



Appendix A

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



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	
Tnom / Vnom		Measured	Limit	Measured	Limit	Measured	Limit
TM1		29.91	33	29.79	33	29.65	33
TM2		25.65	33	25.41	33	25.48	33
TEST CONDITIONS		Channel9262(B)		Channel9400(M)		Channel9538(T)	
		1852.4MHz		1880.0MHz		1907.6MHz	
		dBm		dBm		dBm	
Tnom / Vnom		Measured	Limit	Measured	Limit	Measured	Limit
TM3		22.70	33	22.67	33	22.72	33
TM4	Case1	22.70	33	22.61	33	22.71	33
	Case2	22.58	33	22.64	33	22.72	33
	Case3	22.28	33	22.32	33	22.49	33
	Case4	22.34	33	22.45	33	22.53	33
TM5	Case1	20.83	33	20.84	33	20.88	33
	Case2	19.89	33	20.02	33	19.94	33
	Case3	19.78	33	19.83	33	19.84	33
	Case4	19.73	33	19.76	33	19.76	33
	Case5	20.82	33	20.87	33	20.85	33



Peak-to-Average Ratio

Table 1 Measurement Results

TEST CONDITIONS		Channel128(B)		Channel192(M)		Channel251(T)	
		1850.2MHz		837.0MHz		1909.8MHz	
		dBm		dBm		dBm	
T _{nom} / V _{nom}		Measured	Limit	Measured	Limit	Measured	Limit
TM1		0.89	13.0	0.87	13.0	0.68	13.0
TM2		3.21	13.0	3.85	13.0	3.56	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		2.99	13.0	3.01	13.0	2.99	13.0
TM4	Case1	2.86	13.0	2.43	13.0	2.46	13.0
	Case2	2.79	13.0	2.53	13.0	2.88	13.0
	Case3	2.33	13.0	2.41	13.0	2.15	13.0
	Case4	2.43	13.0	2.43	13.0	2.13	13.0
TM5	Case1	2.99	13.0	2.46	13.0	2.58	13.0
	Case2	2.56	13.0	2.32	13.0	2.44	13.0
	Case3	2.32	13.0	2.57	13.0	2.42	13.0
	Case4	2.42	13.0	2.49	13.0	2.56	13.0
	Case5	2.86	13.0	2.88	13.0	2.79	13.0



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)	FCC limit [dBm]	Result
							[dBm]		
TM1	1850.2	30.91	Horn Ant.	27.41	4.5	1	30.91	33	Pass
TM1	1880.0	30.79	Horn Ant.	27.29	4.5	1	30.79	33	Pass
TM1	1909.8	30.65	Horn Ant.	26.85	4.8	1	30.65	33	Pass
TM2	1850.2	26.65	Horn Ant.	23.15	4.5	1	26.65	33	Pass
TM2	1880.0	26.41	Horn Ant.	22.91	4.5	1	26.41	33	Pass
TM2	1909.8	26.48	Horn Ant.	22.68	4.8	1	26.48	33	Pass
TM3	1852.4	23.70	Horn Ant.	20.20	4.5	1	23.70	33	Pass
TM3	1880.0	22.67	Horn Ant.	19.17	4.5	1	22.67	33	Pass
TM3	1907.6	22.72	Horn Ant.	18.92	4.8	1	22.72	33	Pass

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

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

b, SGP=Signal Generator Level

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



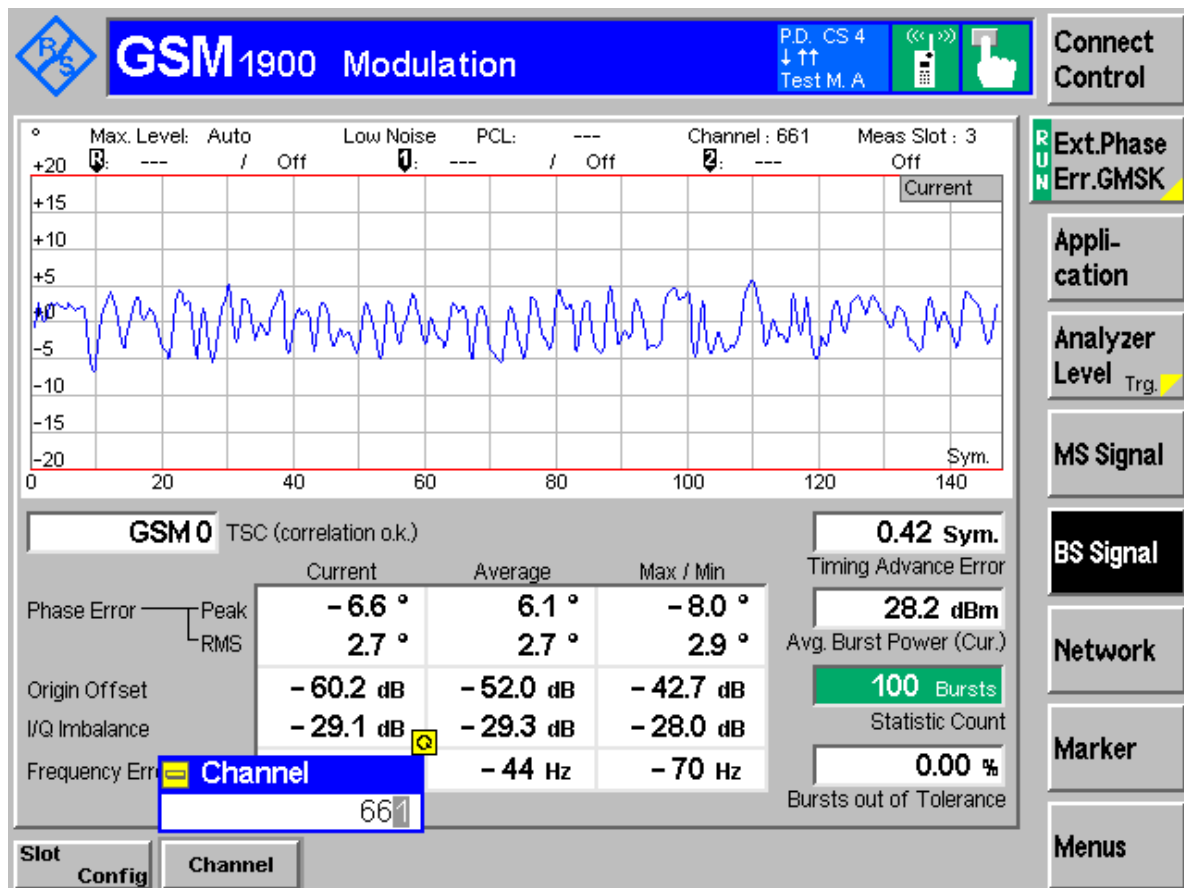
Appendix B

Modulation Characteristics

According to FCC Part 2.1047 & Part24 Subpart E

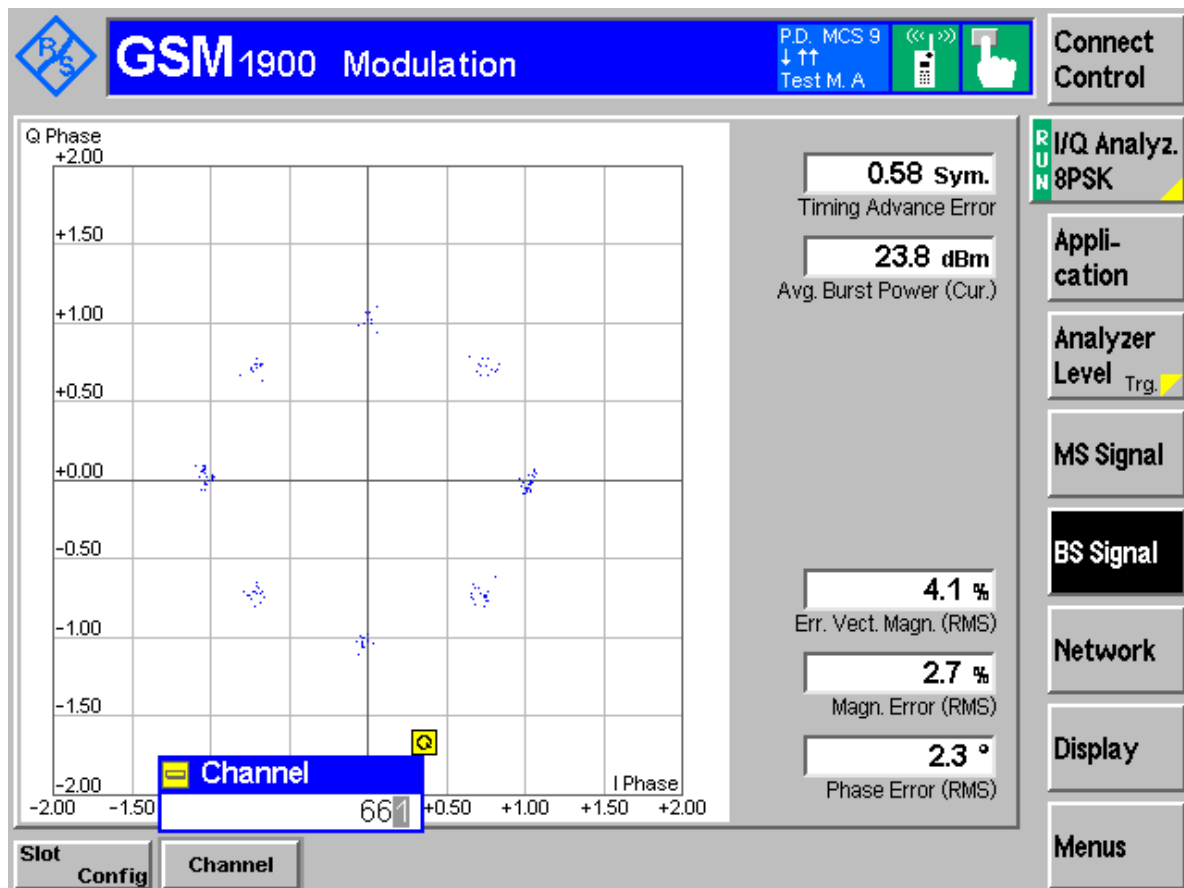


TM1:GPRS/GSM Channel 661



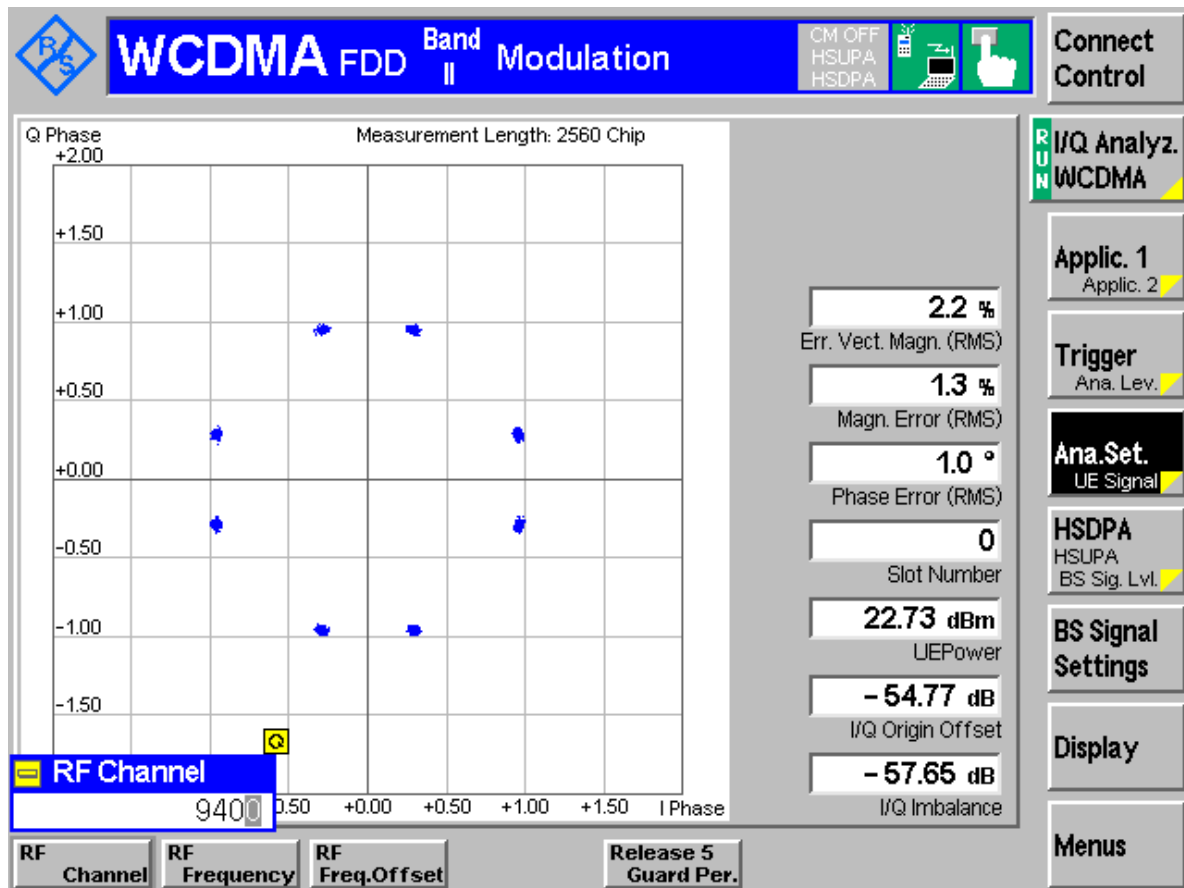


TM2:EDGE Channel 661





TM3: WCDMA Channel 9400



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



Appendix C

Occupied Bandwidth According to FCC Part 2.1049 & Part24 Subpart E



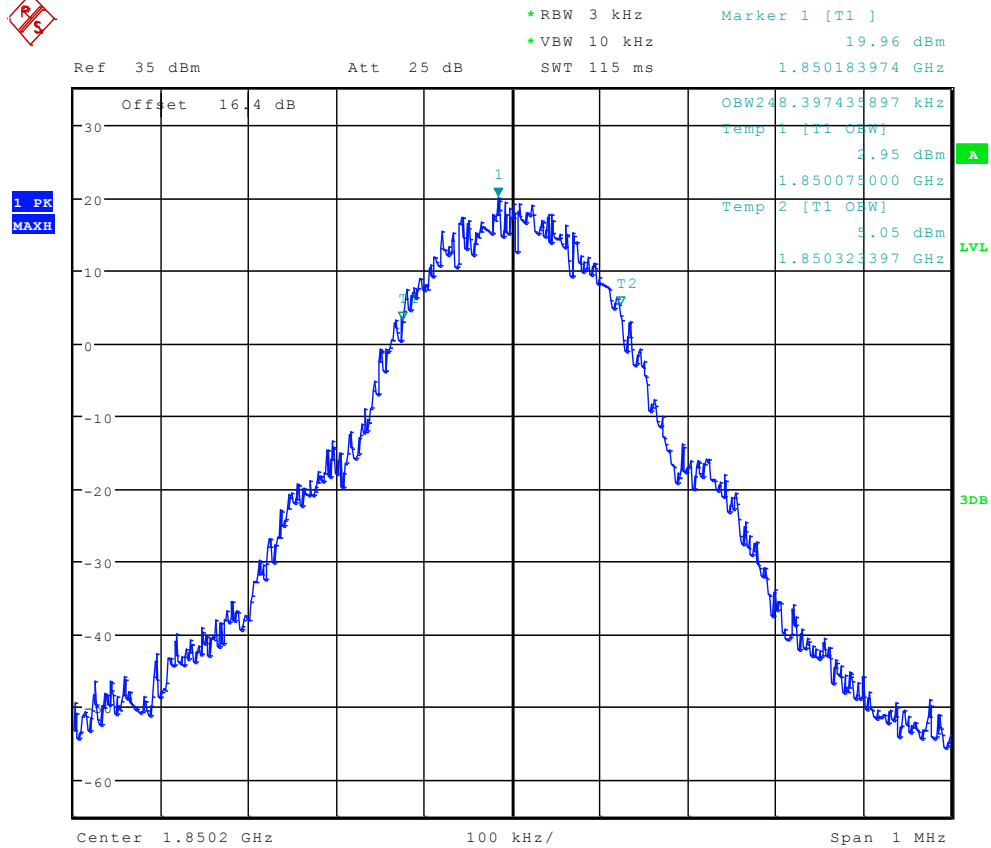
Result Table

Table 1 Measurement Results

Test Mode	RF Channel	Occupied Bandwidth [kHz]	Verdict
TM1	512	248.40	Pass
	661	246.79	Pass
	810	245.19	Pass
TM2	512	245.19	Pass
	661	250.00	Pass
	810	245.19	Pass
Test Mode	RF Channel	Occupied Bandwidth [MHz]	Verdict
TM3	9262	4.17	Pass
	9400	4.15	Pass
	9538	4.15	Pass

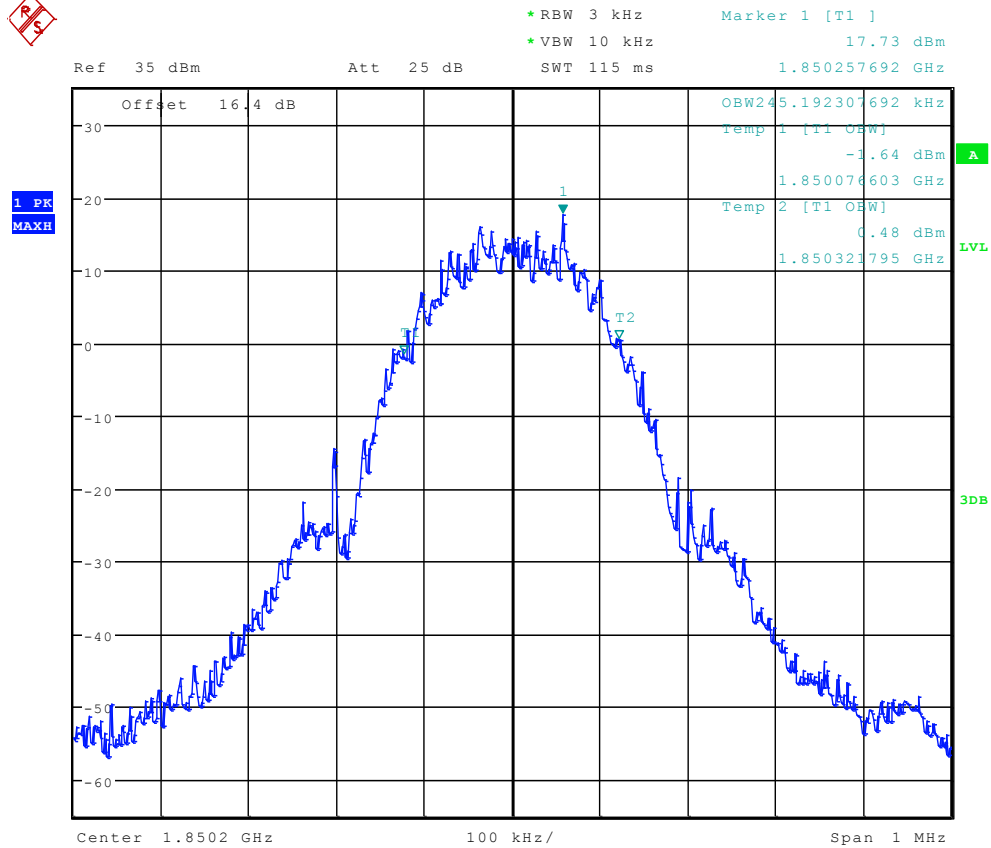


TM1:GPRS/GSM Channel 512



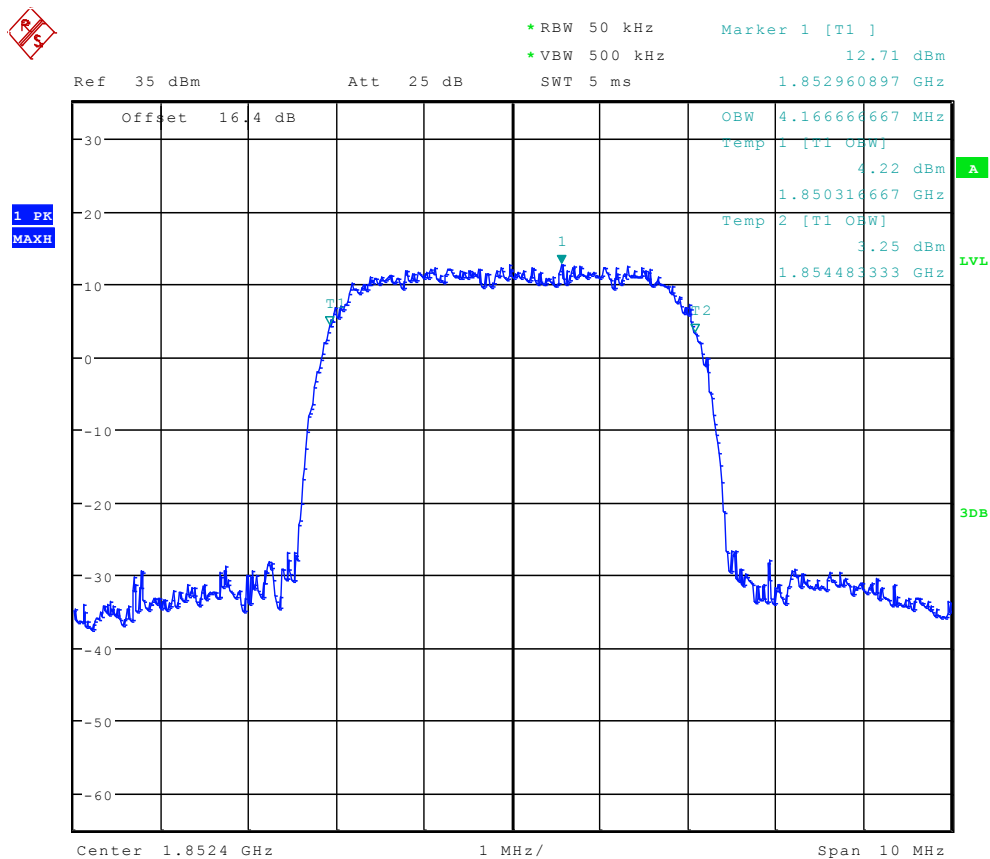


TM2:EDGE Channel 512



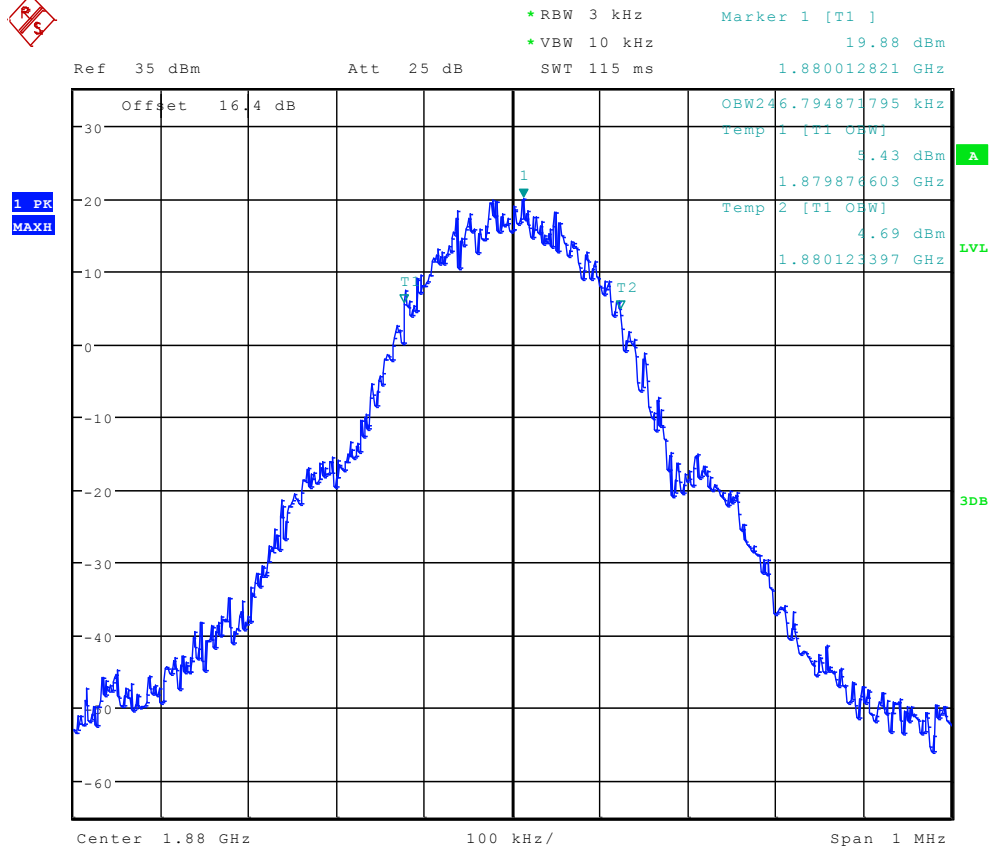


TM3: WCDMA Channel 9262



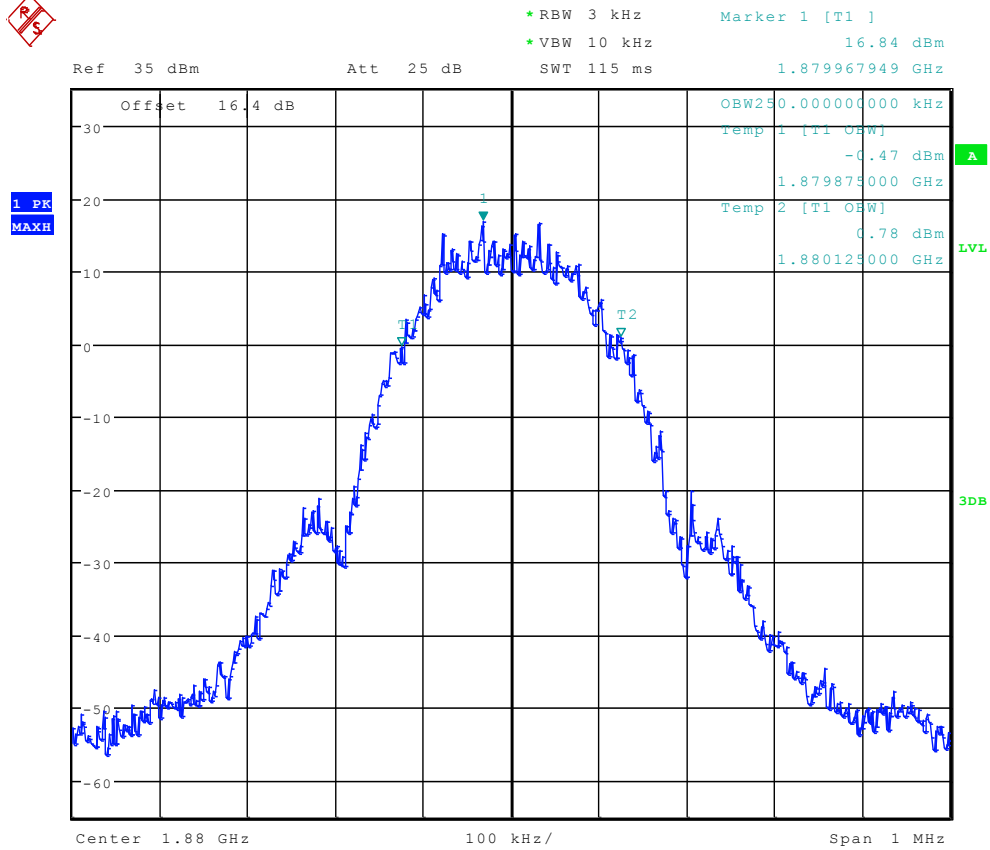


TM1:GPRS/GSM Channel 661



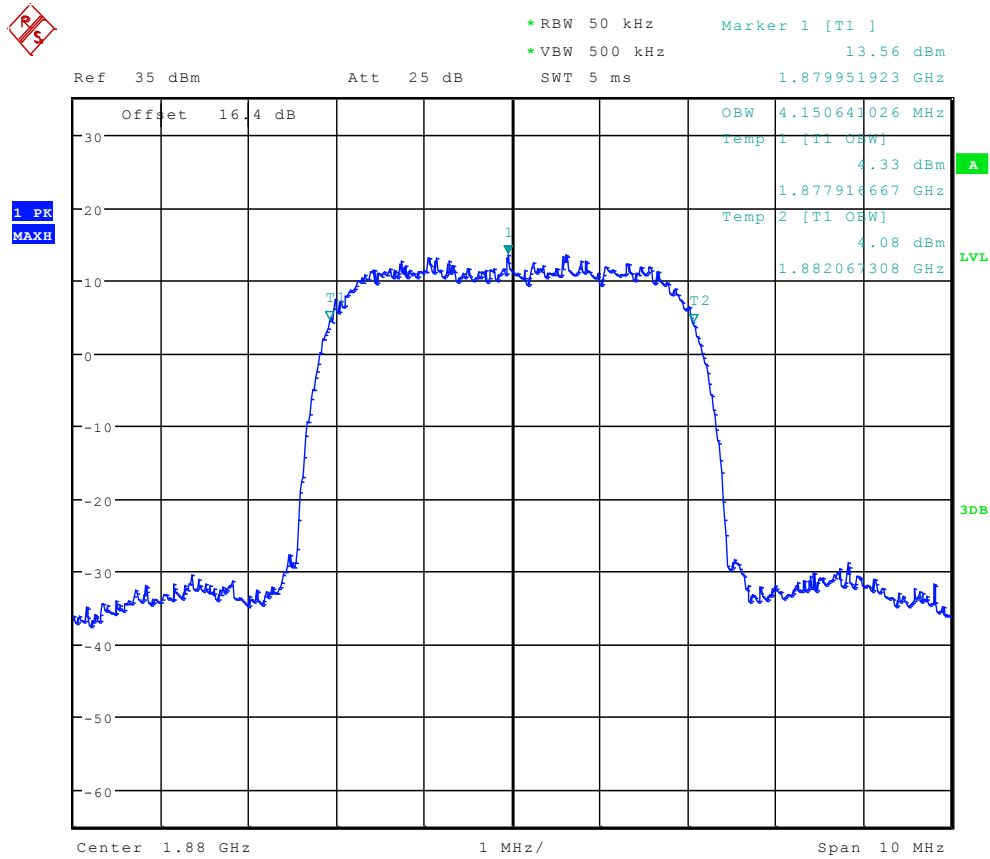


TM2:EDGE Channel 661



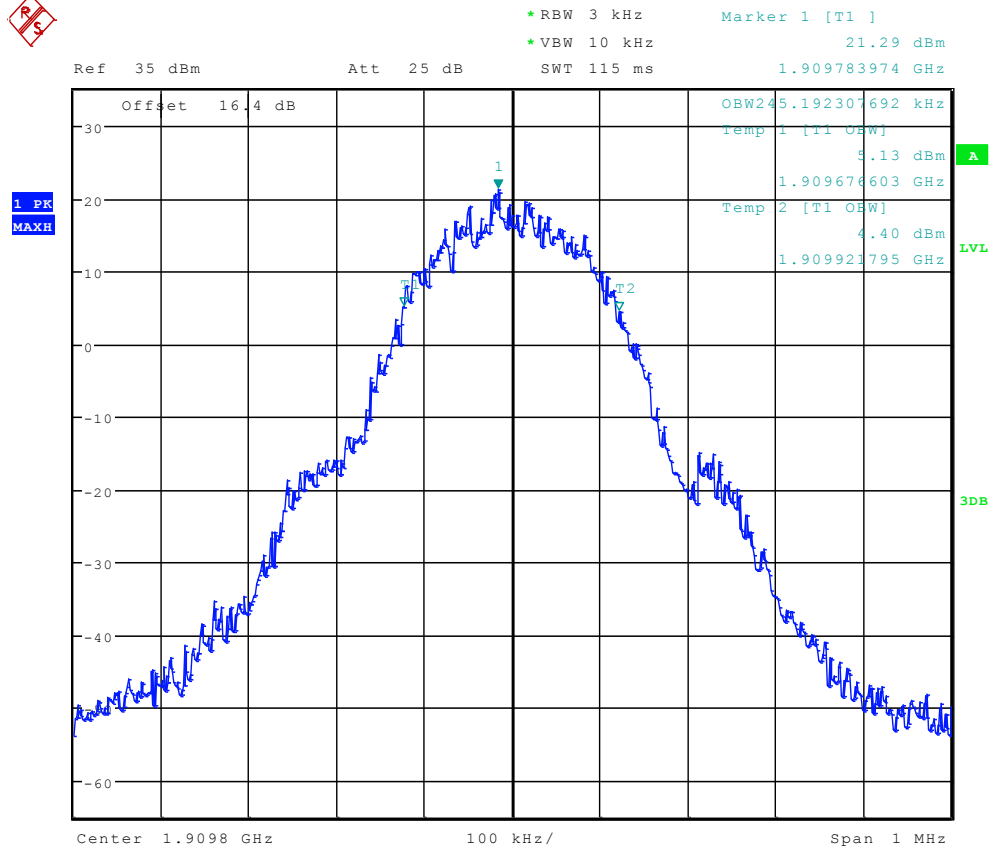


TM3: WCDMA Channel 9400



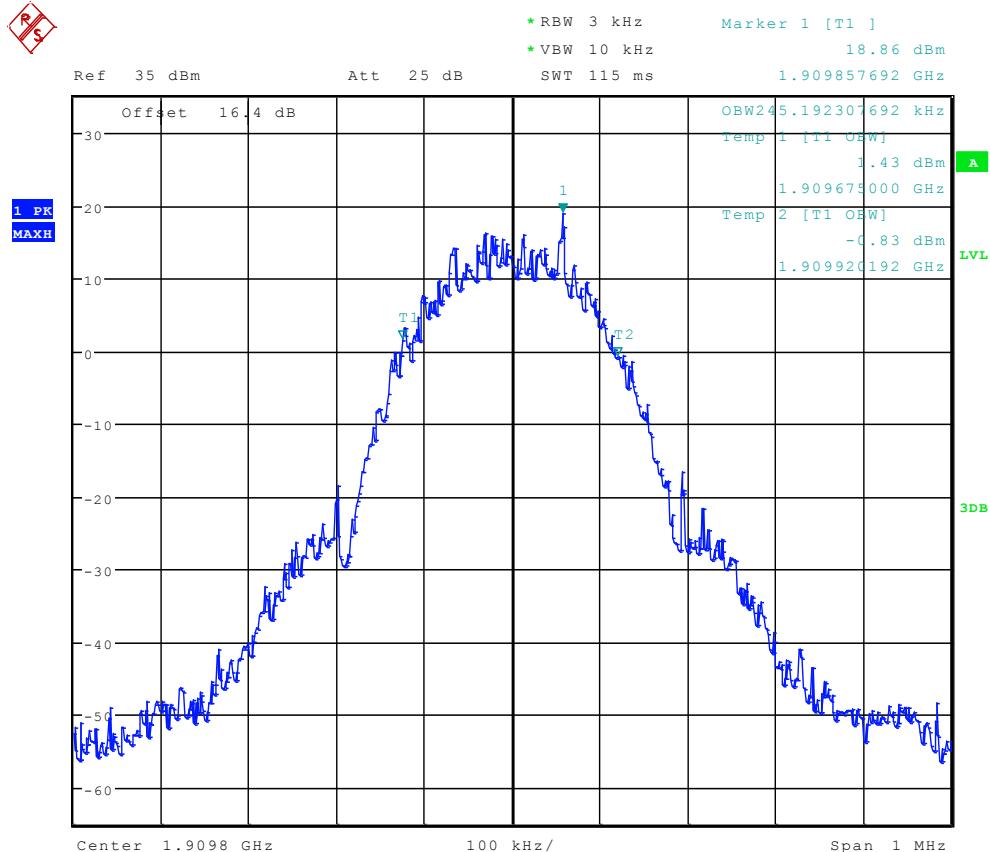


TM1:GPRS/GSM Channel 810



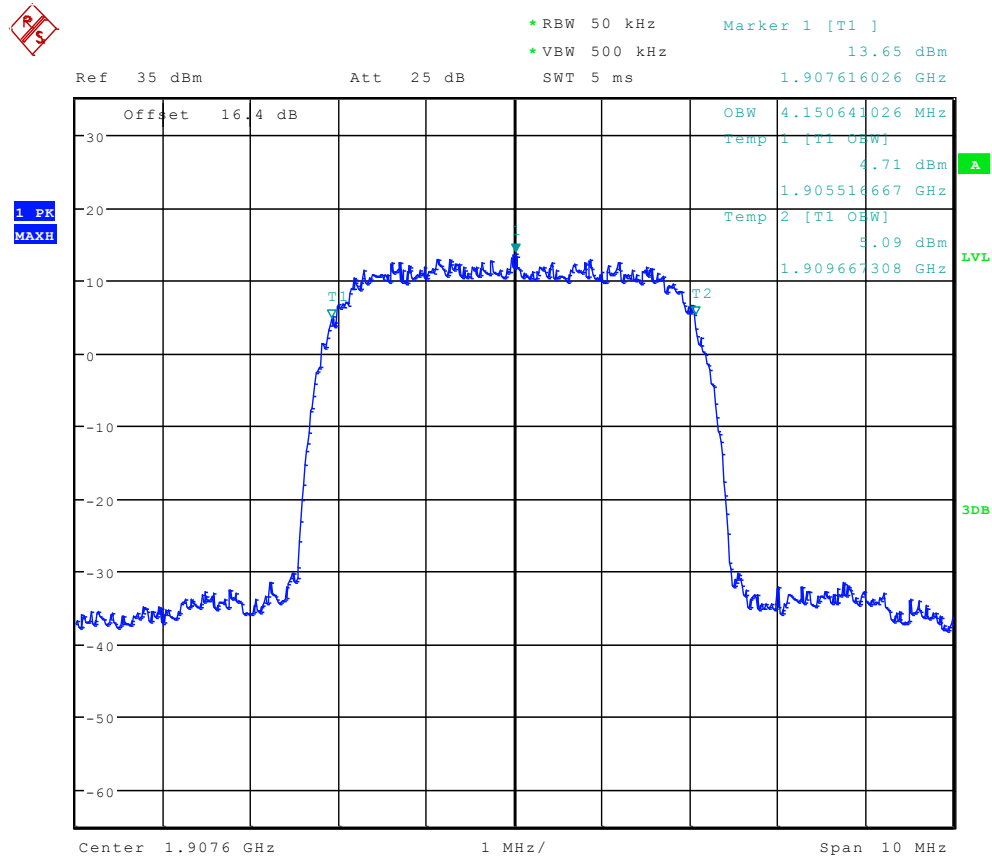


TM2:EDGE Channel 810





TM3: WCDMA Channel 9538

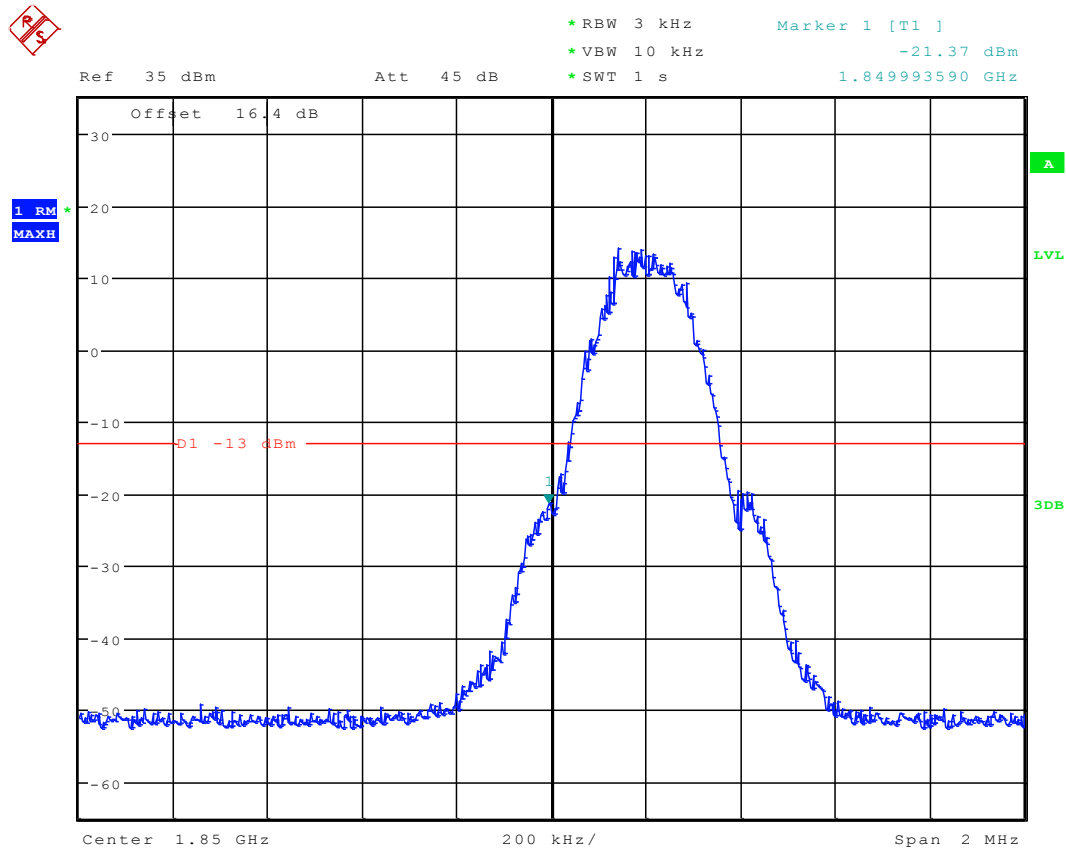
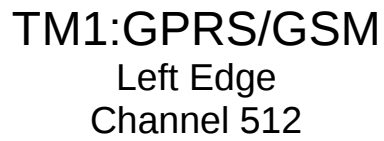


The END



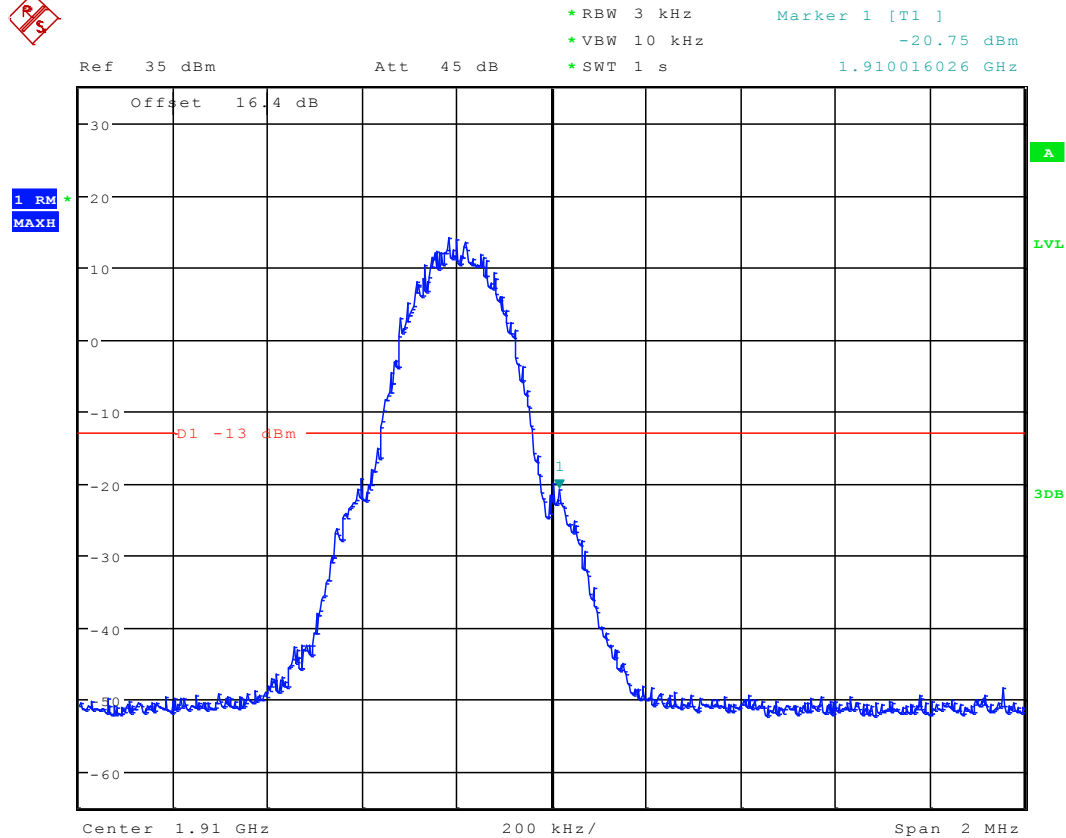
Appendix D

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



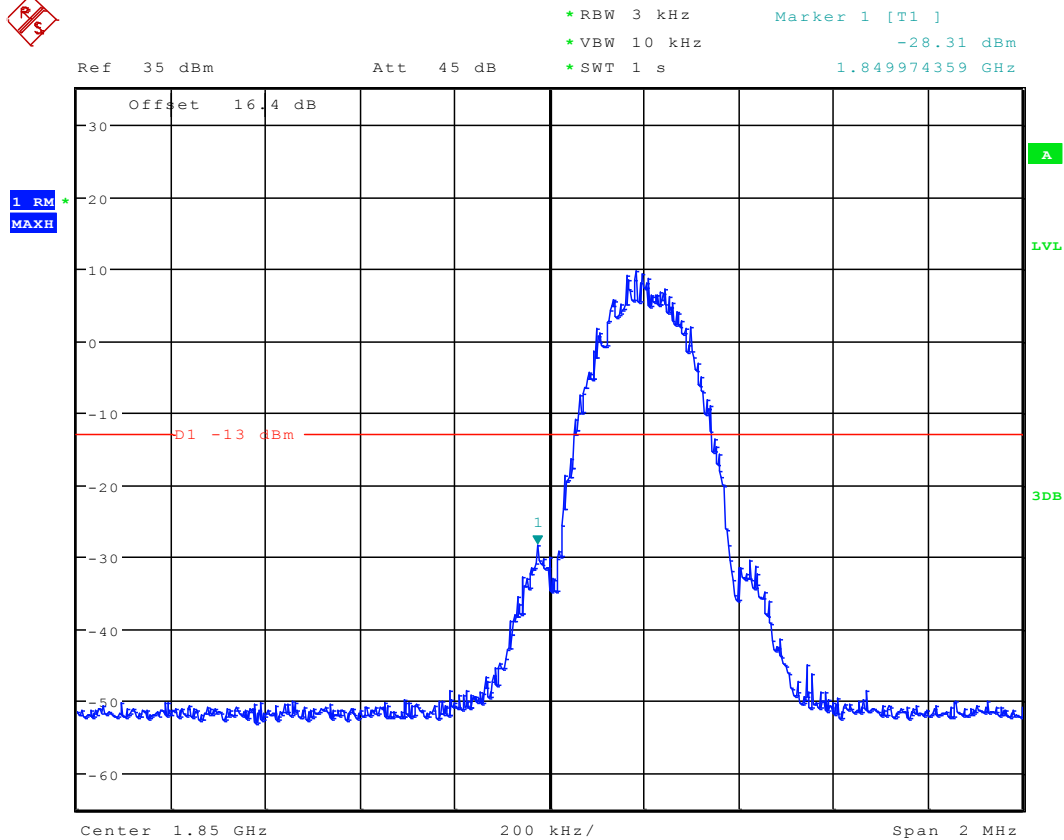


Right Edge Channel 810



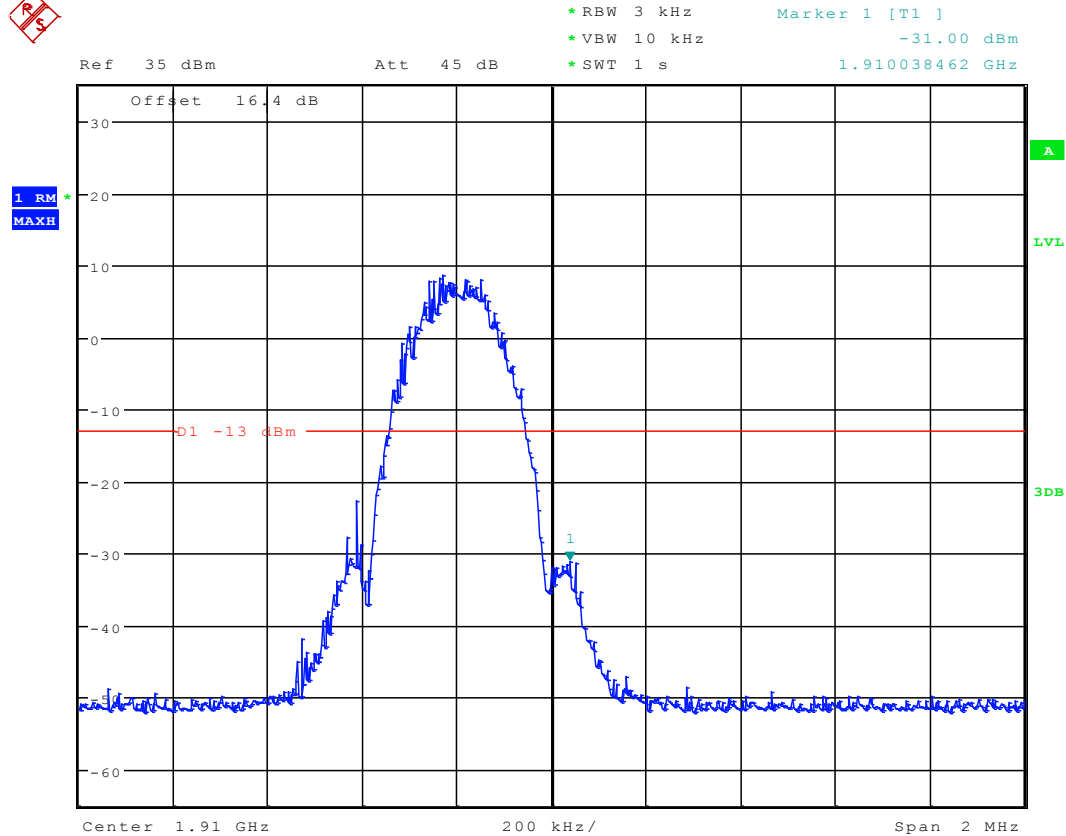


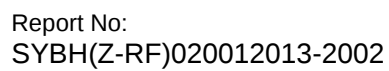
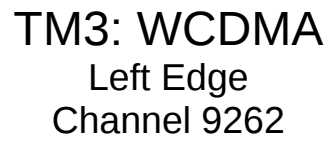
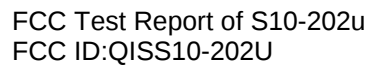
TM2:EDGE Left Edge Channel 512





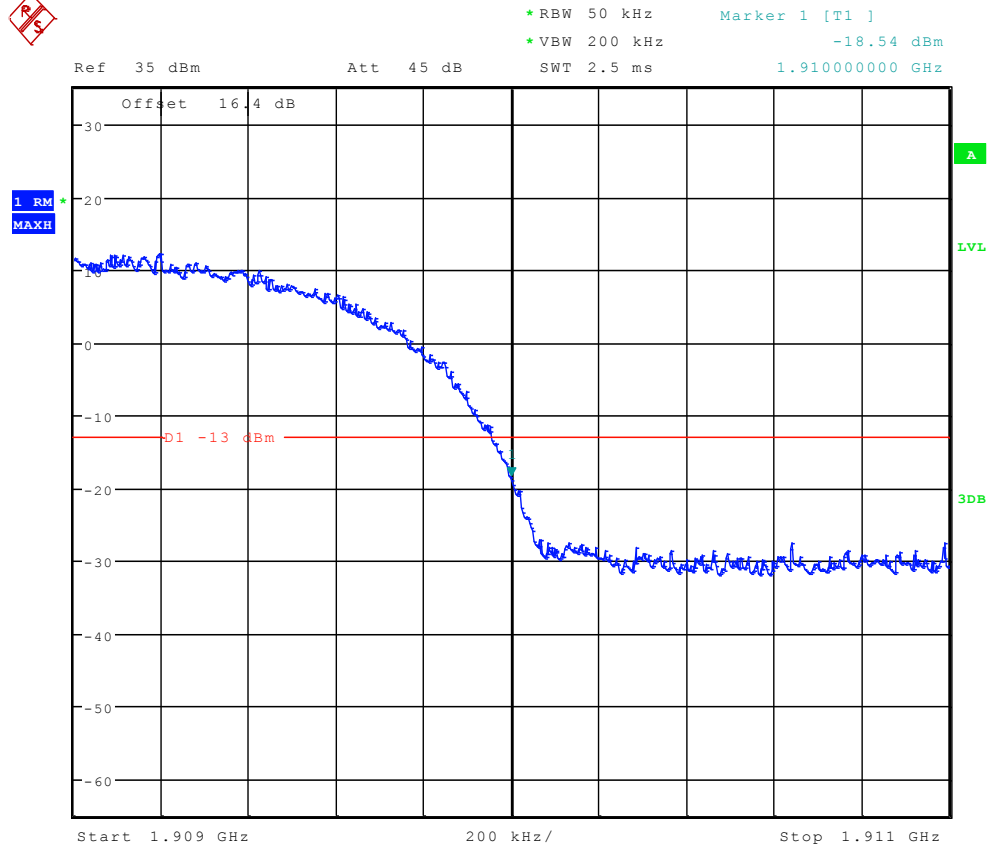
Right Edge Channel 810







Right Edge Channel 9538



The END



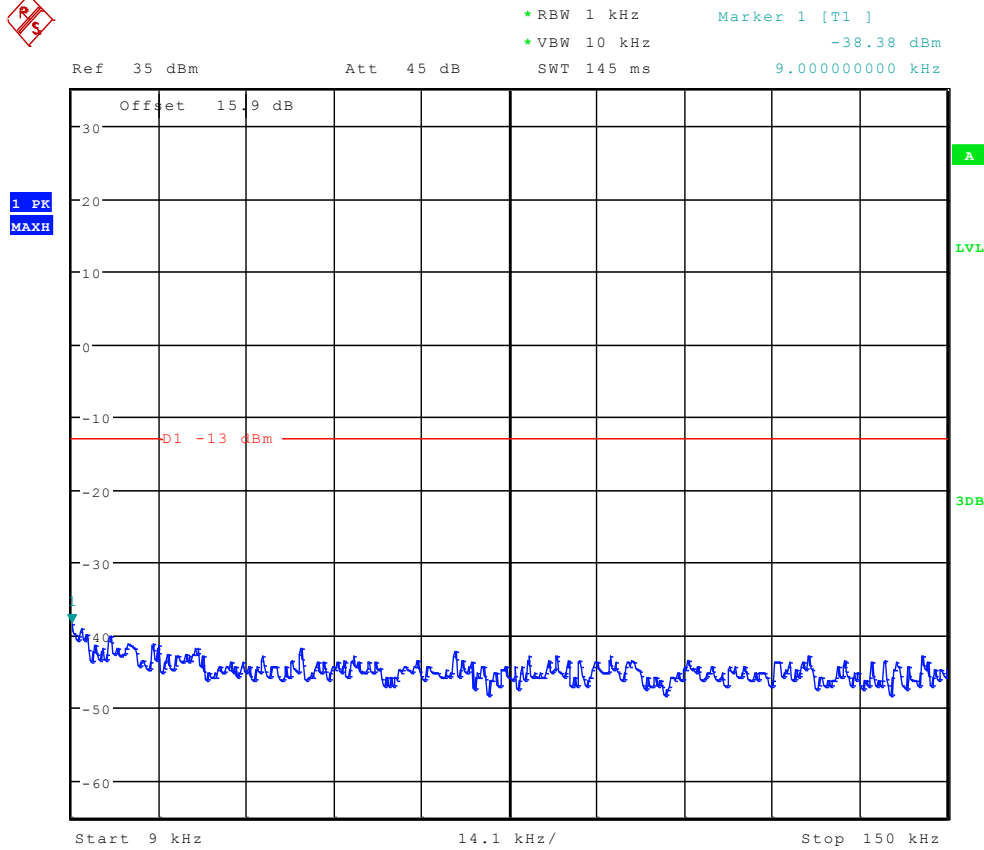
Appendix E

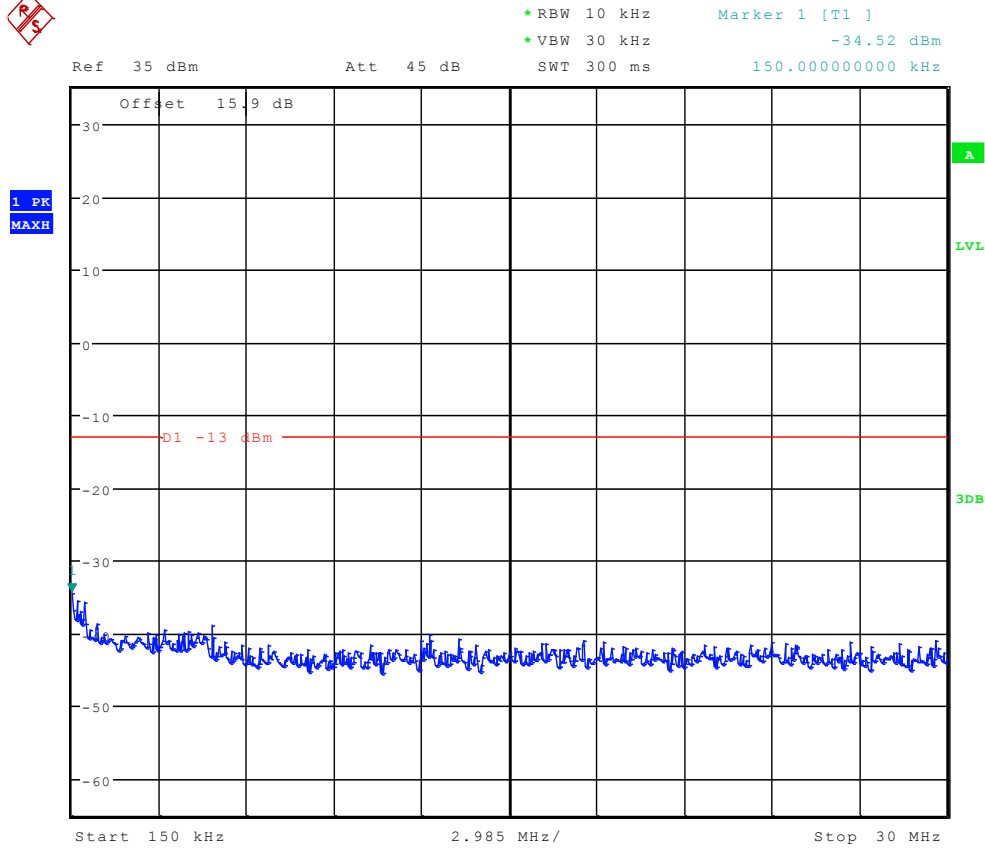
Spurious Emission at Antenna Terminal

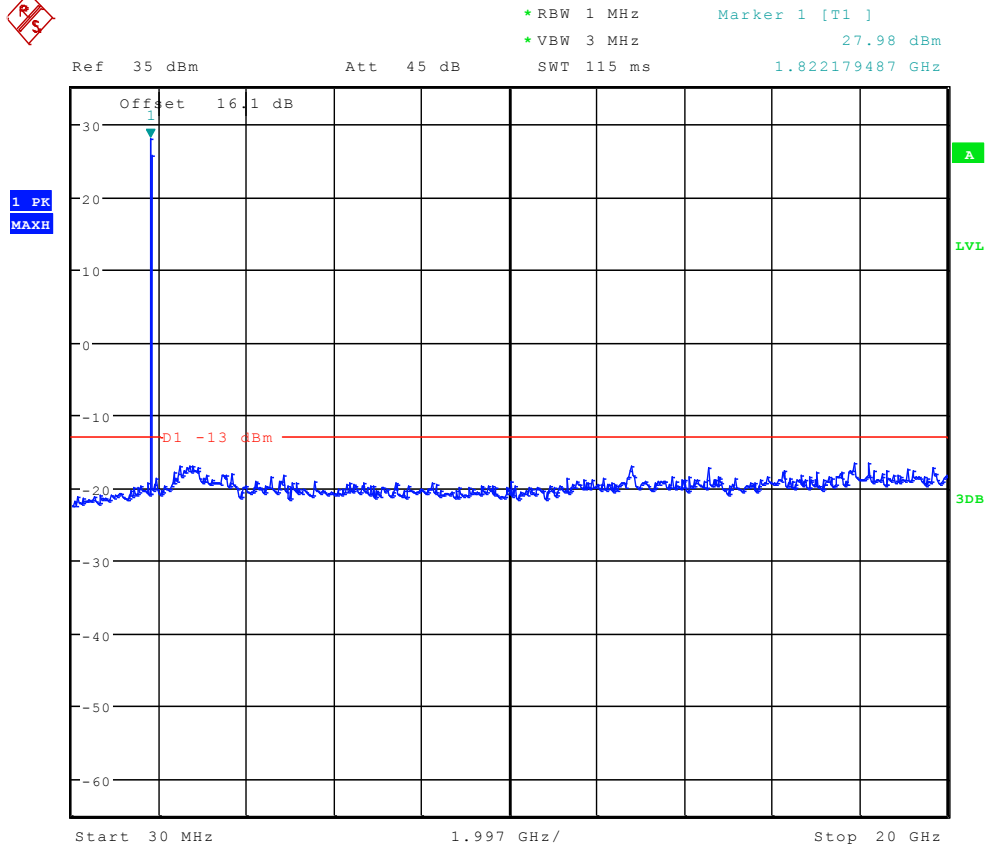
According to FCC Part 2.1051 & Part24 Subpart E



TM1:GPRS/GSM Channel 512

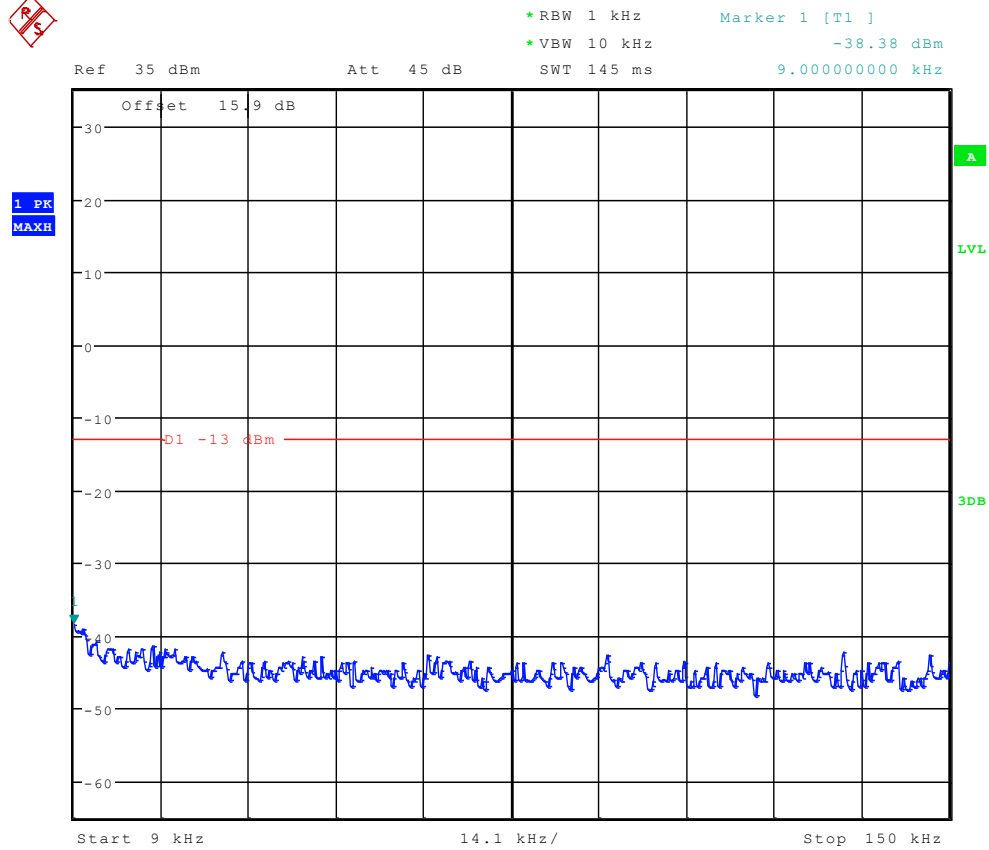






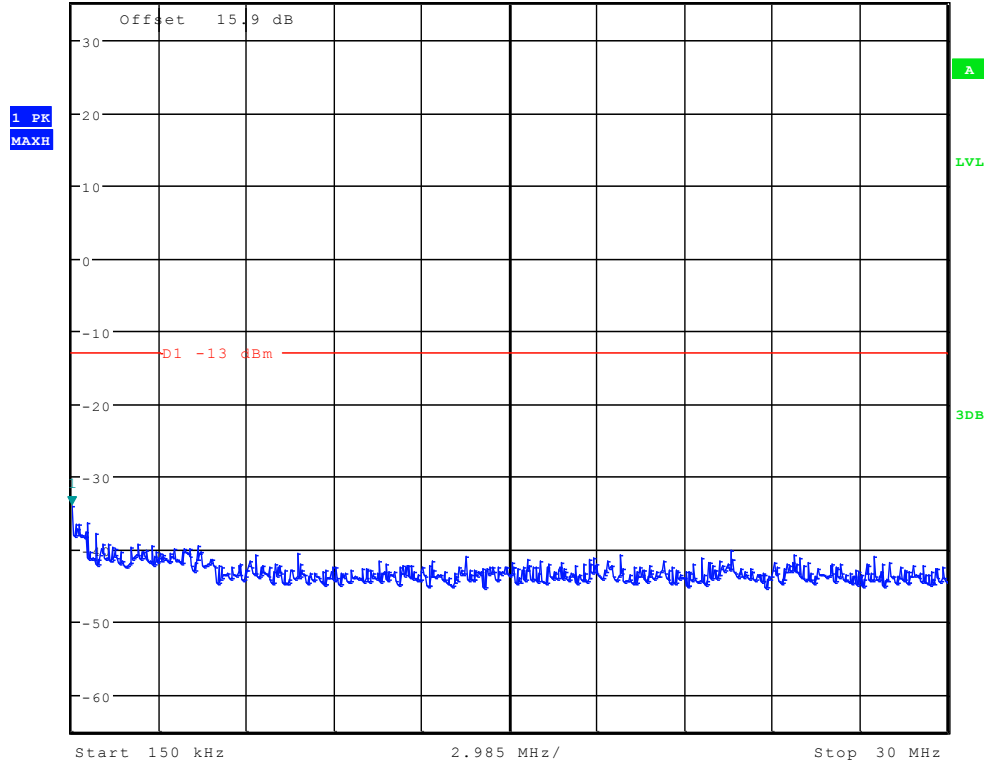


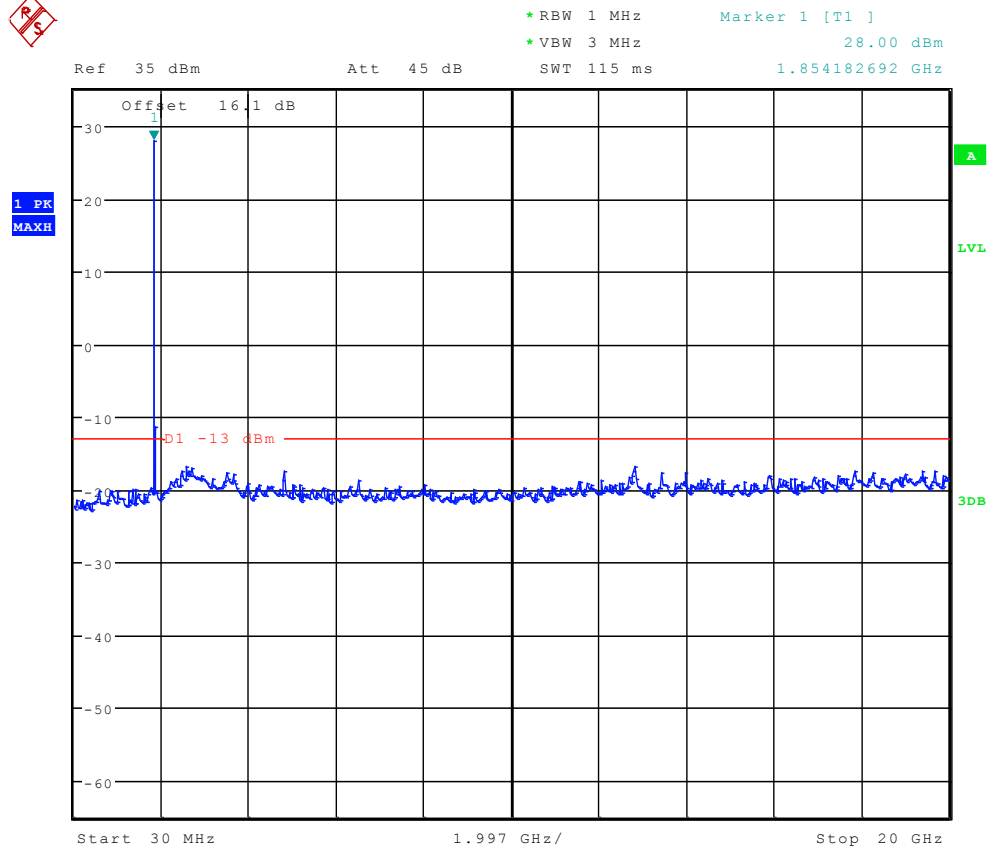
Channel 661





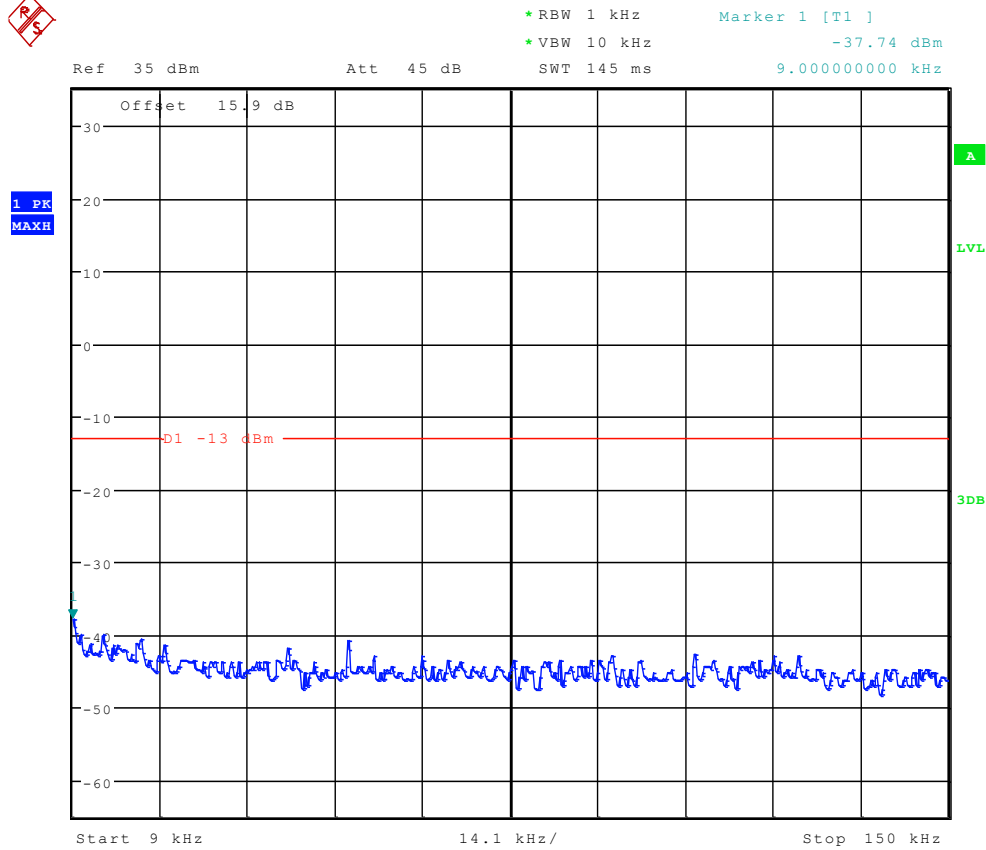
*RBW 10 kHz Marker 1 [T1]
*VBW 30 kHz -34.04 dBm
Ref 35 dBm Att 45 dB SWT 300 ms 150.00000000 kHz





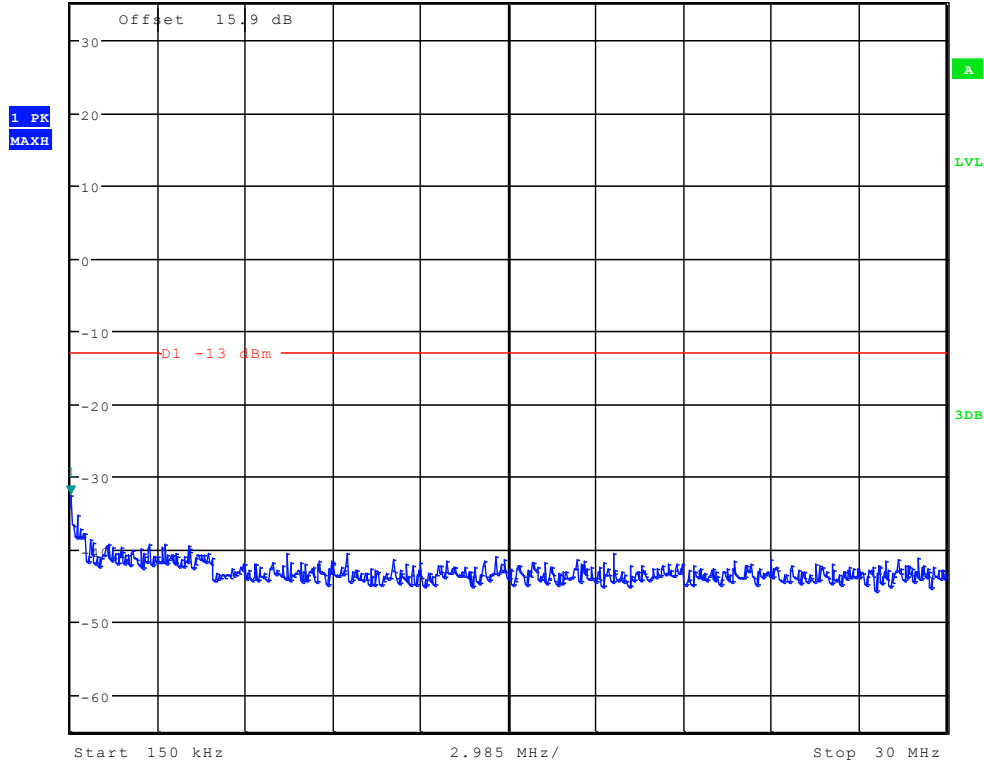


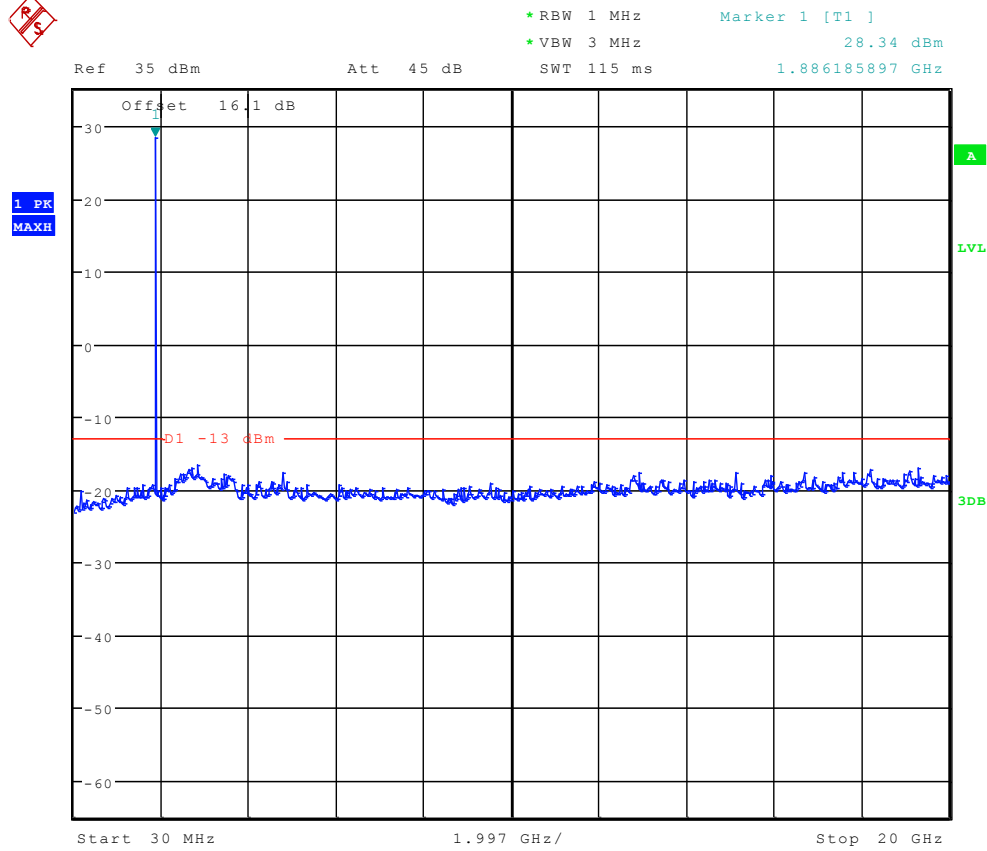
Channel 810





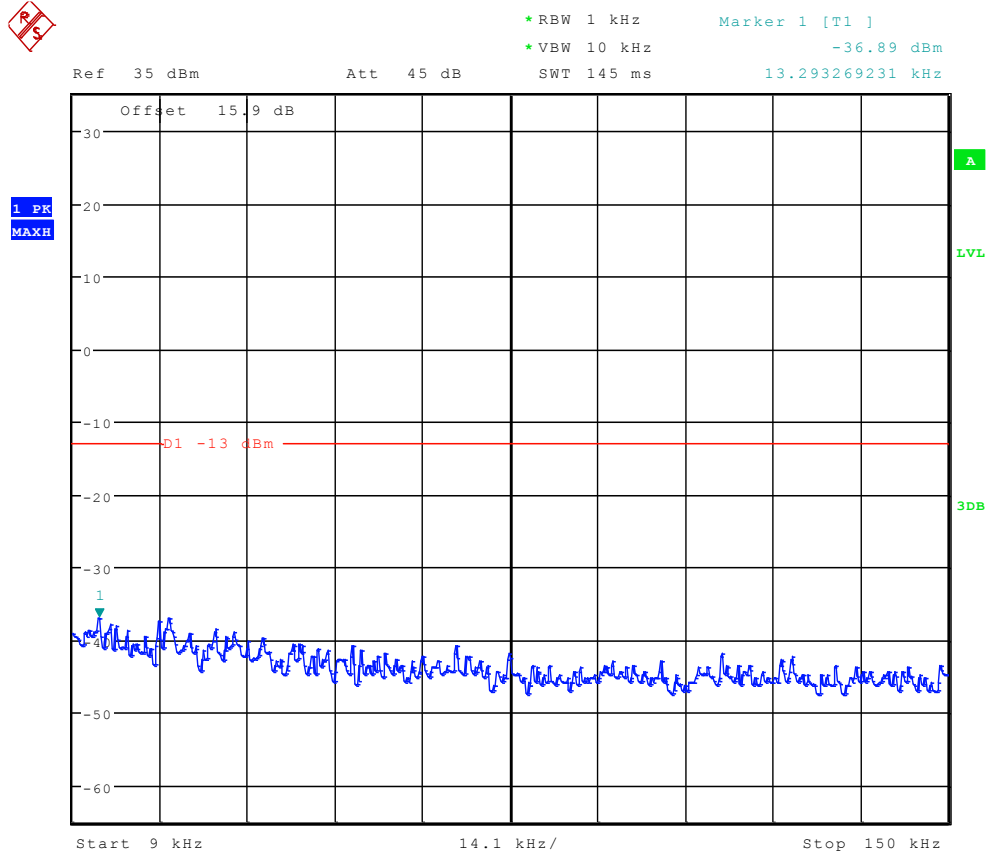
*RBW 10 kHz Marker 1 [T1]
*VBW 30 kHz -32.51 dBm
Ref 35 dBm Att 45 dB SWT 300 ms 150.00000000 kHz





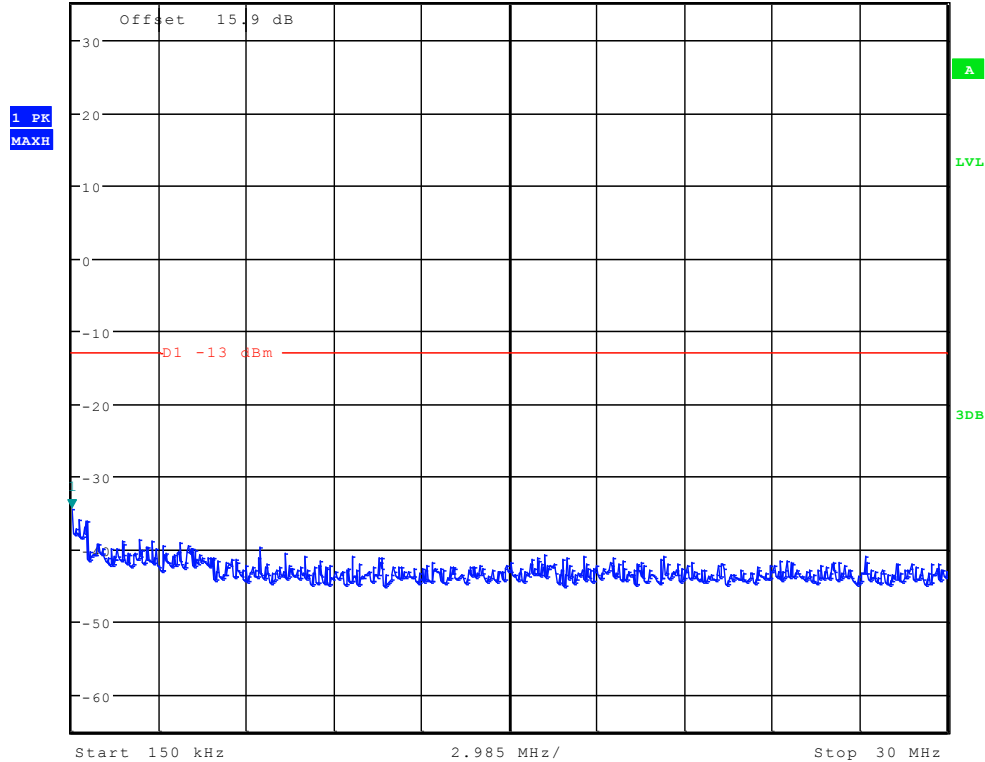


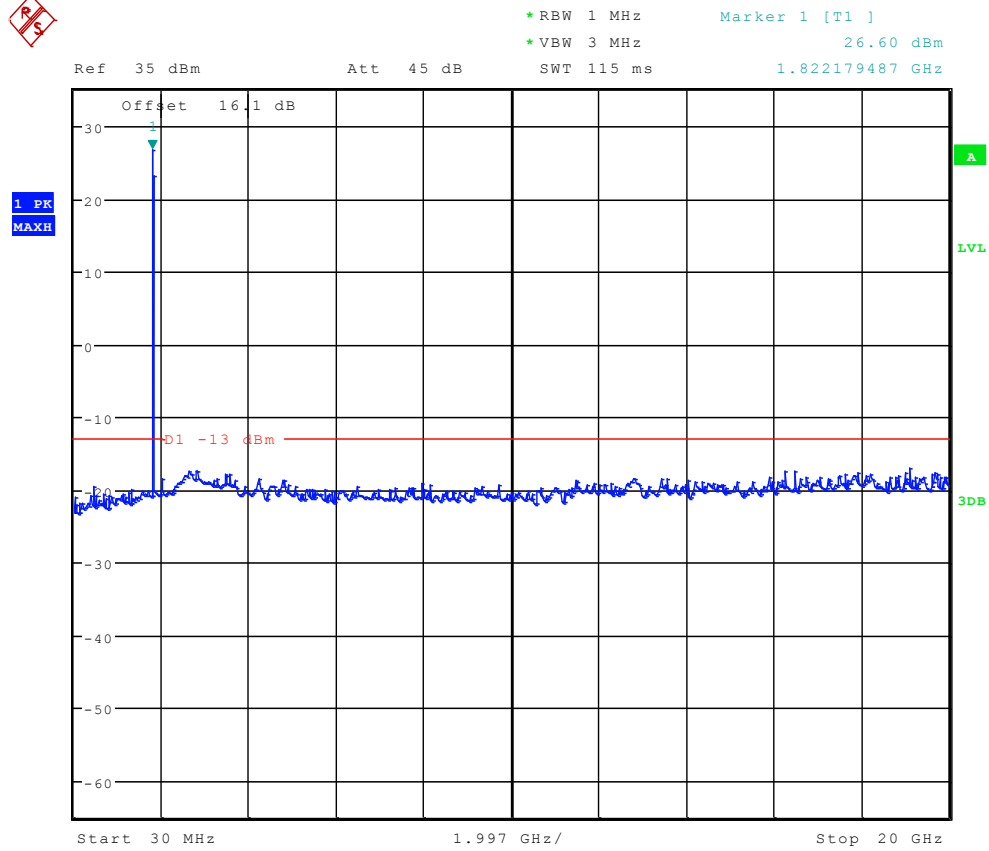
TM2:EDGE Channel 512





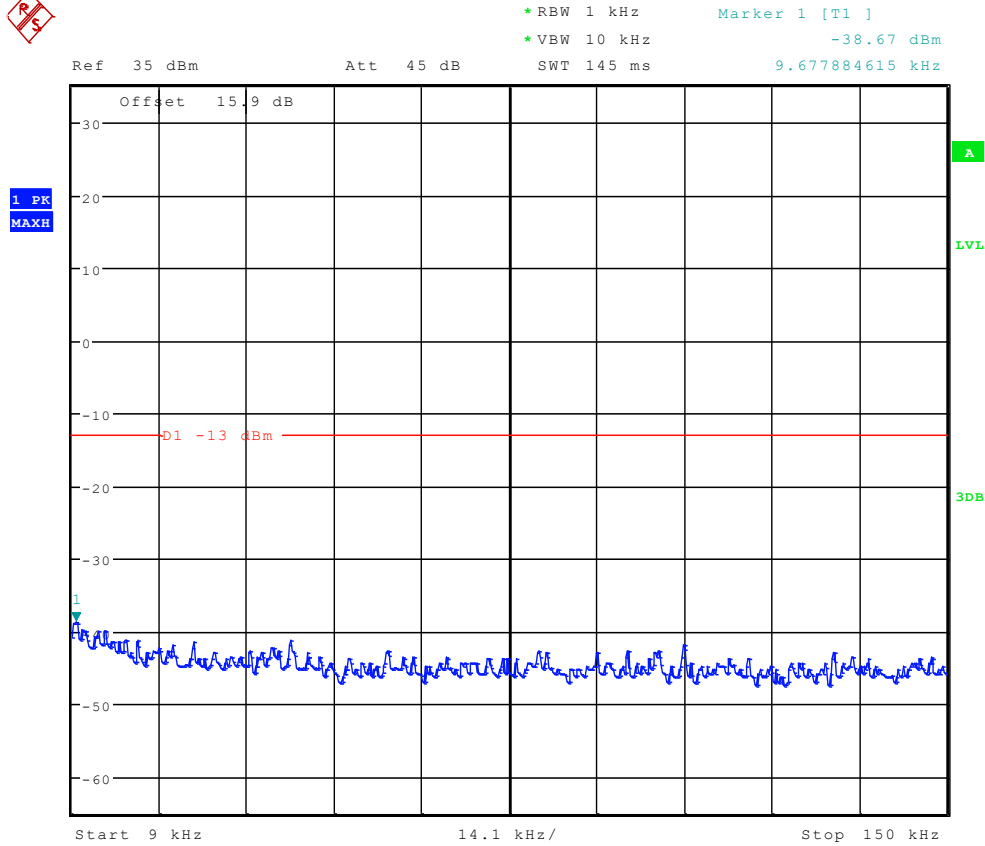
Ref 35 dBm Att 45 dB SWT 300 ms 150.00000000 kHz





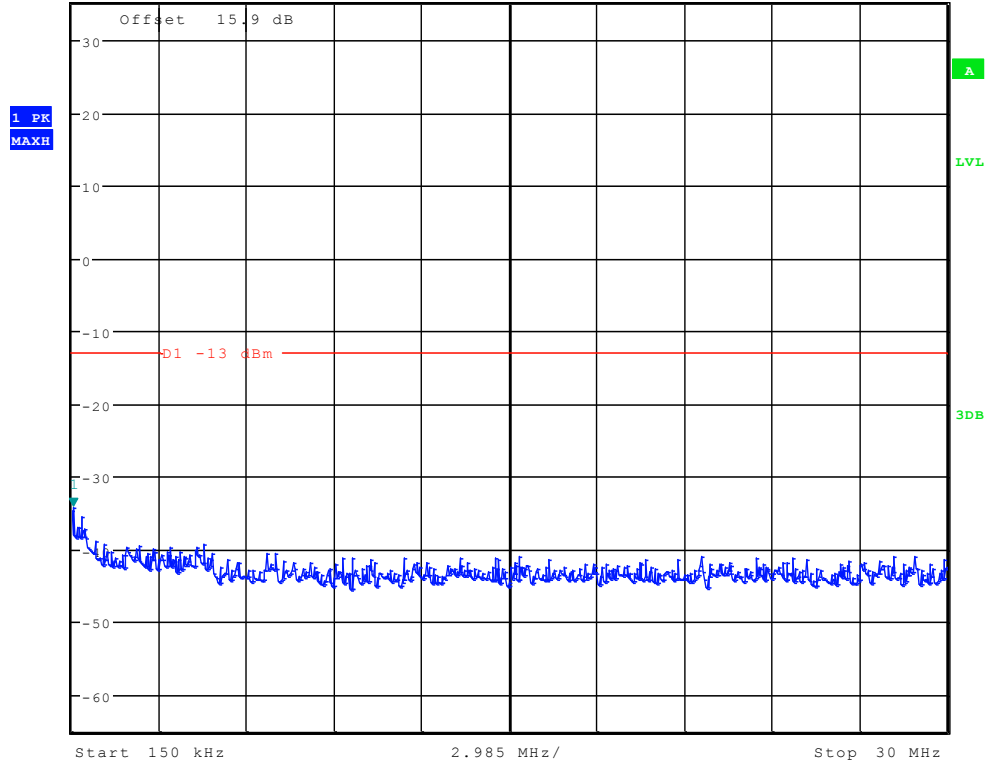


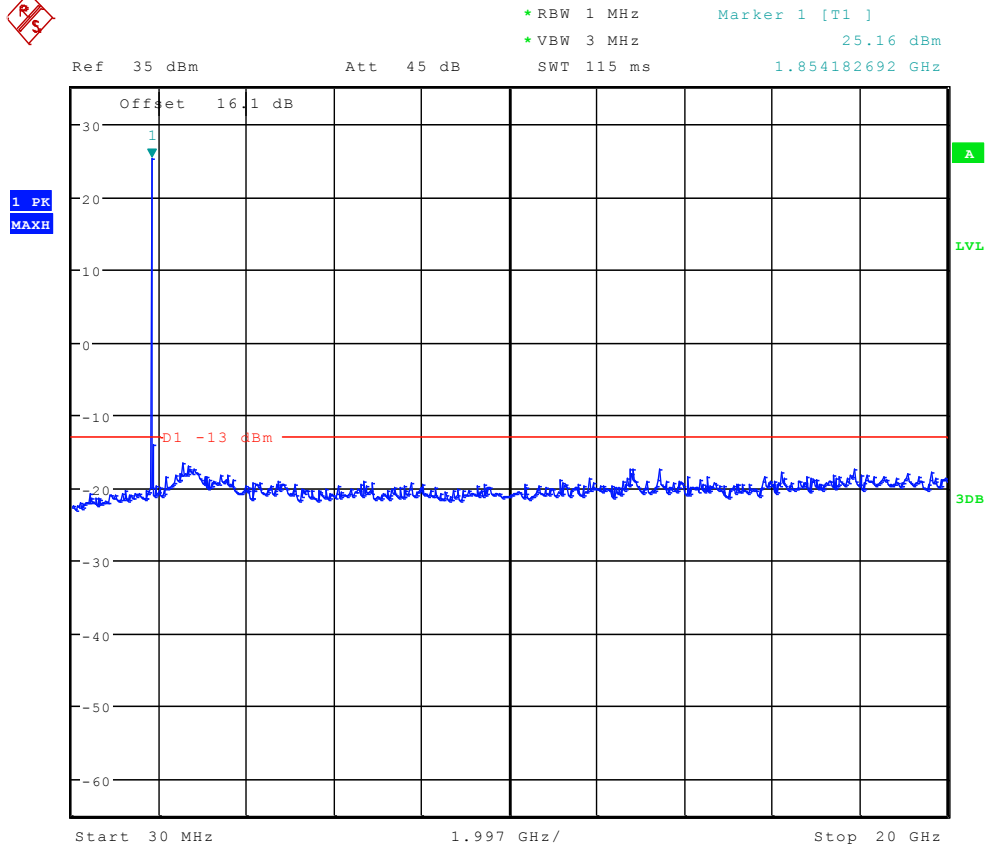
Channel 661





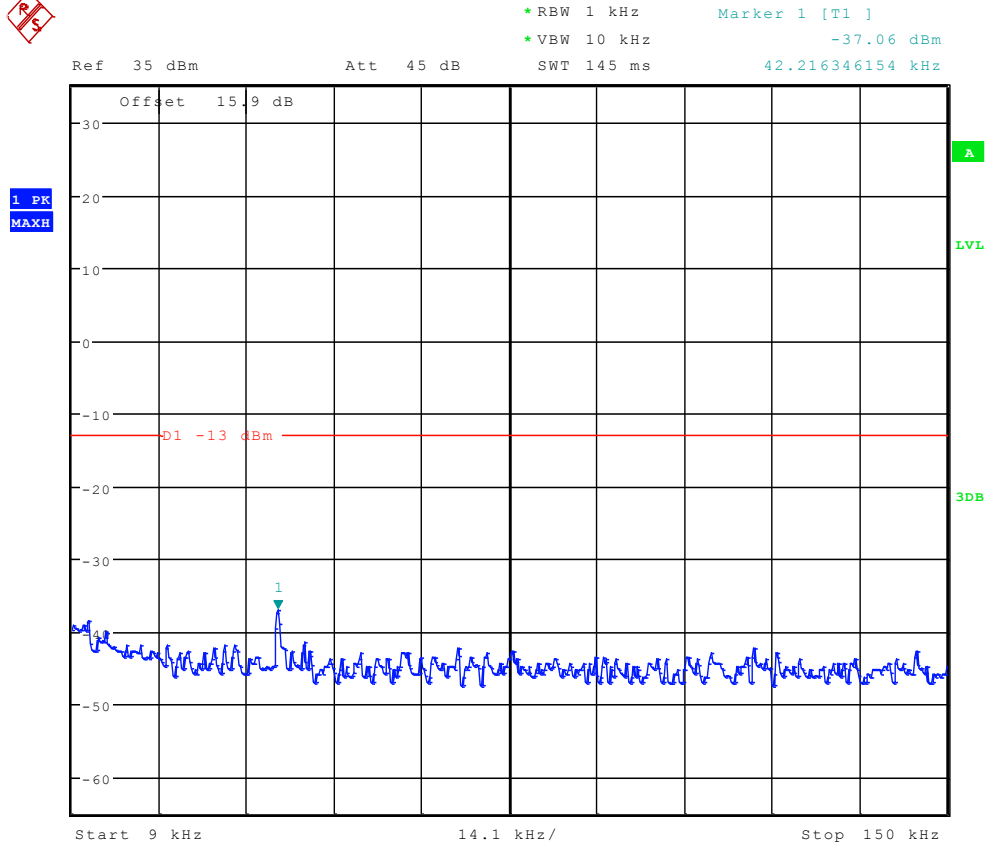
*RBW 10 kHz Marker 1 [T1]
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Ref 35 dBm Att 45 dB SWT 300 ms 197.836538462 kHz





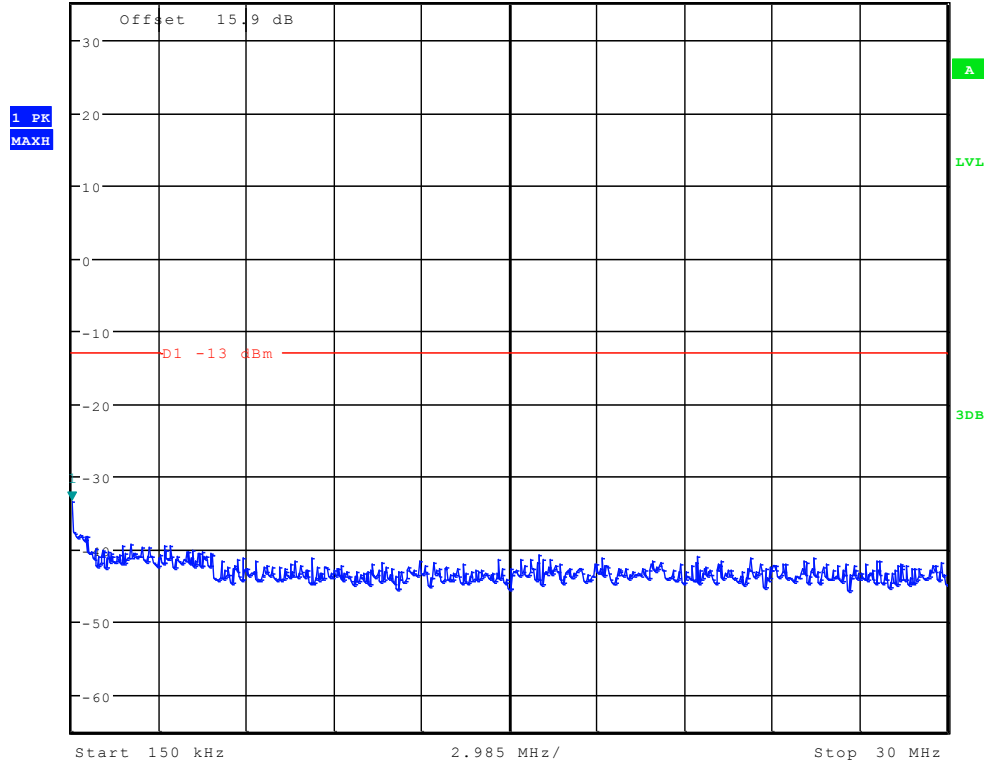


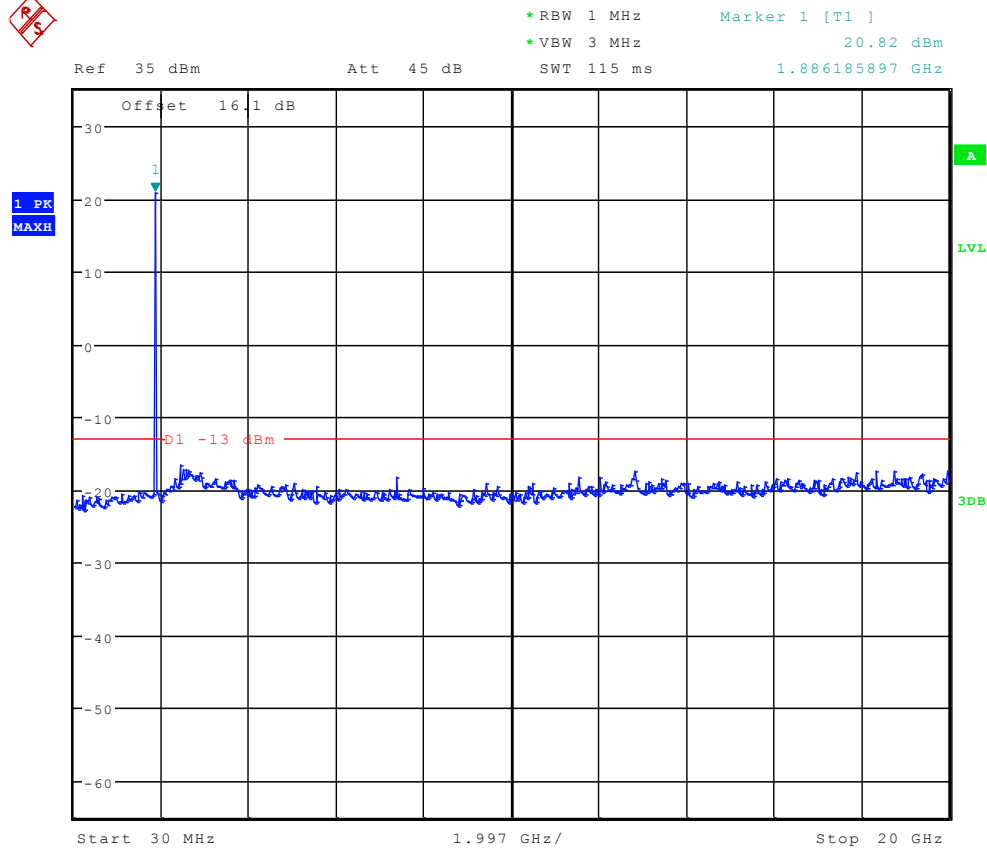
Channel 810





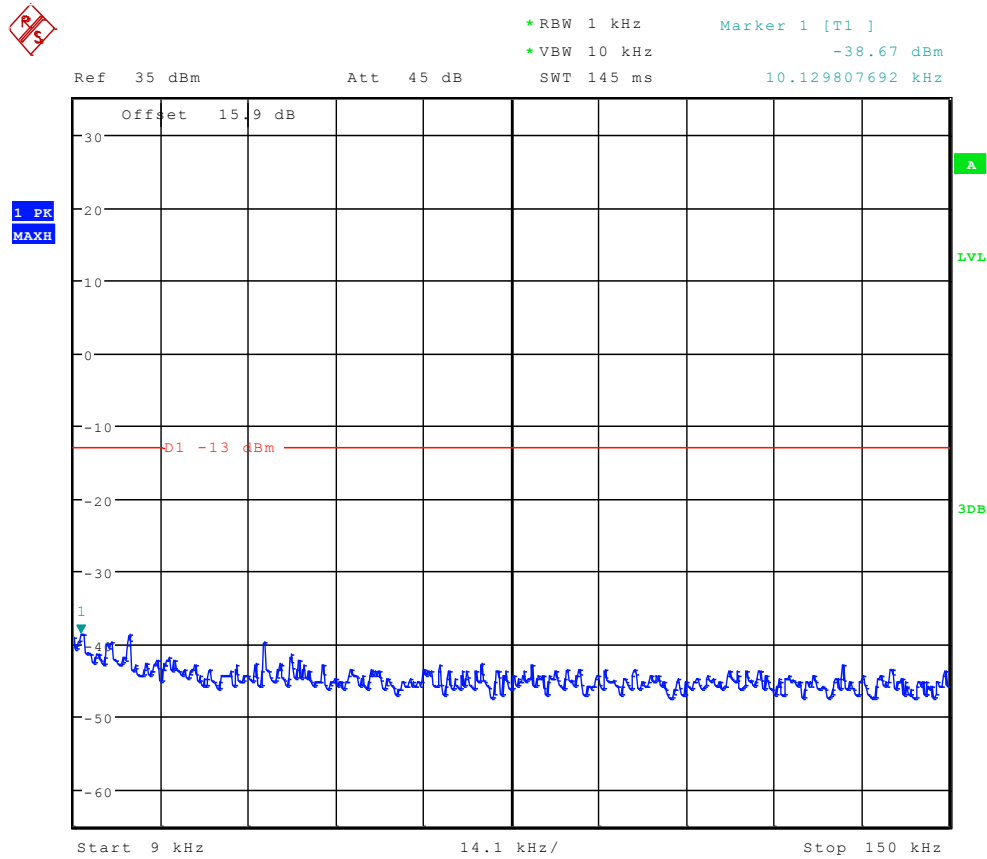
*RBW 10 kHz Marker 1 [T1]
*VBW 30 kHz -33.37 dBm
Ref 35 dBm Att 45 dB SWT 300 ms 150.00000000 kHz





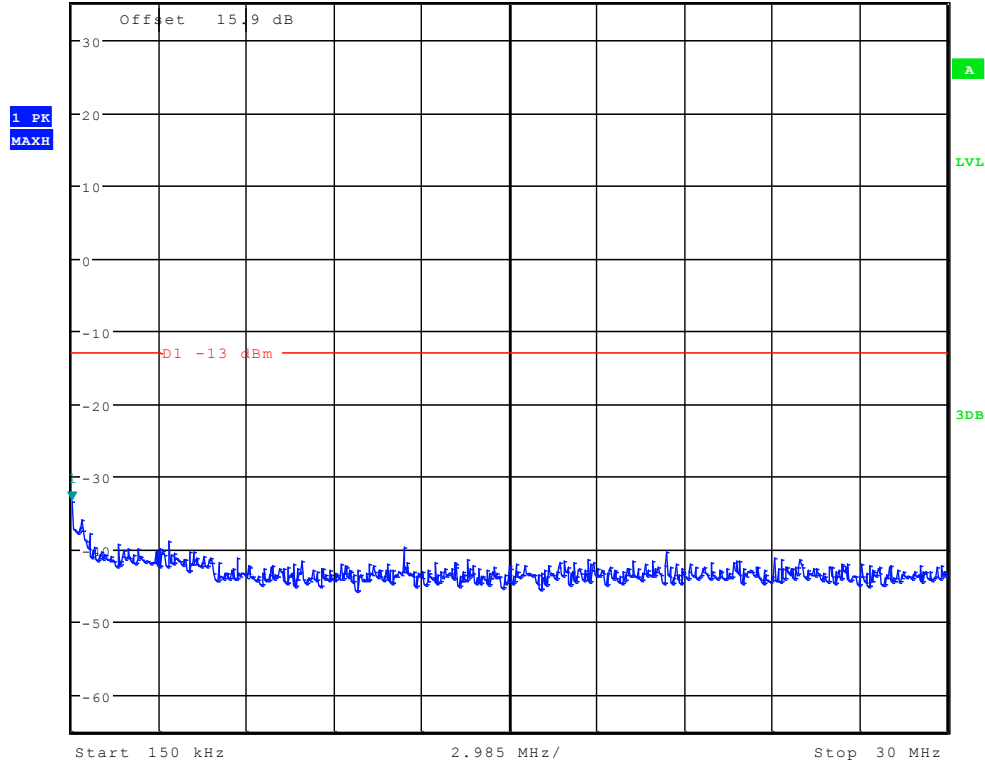


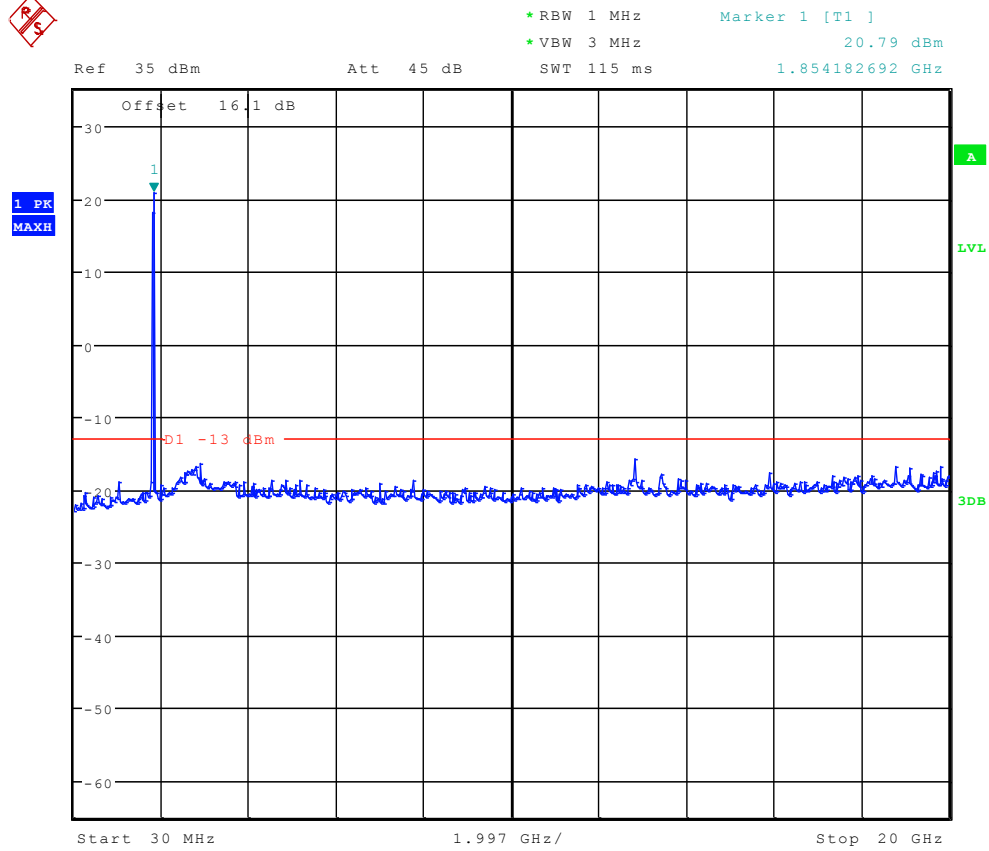
TM3: WCDMA Channel 9262





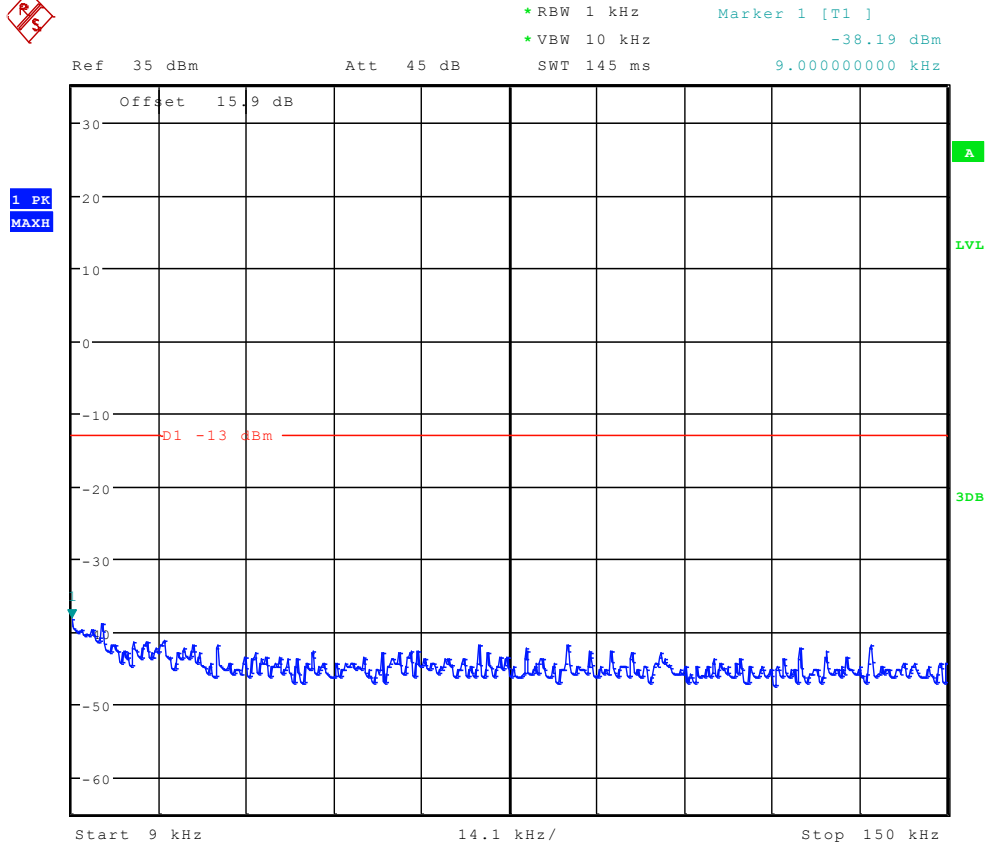
*RBW 10 kHz Marker 1 [T1]
*VBW 30 kHz -33.32 dBm
Ref 35 dBm Att 45 dB SWT 300 ms 150.00000000 kHz





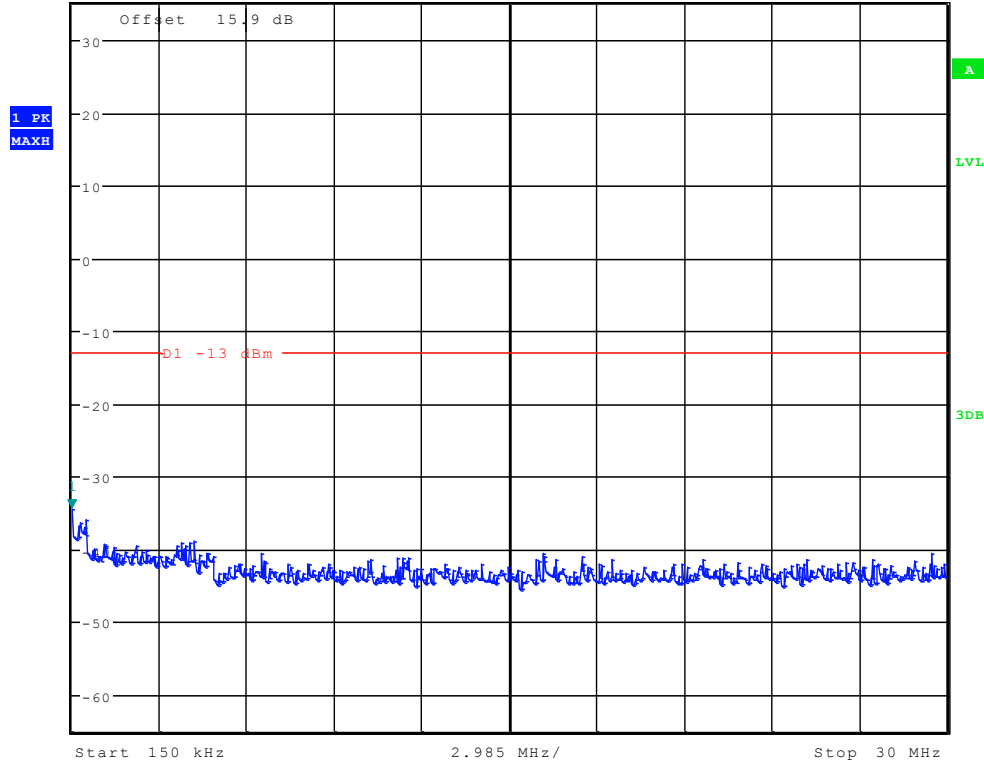


Channel 9400



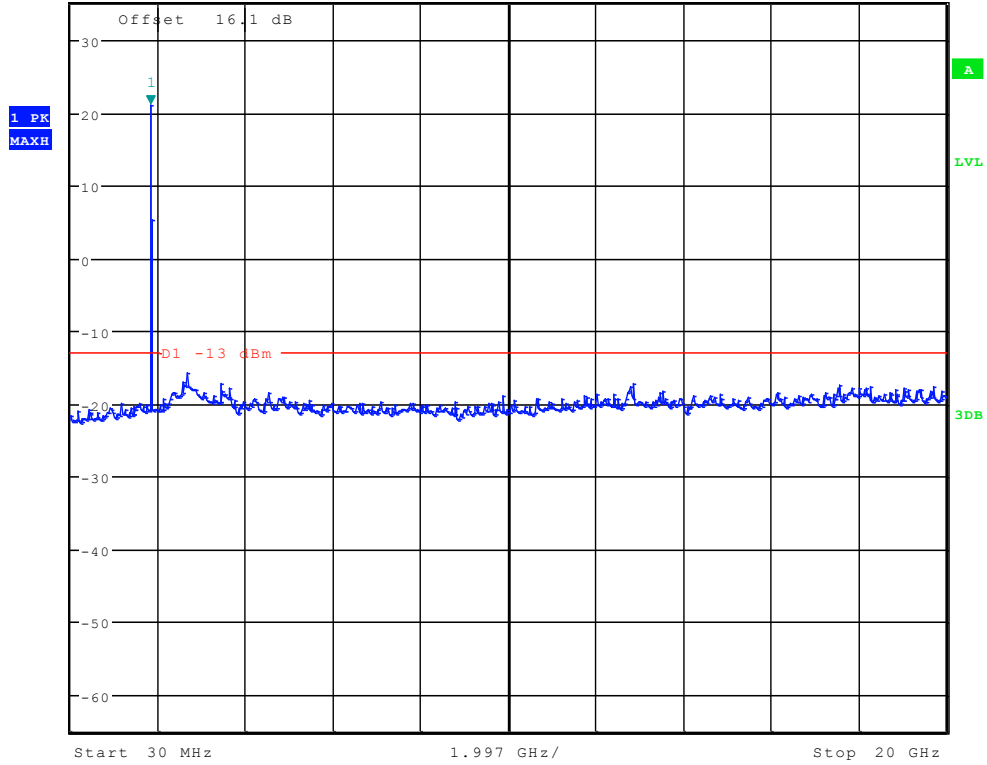


*RBW 10 kHz Marker 1 [T1]
*VBW 30 kHz -34.52 dBm
Ref 35 dBm Att 45 dB SWT 300 ms 150.00000000 kHz



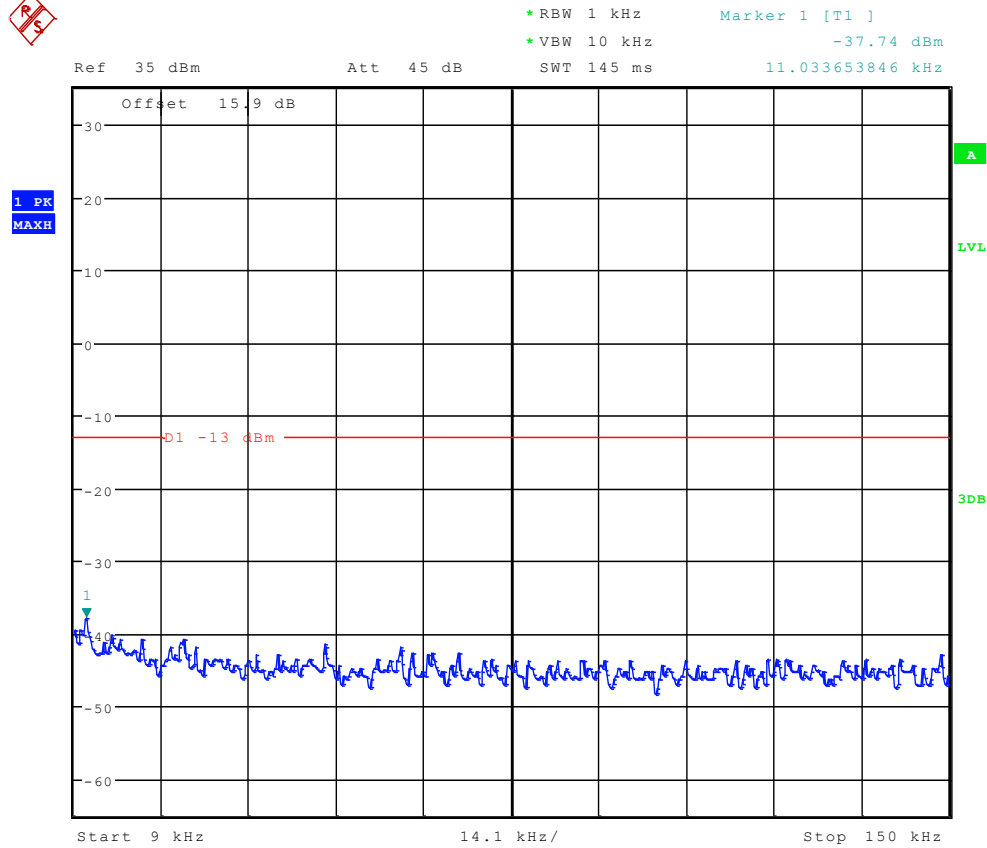


*RBW 1 MHz Marker 1 [T1]
*VBW 3 MHz 21.04 dBm
Ref 35 dBm Att 45 dB SWT 115 ms 1.854182692 GHz



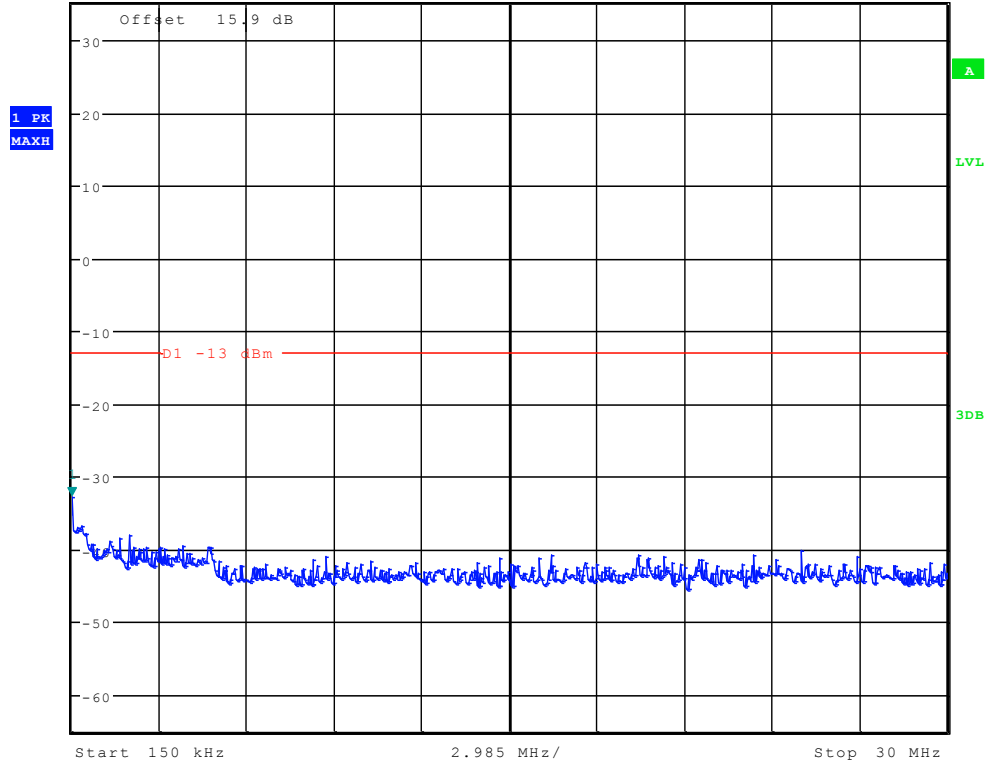


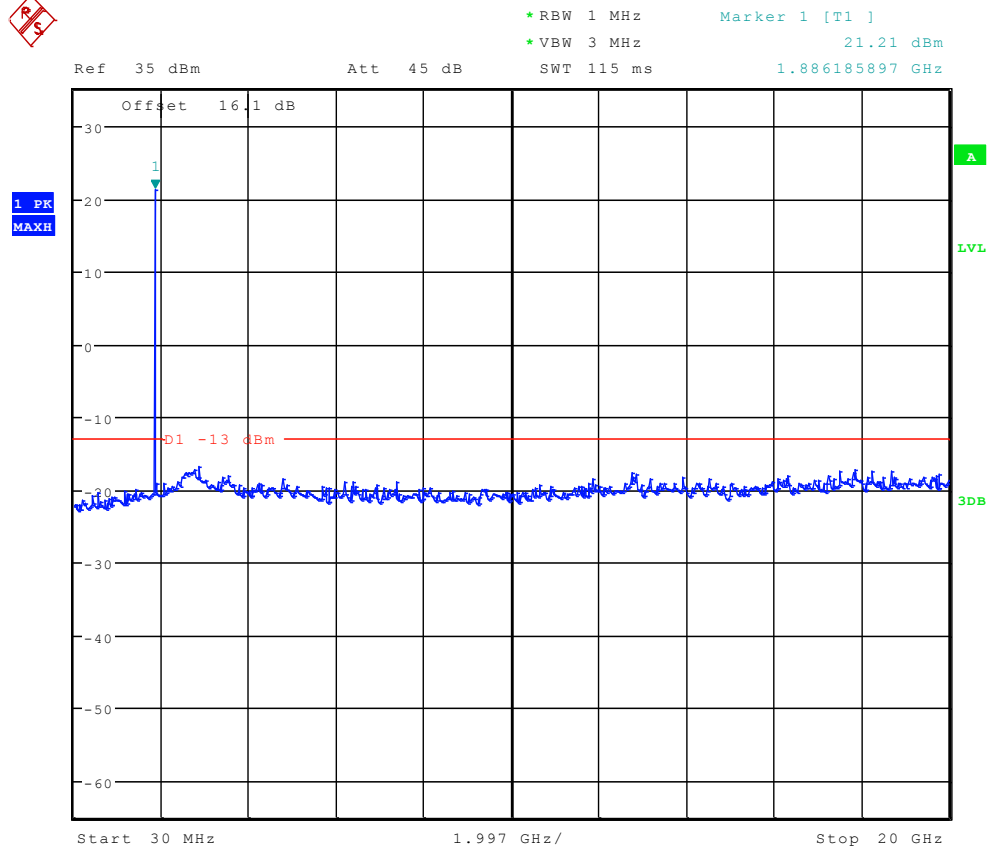
Channel 9538





*RBW 10 kHz Marker 1 [T1]
*VBW 30 kHz -32.85 dBm
Ref 35 dBm Att 45 dB SWT 300 ms 150.00000000 kHz





The END

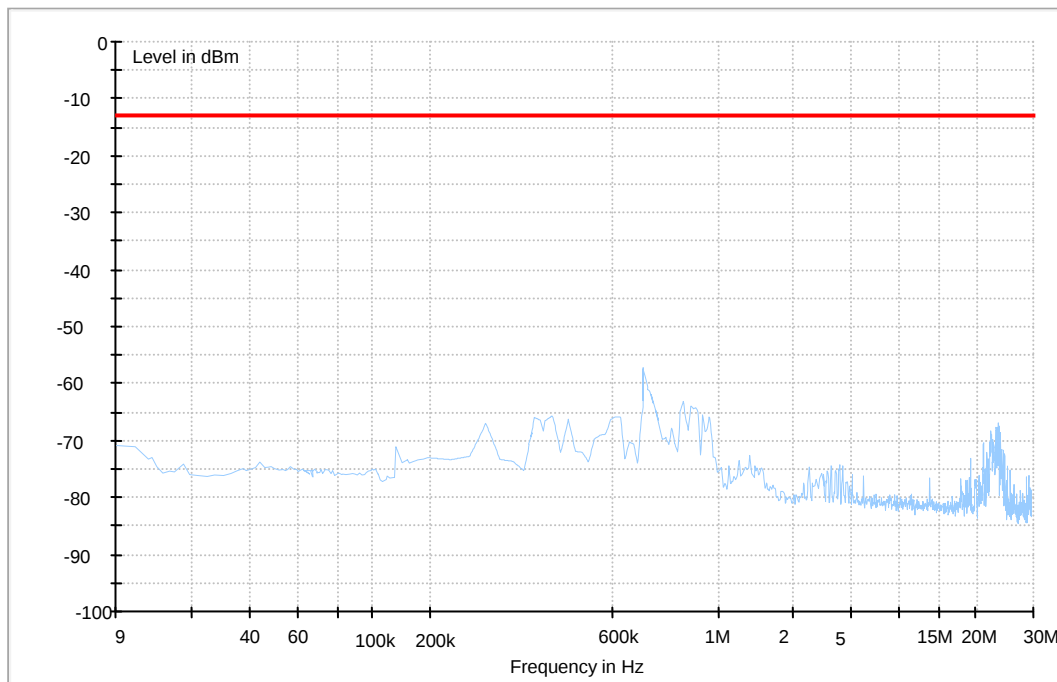
Appendix F

Radiated spurious emission

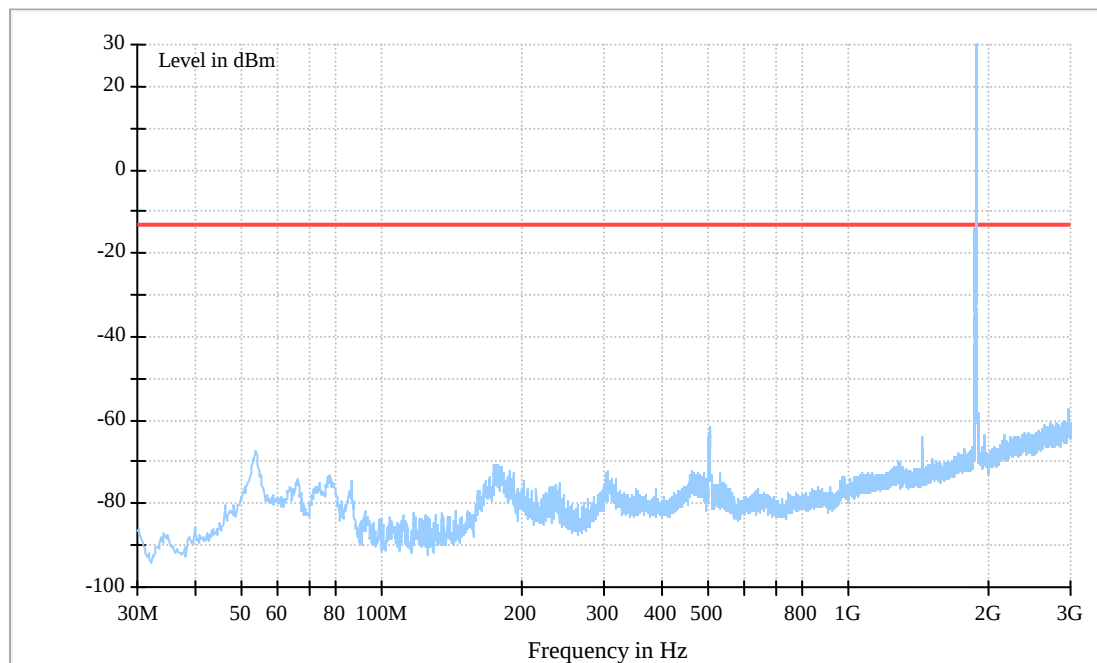
According to FCC Part 2.1053& Part 24.238

GPRS 1900

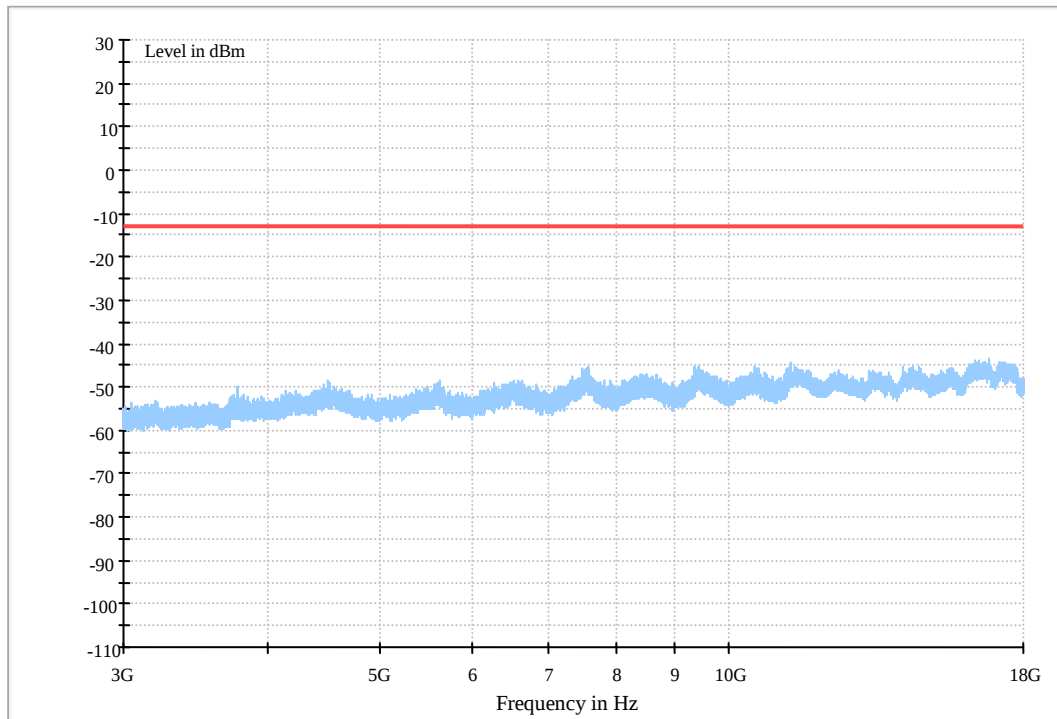
Traffic Mode (9kHz-30MHz)



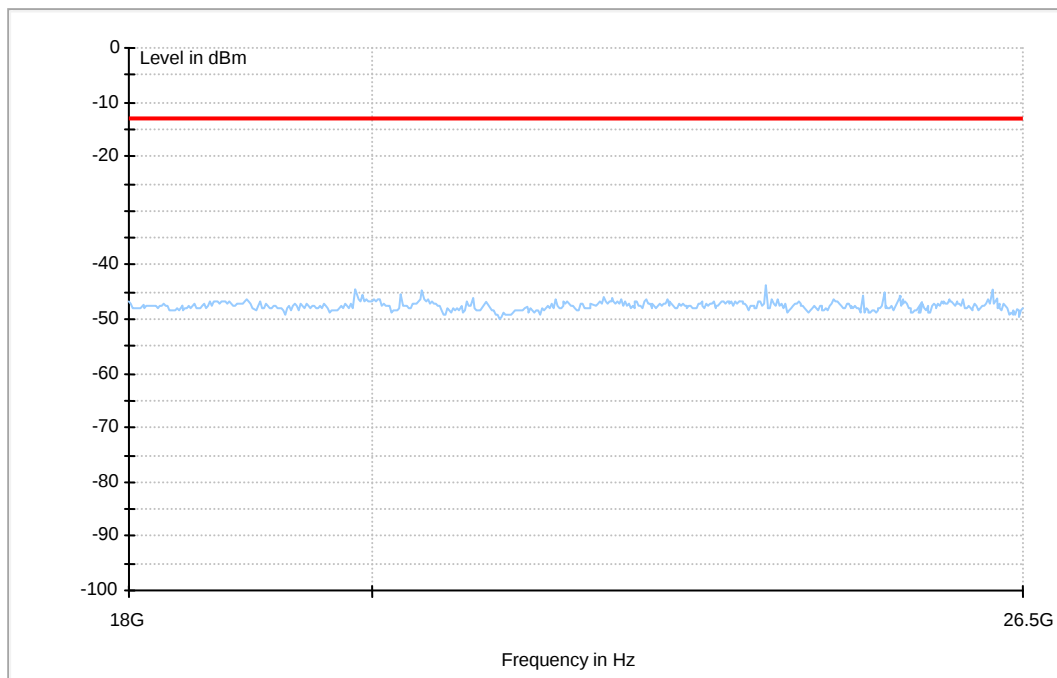
Traffic Mode (30MHz-3GHz)



Traffic Mode (3GHz-18GHz)

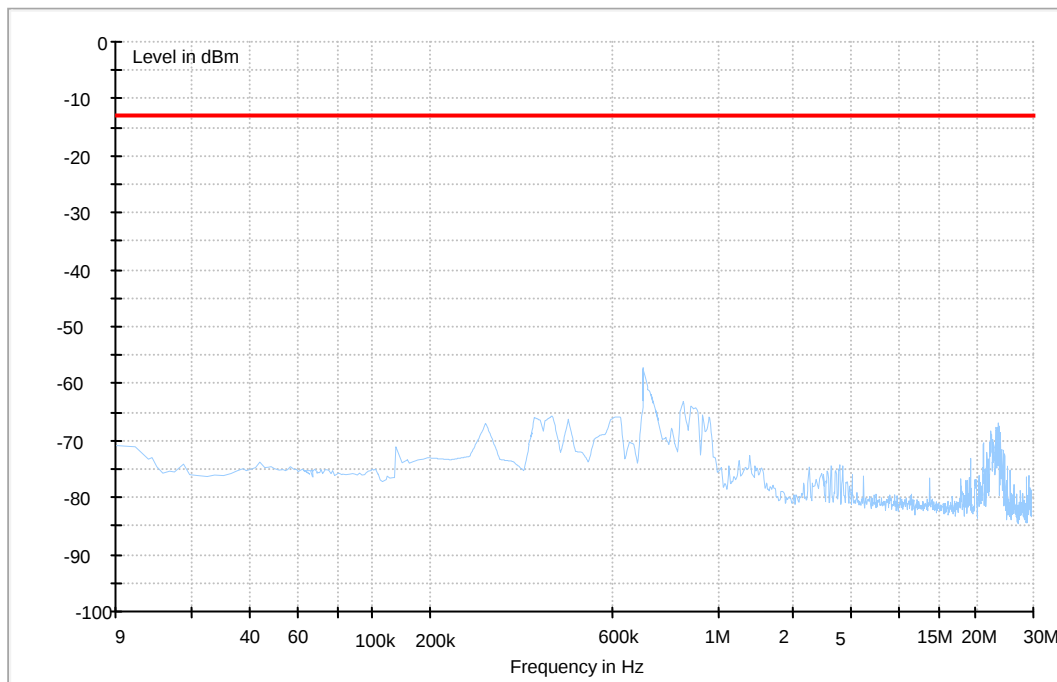


Traffic Mode (18GHz-26.5GHz)

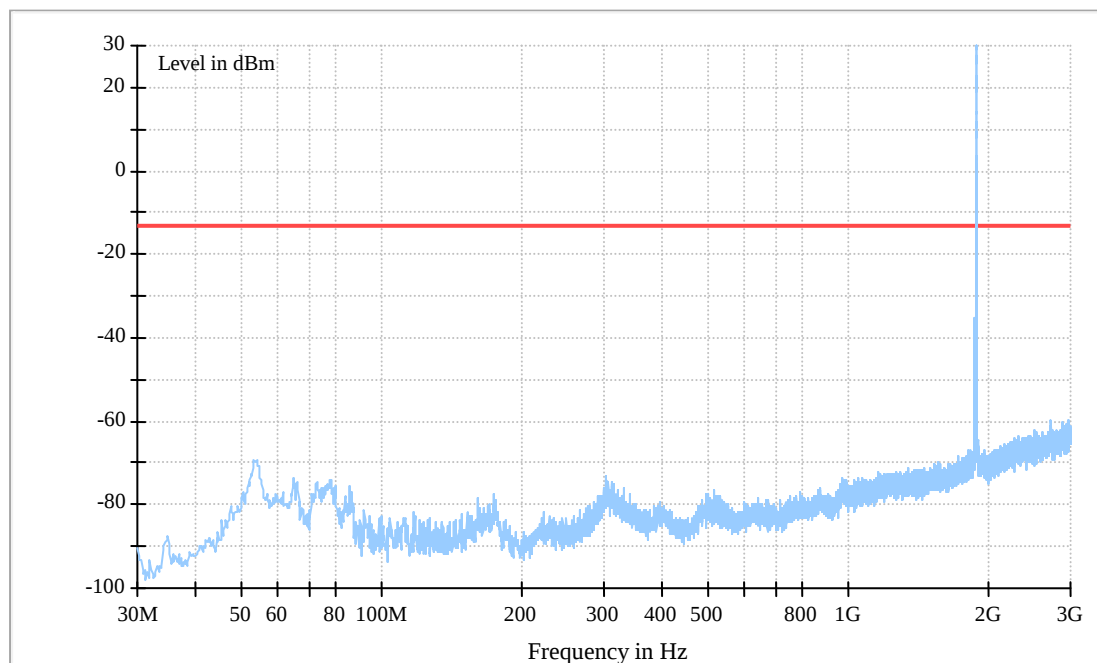


EDGE 1900

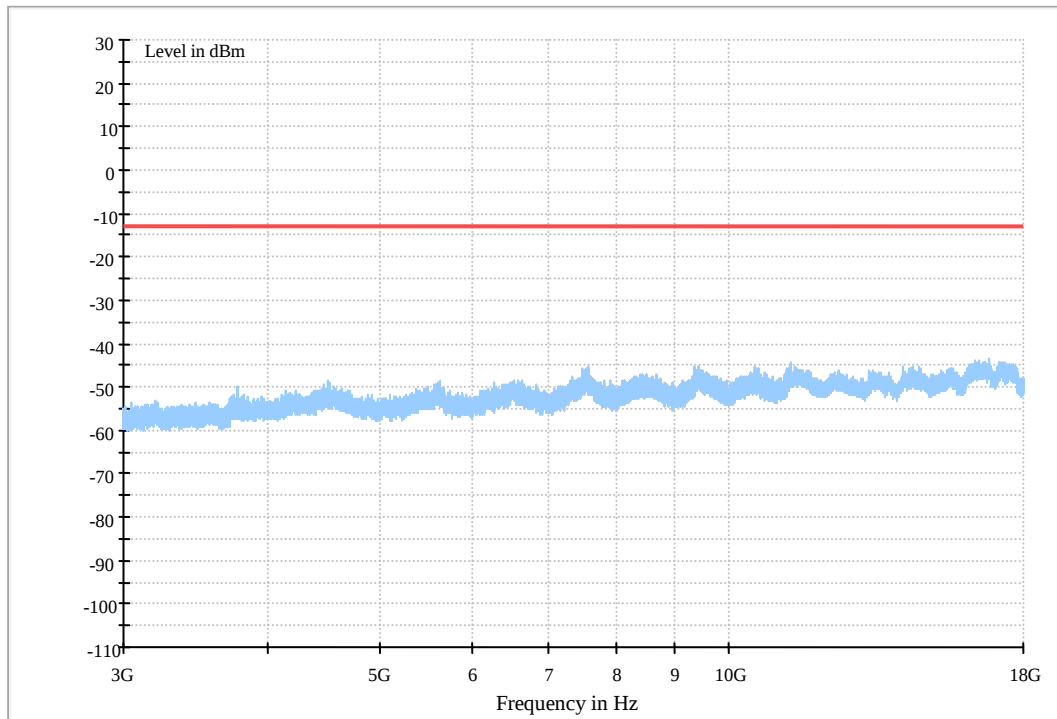
Traffic Mode (9kHz-30MHz)



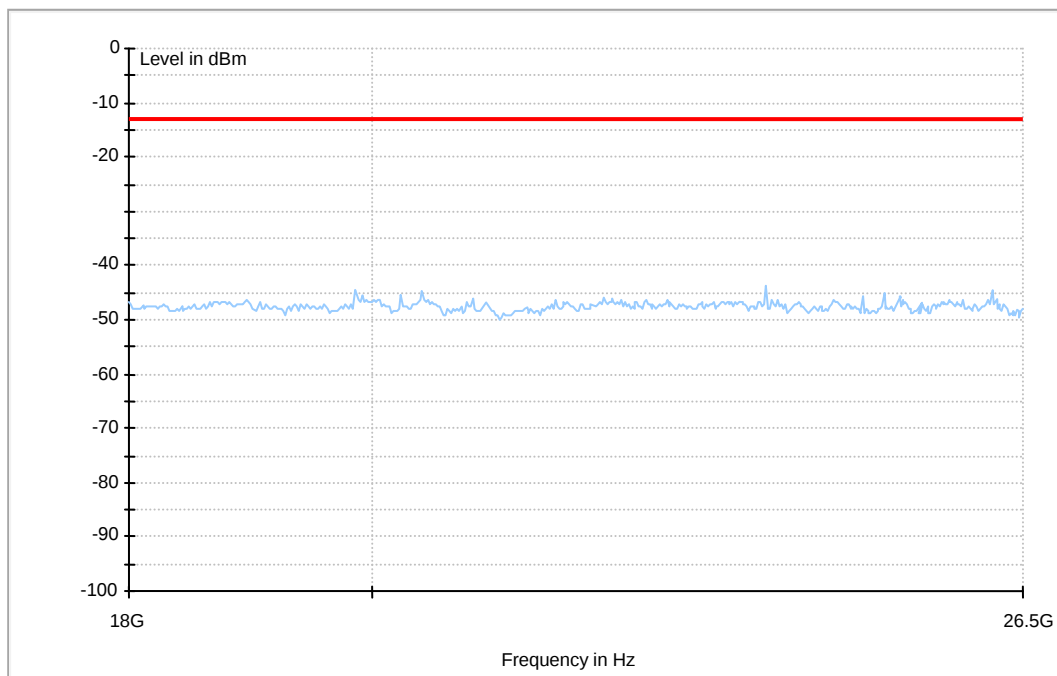
Traffic Mode (30MHz-3GHz)



Traffic Mode (3GHz-18GHz)

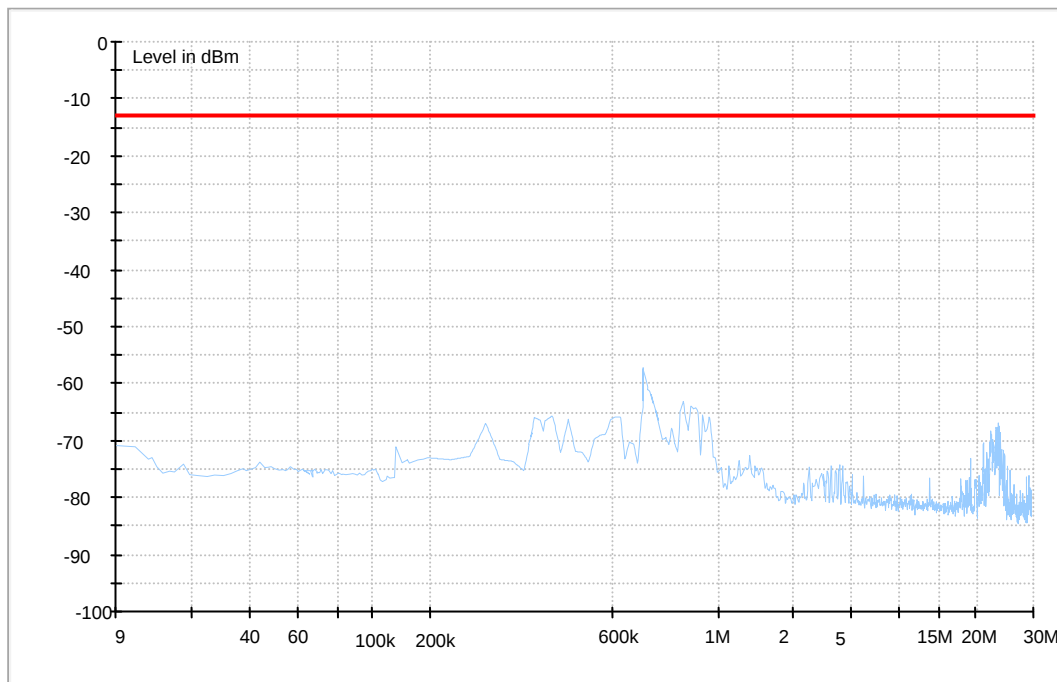


Traffic mode (18GHz-26.5GHz)

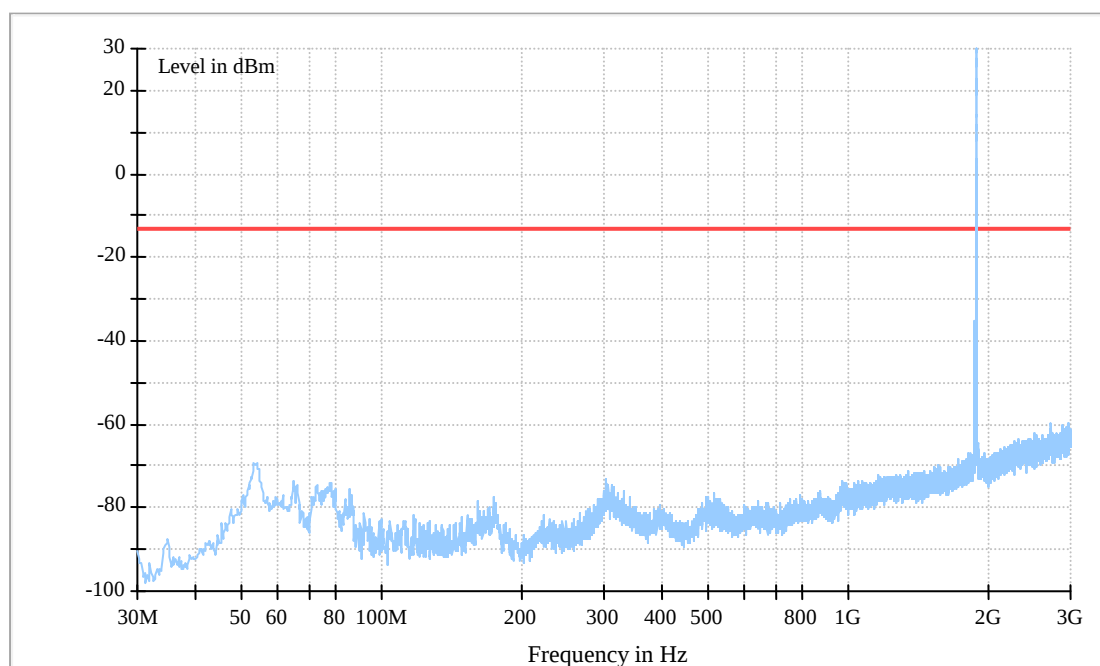


WCDMA 1900

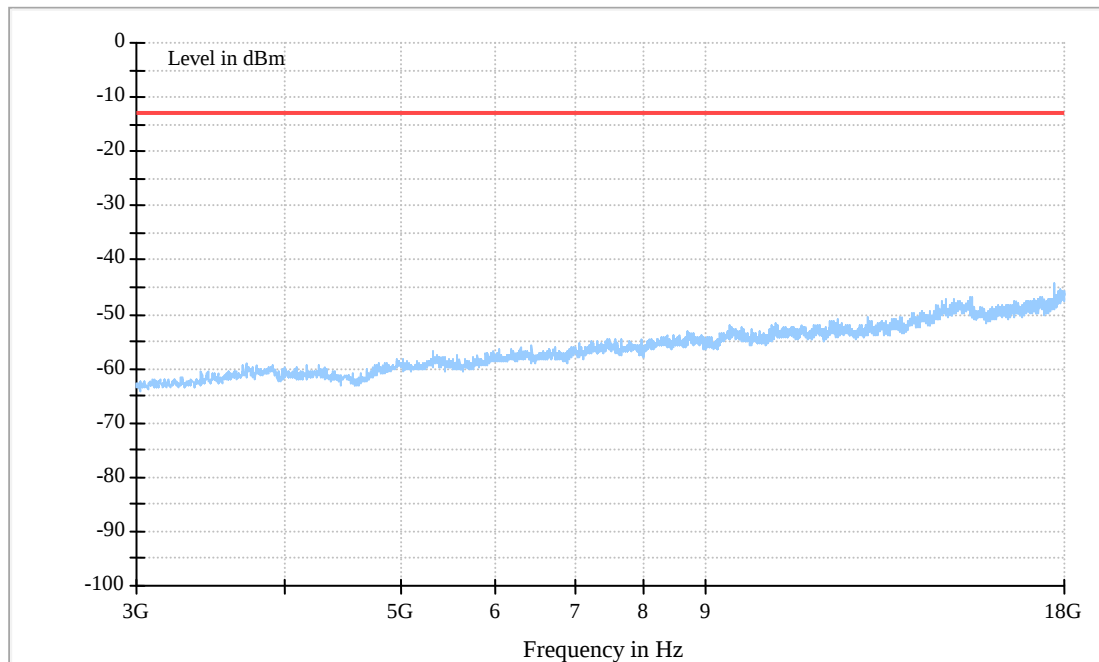
Traffic Mode (9kHz-30MHz)



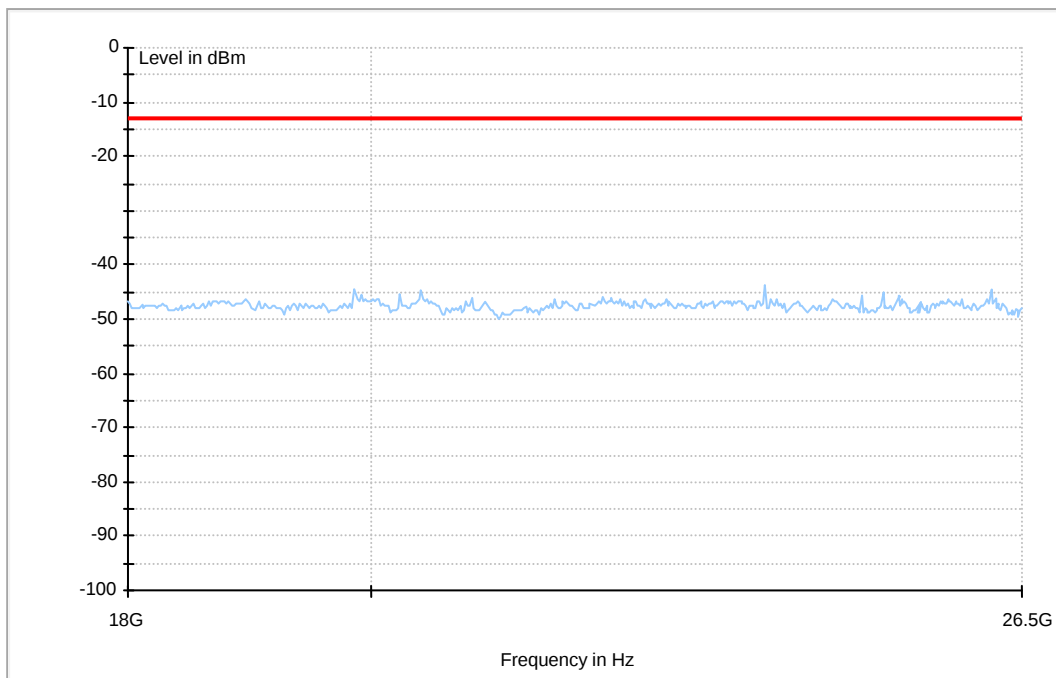
Traffic Mode (30MHz-3GHz)



Traffic Mode (3GHz-18GHz)

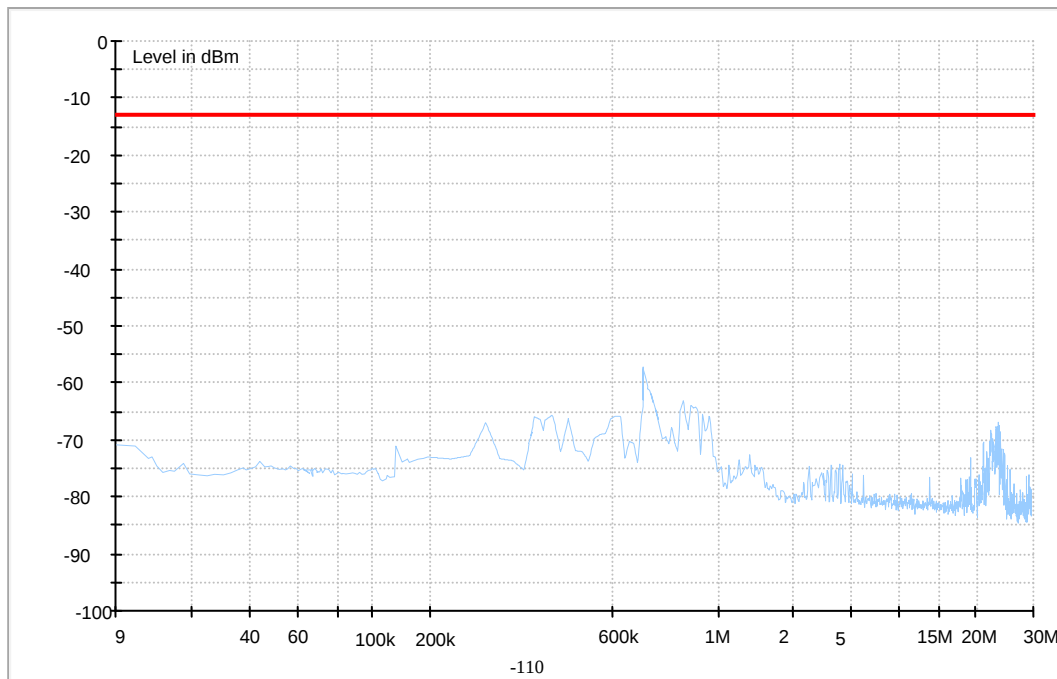


Traffic Mode (18GHz-26.5GHz)

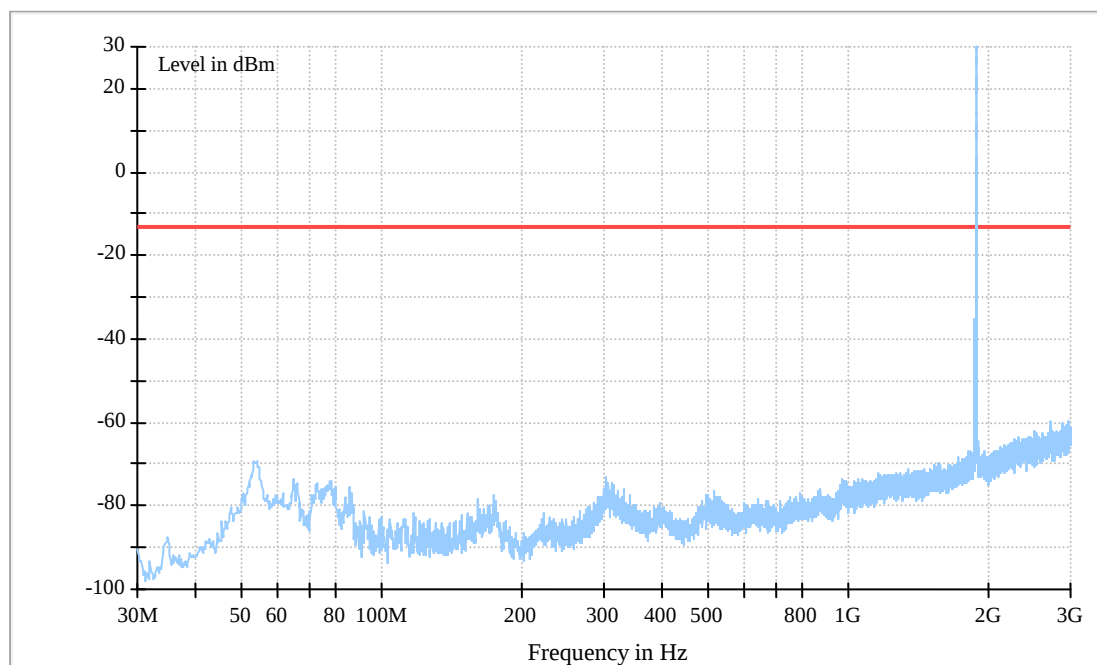


HSDPA 1900

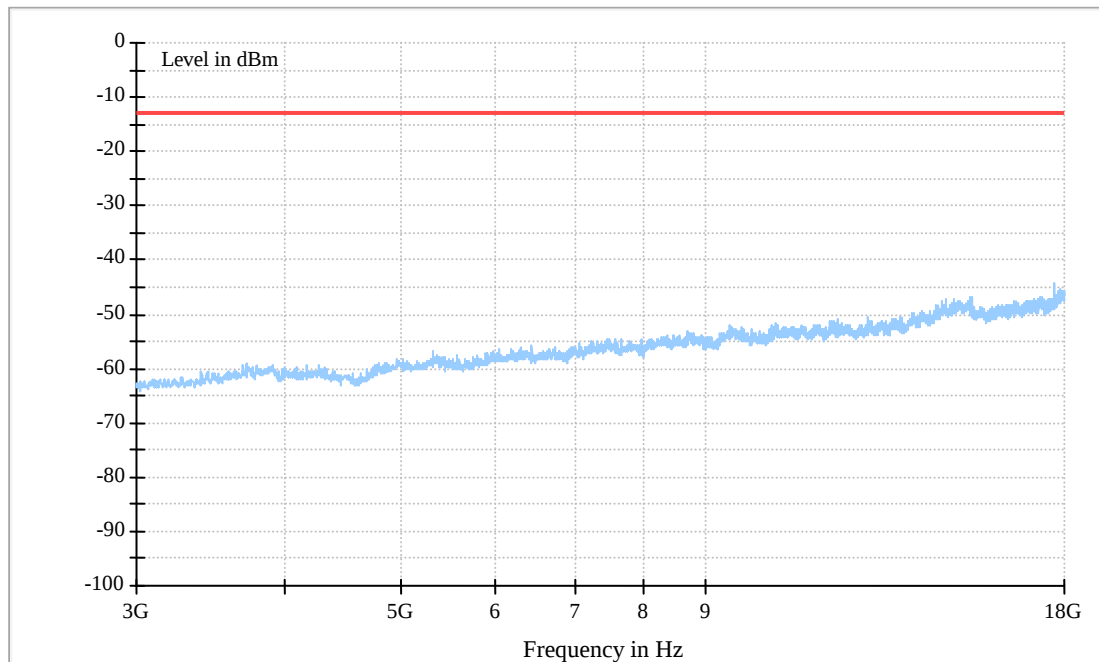
Traffic Mode (9kHz-30MHz)



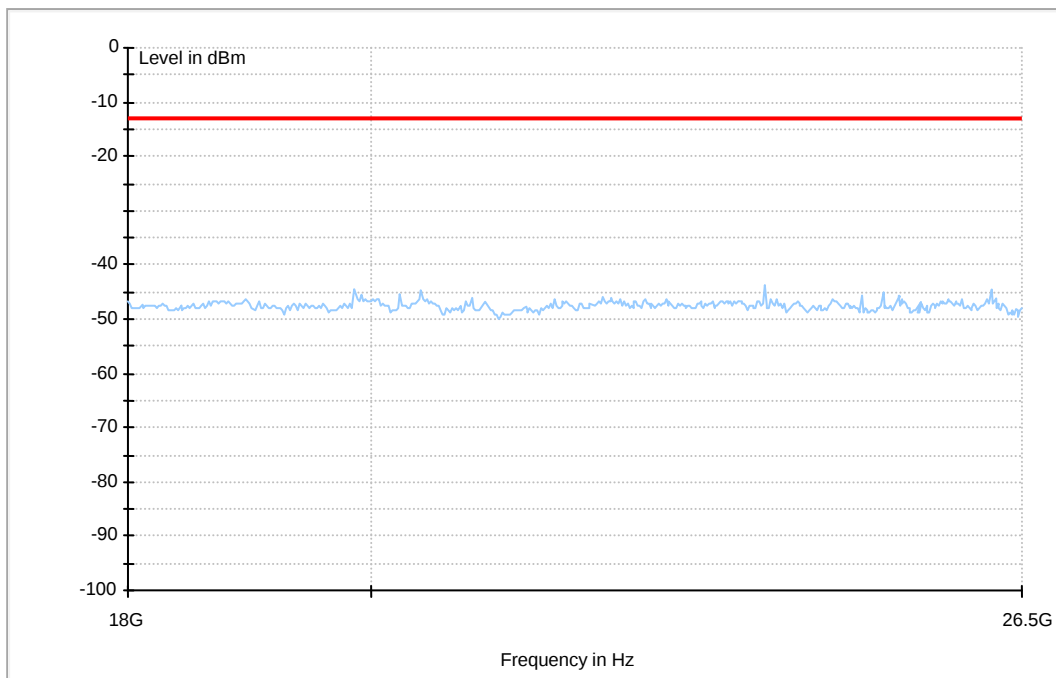
Traffic Mode (30MHz-3GHz)



Traffic Mode (3GHz-18GHz)

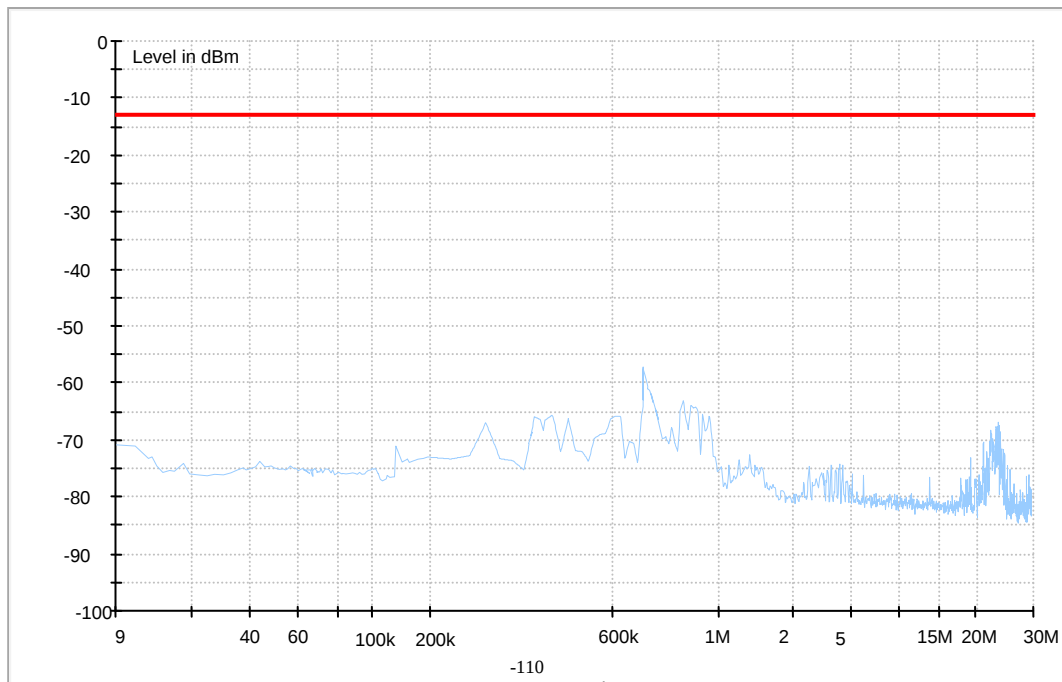


Traffic Mode (18GHz-26.5GHz)

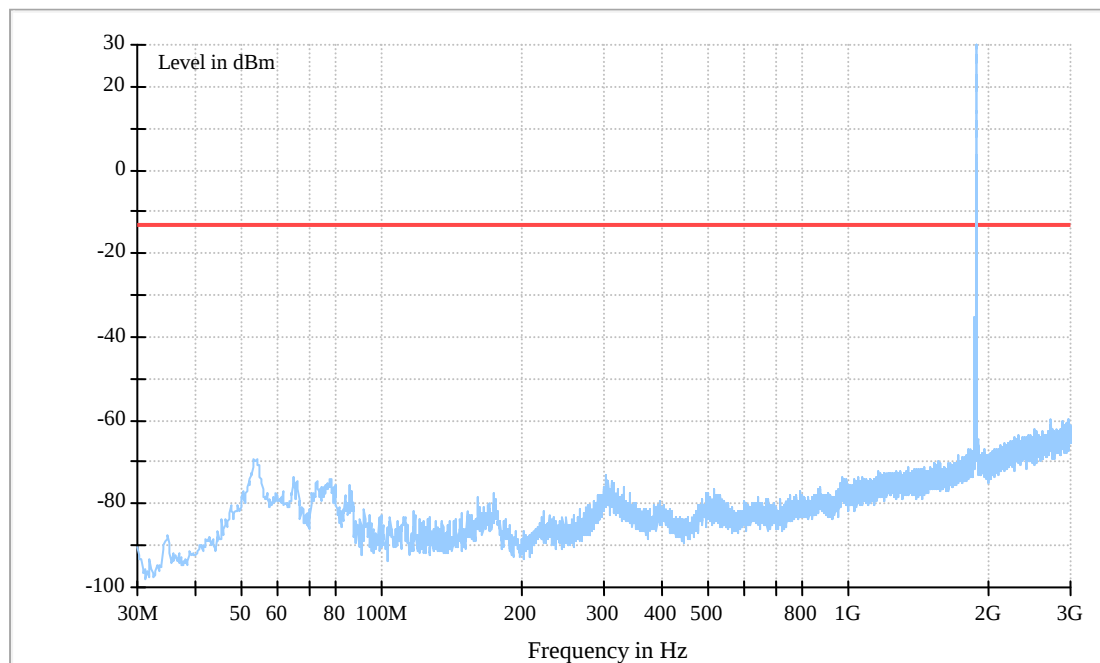


HSUPA 1900

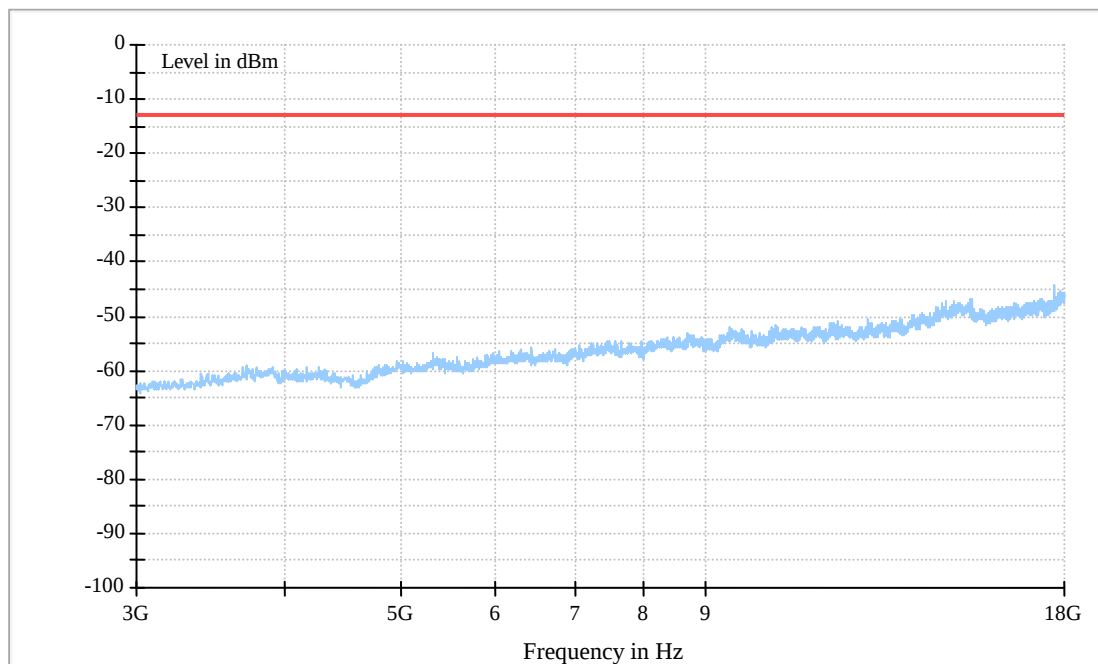
Traffic Mode (9kHz-30MHz)



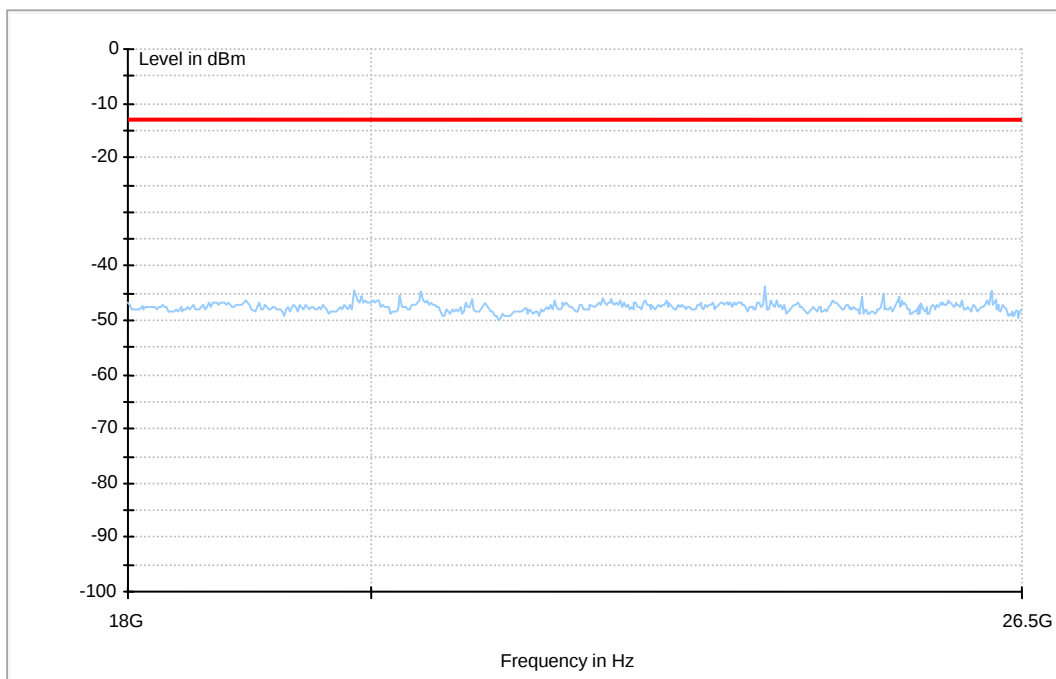
Traffic Mode (30MHz-3GHz)



Traffic Mode (3GHz-18GHz)



Traffic Mode (18GHz-26.5GHz)



The END



Appendix G

Frequency Stability

According to FCC Part 2.1055& Part 24.235



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	-22	-0.01170	---	±2.5	Pass
			-20 °C	7	0.00372	---	±2.5	Pass
			-10 °C	-16	-0.00851	---	±2.5	Pass
			0 °C	-16	-0.00851	---	±2.5	Pass
			10 °C	-14	-0.00745	---	±2.5	Pass
			20 °C	-15	-0.00798	---	±2.5	Pass
			30 °C	-7	-0.00372	---	±2.5	Pass
			40 °C	14	0.00745	---	±2.5	Pass
			50 °C	15	0.00798	---	±2.5	Pass
TM 2	M	VN	-30 °C	-12	-0.00638	---	±2.5	Pass
			-20 °C	-19	-0.01011	---	±2.5	Pass
			-10 °C	11	0.00585	---	±2.5	Pass
			0 °C	26	0.01383	---	±2.5	Pass
			10 °C	9	0.00479	---	±2.5	Pass
			20 °C	-15	-0.00798	---	±2.5	Pass
			30 °C	28	0.01489	---	±2.5	Pass
			40 °C	12	0.00638	---	±2.5	Pass
			50 °C	-15	-0.00798	---	±2.5	Pass
TM 3	M	VN	-30 °C	-13	-0.00691	---	±2.5	Pass
			-20 °C	20	0.01064	---	±2.5	Pass
			-10 °C	16	0.00851	---	±2.5	Pass
			0 °C	17	0.00904	---	±2.5	Pass
			10 °C	-21	-0.01117	---	±2.5	Pass
			20 °C	18	0.00957	---	±2.5	Pass
			30 °C	14	0.00745	---	±2.5	Pass
			40 °C	-7	-0.00372	---	±2.5	Pass
			50 °C	12	0.00638	---	±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	11	0.00585	---	±2.5	Pass
			VN	13	0.00691	---	±2.5	Pass
			VH	-21	-0.01117	---	±2.5	Pass
TM 2	M	20 °C	VL	25	0.01330	---	±2.5	Pass
			VN	-6	-0.00319	---	±2.5	Pass
			VH	-16	-0.00851	---	±2.5	Pass
TM 3	M	20 °C	VL	-10	-0.00532	---	±2.5	Pass
			VN	16	0.00851	---	±2.5	Pass
			VH	-11	-0.00585	---	±2.5	Pass

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