



Appendix A

Transmitter Output Power According to FCC Part 2.1046 & Part24.232



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		29.48	29.65	28.81	29.65	29.34	29.65
TM2		25.12	29.65	25.54	29.65	25.5	29.65
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		22.20	29.65	22.15	29.65	21.95	29.65
TM4	Case1	22.38	29.65	22.26	29.65	22.13	29.65
	Case2	22.28	29.65	22.37	29.65	22.39	29.65
	Case3	21.59	29.65	21.32	29.65	21.85	29.65
	Case4	21.56	29.65	21.24	29.65	21.87	29.65
TM5	Case1	21.94	29.65	21.12	29.65	20.86	29.65
	Case2	20.62	29.65	20.27	29.65	20.48	29.65
	Case3	20.79	29.65	20.55	29.65	20.93	29.65
	Case4	20.38	29.65	20.63	29.65	19.67	29.65
	Case5	22.02	29.65	21.28	29.65	21.43	29.65



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	32.83	Horn Ant.	29.27	4.5	1	32.77	33	Pass
TM1	1880.0	32.16	Horn Ant.	29.16	4.5	1	32.66	33	Pass
TM1	1909.8	32.69	Horn Ant.	28.97	4.8	1	32.77	33	Pass
TM2	1850.2	28.47	Horn Ant.	24.92	4.5	1	28.42	33	Pass
TM2	1880.0	28.89	Horn Ant.	25.31	4.5	1	28.81	33	Pass
TM2	1909.8	28.85	Horn Ant.	25.11	4.8	1	28.91	33	Pass
TM3	1852.4	25.55	Horn Ant.	21.92	4.5	1	25.42	33	Pass
TM3	1880.0	25.50	Horn Ant.	22.02	4.5	1	25.52	33	Pass
TM3	1907.6	25.30	Horn Ant.	21.54	4.8	1	25.34	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



Appendix B

Modulation Characteristics

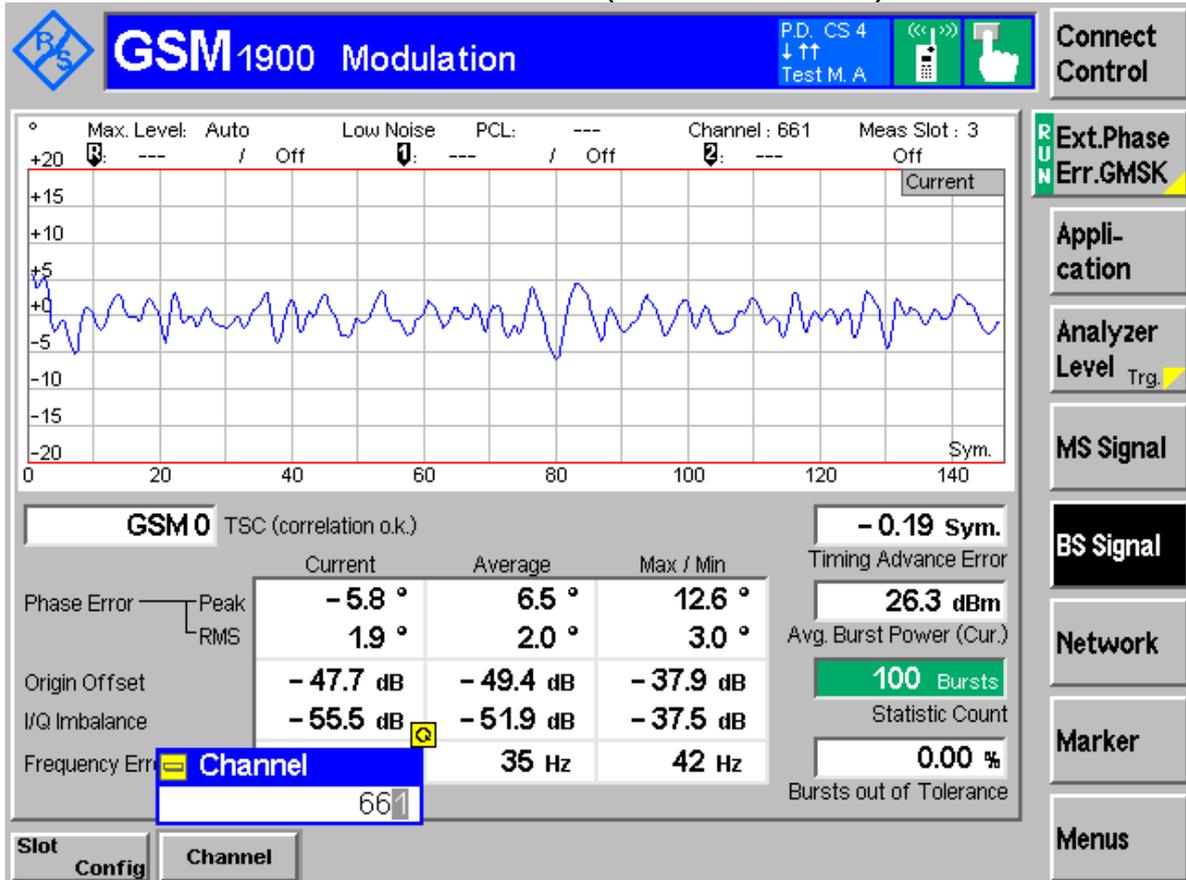
According to FCC Part 2.1047 & Part24 Subpart E



1 Test Plot

1.1 Test Mode = TM 1

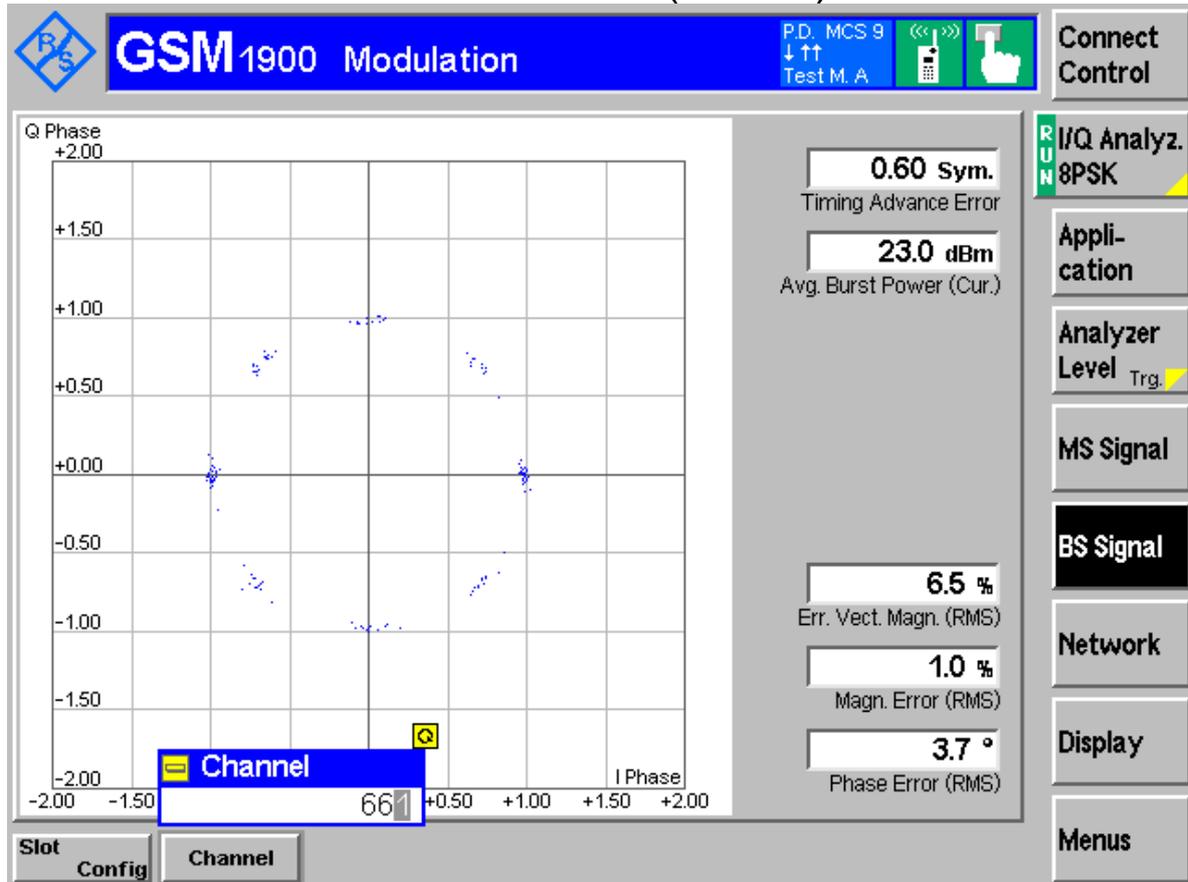
Channel 661 (GPRS/GSM)





1.2 Test Mode = TM 2

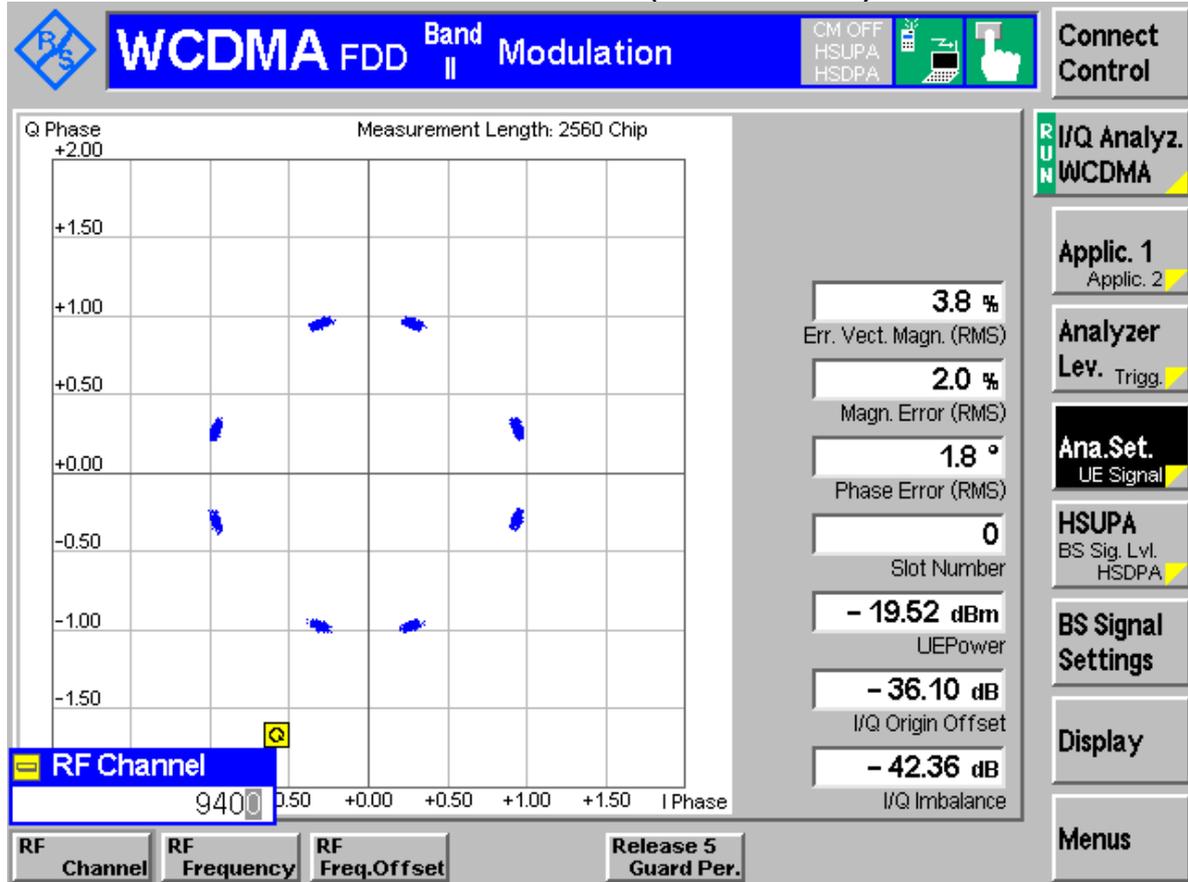
Channel 661 (EDGE)





1.3 Test Mode = TM 3

Channel 9400 (WCDMA)



END



Appendix C

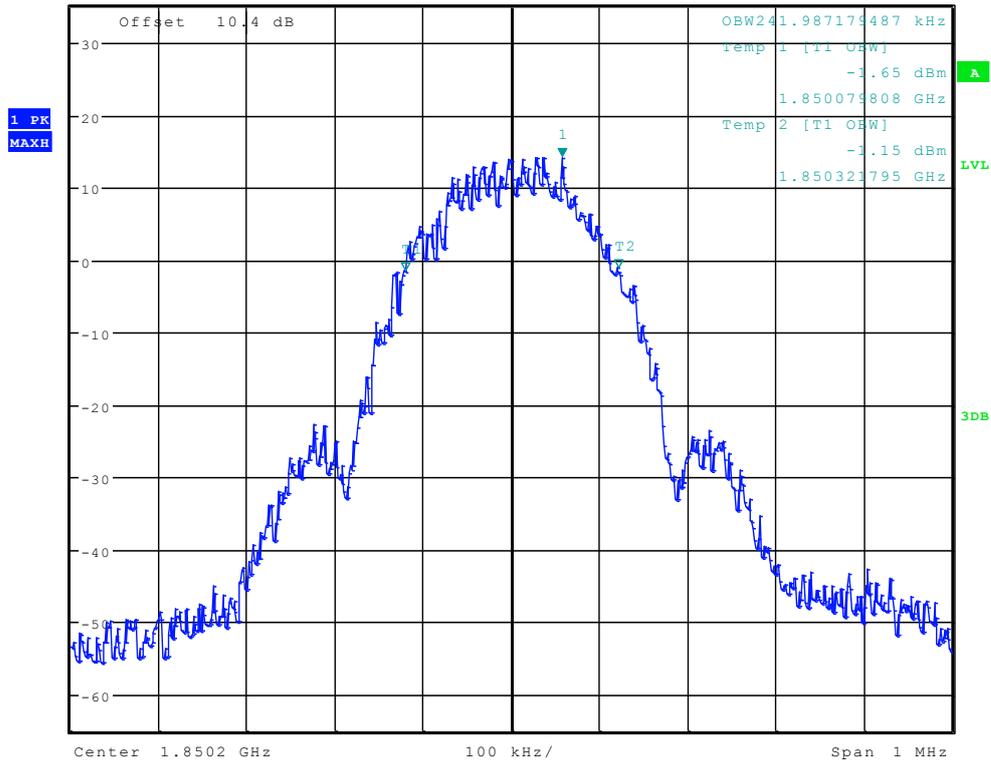
Occupied Bandwidth According to FCC Part 2.1049 & Part24 Subpart E



TM2:EDGE Channel 512

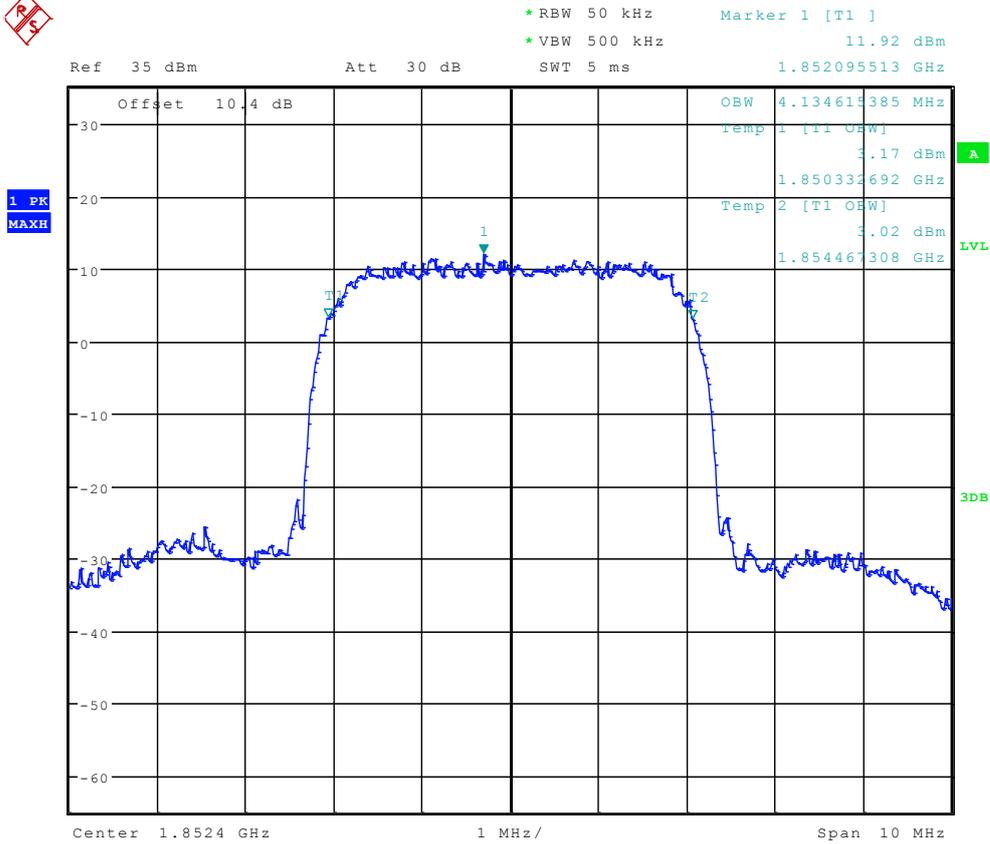


Ref 35 dBm Att 30 dB SWT 115 ms *RBW 3 kHz Marker 1 [T1] 14.18 dBm
*VBW 10 kHz 1.850257692 GHz



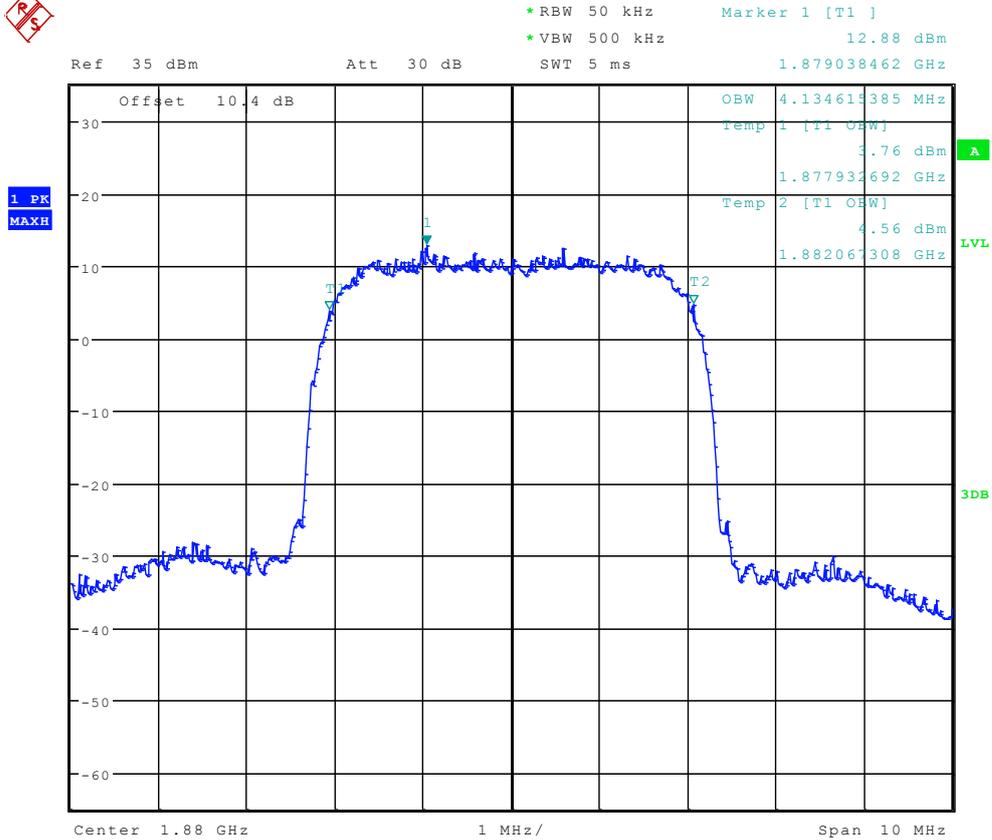


TM3: WCDMA Channel 9262



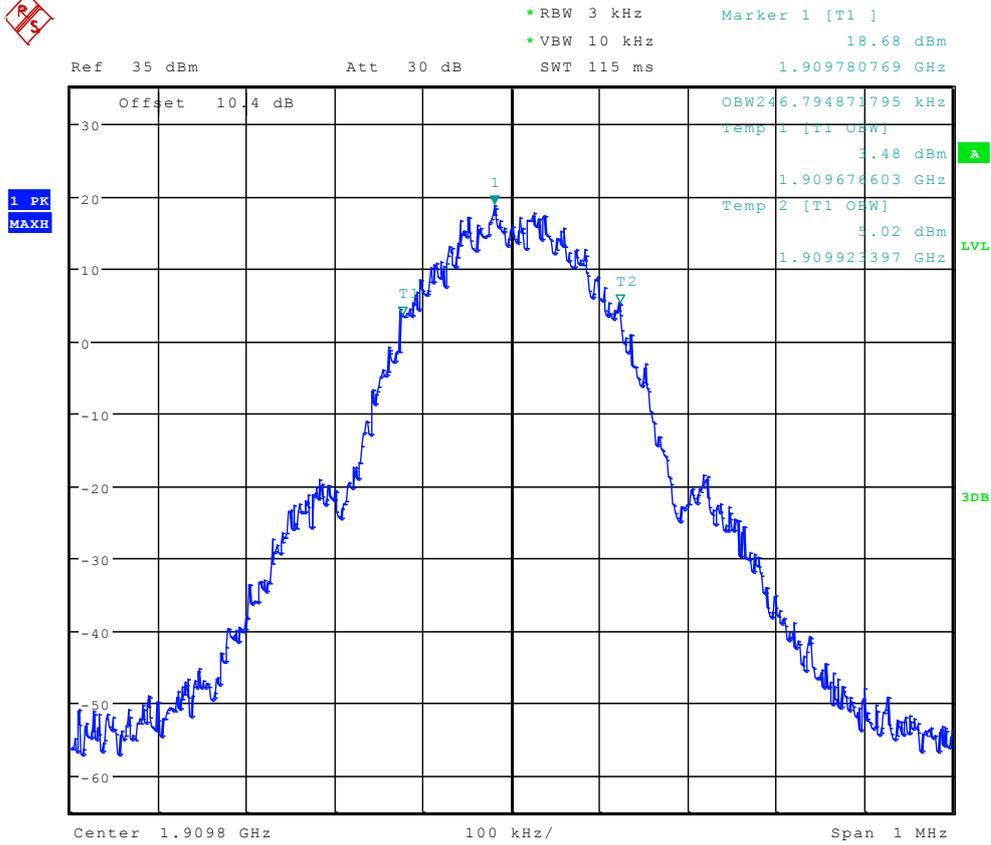


TM3: WCDMA Channel 9400



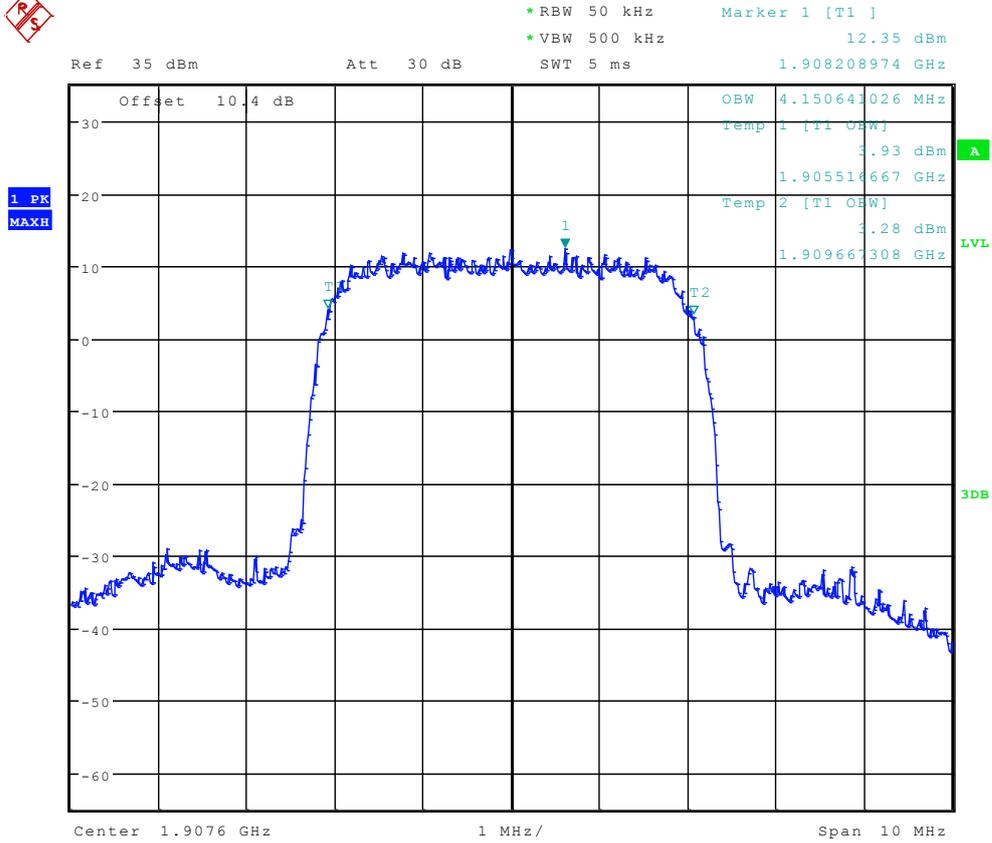


TM1:GPRS/GSM Channel 810





TM3: WCDMA Channel 9538



END



Appendix D

Band Edges Compliance

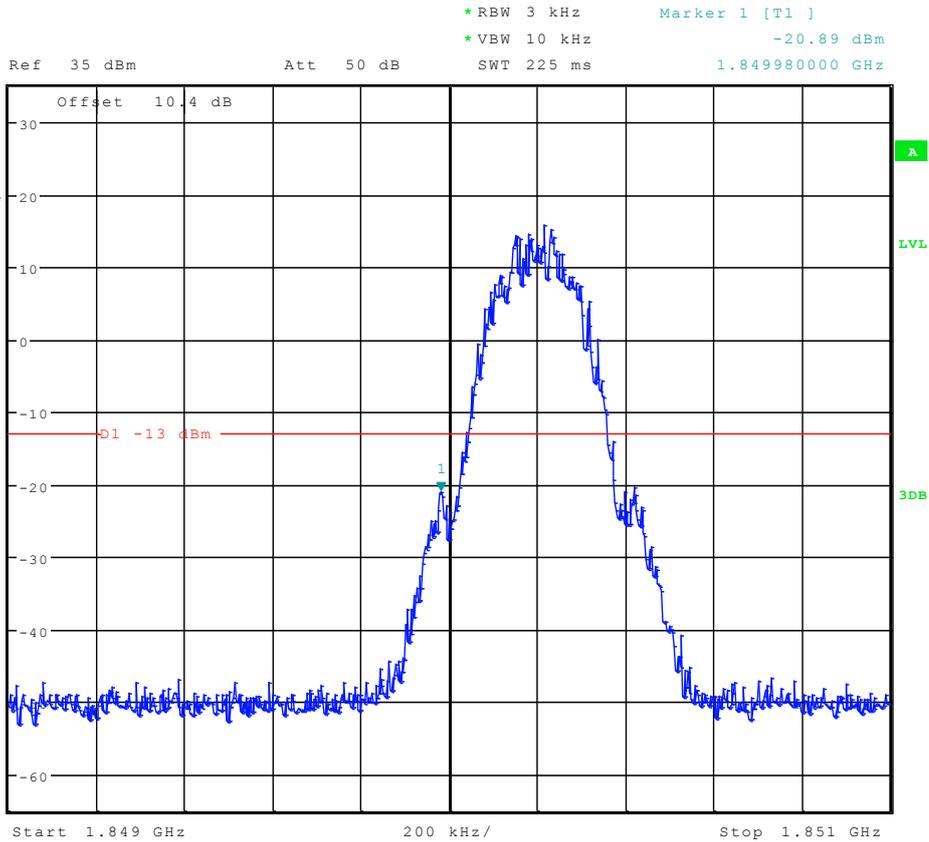
According to FCC Part 2.1051 & Part24 Subpart E



TM1:GPRS/GSM

Left Edge

Channel 512

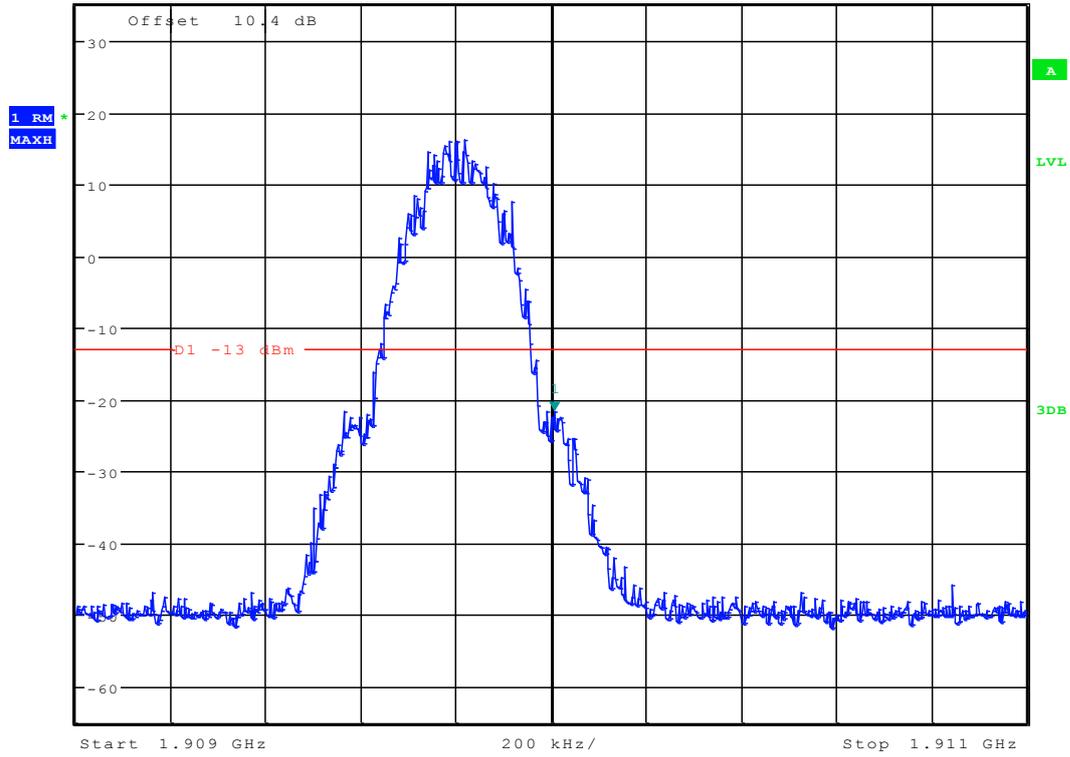




Right Edge Channel 810



Ref 35 dBm Att 50 dB SWT 225 ms
*RBW 3 kHz *VBW 10 kHz
Marker 1 [T1] -21.54 dBm
1.910005000 GHz

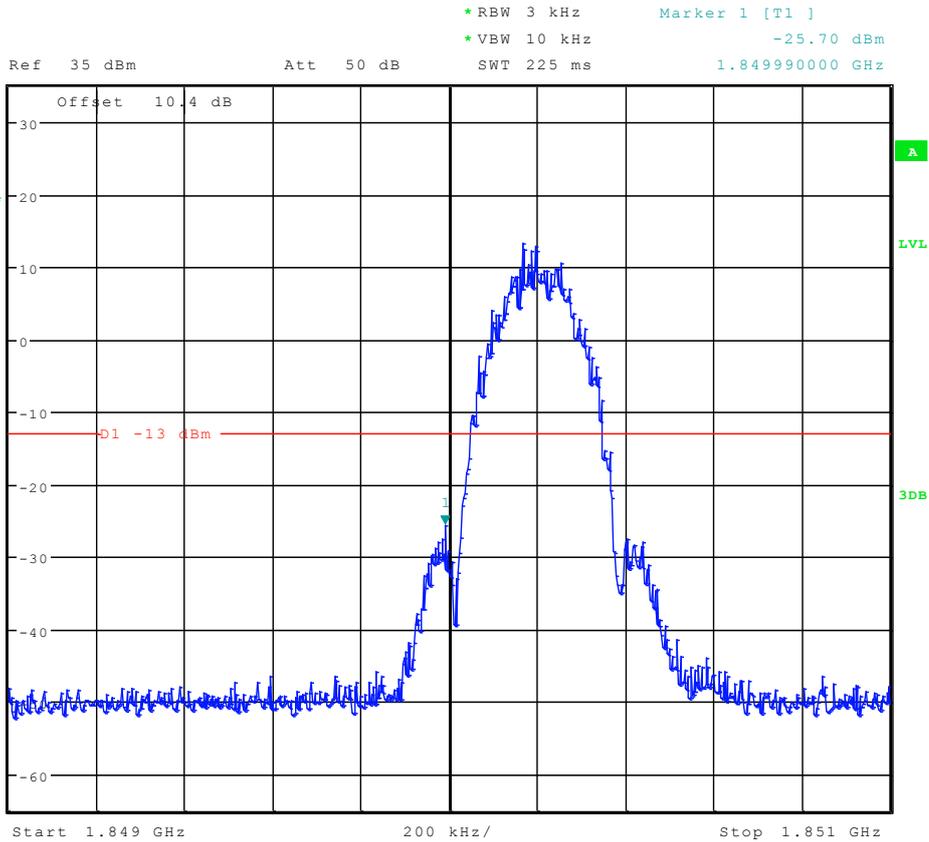




TM2:EDGE

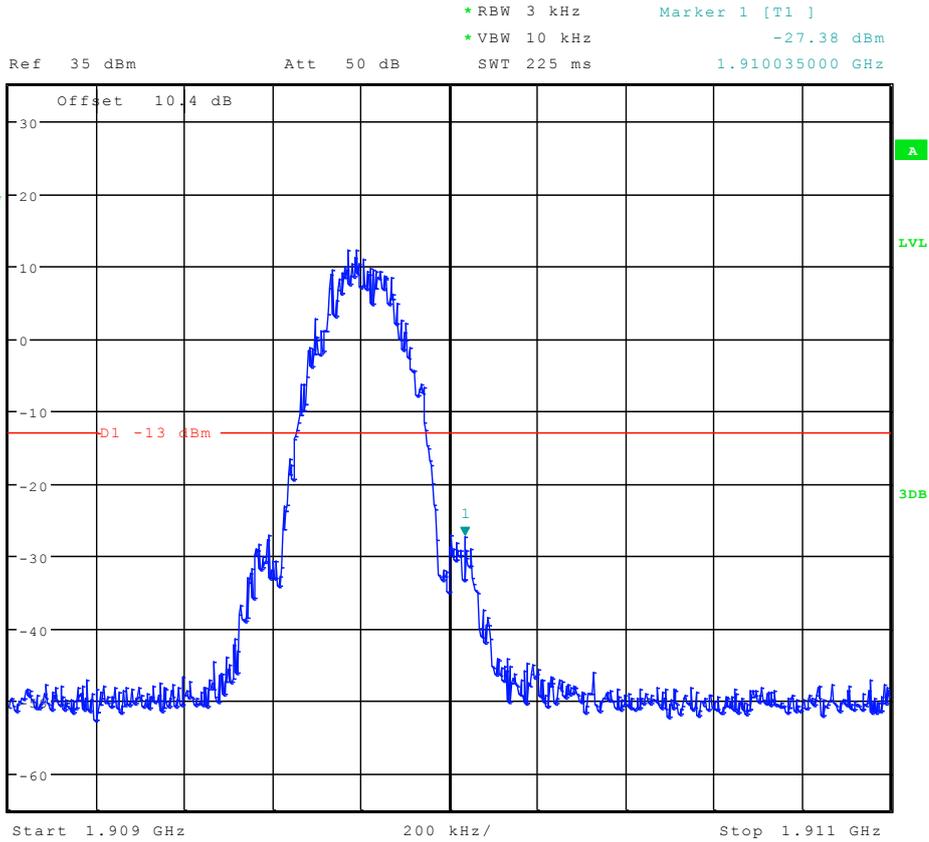
Left Edge

Channel 512





Right Edge Channel 810

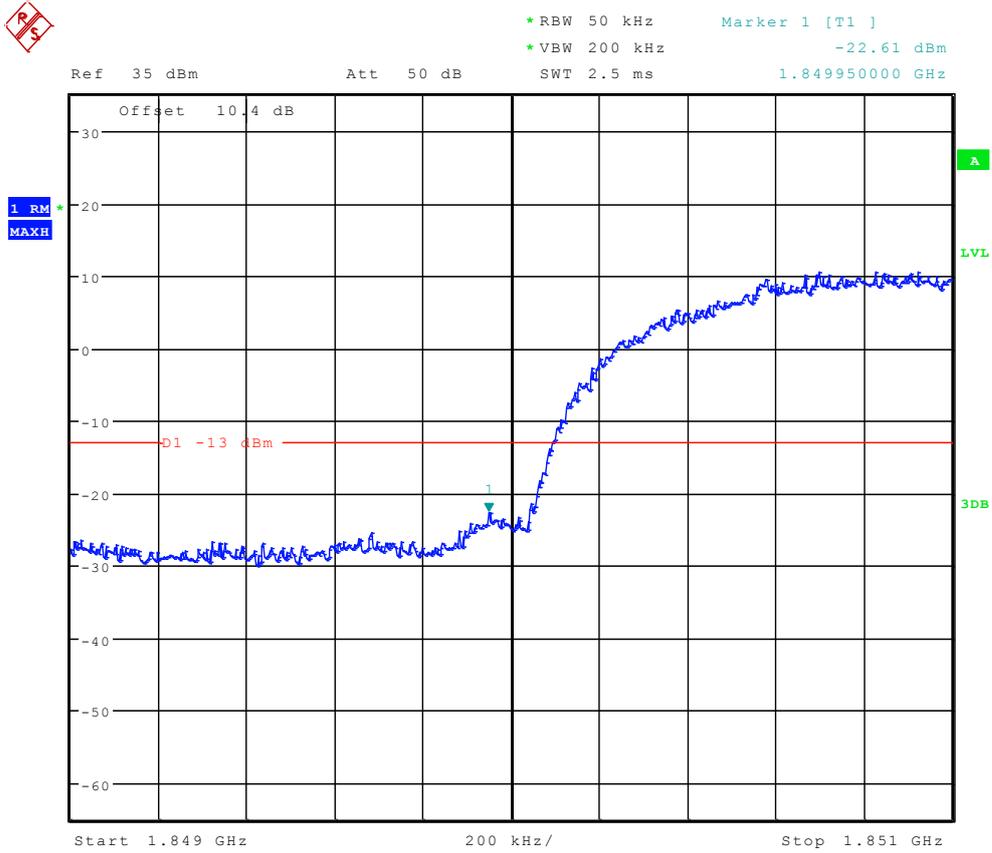




TM3: WCDMA

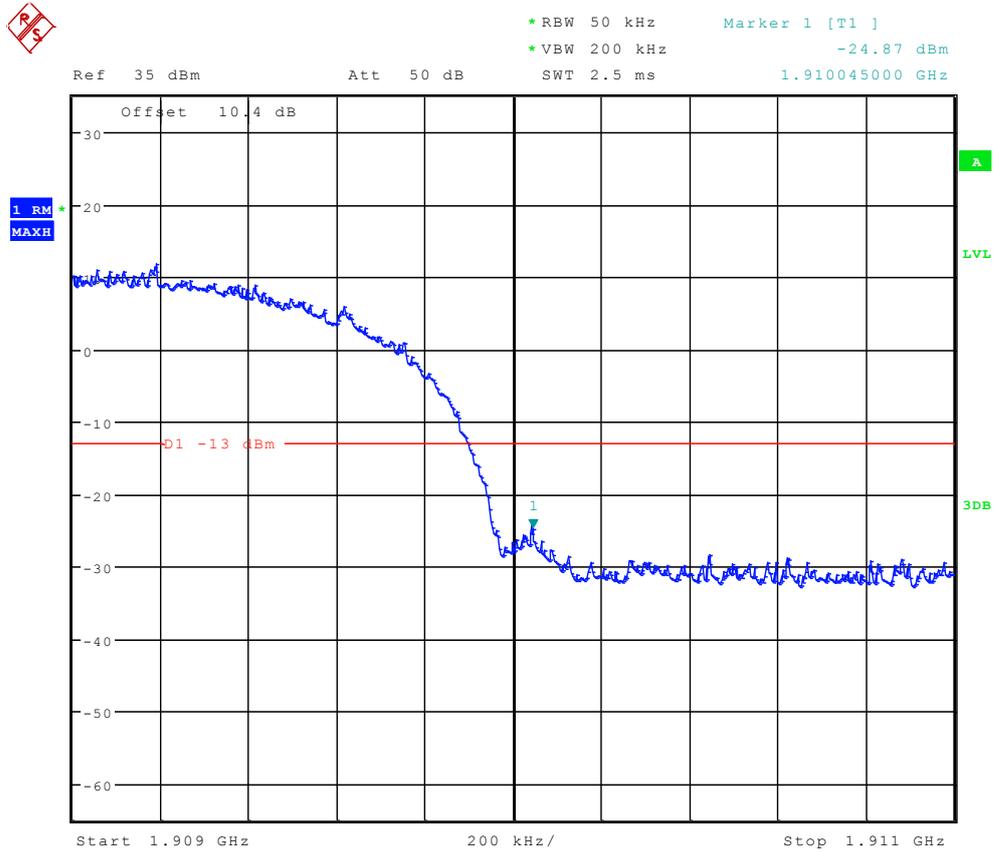
Left Edge

Channel 9262





Right Edge Channel 9538



END



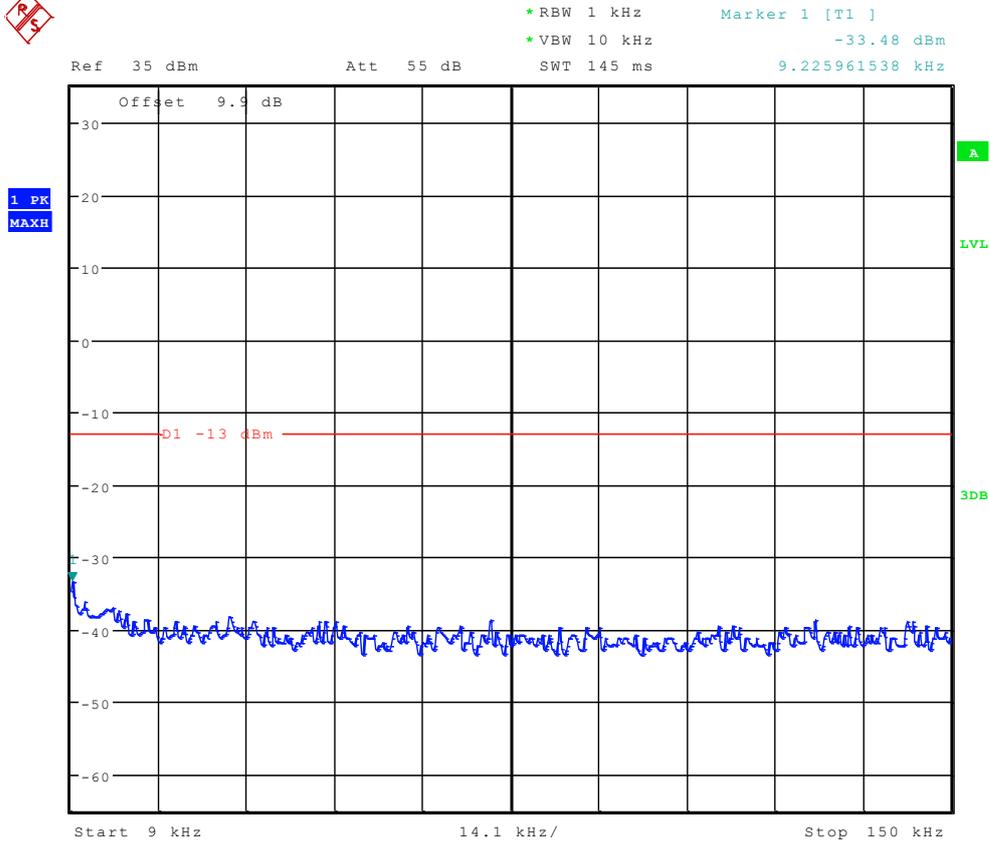
Appendix E

Spurious Emission at Antenna Terminal

According to FCC Part 2.1051 & Part24 Subpart E

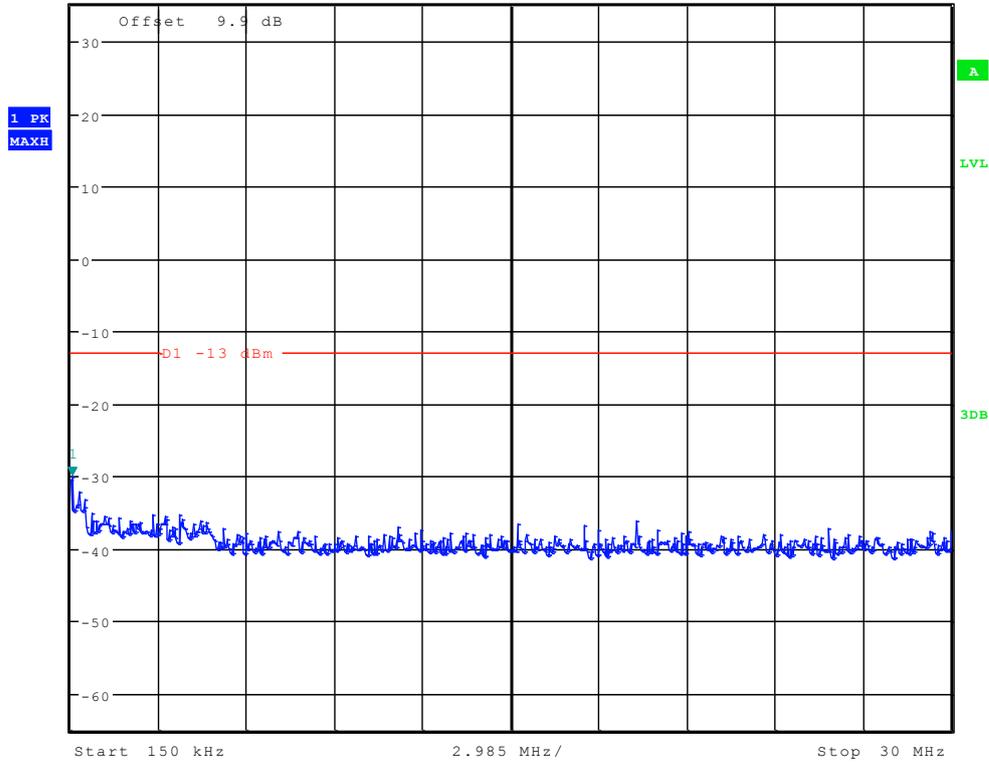


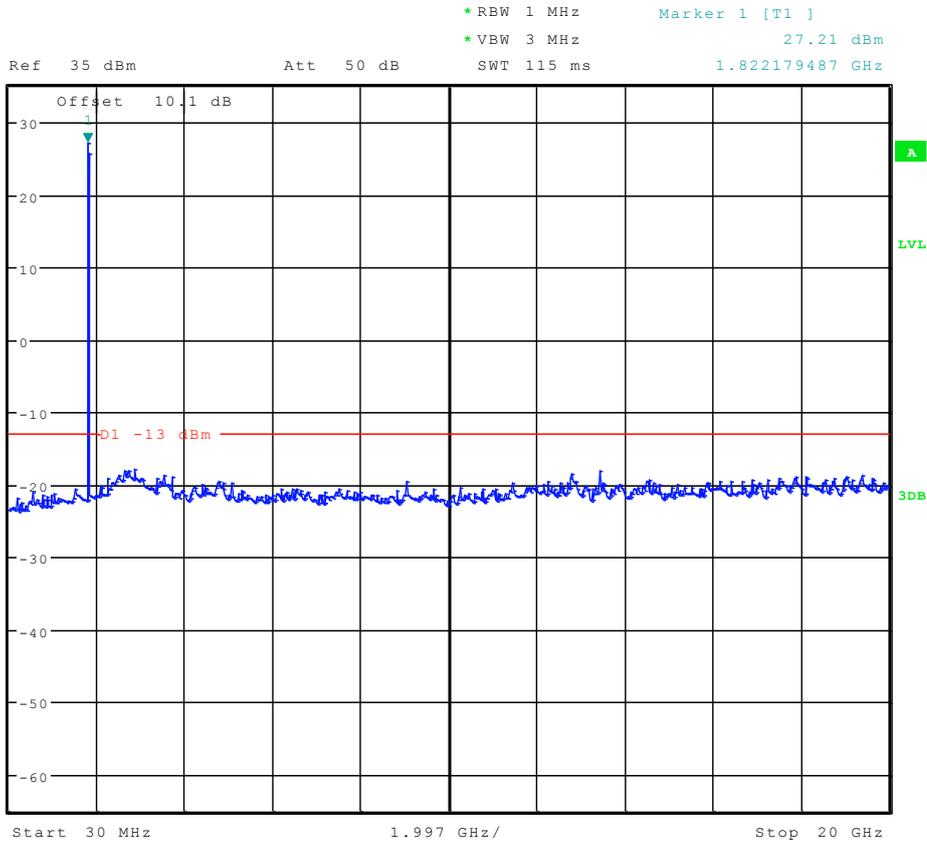
TM1:GPRS/GSM Channel 512





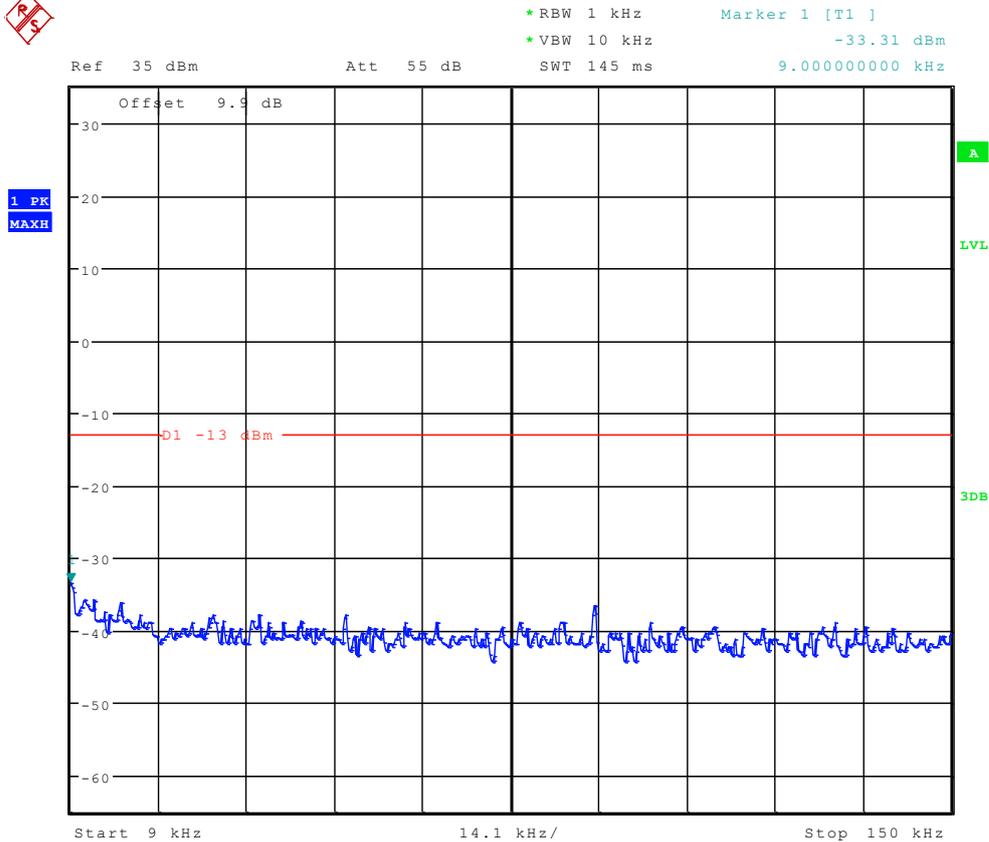
Ref 35 dBm Att 55 dB SWT 300 ms 197.836538462 kHz
*RBW 10 kHz Marker 1 [T1]
*VBW 30 kHz -30.04 dBm





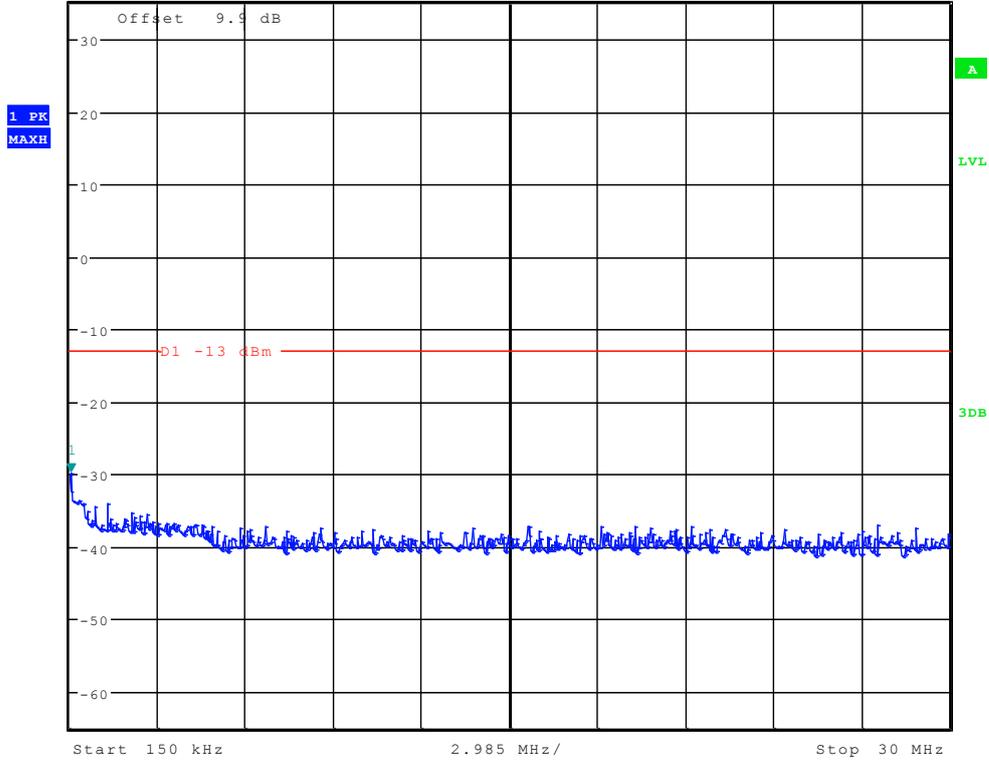


Channel 661



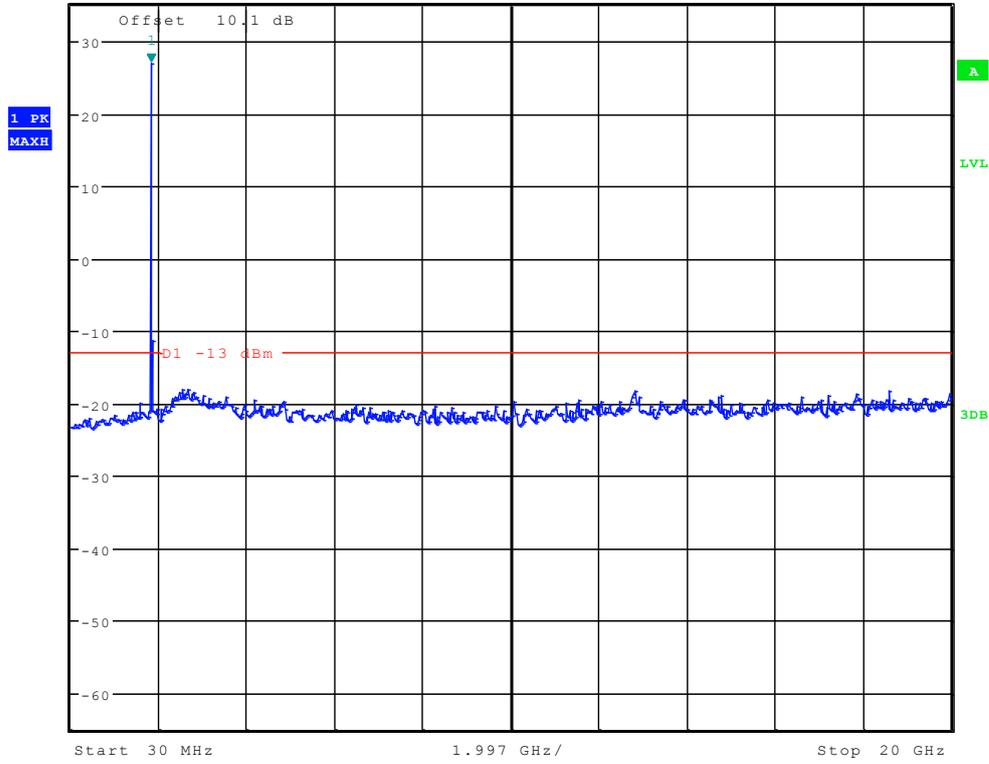


*RBW 10 kHz Marker 1 [T1]
 *VBW 30 kHz -29.87 dBm
 Ref 35 dBm Att 55 dB SWT 300 ms 197.836538462 kHz



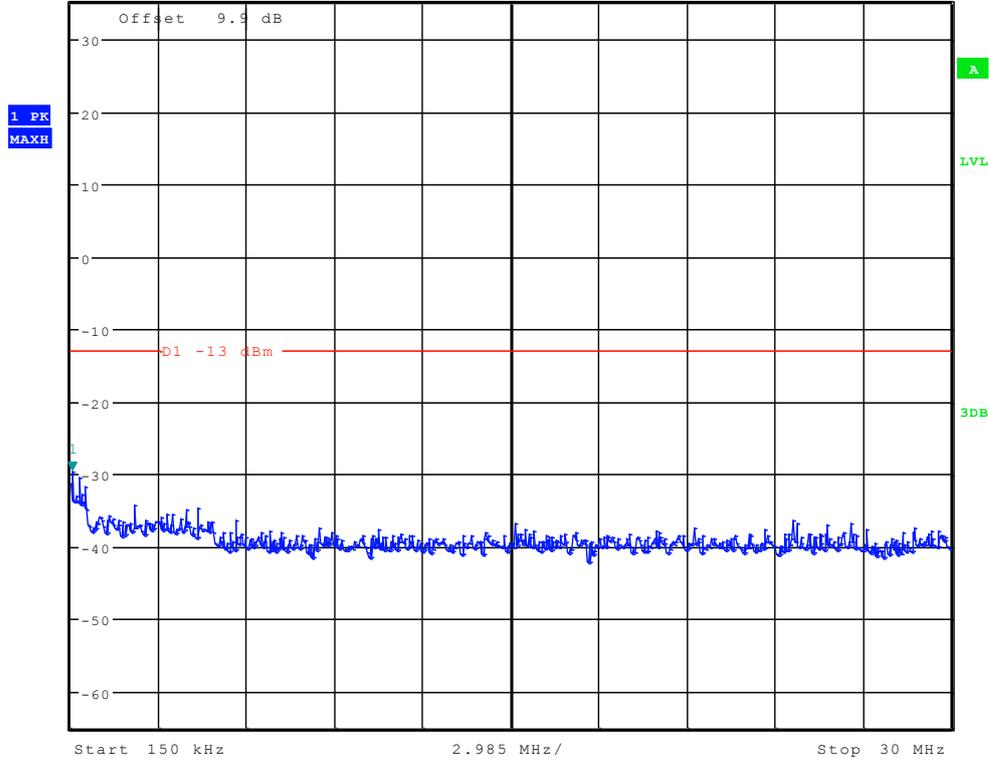


Ref 35 dBm Att 50 dB SWT 115 ms Marker 1 [T1] 26.83 dBm
*RBW 1 MHz
*VBW 3 MHz 1.854182692 GHz



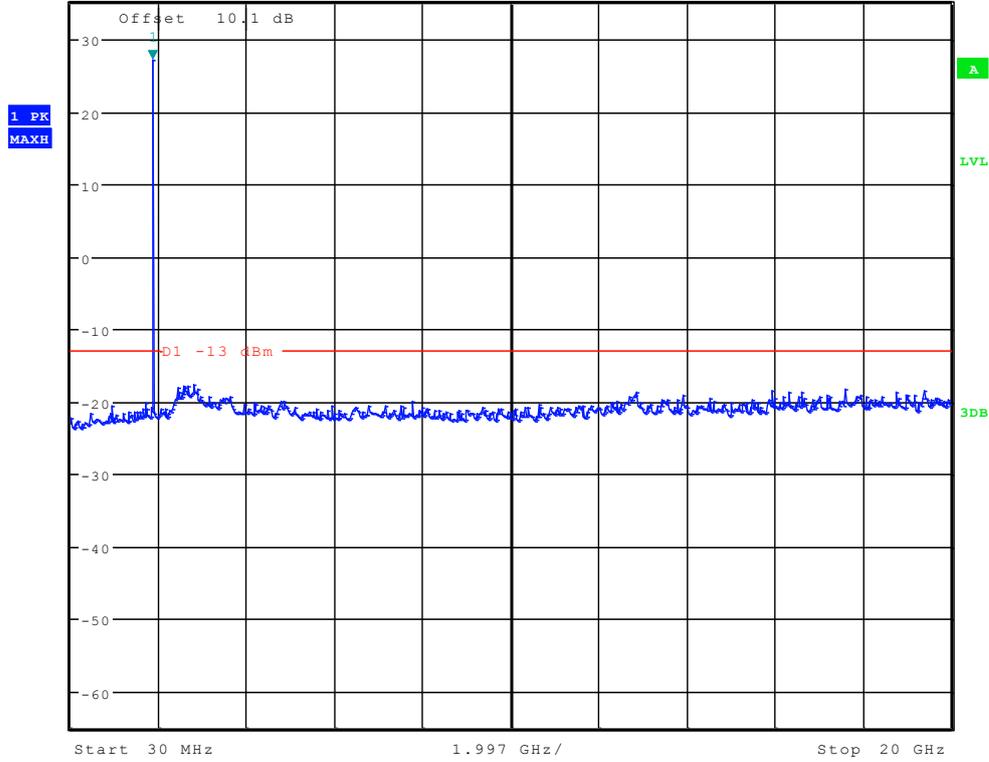


Ref 35 dBm Att 55 dB SWT 300 ms 197.836538462 kHz
*RBW 10 kHz Marker 1 [T1]
*VBW 30 kHz -29.70 dBm



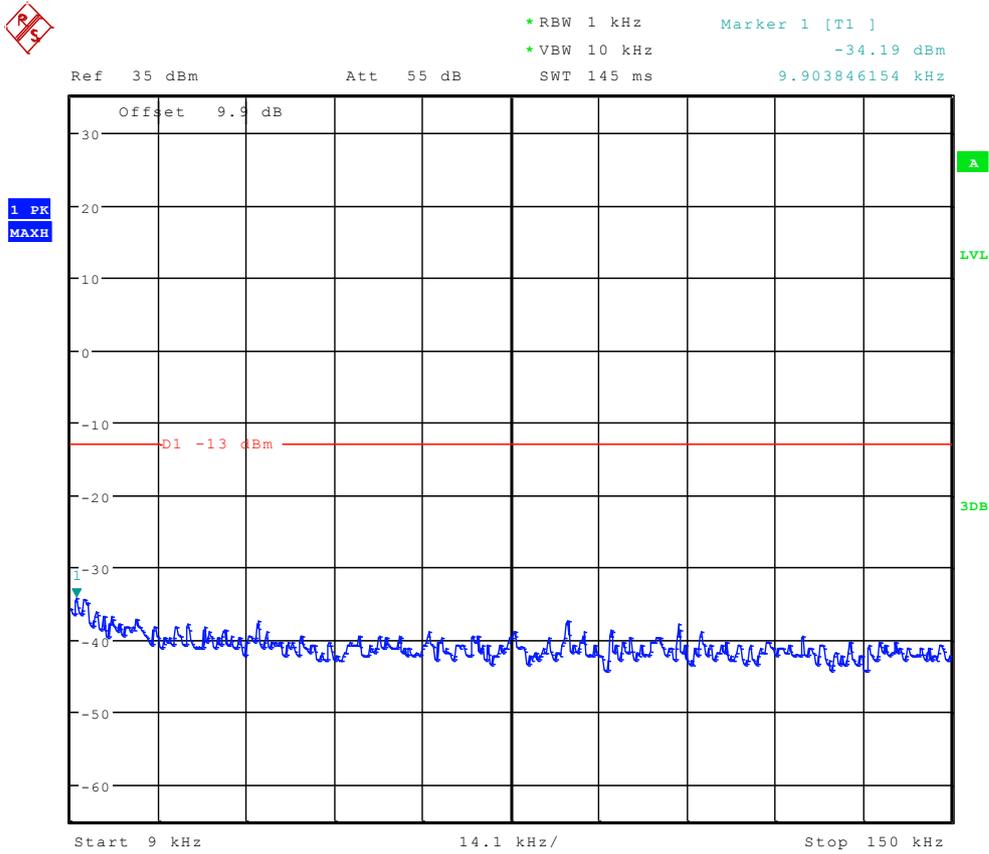


Ref 35 dBm Att 50 dB SWT 115 ms Marker 1 [T1]
*RBW 1 MHz *VBW 3 MHz 27.05 dBm
1.886185897 GHz



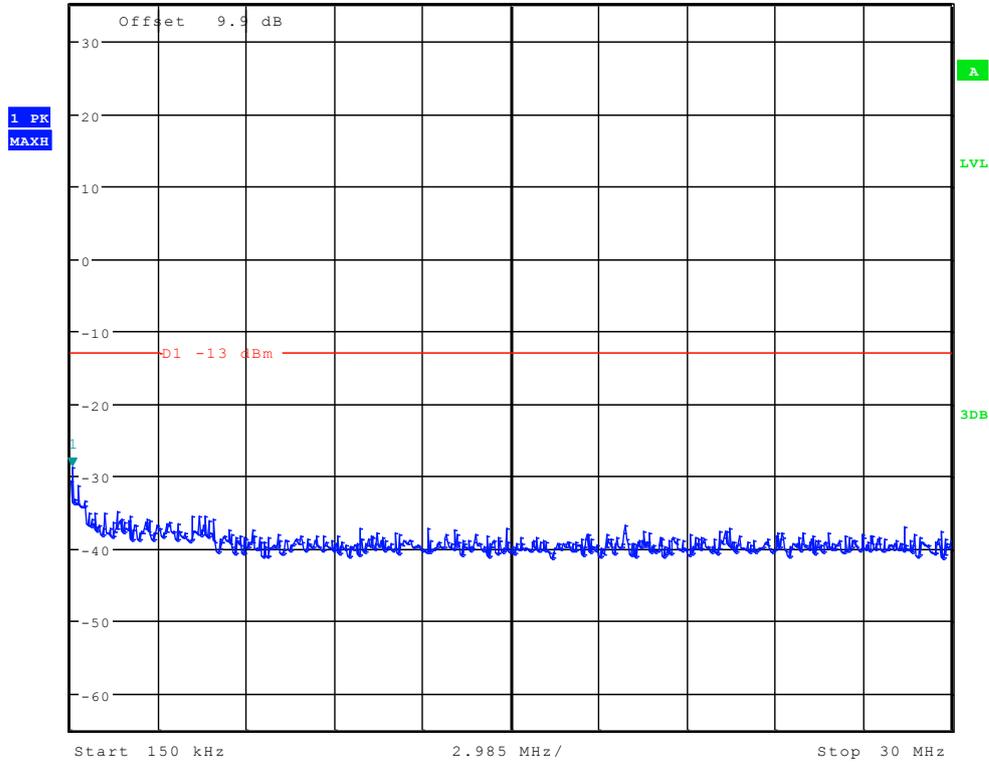


TM2:EDGE Channel 512



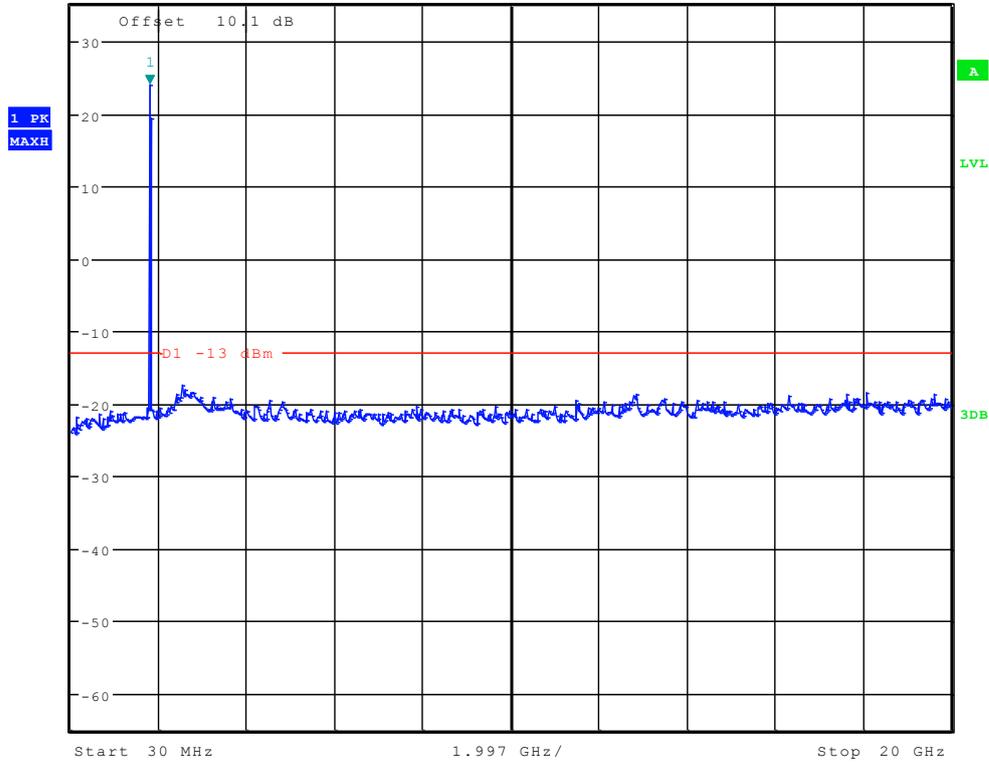


Ref 35 dBm Att 55 dB SWT 300 ms 197.836538462 kHz
*RBW 10 kHz Marker 1 [T1]
*VBW 30 kHz -28.85 dBm



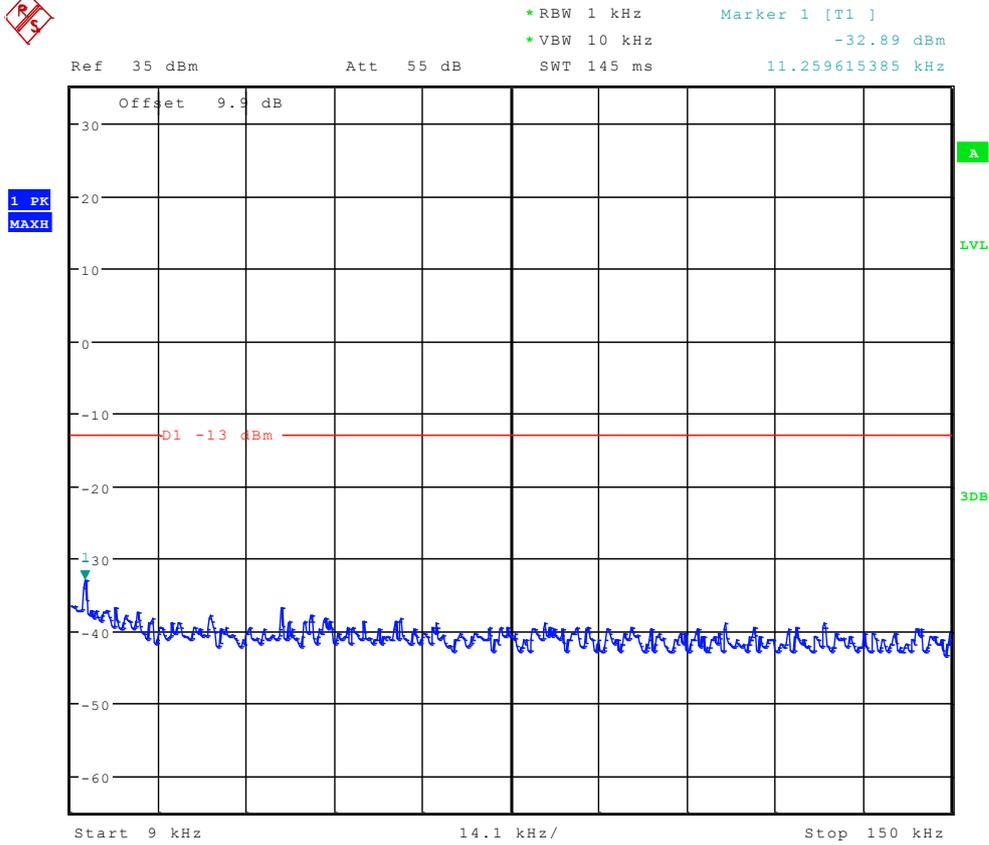


Ref 35 dBm Att 50 dB SWT 115 ms
*RBW 1 MHz Marker 1 [T1]
*VBW 3 MHz 24.05 dBm
1.822179487 GHz



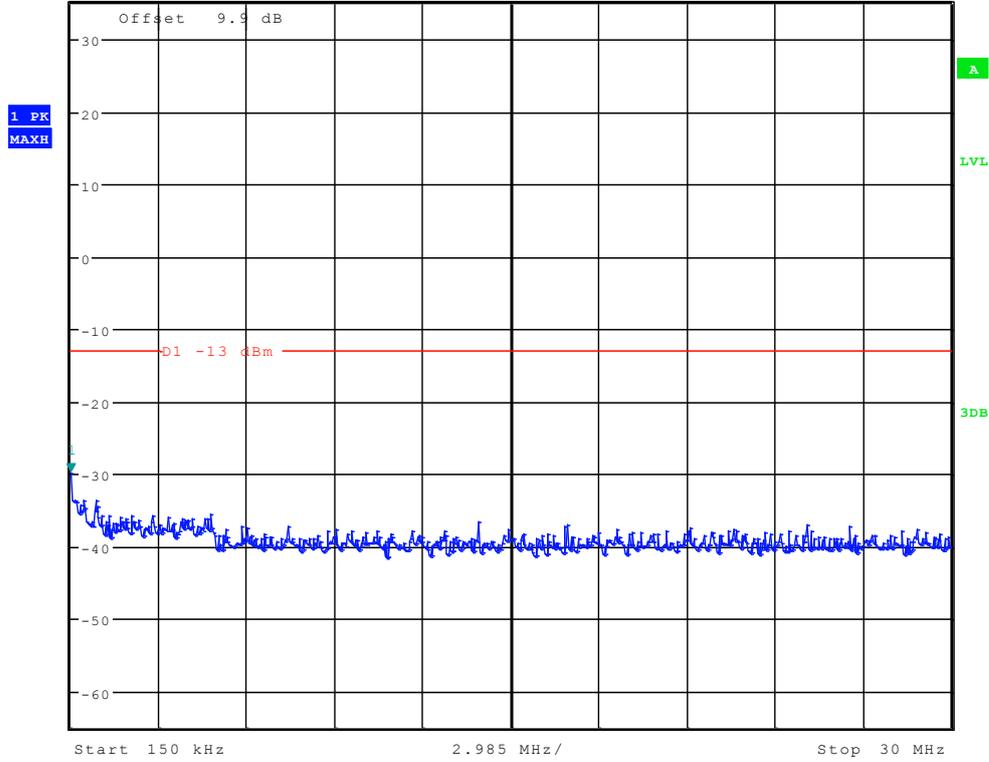


Channel 661



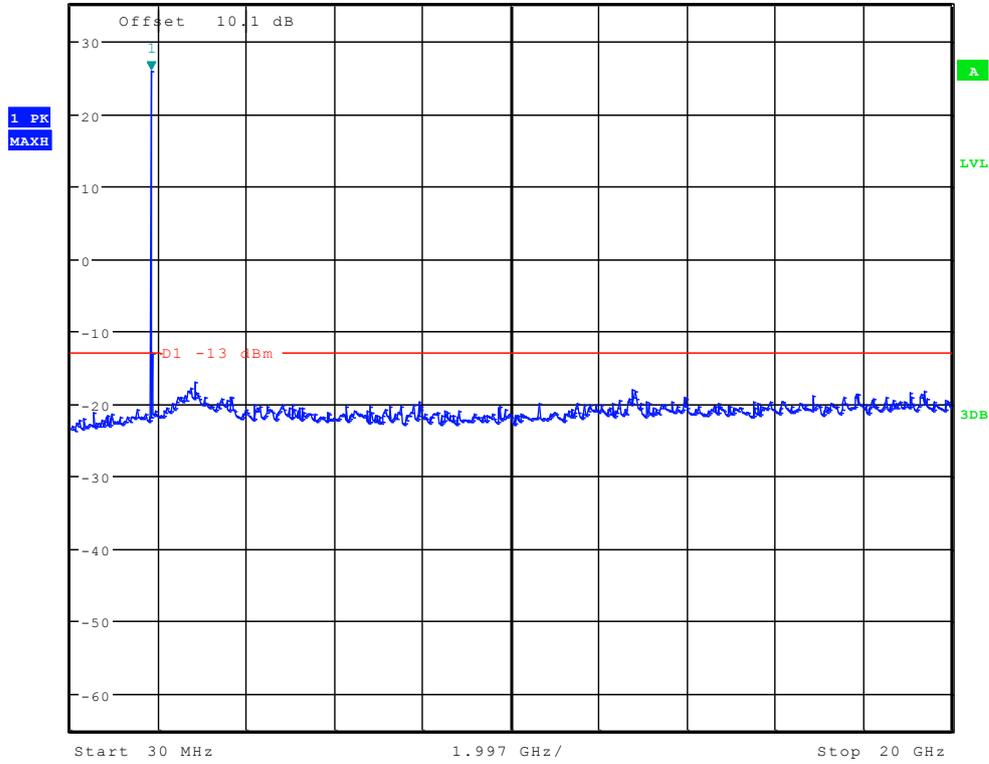


Ref 35 dBm Att 55 dB SWT 300 ms 150.00000000 kHz
*RBW 10 kHz Marker 1 [T1]
*VBW 30 kHz -29.81 dBm



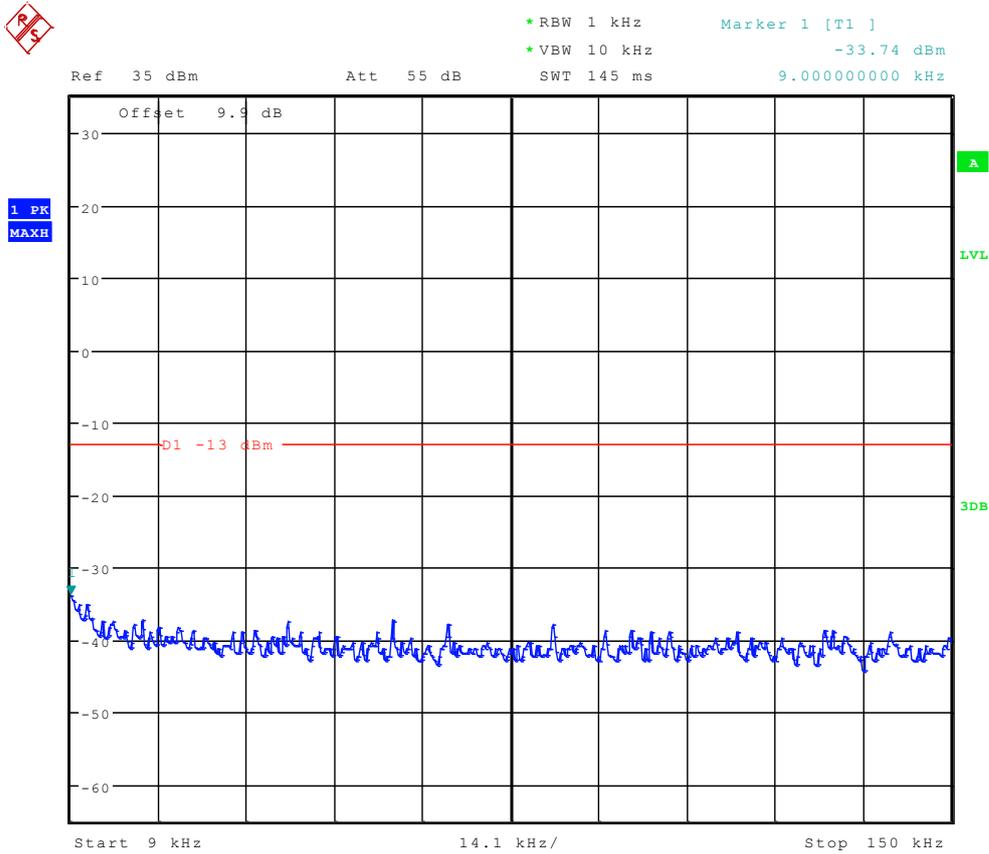


Ref 35 dBm Att 50 dB SWT 115 ms Marker 1 [T1] 25.77 dBm
*RBW 1 MHz *VBW 3 MHz 1.854182692 GHz



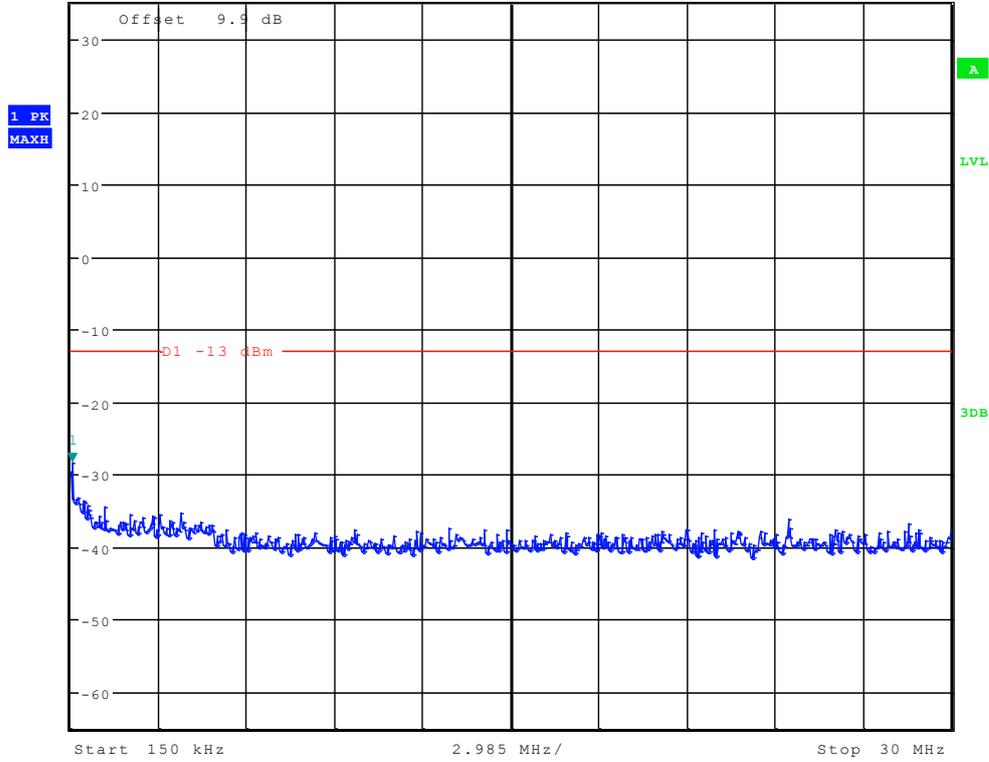


Channel 810



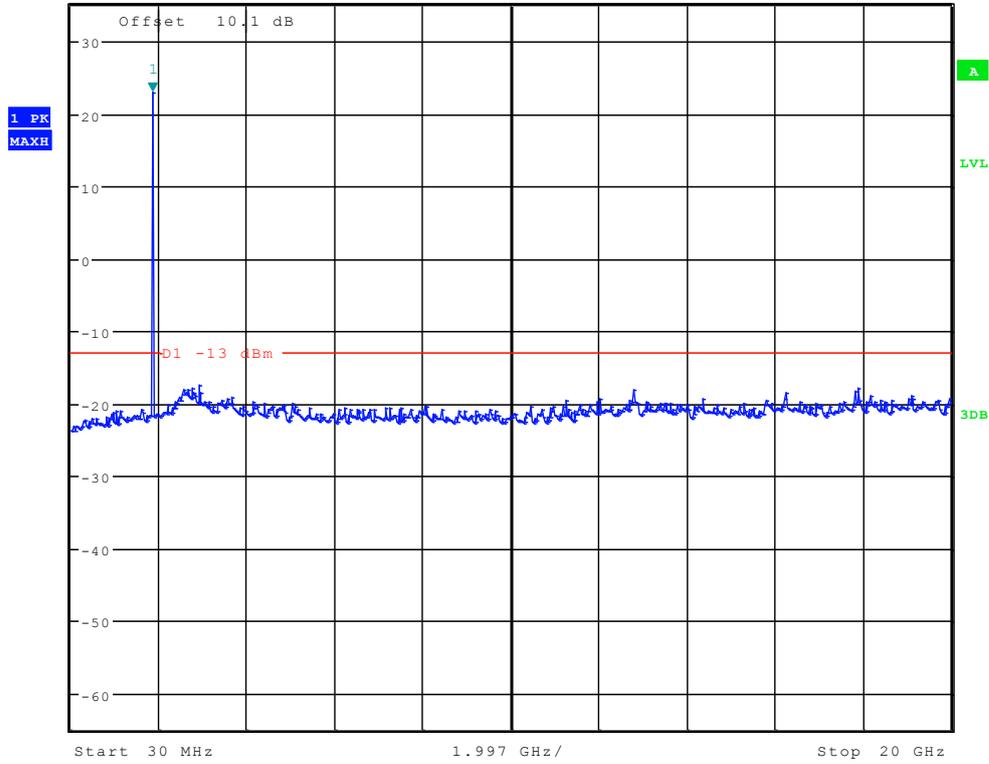


Ref 35 dBm Att 55 dB SWT 300 ms 197.836538462 kHz
*RBW 10 kHz Marker 1 [T1]
*VBW 30 kHz -28.36 dBm





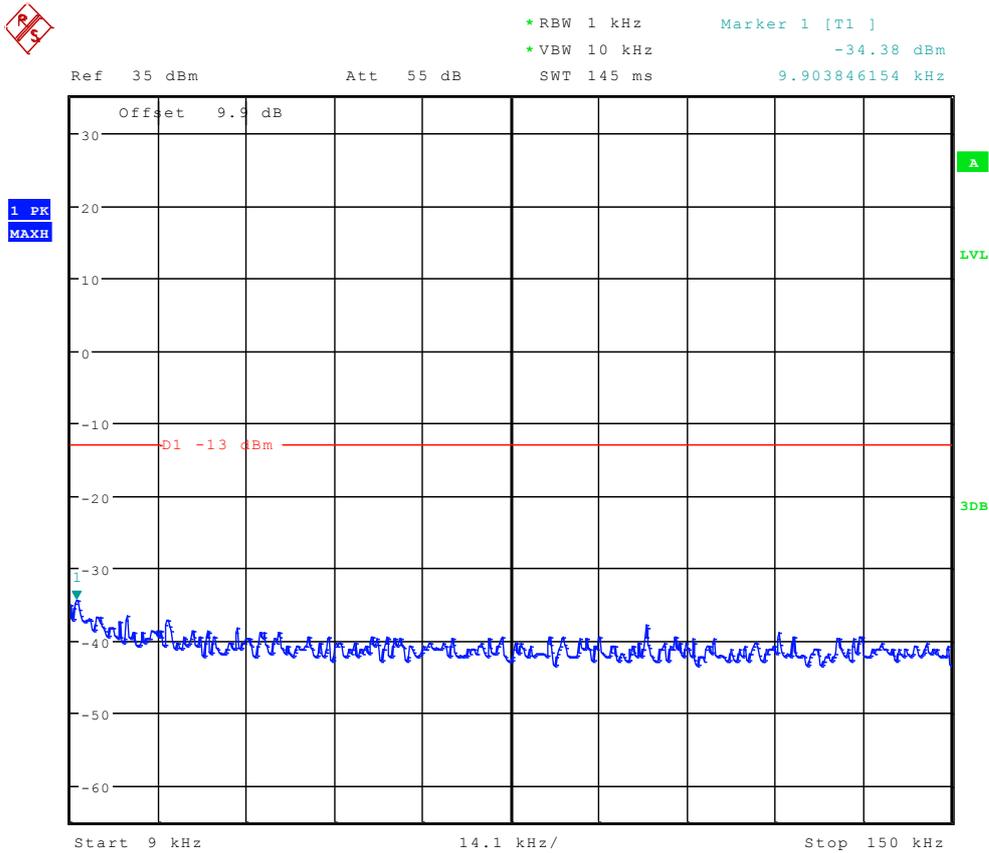
Ref 35 dBm Att 50 dB SWT 115 ms
*RBW 1 MHz Marker 1 [T1] 22.97 dBm
*VBW 3 MHz 1.886185897 GHz





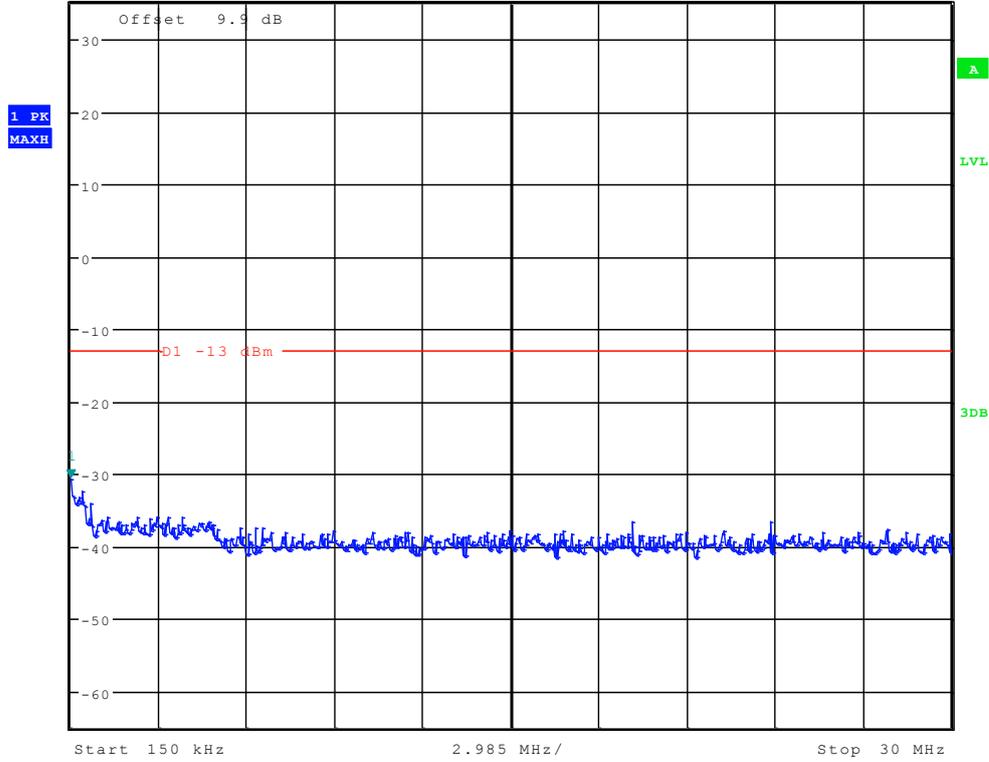
TM3: WCDMA

Channel 9262



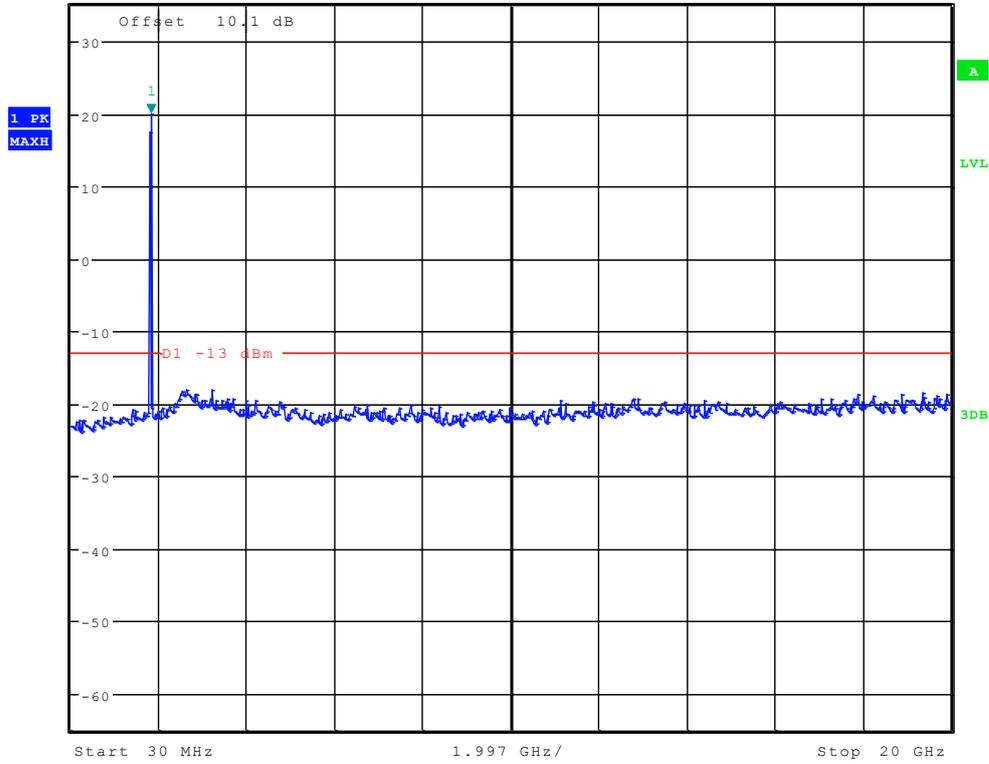


Ref 35 dBm Att 55 dB SWT 300 ms 150.000000000 kHz
*RBW 10 kHz Marker 1 [T1]
*VBW 30 kHz -30.58 dBm





Ref 35 dBm Att 50 dB SWT 115 ms
*RBW 1 MHz Marker 1 [T1]
*VBW 3 MHz 19.92 dBm
1.854182692 GHz

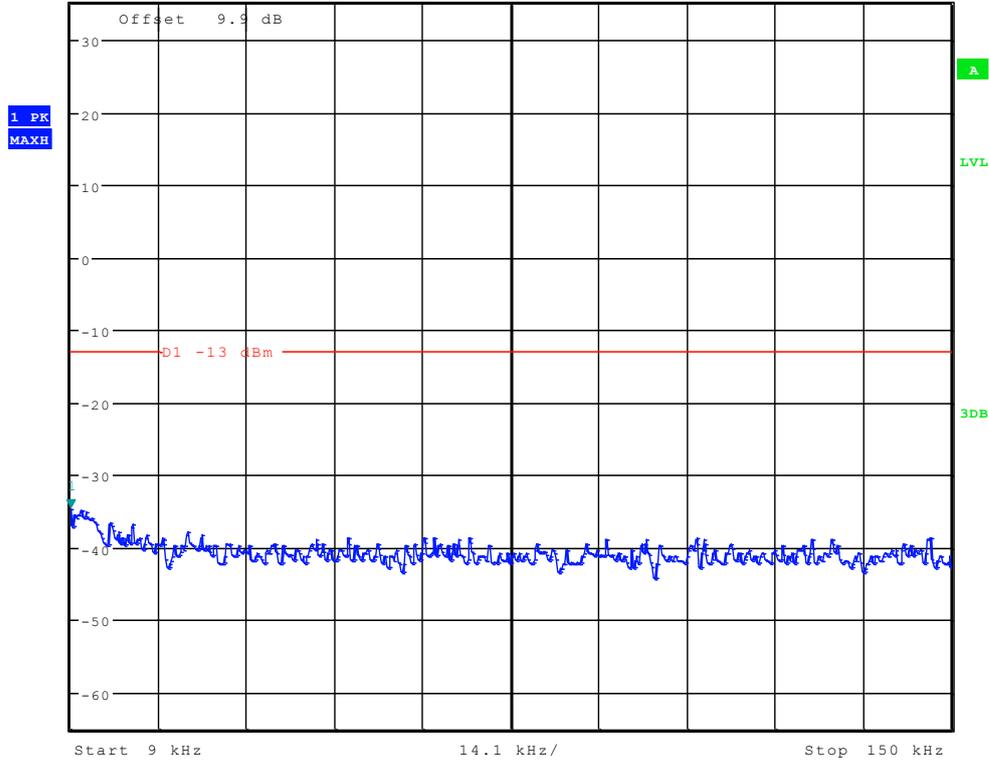




Channel 9400

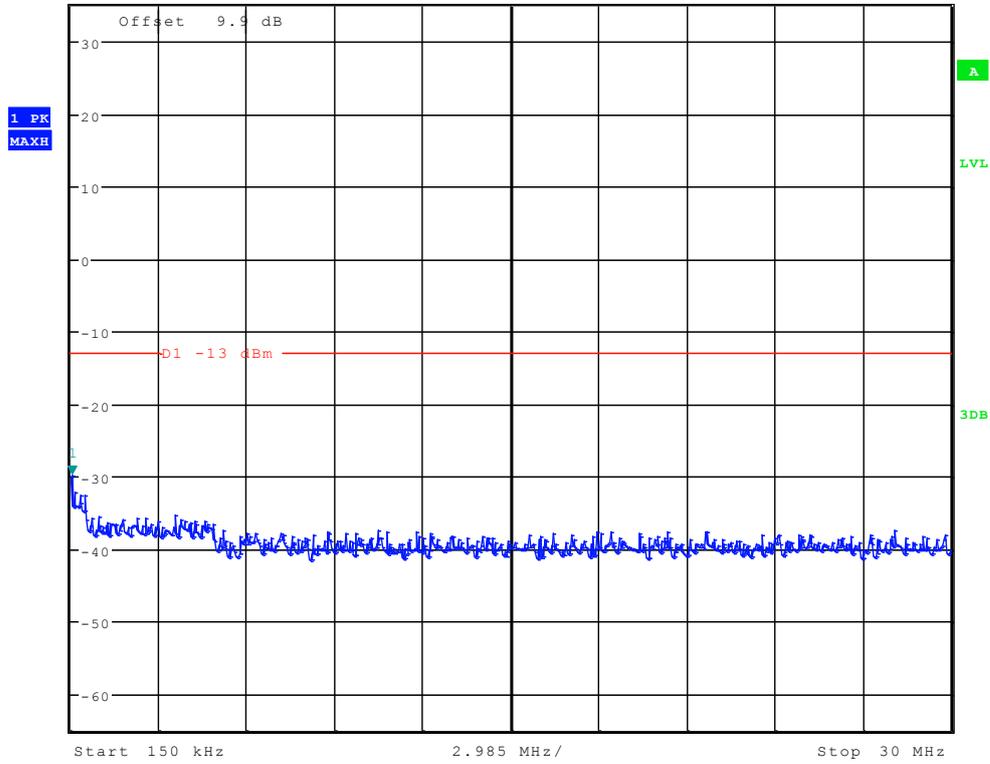


*RBW 1 kHz Marker 1 [T1]
 *VBW 10 kHz -34.67 dBm
 Ref 35 dBm Att 55 dB SWT 145 ms 9.000000000 kHz



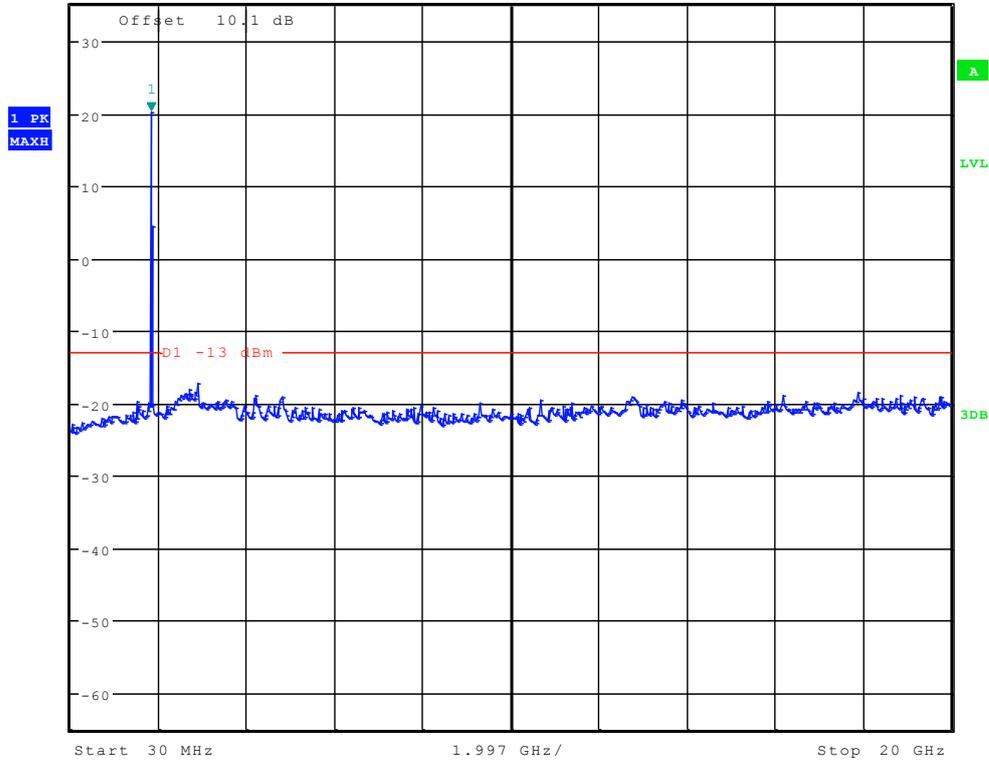


*RBW 10 kHz Marker 1 [T1]
*VBW 30 kHz -29.76 dBm
Ref 35 dBm Att 55 dB SWT 300 ms 197.836538462 kHz





Ref 35 dBm Att 50 dB SWT 115 ms
*RBW 1 MHz Marker 1 [T1]
*VBW 3 MHz 20.09 dBm
1.854182692 GHz

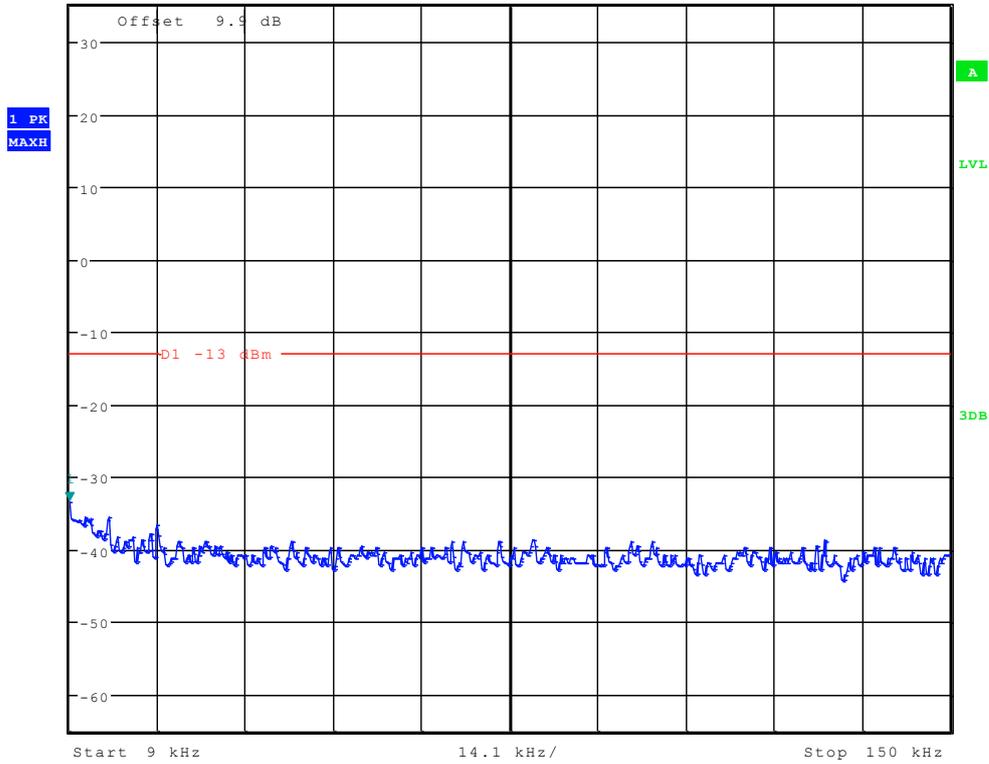




Channel 9538

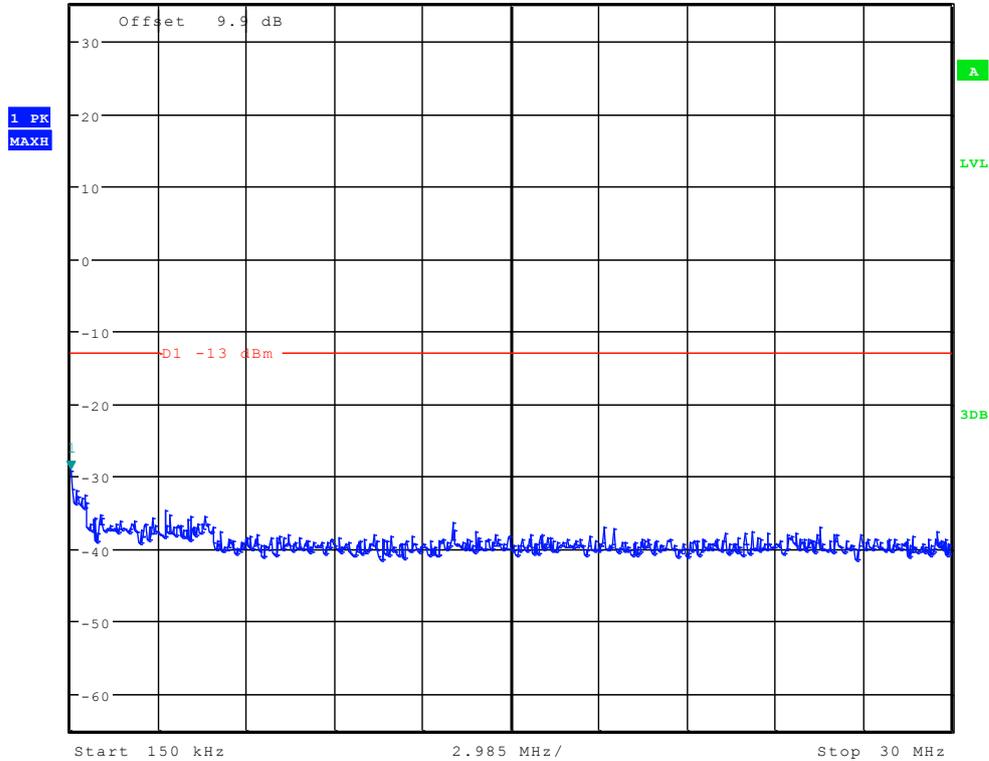


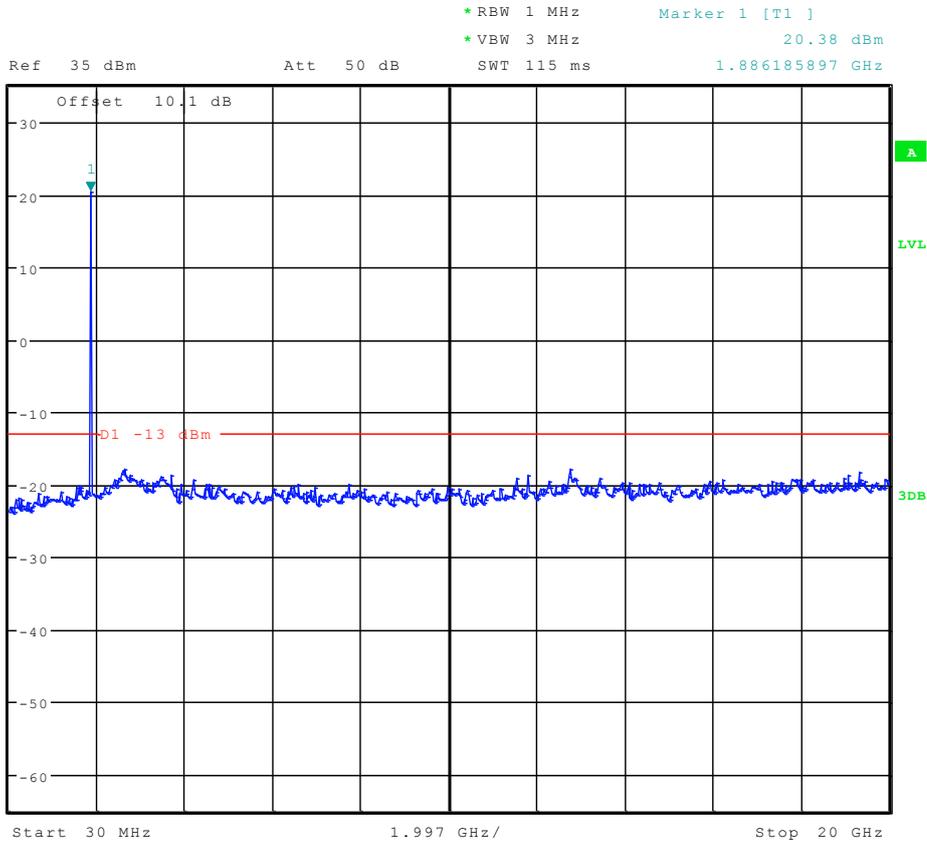
* RBW 1 kHz Marker 1 [T1]
 * VBW 10 kHz -33.31 dBm
 Ref 35 dBm Att 55 dB SWT 145 ms 9.000000000 kHz





Ref 35 dBm Att 55 dB SWT 300 ms 150.000000000 kHz
 *RBW 10 kHz Marker 1 [T1]
 *VBW 30 kHz -29.27 dBm





END

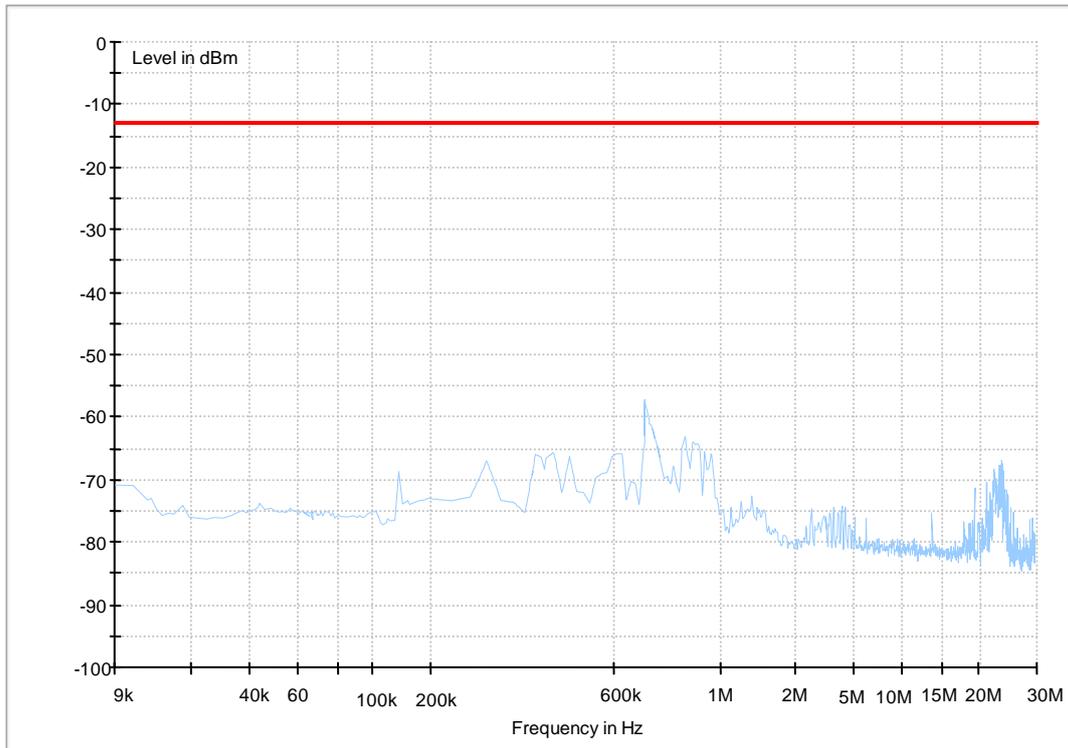


Appendix F

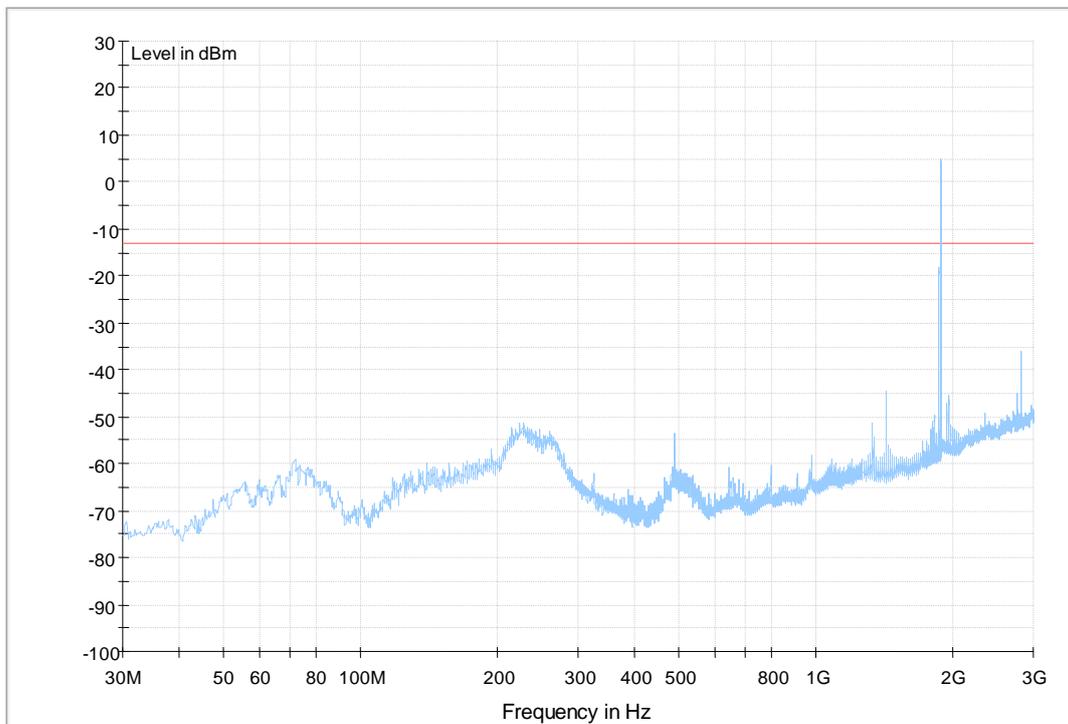
Radiated spurious emission According to FCC Part 2.1053& Part 24.238

GPRS 1900

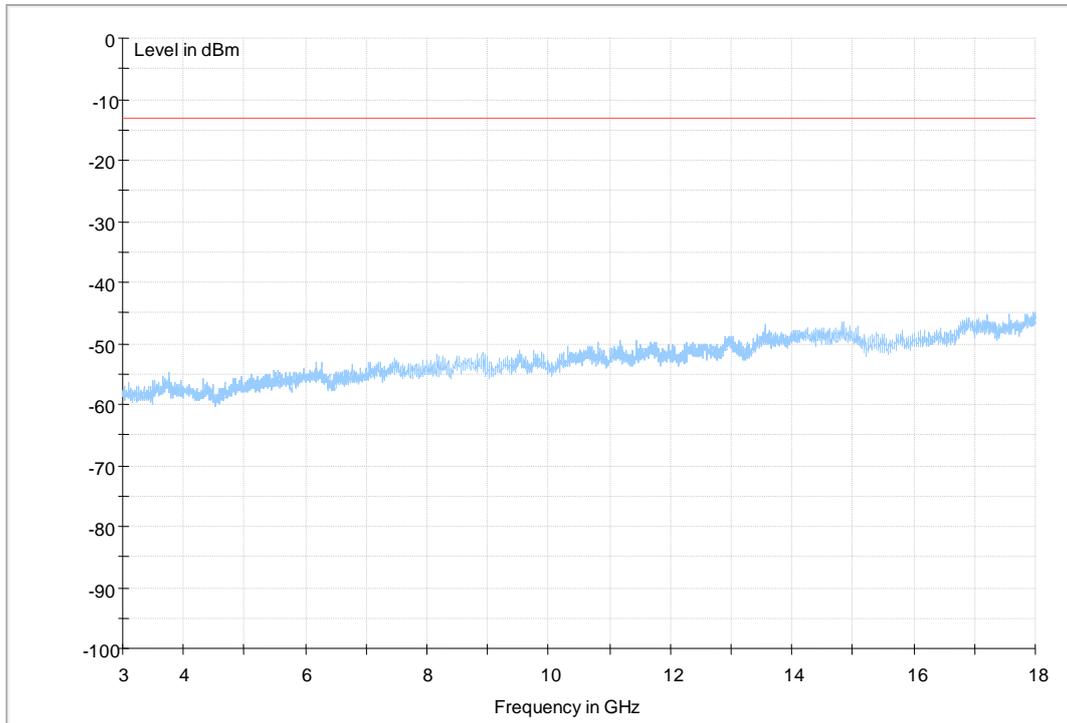
(9kHz-30MHz)



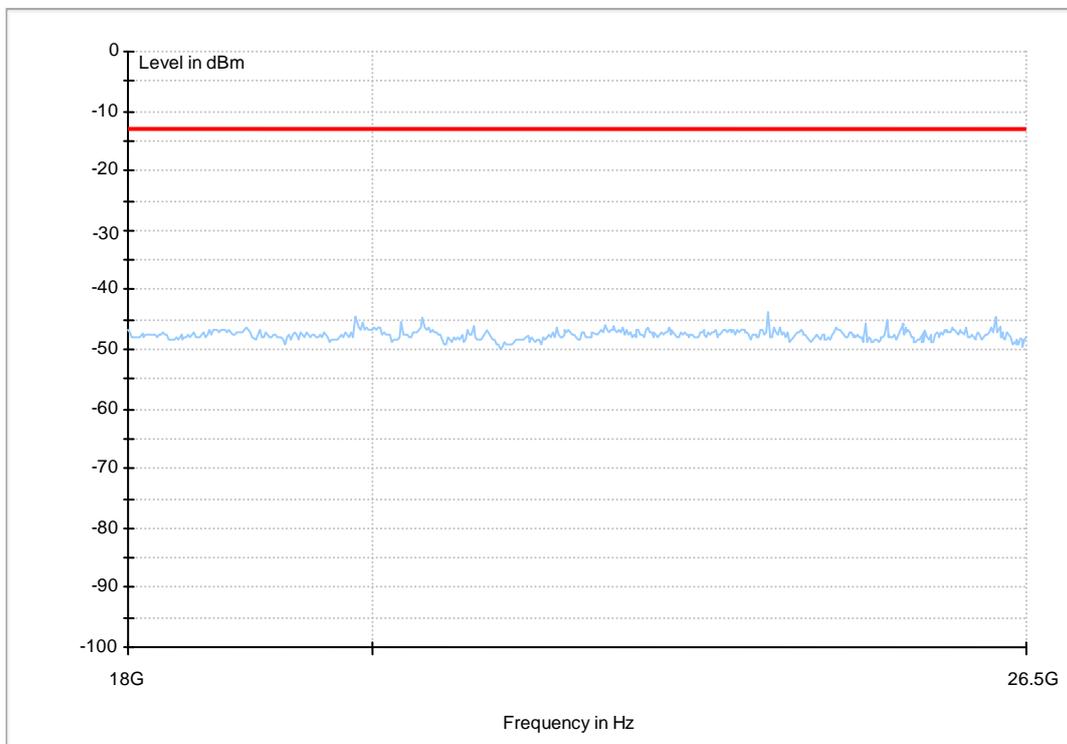
(30MHz~3GHz)



(3GHz~18GHz)

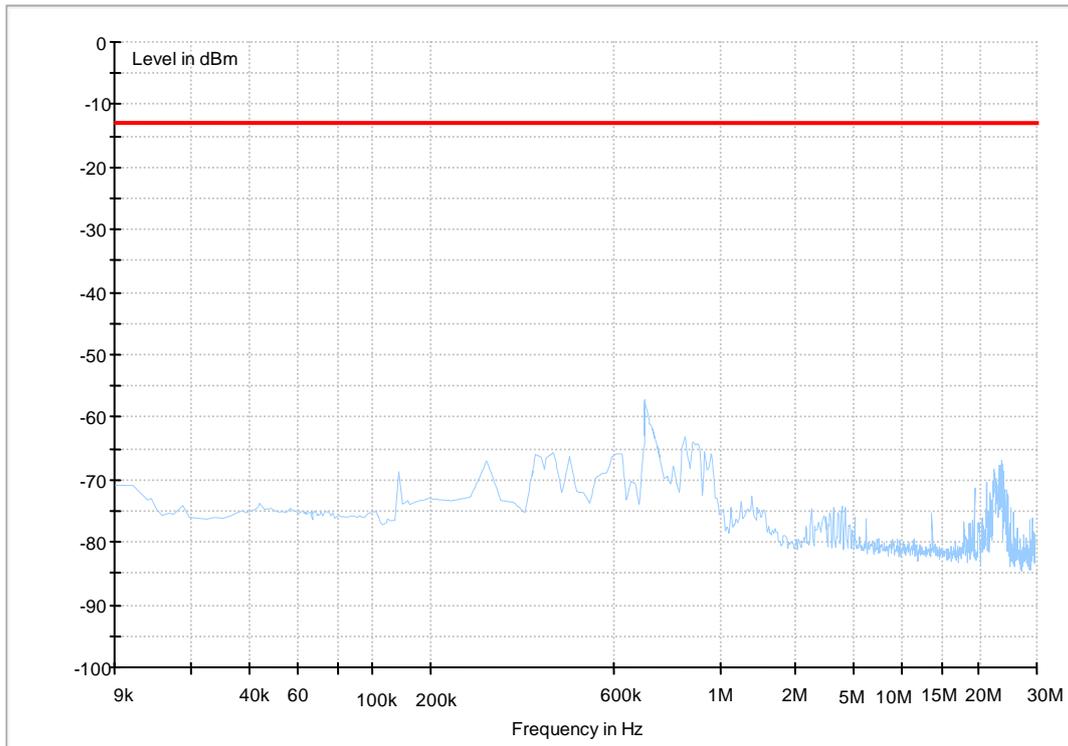


(18GHz-26.5GHz)

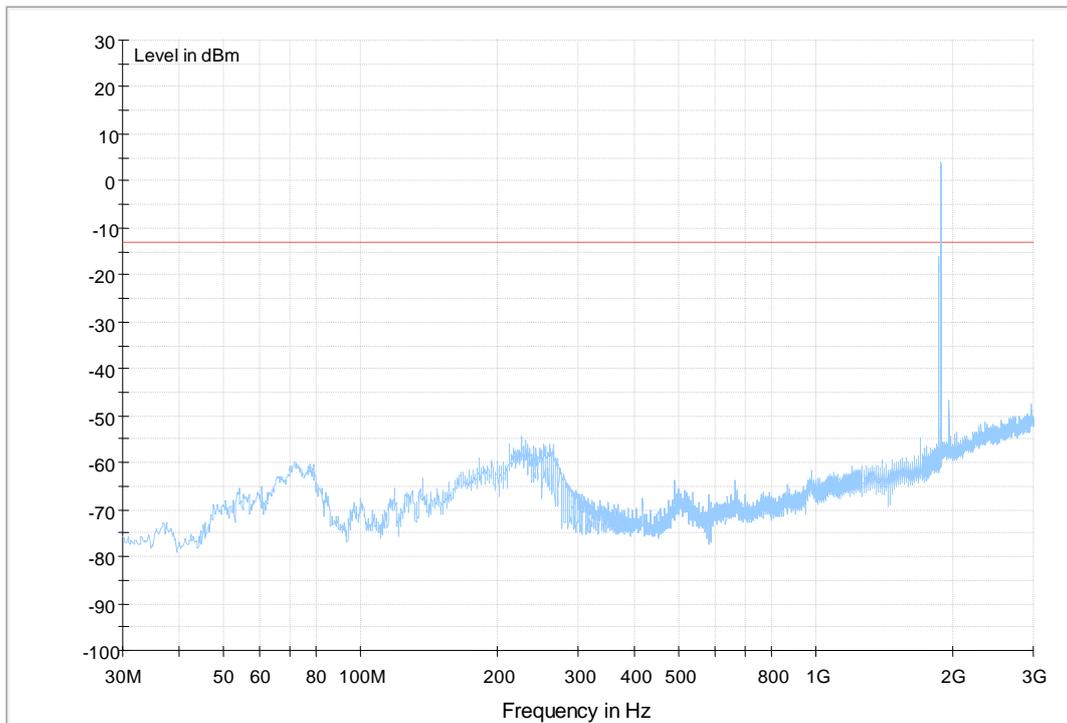


EDGE 1900

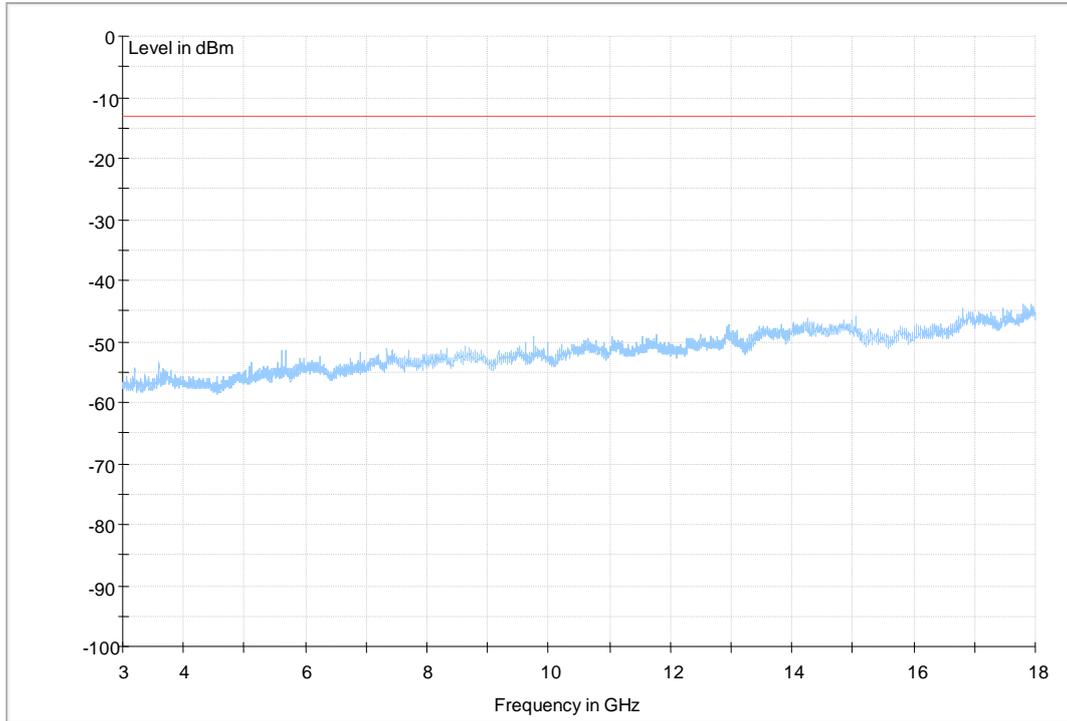
(9kHz-30MHz)



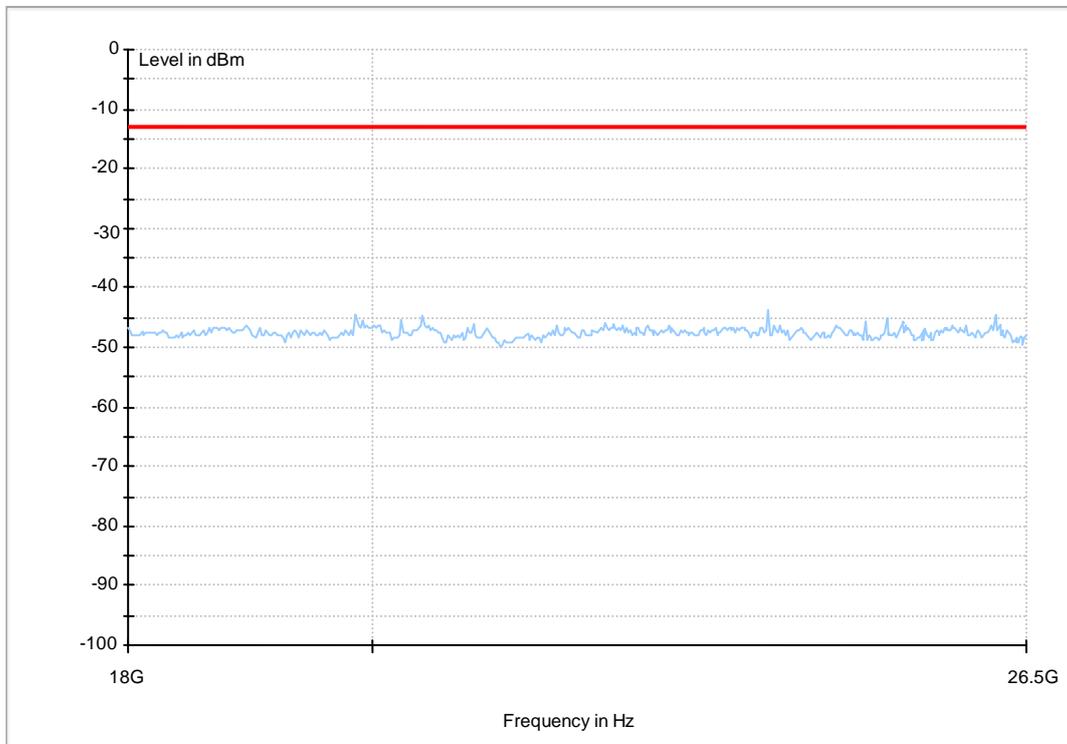
(30MHz~3GHz)



(3GHz~18GHz)

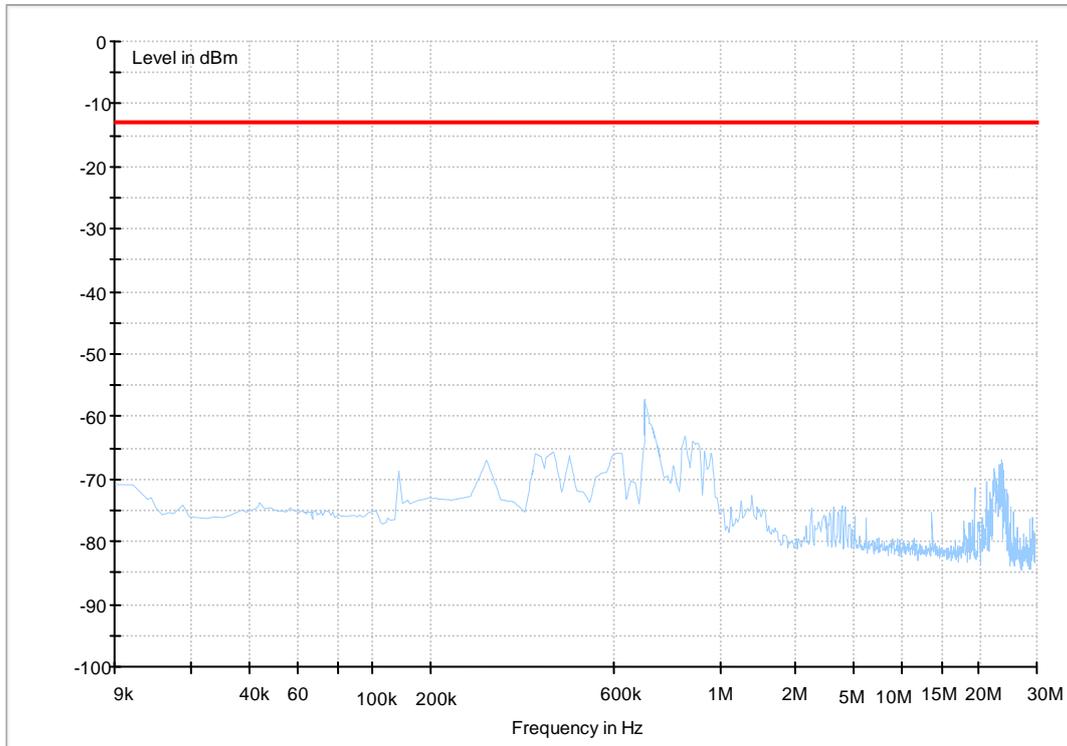


(18GHz-26.5GHz)

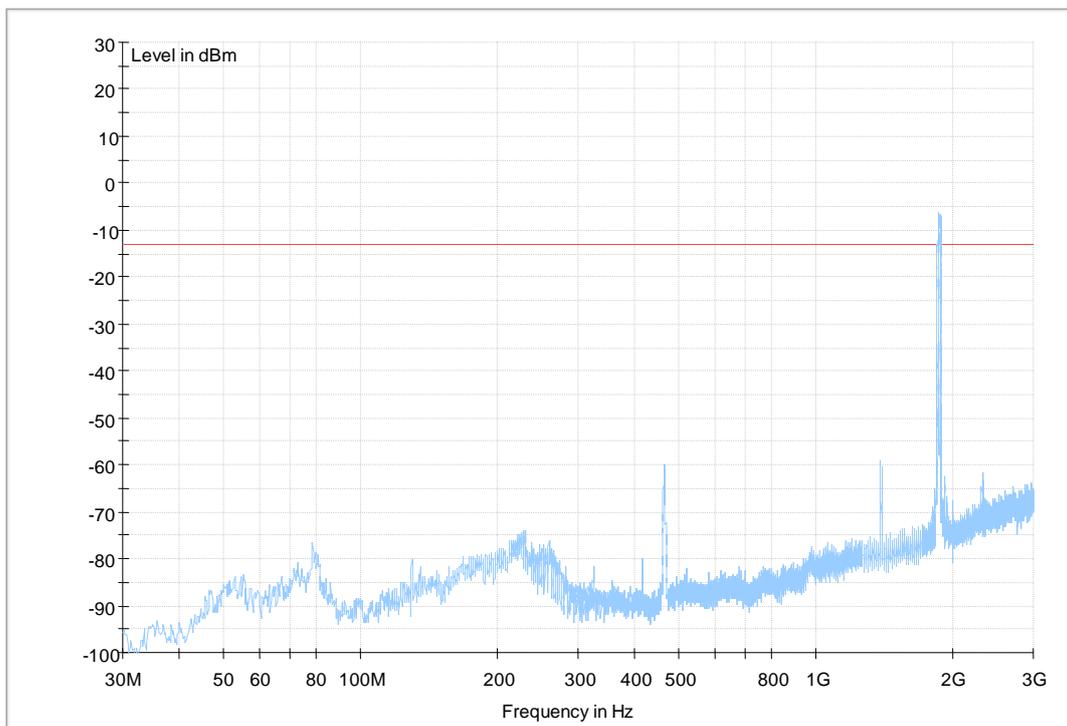


WCDMA Band II

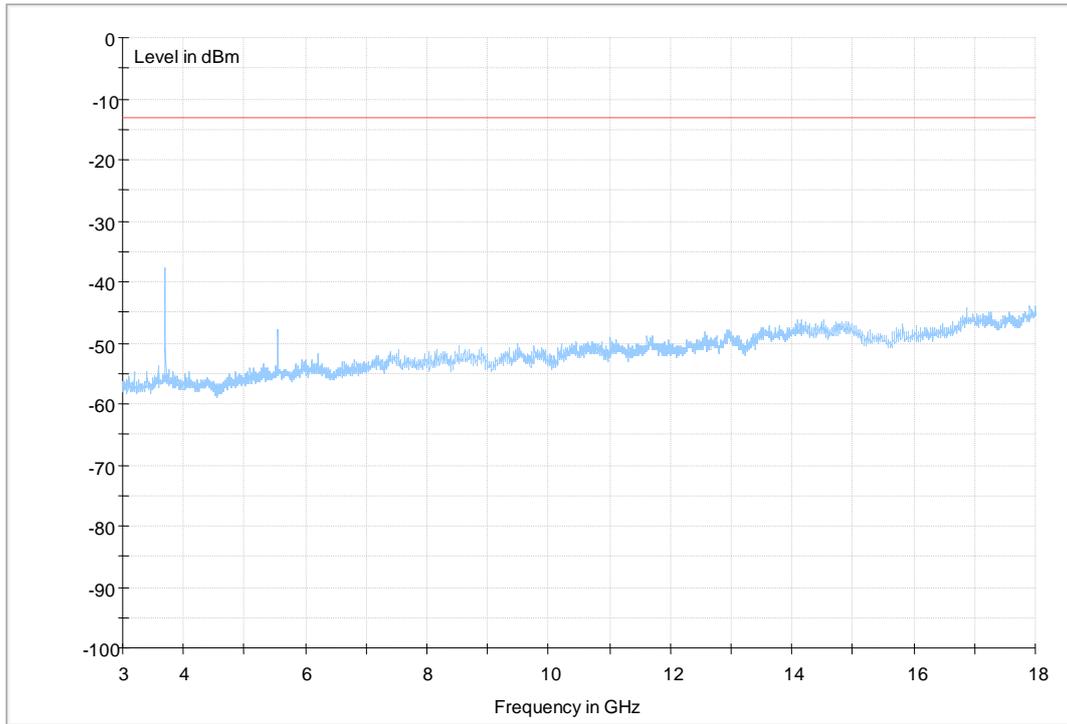
(9KHz~30MHz)



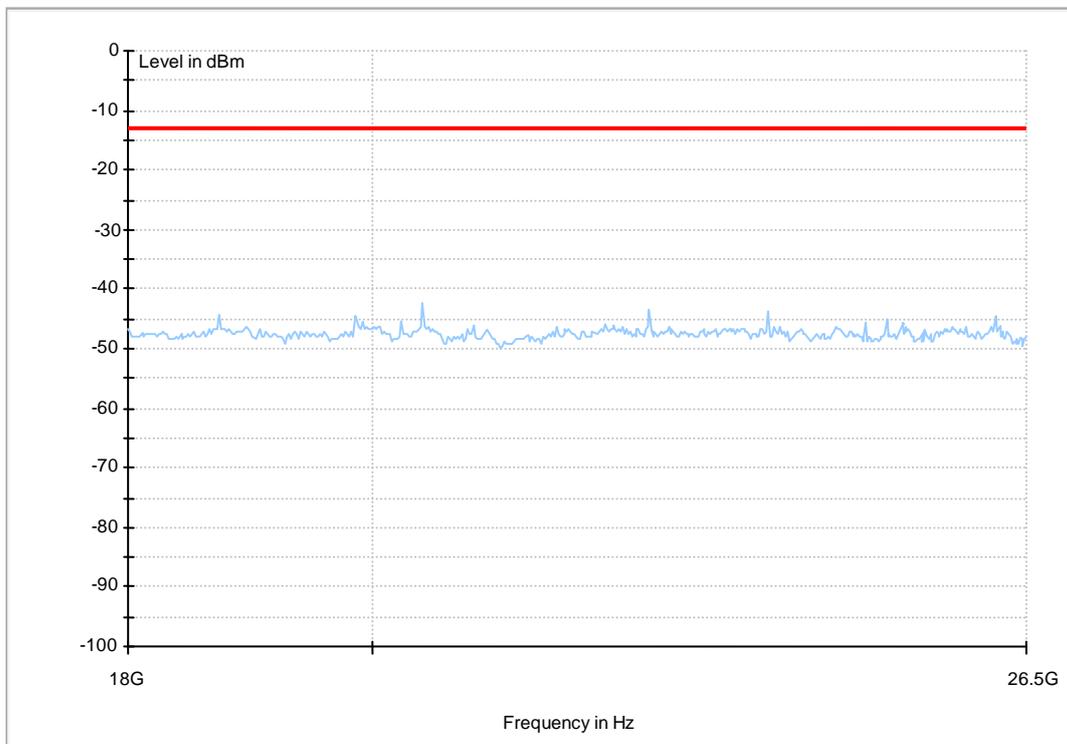
(30MHz~3GHz)



(3GHz~18GHz)

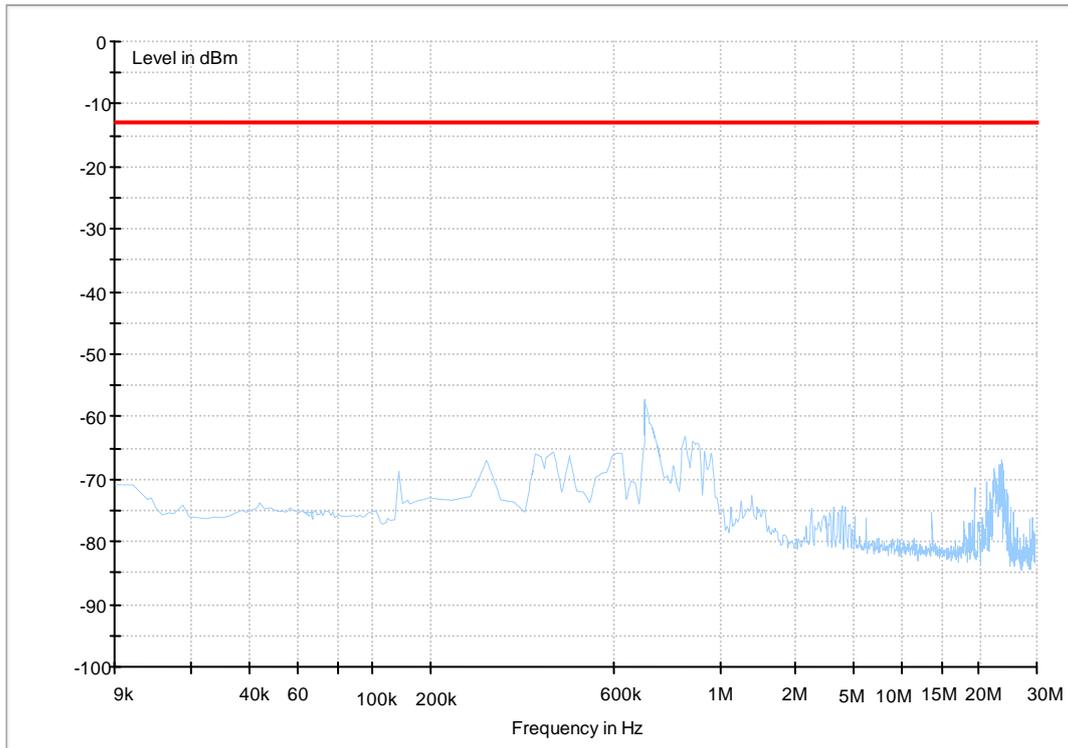


(18GHz~26.5GHz)

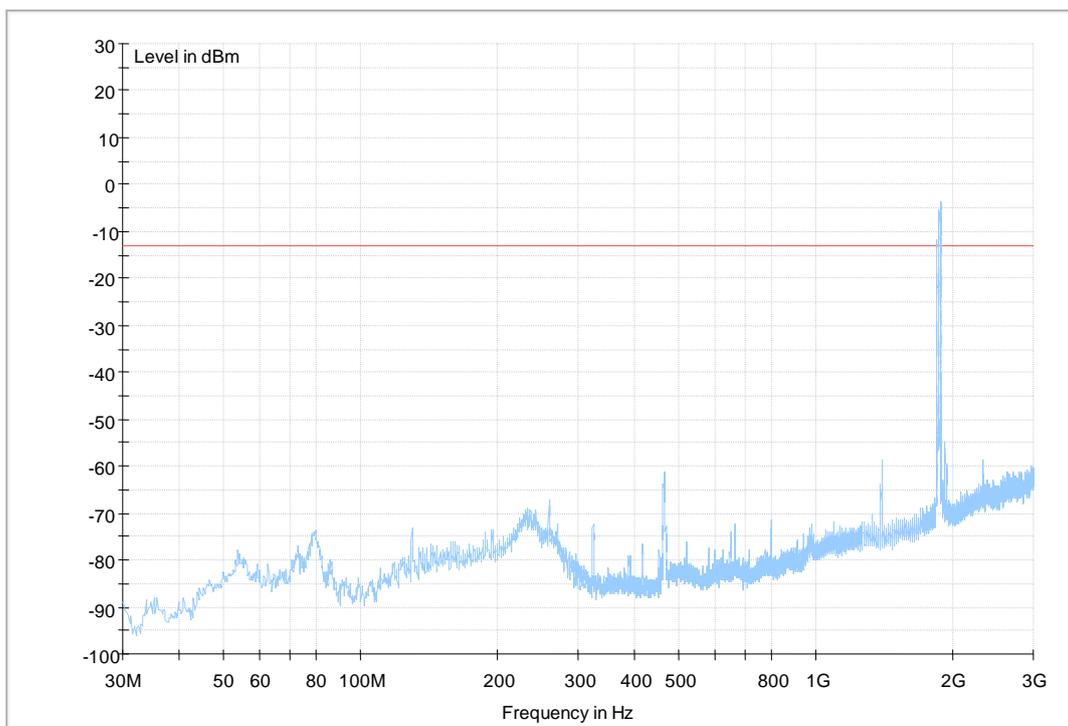


HSDPA Band II

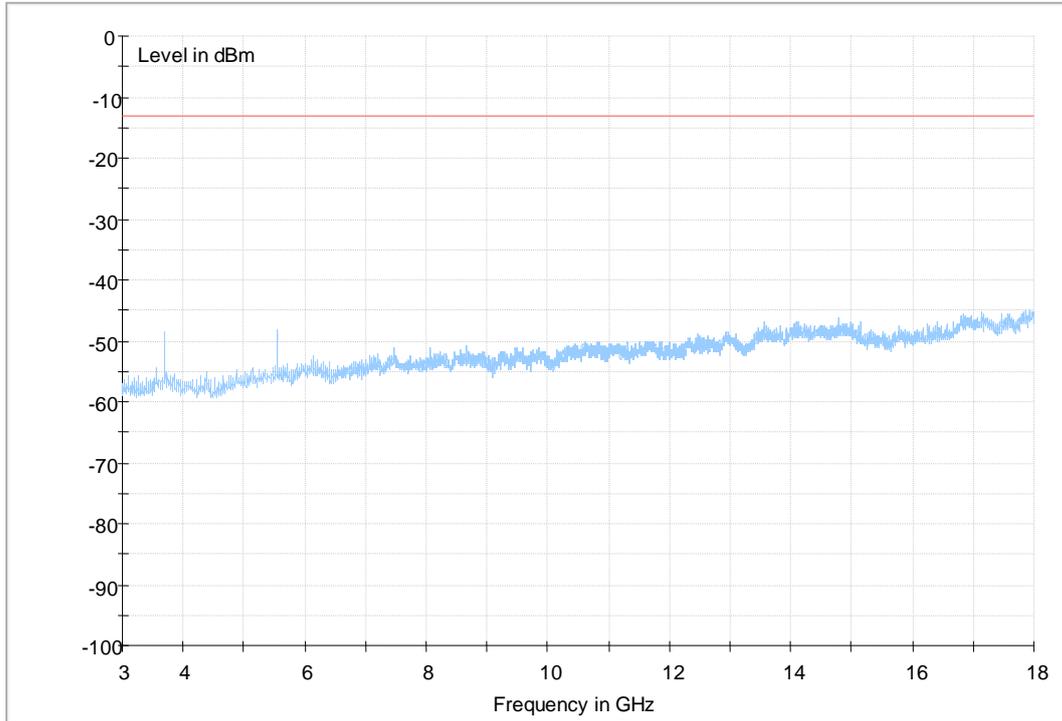
(9KHz~30MHz)



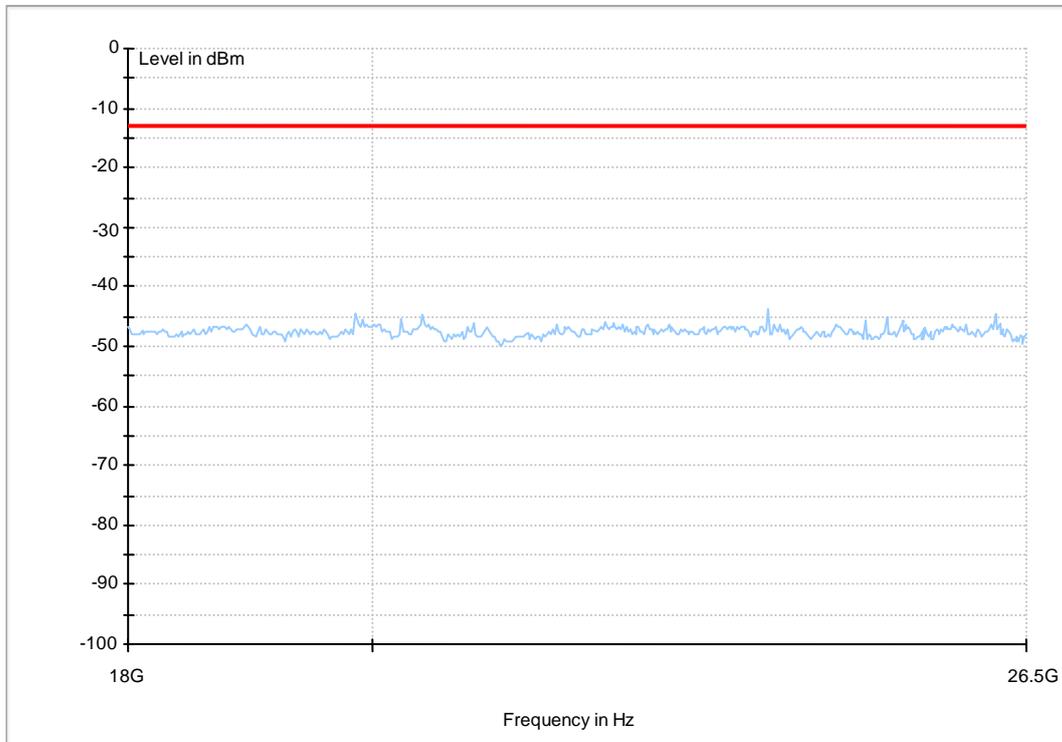
(30MHz ~3GHz)



(3GHz~18GHz)

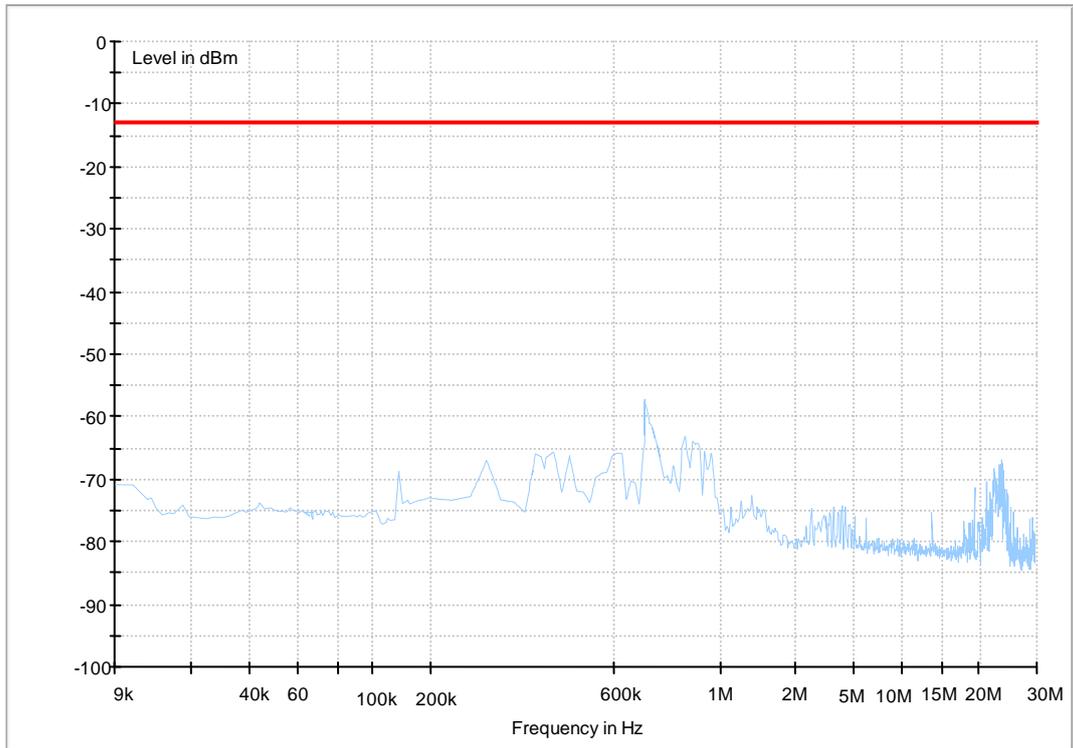


(18GHz~26.5GHz)

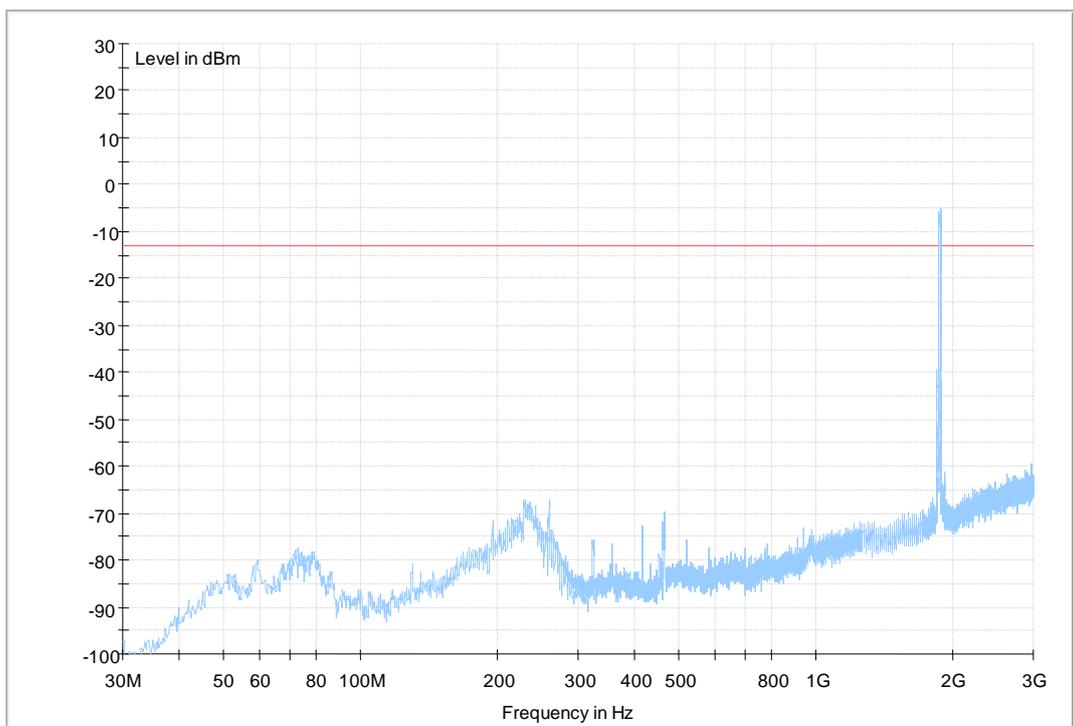


HSUPA Band II

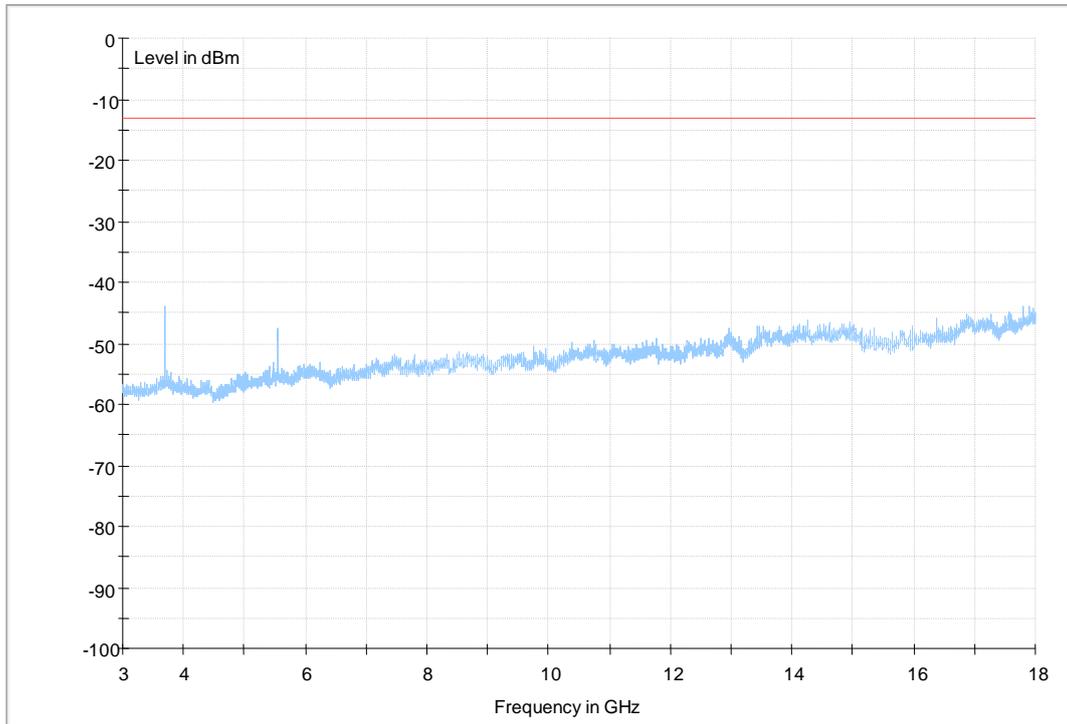
(9 KHz~30MHz)



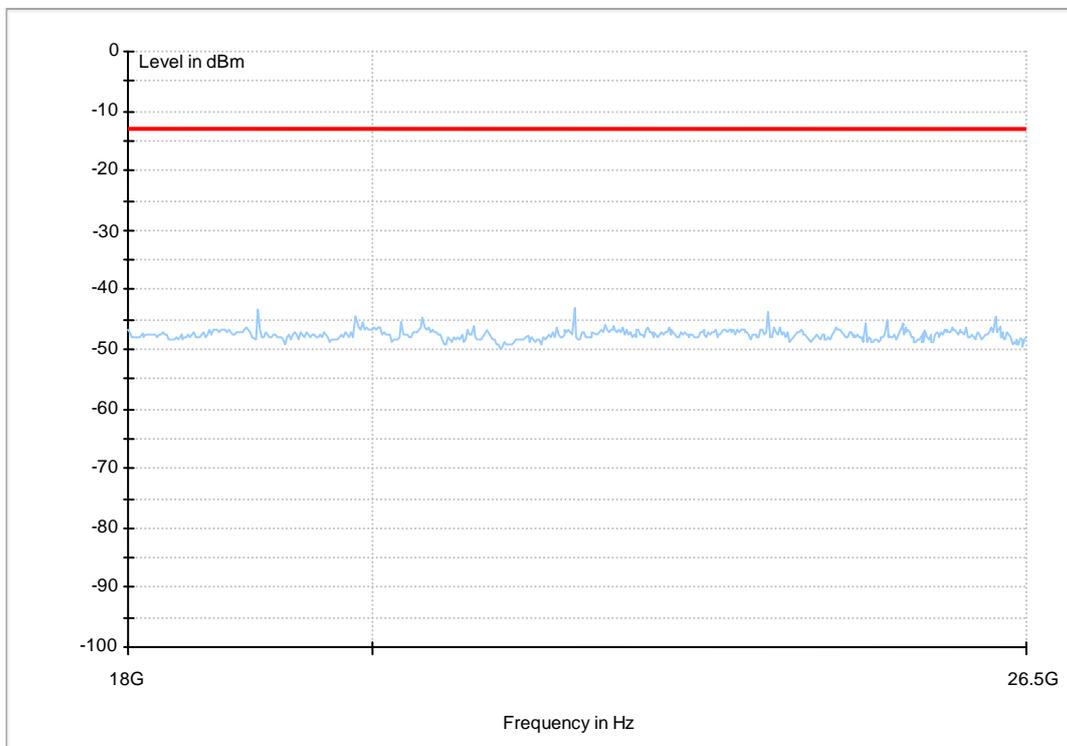
(30MHz~3GHz)



(3GHz~18GHz)



(18GHz~26.5GHz)



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	100%	-30 °C	12	0.006383	---	±2.5	Pass
			-20 °C	17	0.009043	---	±2.5	Pass
			-10 °C	-14	-0.00745	---	±2.5	Pass
			0 °C	10	0.005319	---	±2.5	Pass
			10 °C	16	0.008511	---	±2.5	Pass
			20 °C	-13	-0.00691	---	±2.5	Pass
			30 °C	-15	-0.00798	---	±2.5	Pass
			40 °C	13	0.006915	---	±2.5	Pass
TM 2	M	100%	50 °C	-15	-0.00798	---	±2.5	Pass
			-30 °C	13	0.006915	---	±2.5	Pass
			-20 °C	-14	-0.00745	---	±2.5	Pass
			-10 °C	13	0.006915	---	±2.5	Pass
			0 °C	-15	-0.00798	---	±2.5	Pass
			10 °C	13	0.006915	---	±2.5	Pass
			20 °C	14	0.007447	---	±2.5	Pass
			30 °C	-9	-0.00479	---	±2.5	Pass
TM 3	M	100%	40 °C	12	0.006383	---	±2.5	Pass
			50 °C	12	0.006383	---	±2.5	Pass
			-30 °C	8	0.004255	---	±2.5	Pass
			-20 °C	12	0.006383	---	±2.5	Pass
			-10 °C	-12	-0.00638	---	±2.5	Pass
			0 °C	11	0.005851	---	±2.5	Pass
			10 °C	-19	-0.01011	---	±2.5	Pass
			20 °C	-18	-0.00957	---	±2.5	Pass
	30 °C	-11	-0.00585	---	±2.5	Pass		
	40 °C	12	0.006383	---	±2.5	Pass		
	50 °C	-15	-0.00798	---	±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 %	18	0.009574	---	±2.5	Pass
			100 %	17	0.009043	---	±2.5	Pass
			115 %	12	0.006383	---	±2.5	Pass
TM 2	M	20 °C	85 %	-10	-0.00532	---	±2.5	Pass
			100 %	-14	-0.00745	---	±2.5	Pass
			115 %	15	0.007979	---	±2.5	Pass
TM 3	M	20 °C	85 %	-16	-0.00851	---	±2.5	Pass
			100 %	17	0.009043	---	±2.5	Pass
			115 %	-13	-0.00691	---	±2.5	Pass



Appendix H

Photos of Radiated Spurious Emissions



Photos of Test Setup

1 Radiated Spurious Emissions



Radiated Spurious Emission (below 3GHz)



Radiated Spurious Emission (3GHz to18GHz)



Radiated Spurious Emission (18GHz to26.5GHz)

NOTE: The Appendix H only photos of Radiated Spurious Emissions, no test data.

END