



RF TEST REPORT

Report No.: SET2014-08824

Product: Mobile phone

FCC ID: COYI7

Model No.: innos i7, MN8 Wingtip

Applicant: JSR Limited

Address: Room 8, 12/F, Lucida Industrial Building, No.43-47 Wang Lung
Street, Tsuen Wan, New Territories 999077, Hong Kong.

Issued by: CCIC-SET

Lab Location: Electronic Testing Building, Shahe Road, Xili, Nanshan District,
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Test Report

Product Mobile phone

Brand Name innos

Trade Name..... innos

Applicant..... JSR Limited

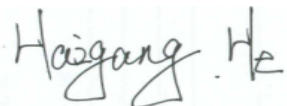
Applicant Address Room 8, 12/F, Lucida Industrial Building, No.43-47 Wang Lung Street, Tsuen Wan, New Territories 999077, Hong Kong.

Manufacturer..... Shenzhen JSR Technology Co., Ltd.

Manufacturer Address 2-3F, E building, Yu Jianfeng science and industry park, Huafan road, Tongheng community, Dalang, Baoan district, Shenzhen city, Guangdong postcode: 518109

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
47 CFR Part 27(10-1-12 Edition) Miscellaneous Wireless Communications Services

Test Result PASS

Tested by 
2014.08.20
Haigang He, Test Engineer

Reviewed by 
2014.08.20
Shuangwen Zhang, Senior Engineer

Approved by..... 
2014.08.20
Wu Li'an, Manager



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Change History		
Issue	Date	Reason for change
1.0	2014-08-20	First edition



1. GENERAL INFORMATION

1.1 EUT Description

EUT Type.....: Mobile phone
Serial No.....: 12344567788990
IMEI No.....: 123456789012345
Hardware Version: V1.0
Software Version: I7A_Nexlink_S_v1.0
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)
WCDMA 1700MHz
Tx: 1712.4 - 1752.6MHz (at intervals of 200kHz);
Rx: 2112.4 - 2152.6MHz (at intervals of 200kHz)
WCDMA 1900MHz
Tx: 1852.4 - 1907.6MHz (at intervals of 200kHz);
Rx: 1932.4 - 1987.6MHz (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
HSUPA Mode with QPSK Modulation
HSPA+ Mode with QPSK Modulation
Multislot Class.....: GPRS: Multislot Class12,EGPRS: Multislot Class12
Antenna Type.....: FIFA Antenna
Emission Designators: GSM 850:248KGXW,GSM 1900:244KGXW
GPRS 850:248KGXW;GRPS 1900:248KGXW
EDGE 850: 248KG7W;EDGE 1900:248KG7W
WCDMA 850:4M18F9W, WCDMA1700:4M18F9W
WCDMA1900:4M20F9W
HSDPA 850: 4M18F9W; HSDPA1700: 4M18F9W
HSDPA1900: 4M20F9W
HSUPA 850: 4M18F9W; HSUPA 1700: 4M18F9W
HSUPA 1900: 4M18F9W

HSPA+850: 4M20F9W, HSPA+1700: 4M18F9W

HSPA+1900: 4M20F9W

- Note 1:* The transmitter (Tx) frequency arrangement of the Cellular 850MHz band used by the EUT can be represented with the formula $F(n)=824.2+0.2*(n-128)$, $128 \leq n \leq 251$; 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 $F(n)=1850.2+0.2*(n-512)$, $512 \leq n \leq 810$; 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 $F(n)=826.4+0.2*(n-4132)$, $4132 \leq n \leq 4233$; 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:* The transmitter (Tx) frequency arrangement of the WCDMA 1700MHz band used by the EUT can be represented with the formula $F(n)=1712.4+0.2*(n-1312)$, $1312 \leq n \leq 1513$; the lowest, middle and highest channel numbers (ARFCHs) used and tested in this report are separately 1312 (1712.4MHz), 1412 (1732.4MHz) and 1513 (1752.6MHz).
- Note 5:* The transmitter (Tx) frequency arrangement of the WCDMA 1900MHz band used by the EUT can be represented with the formula $F(n)=1852.4+0.2*(n-9262)$, $9262 \leq n \leq 9538$; the lowest, middle and highest channel numbers (ARFCHs) used and tested in this report are separately 9262 (1852.4MHz), 9400 (1880MHz) and 9538 (1907.6MHz).
- Note 6:* For a more detailed description, please refer to Specification or User's Manual supplied by the applicant and/or manufacturer
- Note 7:* The EUT has two models (innos i7 & MN8 Wingtip). They have the same size, appearance and internal structure.

1.2 Test Standards and Results

The objective of the report is to perform testing according to 47 CFR Part 2, Part 22, Part 24 and part27 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
4	47 CFR Part 27 (10-1-12 Edition)	Miscellaneous Wireless 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 (°C):	15°C - 35°C
Relative Humidity (%):	30% -60%
Atmospheric Pressure (kPa):	86KPa-106KPa

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

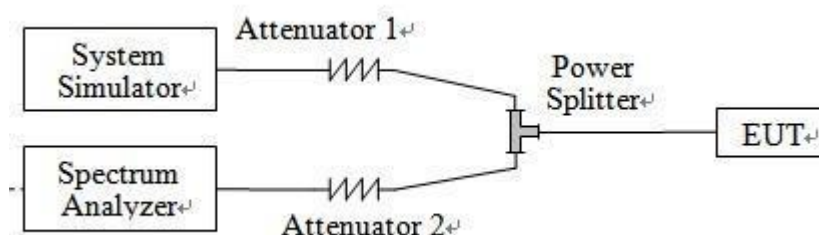
2.1 Conducted RF Output Power

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.Date	Cal.Due Date
System Simulator	Agilent	E5515C	MY4751054 7	2014.06.11	2015.06.10
Spectrum Analyzer	R&S	FSP40	MY4510810	2014.07.07	2015.07.06
Power Meter	R&S	NRV2	1020.1809.02	2014.06.08	2015.06.07
Power Sensor	R&S	NRV-Z4	823.3618.03	2014.06.08	2015.06.07
Attenuator 1	MCE	10dB	BN3693	2014.06.11	2015.06.10

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	31.98	Plot A1 to A3	PASS
	190	836.6	32.16		PASS
	251	848.8	32.24		PASS
GSM 1900MHz	512	1850.2	29.84	Plot B1 to B3	PASS
	661	1880.0	30.17		PASS
	810	1909.8	30.35		PASS
GPRS 850MHz	128	824.2	32.19	Plot C1 to C3 ^{Note 1}	PASS
	190	836.6	32.36		PASS
	251	848.8	32.50		PASS
GPRS 1900MHz	512	1850.2	29.55	Plot D1 to D3 ^{Note 1}	PASS
	661	1880.0	29.69		PASS
	810	1909.8	30.01		PASS
EGPRS 850MHz	128	824.2	31.41	Plot E1 to E3 ^{Note 1}	PASS
	190	836.6	31.87		PASS
	251	848.8	31.84		PASS
EGPRS 1900MHz	512	1850.2	29.46	Plot F1 to F3 ^{Note 1}	PASS
	661	1880.0	29.66		PASS
	810	1909.8	29.81		PASS

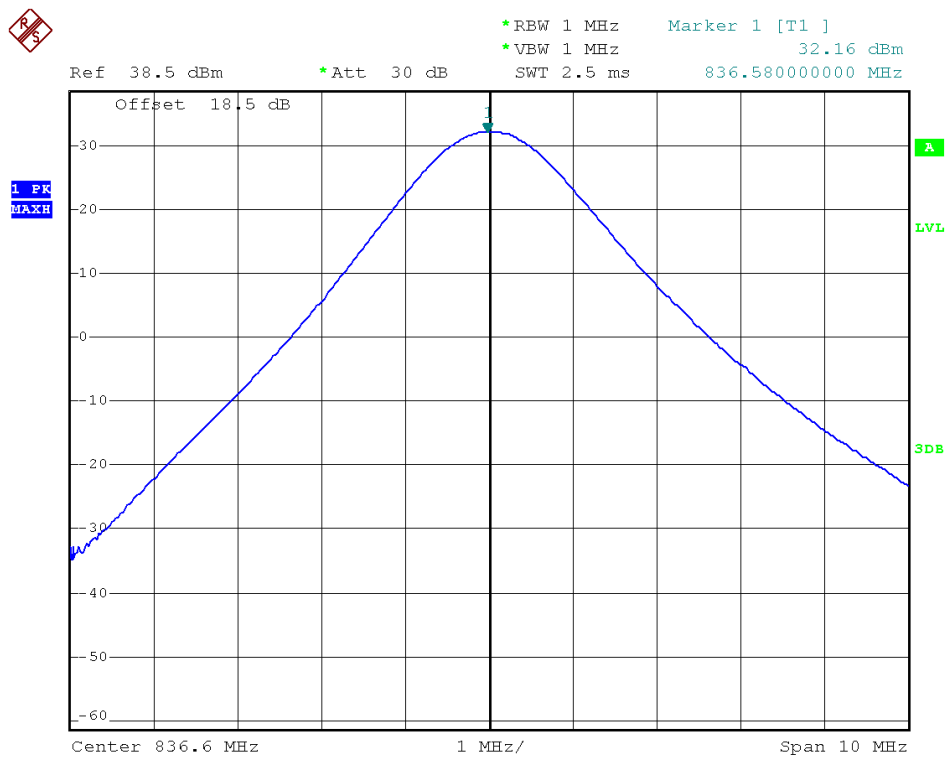
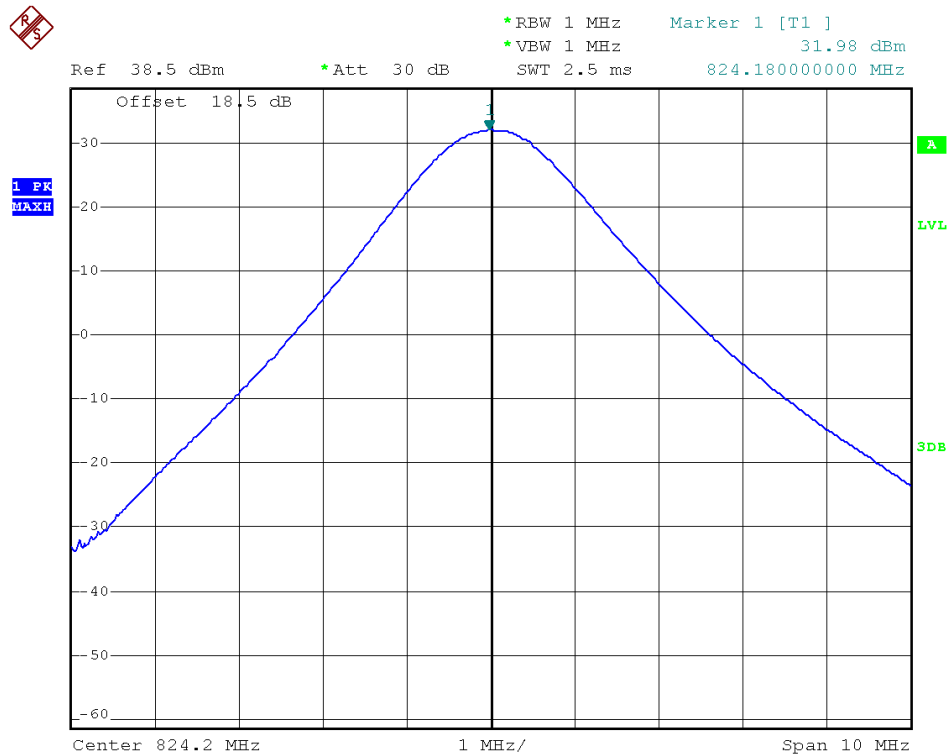
Note 1: For the GPRS and EGPRS model, all the slots were tested and just the worst data was record in this report.

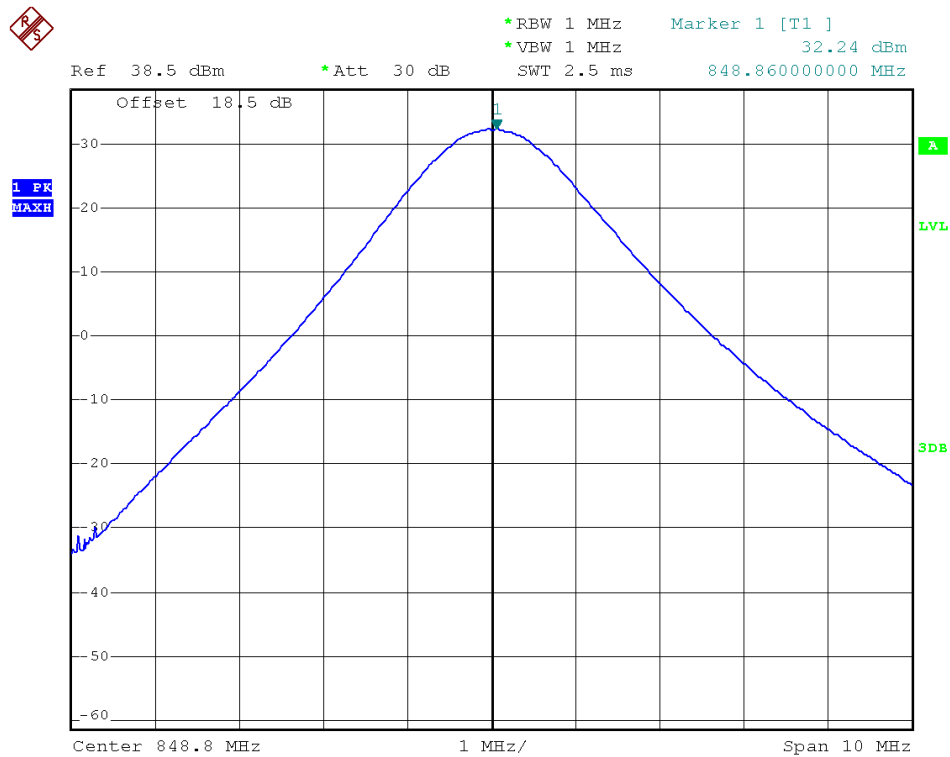
2. WCDMA Model Test Verdict:

Item	band	WCDMA 850			WCDMA 1900		
	ARFCN	4132	4183	4233	9262	9400	9538
	subtest	dBm			dBm		
5.2(WCDMA)	non	22.54	22.36	22.51	22.23	22.26	22.29
HSDPA	1	22.41	22.08	22.18	22.18	22.08	22.08
	2	22.19	22.01	22.09	22.07	22.01	22.00
	3	21.68	21.91	21.78	21.85	21.89	21.95
	4	21.79	21.54	21.61	21.77	21.94	21.83
HSUPA	1	22.04	22.07	22.17	22.14	22.07	21.97
	2	21.99	22.14	22.21	22.03	21.89	21.74
	3	21.86	22.09	22.08	22.17	22.01	22.08
	4	22.05	22.04	22.33	21.99	21.51	21.74
	5	22.23	22.16	22.11	22.05	22.25	22.08
HSPA+	1	22.23	22.18	22.25	22.01	22.05	22.07
Note:	The Conducted RF Output Power test of WCDMA /HSDPA /HSUPA/HSPA+ was tested by power meter.						

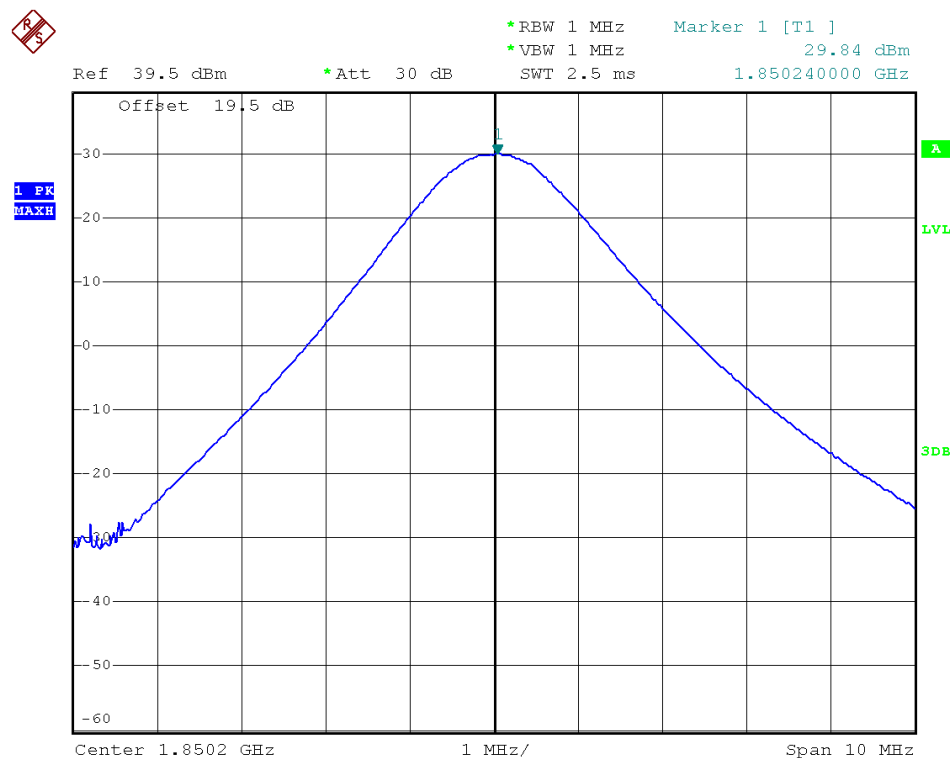
Item	band	WCDMA 1700		
	ARFCN	4132	4175	4233
	subtest	dBm		
5.2(WCDMA)	non	22.41	22.54	22.39
HSDPA	1	22.25	22.14	22.24
	2	22.11	22.05	22.08
	3	21.89	21.89	21.97
	4	21.79	21.91	21.80
HSUPA	1	22.14	22.07	21.91
	2	22.23	21.82	21.79
	3	22.17	22.15	22.20
	4	21.97	21.81	21.74
	5	22.12	22.12	22.31
HSPA+	1	22.21	22.18	22.28
Note:	The Conducted RF Output Power test of WCDMA /HSDPA /HSUPA/HSPA+ was tested by power meter.			

3. GSM Model Test Plots:

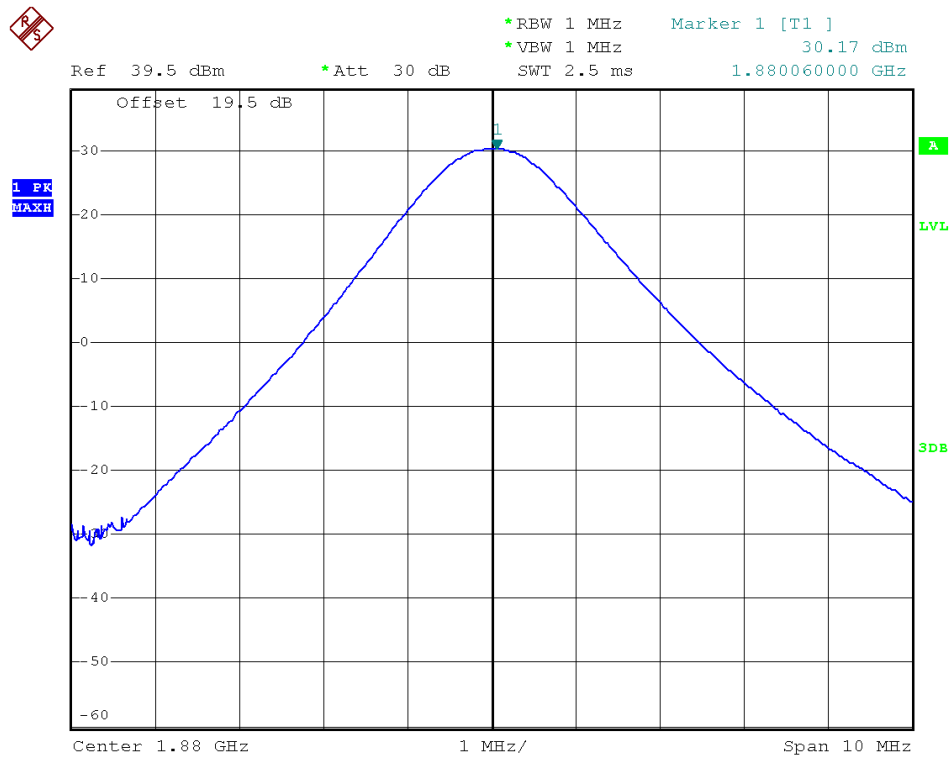




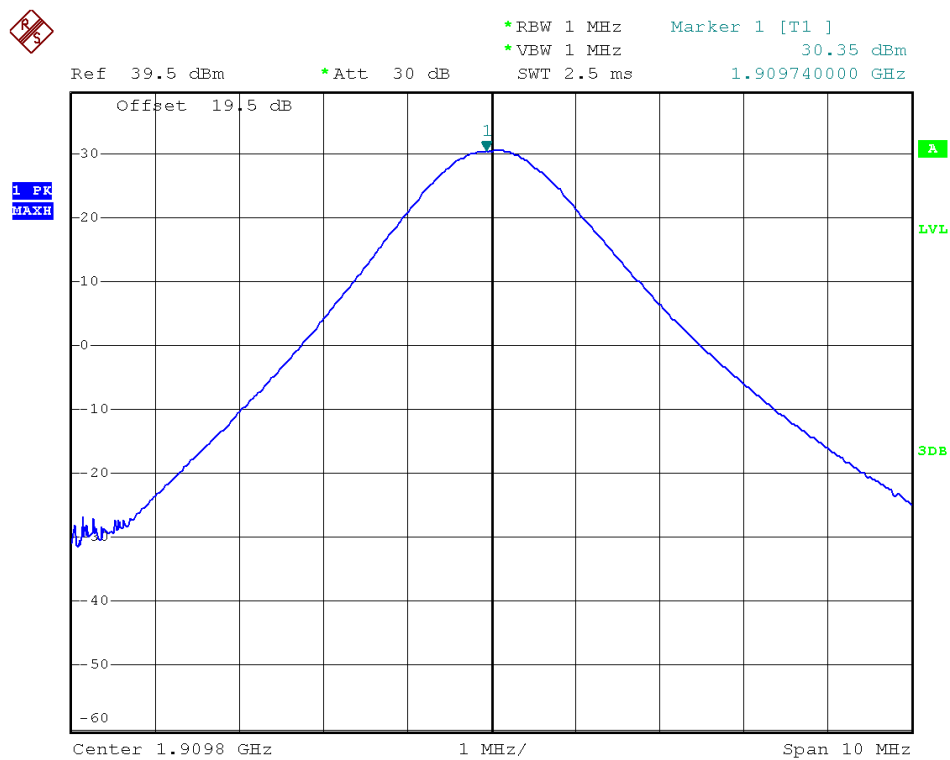
(Plot A3: GSM 850MHz Channel = 251)



(Plot B1: GSM 1900MHz Channel = 512)

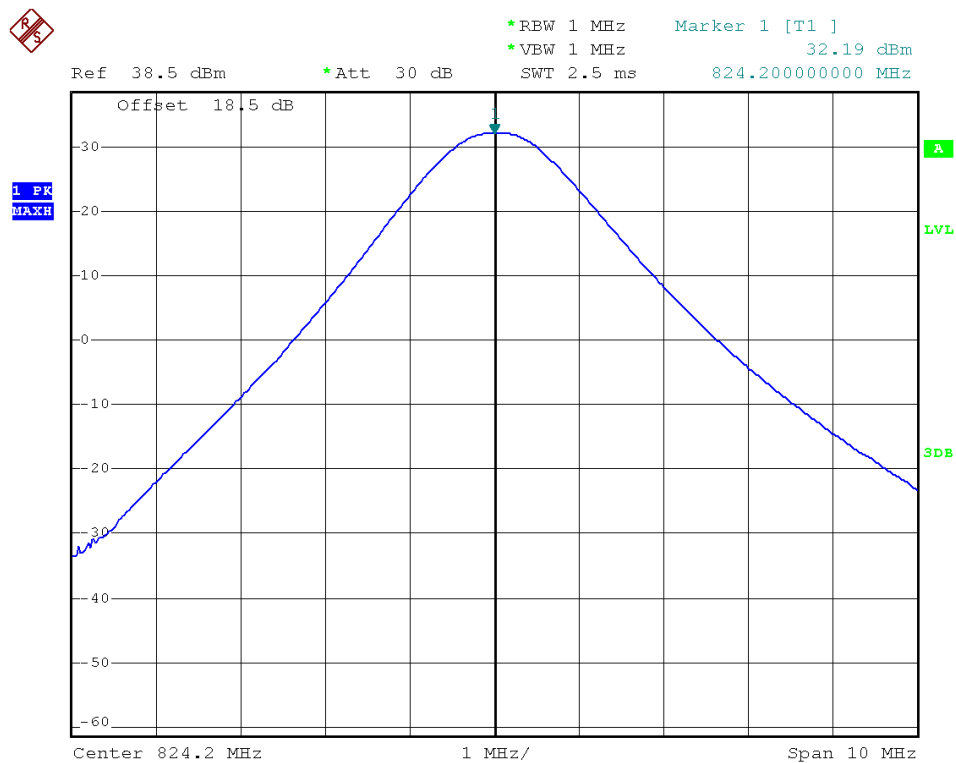


(Plot B2: GSM 1900MHz Channel = 661)

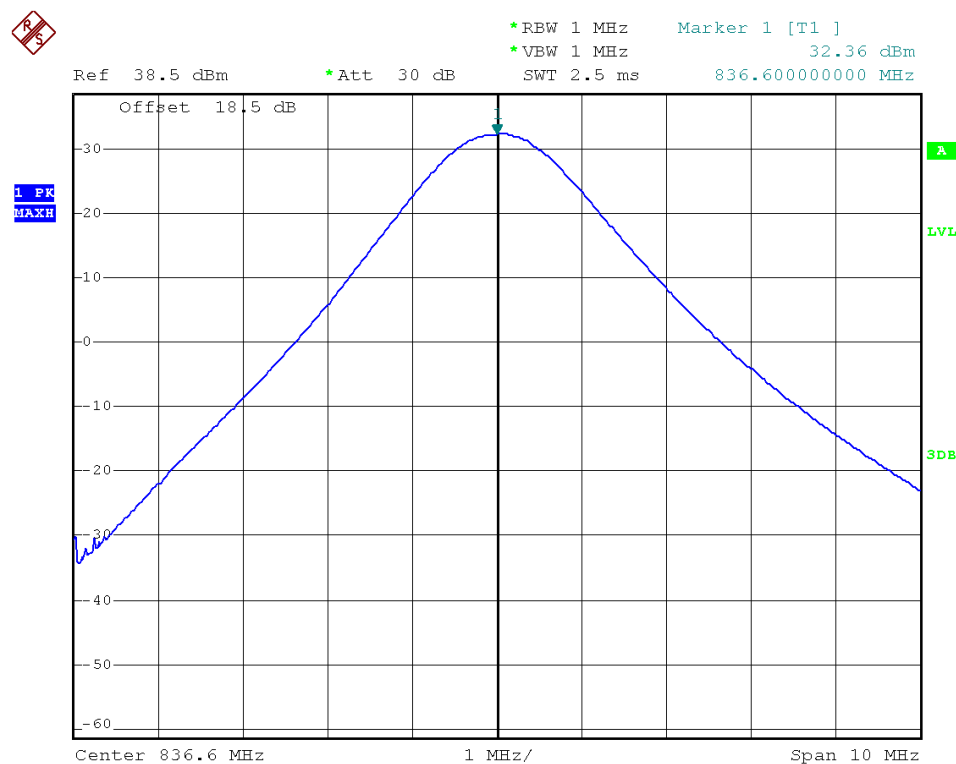


(Plot B3: GSM 1900MHz Channel = 810)

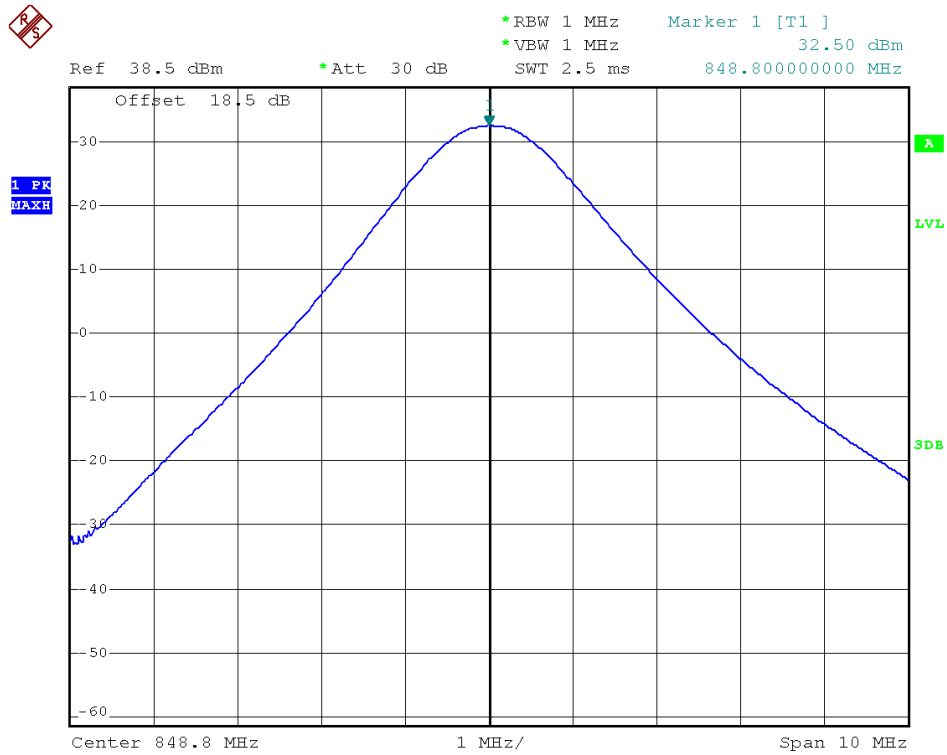
4. GPRS Model Test Plots:



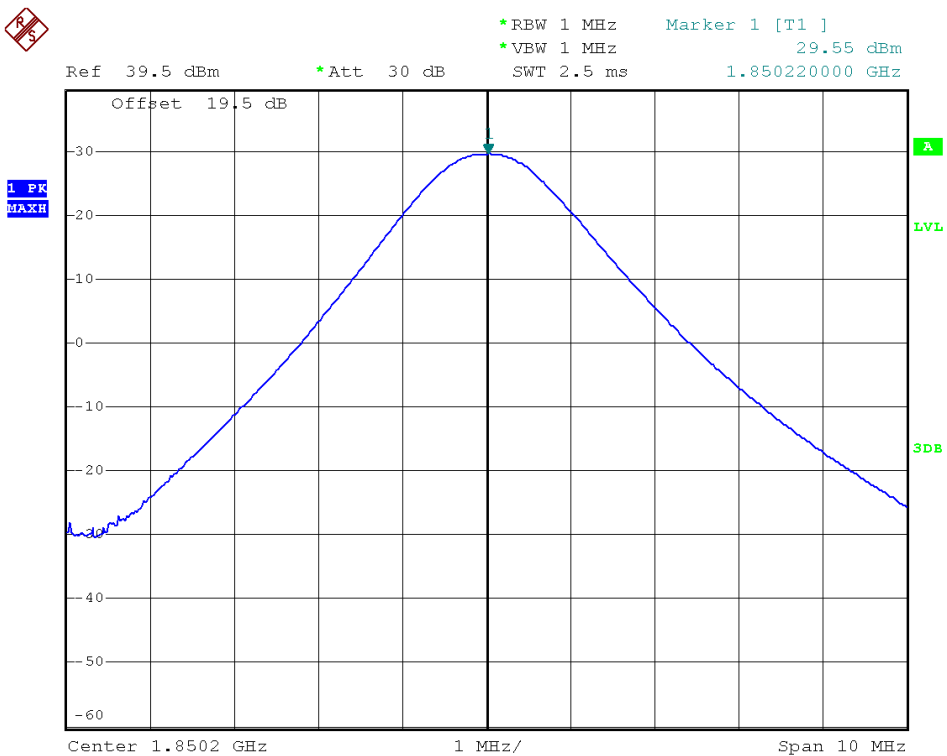
(Plot C1: GPRS 850MHz Channel = 128)



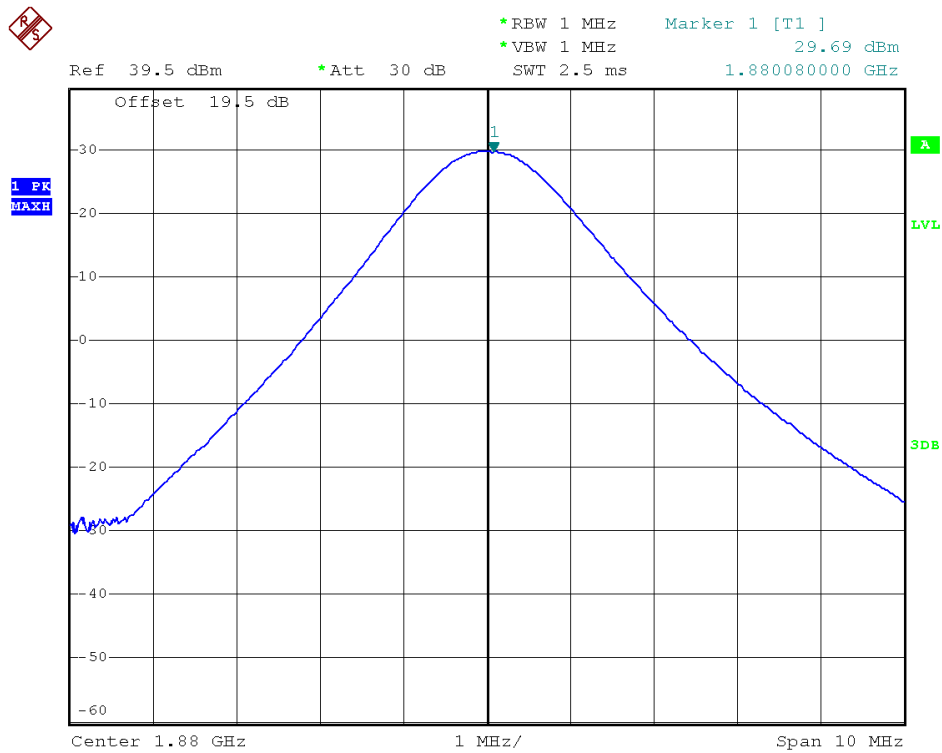
(Plot C2: GPRS 850MHz Channel = 190)



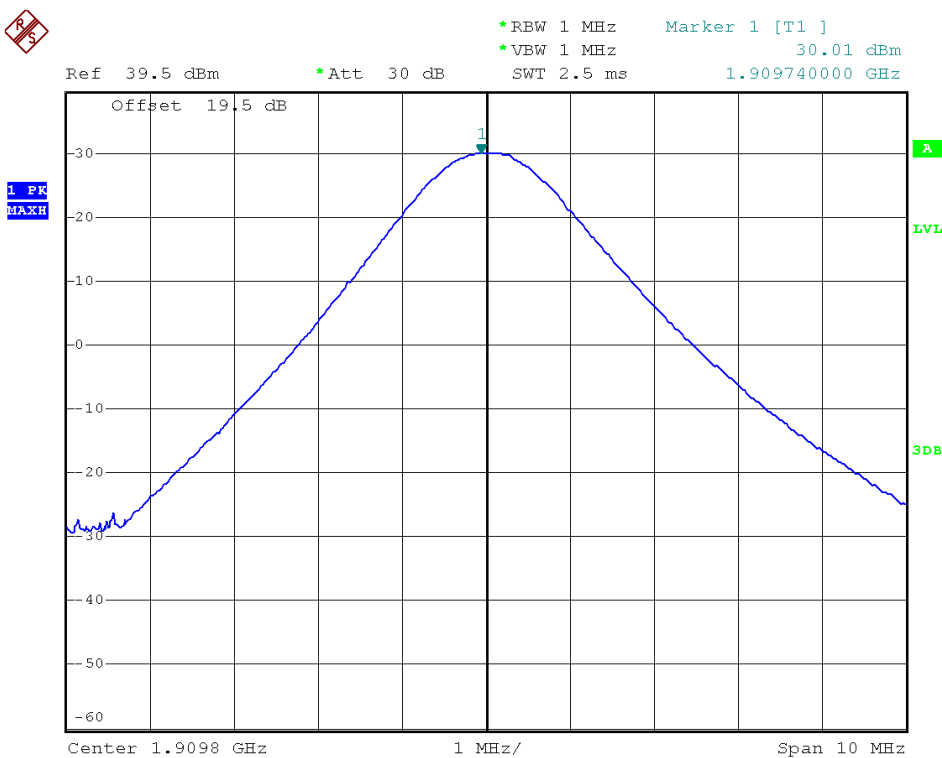
(Plot C3: GPRS 850MHz Channel = 251)



(Plot D1: GPRS 1900MHz Channel = 512)

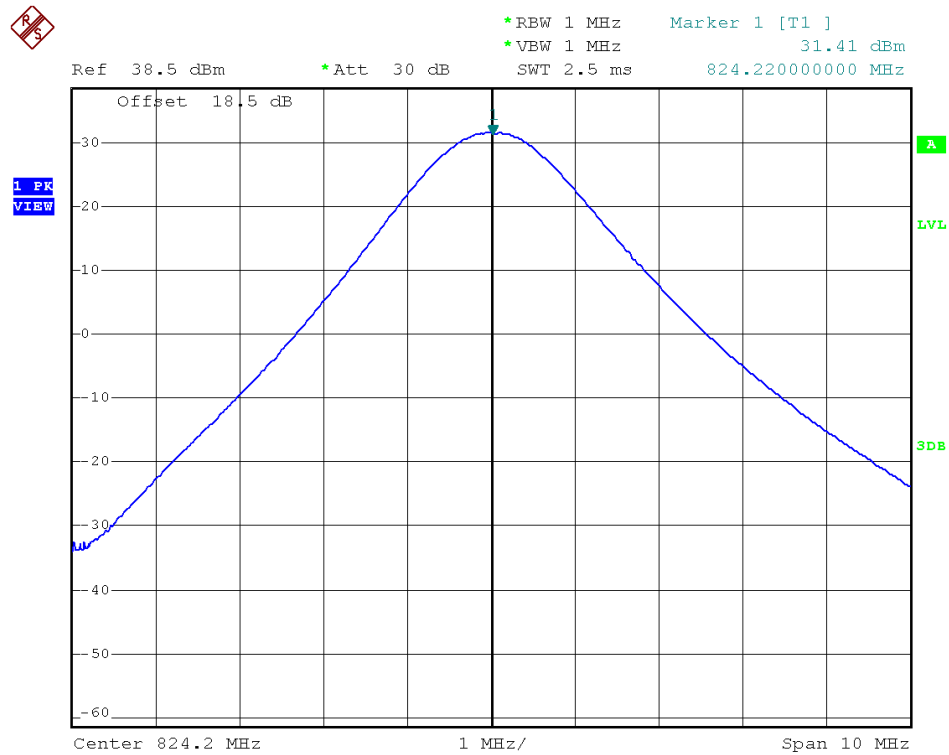


(Plot D2: GPRS 1900MHz Channel = 661)

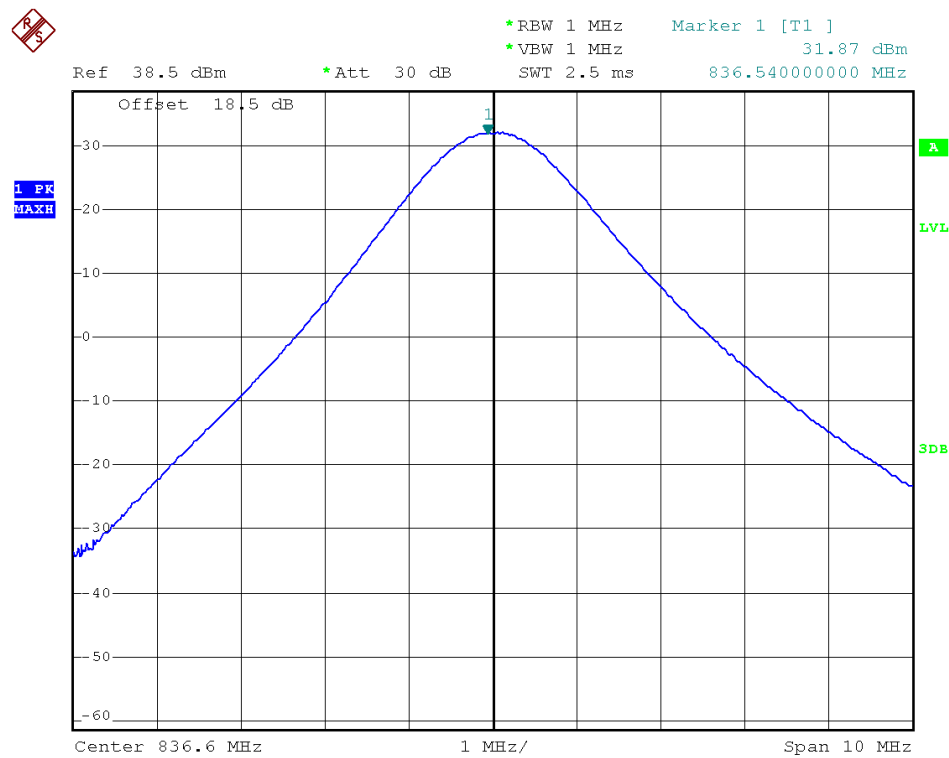


(Plot D3: GPRS 1900Hz Channel = 810)

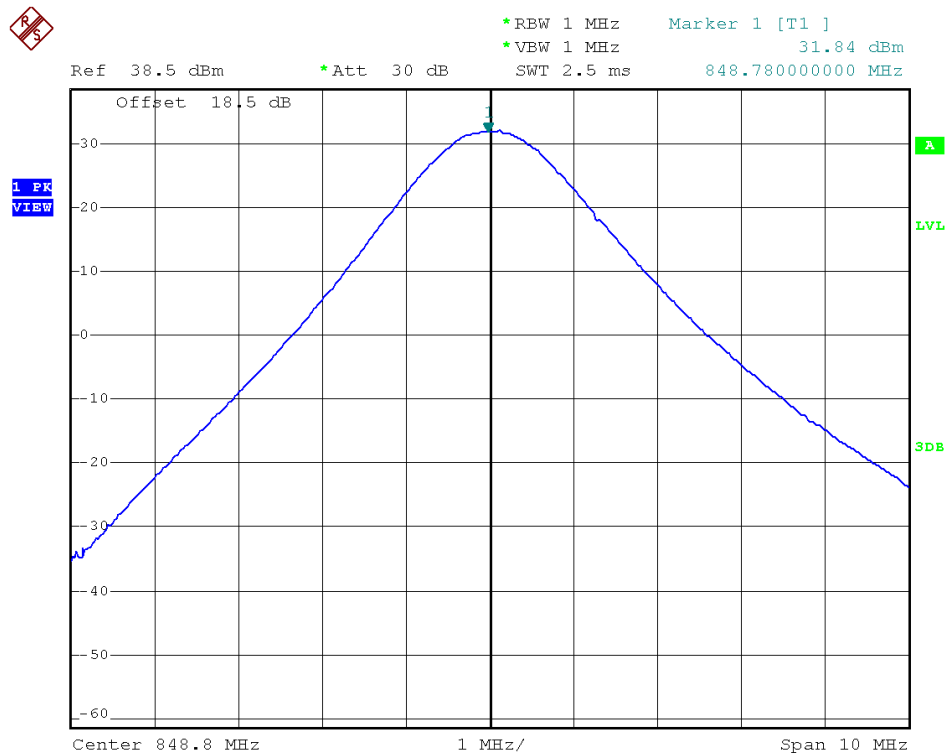
5 .EDGE Model Test Plots:



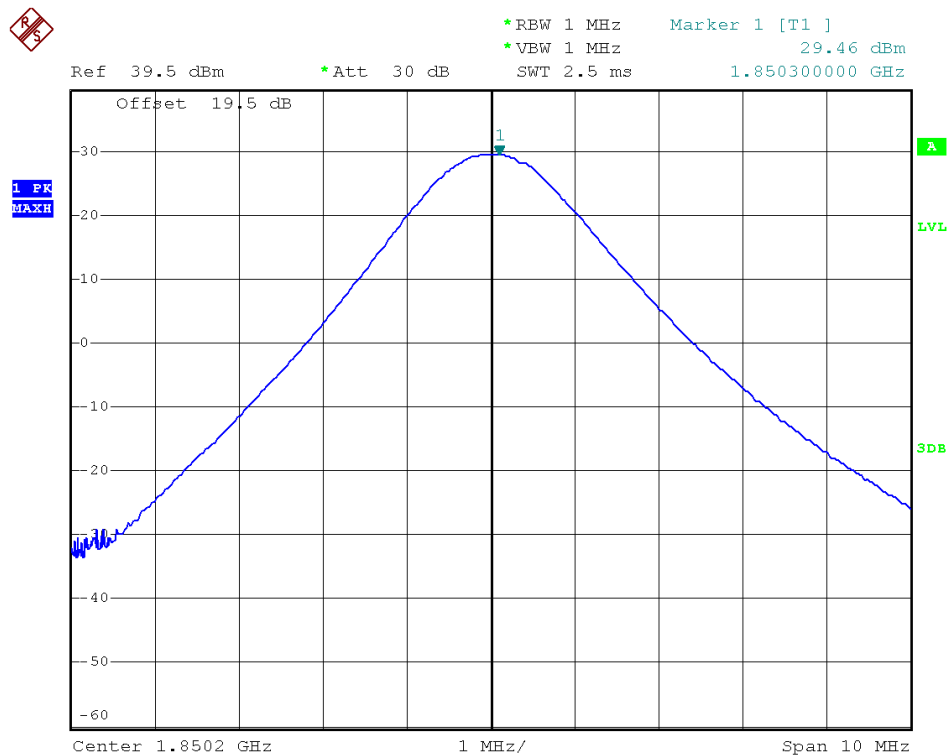
(Plot E1: EDGE 850MHz Channel = 128)



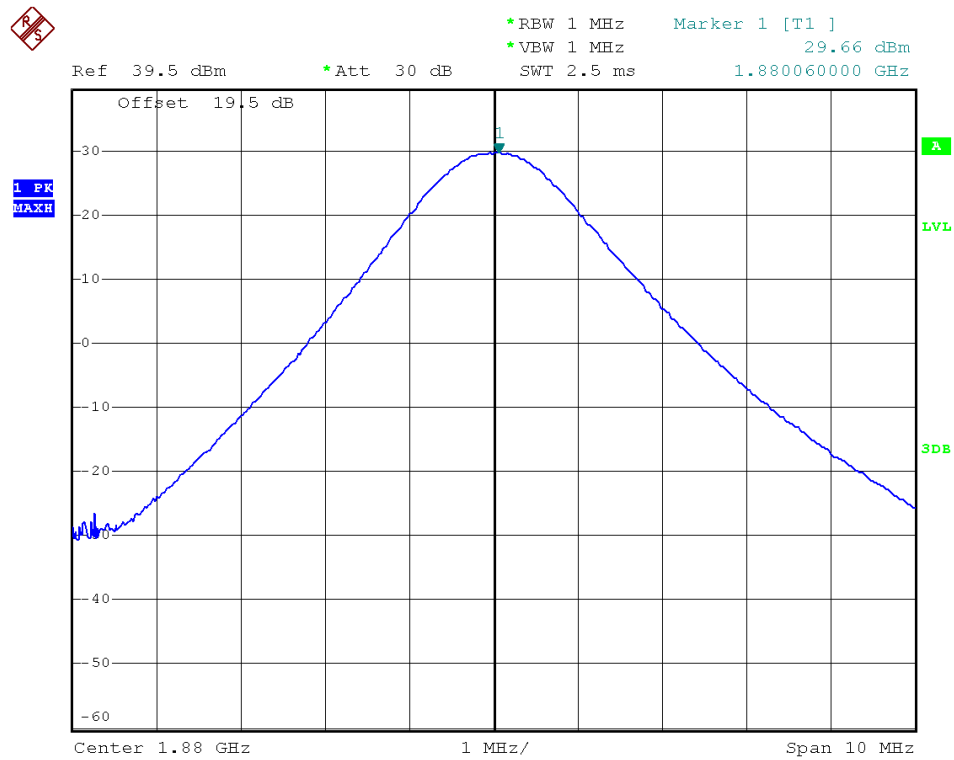
(Plot E2: EDGE 850MHz Channel = 190)



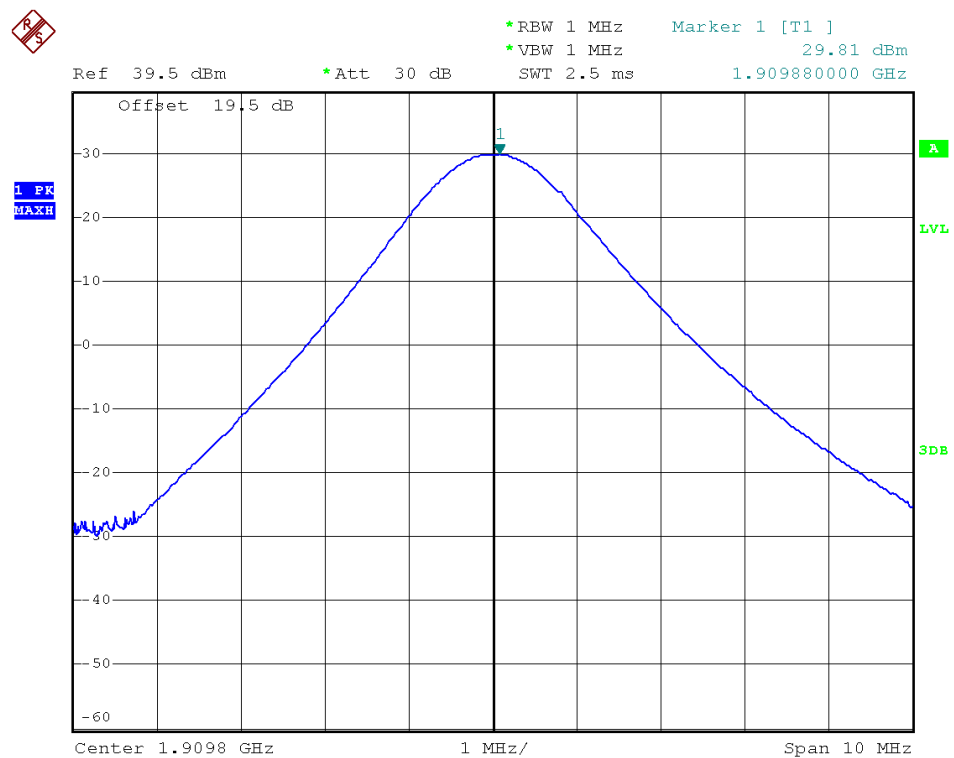
(Plot E3: EDGE 850MHz Channel = 251)



(Plot F1: EDGE 1900MHz Channel = 512)



(Plot F2: EDGE 1900MHz Channel = 661)



(Plot F3: EDGE 1900MHz Channel = 810)

2.2 Peak to Average Ratio

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:

- Set RBW=1MHz, VBW=3MHz, peak detector in spectrum analyzer.
- Set EUT in maximum output power, and triggered the bust signal.
- Measured respectively the peak level and mean level, and the deviation was recorded as Peak to Average radio.

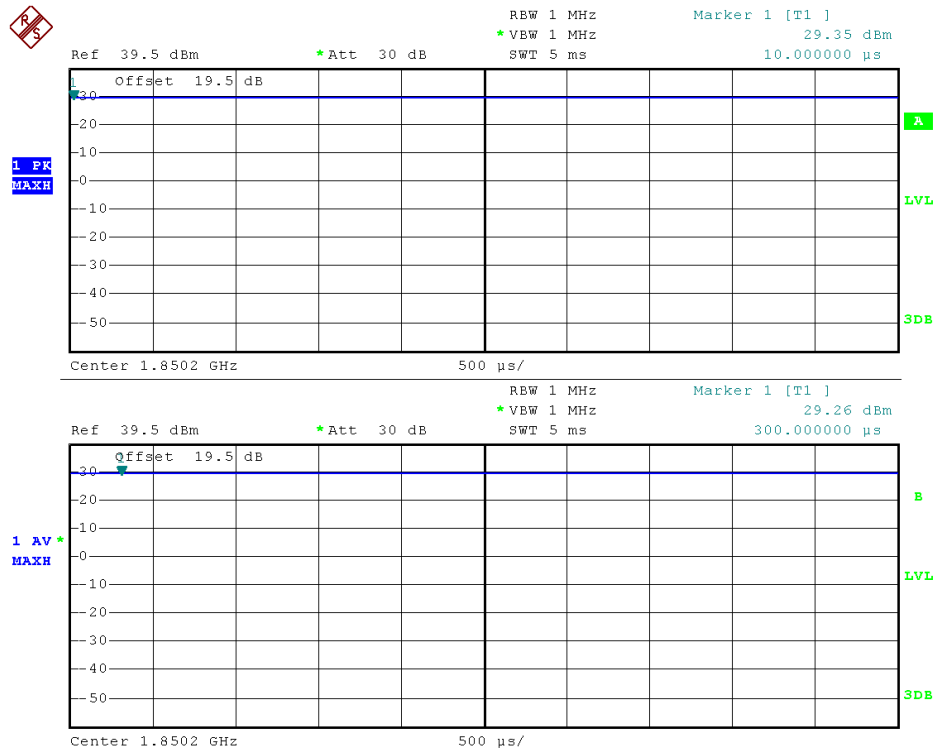
B. For UMTS operating mode:

- Set the CCDF (Complementary Cumulative Distribution Function) option in spectrum analyzer.
- The highest RF powers were measured and recorded the maximum PAPR level associated with a probability of 0.1%.

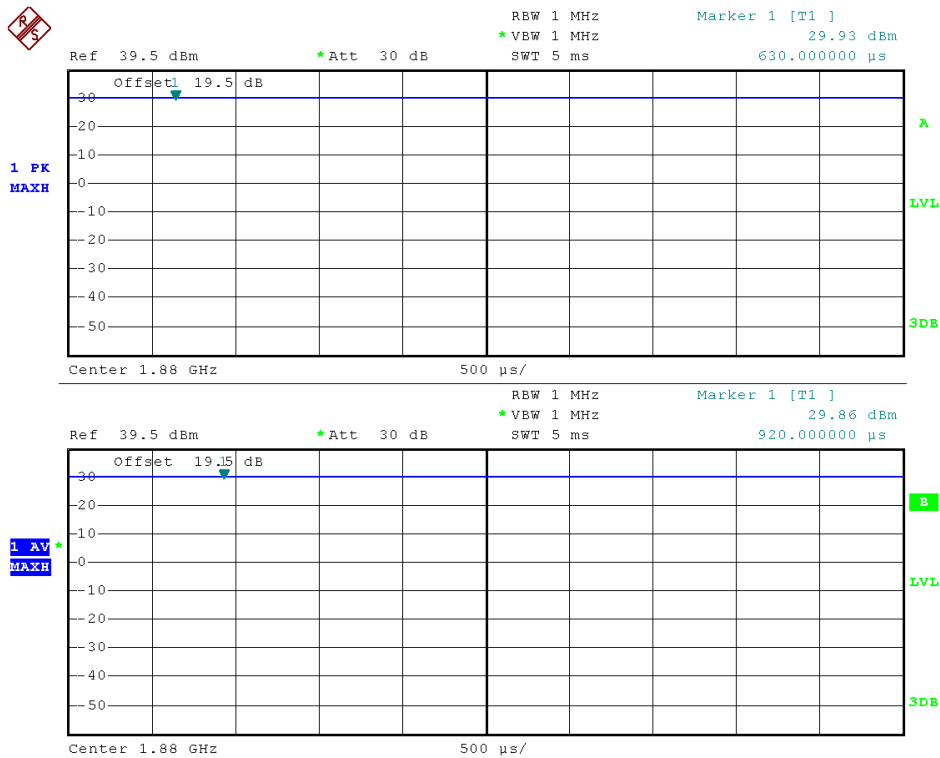
1. Test Verdict:

Band	Channel	Frequency (MHz)	Peak to Average radio		Limit dBm	Verdict
			dBm	Refer to Plot		
GSM 1900MHz	512	1850.2	0.09	Plot A1 to A3	13	PASS
	661	1880.0	0.07			PASS
	810	1909.8	0.09			PASS
EGPRS 1900MHz	512	1850.2	0.08	Plot B1 to B3	13	PASS
	661	1880.0	0.11			PASS
	810	1909.8	0.08			PASS
WCDMA 1700MHz	1312	1712.4	3.32	Plot C1 to C3	13	PASS
	1412	1732.4	3.20			PASS
	1513	1752.6	3.22			PASS
WCDMA 1900MHz	9262	1852.4	3.52	Plot D1 to D3	13	PASS
	9400	1880.0	3.20			PASS
	9538	1907.6	3.20			PASS

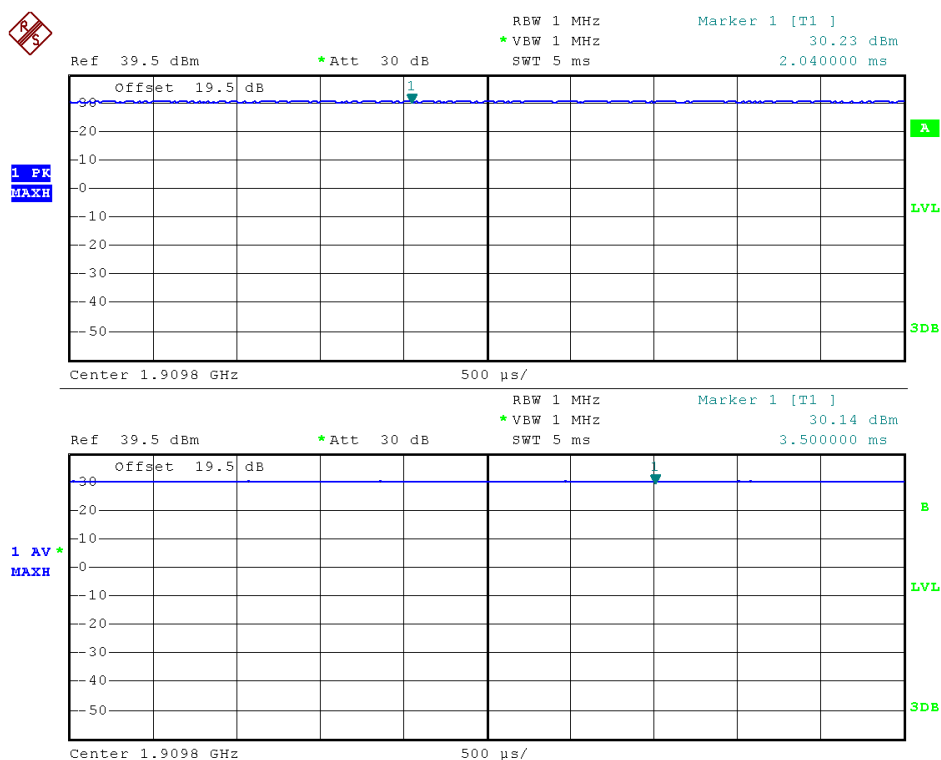
2. GSM Model Test Plots:

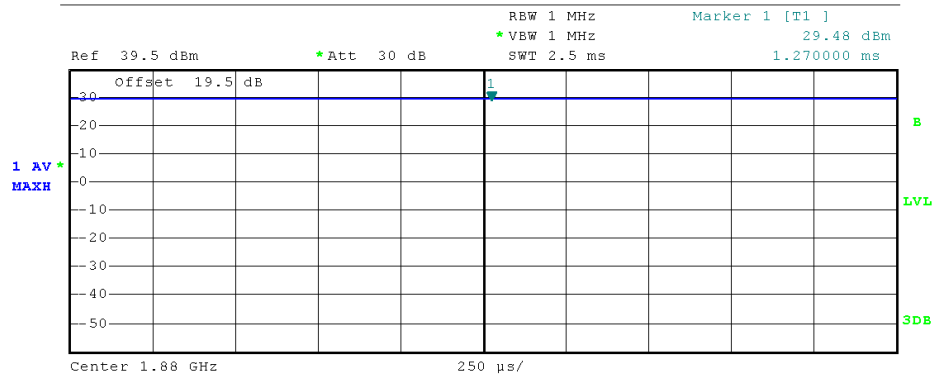
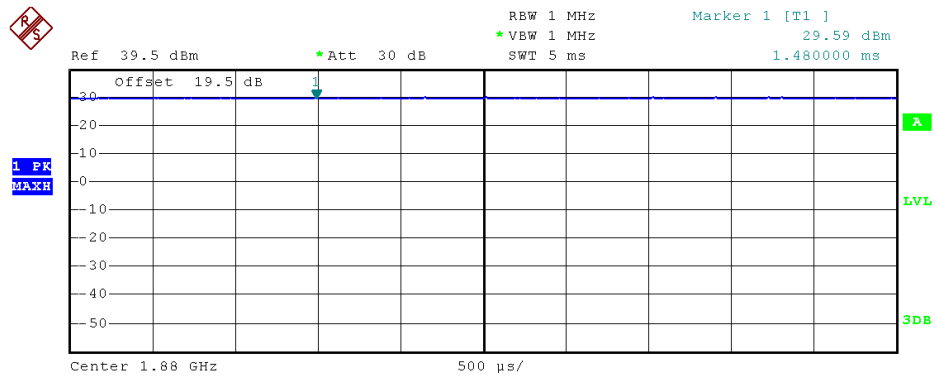


(Plot A1: GSM 1900 MHz Channel = 512)

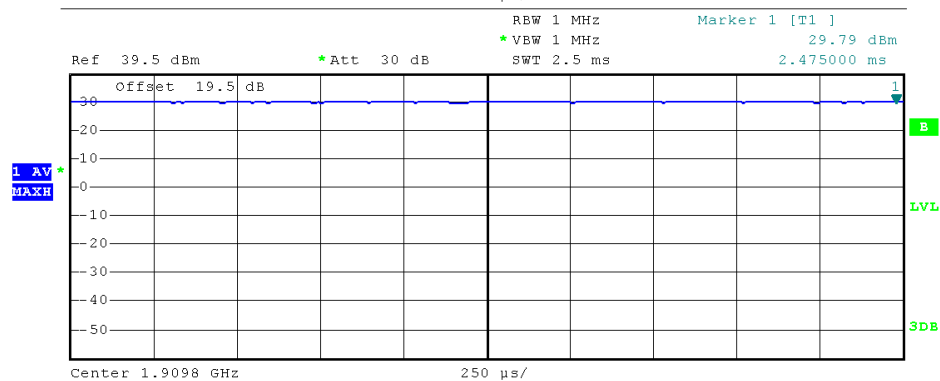
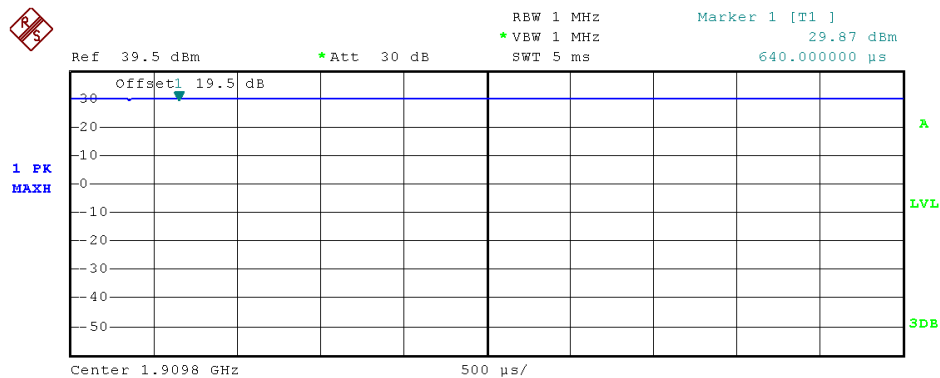


(Plot A2: GSM 1900 MHz Channel = 661)

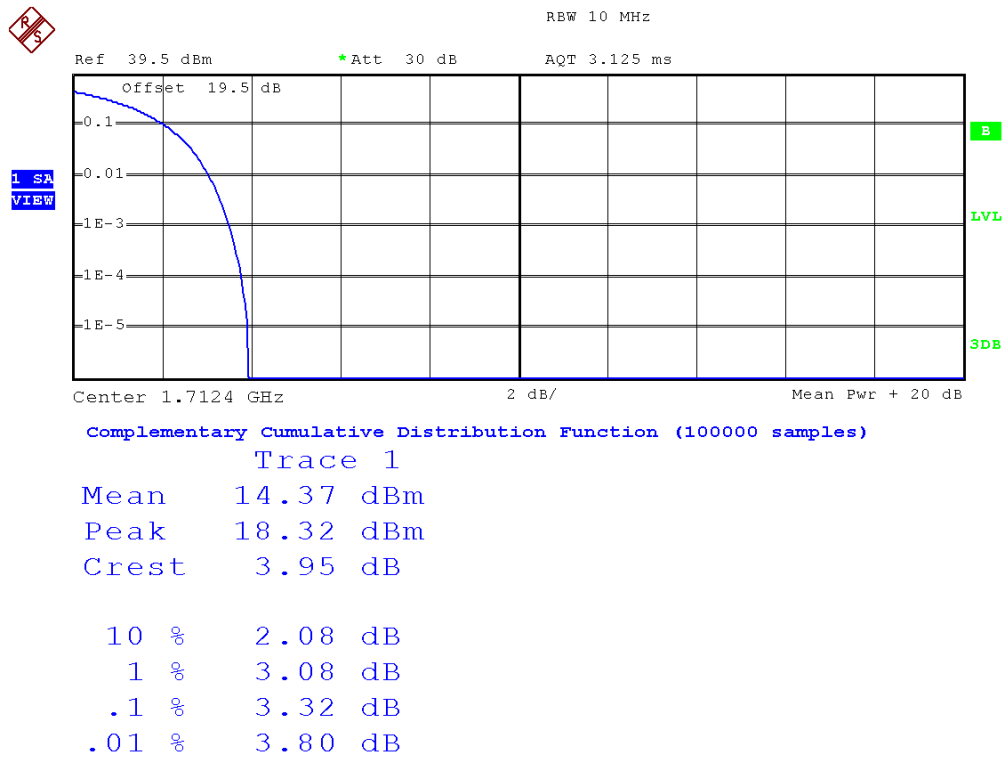




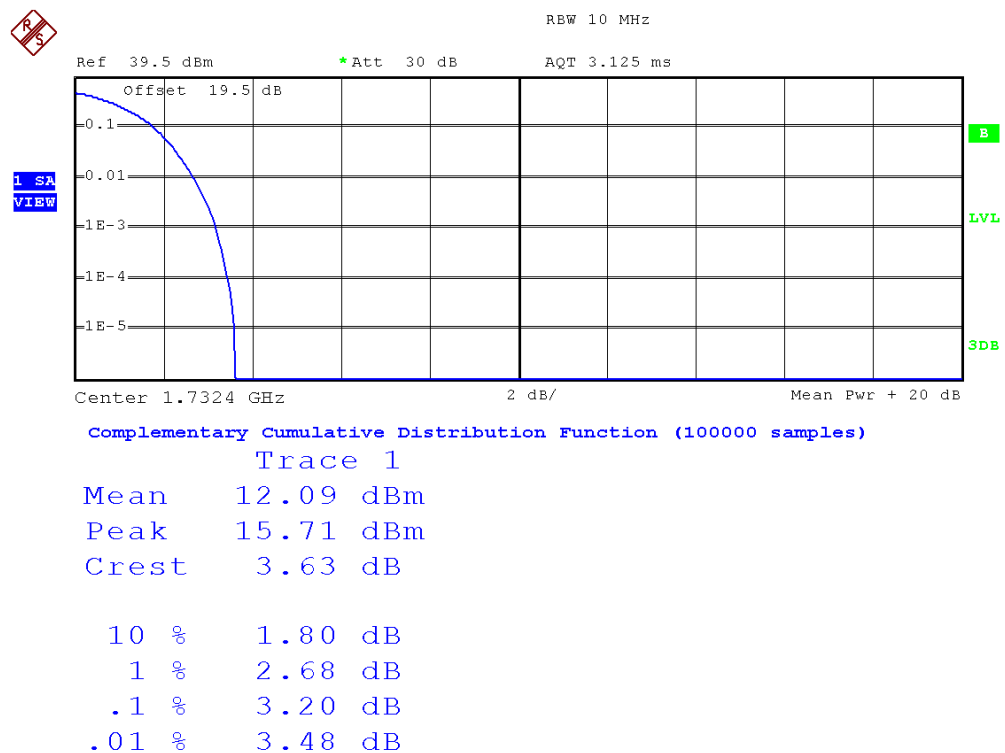
(Plot B2: EDGE 1900 MHz Channel = 661)



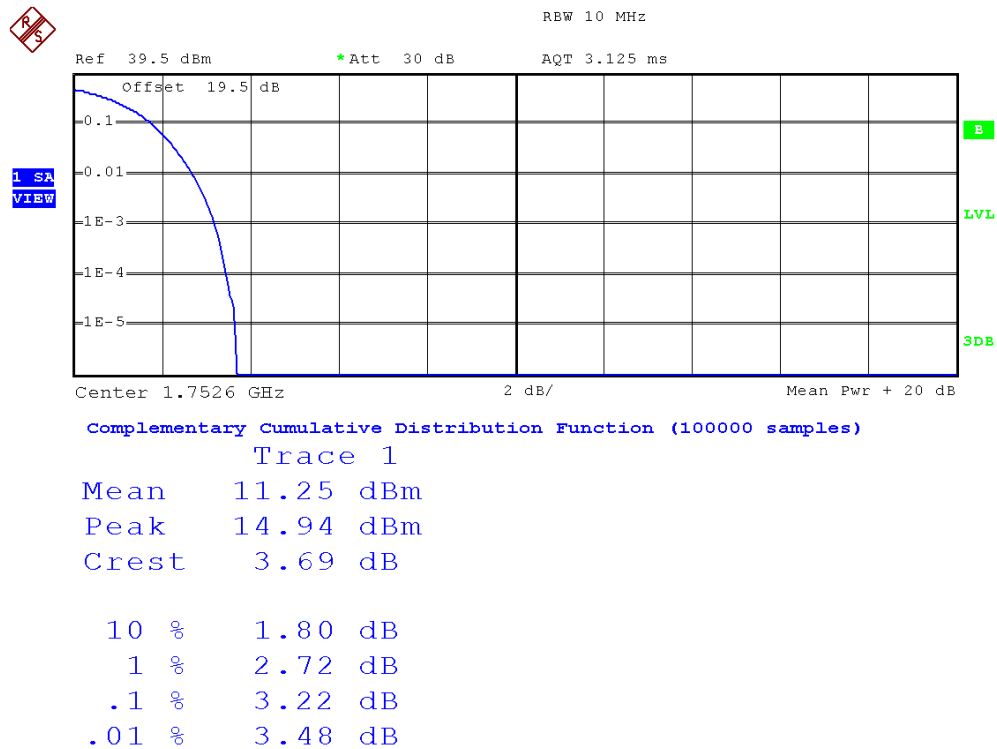
(Plot B3: EDGE 1900MHz Channel = 810)



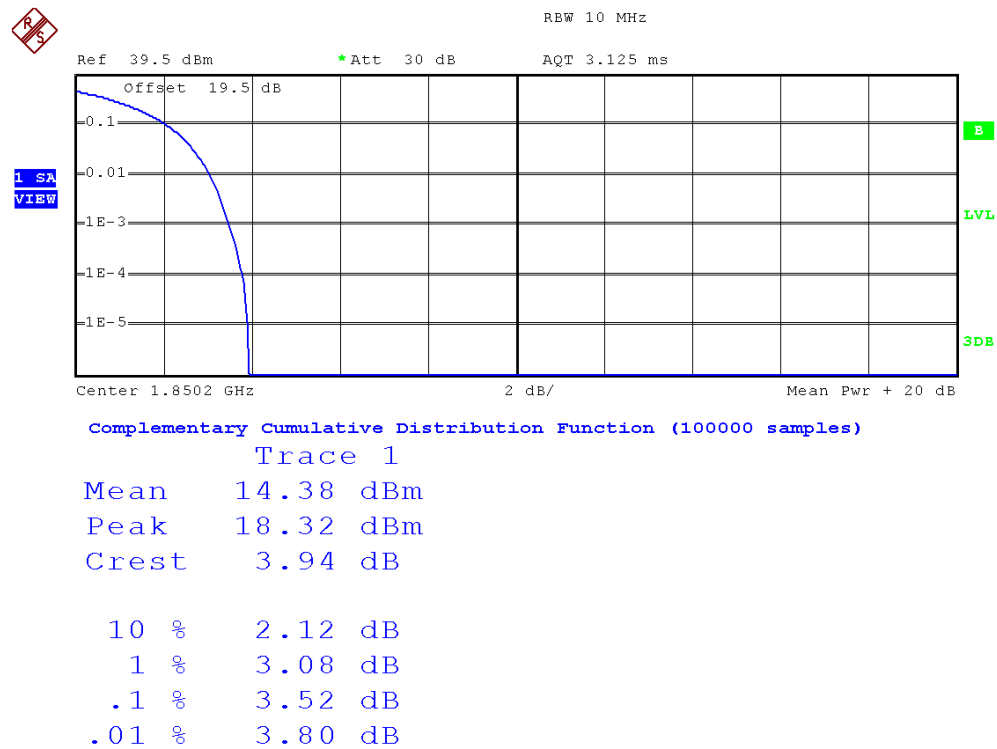
(Plot C1: WCDMA 1700 MHz Channel = 1312)



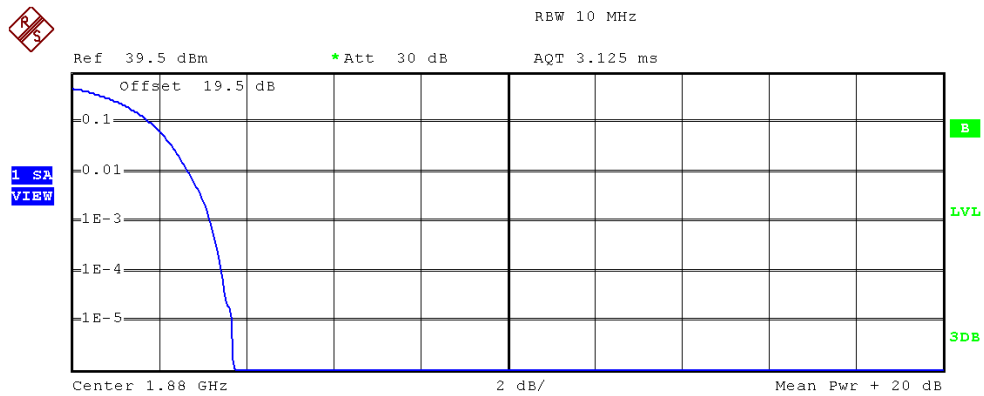
(Plot C2: WCDMA 1700 MHz Channel = 1412)



(Plot C3: WCDMA 1700 MHz Channel = 1513)



(Plot C1: WCDMA 1900MHz Channel = 9262)



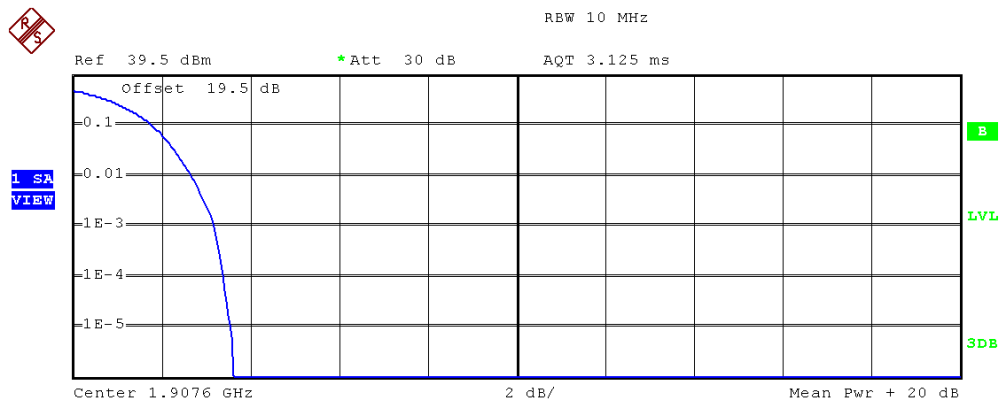
Complementary Cumulative Distribution Function (100000 samples)

Trace 1

Mean 12.14 dBm
Peak 15.85 dBm
Crest 3.72 dB

10 % 1.84 dB
1 % 2.72 dB
.1 % 3.20 dB
.01 % 3.44 dB

(Plot C2: WCDMA 1900MHz Channel = 9400)



Complementary Cumulative Distribution Function (100000 samples)

Trace 1

Mean 11.79 dBm
Peak 15.43 dBm
Crest 3.64 dB

10 % 1.80 dB
1 % 2.68 dB
.1 % 3.20 dB
.01 % 3.40 dB

(Plot C3: WCDMA 1900MHz Channel = 9538)

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.

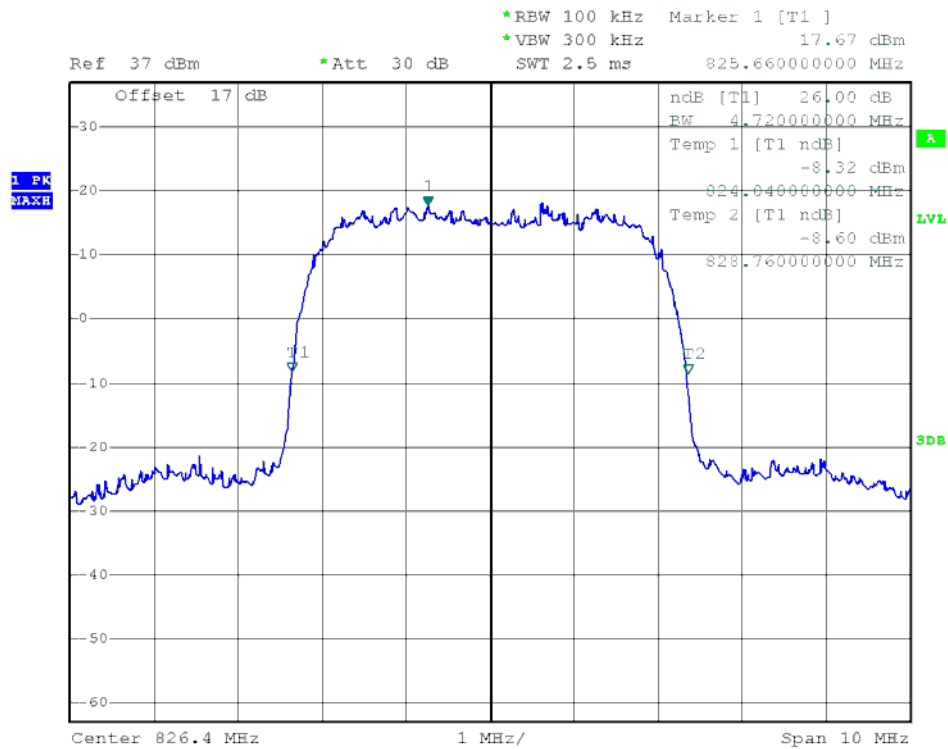
1. Test Verdict:

Band	Channel	Frequency (MHz)	26dB bandwidth	99% Occupied Bandwidth	Refer to Plot
WCDMA 850MHz	4132	826.4	4.72MHz	4.18MHz	Plot A1-A2
	4183	836.6	4.72MHz	4.16MHz	Plot A3-A4
	4233	846.6	4.70MHz	4.16MHz	Plot A5-A6
WCDMA 1700MHz	1312	1712.4	4.72 MHz	4.16 MHz	Plot B1-B2
	1412	1732.4	4.76 MHz	4.18 MHz	Plot B3-B4
	1513	1752.6	4.72 MHz	4.18 MHz	Plot B5-B6
WCDMA 1900MHz	9262	1852.4	4.68MHz	4.16MHz	Plot C1-C2
	9400	1880	4.70MHz	4.18MHz	Plot C3-C4
	9538	1907.6	4.72MHz	4.20MHz	Plot C5-C6
HSDPA 850MHz	4132	826.4	4.70MHz	4.18MHz	Plot D1-D2
	4183	836.6	4.70MHz	4.16MHz	Plot D3-D4
	4233	846.6	4.68MHz	4.18MHz	Plot D5-D6
HSDPA 1700MHz	1312	1712.4	4.74MHz	4.16MHz	Plot E1-E2
	1412	1732.4	4.76MHz	4.18MHz	Plot E3-E4
	1513	1752.6	4.72MHz	4.18MHz	Plot E5-E6
HSDPA 1900MHz	9262	1852.4	4.68MHz	4.16MHz	Plot F1-F2
	9400	1880	4.70MHz	4.20MHz	Plot F3-F4
	9538	1907.6	4.72MHz	4.20MHz	Plot F5-F6
HSUPA 850MHz	4132	826.4	4.68MHz	4.18MHz	Plot G1-G2

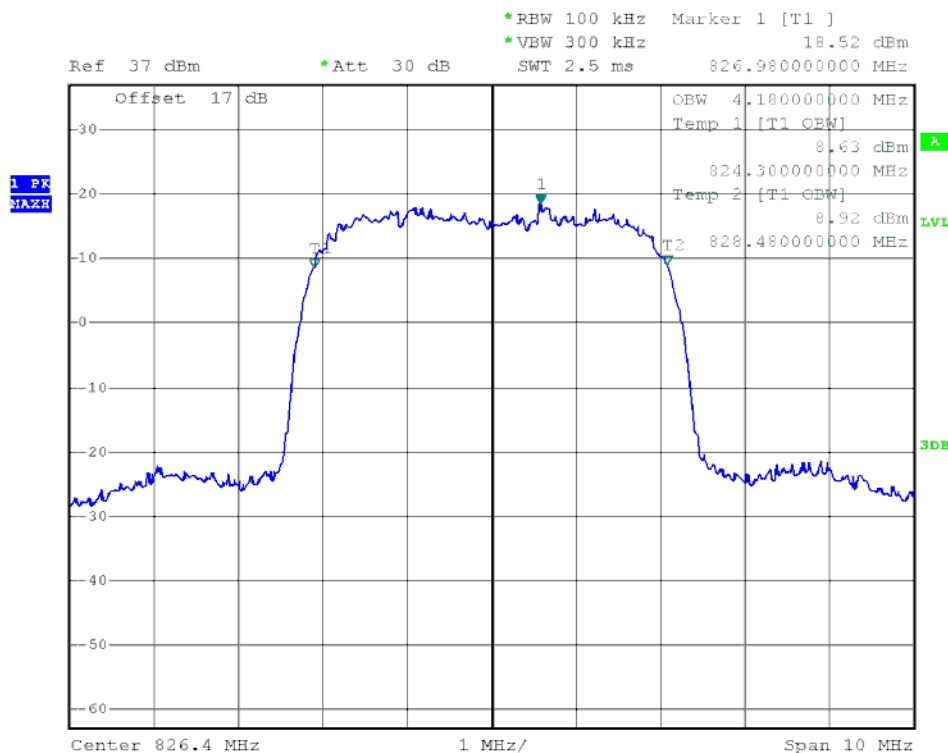


Band	Channel	Frequency (MHz)	26dB bandwidth	99% Occupied Bandwidth	Refer to Plot
	4183	836.6	4.72MHz	4.18MHz	Plot G3-G4
	4233	846.6	4.70MHz	4.16MHz	Plot G5-G6
HSUPA 1700MHz	1312	1712.4	4.76MHz	4.18MHz	Plot H1-H2
	1412	1732.4	4.76MHz	4.18MHz	Plot H3-H4
	1513	1752.6	4.72MHz	4.18MHz	Plot H5-H6
HSUPA 1900MHz	9262	1852.4	4.68MHz	4.16MHz	Plot I1-I2
	9400	1880	4.70MHz	4.18MHz	Plot I3-I4
	9538	1907.6	4.70MHz	4.18MHz	Plot I5-I6
HSPA+ 850MHz	4132	826.4	4.74MHz	4.20MHz	Plot J1-J2
	4175	836.6	4.76MHz	4.18MHz	Plot J3-J4
	4233	846.6	4.72MHz	4.20MHz	Plot J5-J6
HSPA+ 1700MHz	1312	1712.4	4.72MHz	4.18MHz	Plot K1-K2
	1412	1732.4	4.76MHz	4.18MHz	Plot K3-K4
	1513	1752.6	4.74MHz	4.18MHz	Plot K5-K6
HSPA+ 1900MHz	9262	1852.4	4.74MHz	4.18MHz	Plot L1-L2
	9400	1880	4.74MHz	4.20MHz	Plot L3-L4
	9538	1907.6	4.76MHz	4.18MHz	Plot L5-L6
GSM 850MHz	128	824.2	320KHz	248KHz	Plot M1-M2
	190	836.6	316KHz	248KHz	Plot M3-M4
	251	848.8	316KHz	244KHz	Plot M5-M6
GSM 1900MHz	512	1850.2	320KHz	244KHz	Plot N1-N2
	661	1880.0	328KHz	244KHz	Plot N3-N4
	810	1909.8	320KHz	244KHz	Plot N5-N6
GPRS 850MHz	128	824.2	316KHz	240KHz	Plot O1-O2
	190	836.6	316KHz	248KHz	Plot O3-O4
	251	848.8	316KHz	244KHz	Plot O5-O6
GPRS 1900MHz	512	1850.2	320KHz	244KHz	Plot P1-P2
	661	1880.0	316KHz	248KHz	Plot P3-P4
	810	1909.8	320KHz	248KHz	Plot P5-P6
EDGE 850MHz	128	824.2	316KHz	248KHz	Plot Q1-Q2
	190	836.6	324KHz	240KHz	Plot Q3-Q4
	251	848.8	316KHz	244KHz	Plot Q5-Q6
EDGE 1900MHz	512	1850.2	320KHz	248KHz	Plot R1-R2
	661	1880.0	320KHz	248KHz	Plot R3-R4
	810	1909.8	324KHz	244KHz	Plot R5-R6

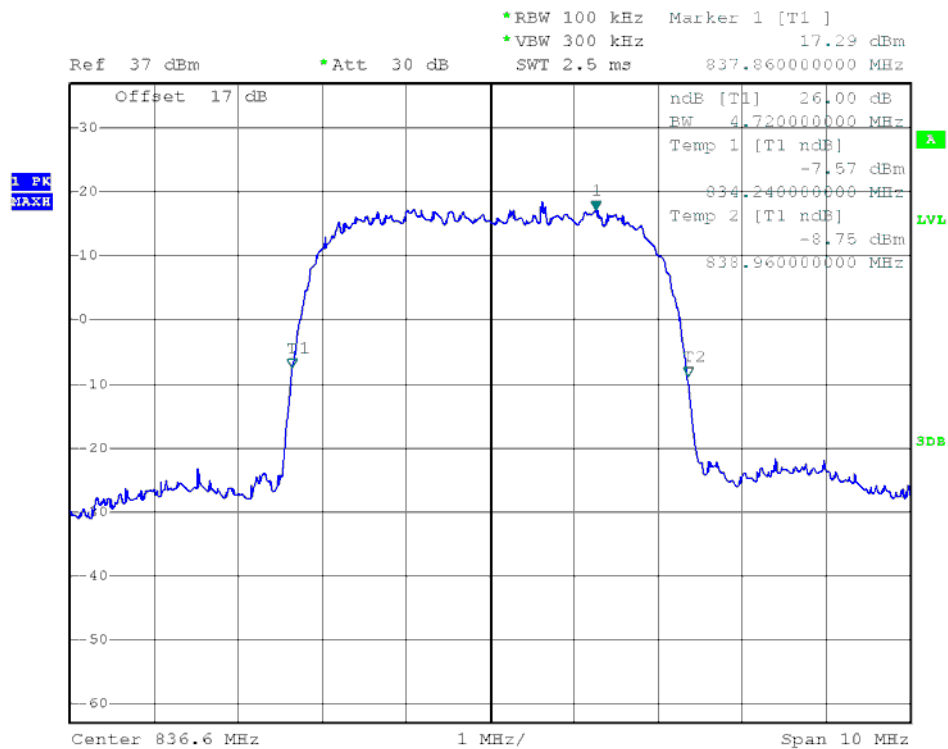
2. Test Plots:



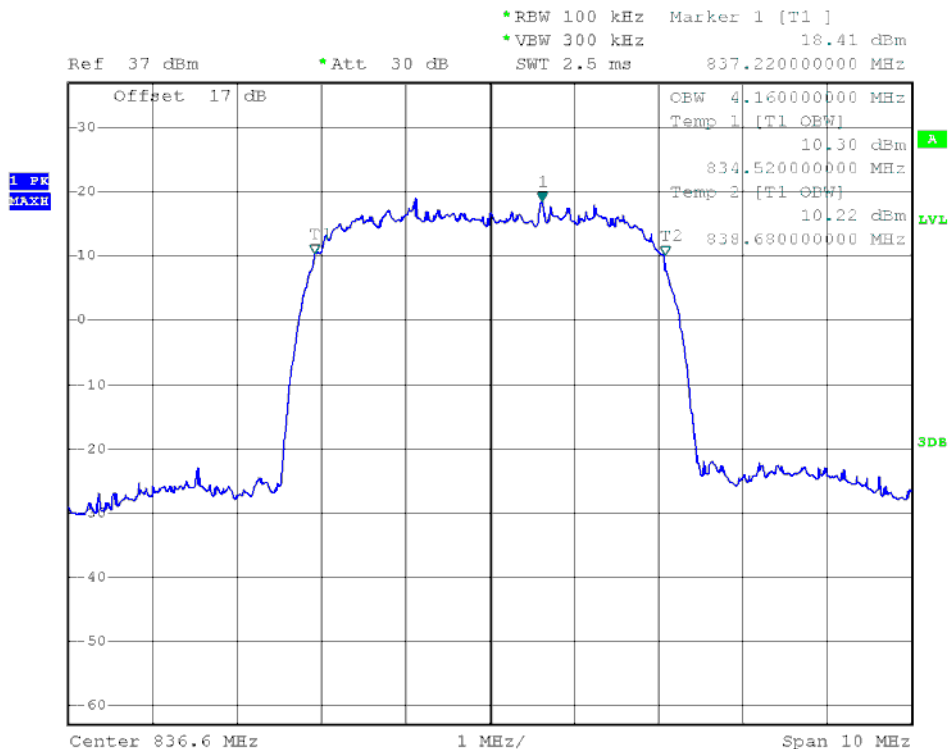
(Plot A1: WCDMA 850MHz Channel = 4132)



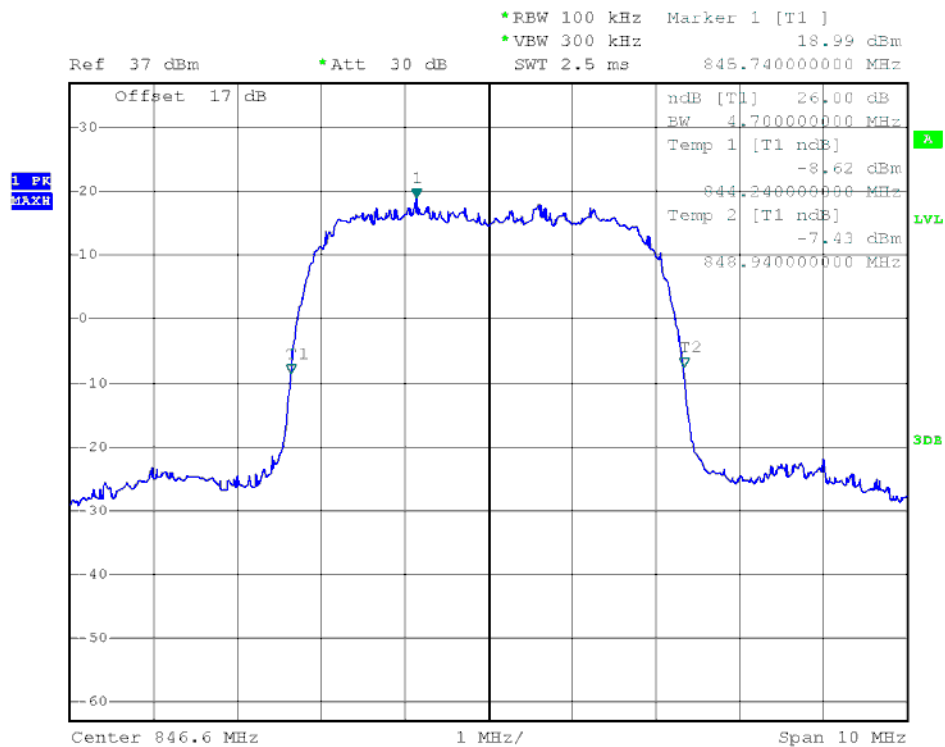
(Plot A2: WCDMA 850MHz Channel = 4132)



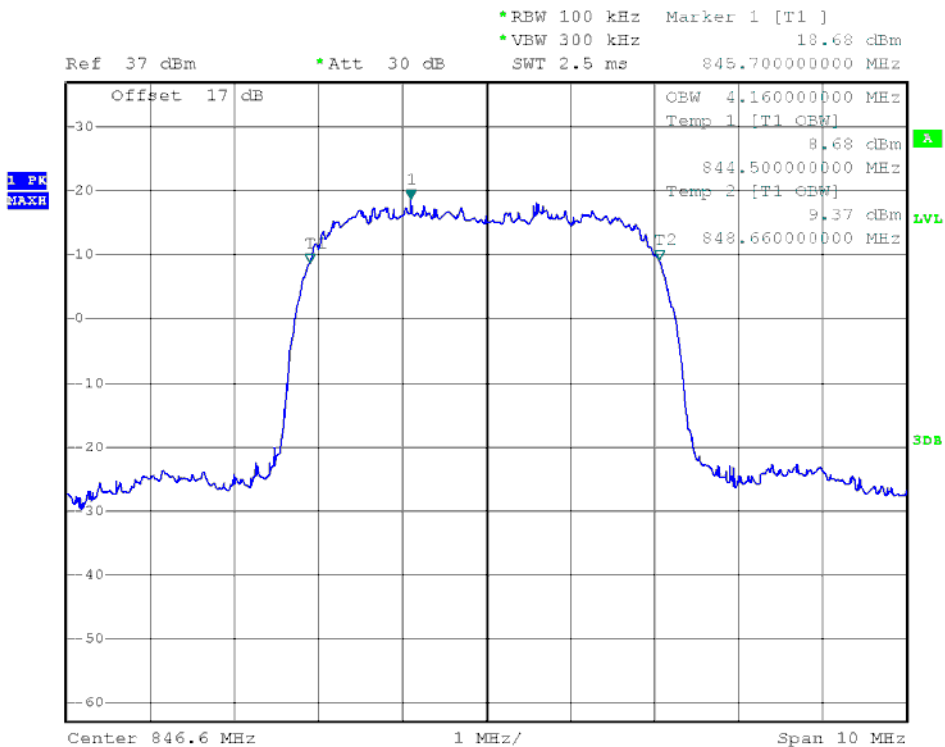
(Plot A3: WCDMA 850 MHz Channel = 4183)



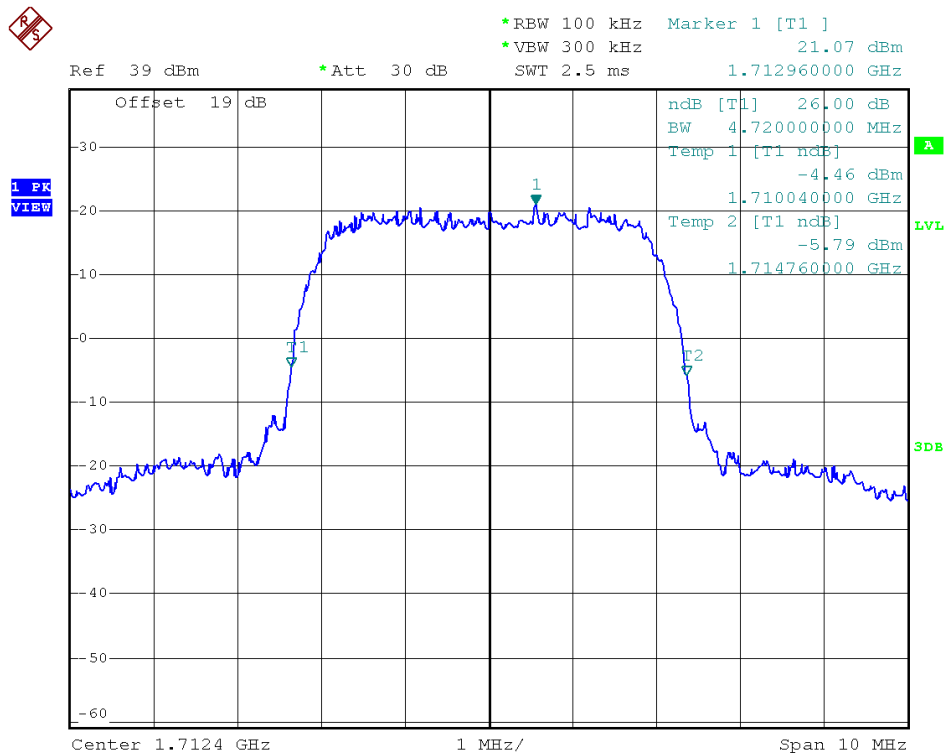
(Plot A4: WCDMA 850 MHz Channel = 4183)



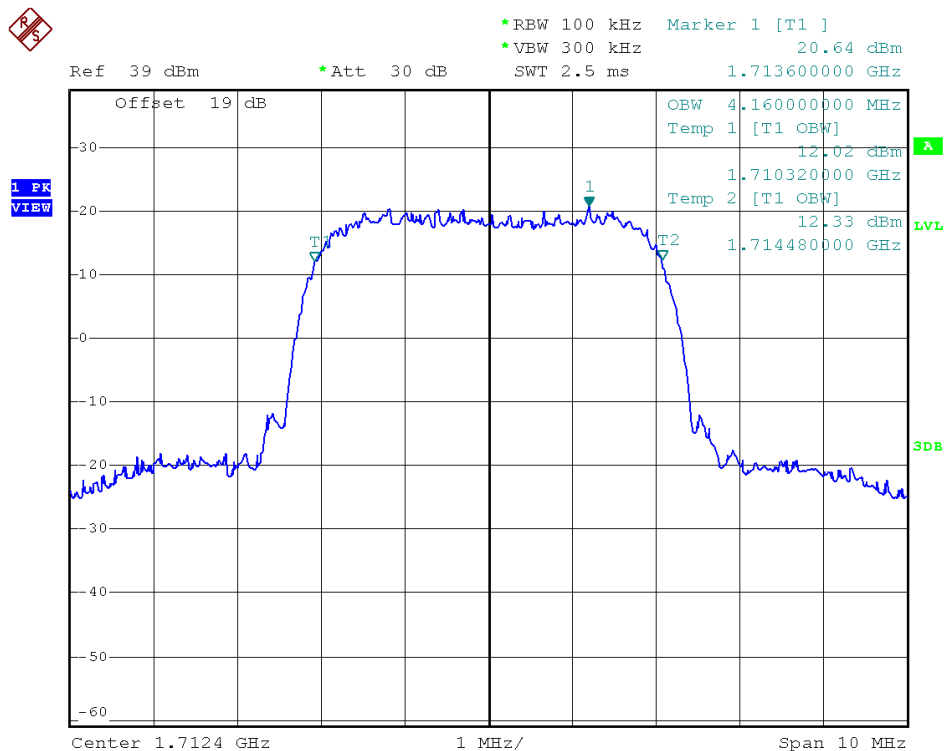
(Plot A5: WCDMA 850MHz Channel = 4233)



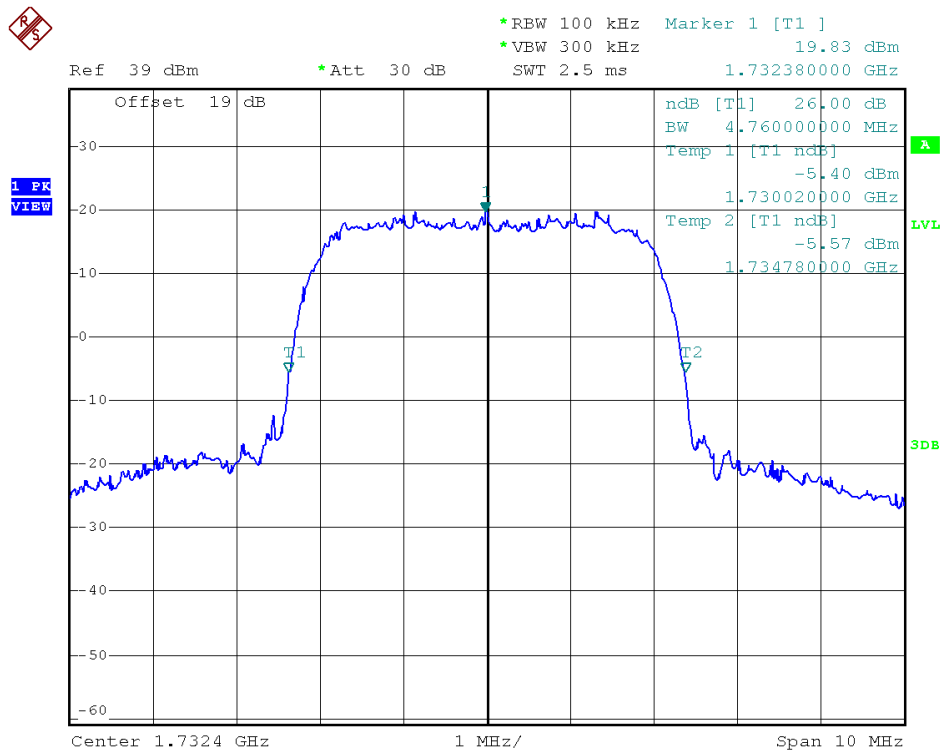
(Plot A6: WCDMA 850MHz Channel = 4233)



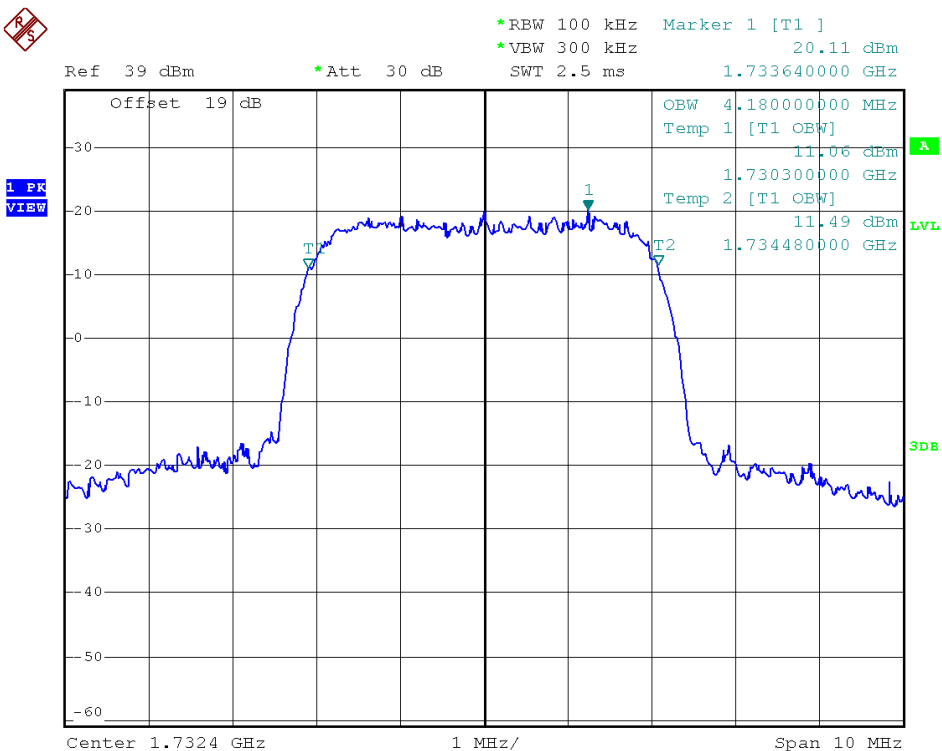
(Plot B1: WCDMA 1700MHz Channel = 1312)



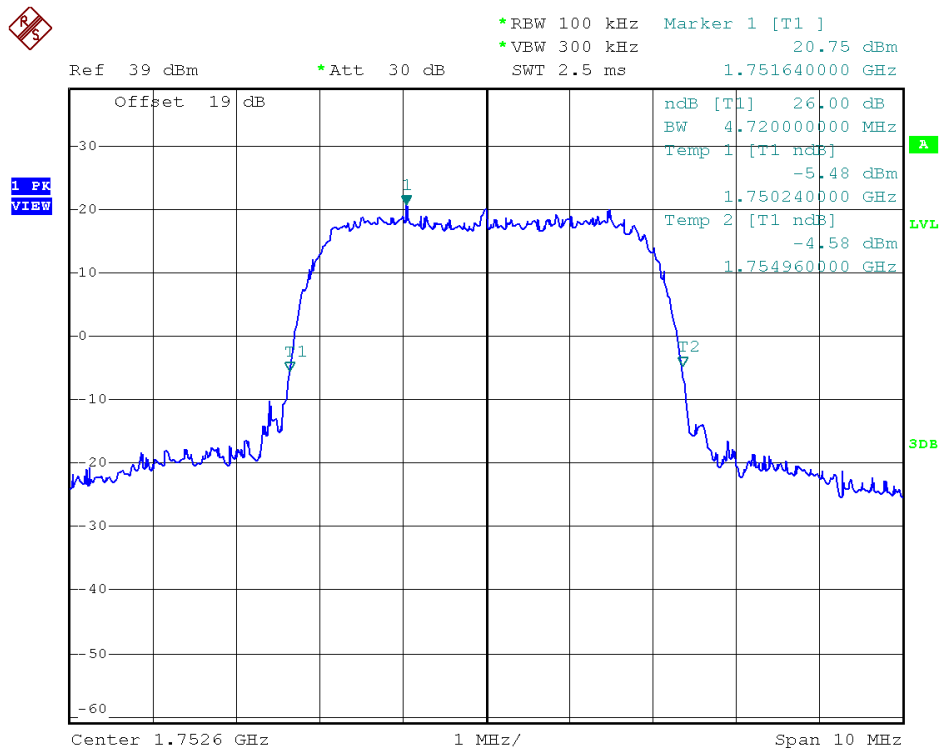
(Plot B2: WCDMA 1700MHz Channel = 1312)



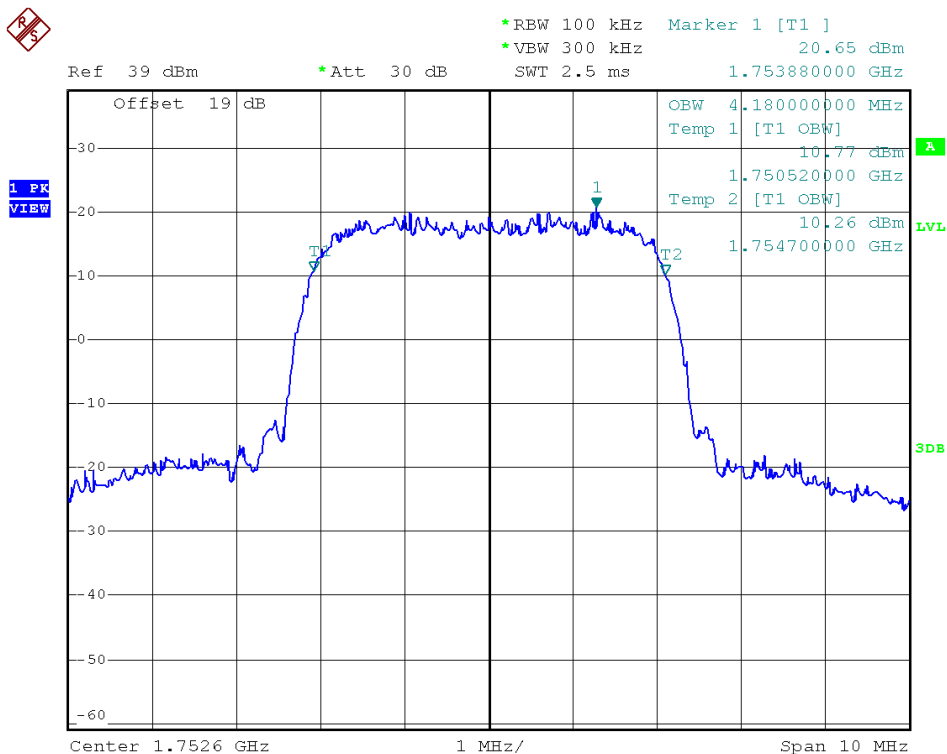
(Plot B3: WCDMA 1700MHz Channel = 1412)



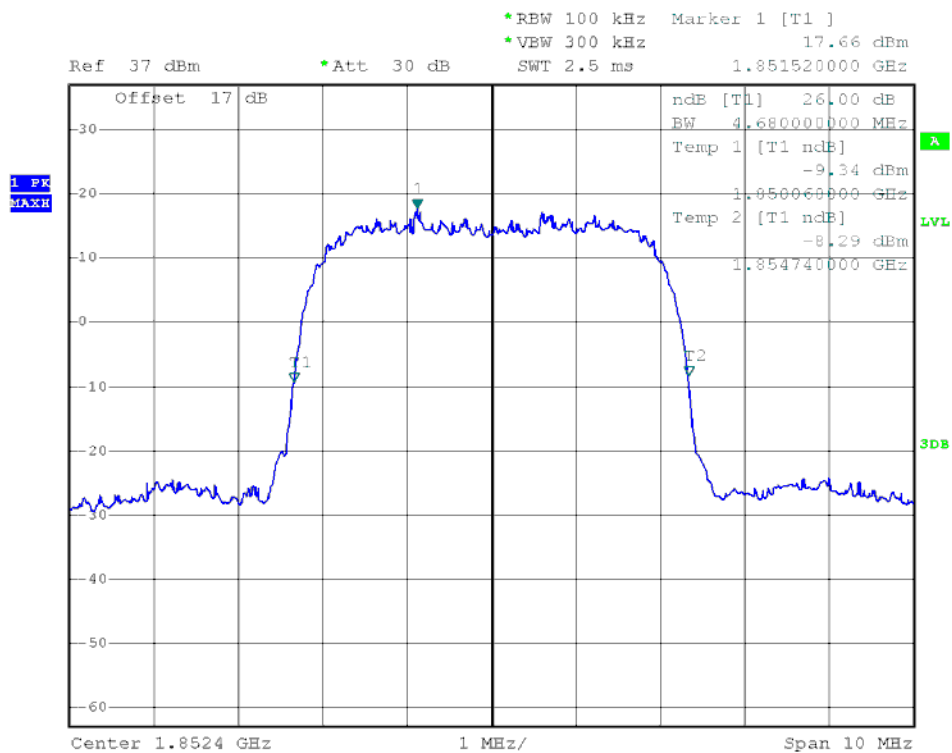
(Plot B4: WCDMA 1700MHz Channel = 1412)



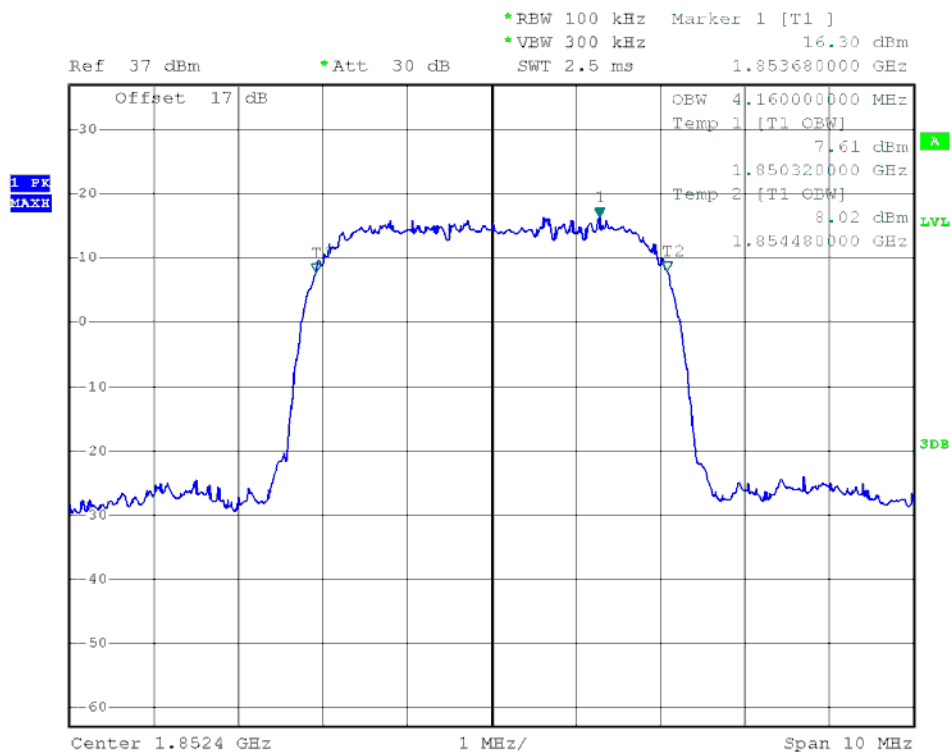
(Plot B5: WCDMA 1700MHz Channel = 1513)



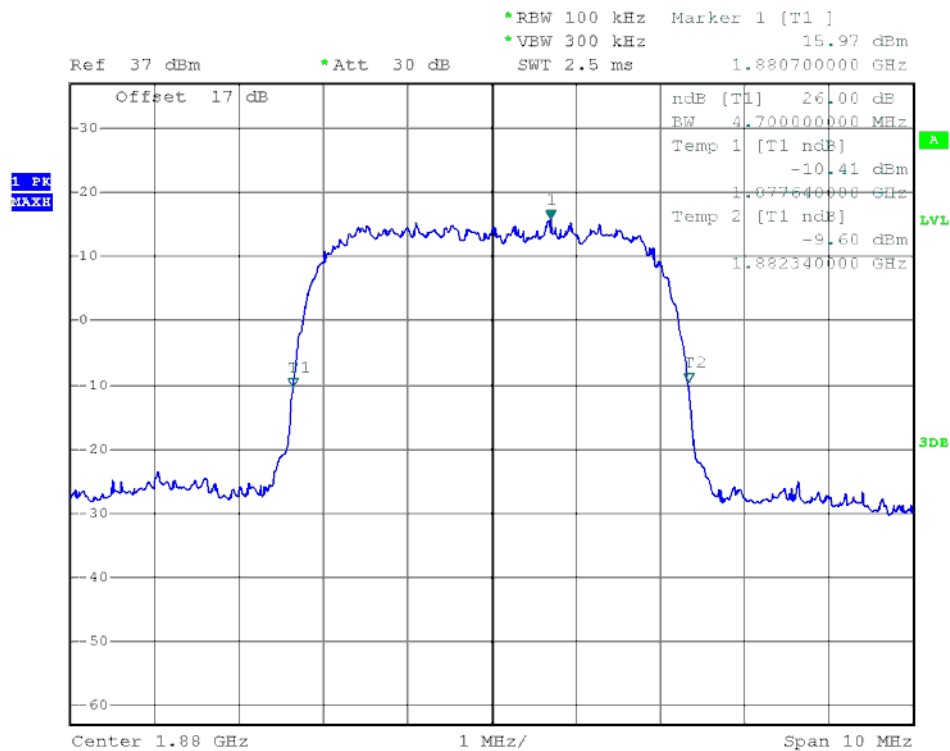
(Plot B6: WCDMA 1700MHz Channel = 1513)



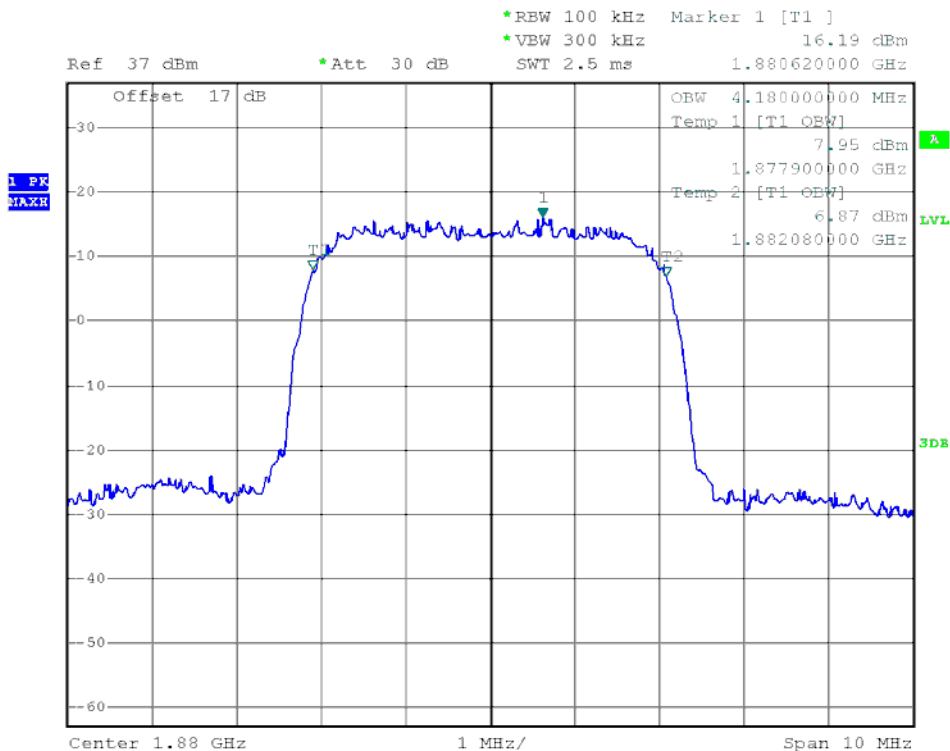
(Plot C1: WCDMA 1900MHz Channel = 9262)



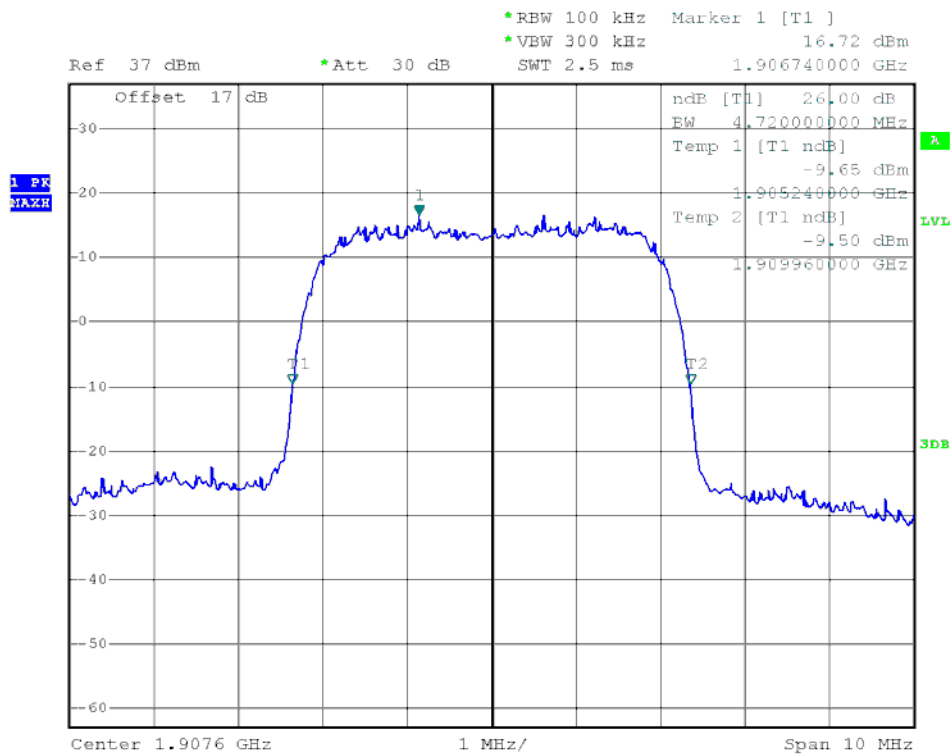
(Plot C2: WCDMA 1900MHz Channel = 9262)



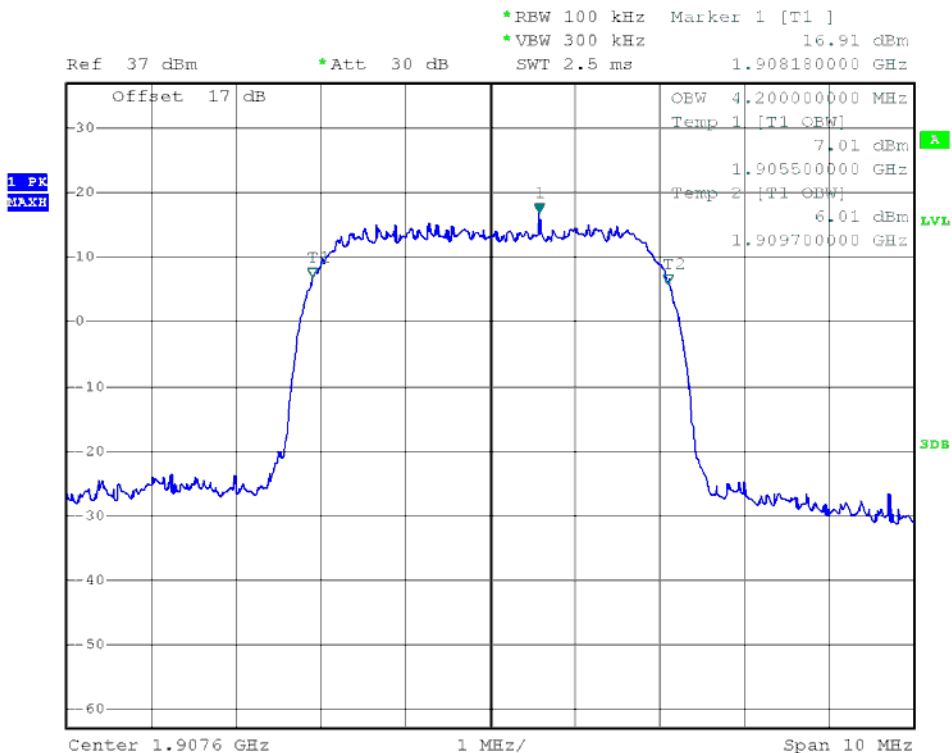
(Plot C3: WCDMA 1900 MHz Channel = 9400)



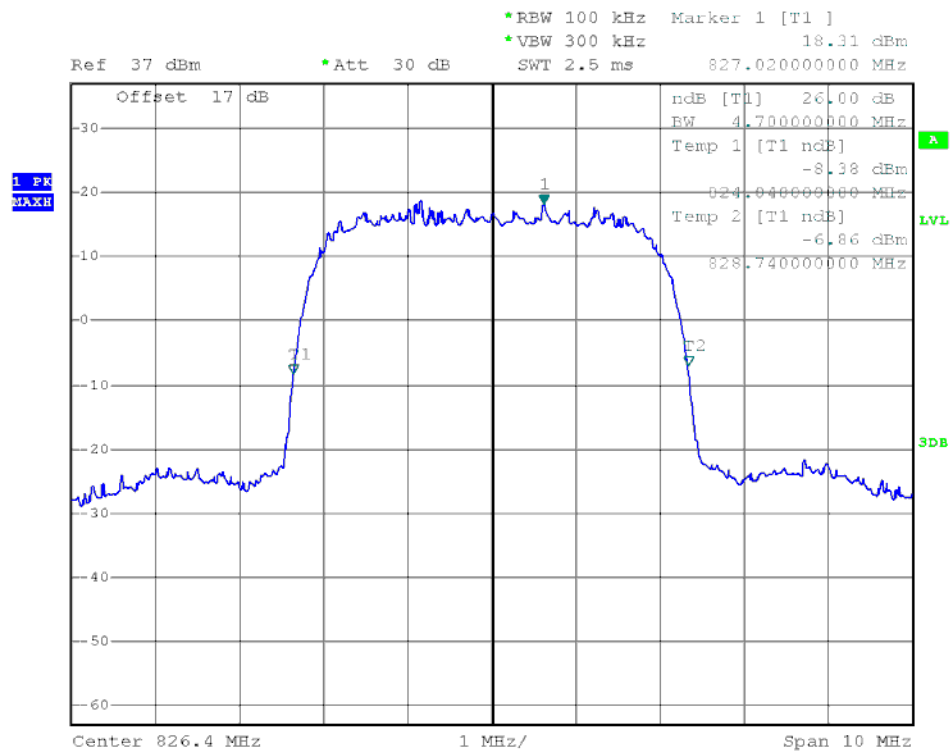
(Plot C4: WCDMA 1900 MHz Channel = 9400)



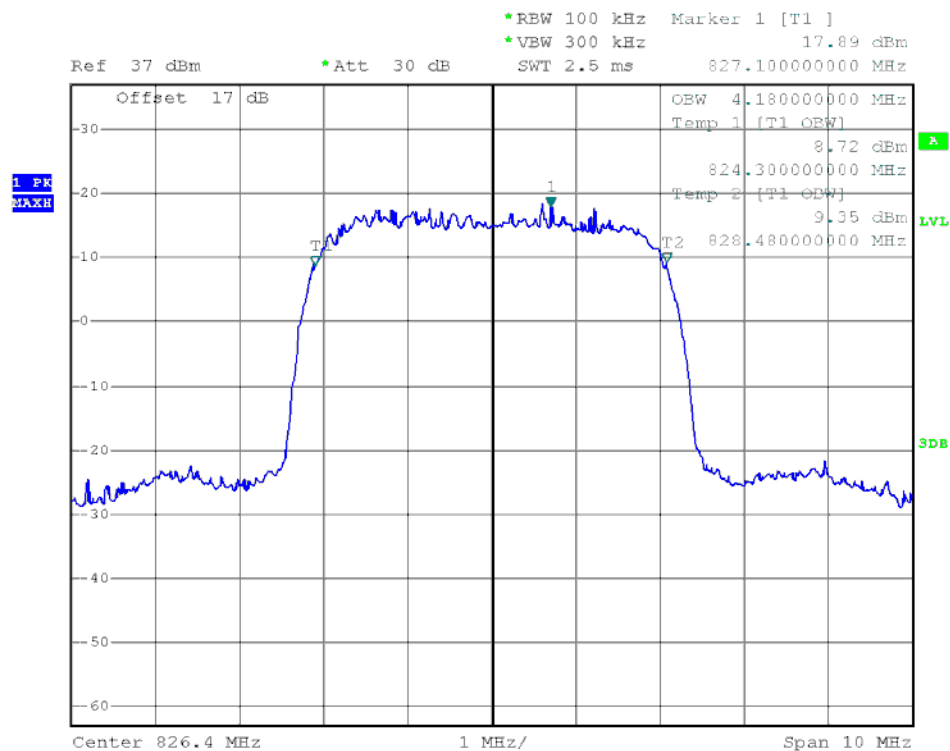
(Plot C5: WCDMA1900MHz Channel = 9538)



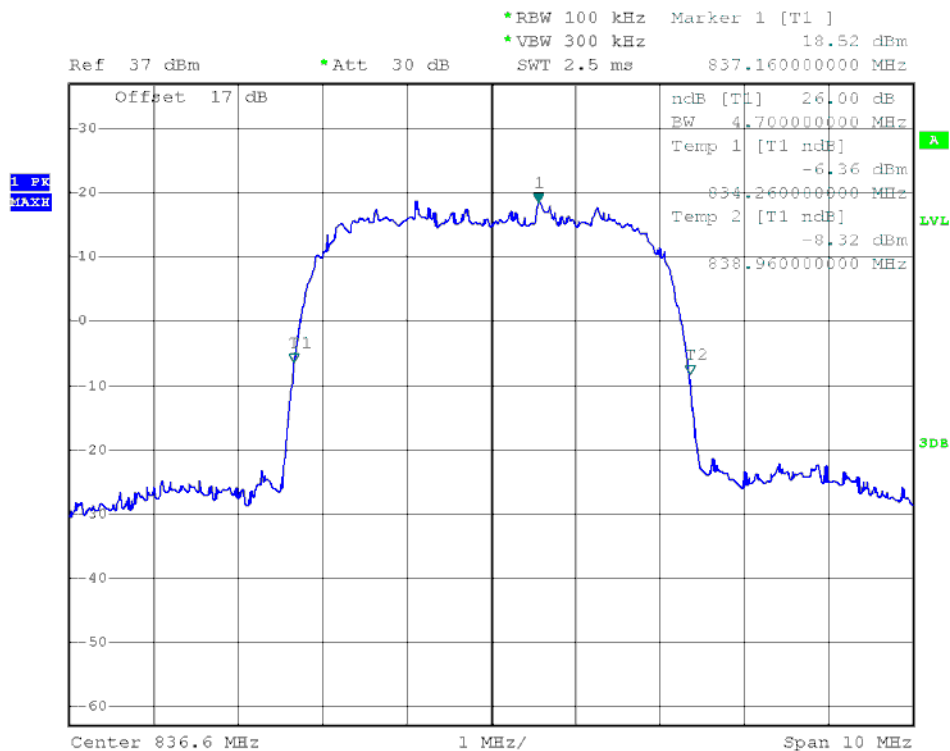
(Plot C6: WCDMA1900MHz Channel = 9538)



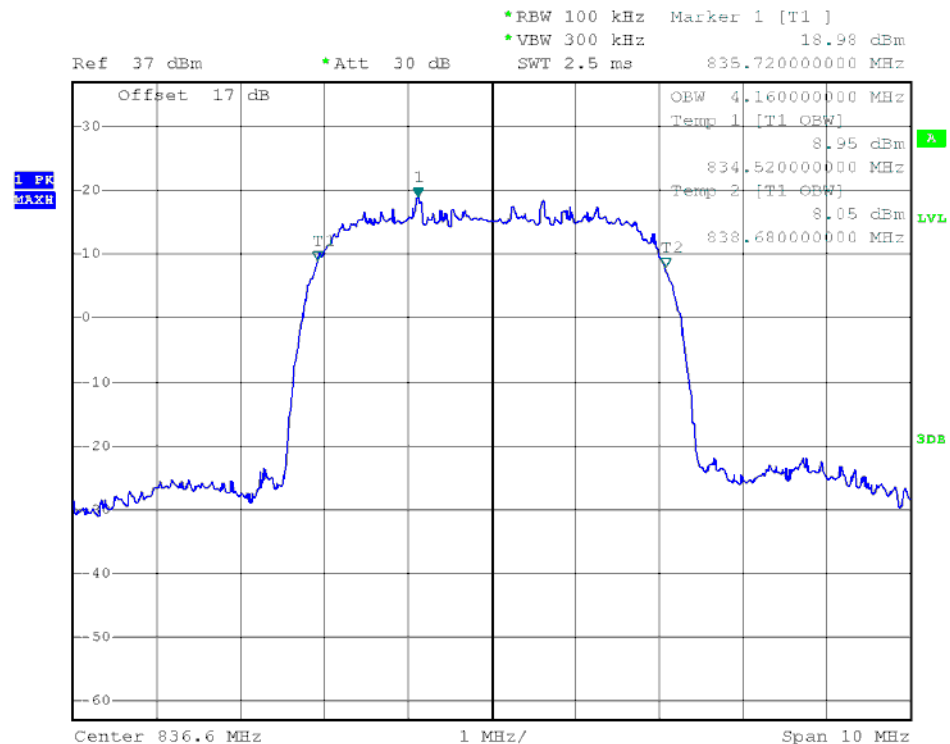
(Plot D1: HSDPA 850MHz Channel = 4132)



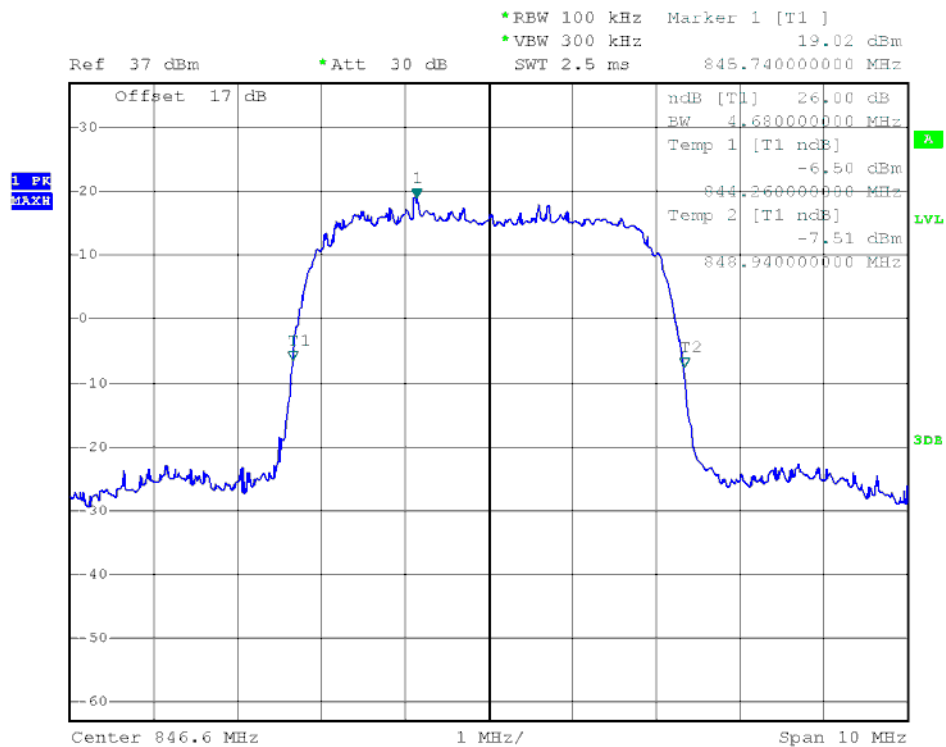
(Plot D2: HSDPA 850MHz Channel = 4132)



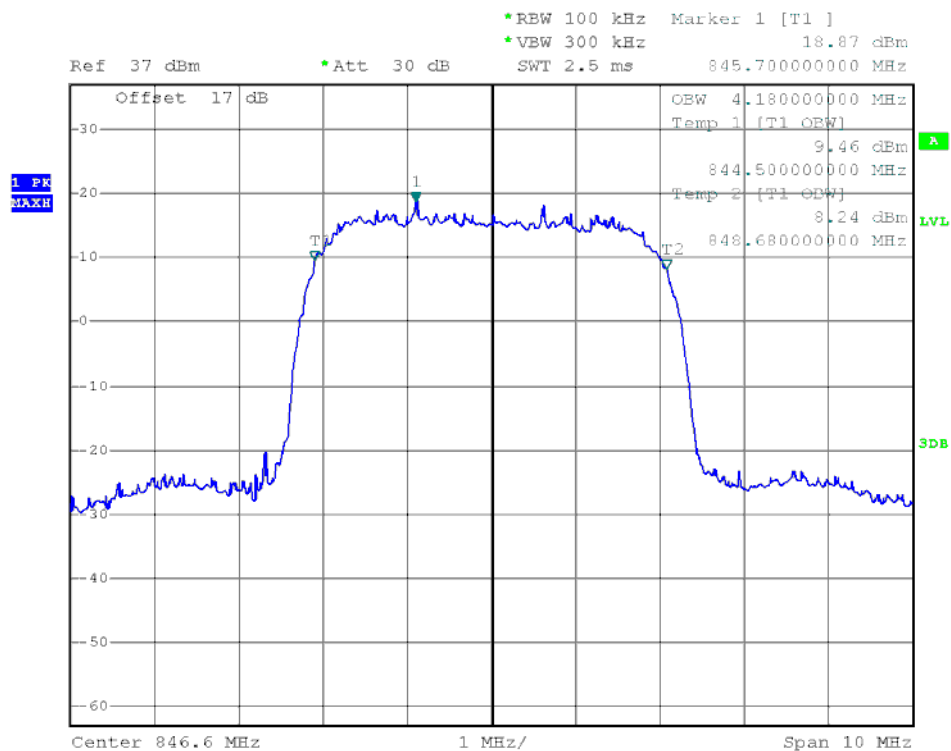
(Plot D3: HSDPA850 MHz Channel = 4183)



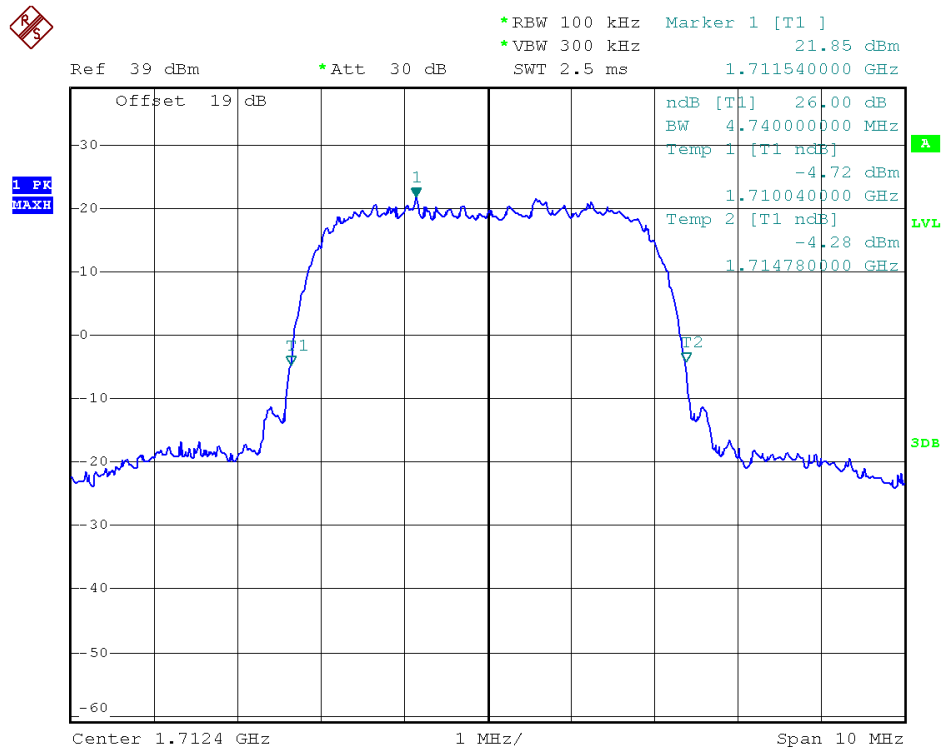
(Plot D4: HSDPA850 MHz Channel = 4183)



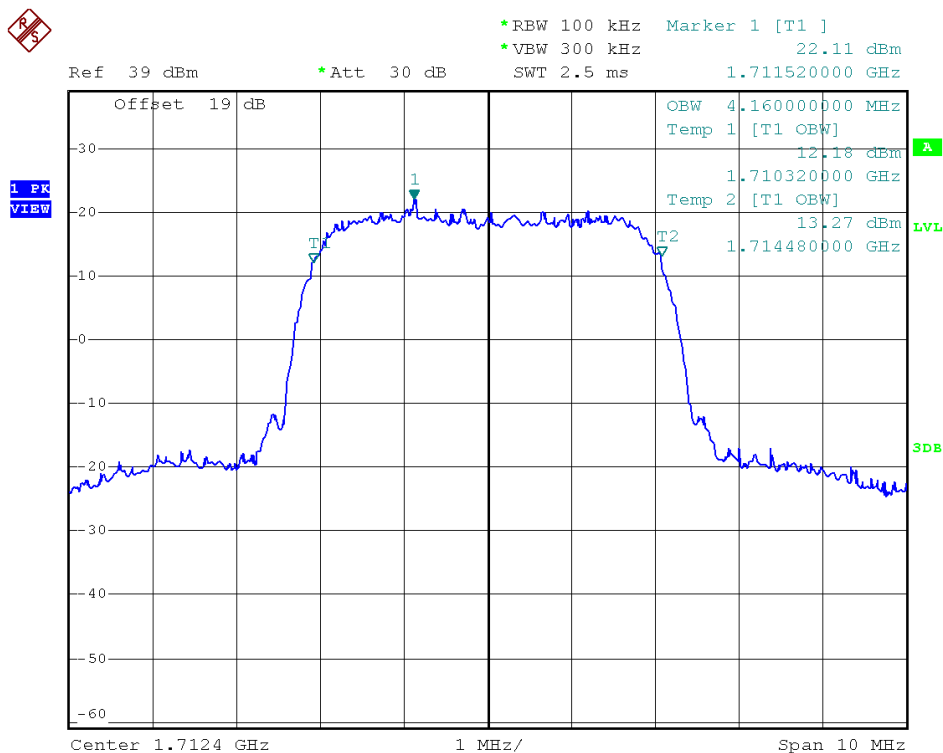
(Plot D5: HSDPA 850 MHz Channel = 4233)



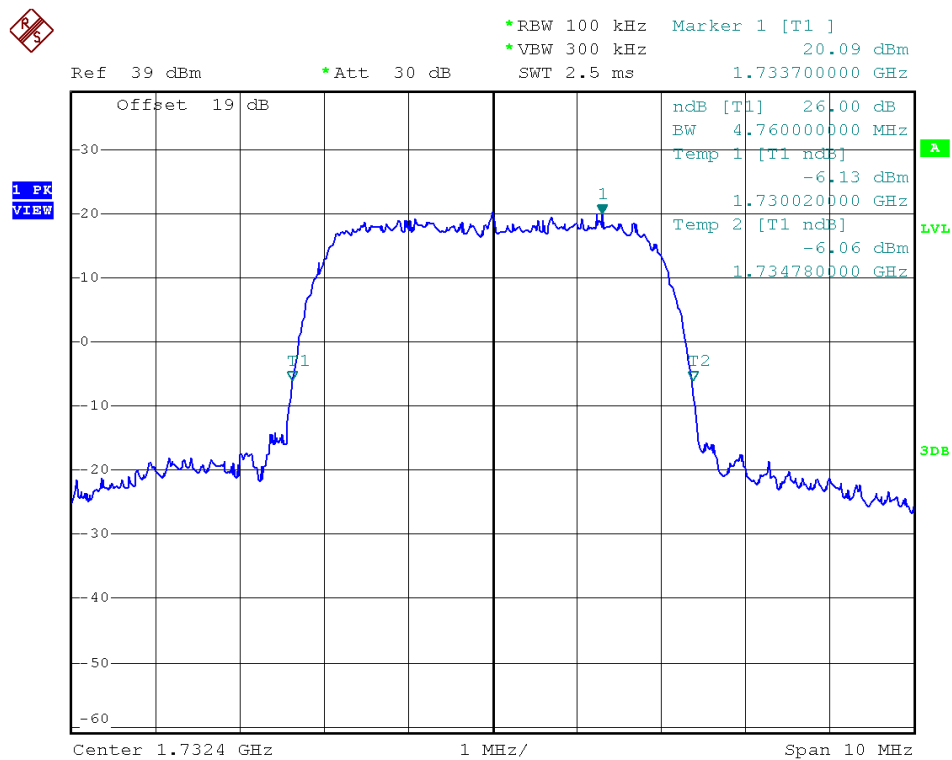
(Plot D6: HSDPA 850 MHz Channel = 4233)



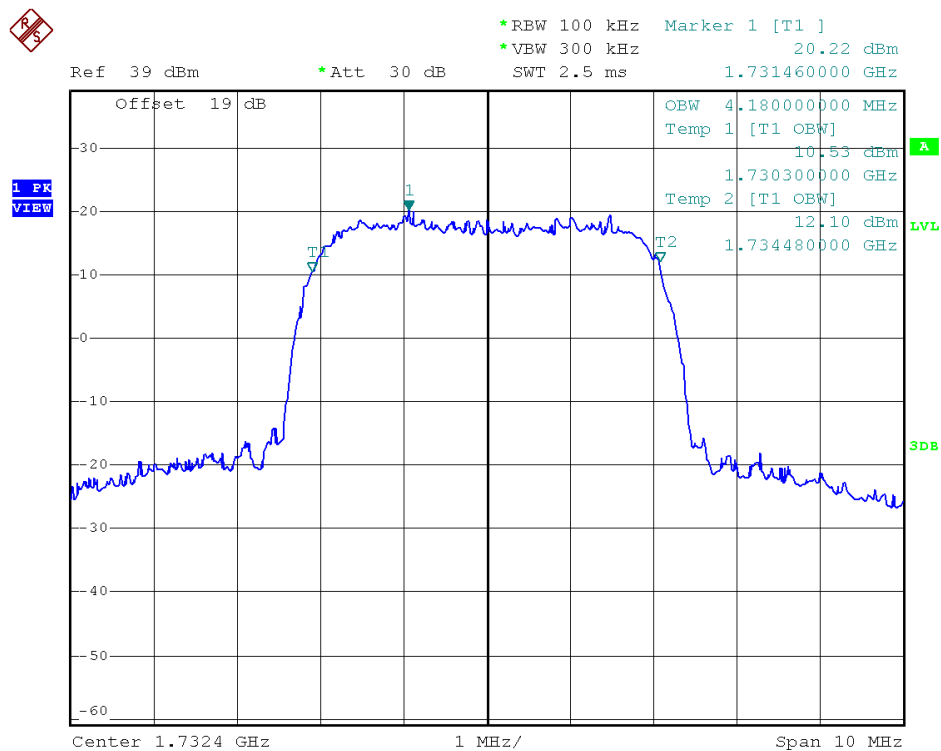
(Plot E1: HSDPA 1700MHz Channel = 1312)



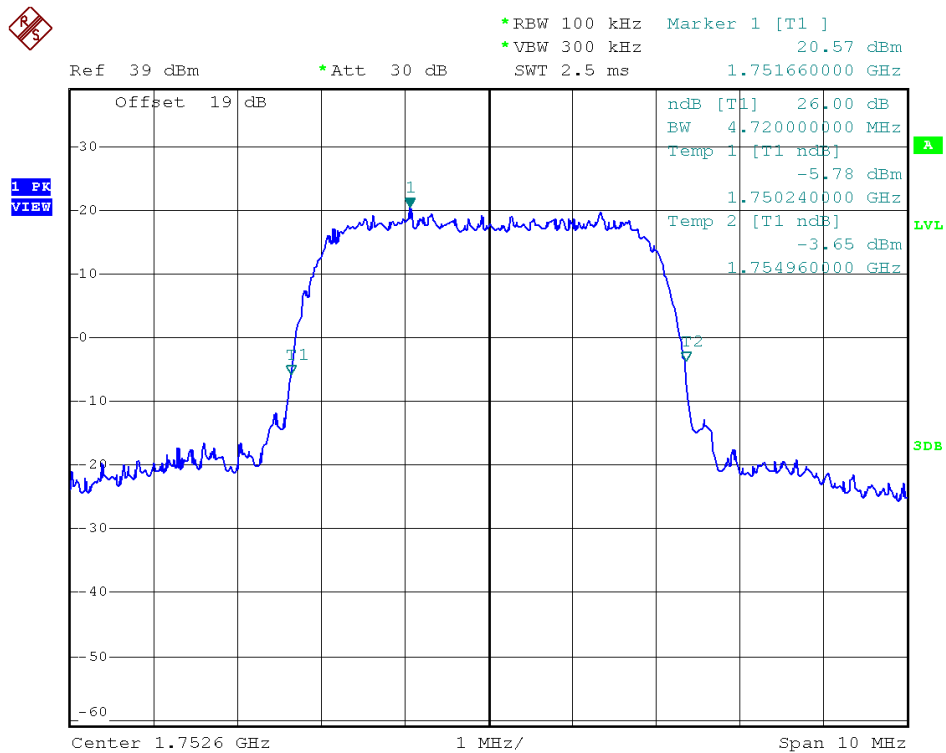
(Plot E2: HSDPA 1700MHz Channel = 1312)



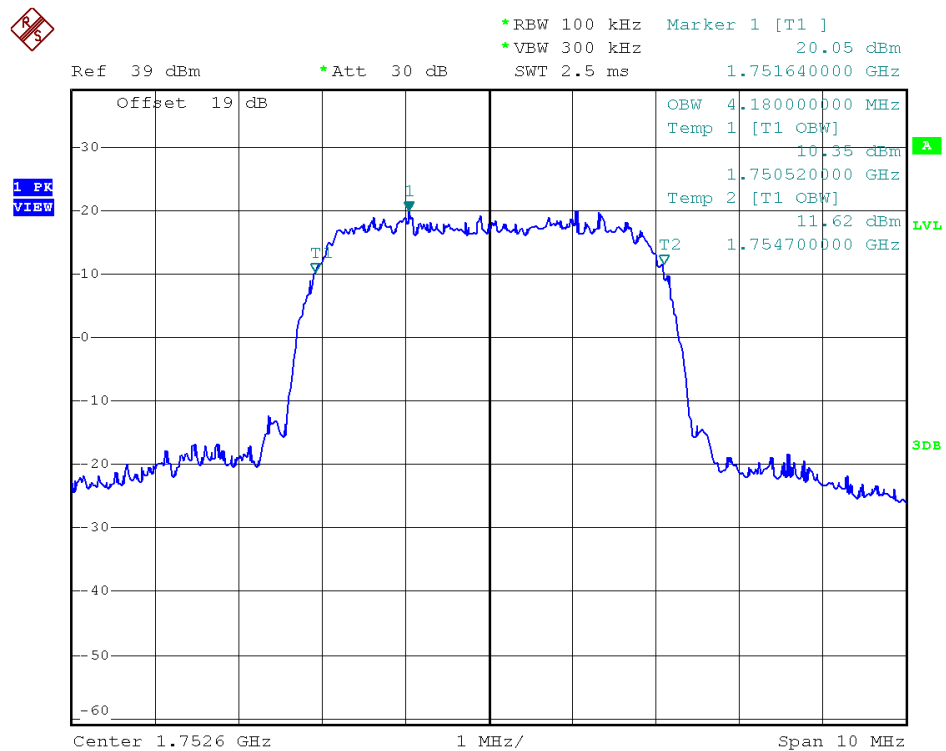
(Plot E3: HSDPA 1700MHz Channel = 1412)



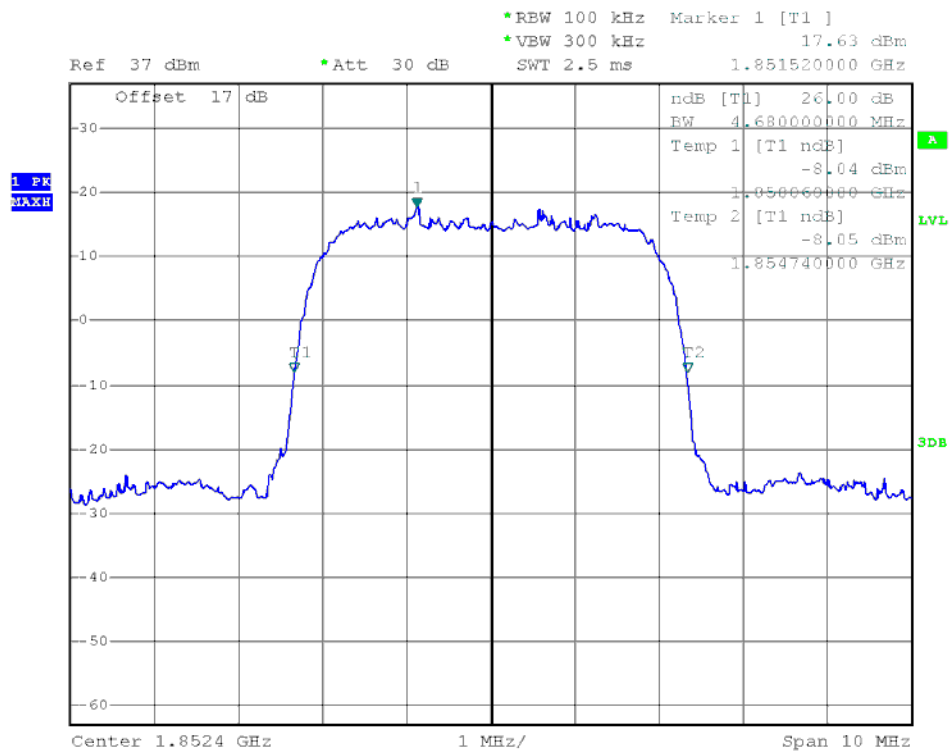
(Plot E4: HSDPA 1700MHz Channel = 1412)



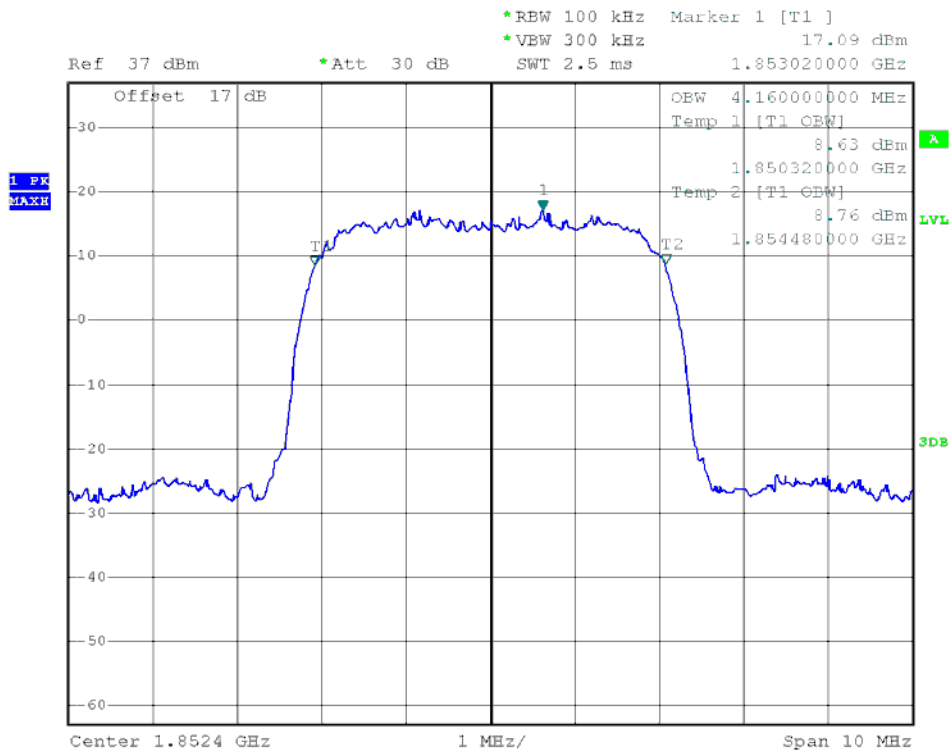
(Plot E5: HSDPA 1700MHz Channel = 1513)



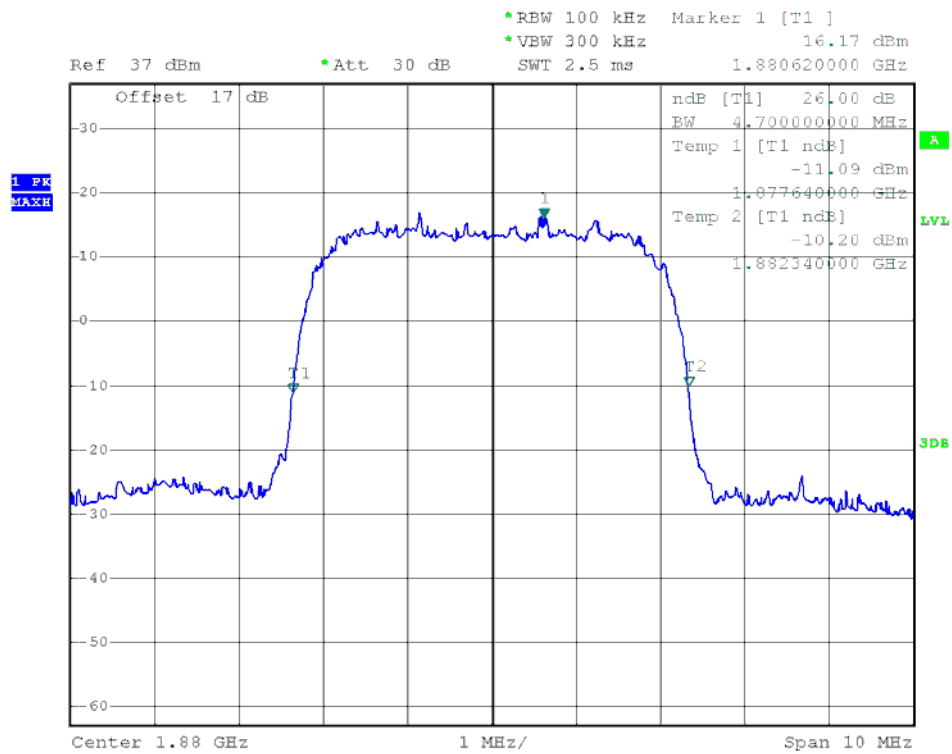
(Plot E6: HSDPA 1700MHz Channel = 1513)



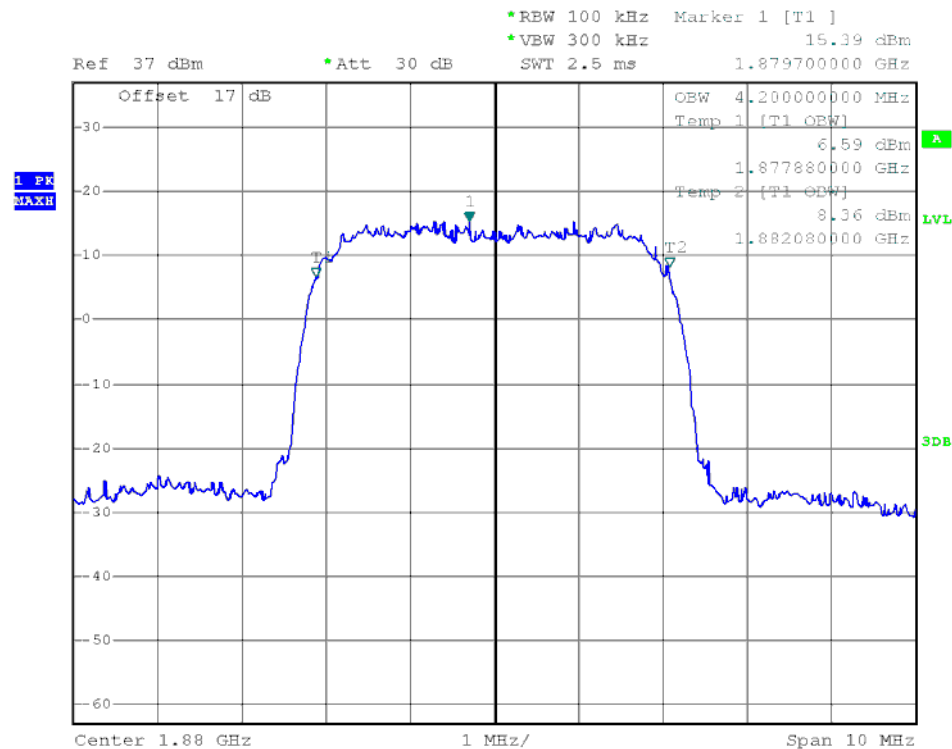
(Plot F1: HSDPA1900 MHz Channel = 9262)



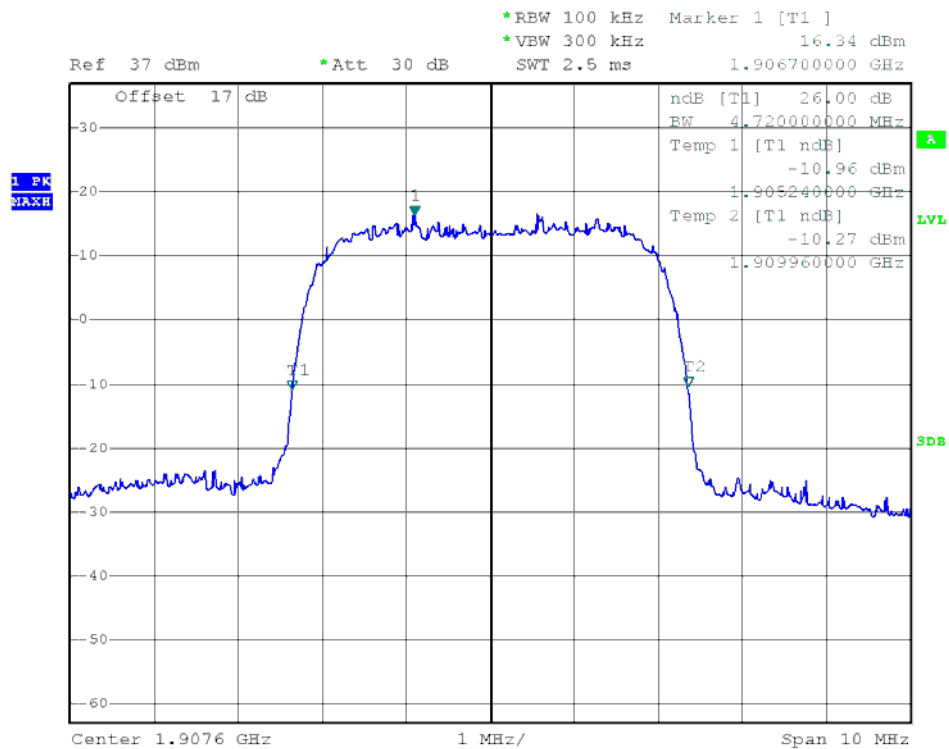
(Plot F2: HSDPA1900 MHz Channel = 9262)



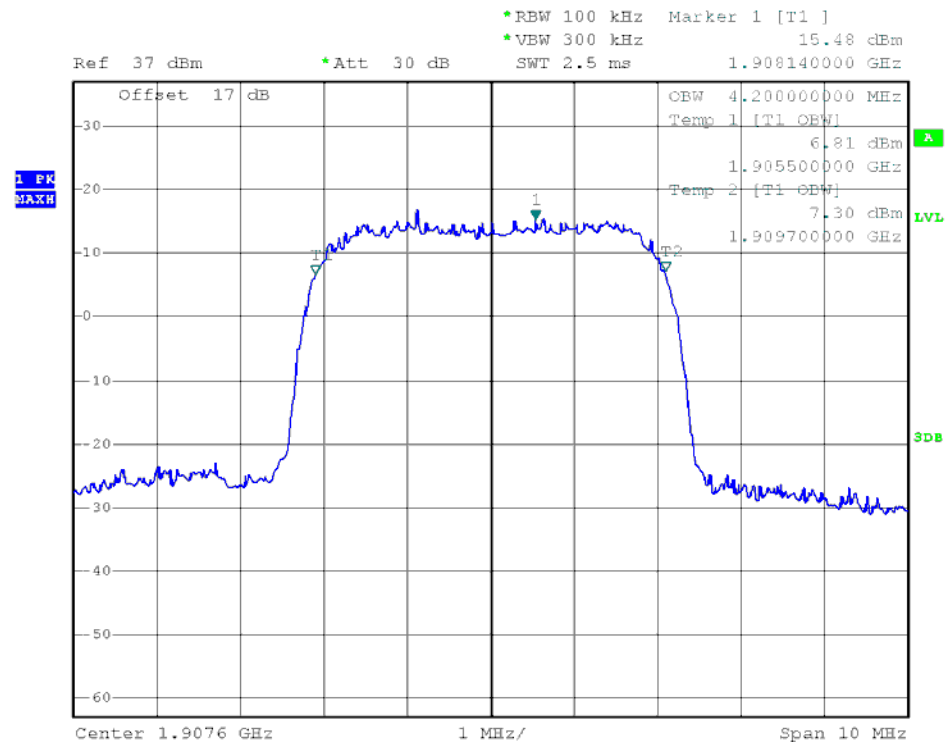
(Plot F3: HSDPA1900 MHz Channel = 9400)



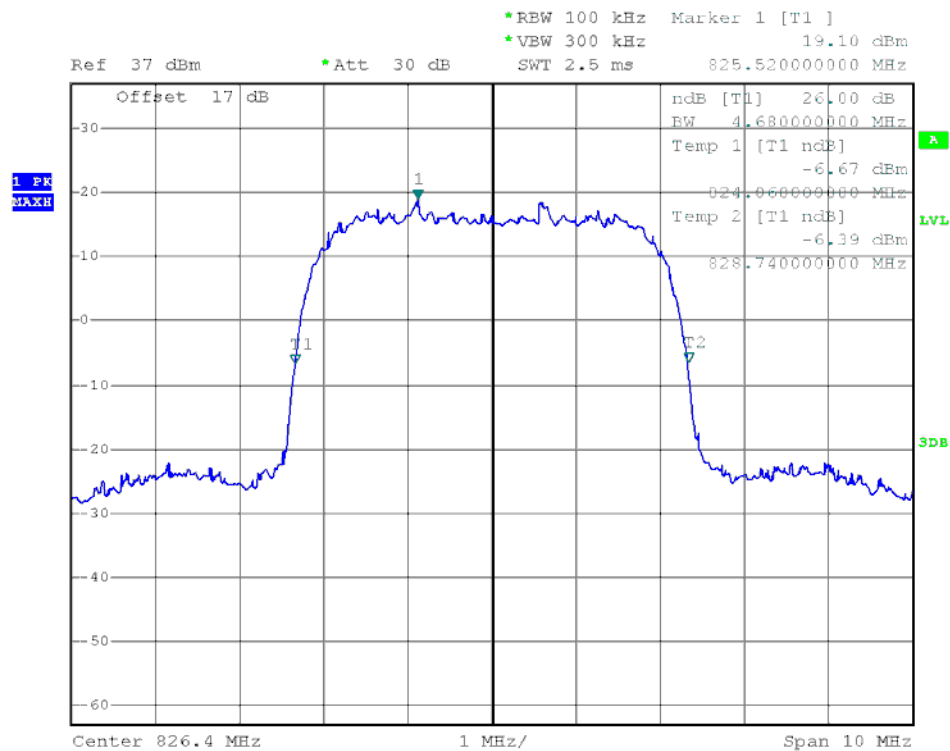
(Plot F4: HSDPA1900 MHz Channel = 9400)



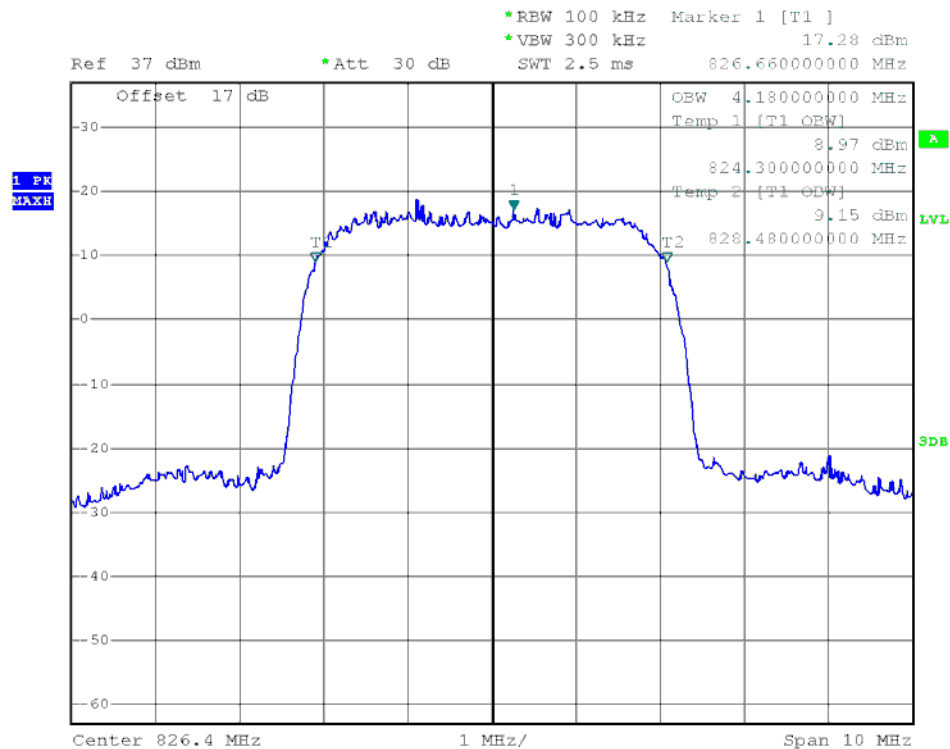
(Plot F5: HSDPA 1900 MHz Channel = 9538)



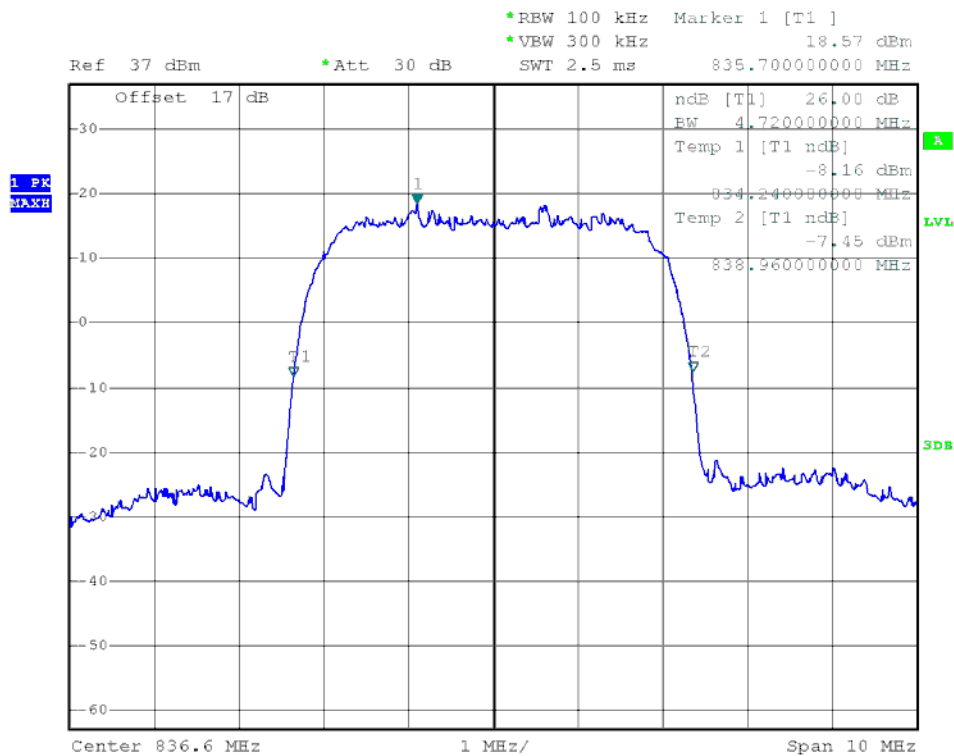
(Plot F6: HSDPA 1900 MHz Channel = 9538)



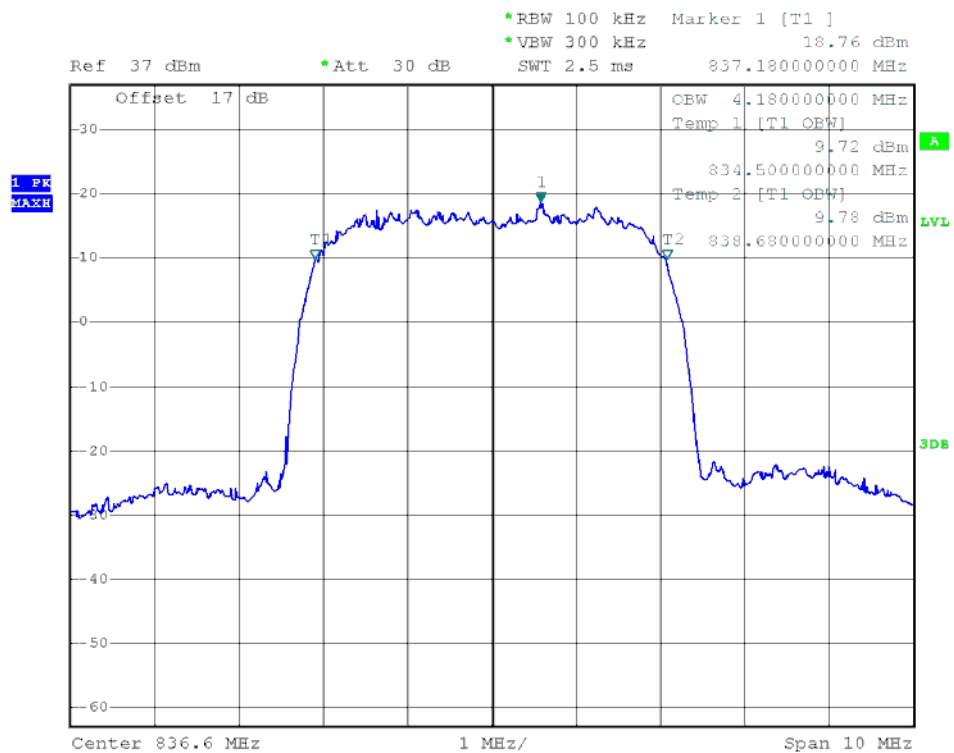
(Plot G1: HSUPA850 MHz Channel = 4132)



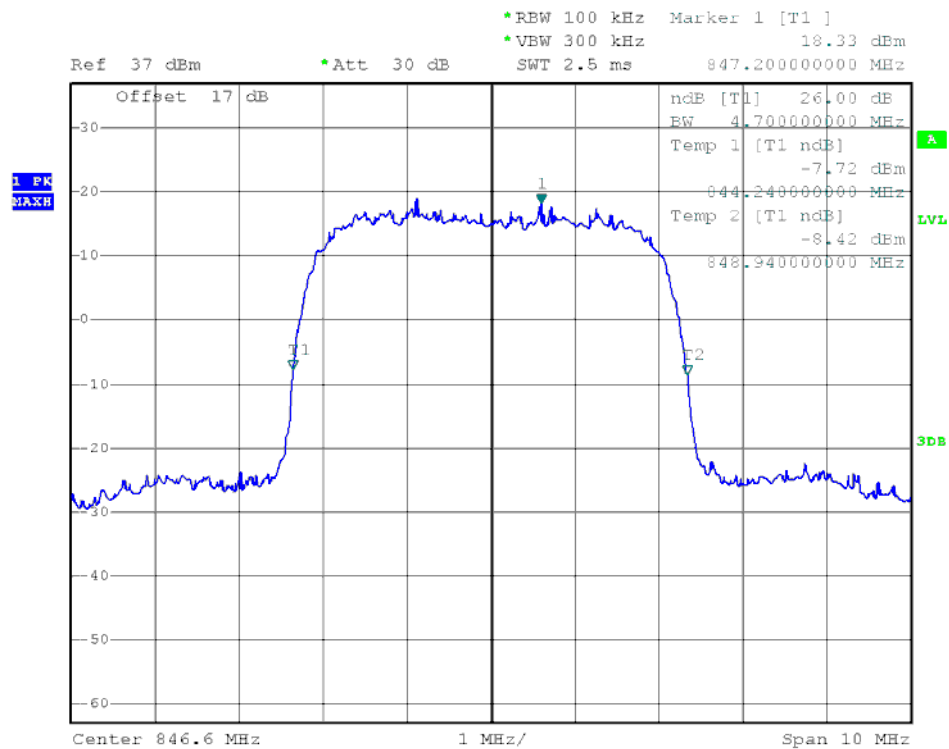
(Plot G2: HSUPA850 MHz Channel = 4132)



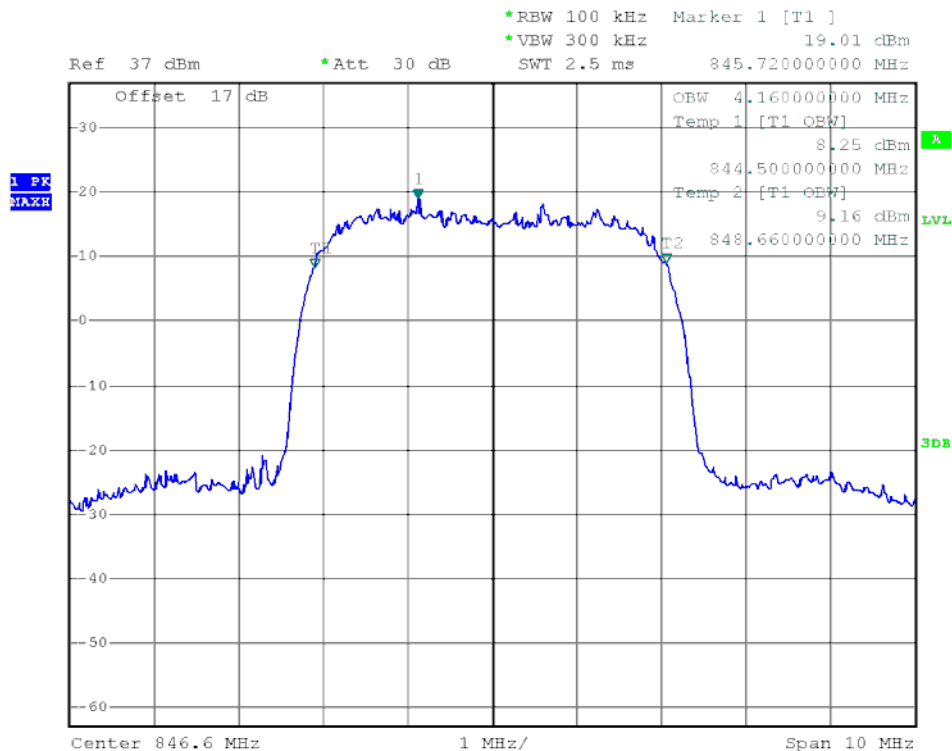
(Plot G3: HSUPA850 MHz Channel = 4183)



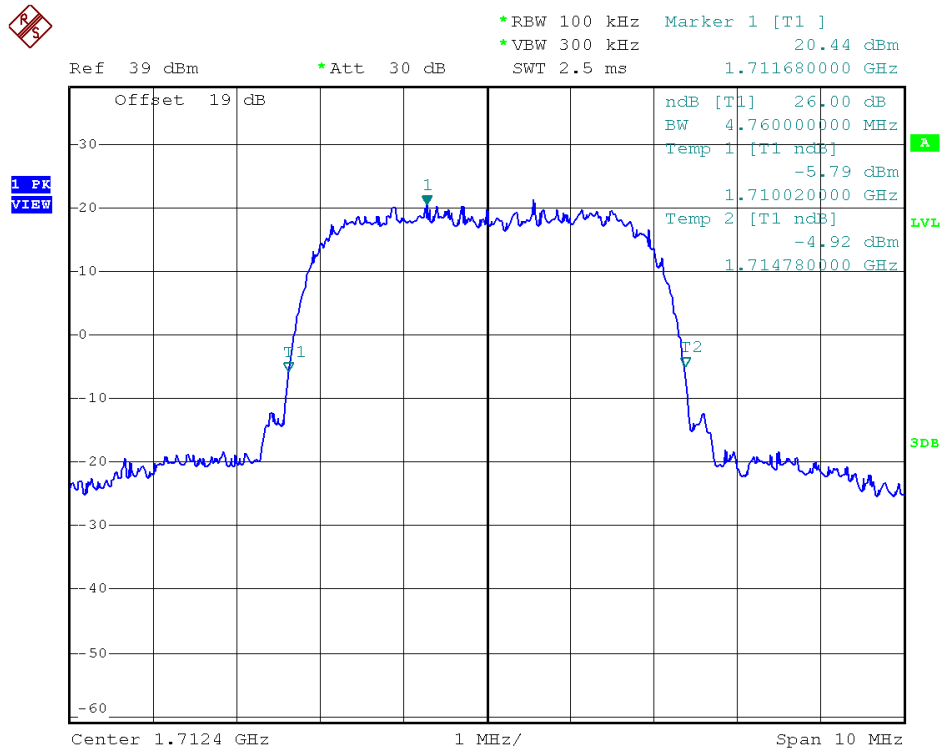
(Plot G4: HSUPA850 MHz Channel = 4183)



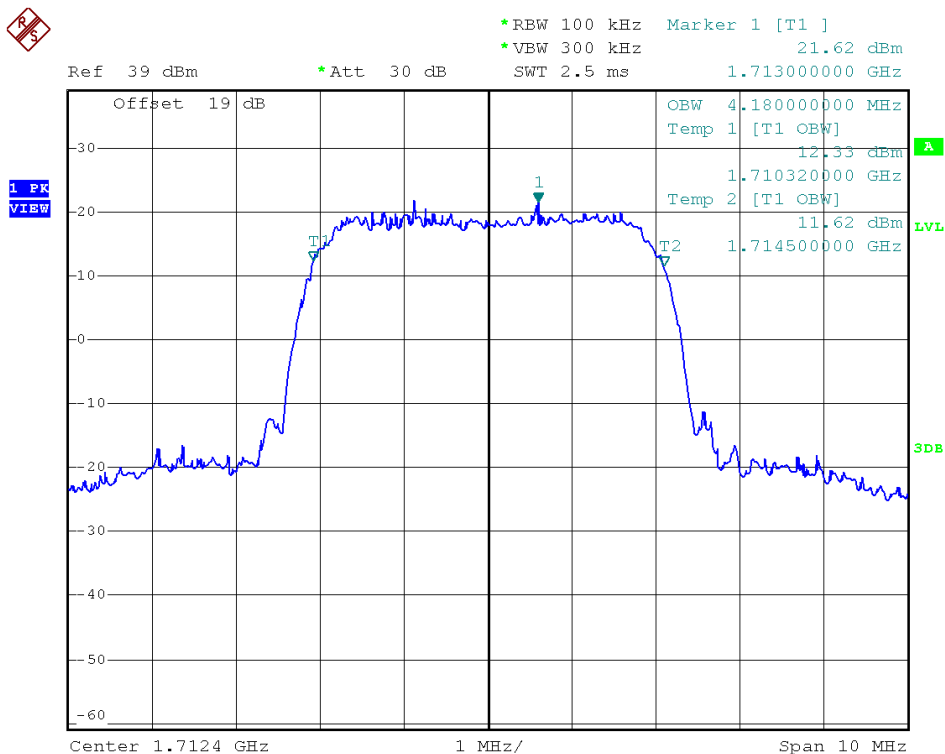
(Plot G5: HSUPA850 MHz Channel = 4233)



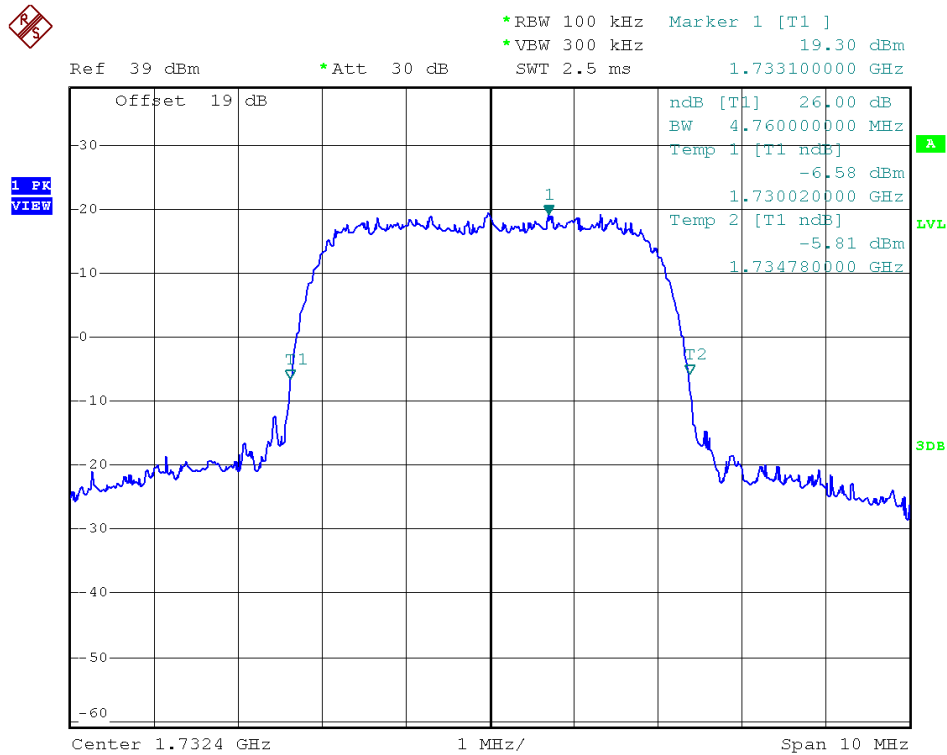
(Plot G6: HSUPA850 MHz Channel = 4233)



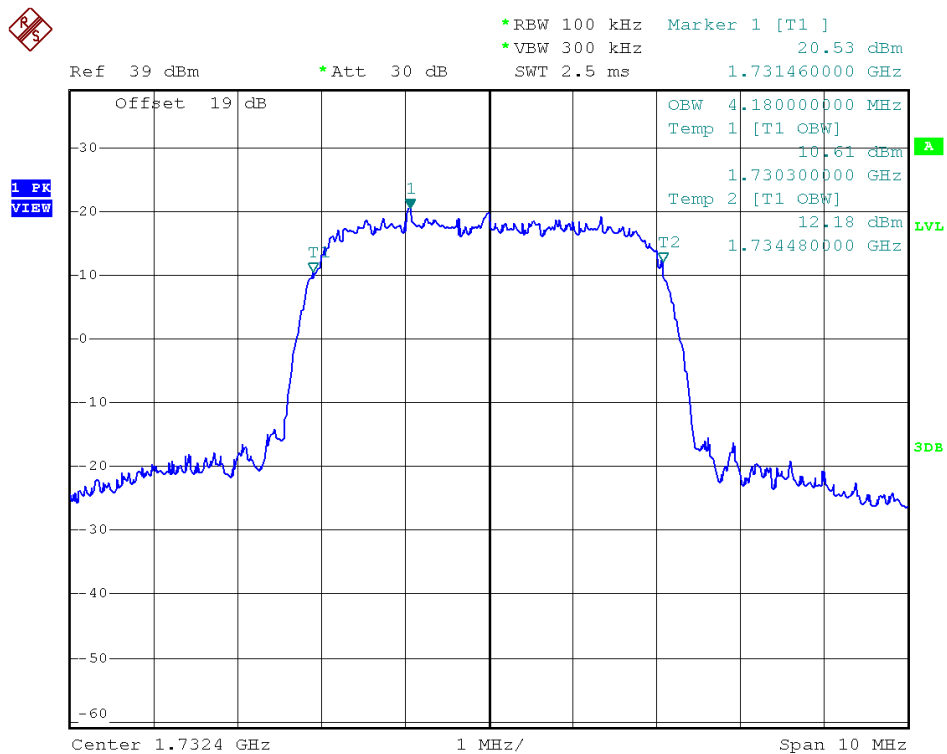
(Plot H1: HSUPA1700 MHz Channel = 1312)



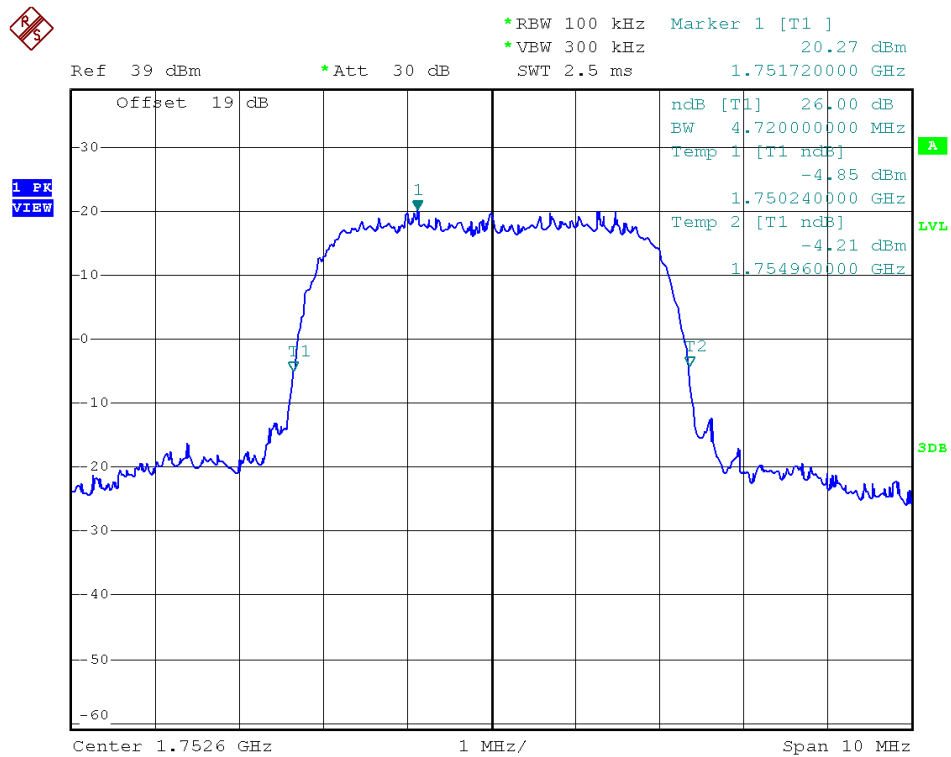
(Plot H2: HSUPA1700 MHz Channel = 1312)



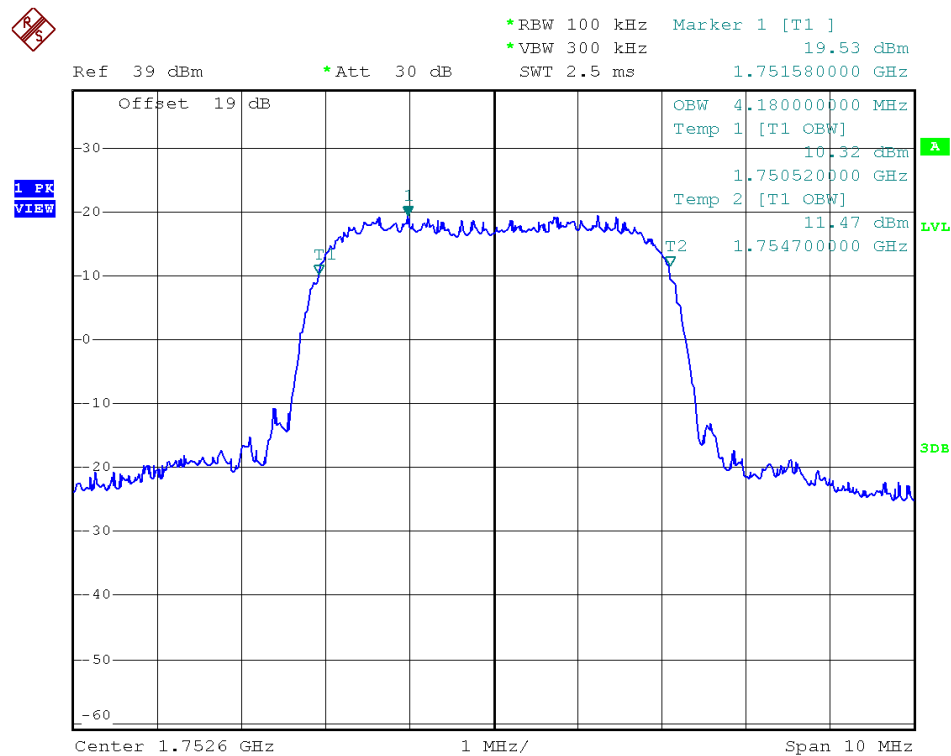
(Plot H3: HSUPA1700 MHz Channel = 1412)



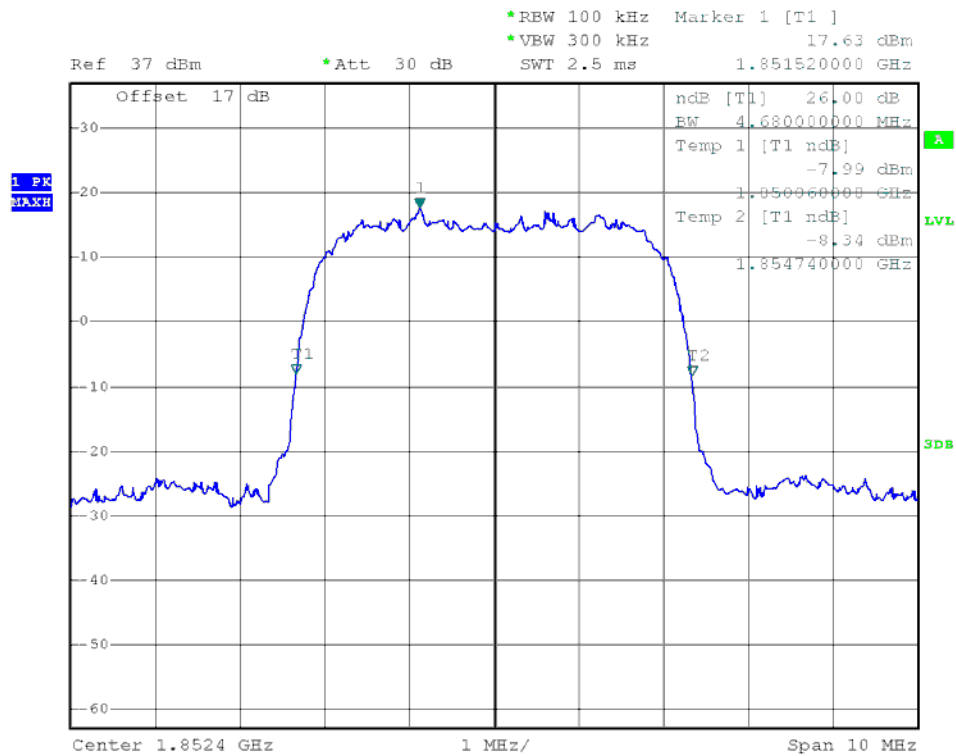
(Plot H4: HSUPA1700 MHz Channel = 1412)



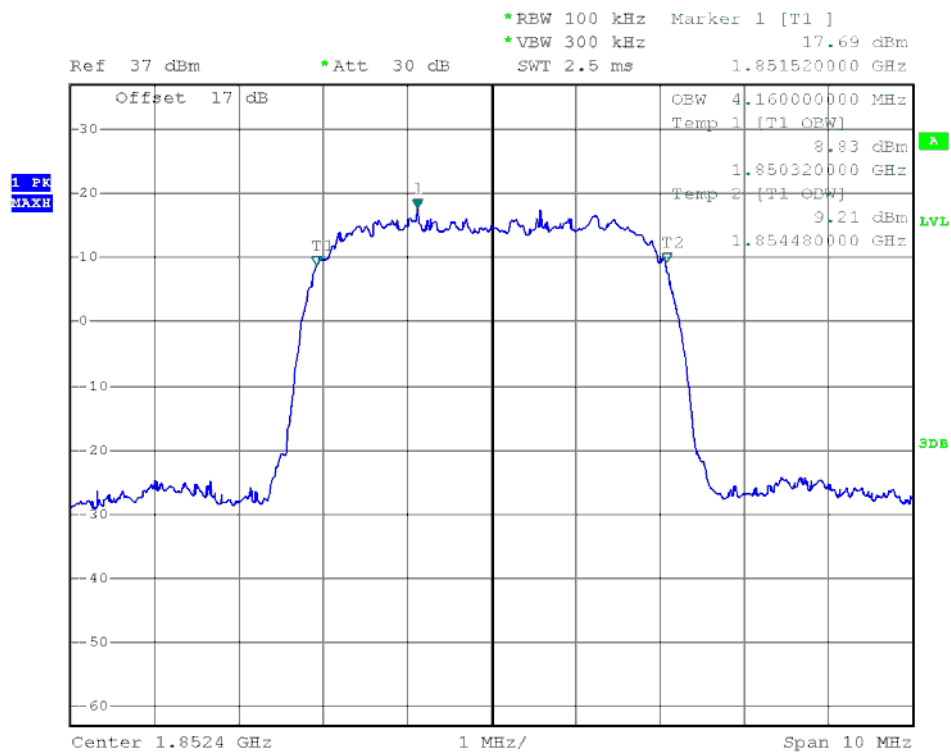
(Plot H5: HSUPA1700 MHz Channel = 1513)



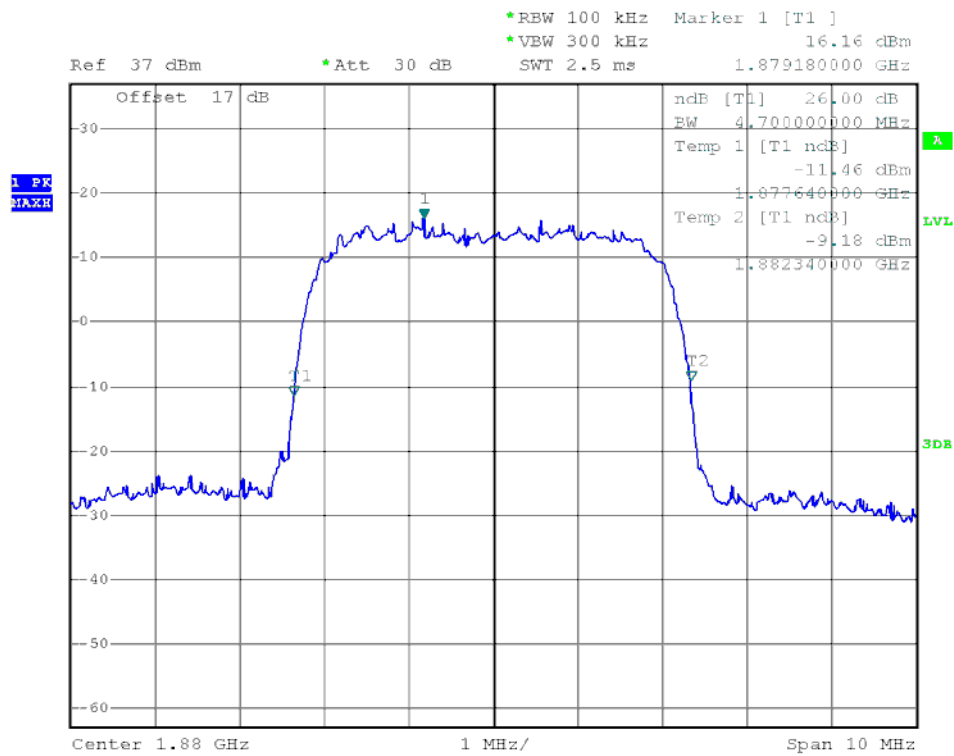
(Plot H6: HSUPA1700 MHz Channel = 1513)



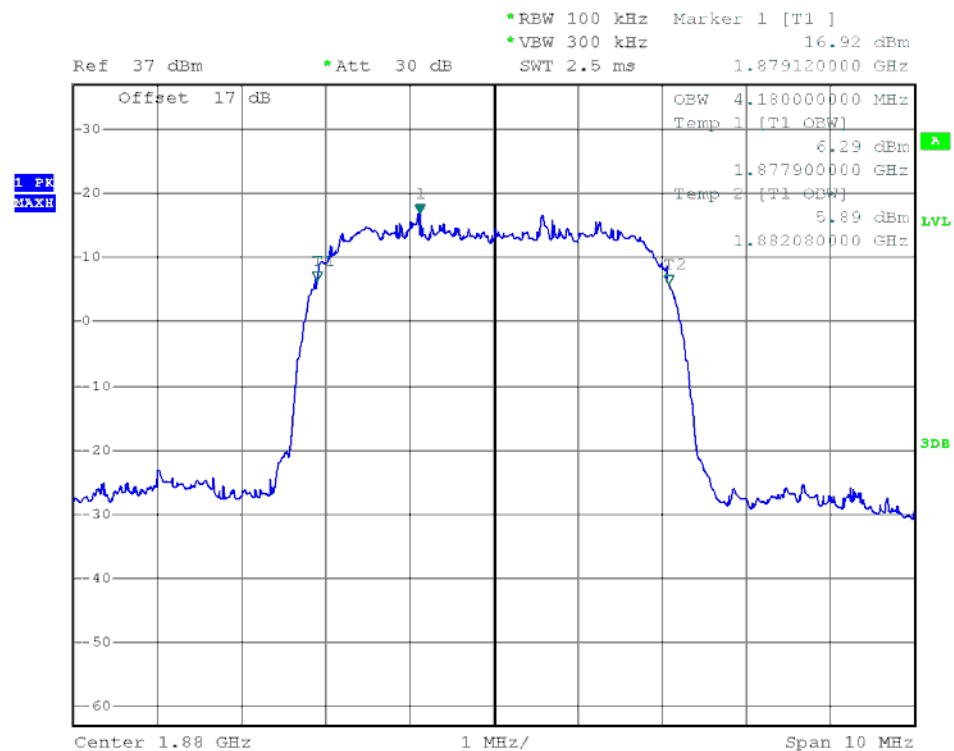
(Plot I1: HSUPA1900 MHz Channel = 9262)



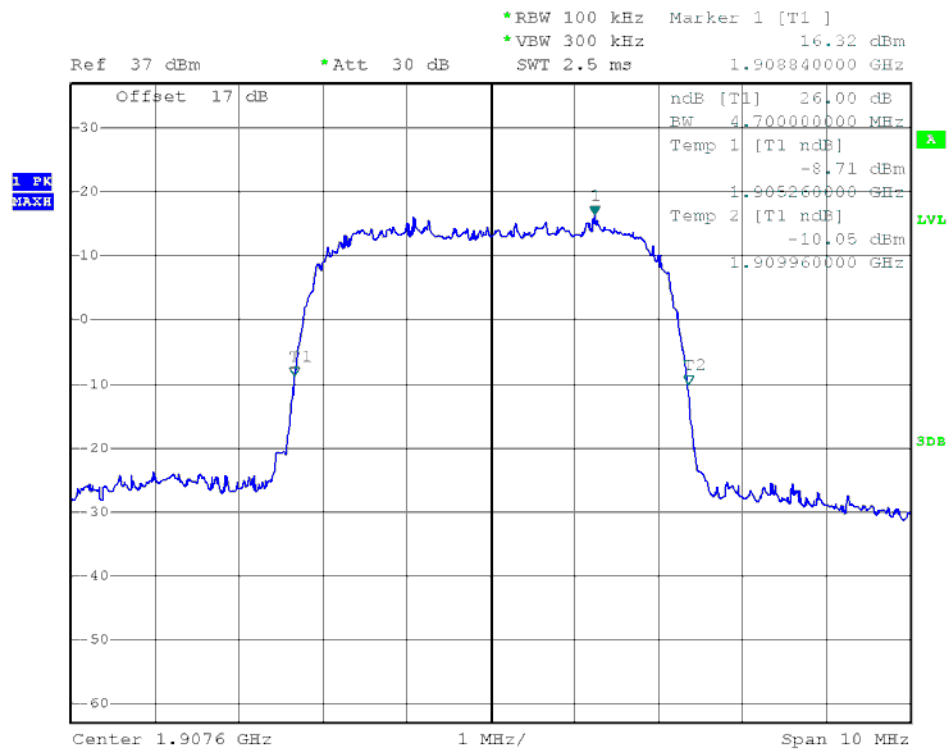
(Plot I2: HSUPA1900 MHz Channel = 9262)



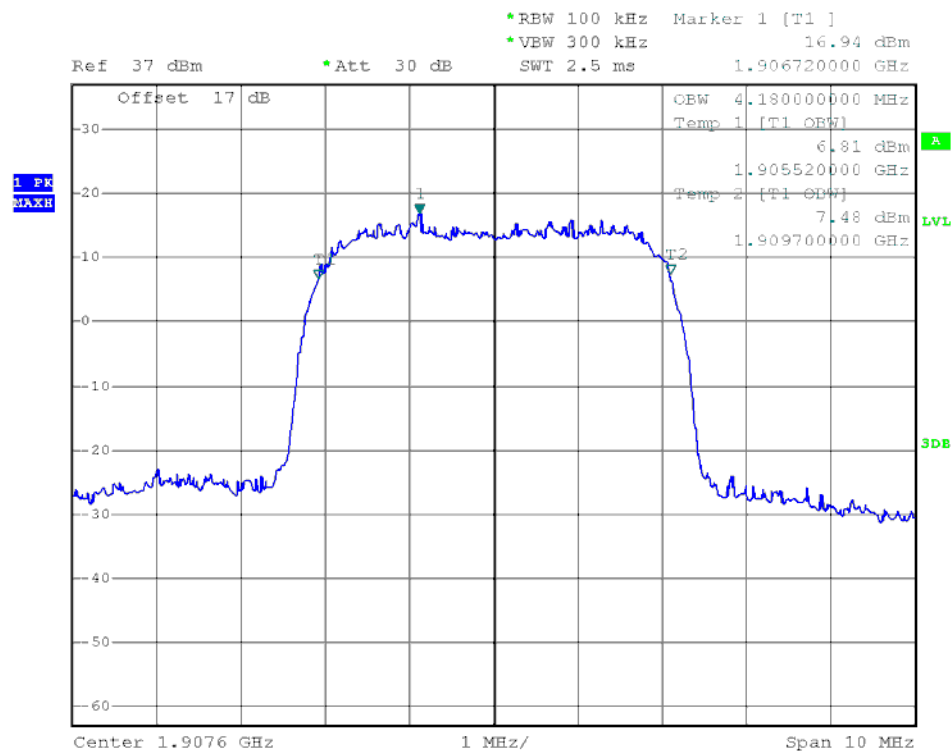
(Plot I3: HSUPA1900 MHz Channel = 9400)



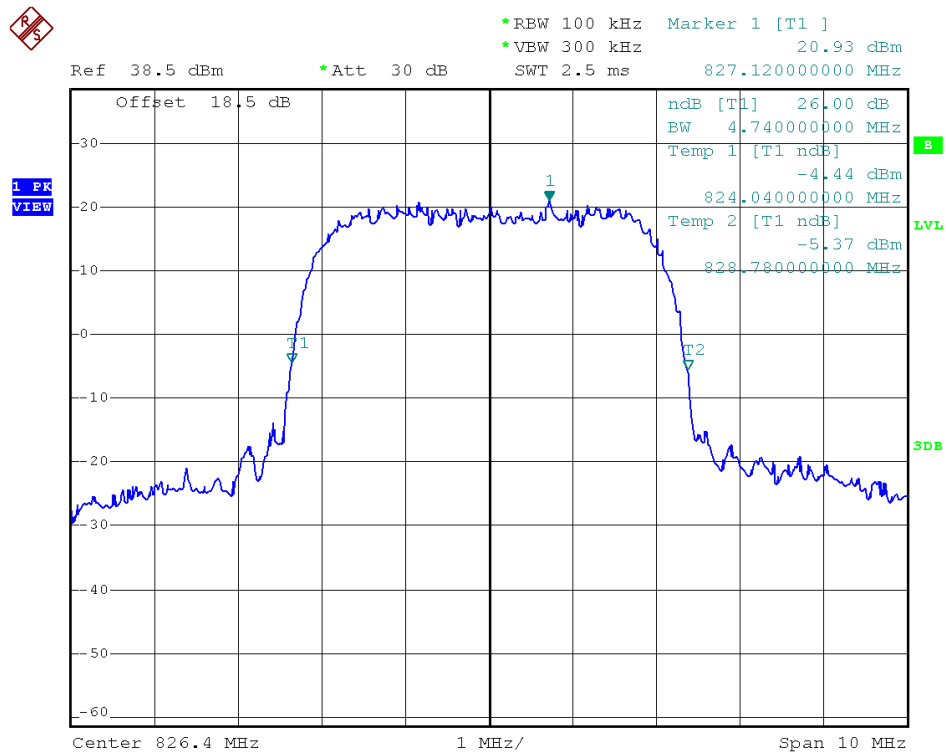
(Plot I4: HSUPA1900 MHz Channel = 9400)



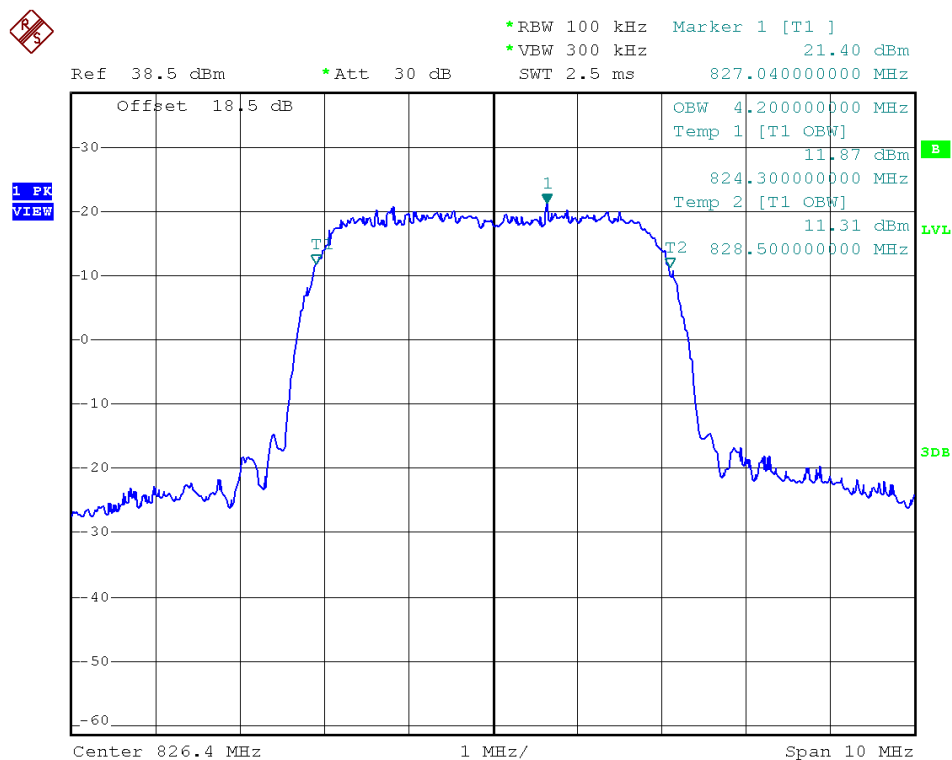
(Plot I5: HSUPA1900 MHz Channel = 9538)



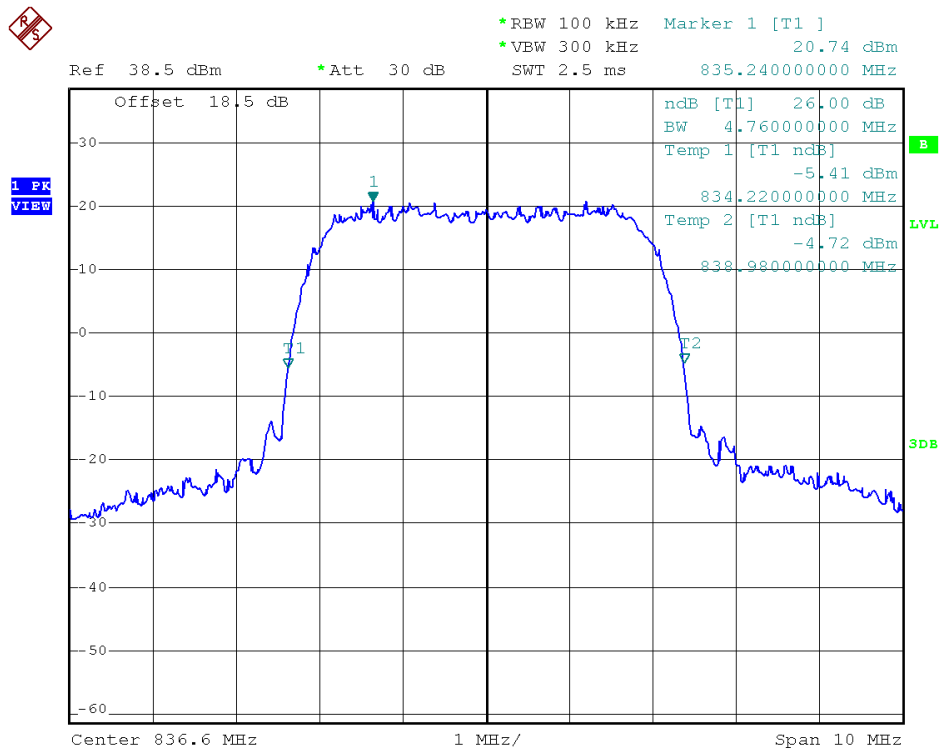
(Plot I6: HSUPA1900 MHz Channel = 9538)



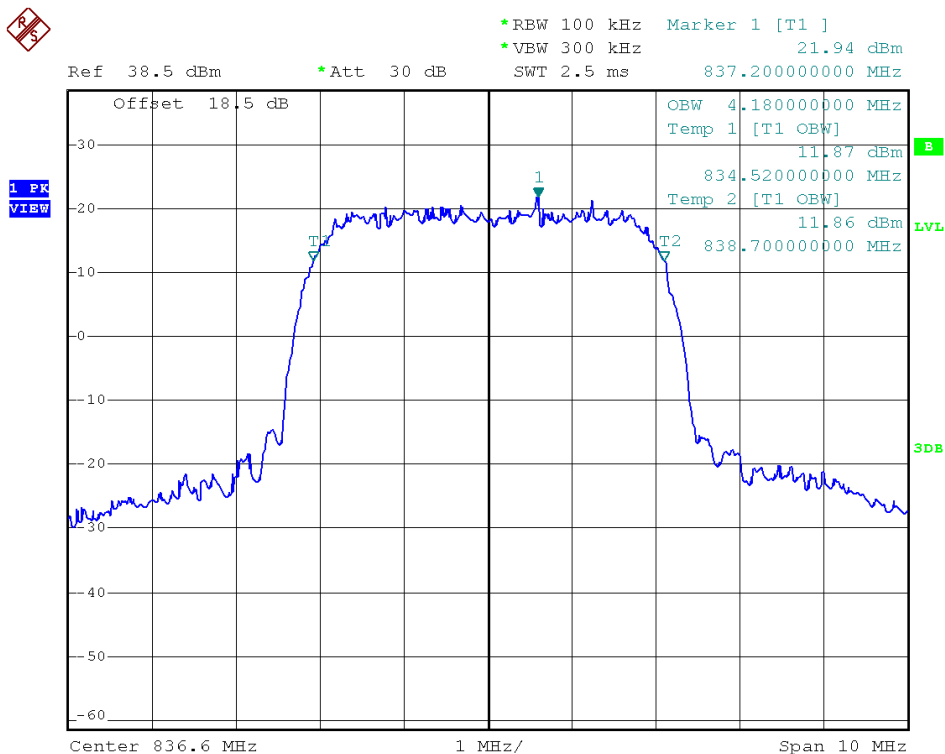
(Plot J1: HSPA+850 MHz Channel = 4132)



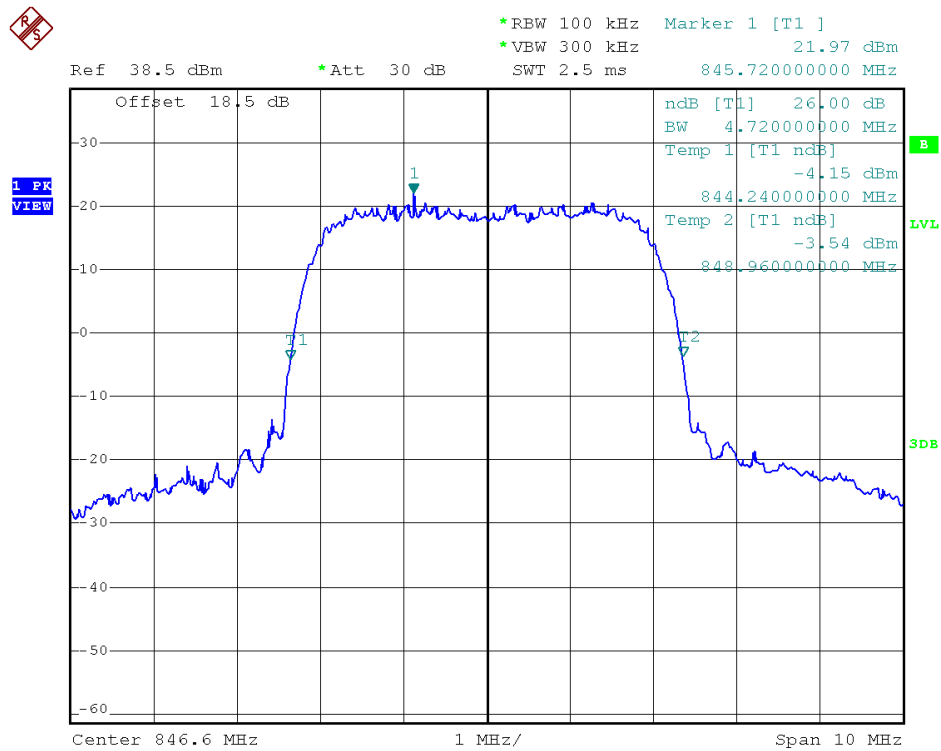
(Plot J2: HSPA+850 MHz Channel = 4132)



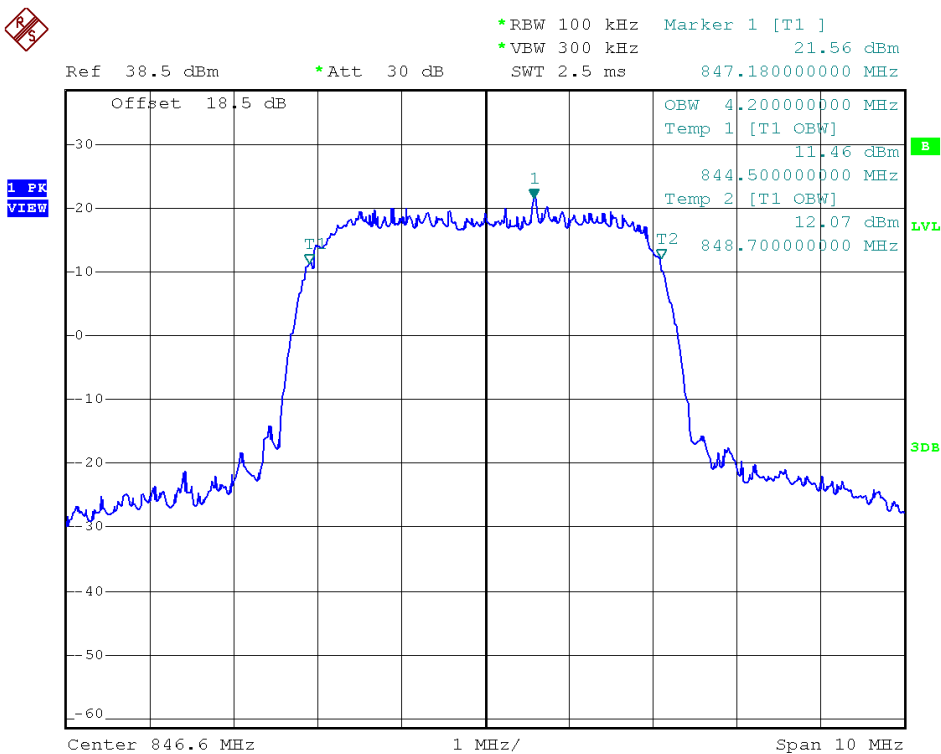
(Plot J3: HSPA+850 MHz Channel = 4183)



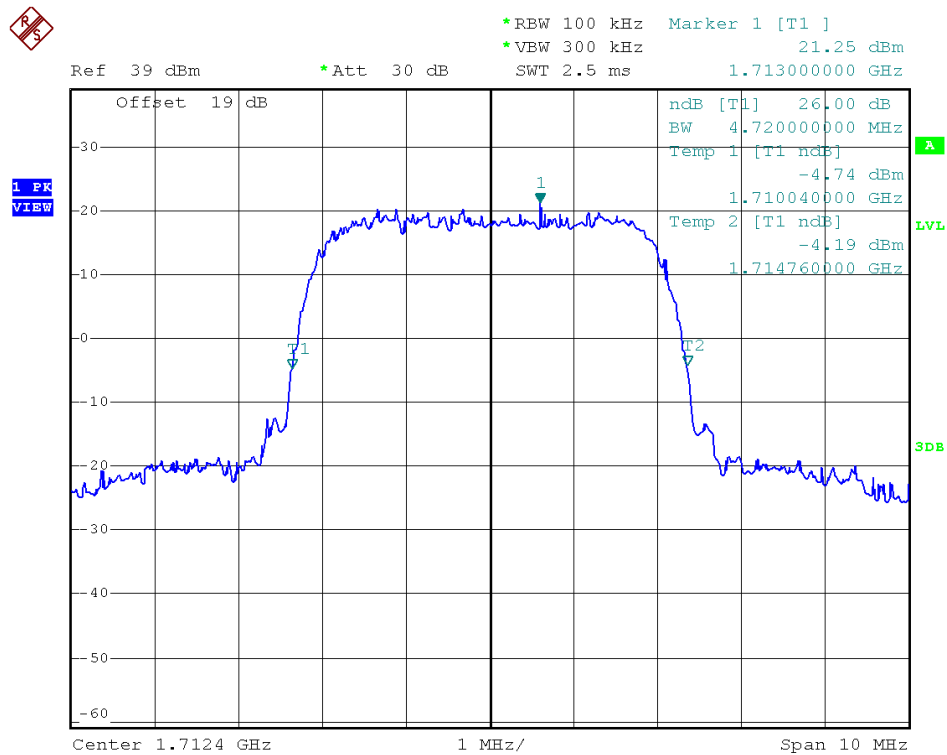
(Plot J4: HSPA+850 MHz Channel = 4183)



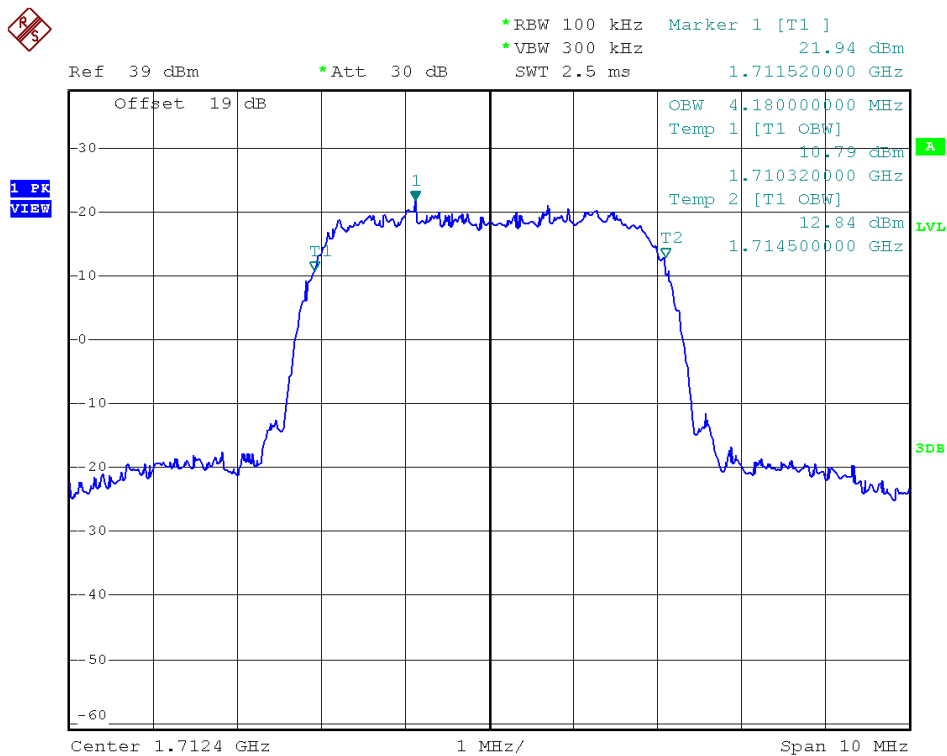
(Plot J5: HSPA+850 MHz Channel = 4233)



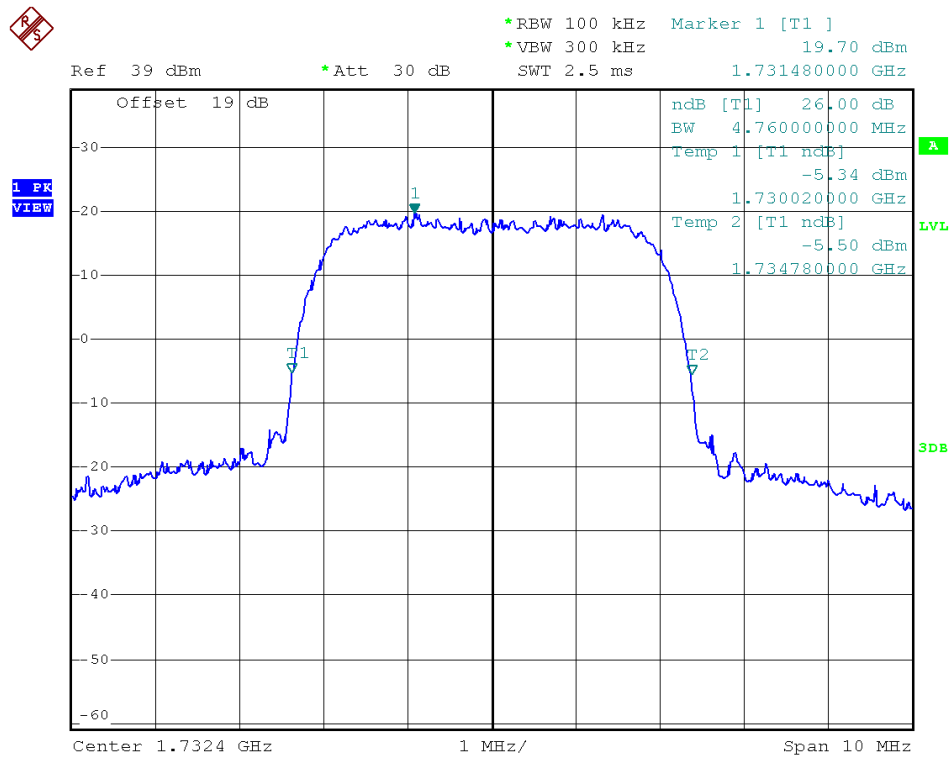
(Plot J6: HSPA+850 MHz Channel = 4233)



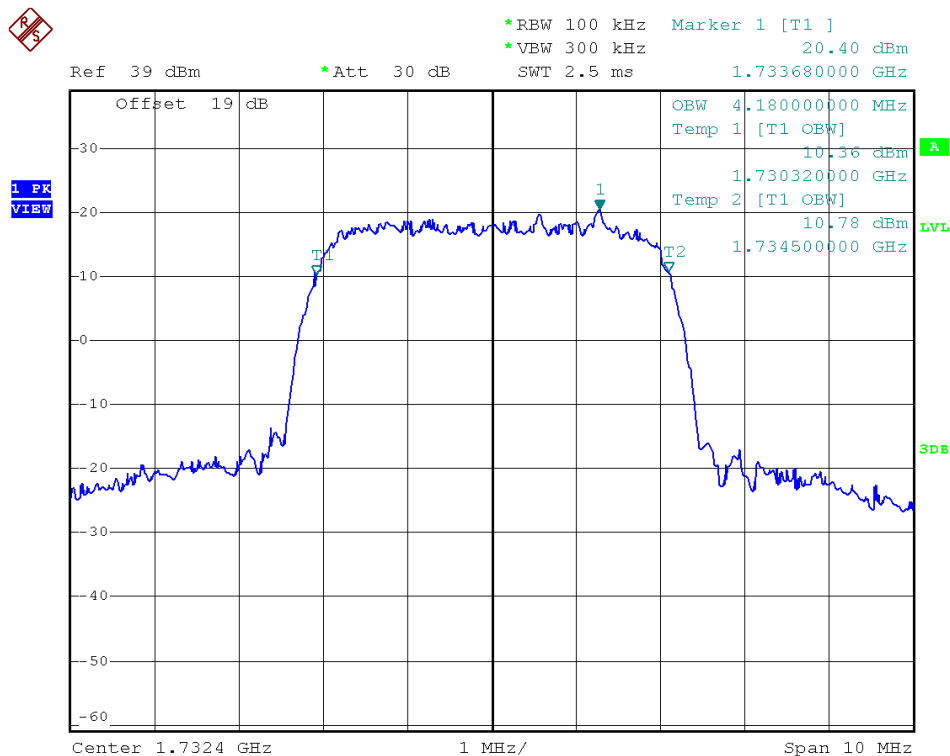
(Plot K1: HSPA+1700 MHz Channel = 1312)



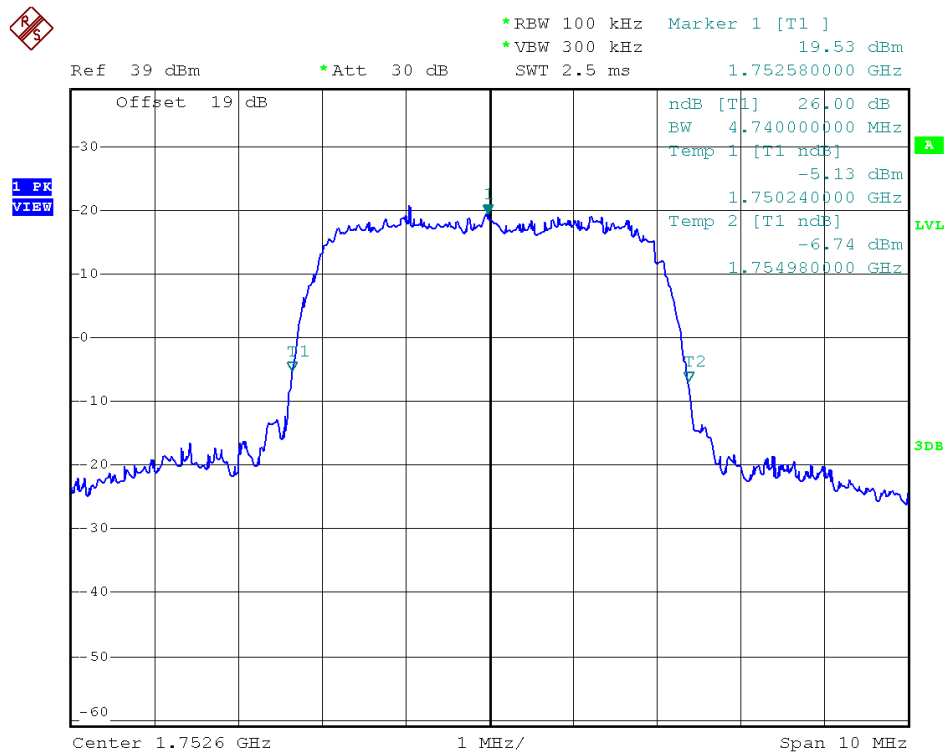
(Plot K2: HSPA+1700 MHz Channel = 1312)



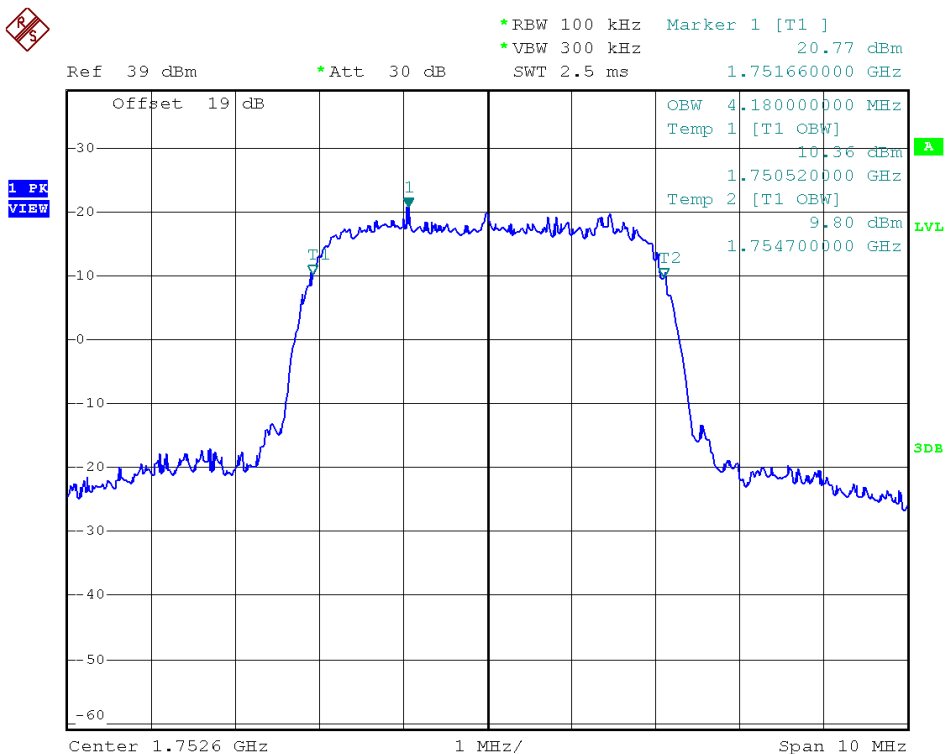
(Plot K3: HSPA+1700 MHz Channel = 1412)



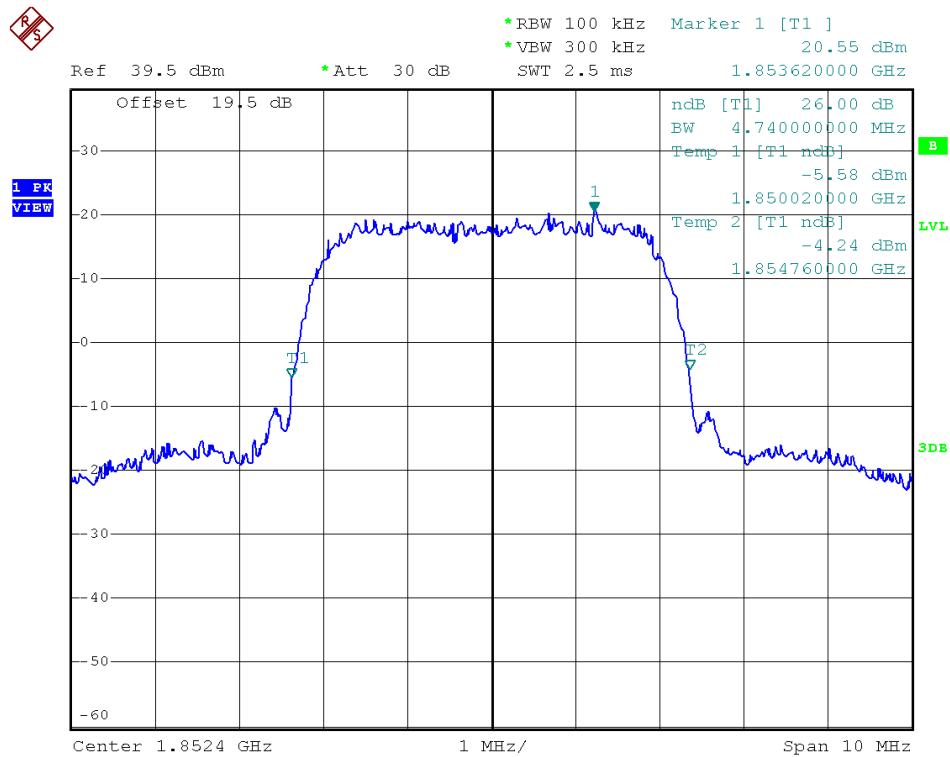
(Plot K4: HSPA+1700 MHz Channel = 1412)



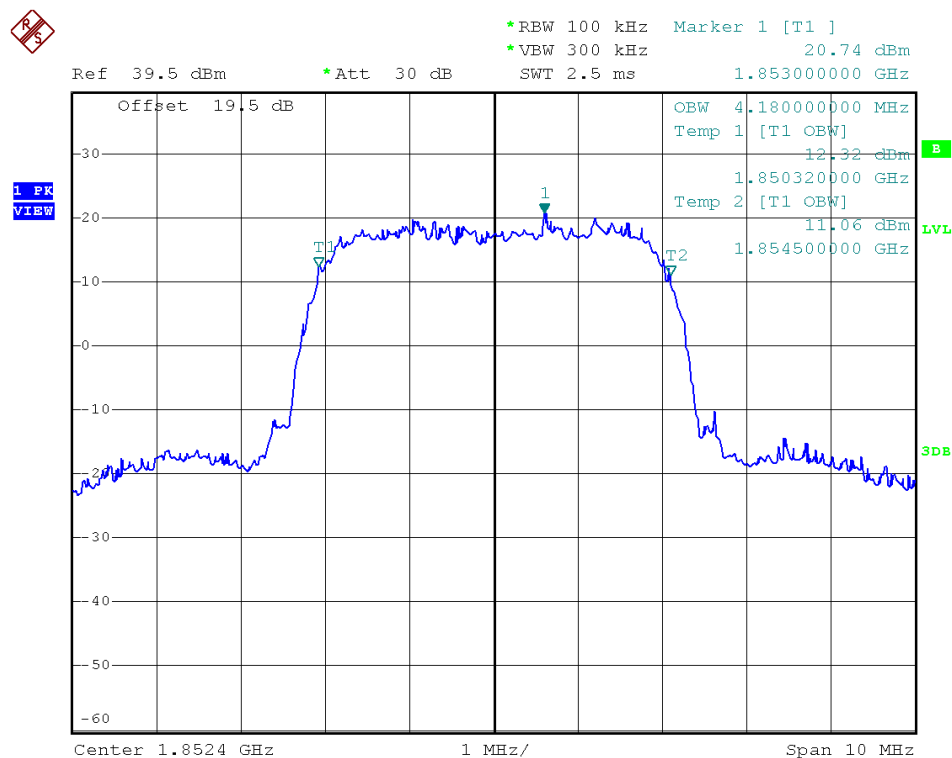
(Plot K5: HSPA+1700 MHz Channel = 1513)



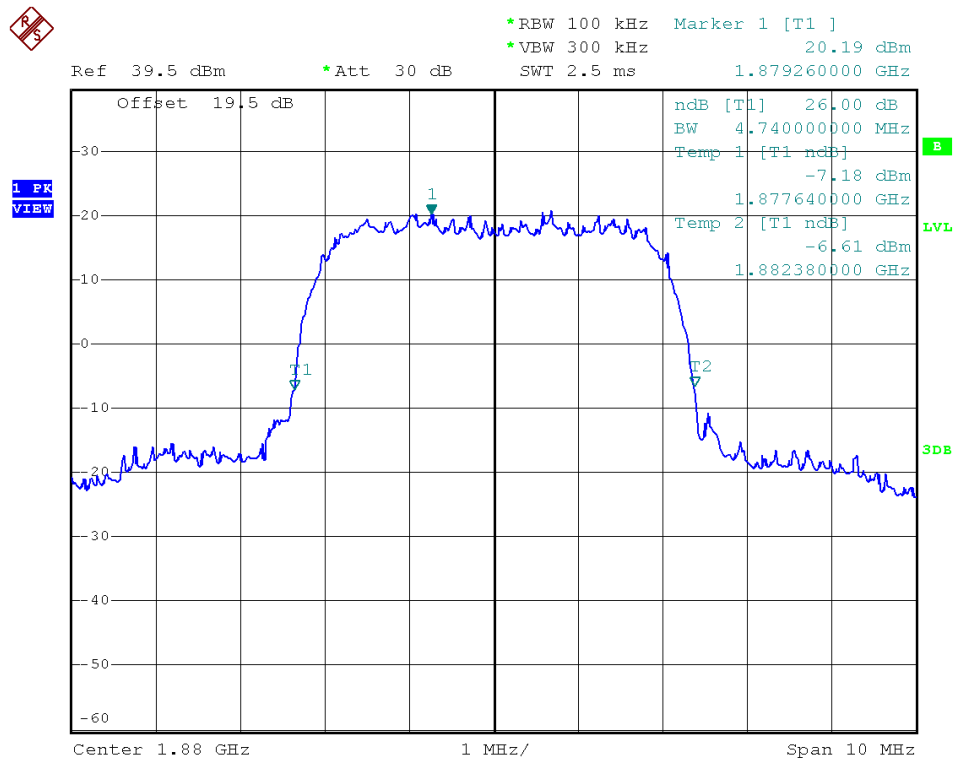
(Plot K6: HSPA+1700 MHz Channel = 1513)



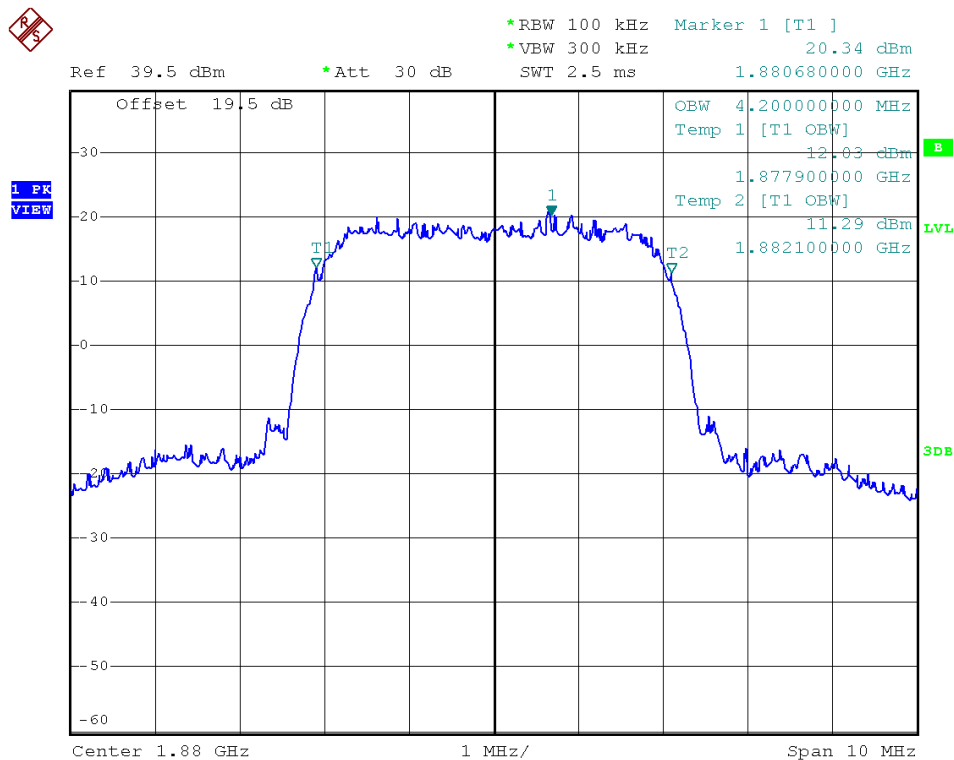
(Plot L1: HSPA+1900 MHz Channel = 9262)



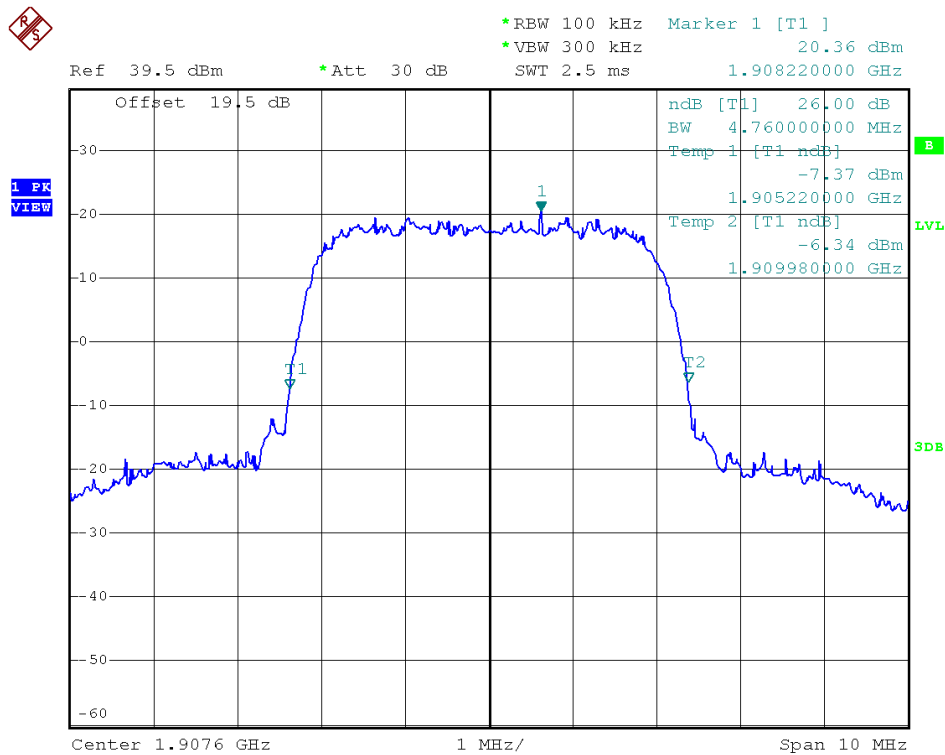
(Plot L2: HSPA+1900 MHz Channel = 9262)



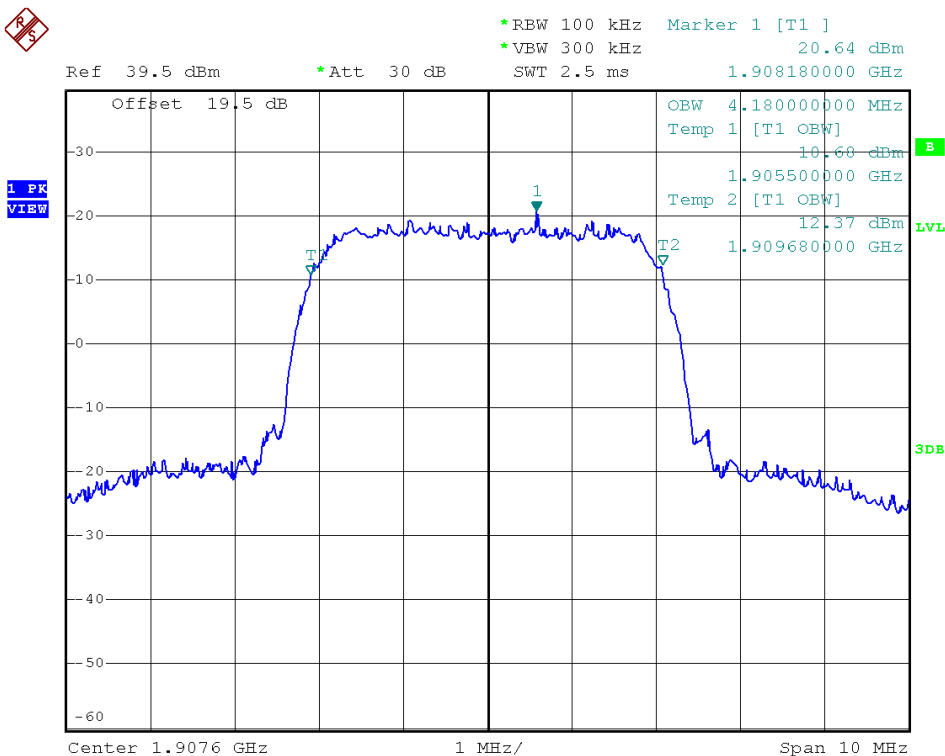
(Plot L3: HSPA+1900 MHz Channel = 9400)



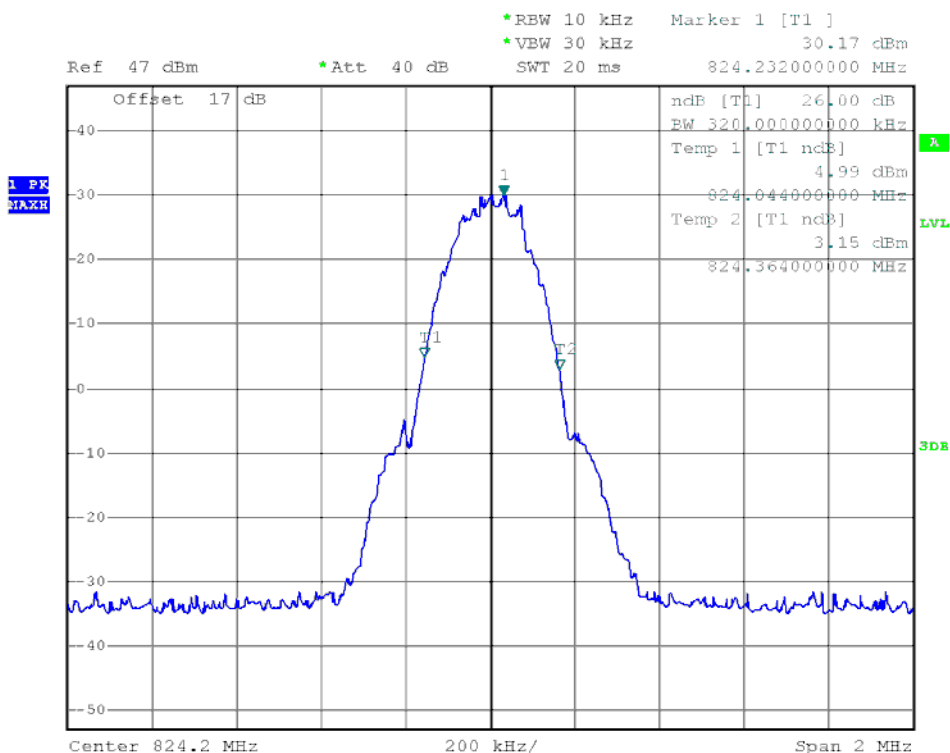
(Plot L4: HSPA+1900 MHz Channel = 9400)



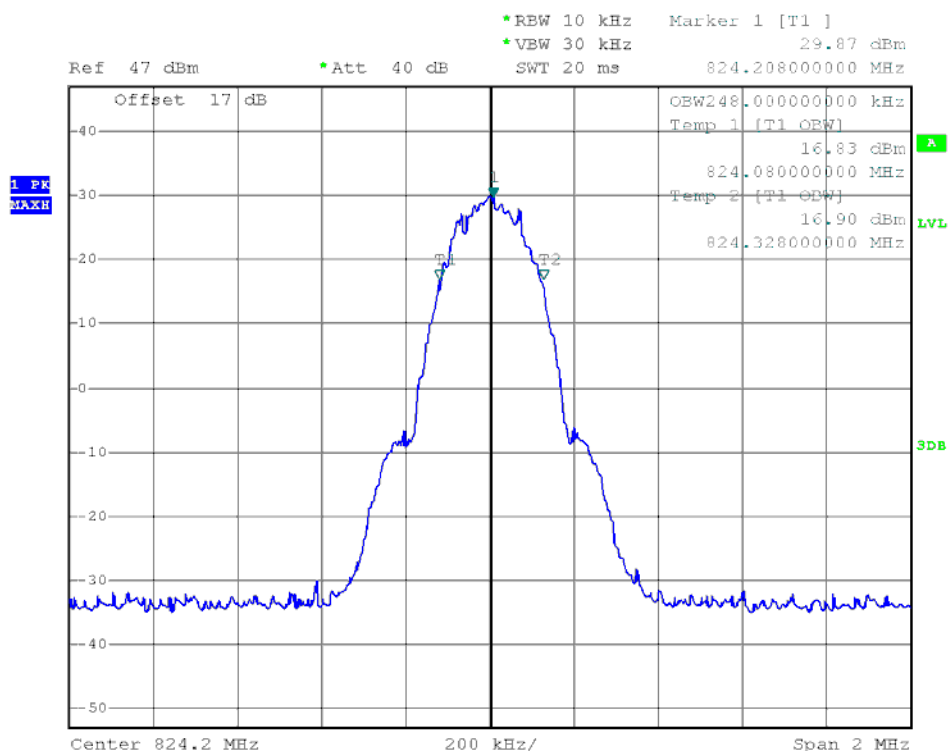
(Plot L5: HSPA+1900 MHz Channel = 9538)



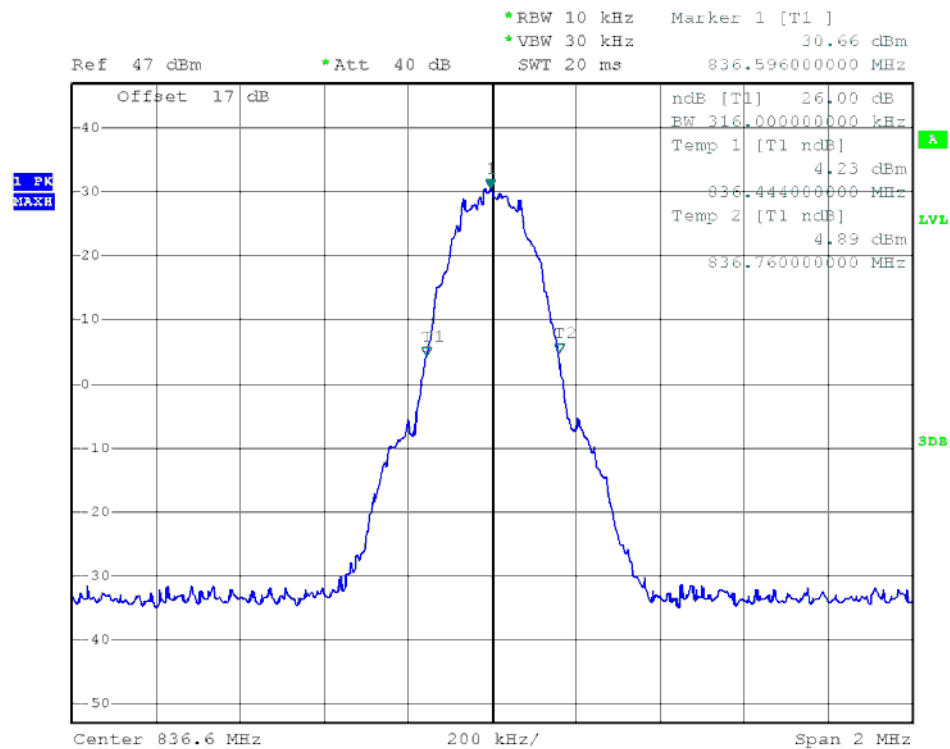
(Plot L6: HSPA+1900 MHz Channel = 9538)



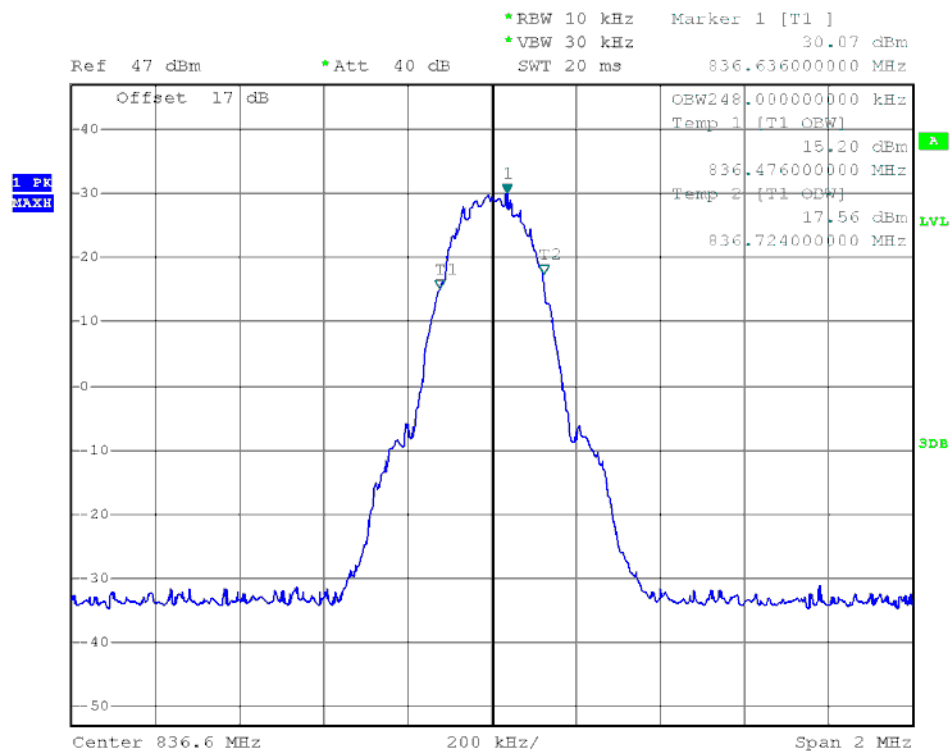
(Plot M1: GSM 850MHz Channel = 128)



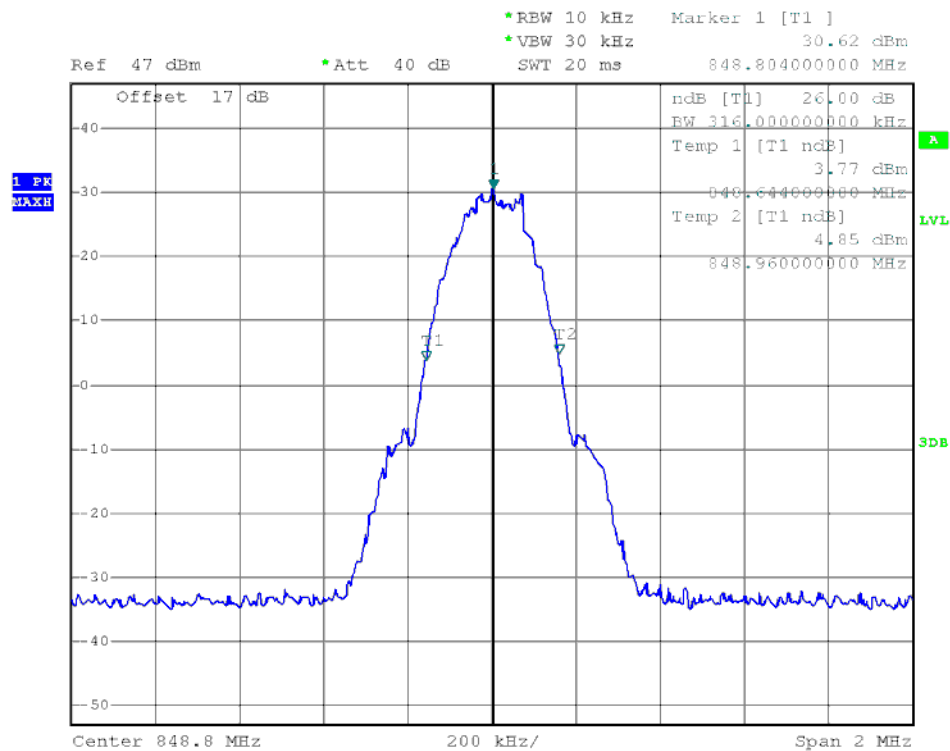
(Plot M2: GSM 850MHz Channel = 128)



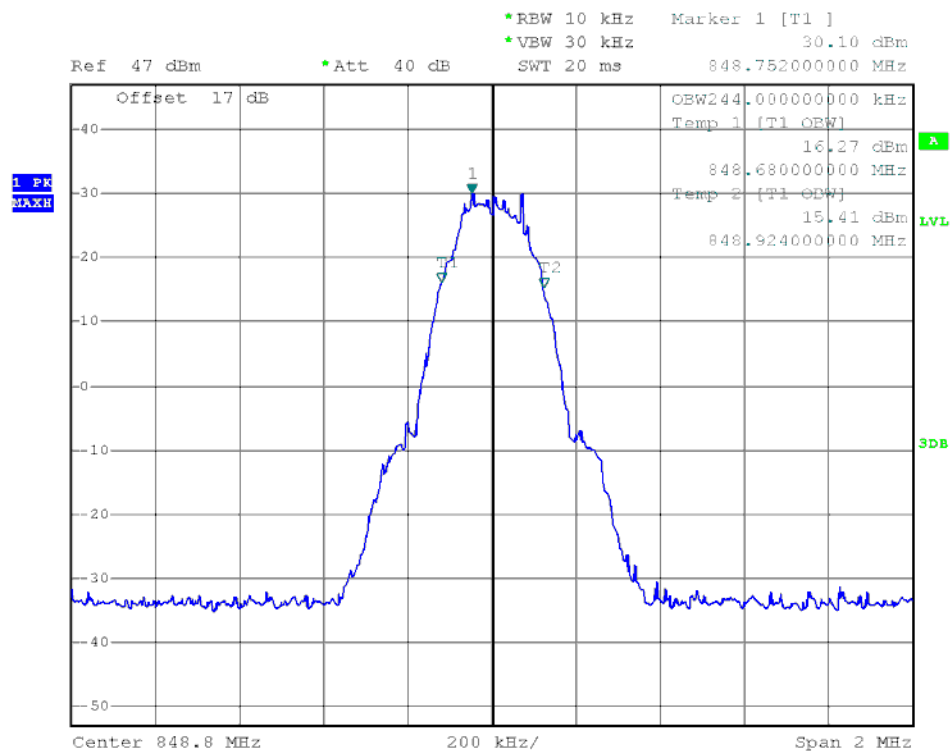
(Plot M3: GSM 850MHz Channel = 190)



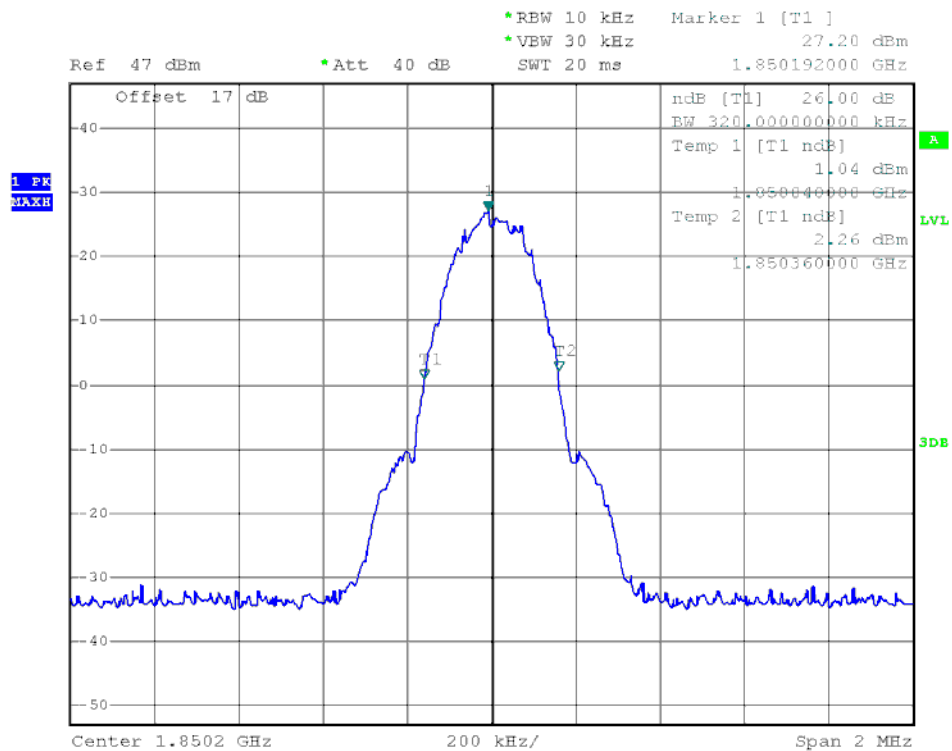
(Plot M4: GSM 850MHz Channel = 190)



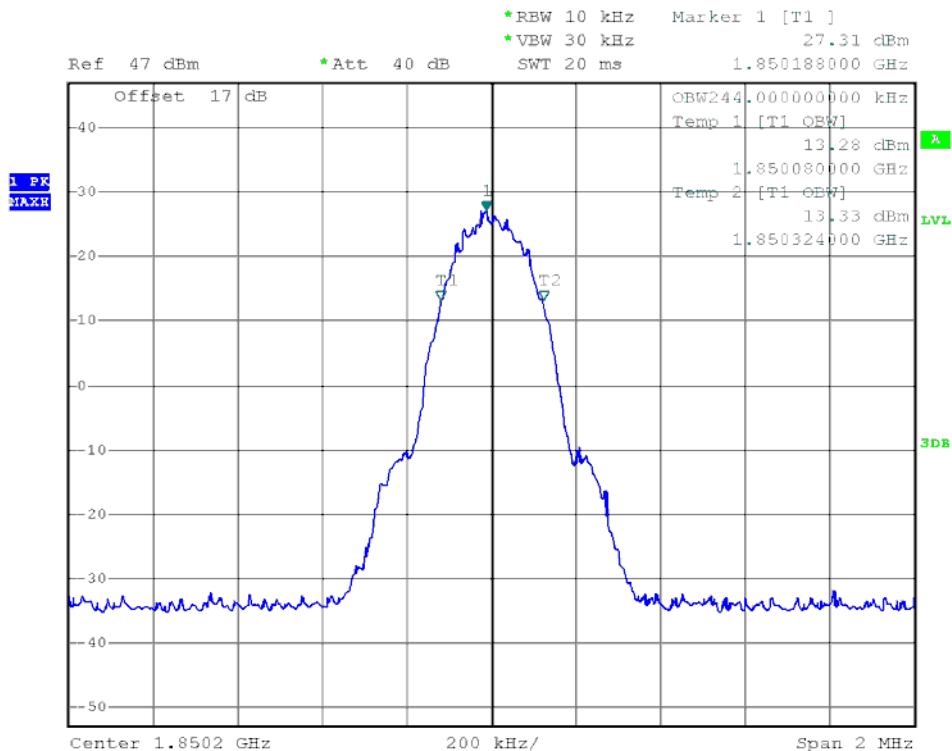
(Plot M5: GSM 850MHz Channel = 251)



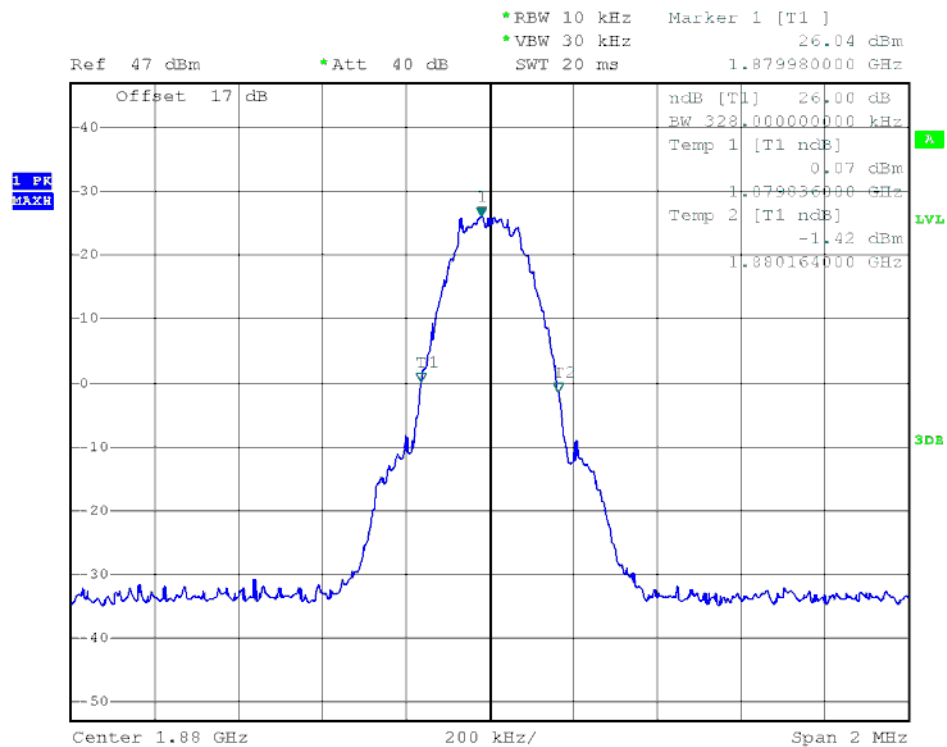
(Plot M6: GSM 850MHz Channel = 251)



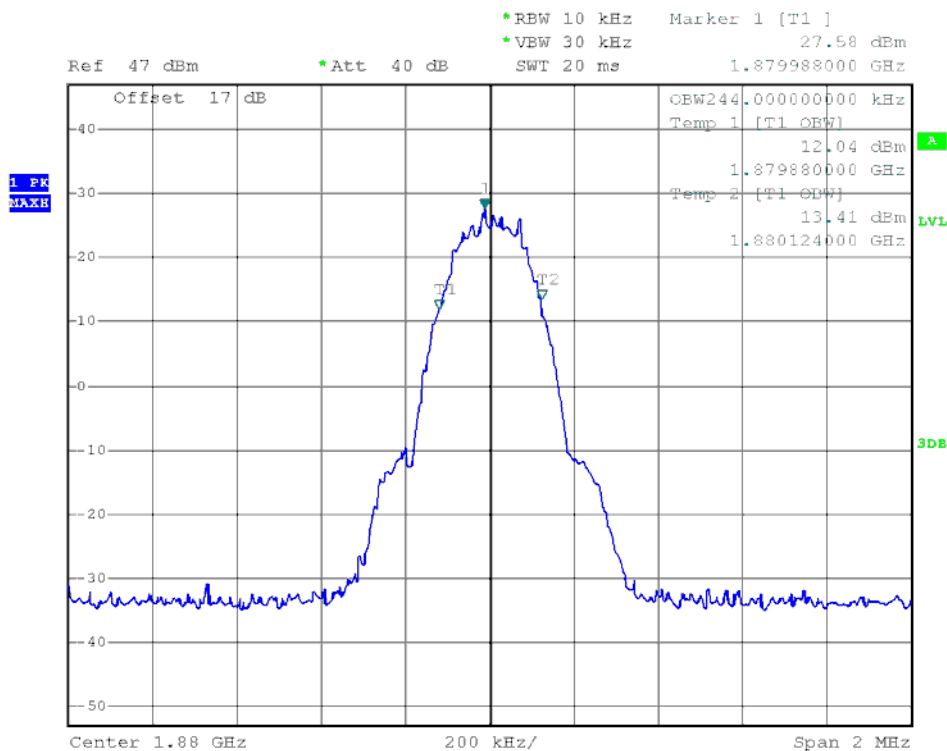
(Plot N1: GSM 1900MHz Channel = 512)



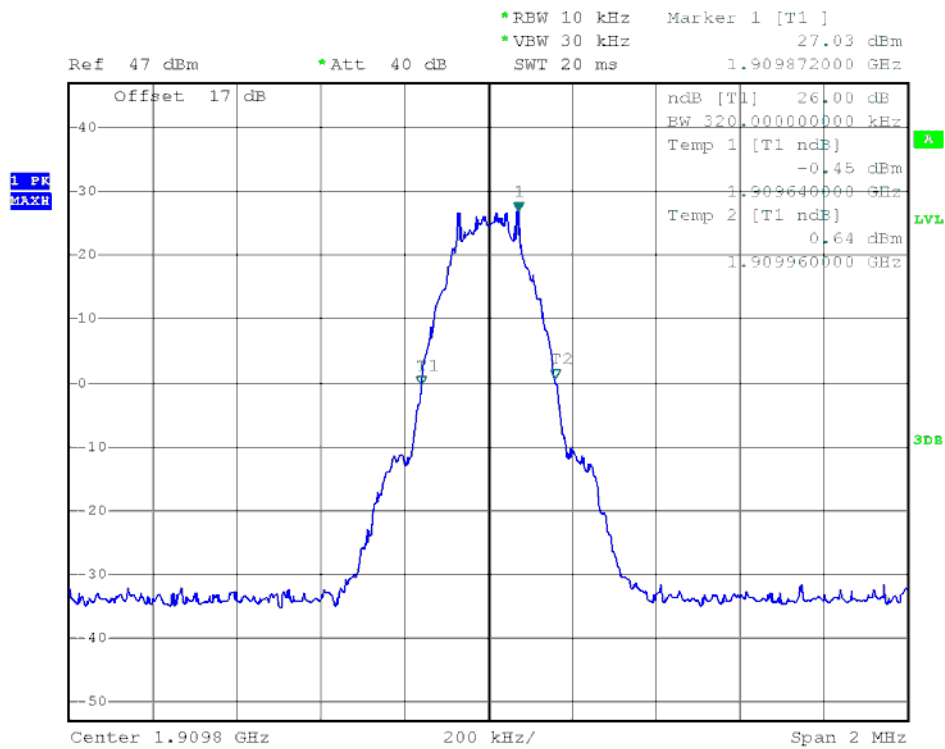
(Plot N2: GSM 1900MHz Channel = 512)



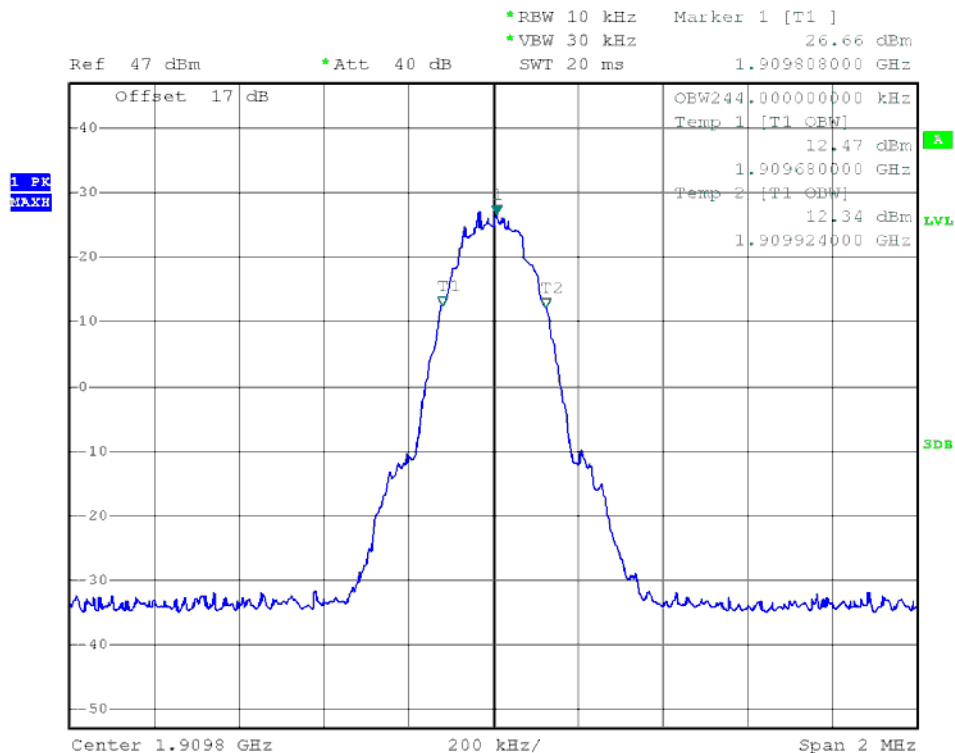
(Plot N3: GSM 1900MHz Channel = 661)



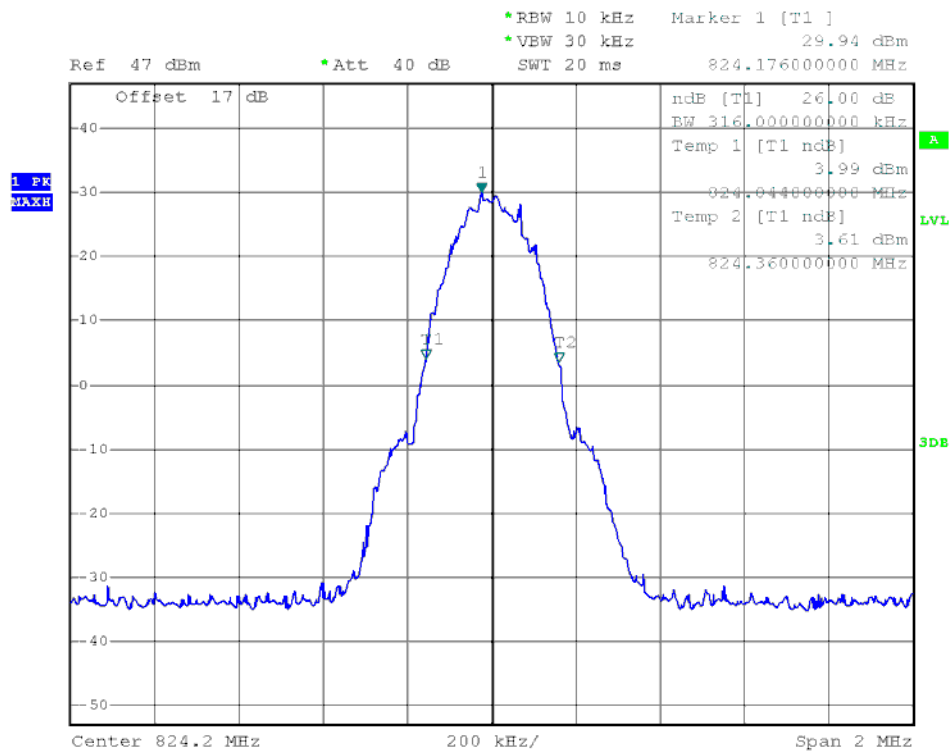
(Plot N4: GSM 1900MHz Channel = 661)



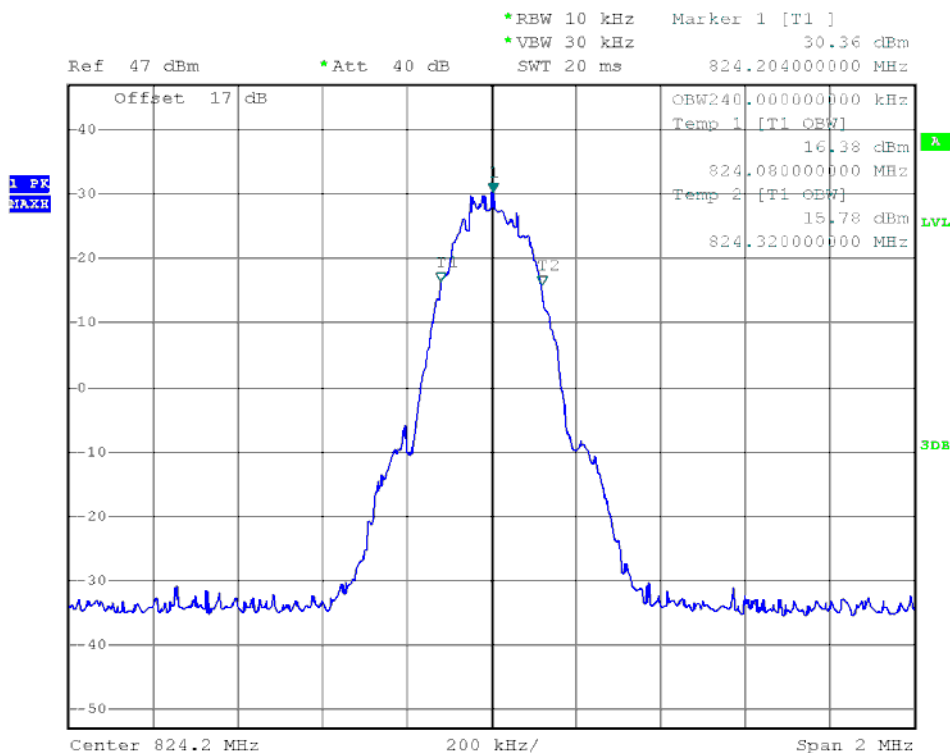
(Plot N5: GSM 1900MHz Channel = 810)



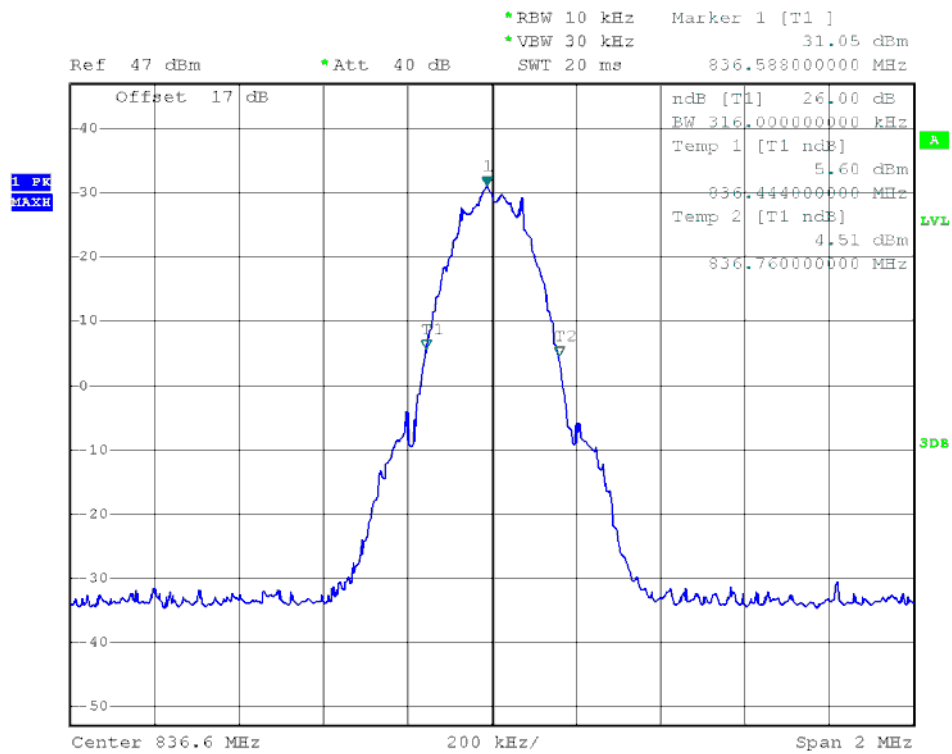
(Plot N6: GSM 1900MHz Channel = 810)



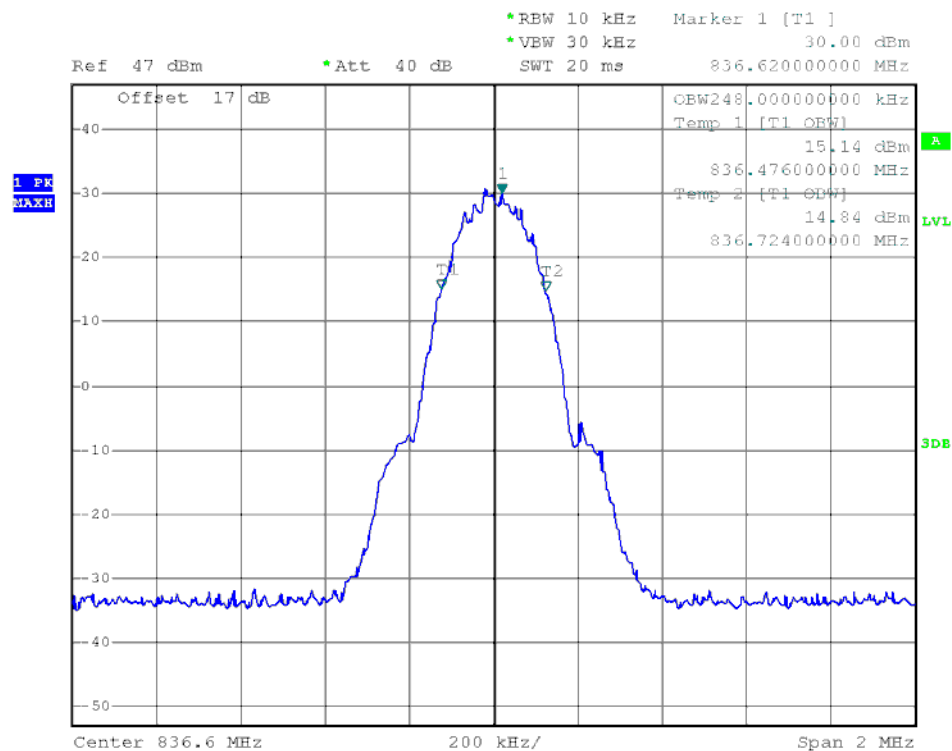
(Plot O1: GPRS 850MHz Channel = 128)



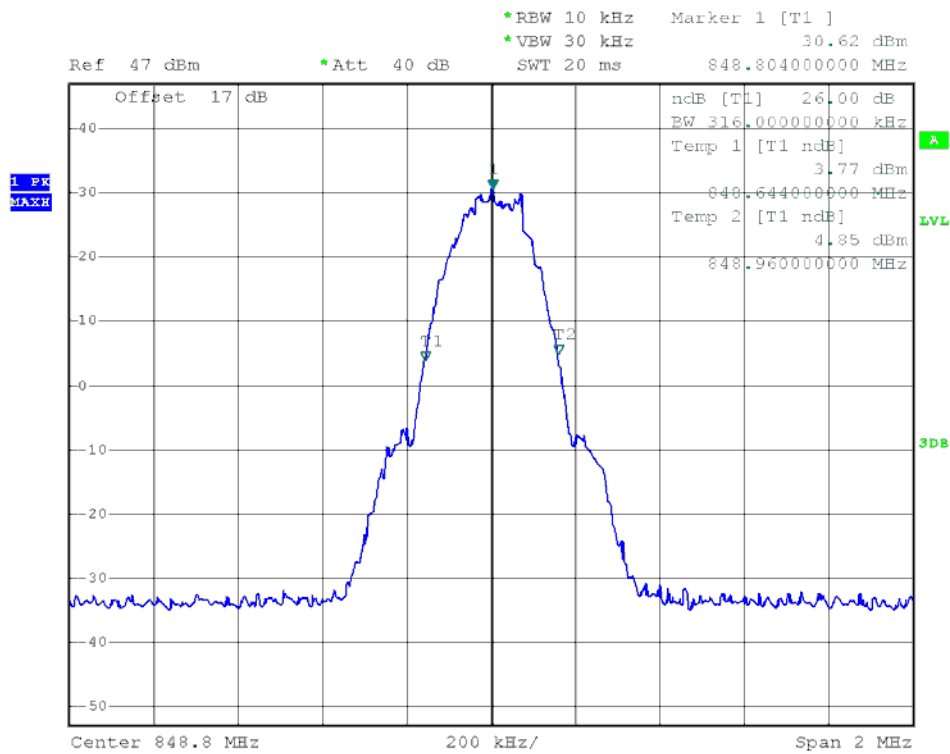
(Plot O2: GPRS 850MHz Channel = 128)



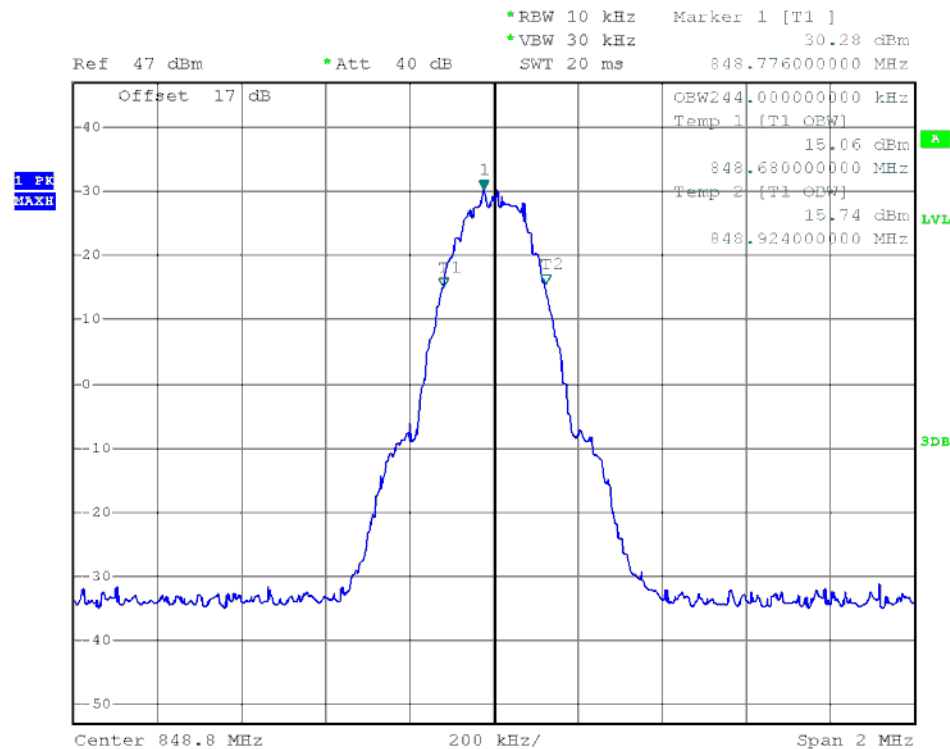
(Plot O3: GPRS 850MHz Channel = 190)



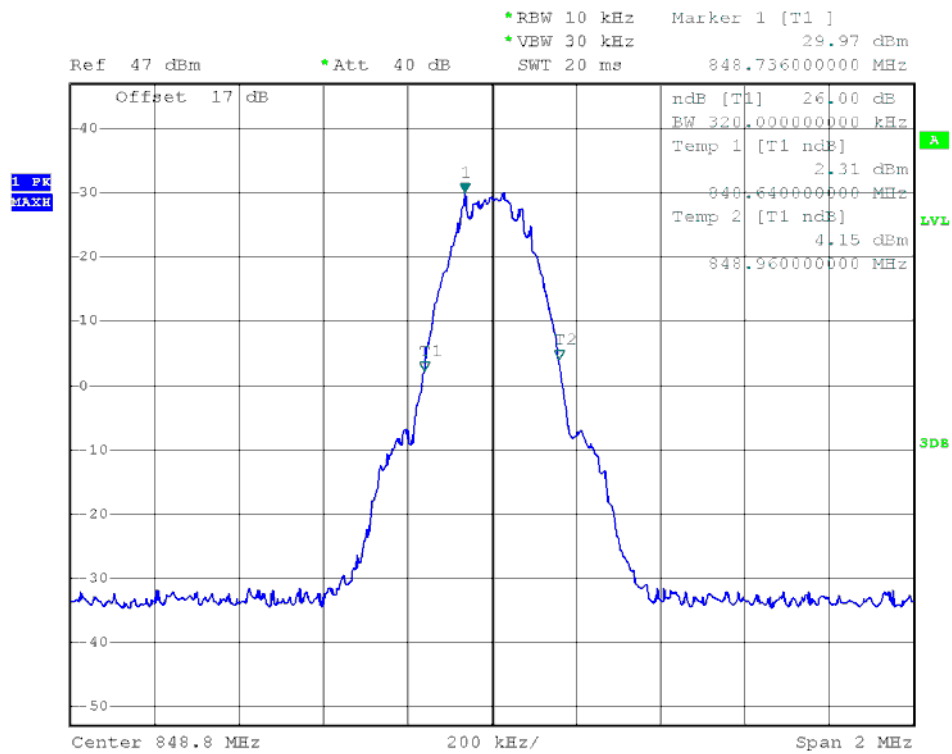
(Plot O4: GPRS 850MHz Channel = 190)



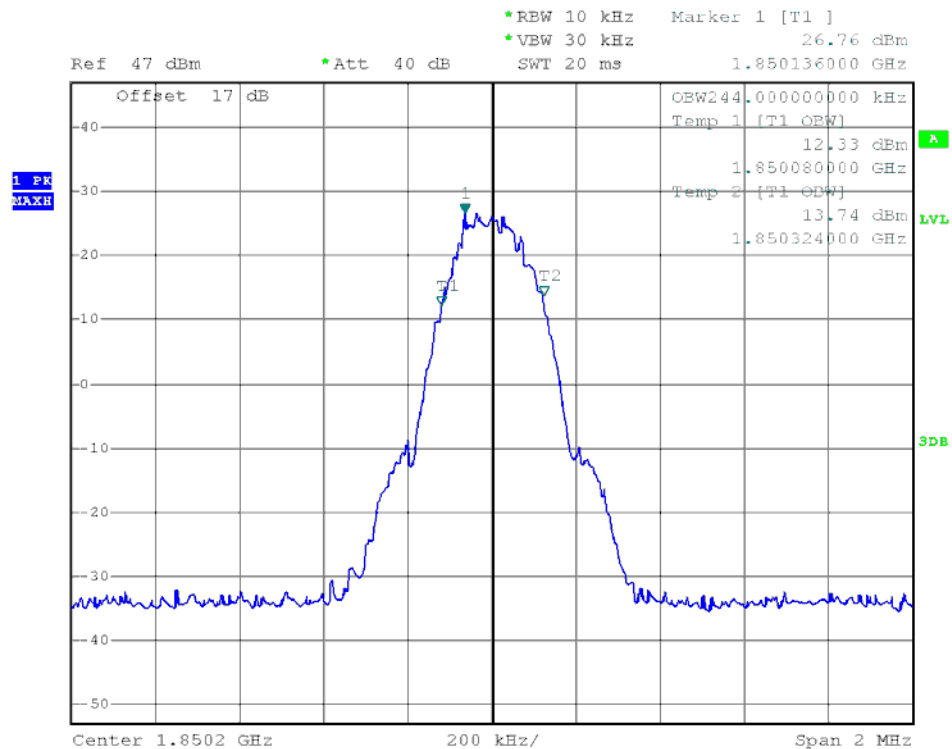
(Plot O5: GPRS850MHz Channel = 251)



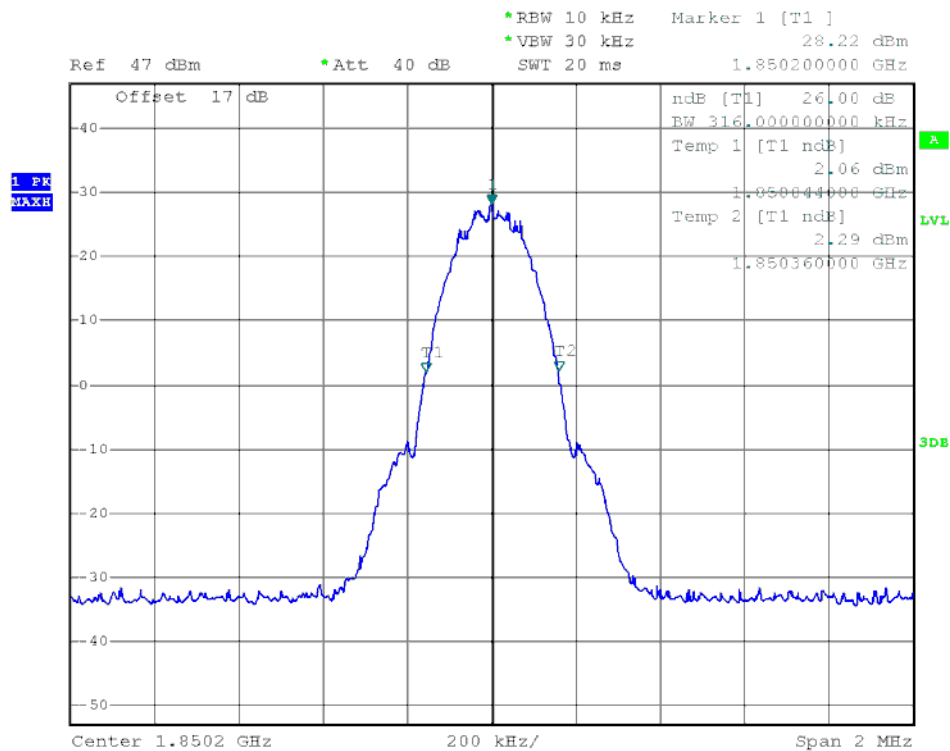
(Plot O6: GPRS850MHz Channel = 251)



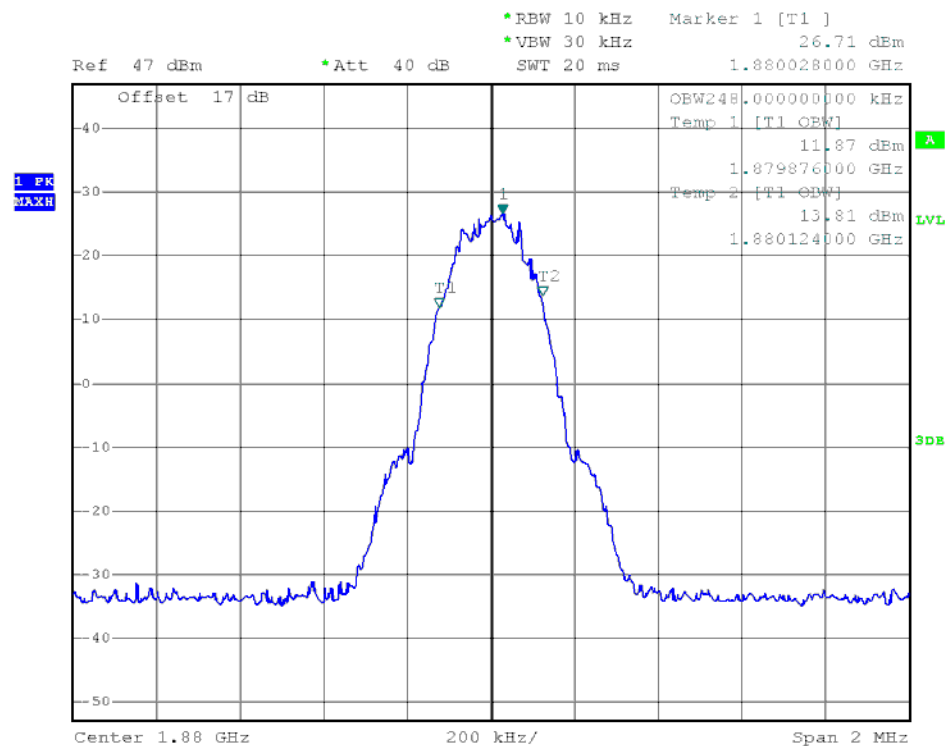
(Plot P1: GPRS 1900MHz Channel = 512)



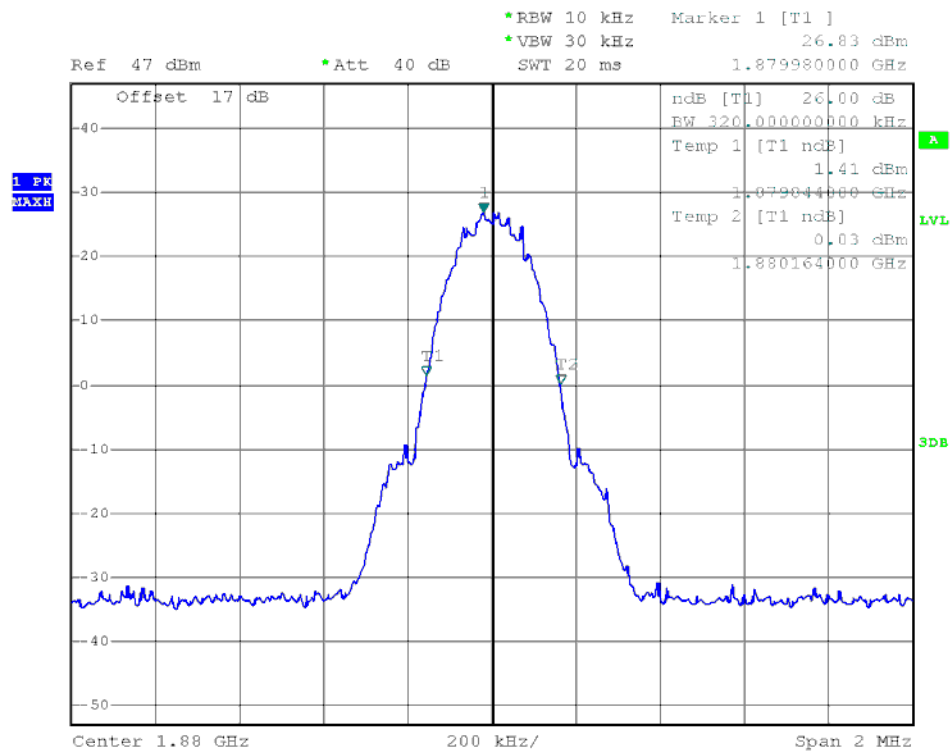
(Plot P2: GPRS 1900MHz Channel = 512)



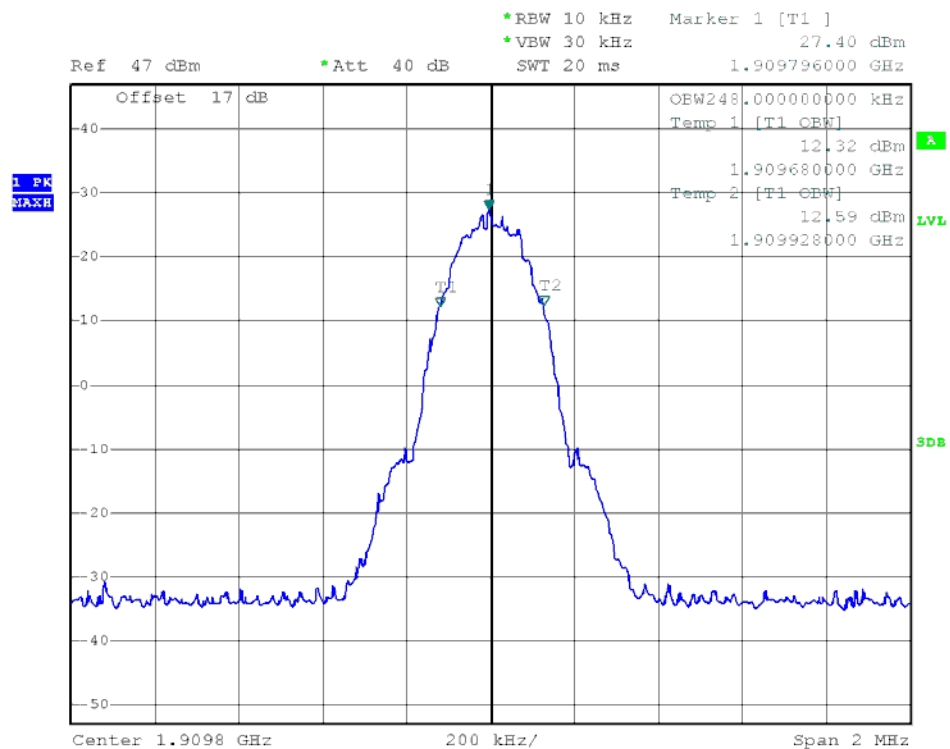
(Plot P3: GPRS 1900MHz Channel = 661)



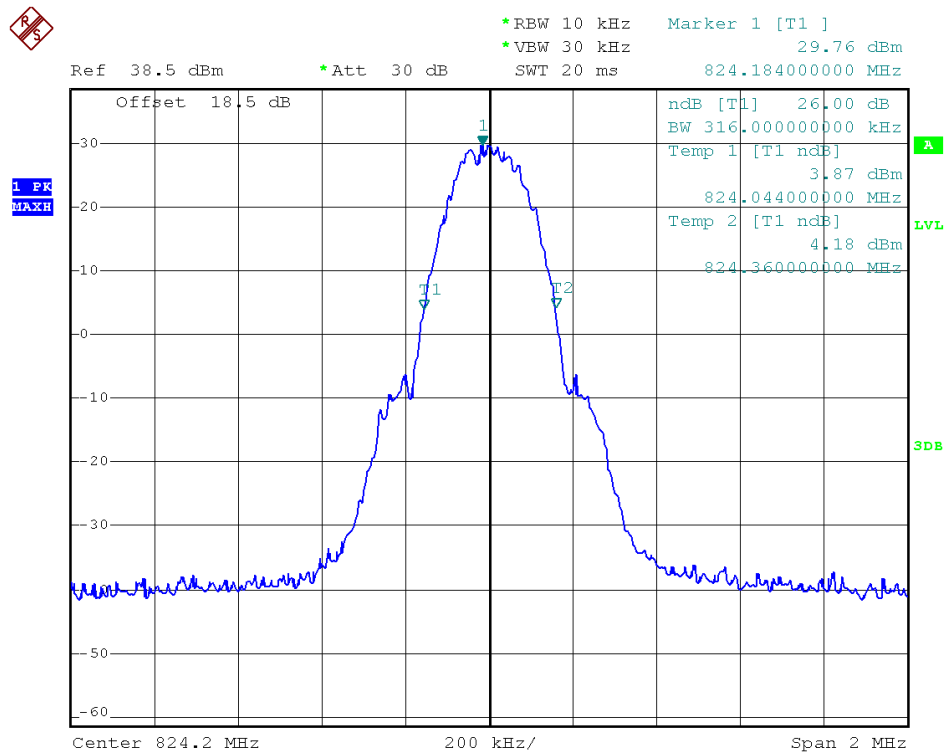
(Plot P4: GPRS 1900MHz Channel = 661)



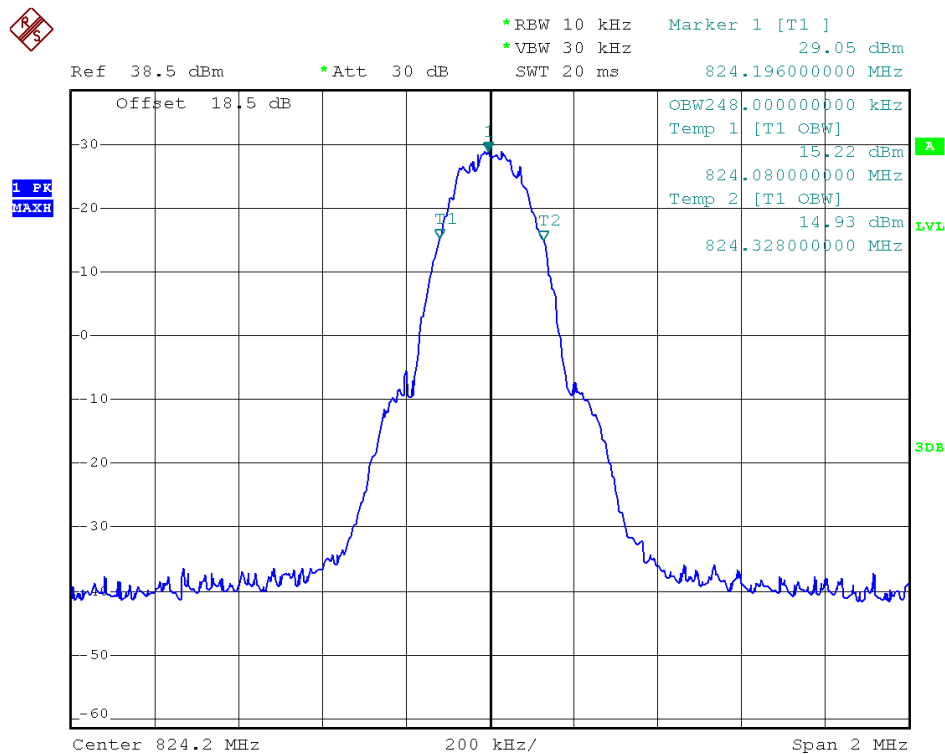
(Plot P5: GPRS 1900MHz Channel = 810)



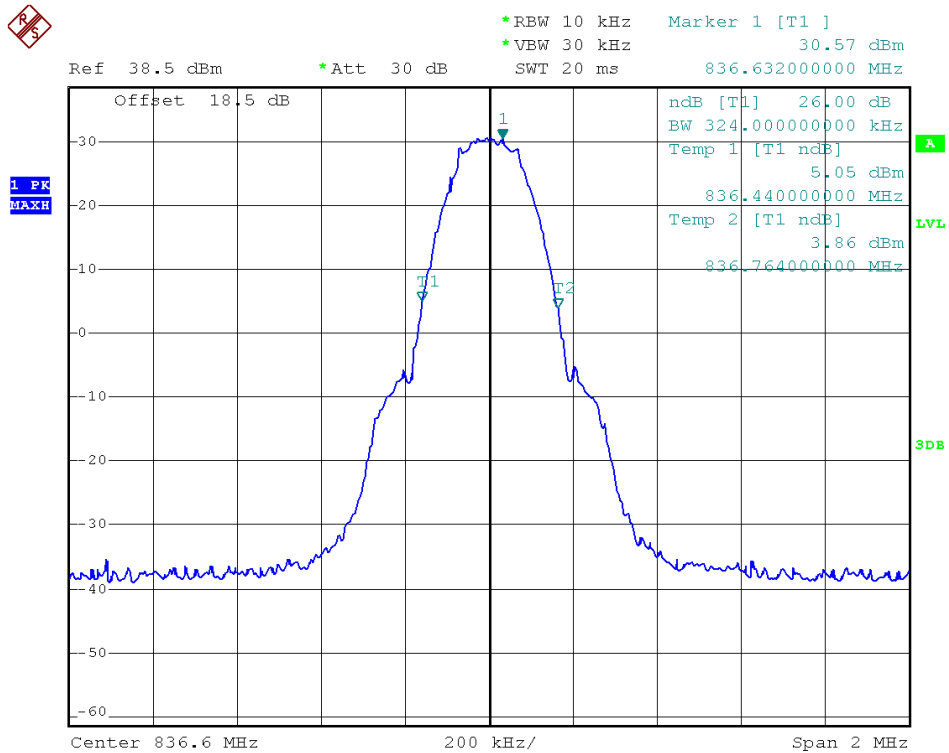
(Plot P6: GPRS 1900MHz Channel = 810)



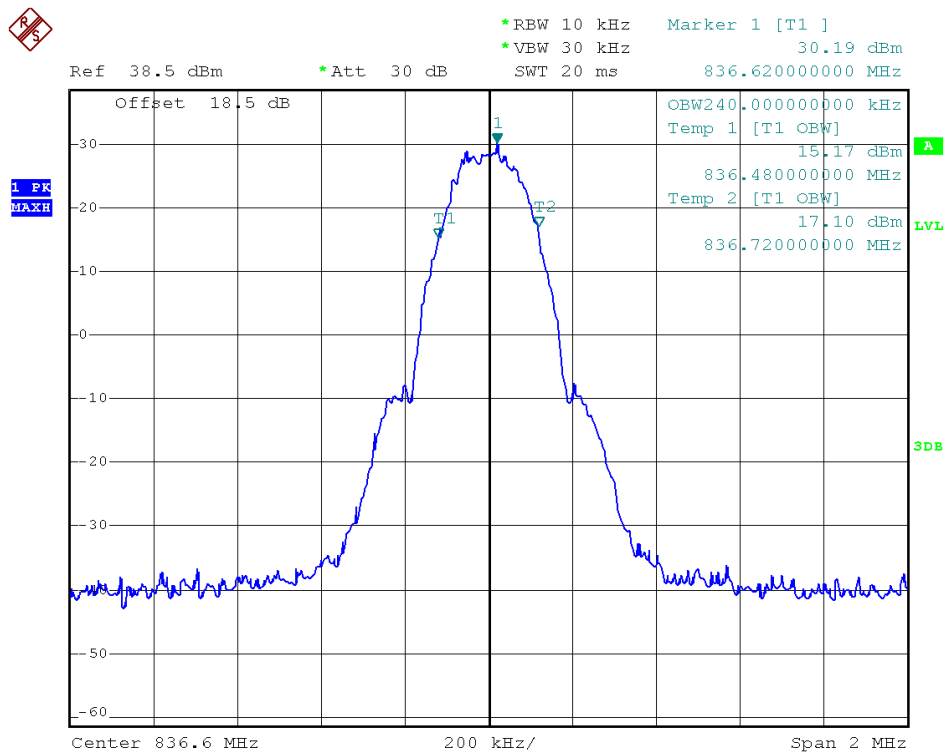
(Plot Q1: EDGE 850MHz Channel = 128)



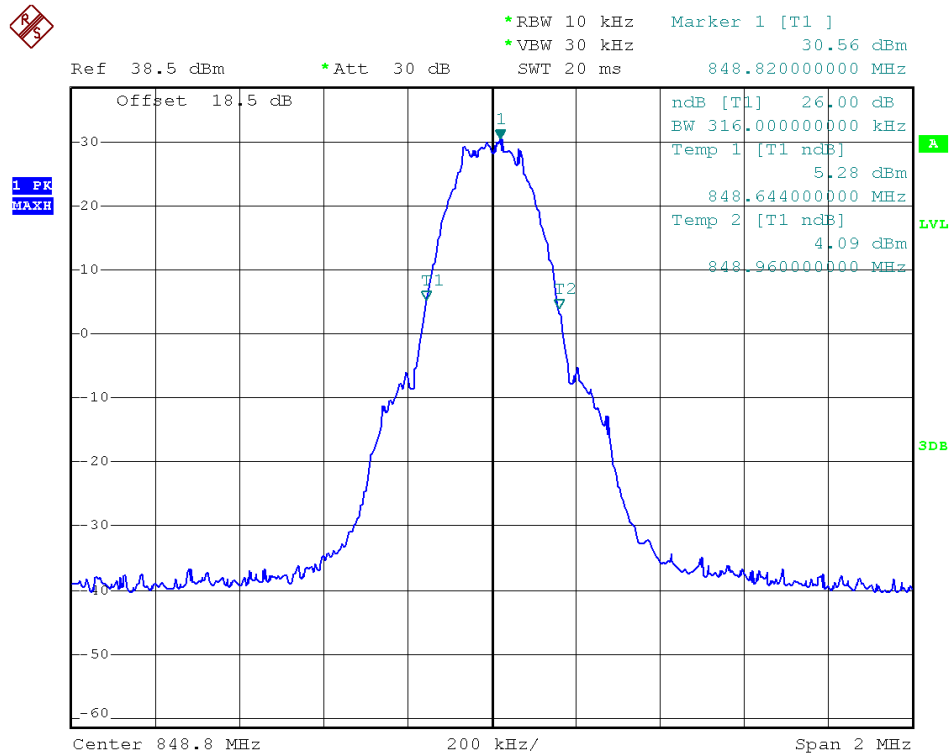
(Plot Q2: EDGE 850MHz Channel = 128)



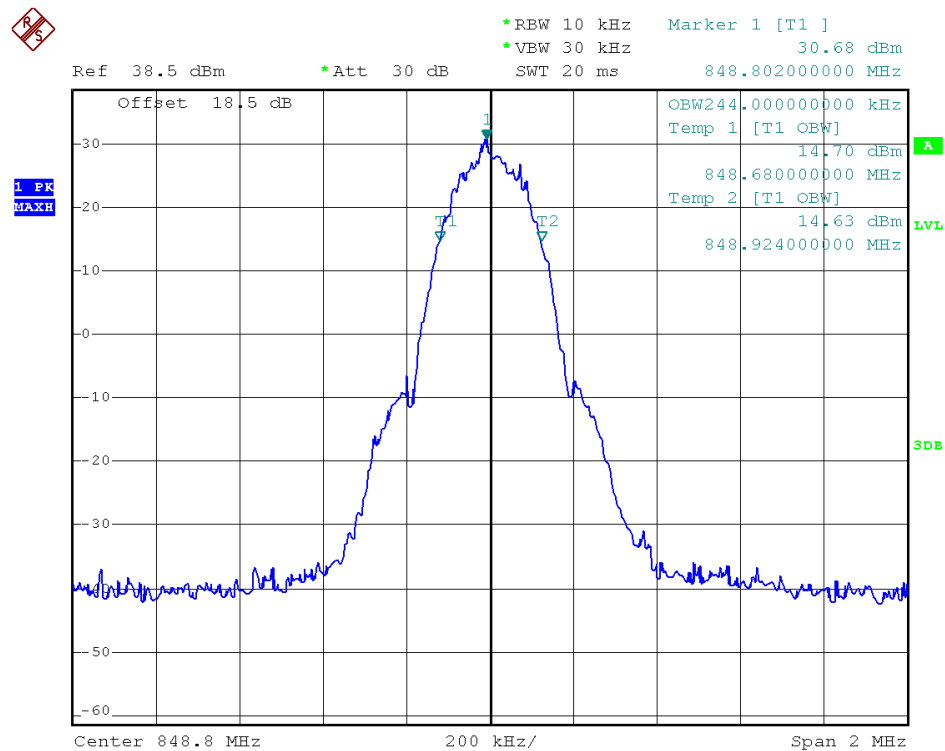
(Plot Q3: EDGE 850MHz Channel = 190)



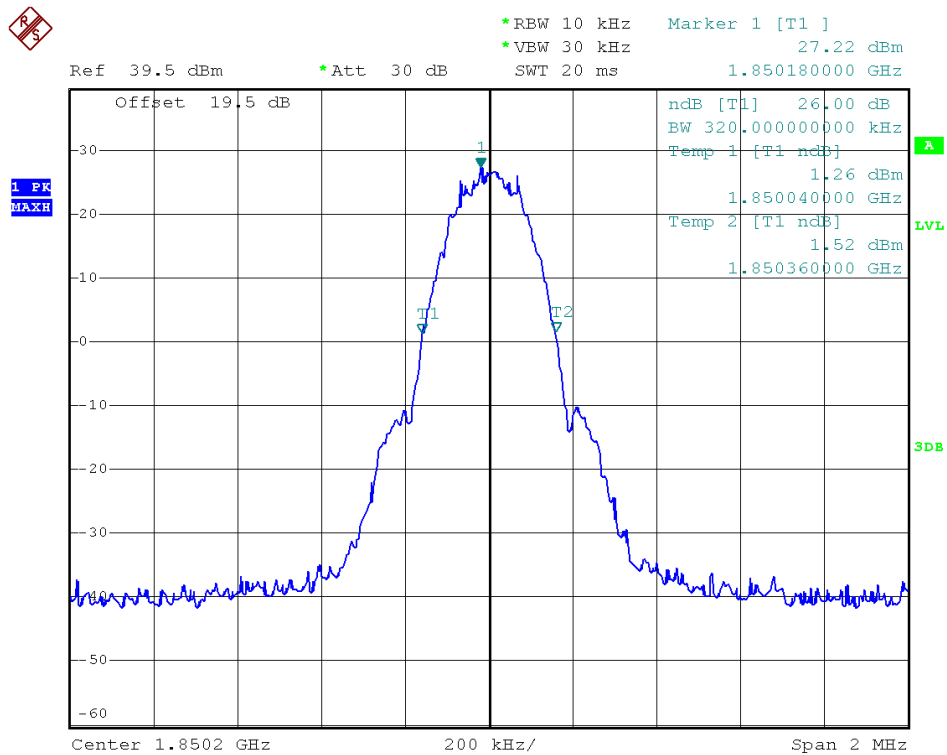
(Plot Q4: EDGE 850MHz Channel = 190)



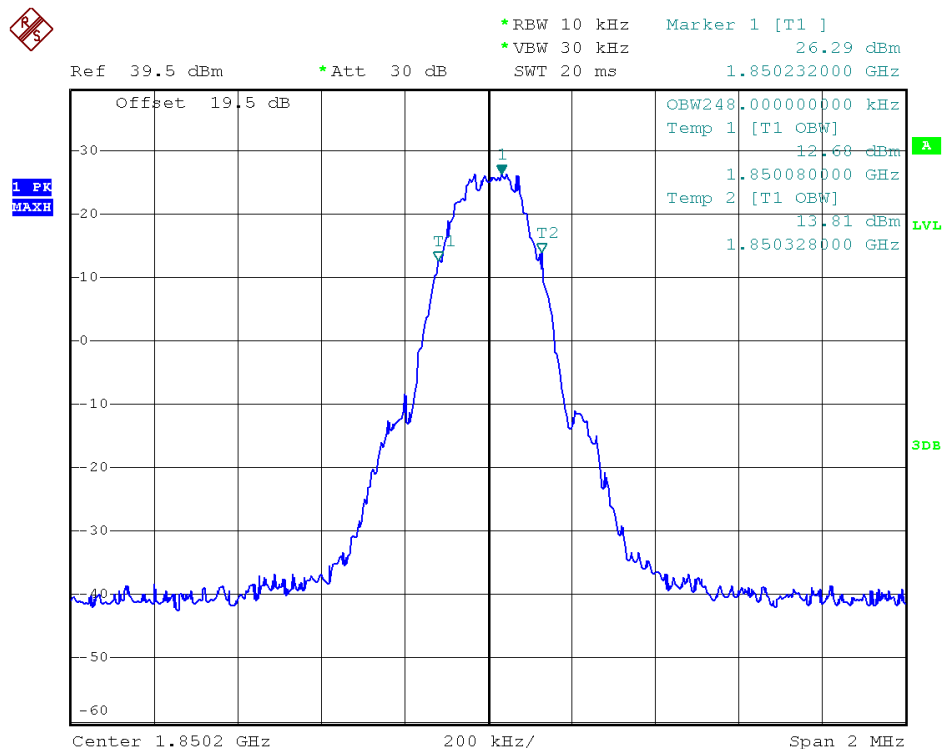
(Plot Q5: EDGE 850MHz Channel = 251)



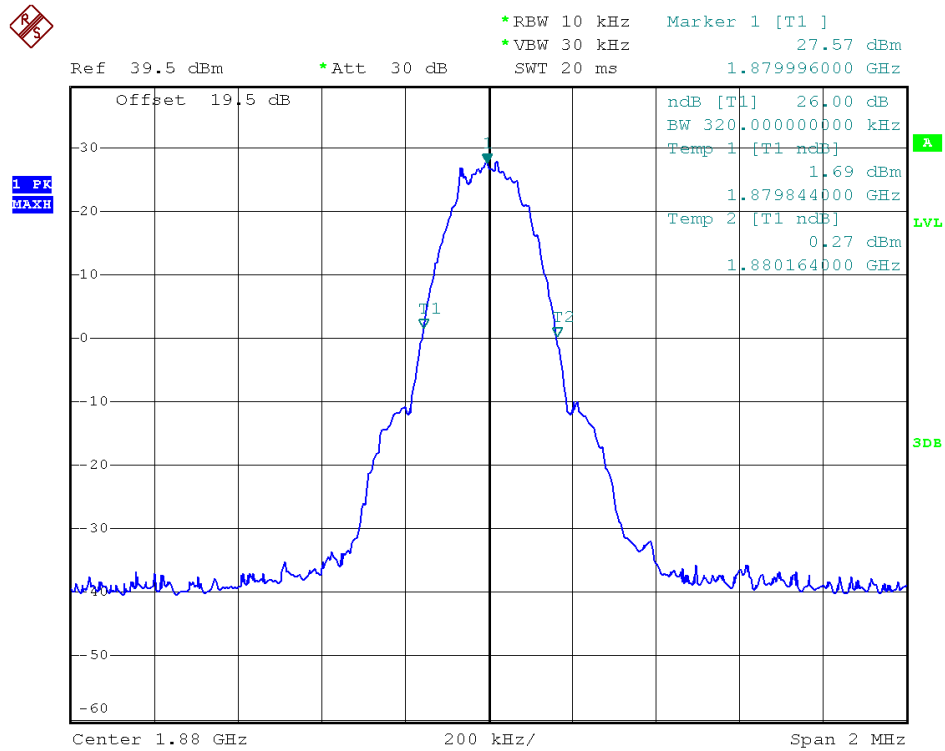
(Plot Q6: EDGE 850MHz Channel = 251)



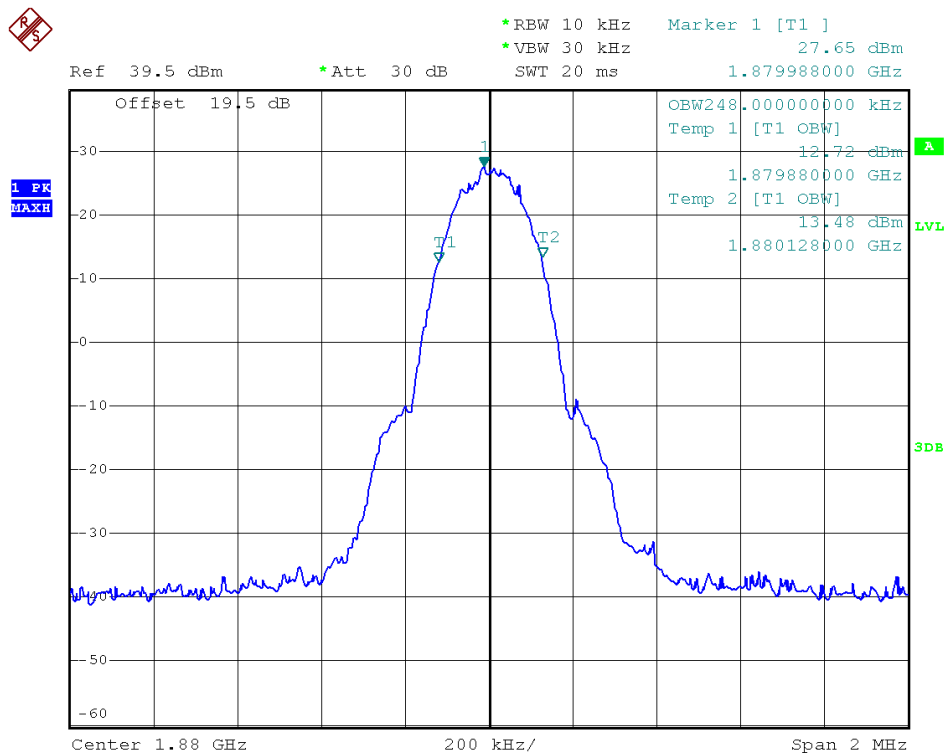
(Plot R1: EDGE 1900MHz Channel = 512)



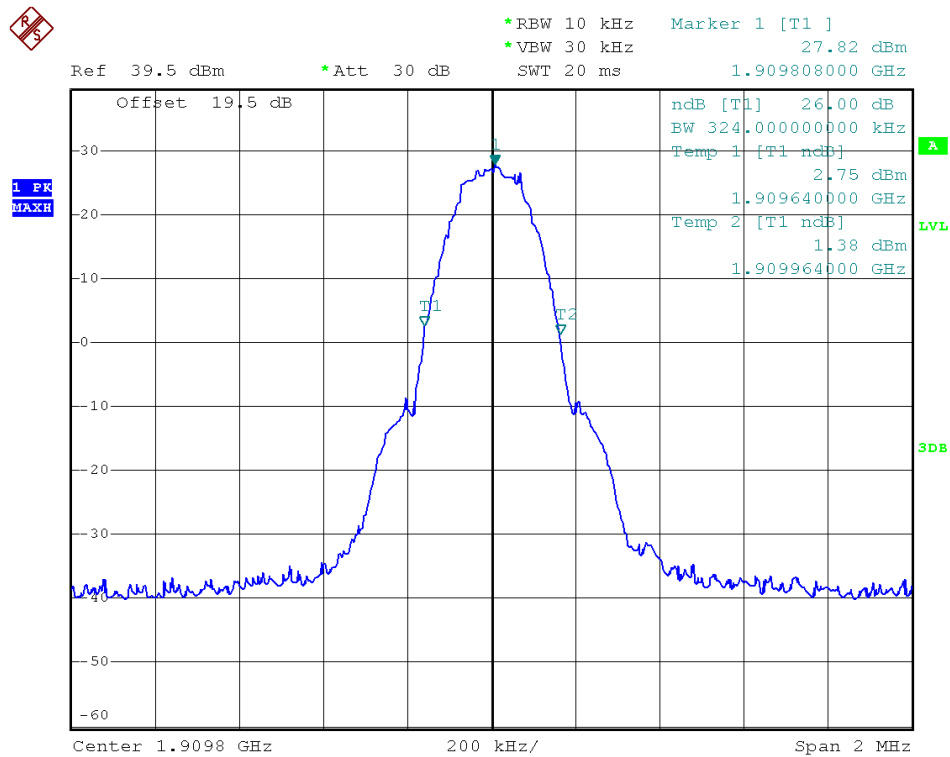
(Plot R2: EDGE 1900MHz Channel = 512)



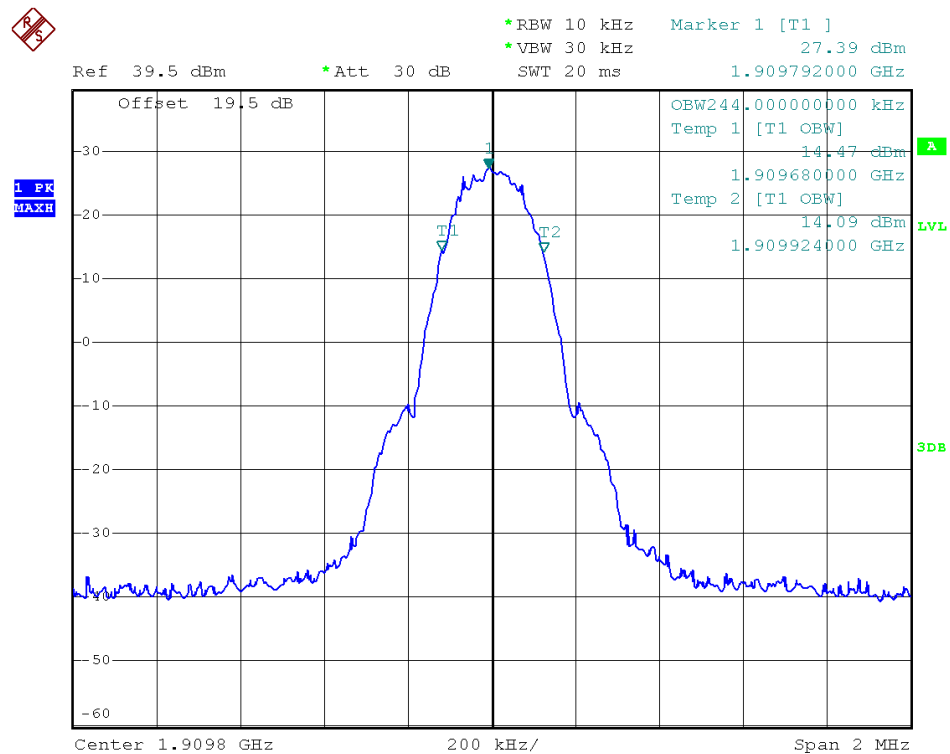
(Plot R3: EDGE 1900MHz Channel = 661)



(Plot R4: EDGE 1900MHz Channel = 661)



(Plot P6: EDGE 1900MHz Channel = 810)



(Plot P6: EDGE 1900MHz Channel = 810)

2.4 Frequency Stability

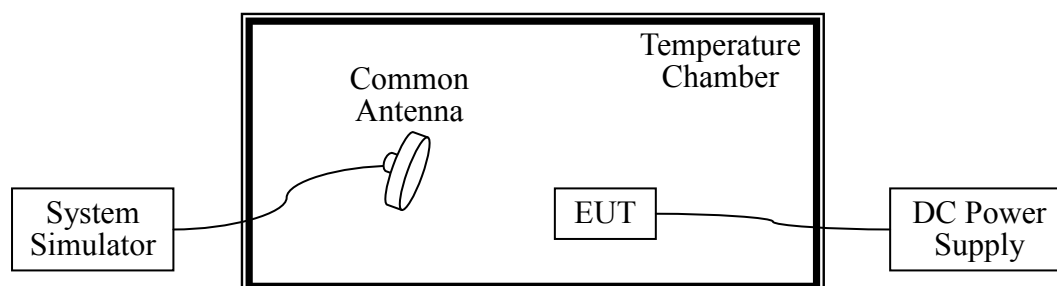
2.4.1 Requirement

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 -30°C to $+50^{\circ}\text{C}$ at intervals of not more than 10°C .
- (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. Data	Cal. Due Data
System Simulator	Agilent	E5515C	GB43130131	2014.06.11	2015.06.10
DC Power Supply	Good Will	GPS-3030D D	EF920938	2014.06.11	2015.06.10
Temperature Chamber	YinHe Experimental Equip.	HL4003T	(n.a.)	2014.06.11	2015.06.10

2.4.3 Test Verdict

The nominal, highest and lowest extreme voltages are separately 3.8VDC, 4.2VDC and 3.6VDC, which are specified by the applicant; the normal temperature here used is 25°C. The frequency deviation limit of 850MHz band is ± 2.5 ppm, and 1900MHz is ± 1 ppm

1. GSM 850MHz Band

Test Conditions		Frequency Deviation						Verdict
Power (VDC)	Temperature (°C)	Channel = 128 (824.2MHz)		Channel = 190 (836.6MHz)		Channel = 251 (848.8MHz)		
		Hz	Limits	Hz	Limits	Hz	Limits	
3.8	-30	24.89	±2060.5	4.43	±2091.5	5.30	±2122	PASS
	-20	38.66		-15.01		37.67		
	-10	41.47		34.03		-12.80		
	0	13.21		44.86		39.77		
	+10	10.35		51.87		45.48		
	+20	-12.03		51.00		9.68		
	+30	21.03		38.12		-12.23		
	+40	25.80		17.07		5.04		
	+50	27.93		29.71		2.61		
4.2	+25	3.71		42.55		42.18		
3.6	+25	25.57		53.57		48.27		

2. GSM 1900MHz Band

Test Conditions		Frequency Deviation						Verdict
Power (VDC)	Temperature (°C)	Channel = 512 (1850.2MHz)		Channel = 661 (1880.0MHz)		Channel = 810 (1909.8MHz)		
		Hz	Limits	Hz	Limits	Hz	Limits	
3.8	-30	-5.19	±1850.2	48.91	±1880.0	29.27	±1909.8	PASS
	-20	19.00		11.01		-8.57		
	-10	38.22		15.79		36.13		
	0	25.23		41.59		-14.70		
	+10	-1.45		-10.89		-8.71		
	+20	6.94		-7.13		-15.98		
	+30	21.13		29.44		21.63		
	+40	41.23		-10.34		-2.73		
	+50	30.96		15.41		8.69		
4.2	+25	-5.63		32.72		48.24		
3.6	+25	20.67		-9.80		36.41		

3. EDGE 850MHz Band

Test Conditions		Frequency Deviation						Verdict
Power (VDC)	Temperature (°C)	Channel = 128 (824.2MHz)		Channel = 190 (836.6MHz)		Channel = 251 (848.8MHz)		
		Hz	Limits	Hz	Limits	Hz	Limits	
3.8	-30	41.59	±2060.5	-15.98	±2091.5	5.30	±2122	PASS
	-20	-10.89		21.63		37.67		
	-10	-7.13		-14.70		-12.80		
	0	29.44		21.13		39.77		
	+10	-10.34		41.23		45.48		
	+20	15.41		30.96		9.68		
	+30	41.59		-15.98		-12.23		
	+40	25.80		21.63		5.04		
	+50	27.93		-14.70		2.61		
4.2	+25	3.71		21.13		42.18		
3.6	+25	25.57		41.23		48.27		

4. EDGE 1900MHz Band

Test Conditions		Frequency Deviation						Verdict
Power (VDC)	Temperature (°C)	Channel = 512 (1850.2MHz)		Channel = 661 (1880.0MHz)		Channel = 810 (1909.8MHz)		
		Hz	Limits	Hz	Limits	Hz	Limits	
3.8	-30	-5.19	±1850.2	48.91	±1880.0	37.67	±1909.8	PASS
	-20	-14.70		11.01		-12.80		
	-10	-8.71		15.79		39.77		
	0	-15.98		41.59		45.48		
	+10	21.63		-10.89		9.68		
	+20	-14.70		-7.13		-12.23		
	+30	21.13		29.44		37.67		
	+40	41.23		-10.34		-12.80		
	+50	30.96		15.41		39.77		
4.2	+25	-5.63		32.72		45.48		
3.6	+25	20.67		-9.80		9.68		

5. WCDMA 850MHz Band

Test Conditions		Frequency Deviation						Verdict
Power (VDC)	Temperature (°C)	Channel = 4123 (826.4MHz)		Channel = 4183 (836.6MHz)		Channel = 4233 (846.6MHz)		
		Hz	Limit	Hz	Limit	Hz	Limit	
3.8	-30	-4.32	±2066	27.18	±2091.5	5.05	±2116.5	PASS
	-20	35.25		30.07		7.49		
	-10	-19.21		5.48		0.19		
	0	27.75		-1.82		34.30		
	+10	-13.73		19.02		45.99		
	+20	-6.95		44.78		-16.51		
	+30	48.07		21.99		19.46		
	+40	42.00		17.67		-6.80		
	+55	38.85		-19.44		7.58		
4.2	+25	31.42	±2066	-6.76	±2091.5	3.11	±2116.5	PASS
3.6	+25	4.49		14.09		-4.93		

6. WCDMA 1700MHz Band

Test Conditions		Frequency Deviation						Verdict
Power (VDC)	Temperature (°C)	Channel = 1312 (1712.4MHz)		Channel = 1412 (1732.4MHz)		Channel = 1513 (1752.6MHz)		
		Hz	Limit	Hz	Limit	Hz	Limit	
3.8	-30	6.50	±1712.4	45.90	±1732.4	5.05	±1752.6	PASS
	-20	3.76		-16.51		7.49		
	-10	7.11		19.46		0.19		
	0	5.70		-6.80		34.30		
	+10	-5.74		7.58		45.99		
	+20	42.11		3.11		-16.51		
	+30	6.50		45.99		19.46		
	+40	3.76		-16.51		-6.80		
	+55	7.11		19.46		7.58		
4.2	+25	5.70	±1712.4	-6.80	±1732.4	3.11	±1752.6	PASS
3.6	+25	-5.74		7.58		-4.93		

7. WCDMA 1900MHz Band

Test Conditions		Frequency Deviation						Verdict
Power (VDC)	Temperature (°C)	Channel = 9262 (1852.4MHz)		Channel = 9400 (1880.0MHz)		Channel = 9538 (1907.6MHz)		
		Hz	Limits	Hz	Limits	Hz	Limits	
3.8	-30	-0.97	±1852.4	51.25	±1880.0	1.12	±1907.6	PASS
	-20	35.71		51.56		8.81		
	-10	54.73		48.10		22.21		
	0	25.45		43.19		47.37		
	+10	18.46		6.50		14.85		
	+20	20.42		3.76		33.63		
	+30	0.36		7.11		38.27		
	+40	26.25		5.70		57.38		
	+55	24.14		-5.74		21.22		
4.2	+25	12.46		42.11		50.98		
3.6	+25	46.55		5.31		0.95		

8. HSDPA 850MHz Band

Test Conditions		Frequency Deviation						Verdict
Power (VDC)	Temperature (°C)	Channel = 4123 (826.4MHz)		Channel = 4183 (836.6MHz)		Channel = 4233 (846.6MHz)		
		Hz	Limit	Hz	Limit	Hz	Limit	
3.8	-30	32.02	±2066	11.25	±2091.5	-19.81	±2116.5	PASS
	-20	-3.25		9.1		-8.65		
	-10	15.29		26.93		29.87		
	0	11.21		-22.7		-9.98		
	+10	-20.41		-8.3		-19.61		
	+20	11.72		32.29		-21.43		
	+30	-5.48		-4.32		8.89		
	+40	22.02		-18.83		-9.87		
	+55	-30.27		33.03		16.71		
4.2	+25	26.66		13.27		2.56		
3.6	+25	25.16		-5.87		-23.56		

9. HSDPA 1700MHz Band

Test Conditions		Frequency Deviation						Verdict
Power (VDC)	Temperature (°C)	Channel = 1312 (1712.4MHz)		Channel = 1412 (1732.4MHz)		Channel = 1513 (1752.6MHz)		
		Hz	Limit	Hz	Limit	Hz	Limit	
3.8	-30	-14.70	± 1712.4	21.13	± 1732.4	21.63	± 1752.6	PASS
	-20	-8.71		41.23		-14.70		
	-10	-15.98		30.96		21.13		
	0	21.63		21.13		41.23		
	+10	-14.70		7.58		30.96		
	+20	21.13		3.11		21.63		
	+30	41.23		45.99		-14.70		
	+40	30.96		-16.51		21.13		
	+55	-14.70		19.46		41.23		
4.2	+25	-8.71		-6.80		30.96		
3.6	+25	-15.98		7.58		21.63		

10. HSDPA 1900MHz Band

Test Conditions		Frequency Deviation						Verdict
Power (VDC)	Temperature (°C)	Channel = 9262 (1852.4MHz)		Channel = 9400 (1880.0MHz)		Channel = 9538 (1907.6MHz)		
		Hz	Limits	Hz	Limits	Hz	Limits	
3.8	-30	40.74	± 1852.4	39.64	± 1880	4.24	± 1907.6	PASS
	-20	44.81		36.49		50.42		
	-10	-2.51		7.98		23.49		
	0	7.95		-3.94		25.50		
	+10	29.51		-9.04		-15.21		
	+20	29.84		45.91		30.37		
	+30	13.40		-5.29		18.94		
	+40	56.48		40.47		9.91		
	+55	18.09		22.99		32.97		
4.2	+25	-17.00		30.91		50.69		
3.6	+25	6.75		-10.79		13.44		

11. HSUPA 850MHz Band

Test Conditions		Frequency Deviation						Verdict
Power (VDC)	Temperature (°C)	Channel = 4123 (826.4MHz)		Channel = 4183 (836.6MHz)		Channel = 4233 (846.6MHz)		
		Hz	Limit	Hz	Limit	Hz	Limit	
3.8	-30	20.79	±2066	46.68	±2091.5	22.69	±2116.5	PASS
	-20	44.54		28.10		2.39		
	-10	10.45		-4.27		54.53		
	0	10.88		36.69		12.66		
	+10	52.76		13.61		50.37		
	+20	2.46		12.15		-5.39		
	+30	27.07		23.94		35.13		
	+40	-8.66		13.56		-0.53		
	+55	14.23		47.64		37.40		
4.2	+25	53.35		52.86		31.75		
3.6	+25	35.82		3.68		48.60		

12. HSUPA 1700MHz Band

Test Conditions		Frequency Deviation						Verdict
Power (VDC)	Temperature (°C)	Channel = 1312 (1712.4MHz)		Channel = 1412 (1732.4MHz)		Channel = 1513 (1752.6MHz)		
		Hz	Limit	Hz	Limit	Hz	Limit	
3.8	-30	32.02	±1712.4	35.13	±1732.4	23.94	±1752.6	PASS
	-20	-3.25		-0.53		13.56		
	-10	15.29		37.40		47.64		
	0	11.21		35.13		52.86		
	+10	-20.41		-0.53		3.68		
	+20	11.72		37.40		23.94		
	+30	32.02		35.13		13.56		
	+40	-3.25		-0.53		47.64		
	+55	15.29		37.40		52.86		
4.2	+25	11.21		35.13		3.68		
3.6	+25	-20.41		-0.53		23.94		

13. HSUPA 1900MHz Band

Test Conditions		Frequency Deviation						Verdict
Power (VDC)	Temperature (°C)	Channel = 9262 (1852.4MHz)		Channel = 9400 (1880.0MHz)		Channel = 9538 (1907.6MHz)		
		Hz	Limits	Hz	Limits	Hz	Limits	
3.8	-30	0.96	±1852.4	8.16	±1880	14.33	±1907.6	PASS
	-20	24.44		36.72		17.07		
	-10	53.46		57.55		32.92		
	0	23.70		-1.82		14.63		
	+10	8.80		40.78		43.06		
	+20	18.68		13.96		56.26		
	+30	6.60		35.78		38.25		
	+40	38.46		44.01		54.36		
	+55	4.47		24.16		52.56		
4.2	+25	15.78		42.99		24.27		
3.6	+25	53.33		26.70		53.43		

14. HSPA+ 850MHz Band

Test Conditions		Frequency Deviation						Verdict
Power (VDC)	Temperature (°C)	Channel = 4123 (826.4MHz)		Channel = 4183 (836.6MHz)		Channel = 4233 (846.6MHz)		
		Hz	Limit	Hz	Limit	Hz	Limit	
3.8	-30	53.46	±2066	23.70	±2091.5	40.78	±2116.5	PASS
	-20	23.70		8.80		13.96		
	-10	8.80		18.68		35.78		
	0	18.68		53.46		44.01		
	+10	53.46		26.61		24.16		
	+20	23.70		23.70		40.78		
	+30	8.80		8.80		13.96		
	+40	18.68		18.68		35.78		
	+55	53.14		53.46		44.01		
4.2	+25	26.66		26.66		24.16		
3.6	+25	25.16		23.70		40.78		

15. HSPA+ 1700MHz Band

Test Conditions		Frequency Deviation						Verdict
Power (VDC)	Temperature (°C)	Channel = 1312 (1712.4MHz)		Channel = 1412 (1732.4MHz)		Channel = 1513 (1752.6MHz)		
		Hz	Limit	Hz	Limit	Hz	Limit	
3.8	-30	32.02	±1712.4	32.92	±1732.4	43.06	±1752.6	PASS
	-20	-3.25		14.63		56.26		
	-10	15.29		43.06		38.25		
	0	23.70		56.26		32.92		
	+10	8.80		38.25		35.13		
	+20	18.68		32.92		43.06		
	+30	53.46		35.13		56.26		
	+40	23.70		-0.53		38.25		
	+55	8.80		37.40		32.92		
4.2	+25	18.68		35.13		35.13		
3.6	+25	53.46		-0.53		43.06		

16. HSPA+1900MHz Band

Test Conditions		Frequency Deviation						Verdict
Power (VDC)	Temperature (°C)	Channel = 9262 (1852.4MHz)		Channel = 9400 (1880.0MHz)		Channel = 9538 (1907.6MHz)		
		Hz	Limits	Hz	Limits	Hz	Limits	
3.8	-30	35.78	±1852.4	18.16	±1880	40.78	±1907.6	PASS
	-20	44.01		36.72		13.96		
	-10	24.16		30.55		35.78		
	0	42.99		-1.82		44.01		
	+10	26.70		40.78		40.78		
	+20	35.78		13.96		13.96		
	+30	44.01		35.78		35.78		
	+40	24.16		44.01		54.36		
	+55	42.99		24.16		12.56		
4.2	+25	15.78		42.99		24.27		
3.6	+25	53.33		26.70		23.43		

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.

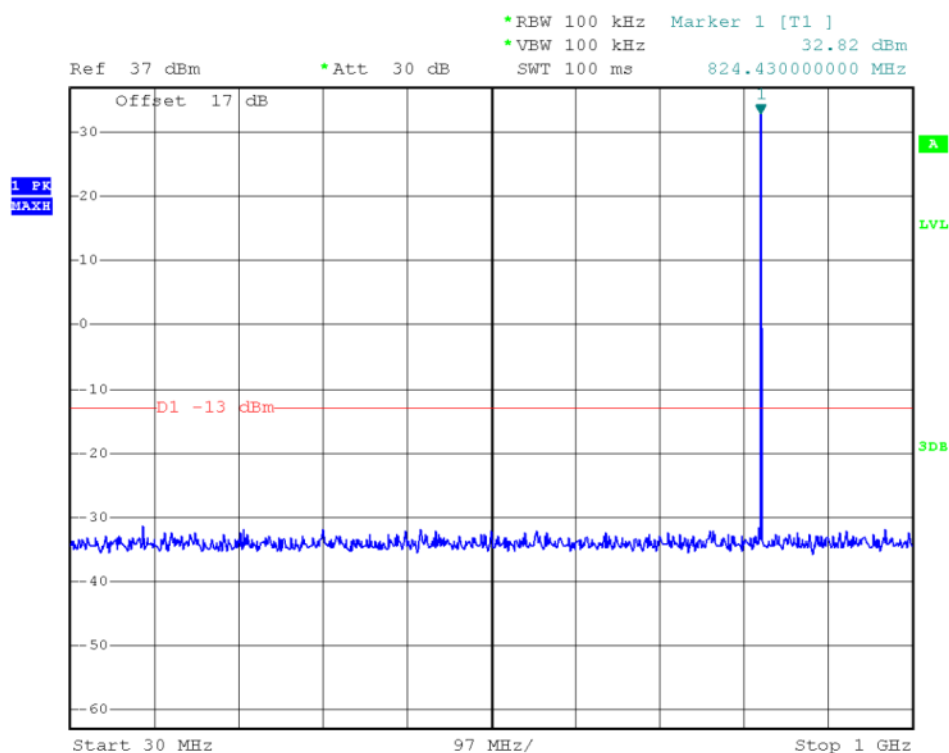
1. Test Verdict:

Band	Channel	Frequency (MHz)	Measured Max. Spurious Emission (dBm)	Refer to Plot	Limit (dBm)	Verdict
GSM 850MHz	128	824.2	-27.26	Plot A1toA1.1	-13	PASS
	190	836.6	-27.16	Plot A2toA2.1		PASS
	251	848.8	-28.18	Plot A3toA3.1		PASS
GSM 1900MHz	512	1850.2	-19.51	Plot B1toB1.1	-13	PASS
	661	1880.0	-19.46	Plot B2toB2.1		PASS
	810	1909.8	-19.71	Plot B3toB3.1		PASS
EDGE 850MHz	128	824.2	-27.61	Plot C1toC1.1	-13	PASS
	190	836.6	-26.65	Plot C2toC2.1		PASS
	251	848.8	-26.15	Plot C3toC3.1		PASS
EDGE 1900MHz	512	1850.2	-17.65	Plot D1toD1.1	-13	PASS
	661	1880.0	-18.88	Plot D2toD2.1		PASS
	810	1909.8	-17.32	Plot D3toD3.1		PASS
WCDMA 850MHz	4132	826.4	-28.55	Plot E1toE1.1	-13	PASS
	4183	836.6	-27.53	Plot E2toE2.1		PASS
	4233	846.6	-27.08	Plot E3toE3.1		PASS
WCDMA 1700MHz	1312	1712.4	-19.18	Plot F1toF1.1	-13	PASS
	1412	1732.4	-18.44	Plot F2toF2.1		PASS
	1513	1752.6	-18.50	Plot F3toF3.1		PASS
WCDMA	9262	1852.4	-19.92	Plot G1toG1.1	-13	PASS

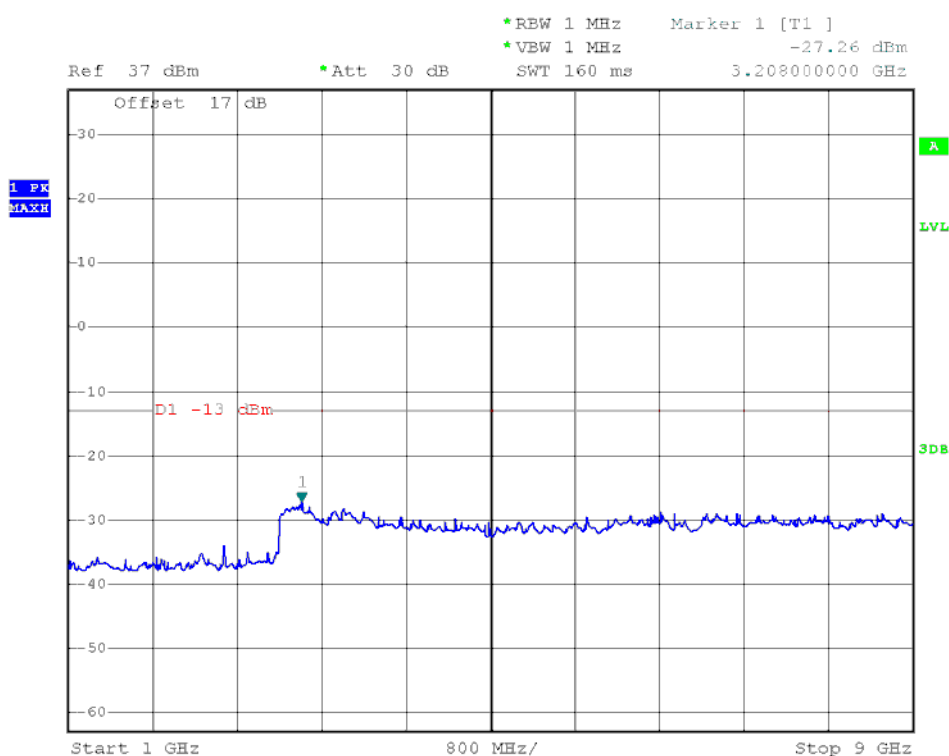
Band	Channel	Frequency (MHz)	Measured Max. Spurious Emission (dBm)	Refer to Plot	Limit (dBm)	Verdict
1900MHz	9400	1880	-20.25	Plot G2toG2.1		PASS
	9538	1907.6	-19.78	Plot G3toG3.1		PASS
HSDPA 850MHz	4132	826.4	-27.23	Plot H1toH1.1	-13	PASS
	4183	836.6	-28.47	Plot H2toH2.1		PASS
	4233	846.6	-27.61	Plot H3toH3.1		PASS
HSDPA 1700MHz	1312	1712.4	-17.55	Plot I1toI1.1	-13	PASS
	1412	1732.4	-17.87	Plot I2toI2.1		PASS
	1513	1752.6	-17.66	Plot I3toI3.1		PASS
HSDPA 1900MHz	9262	1852.4	-20.14	Plot J1toJ1.1	-13	PASS
	9400	1880	-19.68	Plot J2toJ2.1		PASS
	9538	1907.6	-19.93	Plot J3toJ3.1		PASS
HSUPA 850MHz	4132	826.4	-27.96	Plot K1toK1.1	-13	PASS
	4183	836.6	-27.61	Plot K2toK2.1		PASS
	4233	846.6	-27.42	Plot K3toK3.1		PASS
HSUPA 1700MHz	1312	1712.4	-17.87	Plot L1toL1.1	-13	PASS
	1412	1732.4	-18.71	Plot L2toL2.1		PASS
	1513	1752.6	-19.48	Plot L3toL3.1		PASS
HSUPA 1900MHz	9262	1852.4	-20.21	Plot M1toM1.1	-13	PASS
	9400	1880	-19.71	Plot M2toM2.1		PASS
	9538	1907.6	-19.92	Plot M3toM3.1		PASS
HSPA+ 850MHz	4132	826.4	-27.24	Plot N1toN1.1	-13	PASS
	4183	836.6	-27.62	Plot N2toN2.1		PASS
	4233	846.6	-26.84	Plot N3toN3.1		PASS
HSPA+ 1700MHz	1312	1712.4	-18.71	Plot O1toO1.1	-13	PASS
	1412	1732.4	-19.27	Plot O2toO2.1		PASS
	1513	1752.6	-18.89	Plot O3toO3.1		PASS
HSPA+ 1900MHz	9262	1852.4	-18.67	Plot P1toP1.1	-13	PASS
	9400	1880	-18.71	Plot P2toP2.1		PASS
	9538	1907.6	-18.28	Plot P3toP3.1		PASS

2. Test Plots for the Whole Measurement Frequency Range:

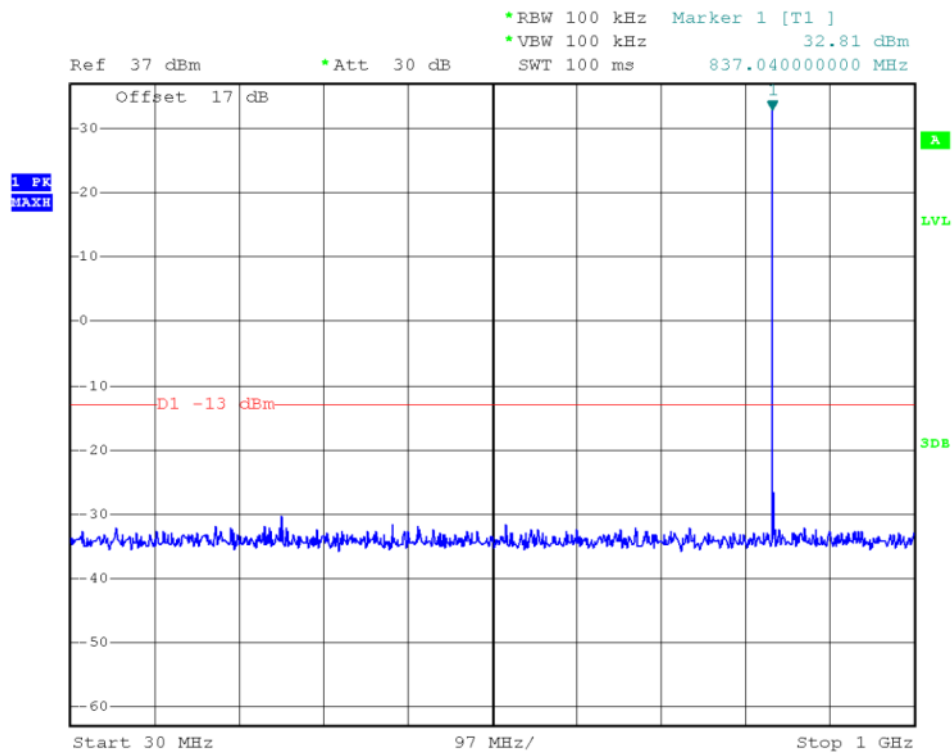
Note: the power of the EUT transmitting frequency should be ignored.



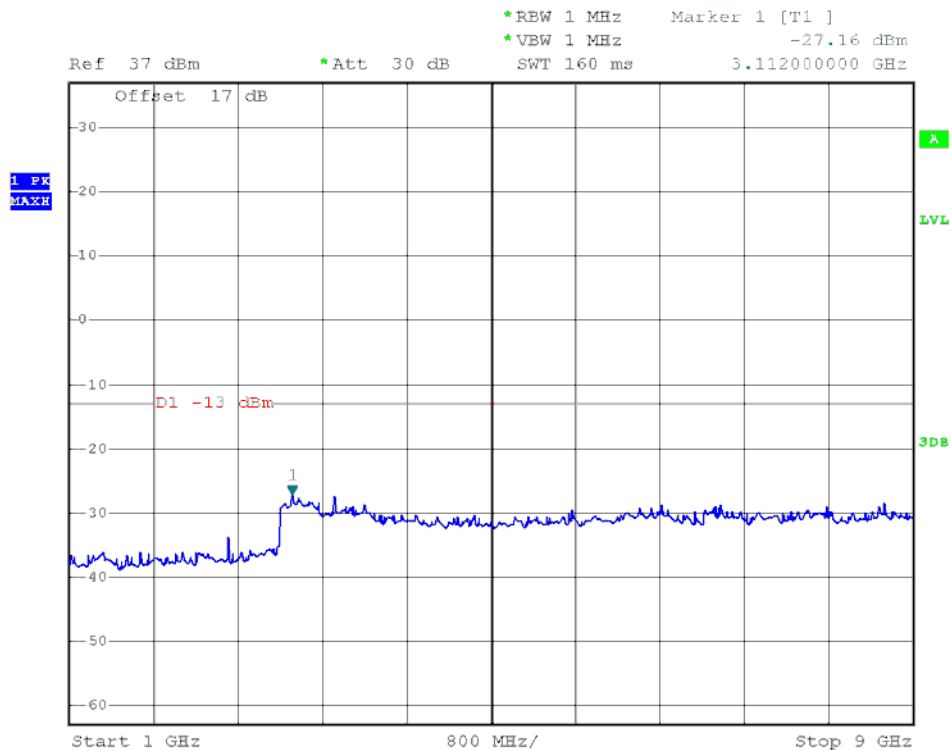
(Plot A1: GSM 850MHz Channel = 128, 30MHz to 1GHz)



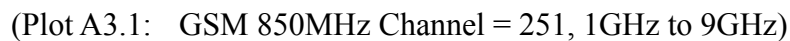
(Plot A1.1: GSM 850MHz Channel = 128, 1GHz to 9GHz)

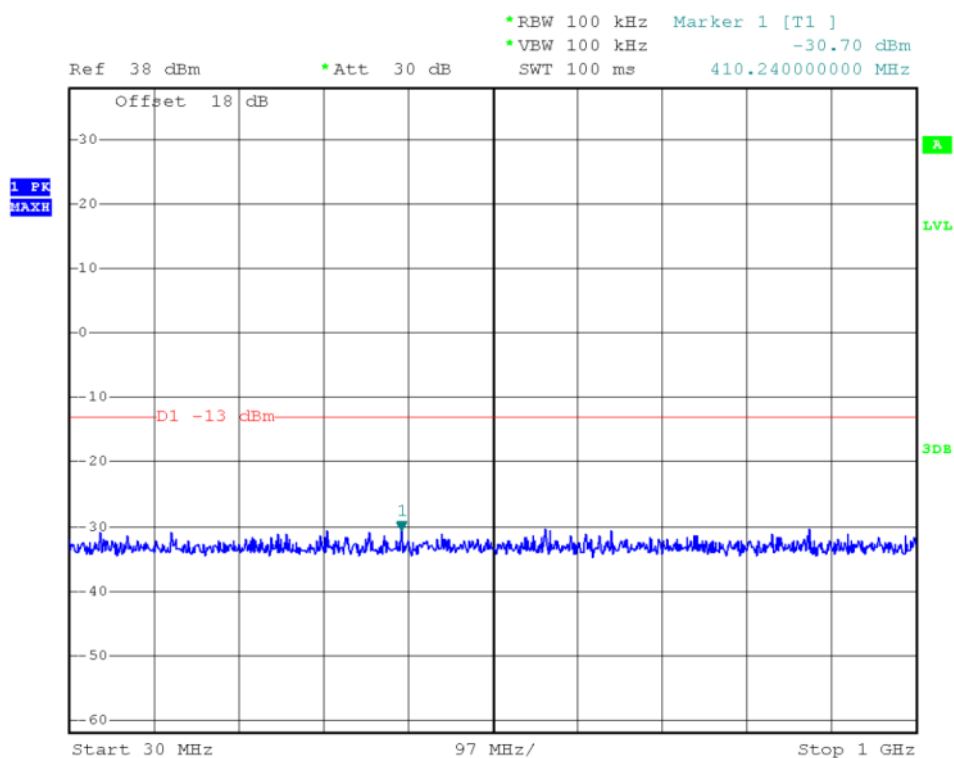


(Plot A2: GSM 850MHz Channel = 190, 30MHz to 1GHz)

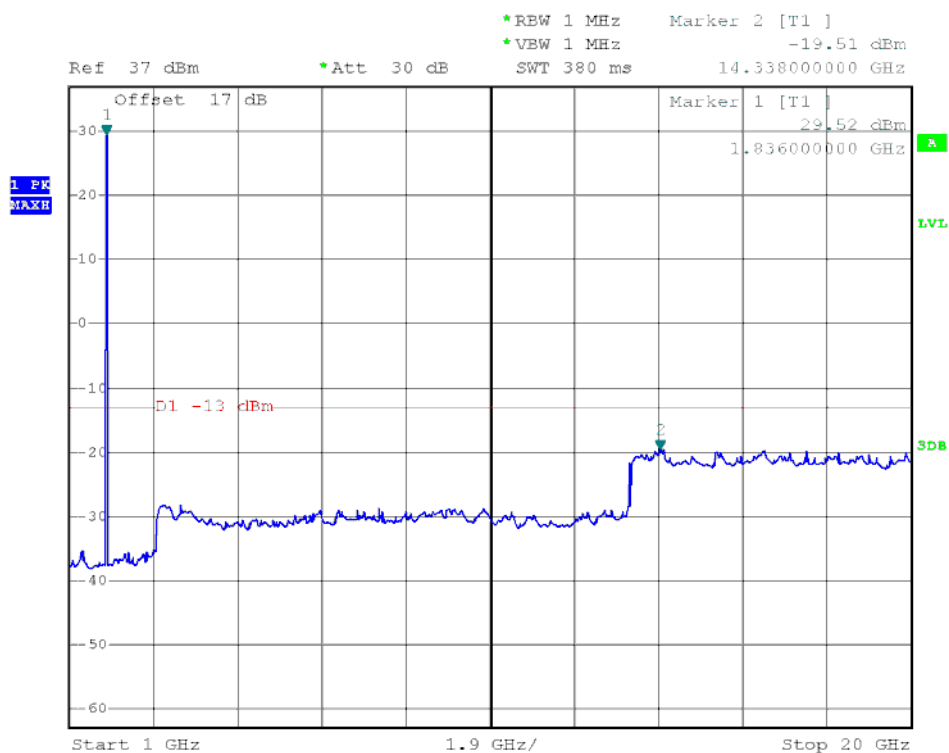


(Plot A2.1: GSM 850MHz Channel = 190, 1GHz to 9GHz)

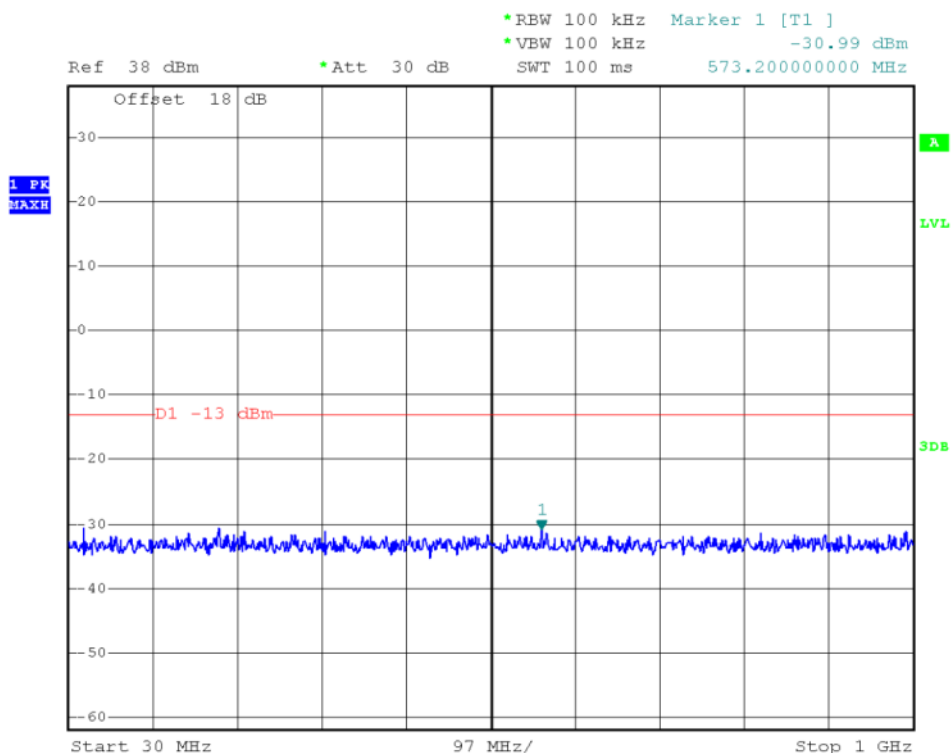




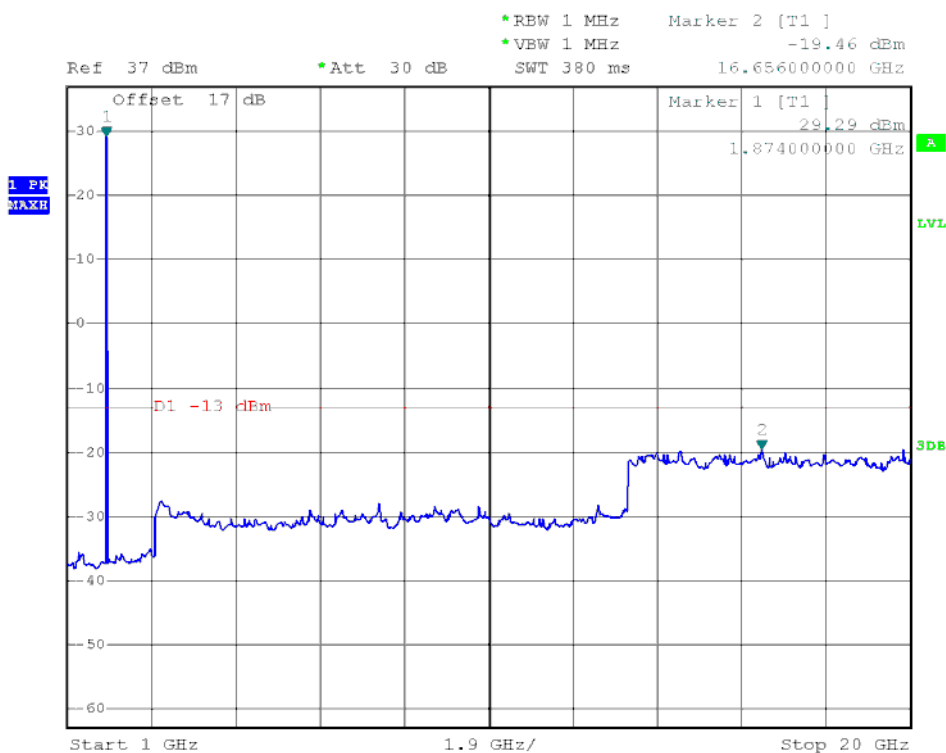
(Plot B1: GSM 1900MHz Channel = 512, 30MHz to 1GHz)



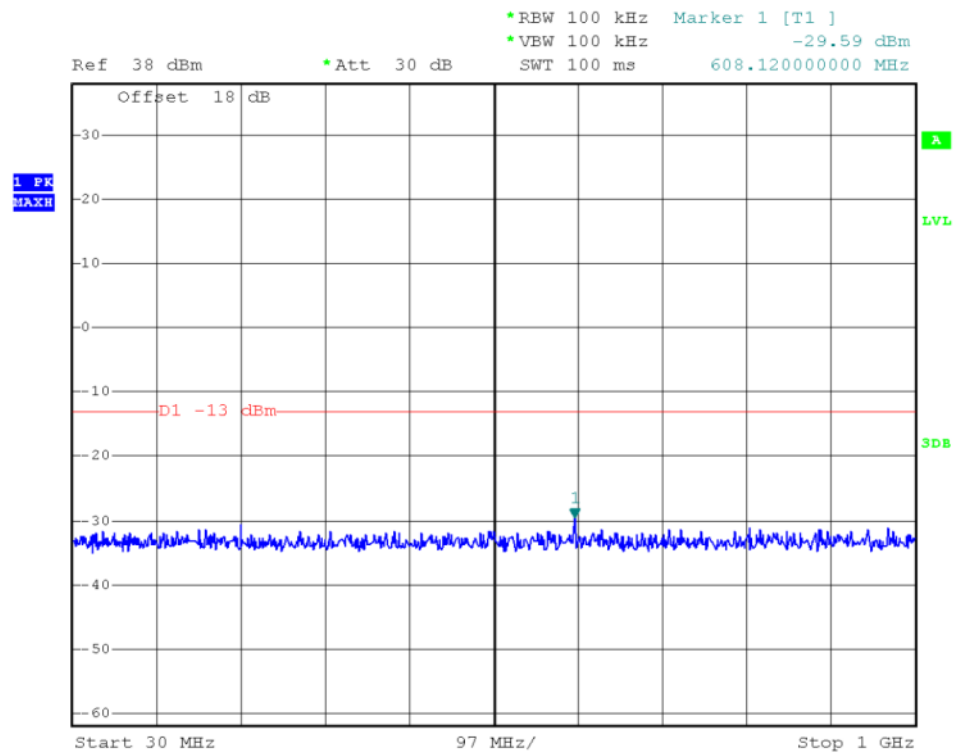
(Plot B1.1: GSM 1900MHz Channel = 512, 1GHz to 20GHz)



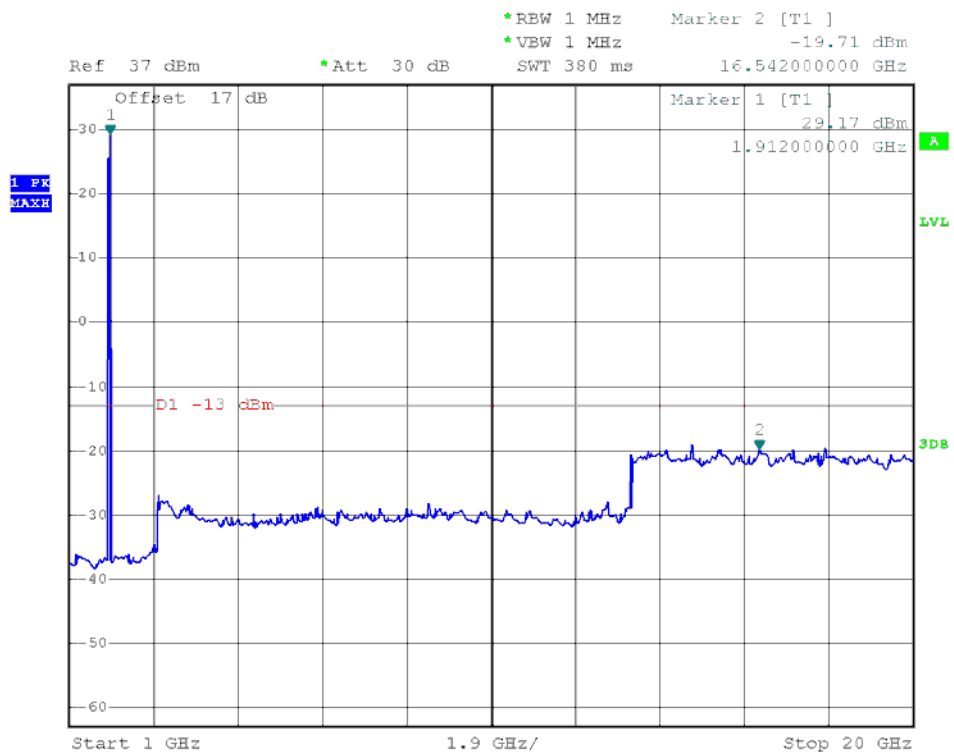
(Plot B2: GSM 1900MHz Channel = 661, 30MHz to 1GHz)



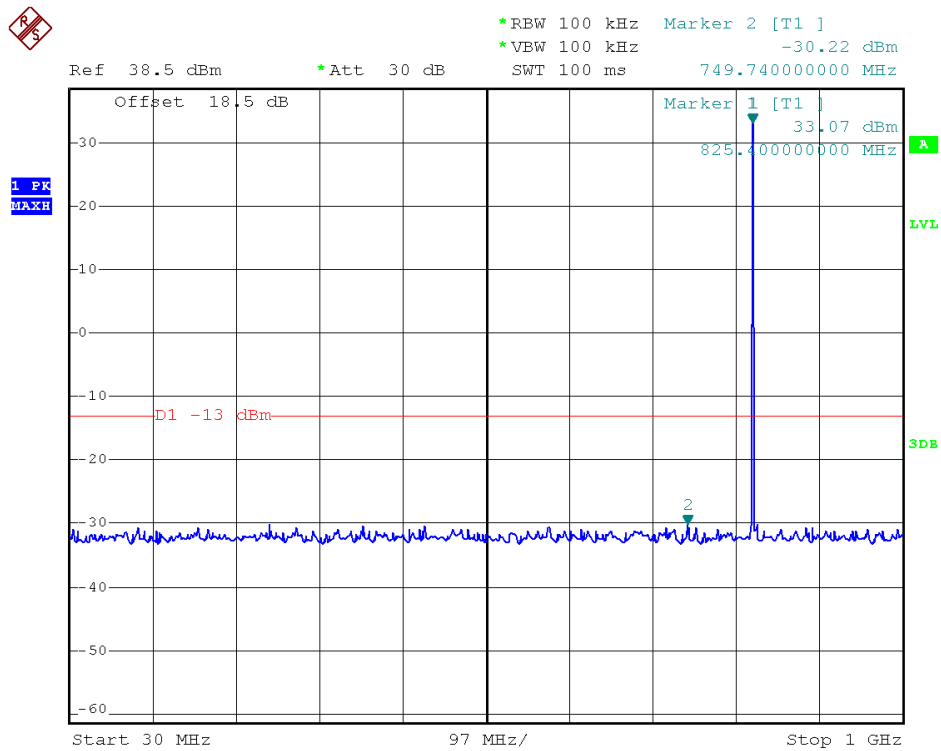
(Plot B2.1: GSM 1900MHz Channel = 661, 1GHz to 20GHz)



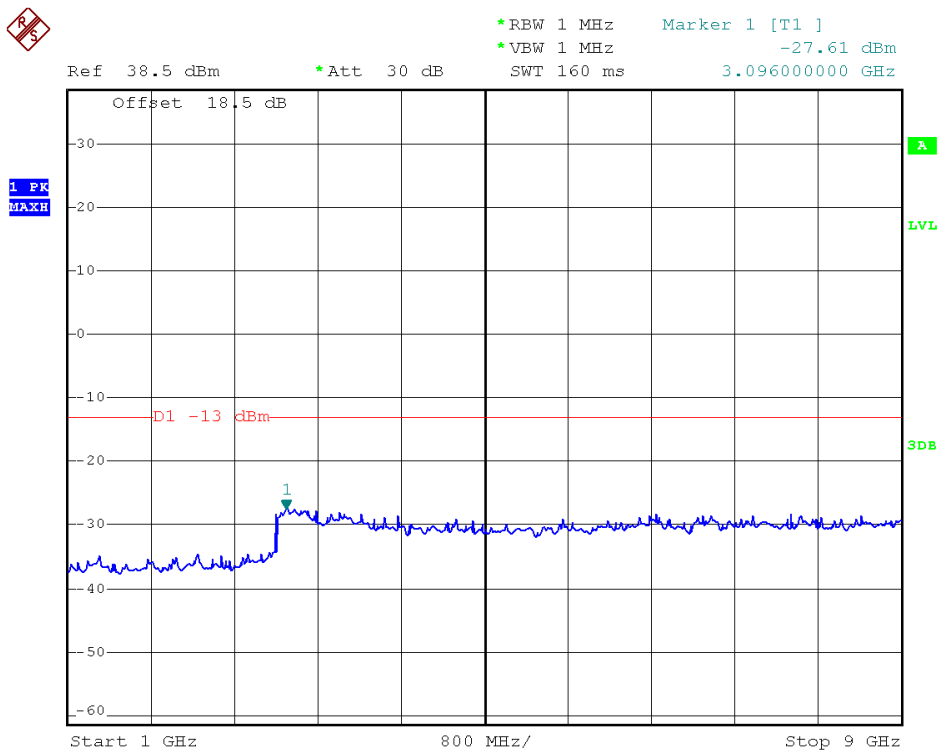
(Plot B3: GSM 1900MHz Channel = 810, 30MHz to 1GHz)



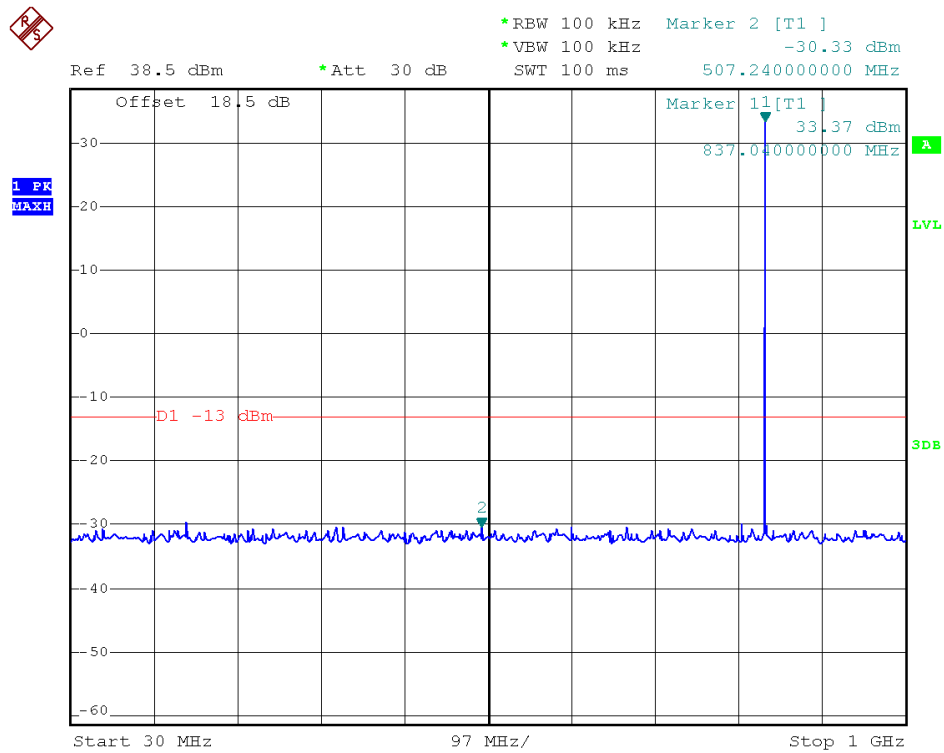
(Plot B3.1: GSM 1900MHz Channel = 810, 1GHz to 20GHz)



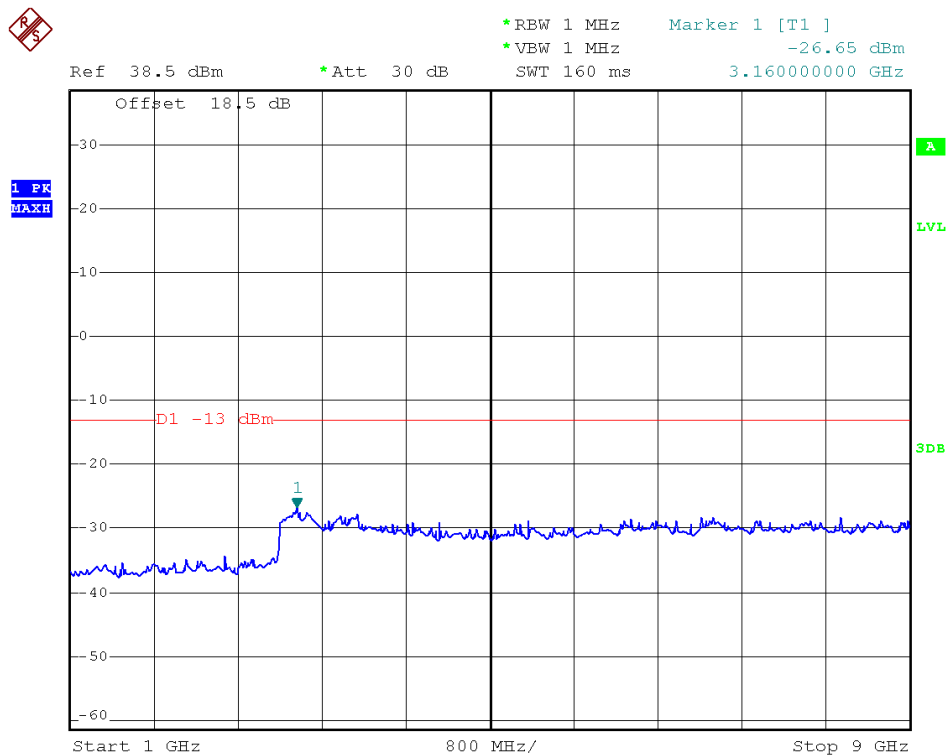
(Plot C1: EDGE 850MHz Channel = 128, 30MHz to 1GHz)



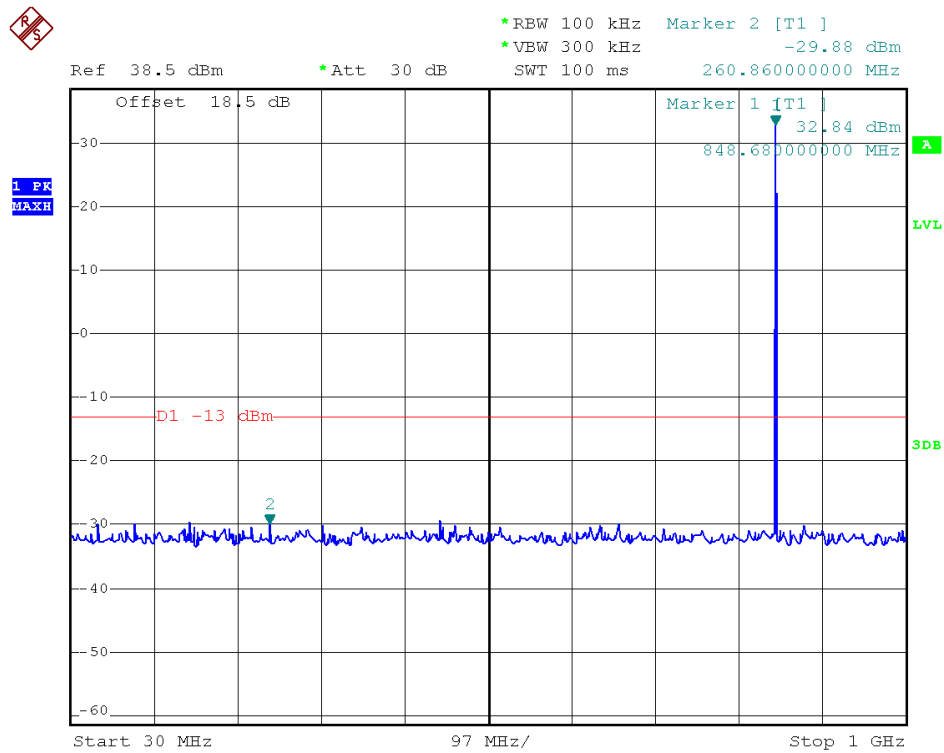
(Plot C1.1: EDGE 850MHz Channel = 128, 1GHz to 9GHz)



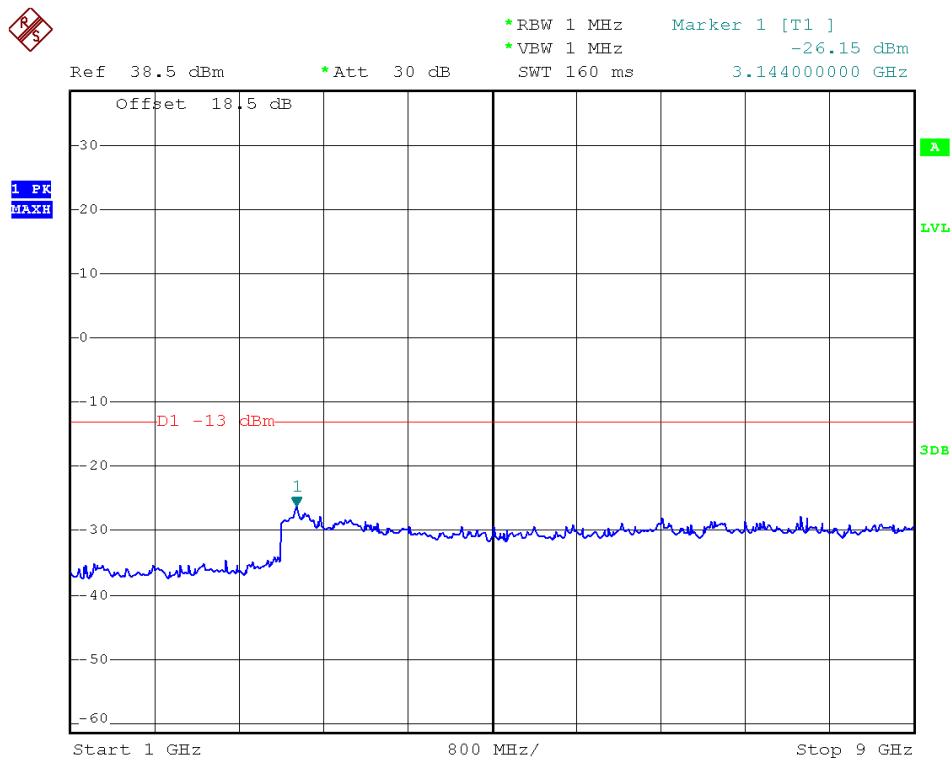
(Plot C2: EDGE 850MHz Channel = 190, 30MHz to 1GHz)



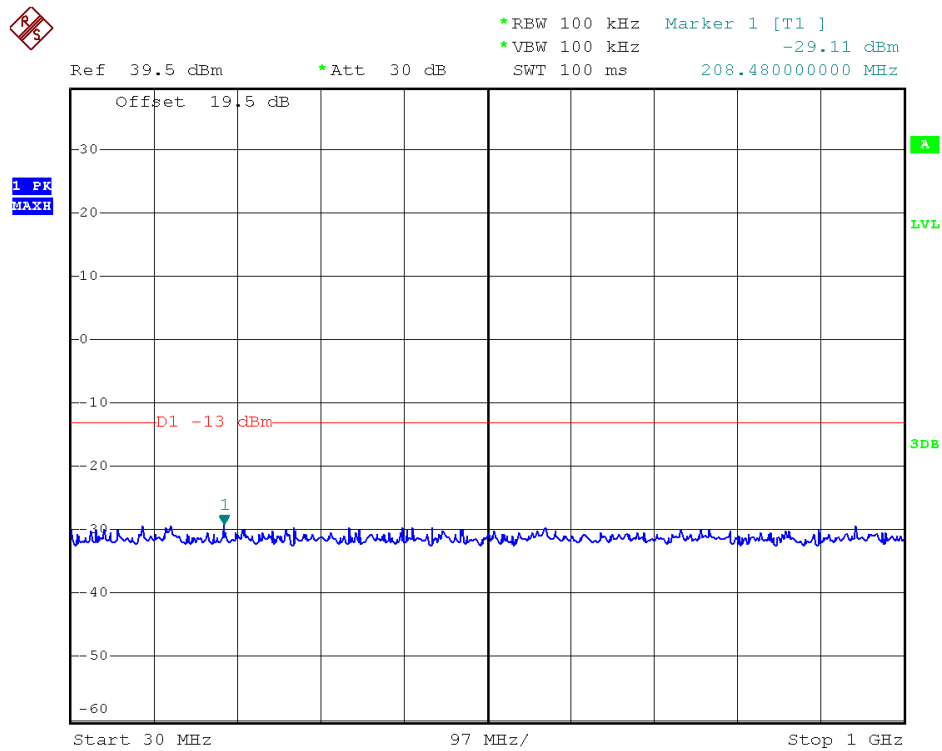
(Plot C2.1: EDGE 850MHz Channel = 190, 1GHz to 9GHz)



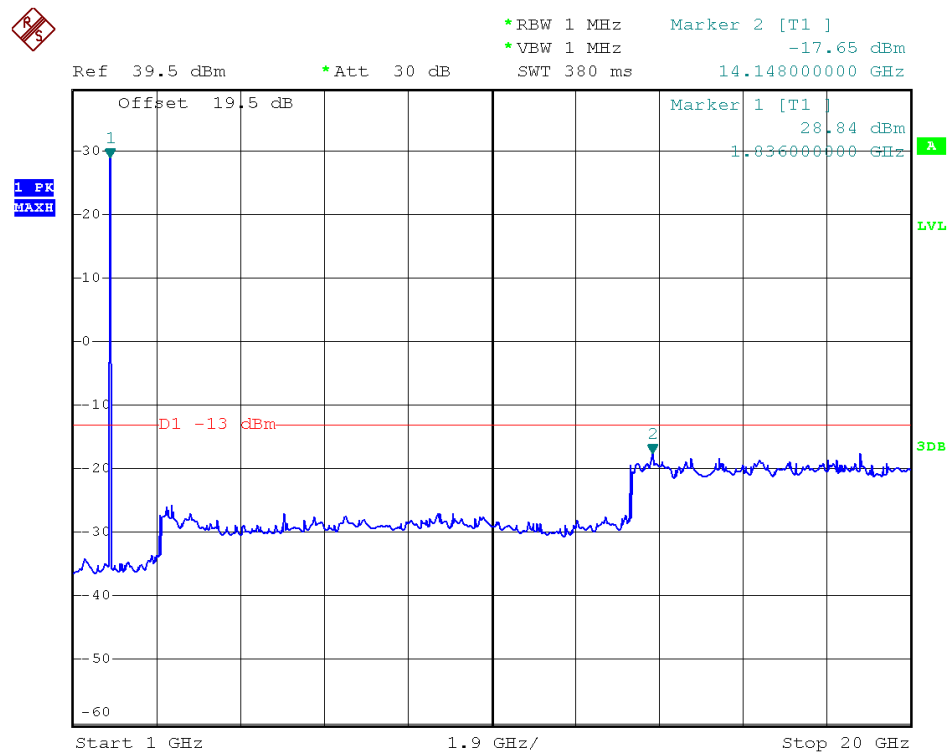
(Plot C3: EDGE 850MHz Channel = 251, 30MHz to 1GHz)



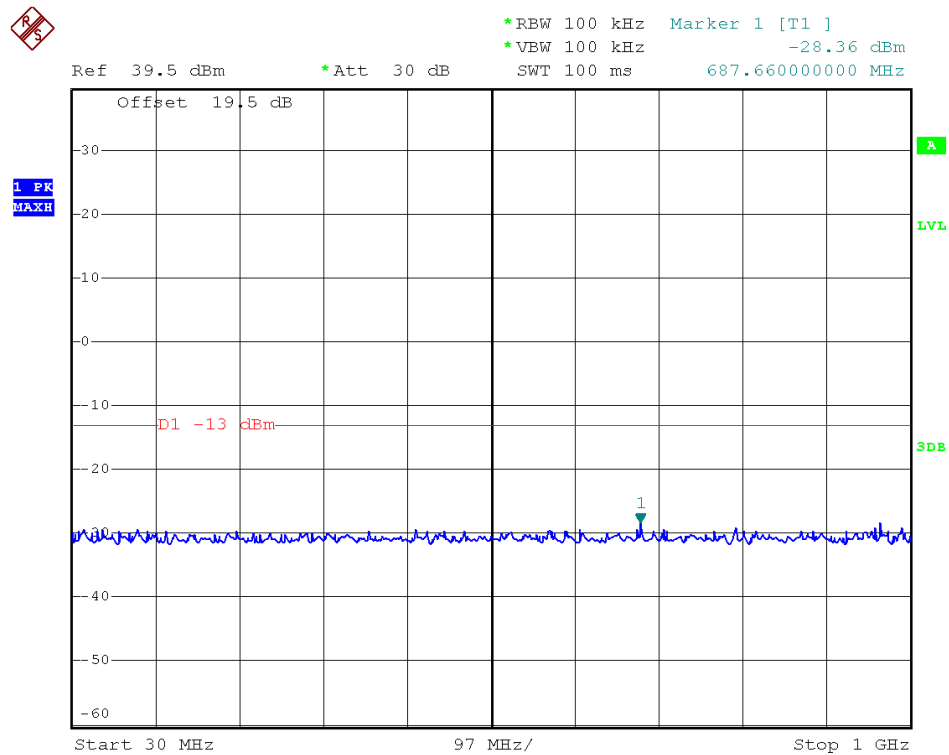
(Plot C3.1: EDGE 850MHz Channel = 251, 1GHz to 9GHz)



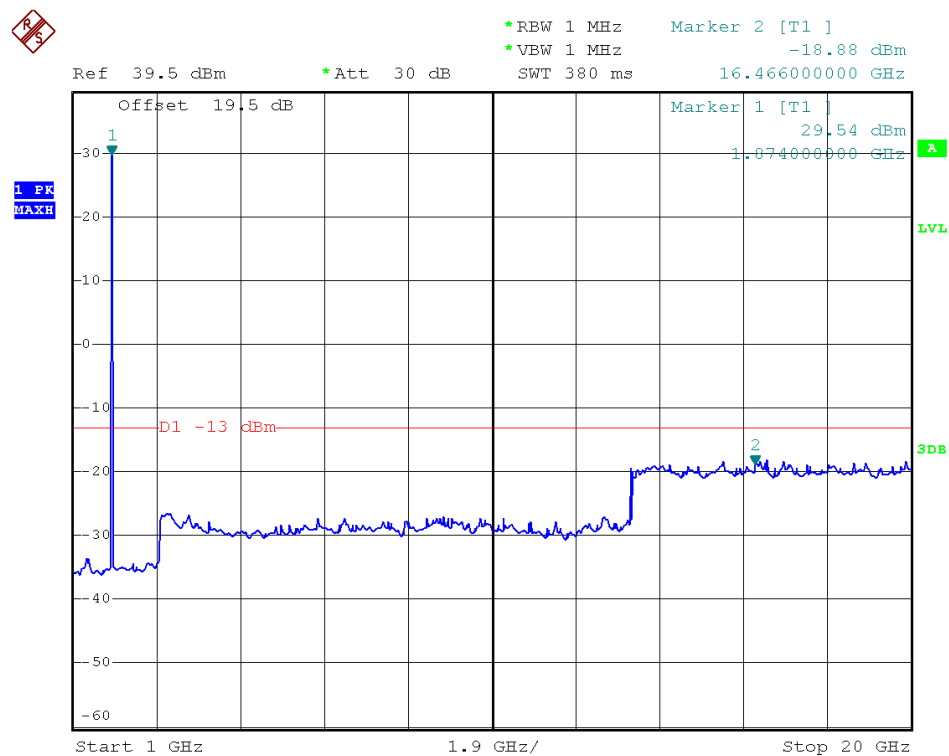
(Plot D1: EDGE 1900MHz Channel = 512, 30MHz to 1GHz)



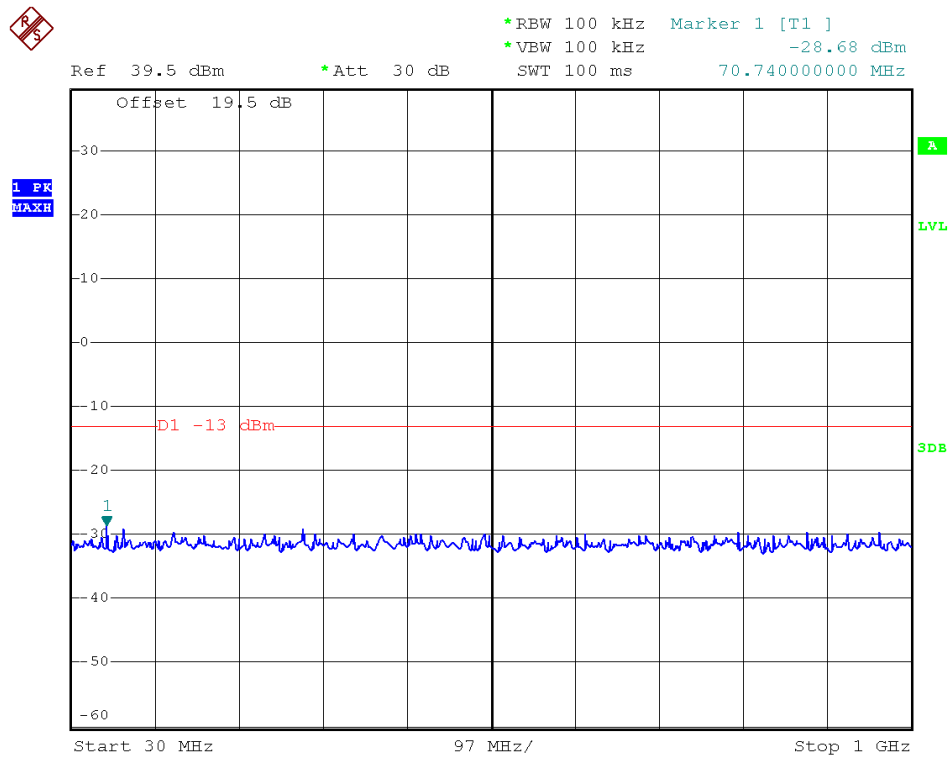
(Plot D1.1: EDGE 1900MHz Channel = 512, 1GHz to 20GHz)



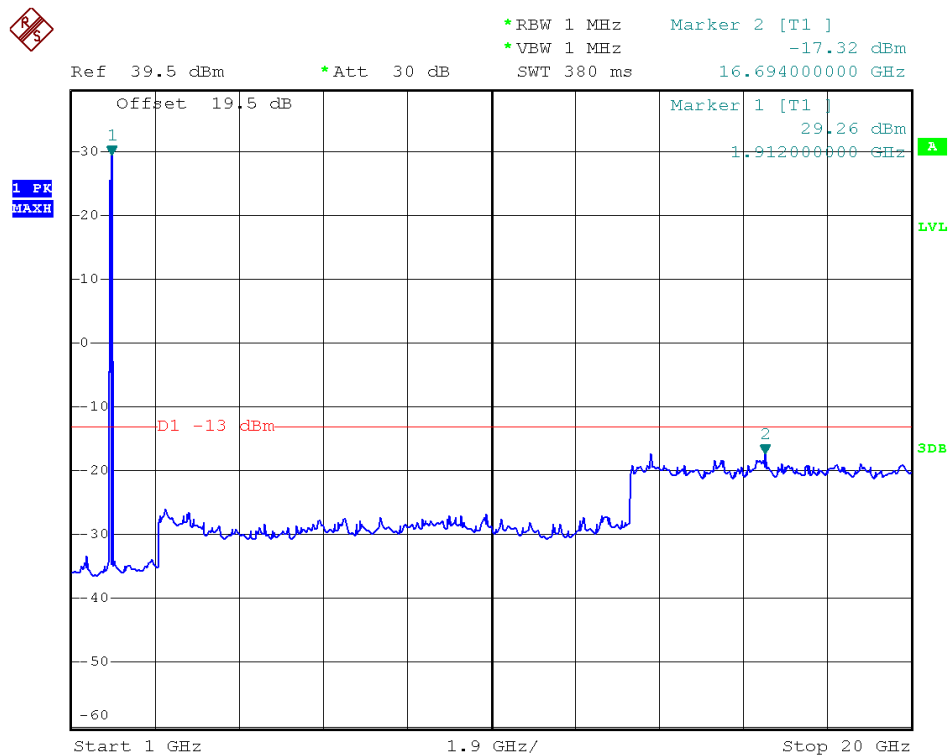
(Plot D2: EDGE 1900MHz Channel = 661, 30MHz to 1GHz)



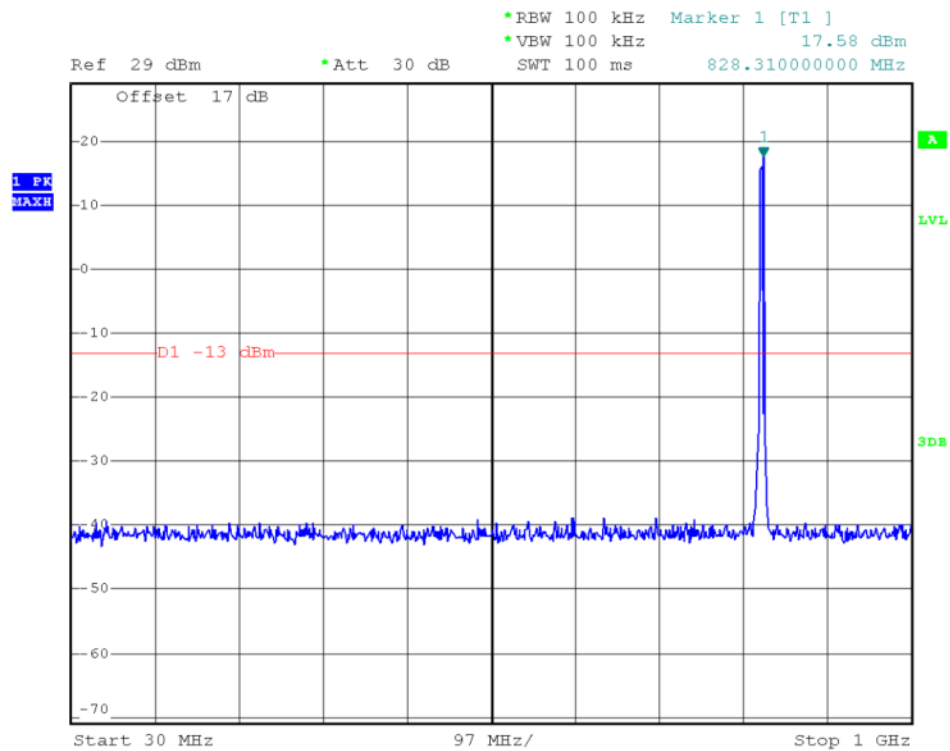
(Plot D2.1: EDGE 1900MHz Channel = 661, 1GHz to 20GHz)



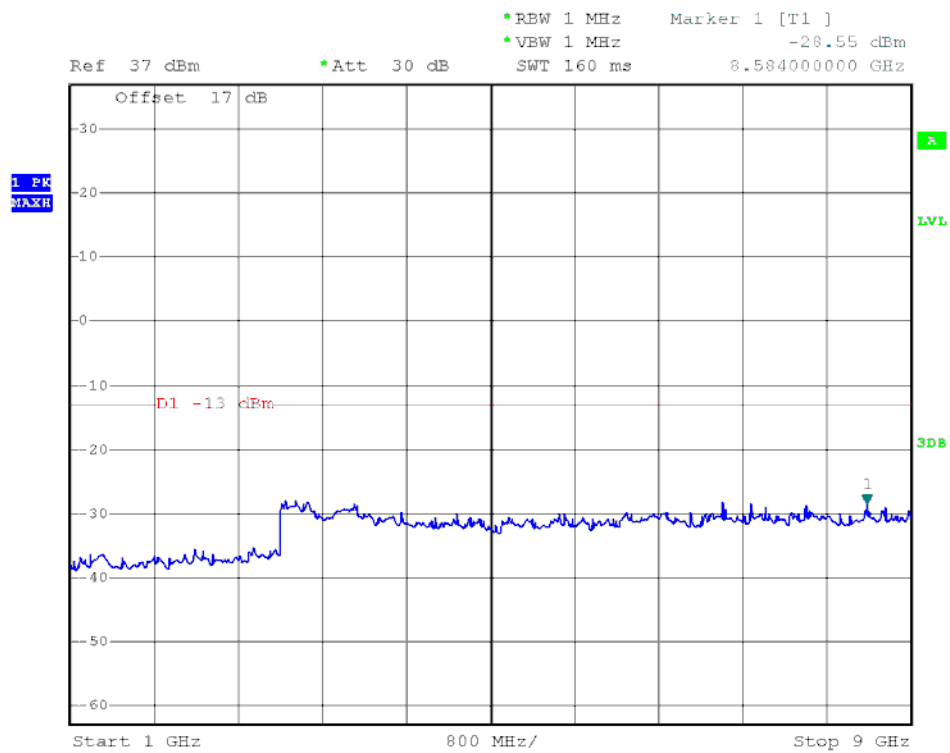
(Plot D3: EDGE 1900MHz Channel = 810, 30MHz to 1GHz)



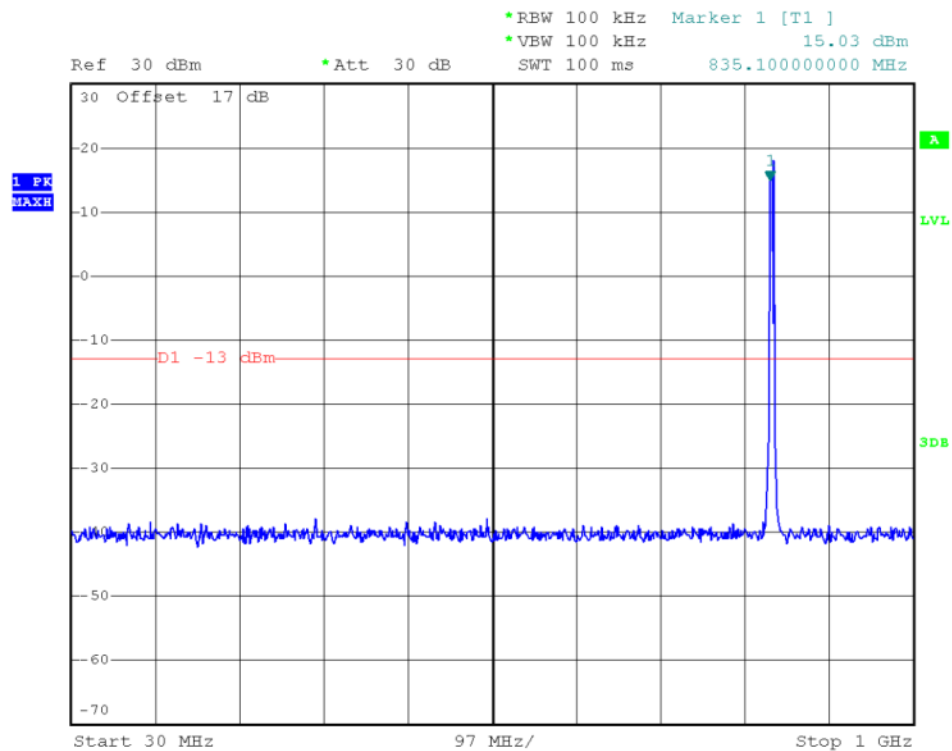
(Plot D3.1: EDGE 1900MHz Channel = 810, 1GHz to 20GHz)



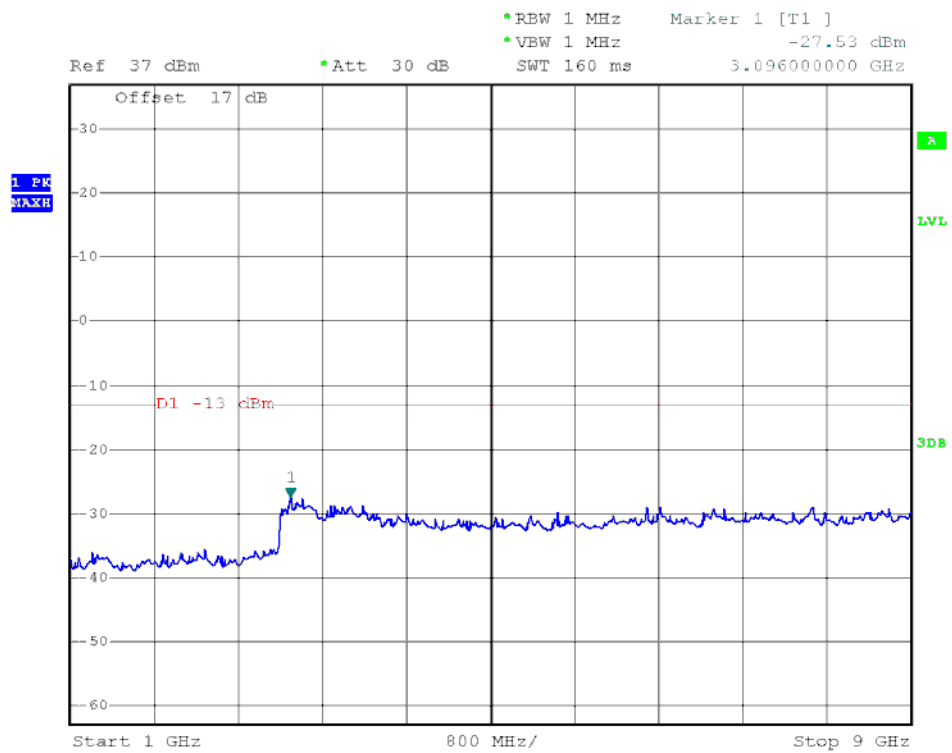
(Plot E1: WCDMA850MHz Channel = 4132, 30MHz to 1GHz)



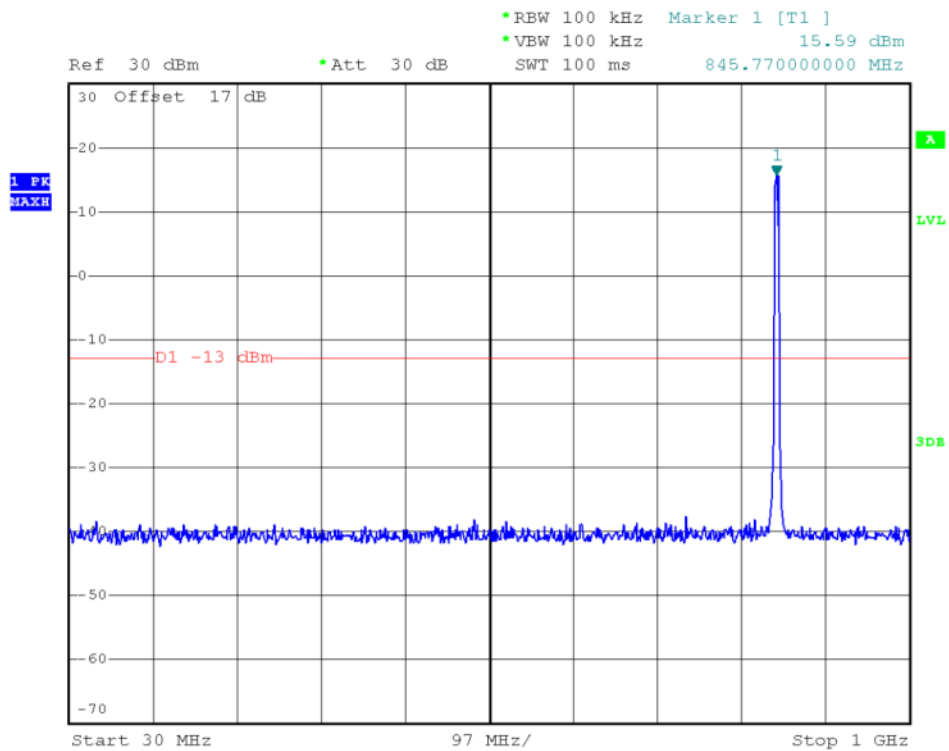
(Plot E1.1: WCDMA850MHz Channel = 4132, 1GHz to 9GHz)



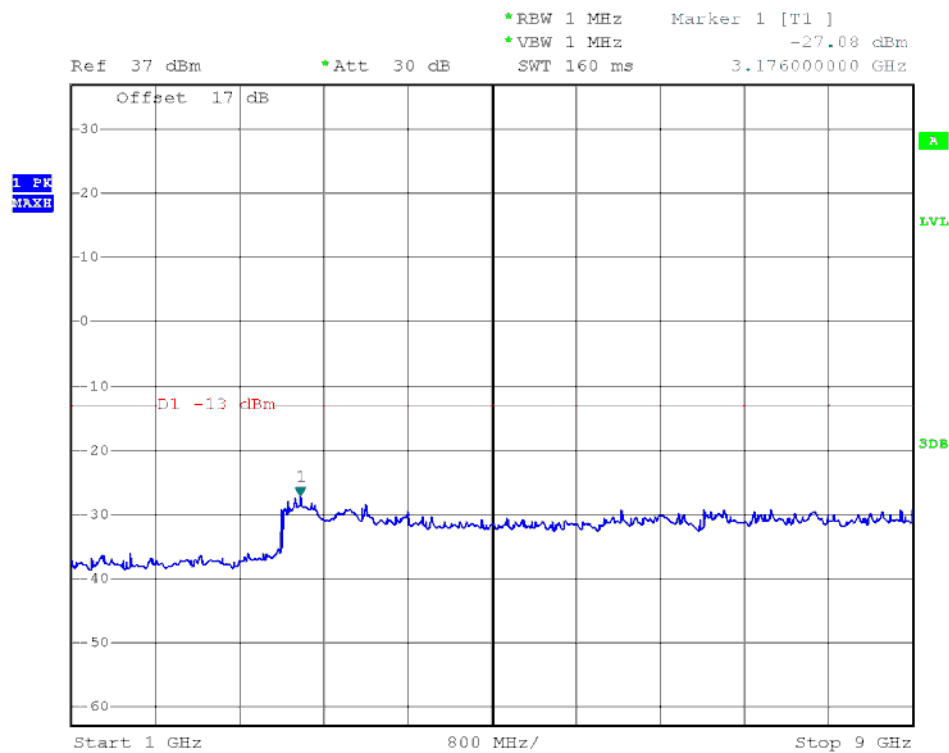
(Plot E2: WCDMA850MHz Channel = 4183, 30MHz to 1GHz)



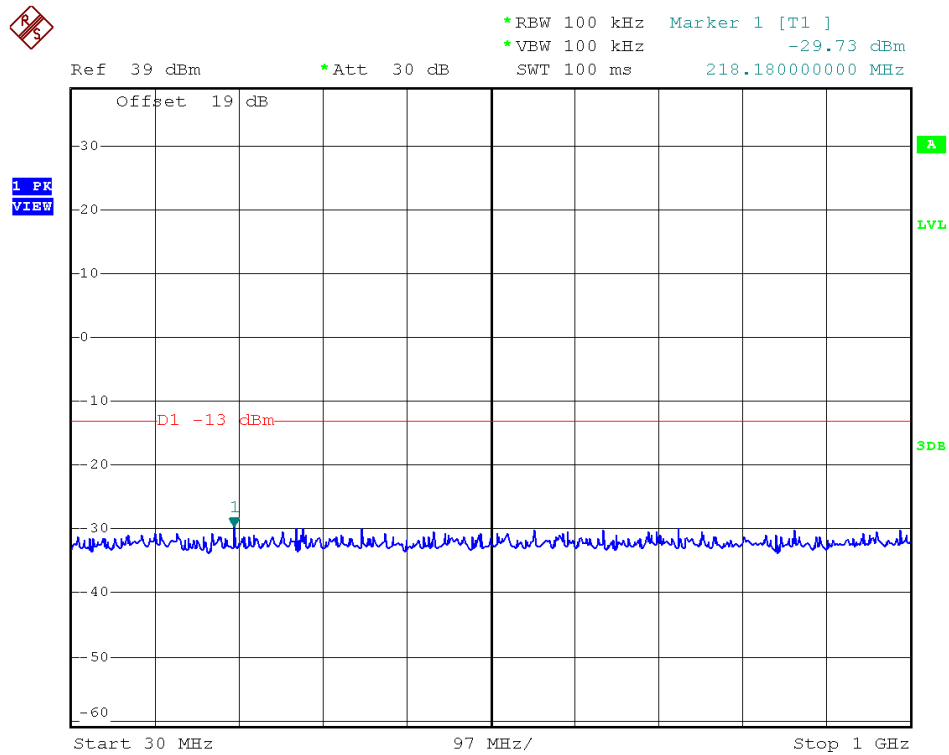
(Plot E2.1: WCDMA850MHz Channel = 4183, 1GHz to 9GHz)



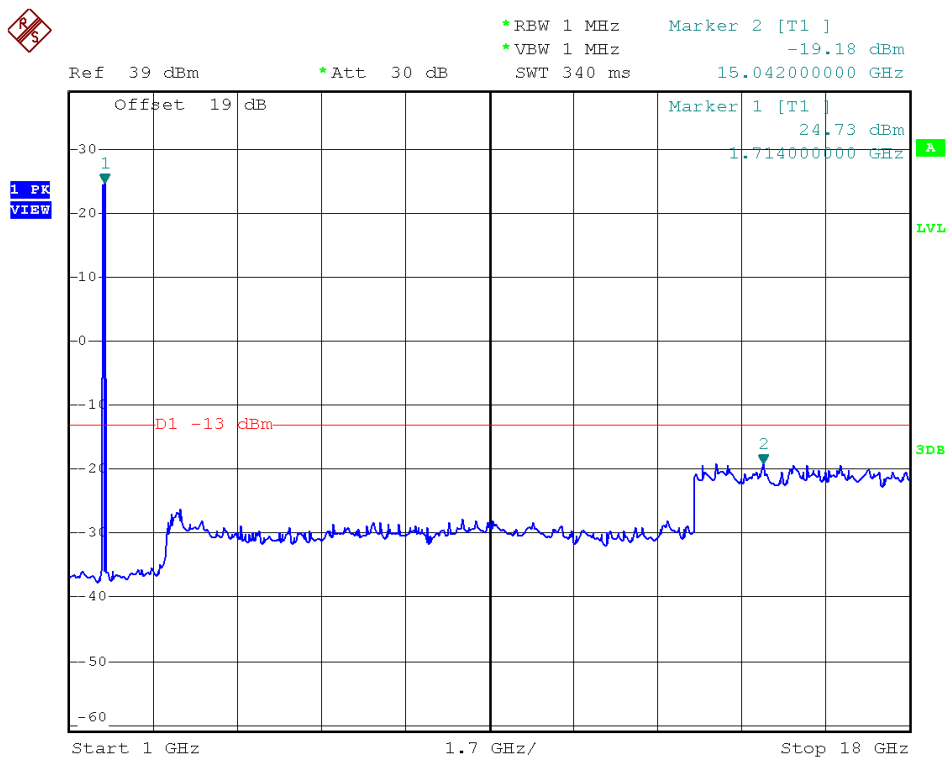
(Plot E3: WCDMA850MHz Channel = 4233, 30MHz to 1GHz)



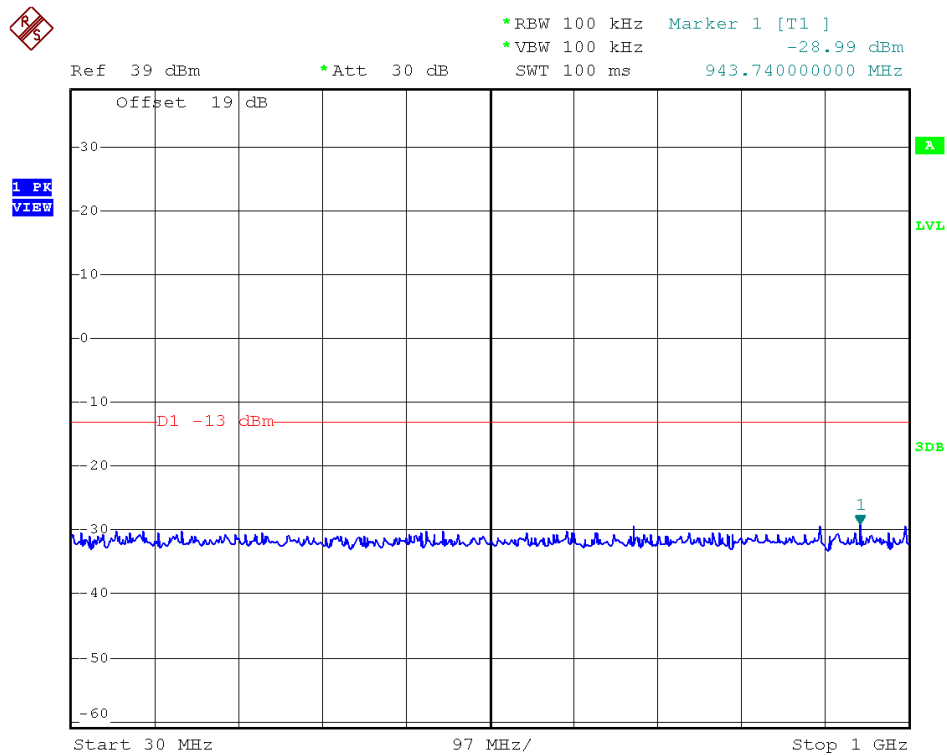
(Plot E3.1: WCDMA850MHz Channel = 4233, 1GHz to 9GHz)



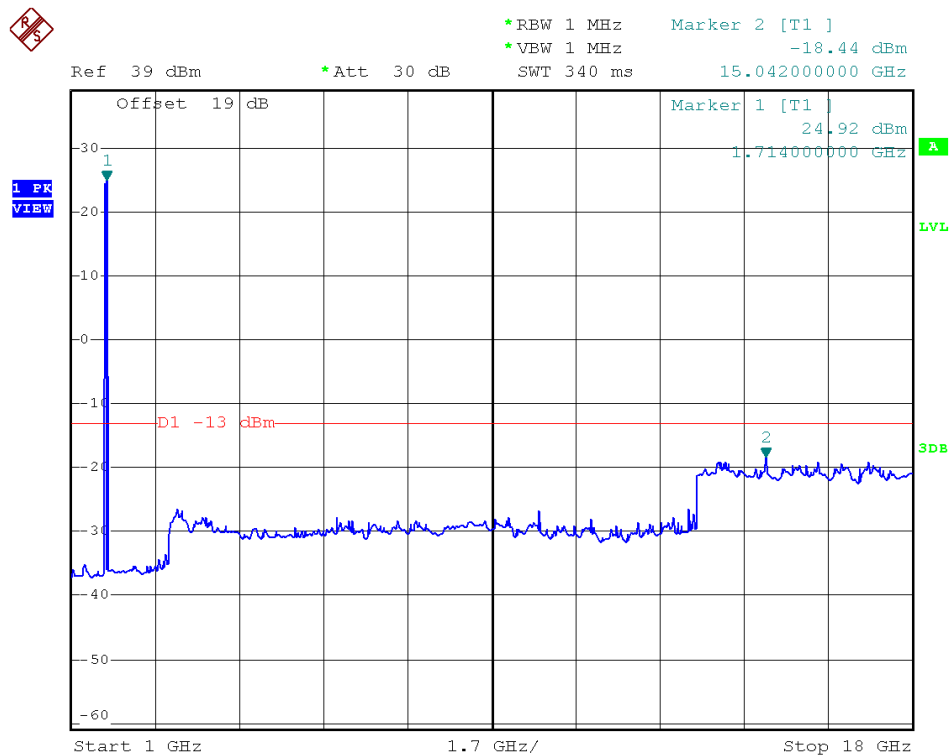
(Plot F1: WCDMA1700MHz Channel = 1312, 30MHz to 1GHz)



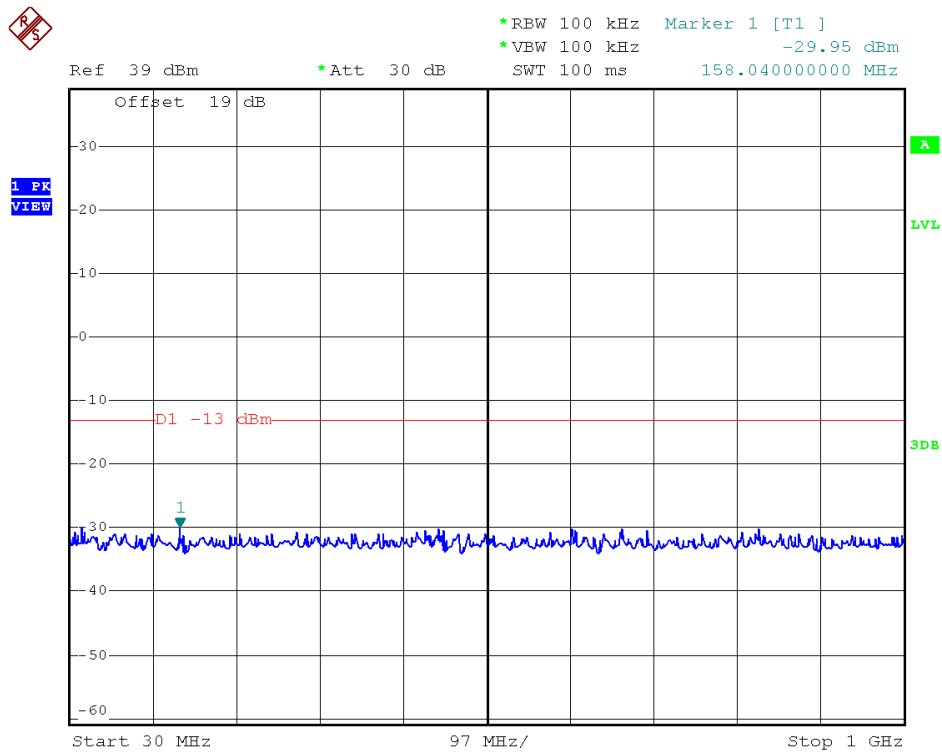
(Plot F1.1: WCDMA1700MHz Channel = 1312, 1GHz to 18GHz)



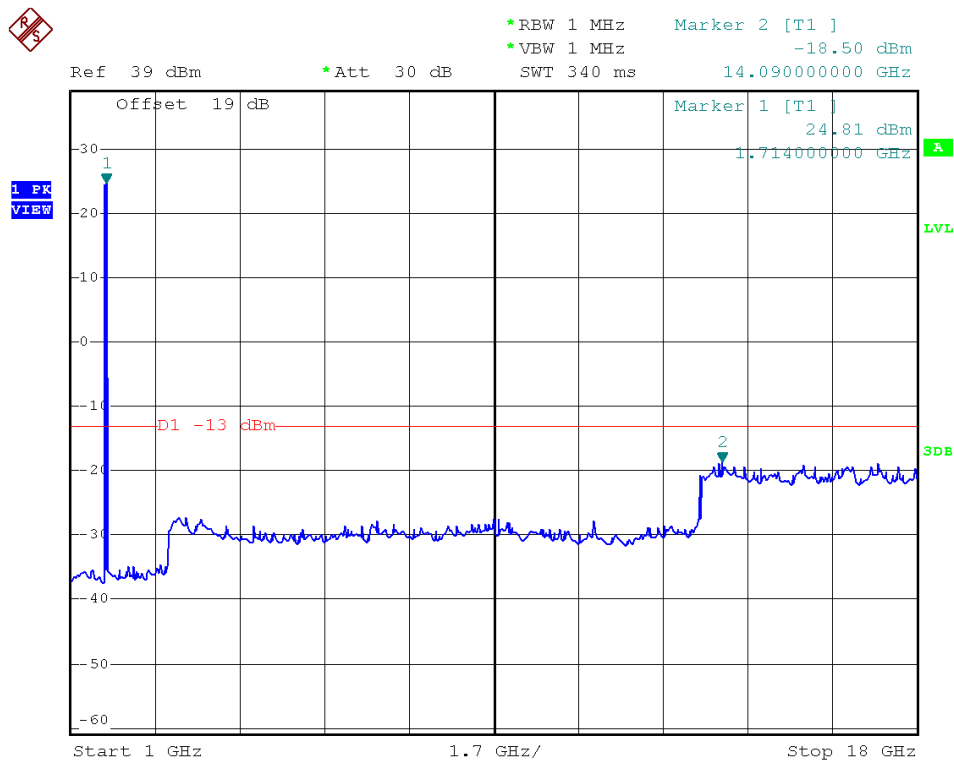
(Plot F2: WCDMA1700MHz Channel = 1412, 30MHz to 1GHz)



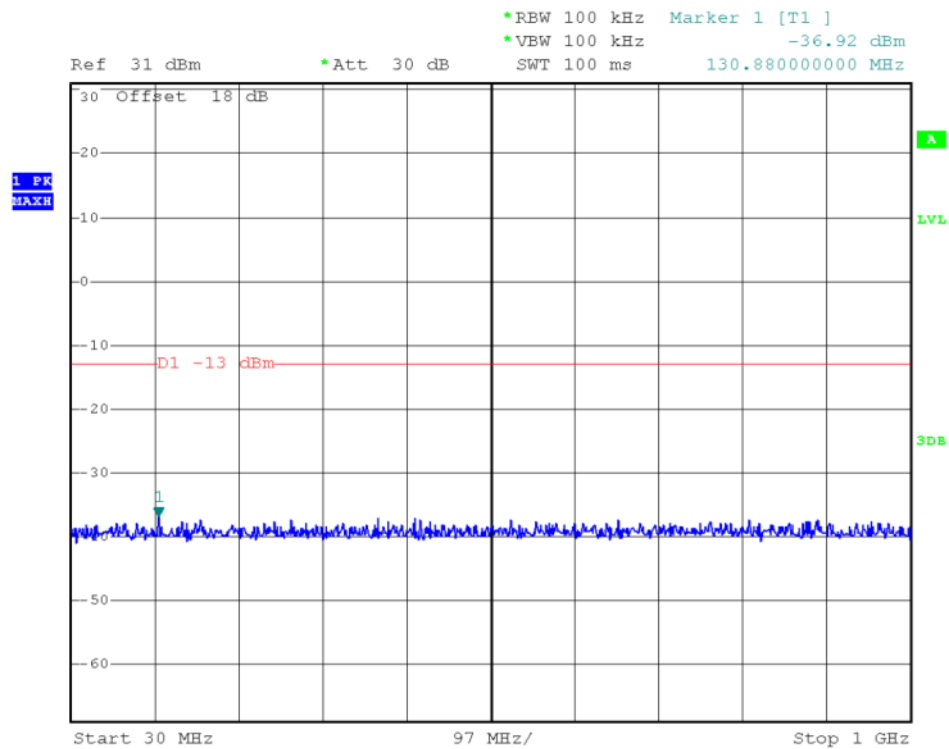
(Plot F2.1: WCDMA1700MHz Channel = 1412, 1GHz to 18GHz)



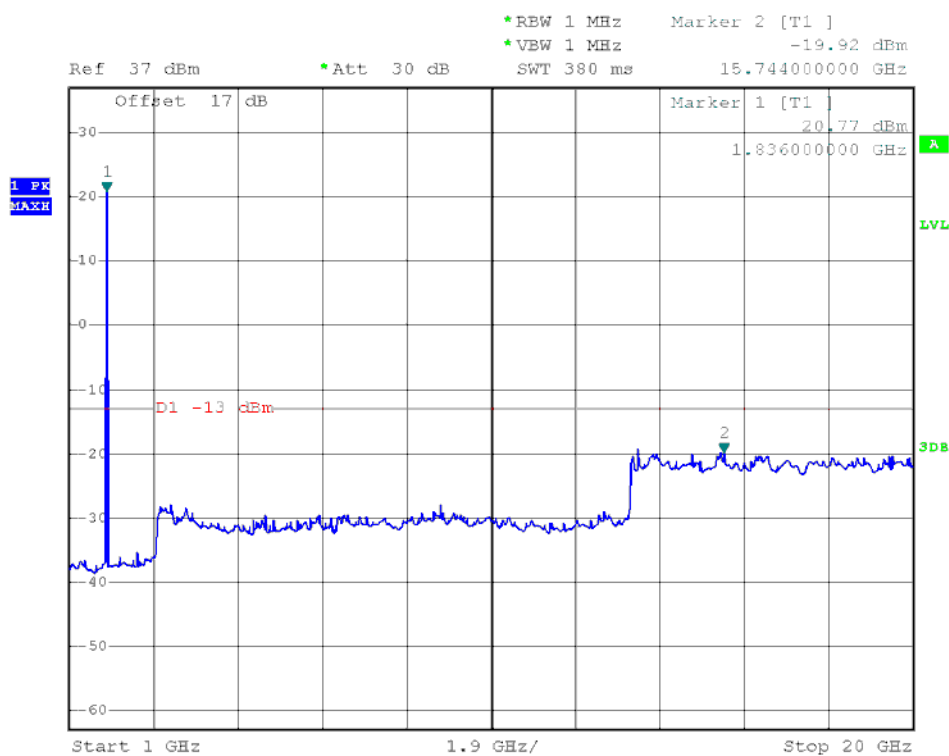
(Plot F3: WCDMA1700MHz Channel = 1513, 30MHz to 1GHz)



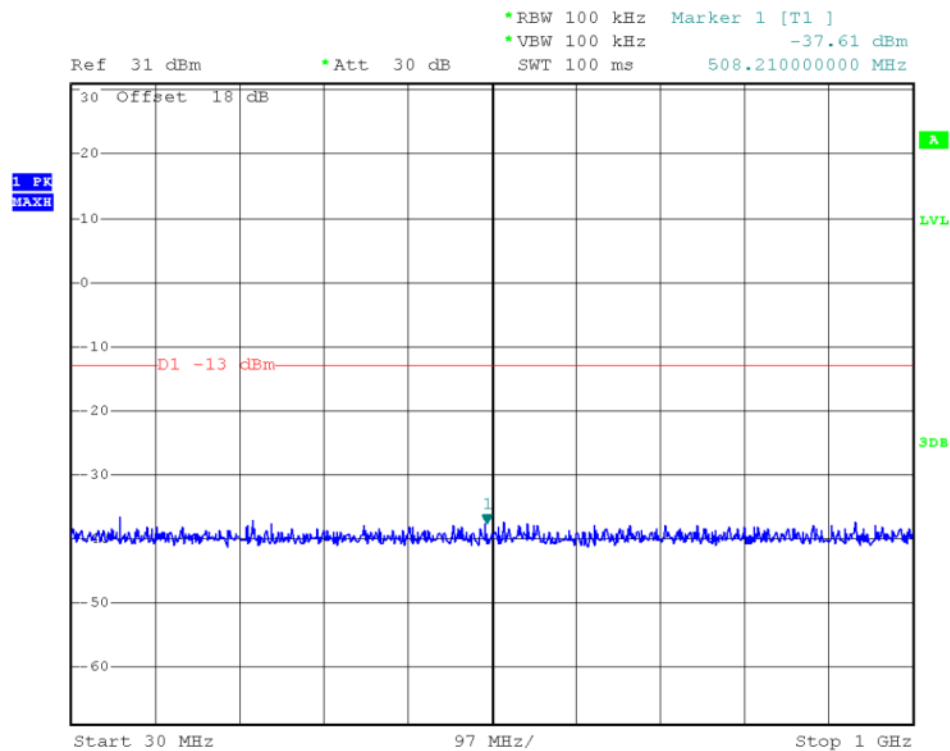
(Plot F3.1: WCDMA1700MHz Channel = 1513, 1GHz to 18GHz)



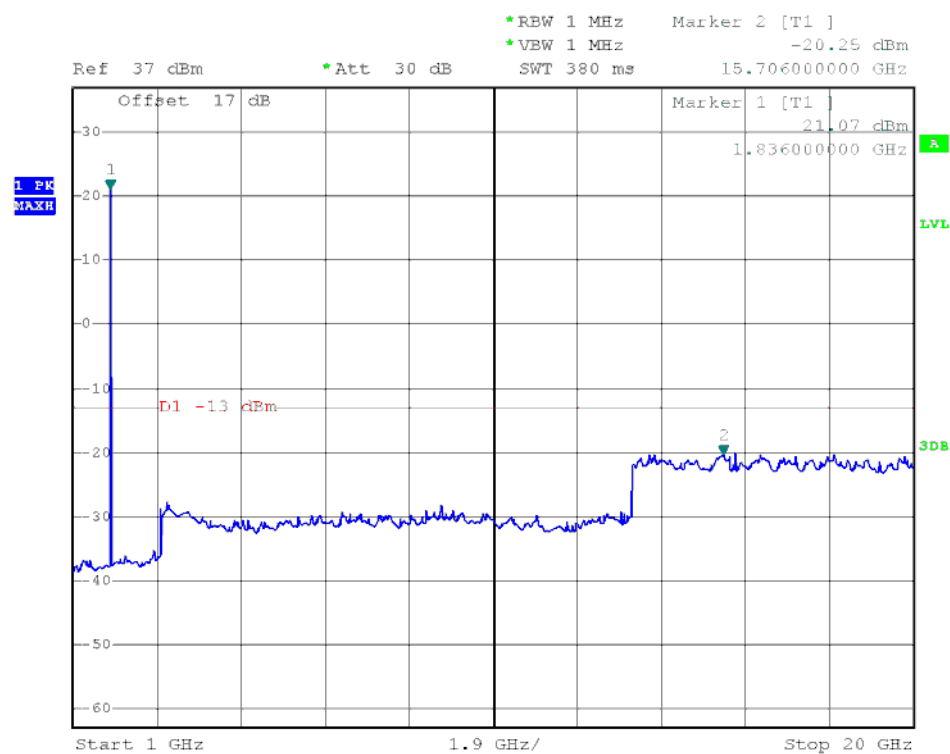
(Plot G1: WCDMA1900MHz Channel = 9262, 30MHz to 1GHz)



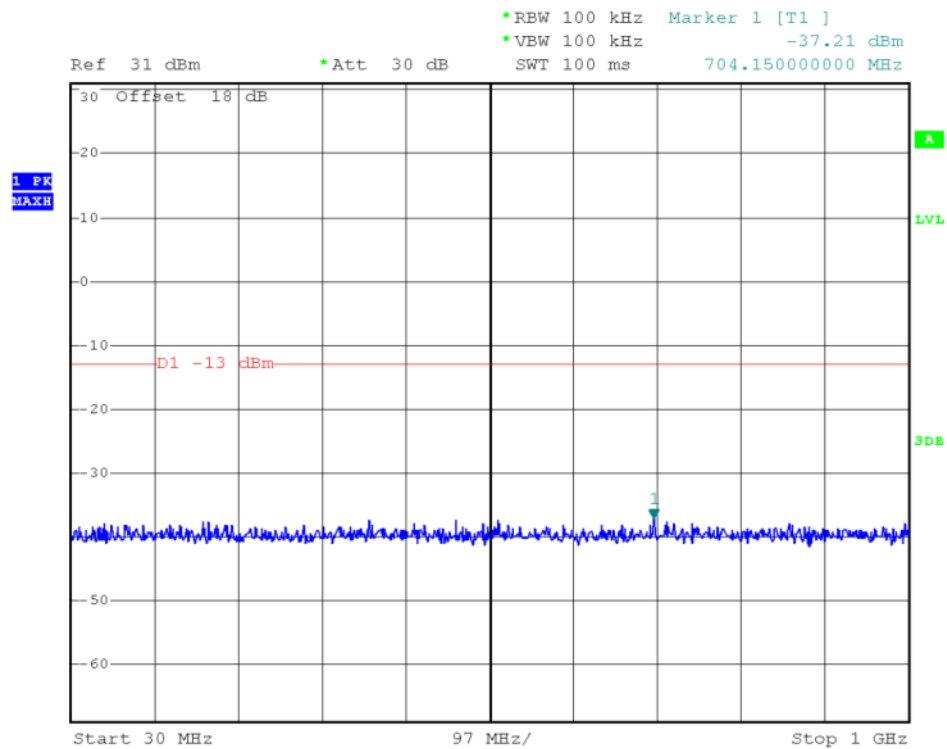
(Plot G1.1: WCDMA1900MHz Channel = 9262, 1GHz to 20GHz)



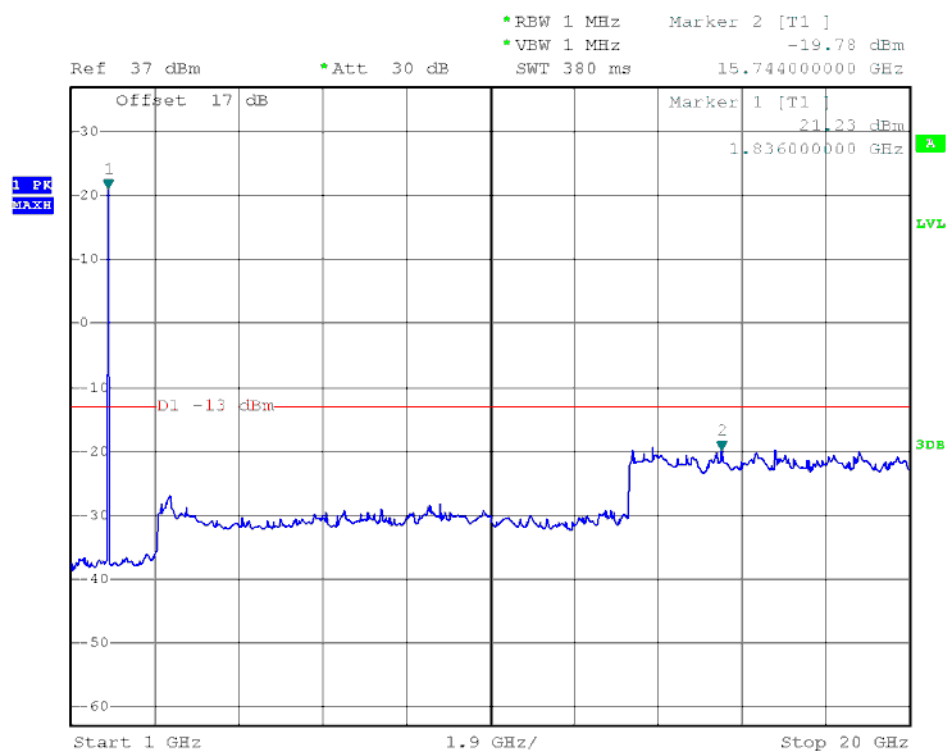
(Plot G2: WCDMA1900MHz Channel = 9400, 30MHz to 1GHz)



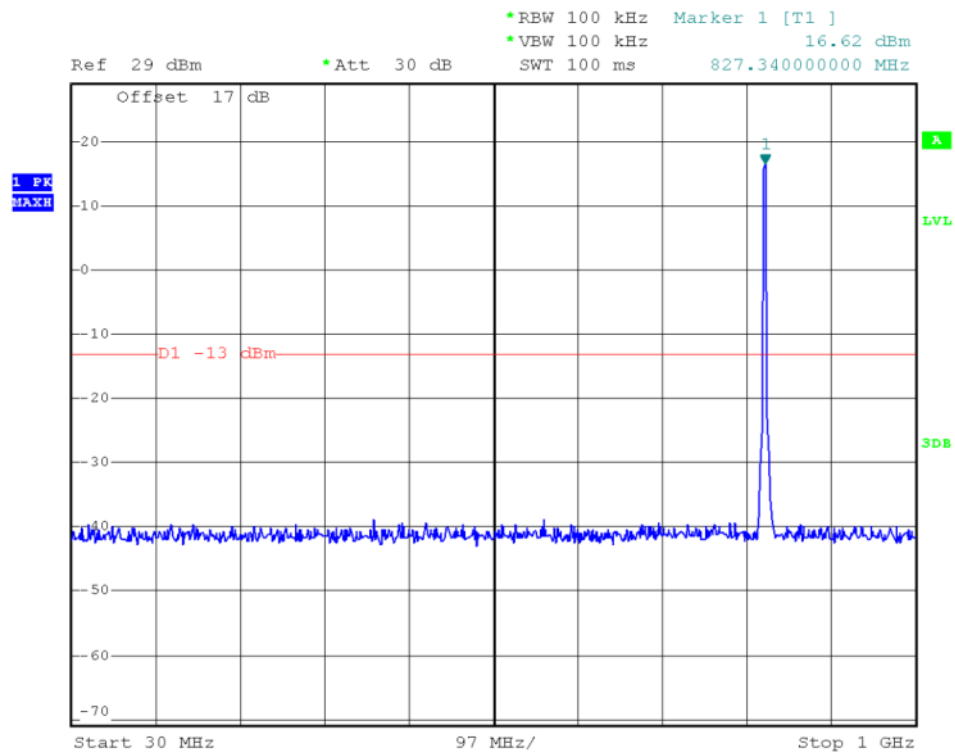
(Plot G2.1: WCDMA1900MHz Channel = 9400, 1GHz to 20GHz)



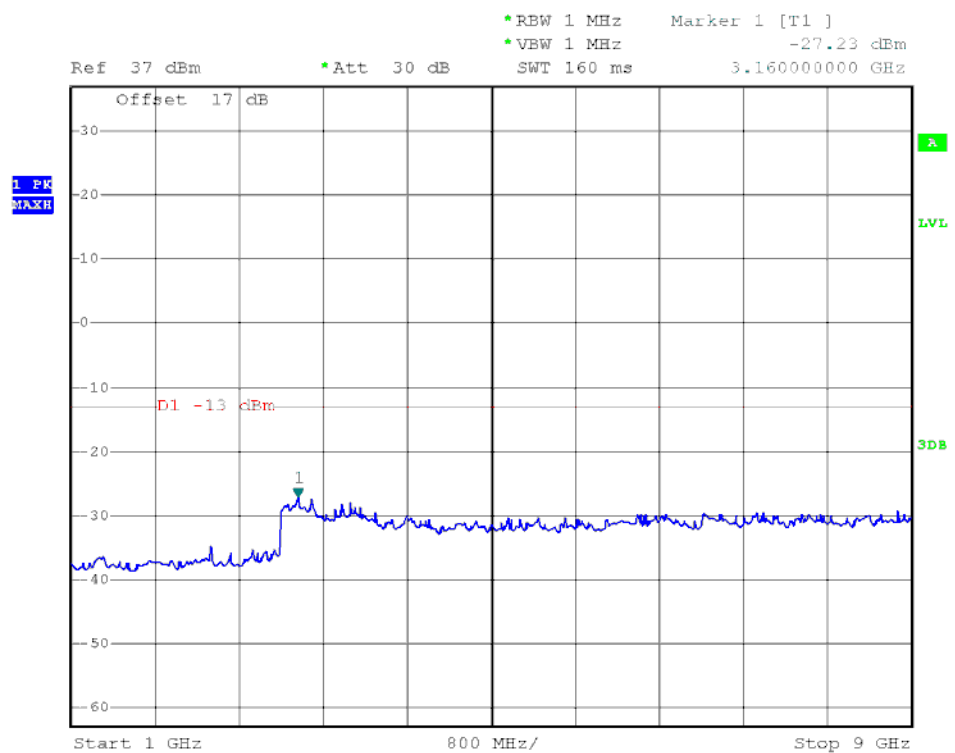
(Plot G3: WCDMA1900MHz Channel = 9538, 30MHz to 1GHz)



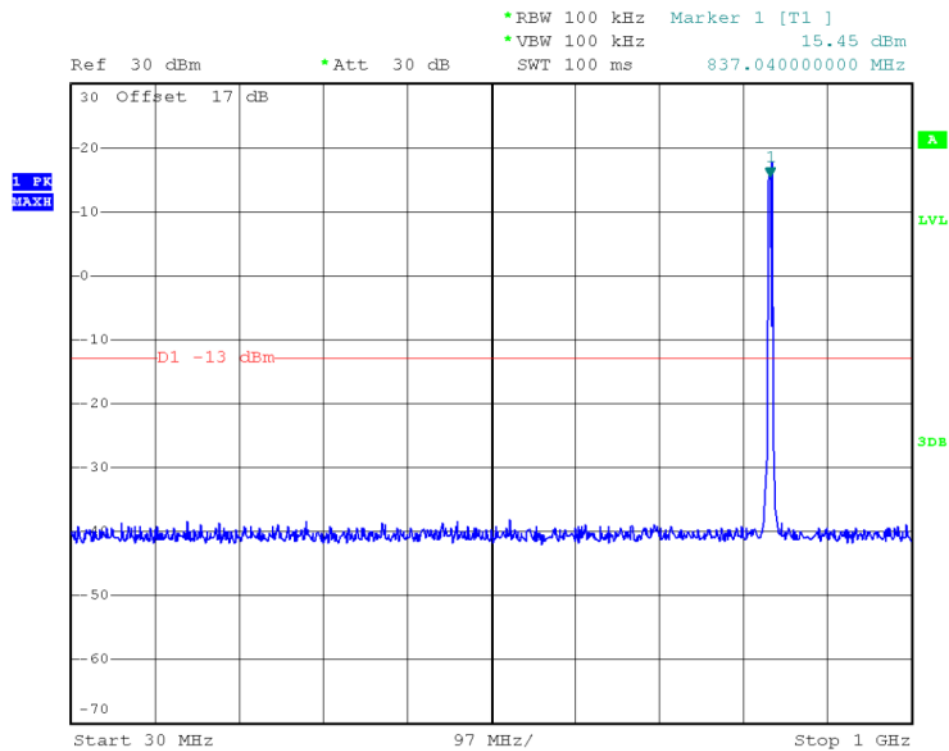
(Plot G3.1: WCDMA1900MHz Channel = 9538 1GHz to 20GHz)



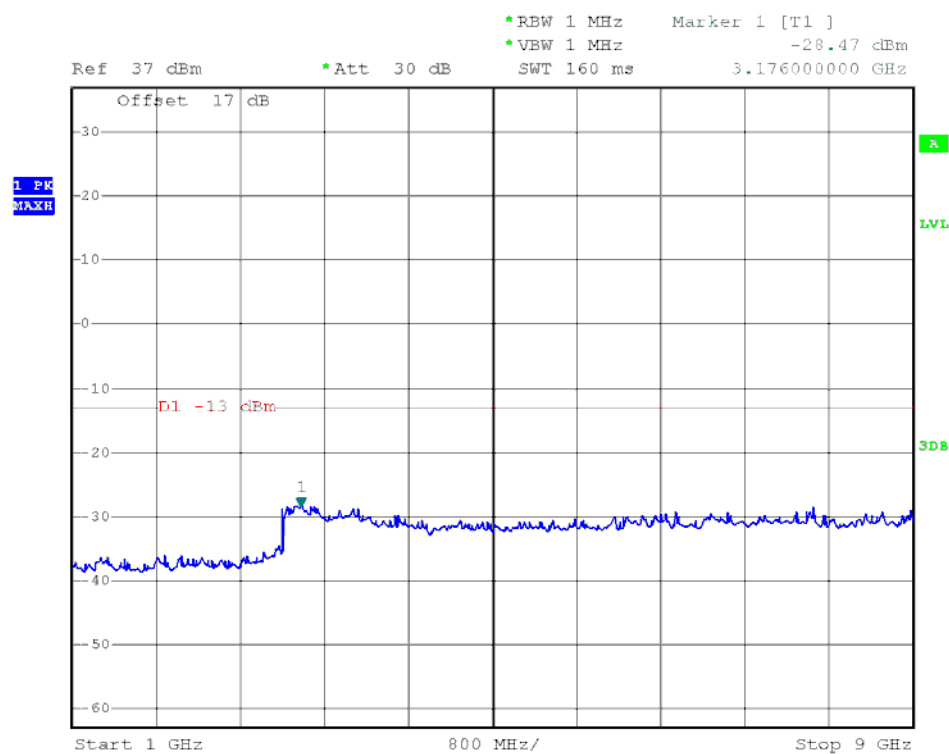
(Plot H1: HSDPA 850MHz Channel = 4132, 30MHz to 1GHz)



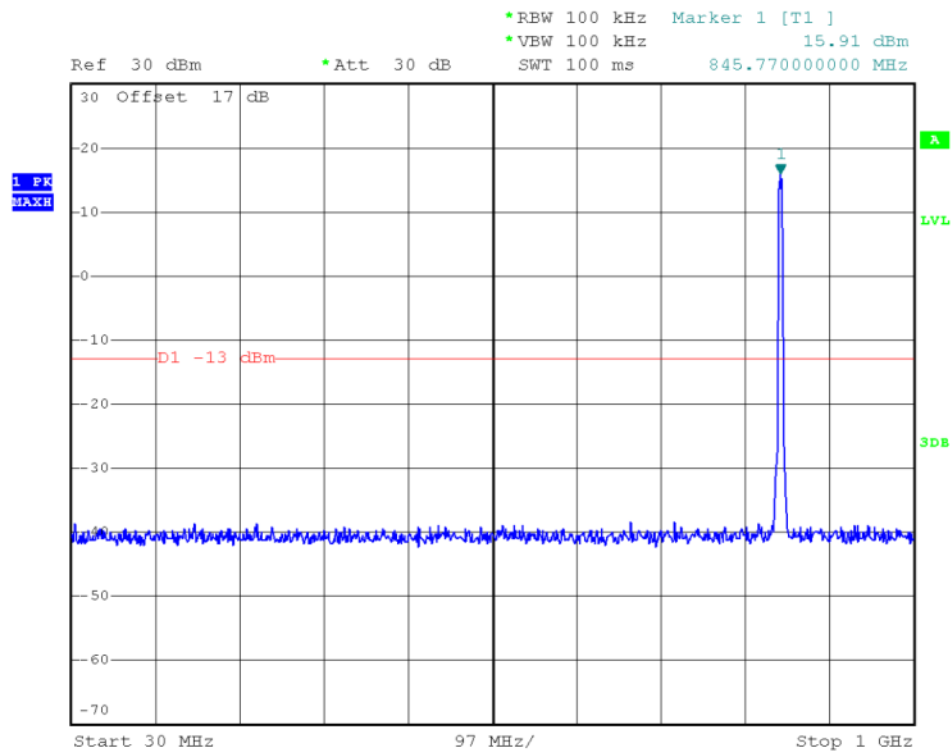
(Plot H1.1: HSDPA 850MHz Channel = 4132, 1GHz to 9GHz)



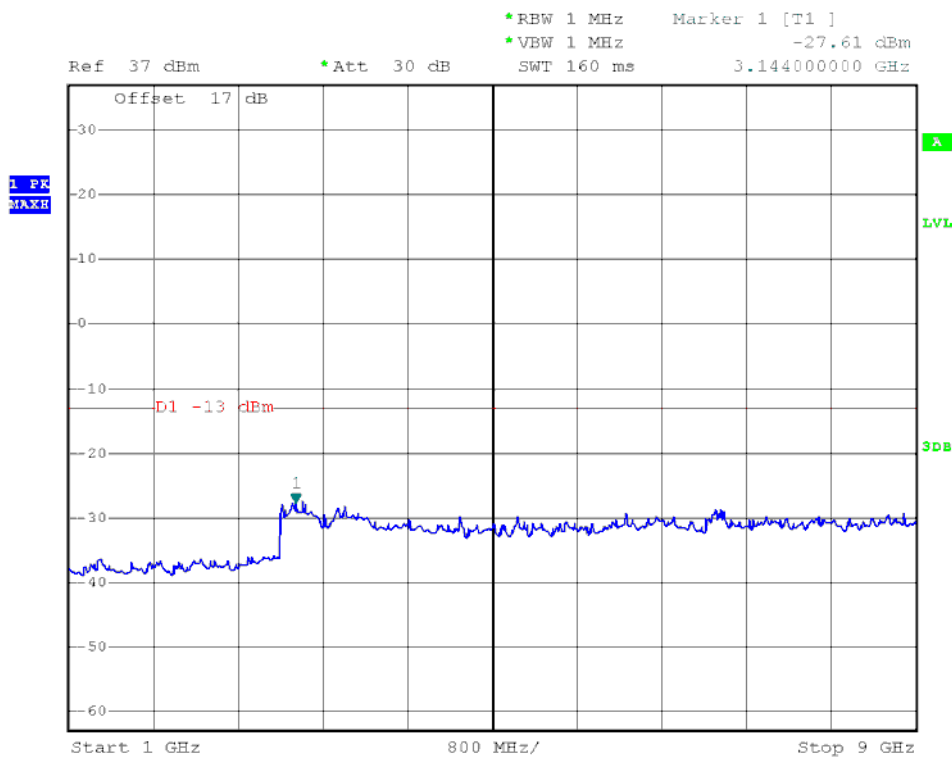
(Plot H2: HSDPA 850MHz Channel = 4183, 30MHz to 1GHz)



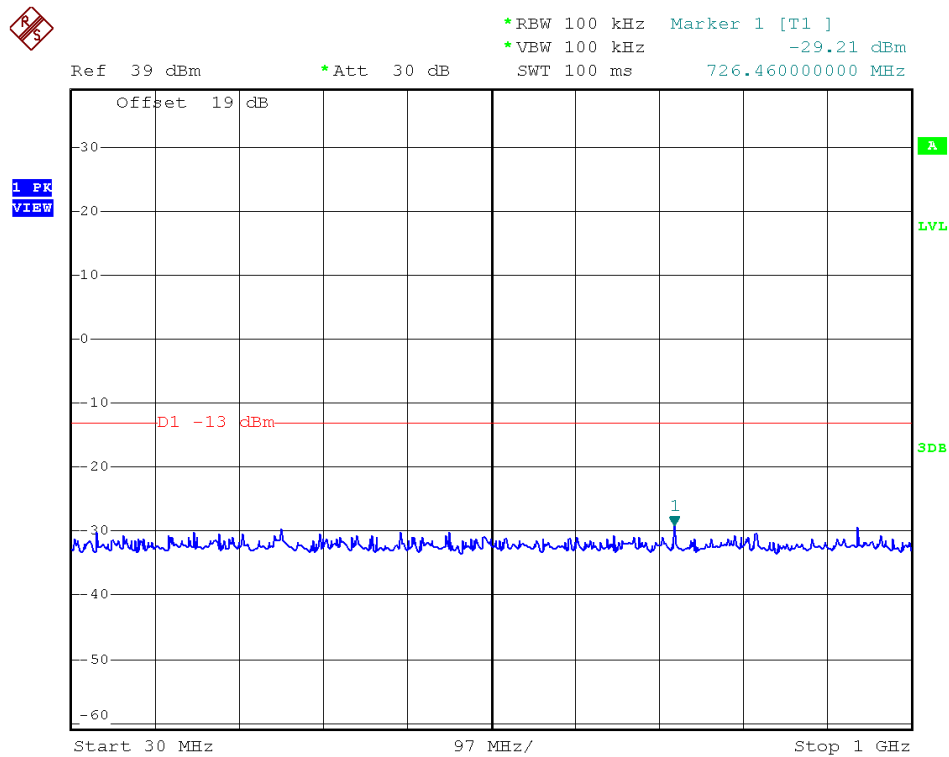
(Plot H2.1: HSDPA 850MHz Channel = 4183, 1GHz to 9GHz)



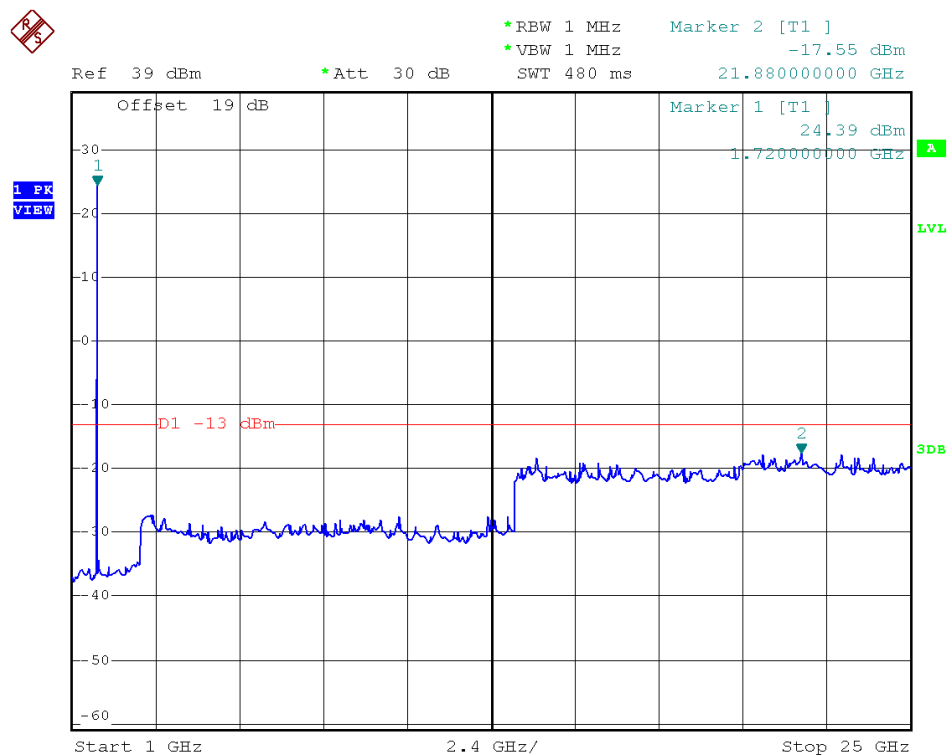
(Plot H3: HSDPA850MHz Channel = 4233, 30MHz to 1GHz)



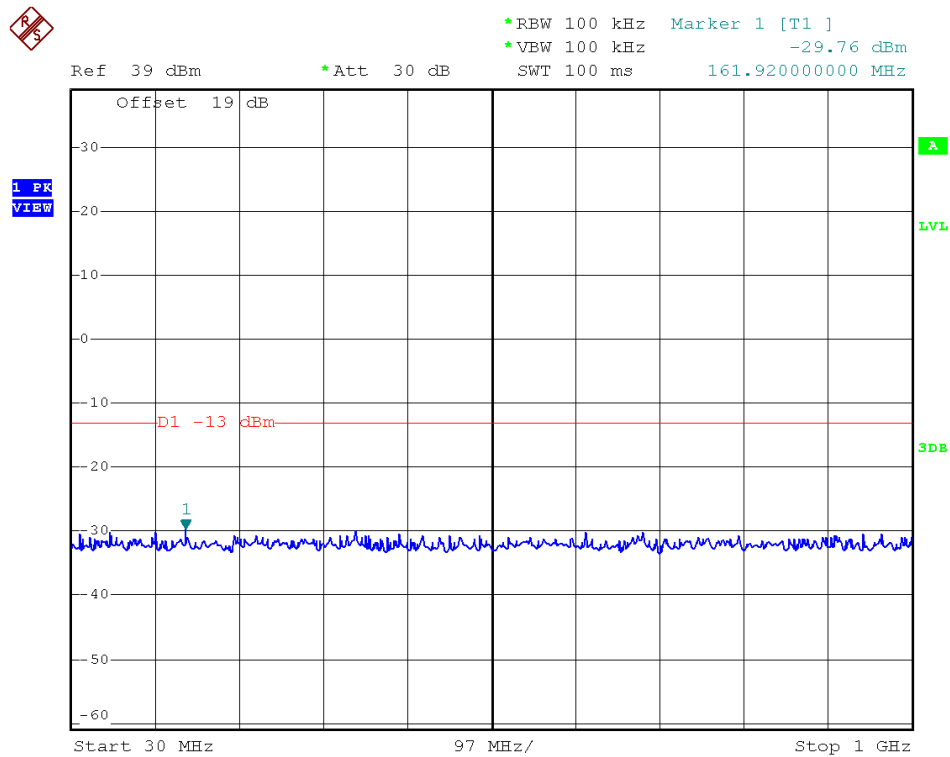
(Plot H3.1: HSDPA850MHz Channel = 4233, 1GHz to 9GHz)



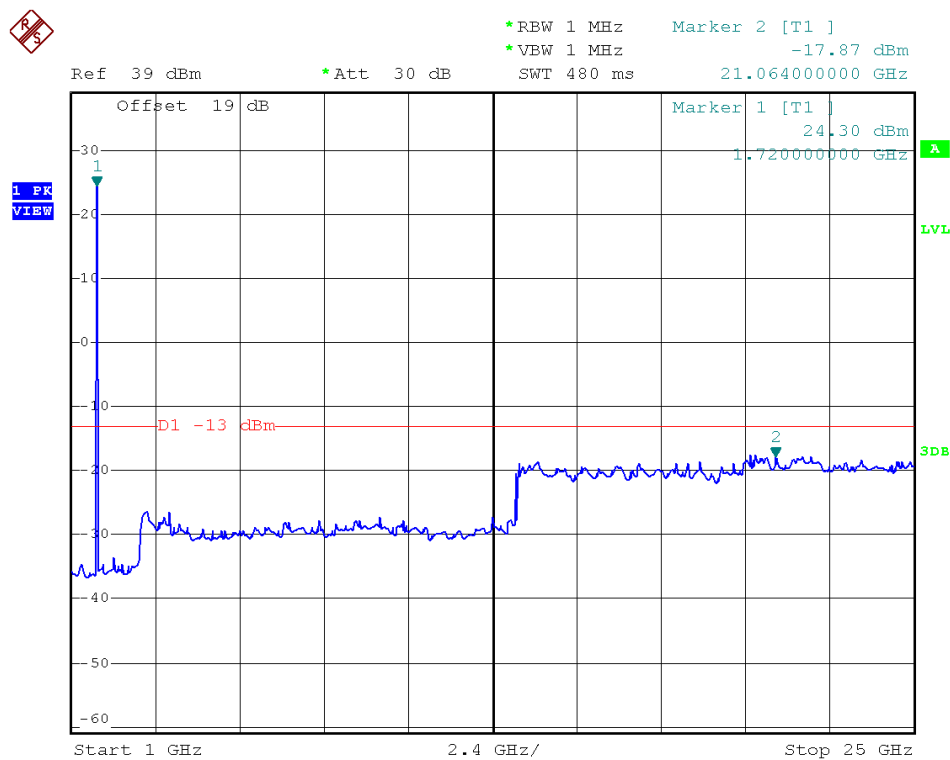
(Plot II: HSDPA1700MHz Channel = 1312, 30MHz to 1GHz)



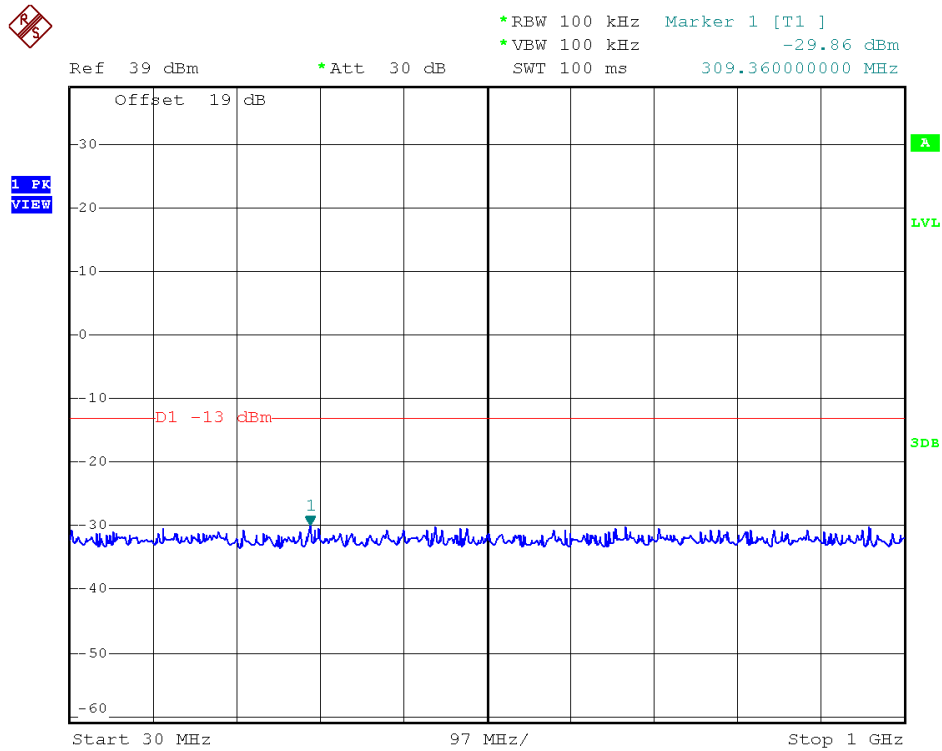
(Plot II.1: HSDPA1700MHz Channel = 1312, 1GHz to 18GHz)



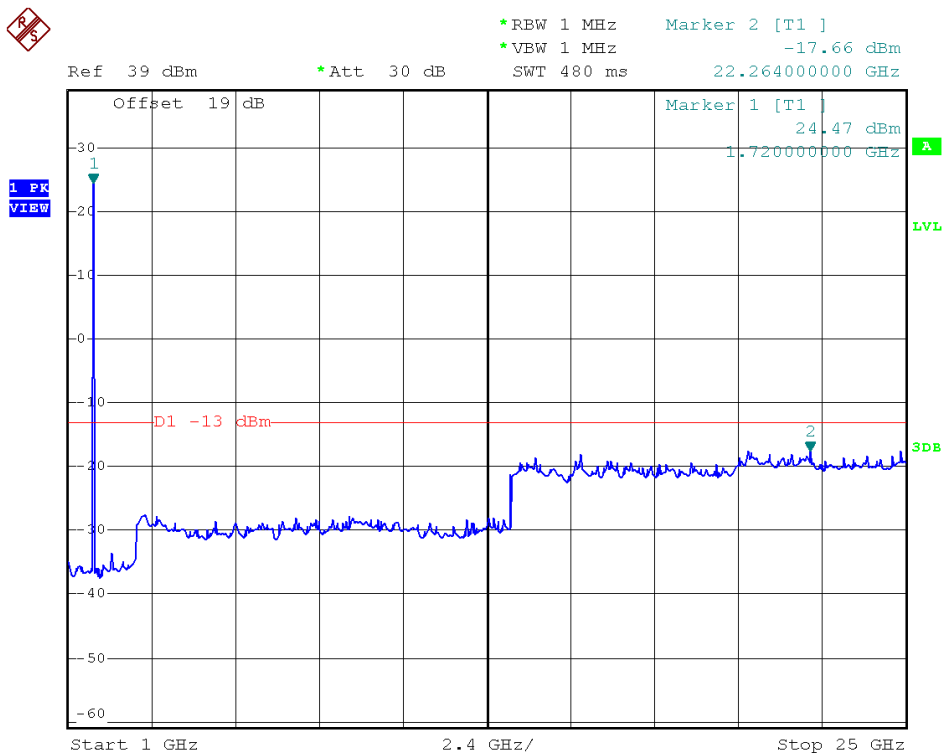
(Plot I2: HSDPA1700MHz Channel = 1312, 30MHz to 1GHz)



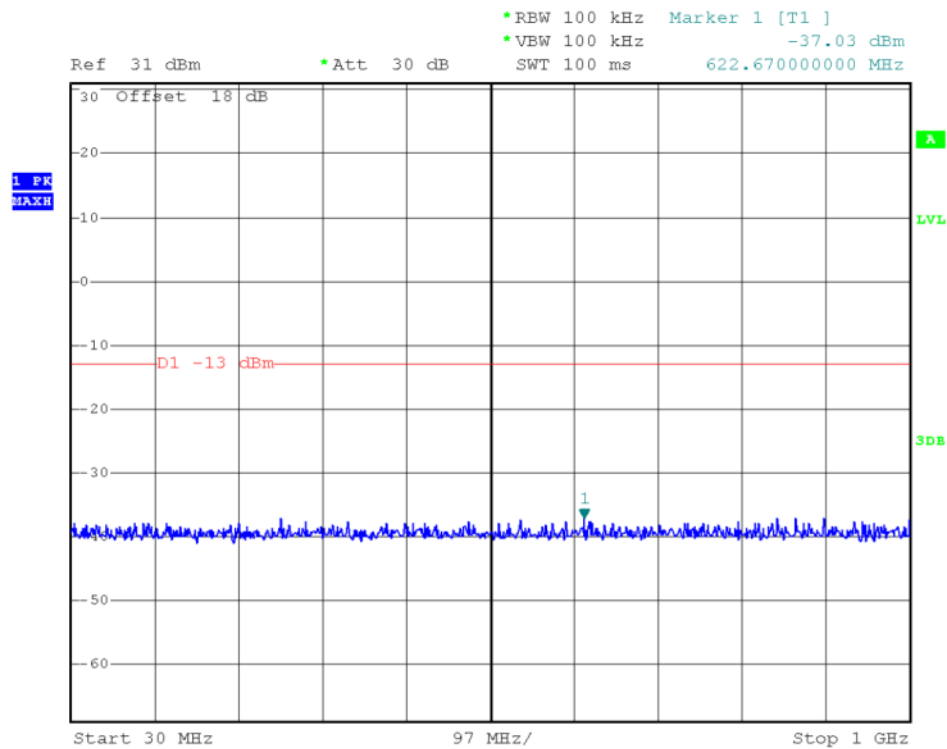
(Plot I2.1: HSDPA1700MHz Channel = 1312, 1GHz to 18GHz)



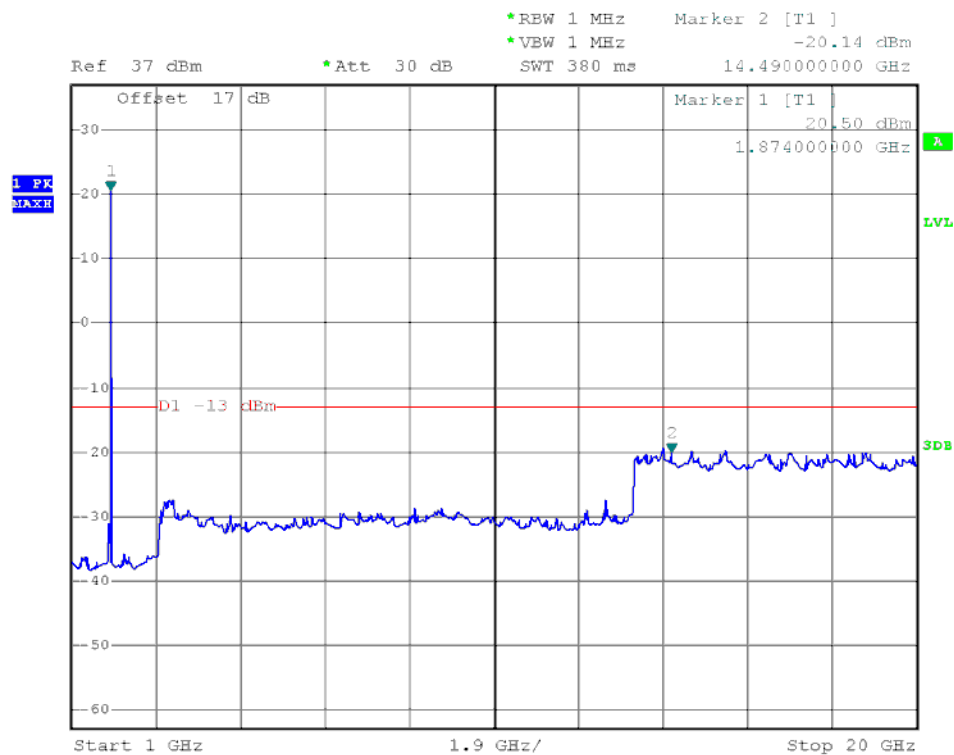
(Plot I3: HSDPA1700MHz Channel = 1312, 30MHz to 1GHz)



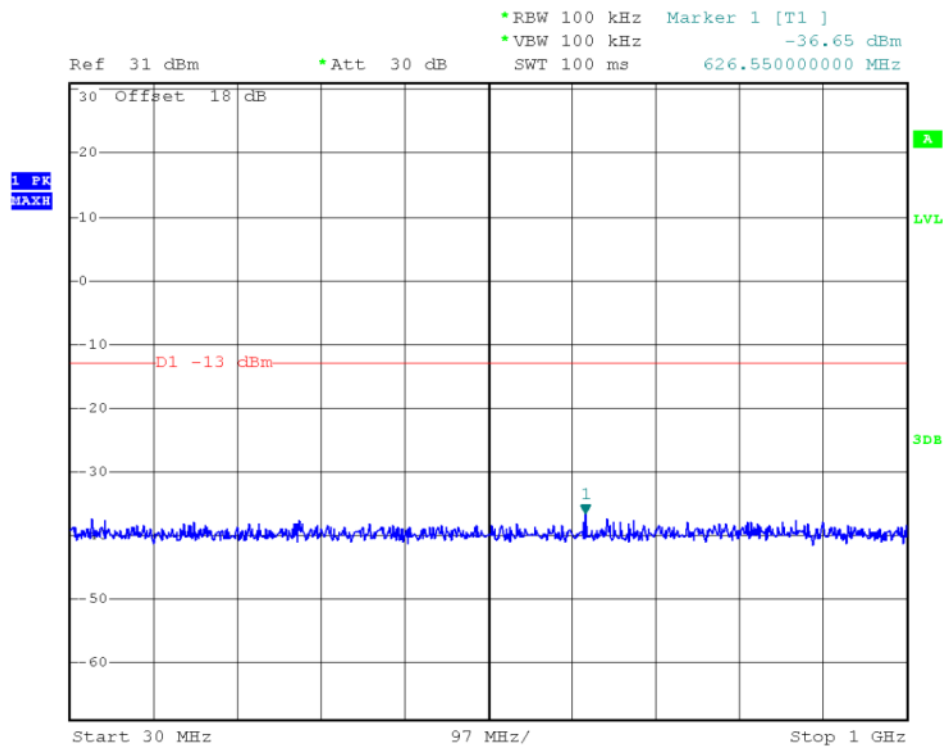
(Plot I3.1: HSDPA1700MHz Channel = 1312, 1GHz to 18GHz)



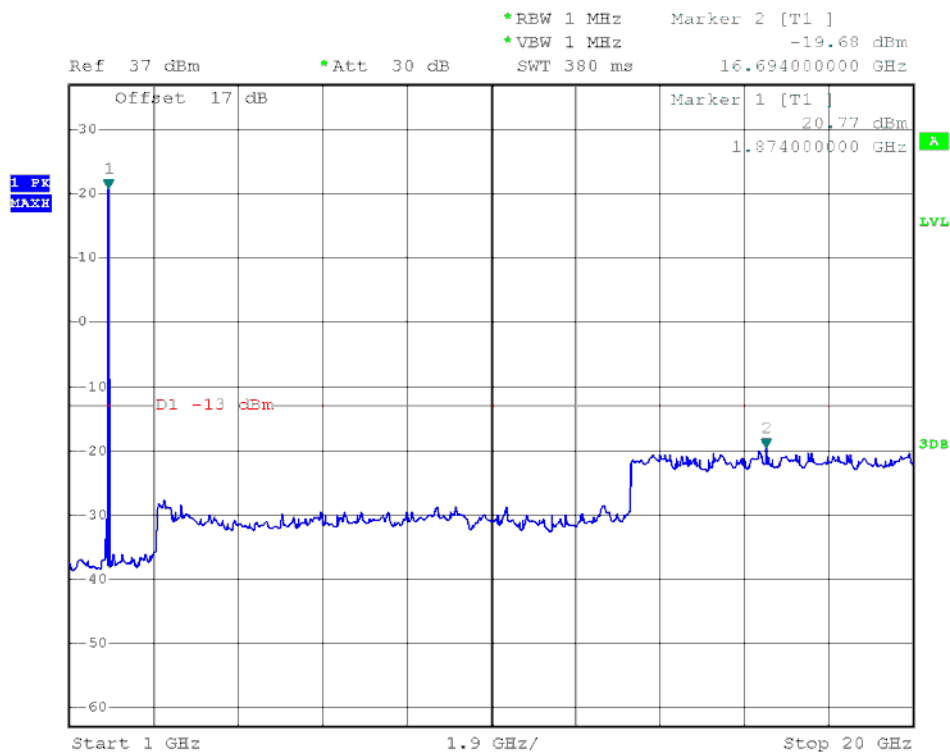
(Plot J1: HSDPA1900MHz Channel = 9262, 30MHz to 1GHz)



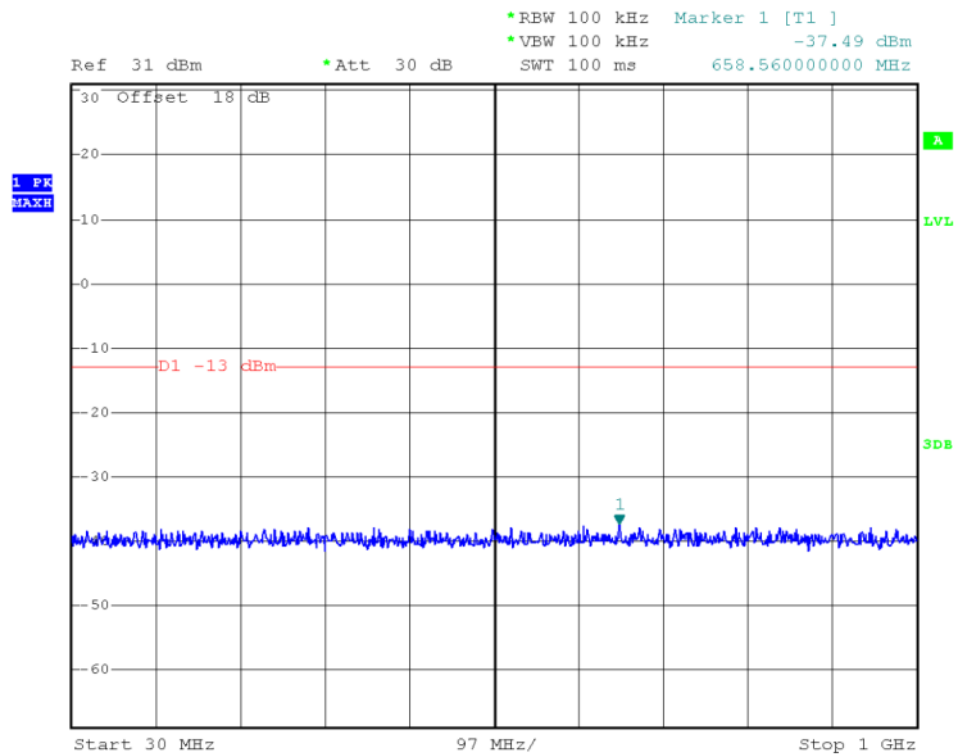
(Plot J1.1: HSDPA1900MHz Channel = 9262, 1GHz to 20GHz)



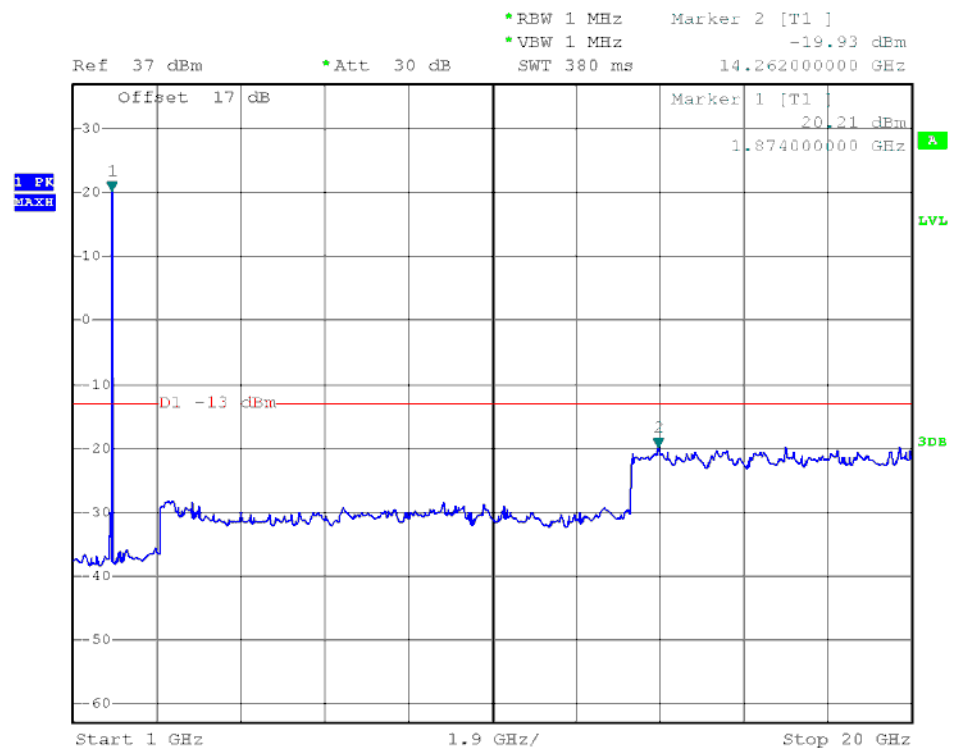
(Plot J2: HSDPA1900MHz Channel = 9400, 30MHz to 1GHz)



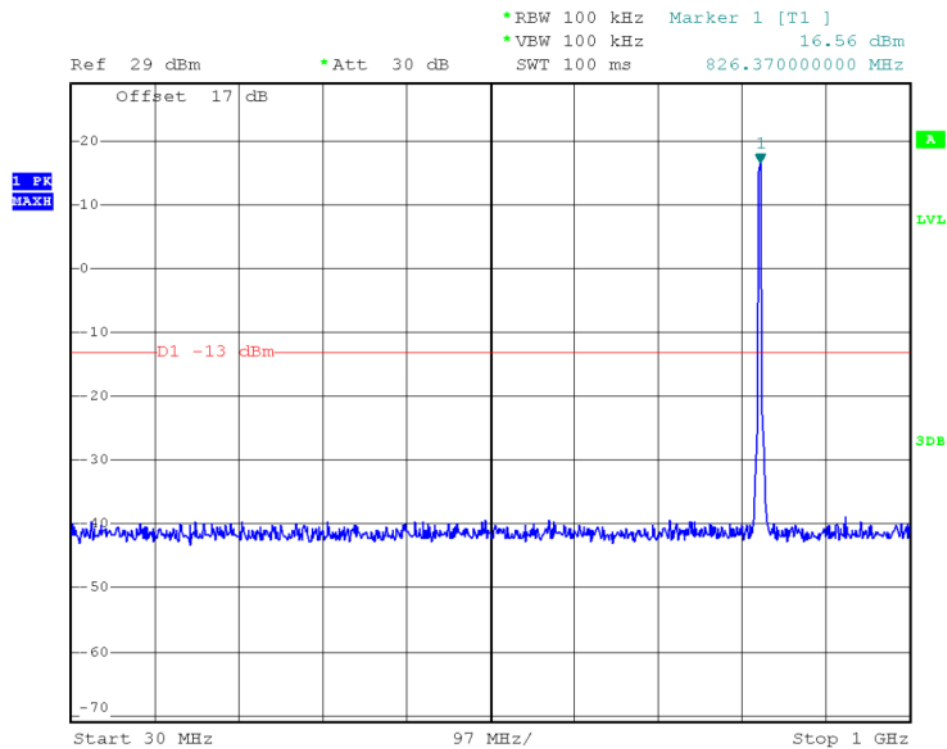
(Plot J2.1: HSDPA1900MHz Channel = 9400, 1GHz to 20GHz)



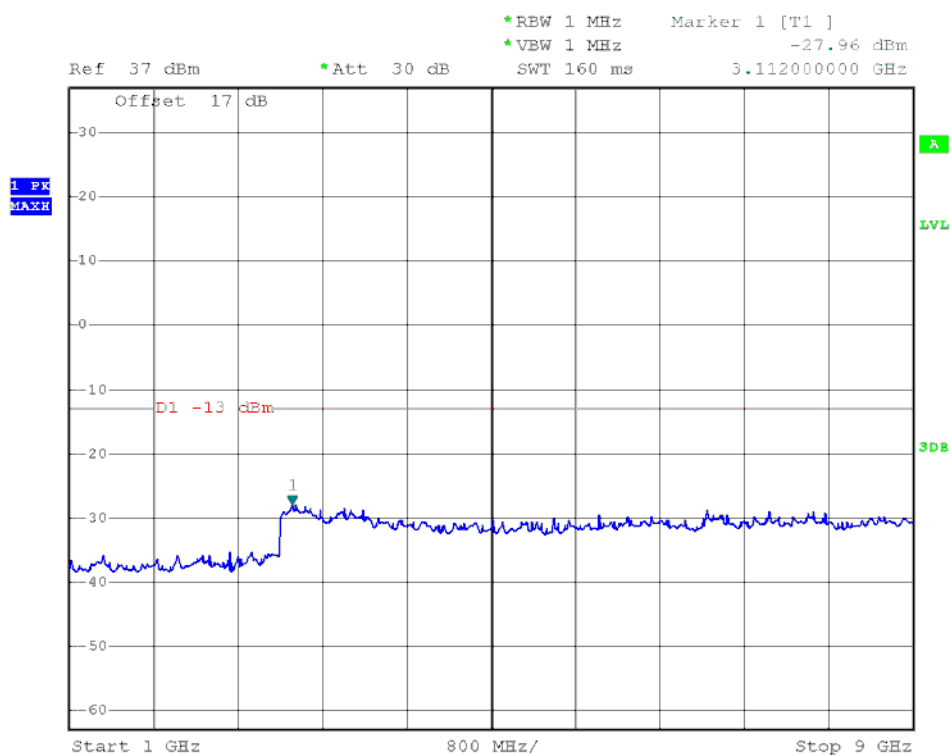
(Plot J3: HSDPA1900MHz Channel = 9538, 30MHz to 1GHz)



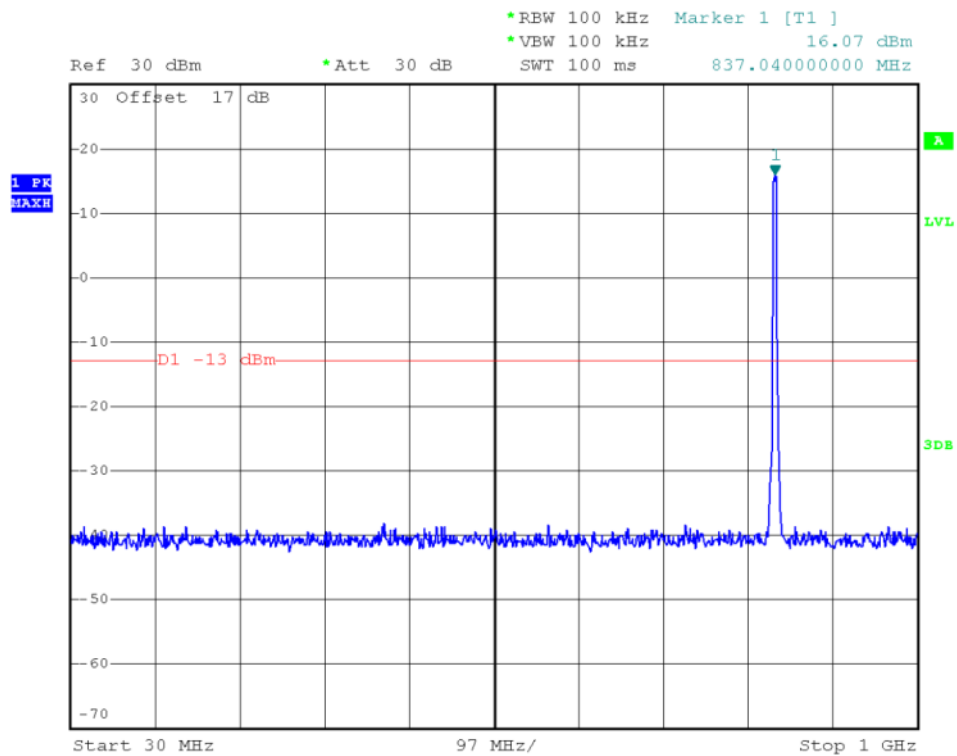
(Plot J3.1: HSDPA1900MHz Channel = 9538 1GHz to 20GHz)



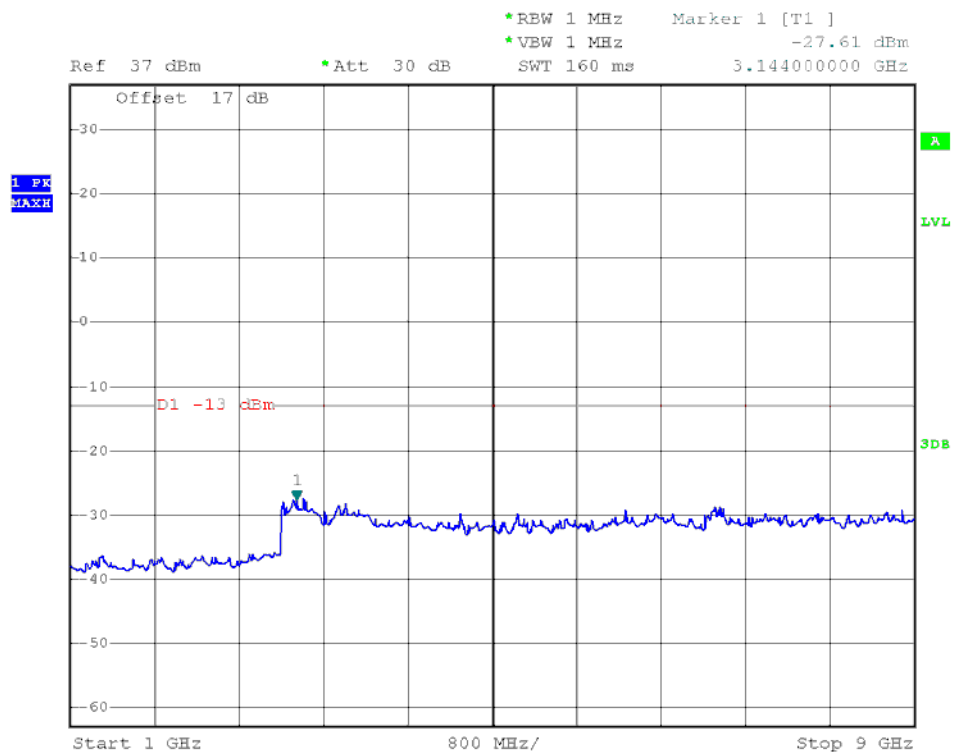
(Plot K1: HSUPA 850MHz Channel = 4132, 30MHz to 1GHz)



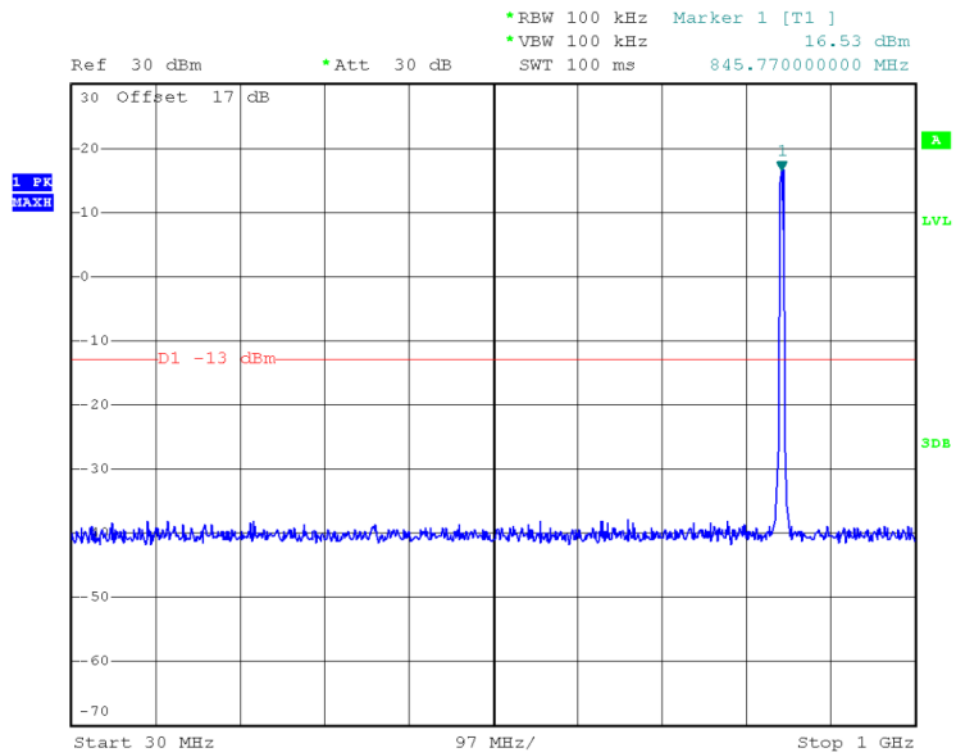
(Plot K1.1: HSUPA 850MHz Channel = 4132, 1GHz to 9GHz)



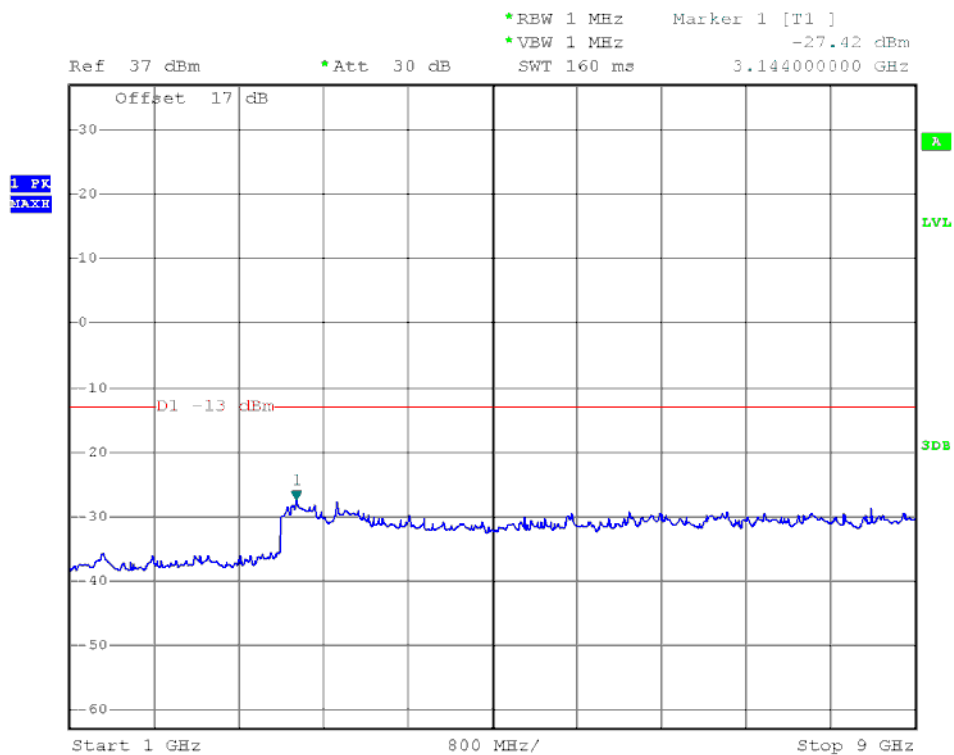
(Plot K2: HSUPA 850MHz Channel = 4183, 30MHz to 1GHz)



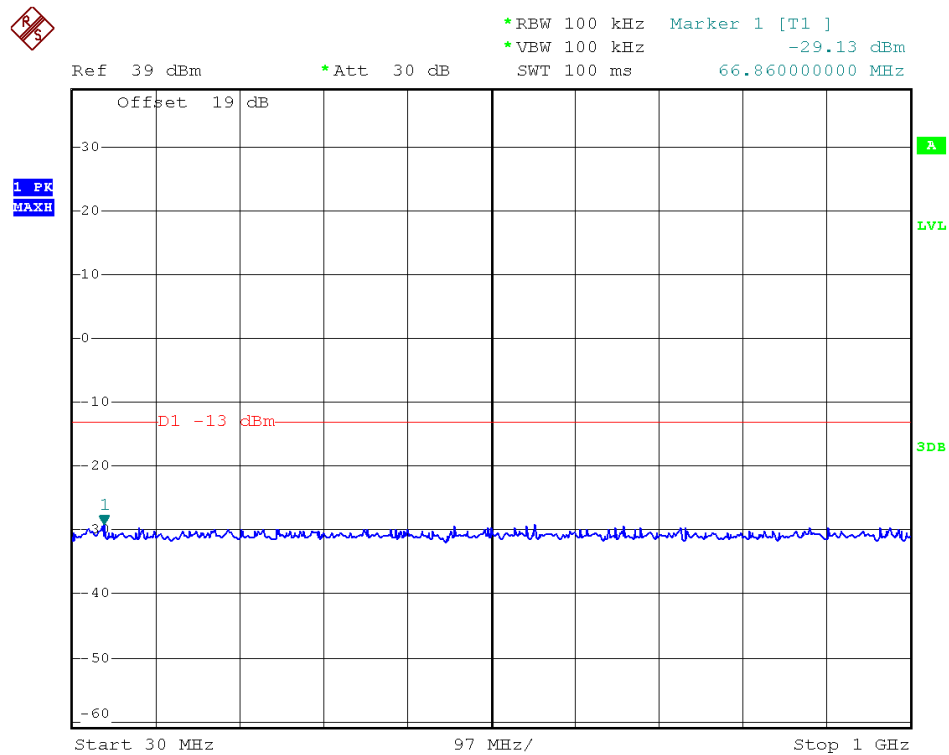
(Plot K2.1: HSUPA 850MHz Channel = 4183, 1GHz to 9GHz)



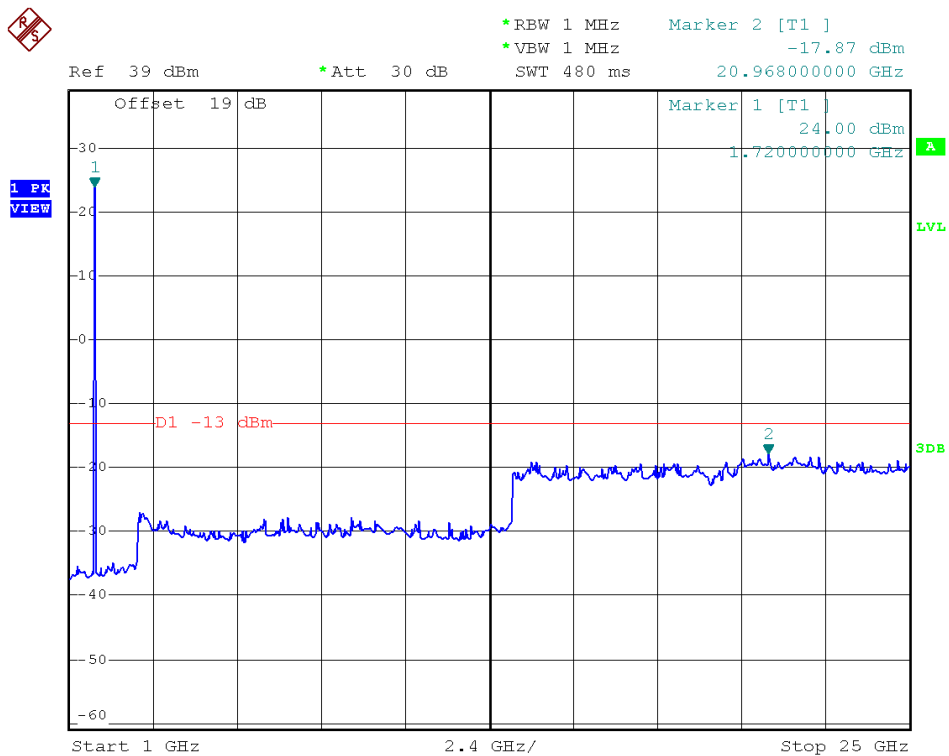
(Plot K3: HSUPA850MHz Channel = 4233, 30MHz to 1GHz)



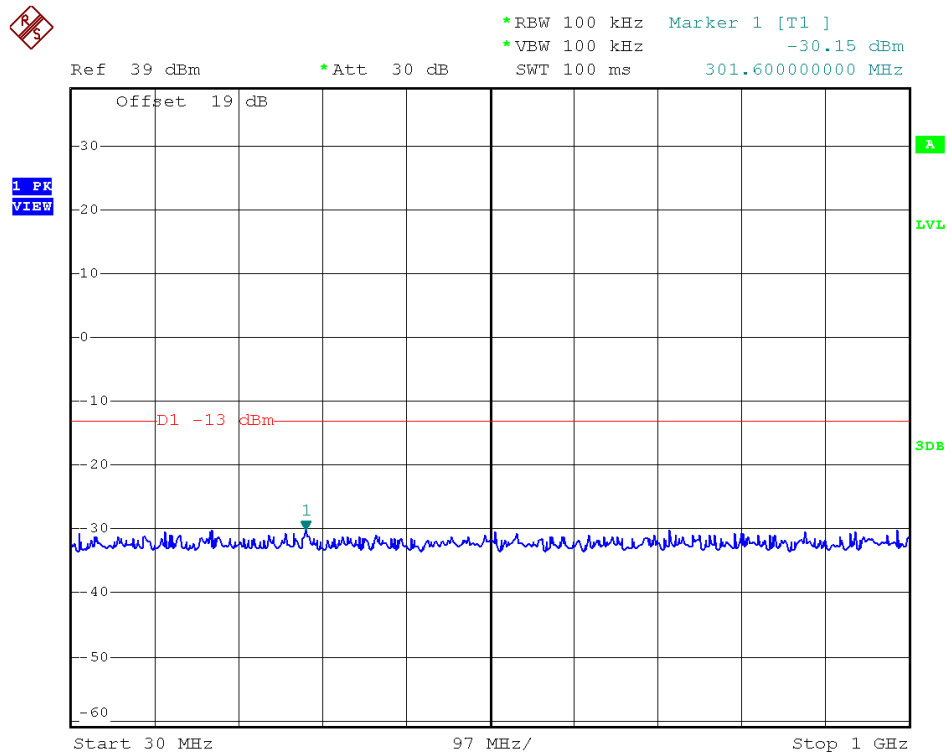
(Plot K3.1: HSUPA850MHz Channel = 4233, 1GHz to 9GHz)



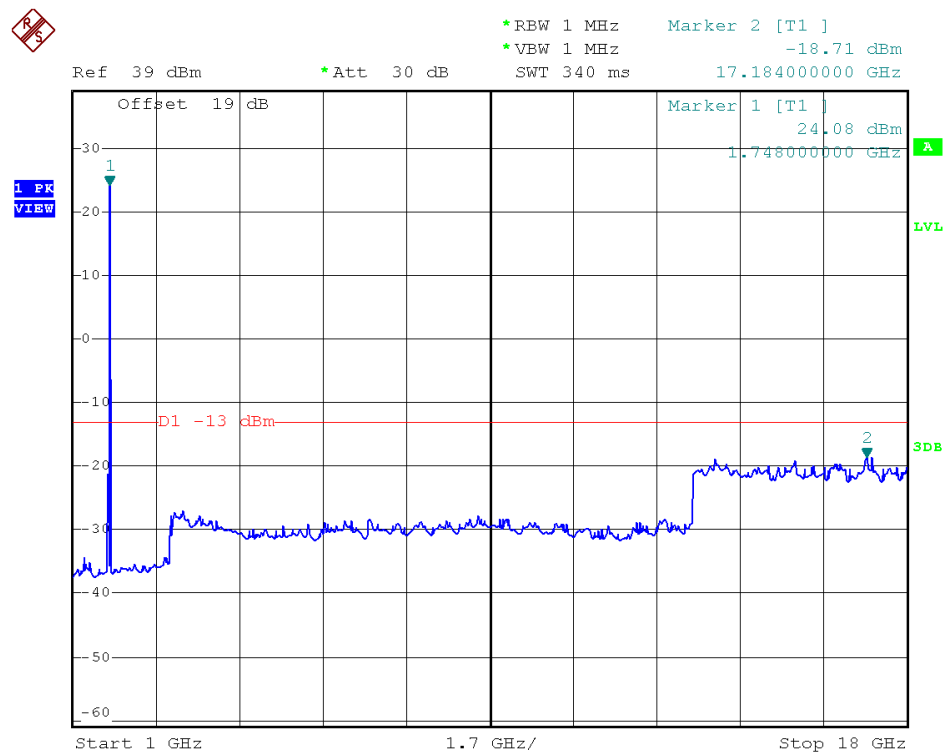
(Plot L1: HSUPA1700MHz Channel = 1312, 30MHz to 1GHz)



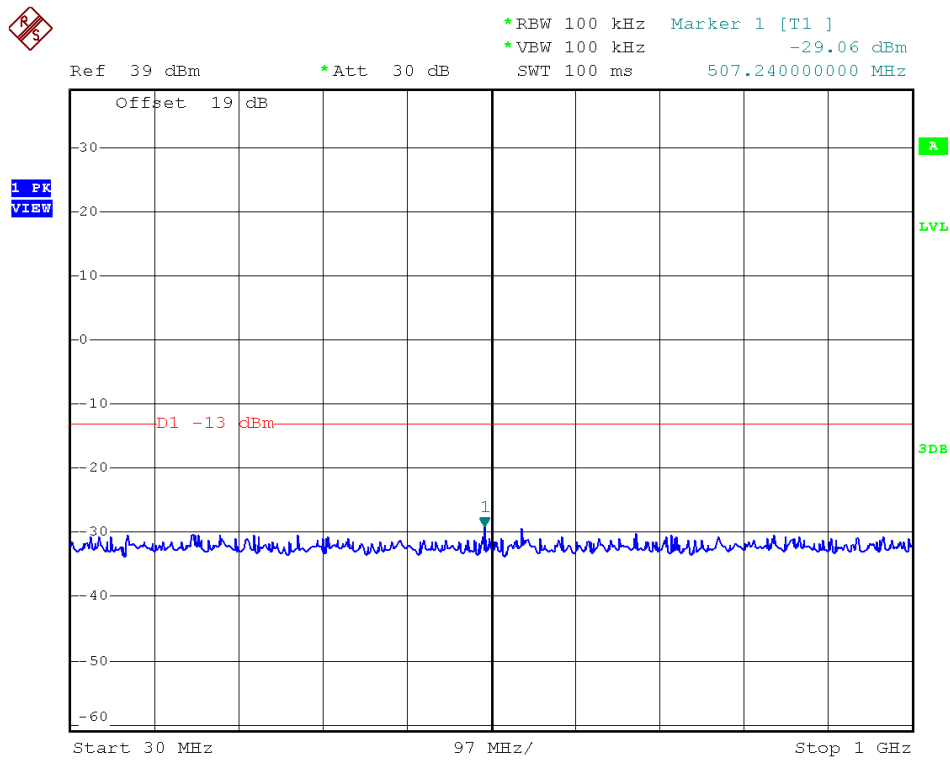
(Plot L1.1: HSUPA1700MHz Channel = 1312, 1GHz to 18GHz)



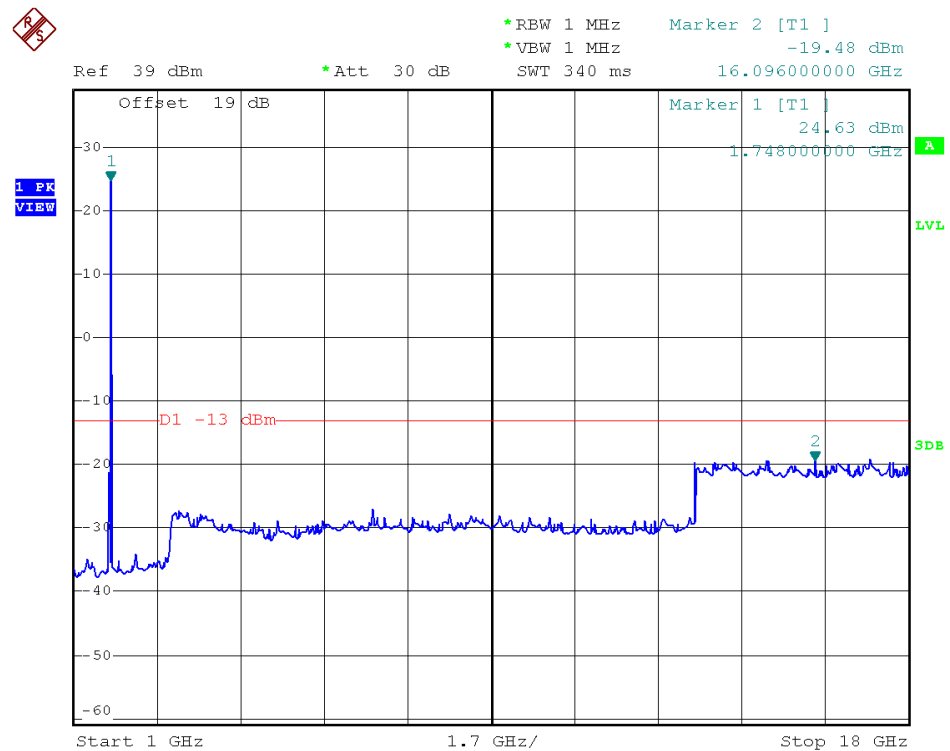
(Plot L2: HSUPA1700MHz Channel = 1412, 30MHz to 1GHz)



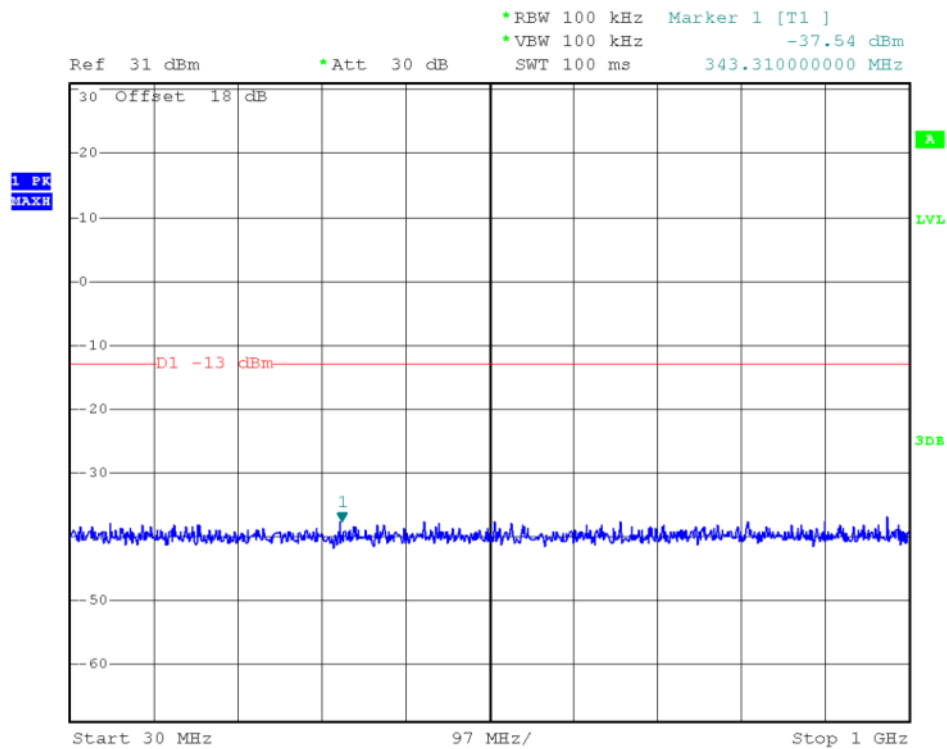
(Plot L2.1: HSUPA1700MHz Channel = 1412, 1GHz to 18GHz)



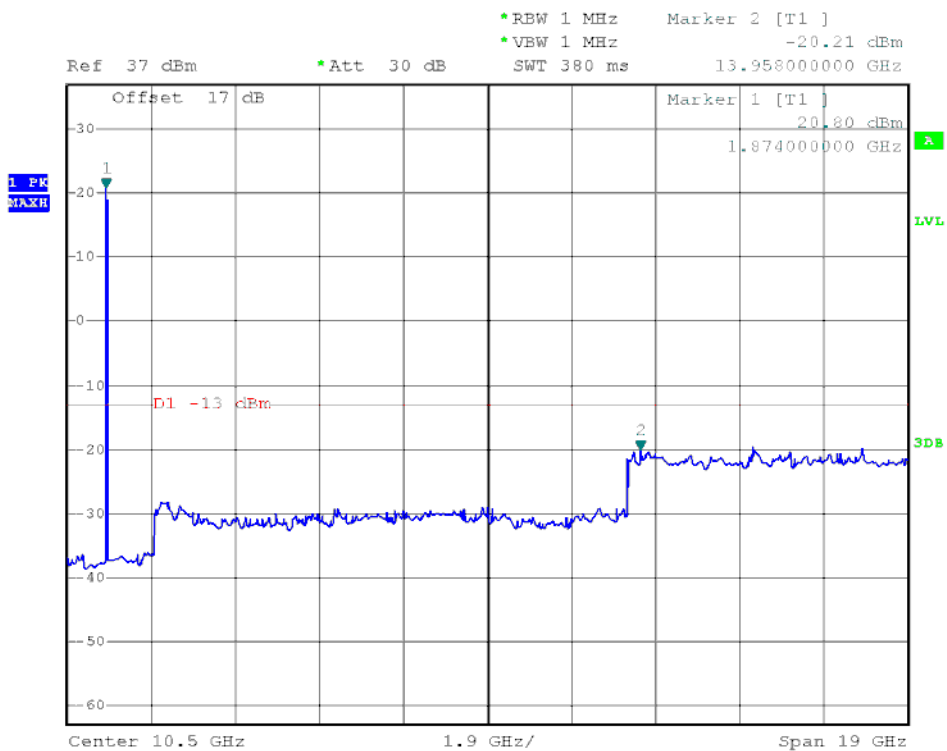
(Plot L3: HSUPA1700MHz Channel = 1513, 30MHz to 1GHz)



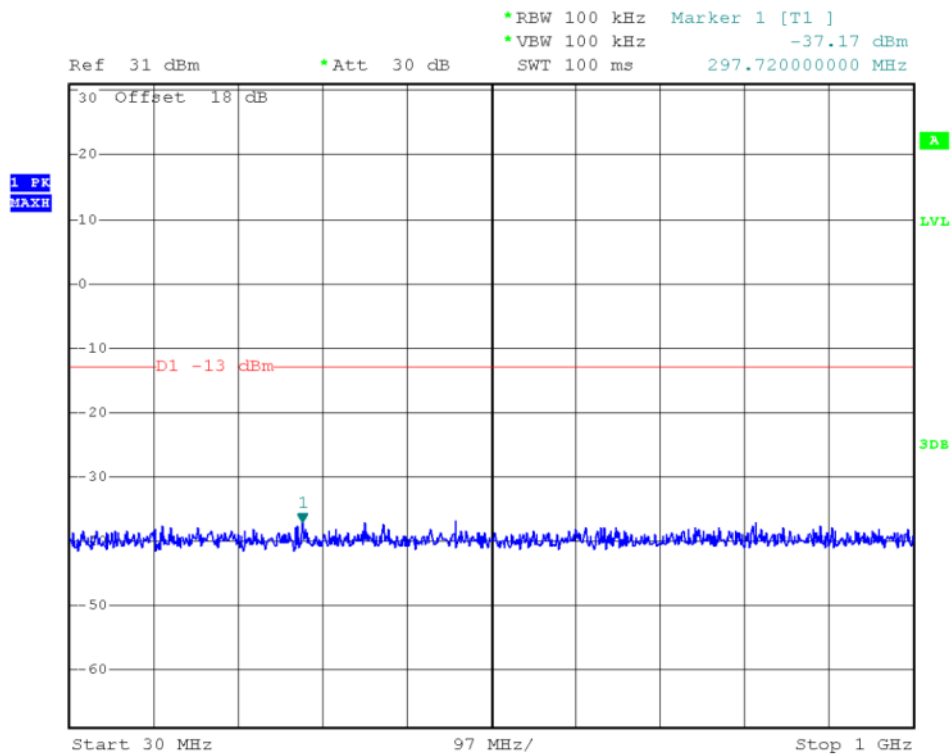
(Plot L3.1: HSUPA1700MHz Channel = 1513, 1GHz to 18GHz)



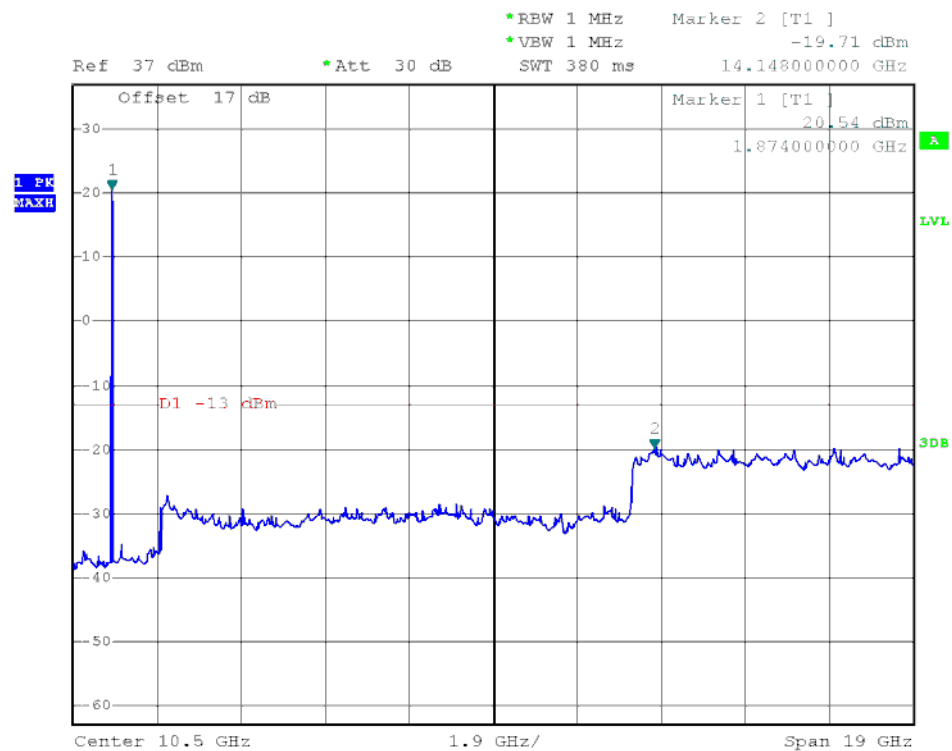
(Plot M1: HSUPA1900MHz Channel = 9262, 30MHz to 1GHz)



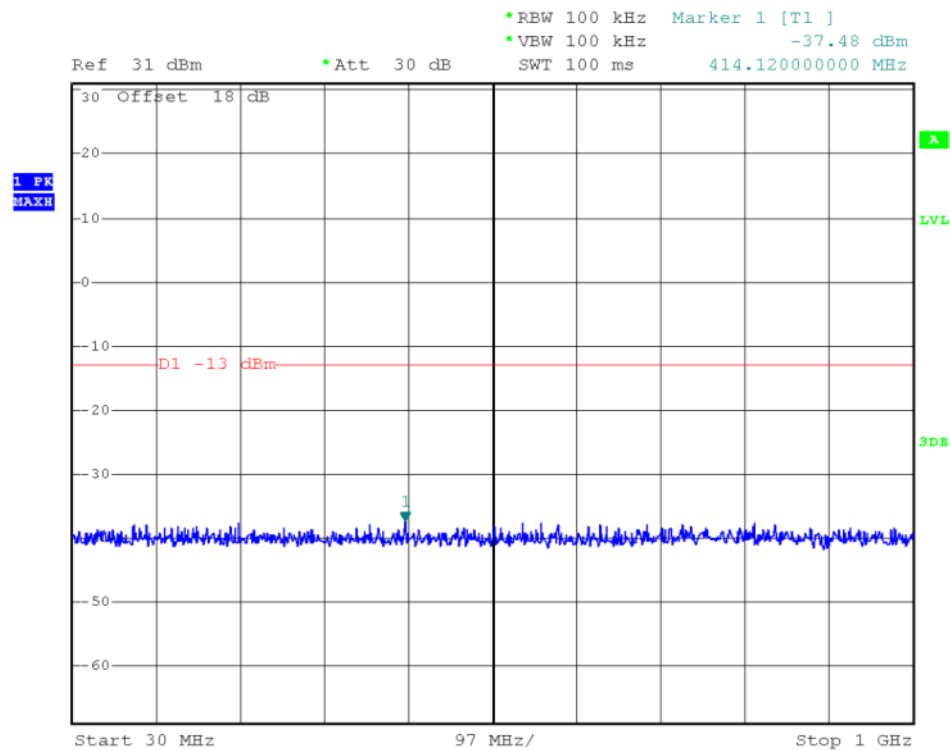
(Plot M1.1: HSUPA1900MHz Channel = 9262, 1GHz to 20GHz)



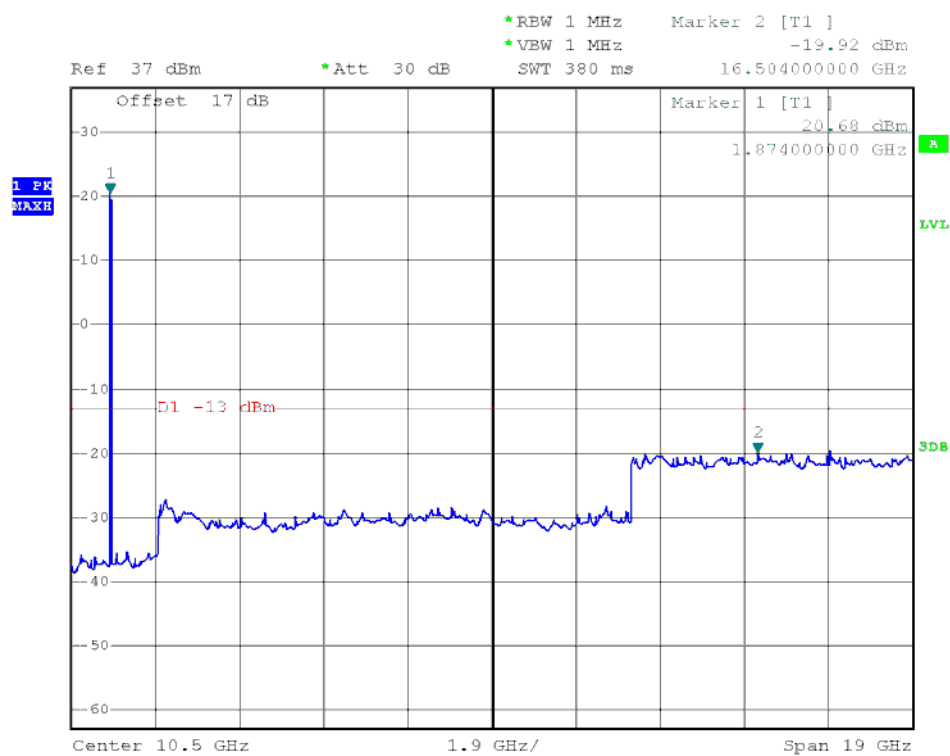
(Plot M2: HSUPA1900MHz Channel = 9400, 30MHz to 1GHz)



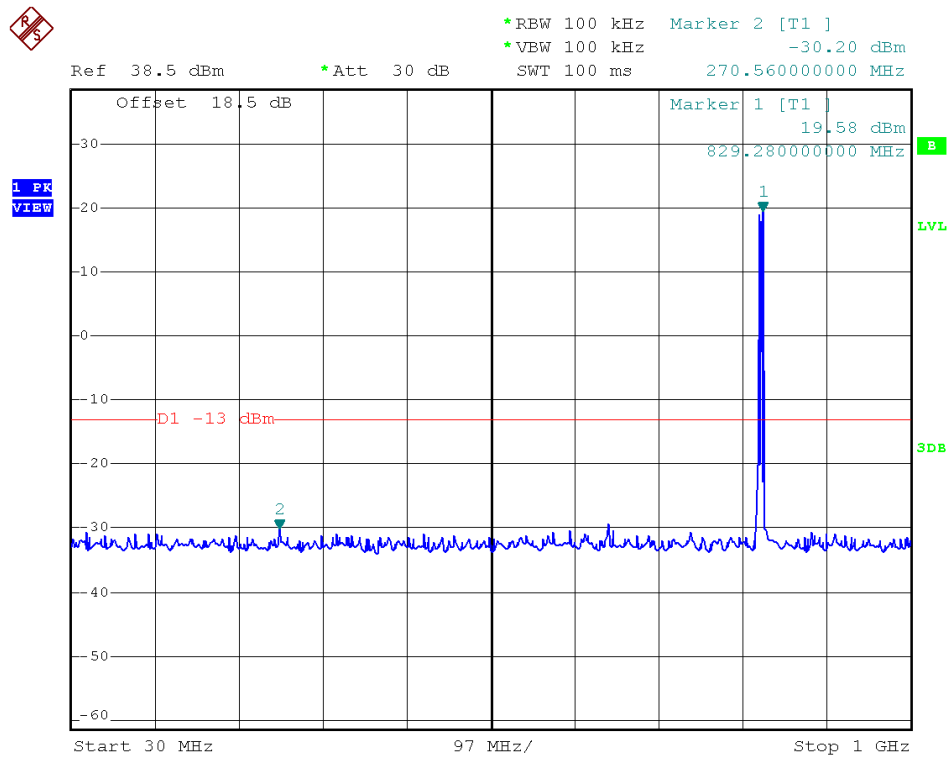
(Plot M2.1: HSUPA1900MHz Channel = 9400, 1GHz to 20GHz)



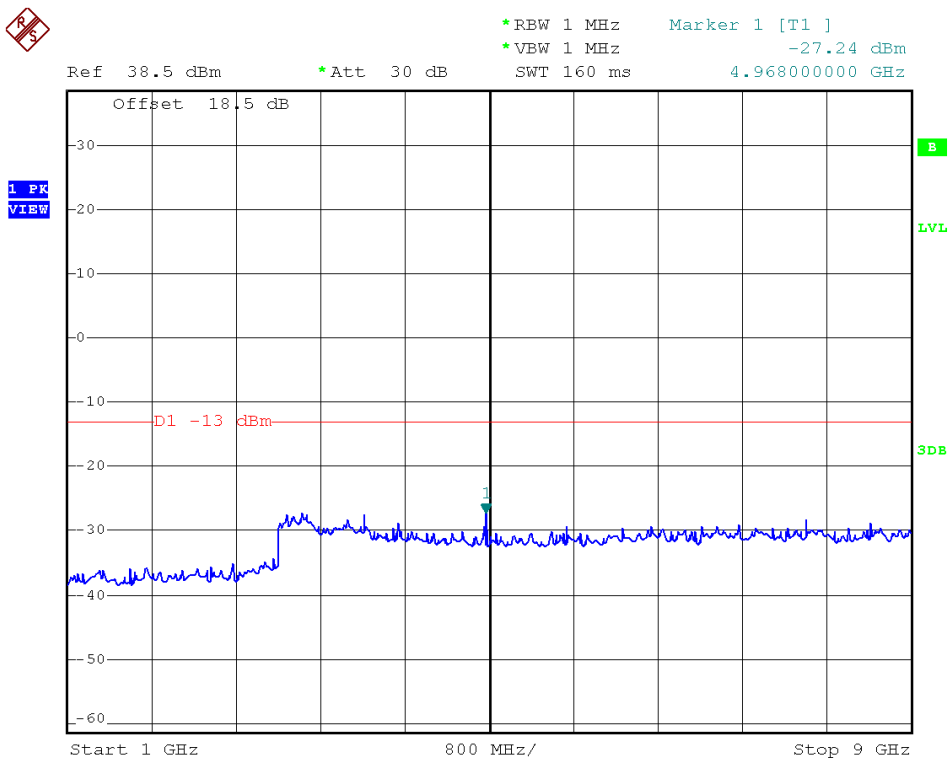
(Plot M3: HSUPA1900MHz Channel = 9538, 30MHz to 1GHz)



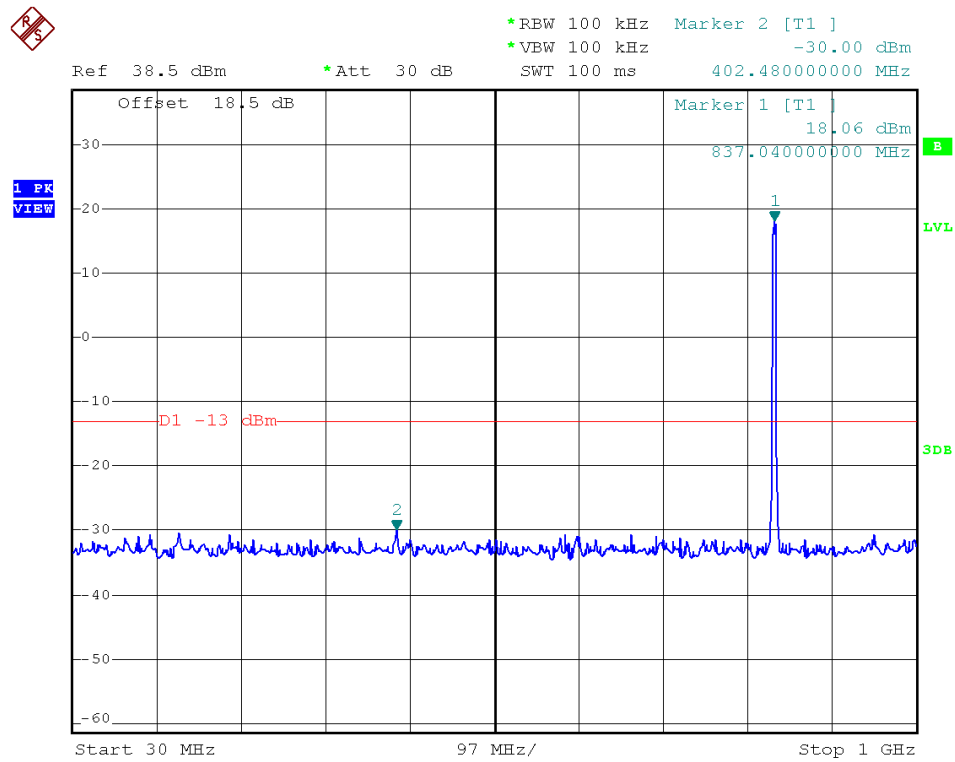
(Plot M3.1: HSUPA1900MHz Channel = 9538 1GHz to 20GHz)



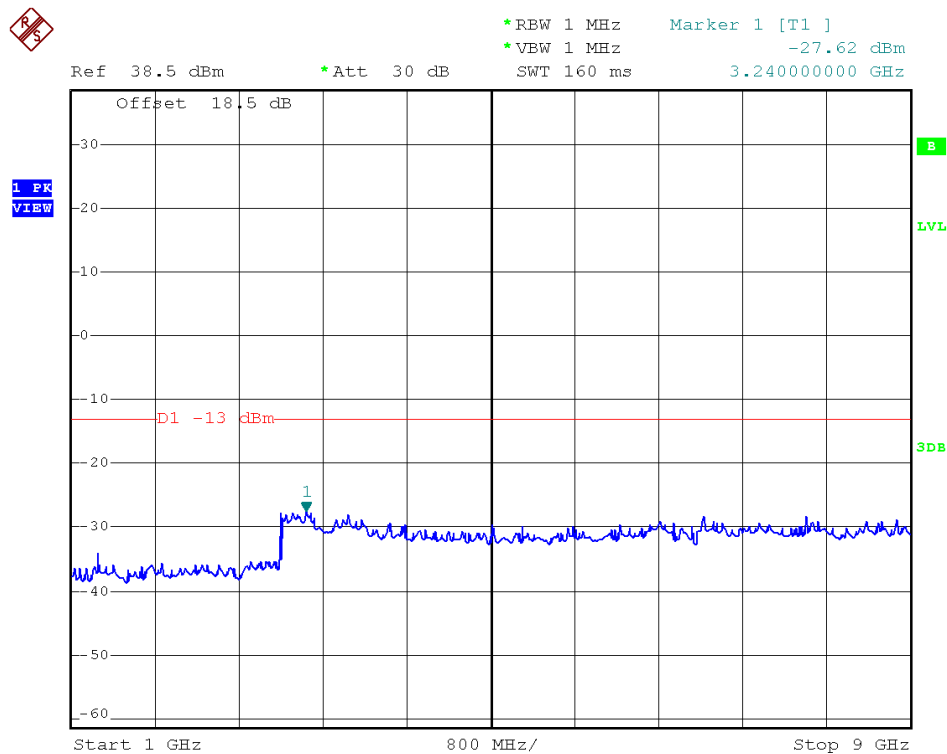
(Plot N1: HSPA+850MHz Channel = 4132, 30MHz to 1GHz)



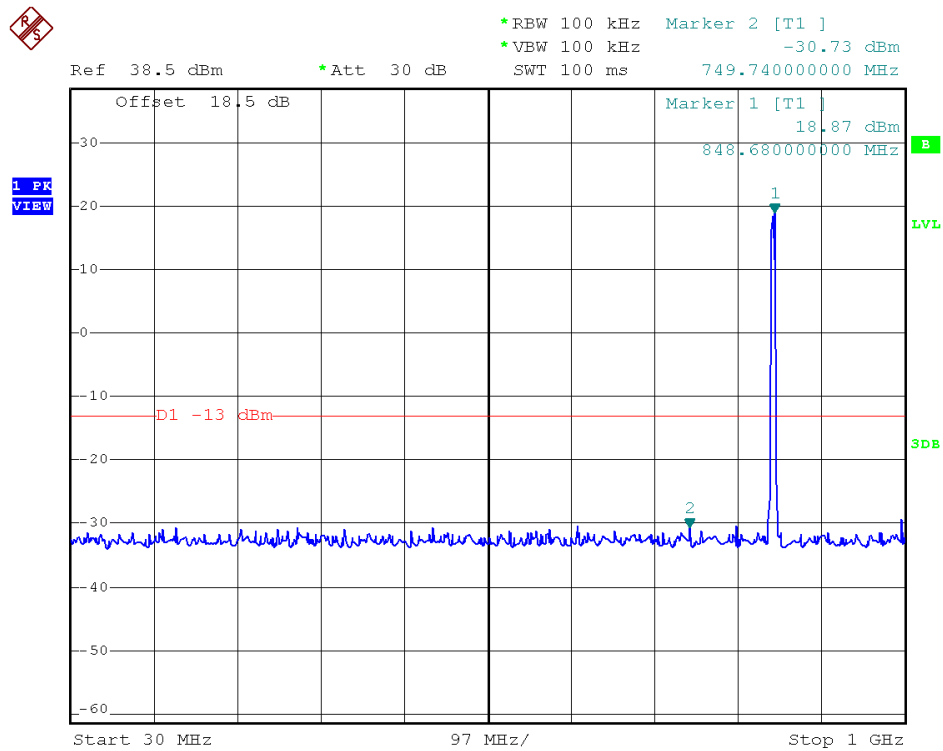
(Plot N1.1: HSPA+850MHz Channel = 4132, 1GHz to 9GHz)



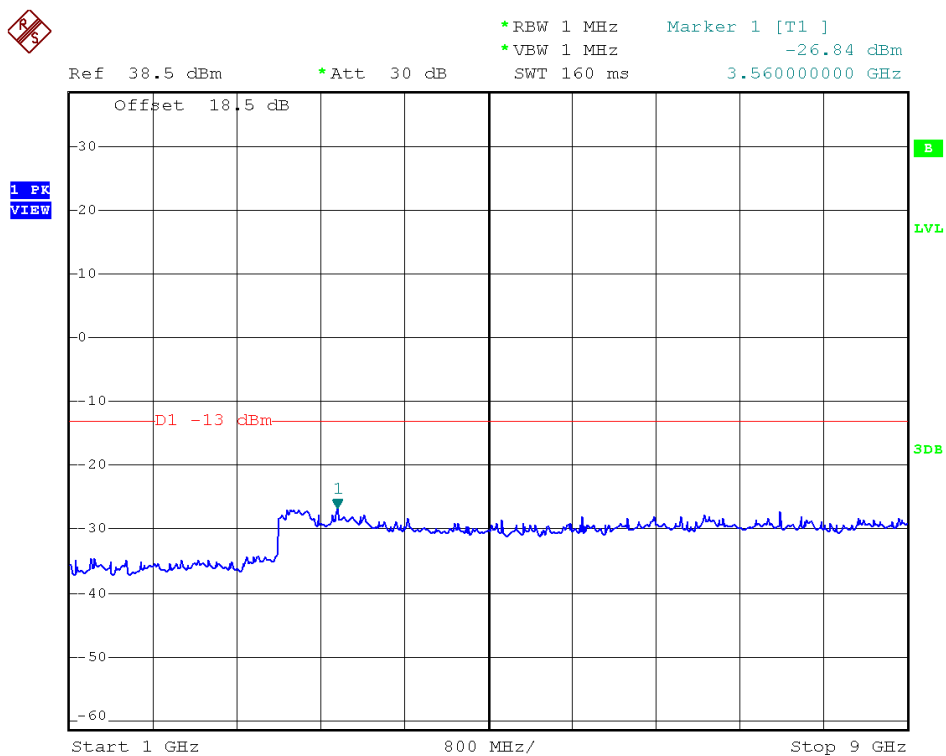
(Plot N2: HSPA+850MHz Channel = 4183, 30MHz to 1GHz)



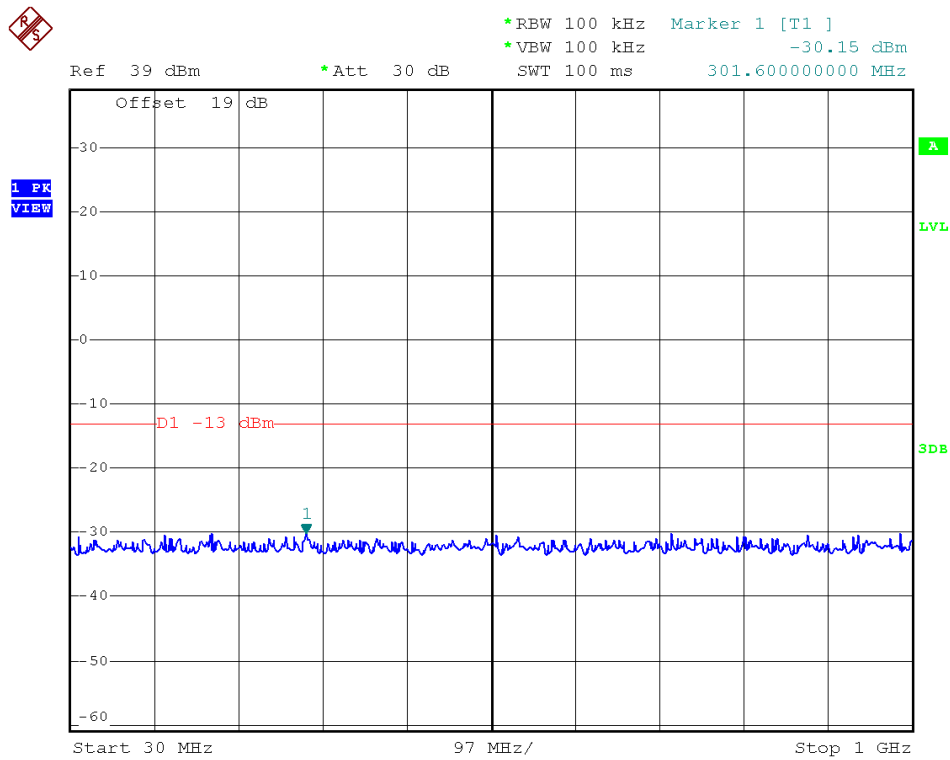
(Plot N2.1: HSPA+850MHz Channel = 4183, 1GHz to 9GHz)



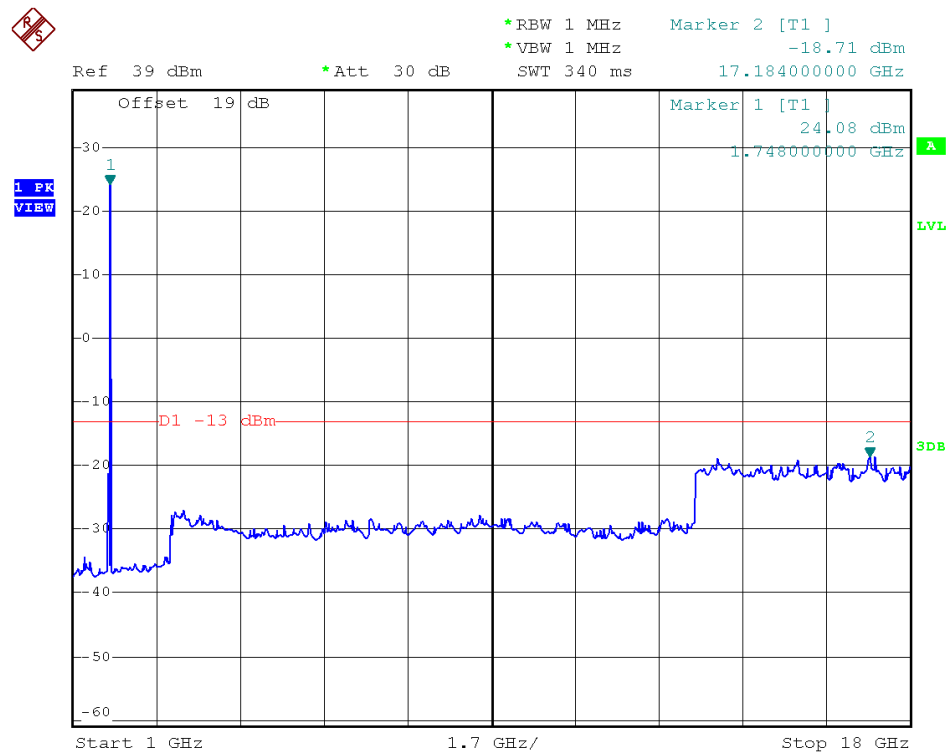
(Plot N3: HSPA+850MHz Channel = 4233, 30MHz to 1GHz)



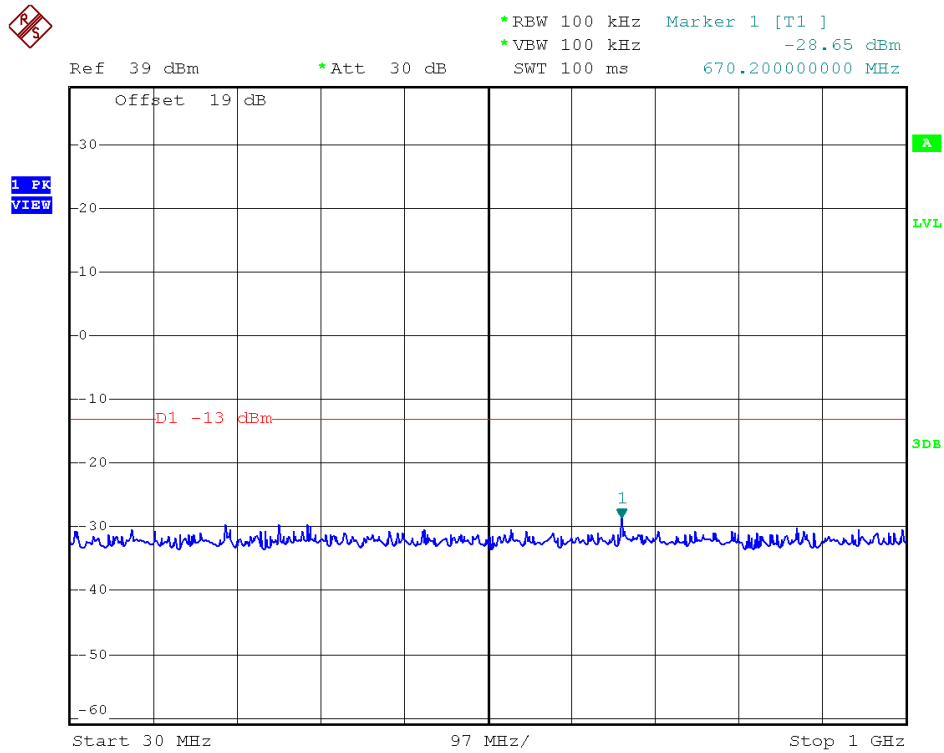
(Plot N3.1: HSPA+850MHz Channel = 4233, 1GHz to 9GHz)



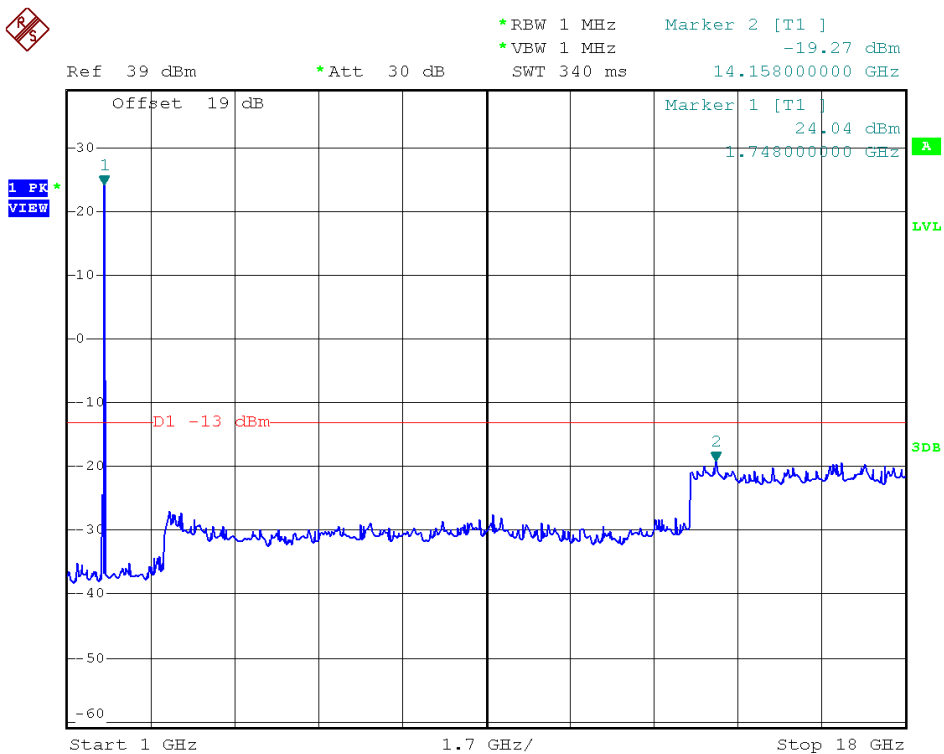
(Plot O1: HSPA+1700MHz Channel = 1312, 30MHz to 1GHz)



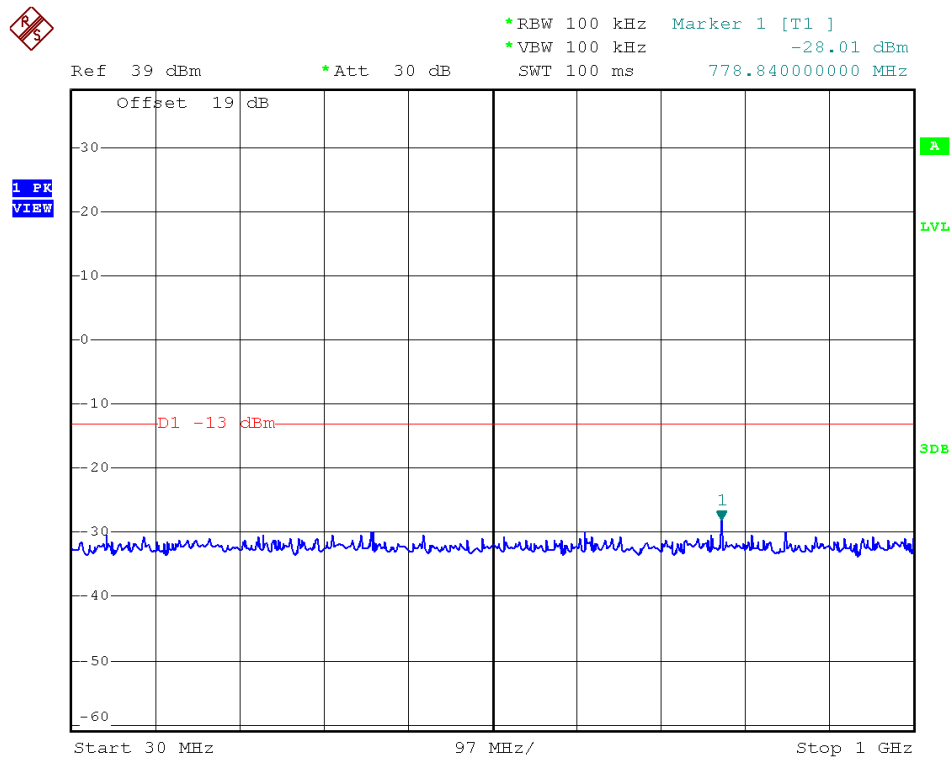
(Plot O1.1: HSPA+1700MHz Channel = 1312, 1GHz to 18GHz)



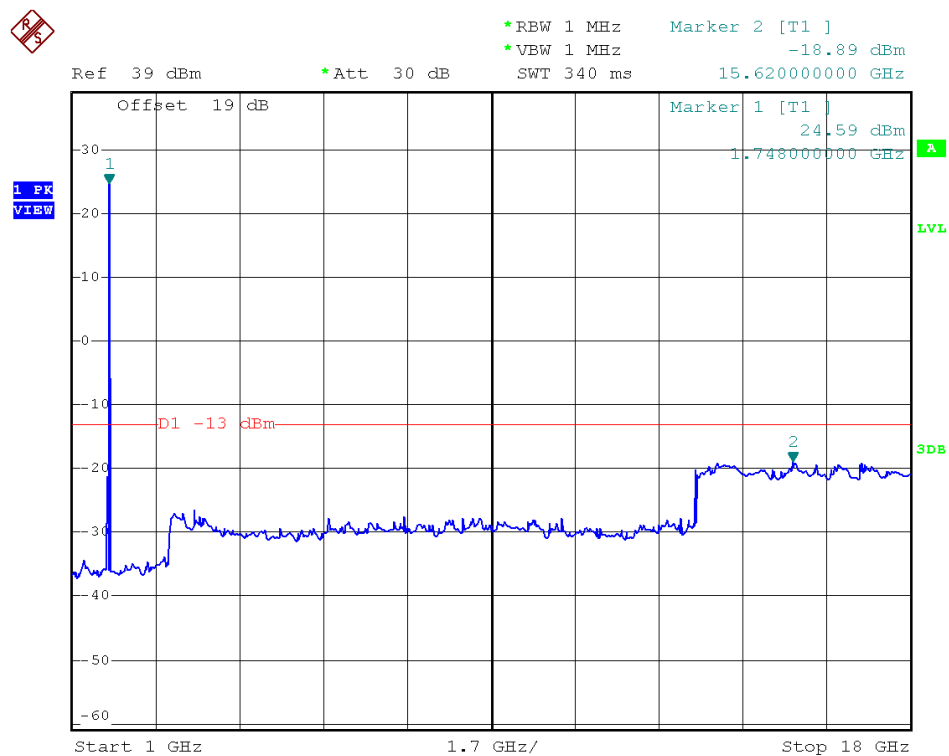
(Plot O2: HSPA+1700MHz Channel = 1412, 30MHz to 1GHz)



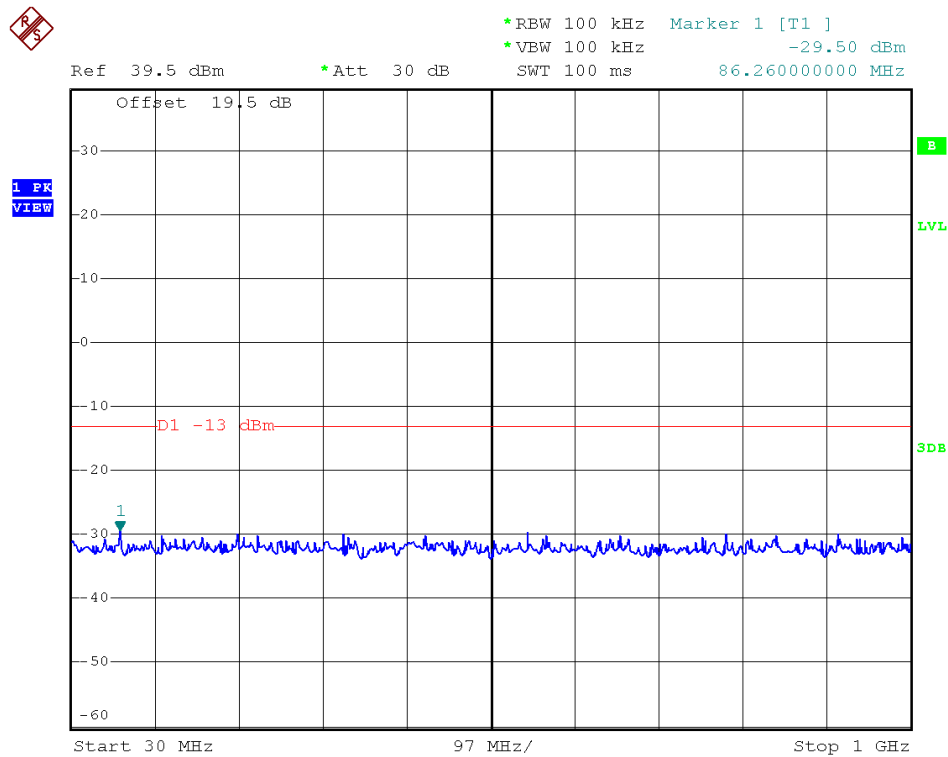
(Plot O2.1: HSPA+1700MHz Channel = 1412, 1GHz to 18GHz)



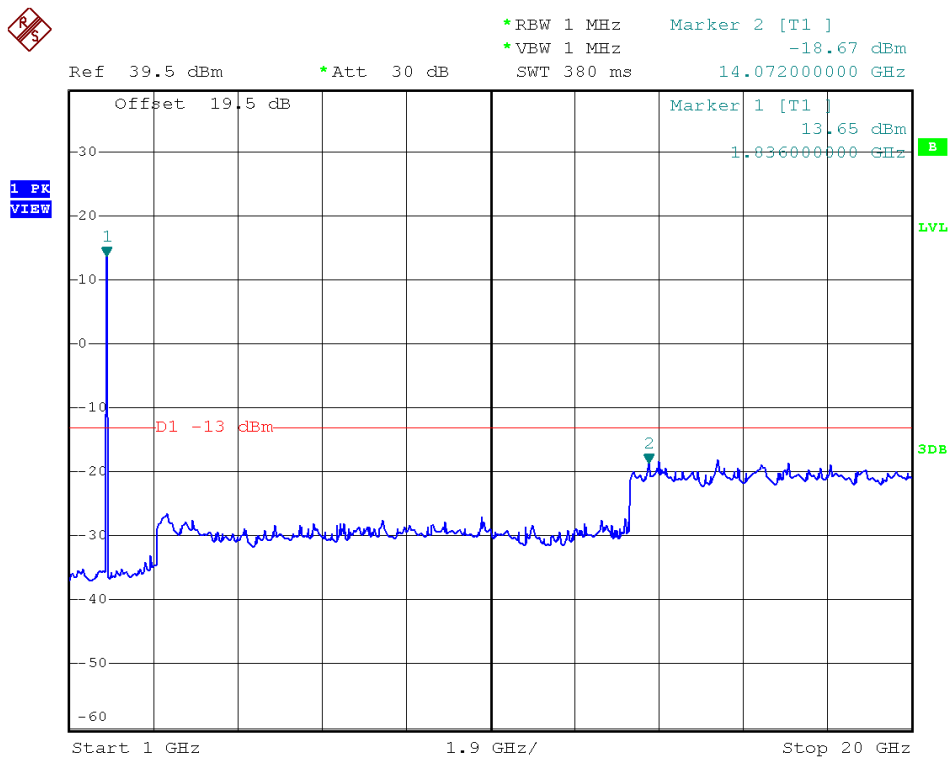
(Plot O3: HSPA+1700MHz Channel = 1513, 30MHz to 1GHz)



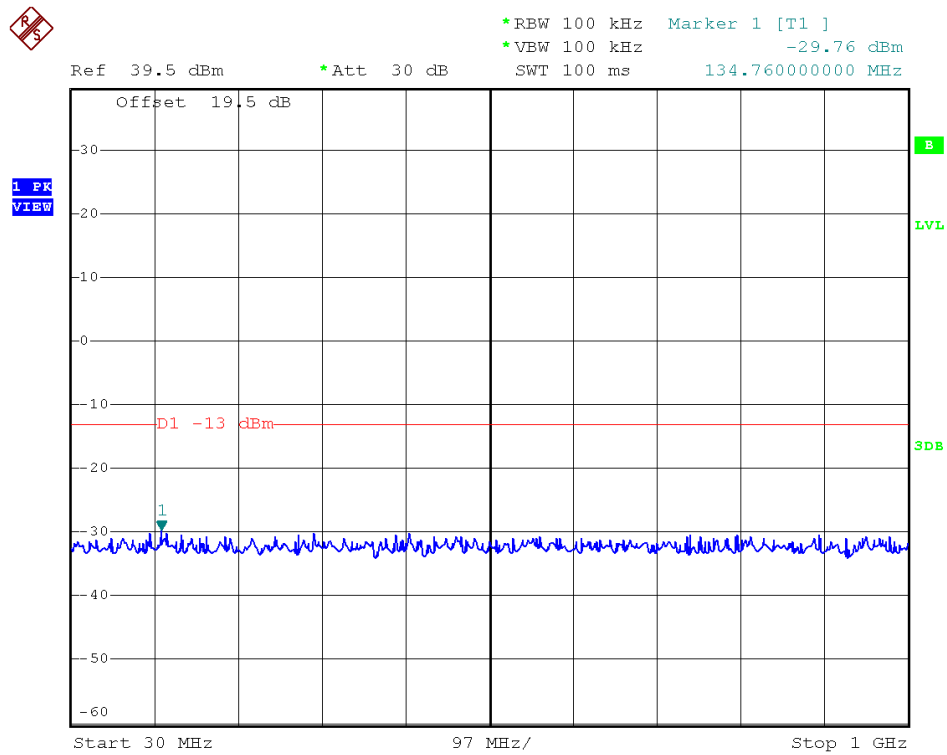
(Plot O3.1: HSPA+1700MHz Channel = 1513, 1GHz to 18GHz)



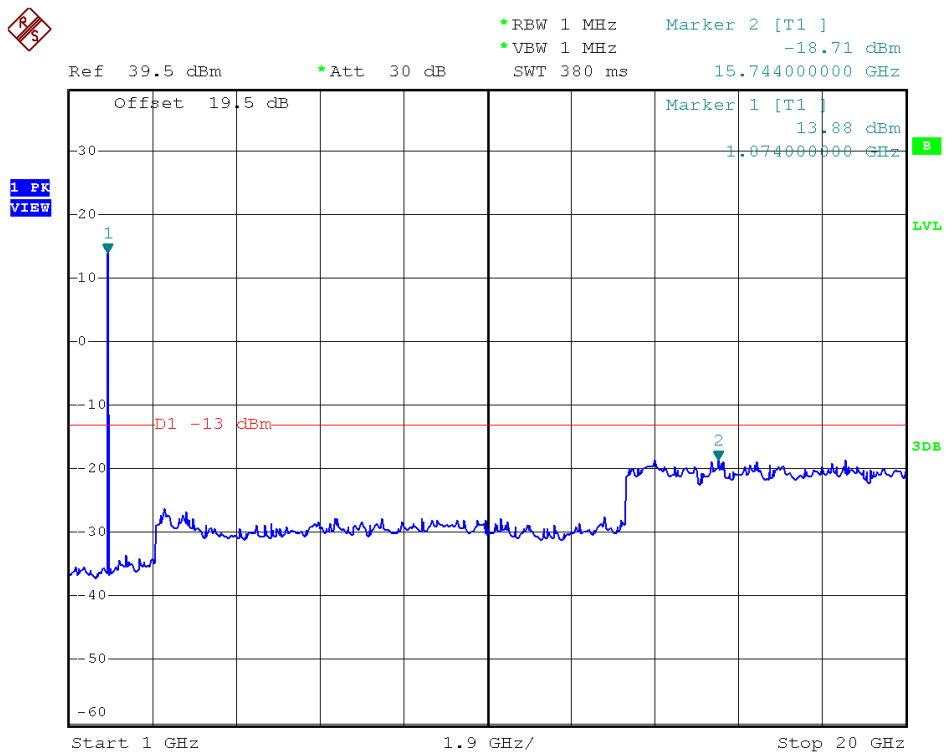
(Plot P1: HSPA+1900MHz Channel = 9262, 30MHz to 1GHz)



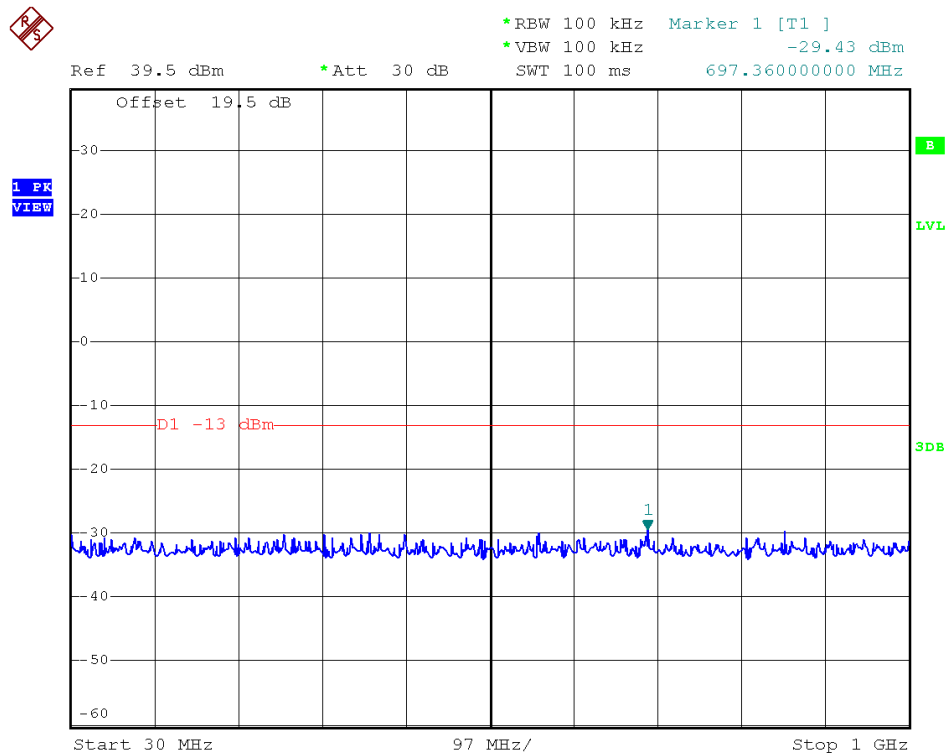
(Plot P1.1: HSPA+1900MHz Channel = 9262, 1GHz to 20GHz)



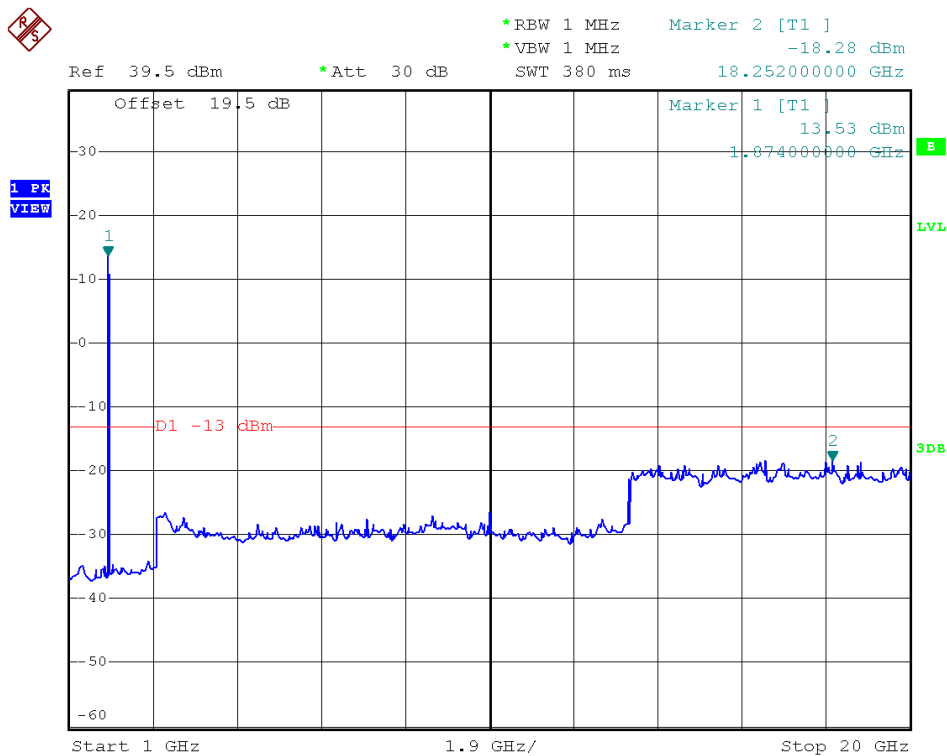
(Plot P2: HSPA+1900MHz Channel = 9400, 30MHz to 1GHz)



(Plot P2.1: HSPA+1900MHz Channel = 9400, 1GHz to 20GHz)



(Plot P3: HSPA+1900MHz Channel = 9538 30MHz to 1GHz)



(Plot P3.1: HSPA+1900MHz Channel = 9538, 1GHz to 20GHz)

2.6 Band Edge

2.6.1 Requirement

According to FCC section 22.917(b) and FCC section 24.238(b), in the 1MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth (26dB emission bandwidth) of the fundamental emission of the transmitter may be employed.

2.6.2 Test Description

See section 2.1.2 of this report.

2.6.3 Test Result

The lowest and highest channels are tested to verify the band edge emissions.

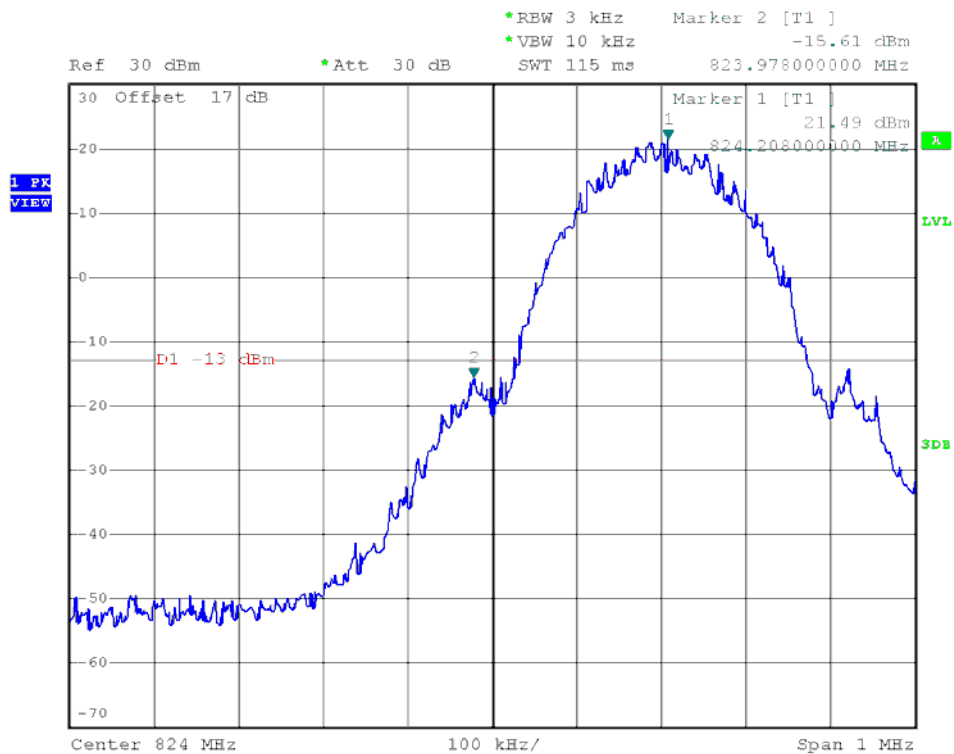
1. Test Verdict:

Band	Channel	Frequency (MHz)	Measured Max. Band Edge Emission (dBm)	Refer to Plot	Limit (dBm)	Verdict
GSM 850MHz	128	824.2	-15.61	Plat A	-13	PASS
	251	848.8	-16.09	Plot B		PASS
GSM 1900MHz	512	1850.2	-14.02	Plat C	-13	PASS
	810	1909.8	-14.68	Plot D		PASS
EDGE 850MHz	128	824.2	-13.54	Plat E	-13	PASS
	251	848.8	-13.93	Plot F		PASS
EDGE 1900MHz	512	1850.2	-15.92	Plat G	-13	PASS
	810	1909.8	-15.34	Plot H		PASS
WCDMA 850MHz	4132	826.4	-20.26	Plat I	-13	PASS
	4233	846.6	-16.92	Plot J		PASS
WCDMA 1700MHz	1312	1712.4	-13.91	Plat K	-13	PASS
	1513	1752.6	-13.87	Plot L		PASS
WCDMA 1900MHz	9262	1852.4	-19.49	Plat M	-13	PASS
	9538	1907.6	-18.35	Plot N		PASS
HSDPA 850MHz	4132	826.4	-16.28	Plat O	-13	PASS
	4233	846.6	-16.60	Plot P		PASS
HSDPA 1700MHz	1312	1712.4	-13.87	Plat Q	-13	PASS
	1513	1752.6	-15.24	Plot R		PASS
HSDPA 1900MHz	9262	1852.4	-19.85	Plat S	-13	PASS
	9538	1907.6	-16.23	Plot T		PASS

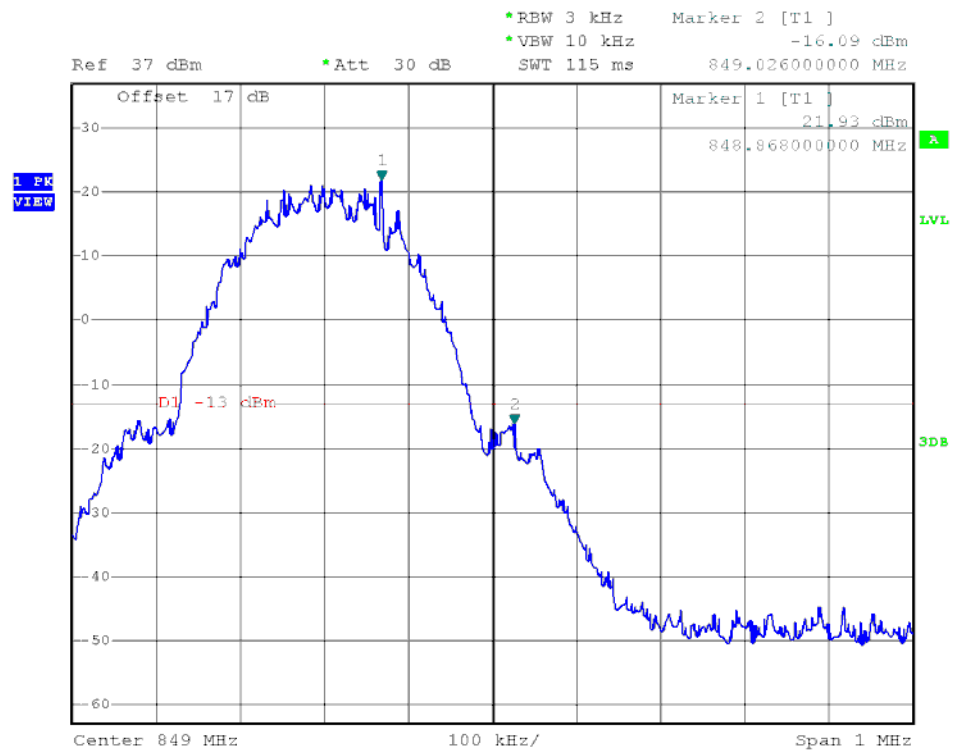


HSUPA 850MHz	4132	826.4	-16.27	Plat U	-13	PASS
	4233	846.6	-16.58	Plot V		PASS
HSUPA 1700MHz	1312	1712.4	-14.46	Plat W	-13	PASS
	1513	1752.6	-14.45	Plot X		PASS
HSUPA 1900MHz	9262	1852.4	-20.16	Plat Y	-13	PASS
	9538	1907.6	-17.72	Plot Z		PASS
HSPA+ 850MHz	4132	826.4	-14.18	Plat a	-13	PASS
	4233	846.6	-13.44	Plot b		PASS
HSPA+ 1700MHz	1312	1712.4	-14.25	Plat c	-13	PASS
	1513	1752.6	-14.73	Plot d		PASS
HSPA+ 1900MHz	9262	1852.4	-14.52	Plat e	-13	PASS
	9538	1907.6	-14.05	Plot f		PASS

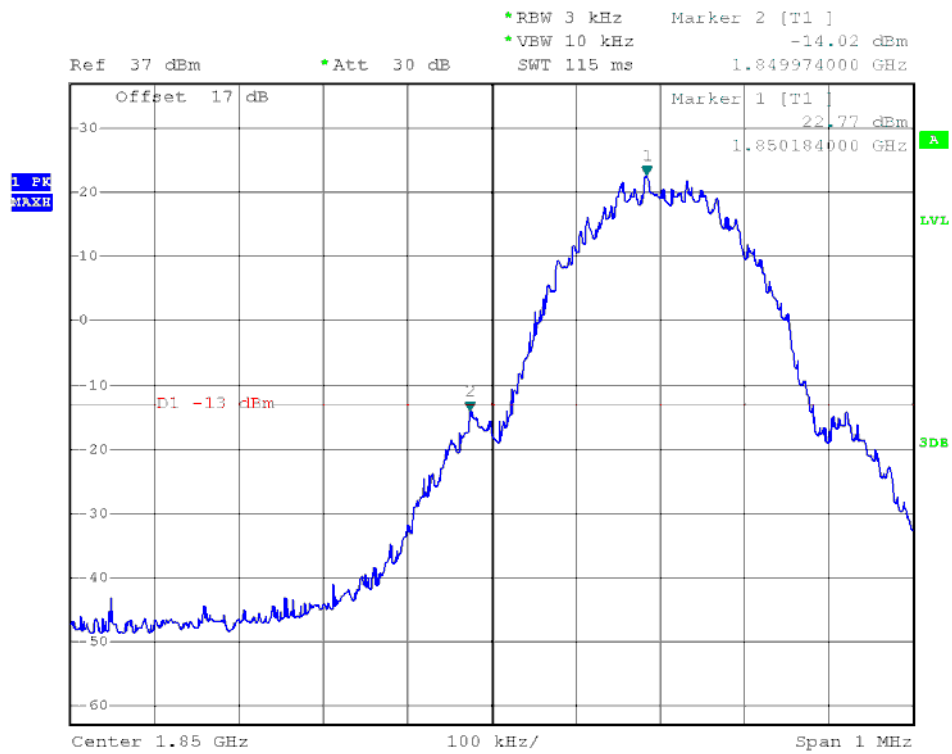
2. Test Plots:



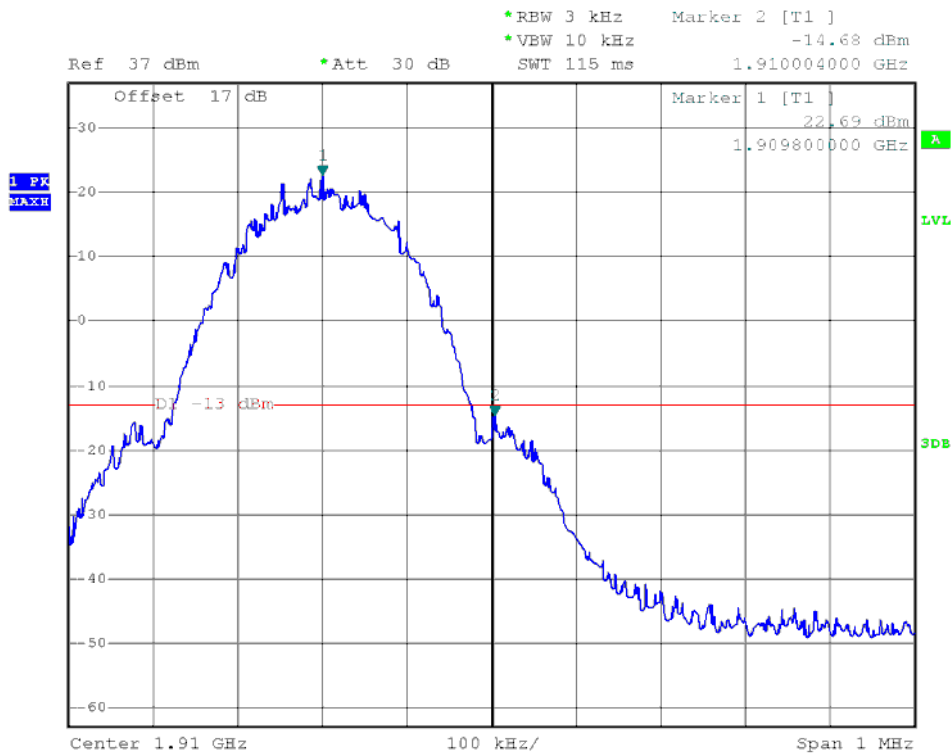
(Plot A: GSM 850 Channel = 128)



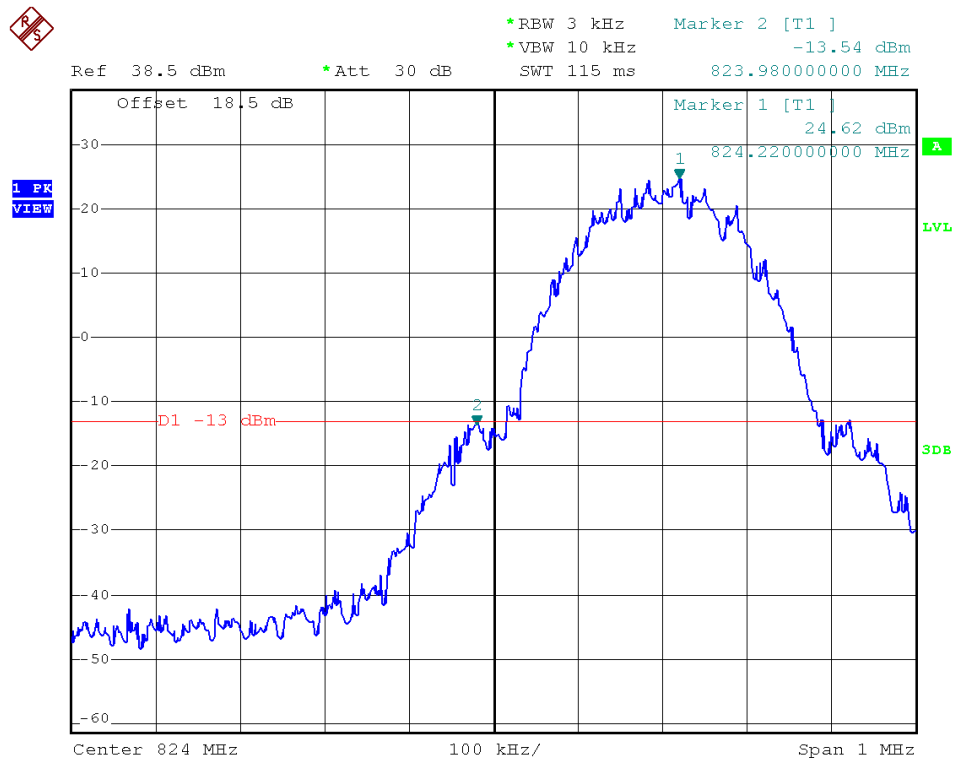
(Plot B: GSM 850 Channel = 251)



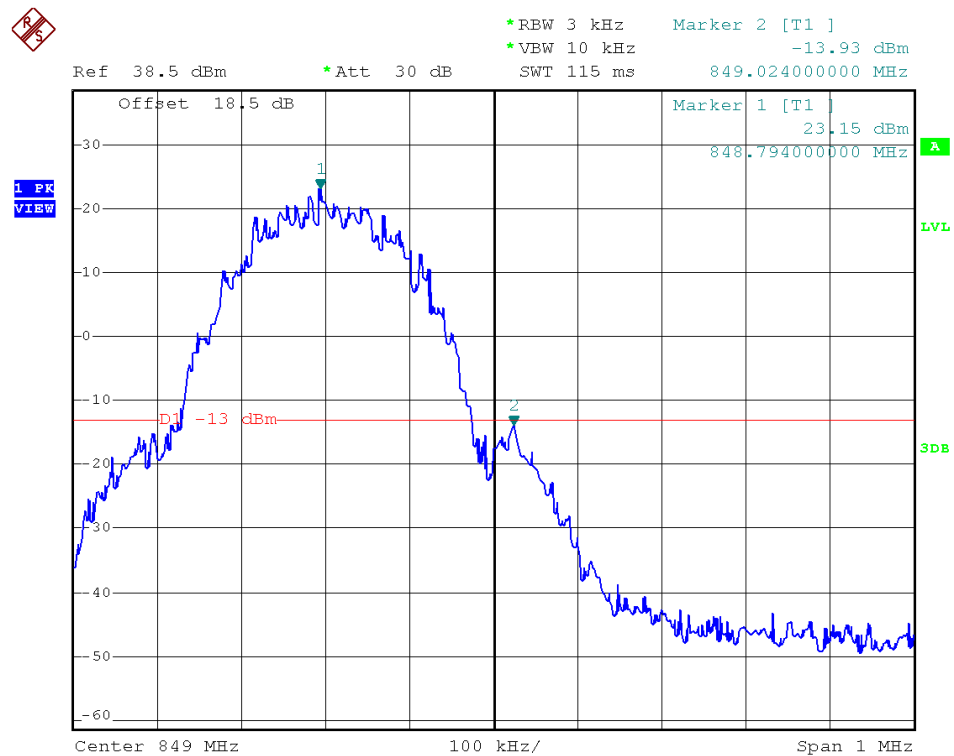
(Plot C: GSM 1900 Channel = 512)



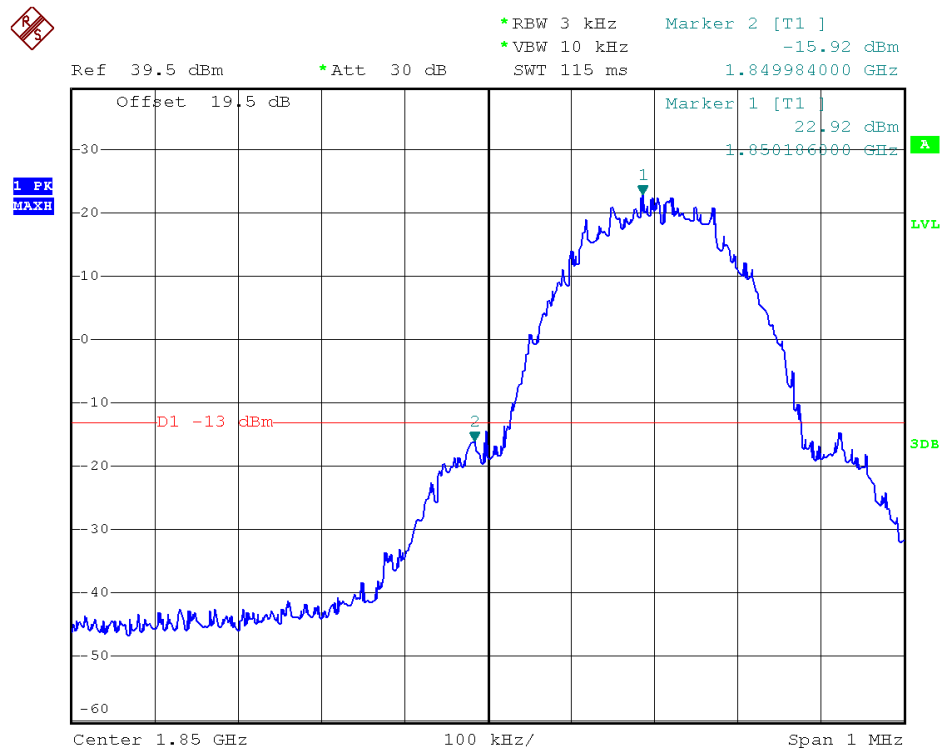
(Plot D: GSM 1900 Channel = 810)



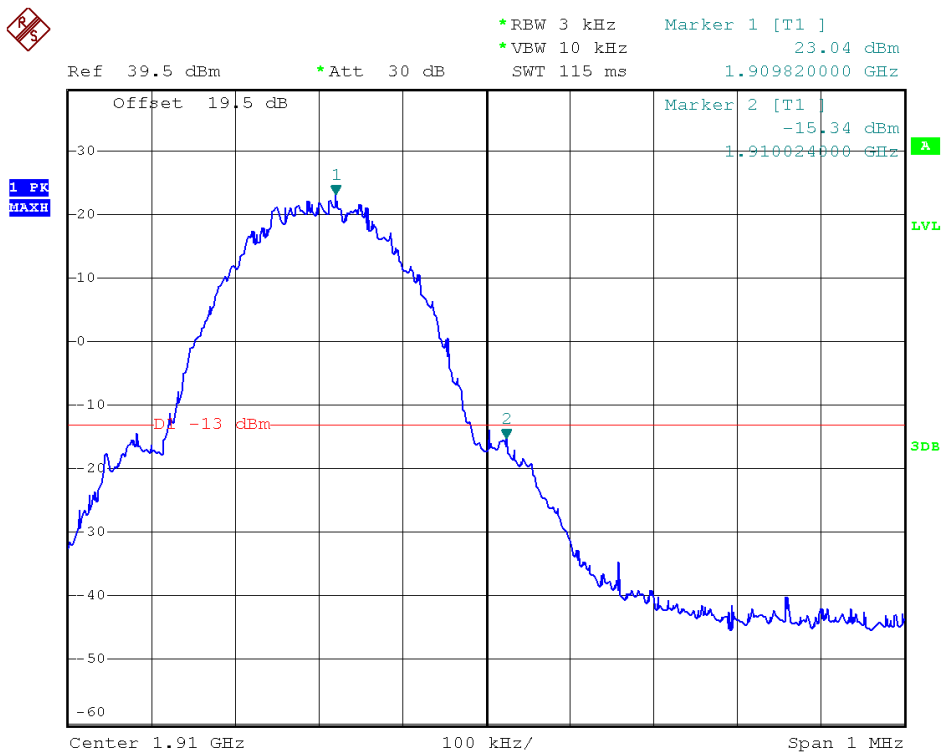
(Plot E: EDGE 850 Channel = 128)



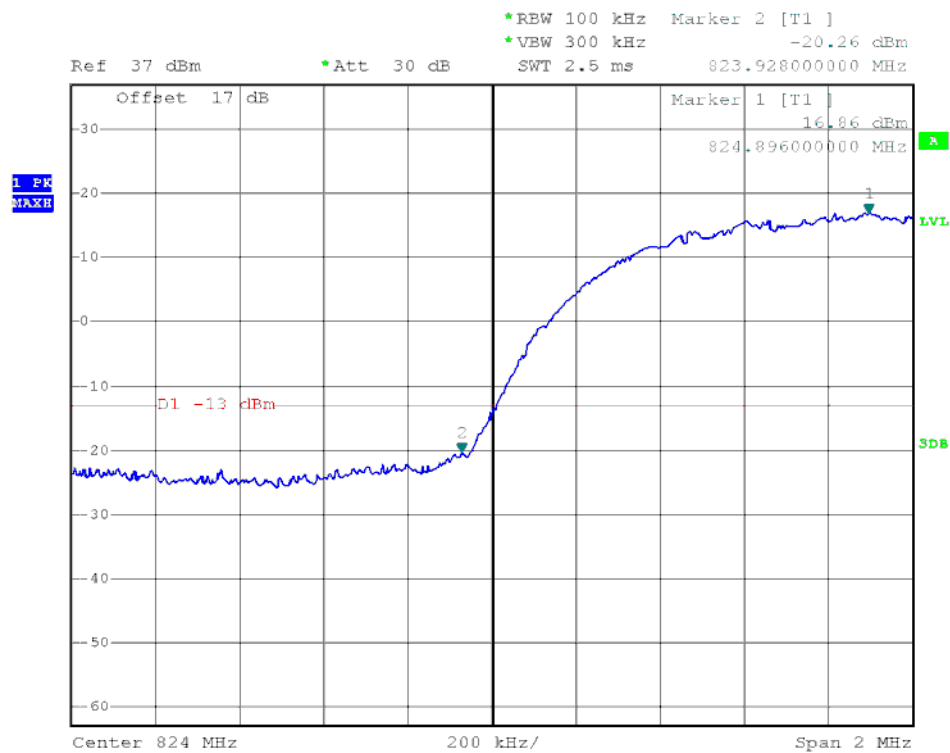
(Plot F: EDGE 850 Channel = 251)



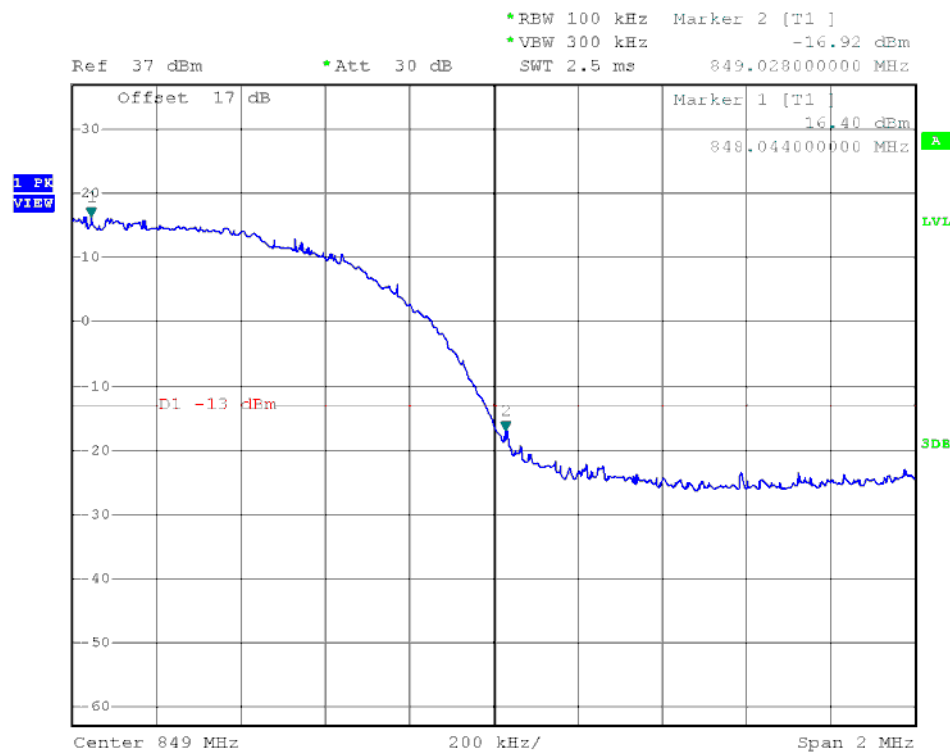
(Plot G: EDGE 1900 Channel = 512)



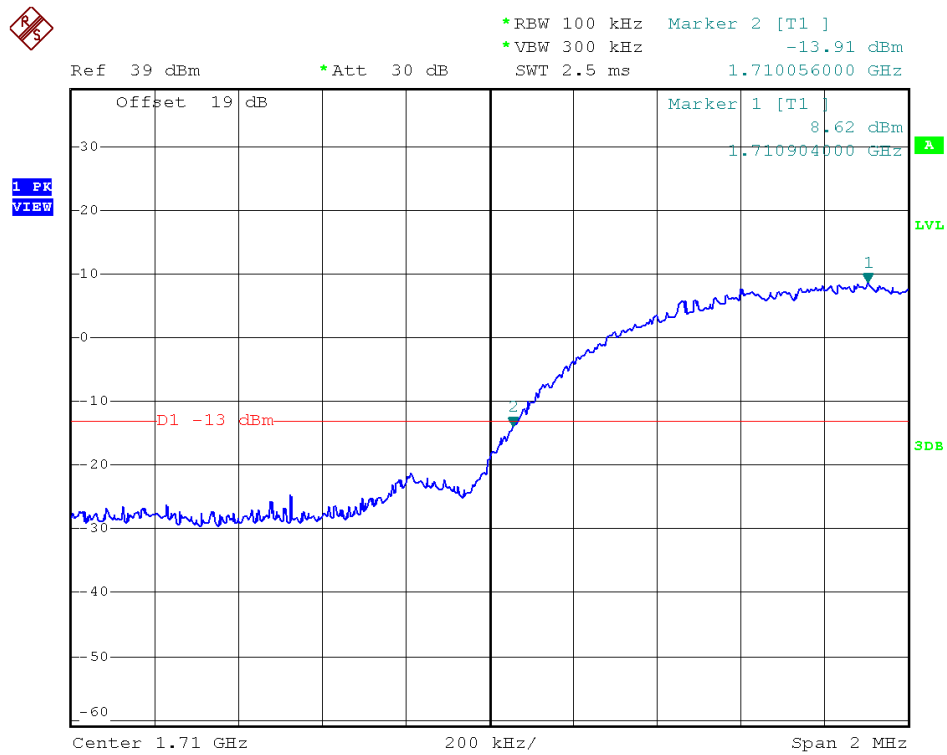
(Plot H: EDGE 1900 Channel = 810)



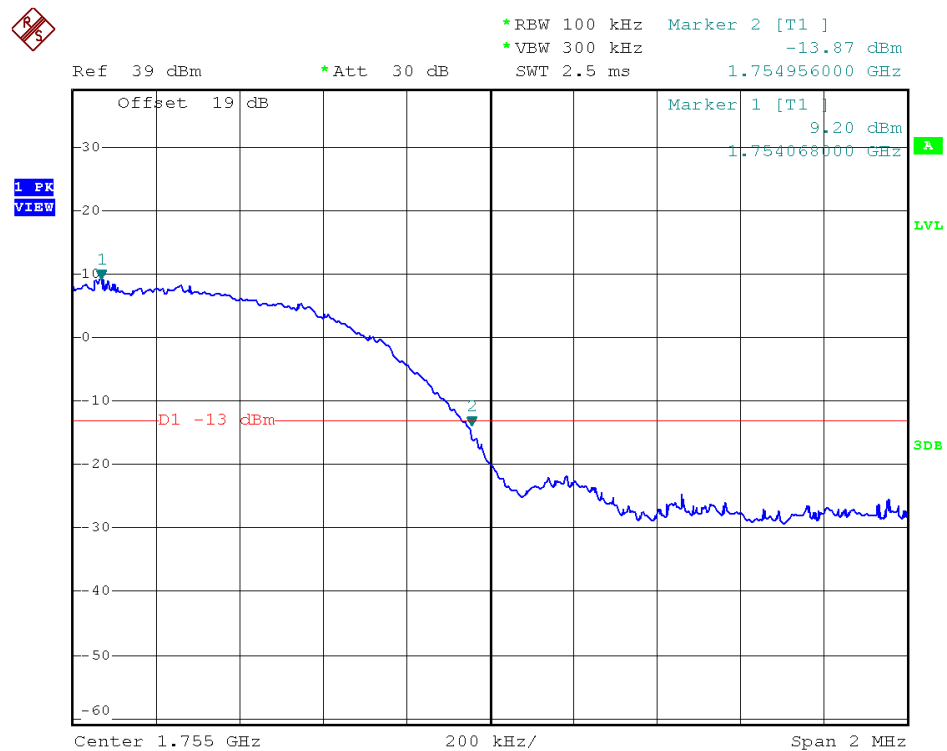
(Plot I: WCDMA 850 Channel = 4132)



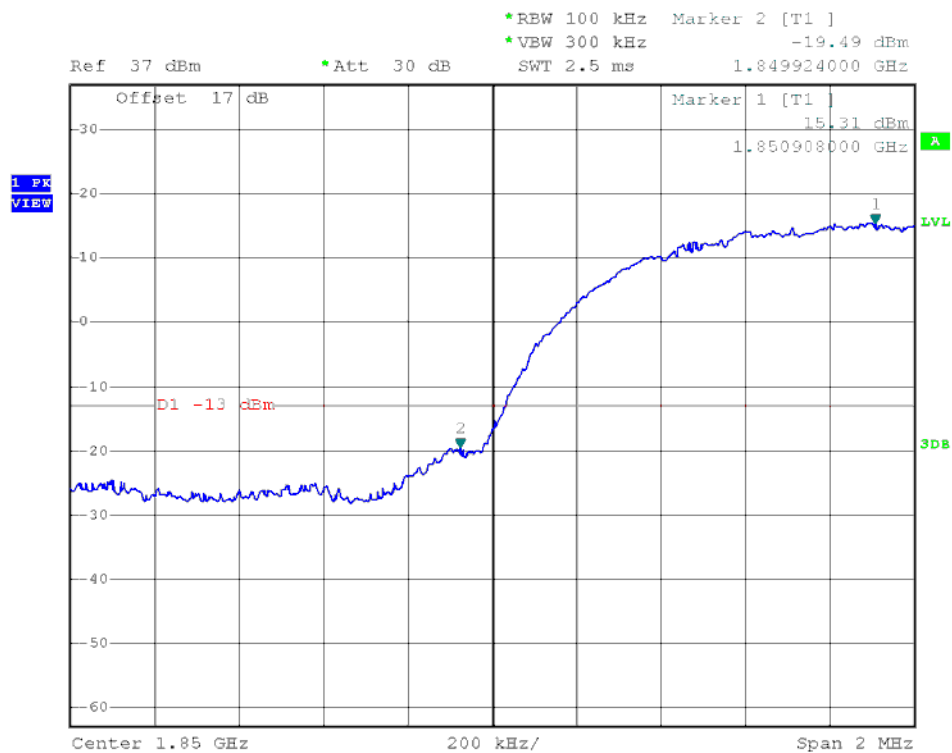
(Plot J: WCDMA 850 Channel = 4233)



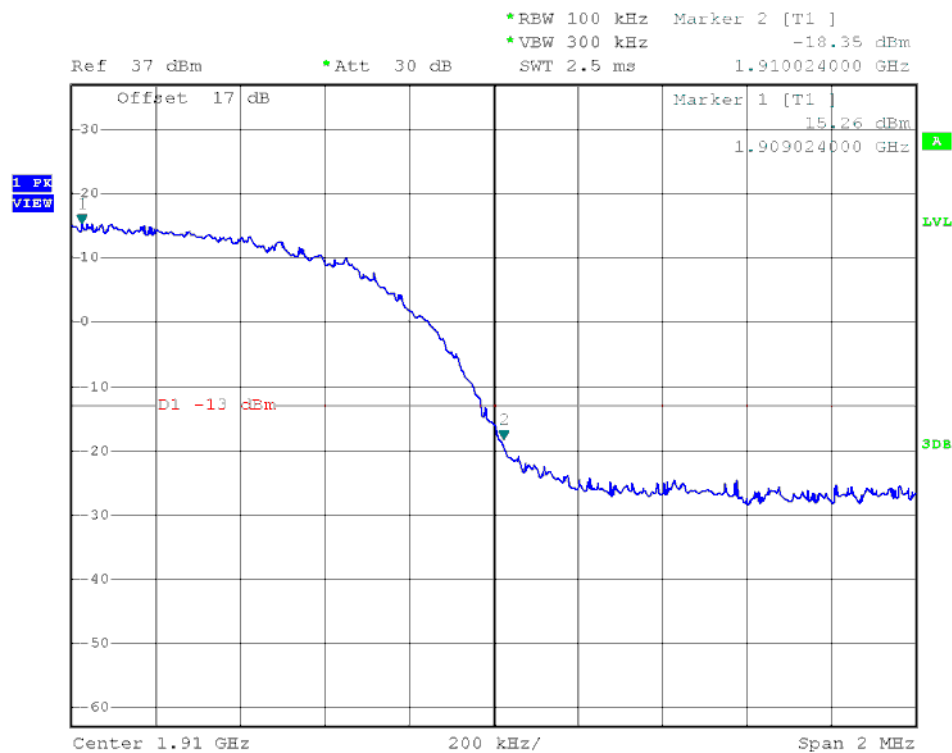
(Plot K: WCDMA 1700 Channel = 1312)



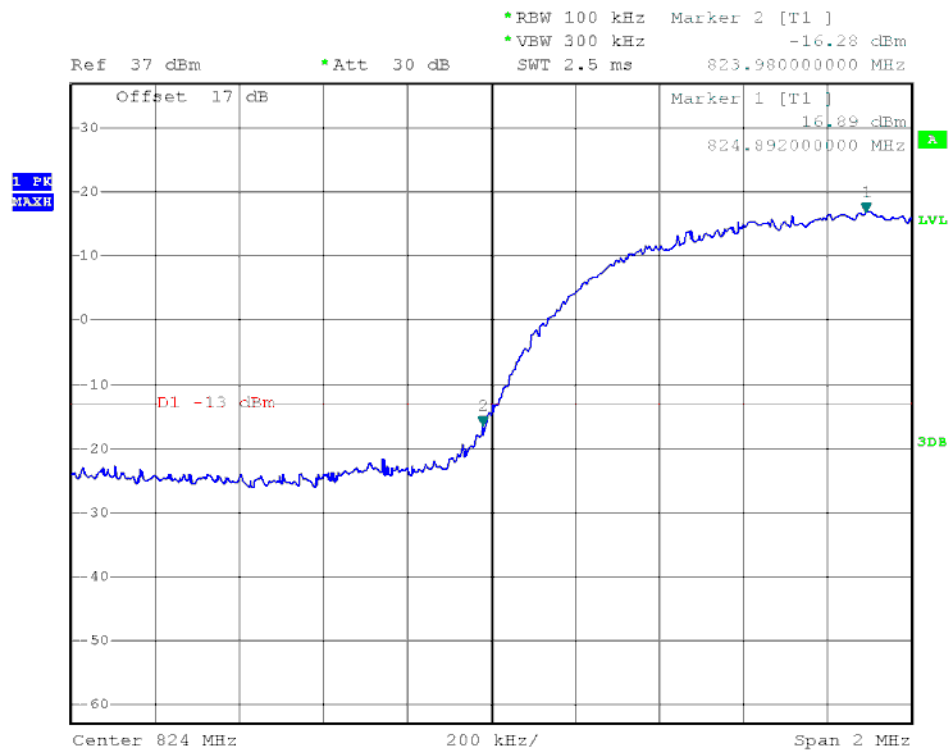
(Plot L: WCDMA 1700 Channel = 1513)



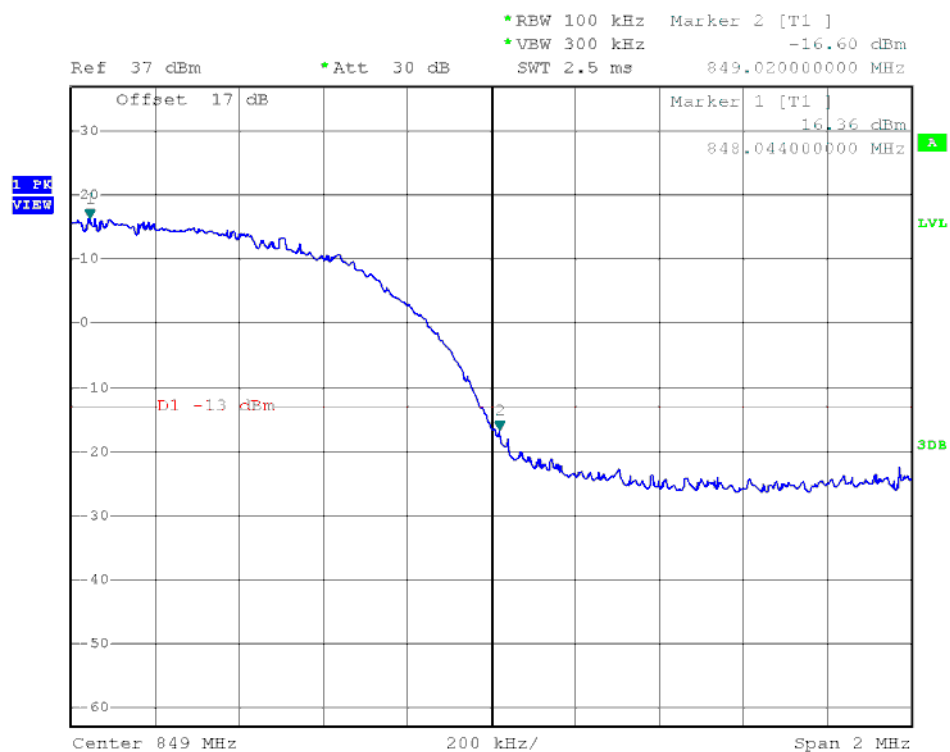
(Plot M: WCDMA 1900 Channel = 9262)



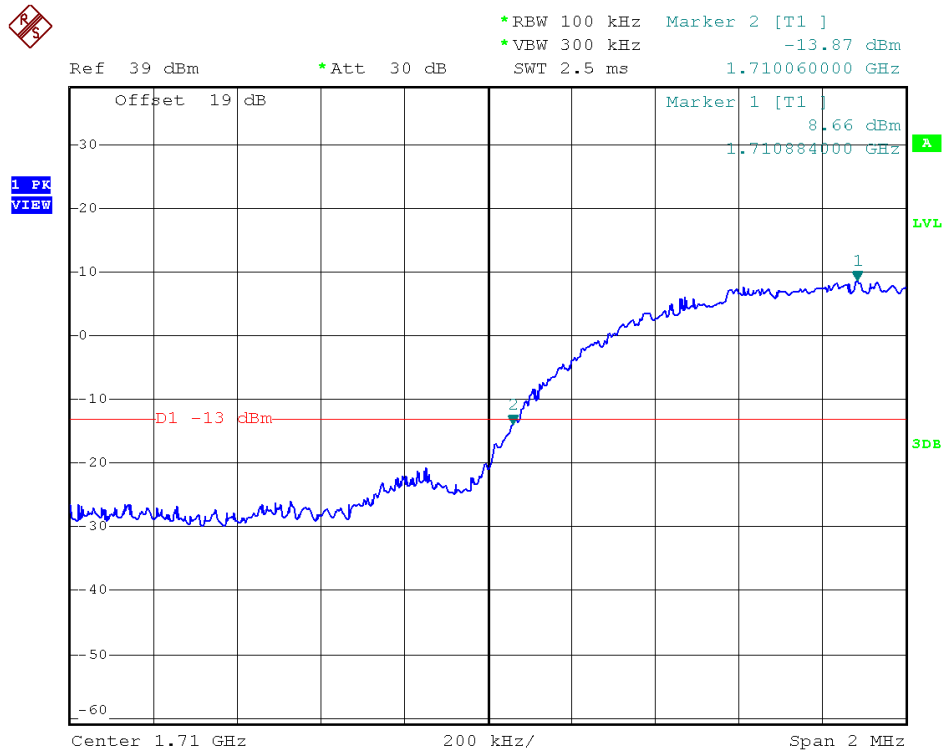
(Plot N: WCDMA 1900 Channel = 9538)



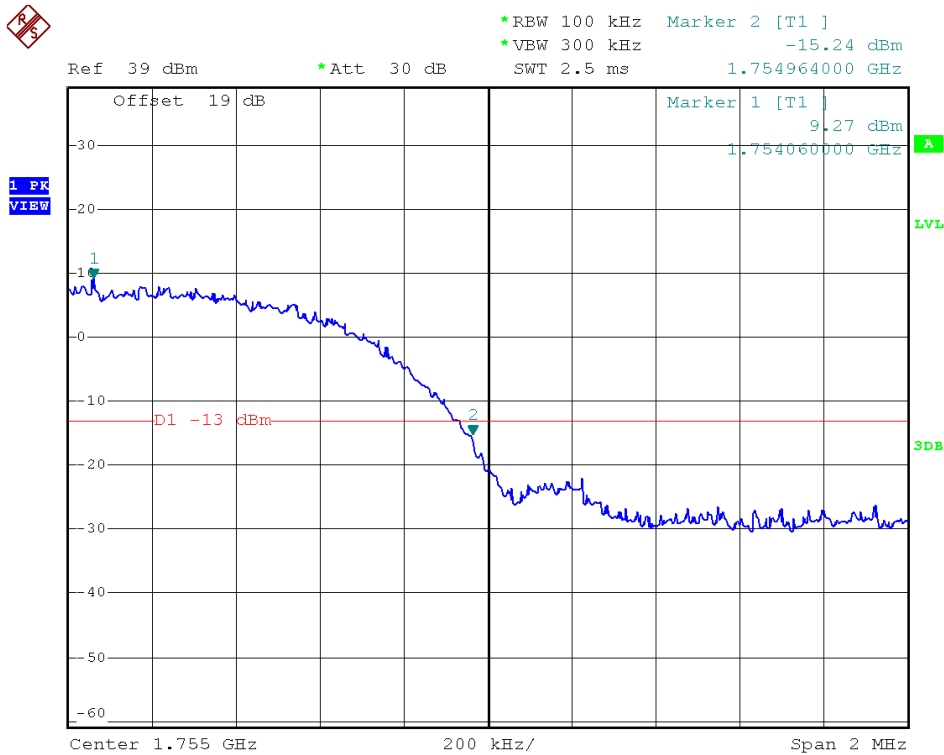
(Plot O: HSDPA 850 Channel = 4132)



(Plot P: HSDPA850 Channel = 4233)



(Plot Q: HSDPA1700 Channel = 1312)



(Plot R: HSDPA1700 Channel = 1513)