



Appendix A

Transmitter Output Power

According to FCC Part 2.1046 & Part 22.913



Conducted Power of Transmitter

		RF Output Power (Conducted)					
TEST CONDITIONS		Channel128(B) 824.2MHz		Channel192(M) 837.0MHz		Channel251(T) 848.8MHz	
		dBm		dBm		dBm	
		Measured	Limit	Measured	Limit	Measured	Limit
T _{nom} / V _{nom}							
TM1		32.07	38.5	32.25	38.5	32.16	38.5
TM2		25.87	38.5	25.72	38.5	25.75	38.5
TEST CONDITIONS		Channel4132(B) 826.4MHz		Channel4182(M) 836.4MHz		Channel4233(T) 846.6MHz	
		dBm		dBm		dBm	
		Measured	Limit	Measured	Limit	Measured	Limit
T _{nom} / V _{nom}							
TM3		21.91	38.5	21.67	38.5	21.81	38.5
TM4	Case1	21.89	38.5	21.61	38.5	21.75	38.5
	Case2	21.78	38.5	21.41	38.5	21.56	38.5
	Case3	21.49	38.5	21.21	38.5	21.37	38.5
	Case4	21.02	38.5	20.76	38.5	21.05	38.5
TM5	Case1	21.44	38.5	21.12	38.5	21.23	38.5
	Case2	19.87	38.5	19.55	38.5	19.64	38.5
	Case3	20.62	38.5	20.38	38.5	20.49	38.5
	Case4	19.79	38.5	19.51	38.5	19.62	38.5
	Case5	21.42	38.5	21.09	38.5	21.29	38.5



Effective Radiated Power of Transmitter (ERP)

Test Mod e	Freq. [MHz]	Meas. Level [dBm]	Substitutio n Antenna Type	SGP [dBm]	Substitutio n Gain [dBi]	Cabl e Loss [dB]	Substitutio n Level (ERP)	FCC limit [dBm]	Resul t
							[dBm]		
TM1	824.2	31.59	Dipole Ant.	34.98	-2.75	0.6	31.63	38.5	Pass
TM1	837.0	31.77	Dipole Ant.	35.22	-2.87	0.6	31.75	38.5	Pass
TM1	848.8	31.68	Dipole Ant.	35.11	-2.85	0.6	31.66	38.5	Pass
TM2	824.2	25.39	Dipole Ant.	28.72	-2.75	0.6	25.37	38.5	Pass
TM2	837.0	25.24	Dipole Ant.	28.75	-2.87	0.6	25.28	38.5	Pass
TM2	848.8	25.27	Dipole Ant.	28.69	-2.85	0.6	25.24	38.5	Pass
TM3	826.4	21.43	Dipole Ant.	24.76	-2.75	0.6	21.41	38.5	Pass
TM3	836.4	21.19	Dipole Ant.	24.75	-2.87	0.6	21.28	38.5	Pass
TM3	846.6	21.33	Dipole Ant.	24.84	-2.85	0.6	21.39	38.5	Pass

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

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

b, SGP=Signal Generator Level

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



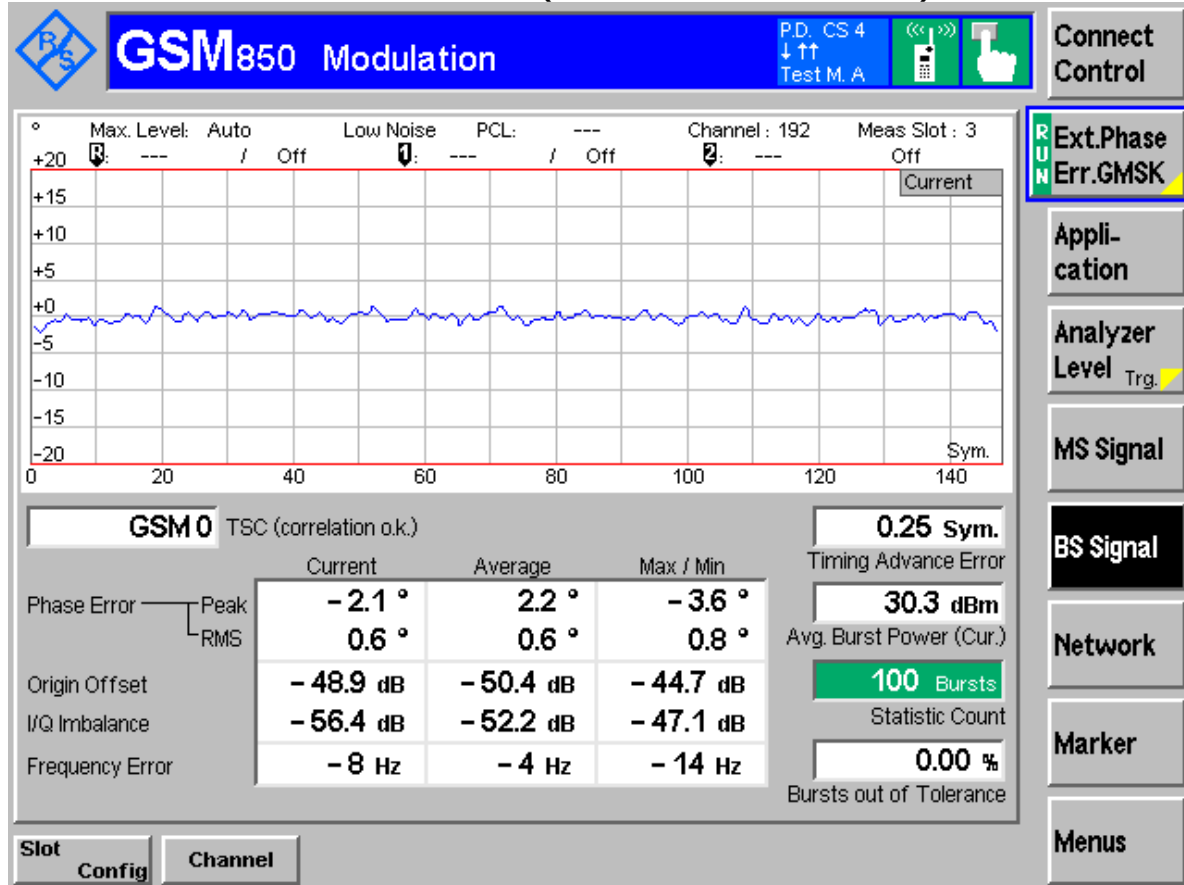
Appendix B

Modulation Characteristics

According to FCC Part 2.1047 & Part22 Subpart H

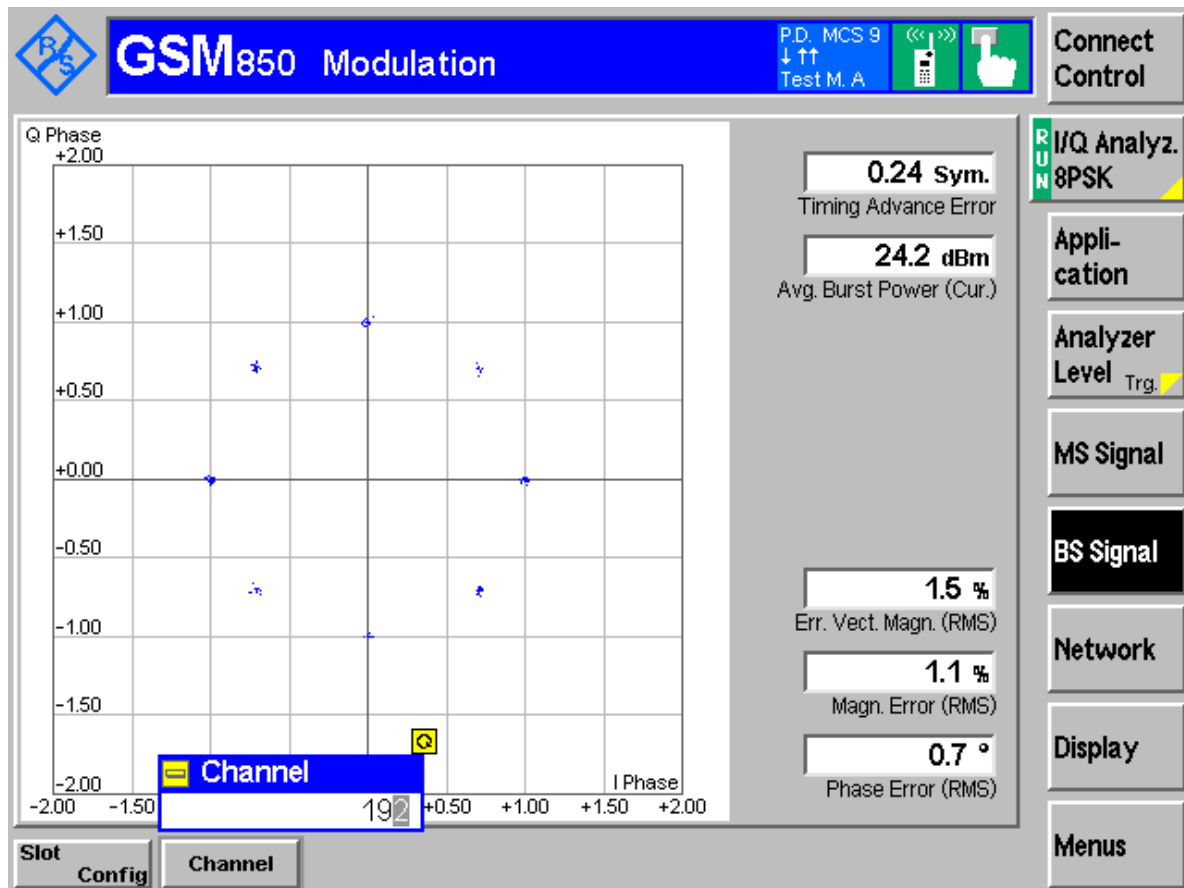


Channel 192(TM1:GPRS/GSM)



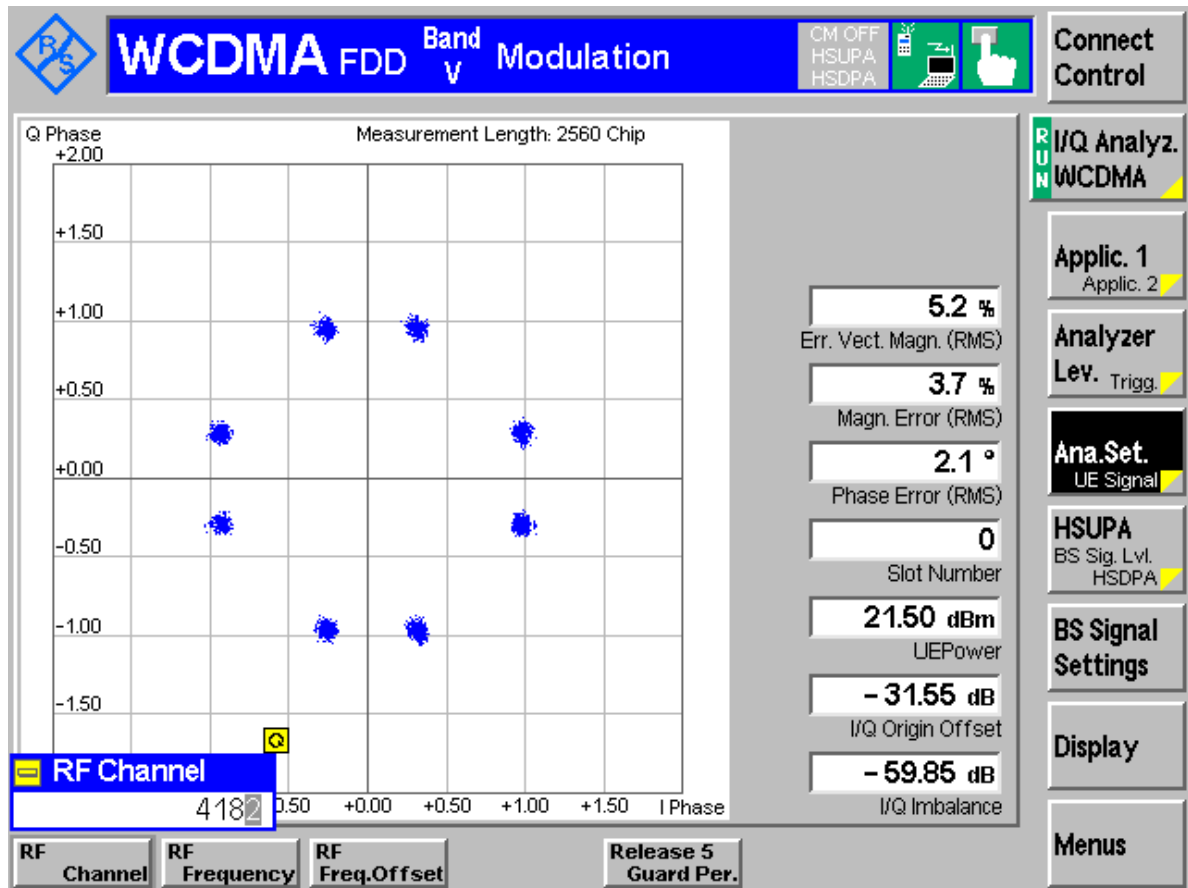


Channel 192(TM2:EDGE)





Channel 4182(TM3: WCDMA)



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



Appendix C

Occupied Bandwidth According to FCC Part 2.1049 & Part 22 Subpart H



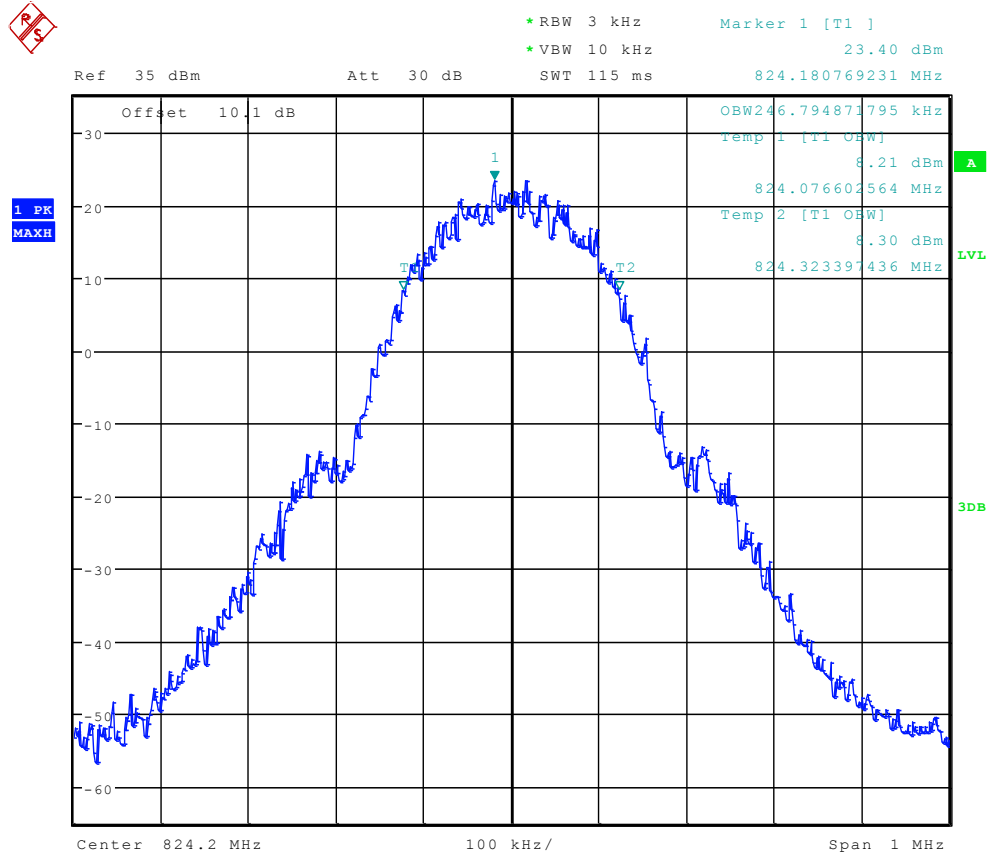
Result Table

Table 1 Measurement Results

Test Mode	RF Channel	Occupied Bandwidth [kHz]	Verdict
TM1	128	246.79	Pass
	192	245.19	Pass
	251	246.79	Pass
TM2	128	245.19	Pass
	192	240.38	Pass
	251	245.19	Pass
Test Mode	RF Channel	Occupied Bandwidth [MHz]	Verdict
TM3	4132	4.18	Pass
	4182	4.18	Pass
	4233	4.17	Pass



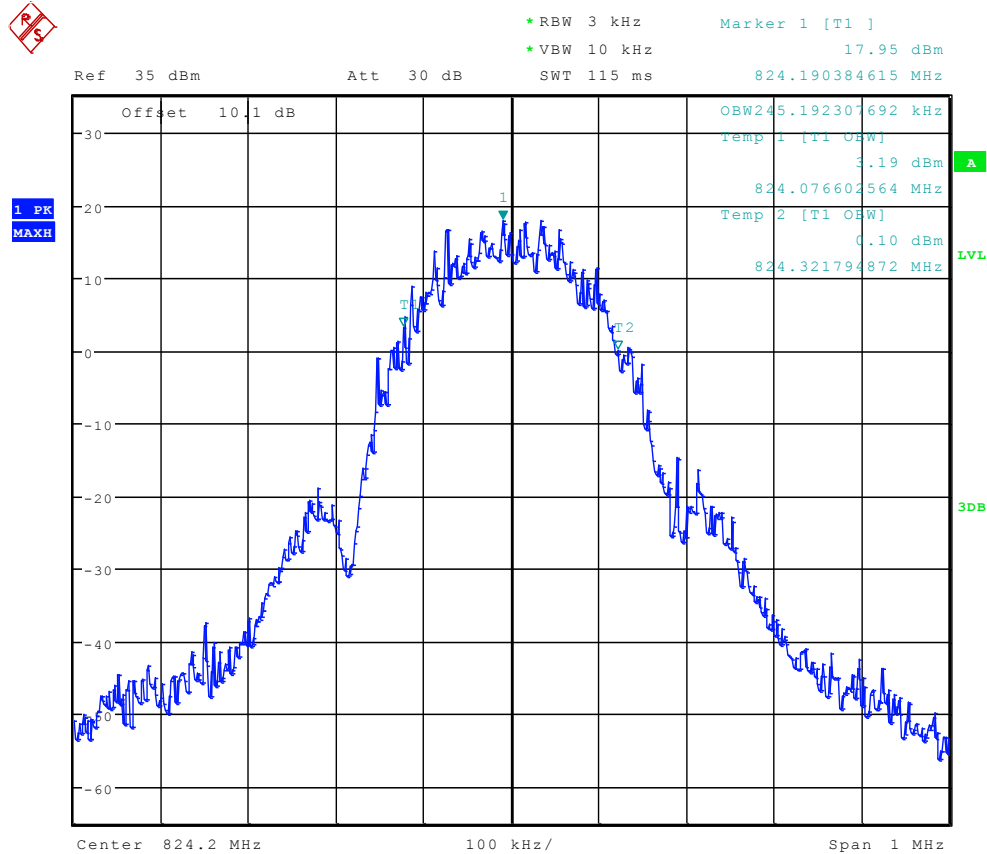
Channel 128 (TM1:GPRS/GSM)



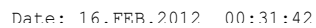
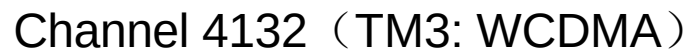
Date: 16.FEB.2012 00:08:51



Channel 128 (TM2:EDGE)

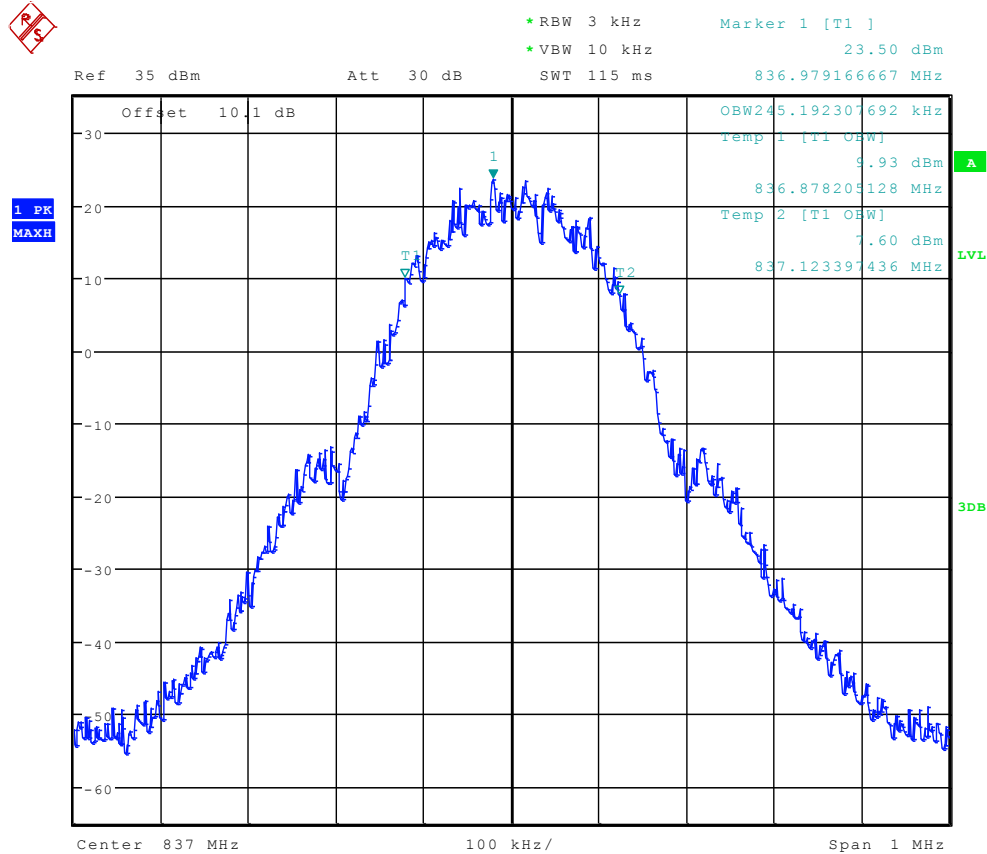


Date: 16.FEB.2012 00:24:01





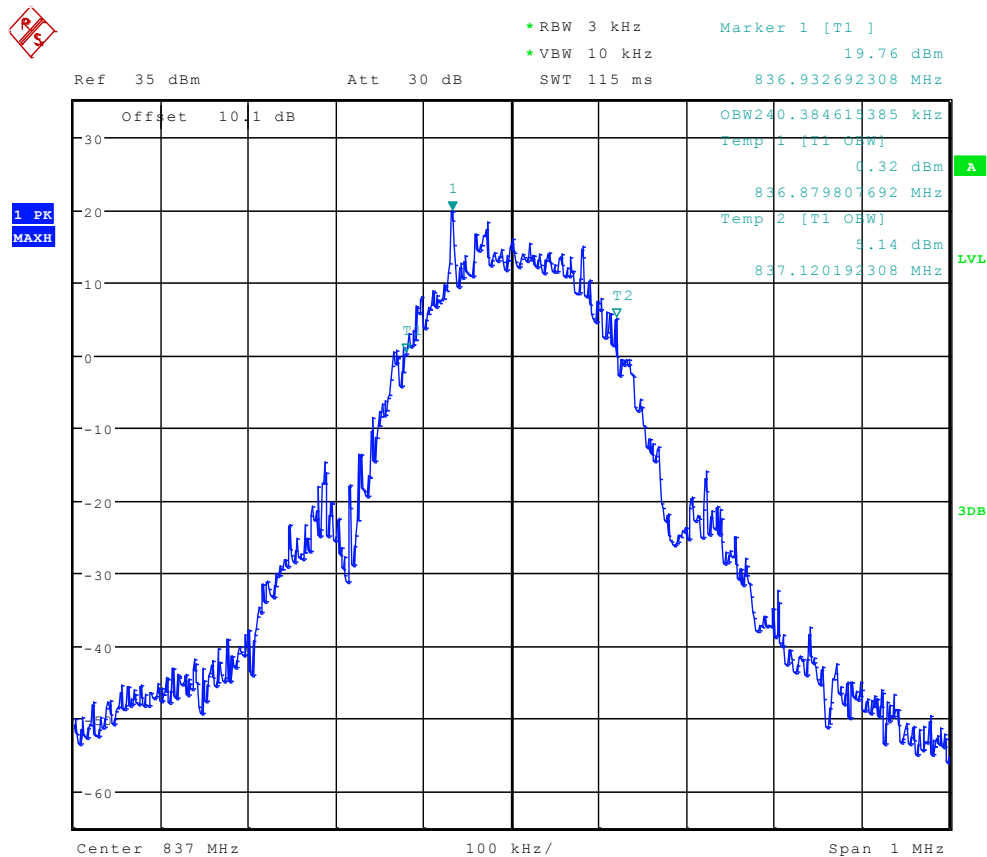
Channel 192 (TM1:GPRS/GSM)



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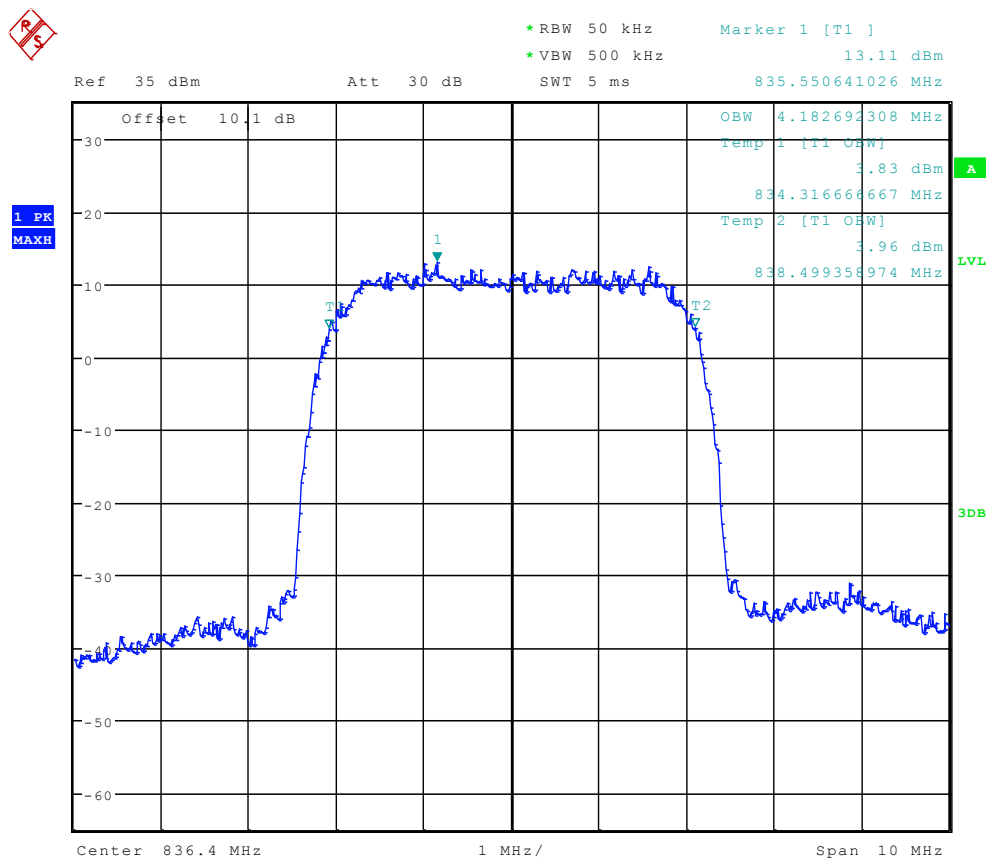
Channel 192 (TM2:EDGE)



Date: 16.FEB.2012 00:24:14



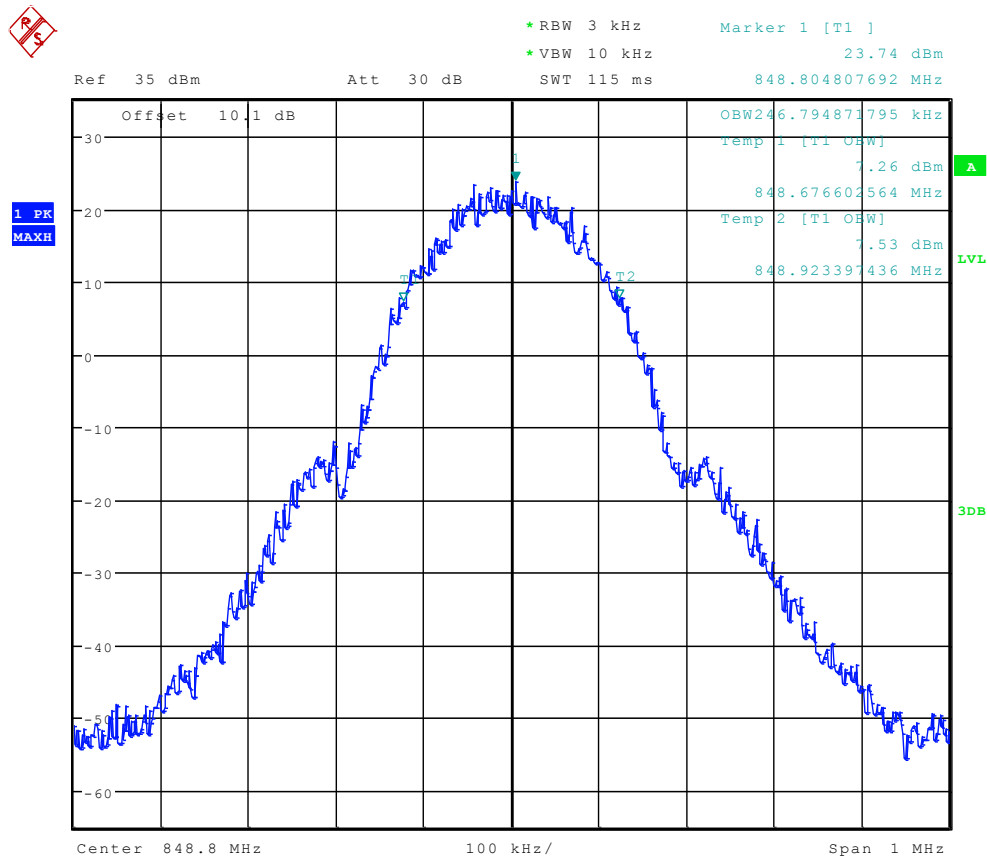
Channel 4182 (TM3: WCDMA)



Date: 16.FEB.2012 00:31:55



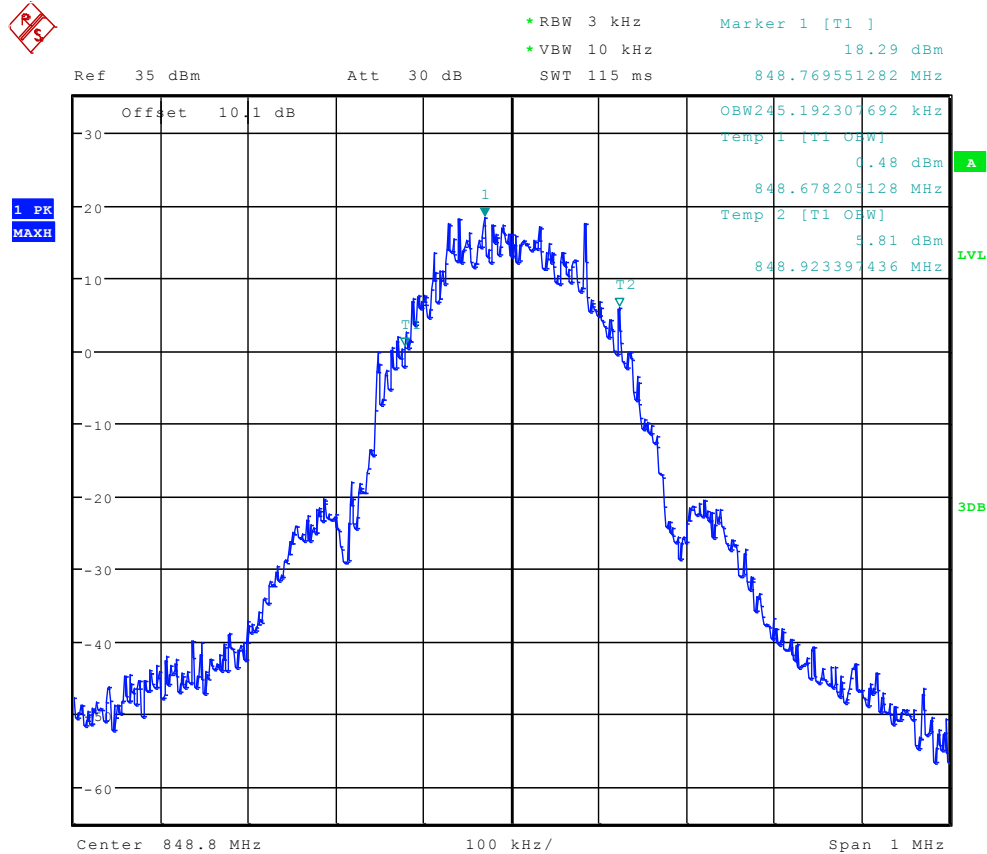
Channel 251 (TM1:GPRS/GSM)



Date: 16.FEB.2012 00:09:19



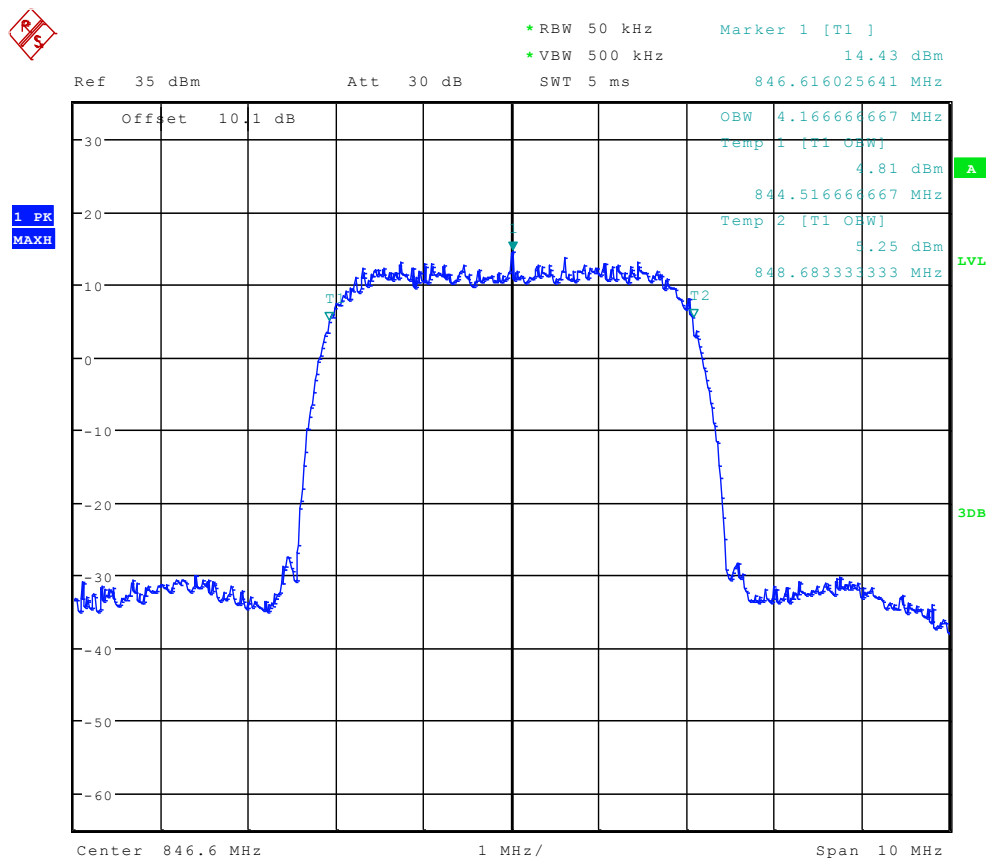
Channel 251 (TM2:EDGE)



Date: 16.FEB.2012 00:24:28



Channel 4233 (TM3: WCDMA)



Date: 16.FEB.2012 00:32:09

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



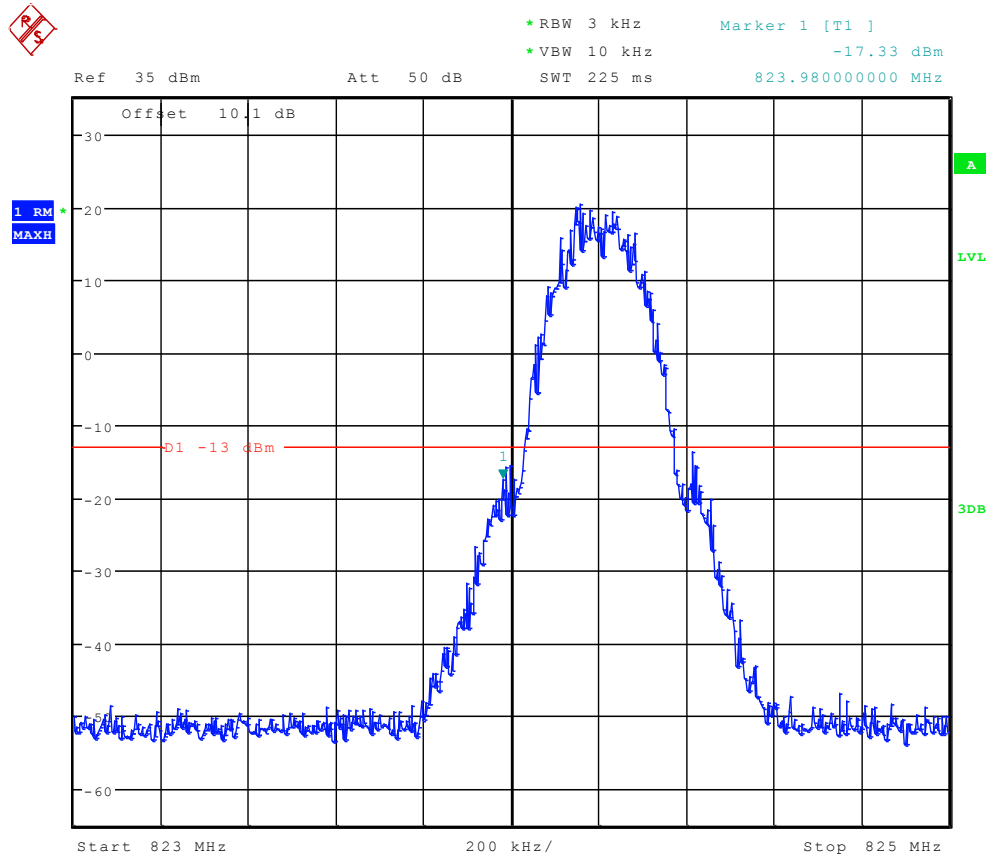
Appendix D

Band Edges Compliance

According to FCC Part 2.1051 & Part 22 Subpart H



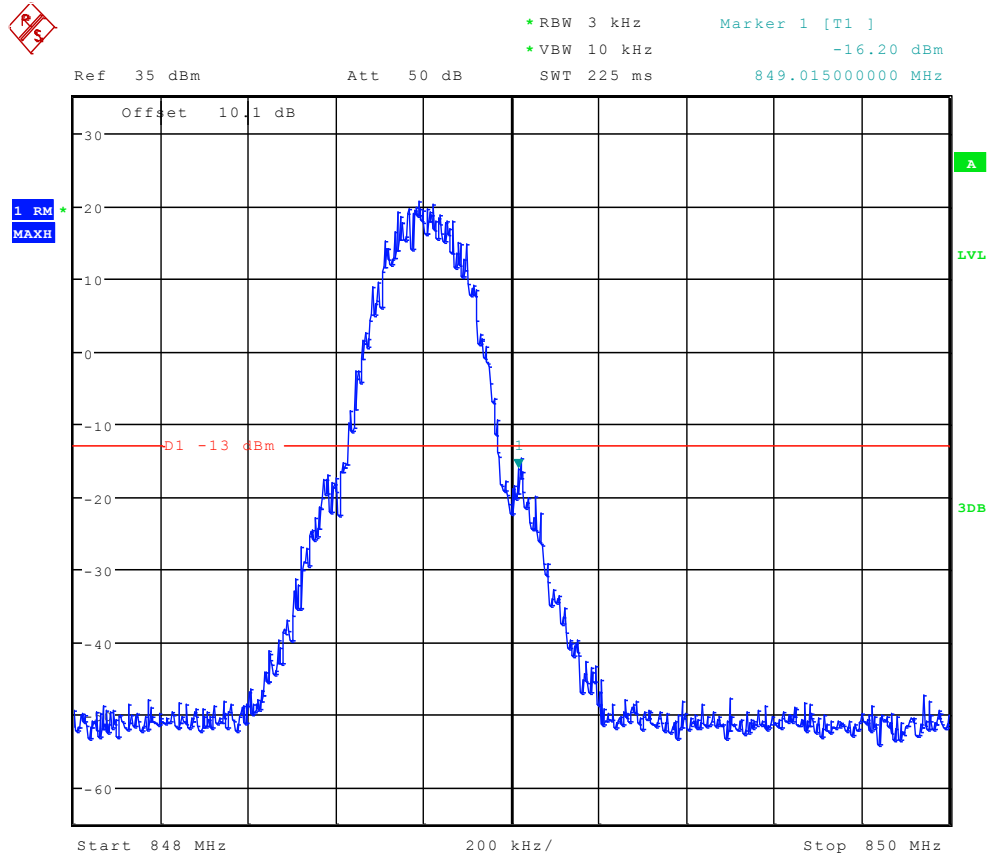
TM1:GPRS/GSM Left Edge Channel 128



Date: 16.FEB.2012 00:12:28



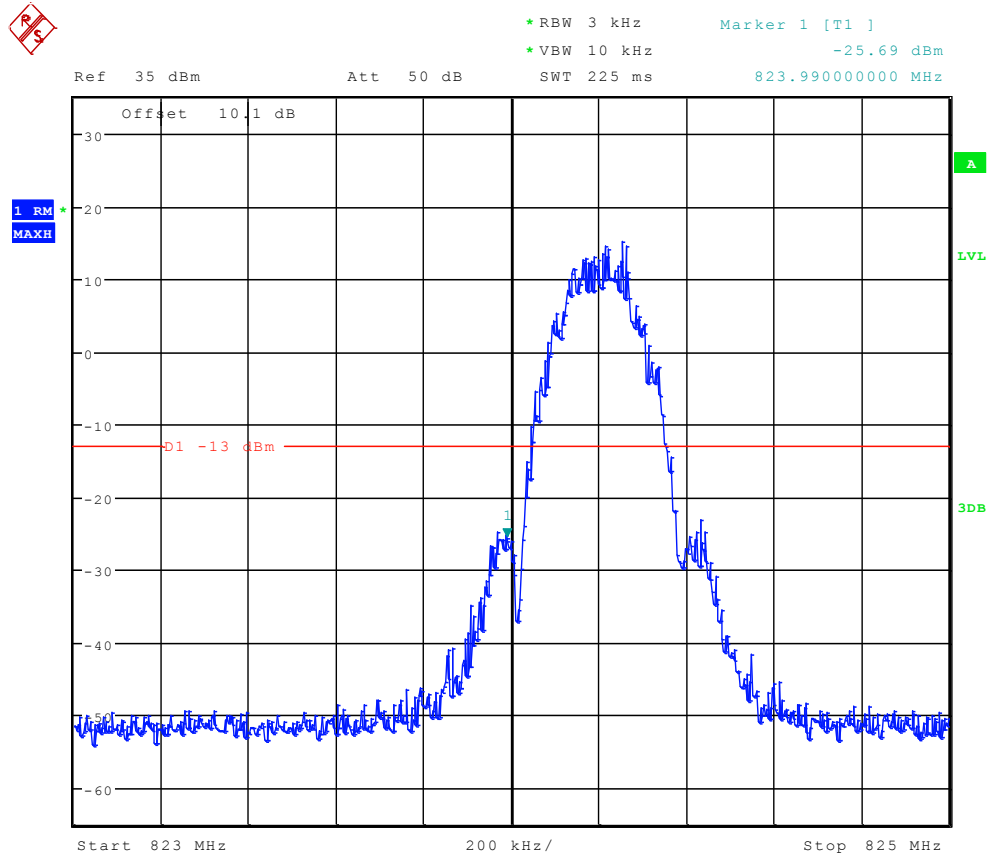
Right Edge Channel 251



Date: 16.FEB.2012 00:12:45



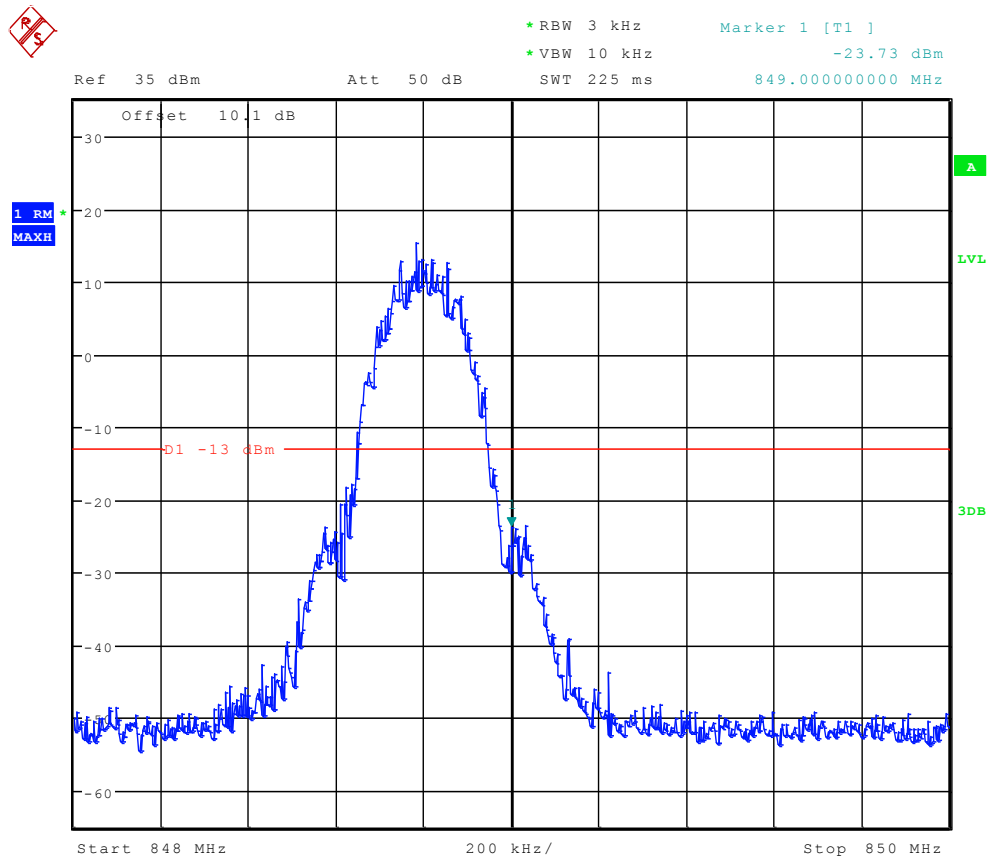
TM2:EDGE Left Edge Channel 128



Date: 16.FEB.2012 00:42:36



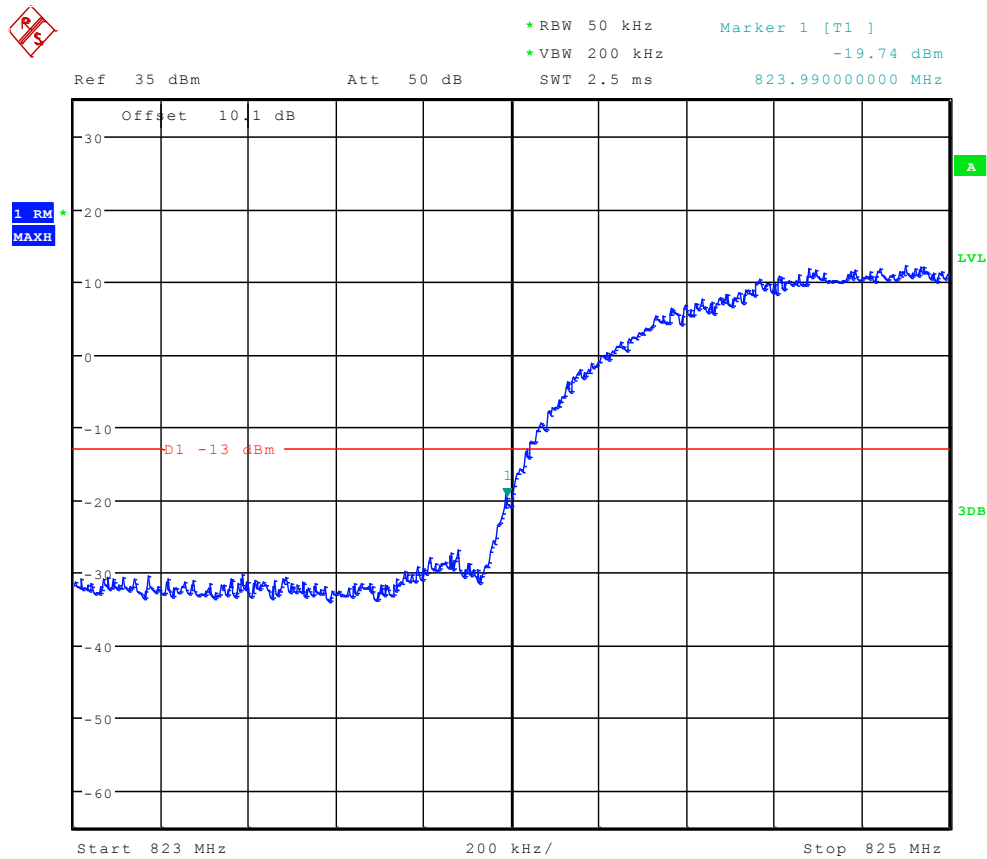
Right Edge Channel 251



Date: 16.FEB.2012 00:42:50



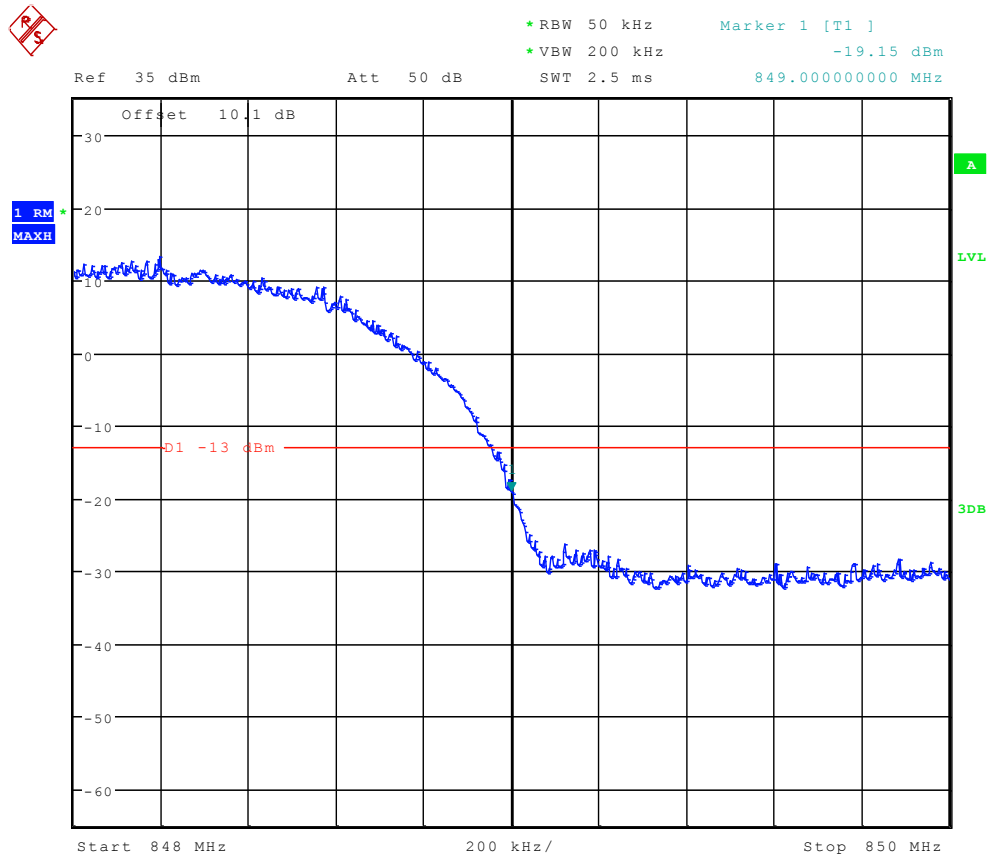
TM3: WCDMA Left Edge Channel 4132



Date: 16.FEB.2012 00:32:23



Right Edge Channel 4233



Date: 16.FEB.2012 00:32:37

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



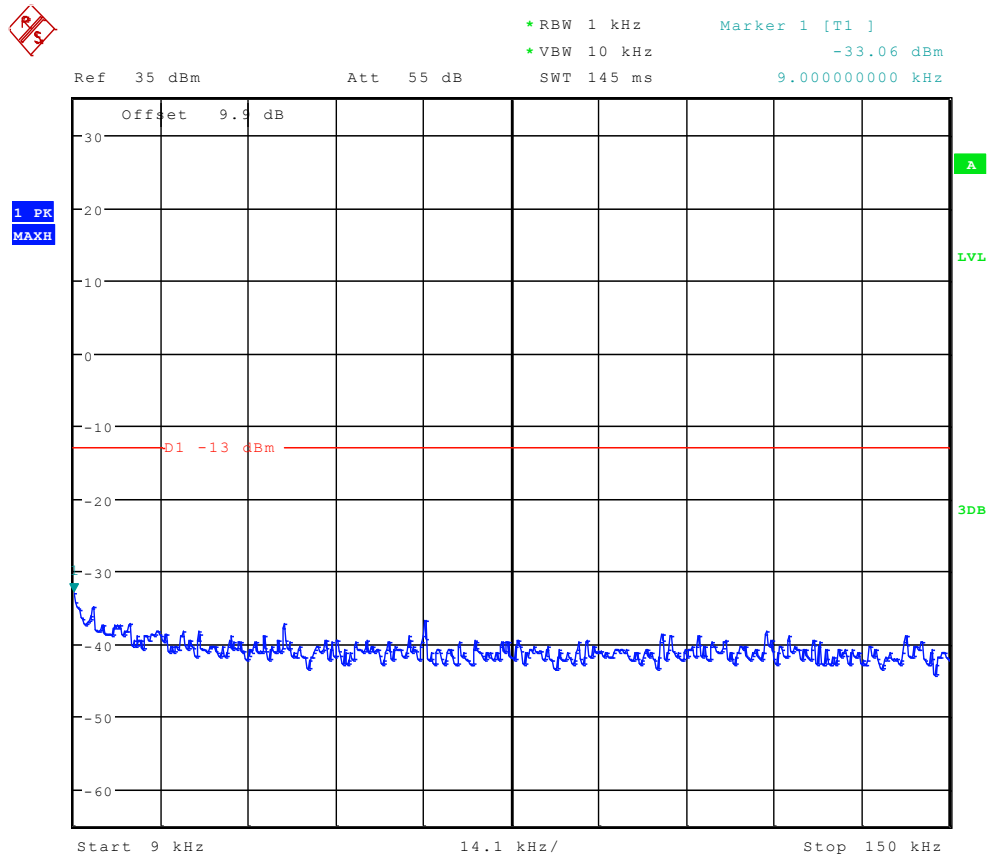
Appendix E

Spurious Emission at Antenna Terminal

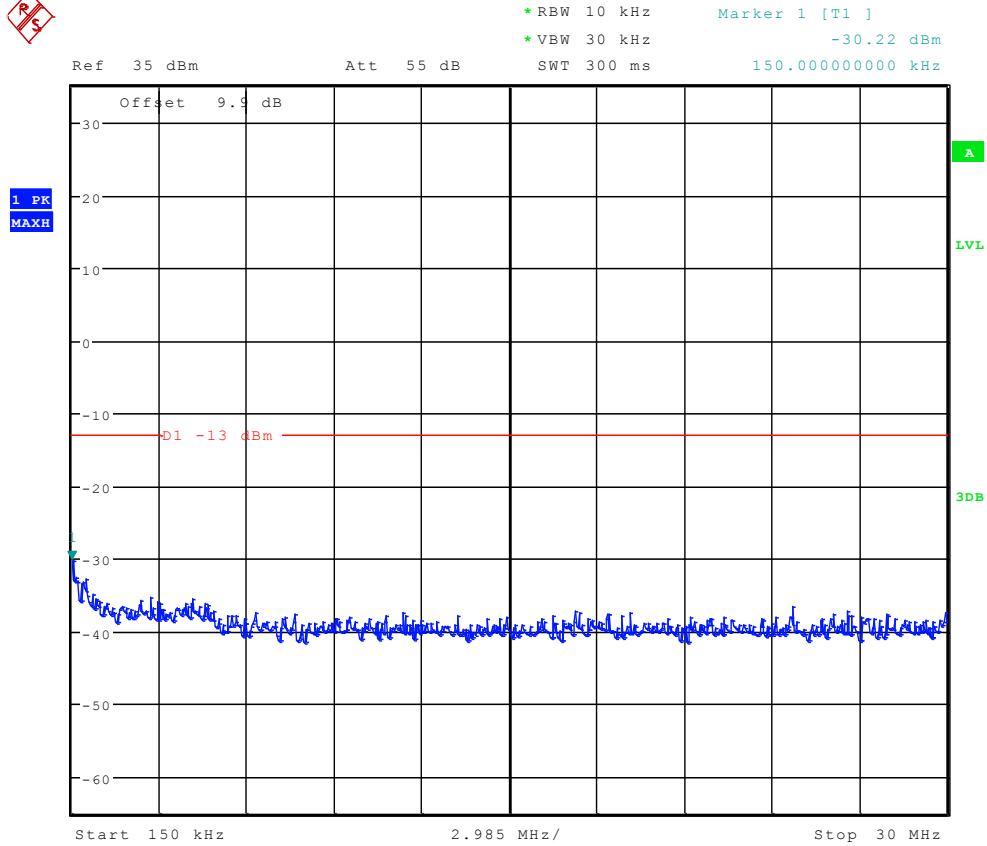
According to FCC Part 2.1051 & Part 22 Subpart H



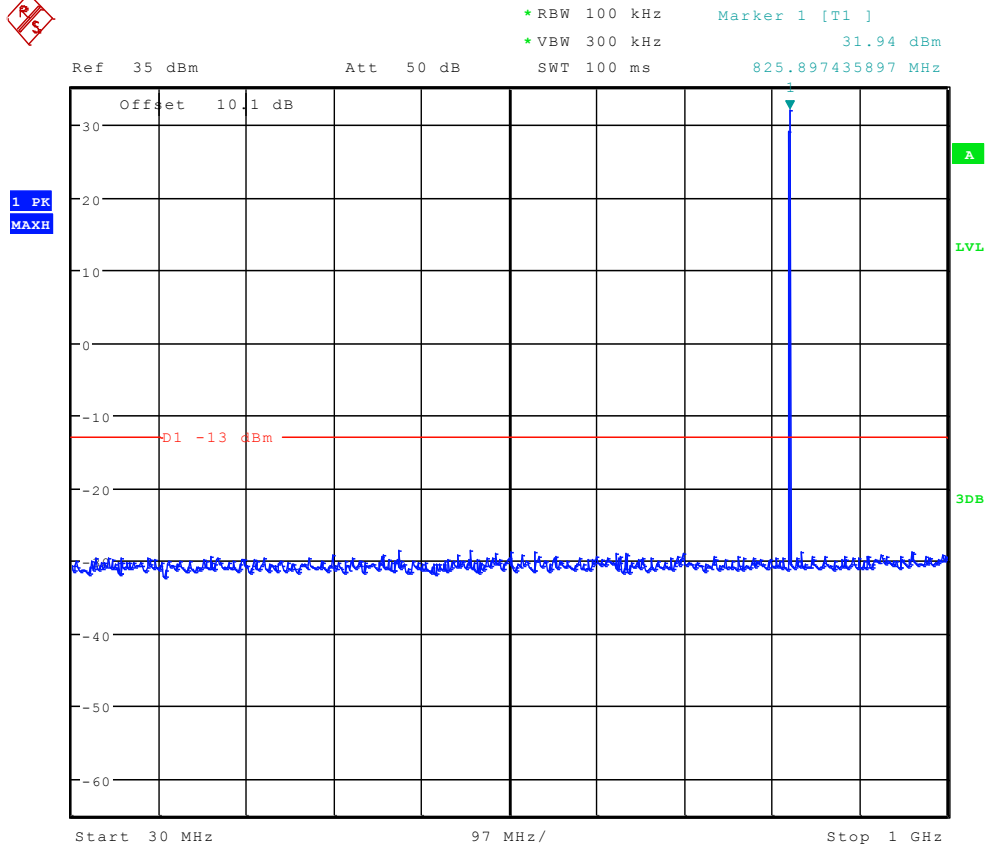
TM1:GPRS/GSM Channel 128



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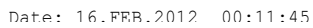
Date: 16.FEB.2012 00:10:17



Date: 16.FEB.2012 00:11:01

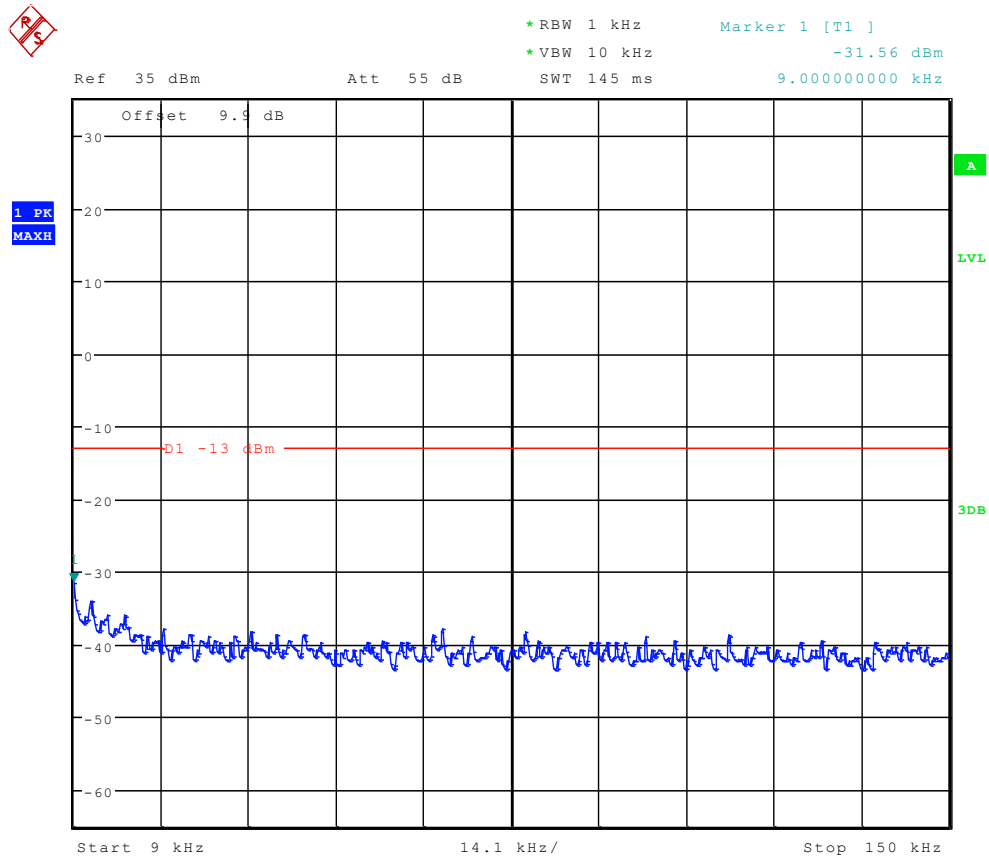


Ref	35 dBm	Att	50 dB	SWT	70 ms	2.732371795 GHz
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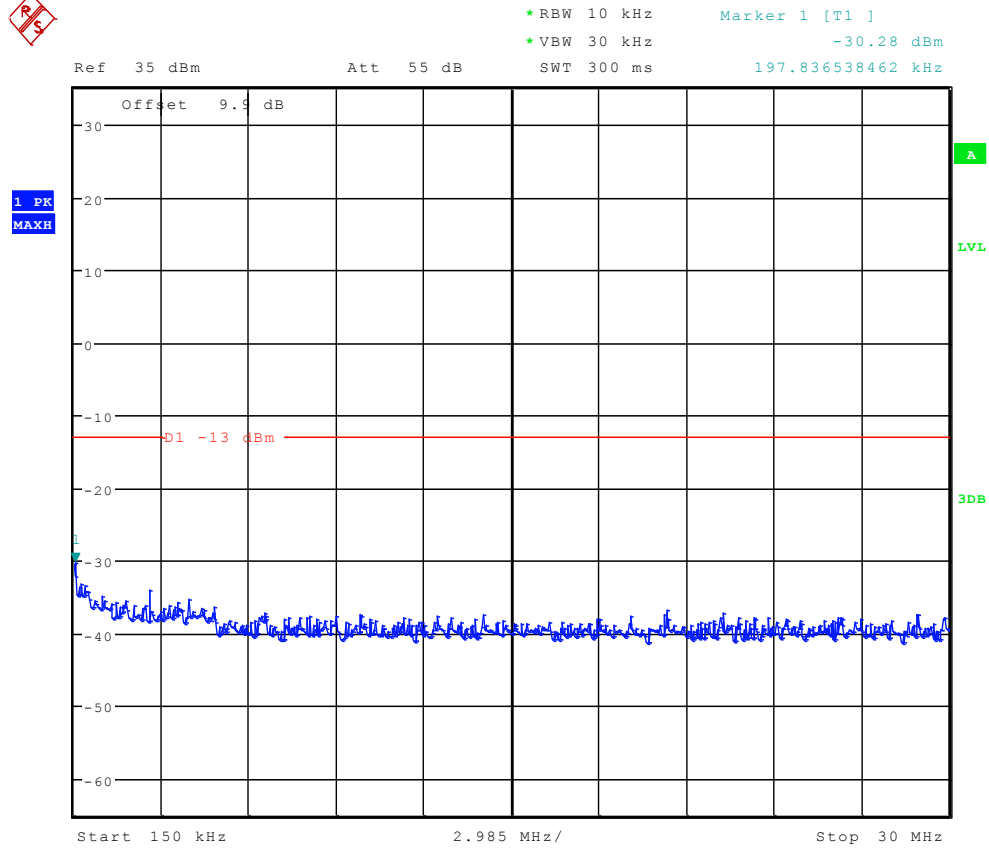




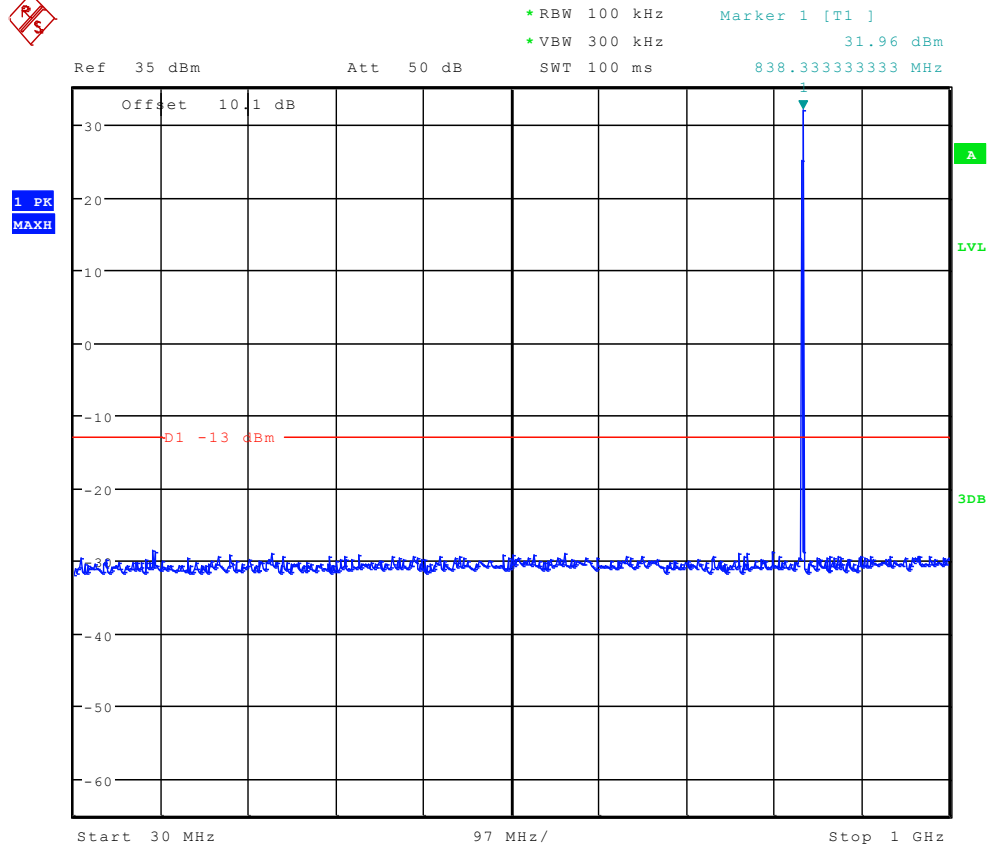
Channel 192



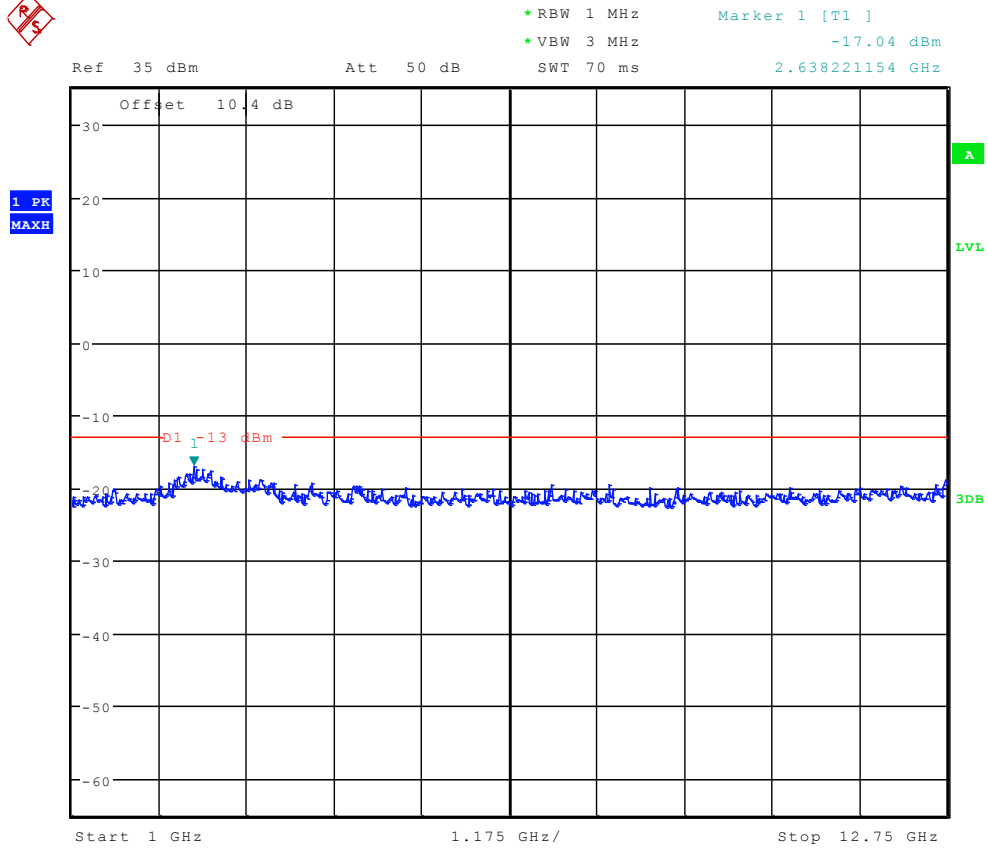
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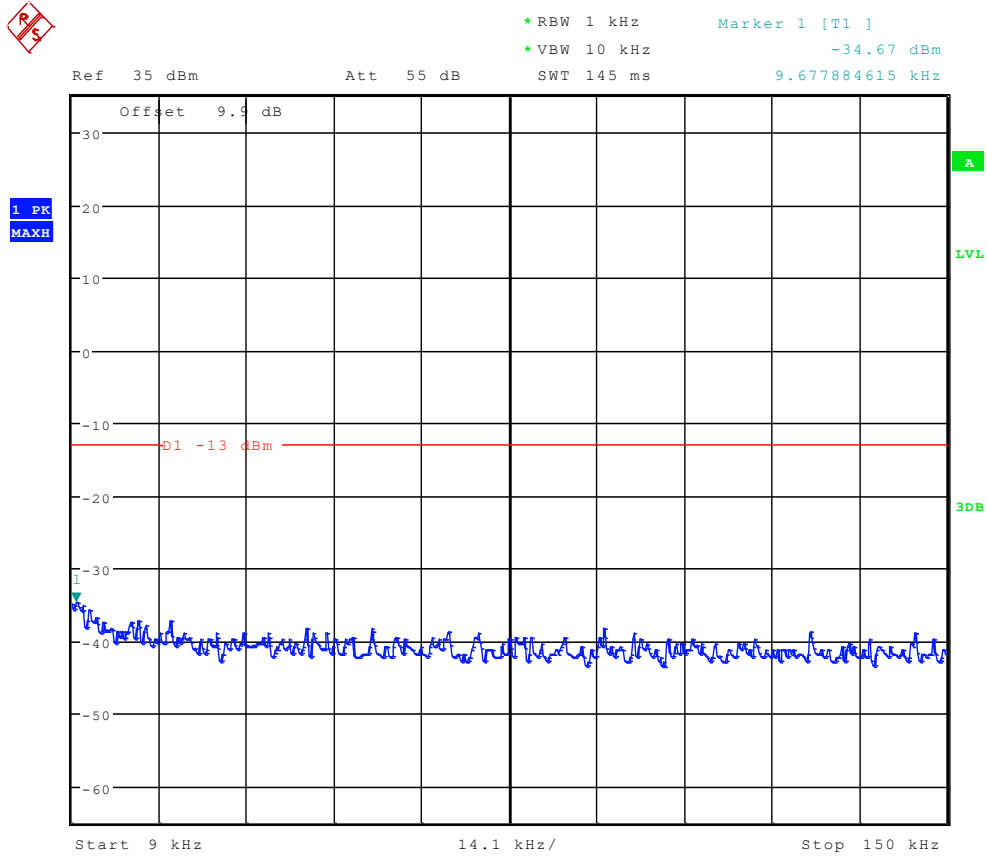
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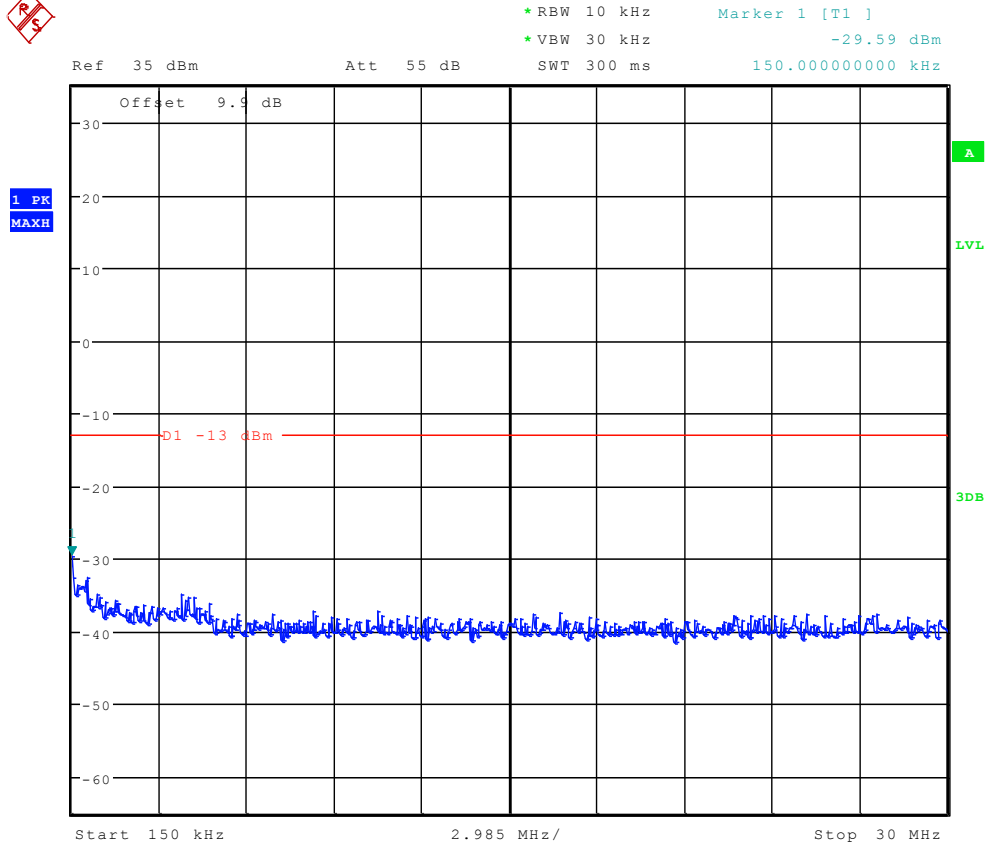
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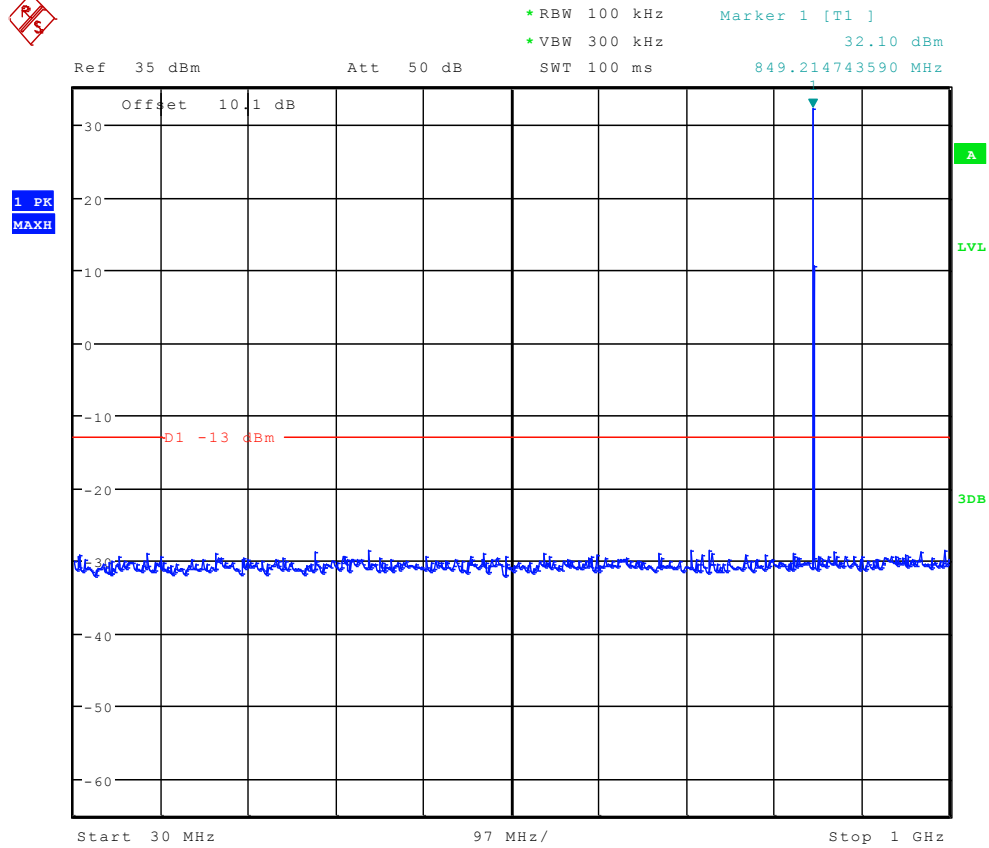
Channel 251



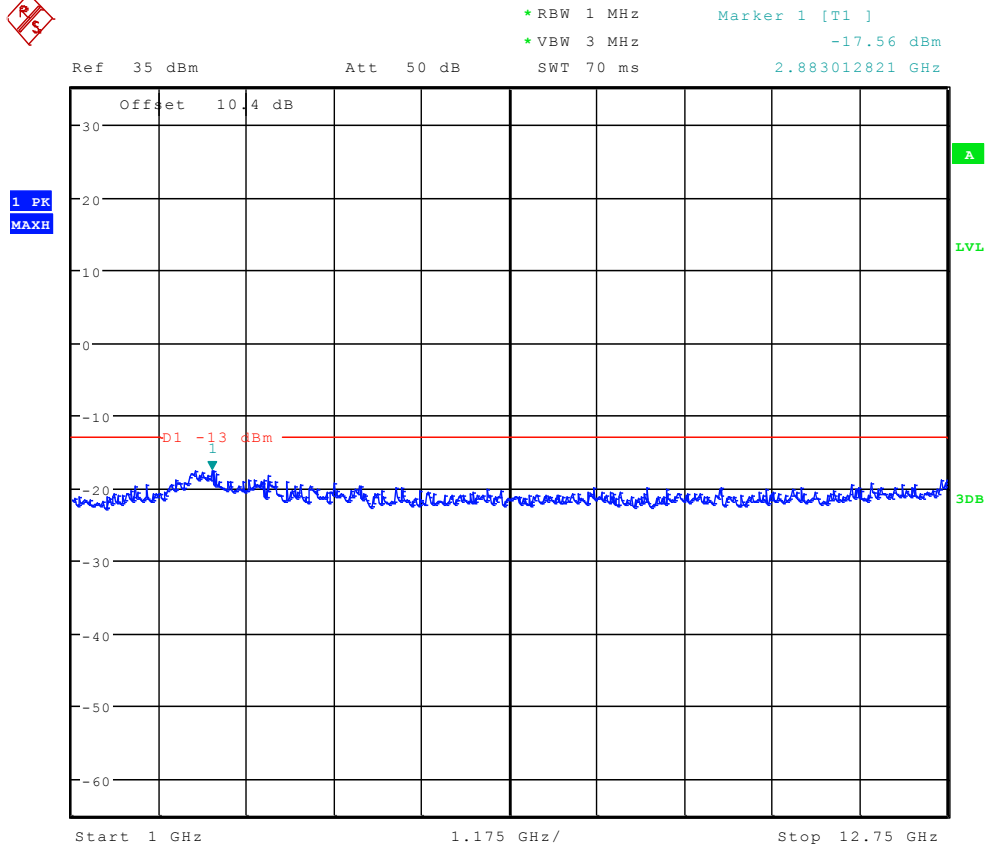
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Date: 16.FEB.2012 00:10:46



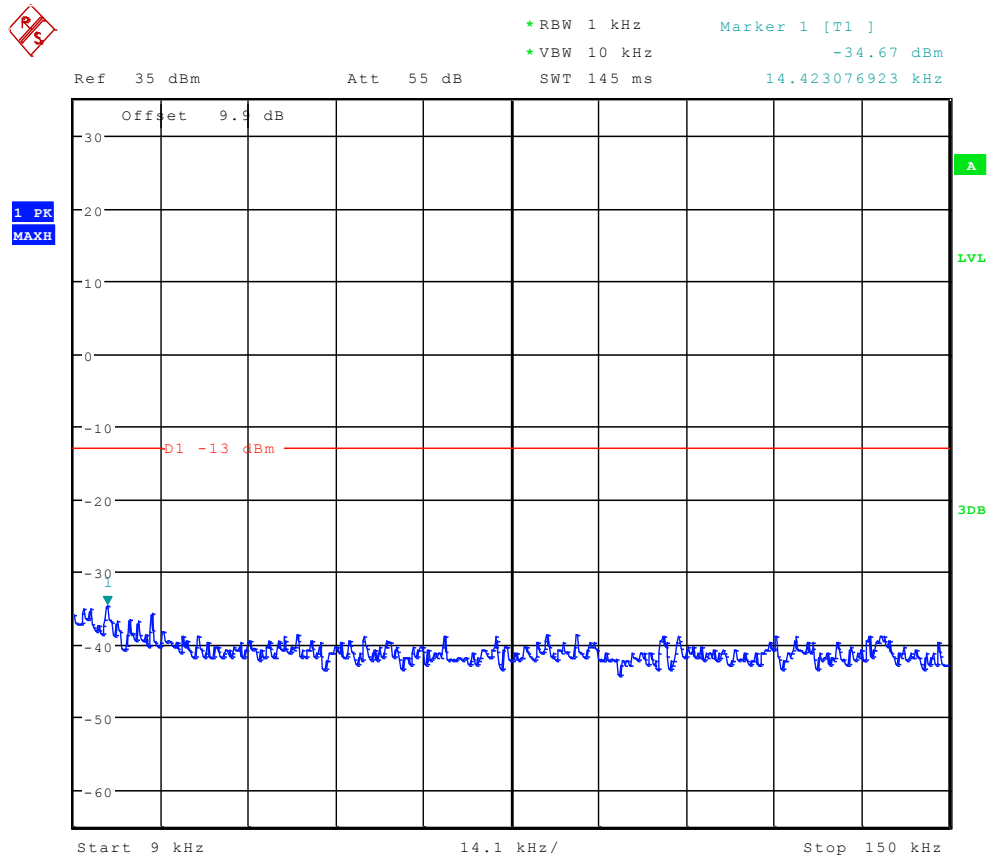
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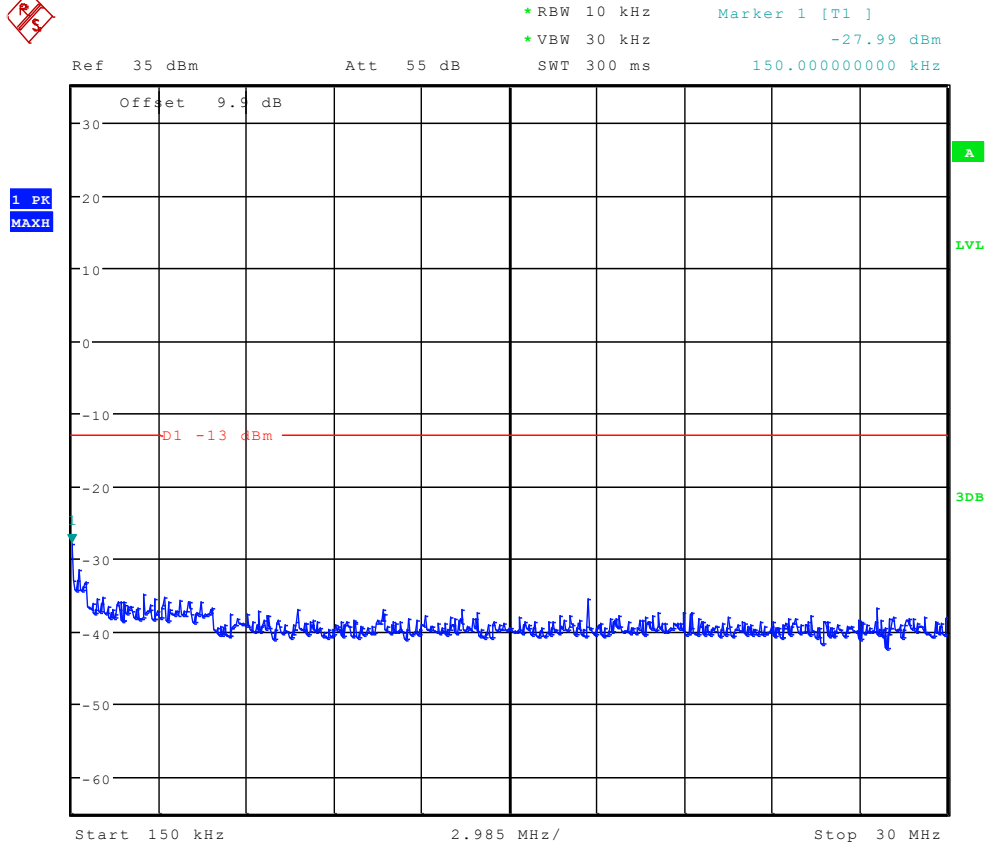
Date: 16.FEB.2012 00:12:14



TM2:EDGE Channel 128



Date: 16.FEB.2012 00:24:43



Date: 16.FEB.2012 00:25:26



Ref 35 dBm Att 50 dB SWT 100 ms 825.897435897 MHz

Offset 10.1 dB

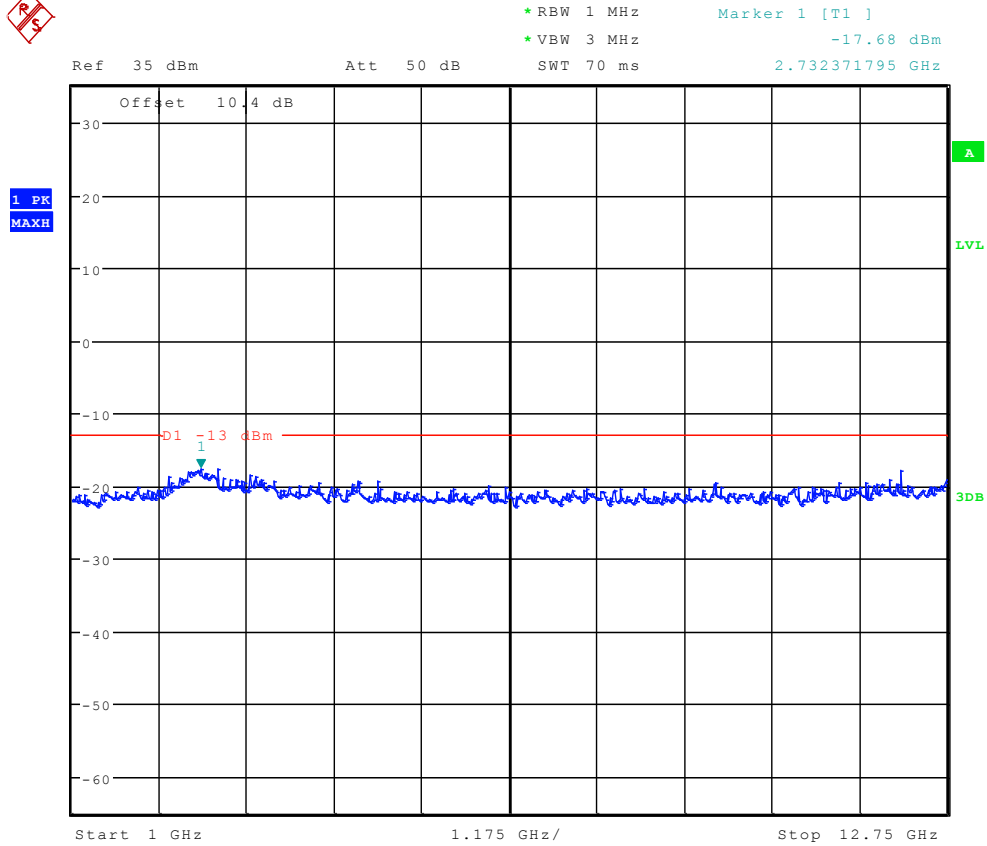
D1 -13 dBm

1

Start 30 MHz 97 MHz/ Stop 1 GHz

Report No:
SYBH(Z-RF)014022012-2001

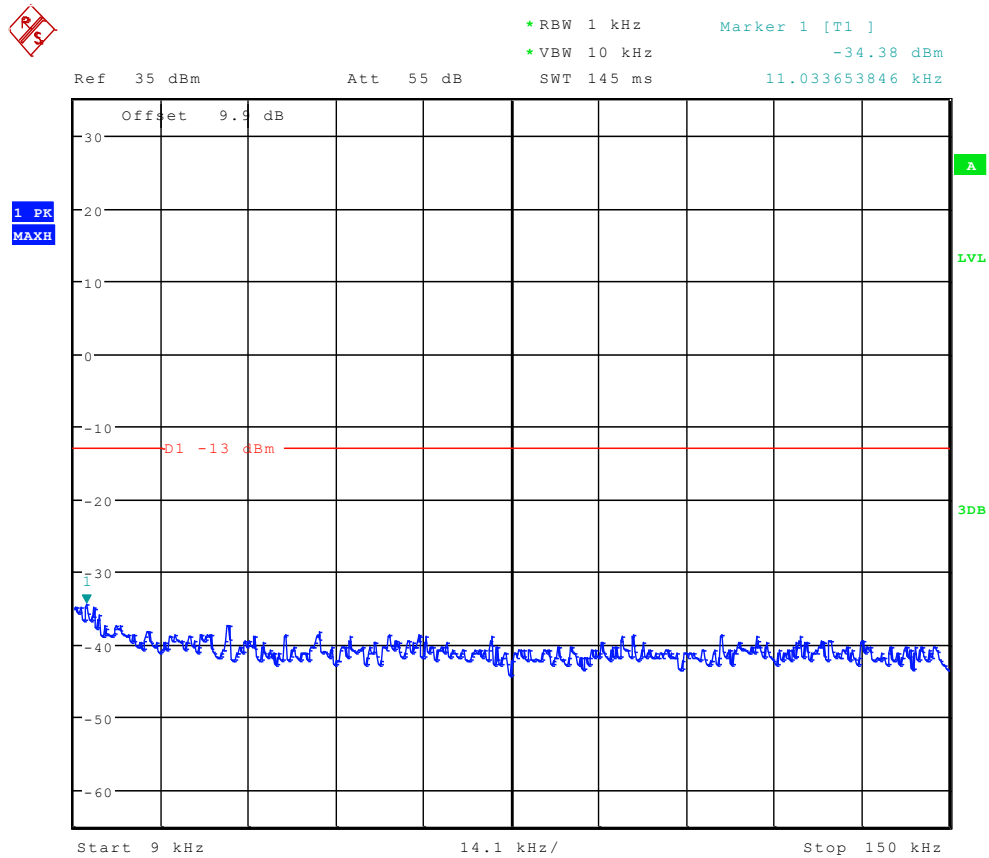
Page16, Total37



Date: 16.FEB.2012 00:26:54



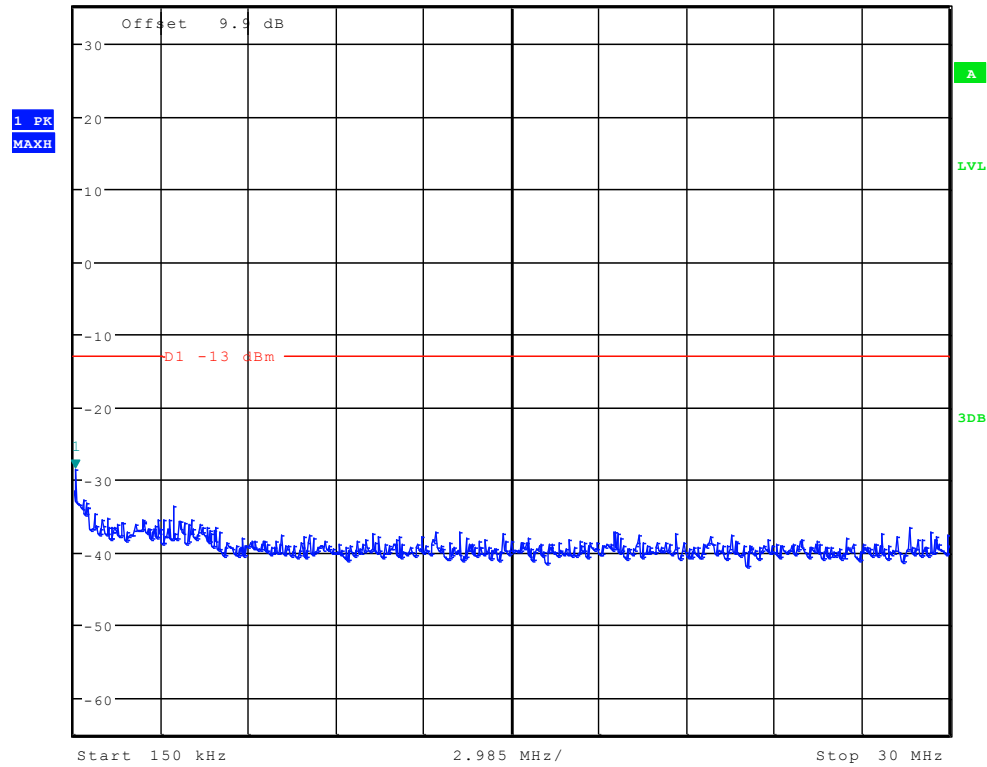
Channel 192



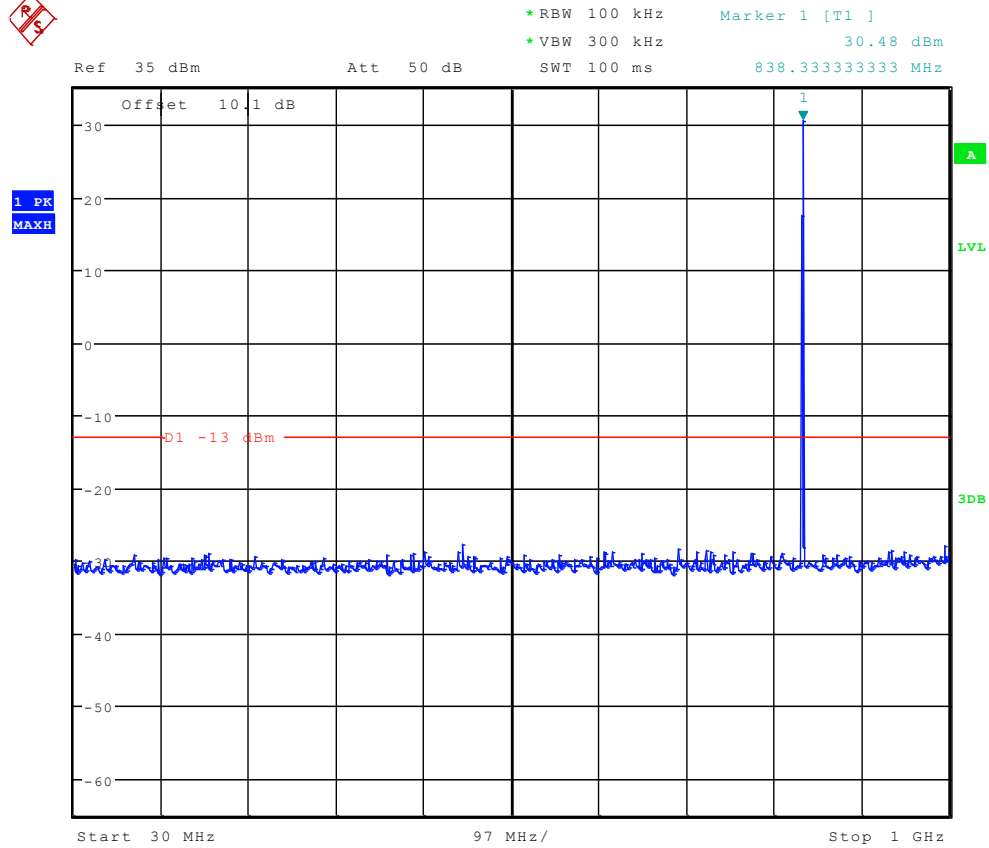
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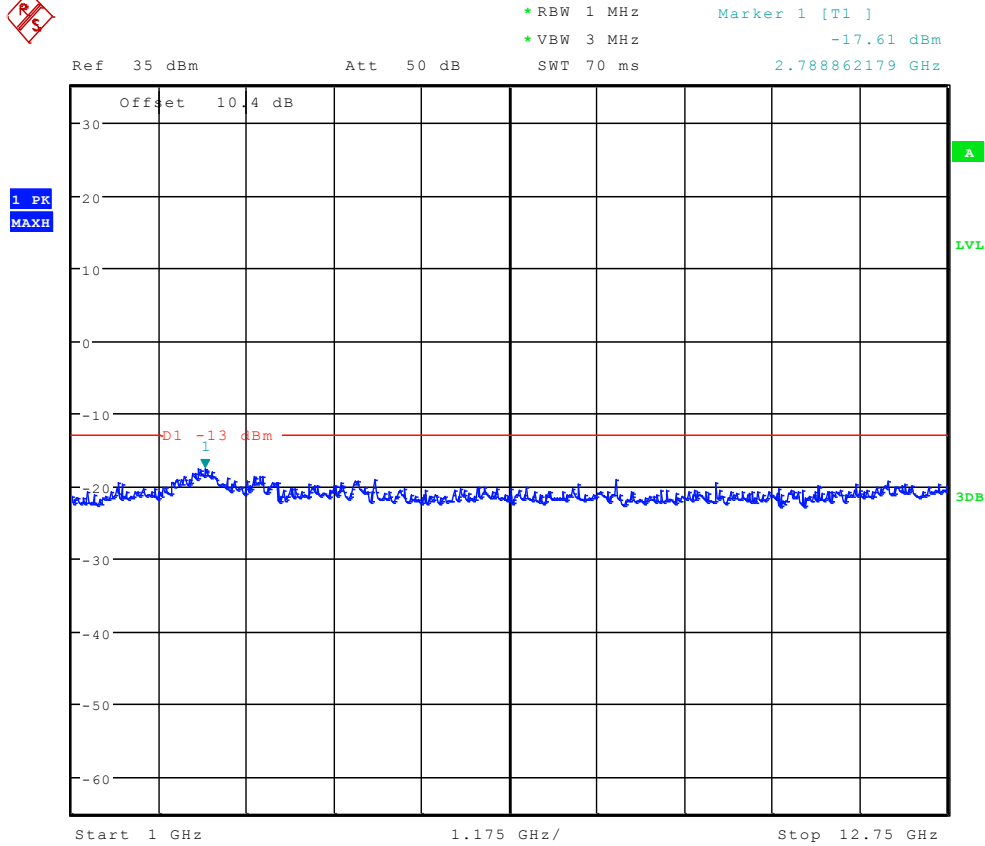
Ref	35 dBm	Att	55 dB	SWT	300 ms	197.836538462 kHz
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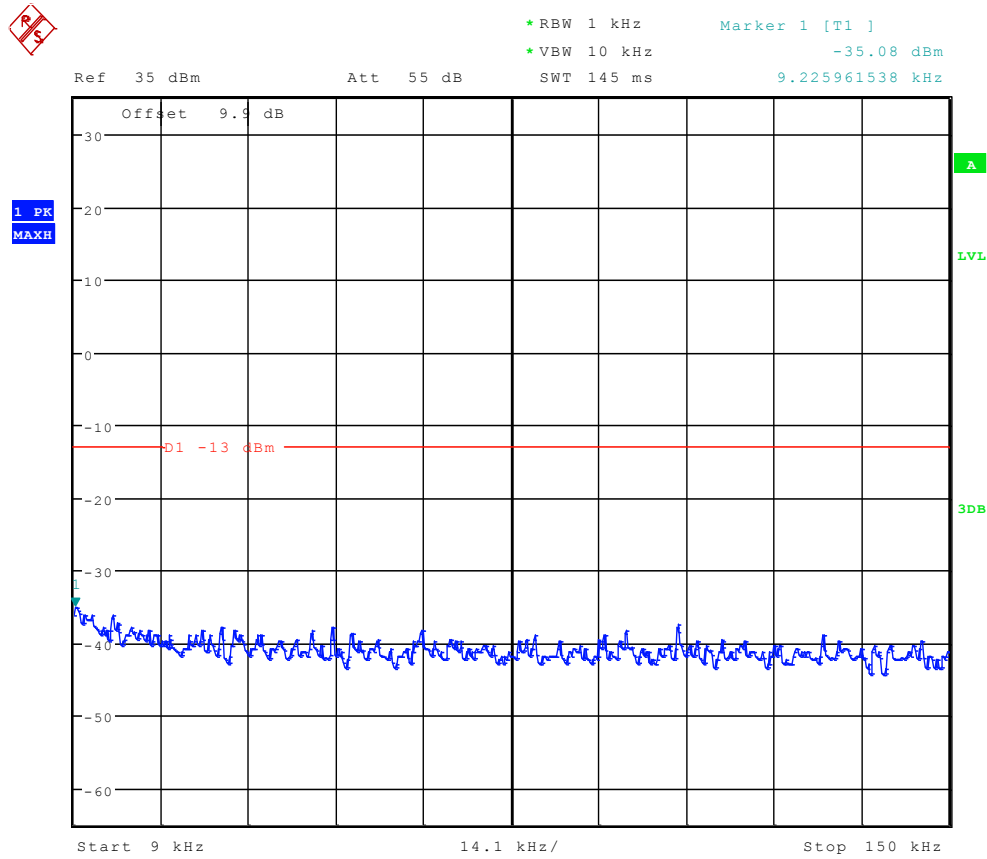
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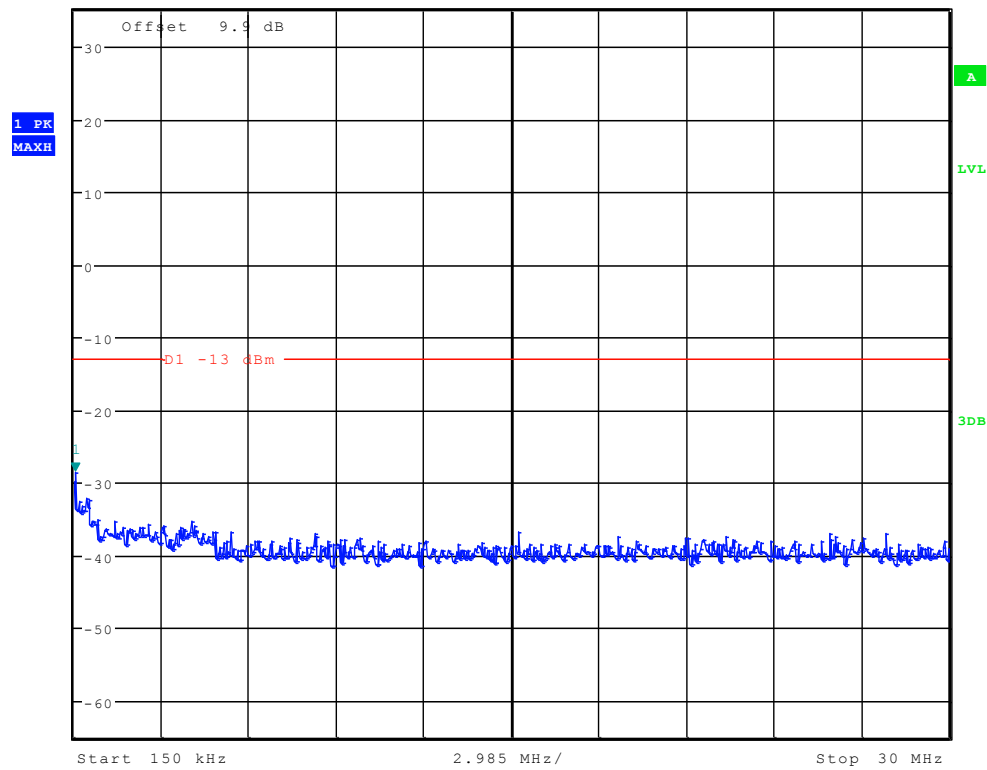
Channel 251



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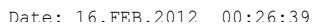
Ref	35 dBm	Att	55 dB	SWT	300 ms	197.836538462 kHz
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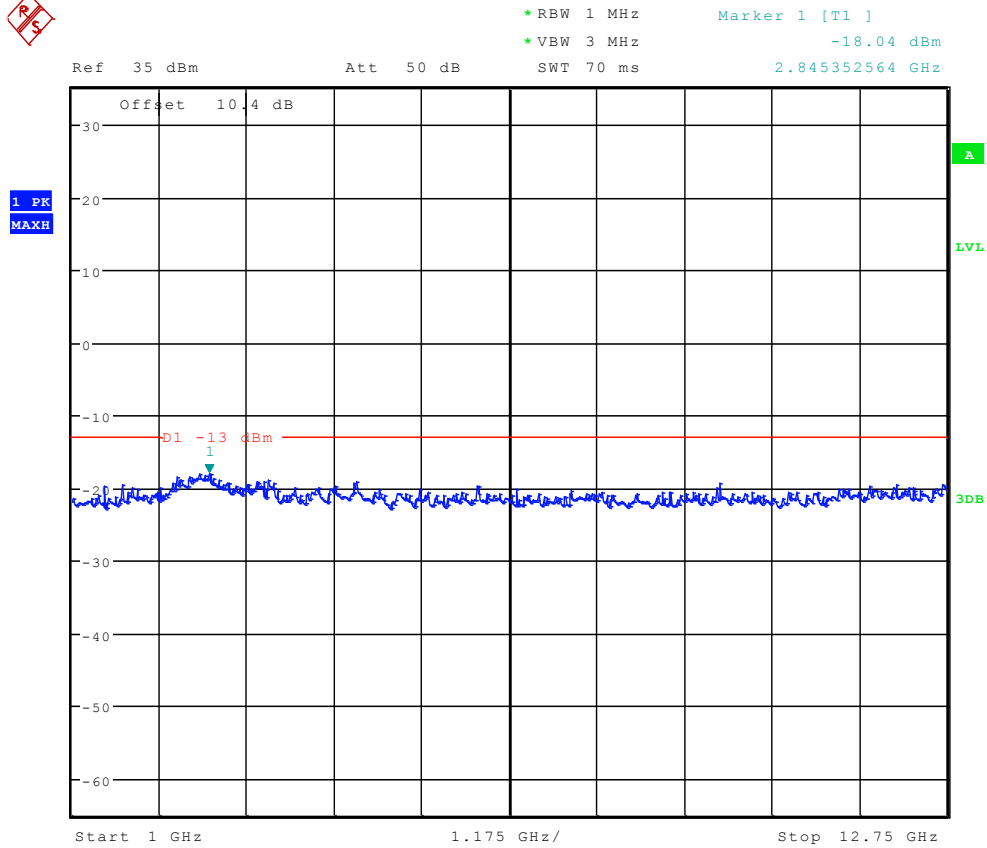


Date: 16.FEB.2012 00:25:55



Ref	35 dBm	Att	50 dB	SWT	100 ms	849.214743590 MHz
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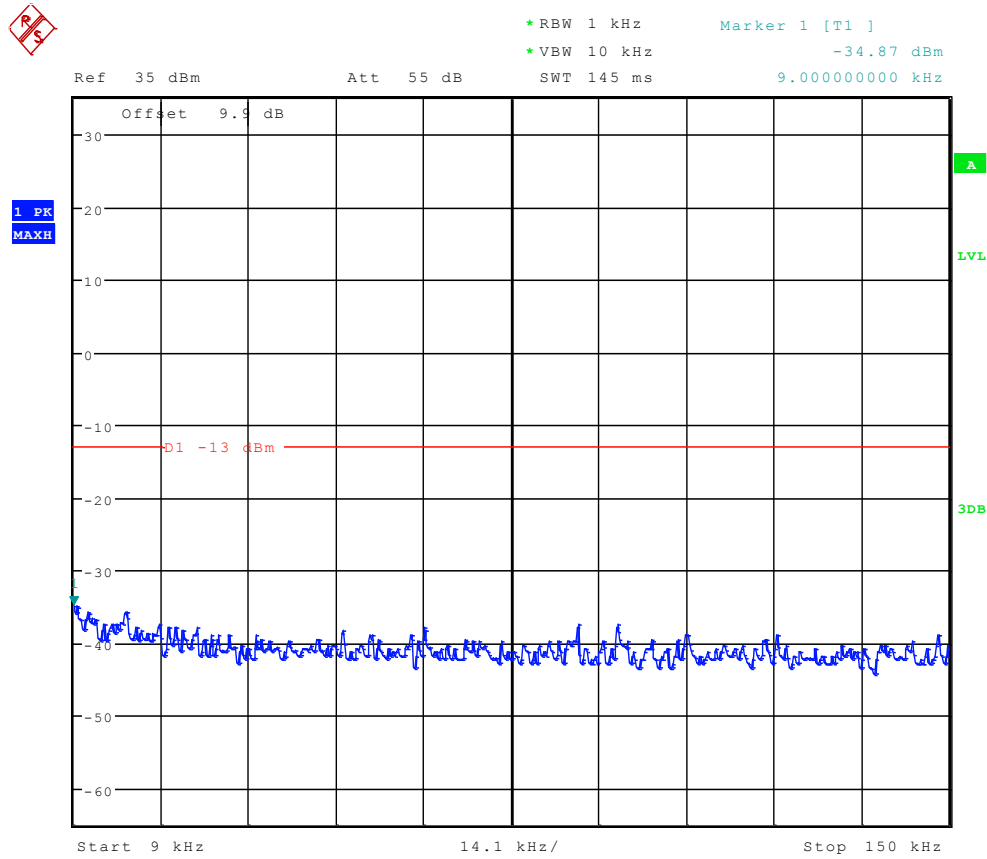




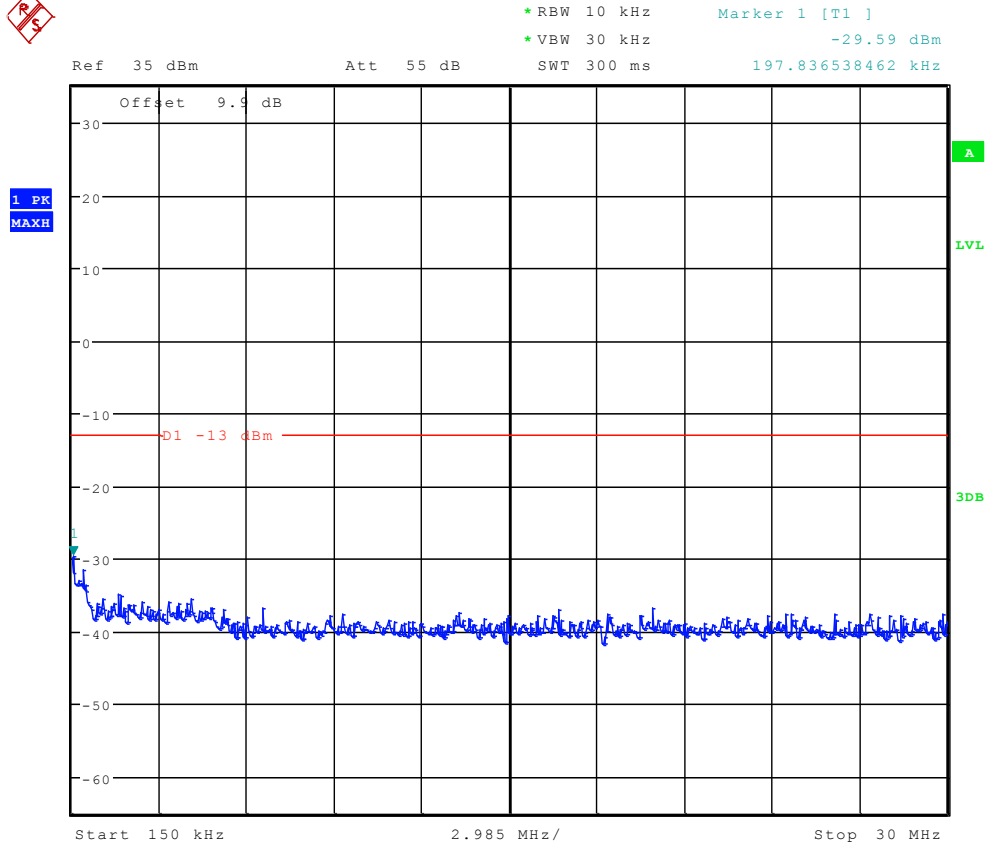
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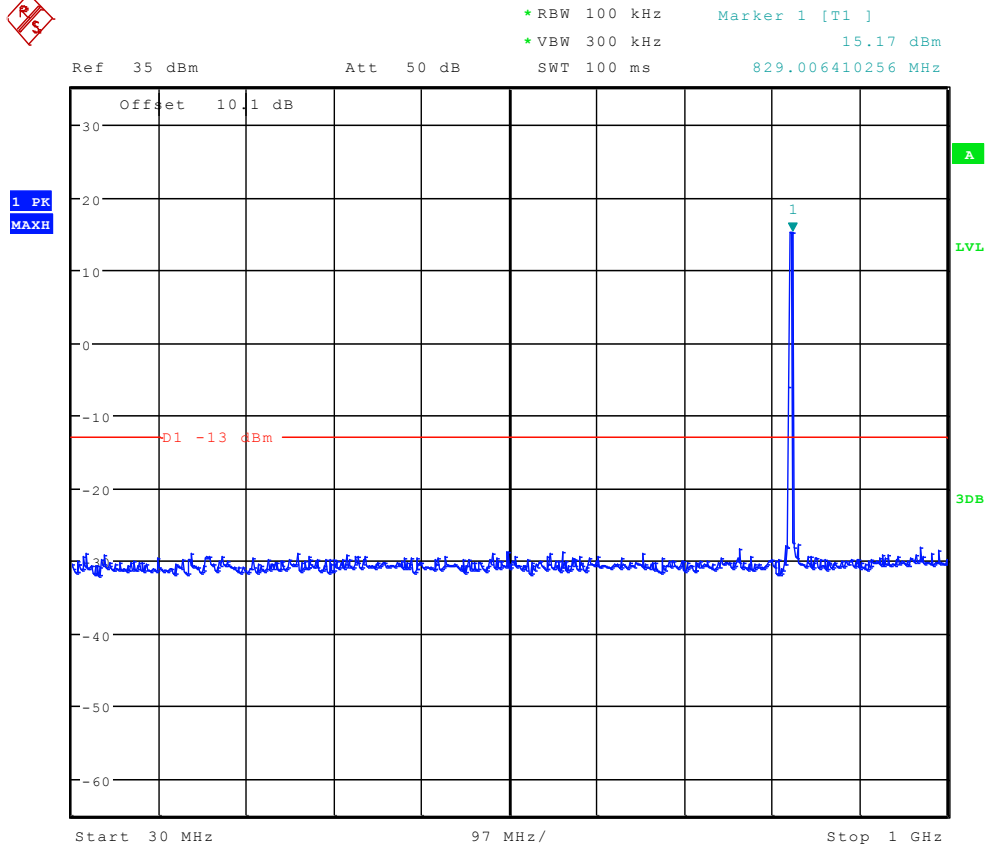
TM3: WCDMA Channel 4132



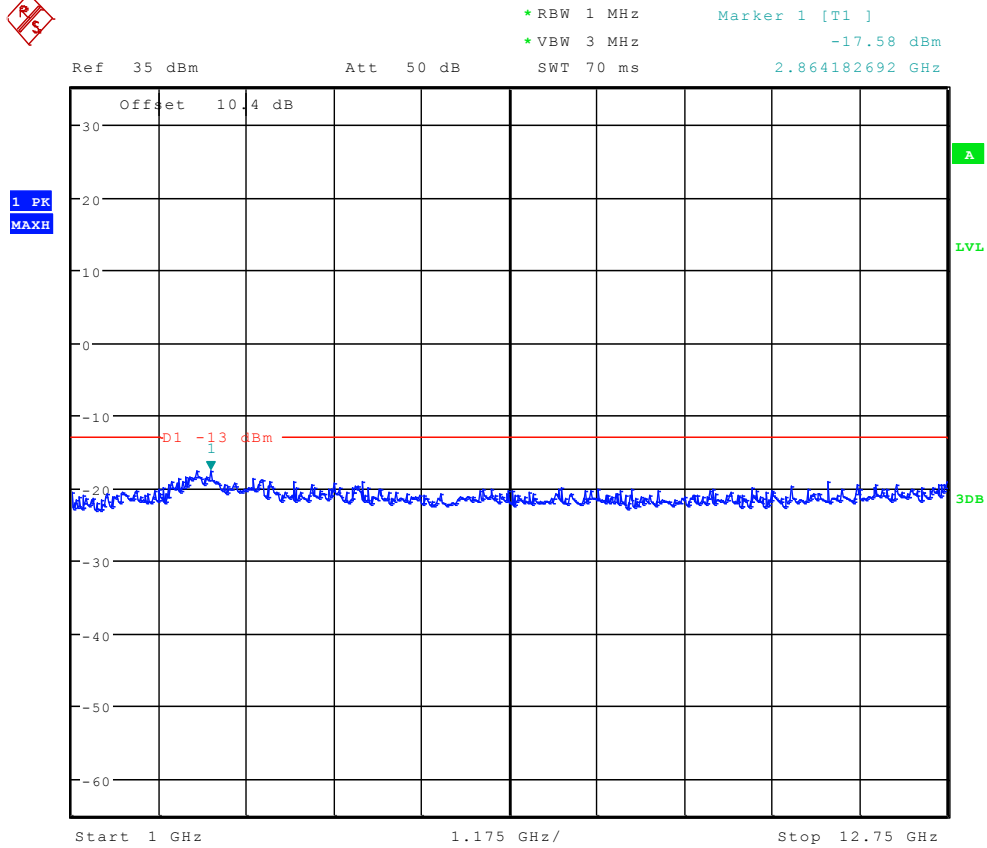
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Date: 16.FEB.2012 00:33:35



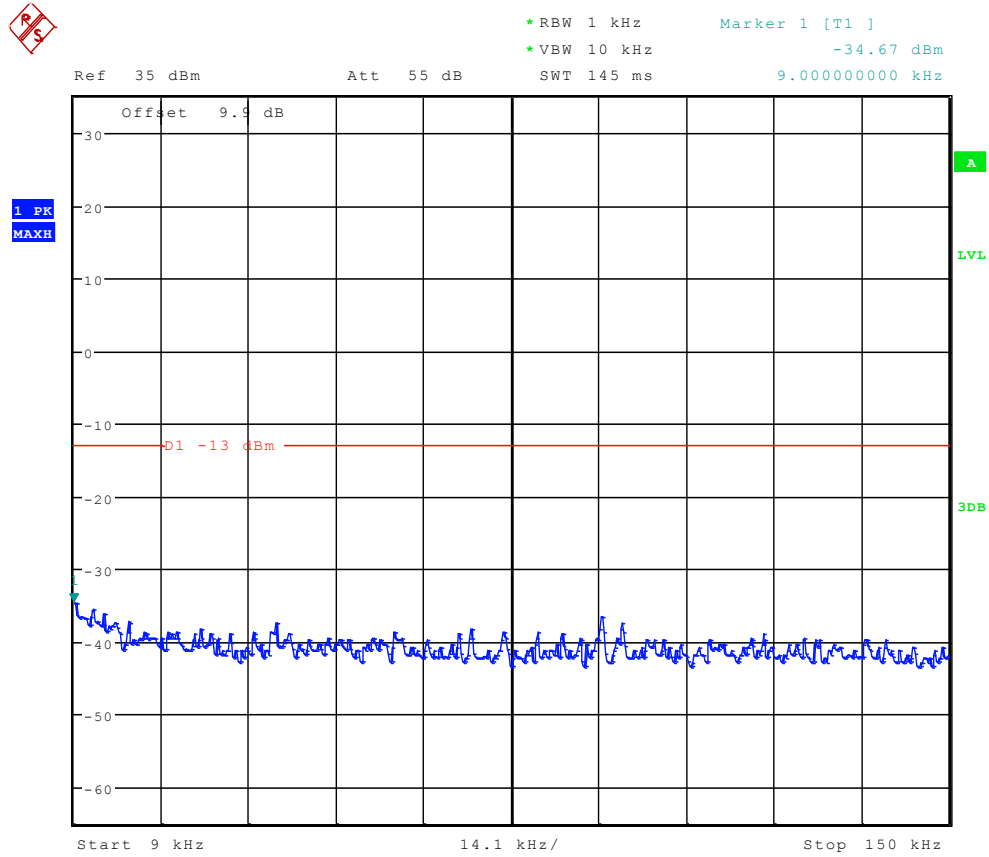
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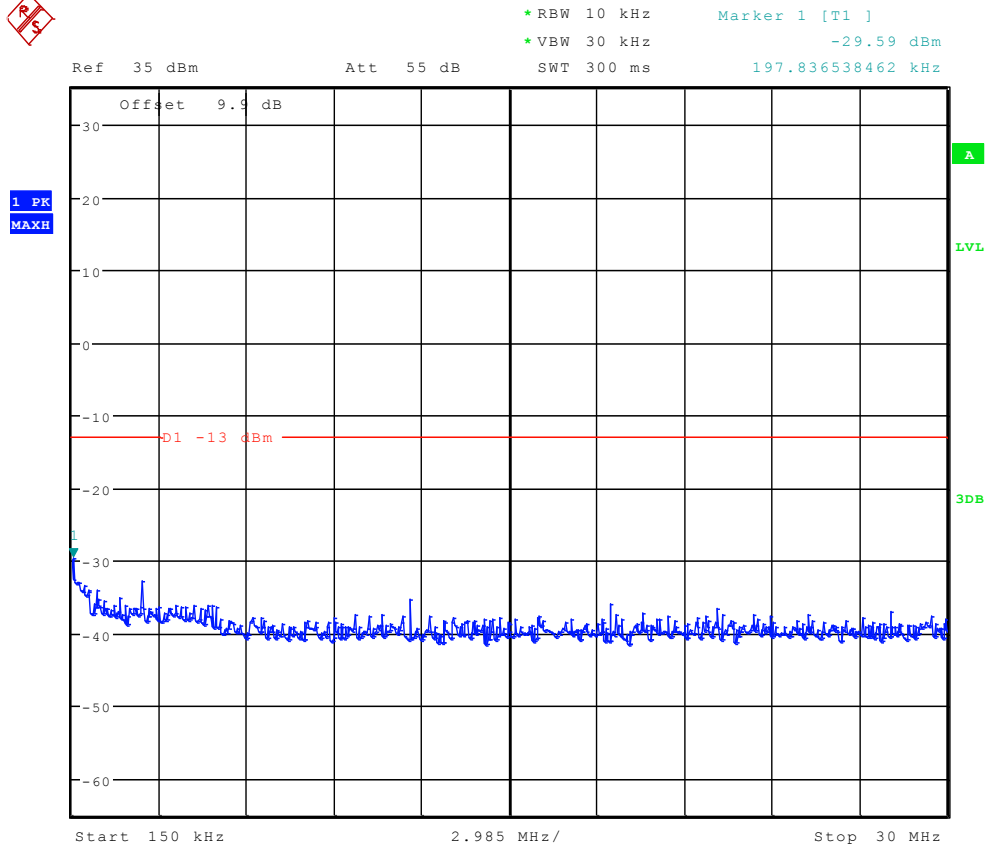
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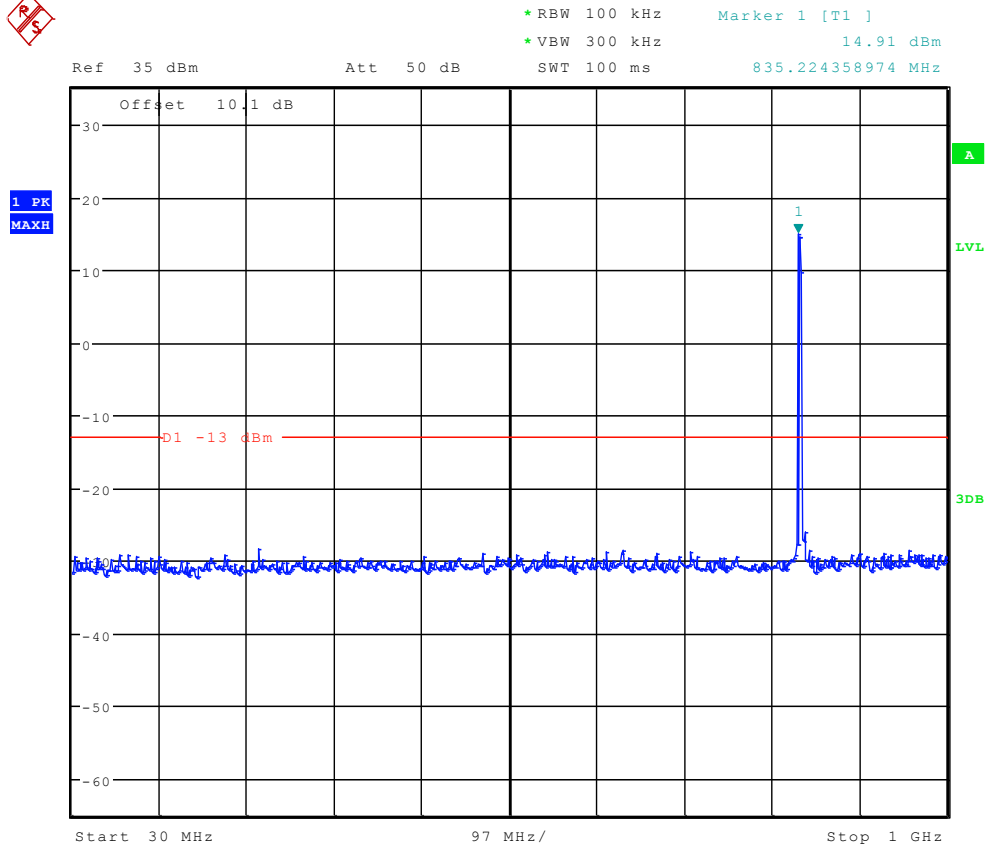
Channel 4182



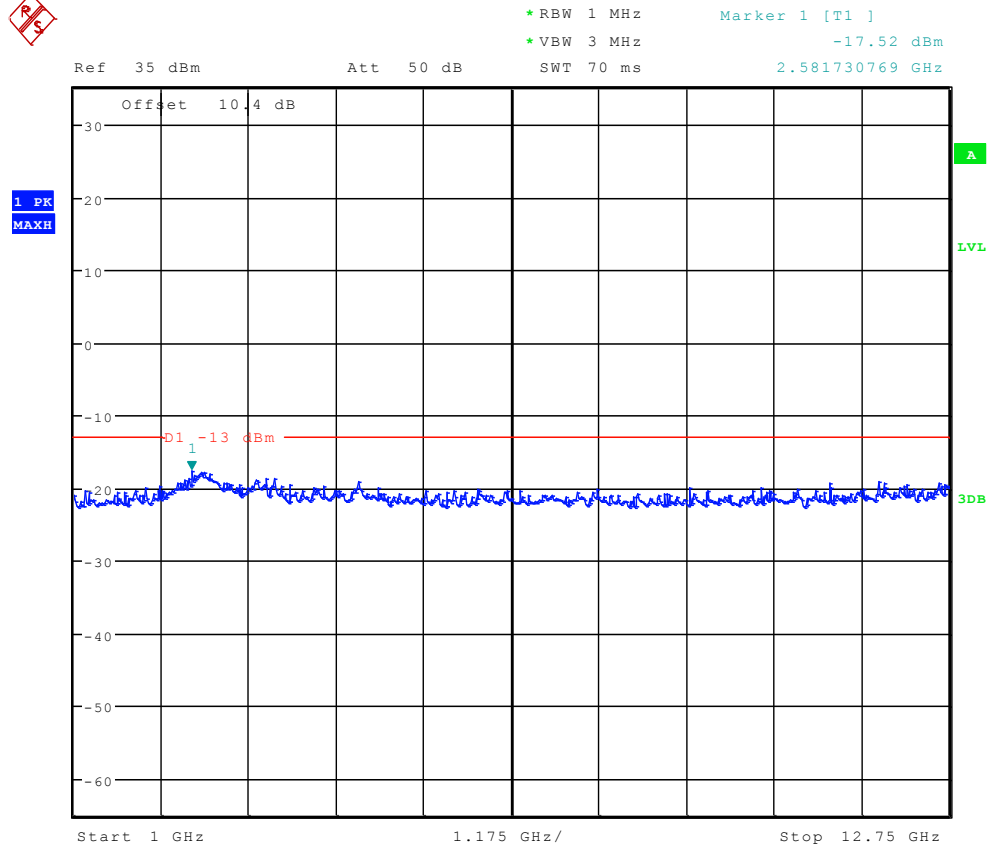
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Date: 16.FEB.2012 00:33:50



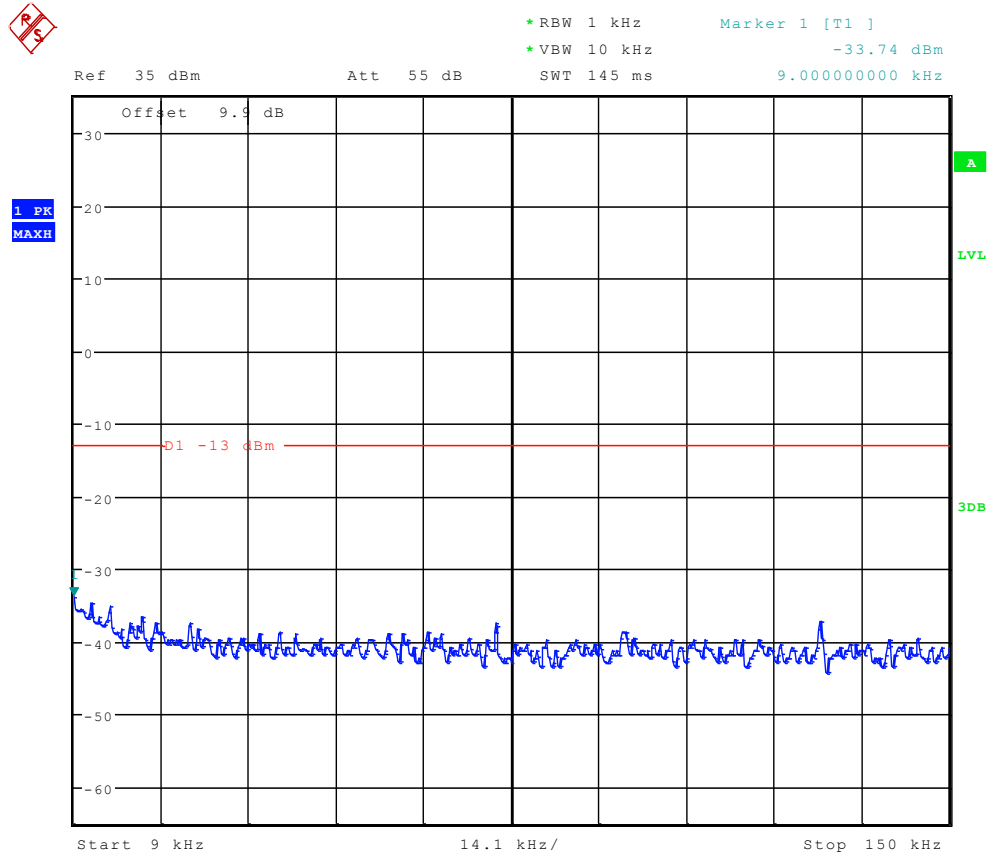
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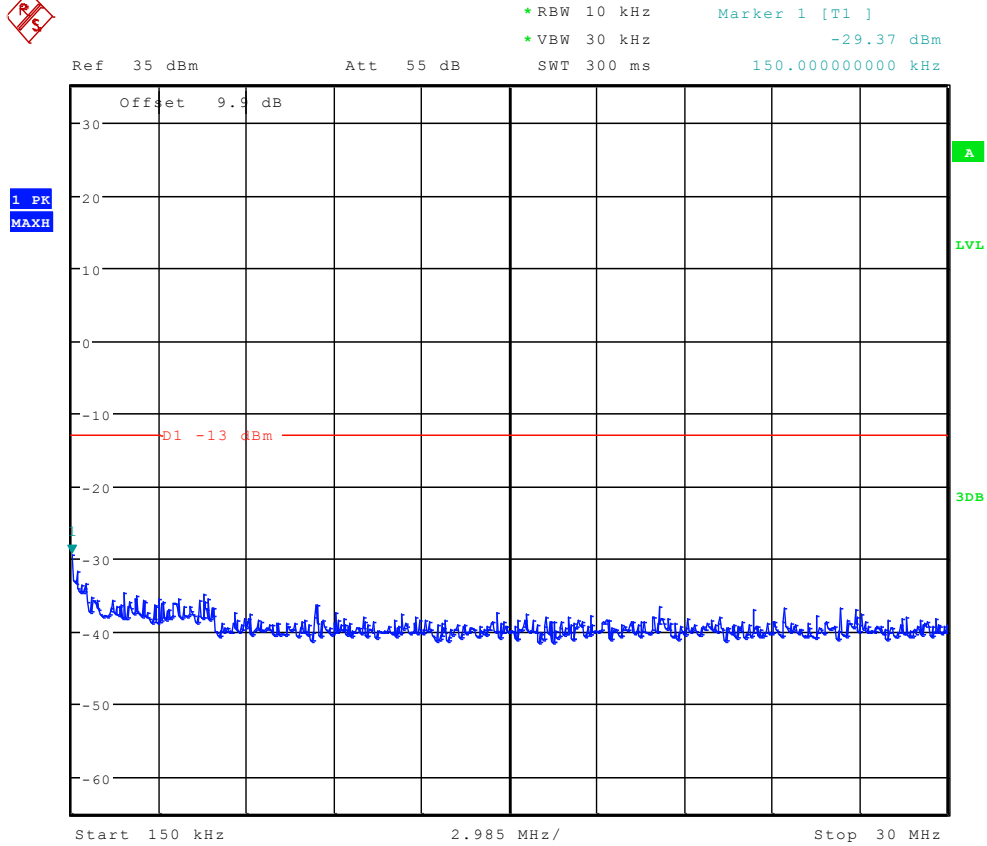
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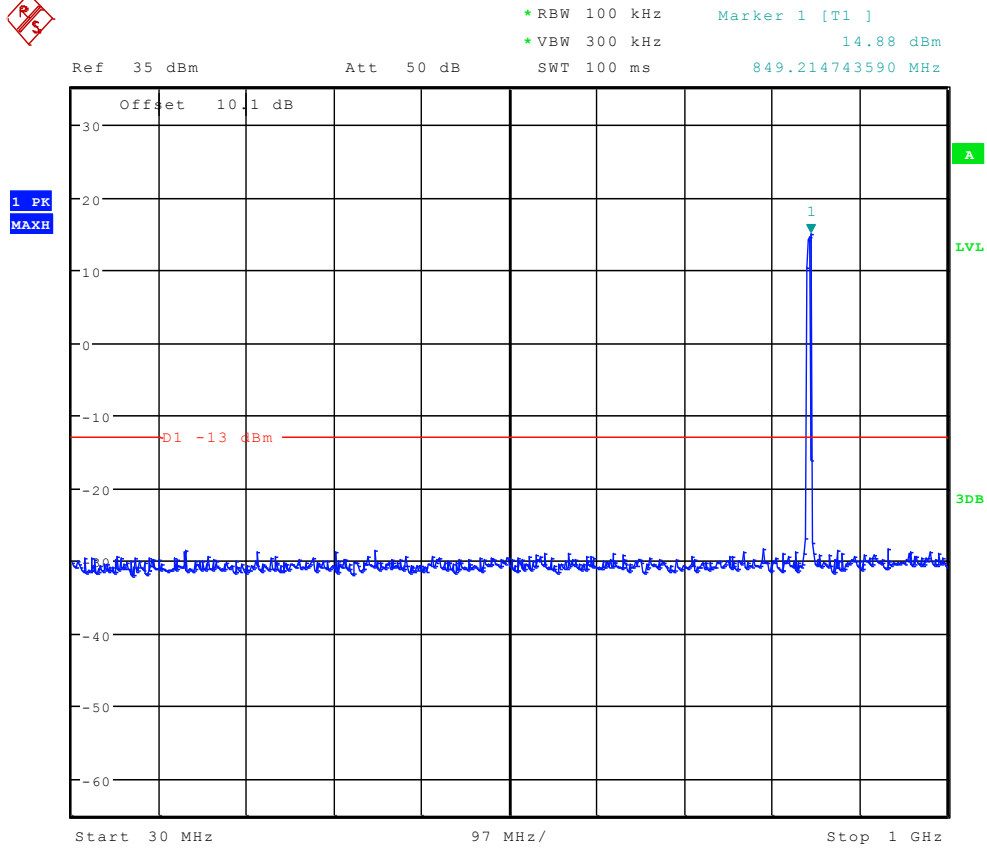
Channel 4233



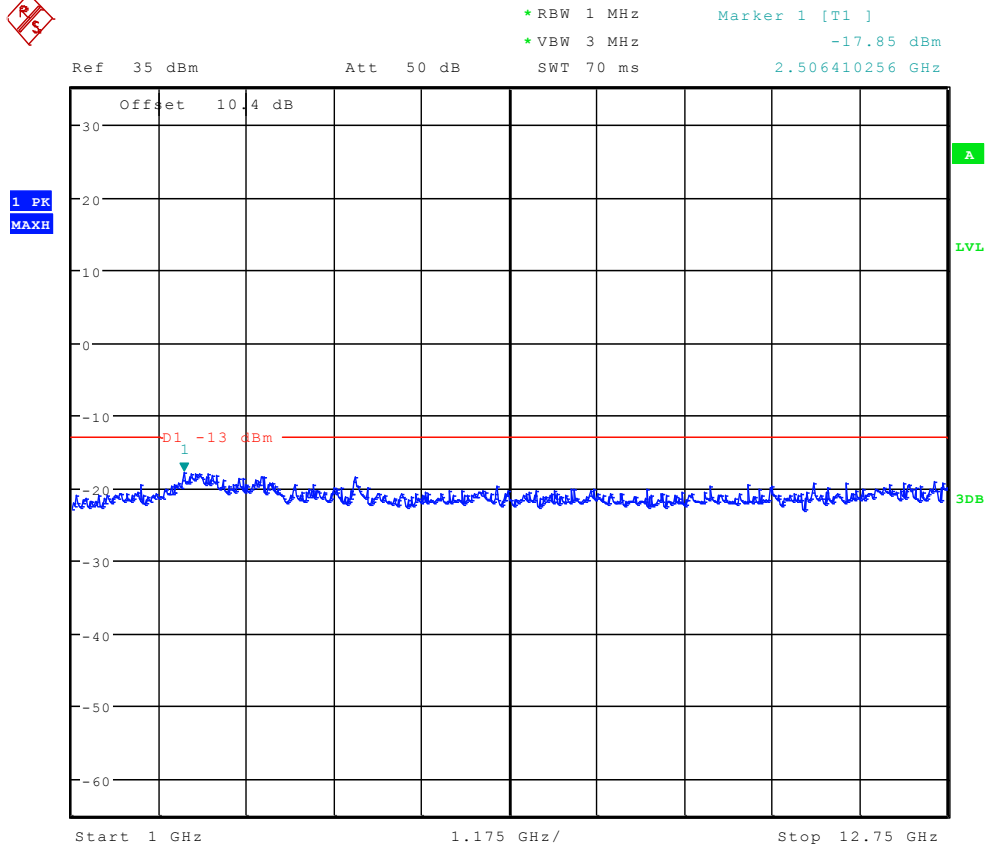
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Date: 16.FEB.2012 00:34:04



Date: 16.FEB.2012 00:34:48



Date: 16.FEB.2012 00:35:32

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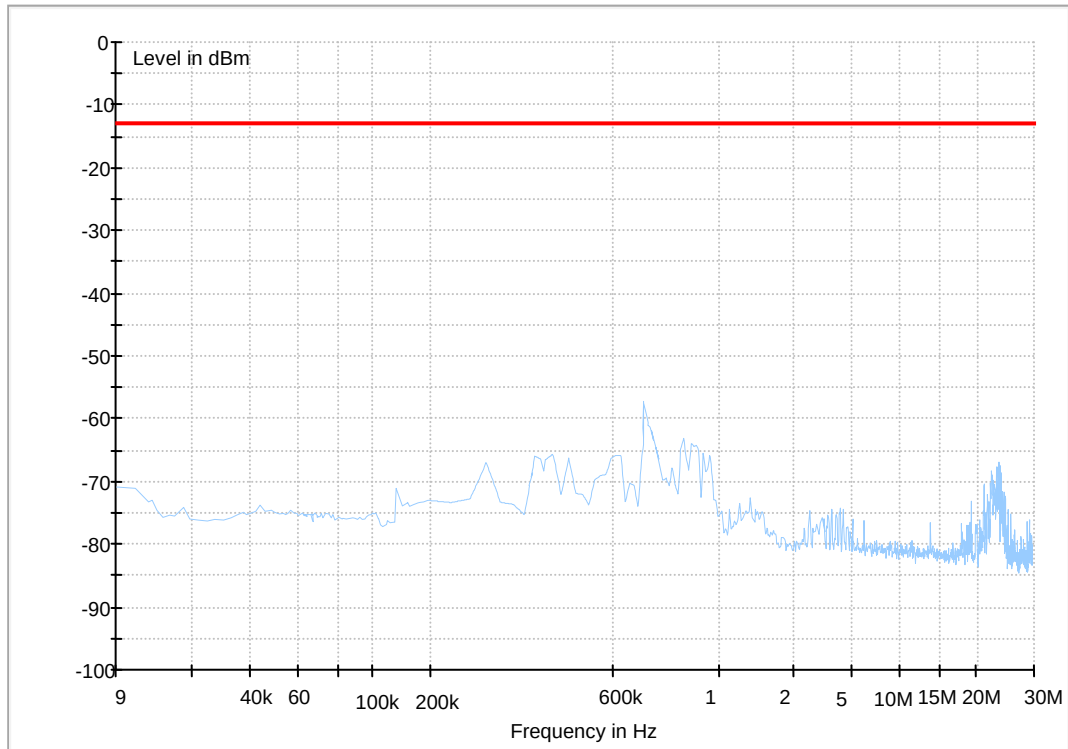
Appendix F

Radiated spurious emission

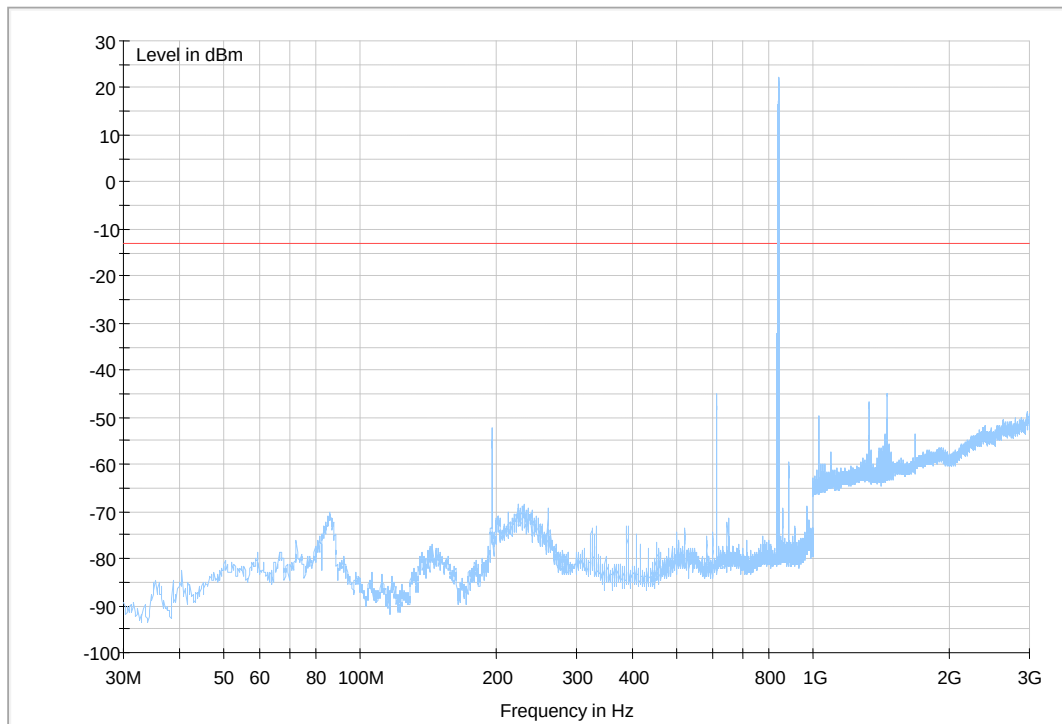
According to FCC Part 2.1053& Part 22.917

GPRS 850

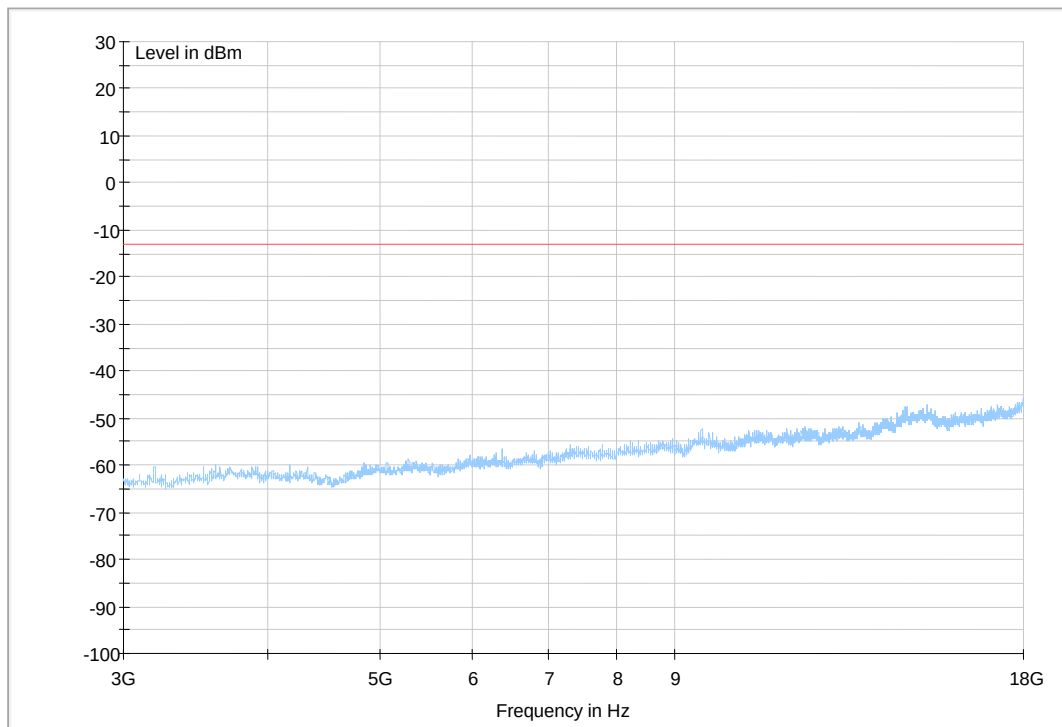
(9kHz~30MHz)



(30MHz~3GHz)

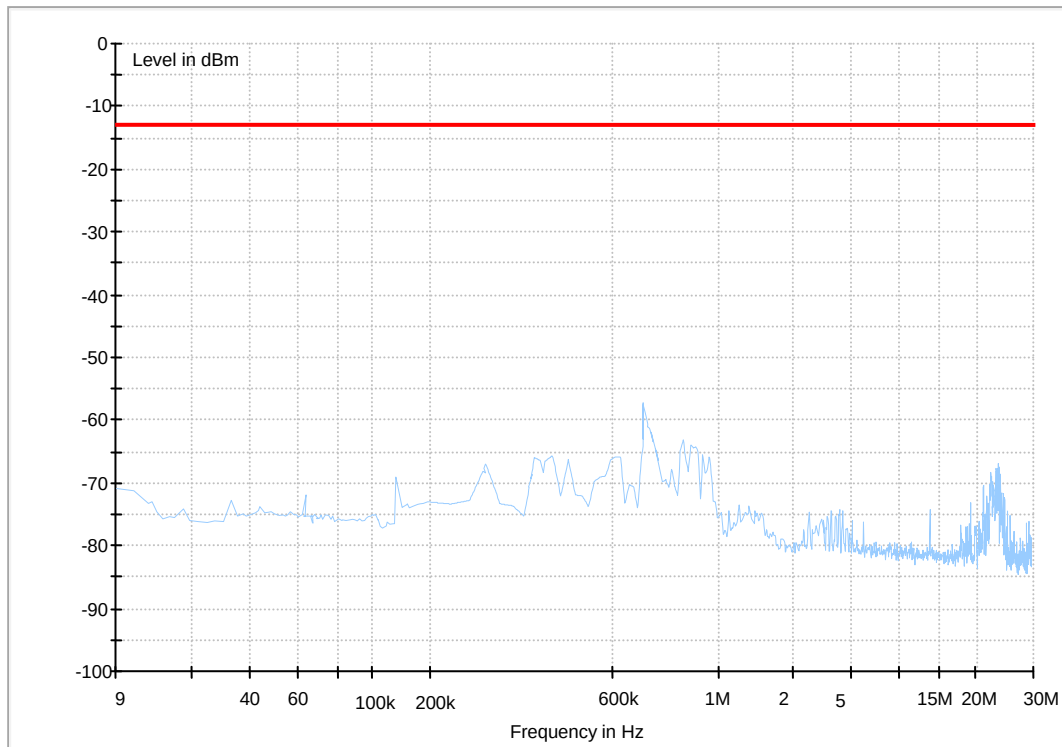


(3GHz~18GHz)

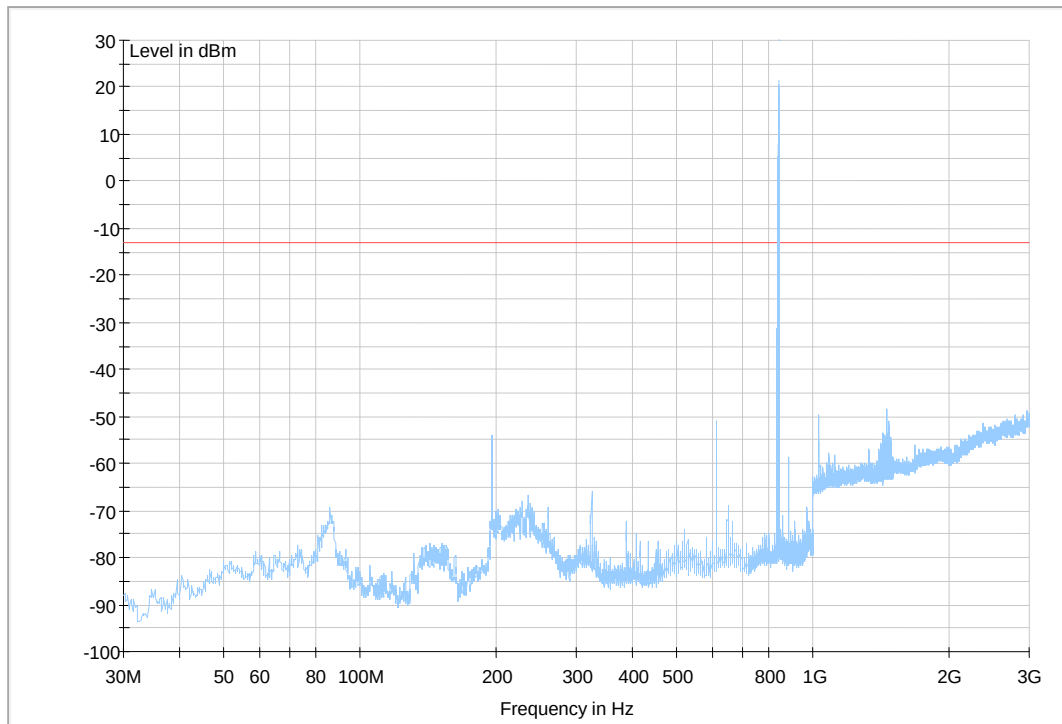


EDGE 850

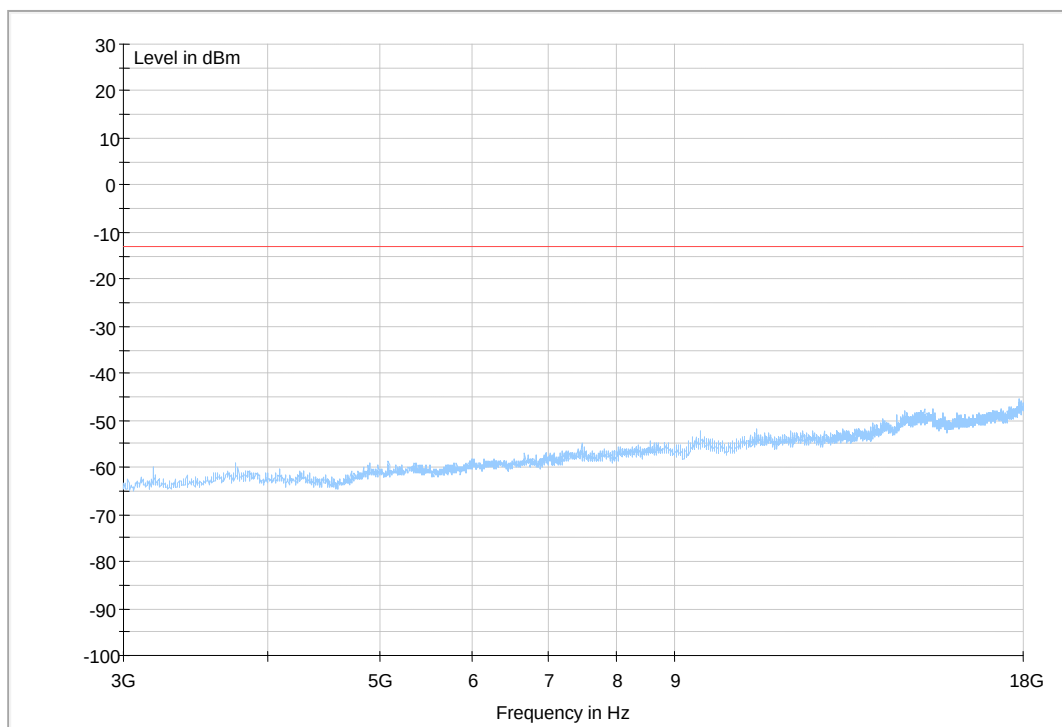
(9kHz~30MHz)



(30MHz~3GHz)

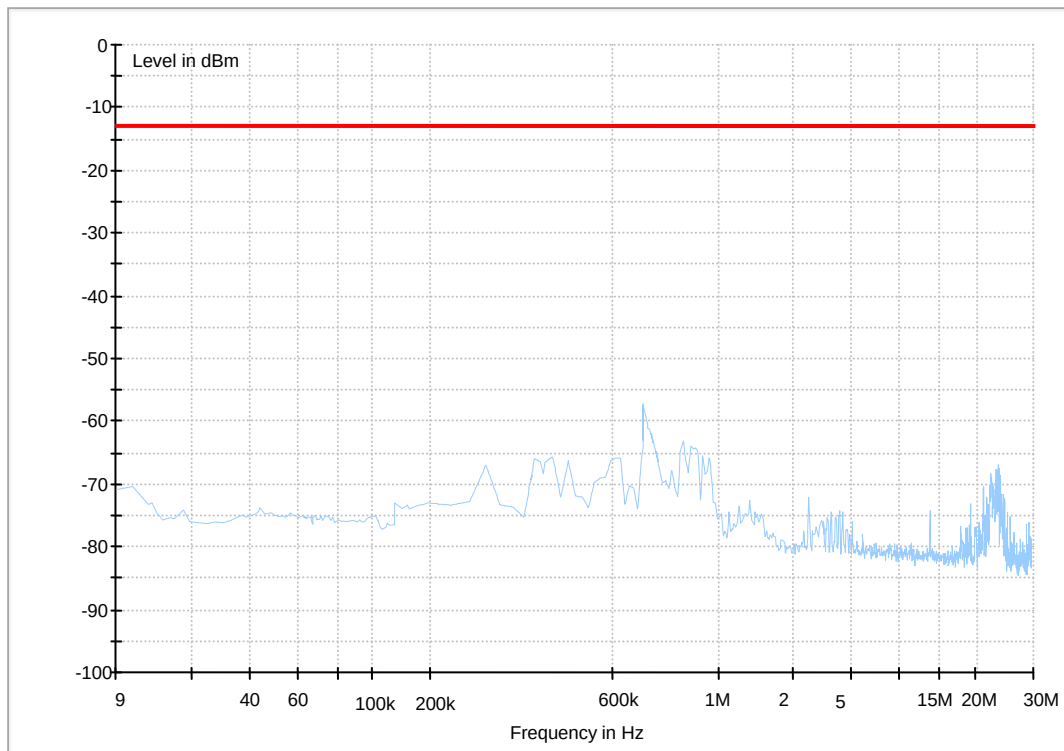


(3GHz~18GHz)

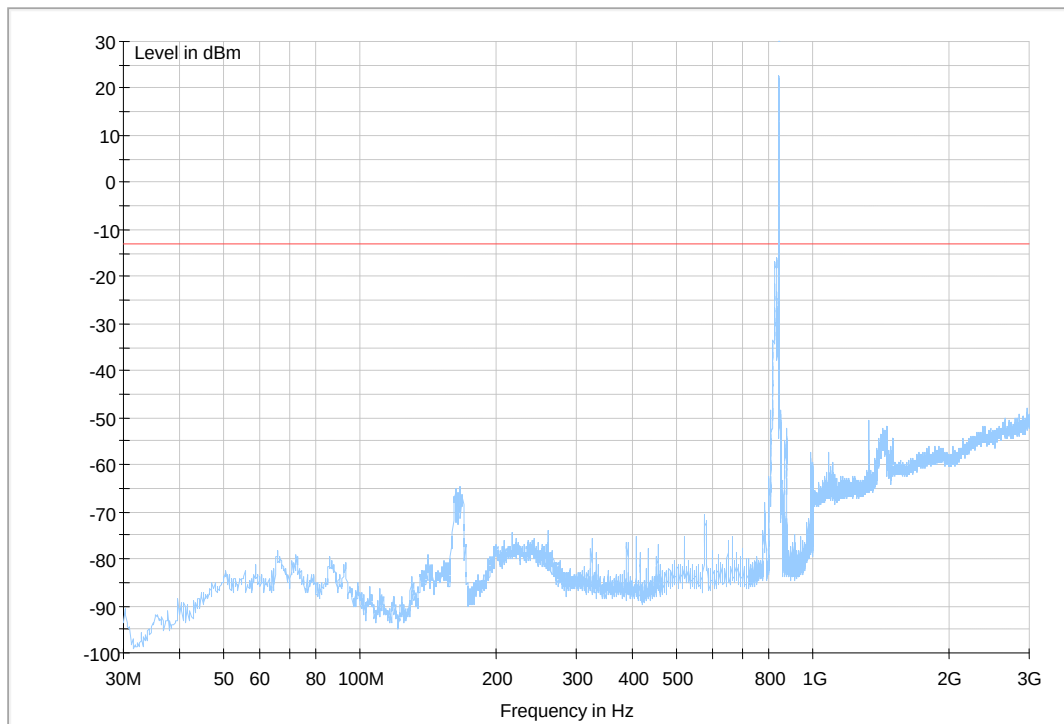


WCDMA Band V

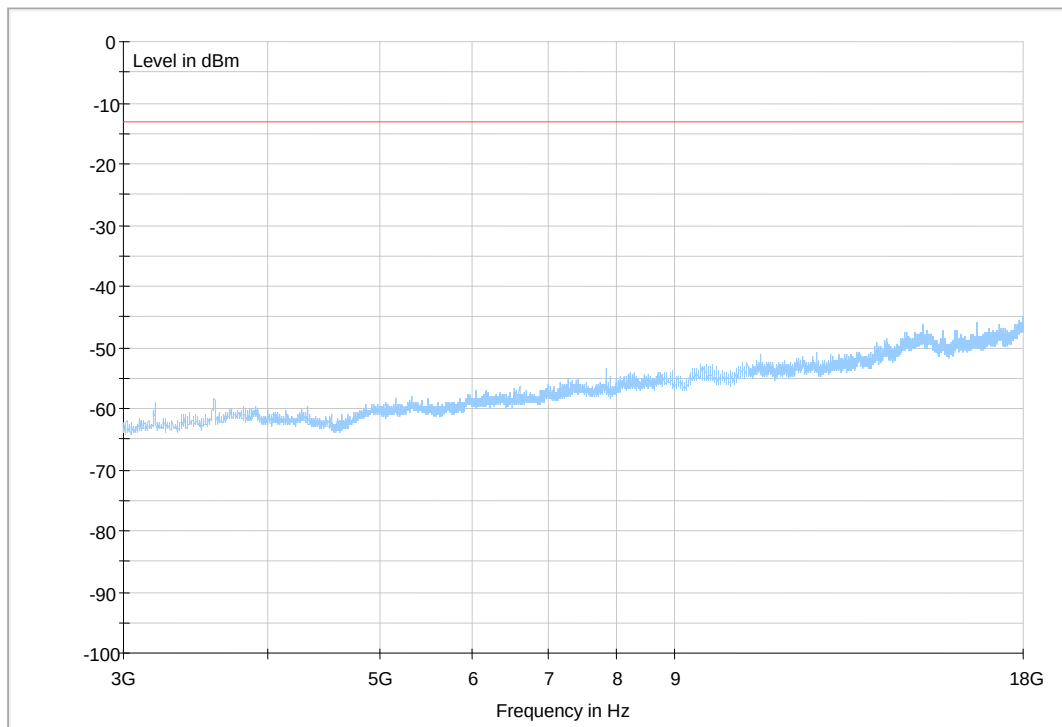
(9KHz~30MHz)



(30MHz~3GHz)

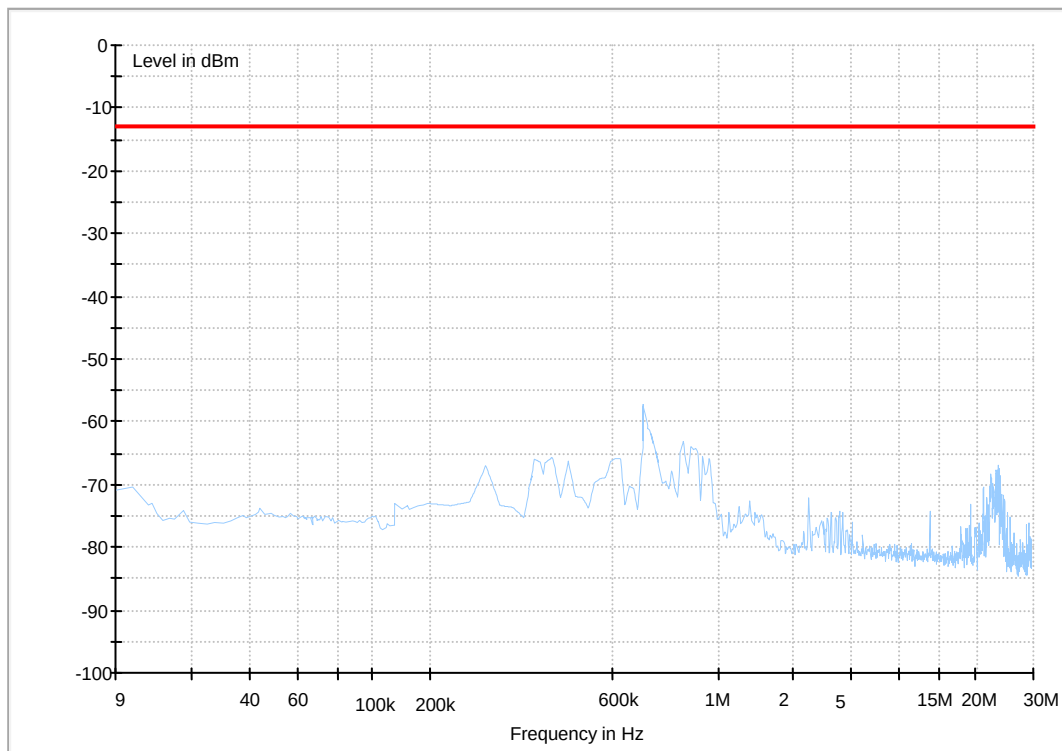


(3GHz~18GHz)

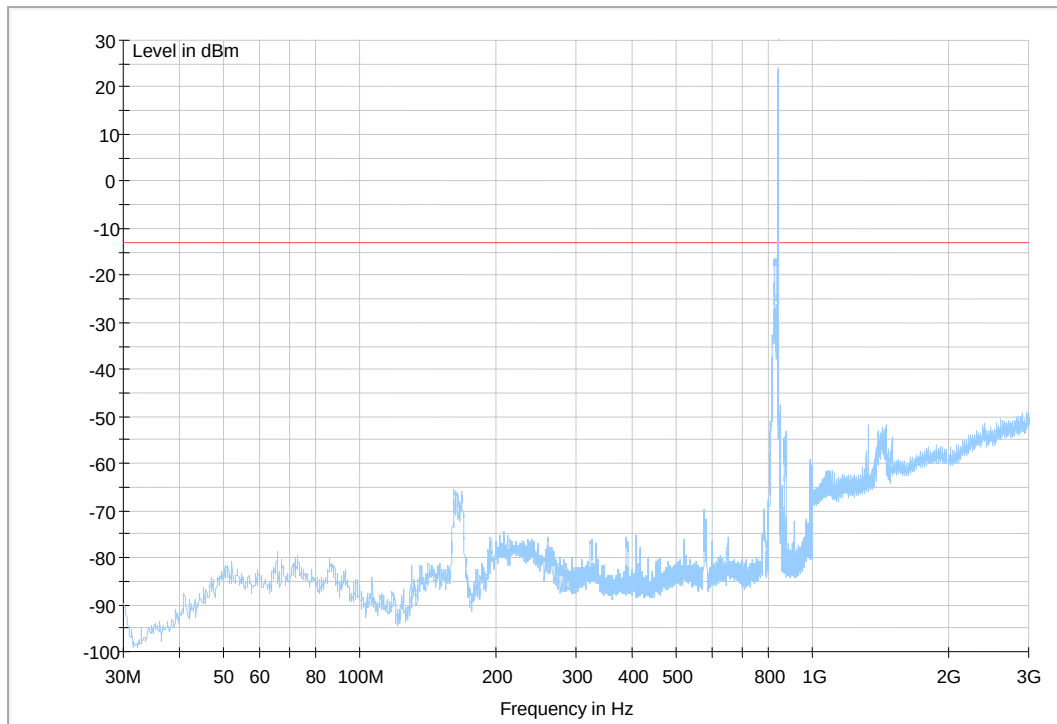


HSDPA Band V

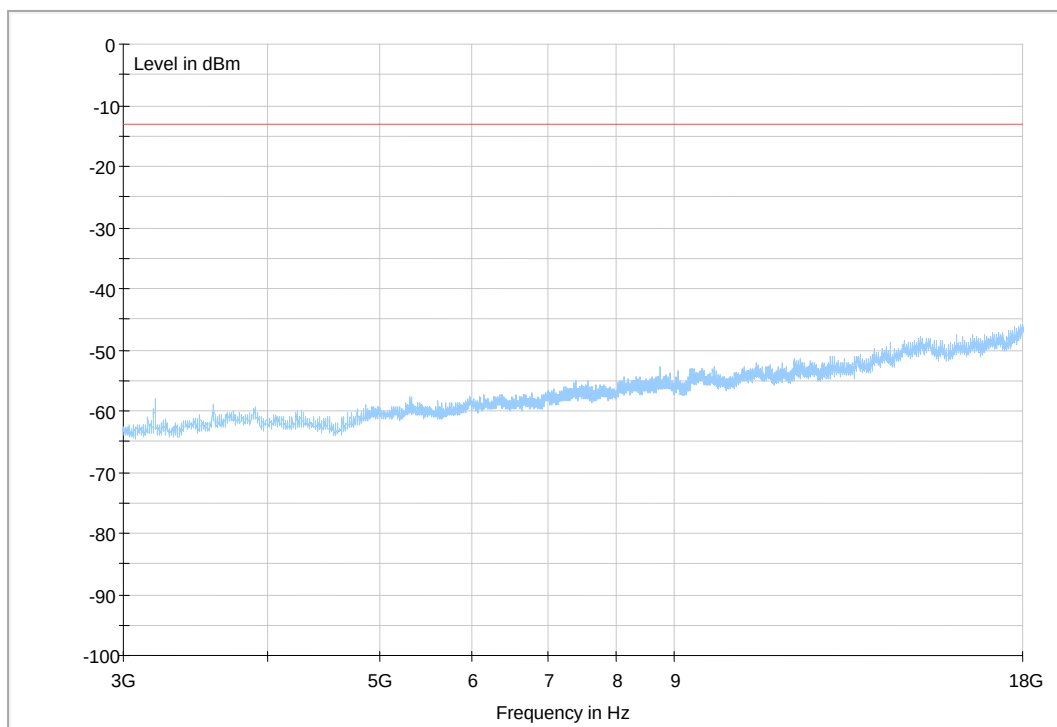
(9KHz~30MHz)



(30MHz~3GHz)



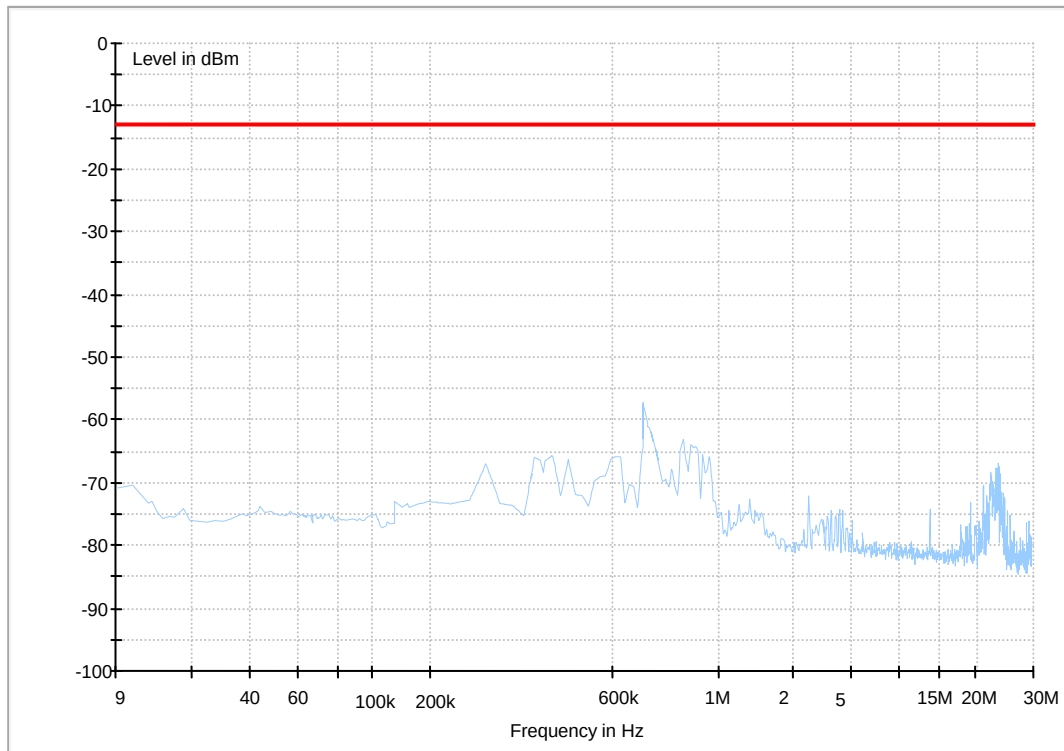
(3GHz~18GHz)



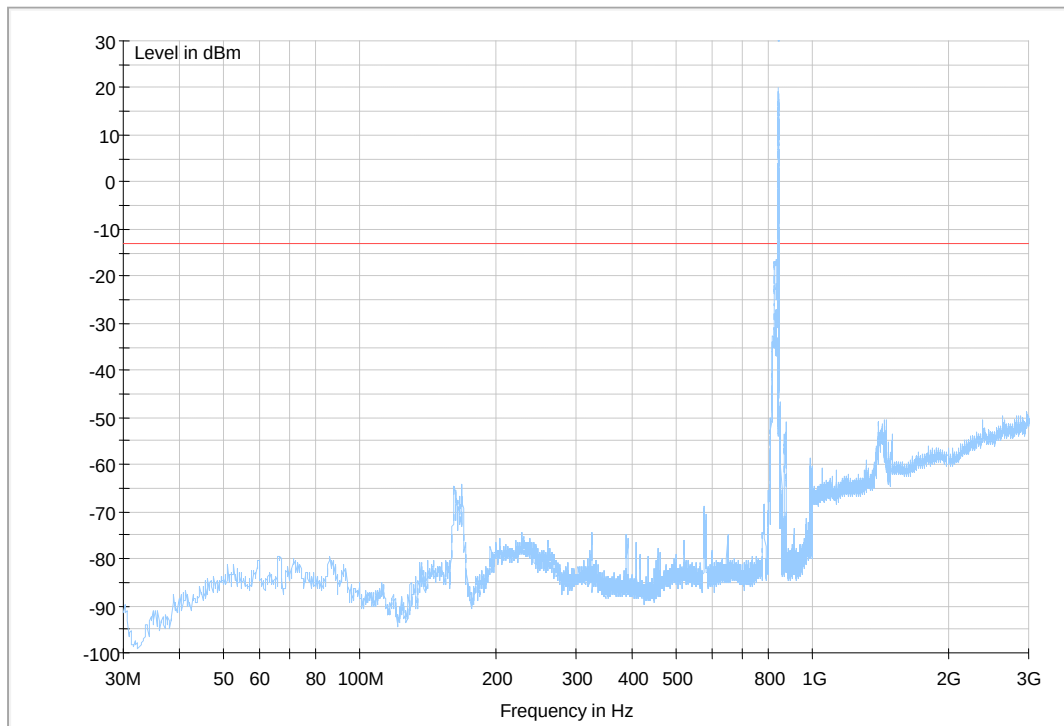


HSUPA Band V

(9KHz~30MHz)

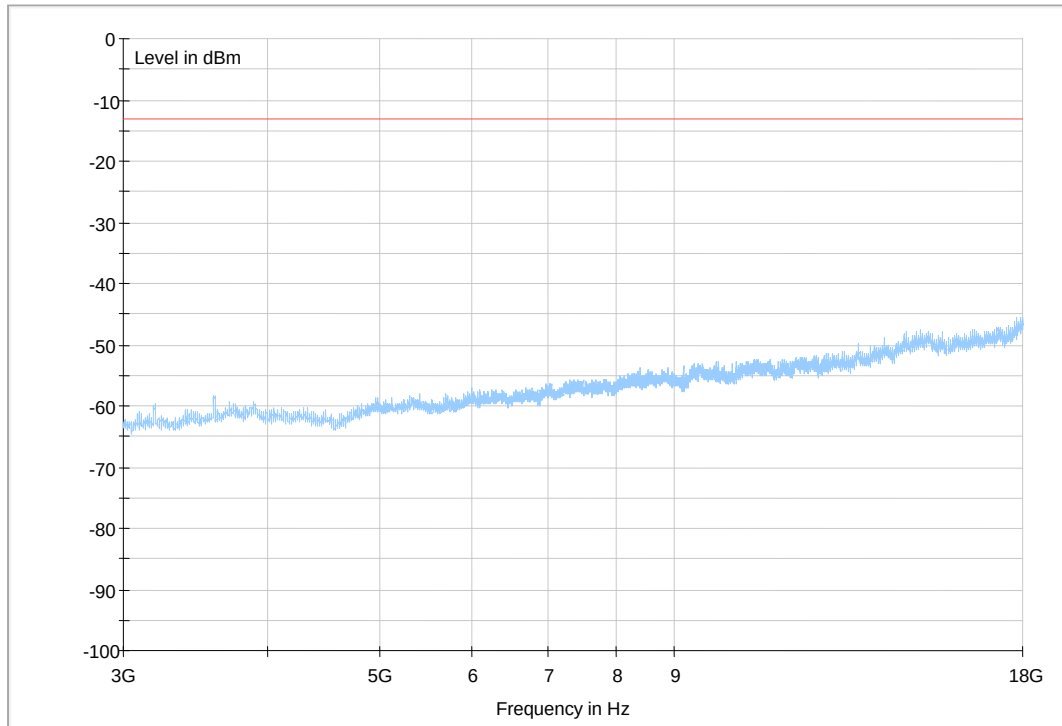


(30MHz~3GHz)





(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	-17	-0.0203	---	±2.5	Pass
			-20 °C	-12	-0.0143	---	±2.5	Pass
			-10 °C	8	0.0096	---	±2.5	Pass
			0 °C	16	0.0191	---	±2.5	Pass
			10 °C	-13	-0.0155	---	±2.5	Pass
			20 °C	-18	-0.0215	---	±2.5	Pass
			30 °C	8	0.0096	---	±2.5	Pass
			40 °C	15	0.0179	---	±2.5	Pass
			50 °C	14	0.0167	---	±2.5	Pass
TM 2	M	100%	-30 °C	12	0.0143	---	±2.5	Pass
			-20 °C	-17	-0.0203	---	±2.5	Pass
			-10 °C	11	0.0131	---	±2.5	Pass
			0 °C	6	0.0072	---	±2.5	Pass
			10 °C	-21	-0.0251	---	±2.5	Pass
			20 °C	-15	-0.0179	---	±2.5	Pass
			30 °C	-12	-0.0143	---	±2.5	Pass
			40 °C	16	0.0191	---	±2.5	Pass
			50 °C	10	0.0119	---	±2.5	Pass
TM 3	M	100%	-30 °C	10	0.0120	---	±2.5	Pass
			-20 °C	-11	-0.0132	---	±2.5	Pass
			-10 °C	5	0.0060	---	±2.5	Pass
			0 °C	13	0.0155	---	±2.5	Pass
			10 °C	-17	-0.0203	---	±2.5	Pass
			20 °C	12	0.0143	---	±2.5	Pass
			30 °C	-4	-0.0048	---	±2.5	Pass
			40 °C	18	0.0215	---	±2.5	Pass
			50 °C	13	0.0155	---	±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 %	15	0.0179	---	±2.5	Pass
			100 %	-17	-0.0203	---	±2.5	Pass
			115 %	-11	-0.0131	---	±2.5	Pass
TM 2	M	20 °C	85 %	8	0.0096	---	±2.5	Pass
			100 %	-9	-0.0108	---	±2.5	Pass
			115 %	20	0.0239	---	±2.5	Pass
TM 3	M	20 °C	85 %	-15	-0.0179	---	±2.5	Pass
			100 %	-8	-0.0100	---	±2.5	Pass
			115 %	6	0.0072	---	±2.5	Pass

-----The END-----
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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)

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