01195	---	±2.5	Pass
			40 °C	9	0.010753	---	±2.5	Pass
			50 °C	11	0.013142	---	±2.5	Pass
TM 3	M	100%	-30 °C	9	0.01076	---	±2.5	Pass
			-20 °C	11	0.013152	---	±2.5	Pass
			-10 °C	-13	-0.01554	---	±2.5	Pass
			0 °C	12	0.014347	---	±2.5	Pass
			10 °C	-18	-0.02152	---	±2.5	Pass
			20 °C	-17	-0.02033	---	±2.5	Pass
			30 °C	-12	-0.01435	---	±2.5	Pass
			40 °C	13	0.015543	---	±2.5	Pass
			50 °C	-14	-0.01674	---	±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	85 %	19	0.0227	---	±2.5	Pass
			100 %	18	0.021505	---	±2.5	Pass
			115 %	11	0.013142	---	±2.5	Pass
TM 2	M	20 °C	85 %	-9	-0.01075	---	±2.5	Pass
			100 %	-13	-0.01553	---	±2.5	Pass
			115 %	14	0.016726	---	±2.5	Pass
TM 3	M	20 °C	85 %	-17	-0.02033	---	±2.5	Pass
			100 %	17	0.020325	---	±2.5	Pass
			115 %	-16	-0.01913	---	±2.5	Pass

The END