



# 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	
$T_{nom} / V_{nom}$		Measured	Limit	Measured	Limit	Measured	Limit
TM1		29.05	33	29.08	33	29.07	33
TM2		25.17	33	25.15	33	25.11	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		21.94	33	21.73	33	21.52	33
TM4	Case1	21.93	33	21.75	33	21.54	33
	Case2	21.72	33	21.62	33	21.2	33
	Case3	21.06	33	21.22	33	20.72	33
	Case4	21.17	33	21.27	33	20.76	33
TM5	Case1	21.27	33	21.19	33	21.05	33
	Case2	19.98	33	19.74	33	19.49	33
	Case3	20.58	33	20.43	33	20.2	33
	Case4	19.97	33	19.62	33	19.42	33
	Case5	21.46	33	21.16	33	20.92	33



### 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	32.62	Horn Ant.	29.16	4.5	1	32.66	33	Pass
TM1	1880.0	32.65	Horn Ant.	29.13	4.5	1	32.63	33	Pass
TM1	1909.8	32.64	Horn Ant.	28.81	4.8	1	32.61	33	Pass
TM2	1850.2	28.74	Horn Ant.	25.27	4.5	1	28.77	33	Pass
TM2	1880.0	28.72	Horn Ant.	25.24	4.5	1	28.74	33	Pass
TM2	1909.8	28.68	Horn Ant.	24.85	4.8	1	28.65	33	Pass
TM3	1852.4	25.51	Horn Ant.	22.03	4.5	1	25.53	33	Pass
TM3	1880.0	25.30	Horn Ant.	21.86	4.5	1	25.36	33	Pass
TM3	1907.6	25.09	Horn Ant.	21.27	4.8	1	25.07	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

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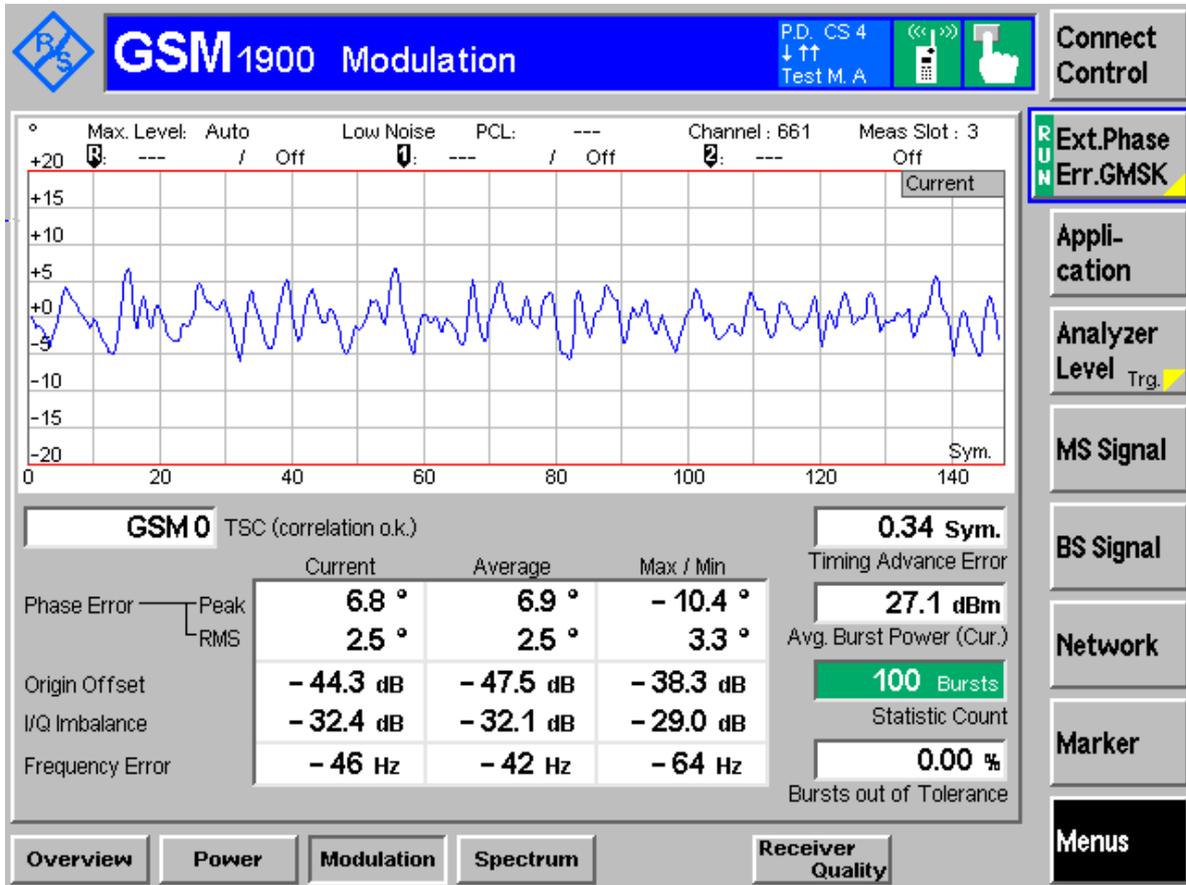
## **Appendix B**

# Modulation Characteristics

According to FCC Part 2.1047 & Part24 Subpart E

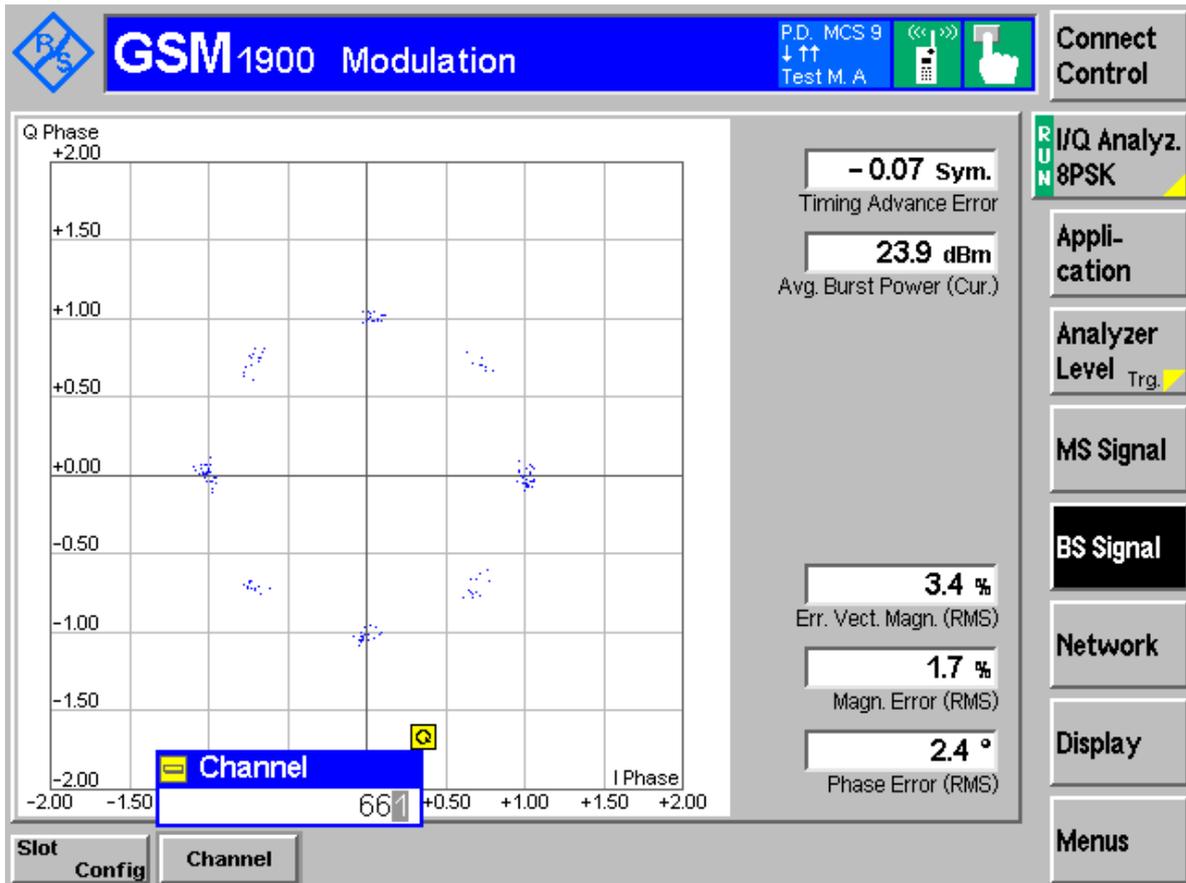


## TM1:GPRS/GSM Channel 661



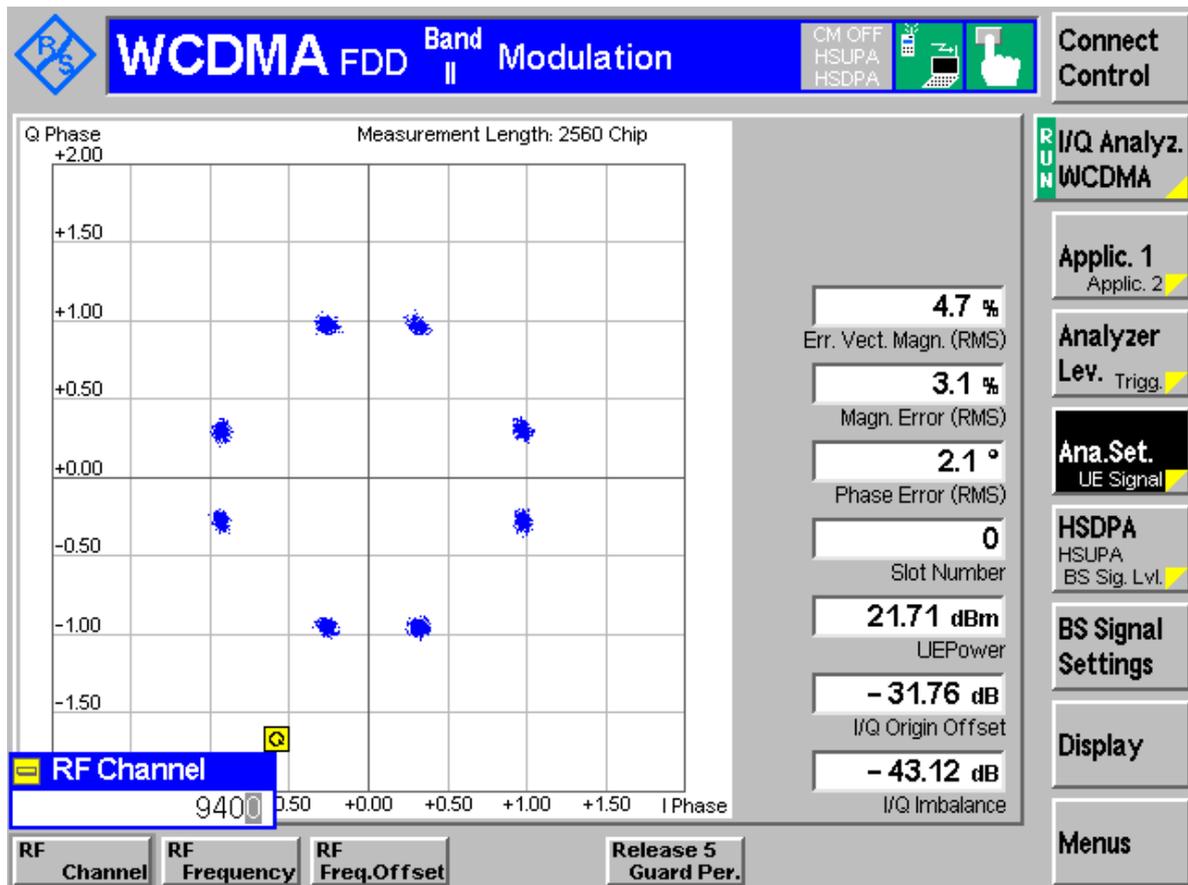


# TM2:EDGE Channel 661





## TM3: WCDMA Channel 9400



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## Appendix C

# Occupied Bandwidth

According to FCC Part 2.1049 & Part 24 Subpart E

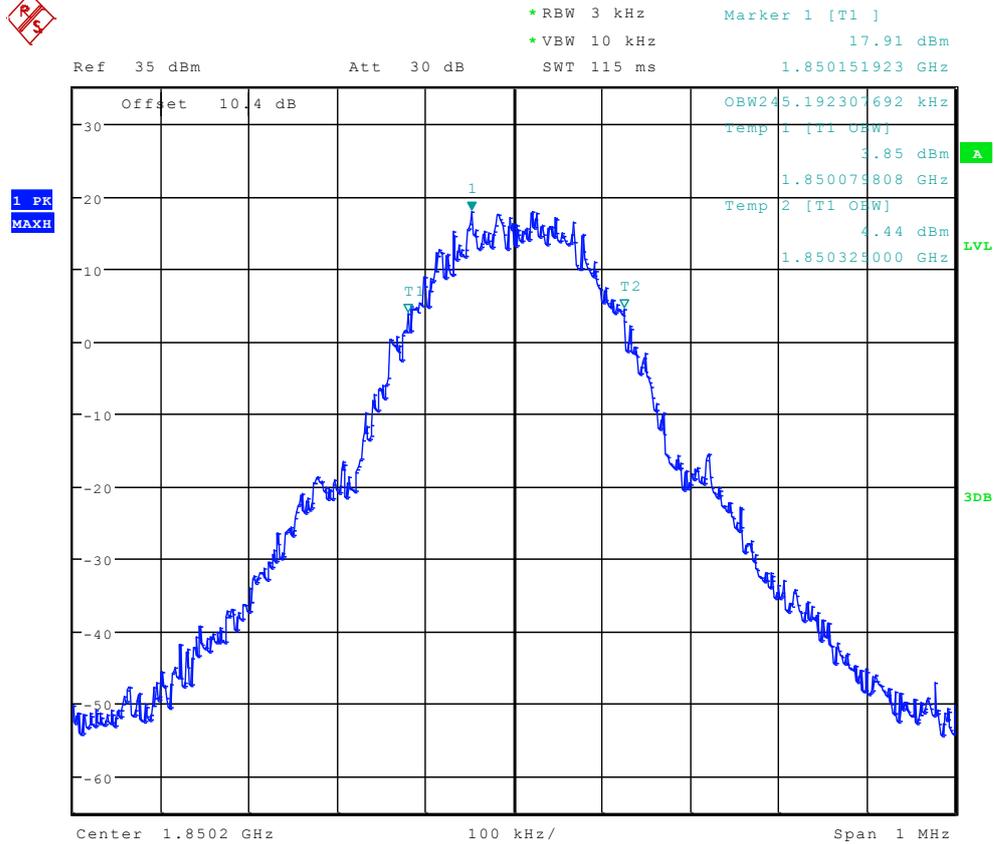


Table 1 Measurement Results

Test Mode	RF Channel	Occupied Bandwidth [kHz]	Verdict
TM1	512	245.19	Pass
	661	250.00	Pass
	810	245.19	Pass
TM2	512	254.81	Pass
	661	256.41	Pass
	810	251.60	Pass
Test Mode	RF Channel	Occupied Bandwidth [MHz]	Verdict
TM3	9262	4.17	Pass
	9400	4.17	Pass
	9538	4.17	Pass



# TM1:GPRS/GSM Channel 512



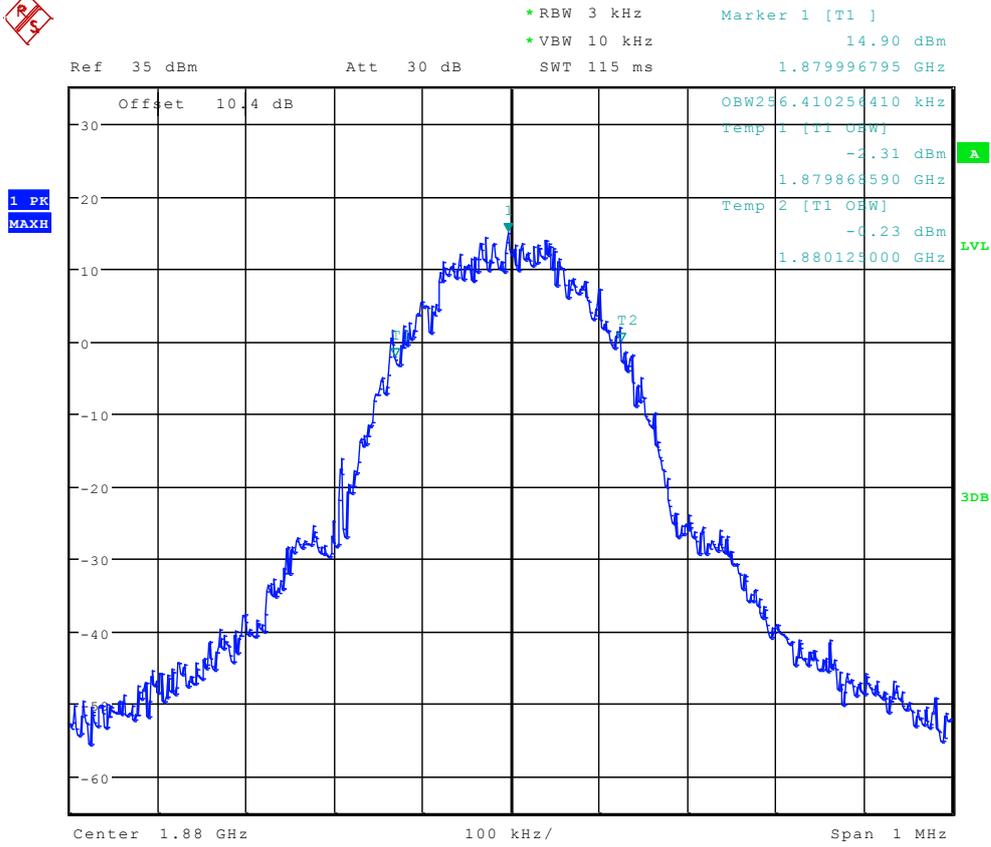








# TM2:EDGE Channel 661

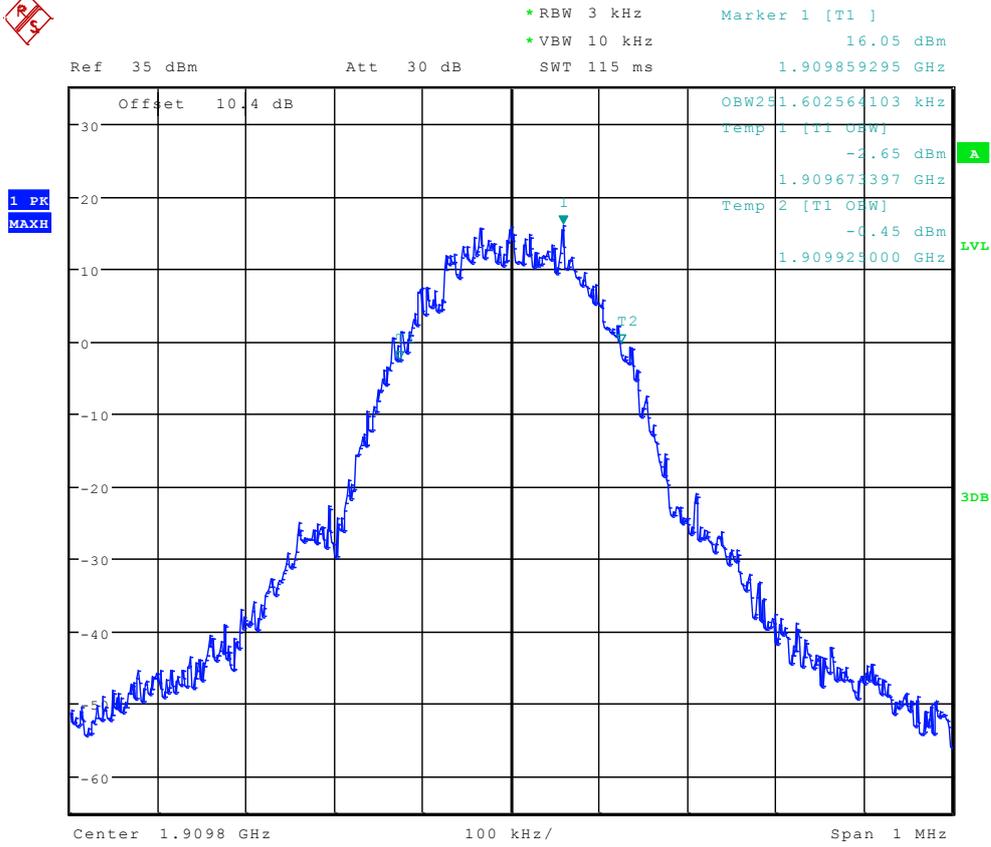








# TM2:EDGE Channel 810







# Appendix D

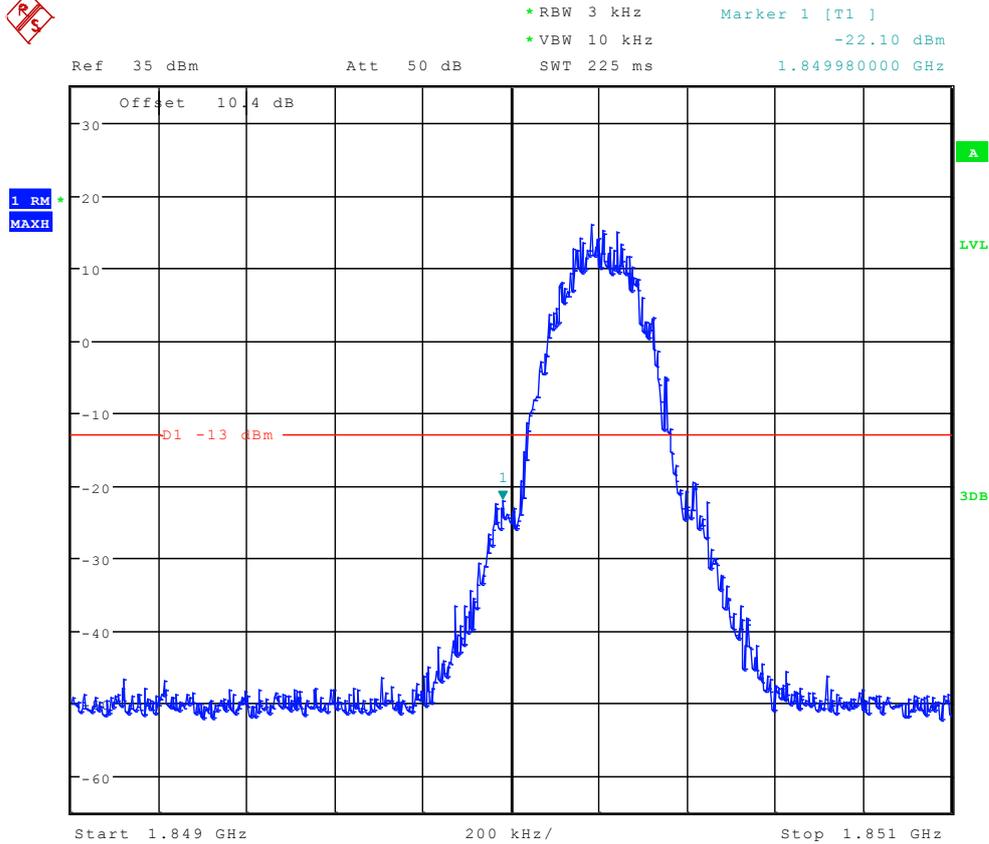
## Band Edges Compliance According to FCC Part 2.1051 & 24.238



# TM1:GPRS/GSM

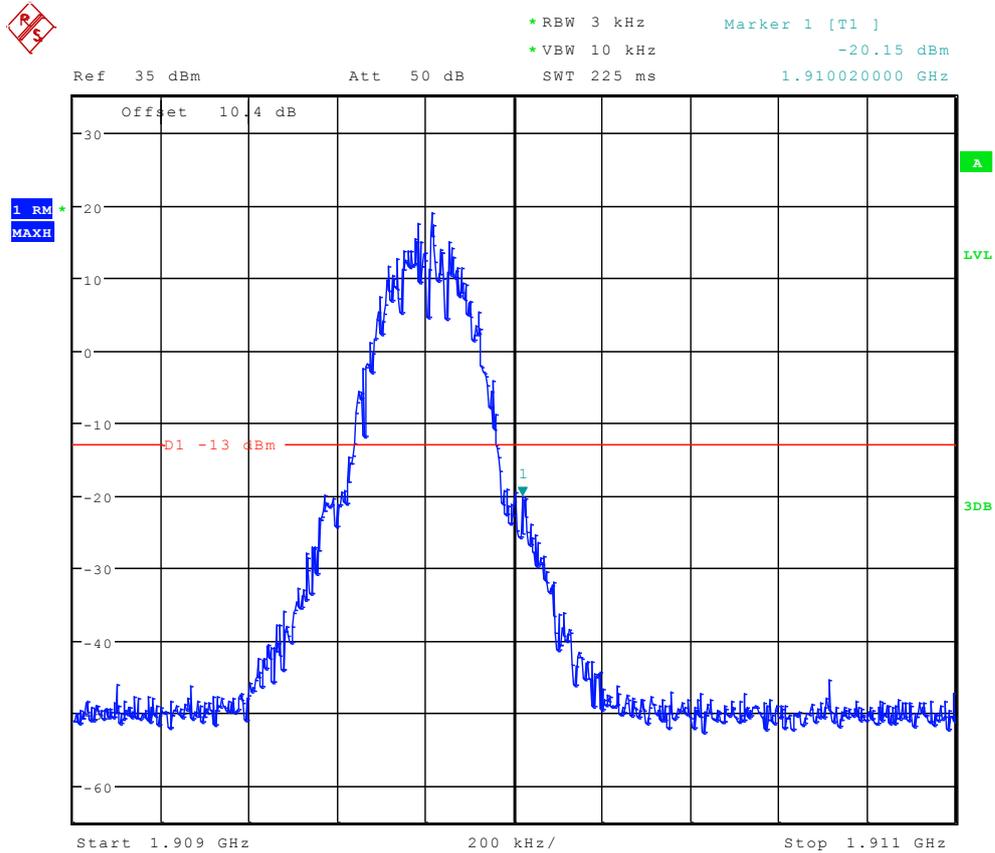
## Left Edge

### Channel 512





## Right Edge Channel 810

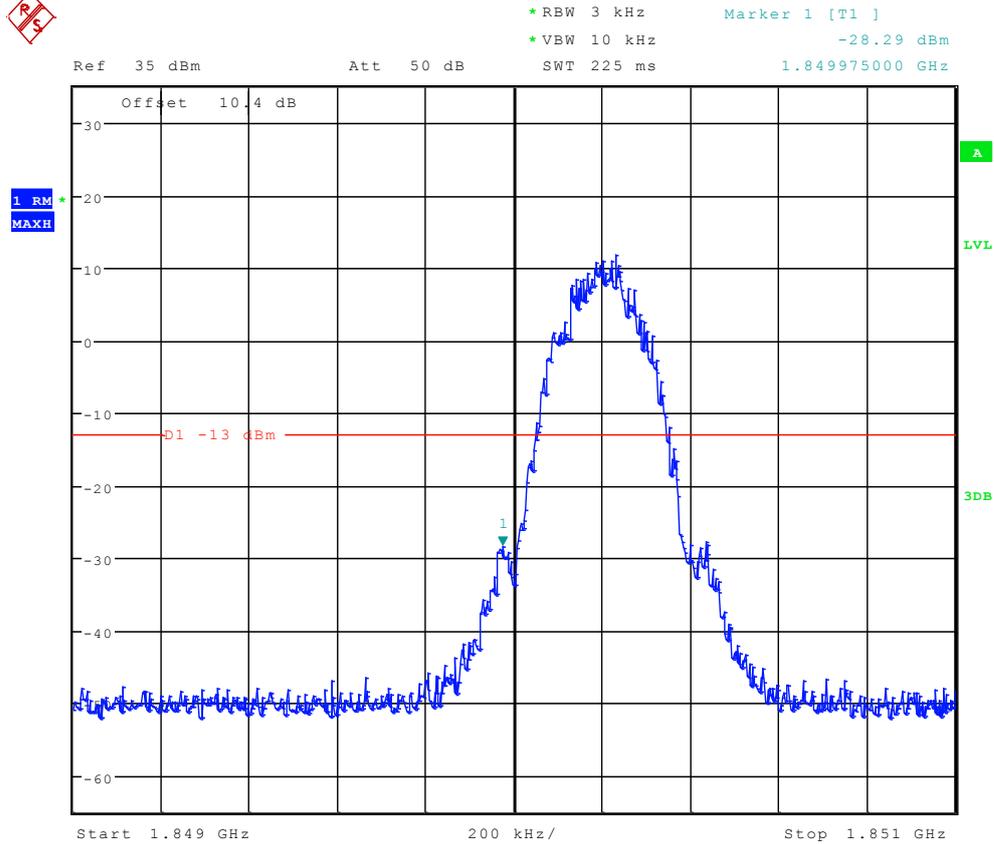




# TM2:EDGE

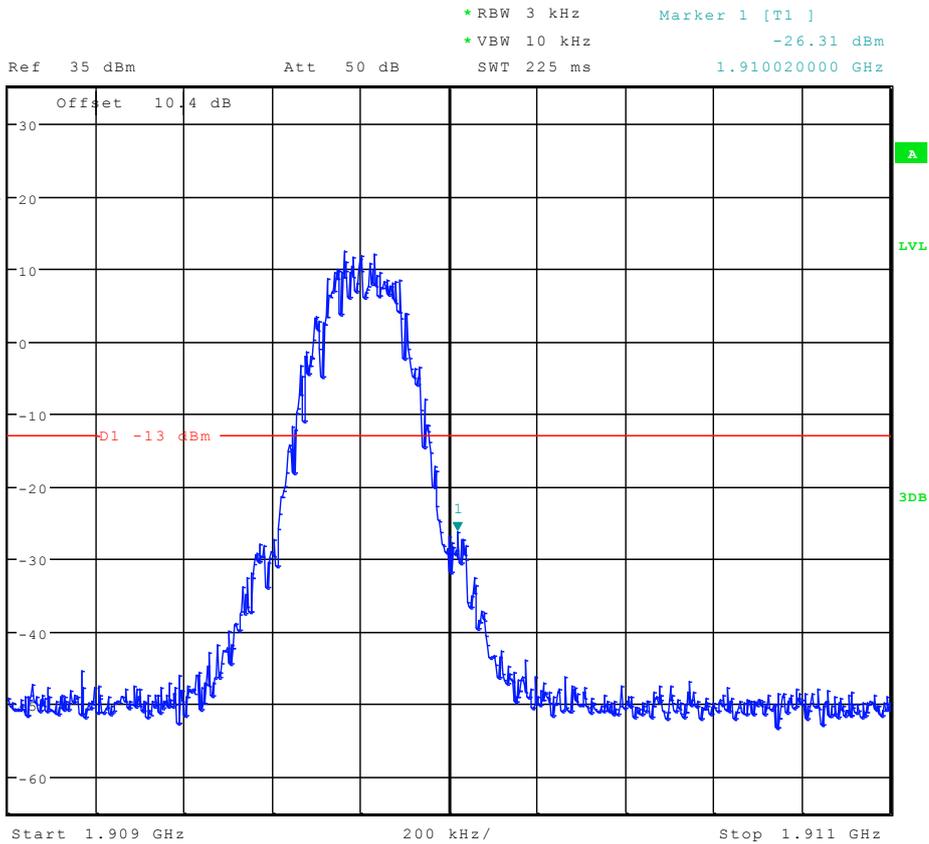
## Left Edge

### Channel 512





## Right Edge Channel 810

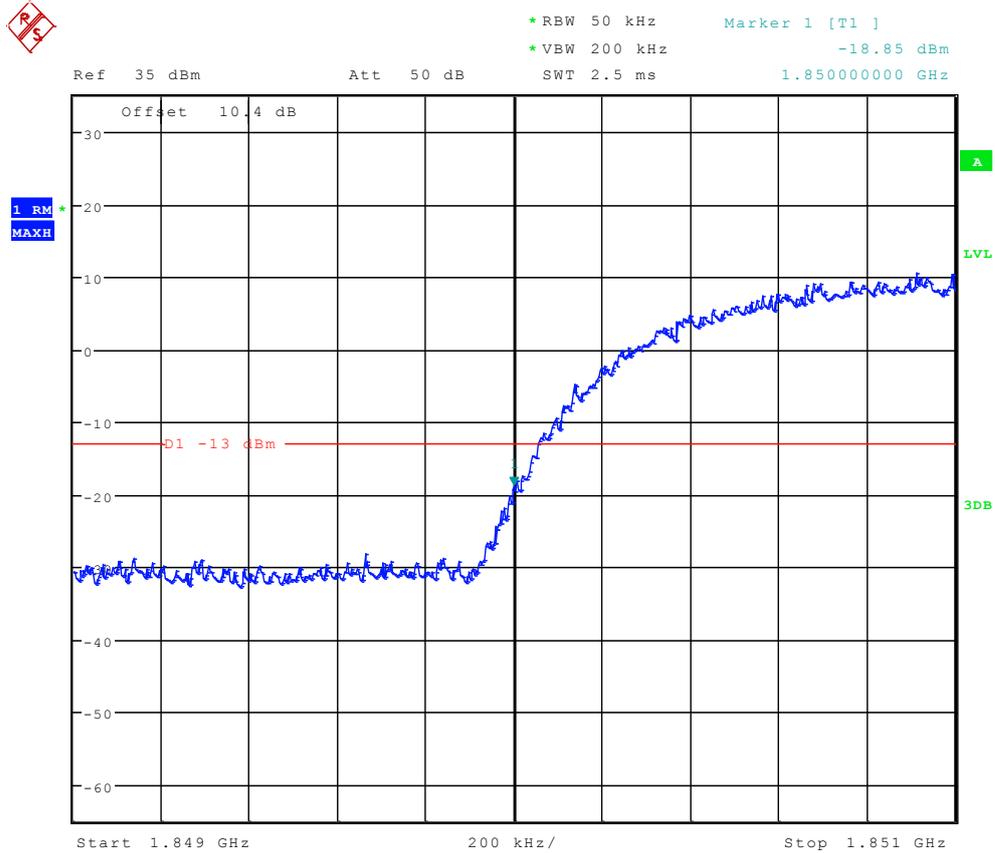




# TM3: WCDMA

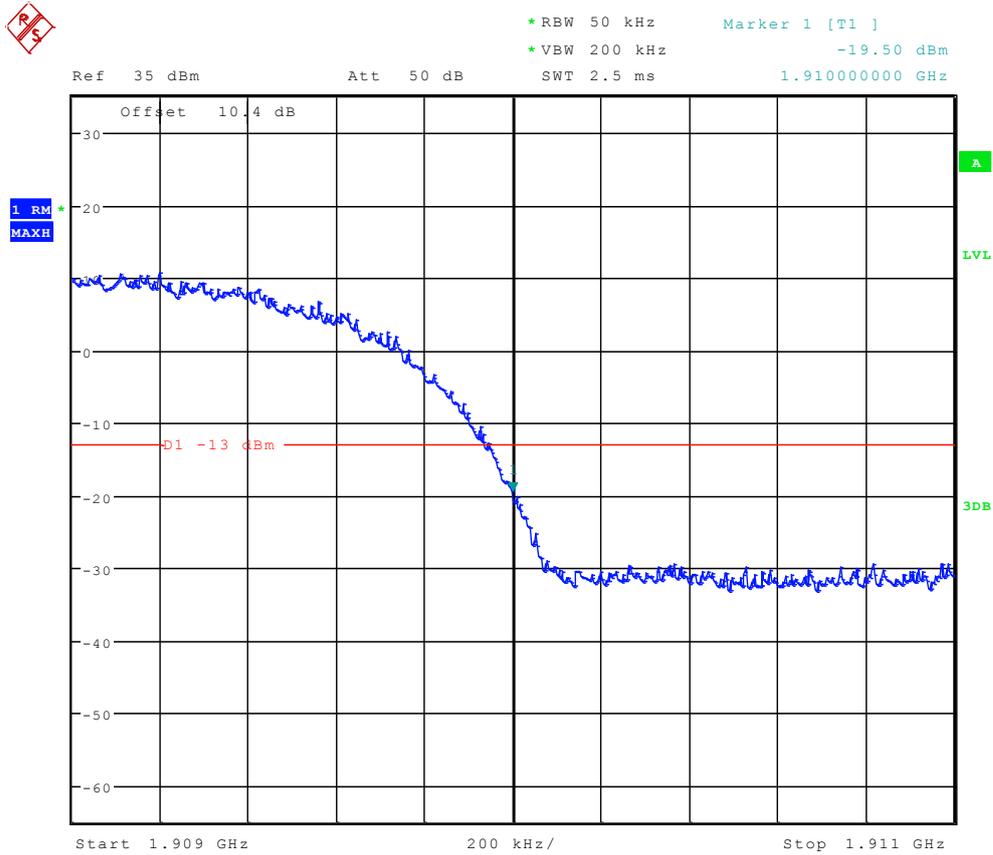
## Left Edge

### Channel 9262





## Right Edge Channel 9538



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



## Appendix E

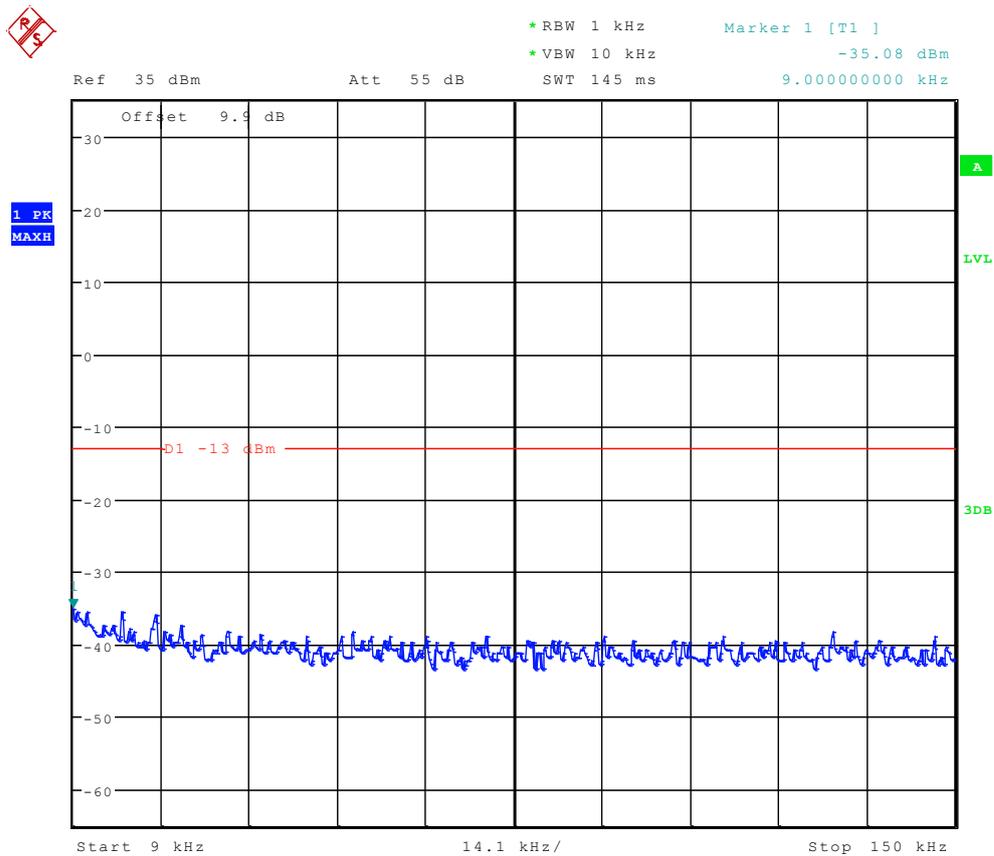
# Spurious Emission at Antenna Terminal

According to FCC Part 2.1051 & 24.238



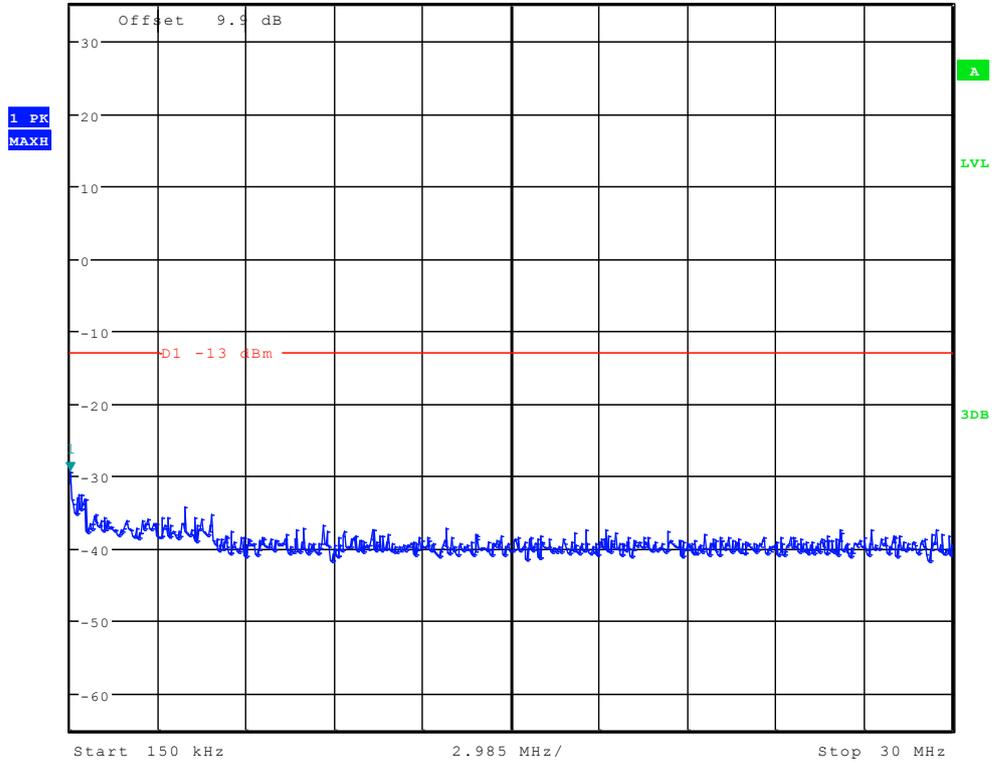
# TM1:GPRS/GSM

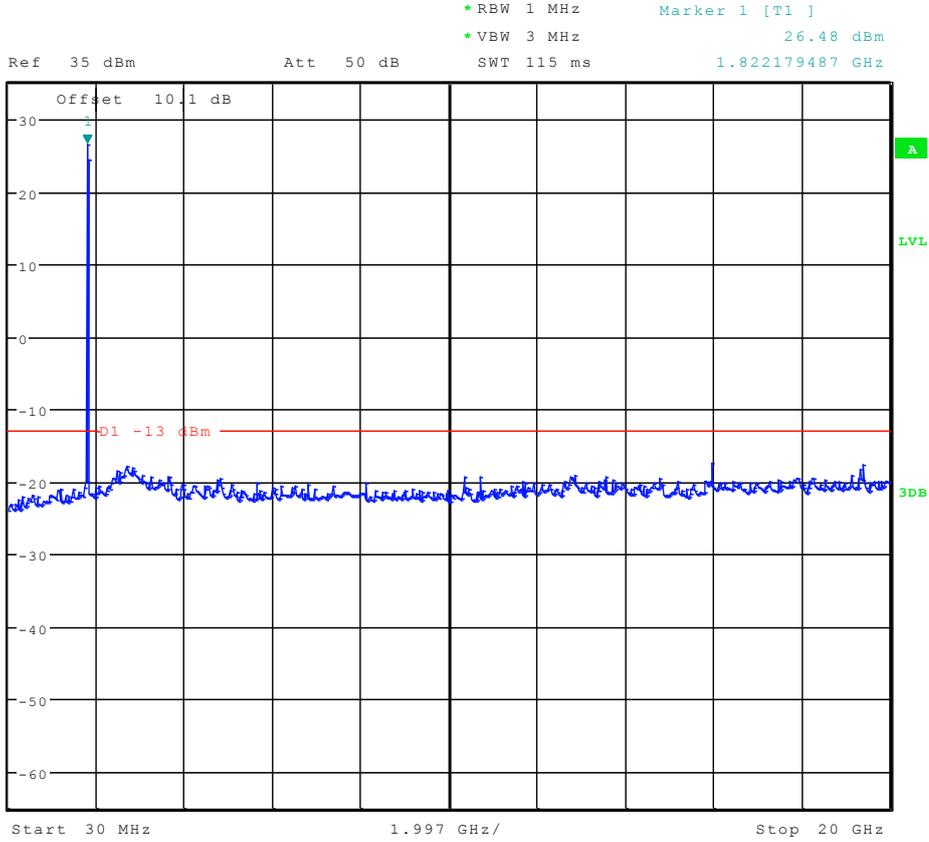
## Channel 512





Ref 35 dBm Att 55 dB SWT 300 ms 150.00000000 kHz  
\*RBW 10 kHz Marker 1 [T1 ]  
\*VBW 30 kHz -29.43 dBm

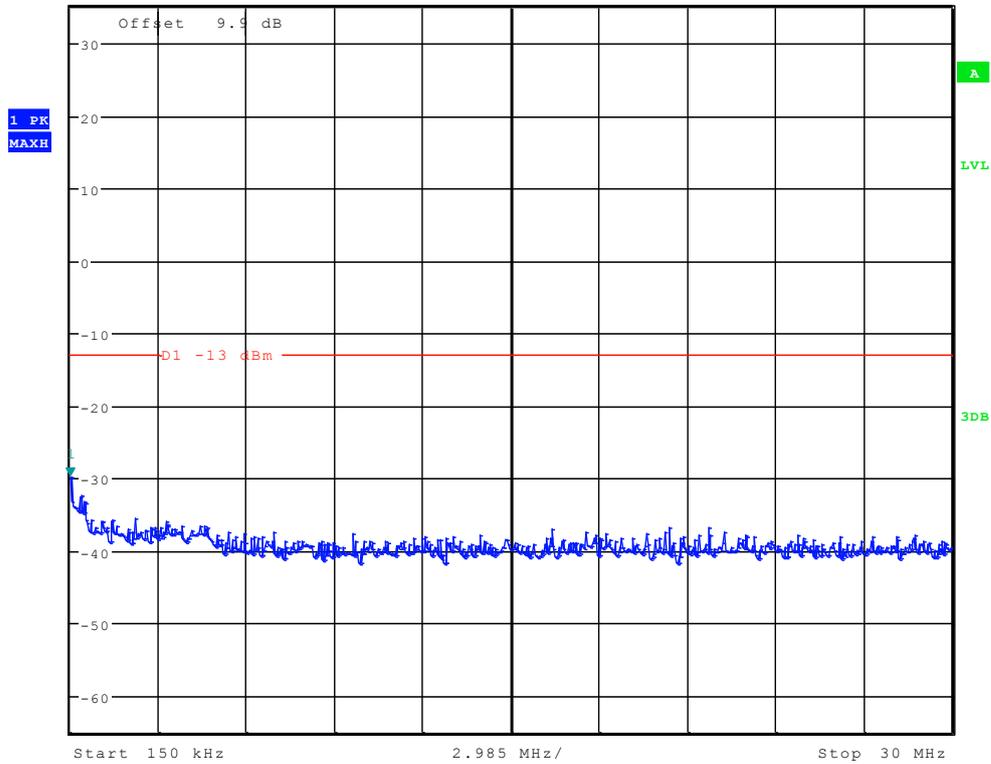






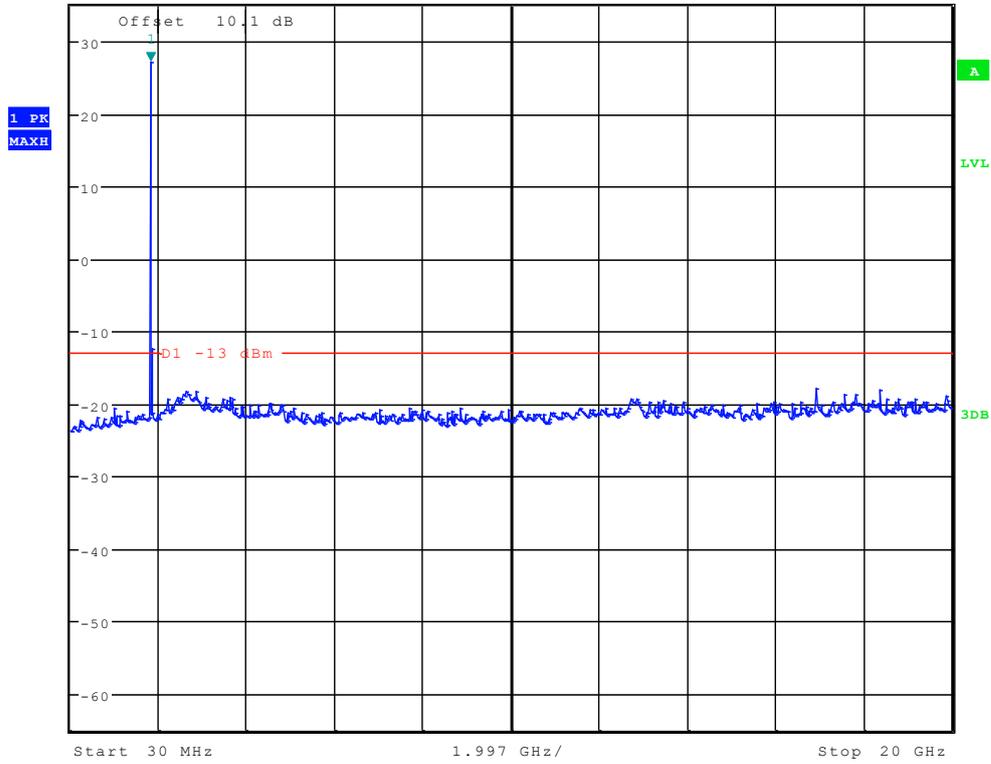


Ref 35 dBm Att 55 dB SWT 300 ms 150.00000000 kHz  
\*RBW 10 kHz Marker 1 [T1 ]  
\*VBW 30 kHz -29.76 dBm





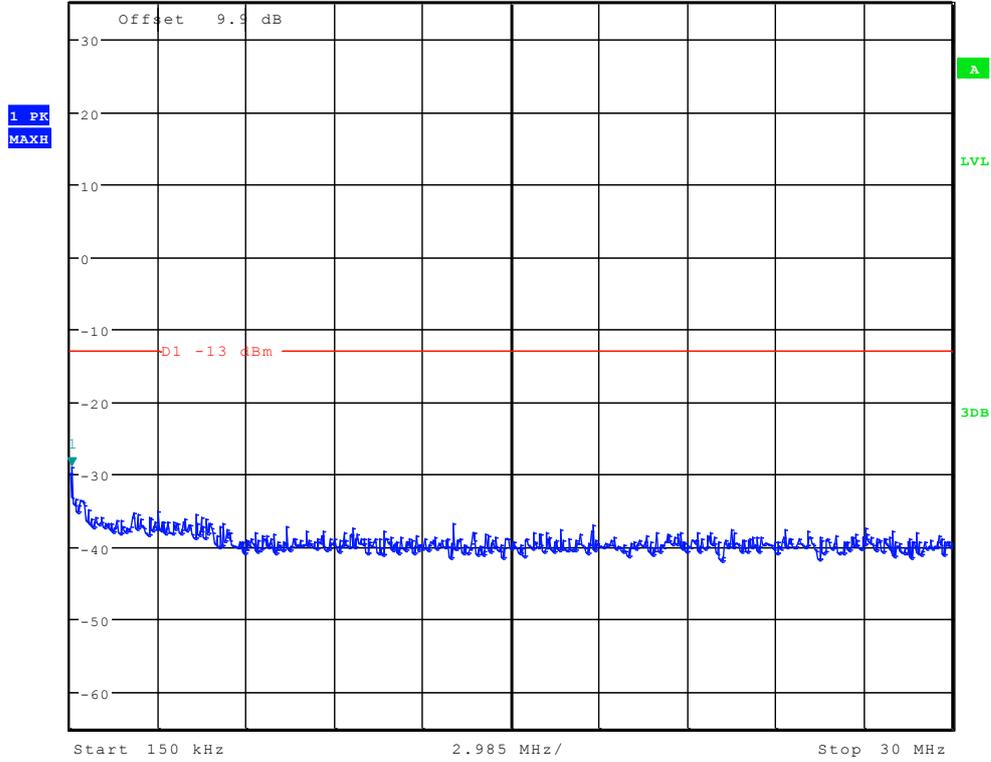
Ref 35 dBm Att 50 dB SWT 115 ms Marker 1 [T1 ]  
\*RBW 1 MHz 27.10 dBm  
\*VBW 3 MHz 1.854182692 GHz







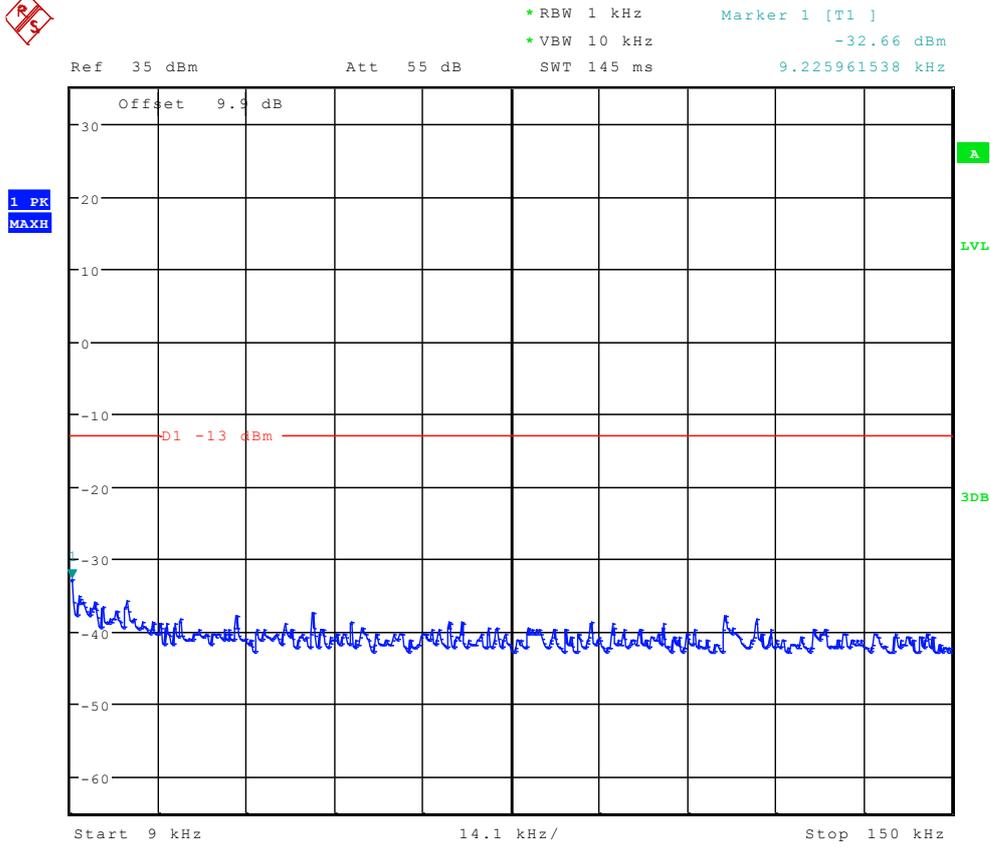
\*RBW 10 kHz      Marker 1 [T1 ]  
\*VBW 30 kHz      -29.06 dBm  
Ref 35 dBm      Att 55 dB      SWT 300 ms      197.836538462 kHz





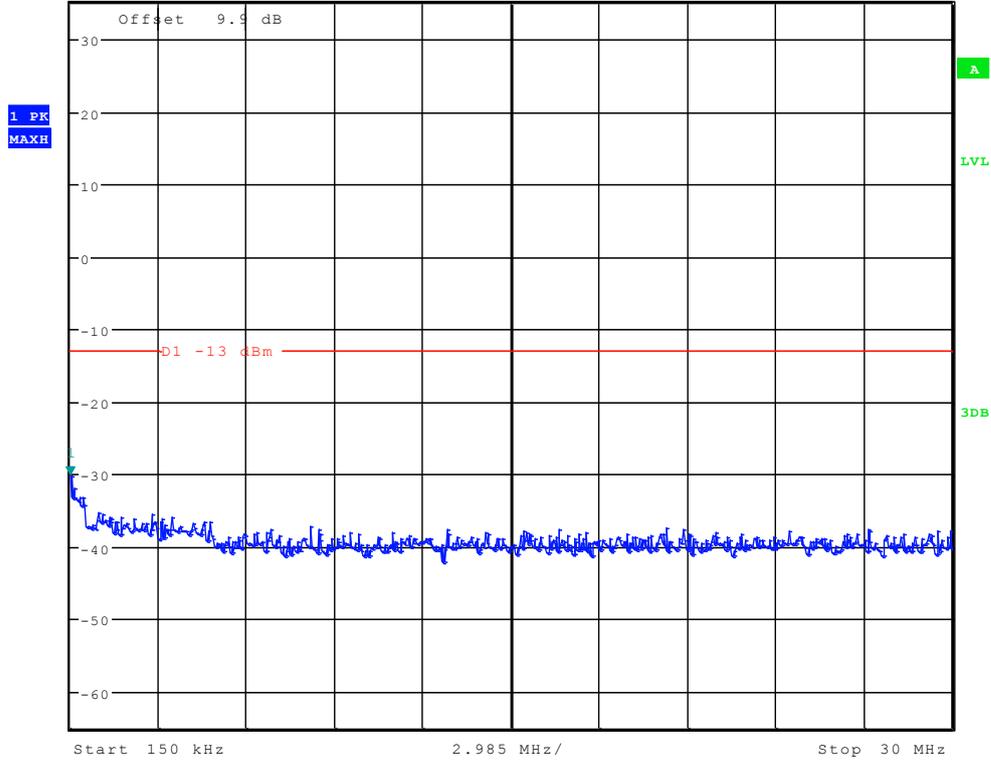


# TM2:EDGE Channel 512



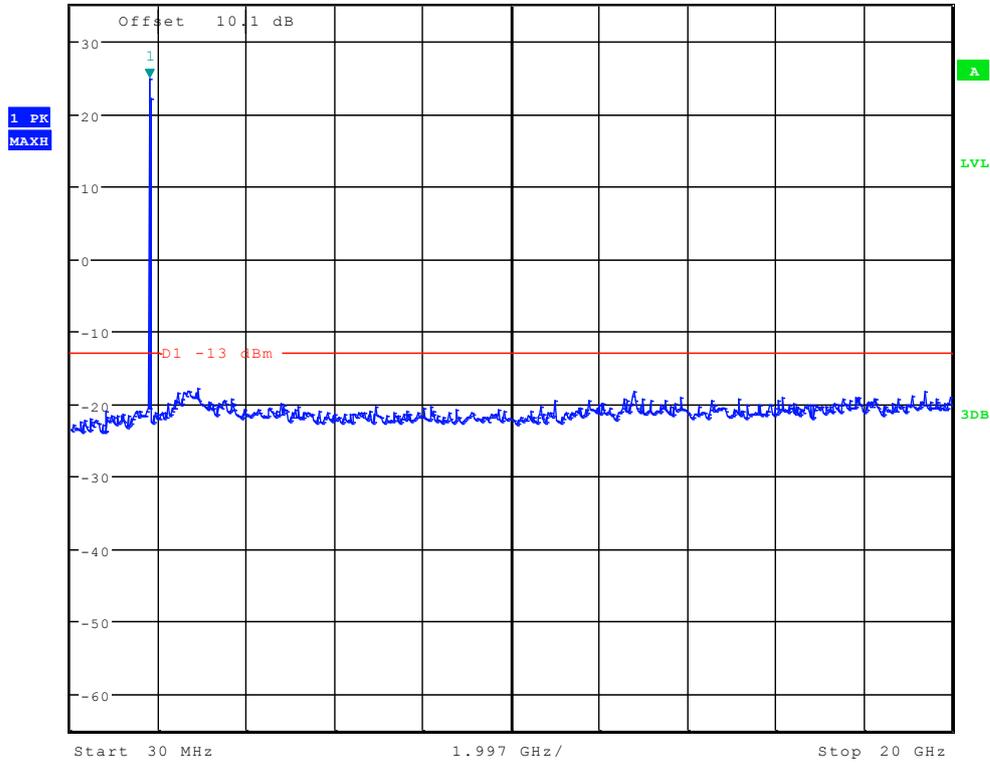


Ref 35 dBm Att 55 dB SWT 300 ms  
\*RBW 10 kHz Marker 1 [T1] -30.22 dBm  
\*VBW 30 kHz 150.00000000 kHz





\* RBW 1 MHz      Marker 1 [T1 ]  
\* VBW 3 MHz      24.86 dBm  
Ref 35 dBm      Att 50 dB      SWT 115 ms      1.822179487 GHz

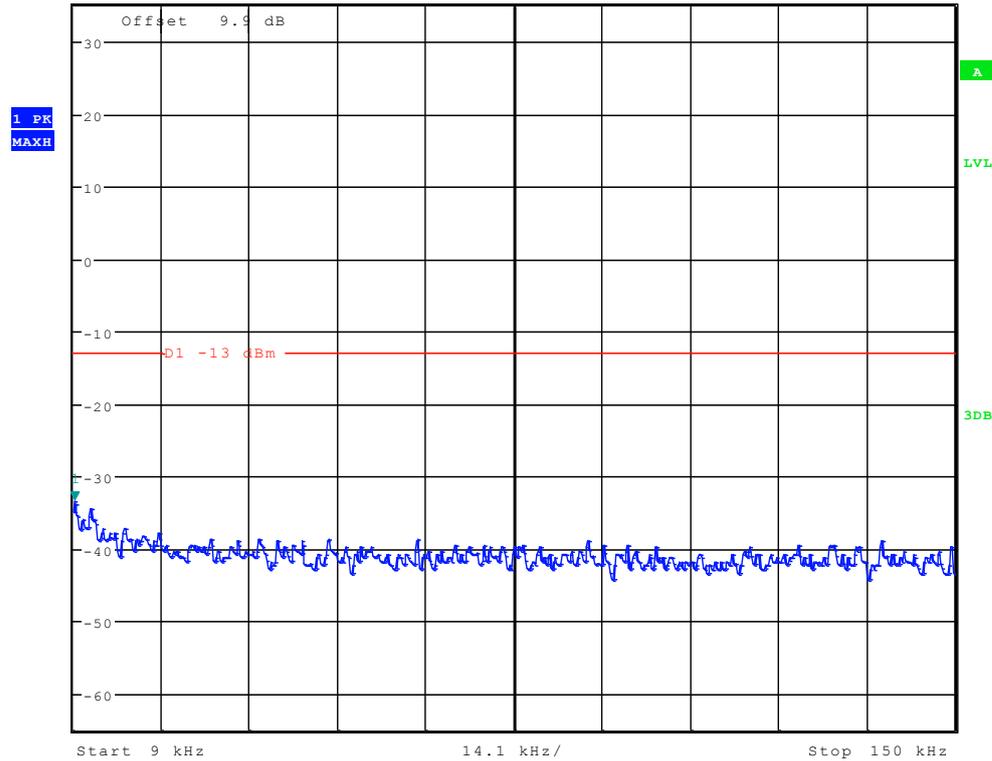




# Channel 661

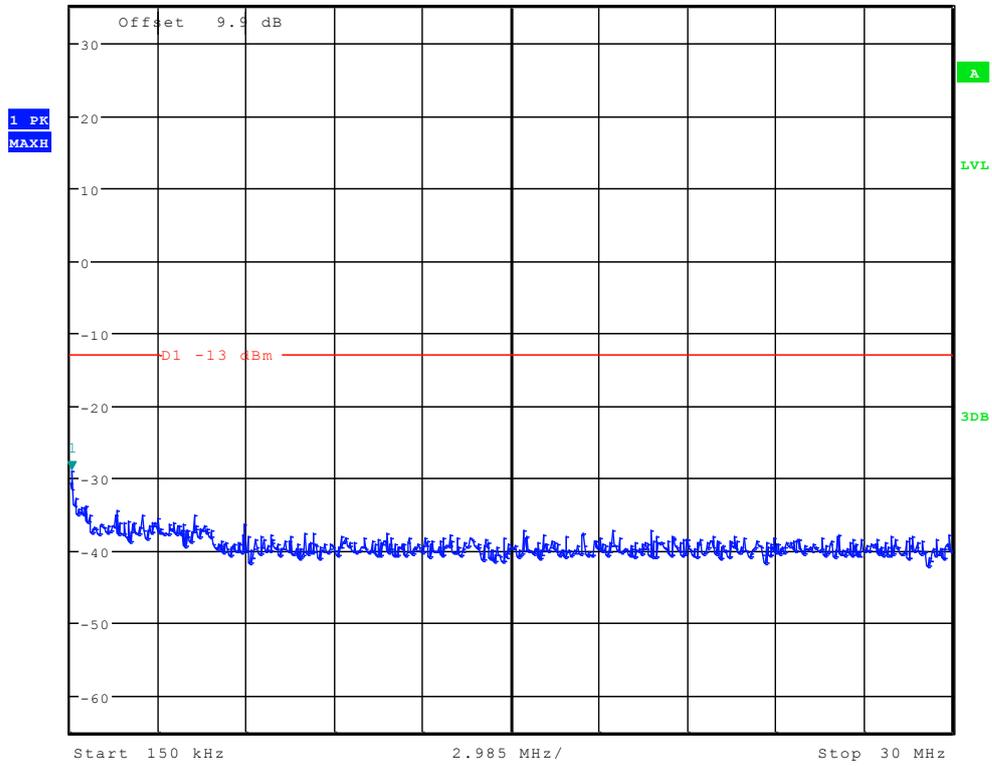


Ref 35 dBm      Att 55 dB      SWT 145 ms      Marker 1 [T1]      -33.48 dBm  
 \*RBW 1 kHz      \*VBW 10 kHz      9.225961538 kHz



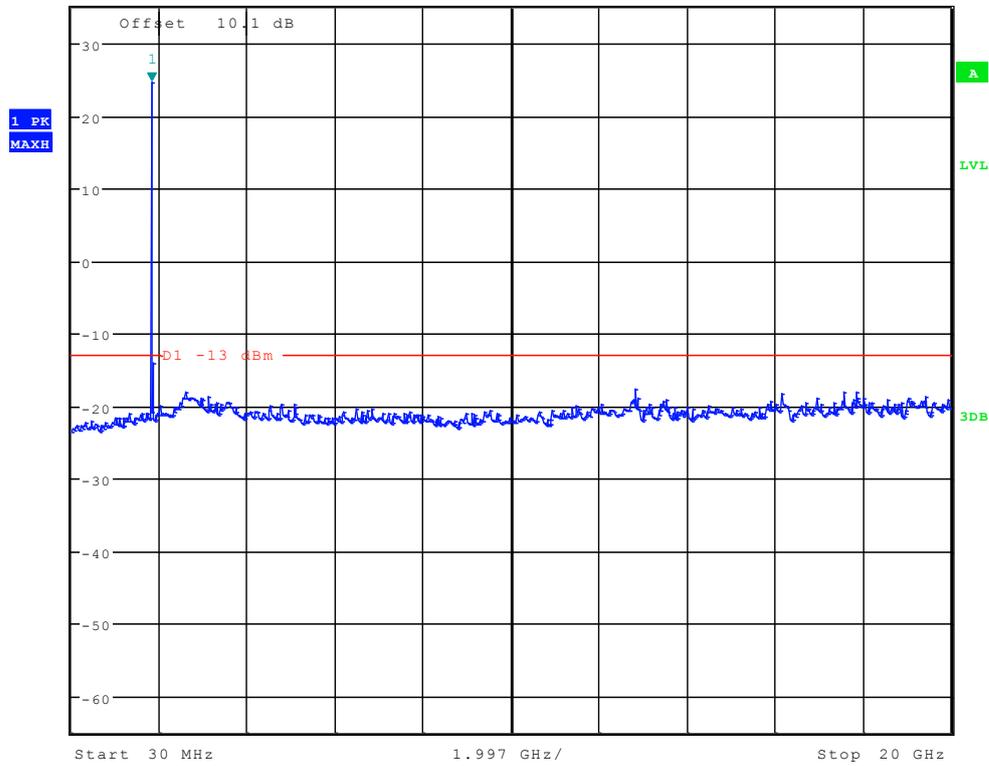


\*RBW 10 kHz      Marker 1 [T1 ]  
\*VBW 30 kHz      -28.90 dBm  
Ref 35 dBm      Att 55 dB      SWT 300 ms      197.836538462 kHz



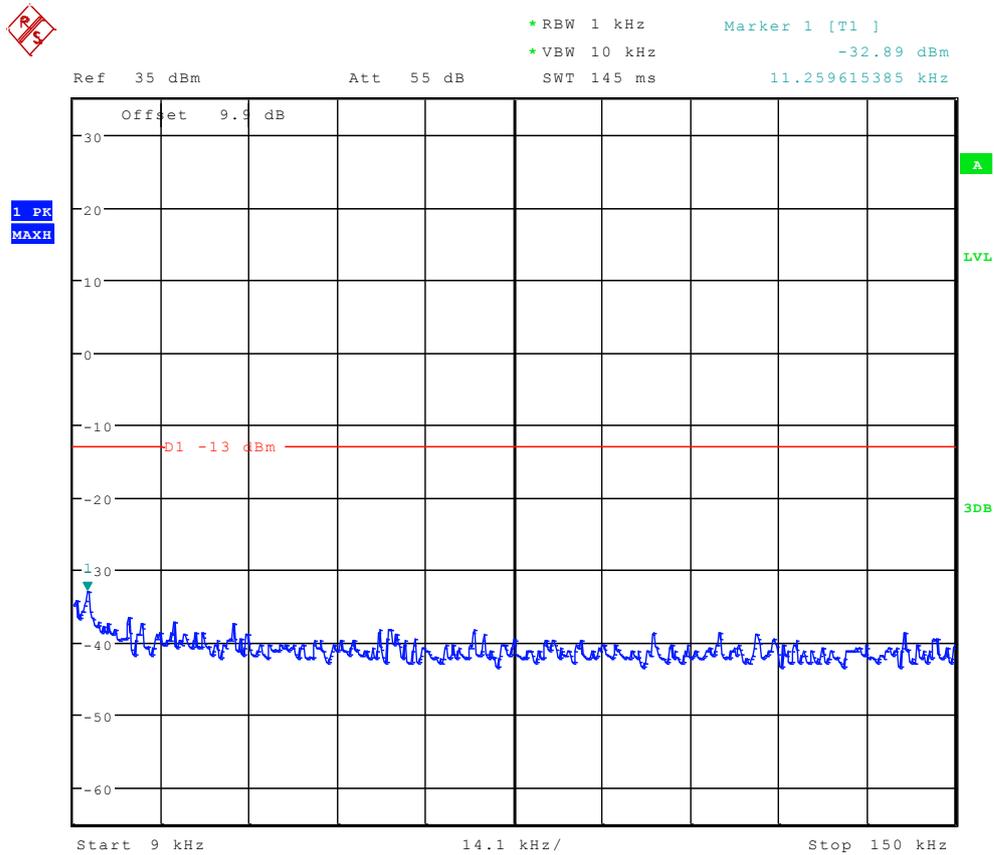


Ref 35 dBm      Att 50 dB      SWT 115 ms      Marker 1 [T1]      24.54 dBm  
\*RBW 1 MHz      \*VBW 3 MHz      1.854182692 GHz



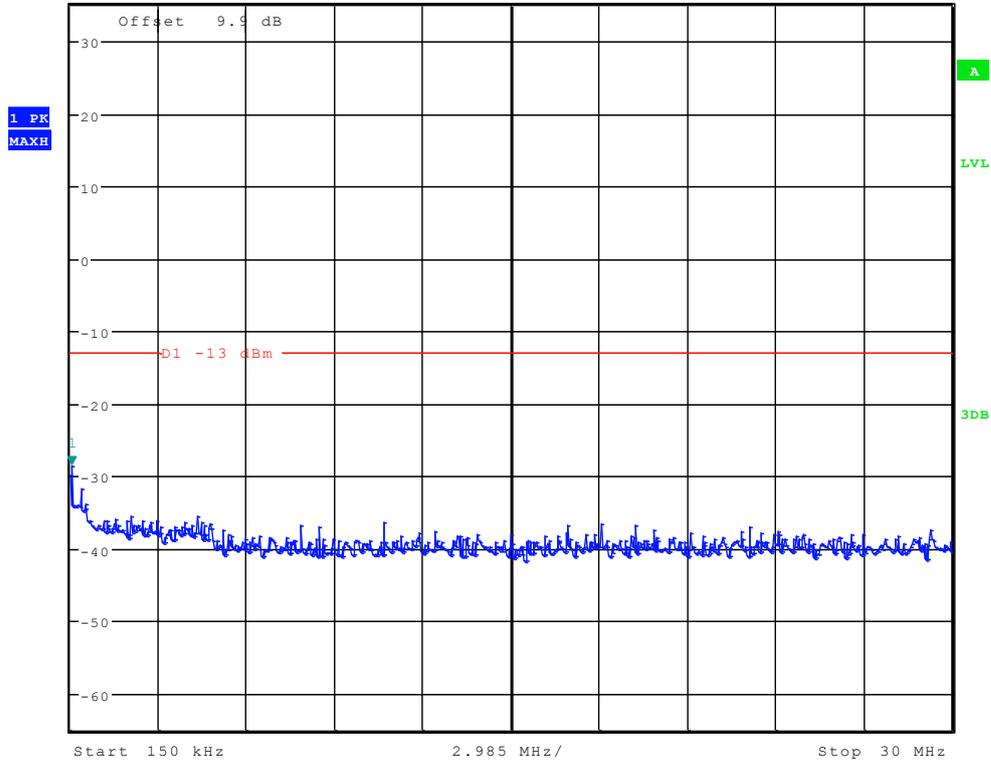


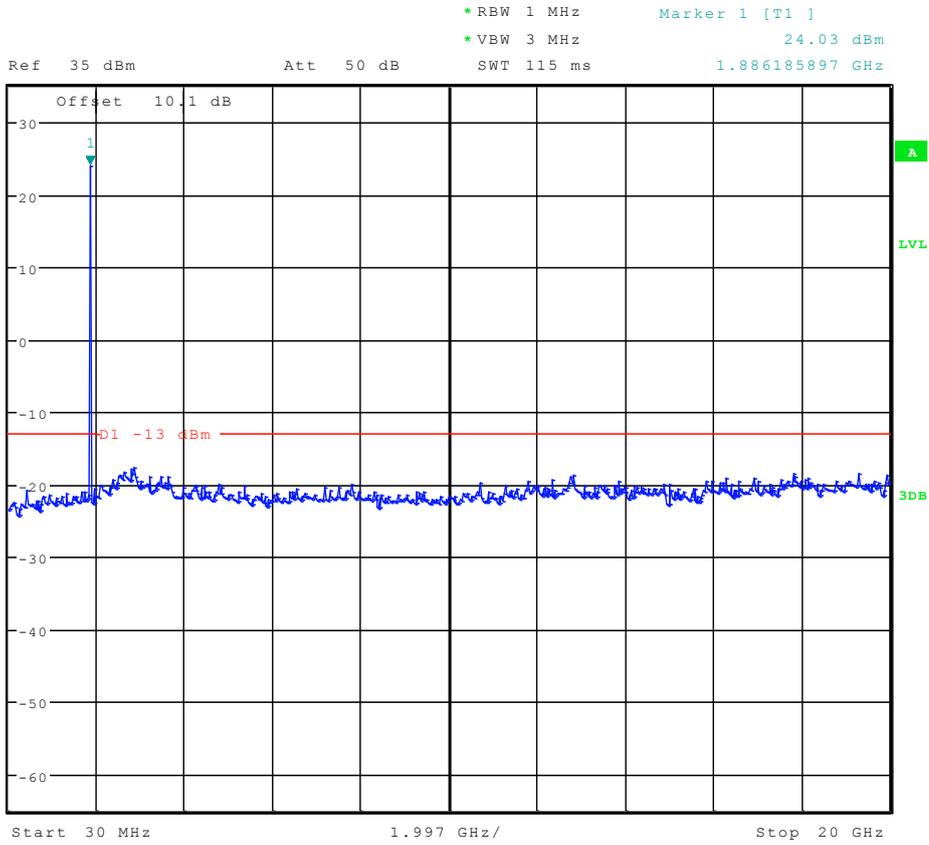
# Channel 810





Ref 35 dBm Att 55 dB SWT 300 ms  
\*RBW 10 kHz Marker 1 [T1] -28.51 dBm  
\*VBW 30 kHz 197.836538462 kHz

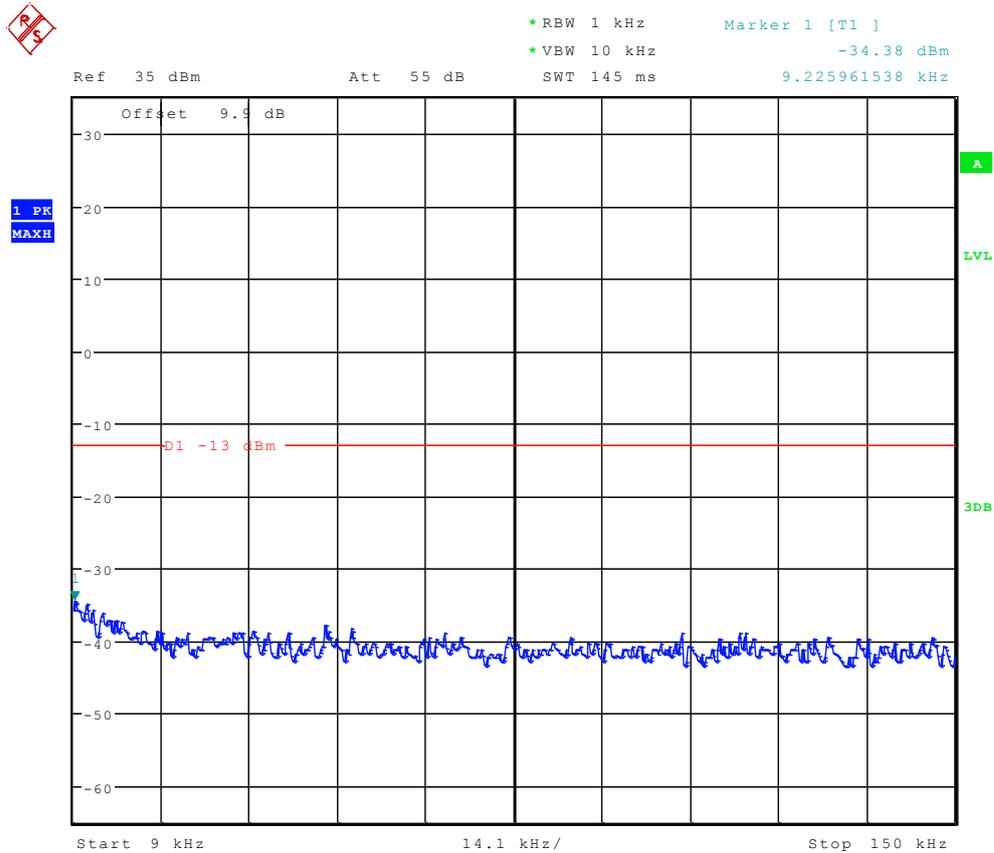






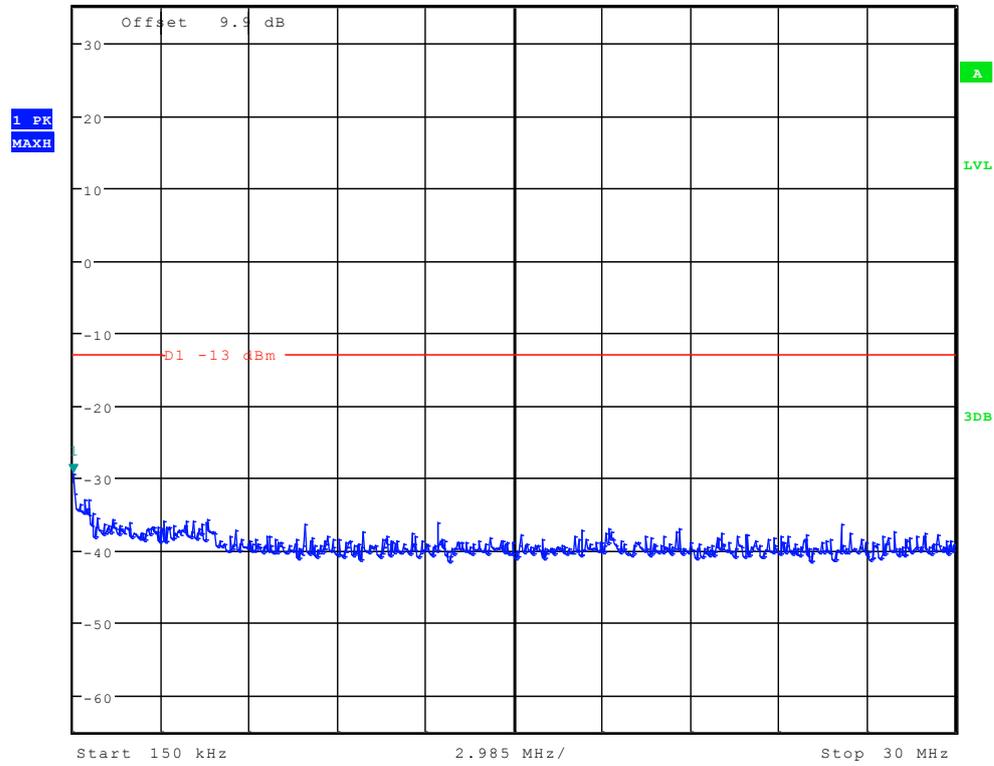
# TM3: WCDMA

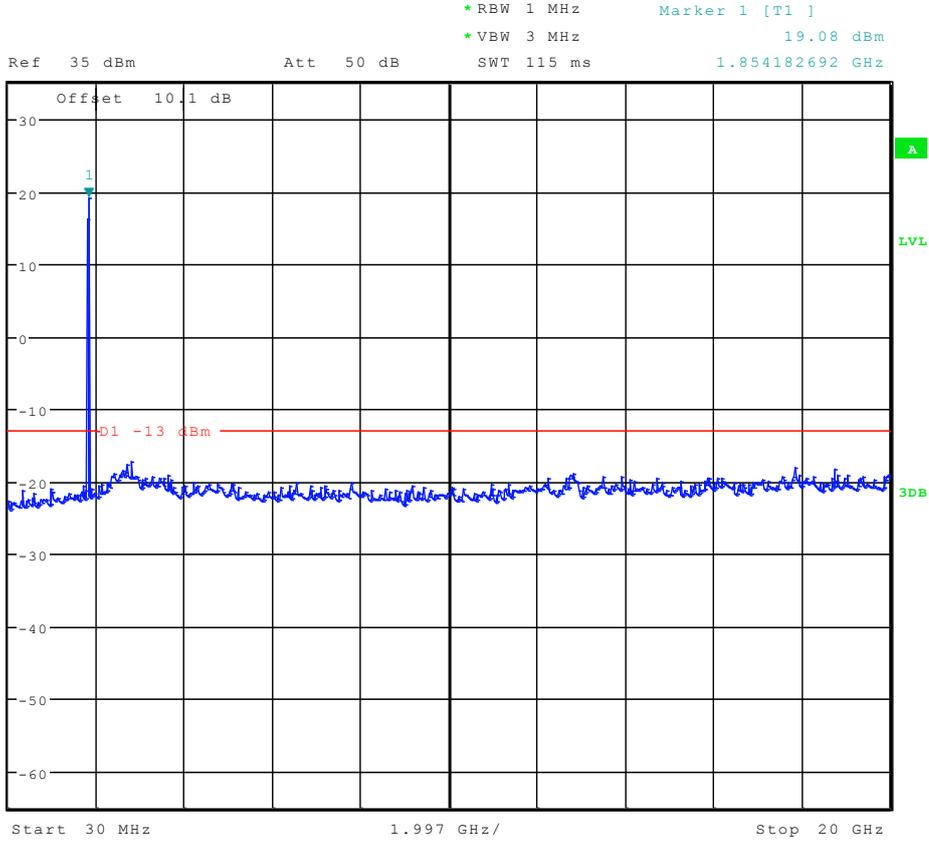
## Channel 9262





Ref 35 dBm Att 55 dB SWT 300 ms 150.00000000 kHz  
\*RBW 10 kHz Marker 1 [T1 ]  
\*VBW 30 kHz -29.32 dBm



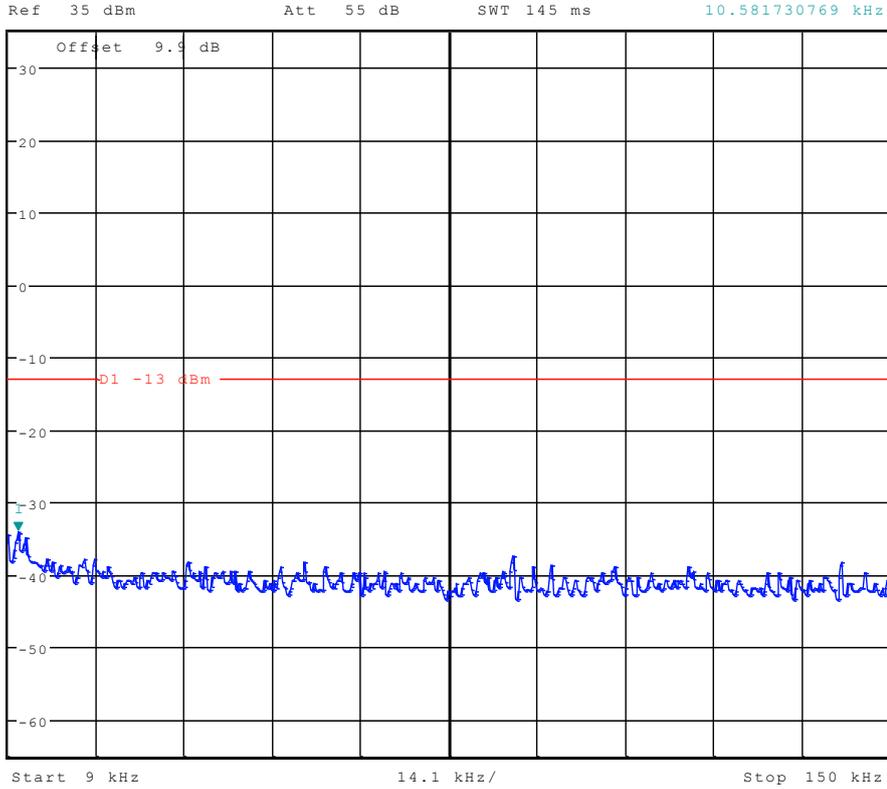




# Channel 9400

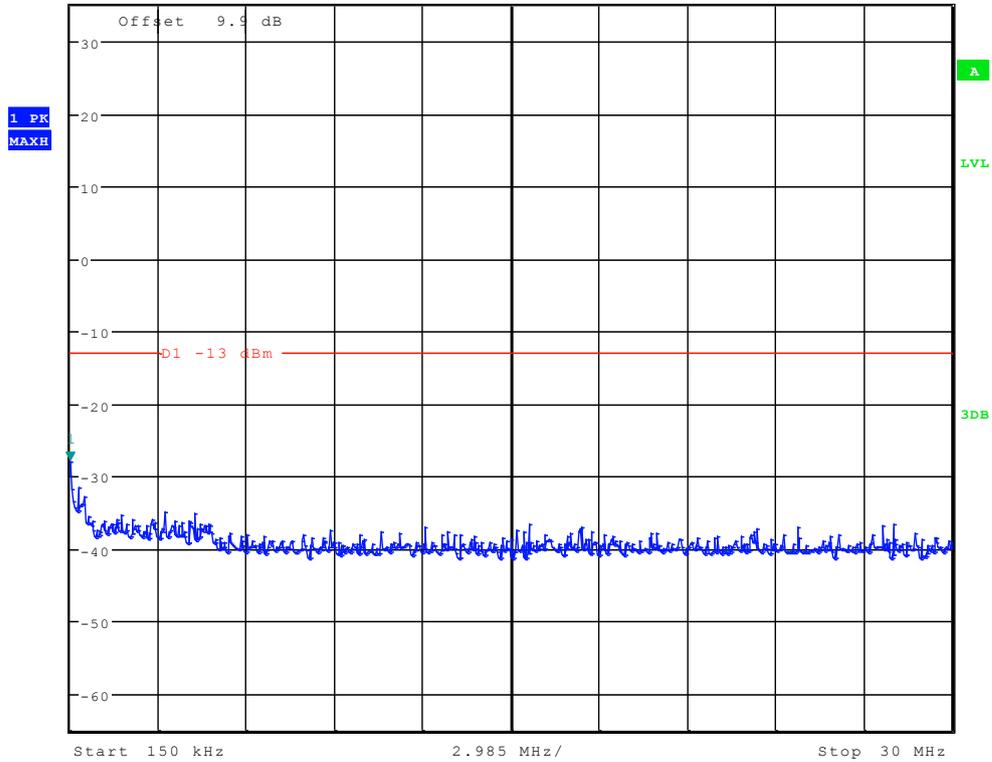


\*RBW 1 kHz      Marker 1 [T1 ]  
\*VBW 10 kHz      -33.92 dBm  
SWT 145 ms      10.581730769 kHz



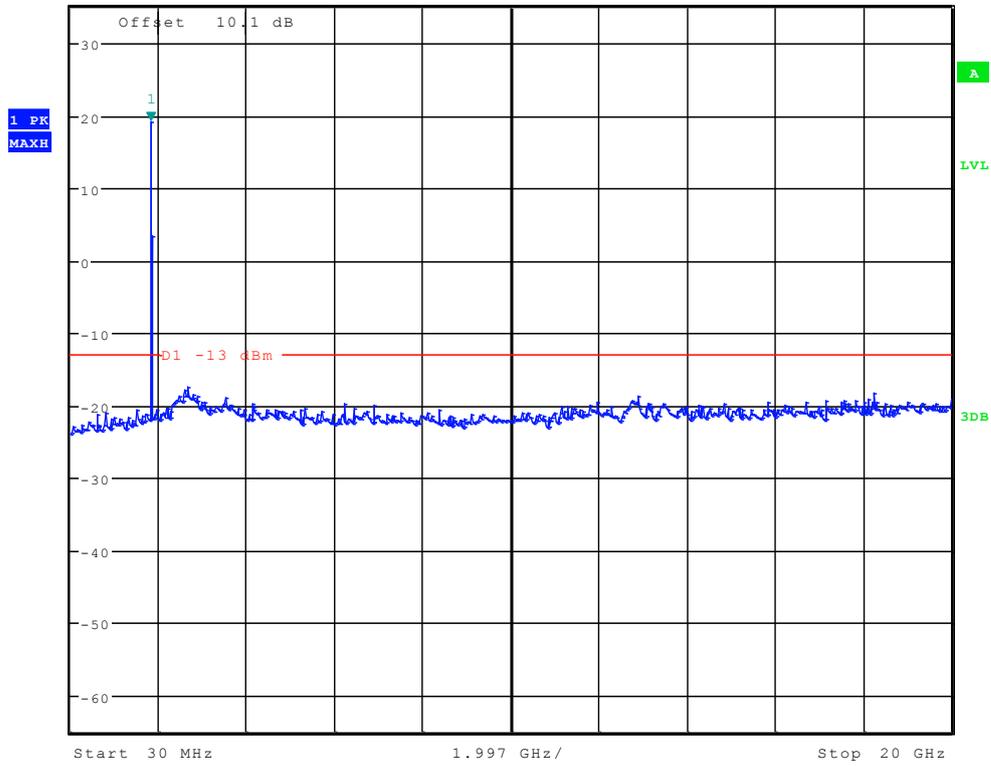


Ref 35 dBm Att 55 dB SWT 300 ms  
\*RBW 10 kHz \*VBW 30 kHz  
Marker 1 [T1] -27.94 dBm  
150.00000000 kHz





\* RBW 1 MHz      Marker 1 [T1 ]  
\* VBW 3 MHz      19.17 dBm  
Ref 35 dBm      Att 50 dB      SWT 115 ms      1.854182692 GHz

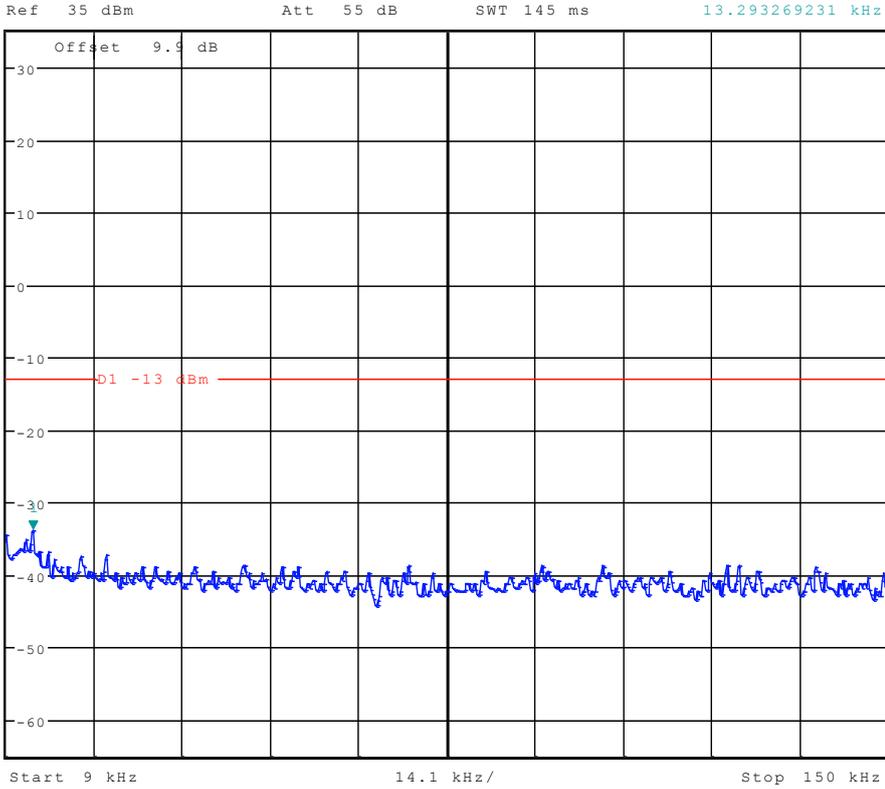




# Channel 9538

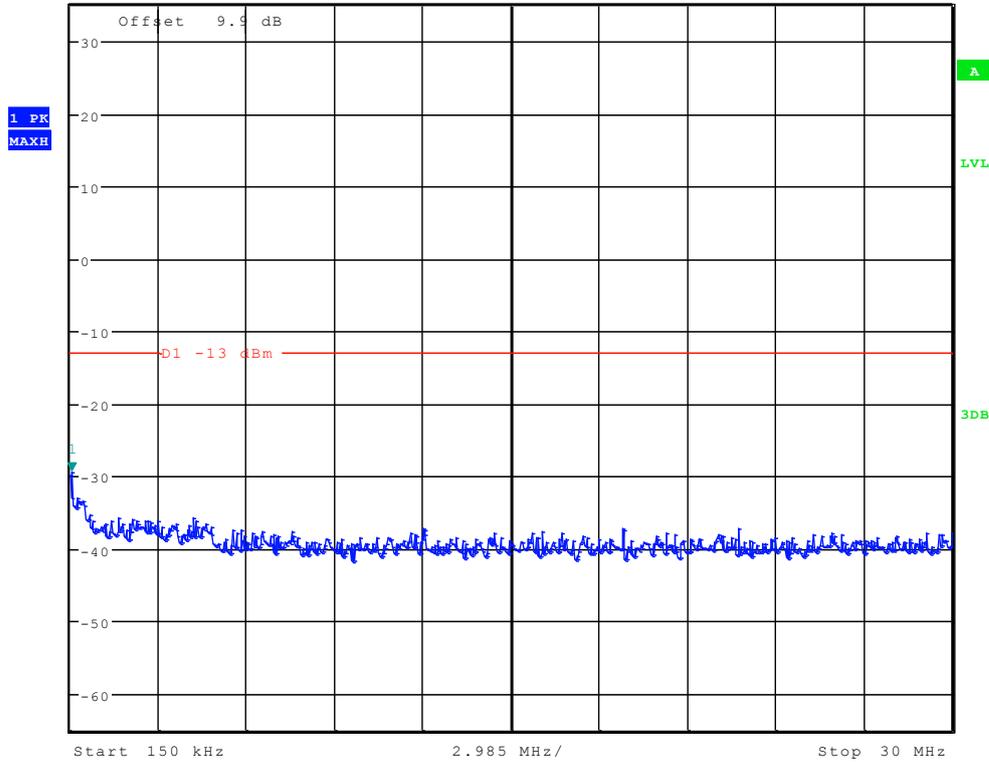


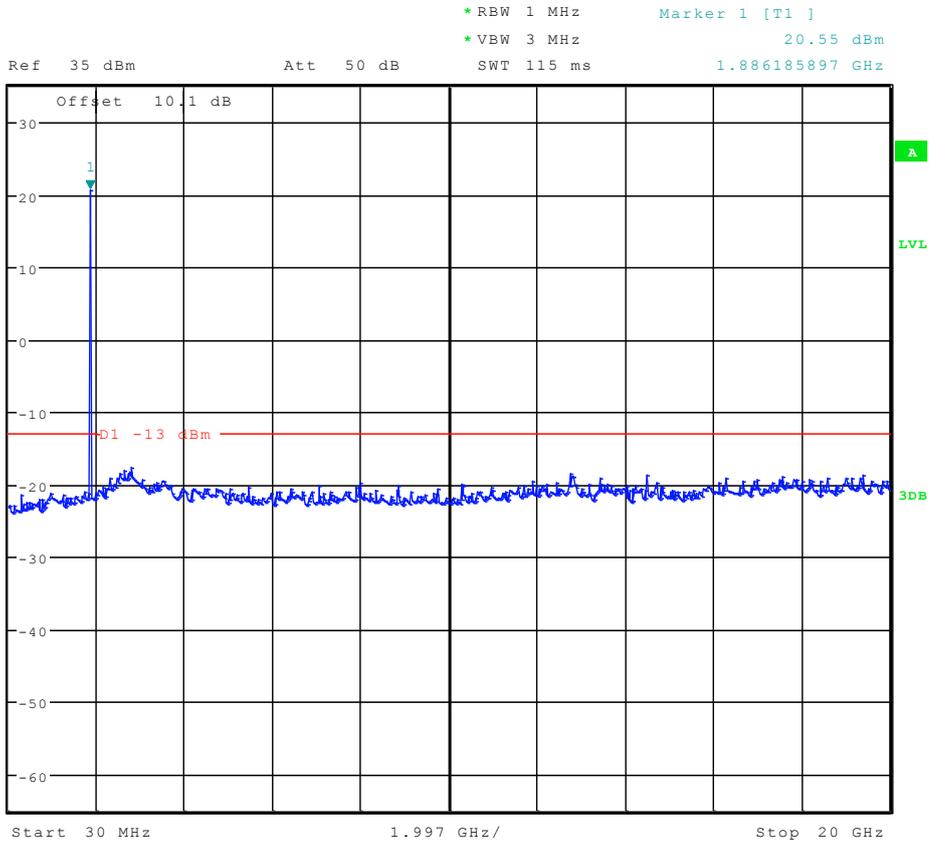
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\*VBW 10 kHz      -33.74 dBm  
SWT 145 ms      13.293269231 kHz





Ref 35 dBm Att 55 dB SWT 300 ms  
\*RBW 10 kHz Marker 1 [T1 ]  
\*VBW 30 kHz -29.43 dBm  
197.836538462 kHz





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# **Appendix F**

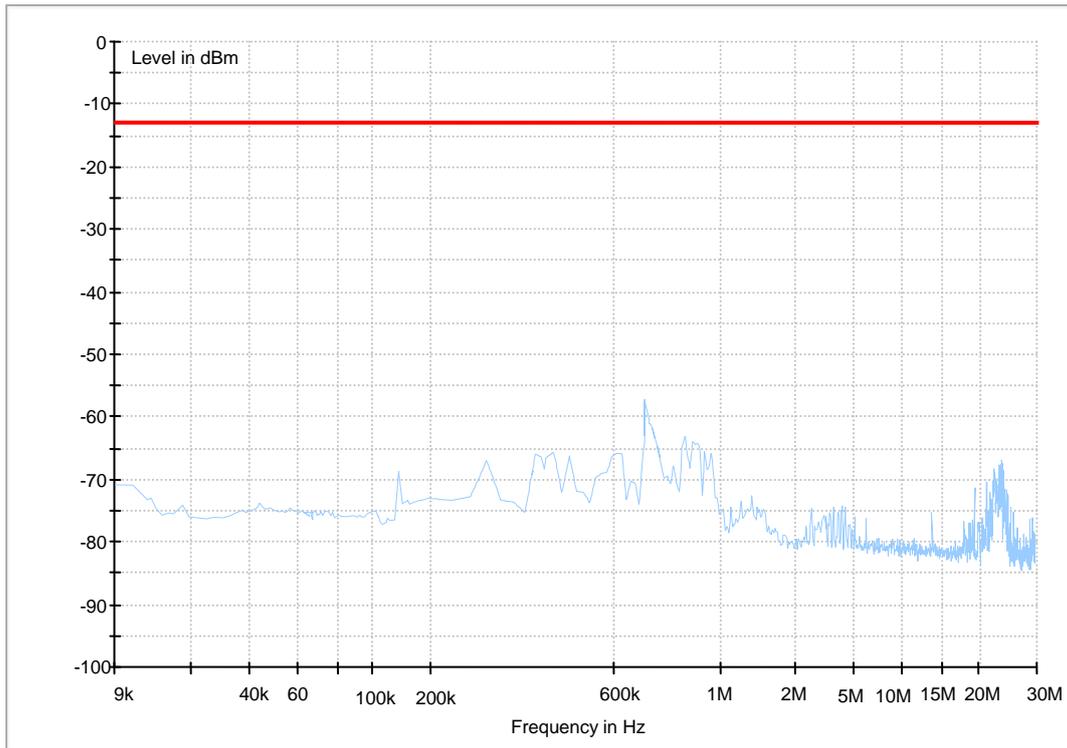
## Radiated spurious emission

According to FCC Part 2.1053& Part 24.238

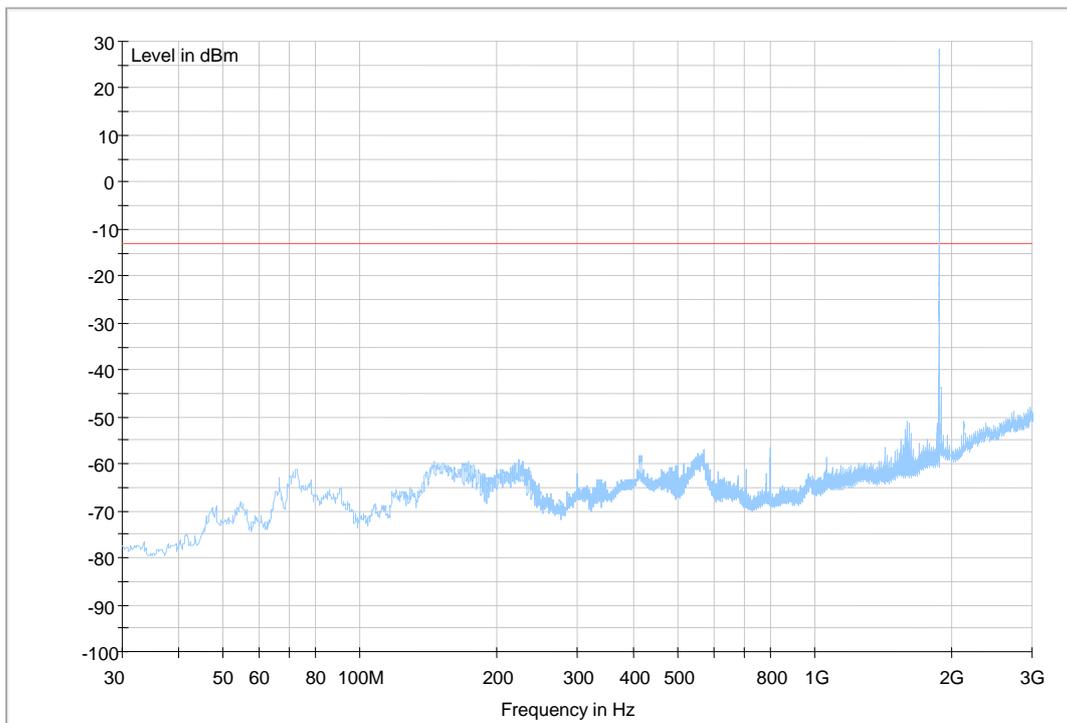


# GPRS 1900

(9kHz-30MHz)

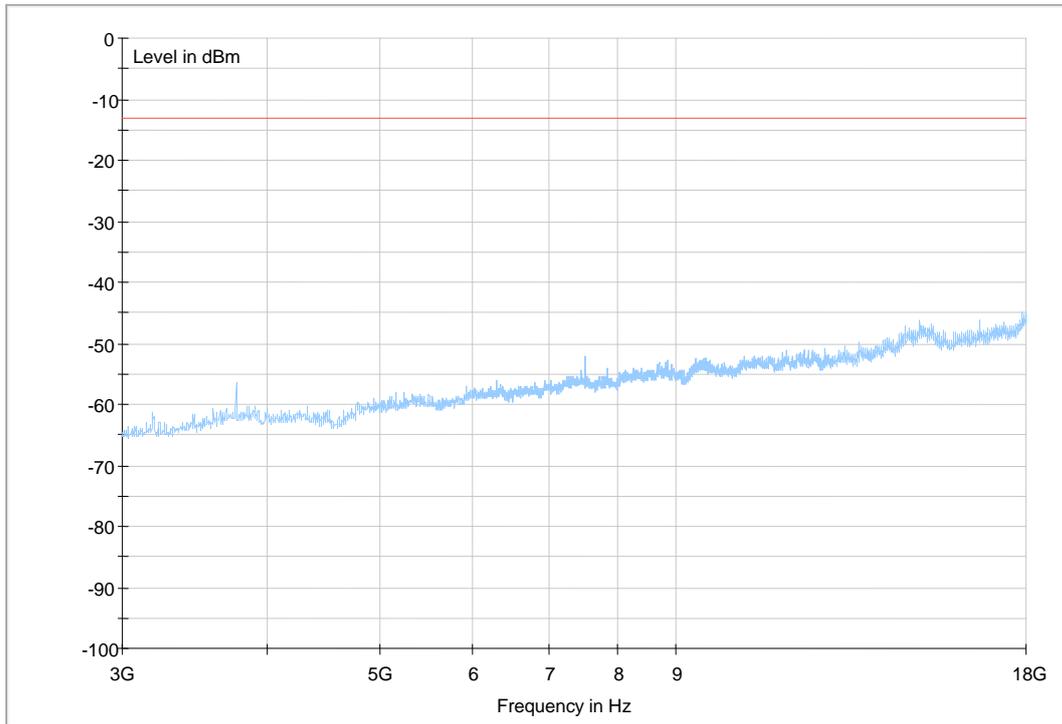


(30MHz~3GHz)

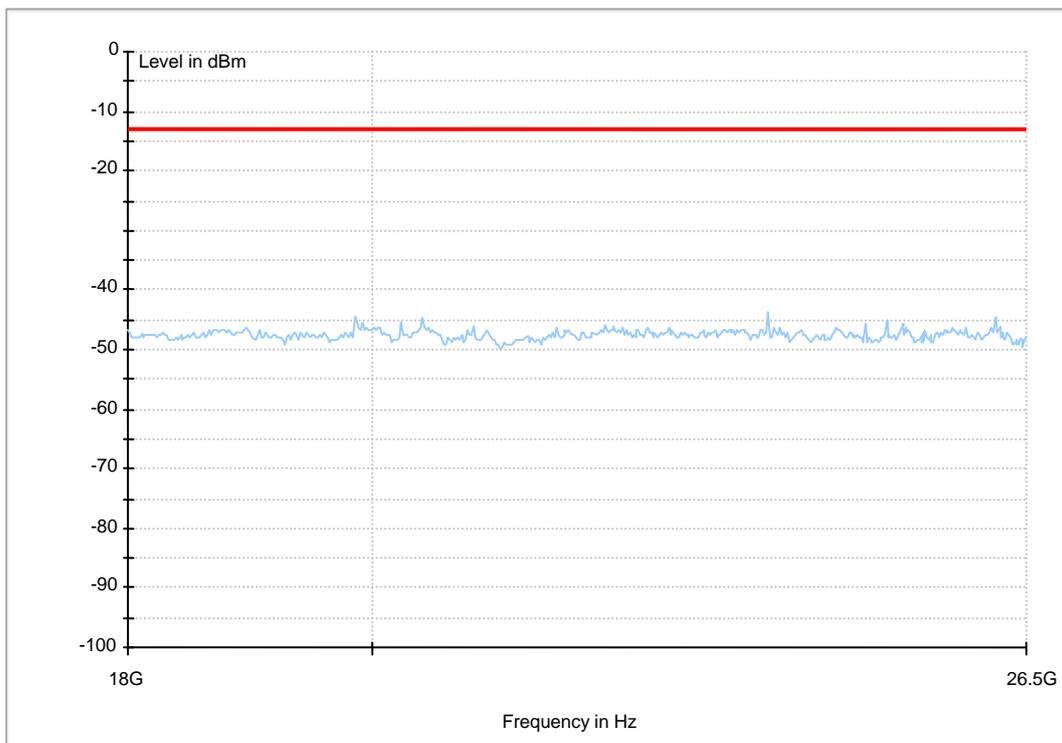




**(3GHz~18GHz)**

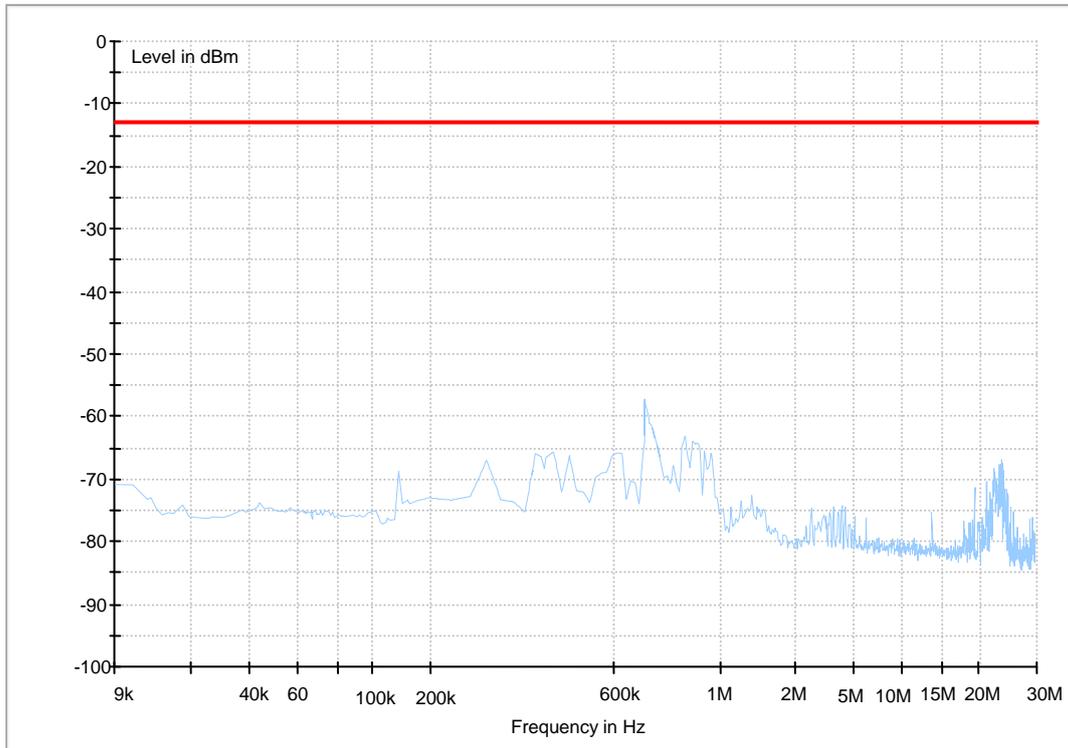


**(18GHz-26.5GHz)**

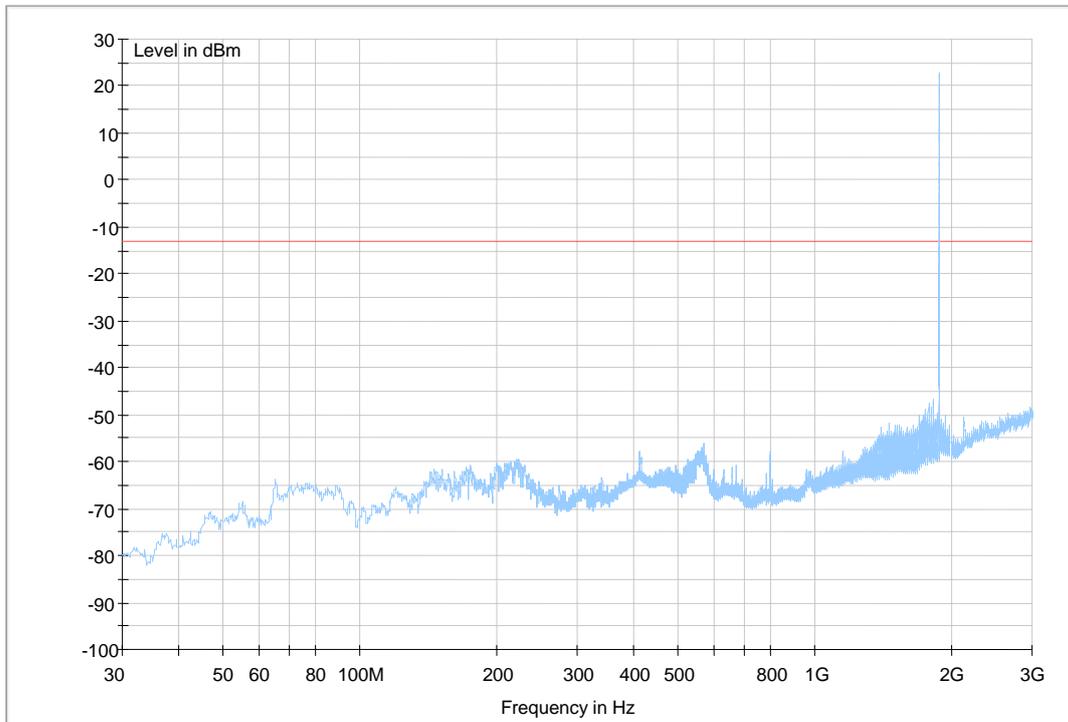


# EDGE 1900

## (9kHz-30MHz)

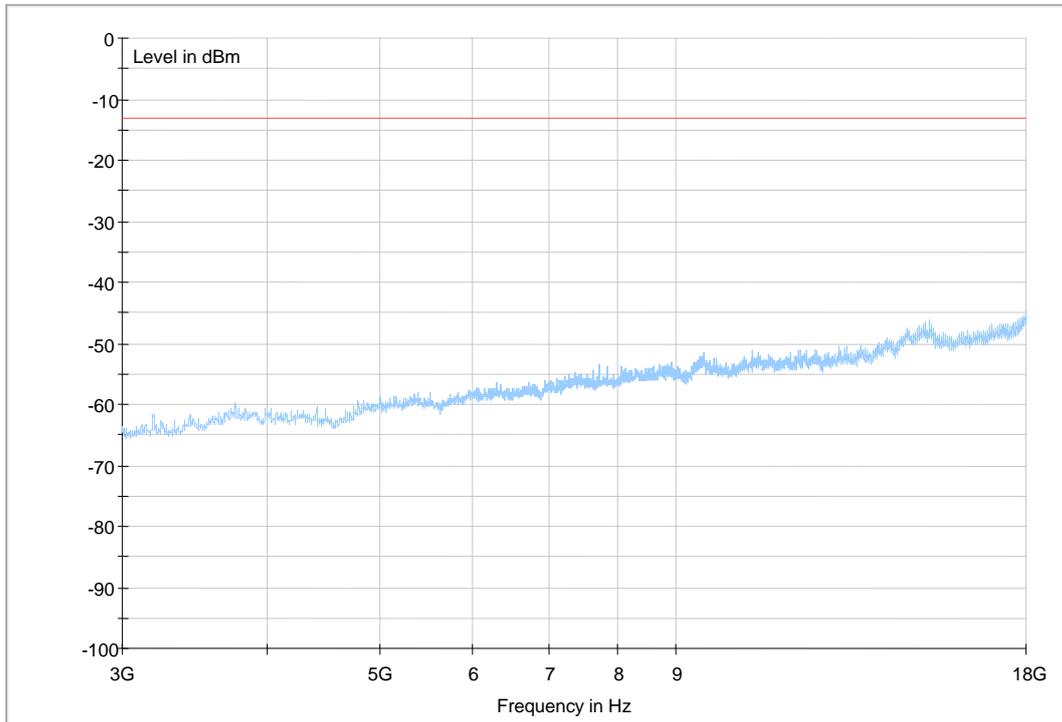


## (30MHz~3GHz)

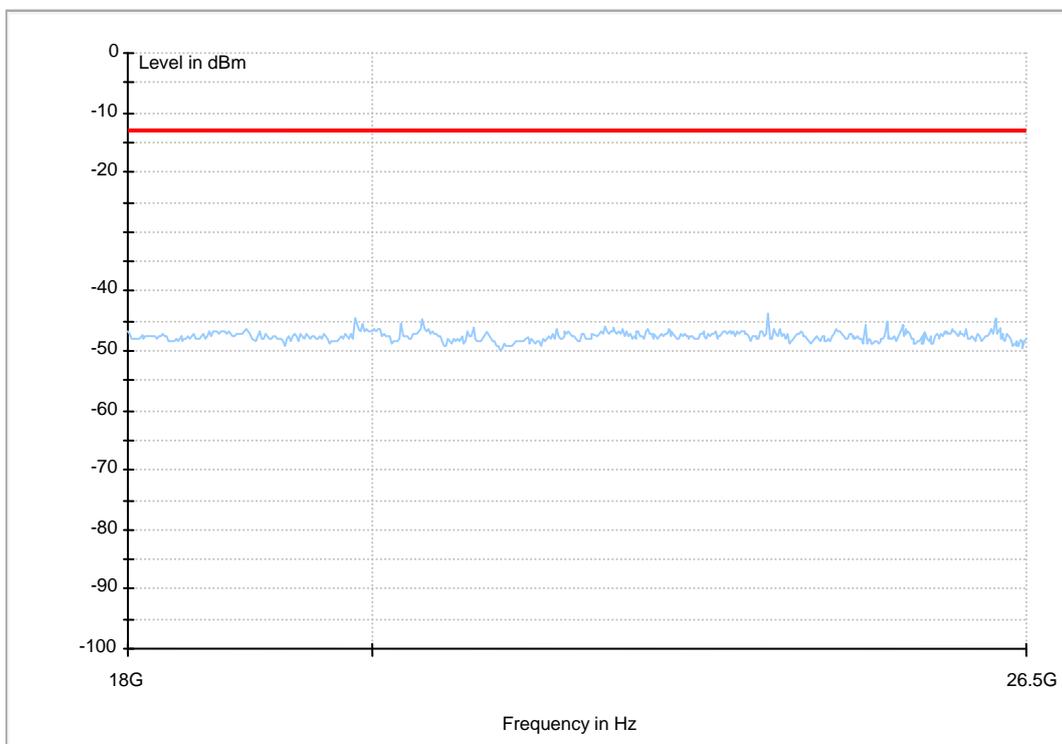




### (3GHz~18GHz)

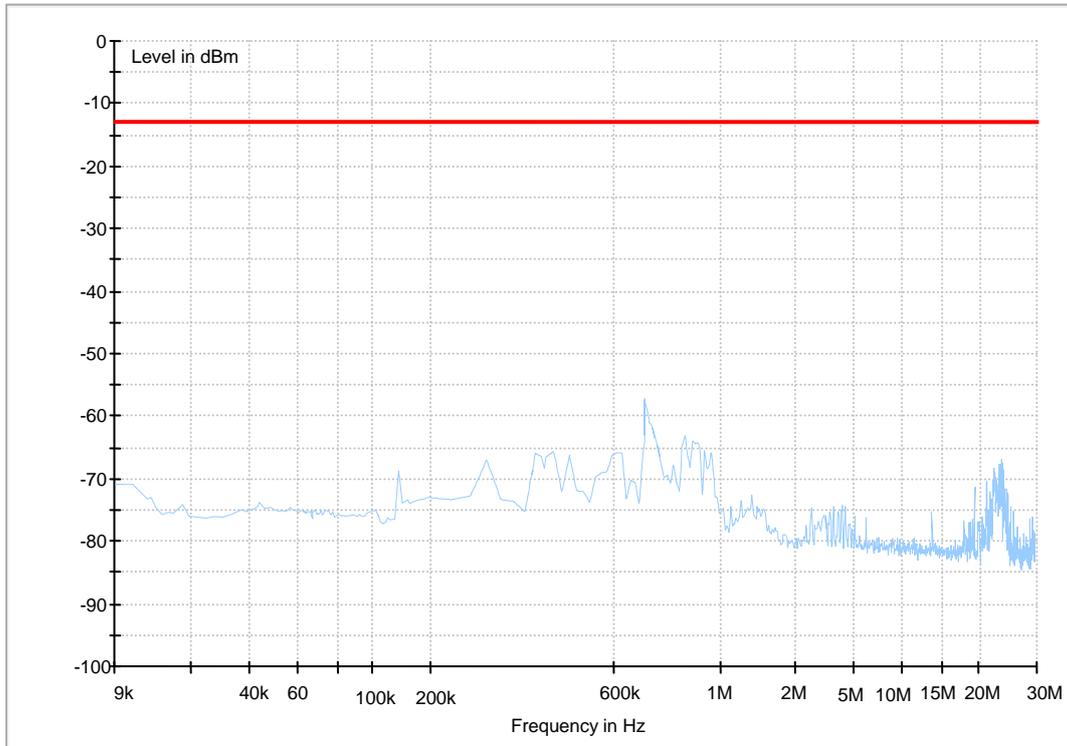


### (18GHz-26.5GHz)

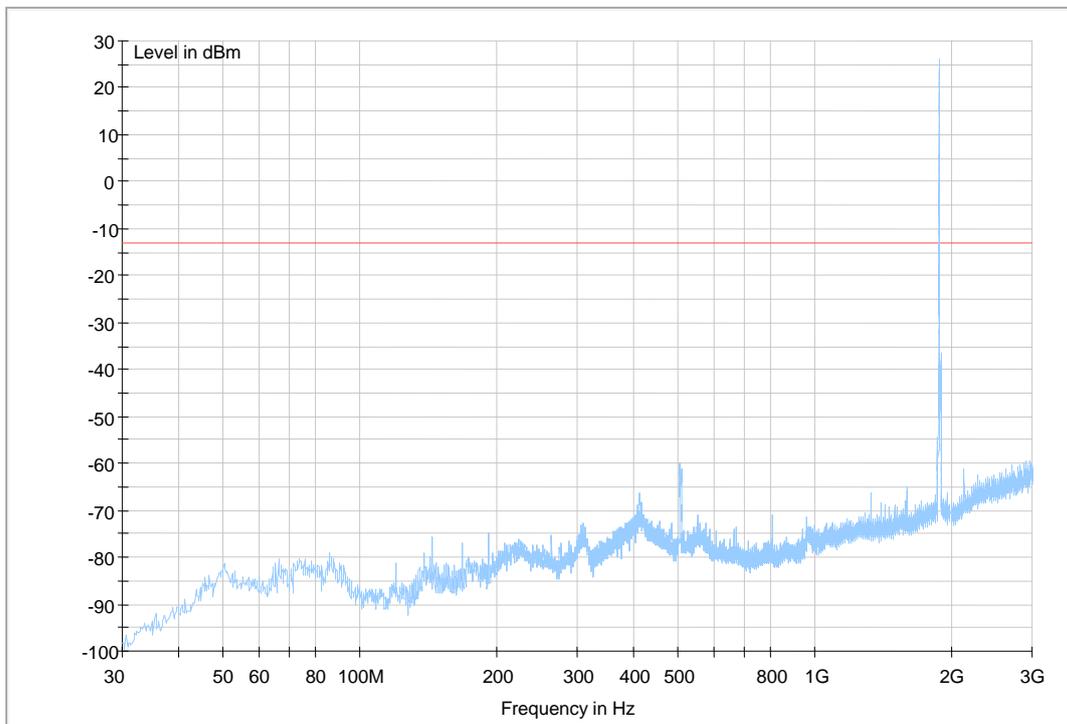


## WCDMA Band II

(9KHz~30MHz)

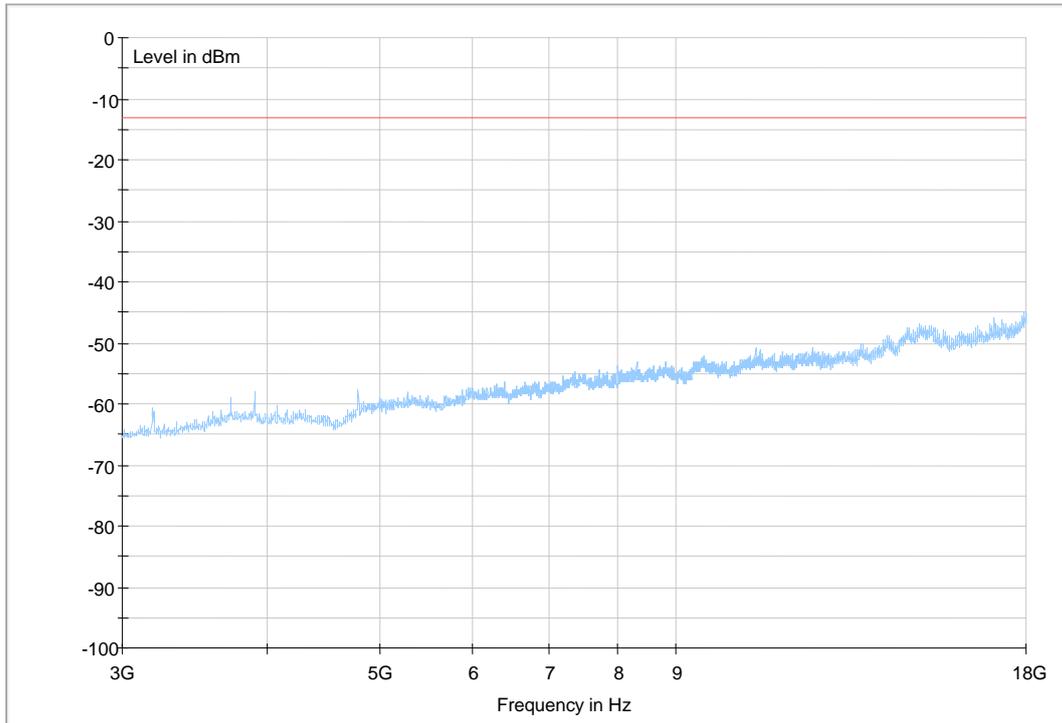


(30MHz~3GHz)

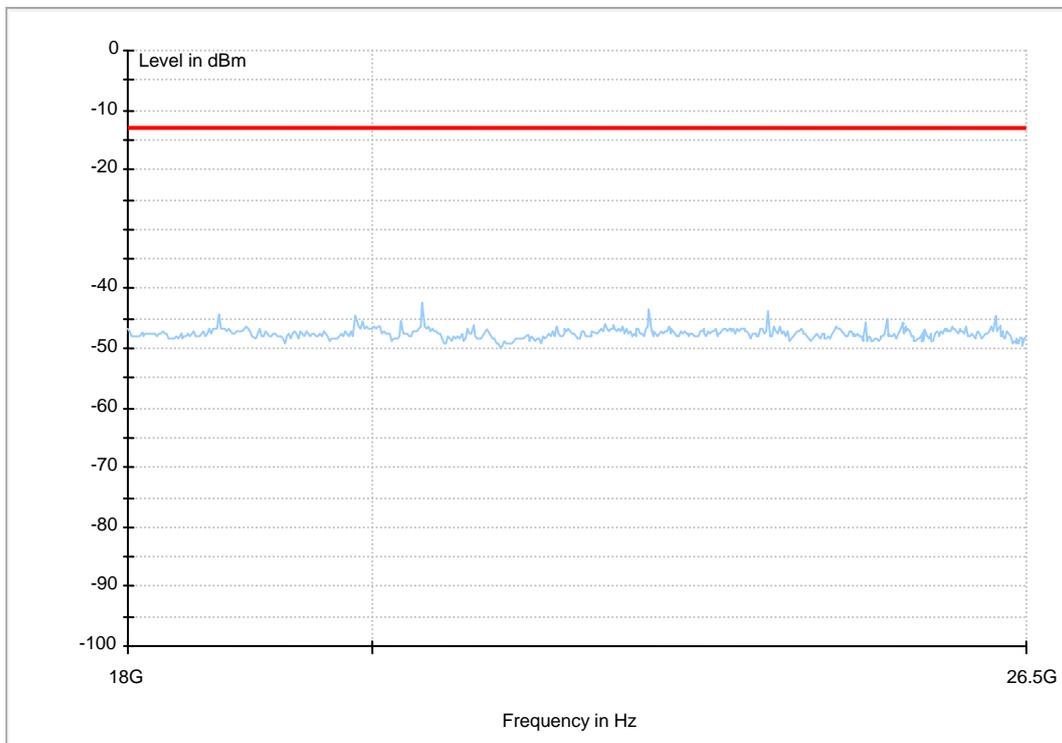




**(3GHz~18GHz)**



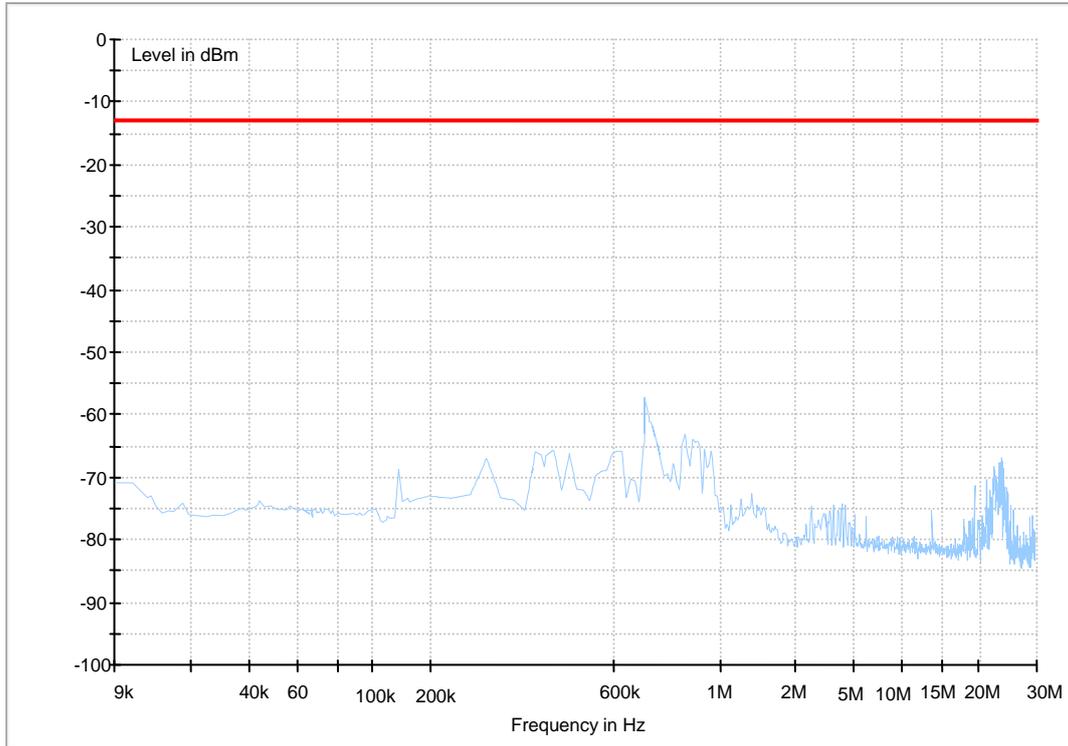
**(18GHz~26.5GHz)**



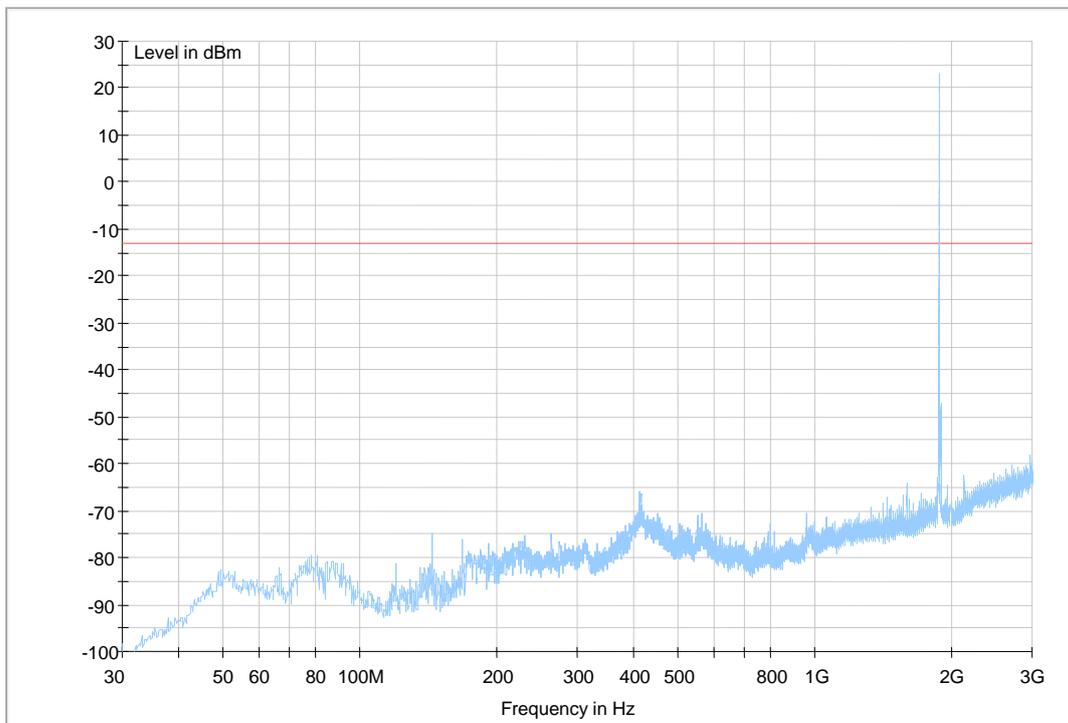


### HSDPA Band II

(9KHz~30MHz)

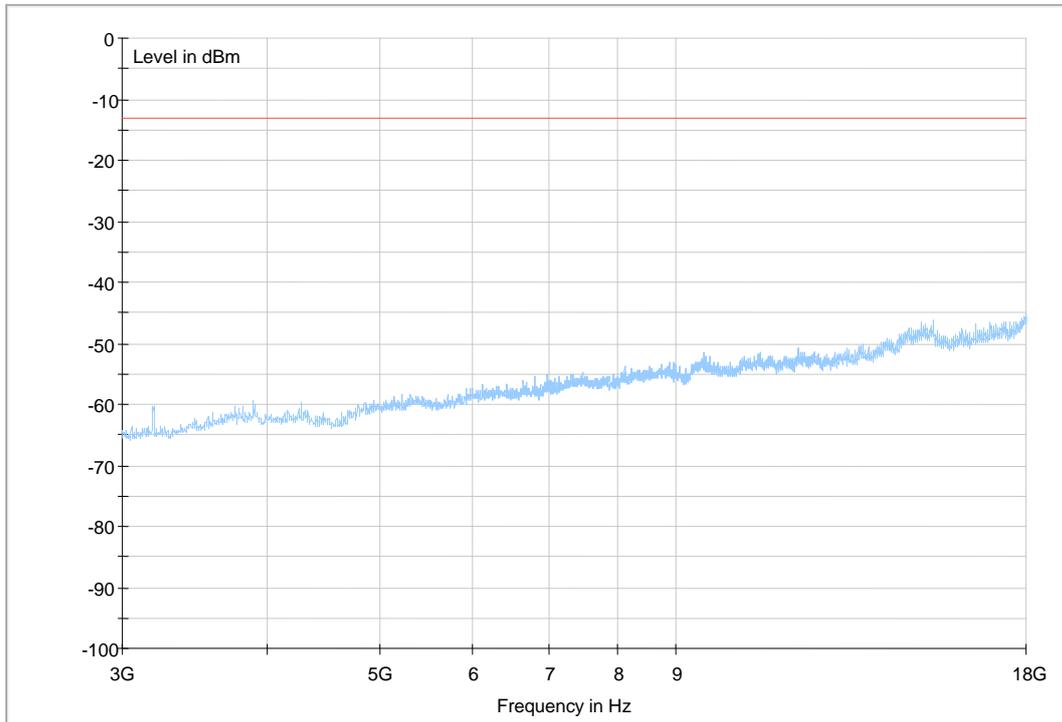


(30MHz ~3GHz)

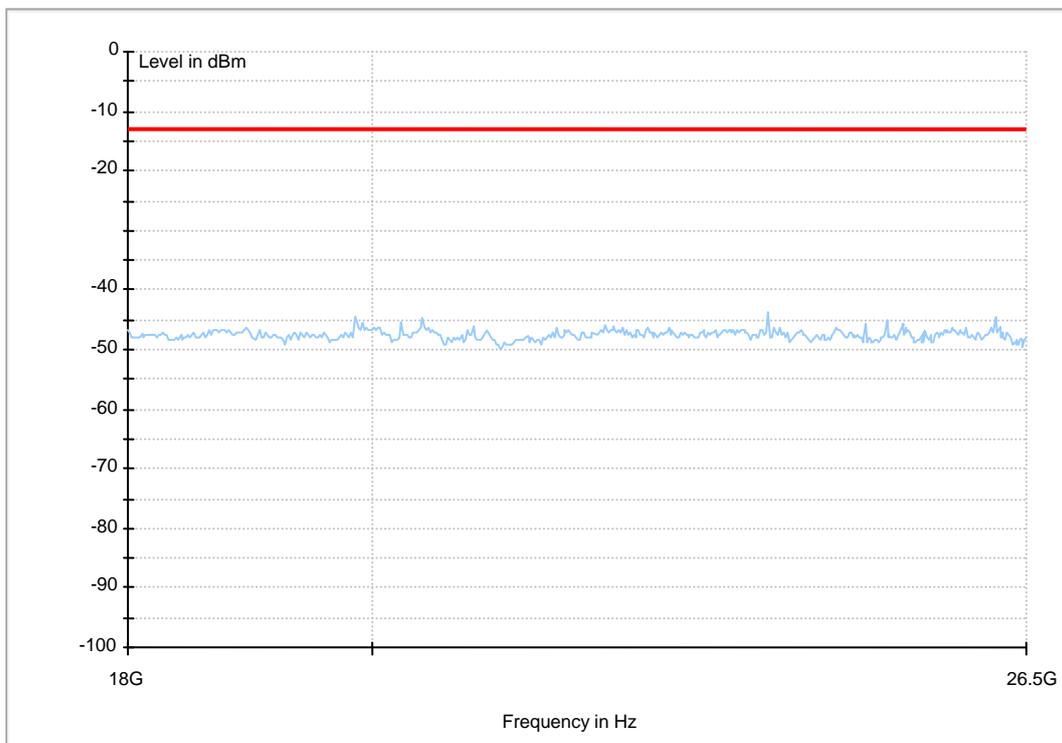




**(3GHz~18GHz)**



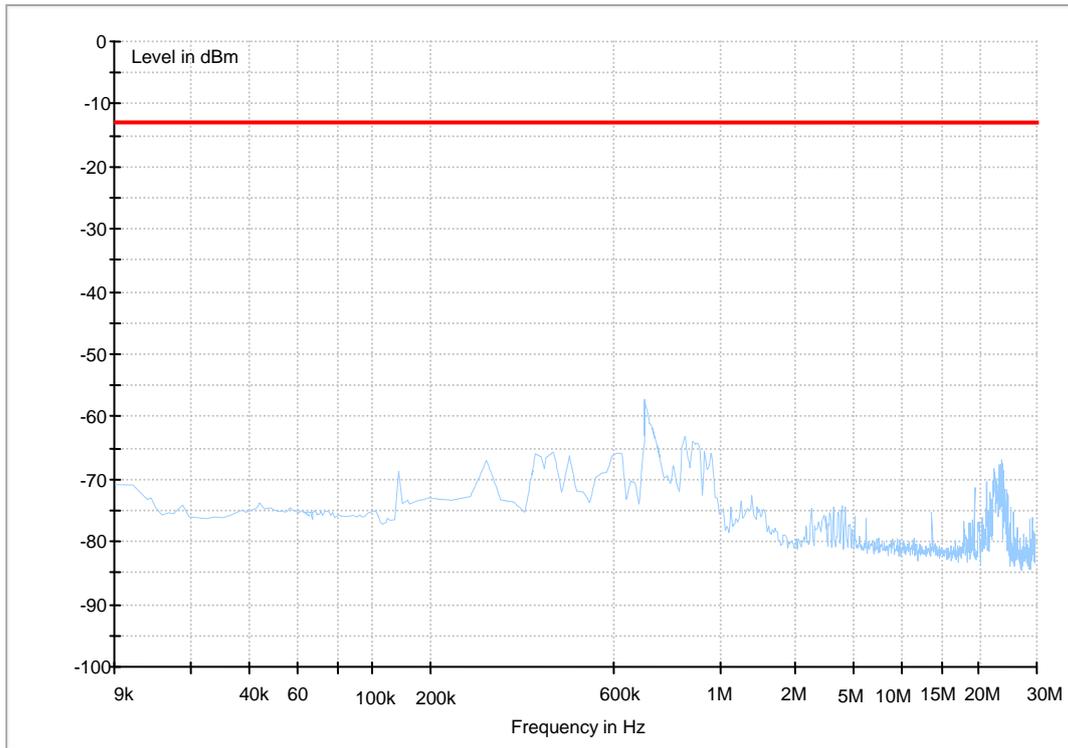
**(18GHz~26.5GHz)**



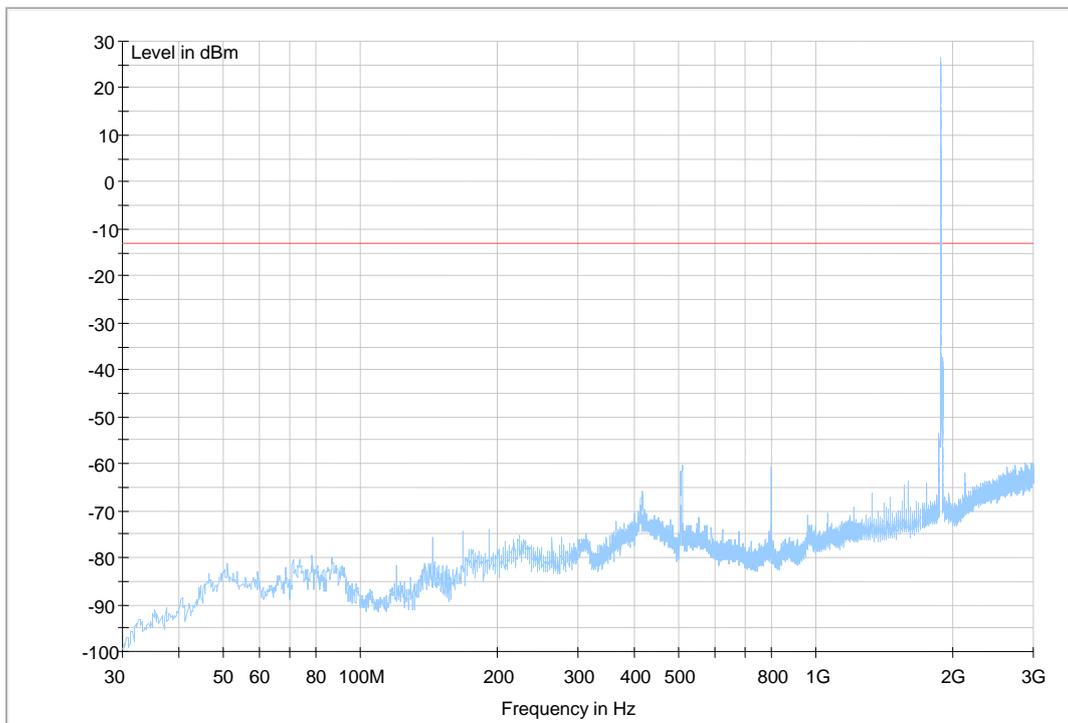


### HSUPA Band II

(9KHz~30MHz)

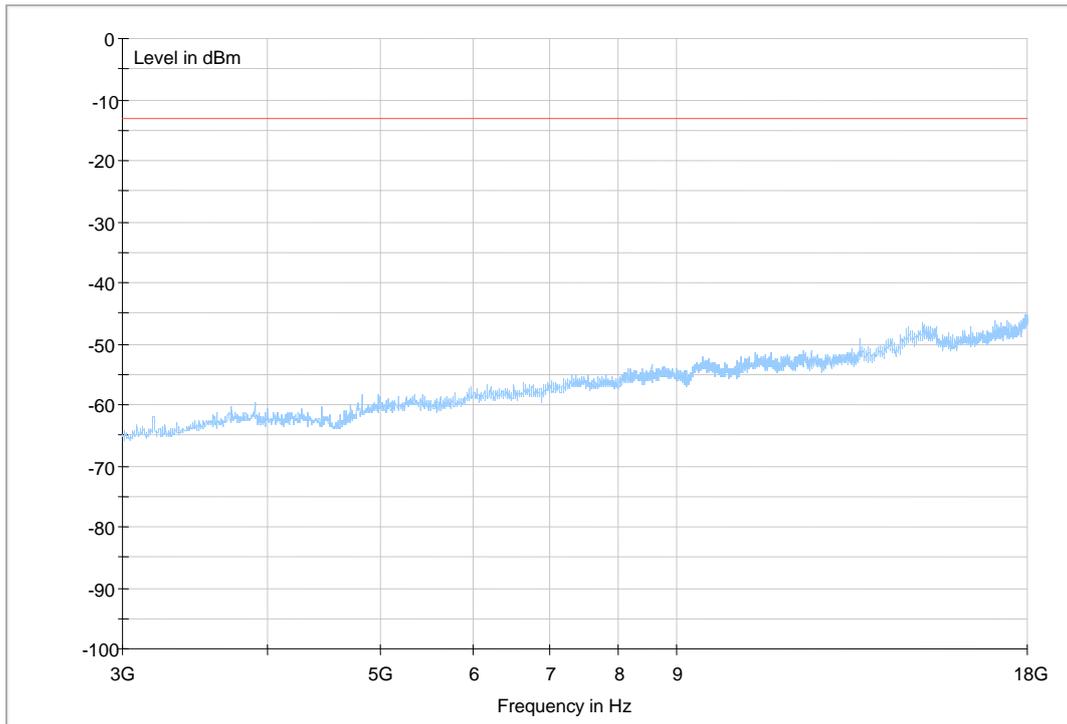


(30MHz~3GHz)

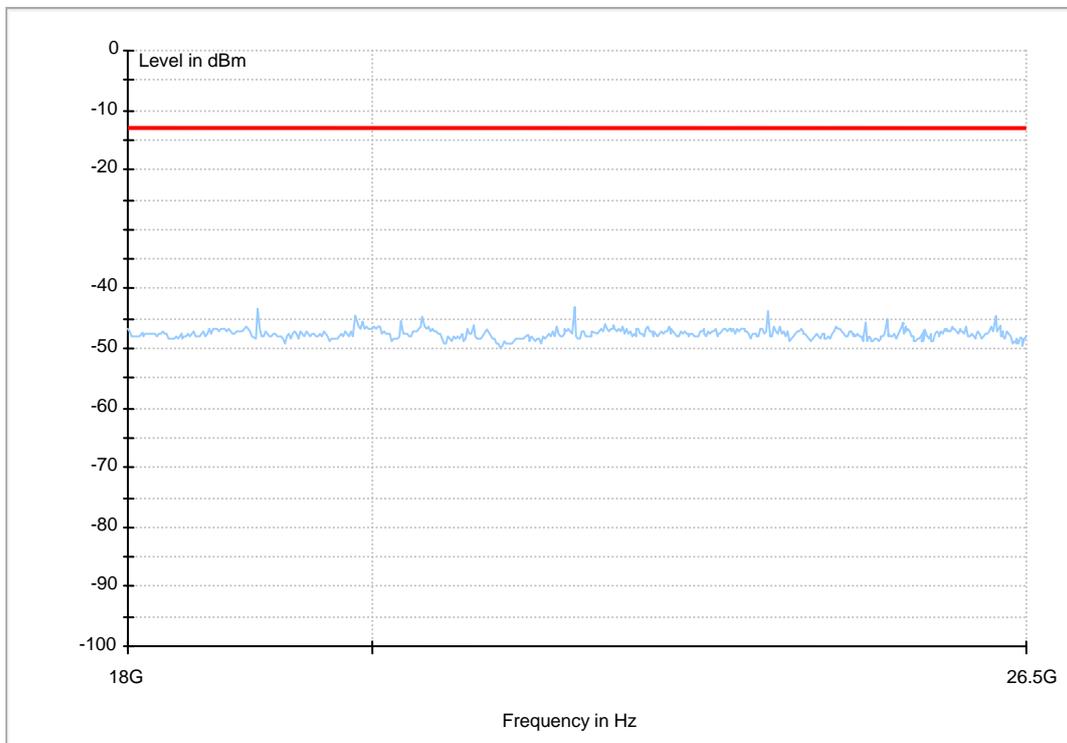




**(3GHz~18GHz)**



**(18GHz~26.5GHz)**



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# 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	-13	-0.0069	---	±2.5	Pass
			-20 °C	18	0.0096	---	±2.5	Pass
			-10 °C	14	0.0074	---	±2.5	Pass
			0 °C	20	0.0106	---	±2.5	Pass
			10 °C	-19	-0.0101	---	±2.5	Pass
			20 °C	16	0.0085	---	±2.5	Pass
			30 °C	-17	-0.0090	---	±2.5	Pass
			40 °C	14	0.0074	---	±2.5	Pass
			50 °C	-18	-0.0096	---	±2.5	Pass
TM 2	M	VN	-30 °C	-17	-0.0090	---	±2.5	Pass
			-20 °C	-15	-0.0080	---	±2.5	Pass
			-10 °C	12	0.0064	---	±2.5	Pass
			0 °C	16	0.0085	---	±2.5	Pass
			10 °C	-16	-0.0085	---	±2.5	Pass
			20 °C	-13	-0.0069	---	±2.5	Pass
			30 °C	19	0.0101	---	±2.5	Pass
			40 °C	-14	-0.0074	---	±2.5	Pass
			50 °C	20	0.0106	---	±2.5	Pass
TM 3	M	VN	-30 °C	12	0.0064	---	±2.5	Pass
			-20 °C	-18	-0.0096	---	±2.5	Pass
			-10 °C	-12	-0.0064	---	±2.5	Pass
			0 °C	14	0.0074	---	±2.5	Pass
			10 °C	-18	-0.0096	---	±2.5	Pass
			20 °C	15	0.0080	---	±2.5	Pass
			30 °C	10	0.0053	---	±2.5	Pass
			40 °C	13	0.0069	---	±2.5	Pass
			50 °C	11	0.0059	---	±2.5	Pass



## Frequency Error vs. Voltage:

Test Mode	RF Ch.	Temp.	Volt.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Freq. vs. 20 °C [ppm]	Limit [ppm]	Verdict
TM 1	M	TN	VL	15	0.0080	---	±2.5	Pass
			VN	17	0.0090	---	±2.5	Pass
			VH	-15	-0.0080	---	±2.5	Pass
TM 2	M	TN	VL	18	0.0096	---	±2.5	Pass
			VN	-14	-0.0074	---	±2.5	Pass
			VH	10	0.0053	---	±2.5	Pass
TM 3	M	TN	VL	14	0.0074	---	±2.5	Pass
			VN	11	0.0059	---	±2.5	Pass
			VH	-20	-0.0106	---	±2.5	Pass

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



## **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)

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