RF TEST REPORT

Report No.： SET2014-00722

Product： Tonino Lamborghini TL66

FCC ID: 2ABTLTL66

Model No.： TL66

Applicant： Tonino Lamborghini S.R.L.

Address： Via San Giacomo 25, 41121 Modena, Italy

Issued by： CCIC-SET

Lab Location： Electronic Testing Building, Shahe Road，Xili, Nanshan District, Shenzh China

Tel： 86 755 26627338 **Fax：** 86 755 26627238

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Test Report

Product .....:	Tonino Lamborghini TL66
Brand Name.....:	DBI Innovations Ltd
Trade Name.....:	Tonino Lamborghini
Applicant.....:	Tonino Lamborghini S.R.L.
Applicant Address .....:	Via San Giacomo 25, 41121 Modena, Italy
Manufacturer .....:	DBI Innovations Ltd
Manufacturer Address .....:	3905 Two Exchange Square, 8 Connaught Place, Hong Kong
Test Standards .....:	47 CFR Part 2(10-1-12 Edition) Frequency Allocations and Radio Treaty Matters; General Rules and Regulations 47 CFR Part 22(10-1-12 Edition) Public Mobile Services 47 CFR Part 24(10-1-12 Edition)Personal Communications Services
Test Result.....:	PASS

Tested by ..... : 2014.01.13

Lu Lei，Test Engineer

Reviewed by ..... : 2014.01.13

Shuangwen Zhang, Senior Egineer

Approved by.....: 2014.01.13

Wu Li'an，Manager

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Change History		
Issue	Date	Reason for change
1.0	2014-01-13	First edition

1. GENERAL INFORMATION

1.1 EUT Description

EUT Type.....:	Tonino Lamborghini TL66
Serial No.....:	(n.a, marked #1 by test site)
Hardware Version .....:	QW20_MAINPCB_V1.1_20130723
Software Version	0502H029_20131203
Frequency Range.....:	GSM 850MHz: Tx: 824.20 - 848.80MHz (at intervals of 200kHz); Rx: 869.20 - 893.80MHz (at intervals of 200kHz) GSM 1900MHz: Tx: 1850.20 - 1909.80MHz (at intervals of 200kHz); Rx: 1930.20 - 1989.80MHz (at intervals of 200kHz) WCDMA 850MHz Tx: 826.4 - 846.6MHz (at intervals of 200kHz); Rx: 871.4 - 891.6MHz (at intervals of 200kHz)
Modulation Type.....:	GSM,GPRS Mode with GMSK Modulation EDGE Mode with 8PSK Modulation WCDMA Mode with QPSK Modulation HSDPA Mode with QPSK Modulation
Multislot Class.....:	GPRS: Multislot Class12；EDGE：Multislot Class12
Antenna Type.....:	PIFA
Emission Designators .....:	GSM 850:248KGXW,GSM 1900:248KGXW GPRS 850:246KGXW;GRPS 1900:250KGXW EDGE 850:244KG7W,EDGE 1900:248KG7W WCDMA 850:4M16F9W ;HSDPA 850: 4M18F9W

Note 1: The transmitter (Tx) frequency arrangement of the Cellular 850MHz band used by the EUT can be represented with the formula F(nq)=824.2+0.2*(n-128), 128<=n<=251; the lowest, middle, highest channel numbers (ARFCHs) used and tested in this report are separately 128 (824.2MHz), 190 (836.6MHz) and 251 (848.8MHz).

Note 2: The transmitter (Tx) frequency arrangement of the PCS 1900MHz band used by the EUT can be represented with the formula F(n)=1850.2+0.2*(n-512), 512<=n<=810; the lowest, middle and highest channel numbers (ARFCHs) used and tested in this report are separately 512 (1850.2MHz), 661 (1880.0MHz) and 810 (1909.8MHz).

Note 3: The transmitter (Tx) frequency arrangement of the WCDMA 850MHz band used by the EUT can be represented with the formula F(n)=826.4+0.2*(n-4132), 4132<=n<=4233; the lowest, middle and highest channel numbers (ARFCHs) used and tested in this report are separately 4132 (826.4MHz), 4183(836.6MHz) and 4233 (846.6MHz).

Note 4: For a more detailed description, please refer to Specification or User's Manual supplied by the applicant and/or manufacturer.

1.2 Test Standards and Results

The objective of the report is to perform testing according to 47 CFR Part 2, Part 22 and Part 24 for the EUT FCC ID Certification:

No.	Identity	Document Title
1	47 CFR Part 2 (10-1-12 Edition)	Frequency Allocations and Radio Treaty Matters; General Rules and Regulations
2	47 CFR Part 22 (10-1-12 Edition)	Public Mobile Services
3	47 CFR Part 24 (10-1-12 Edition)	Personal Communications Services

Test detailed items/section required by FCC rules and results are as below:

No.	Section	Description	Result
1	2.1046	Conducted RF Output Power	PASS
2	2.1049	99% Occupied Bandwidth	PASS
3	2.1055 22.355 24.235	Frequency Stability	PASS
4	2.1051 2.1057 22.917 24.238	Conducted Out of Band Emissions	PASS
5	2.1051 2.1057 22.917 24.238	Band Edge	PASS
6	22.913 24.232	Transmitter Radiated Power (EIPR/ERP)	PASS
7	2.1053 2.1057 22.917 24.238	Radiated Out of Band Emissions	PASS

NOTE：Measurement method according to TIA/EIA 603.D-2010

1.3 Facilities and Accreditations

1.3.1 Test Facilities

CNAS-Lab Code: L1659

CCIC Southern Electronic Product Testing (Shenzhen) Co., Ltd. CCIC is a third party testing organization accredited by China National Accreditation Service for Conformity Assessment (CNAS) according to ISO/IEC 17025. The accreditation certificate number is L1659. A 12.8*6.8*6.4 (m) fully anechoic chamber was used for the radiated spurious emissions test.

FCC-Registration No.: 406086

CCIC Southern Electronic Product Testing (Shenzhen) Co., Ltd. EMC Laboratory has been registered and fully described in a report filed with the FCC (Federal Communications Commission). The acceptance letter from the FCC is maintained in our files. Registration 406086, Renewal date Nov. 19, 2011, valid time is until Nov. 18, 2014.

1.3.2 Test Environment Conditions

During the measurement, the environmental conditions were within the listed ranges:

Temperature (℃):	15℃- 35℃
Relative Humidity (%):	30% -60%
Atmospheric Pressure (kPa):	86KPa-106KPa

2. 47 CFR PART 2, PART 22H & 24E REQUIREMENTS

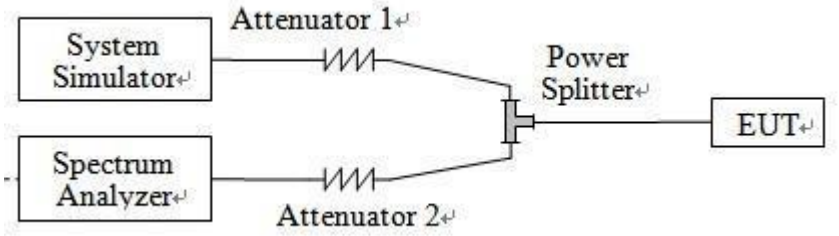
2.1 Conducted RF Output Power

2.1.1 Requirement

According to FCC section 2.1046(a), for transmitters other than single sideband, independent sideband and controlled carrier radiotelephone, power output shall be measured at the RF output terminals when the transmitter is adjusted in accordance with the tune-up procedure to give the values of current and voltage on the circuit elements specified in FCC section 2.1033(c)(8).

2.1.2 Test Description

1. Test Setup:



The EUT, which is powered by the Battery, is coupled to the Spectrum Analyzer (SA) and the System Simulator (SS) with Attenuators through the Power Splitter; the RF load attached to the EUT antenna terminal is 50Ohm; the path loss as the factor is calibrated to correct the reading. The EUT is commanded by the SS to operate at the maximum output power i.e. Power Control Level (PCL) = 5 and Power Class = 4. A call is established between the EUT and the SS.

2. Equipments List:

Description	Manufacturer	Model	Serial No.	Cal.Due Date
System Simulator	Agilent	E5515C	MY47510547	2014.09.13
Spectrum Analyzer	R&S	FSP40	MY4510810	2014.06.09
Spectrum Analyzer	Agilent	E4407B	1164.4391.40	2014.06.09
Power Meter	Agilent	E4418B	GB43318055	2014.06.09
Power Splitter	Weinschel	1506A	NW521	2014.06.11
Attenuator 1	MCE/weinschel	10dB	BN3693	2014.06.11
Attenuator 2	Resnet	3dB	(n.a.)	2014.06.09

2.1.3 Test Results

Here the lowest, middle and highest channels are selected to perform testing to verify the conducted RF output power of the EUT.

1. GSM Model Test Verdict:

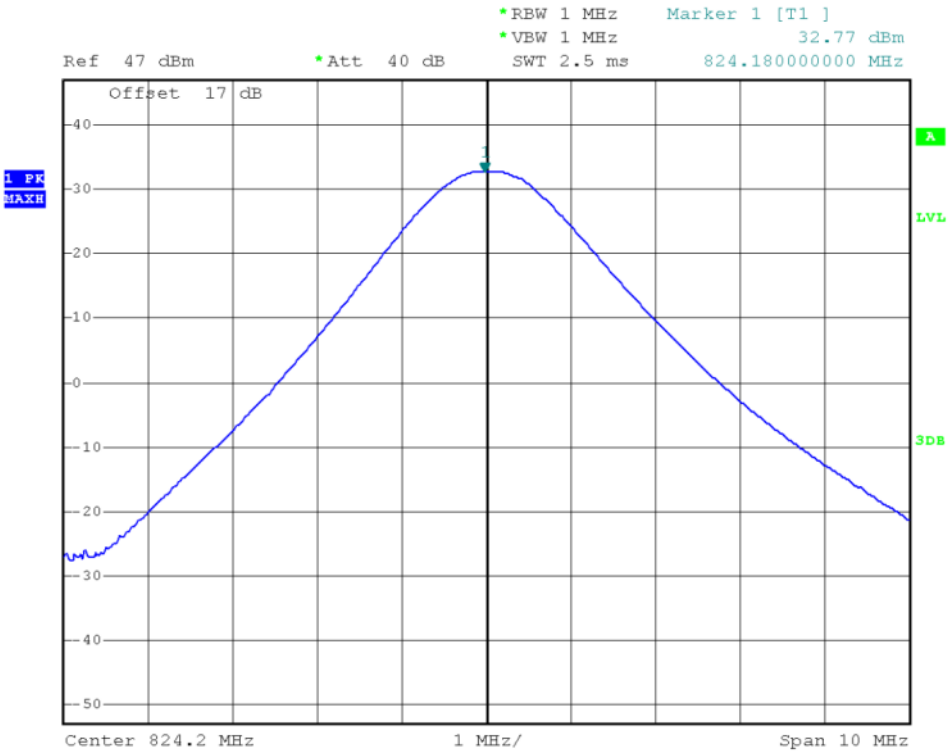
Band	Channel	Frequency (MHz)	Measured Output Power		Verdict
			dBm	Refer to Plot	
GSM 850MHz	128	824.2	32.77	Plot A1 to A3	PASS
	190	836.6	32.71		PASS
	251	848.8	32.79		PASS
GSM 1900MHz	512	1850.2	30.45	Plot B1 to B3	PASS
	661	1880.0	30.06		PASS
	810	1909.8	29.90		PASS
GPRS 850MHz	128	824.2	29.36	Plot C1 to C3[Note 1]	PASS
	190	836.6	29.25		PASS
	251	848.8	29.32		PASS
GPRS 1900MHz	512	1850.2	28.66	Plot D1 to D3[Note 1]	PASS
	661	1880.0	28.59		PASS
	810	1909.8	28.34		PASS
EDGE 850MHz	128	824.2	28.68	Plot E1 to E3[Note 1]	PASS
	190	836.6	28.57		PASS
	251	848.8	28.68		PASS
EDGE 1900MHz	512	1850.2	27.26	Plot F1 to F3[Note 1]	PASS
	661	1880.0	27.34		PASS
	810	1909.8	27.05		PASS

Note 1: For the GPRS and EDGE model, all the slots were tested and just the worst data was record in this report.

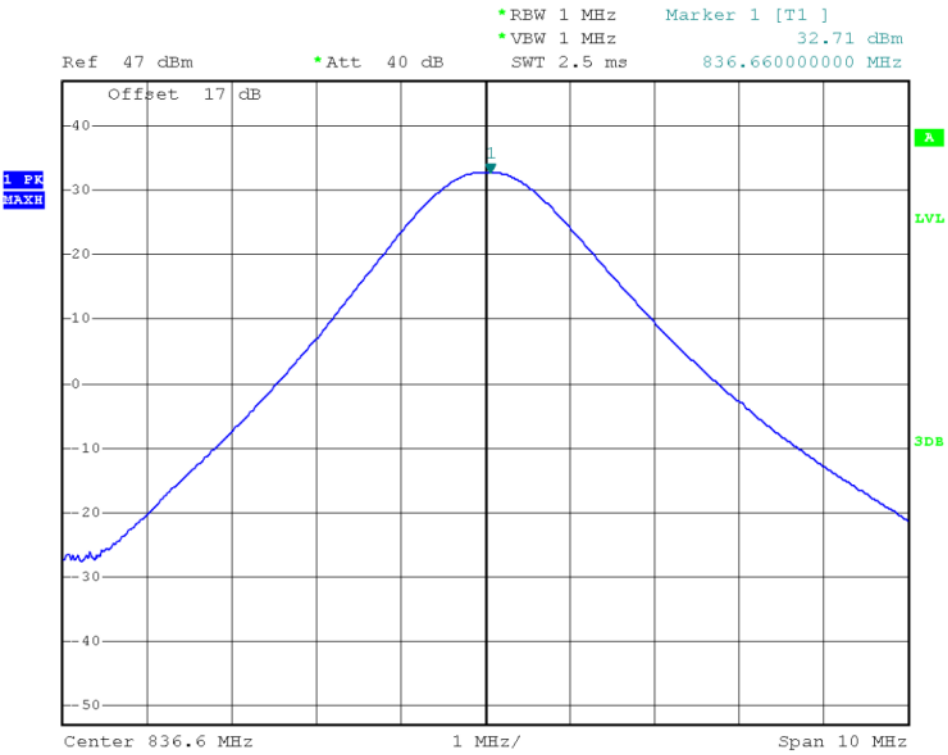
2. WCDMA Model Test Verdict:

Item	band	WCDMA 850		
	ARFCN	4132	4183	4233
	subtest	dBm		
5.2(WCDMA)	non	23.56	23.42	23.47
HSDPA	1	22.79	22.64	22.71
	2	22.31	22.33	22.40
	3	21.89	22.01	21.89
	4	21.93	21.98	21.99
Note:	The Conducted RF Output Power test of WCDMA /HSDPA was tested by power meter.			

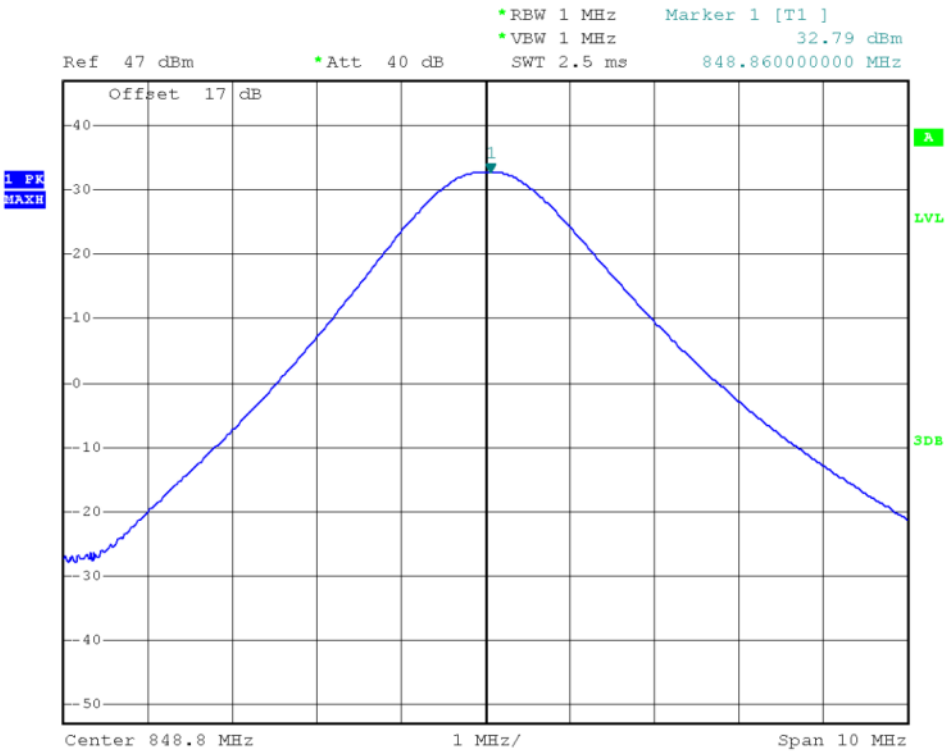
3. GSM Model Test Plots:



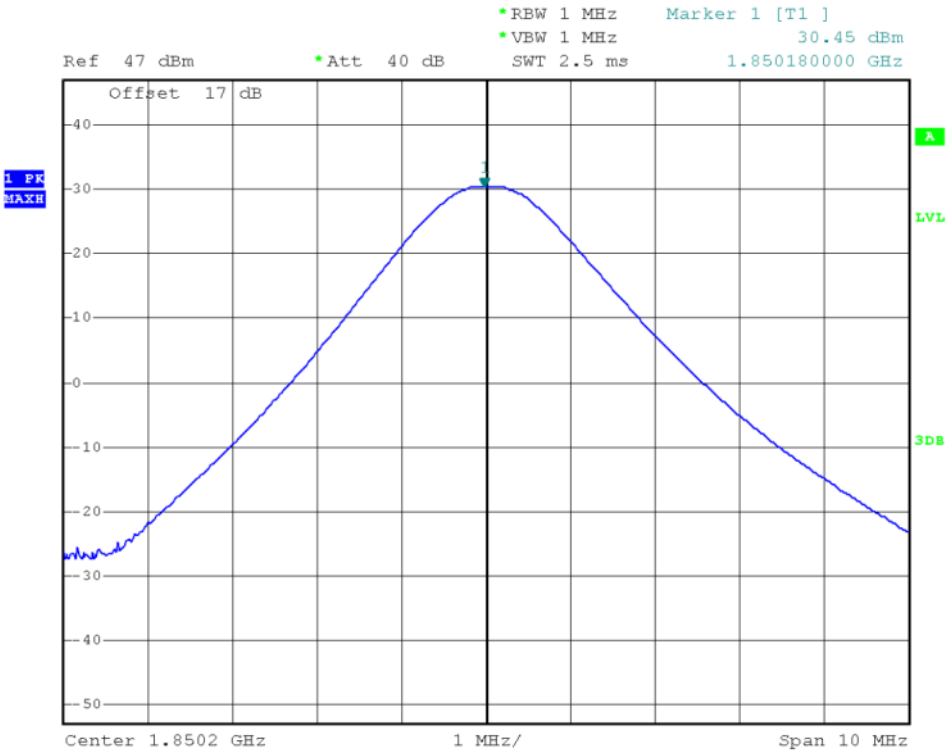
(Plot A1: GSM 850MHz Channel = 128)



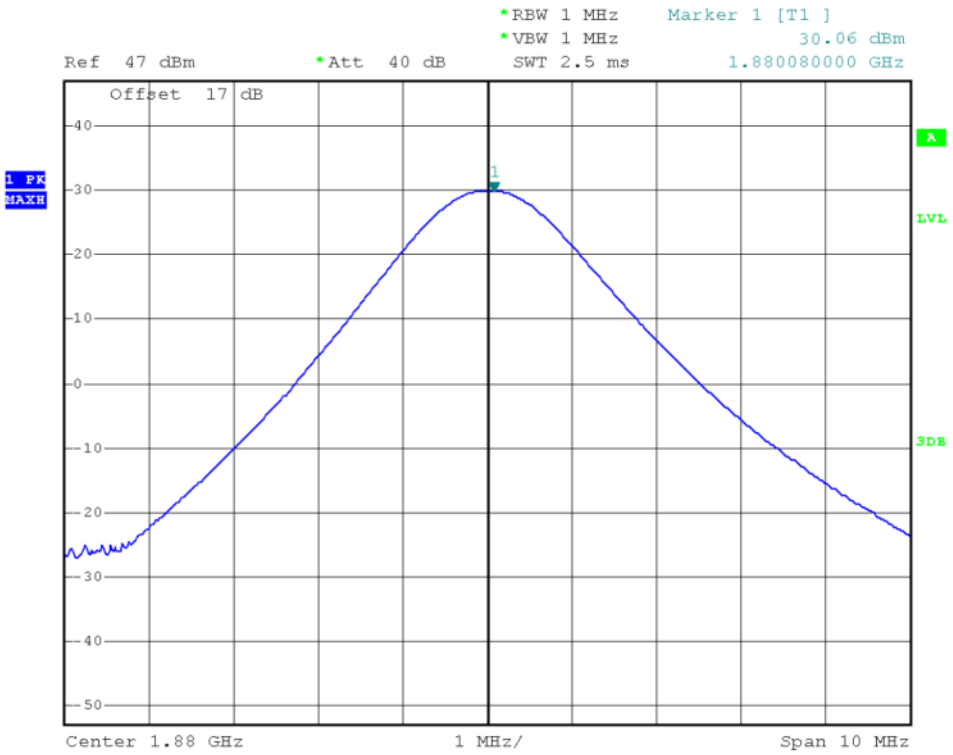
(Plot A2: GSM 850MHz Channel = 190)



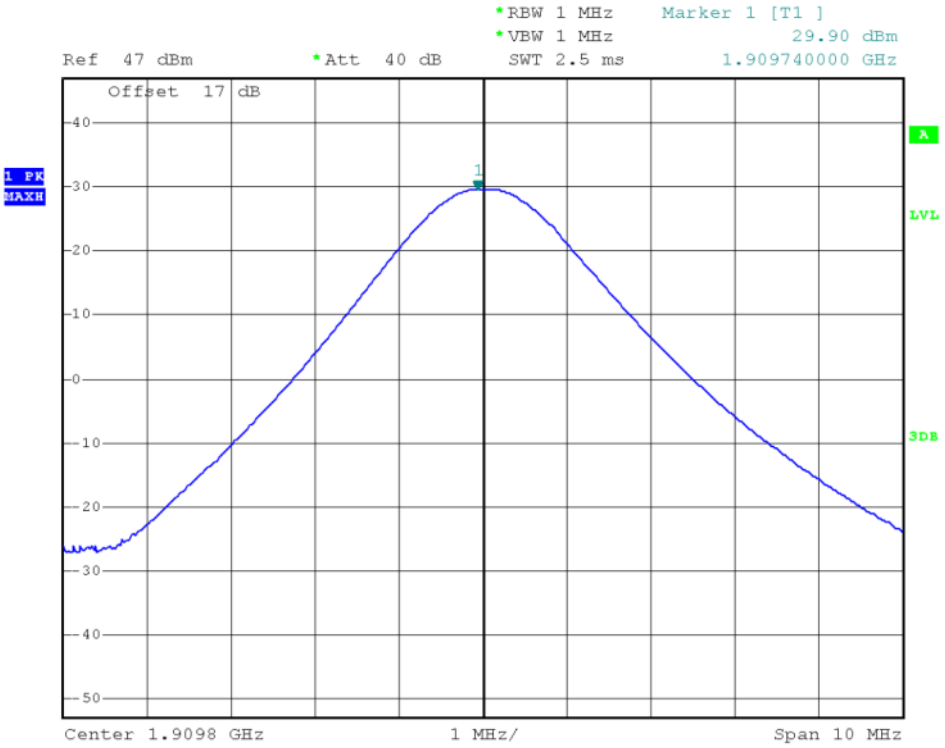
(Plot A3: GSM 850MHz Channel = 251)



(Plot B1: GSM 1900MHz Channel = 512)

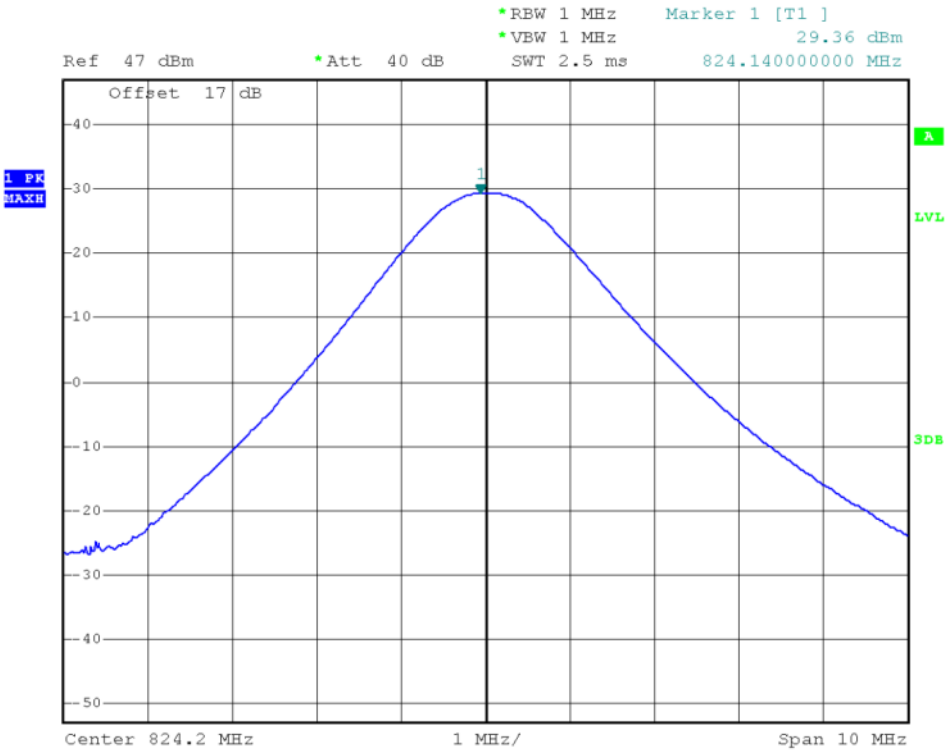


(Plot B2: GSM 1900MHz Channel = 661)

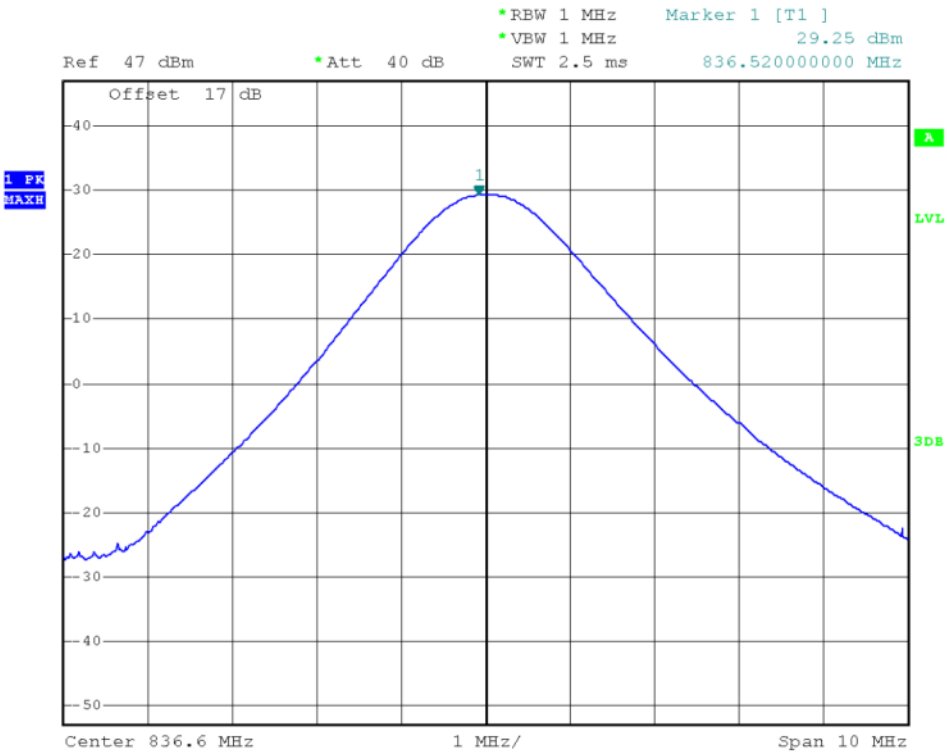


(Plot B3: GSM 1900MHz Channel = 810)

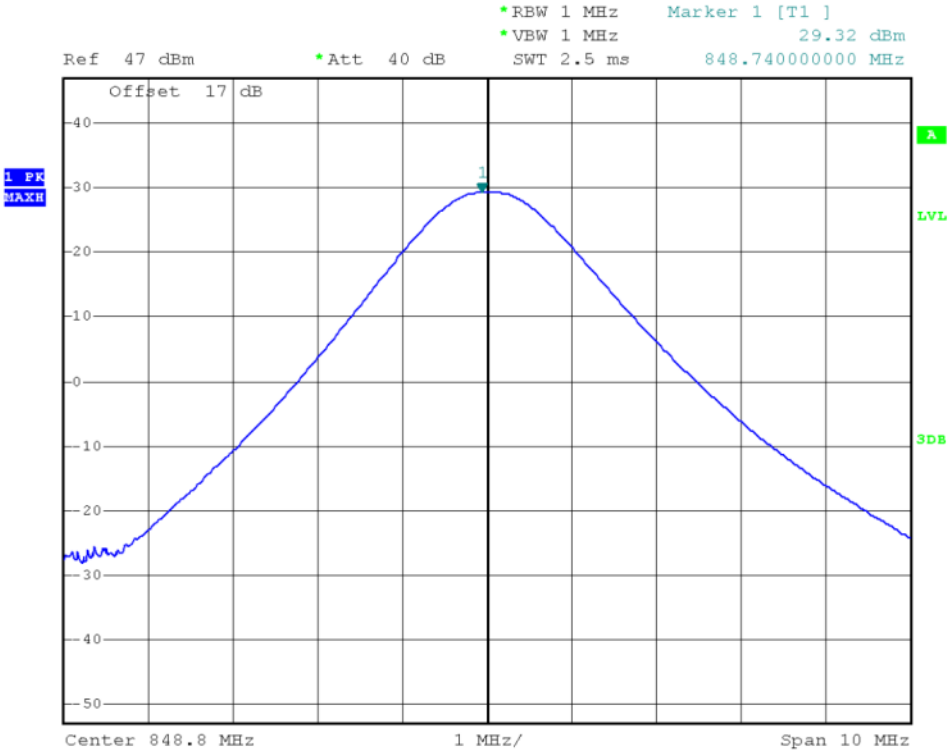
4. GPRS Model Test Plots:



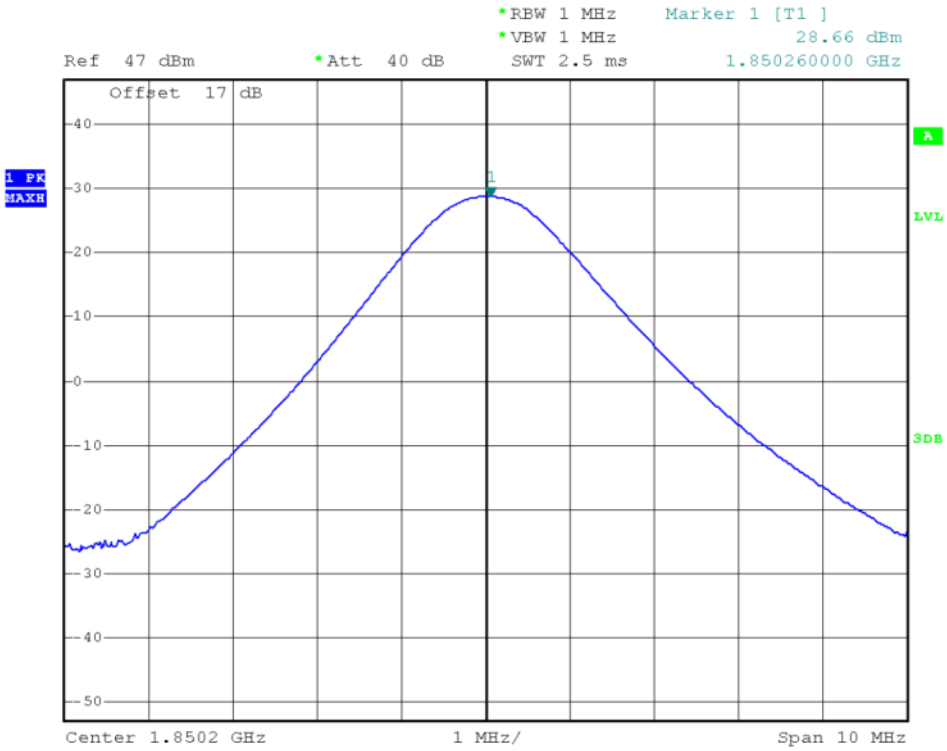
(Plot C1: GPRS 850MHz Channel = 128)



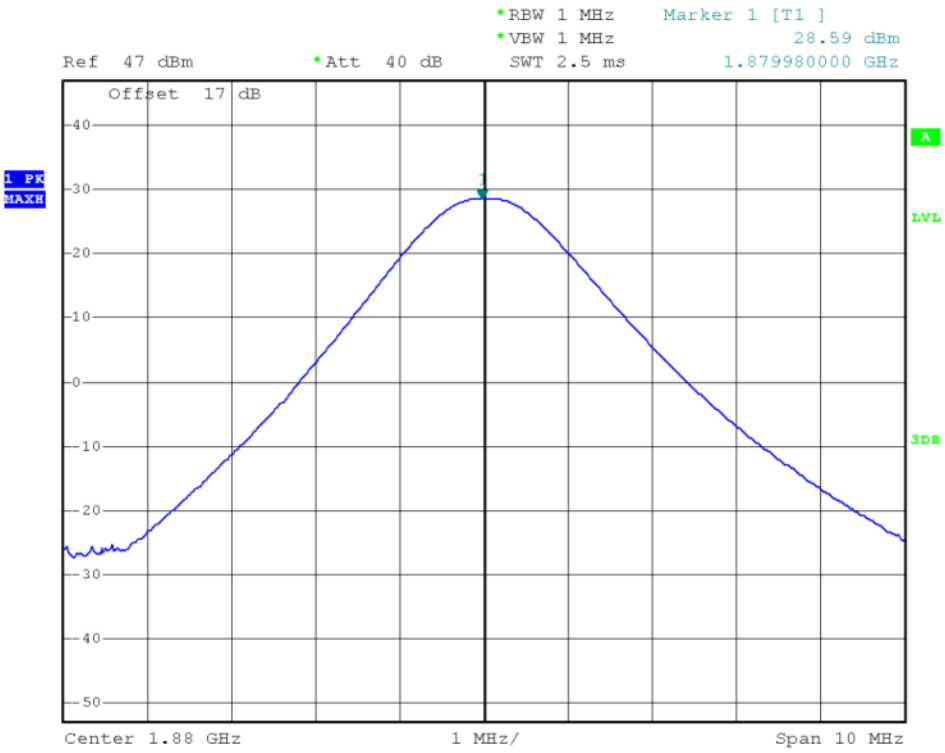
(Plot C2: GPRS 850MHz Channel = 190)



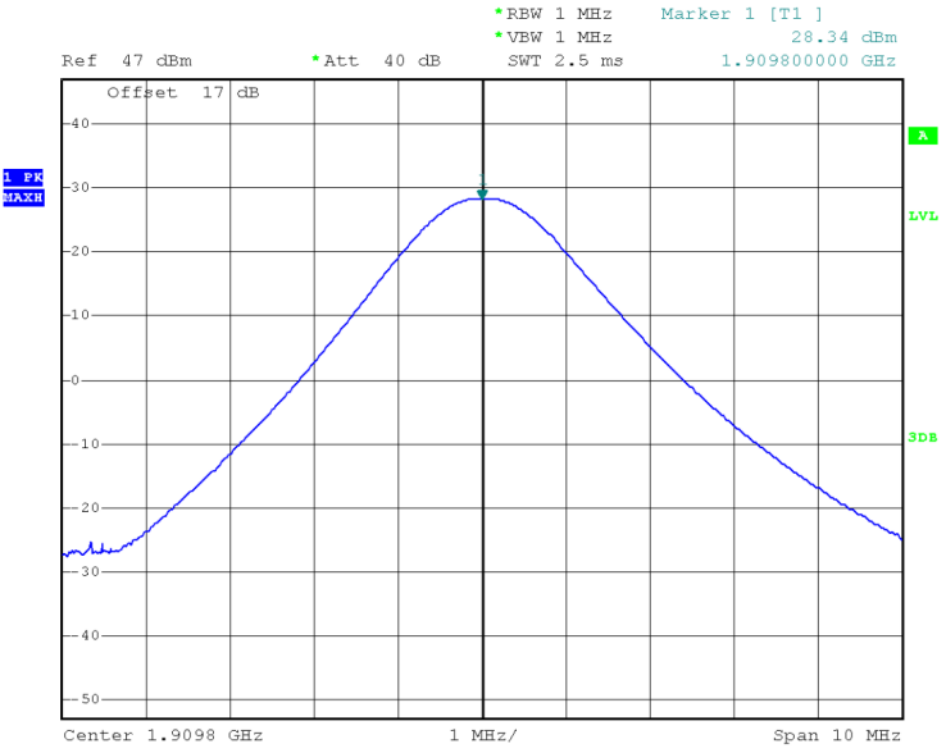
(Plot C3: GPRS 850MHz Channel = 251)



(Plot D1: GPRS 1900MHz Channel = 512)

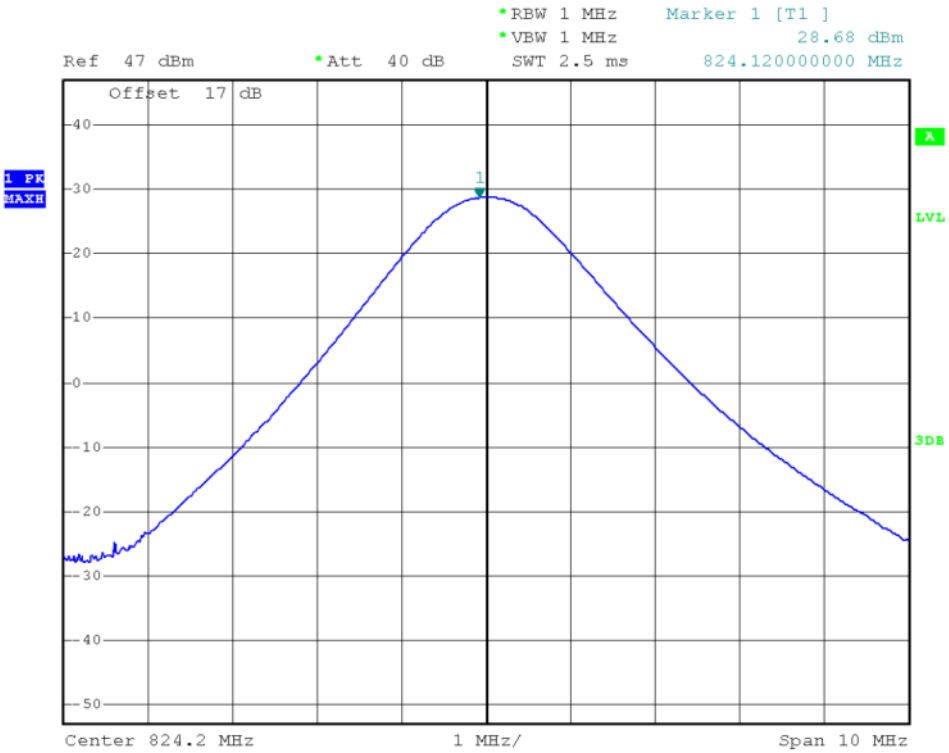


(Plot D2: GPRS 1900MHz Channel = 661)

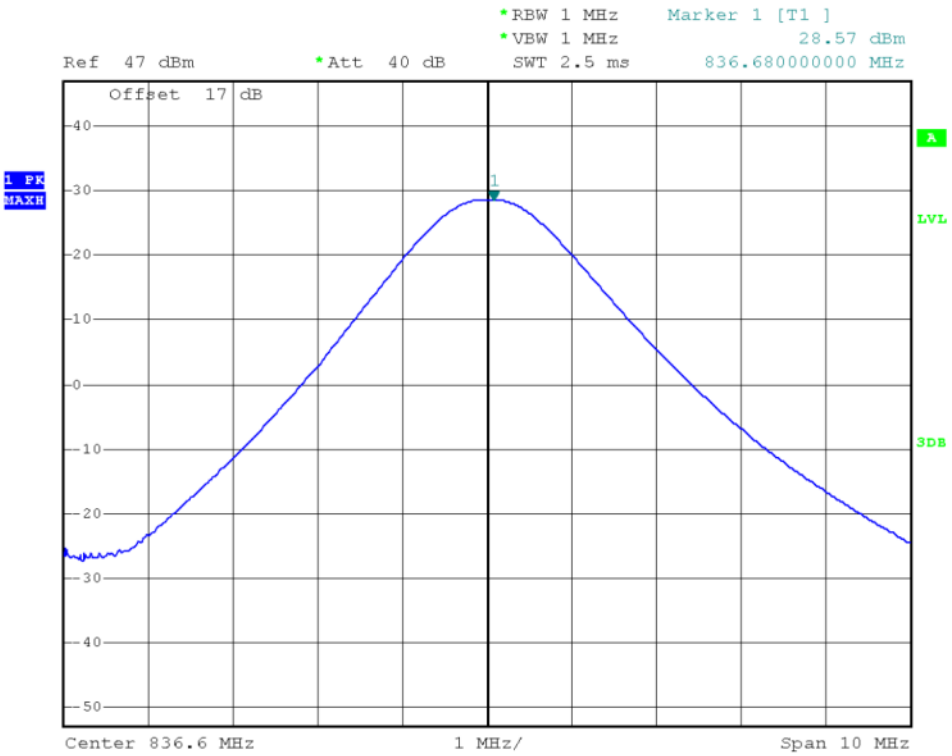


(Plot D3: GPRS 1900Hz Channel = 810)

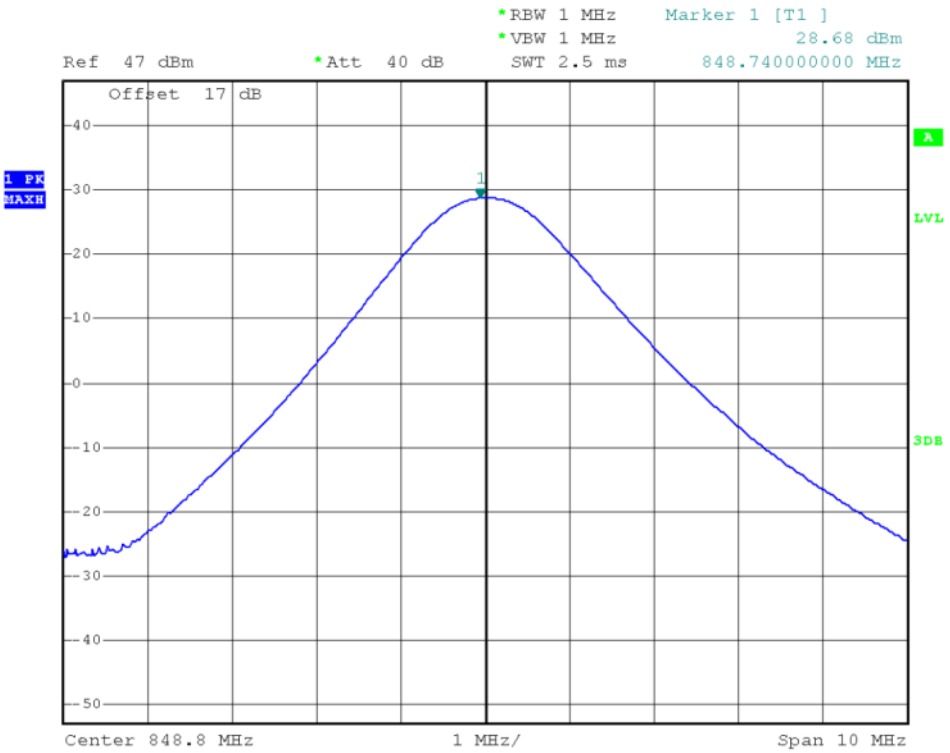
5. EDGE Model Test Plots:



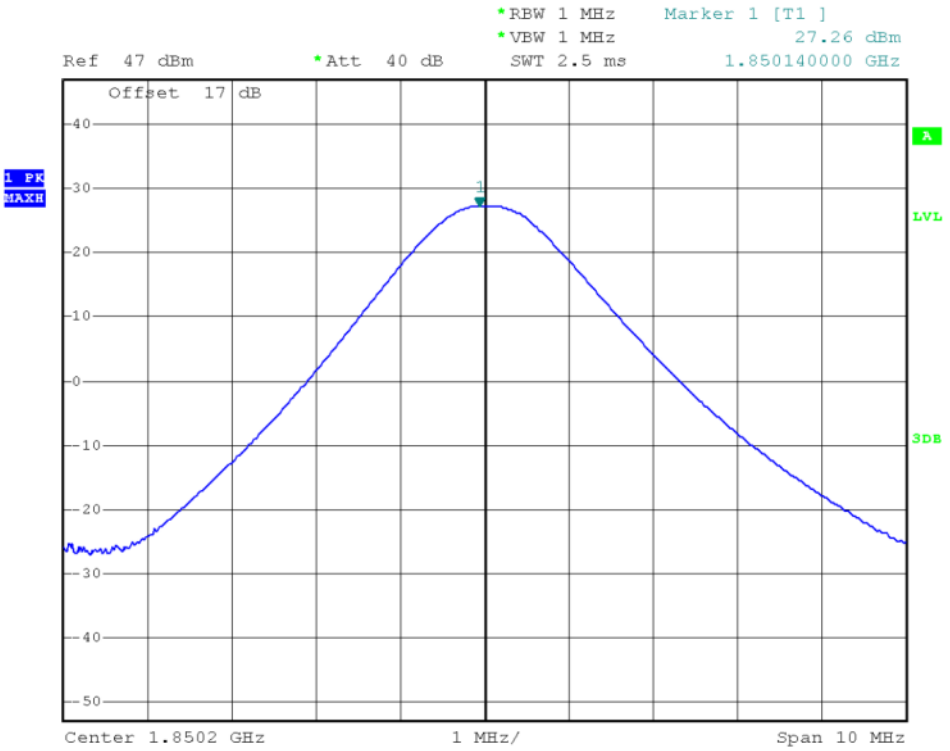
(Plot E1: GPRS 850MHz Channel = 128)



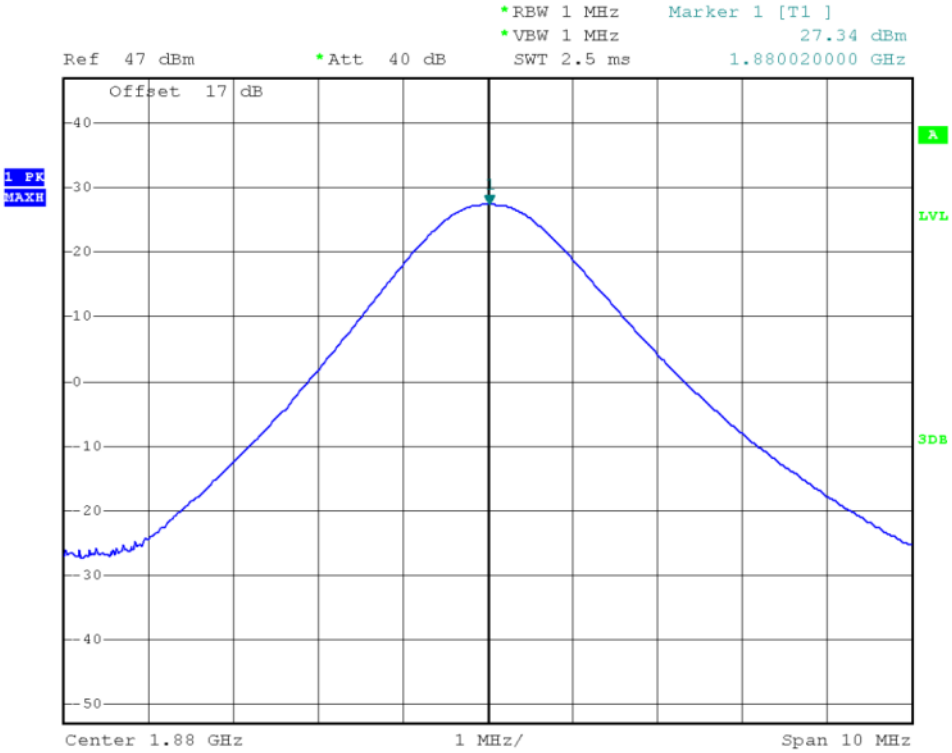
(Plot E2: GPRS 850MHz Channel = 190)



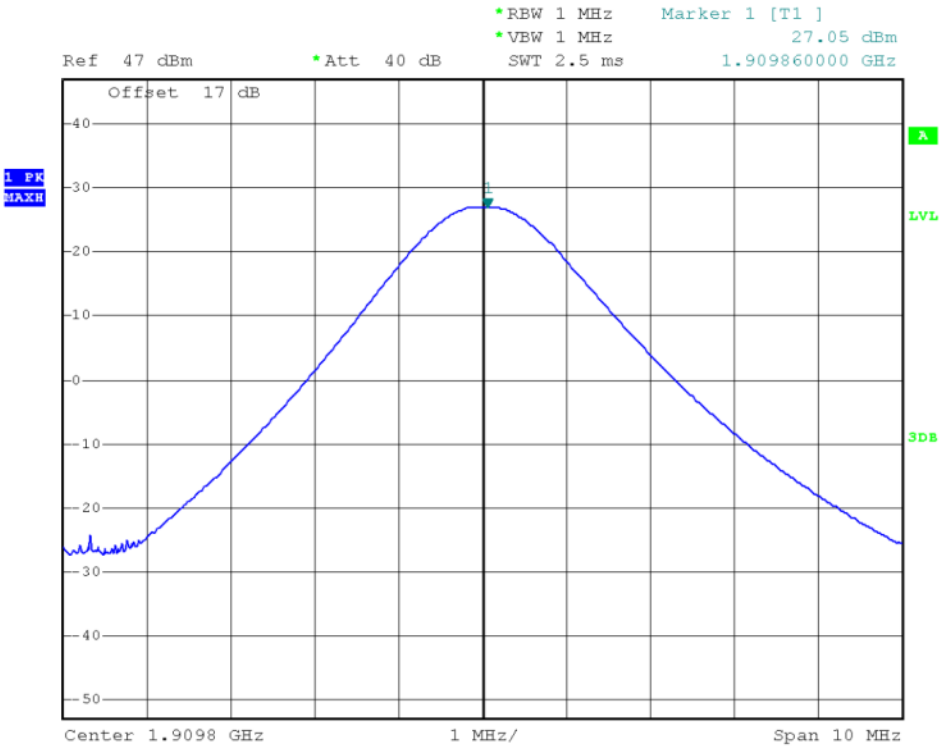
(Plot E3: GPRS 850MHz Channel = 251)



(Plot F1: GPRS 1900MHz Channel = 512)



(Plot F2: GPRS 1900MHz Channel = 661)



(Plot F3: GPRS 1900Hz Channel = 810)

2.2 Peak to Average Radio

2.2.1 Definition

According to FCC section 2.1049 and FCC 24.232(d), the peak-to-average ratio (PAR) of the transmission may not exceed 13 dB.

2.2.2 Test Description

See section 2.1.2 of this report.

2.2.3 Test Verdict

Here the lowest, middle and highest channels are selected to perform testing to verify the peak-to-average ratio.

Test procedures:

A .For GSM operating mode:

a. Set RBW=1MHz, VBW=1MHz, peak detector in spectrum analyzer.

b. Set EUT in maximum output power, and triggered the bust signal.

c. Measured respectively the peak level and mean level, and the deviation was recorded as Peak to Average radio.

B. For UMTS operating mode:

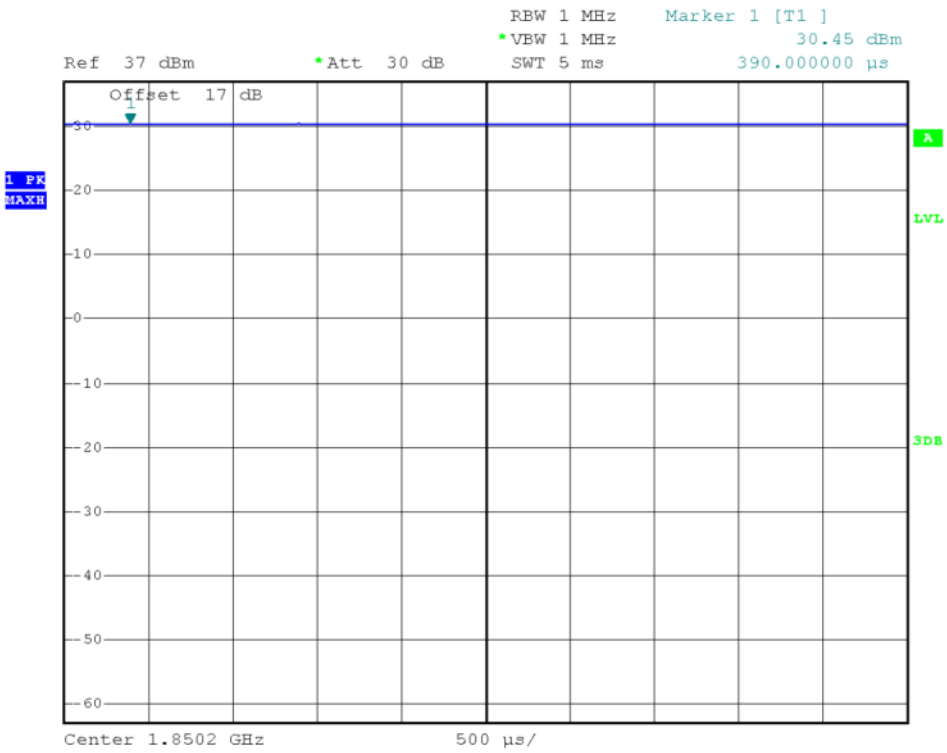
a. Set the CCDF (Complementary Cumulative Distribution Function) option in spectrum analyzer.

b. The highest RF powers were measured and recorded the maximum PAPR level associated with a probability of 0.1%.

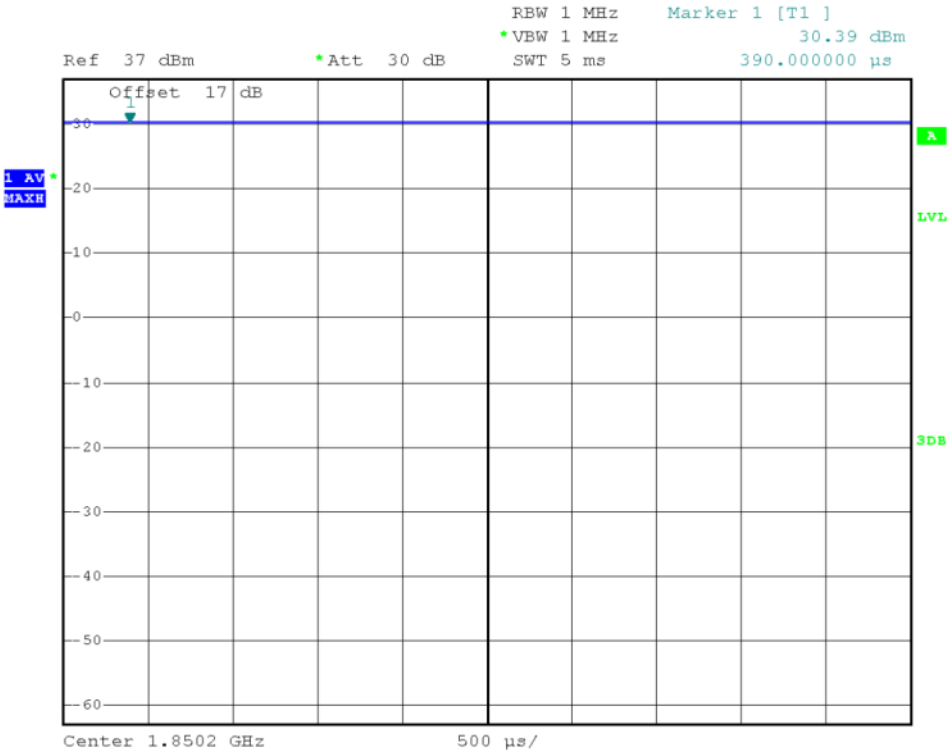
1. Test Verdict:

Band	Channel	Frequency (MHz)	Peak to Average radio		Limit	Verdict
			dBm	Refer to Plot	dBm	
GSM 1900MHz	512	1850.2	0.06	Plot A1-1 to A3-2	13	PASS
	661	1880.0	0.09			PASS
	810	1909.8	0.05			PASS
DEGE 1900MHz	512	1850.2	0.08	Plot B1-1 to B3-2	13	PASS
	661	1880.0	0.08			PASS
	810	1909.8	0.07			PASS

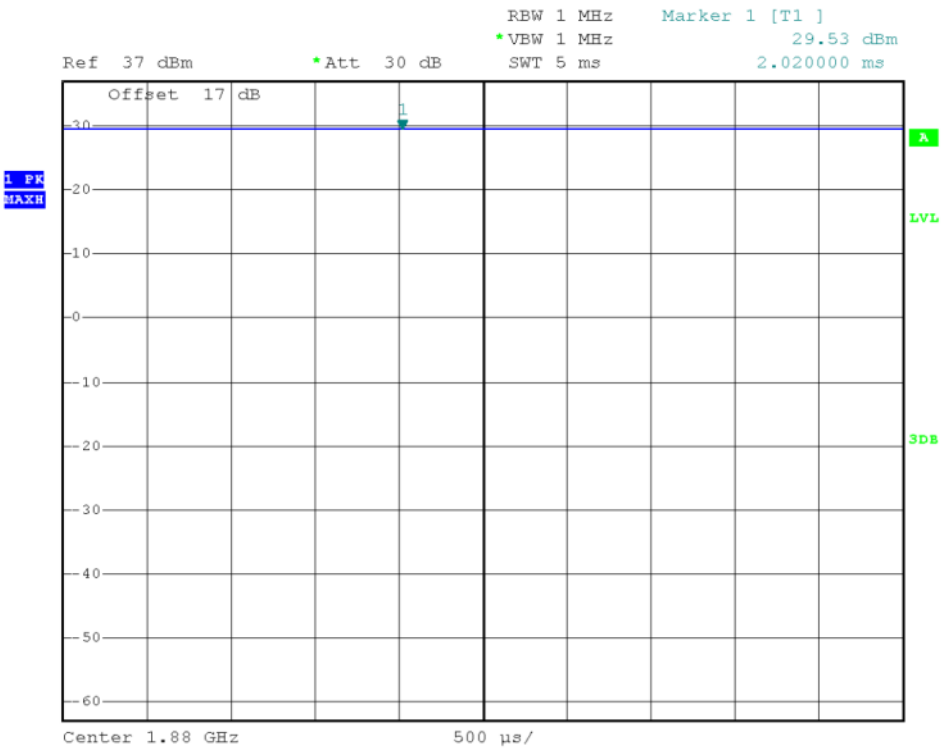
2. GSM Model Test Plots:



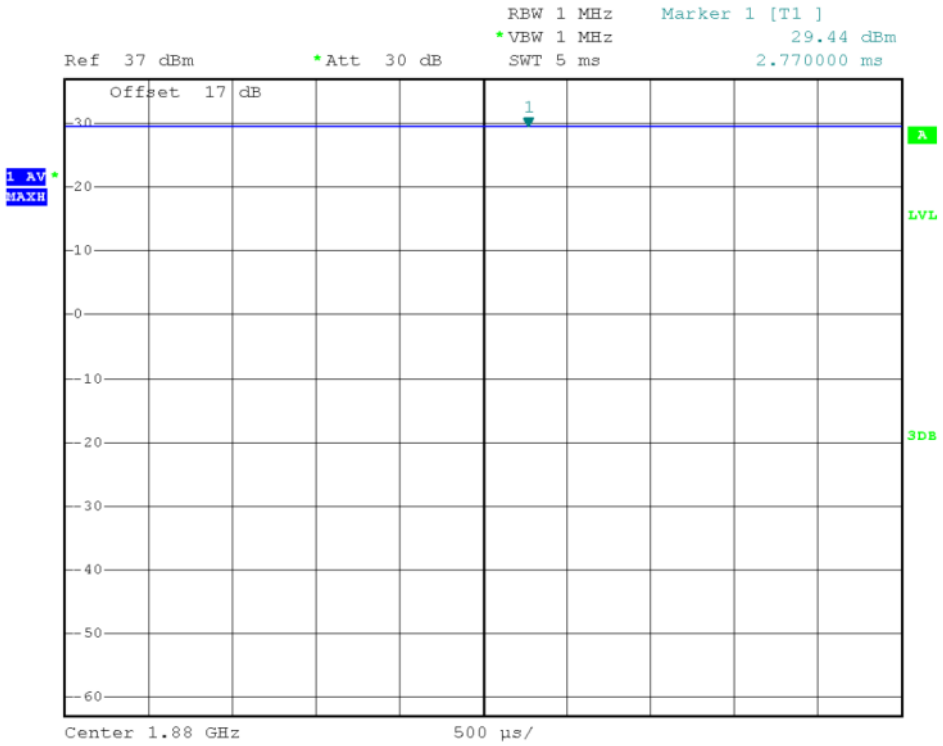
(Plot A1-1: GSM 1900 MHz Channel = 512)



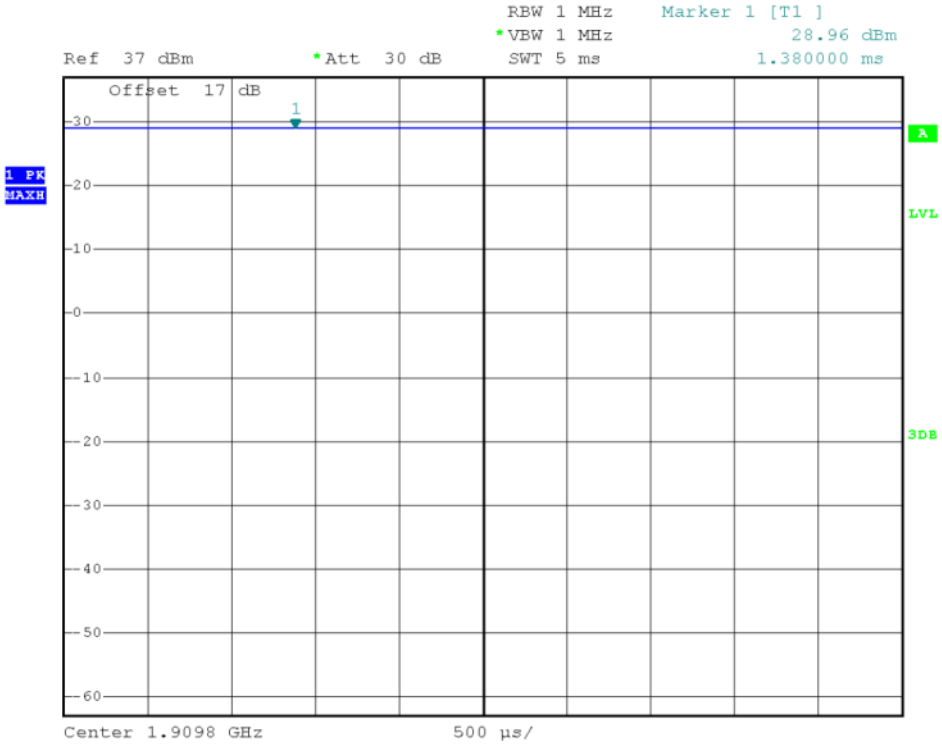
(Plot A1-2: GSM 1900 MHz Channel = 512)



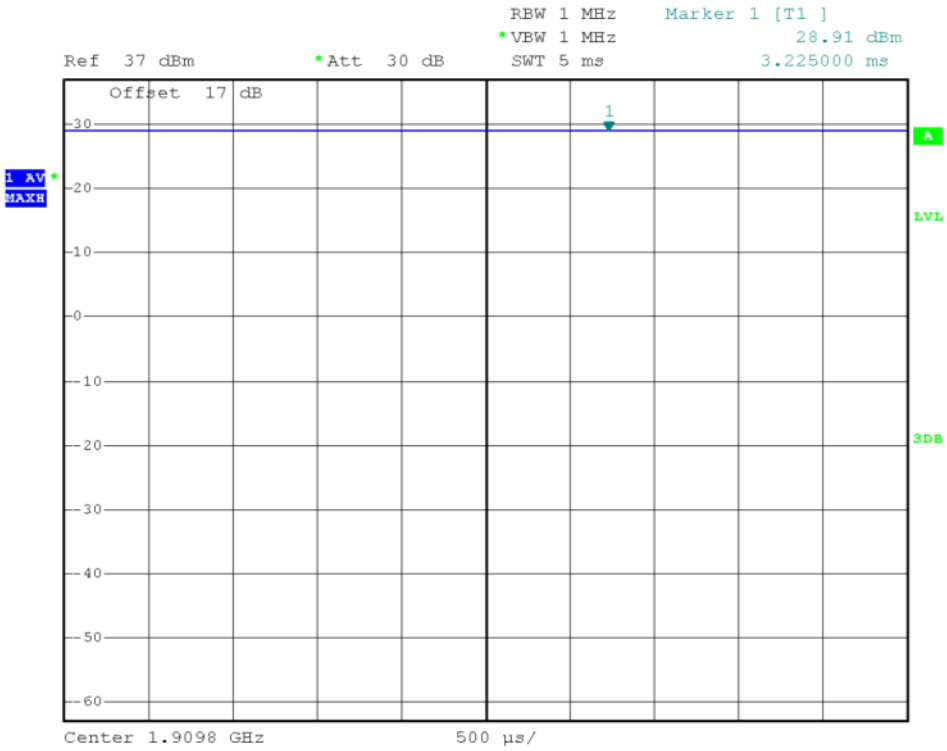
(Plot A2-1: GSM 1900 MHz Channel = 661)



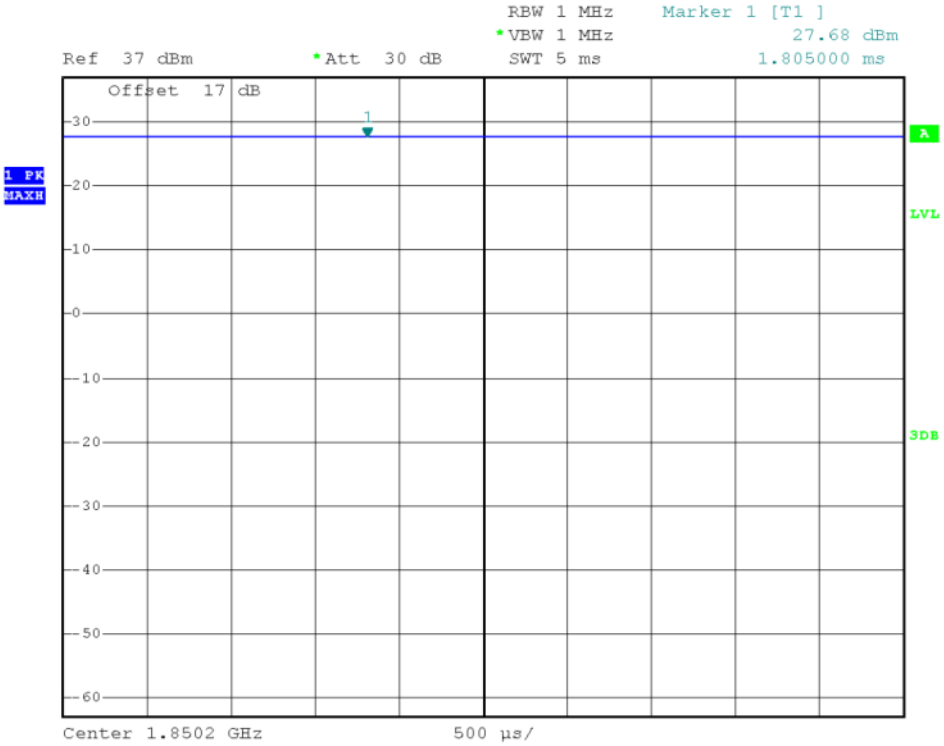
(Plot A2-2: GSM 1900 MHz Channel = 661)



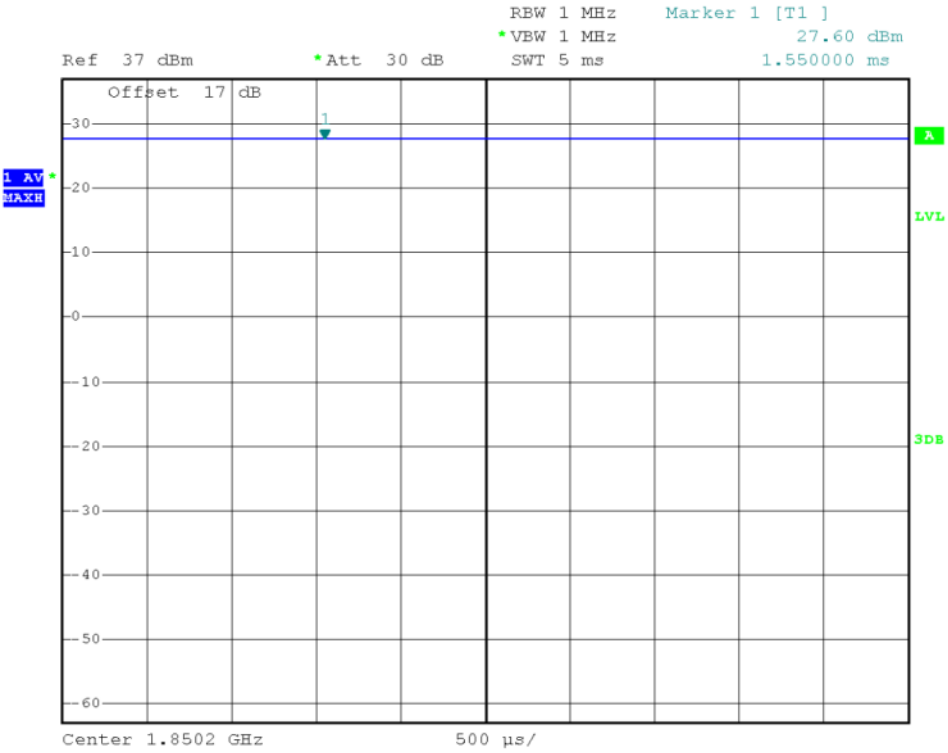
(Plot A3-1: GSM 1900MHz Channel = 810)



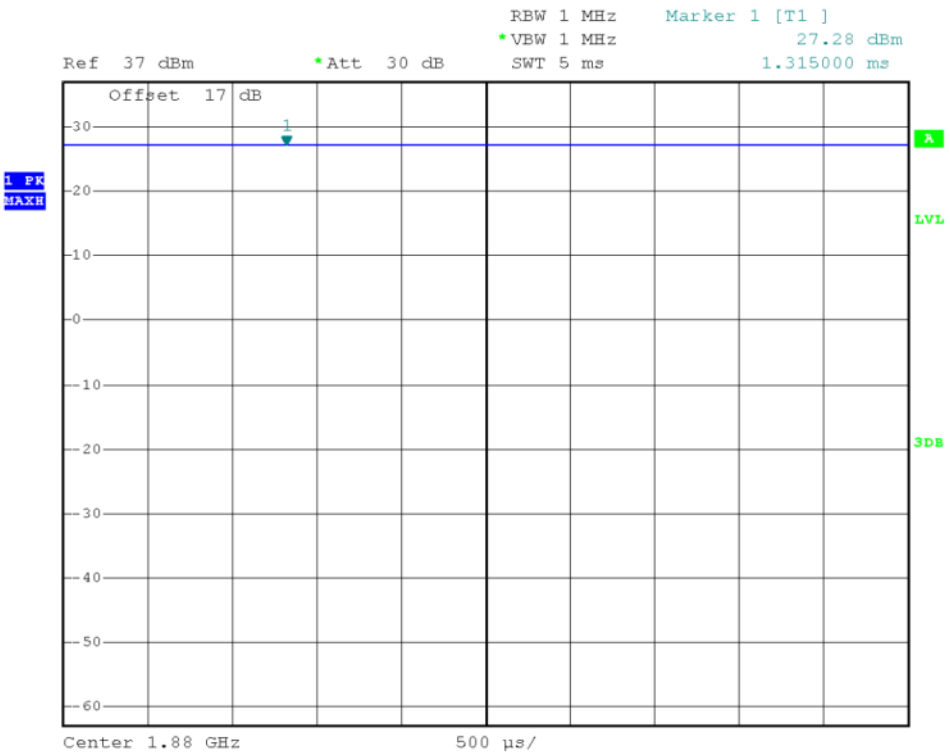
(Plot A3-2: GSM 1900MHz Channel = 810)



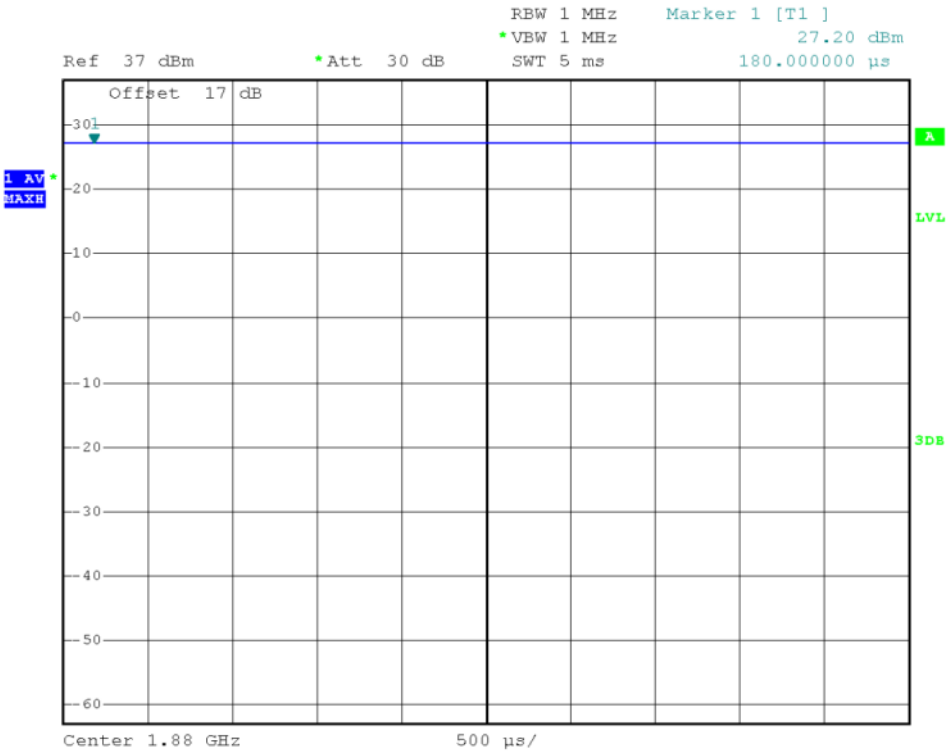
(Plot B1-1: EDGE 1900 MHz Channel = 512)



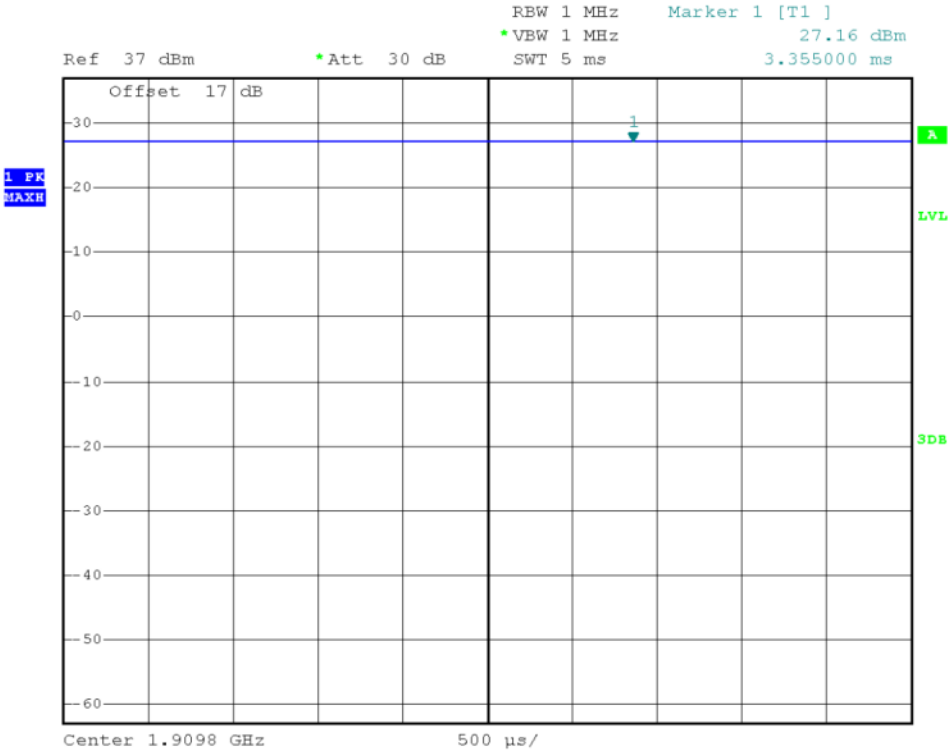
(Plot B1-2: EDGE 1900 MHz Channel = 512)



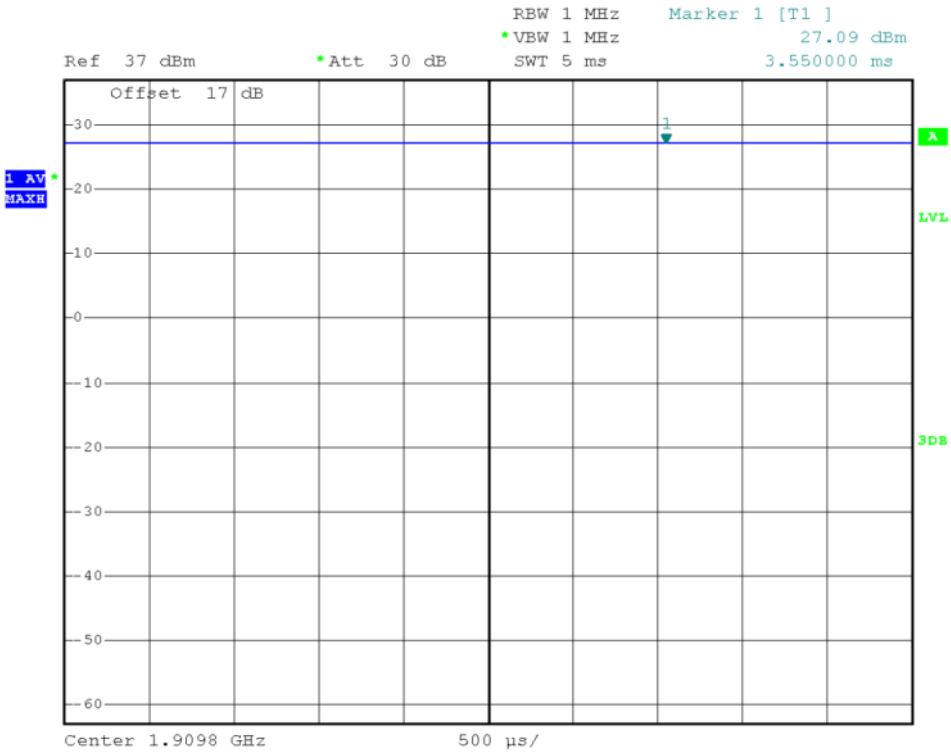
(Plot B2-1: EDGE 1900 MHz Channel = 661)



(Plot B2-2: EDGE 1900 MHz Channel = 661)



(Plot B3-1: EDGE 1900MHz Channel = 810)



(Plot B3-2: EDGE 1900MHz Channel = 810)

2.3 99% Occupied Bandwidth

2.3.1 Definition

According to FCC section 2.1049, the occupied bandwidth is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 percent of the total mean power radiated by a given emission.

Occupied bandwidth is also known as the 99% emission bandwidth,

2.3.2 Test Description

See section 2.1.2 of this report.

2.3.3 Test Verdict

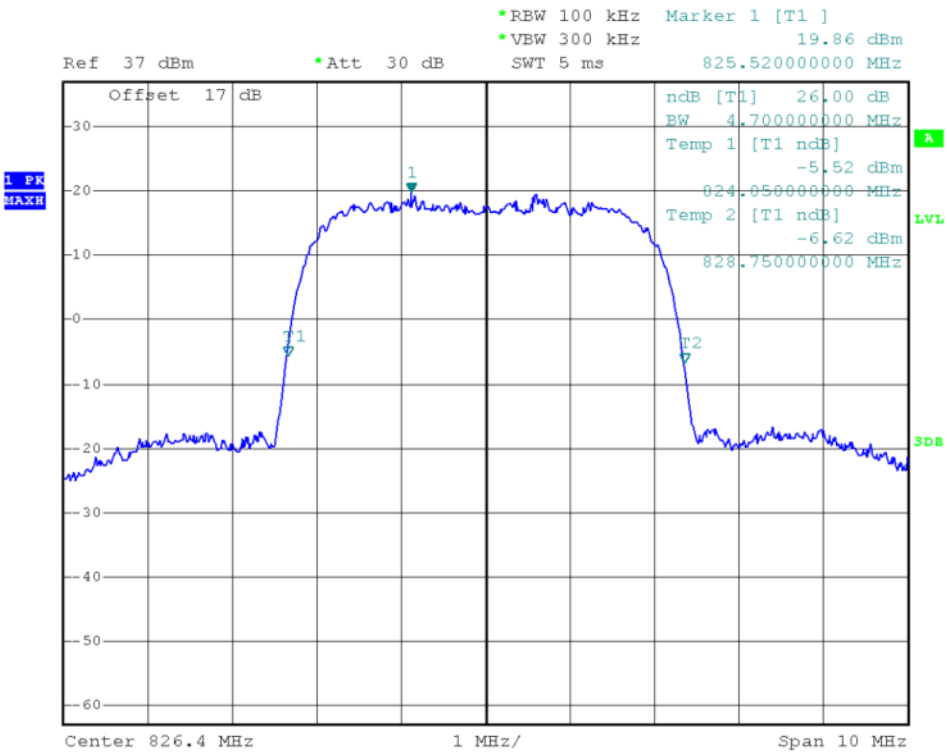
Here the lowest, middle and highest channels are selected to perform testing to verify the 99% occupied bandwidth.

1. Test Verdict:

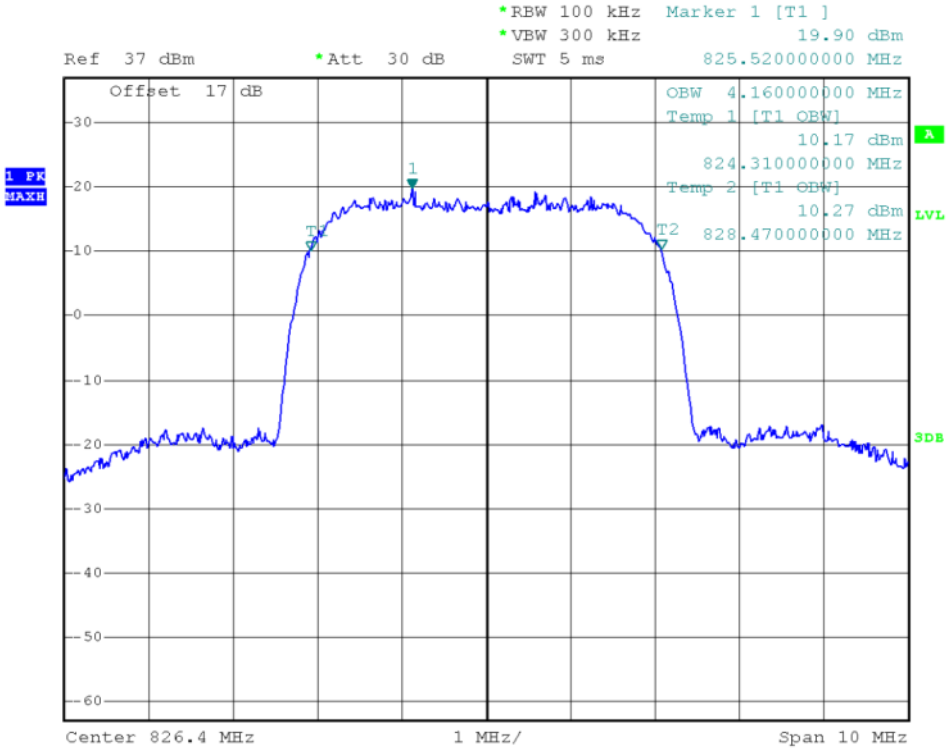
Band	Channel	Frequency (MHz)	26dB bandwidth	99% Occupied Bandwidth	Refer to Plot
WCDMA 850MHz	4132	826.4	4.70MHz	4.16MHz	Plot A1-A2
	4183	836.6	4.68MHz	4.15MHz	Plot B1-B2
	4233	846.6	4.71MHz	4.16MHz	Plot C1-C2
HSDPA 850MHz	4132	826.4	4.70MHz	4.18MHz	Plot D1-D2
	4183	836.6	4.70MHz	4.16MHz	Plot E1-E2
	4233	846.6	4.71MHz	4.17MHz	Plot F1-F2
GSM 850MHz	128	824.2	322KHz	244KHz	Plot J1-J2
	190	836.6	318KHz	246KHz	Plot K1-K2
	251	848.8	318KHz	248KHz	Plot L1-L2
GSM 1900MHz	512	1850.2	318KHz	246KHz	Plot M1-M2
	661	1880.0	318KHz	248KHz	Plot N1-N2
	810	1909.8	318KHz	248KHz	Plot O1-O2
GPRS 850MHz	128	824.2	322KHz	244KHz	Plot P1-P2
	190	836.6	316KHz	244KHz	Plot Q1-Q2
	251	848.8	316KHz	246KHz	Plot R1-R2
GPRS 1900MHz	512	1850.2	316KHz	250KHz	Plot S1-S2
	661	1880.0	320KHz	246KHz	Plot T1-T2
	810	1909.8	318KHz	244KHz	Plot U1-U2
EDGE 850MHz	128	824.2	322KHz	244KHz	Plot V1-V2

Band	Channel	Frequency (MHz)	26dB bandwidth	99% Occupied Bandwidth	Refer to Plot
	190	836.6	320KHz	244KHz	Plot W1-W2
	251	848.8	320KHz	242KHz	Plot X1-X2
EDGE 1900MHz	512	1850.2	322KHz	246KHz	Plot Y1-Y2
	661	1880.0	316KHz	246KHz	Plot Z1-Z2
	810	1909.8	312KHz	248KHz	Plot a1-a2

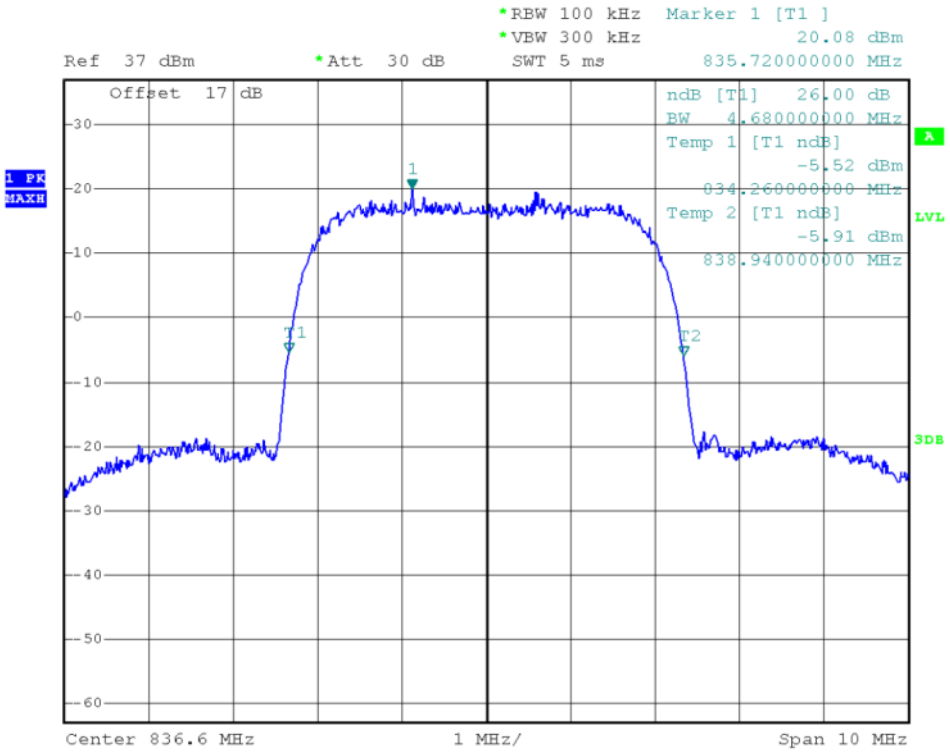
2. Test Plots:



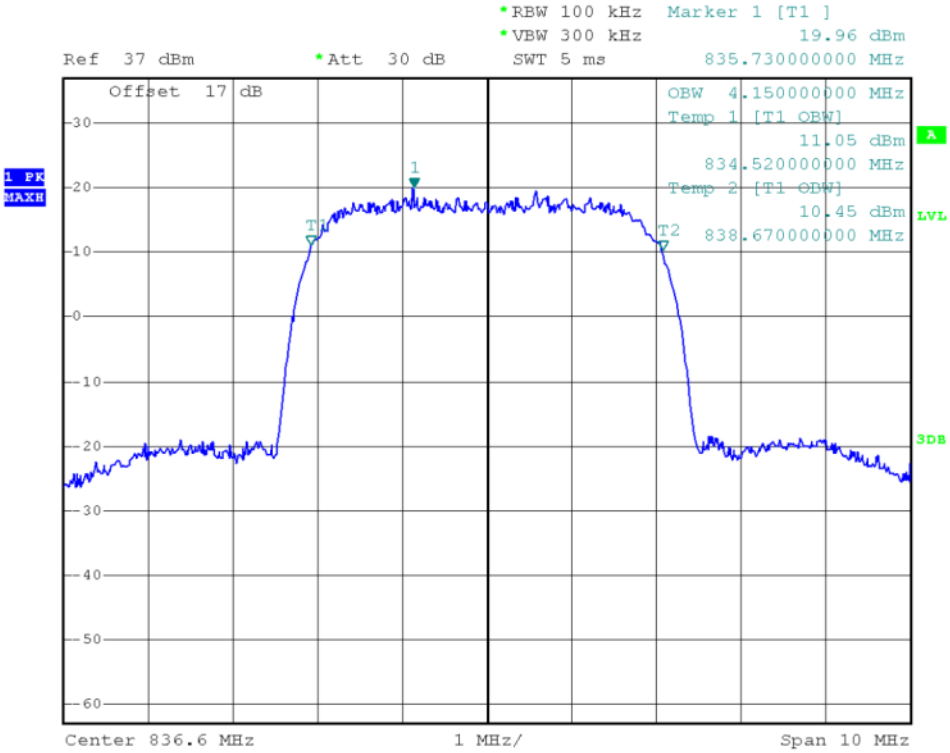
(Plot A1: WCDMA 850MHz Channel = 4132)



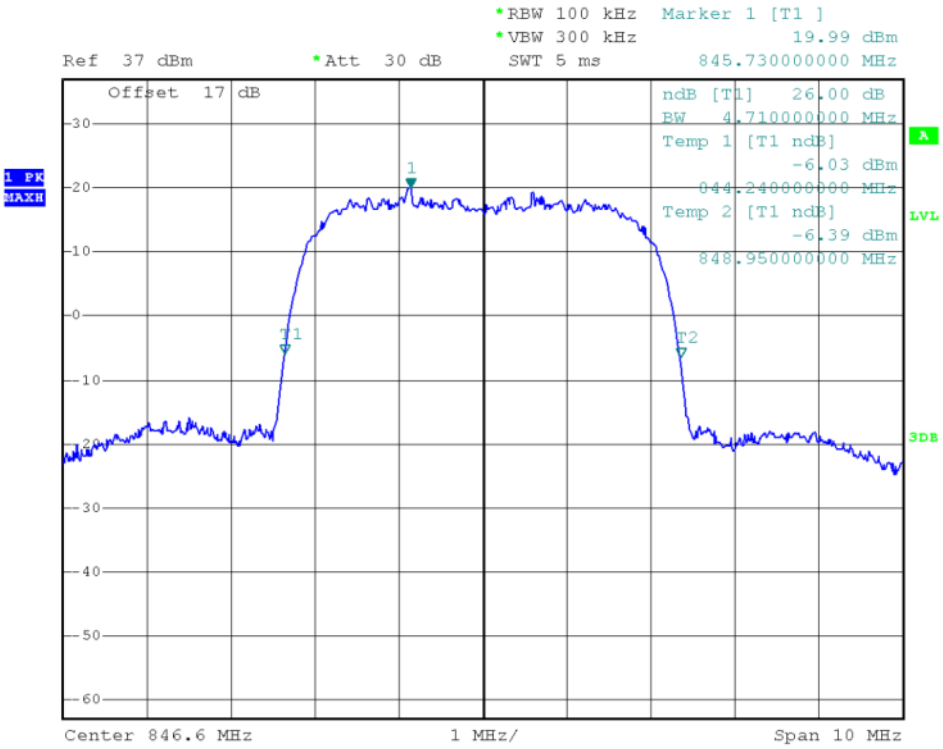
(Plot A2: WCDMA 850MHz Channel = 4132)



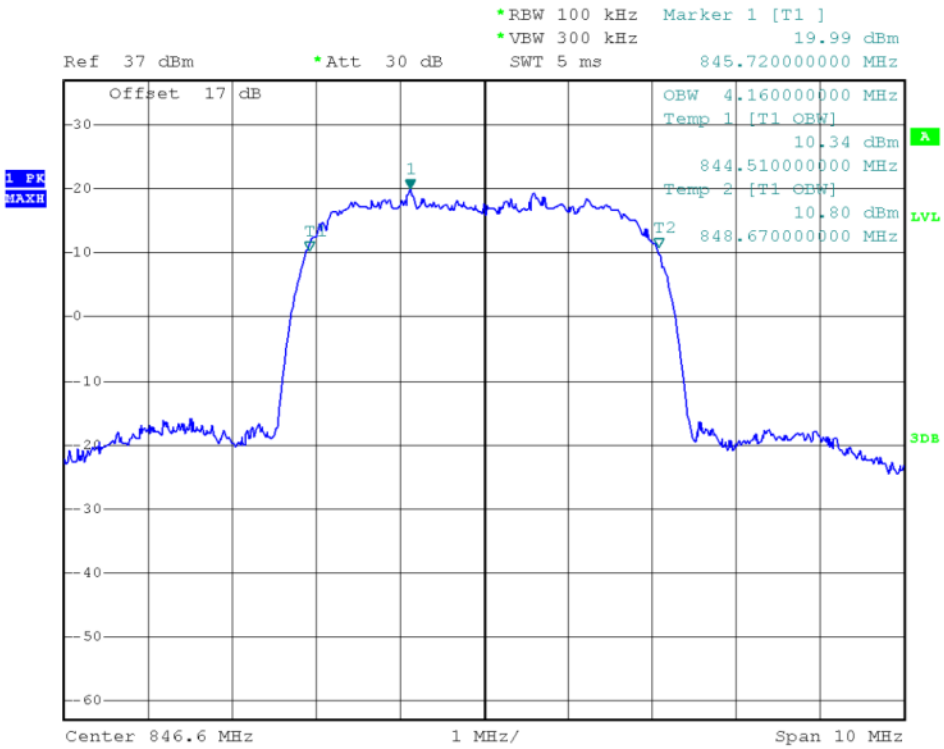
(Plot B1: WCDMA 850 MHz Channel = 4183)



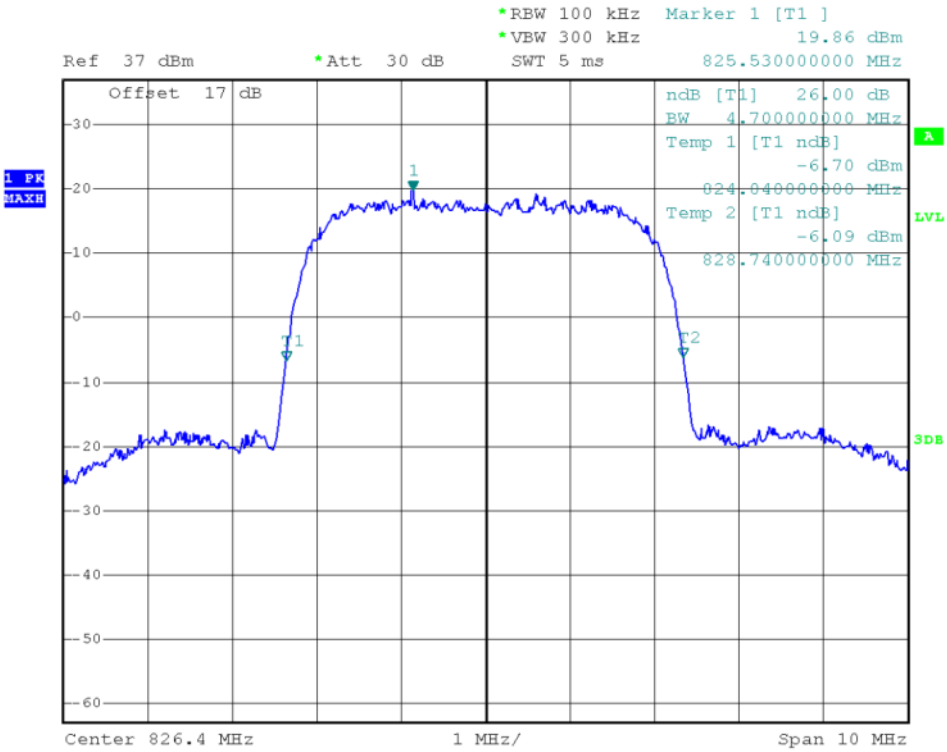
(Plot B2: WCDMA 850 MHz Channel = 4183)



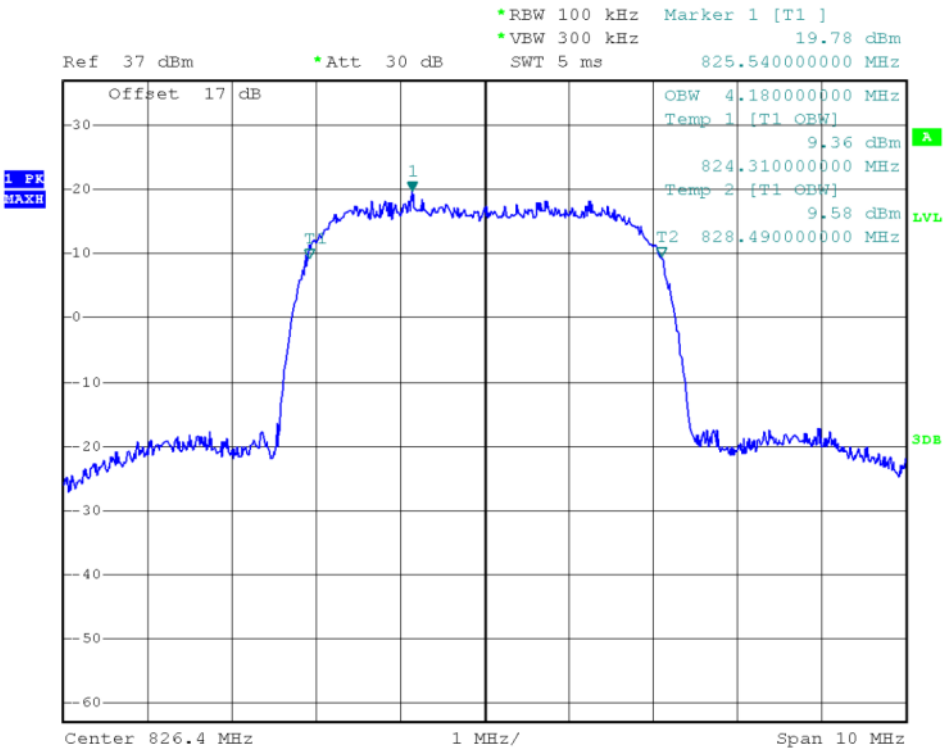
(Plot C1: WCDMA 850MHz Channel = 4233)



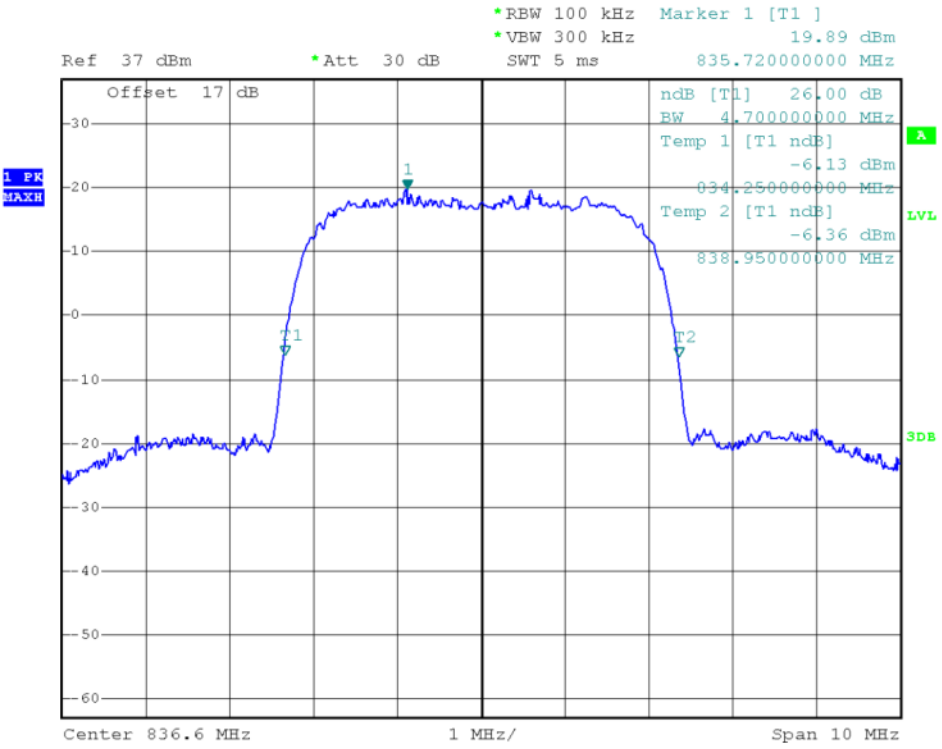
(Plot C2: WCDMA 850MHz Channel = 4233)



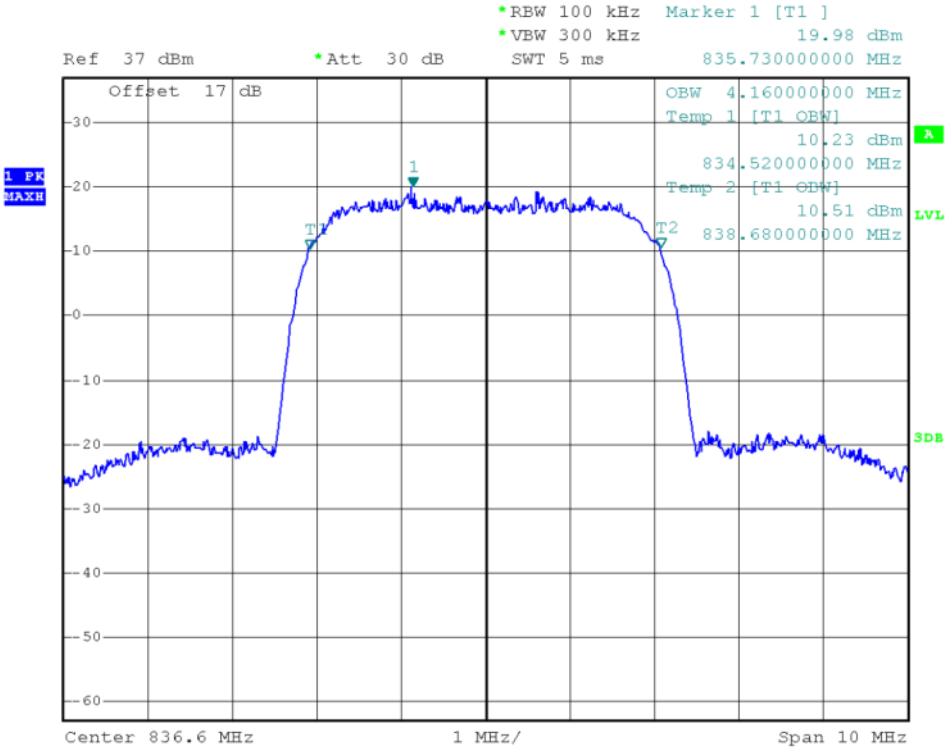
(Plot D1: HSDPA 850MHz Channel = 4132)



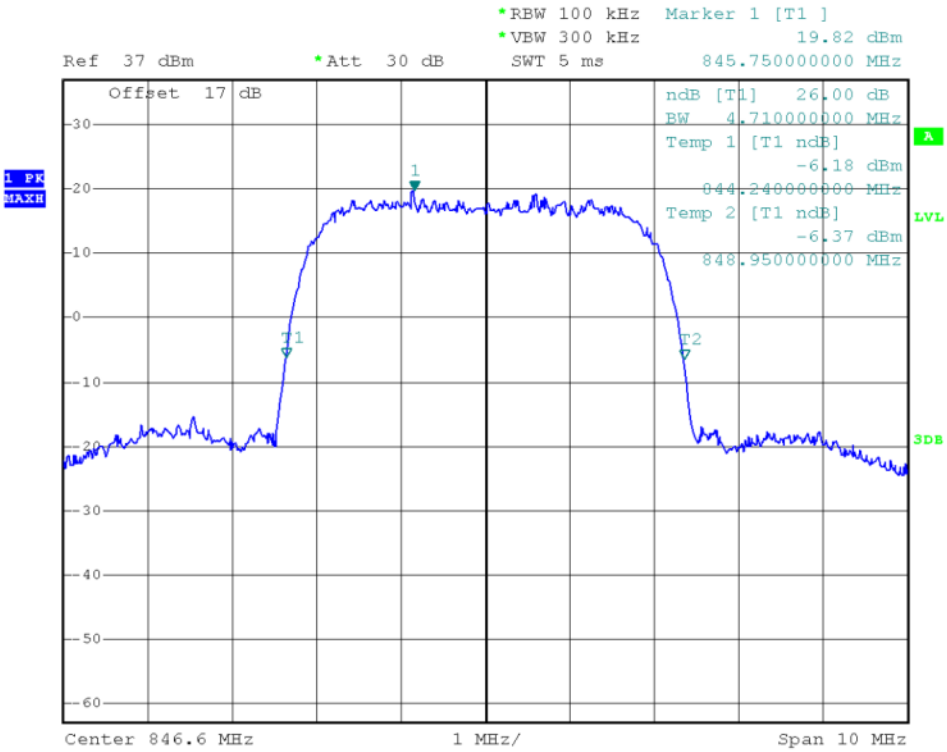
(Plot D2: HSDPA 850MHz Channel = 4132)



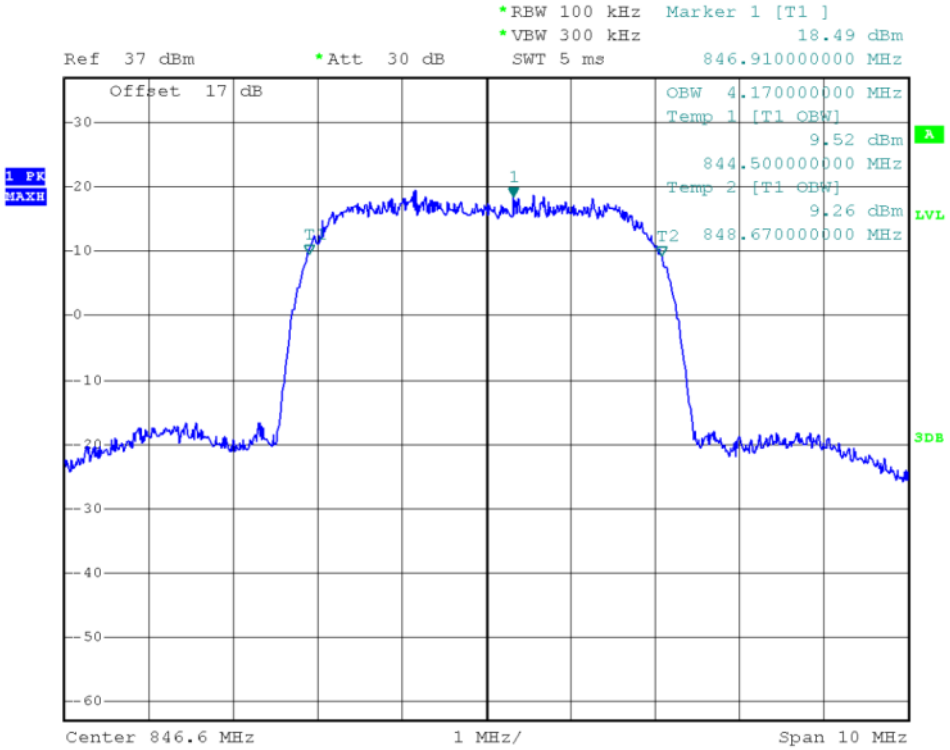
(Plot E1: HSDPA850 MHz Channel = 4183)



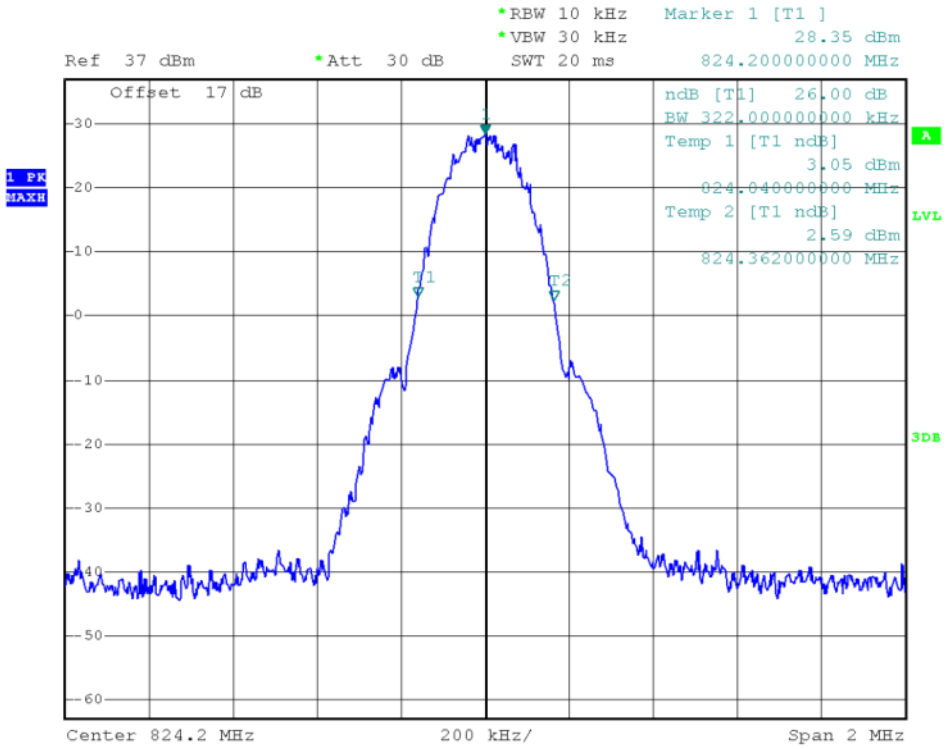
(Plot E2: HSDPA850 MHz Channel = 4183)



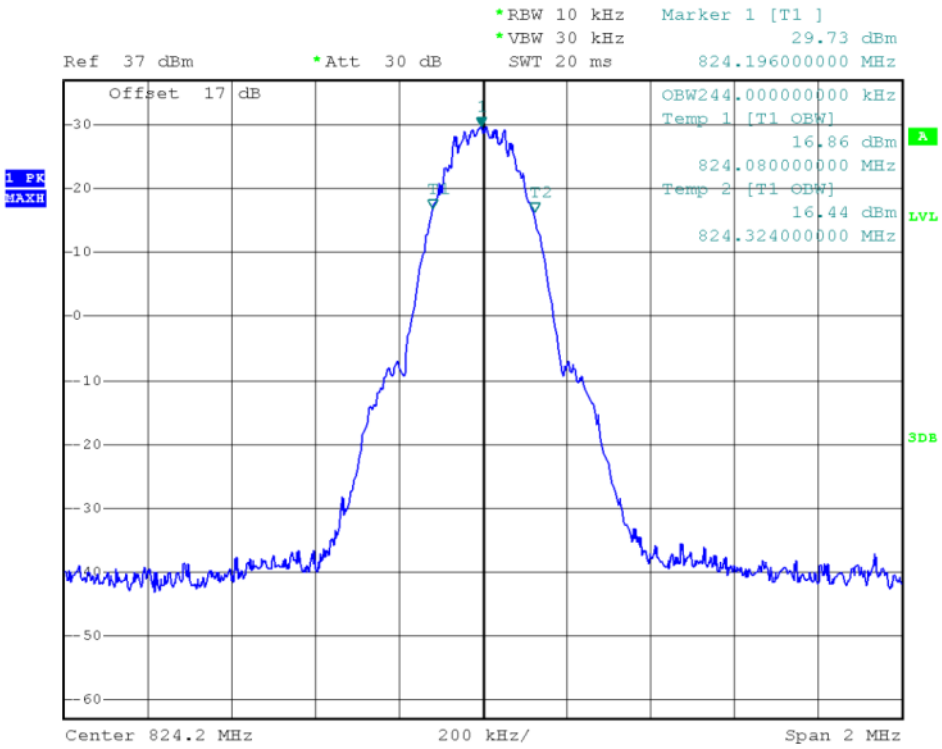
(Plot F1: HSDPA 850 MHz Channel = 4233)



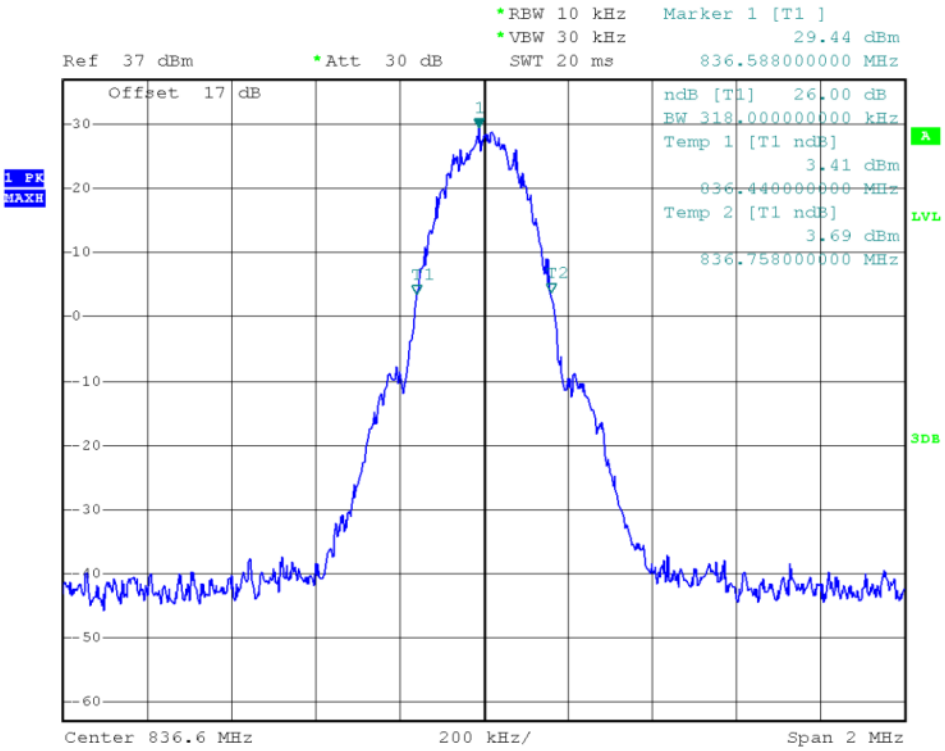
(Plot F2: HSDPA 850 MHz Channel = 4233)



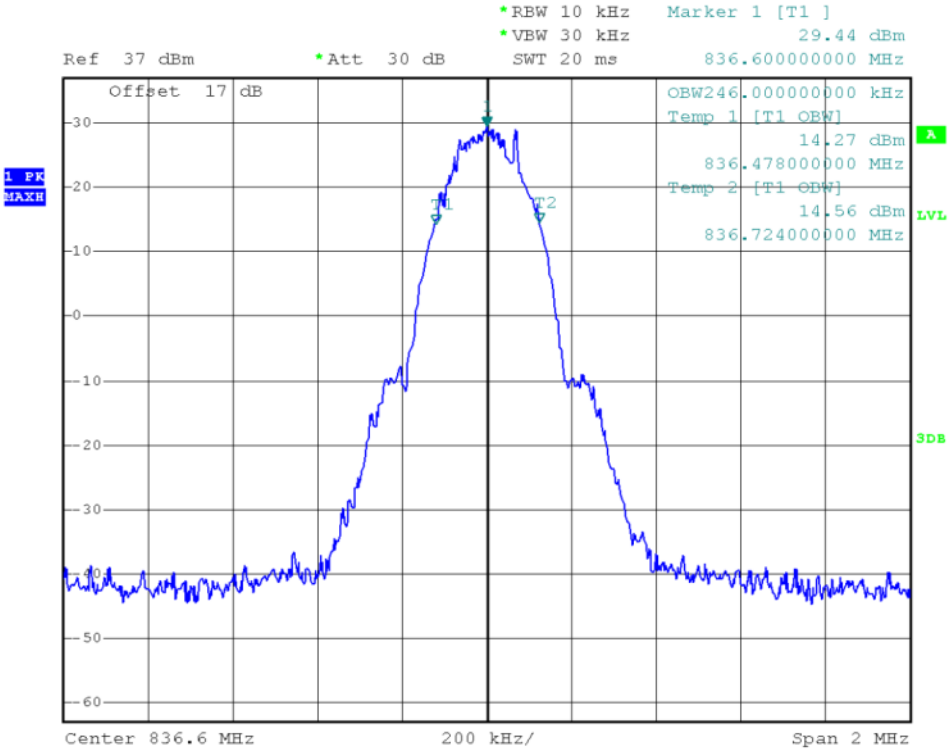
(Plot J1: GSM 850MHz Channel = 128)



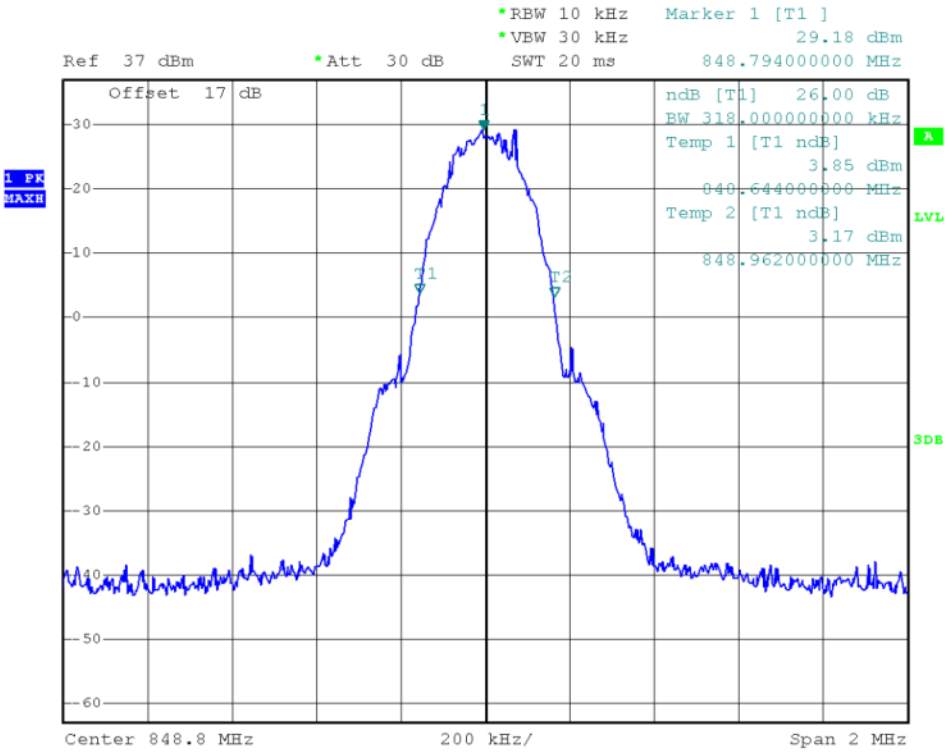
(Plot J2: GSM 850MHz Channel = 128)



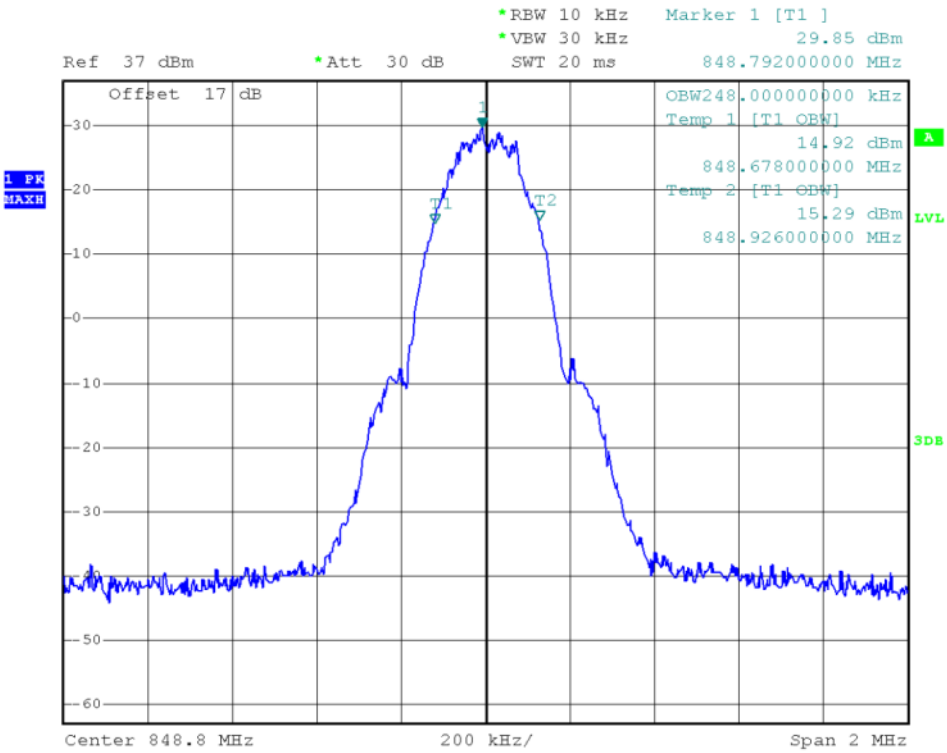
(Plot K1: GSM 850MHz Channel = 190)



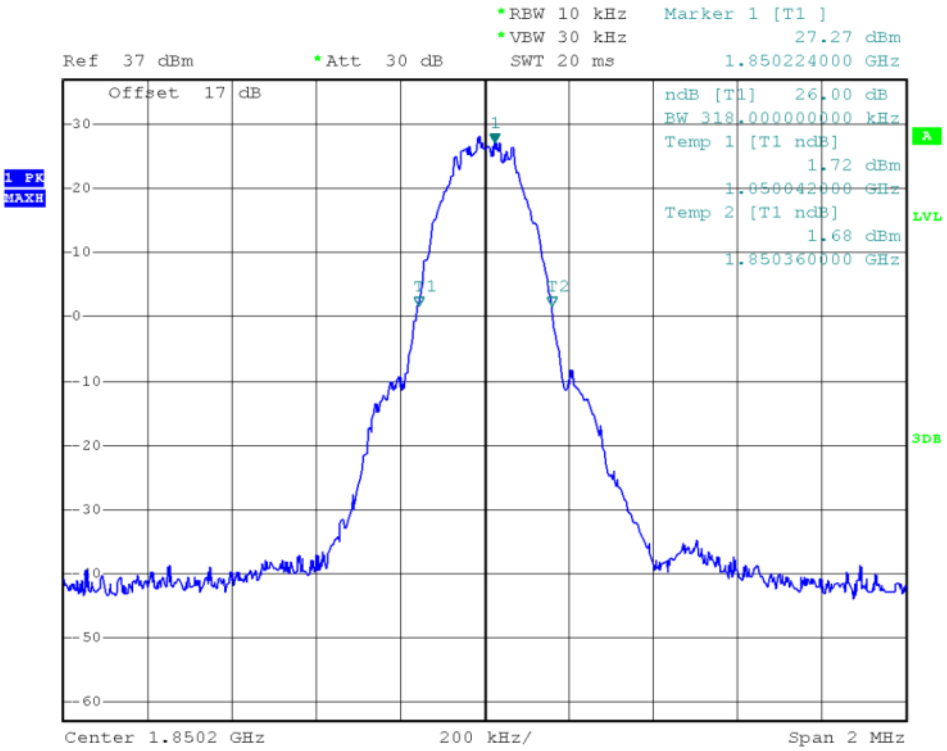
(Plot K2: GSM 850MHz Channel = 190)



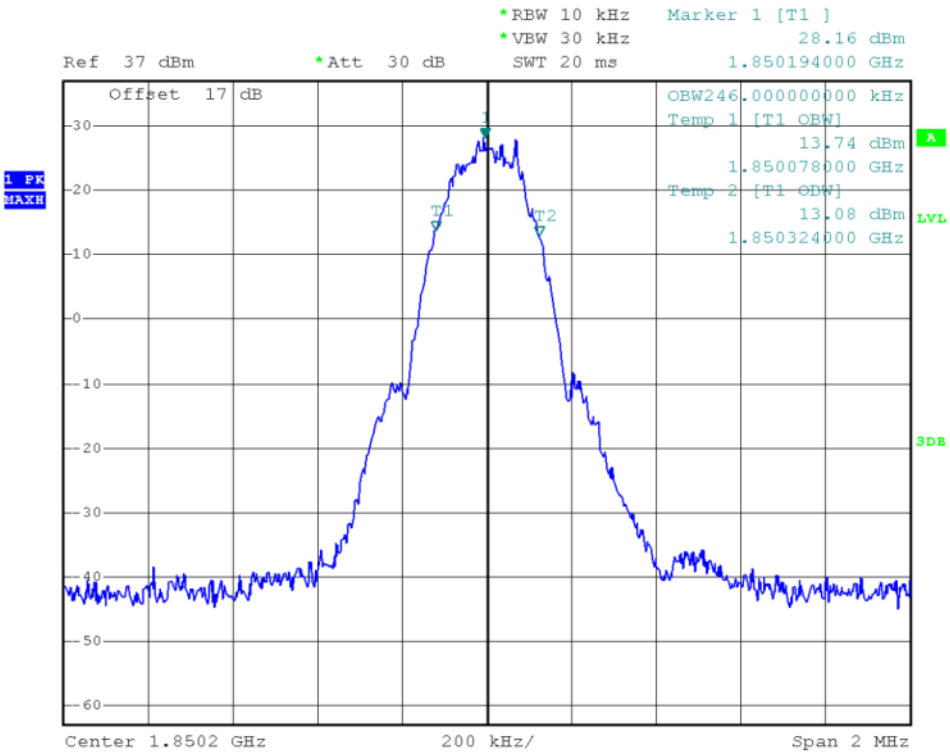
(Plot L1: GSM 850MHz Channel = 251)



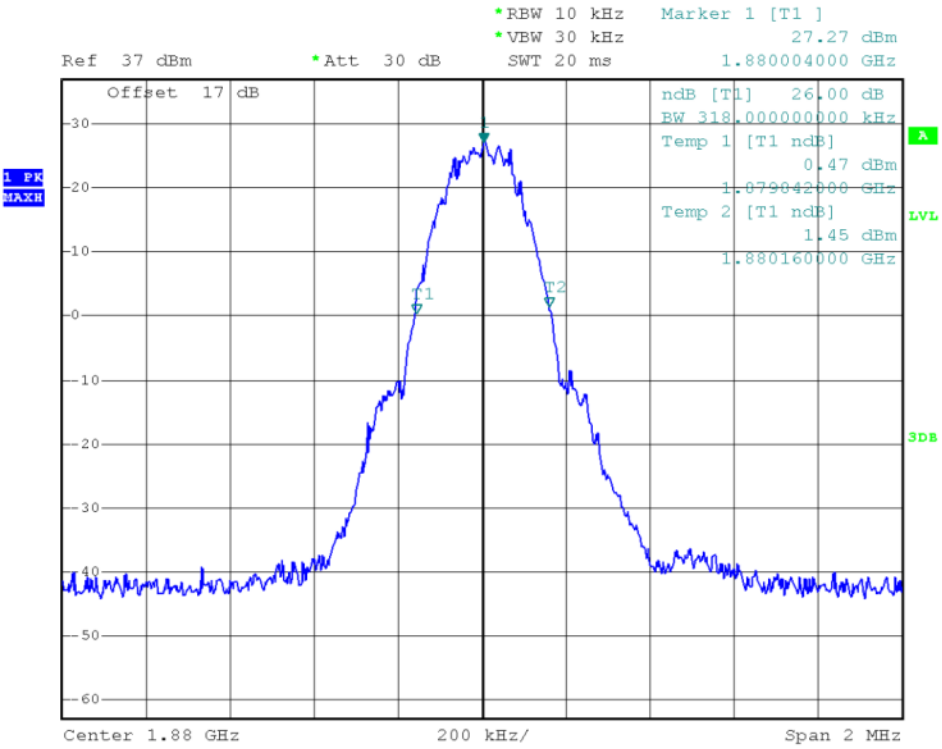
(Plot L2: GSM 850MHz Channel = 251)



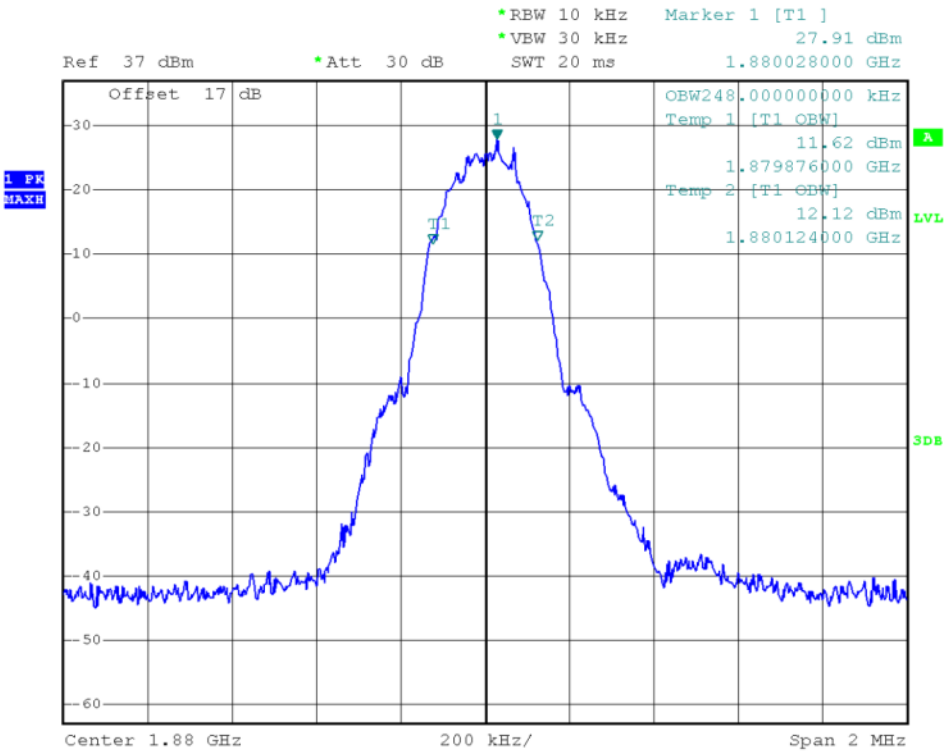
(Plot M1: GSM 1900MHz Channel = 512)



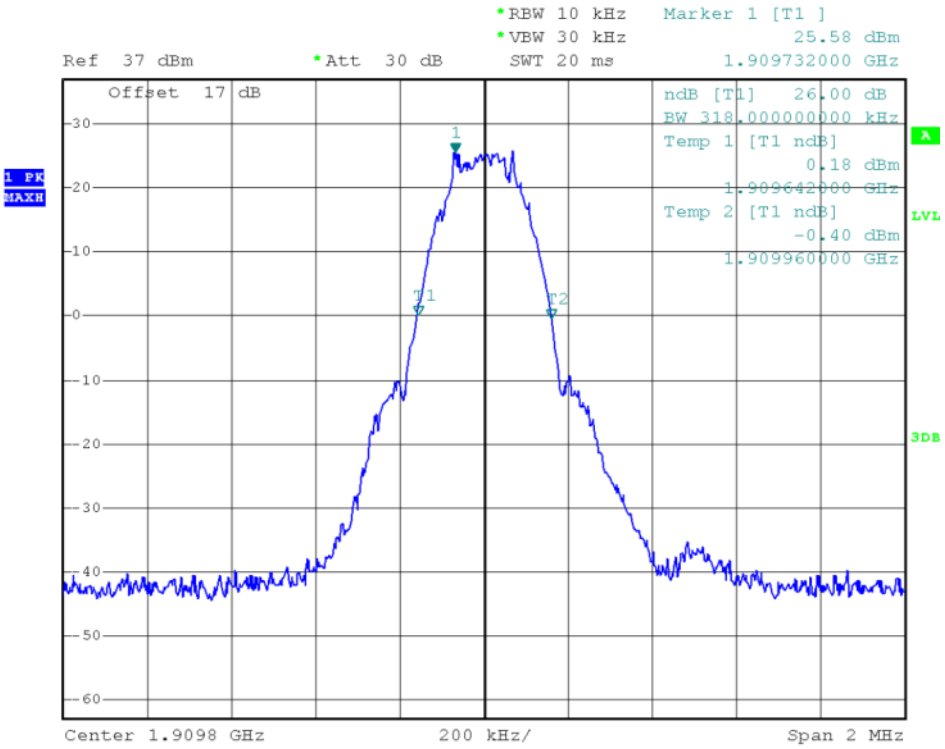
(Plot M2: GSM 1900MHz Channel = 512)



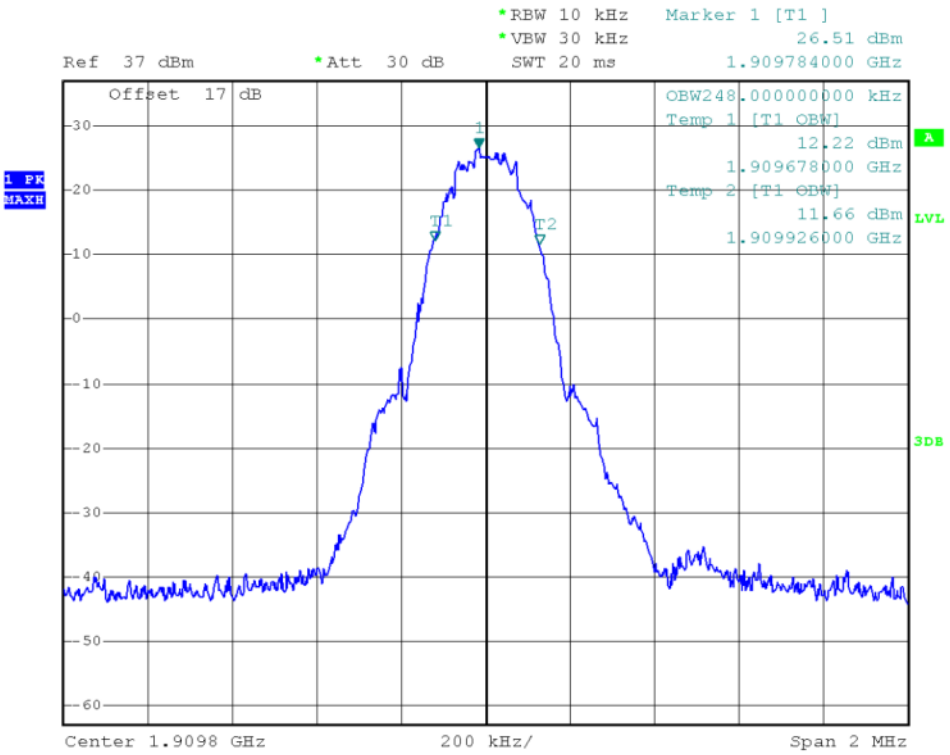
(Plot N1: GSM 1900MHz Channel = 661)



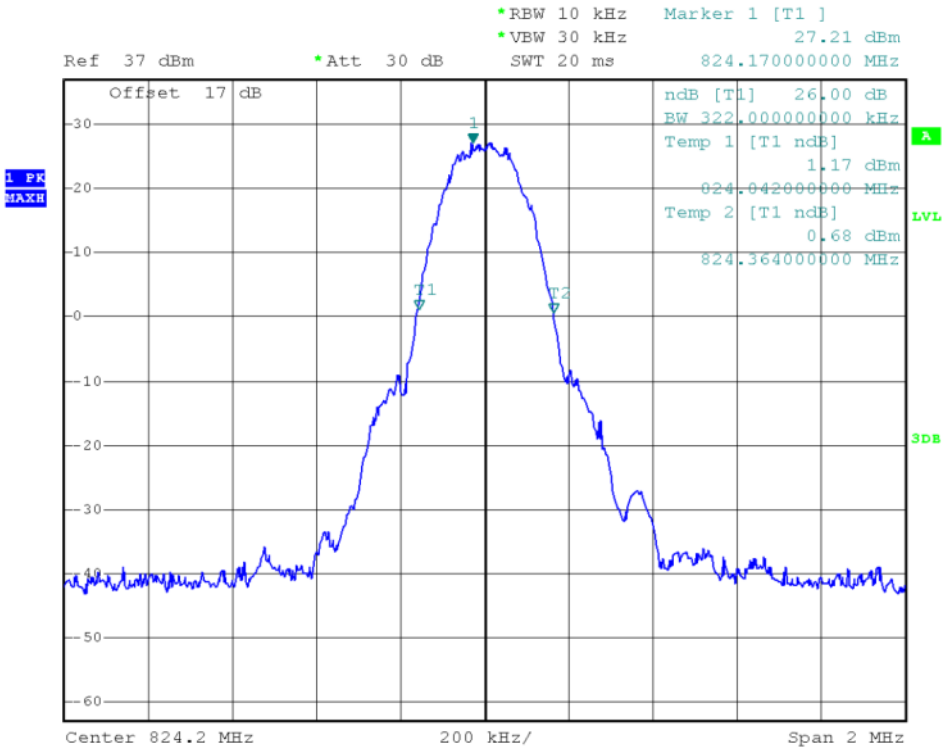
(Plot N2: GSM 1900MHz Channel = 661)



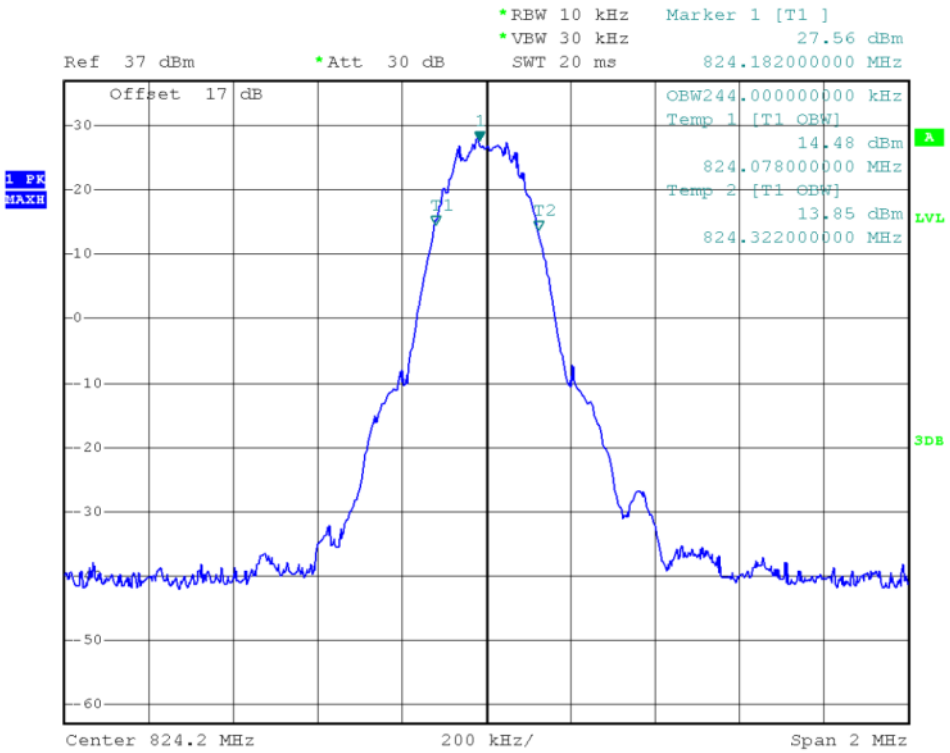
(Plot O1: GSM 1900MHz Channel = 810)



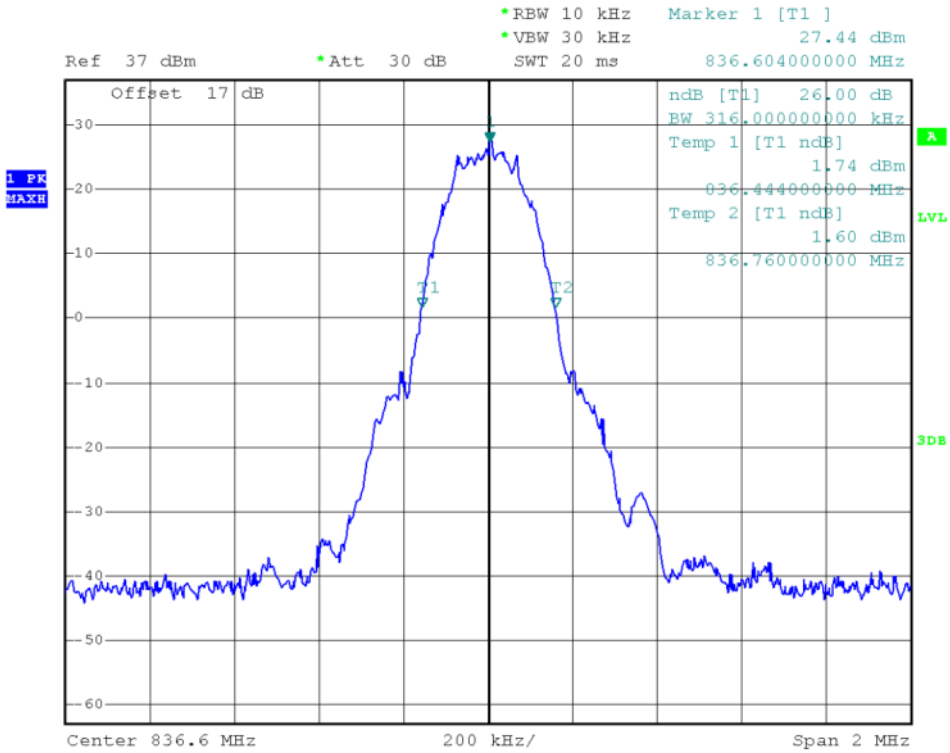
(Plot O2: GSM 1900MHz Channel = 810)



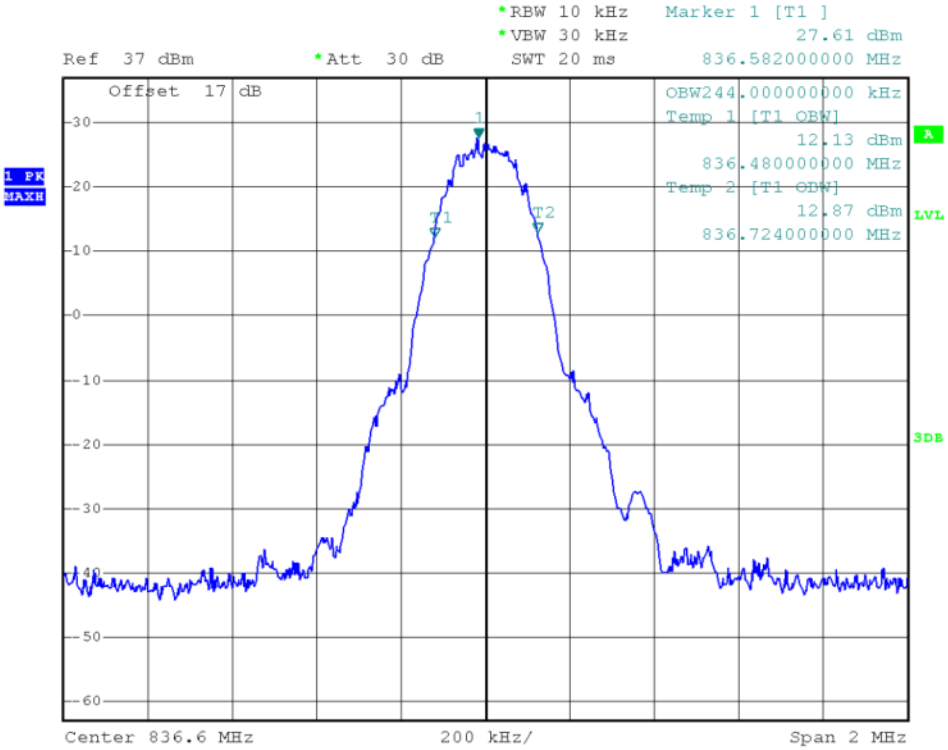
(Plot P1: GPRS 850MHz Channel = 128)



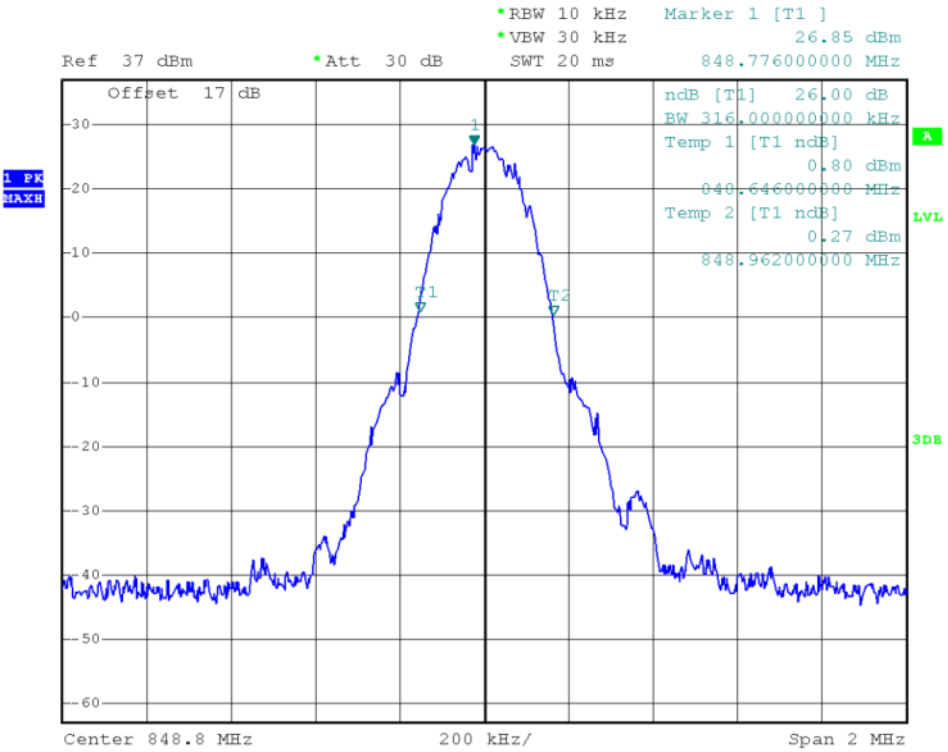
(Plot P2: GPRS 850MHz Channel = 128)



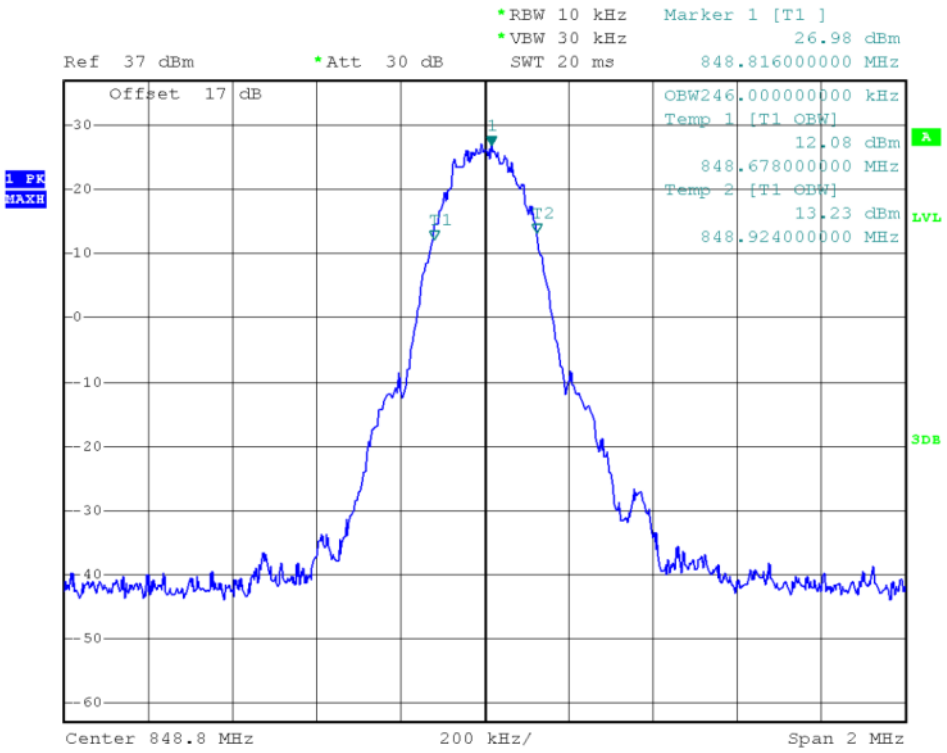
(Plot Q1: GPRS 850MHz Channel = 190)



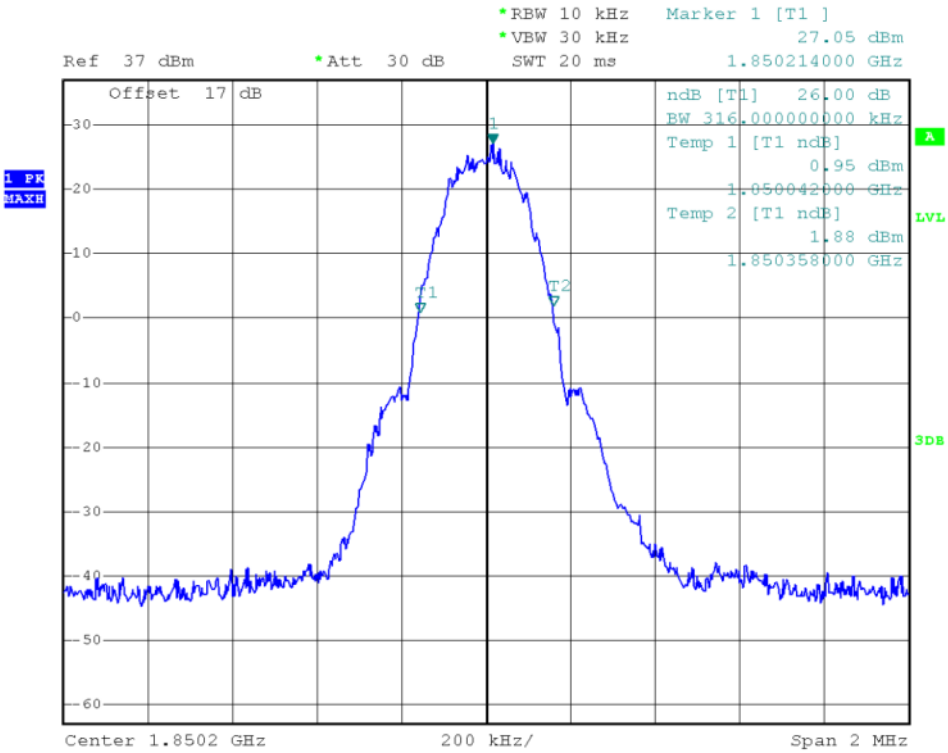
(Plot Q2: GPRS 850MHz Channel = 190)



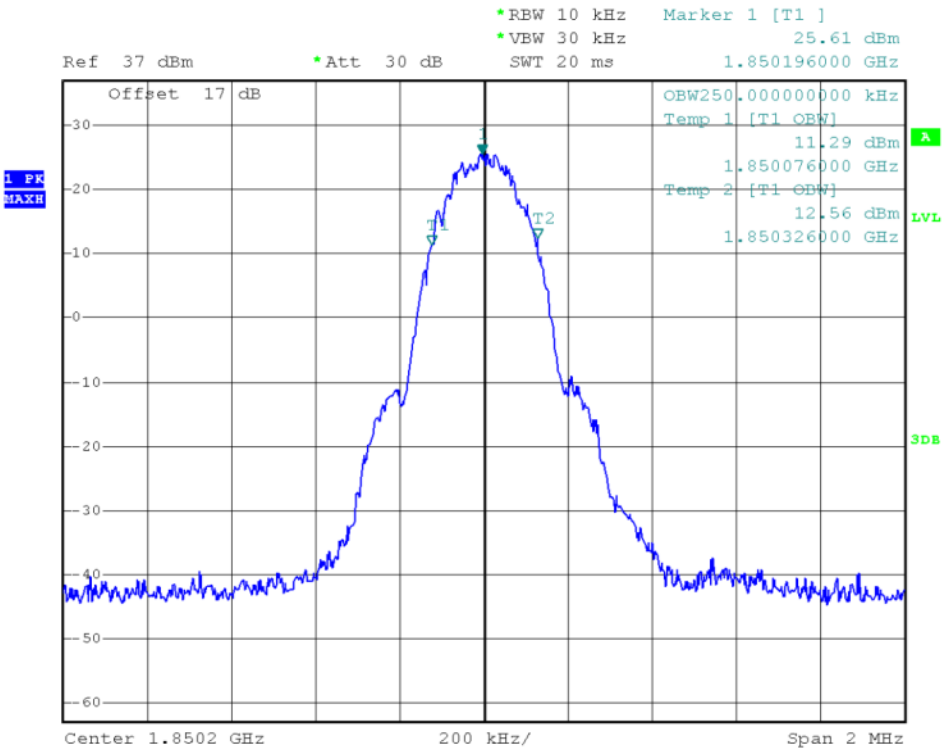
(Plot R1: GPRS850MHz Channel = 251)



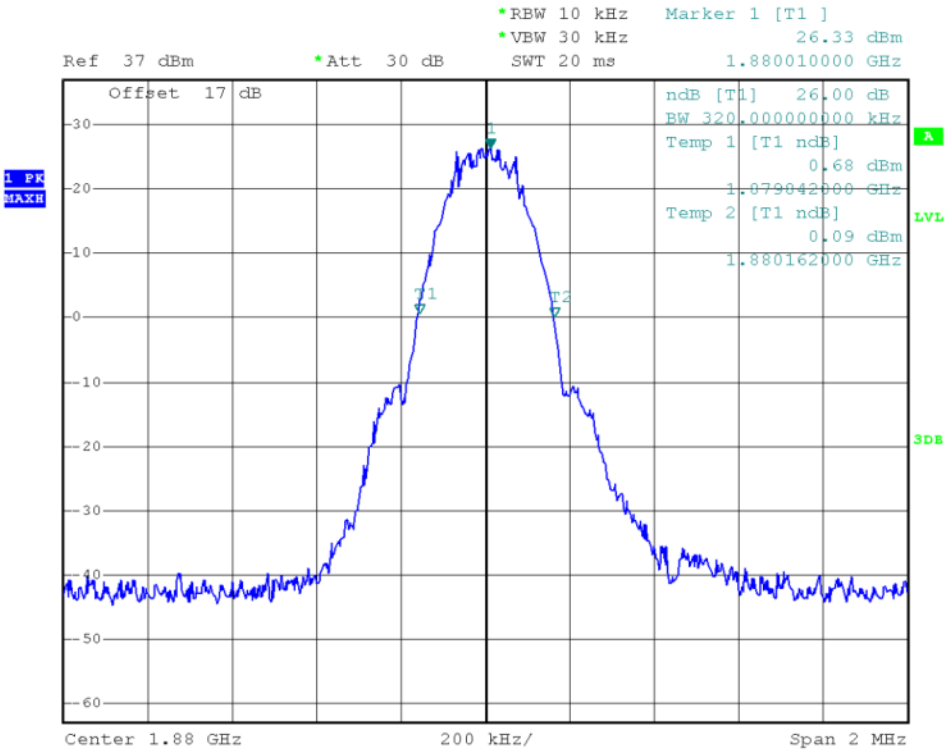
(Plot R2: GPRS850MHz Channel = 251)



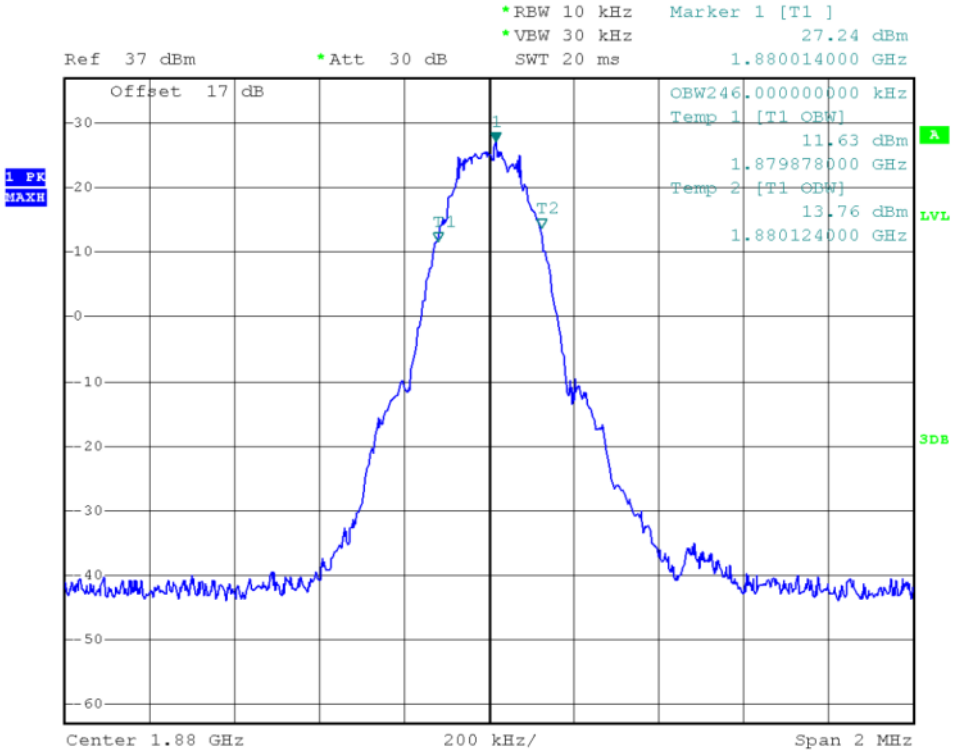
(Plot S1: GPRS 1900MHz Channel = 512)



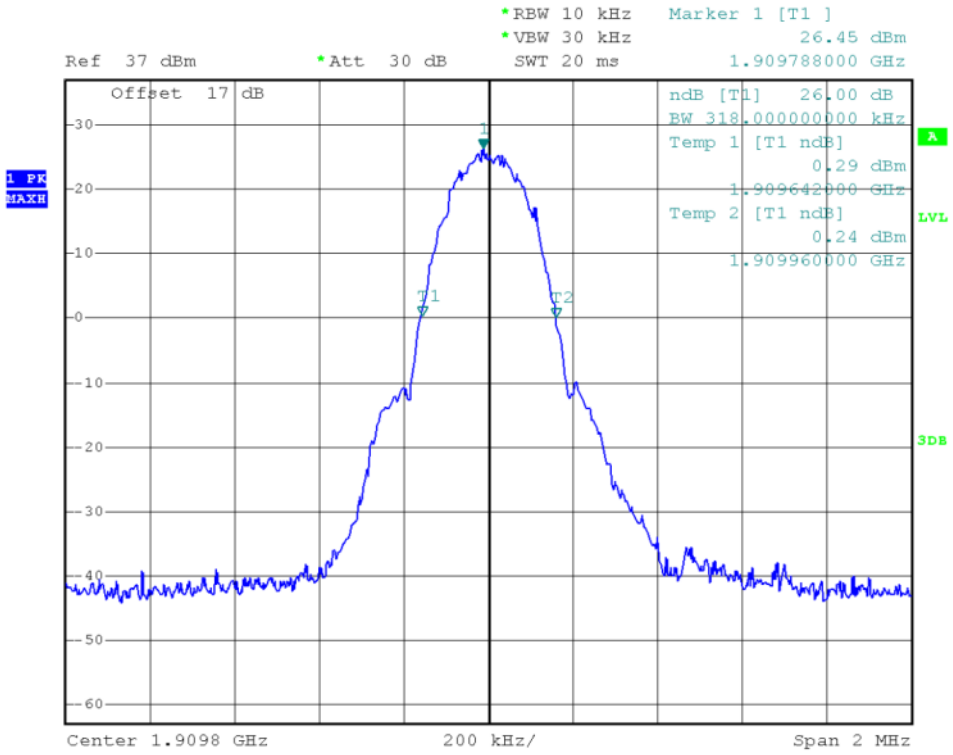
(Plot S2: GPRS 1900MHz Channel = 512)



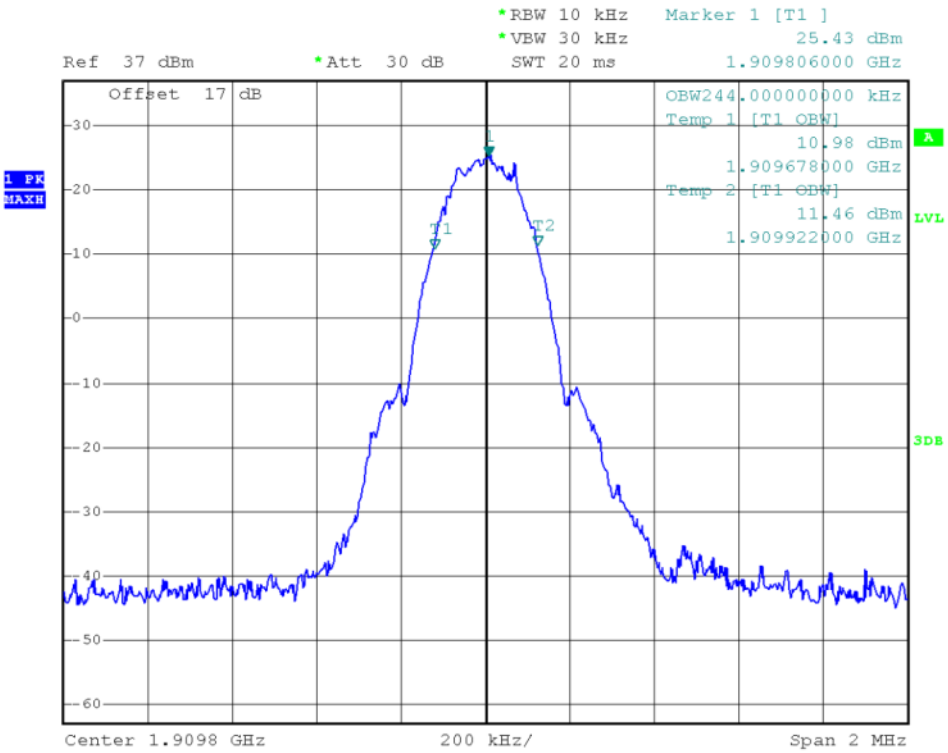
(Plot T1: GPRS 1900MHz Channel = 661)



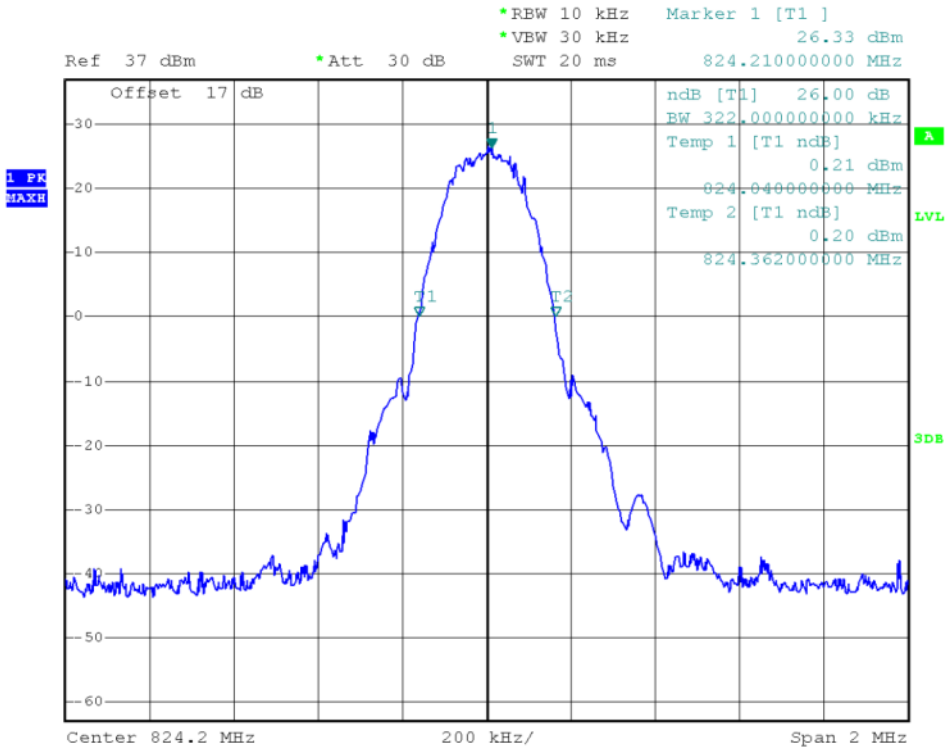
(Plot T2: GPRS 1900MHz Channel = 661)



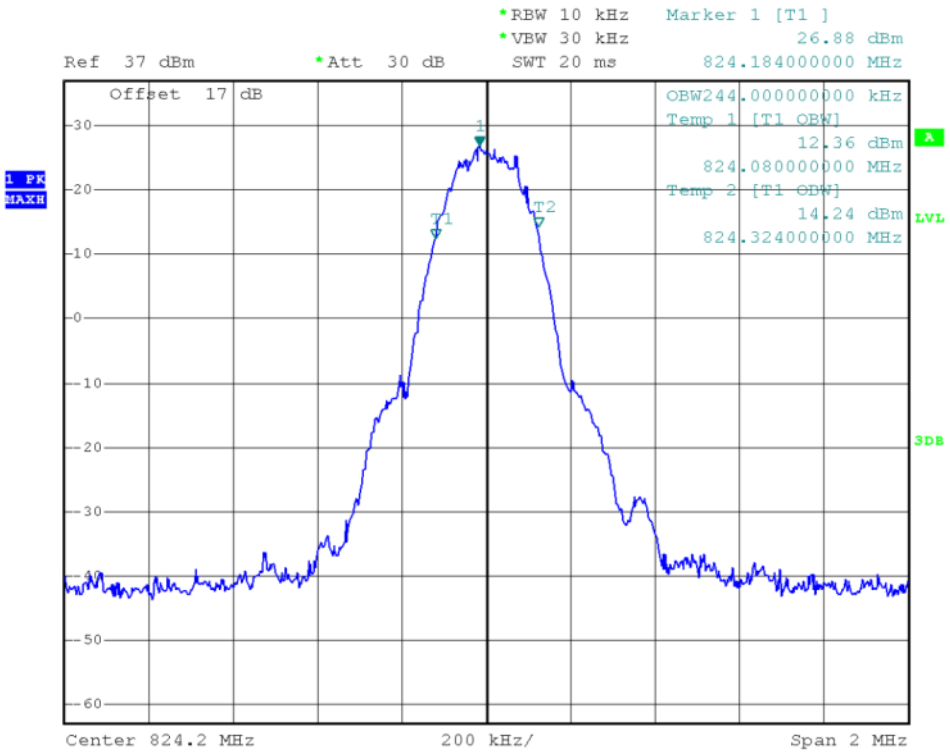
(Plot U1: GPRS 1900MHz Channel = 810)



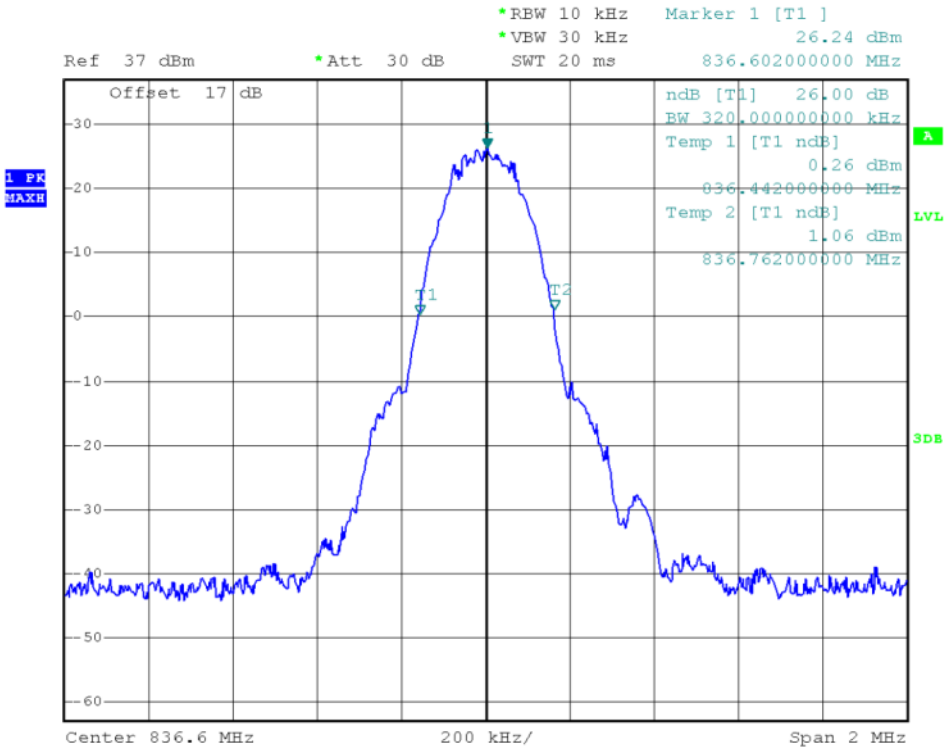
(Plot U2: GPRS 1900MHz Channel = 810)



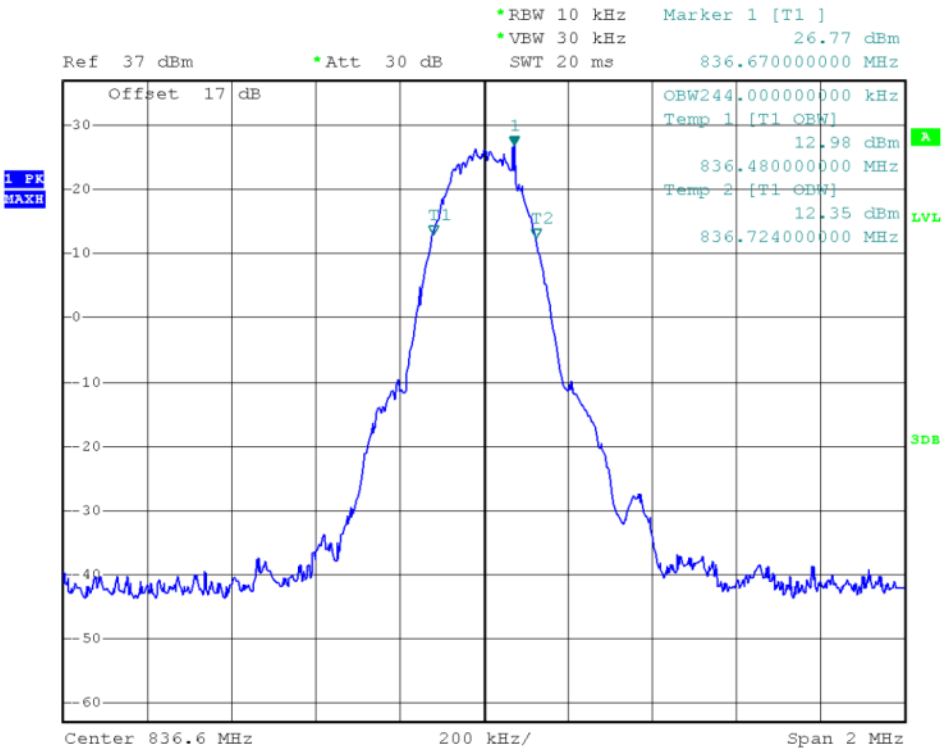
(Plot V1: EDGE 850MHz Channel = 128)



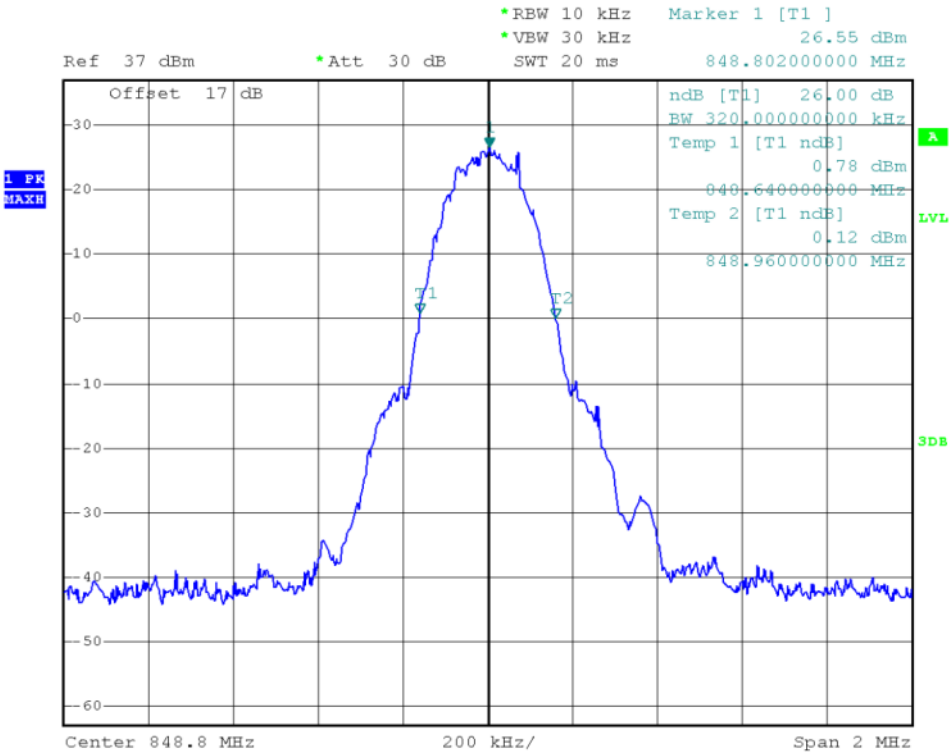
(Plot V2: EDGE 850MHz Channel = 128)



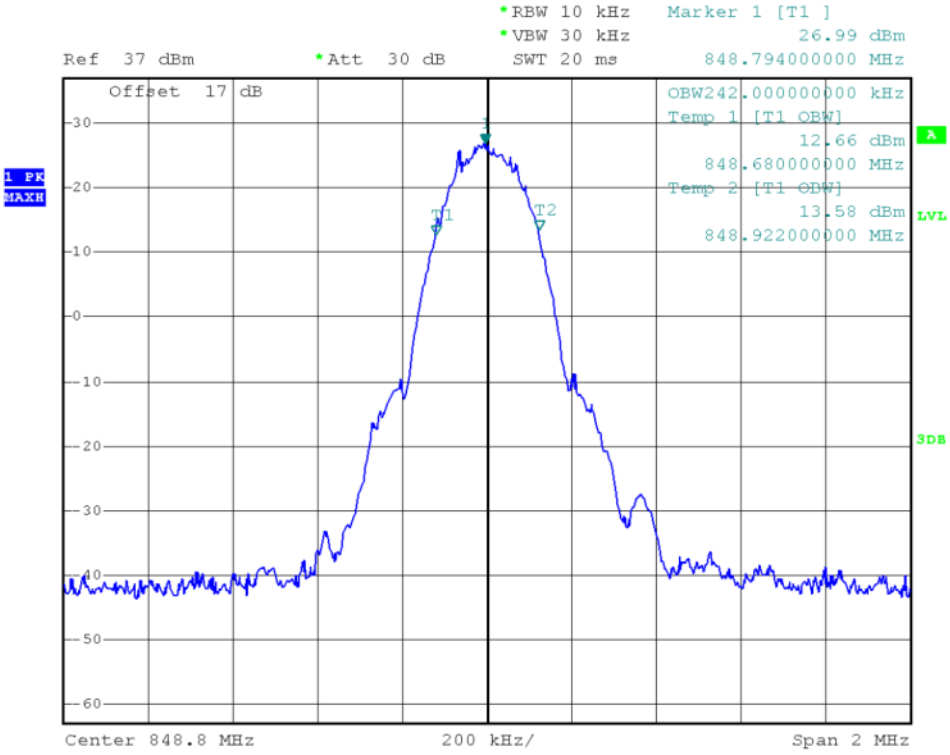
(Plot W1: EDGE 850MHz Channel = 190)



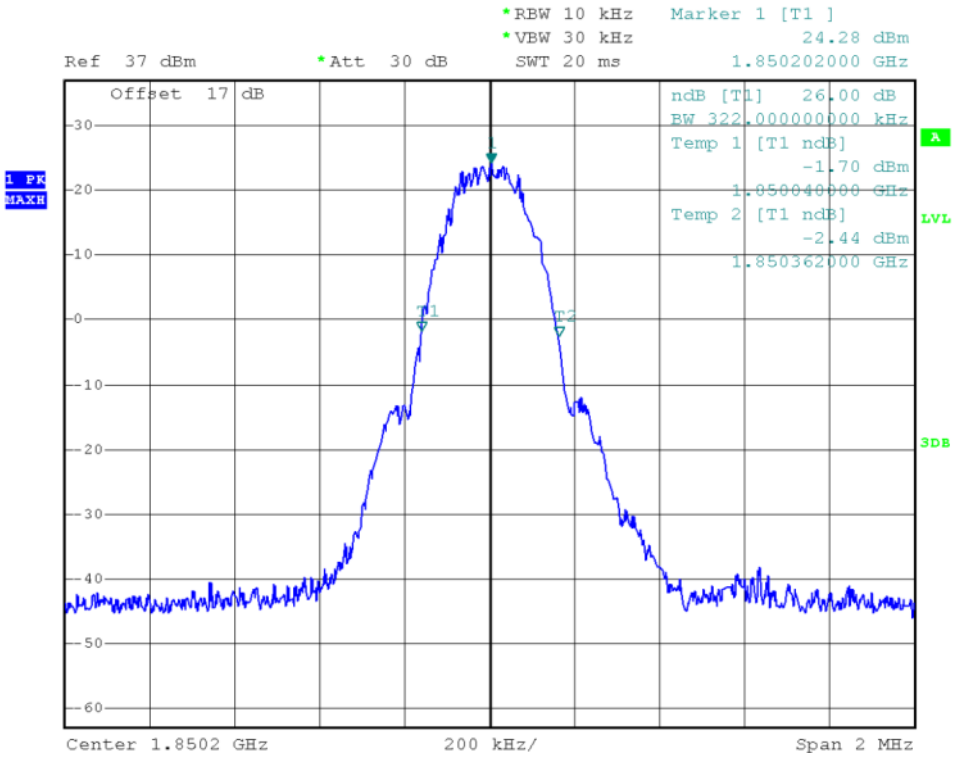
(Plot W2: EDGE 850MHz Channel = 190)



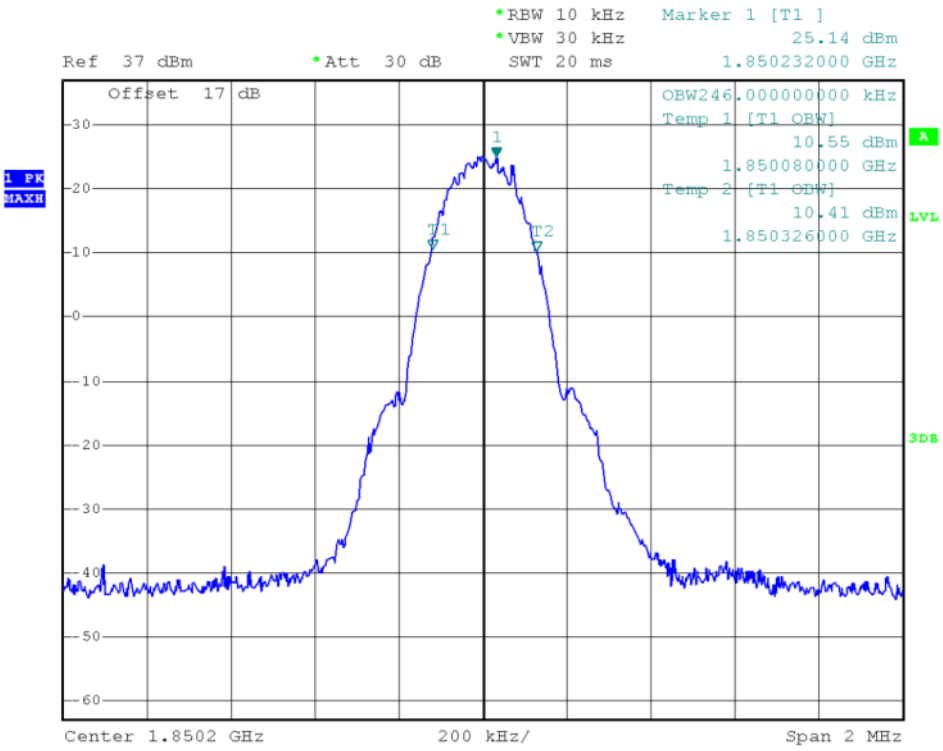
(Plot X1: EDGE 850MHz Channel = 251)



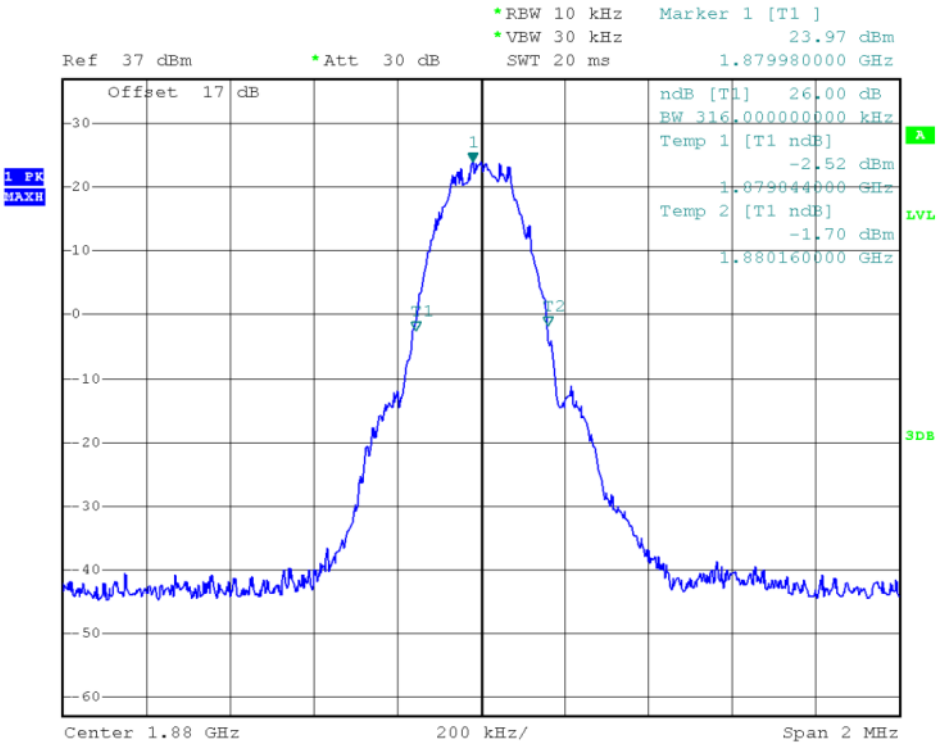
(Plot X2: EDGE 850MHz Channel = 251)



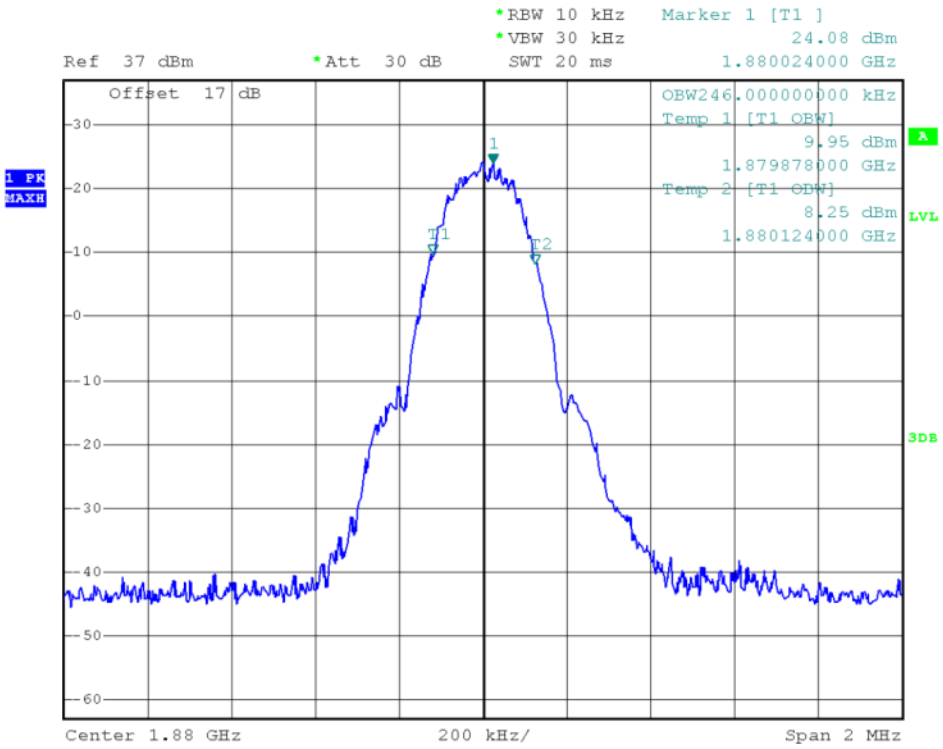
(Plot Y1: EDGE 1900MHz Channel = 512)



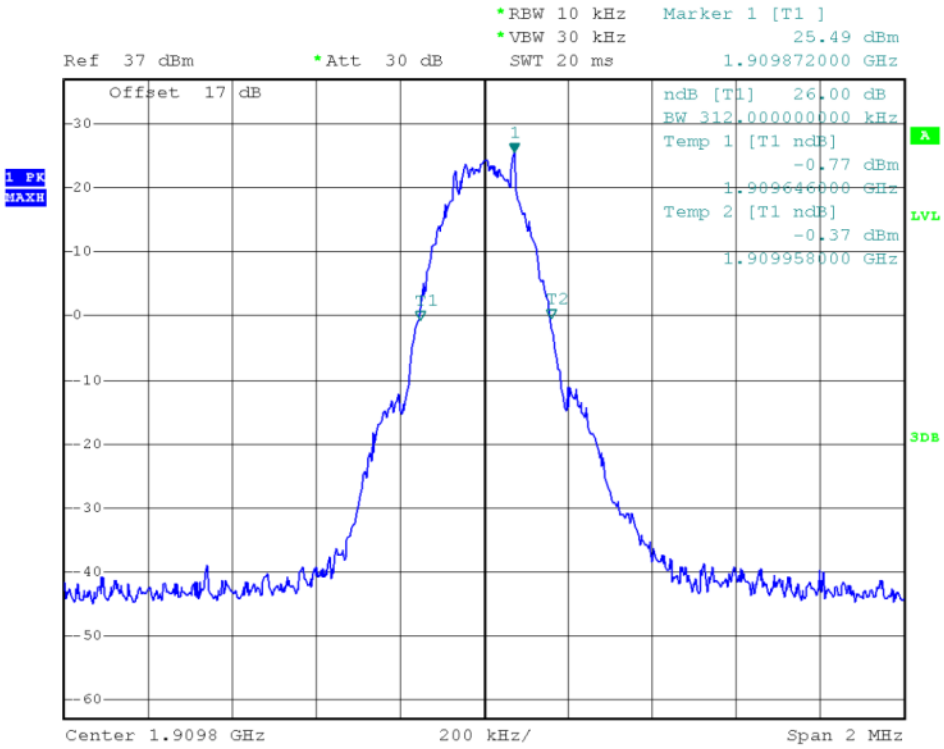
(Plot Y2: EDGE 1900MHz Channel = 512)



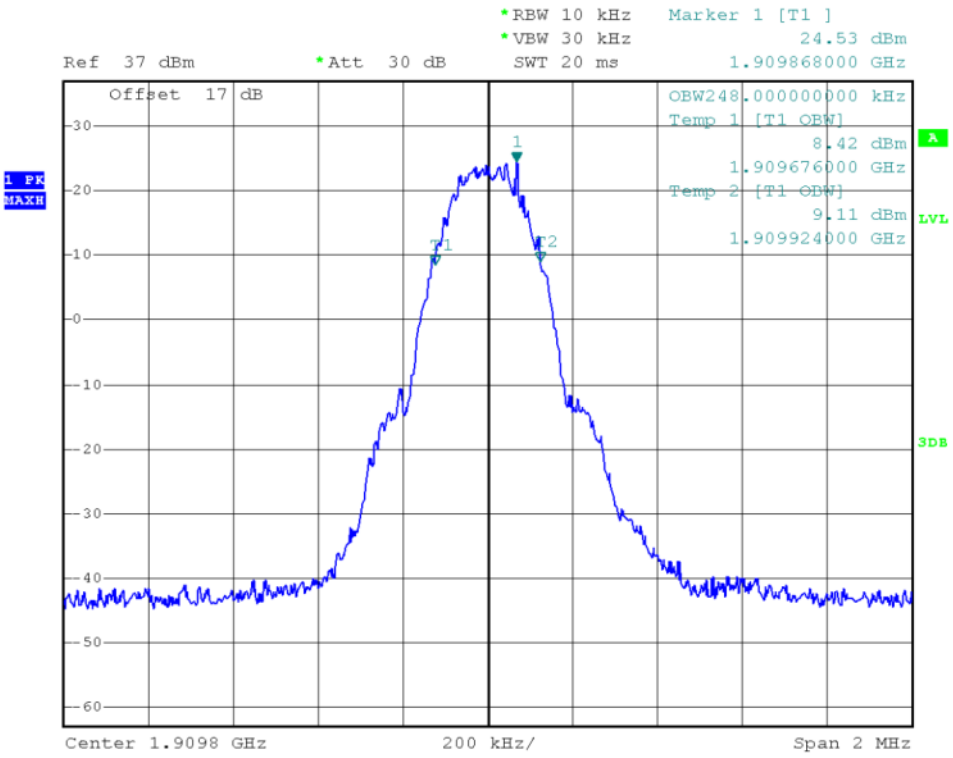
(Plot Z1: EDGE 1900MHz Channel = 661)



(Plot Z2: EDGE 1900MHz Channel = 661)



(Plot a1: EDGE 1900MHz Channel = 810)



(Plot a2: EDGE 1900MHz Channel = 810)

2.4 Frequency Stability

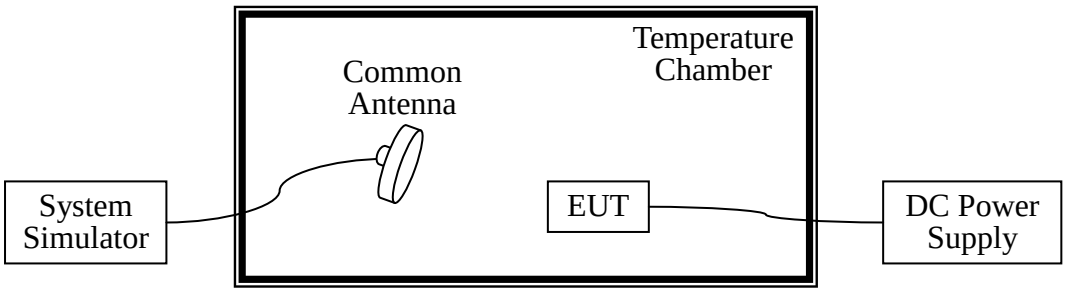
2.4.1 Requirement

According to FCC section 22.355 and FCC section 24.235, the frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block. According to FCC section 2.1055, the test conditions are:

(a) The temperature is varied from -20 ℃ to +50 ℃ at intervals of not more than 10 ℃.
(b) For hand carried battery powered equipment, the primary supply voltage is reduced to the battery operating end point which shall be specified by the manufacture. The supply voltage shall be measured at the input to the cable normally provided with the equipment, or at the power supply terminals if cables are not normally provided.

2.4.2 Test Description

1. Test Setup:



The EUT, which is powered by the DC Power Supply directly, is located in the Temperature Chamber. The EUT is commanded by the System Simulator (SS) to operate at the maximum output power i.e. Power Control Level (PCL) = 5 and Power Class = 4. A call is established between the EUT and the SS via a Common Antenna.

2. Equipments List:

Description	Manufacturer	Model	Serial No.	Cal. Due Data
System Simulator	Agilent	E5515C	GB43130131	2014.06.10
DC Power Supply	Good Will	GPS-3030DD	EF920938	2014.06.10
Temperature Chamber	YinHe Experimental Equip.	HL4003T	(n.a.)	2014.06.10

2.4.3 Test Verdict

The nominal, highest and lowest extreme voltages are separately 3.8VDC, 4.2VDC and 3.4VDC, which are specified by the applicant; the normal temperature here used is 25 ℃. The frequency

deviation limit of 850MHz band is ±2.5ppm, and 1900MHz is ±1ppm

1. GSM 850MHz Band

Test Conditions		Frequency Deviation						Verdict
Power (VDC)	Temperature (℃)	Channel = 128 (824.2MHz)		Channel = 190 (836.6MHz)		Channel = 251 (848.8MHz)		
		Hz	Limits	Hz	Limits	Hz	Limits	
3.8	-20	21.47	±2060.5	-12.96	±2091.5	16.29	±2122	PASS
	-10	13.53		10.27		9.37		
	0	3.17		24.61		35.99		
	+10	15.23		28.54		-37.24		
	+20	2.69		-24.05		-9.36		
	+30	-12.48		32.00		18.63		
	+40	-2.67		46.95		20.2		
	+50	2.29		17.85		14.76		
4.2	+25	-48.58		-17.10		25.95		
3.6	+25	13.04		-12.44		34.16		

2. GSM 1900MHz Band

Test Conditions		Frequency Deviation						Verdict
Power (VDC)	Temperature (℃)	Channel = 512 (1850.2MHz)		Channel = 661 (1880.0MHz)		Channel = 810 (1909.8MHz)		
		Hz	Limits	Hz	Limits	Hz	Limits	
3.8	-20	24.39	±1850.2	-19.3	±1880.0	3.44	±1909.8	PASS
	-10	13.27		-2.59		18.43		
	0	12.1		34.14		-2.57		
	+10	26.2		-41.42		-0.31		
	+20	28.31		27.16		22.79		
	+30	-36.46		-20		14.18		
	+40	28.53		26.85		-13.08		
	+50	-17.13		9.03		5.88		
4.2	+25	18.55		-19.28		2.41		
3.6	+25	31.2		22.39		17.94		

3. EDGE 850MHz Band

Test Conditions		Frequency Deviation						Verdict
Power (VDC)	Temperature (℃)	Channel = 128 (824.2MHz)		Channel = 190 (836.6MHz)		Channel = 251 (848.8MHz)		
		Hz	Limits	Hz	Limits	Hz	Limits	
3.8	-20	3.39	±2060.5	0.69	±2091.5	13.58	±2122	PASS
	-10	4.48		-12.27		7.79		
	0	12.58		-15.79		26.95		
	+10	10.32		-22.28		-3.07		
	+20	-4.48		12.50		18.59		
	+30	15.56		4.43		-2.36		
	+40	8.89		35.67		18.88		
	+50	-25.69		20.08		-15.02		
4.2	+25	13.57		-8.69		-9.99		
3.6	+25	6.67		-10.85		34.16		

4. EDGE 1900MHz Band

Test Conditions		Frequency Deviation						Verdict
Power (VDC)	Temperature (℃)	Channel = 512 (1850.2MHz)		Channel = 661 (1880.0MHz)		Channel = 810 (1909.8MHz)		
		Hz	Limits	Hz	Limits	Hz	Limits	
3.8	-20	12.59	±1850.2	-12.34	±1880.0	4.47	±1909.8	PASS
	-10	22.53		10.57		-3.38		
	0	2.29		23.56		-2.57		
	+10	-36.95		12.79		9.86		
	+20	28.48		25.72		10.07		
	+30	29.30		-12.36		-13.52		
	+40	-3.36		25.77		23.07		
	+50	-15.37		-20.02		6.83		
4.2	+25	1.01		-18.88		5.29		
3.6	+25	22.27		-13.27		7.83		

5. WCDMA 850MHz Band

Test Conditions		Frequency Deviation						Verdict
Power (VDC)	Temperature (℃)	Channel = 4123 (826.4MHz)		Channel = 4183 (836.6MHz)		Channel = 4233 (846.6MHz)		
		Hz	Limit	Hz	Limit	Hz	Limit	
3.8	-20	30.44	±2066	25.88	±2091.5	7.84	±2116.5	PASS
	-10	-12.20		10.31		-5.59		
	0	9.25		10.92		17.33		
	+10	31.07		36.73		-10.9		
	+20	30.12		27.18		-4.69		
	+30	-15.23		-11.24		29.89		
	+40	35.41		30.53		14.01		
	+50	9.92		16.58		-24.66		
4.2	+25	-15.99		-10.62		29.69		
3.6	+25	23.94		16.29		-7.98		

6. HSDPA 850MHz Band

Test Conditions		Frequency Deviation						Verdict
Power (VDC)	Temperature (℃)	Channel = 4123 (826.4MHz)		Channel = 4183 (836.6MHz)		Channel = 4233 (846.6MHz)		
		Hz	Limit	Hz	Limit	Hz	Limit	
3.8	-20	18.52	±2066	3.48	±2091.5	12.07	±2116.5	PASS
	-10	22.25		-13.30		9.97		
	0	7.88		15.59		19.32		
	+10	12.08		-12.72		-16.67		
	+20	8.19		22.23		15.59		
	+30	13.29		10.10		3.37		
	+40	-23.34		3.40		12.59		
	+50	25.08		-10.22		-2.21		
4.2	+25	-17.77		8.79		-22.27		
3.6	+25	8.83		18.76		3.21		

2.5 Conducted Out of Band Emissions

2.5.1 Requirement

According to FCC section 22.917(a) and FCC section 24.238(a), the power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43+10*log(P)dB. This calculated to be -13dBm.

2.5.2 Test Description

See section 2.1.2 of this report.

2.5.3 Test Result

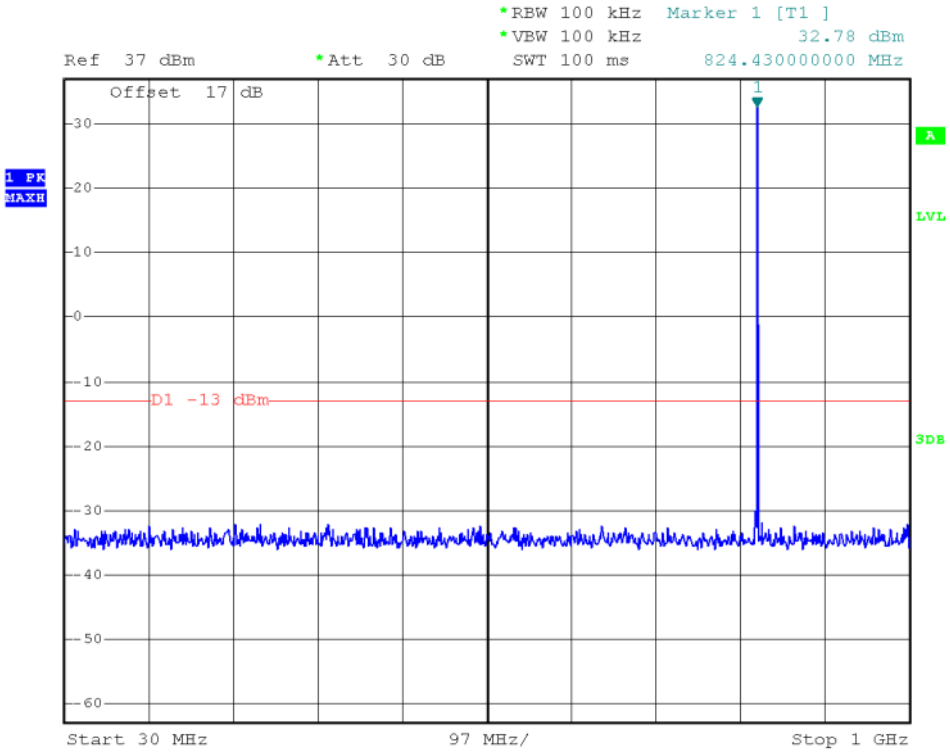
The measurement frequency range is from 30MHz to the 10th harmonic of the fundamental frequency. The lowest, middle and highest channels are tested to verify the out of band emissions.

1. Test Verdict:

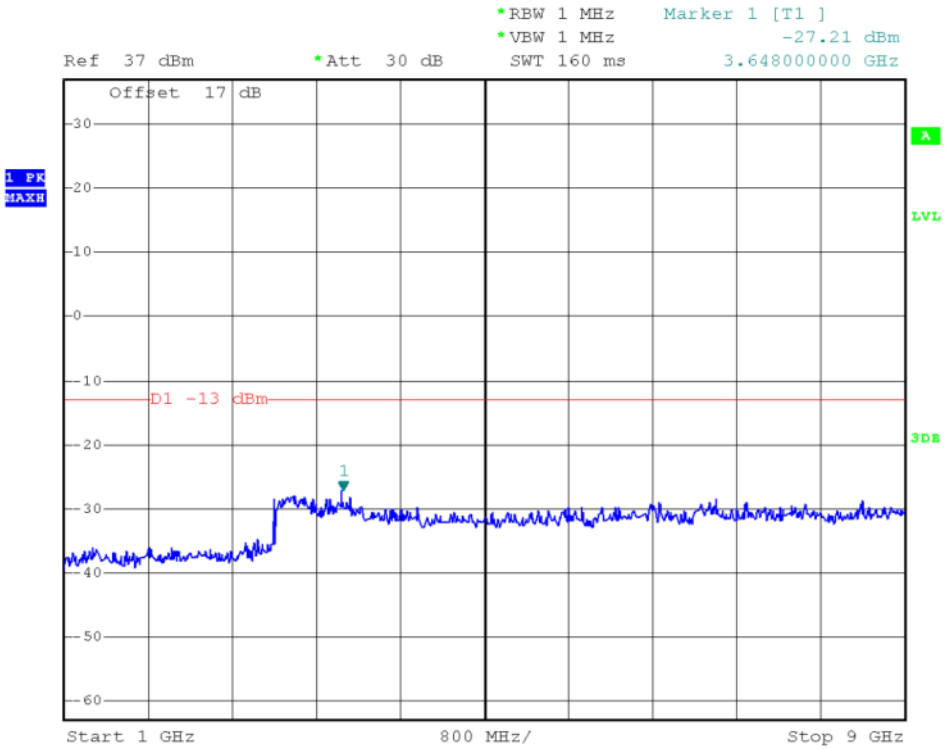
Band	Channel	Frequency (MHz)	Measured Max. Spurious Emission (dBm)	Refer to Plot	Limit (dBm)	Verdict
GSM 850MHz	128	824.2	-27.21	Plot A1toA1.1	-13	PASS
	190	836.6	-27.93	Plot A2toA2.1		PASS
	251	848.8	-27.35	Plot A3toA3.1		PASS
GSM 1900MHz	512	1850.2	-19.28	Plot B1toB1.1	-13	PASS
	661	1880.0	-18.94	Plot B2toB2.1		PASS
	810	1909.8	-19.63	Plot B3toB3.1		PASS
EDGE 850MHz	128	824.2	-28.45	Plot C1toC1.1	-13	PASS
	190	836.6	-28.31	Plot C2toC2.1		PASS
	251	848.8	-27.49	Plot C3toC3.1		PASS
EDGE 1900MHz	512	1850.2	-19.36	Plot D1toD1.1	-13	PASS
	661	1880.0	-20.13	Plot D2toD2.1		PASS
	810	1909.8	-19.48	Plot D3toD3.1		PASS
WCDMA 850MHz	4132	826.4	-28.18	Plot E1toE1.1	-13	PASS
	4183	836.6	-29.23	Plot E2toE2.1		PASS
	4233	846.6	-27.67	Plot E3toE3.1		PASS
HSDPA 850MHz	4132	826.4	-27.81	Plot F1toF1.1	-13	PASS
	4183	836.6	-28.87	Plot F2toF2.1		PASS
	4233	846.6	-27.74	Plot F3toF3.1		PASS

2. Test Plots for the Whole Measurement Frequency Range:

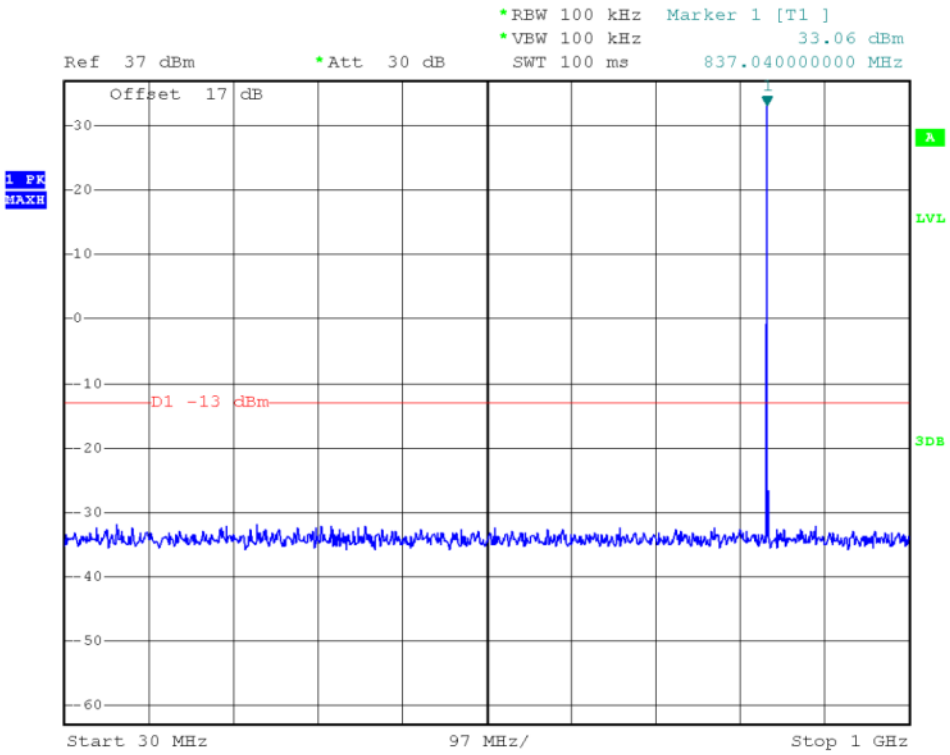
Note: the power of the EUT transmitting frequency should be ignored.



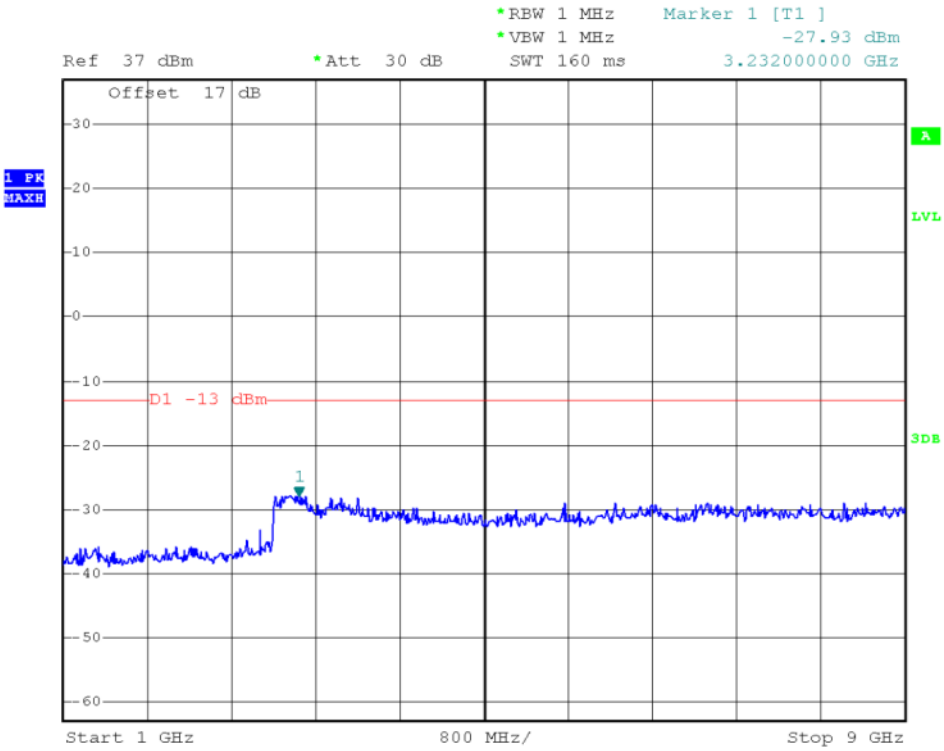
(Plot A1: GSM 850MHz Channel = 128, 30MHz to 1GHz)



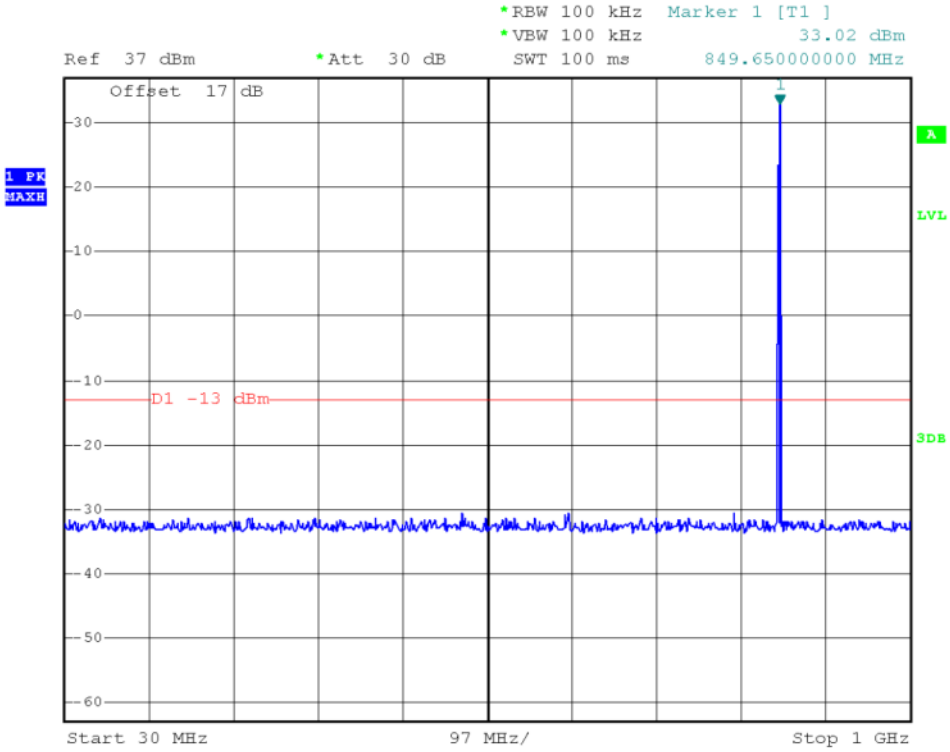
(Plot A1.1: GSM 850MHz Channel = 128, 1GHz to 9GHz)



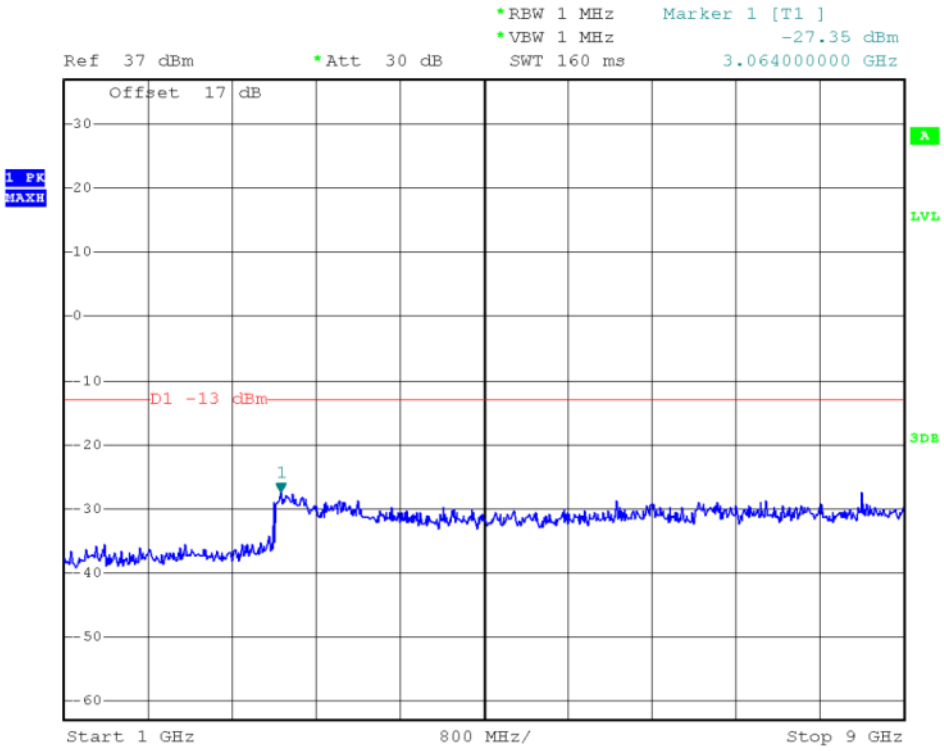
(Plot A2: GSM 850MHz Channel = 190, 30MHz to 1GHz)



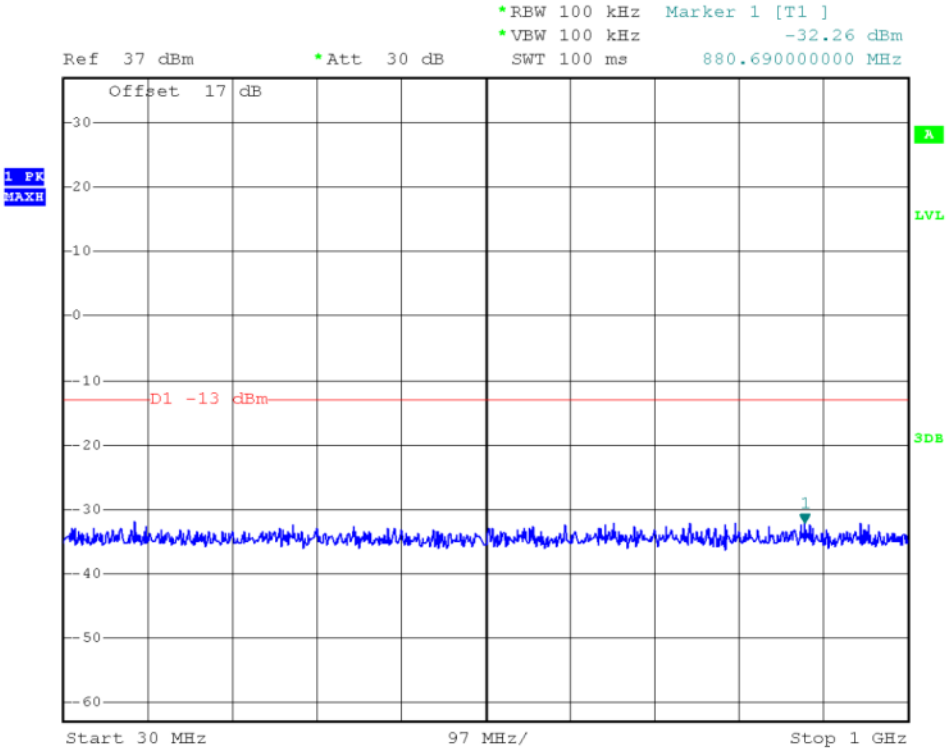
(Plot A2.1: GSM 850MHz Channel = 190, 1GHz to 9GHz)



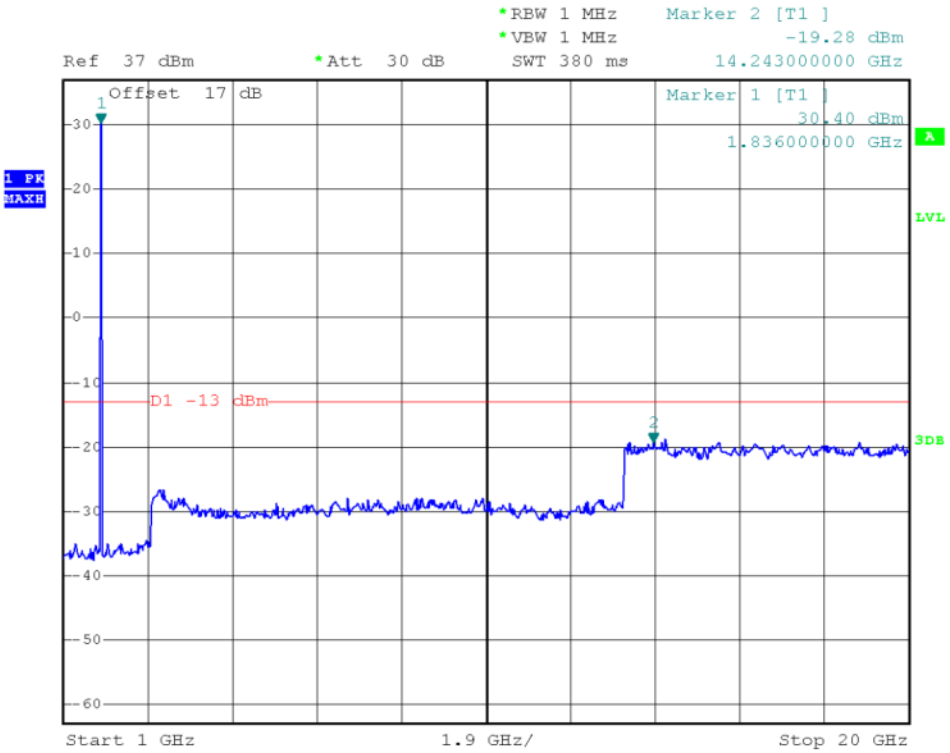
(Plot A3: GSM 850MHz Channel = 251, 30MHz to 1GHz)



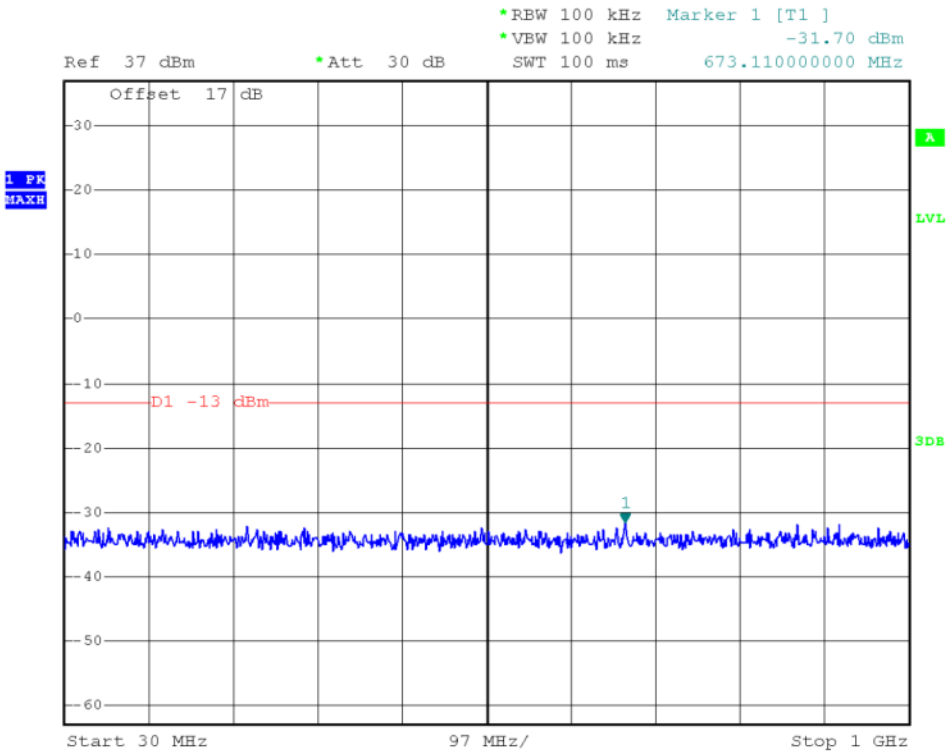
(Plot A3.1: GSM 850MHz Channel = 251, 1GHz to 9GHz)



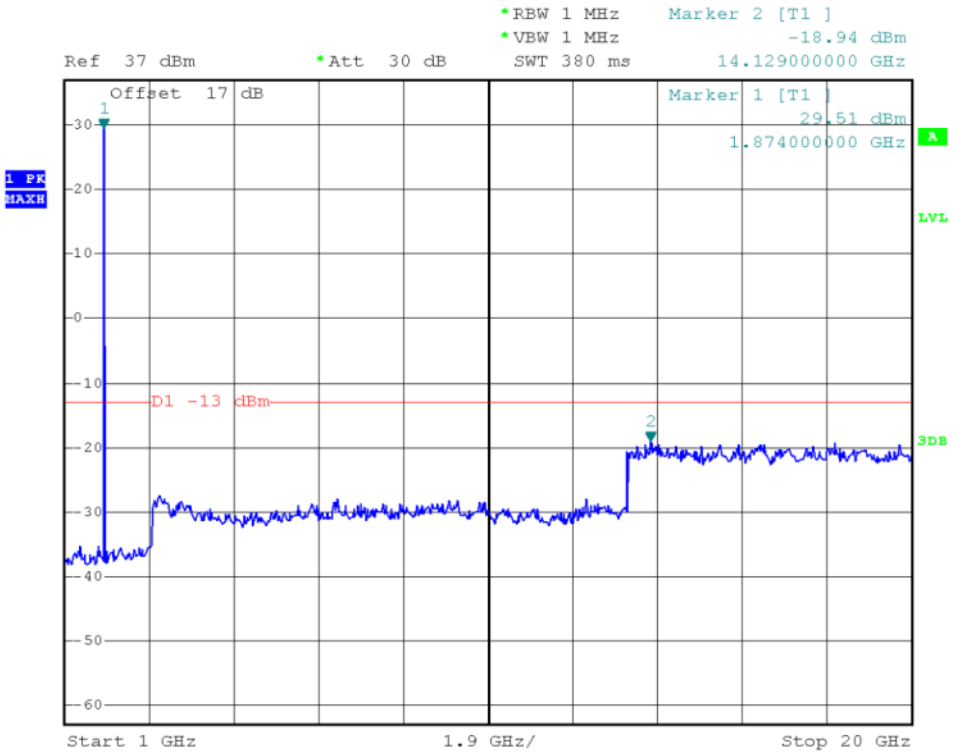
(Plot B1: GSM 1900MHz Channel = 512, 30MHz to 1GHz)



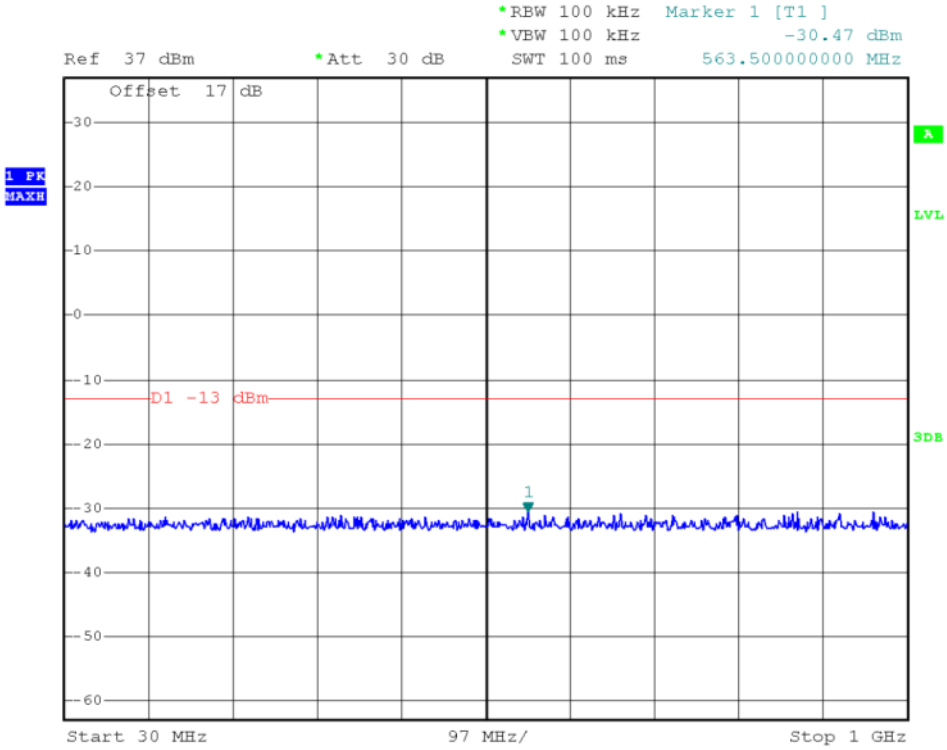
(Plot B1.1: GSM 1900MHz Channel = 512, 1GHz to 20GHz)



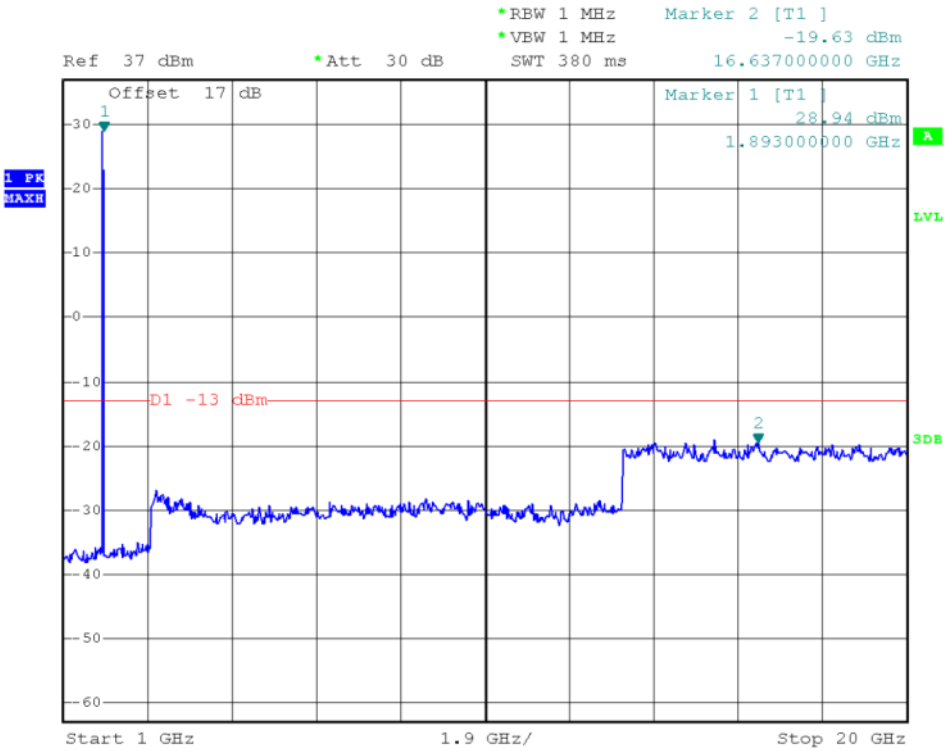
(Plot B2: GSM 1900MHz Channel = 661, 30MHz to 1GHz)



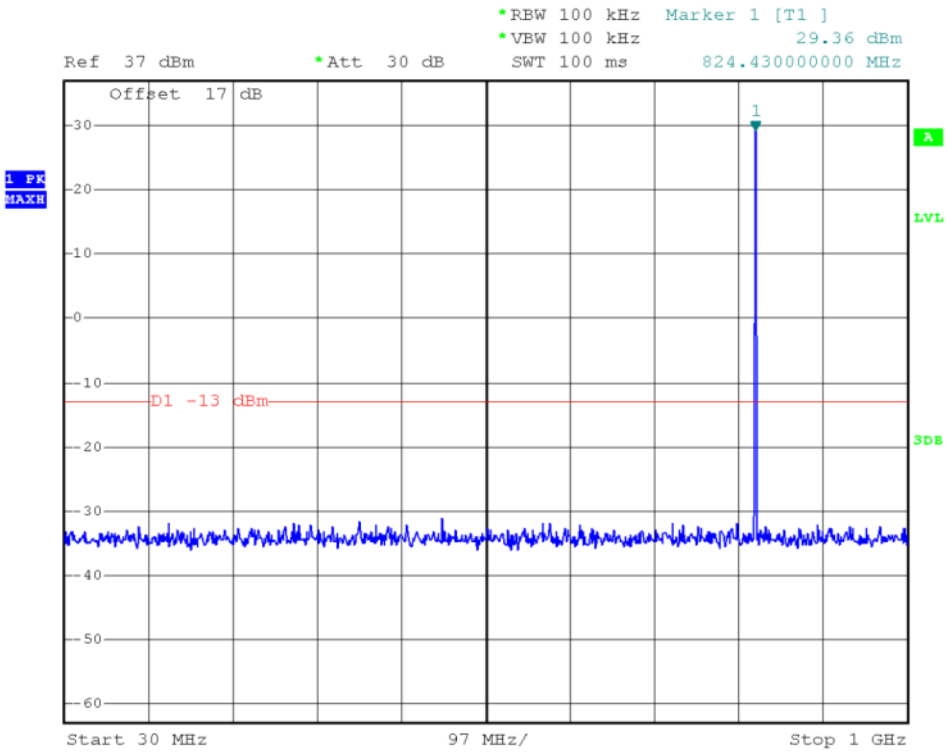
(Plot B2.1: GSM 1900MHz Channel = 661, 1GHz to 20GHz)



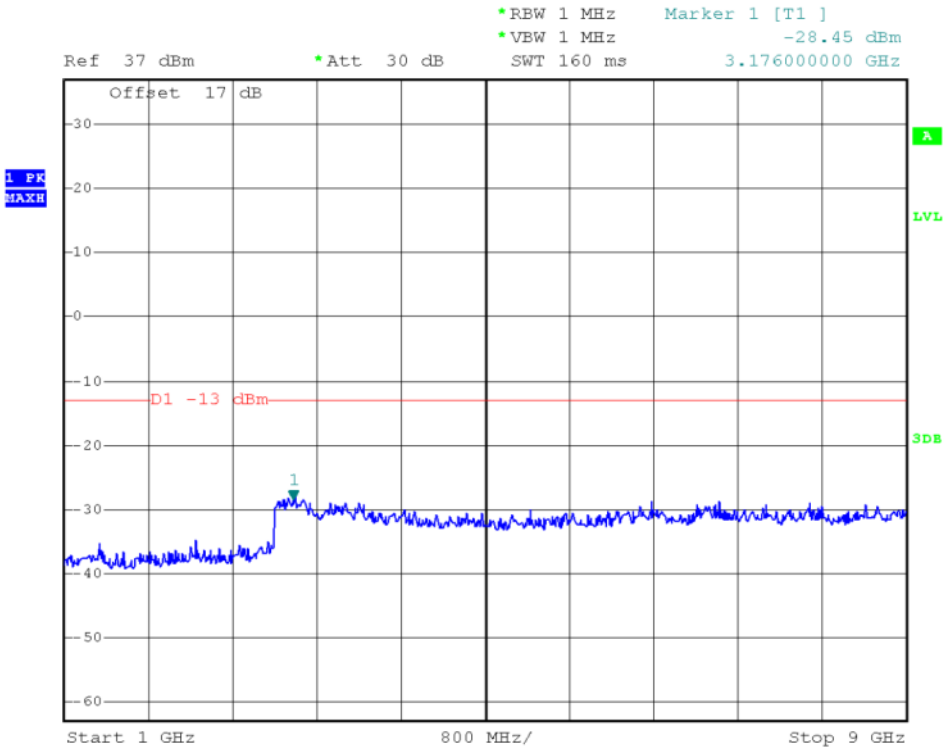
(Plot B3: GSM 1900MHz Channel = 810, 30MHz to 1GHz)



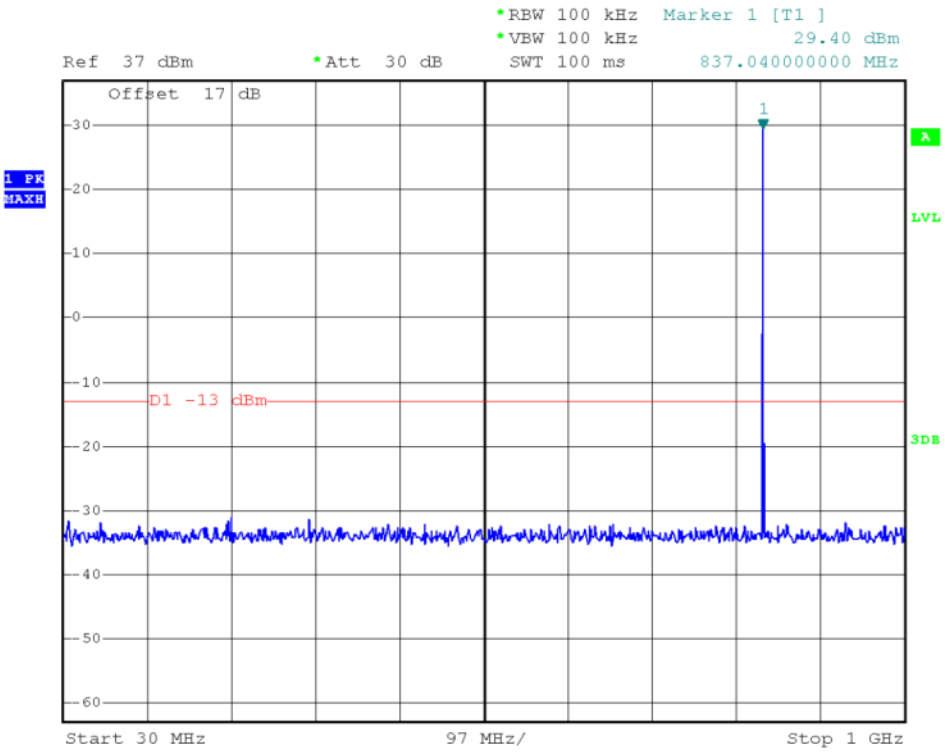
(Plot B3.1: GSM 1900MHz Channel = 810, 1GHz to 20GHz)



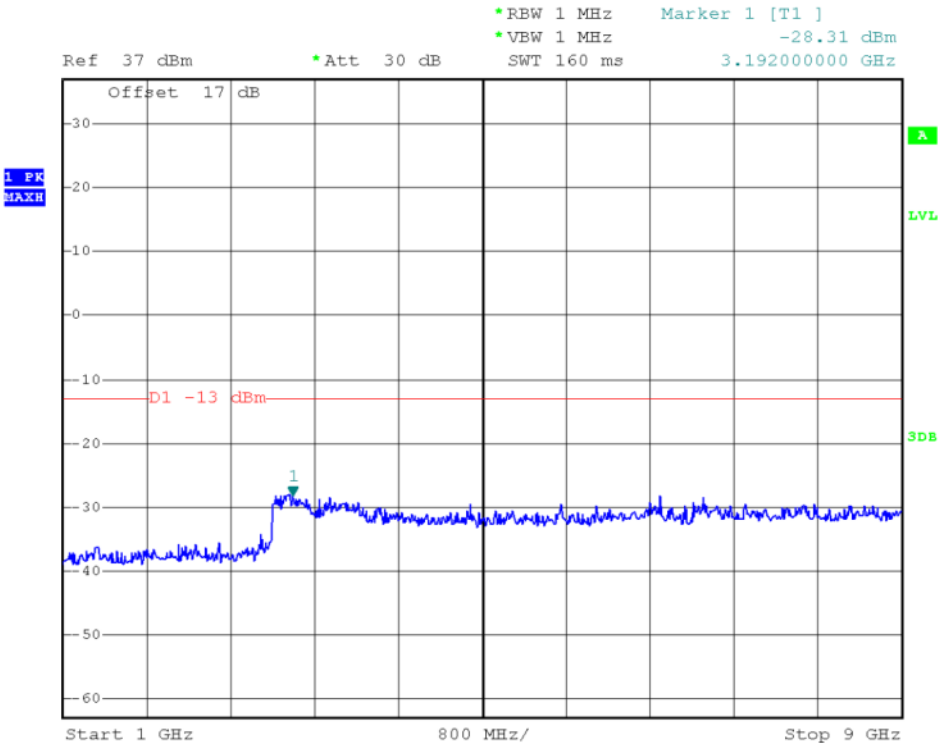
(Plot C1: EDGE 850MHz Channel = 128, 30MHz to 1GHz)



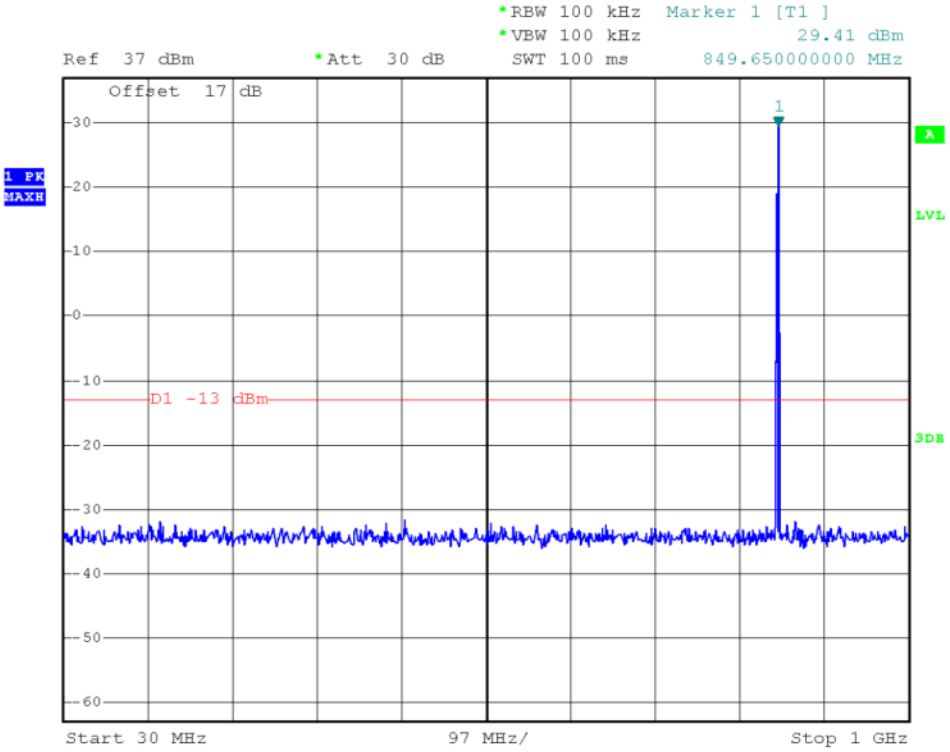
(Plot C1.1: EDGE 850MHz Channel = 128, 1GHz to 9GHz)



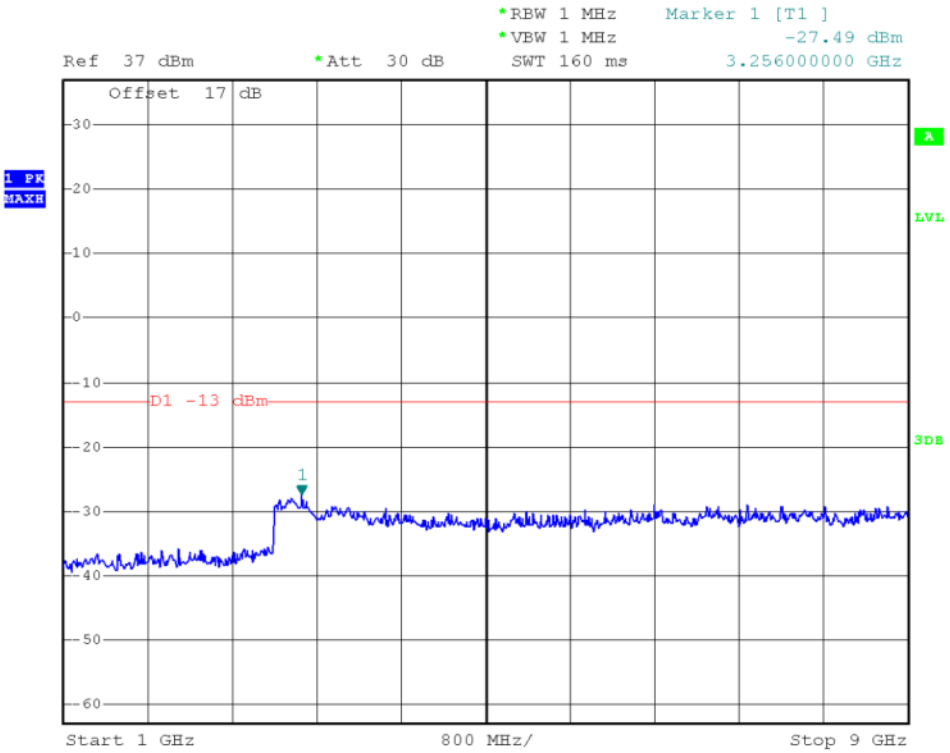
(Plot C2: EDGE 850MHz Channel = 190, 30MHz to 1GHz)



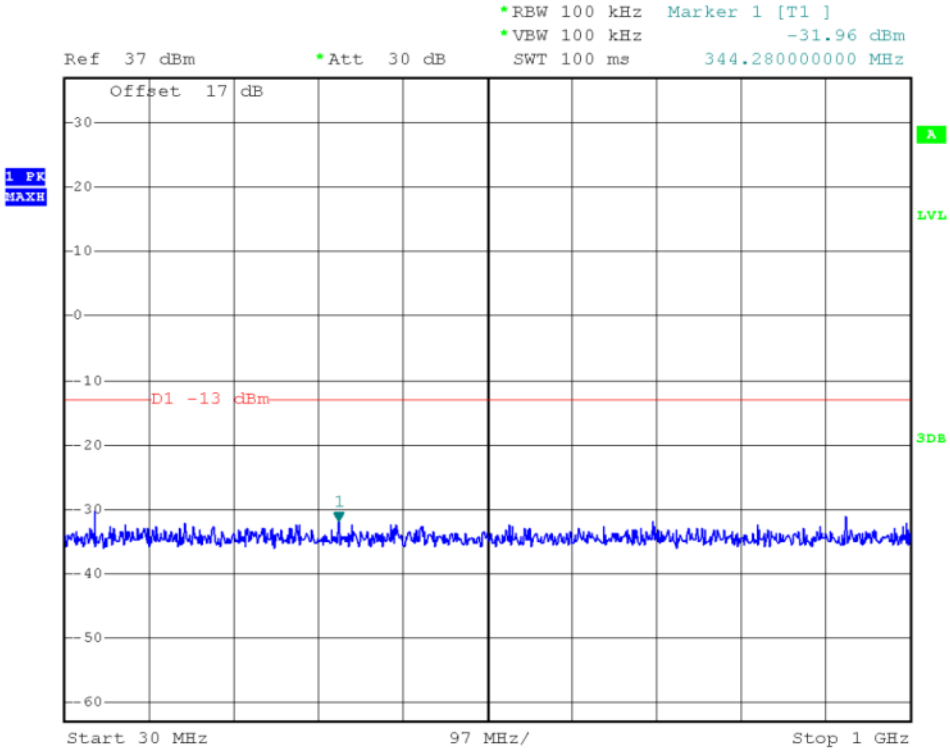
(Plot C2.1: EDGE 850MHz Channel = 190, 1GHz to 9GHz)



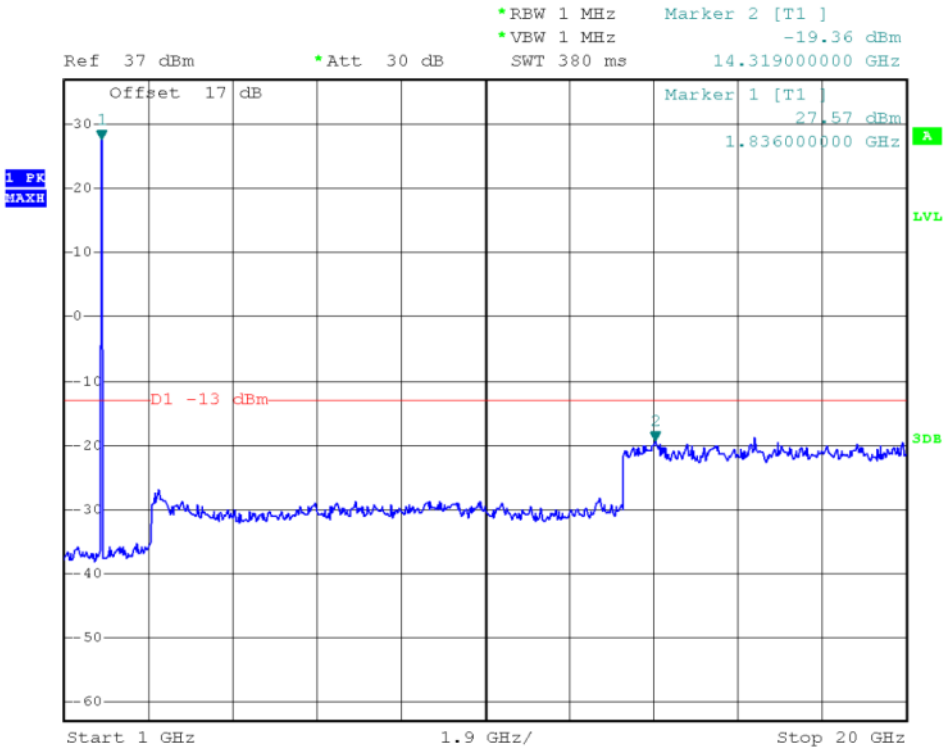
(Plot C3: EDGE 850MHz Channel = 251, 30MHz to 1GHz)



(Plot C3.1: EDGE 850MHz Channel = 251, 1GHz to 9GHz)



(Plot D1: EDGE 1900MHz Channel = 512, 30MHz to 1GHz)



(Plot D1.1: EDGE 1900MHz Channel = 512, 1GHz to 20GHz)