Appendix A

Transmitter Output Power

According to FCC Part 2.1046 & Part24.232

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Conducted Power of Transmitter

Table 1 Measurement Results

		RF Output Power (Conducted)					
TEST CONDITIONS		Channel512(B) 1850.2MHz		Channel661(M) 1880.0MHz		Channel810(T) 1909.8MHz	
		dBm		dBm		dBm	
T_{nom} / V_{nom}		Measured	Limit	Measured	Limit	Measured	Limit
TM1		29.16	33	29.05	33	28.98	33
TM2		25.13	33	25.05	33	24.99	33
TEST CONDITIONS		Channel9262(B) 1852.4MHz		Channel9400(M) 1880.0MHz		Channel9538(T) 1907.6MHz	
		dBm		dBm		dBm	
T_{nom} / V_{nom}		Measured	Limit	Measured	Limit	Measured	Limit
TM3		22.28	33	22.22	33	22.15	33
TM4	Case1	22.25	33	22.18	33	22.1	33
	Case2	22.27	33	21.51	33	21.93	33
	Case3	21.56	33	21.41	33	21.27	33
	Case4	21.59	33	21.43	33	21.29	33
TM5	Case1	21.56	33	21.49	33	21.38	33
	Case2	19.07	33	19.05	33	19.01	33
	Case3	19.83	33	19.78	33	19.73	33
	Case4	19.04	33	19.02	33	18.99	33
	Case5	21.54	33	21.45	33	21.42	33

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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	31.50	Horn Ant.	28.06	4.5	1	31.56	33	Pass
TM1	1880.0	31.39	Horn Ant.	27.92	4.5	1	31.42	33	Pass
TM1	1909.8	31.32	Horn Ant.	27.58	4.8	1	31.38	33	Pass
TM2	1850.2	27.47	Horn Ant.	23.95	4.5	1	27.45	33	Pass
TM2	1880.0	27.39	Horn Ant.	23.91	4.5	1	27.41	33	Pass
TM2	1909.8	27.33	Horn Ant.	23.56	4.8	1	27.36	33	Pass
TM3	1852.4	24.62	Horn Ant.	21.13	4.5	1	24.63	33	Pass
TM3	1880.0	24.56	Horn Ant.	21.08	4.5	1	24.58	33	Pass
TM3	1907.6	24.49	Horn Ant.	20.76	4.8	1	24.56	33	Pass

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

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

b, SGP=Signal Generator Level

Appendix B

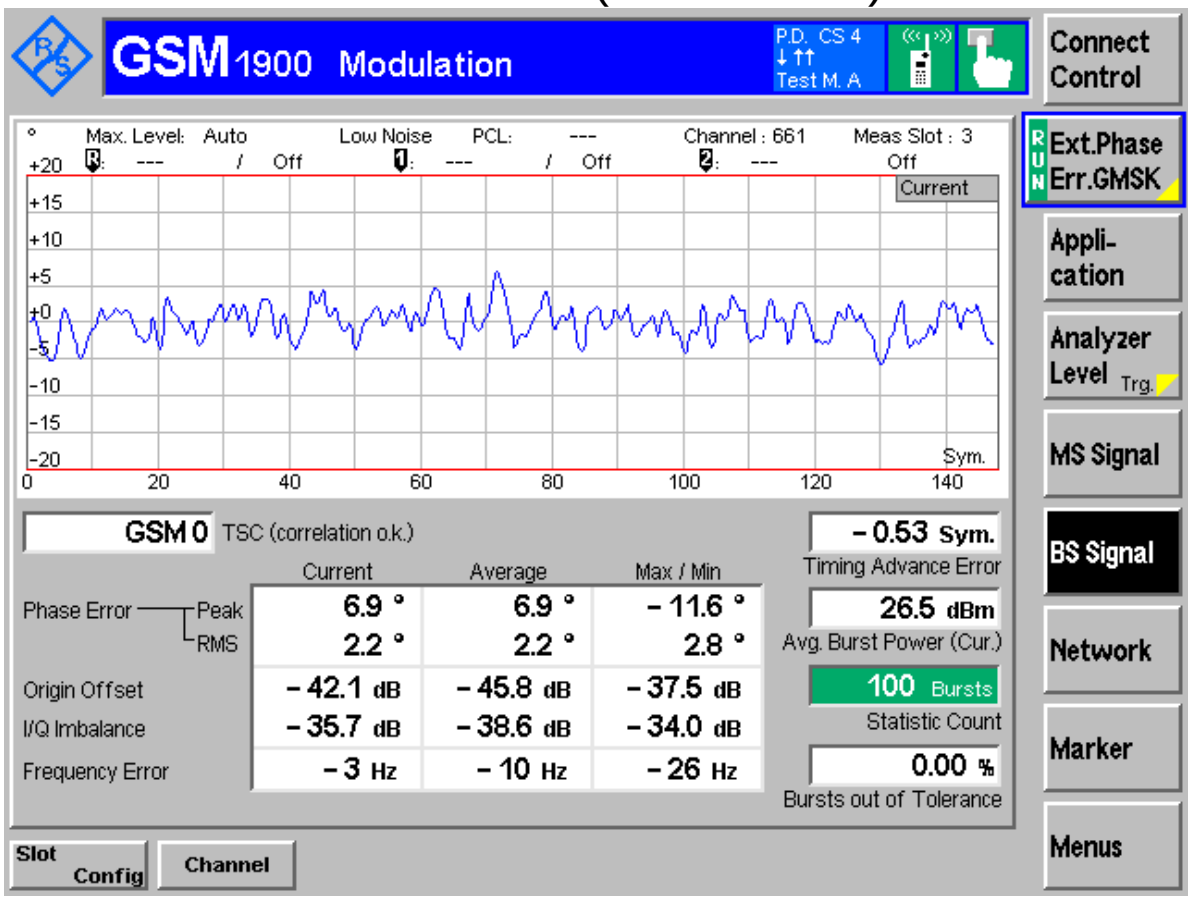
Modulation Characteristics

According to FCC Part 2.1047 & Part24 Subpart E

1 Test Plot

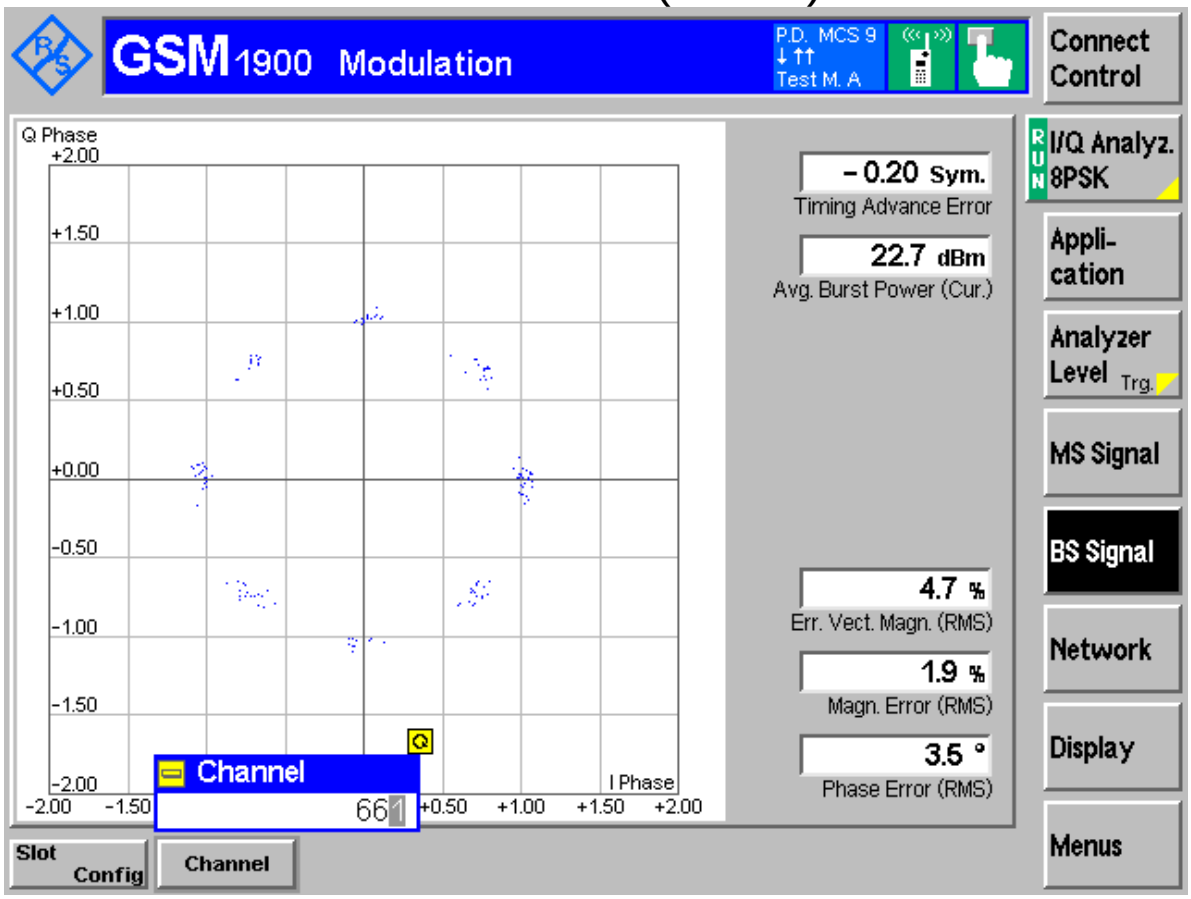
1.1 Test Mode = TM 1

Channel 661 (GPRS/GSM)



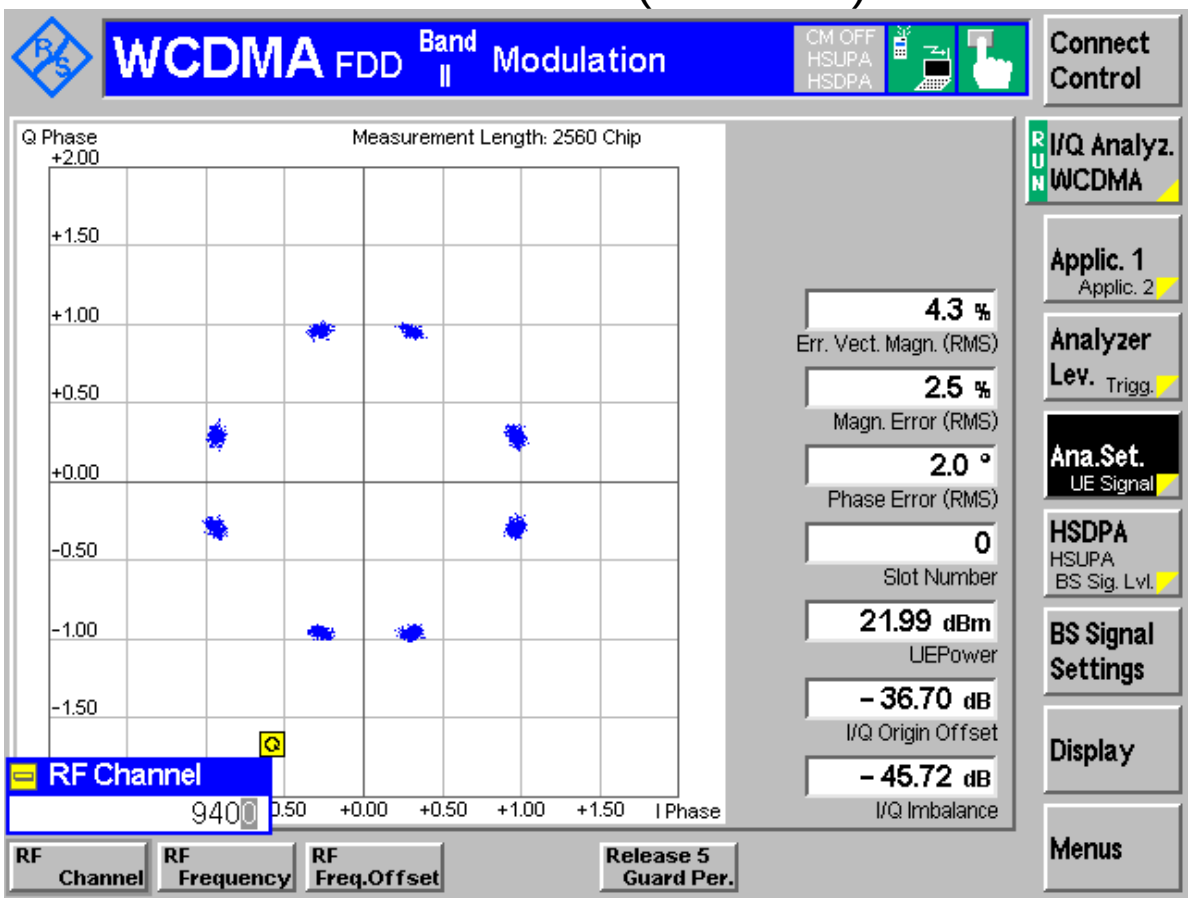
1.2 Test Mode = TM 2

Channel 661 (EDGE)



1.3 Test Mode = TM 3

Channel 9400 (WCDMA)



END

Appendix C

Occupied Bandwidth

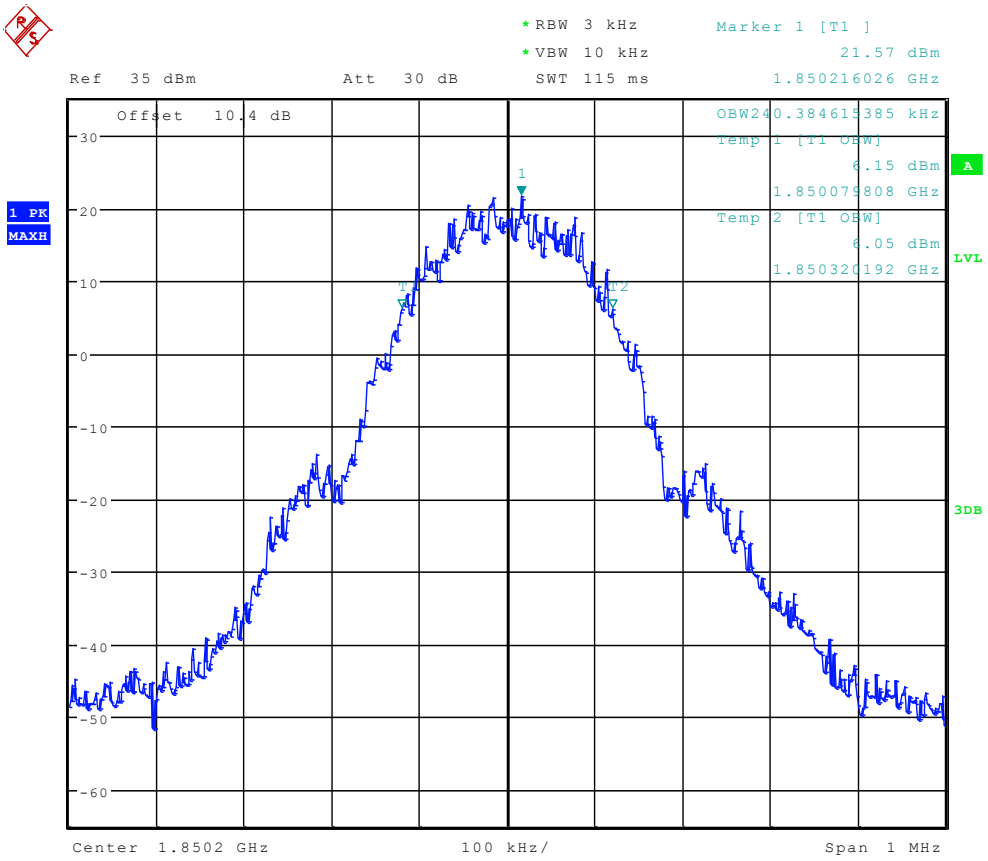
According to FCC Part 2.1049 & Part24 Subpart E

Result Table

Table 1 Measurement Results

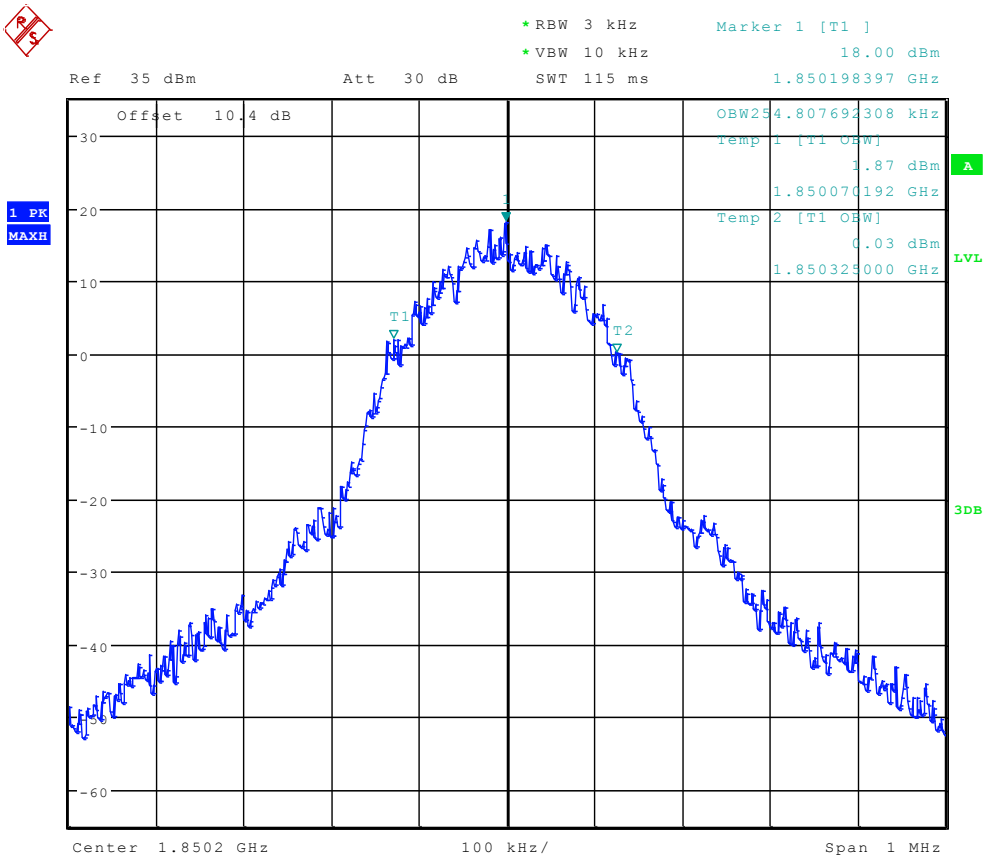
Test Mode	RF Channel	Occupied Bandwidth [KHz]	Verdict
TM1	512	240.38	Pass
	661	245.19	Pass
	810	246.79	Pass
TM2	512	254.81	Pass
	661	251.60	Pass
	810	251.60	Pass
Test Mode	RF Channel	Occupied Bandwidth [MHz]	Verdict
TM3	9262	4.17	Pass
	9400	4.15	Pass
	9538	4.20	Pass

TM1:GPRS/GSM
Channel 512



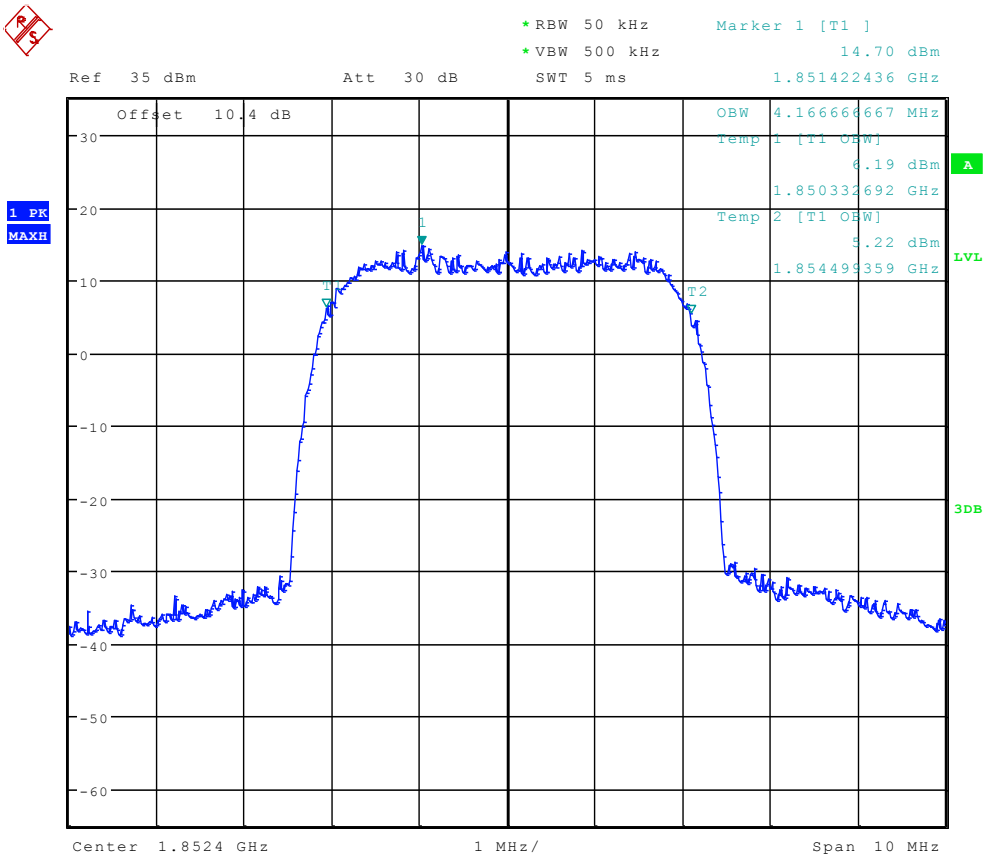
Date: 18.DEC.2011 11:41:30

TM2:EDGE
Channel 512



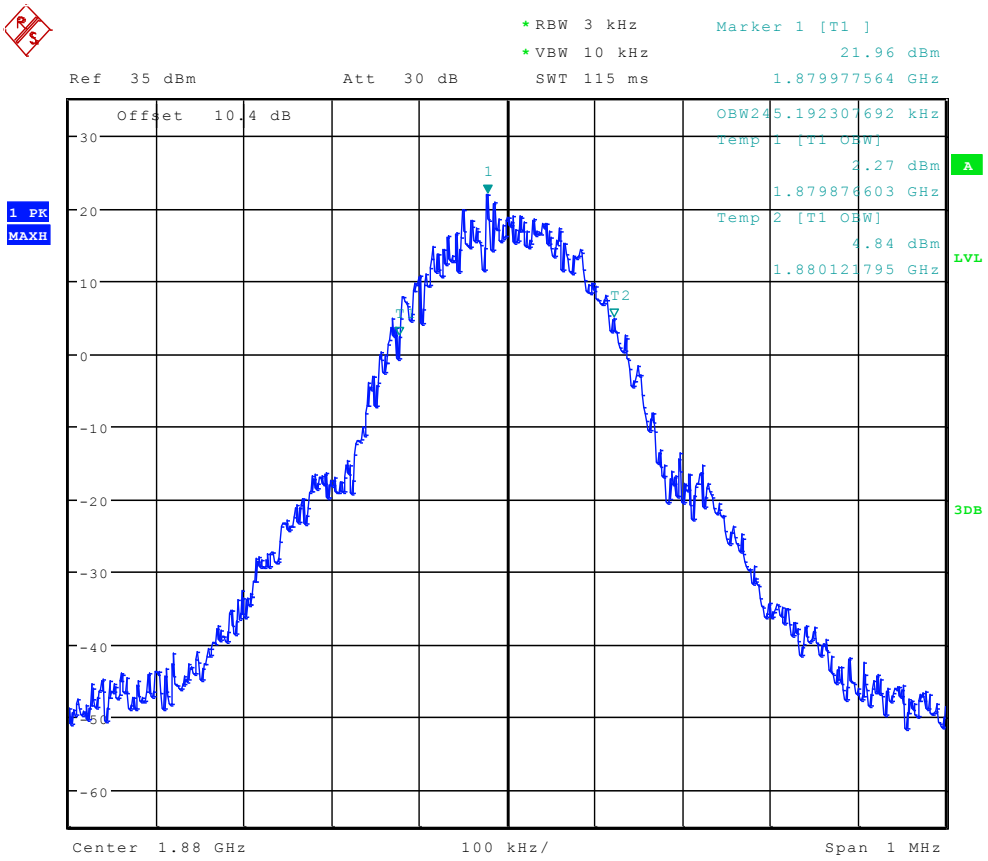
Date: 18.DEC.2011 11:45:55

TM3: WCDMA
Channel 9262



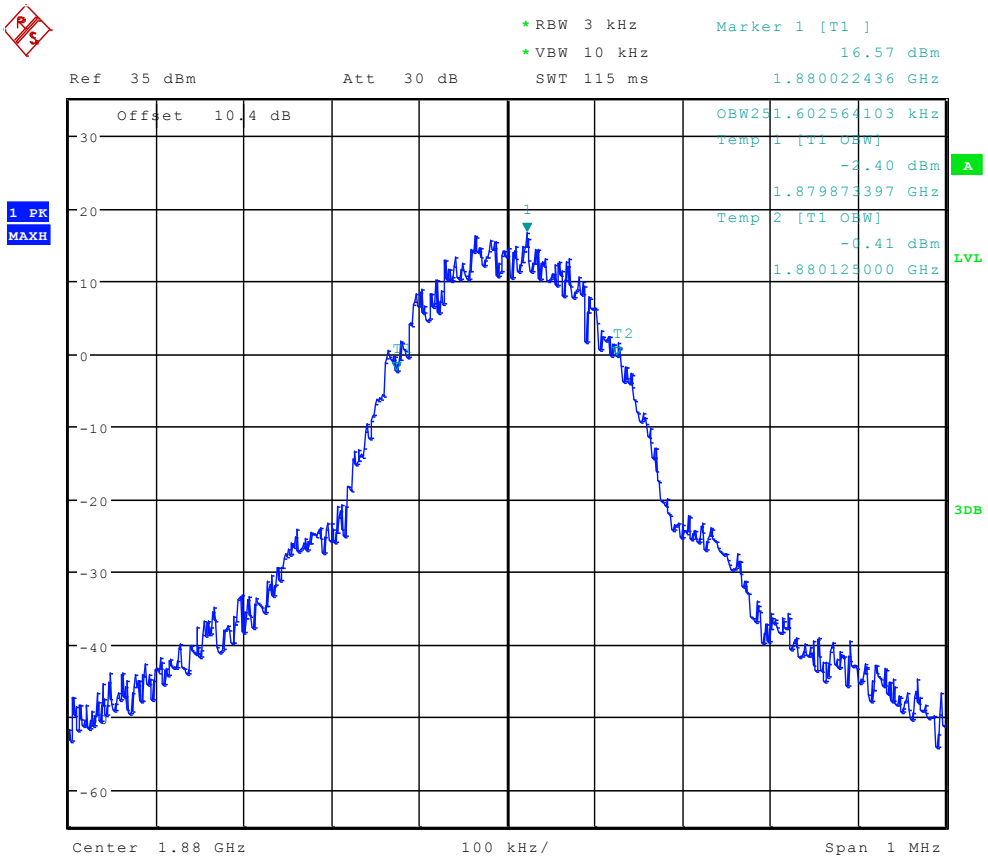
Date: 18.DEC.2011 11:51:26

TM1:GPRS/GSM
Channel 661



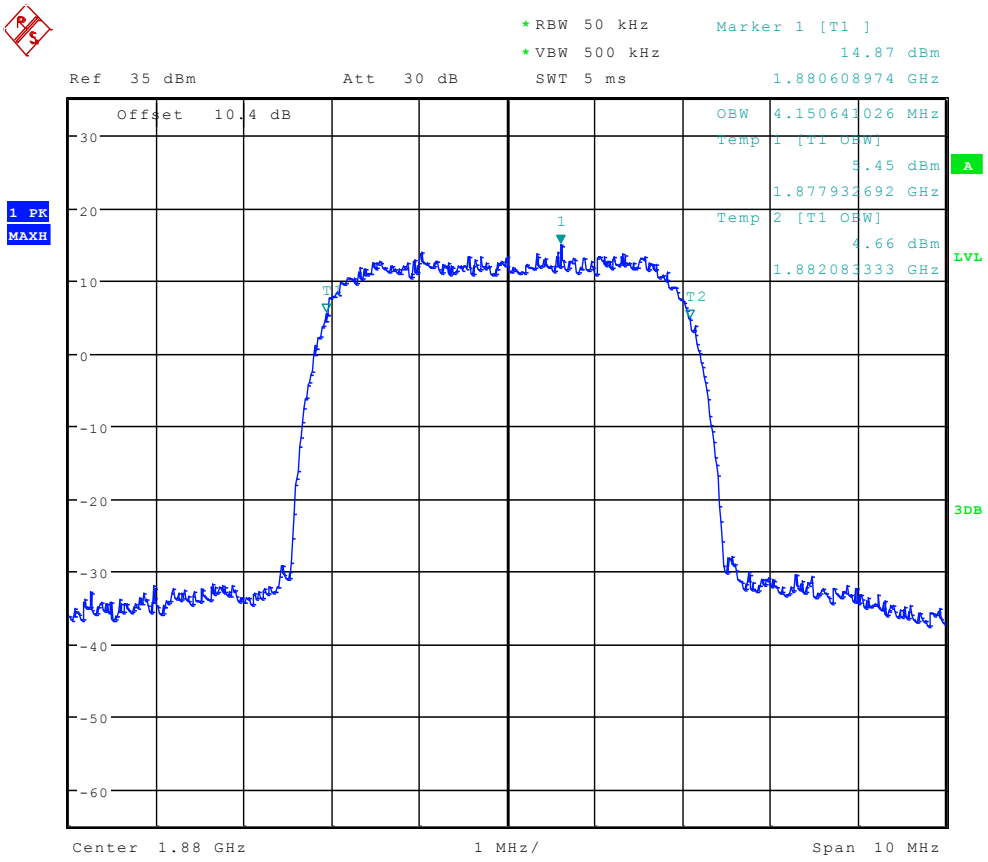
Date: 18.DEC.2011 11:41:44

TM2:EDGE
Channel 661



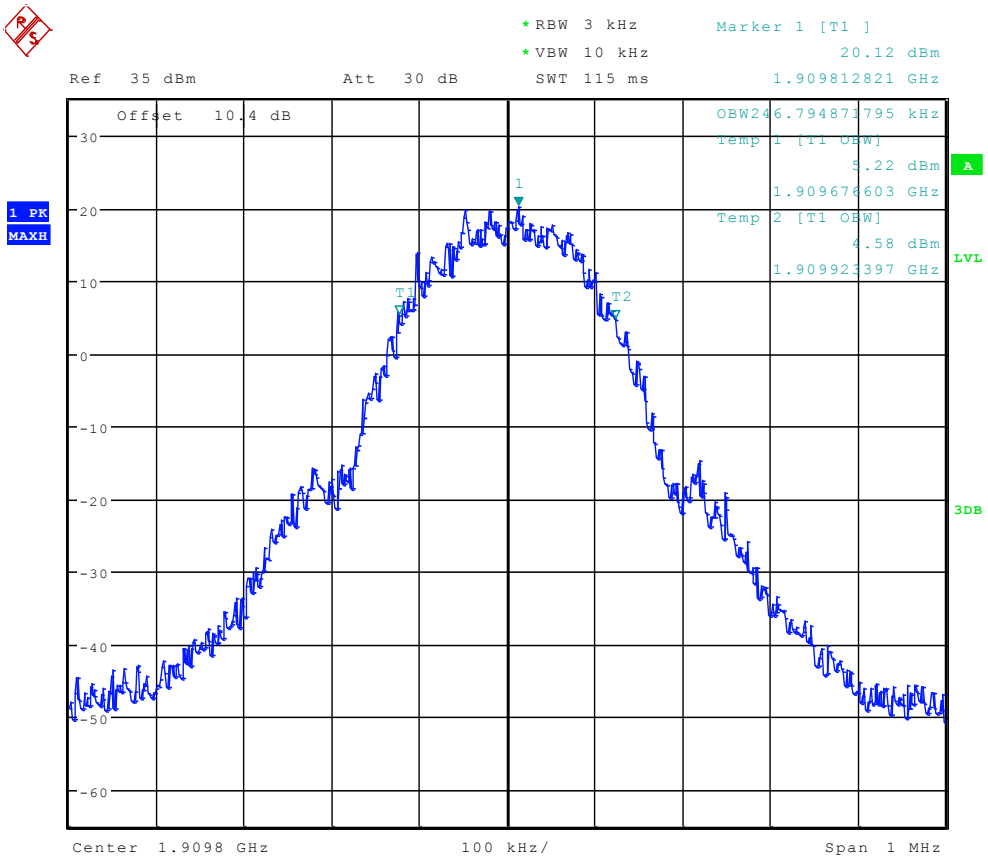
Date: 18.DEC.2011 11:46:09

TM3: WCDMA
Channel 9400



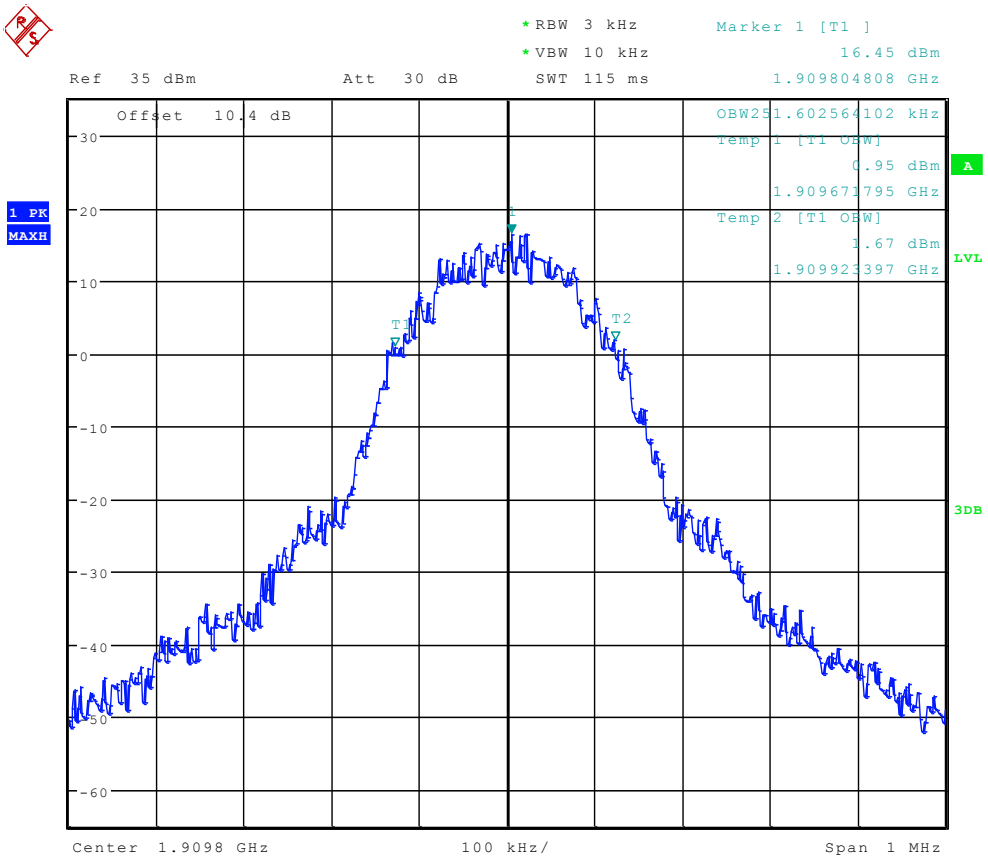
Date: 18.DEC.2011 11:51:40

TM1:GPRS/GSM
Channel 810



Date: 18.DEC.2011 11:41:57

TM2:EDGE
Channel 810



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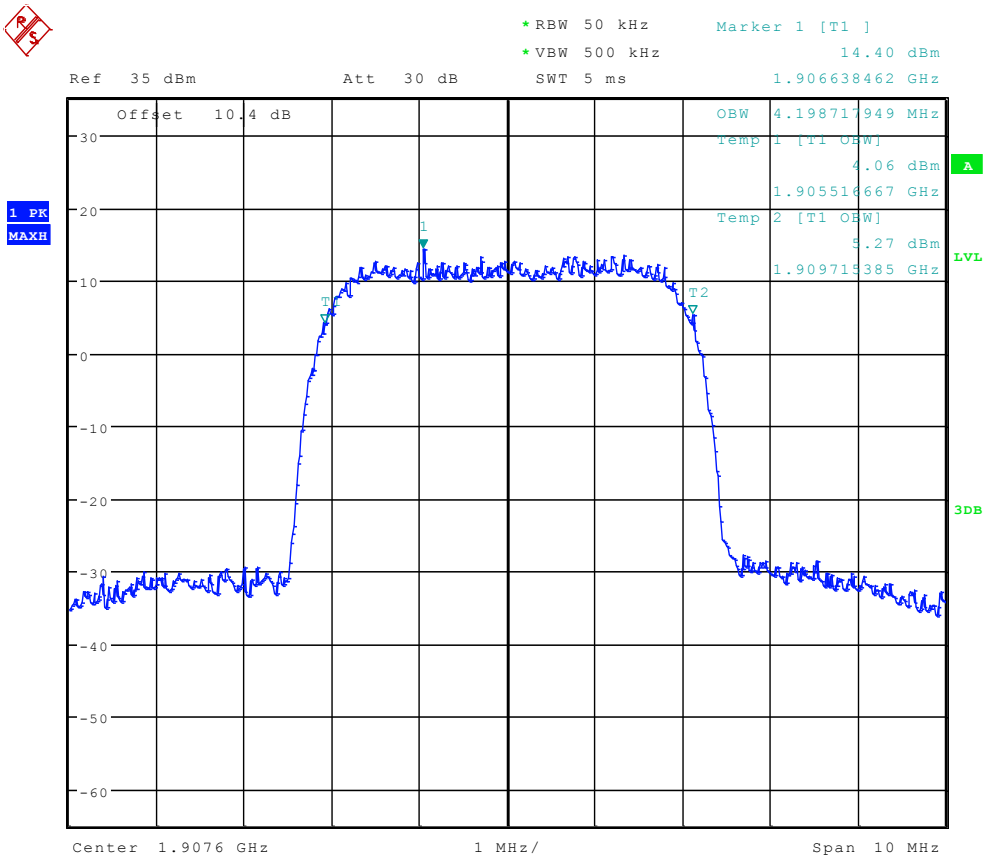
TM3: WCDMA
Channel 9538



Date: 18.DEC.2011 11:51:54

END

Appendix D

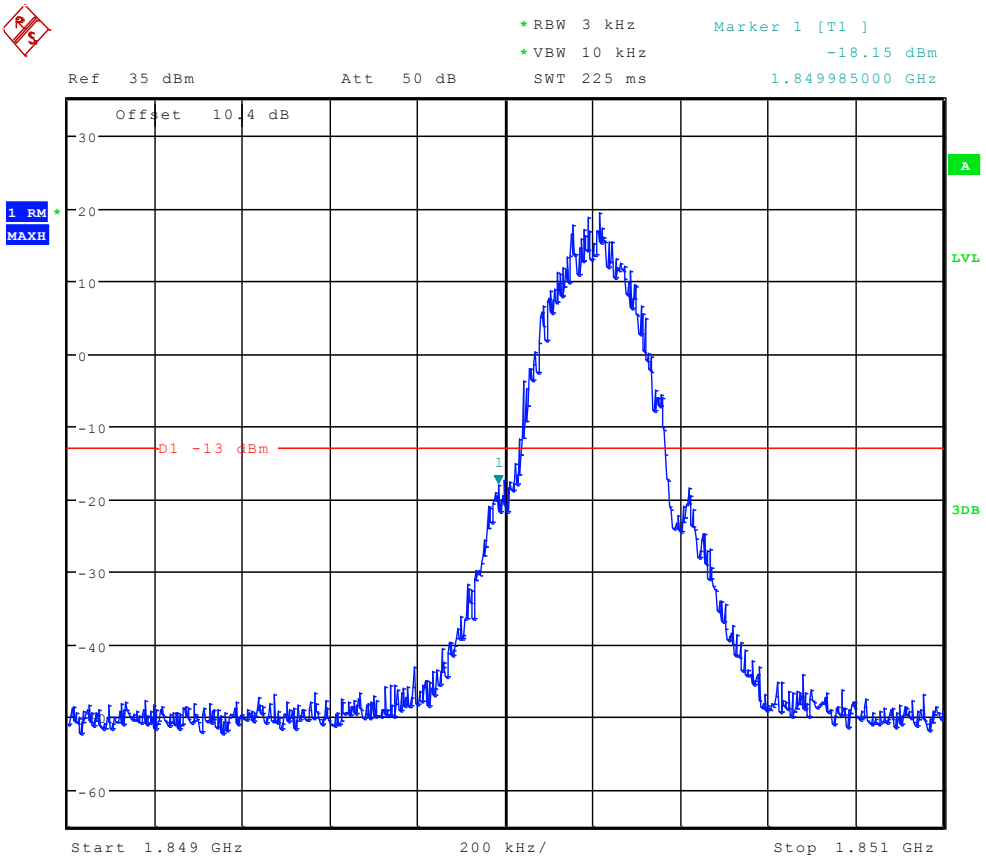
Band Edges Compliance

According to FCC Part 2.1051 & Part24 Subpart E

TM1:GPRS/GSM

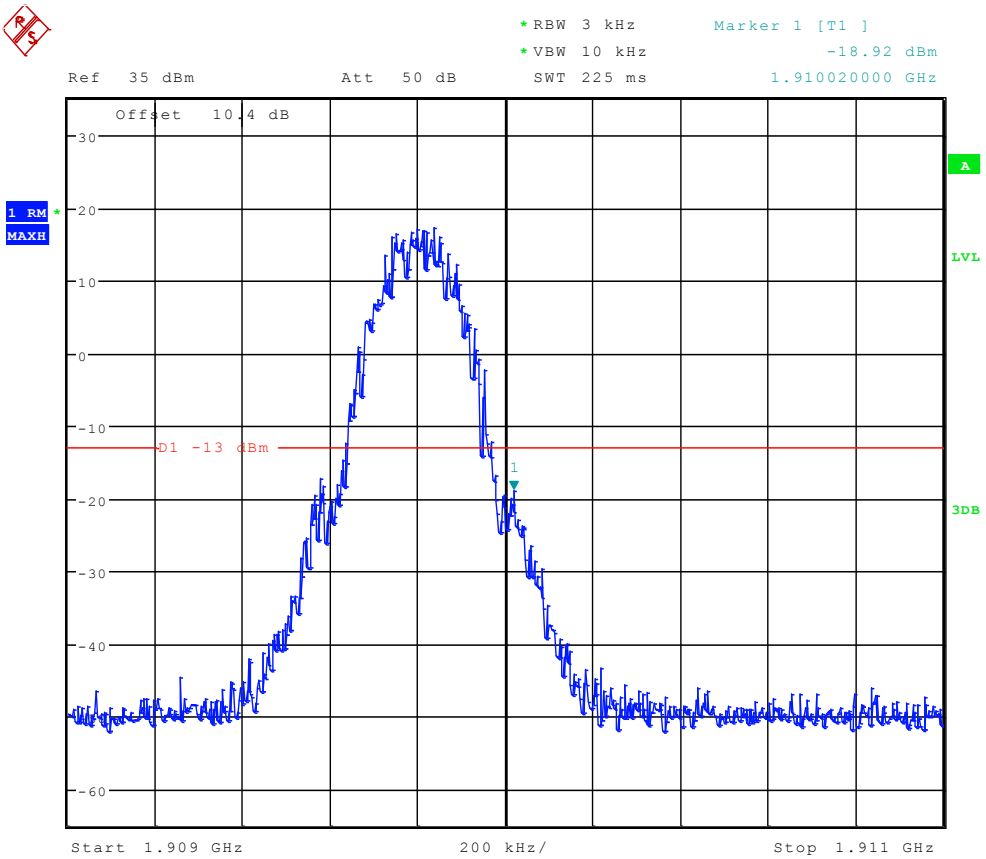
Left Edge

Channel 512



Date: 18.DEC.2011 11:56:55

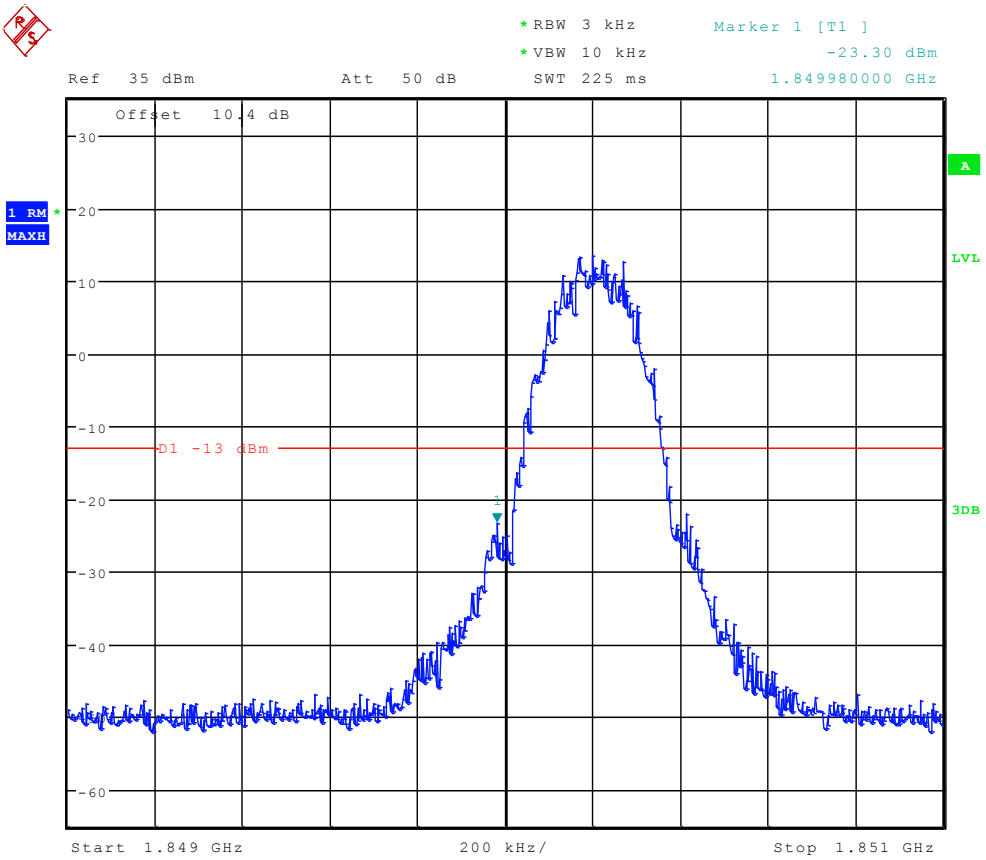
Right Edge
Channel 810



Date: 18.DEC.2011 11:57:09

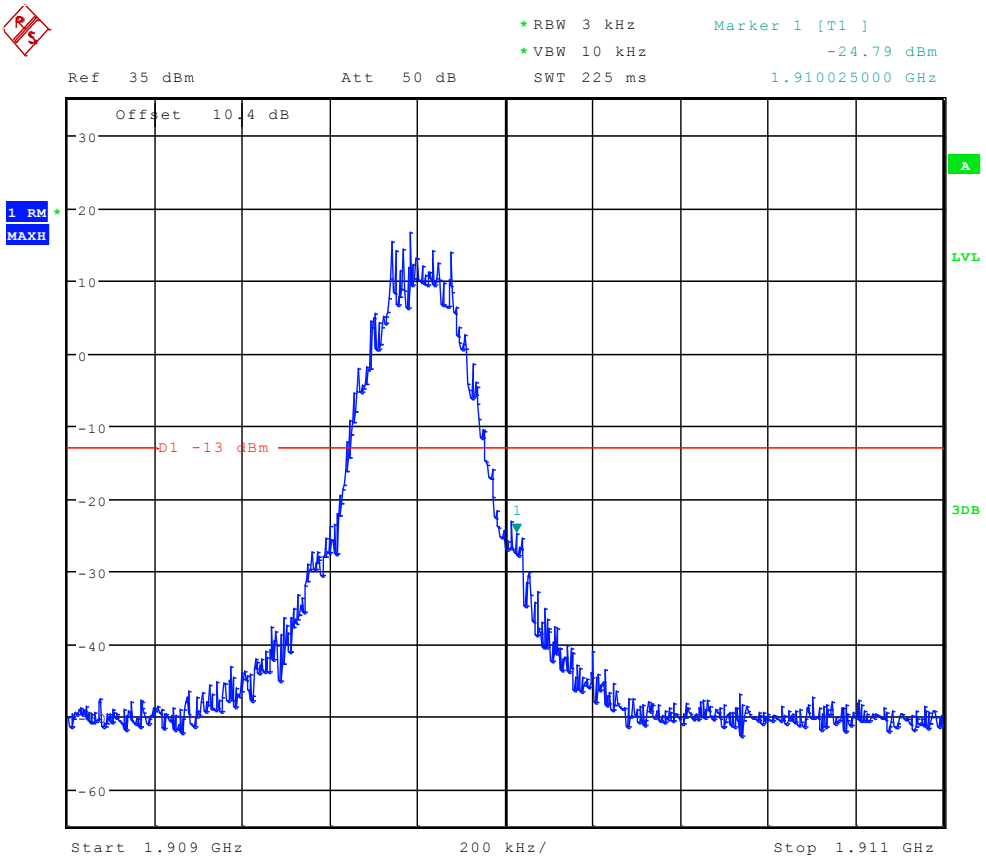
TM2:EDGE

Left Edge
Channel 512



Date: 18.DEC.2011 11:58:37

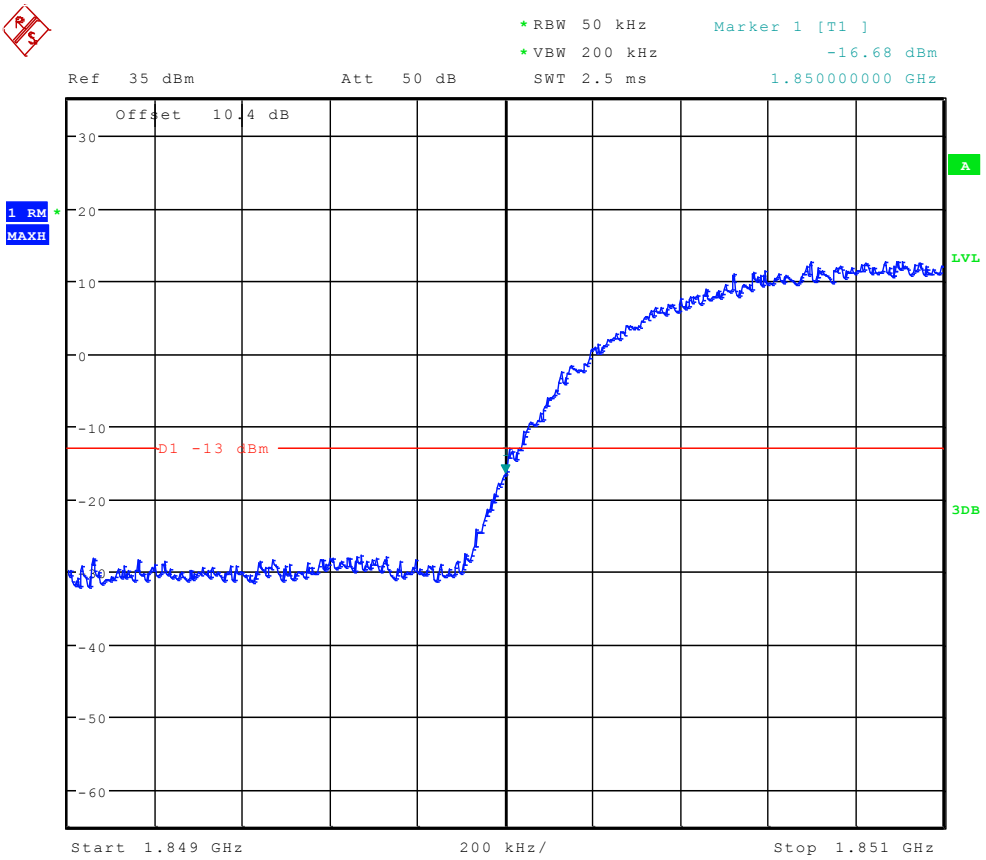
Right Edge
Channel 810



Date: 18.DEC.2011 11:58:50

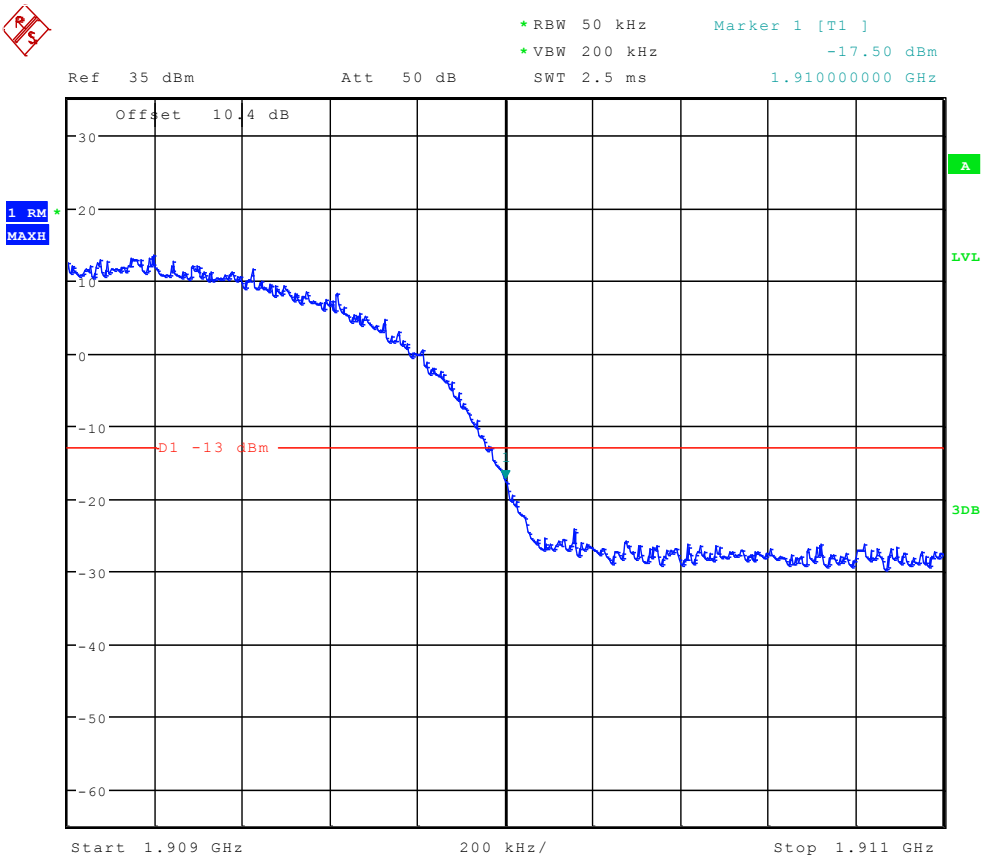
TM3: WCDMA

Left Edge
Channel 9262



Date: 18.DEC.2011 11:54:19

Right Edge
Channel 9538



Date: 18.DEC.2011 11:54:33

END

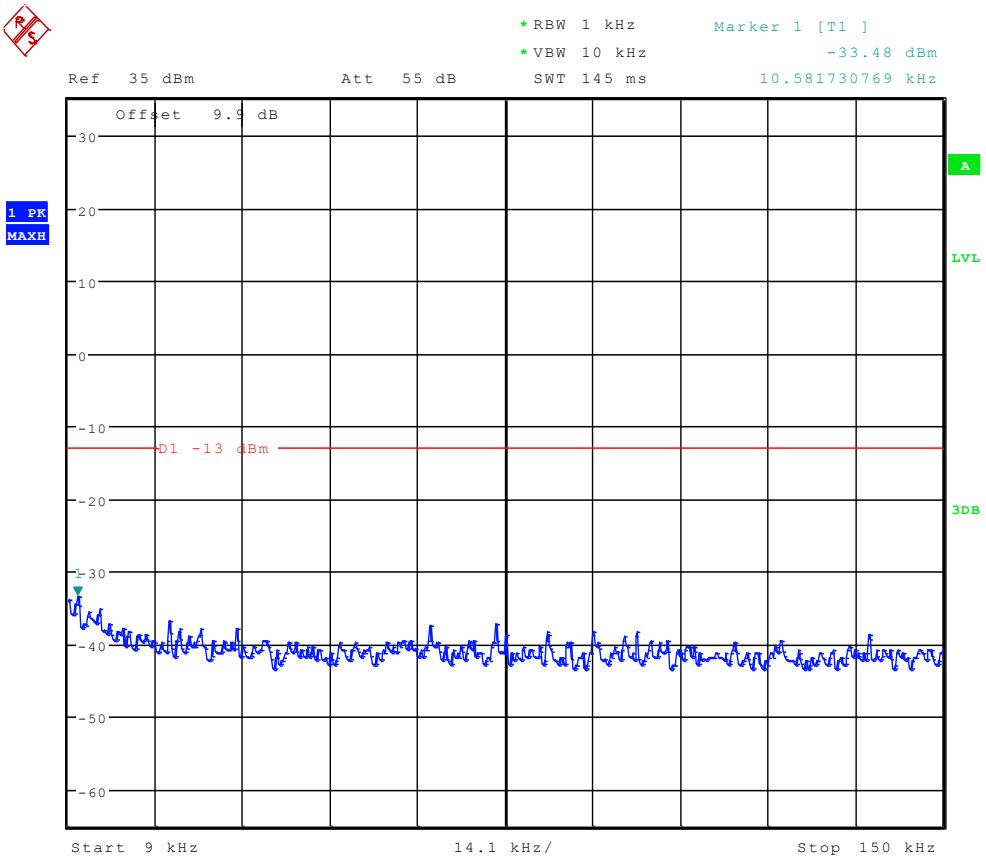
Appendix E

Spurious Emission at Antenna Terminal

According to FCC Part 2.1051 & Part24 Subpart E

TM1:GPRS/GSM

Channel 512



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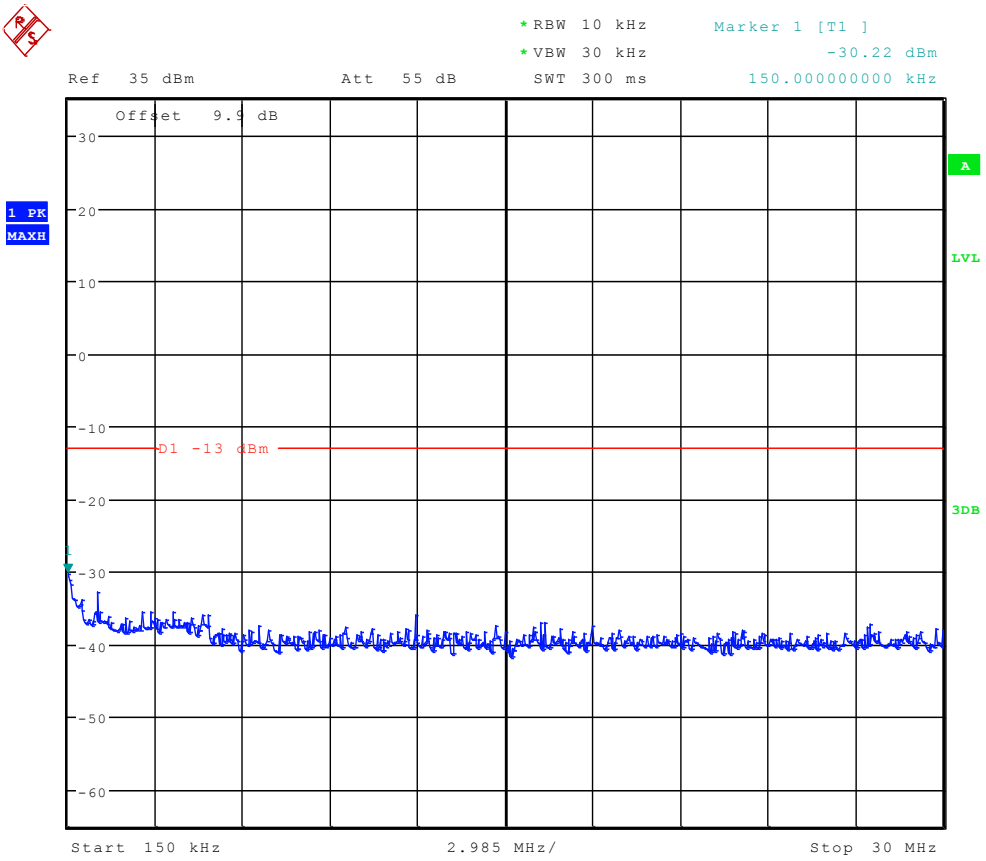
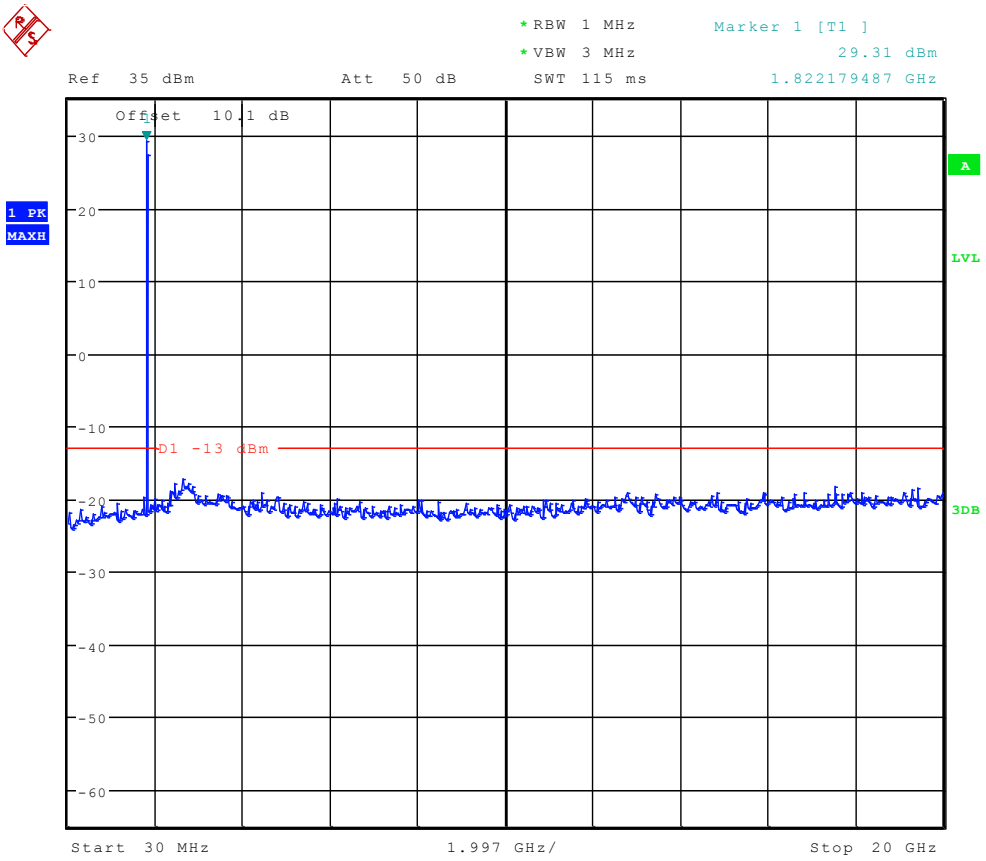
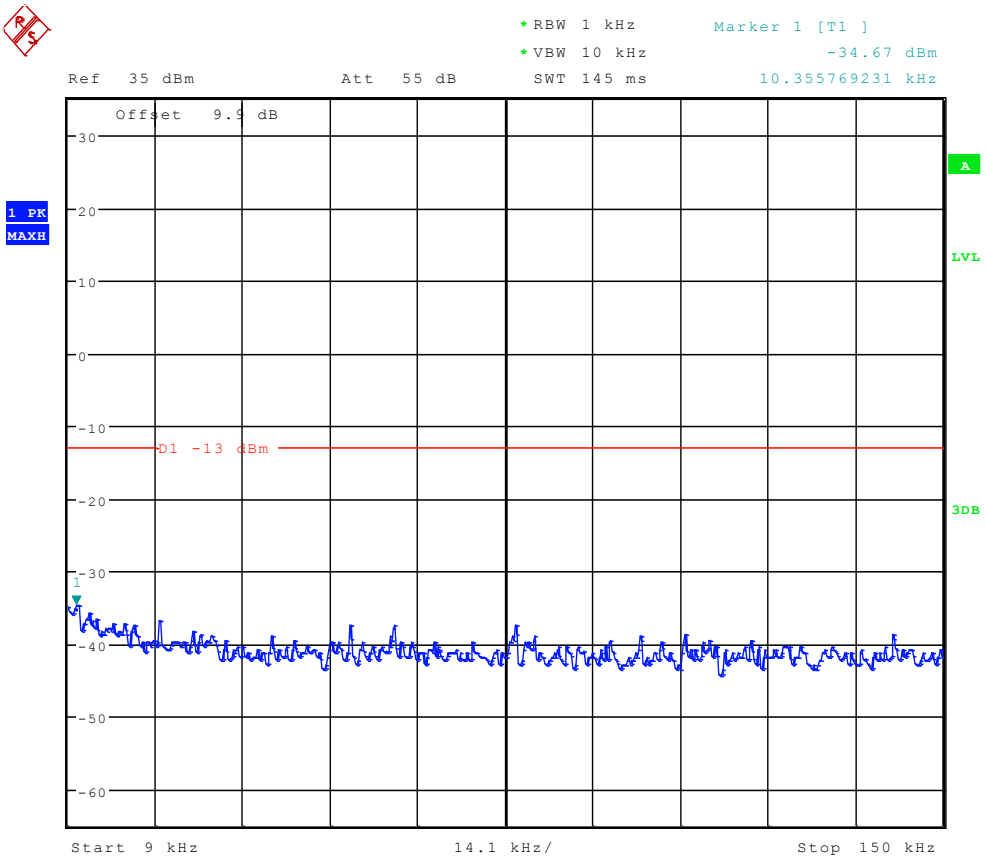


Date: 18.DEC.2011 11:42:56

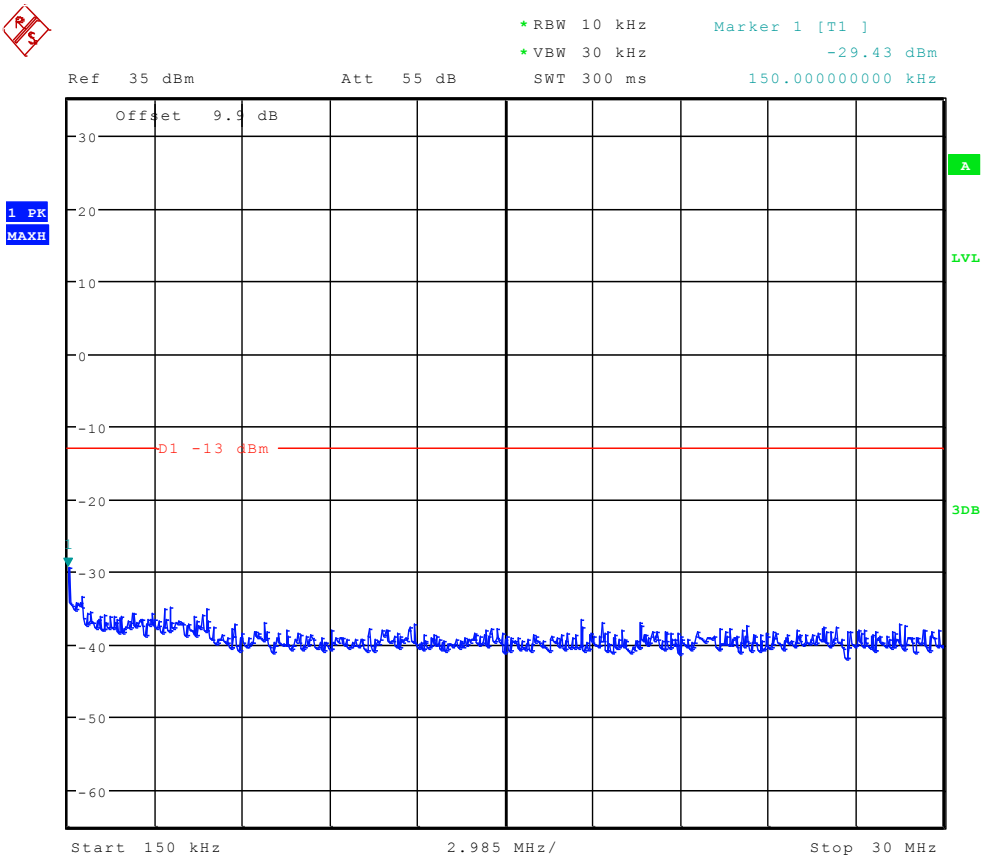


Date: 18.DEC.2011 11:43:40

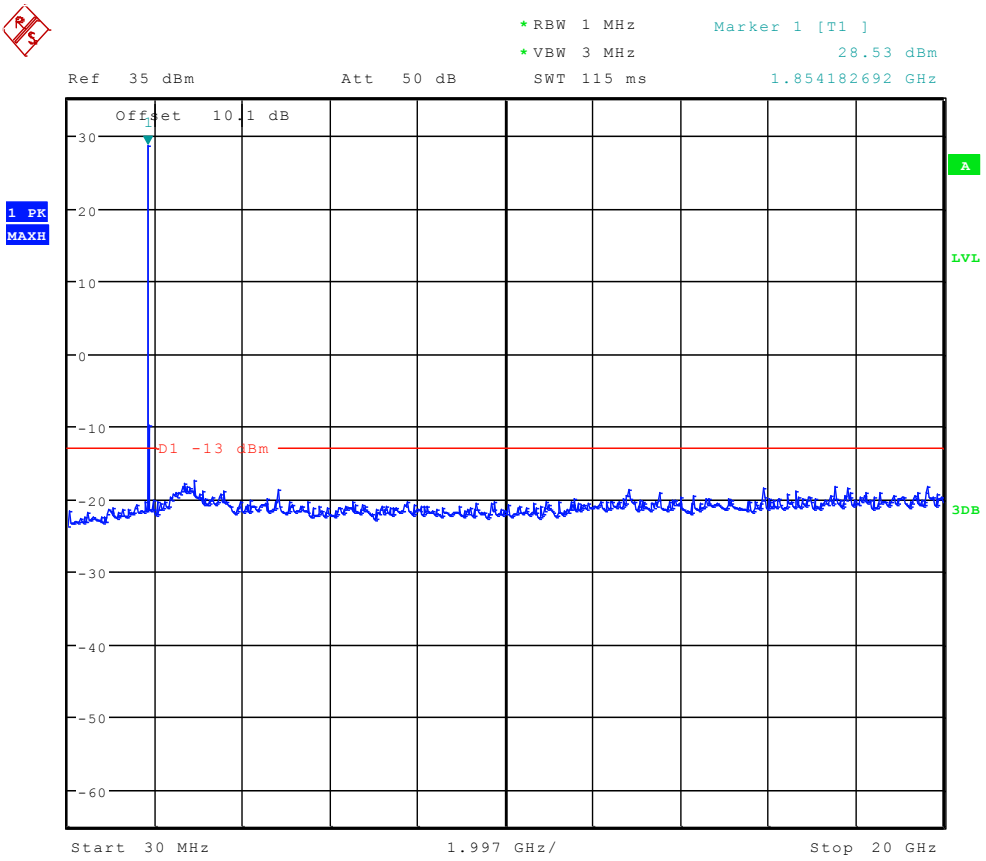
Channel 661



Date: 18.DEC.2011 11:42:27

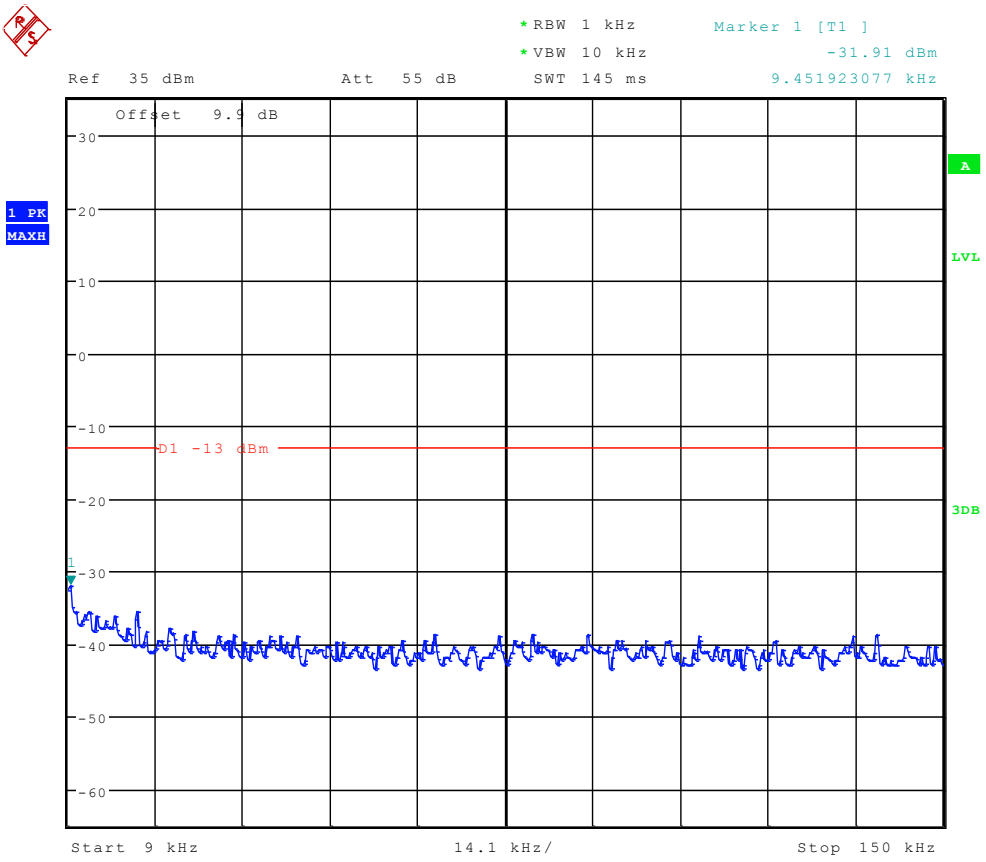


Date: 18.DEC.2011 11:43:11



Date: 18.DEC.2011 11:43:55

Channel 810



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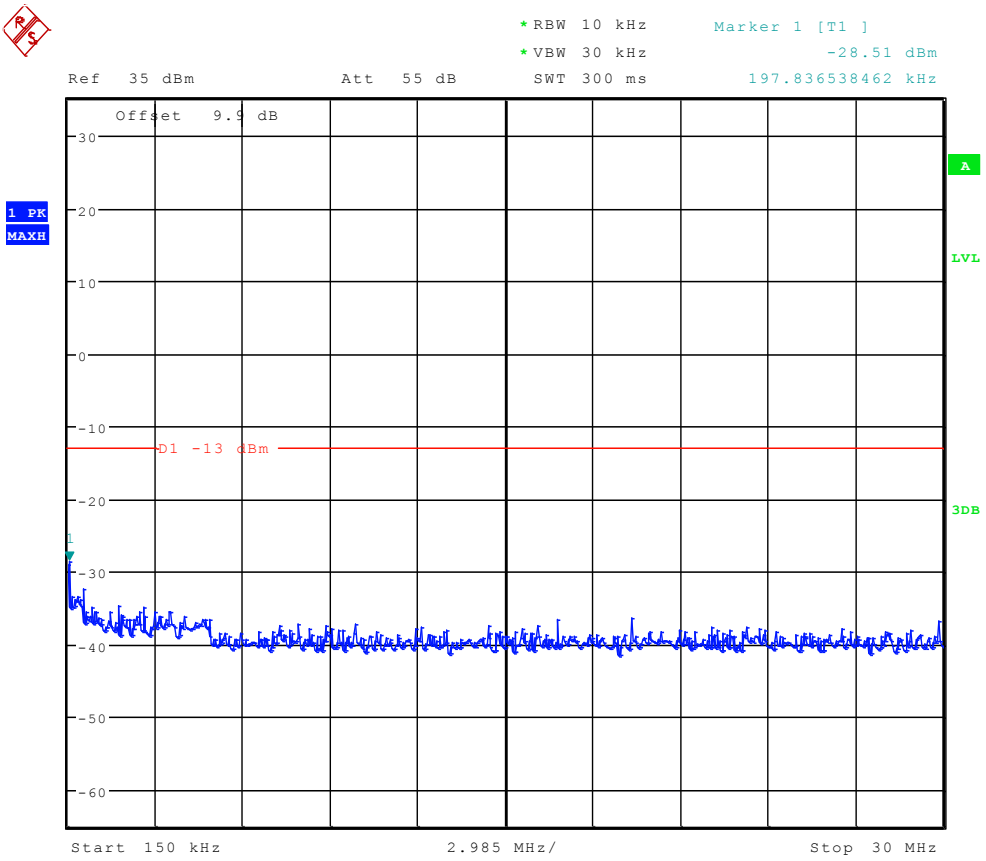

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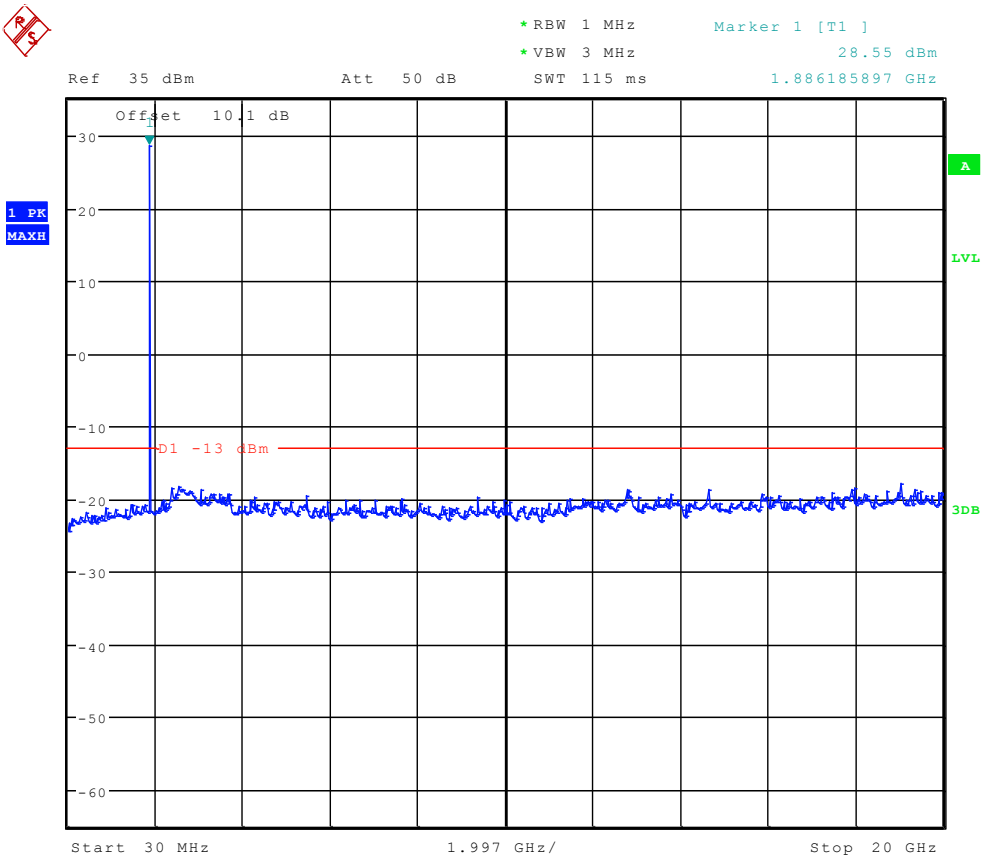
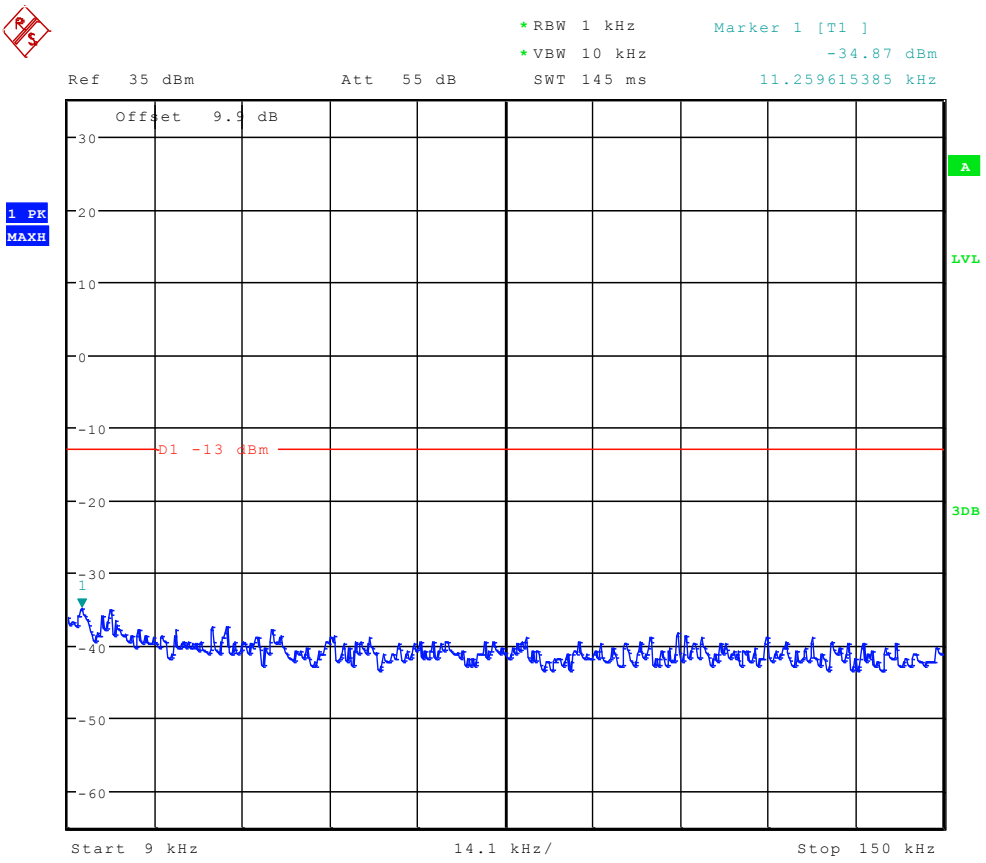


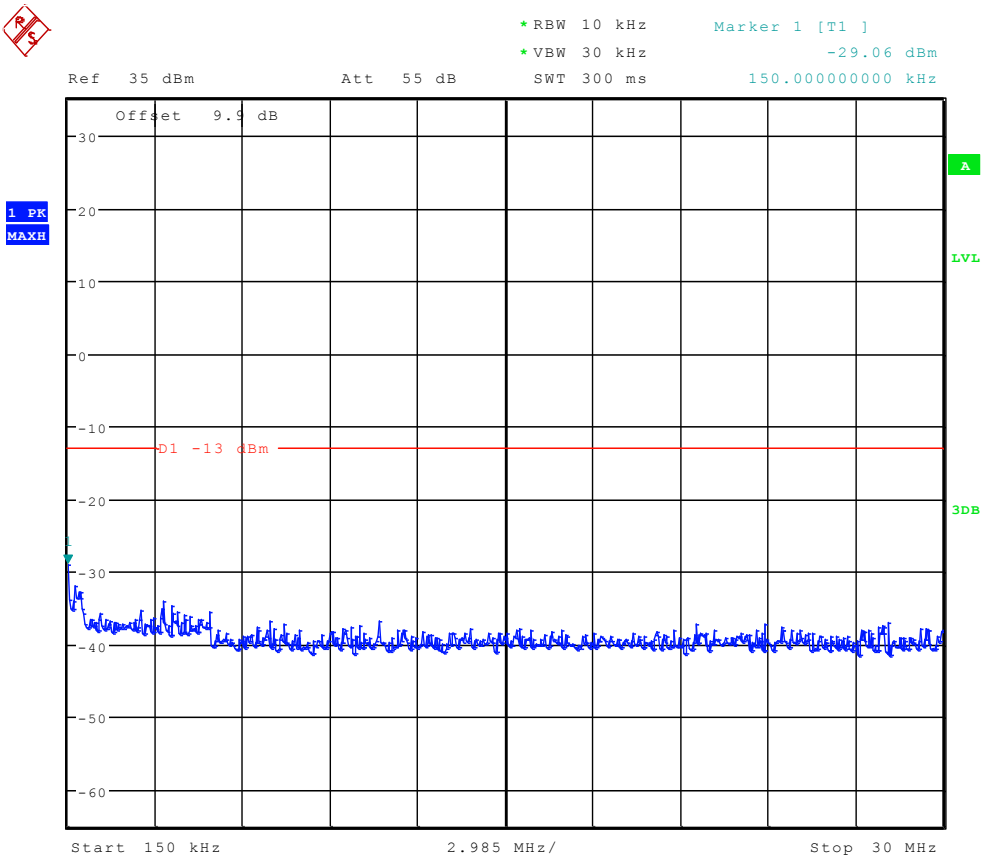
Date: 18.DEC.2011 11:44:09

TM2:EDGE

Channel 512



Date: 18.DEC.2011 11:46:38



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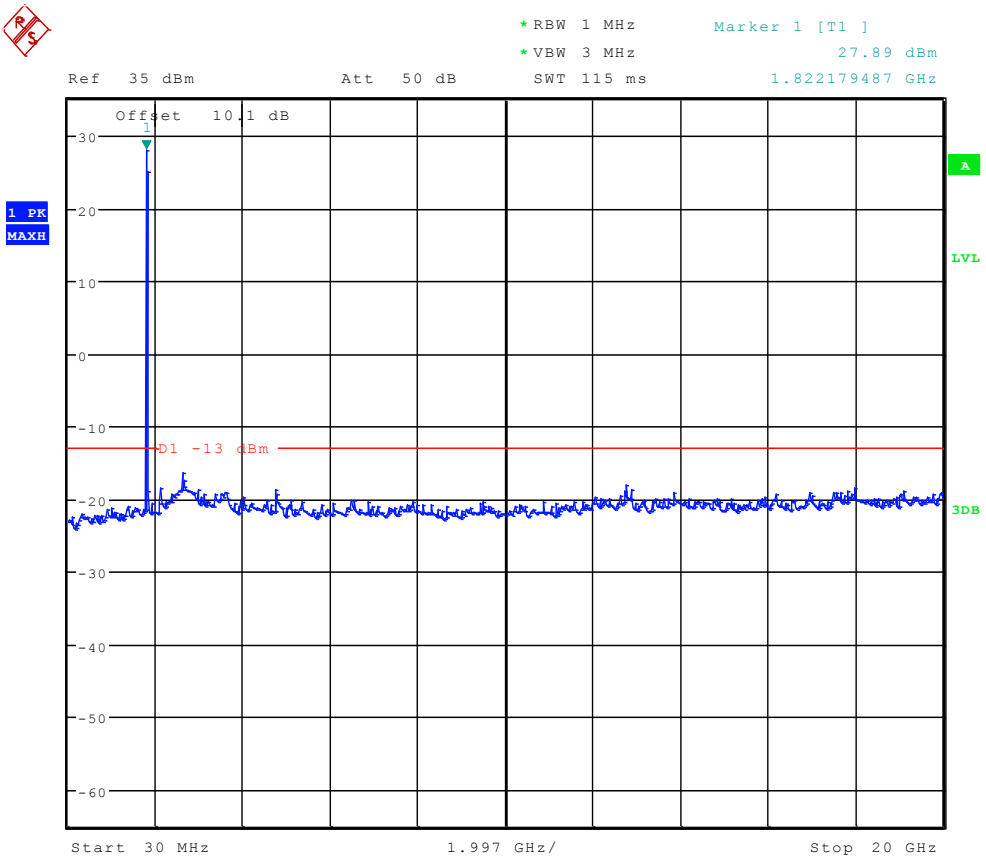
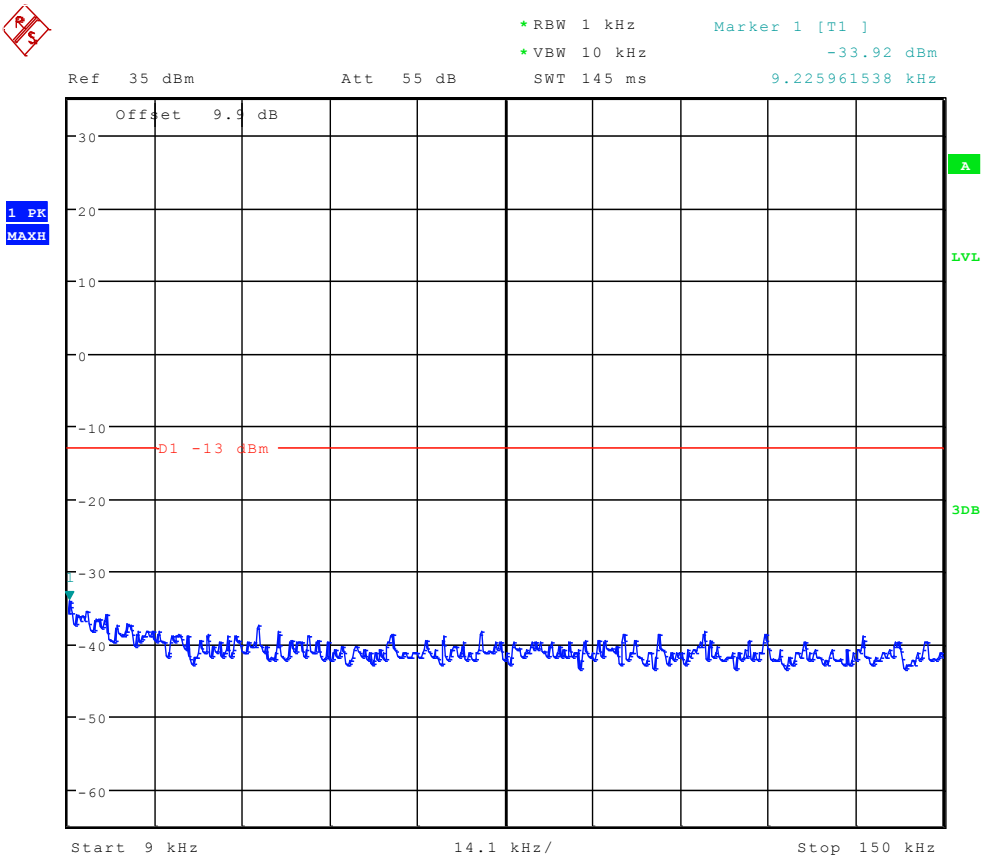
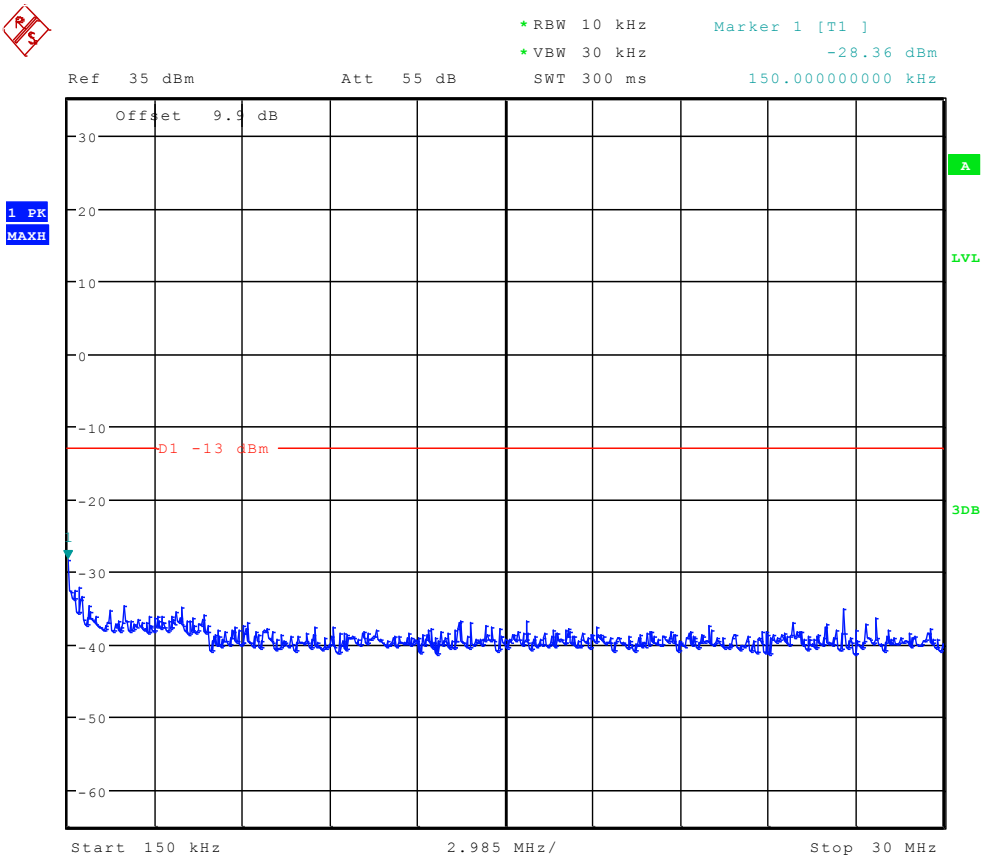


Date: 18.DEC.2011 11:48:05

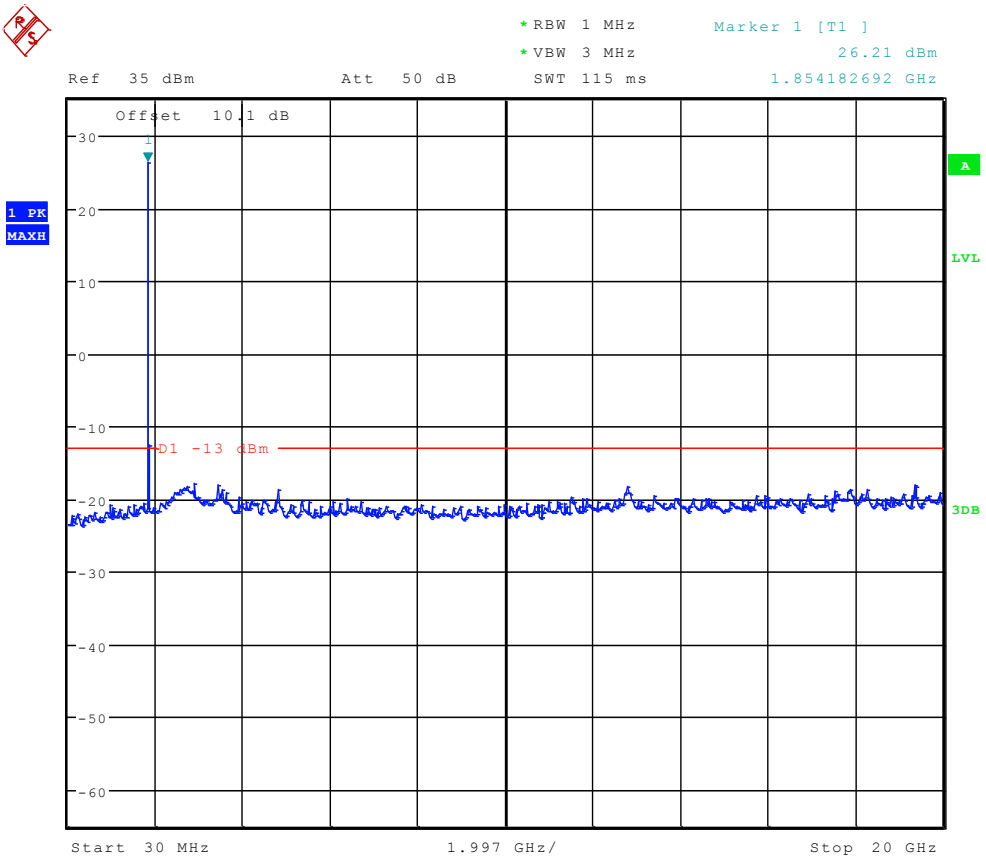
Channel 661



Date: 18.DEC.2011 11:46:52

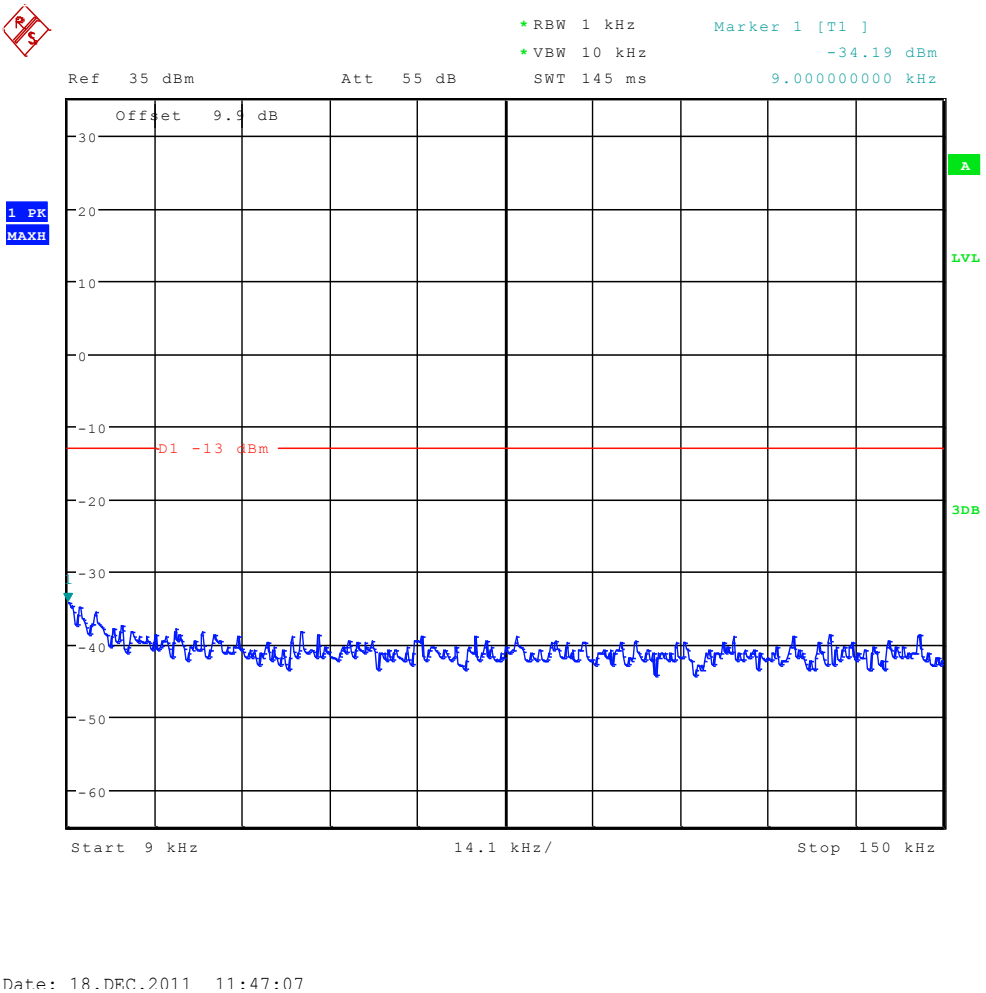


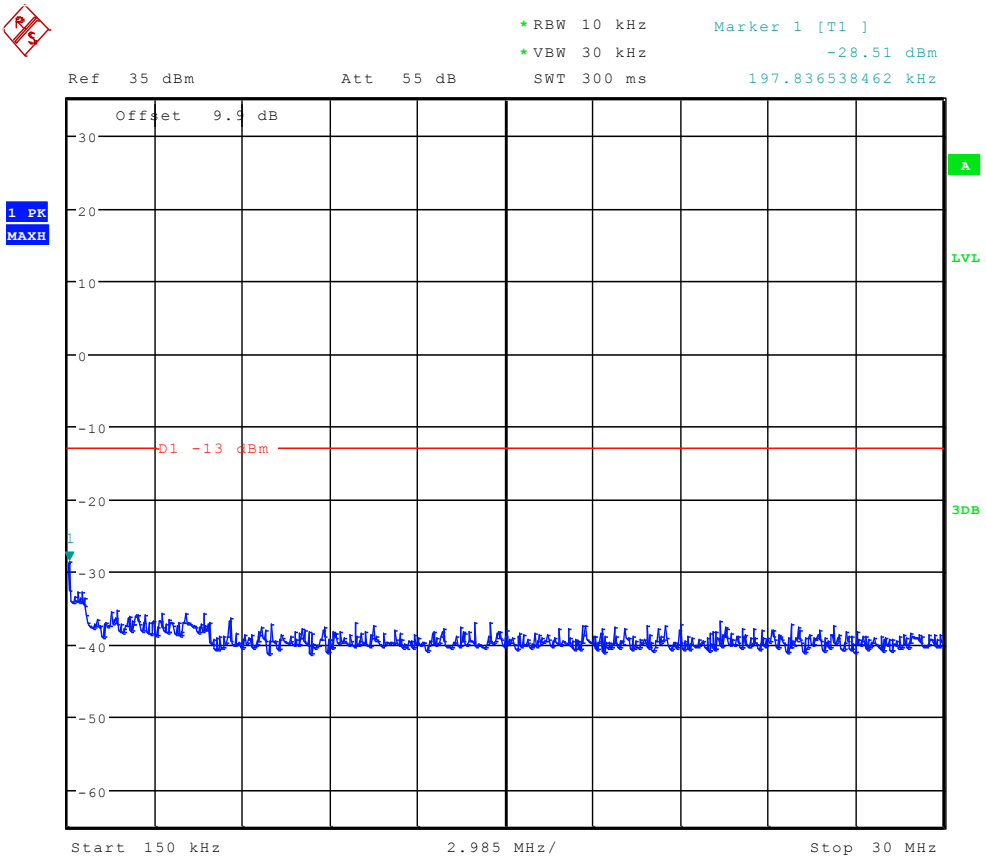
Date: 18.DEC.2011 11:47:36



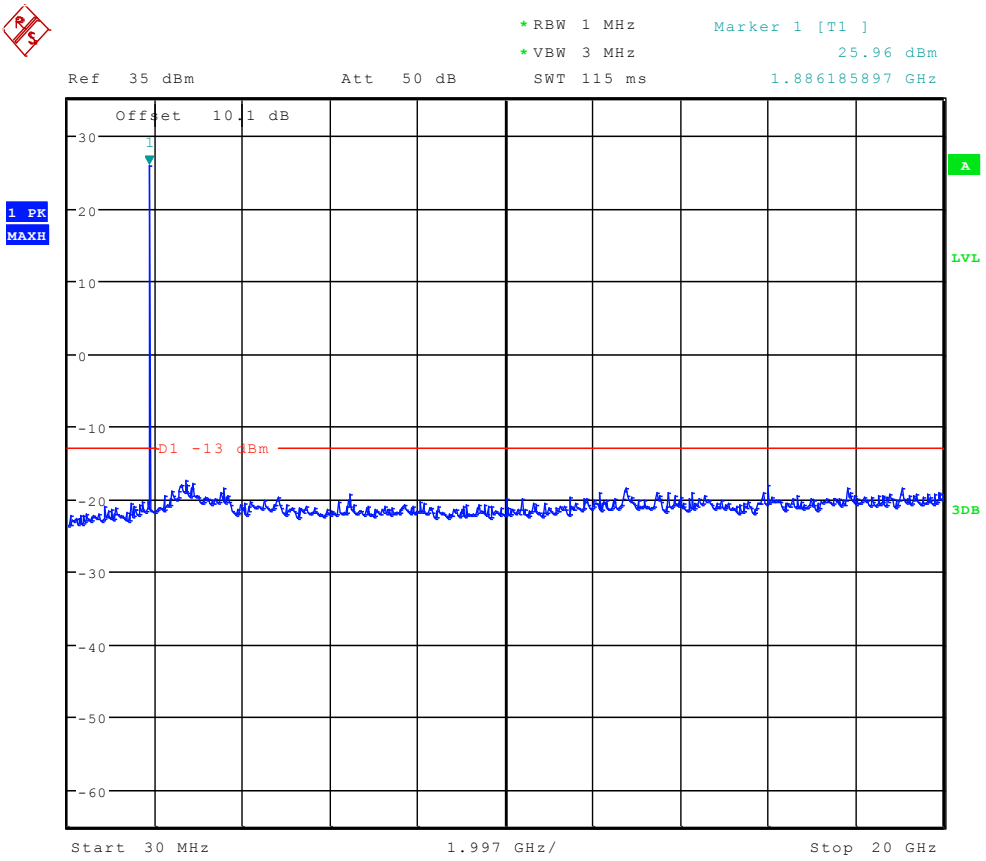
Date: 18.DEC.2011 11:48:20

Channel 810


RBW 1 kHz
VBW 10 kHz
SWT 145 ms
Marker 1 [T1]
-34.19 dBm
9.000000000 kHz
Ref 35 dBm
Att 55 dB
Offset 9.9 dB
1 PK
MAXH
A
LVL
3DB
D1 -13 dBm
30
20
10
0
-10
-20
-30
-40
-50
-60
Start 9 kHz
14.1 kHz/
Stop 150 kHz
Date: 18.DEC.2011 11:47:07



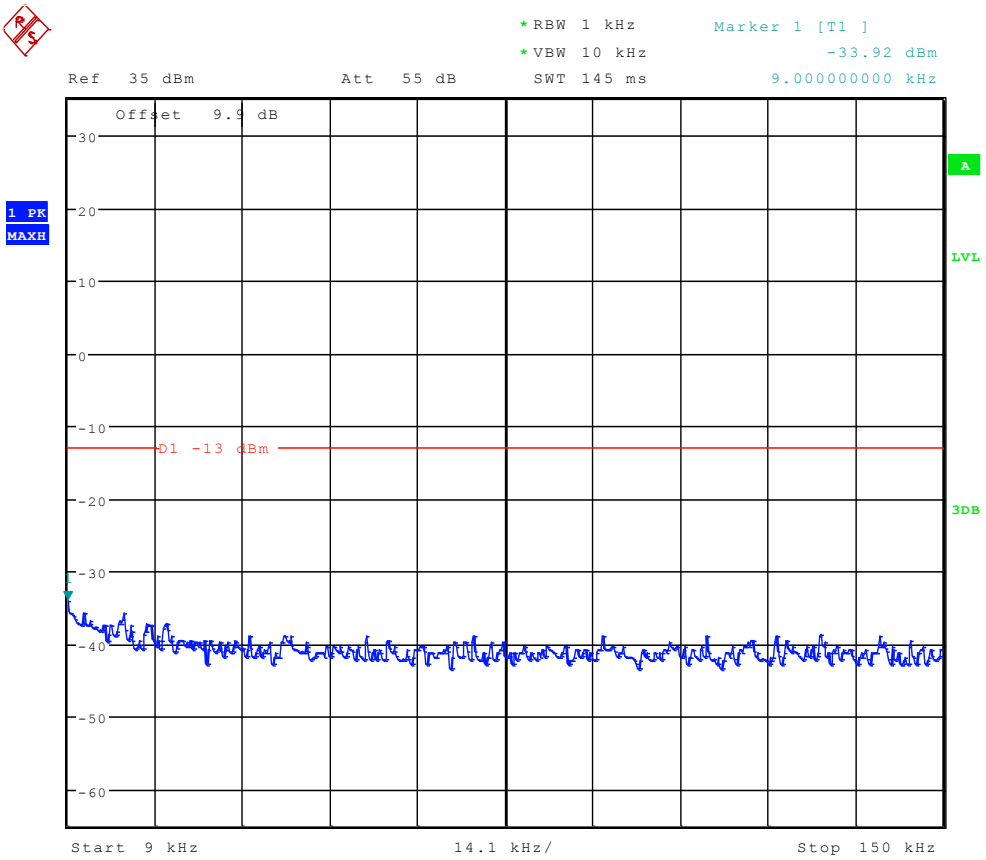
Date: 18.DEC.2011 11:47:50



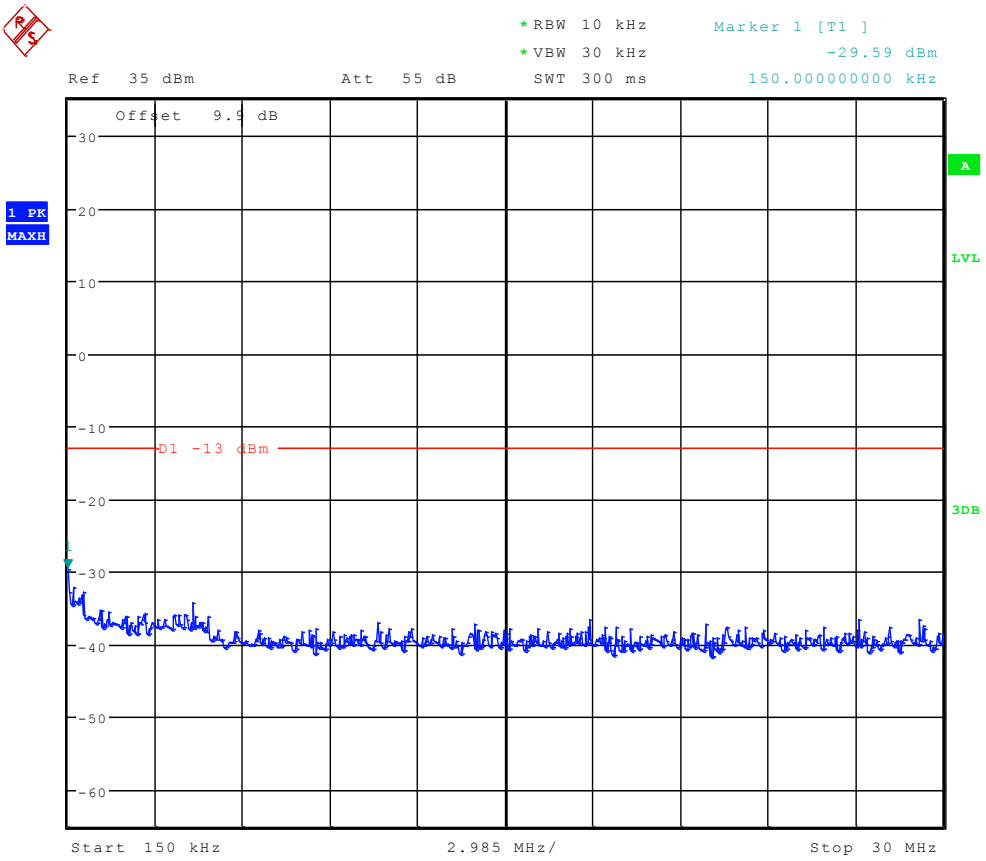
Date: 18.DEC.2011 11:48:35

TM3: WCDMA

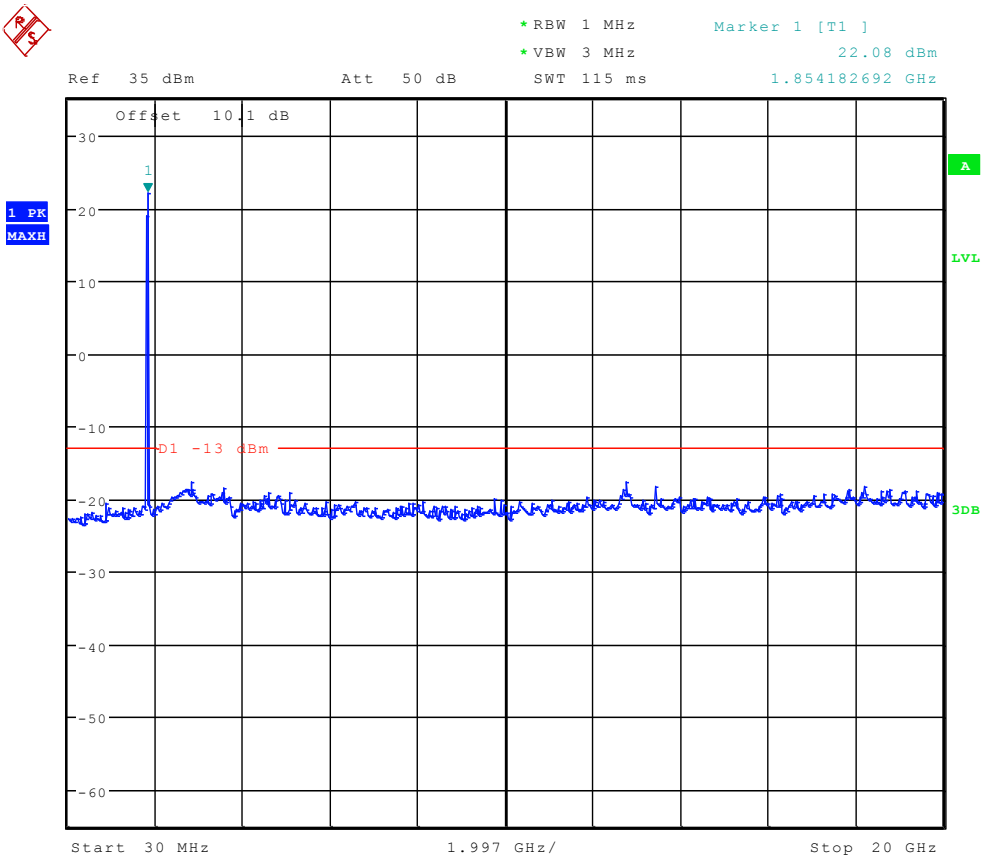
Channel 9262



Date: 18.DEC.2011 11:52:09

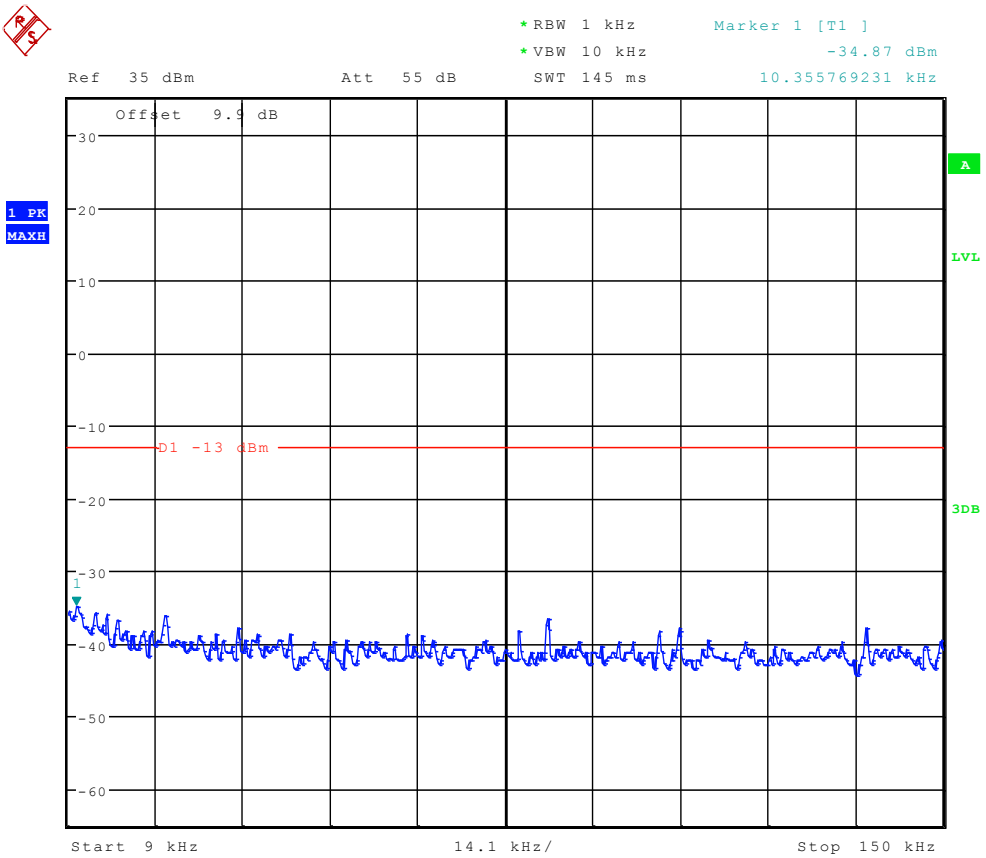


Date: 18.DEC.2011 11:52:52



Date: 18.DEC.2011 11:53:36

Channel 9400



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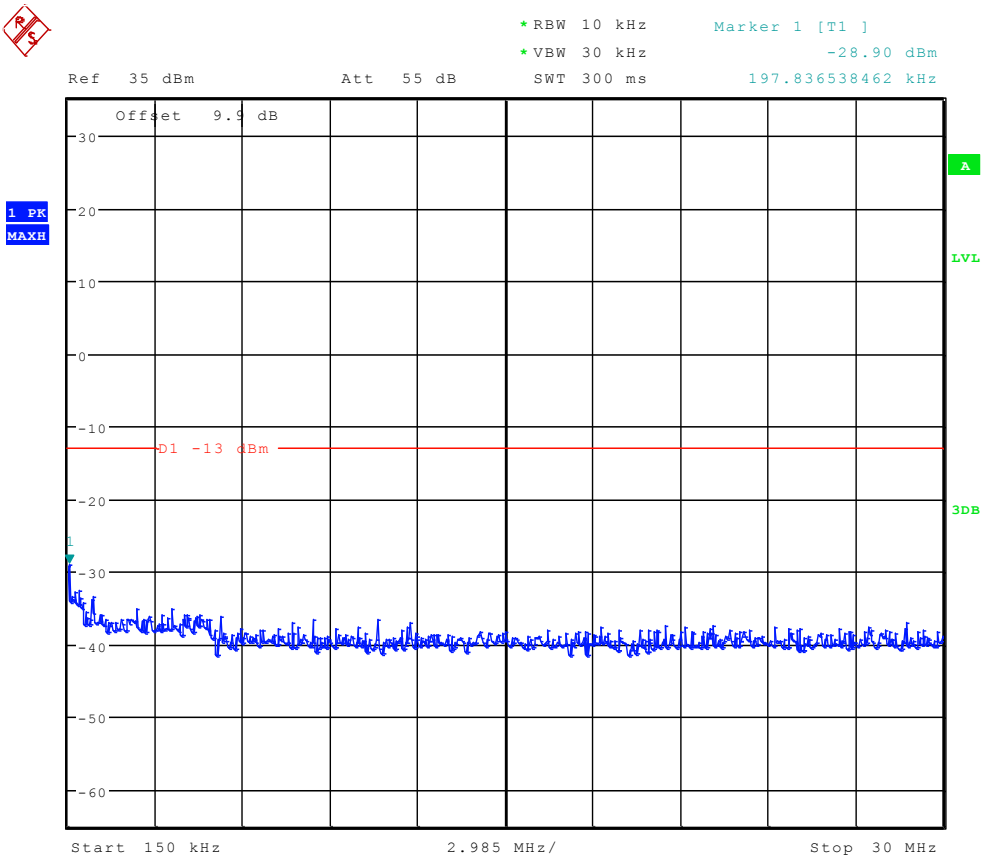

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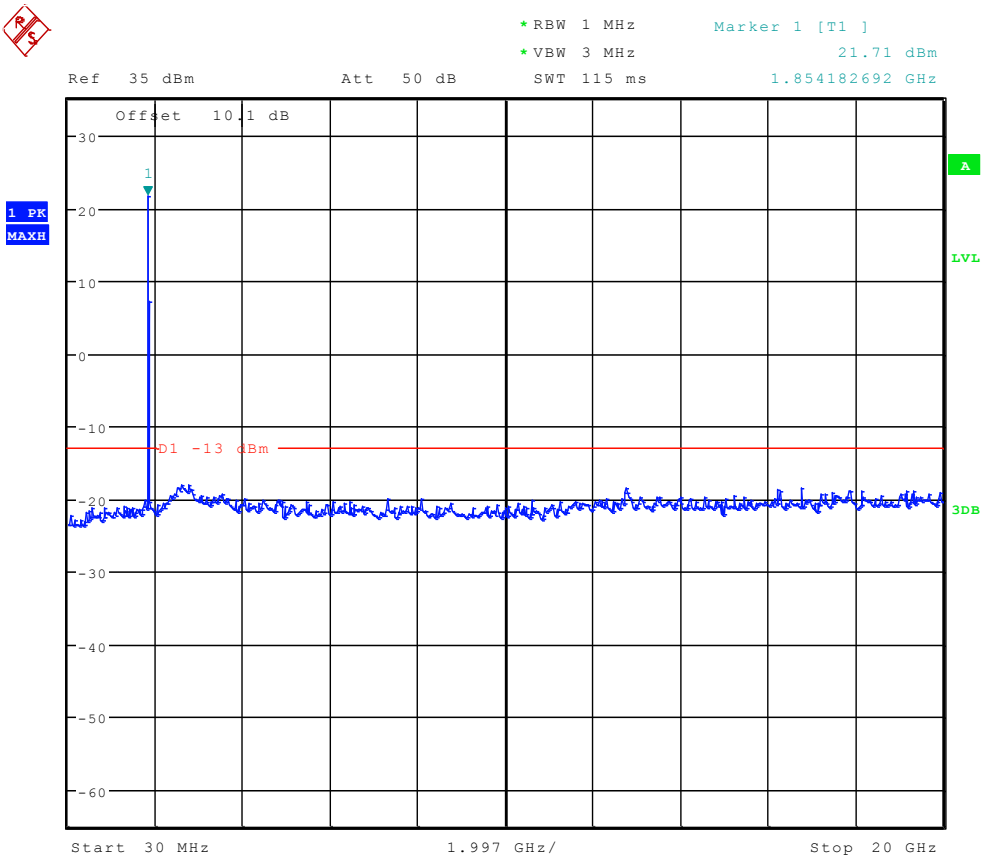
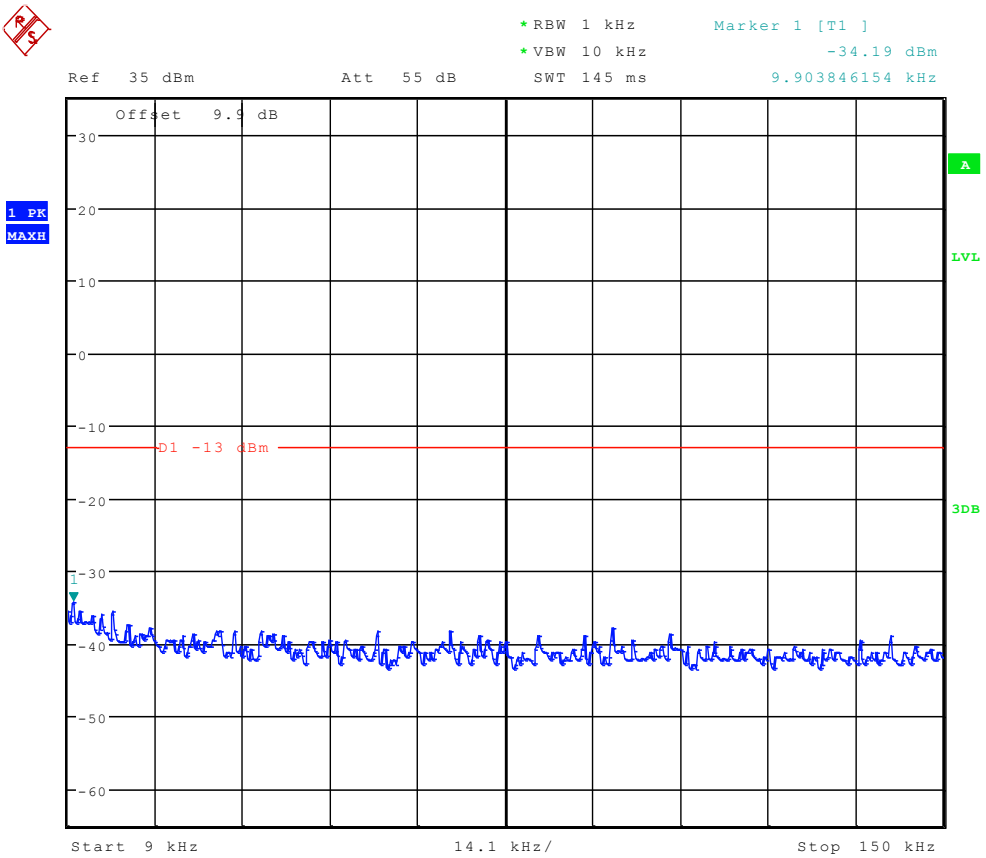
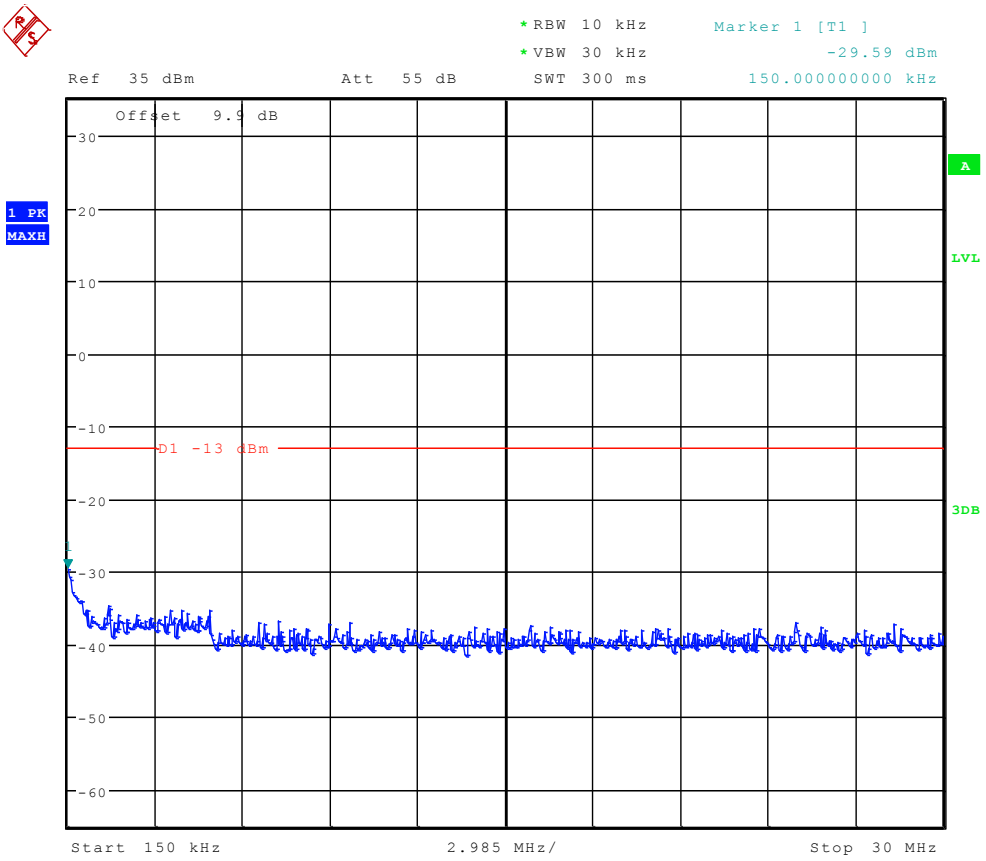


Date: 18.DEC.2011 11:53:50

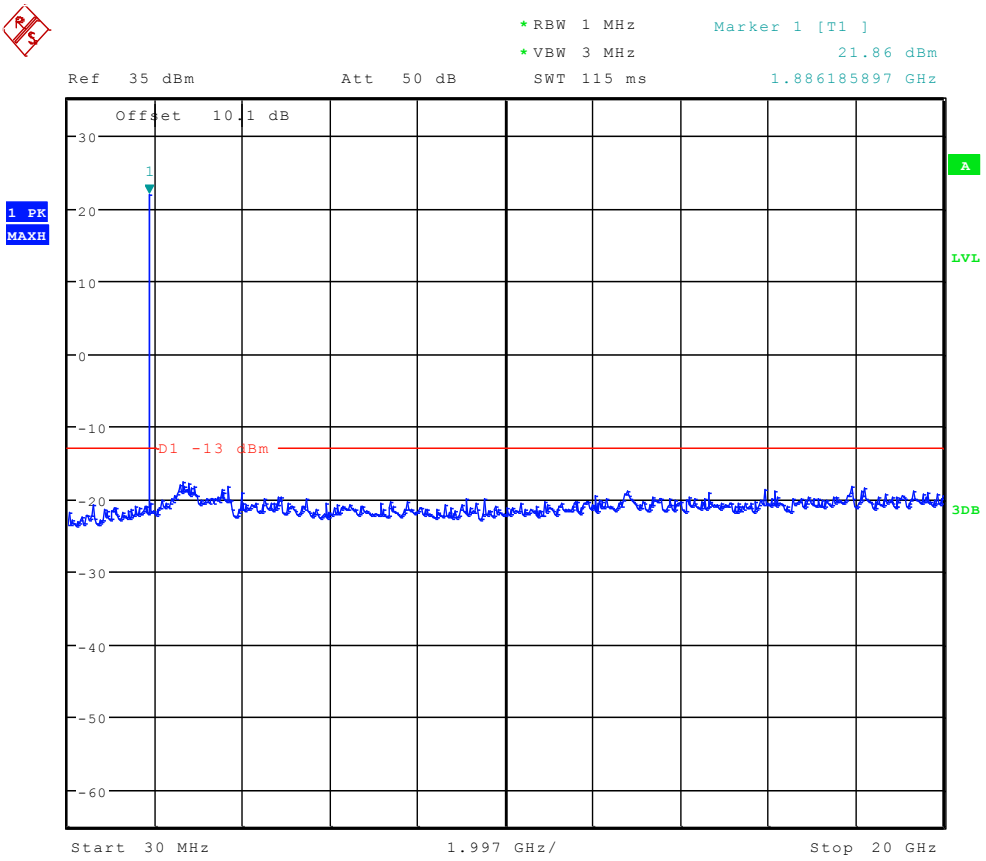
Channel 9538



Date: 18.DEC.2011 11:52:37



Date: 18.DEC.2011 11:53:21



Date: 18.DEC.2011 11:54:05

END

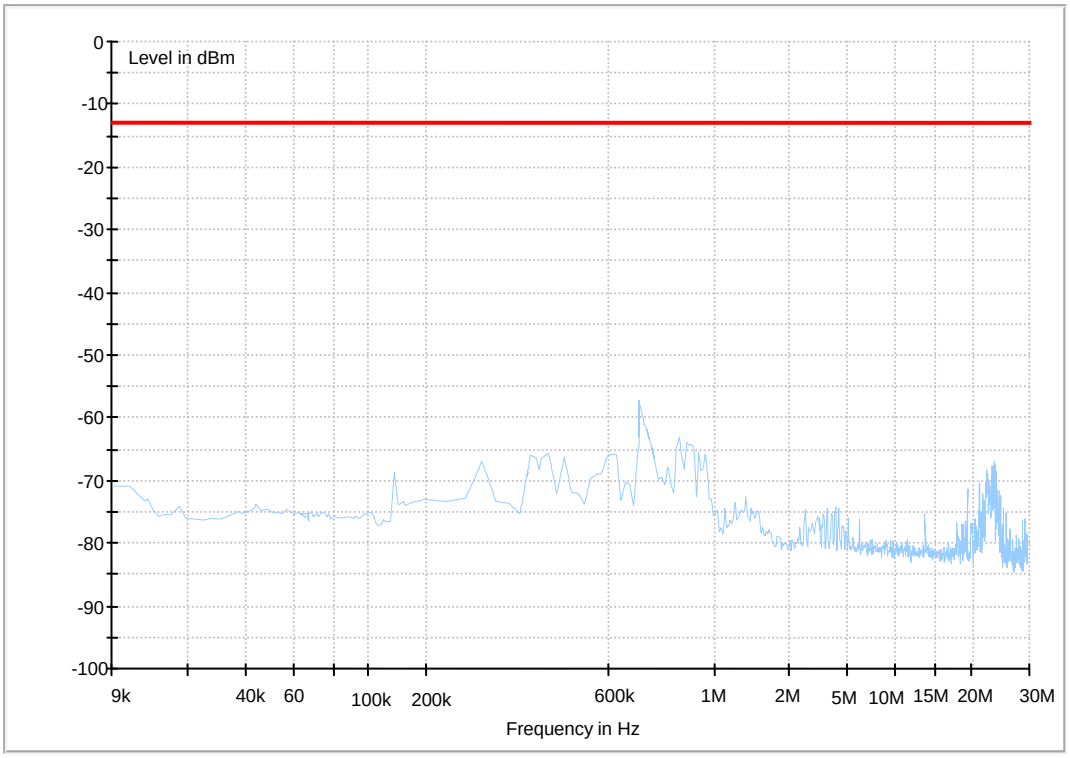
Appendix F

Radiated spurious emission

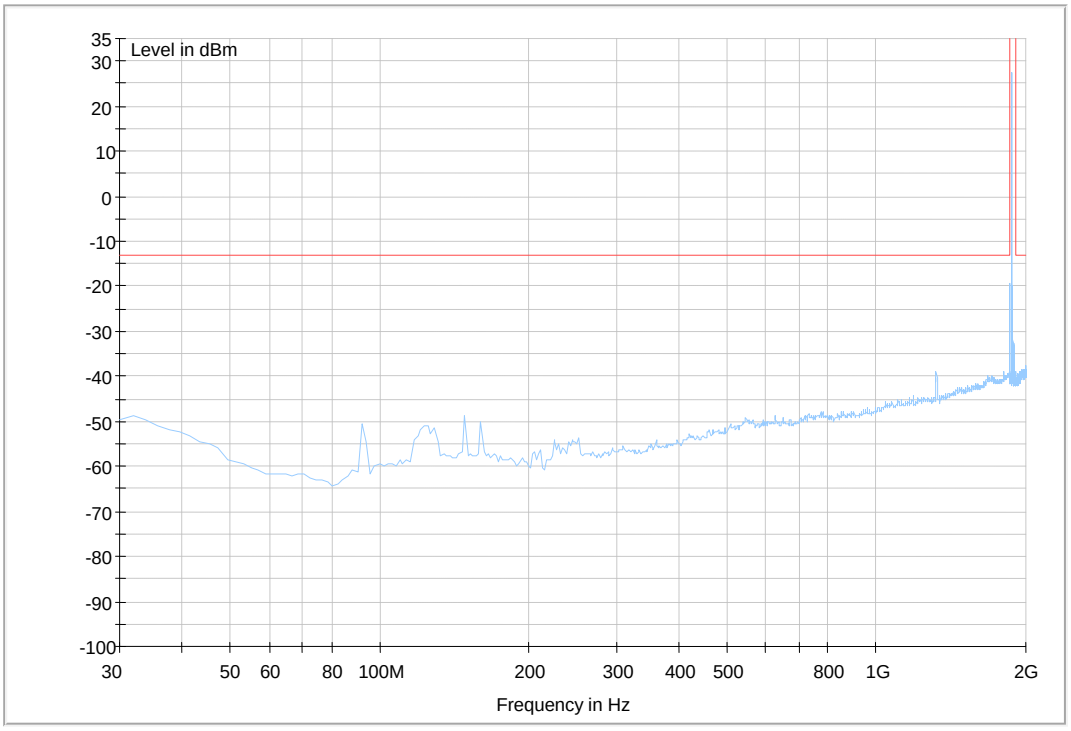
According to FCC Part 2.1053& Part 24.238

GPRS 1900

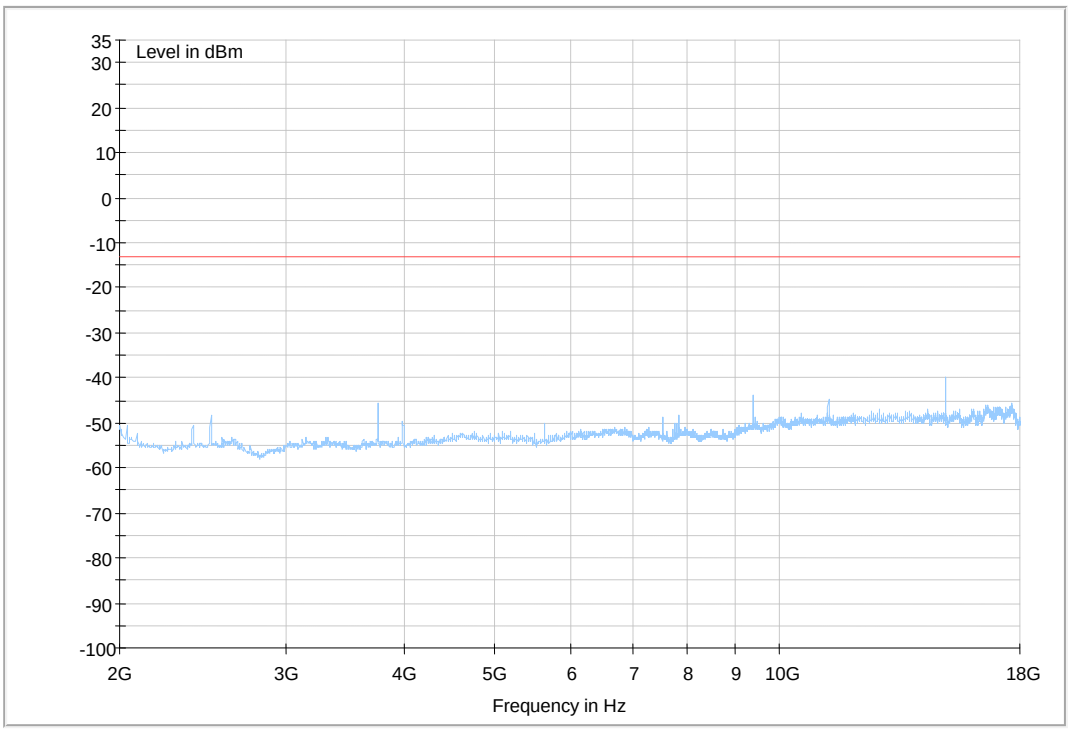
(9kHz-30MHz)



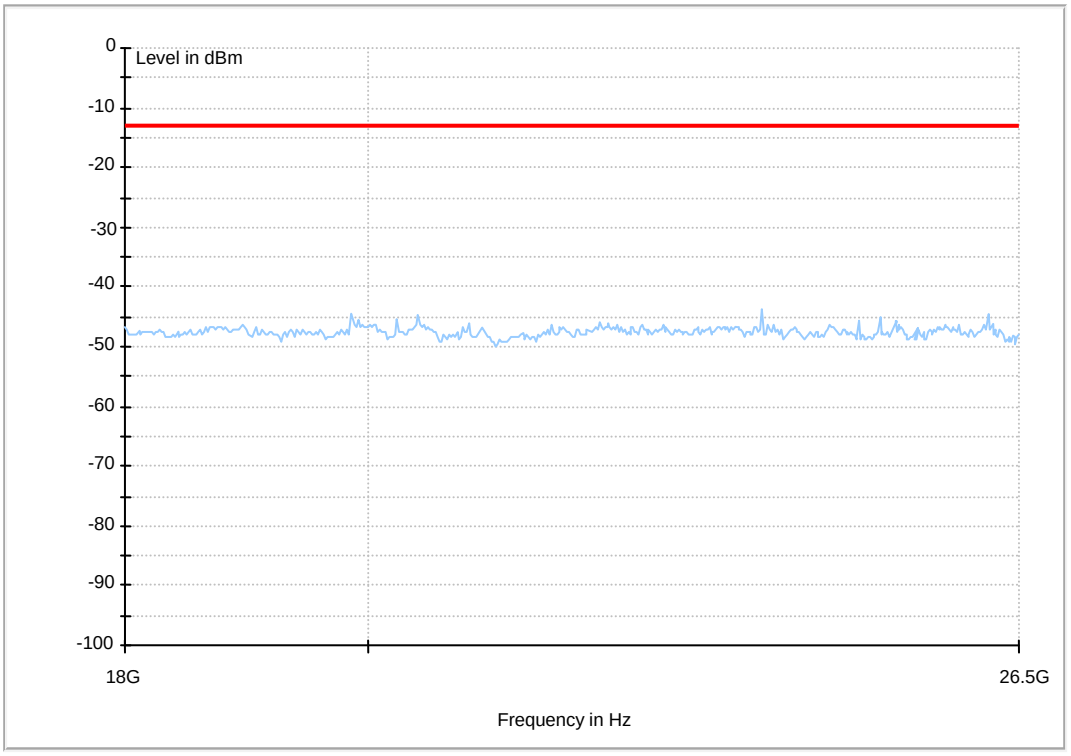
(30MHz~2GHz)



(2GHz~18GHz)

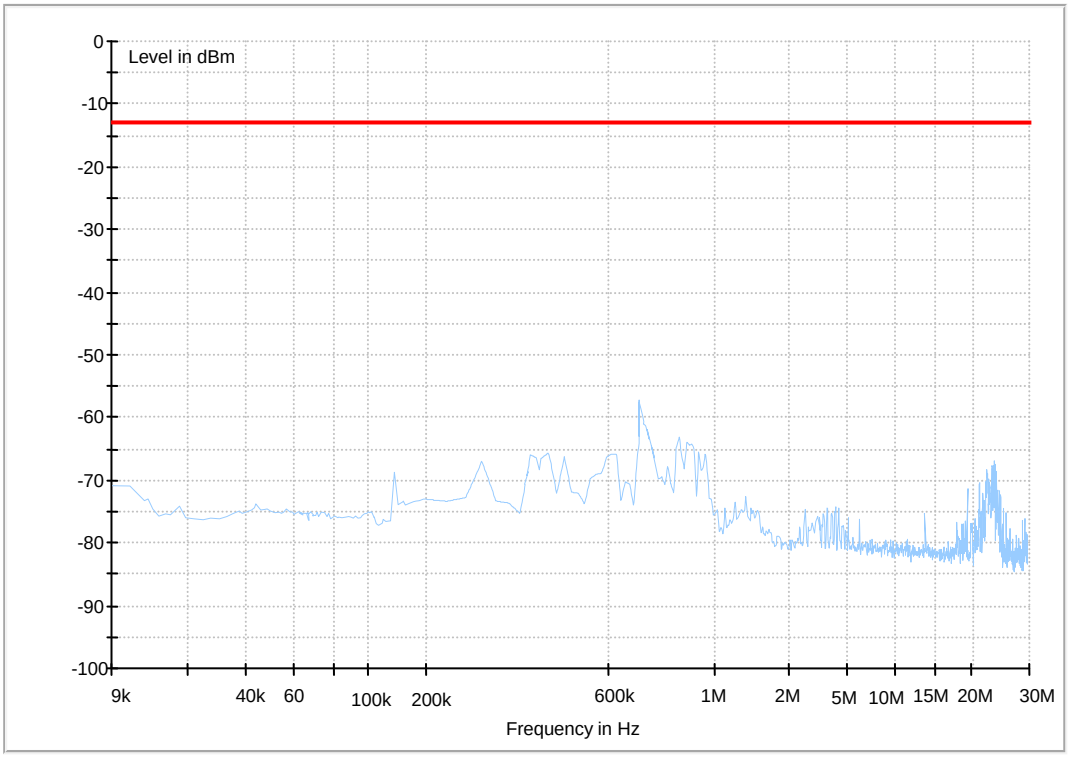


(18GHz-26.5GHz)

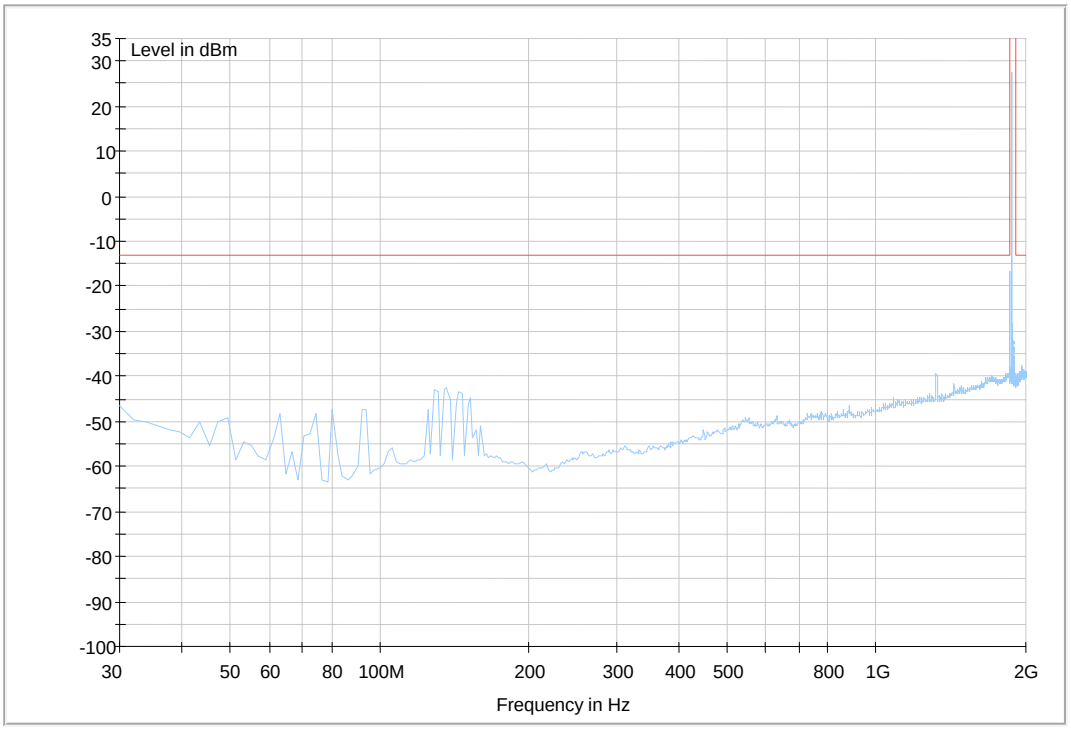


EDGE 1900

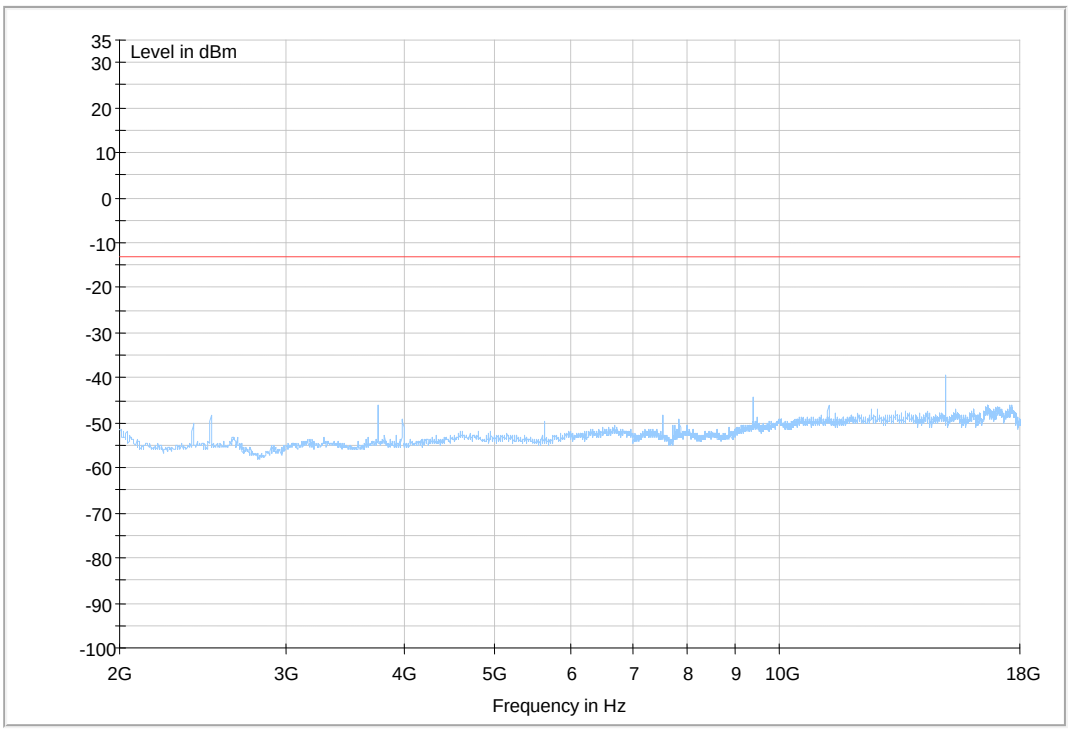
(9kHz-30MHz)



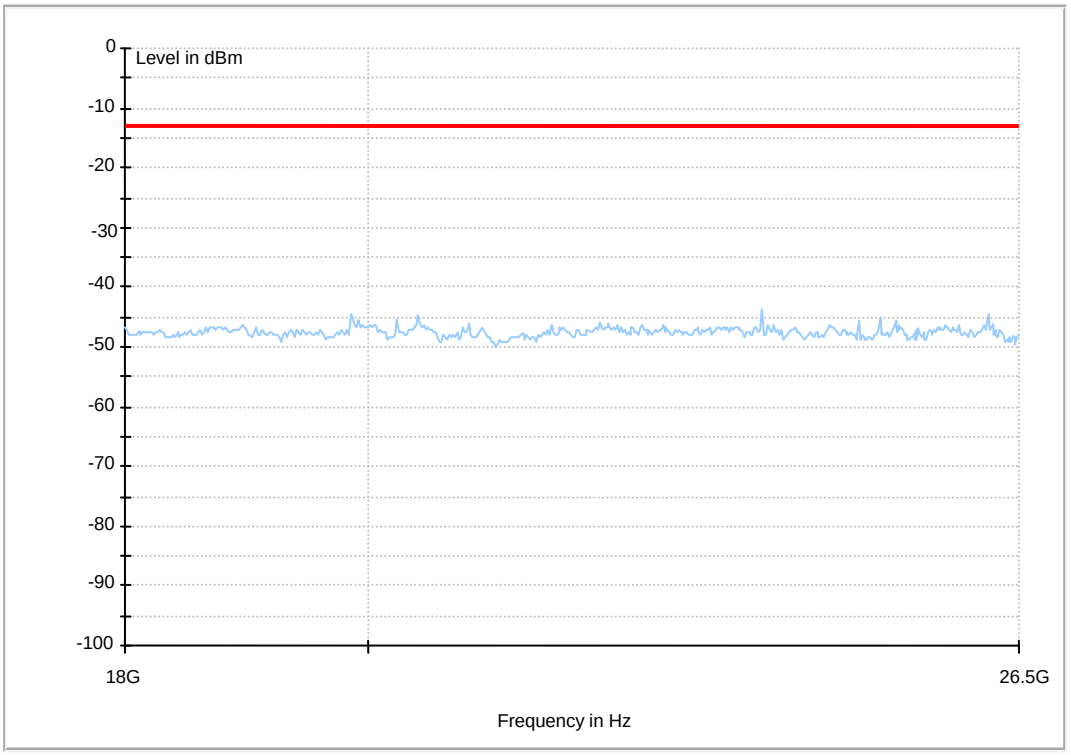
(30MHz~2GHz)



(2GHz~18GHz)

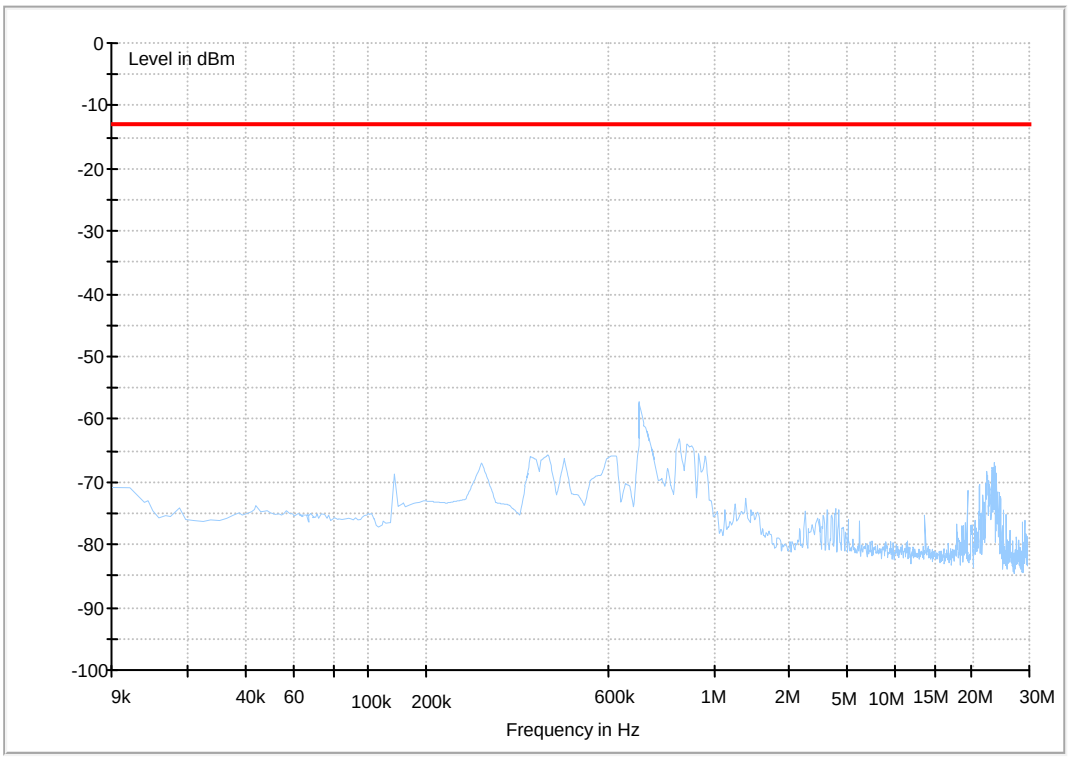


(18GHz-26.5GHz)

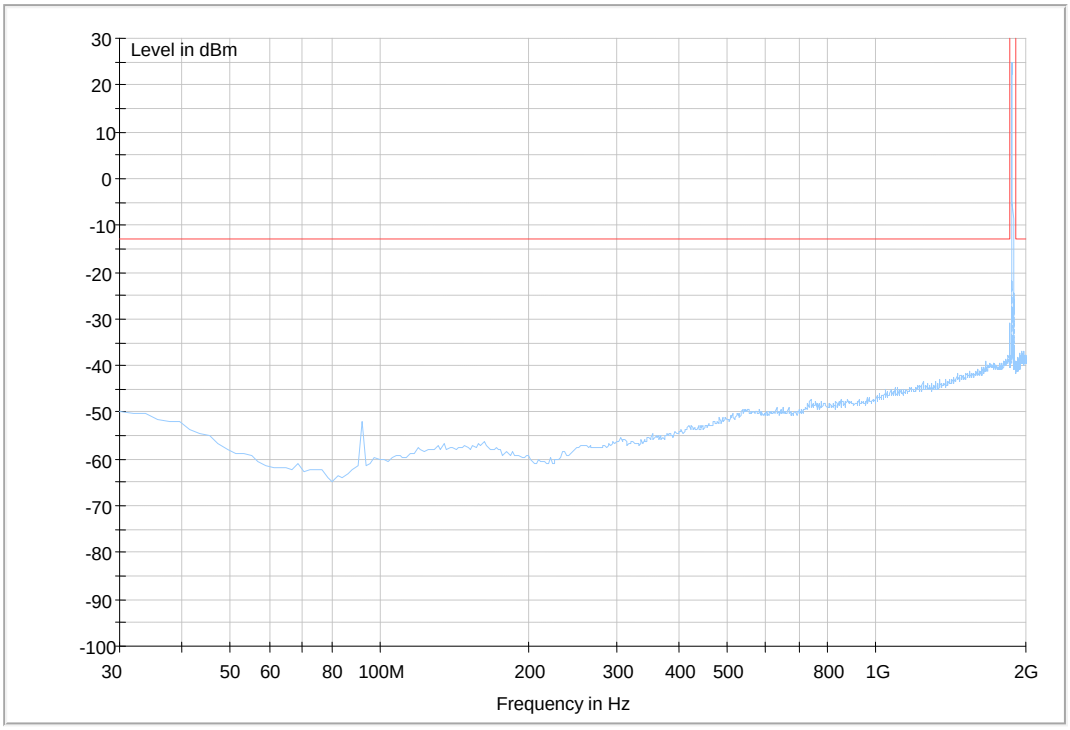


WCDMA Band II

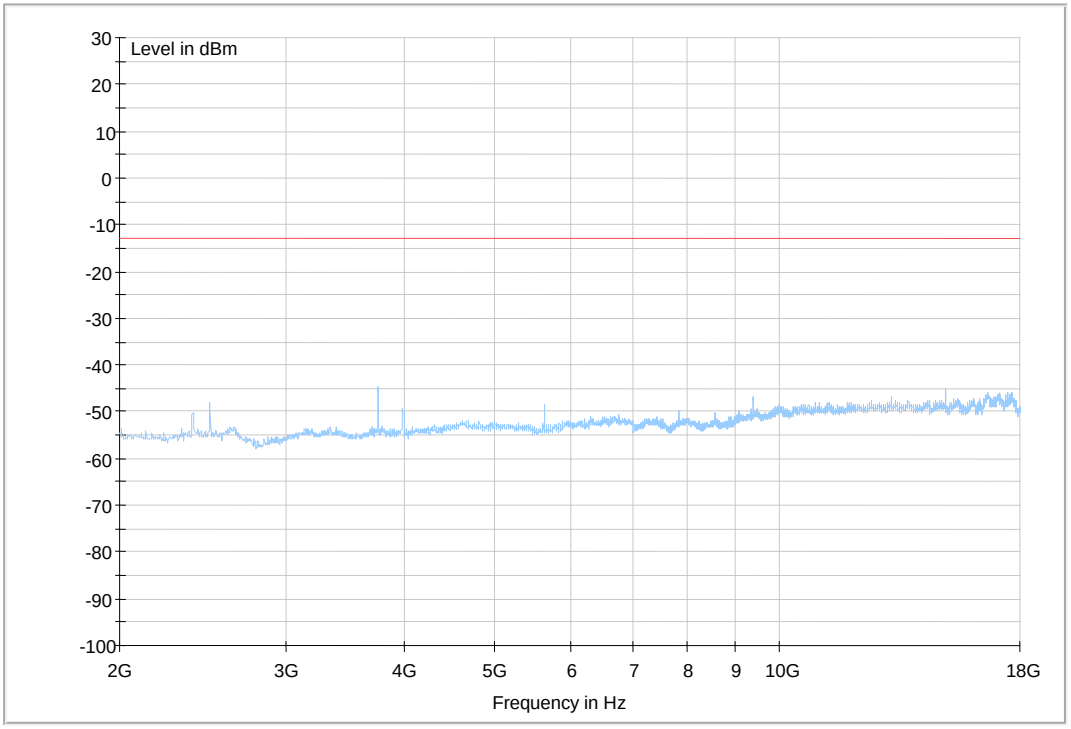
(9KHz~30MHz)



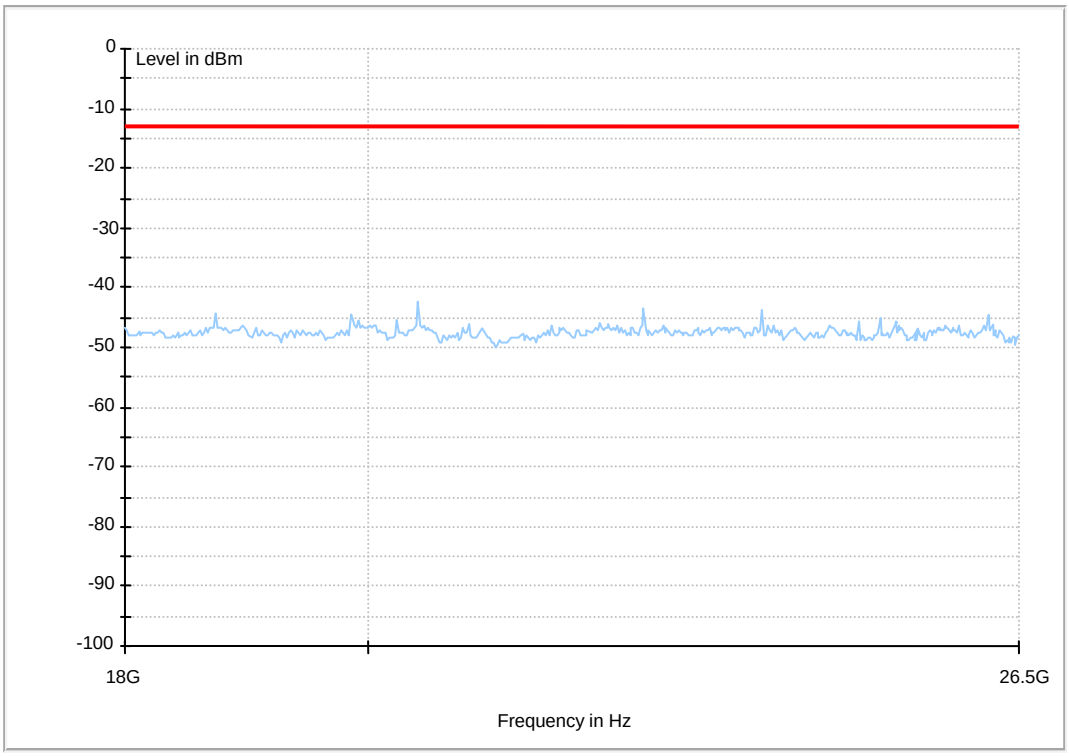
(30MHz~2GHz)



(2GHz~18GHz)

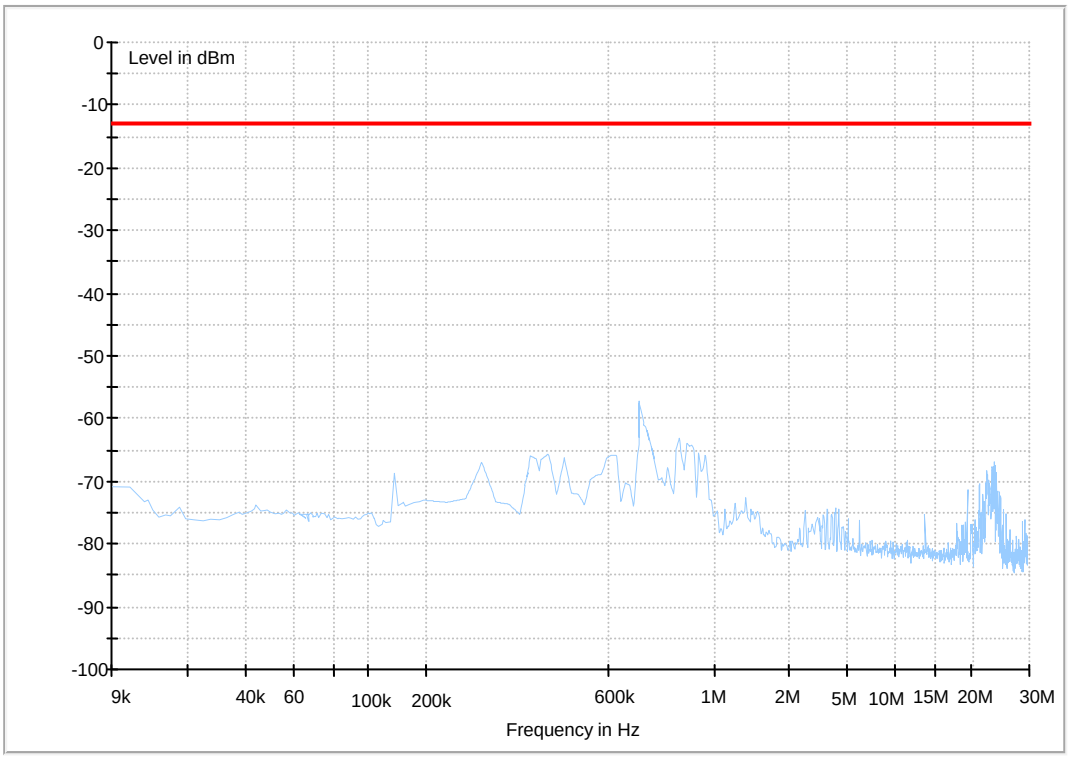


(18GHz~26.5GHz)

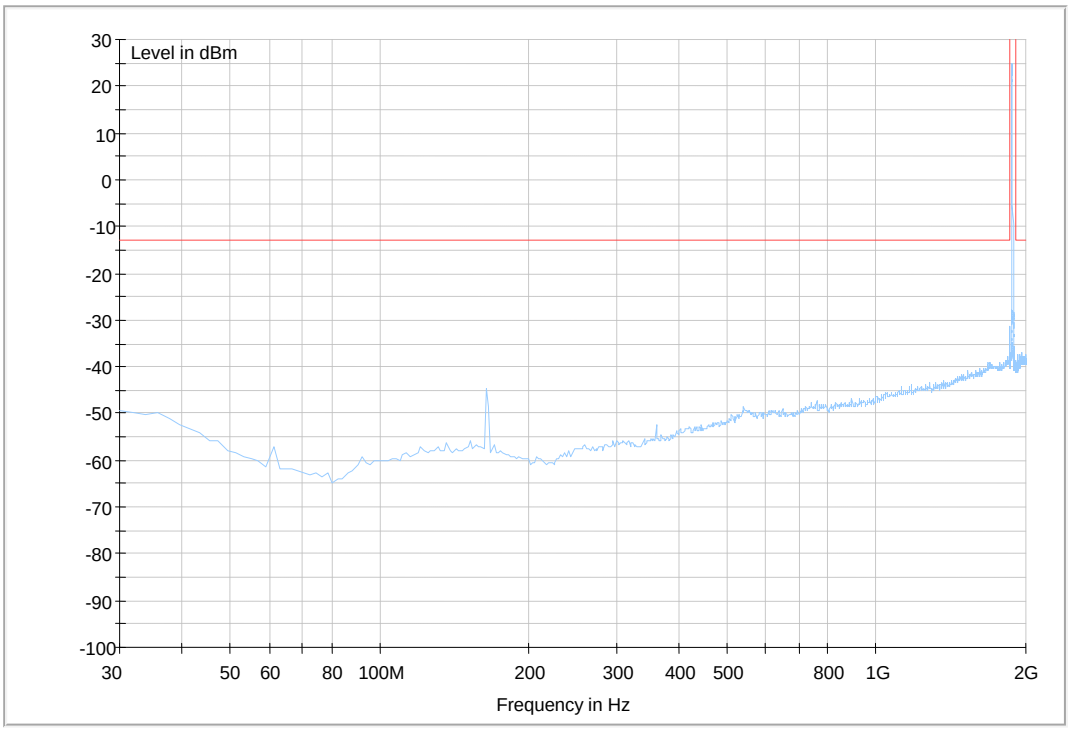


HSDPA Band II

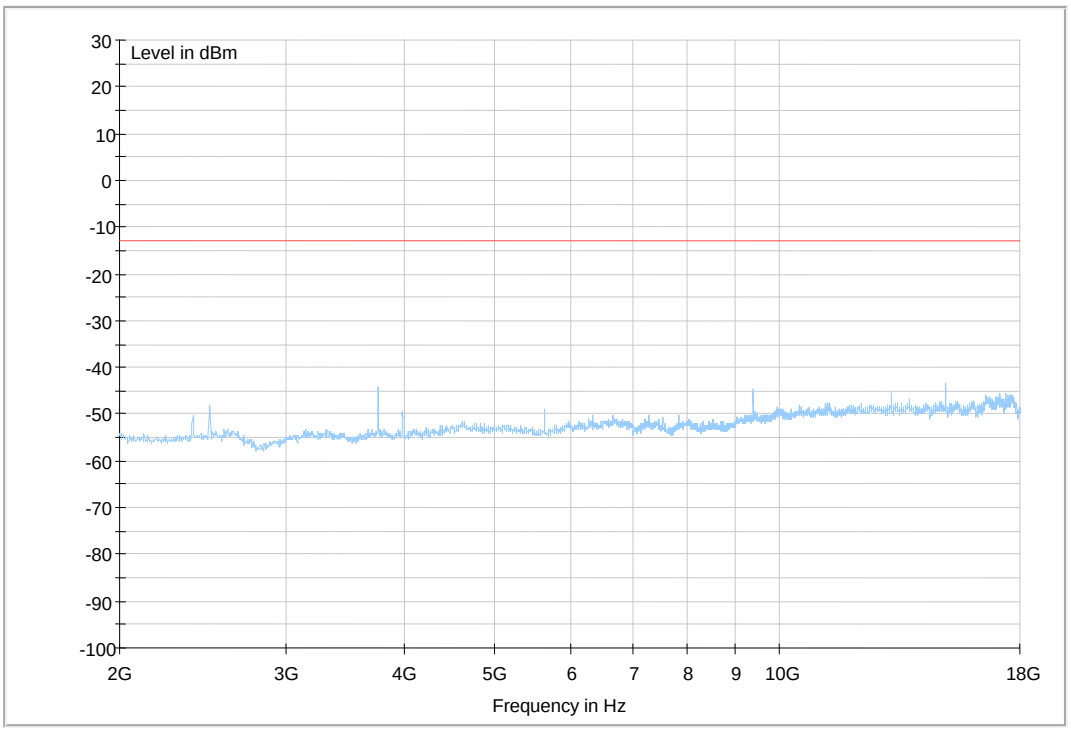
(9KHz~30MHz)



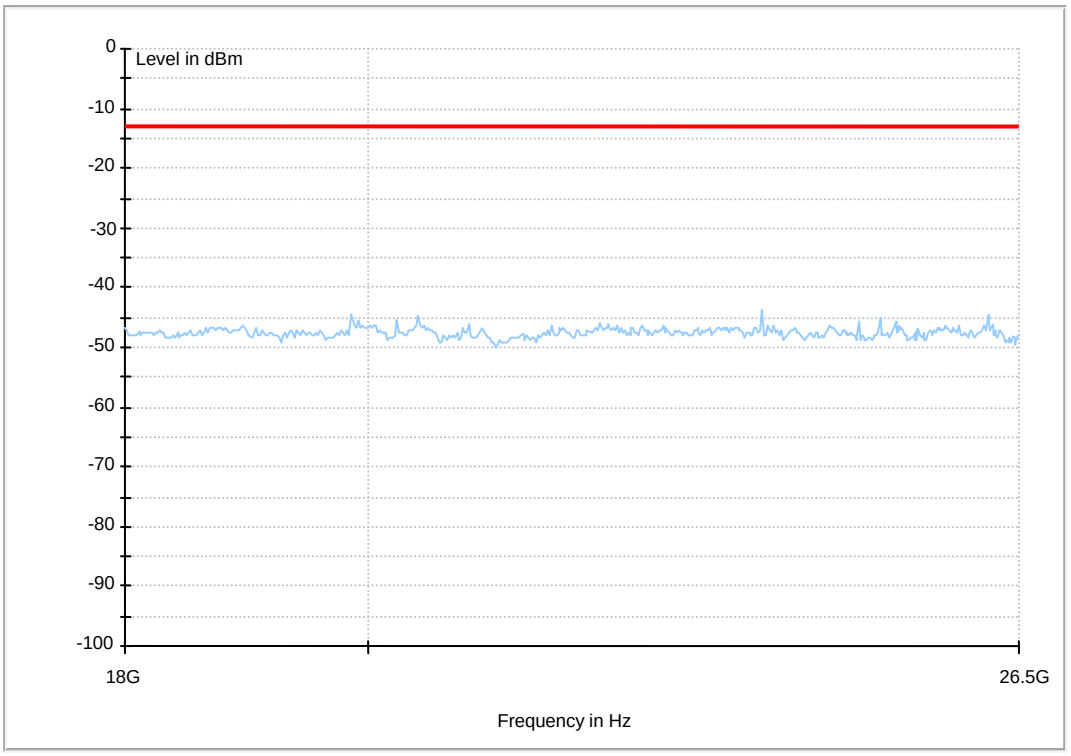
(30MHz ~2GHz)



(2GHz~18GHz)

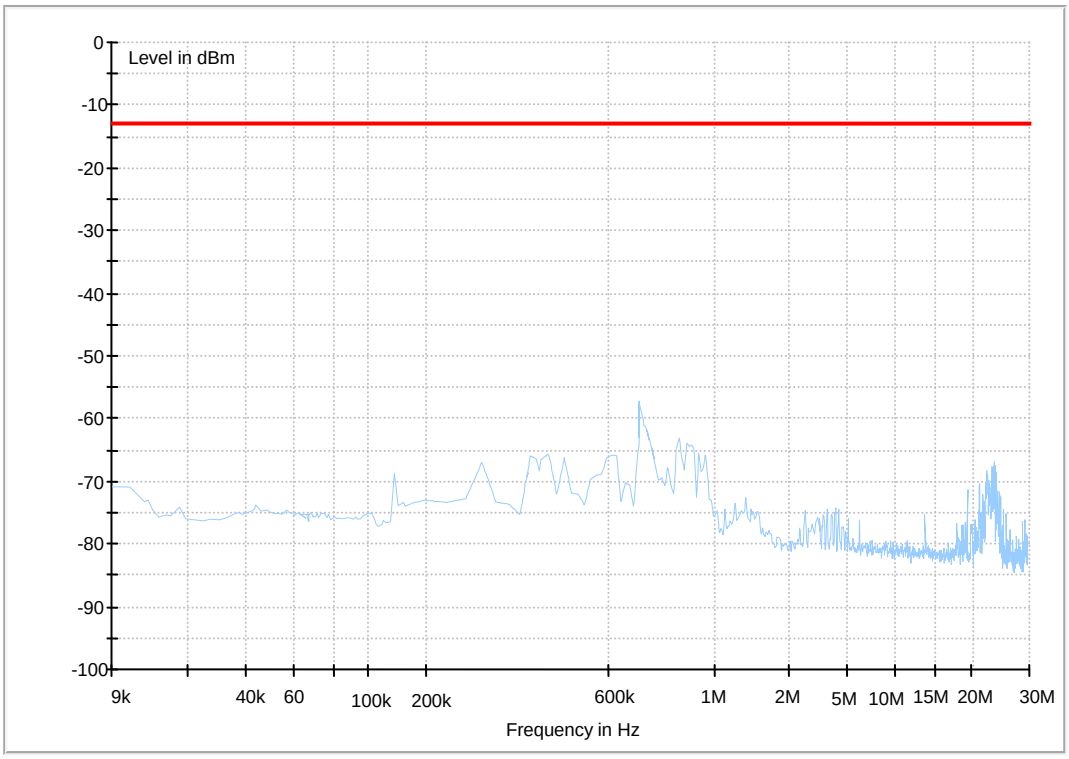


(18GHz~26.5GHz)

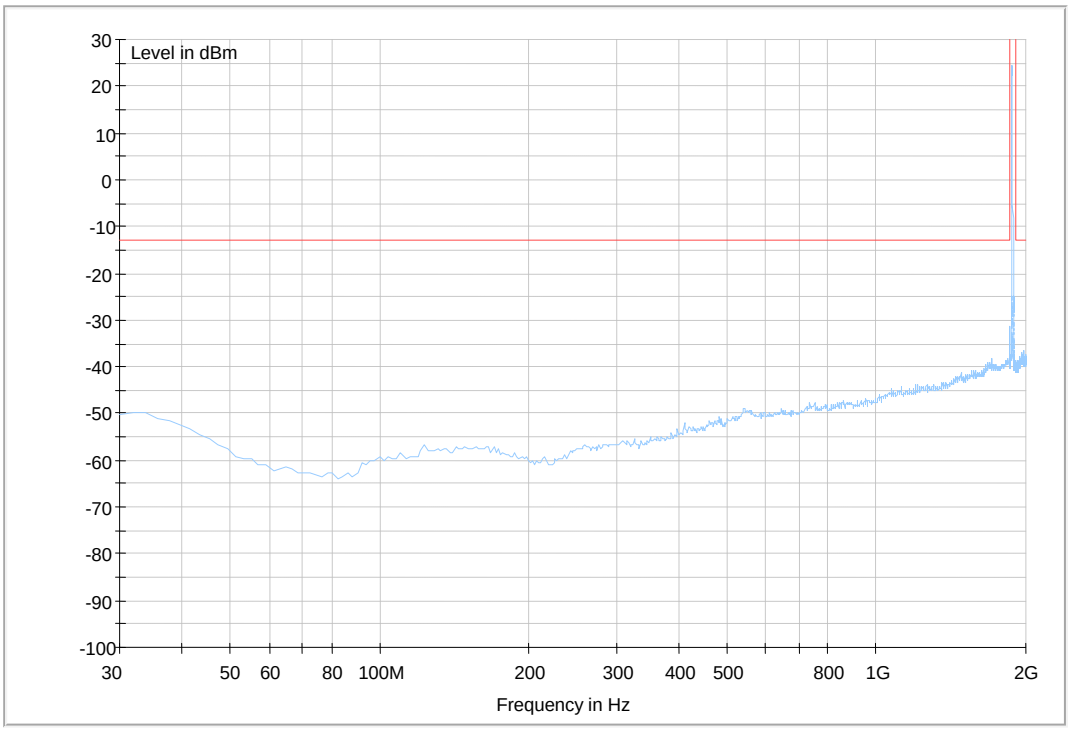


HSUPA Band II

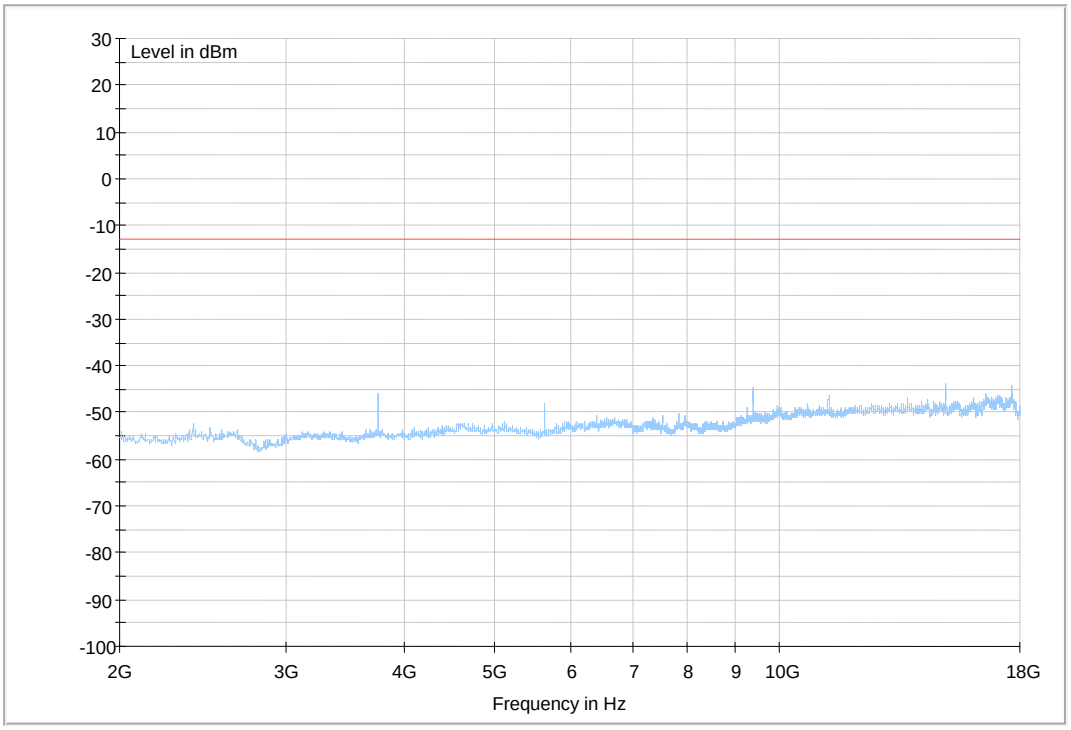
(9 KHz~30MHz)



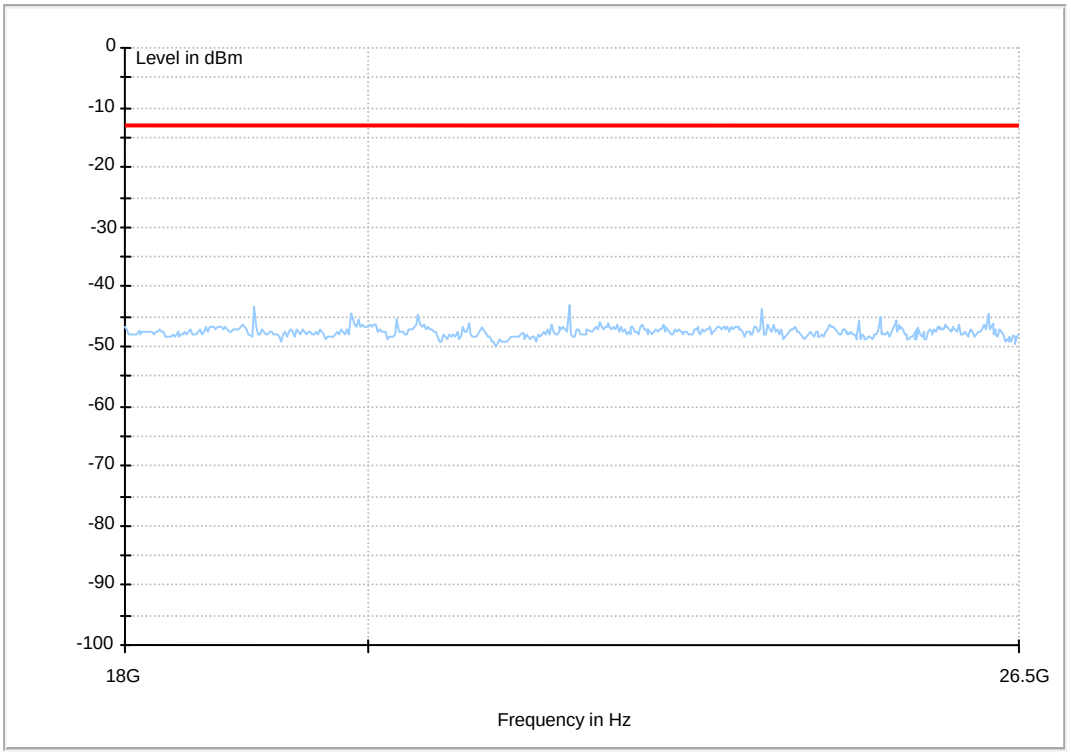
(30MHz~2GHz)



(2GHz~18GHz)



(18GHz~26.5GHz)



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	17	0.009043	---	±2.5	Pass
			-20 °C	-13	-0.006915	---	±2.5	Pass
			-10 °C	10	0.005319	---	±2.5	Pass
			0 °C	-15	-0.007979	---	±2.5	Pass
			10 °C	16	0.008511	---	±2.5	Pass
			20 °C	13	0.006915	---	±2.5	Pass
			30 °C	-7	-0.003723	---	±2.5	Pass
			40 °C	13	0.006915	---	±2.5	Pass
			50 °C	-15	-0.007979	---	±2.5	Pass
TM 2	M	100%	-30 °C	10	0.005319	---	±2.5	Pass
			-20 °C	-14	-0.007447	---	±2.5	Pass
			-10 °C	13	0.006915	---	±2.5	Pass
			0 °C	-15	-0.007979	---	±2.5	Pass
			10 °C	11	0.005851	---	±2.5	Pass
			20 °C	14	0.007447	---	±2.5	Pass
			30 °C	-9	-0.004787	---	±2.5	Pass
			40 °C	12	0.006383	---	±2.5	Pass
			50 °C	18	0.009574	---	±2.5	Pass
TM 3	M	100%	-30 °C	13	0.006915	---	±2.5	Pass
			-20 °C	-18	-0.009574	---	±2.5	Pass
			-10 °C	-12	-0.006383	---	±2.5	Pass
			0 °C	11	0.005851	---	±2.5	Pass
			10 °C	-19	-0.010106	---	±2.5	Pass
			20 °C	-18	-0.009574	---	±2.5	Pass
			30 °C	-11	-0.005851	---	±2.5	Pass
			40 °C	17	0.009043	---	±2.5	Pass
			50 °C	-13	-0.006915	---	±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 %	-14	-0.007447	---	±2.5	Pass
			100 %	15	0.007979	---	±2.5	Pass
			115 %	12	0.006383	---	±2.5	Pass
TM 2	M	20 °C	85 %	17	0.009043	---	±2.5	Pass
			100 %	10	0.005319	---	±2.5	Pass
			115 %	-13	-0.006915	---	±2.5	Pass
TM 3	M	20 °C	85 %	-12	-0.006383	---	±2.5	Pass
			100 %	17	0.009043	---	±2.5	Pass
			115 %	-18	-0.009574	---	±2.5	Pass

Appendix F

Photos of Radiated Spurious Emissions

Photos of Test Setup

1 Radiated Spurious Emissions

Radiated Spurious Emission (below 2GHz)

Radiated Spurious Emission (2GHz to18GHz)

Radiated Spurious Emission (18GHz to26.5GHz)