

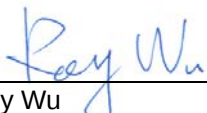


FCC Test Report

According to
47 CFR Part 22H, 24E

Equipment : USB Dongle
Trade Name : C-motech
Model No. : CGU-628A
FCC ID : TAR-CGU628A
Tx Frequency Range : GSM850 : 824.2 ~ 848.8MHz
PCS1900 : 1850.2 ~1909.8 MHz
WCDMA Band V : 826.4 ~ 846.6 MHz
WCDMA Band II : 1852.4 ~1907.6 MHz
Max. ERP/EIRP Power : GSM850(GSM) : 0.21 W
GSM850(EDGE) : 0.06 W
PCS1900(GSM) : 1.03 W
PCS1900(EDGE) : 0.55 W
WCDMA Band V : 0.02 W
WCDMA Band V(HSDPA) : 0.02 W
WCDMA Band II : 0.16 W
WCDMA Band II(HSDPA) : 0.15 W
Emission Designator : GSM : 300KGXW
EDGE : 300KG7W
WCDMA : 4M22F9W
Applicant : C-motech Co., Ltd
8,9F Yongsan Bldg. 14-14 Yoido-Dong,
Youngdungpo-Gu, Seoul, 150-871, Korea

- The test result refers exclusively to the test presented test model / sample.
- Without written approval of SPORTON International Inc., the test report shall not be reproduced except in full.
- **Certificate or Test Report must not be used by the applicant to claim the product in this test report endorsement by NVLAP or any agency of U.S. government.**
- The data shown in this test report were carried out on Mar. 09, 2008 at **Sporton International Inc. LAB.**
- Report No.: FG822811-01, Report Version: Rev. 01.


Roy Wu
Manager

SPORTON International Inc.
6F, No.106, Sec. 1, Hsin Tai Wu Rd., Hsi Chih, Taipei Hsien, Taiwan, R.O.C.



Table of Contents

History of This Test Report	ii
1. General Information	1
1.1 Applicant.....	1
1.2 Manufacturer	1
1.3 Feature of Equipment under Test.....	2
1.4 Report Date	2
2. Test Configuration of Equipment under Test	3
2.1 Test Manner	3
2.2 Test Mode	3
2.3 Connection Diagram of Test System	3
2.4 Ancillary Equipment List	3
3. General Information of Test Site.....	4
3.1 Test Voltage	4
3.2 Test Compliance.....	4
3.3 Frequency Range.....	4
3.4 Test Distance.....	4
4. Test Data and Test Result	5
4.1 List of Measurements and Examinations.....	5
4.2 RF Output Power.....	6
4.3 ERP / EIRP Measurement.....	9
4.4 Occupied Bandwidth and Band Edge Measurement	15
4.5 Conducted Emission.....	80
4.6 Field Strength of Spurious Radiation	117
4.7 Frequency Stability (Temperature Variation)	134
4.8 Frequency Stability (Voltage Variation)	138
5. List of Measurement Equipments.....	140
6. Uncertainty Evaluation	141
Appendix A - External Photographs of EUT	
Appendix B - Internal Photographs of EUT	
Appendix C - Setup Photographs	



History of This Test Report

Report Issue Date: Mar. 13, 2008

Report No.	Description



1. General Information

1.1 Applicant

C-motech Co., Ltd

8,9F Yongsan Bldg. 14-14 Yoido-Dong, Youngdungpo-Gu, Seoul, 150-871, Korea

1.2 Manufacturer

C-motech Co., Ltd

8,9F Yongsan Bldg. 14-14 Yoido-Dong, Youngdungpo-Gu, Seoul, 150-871, Korea

**1.3 Feature of Equipment under Test**

Product Feature & Specification	
DUT Type :	USB Dongle
Trade Name :	C-motech
Model Name :	CGU-628A
FCC ID :	TAR-CGU628A
Tx Frequency :	GSM850 : 824 MHz ~ 849 MHz PCS1900 : 1850 MHz ~1910 MHz WCDMA Band V : 824 MHz ~ 849 MHz WCDMA Band II : 1850 MHz ~ 1910 MHz
Rx Frequency :	GSM850 : 869 MHz ~ 894 MHz PCS1900 : 1930 MHz ~ 1990 MHz WCDMA Band V : 869 MHz ~ 894 MHz WCDMA Band II : 1930 MHz ~ 1990 MHz
Channel Spacing	200 KHz
Maximum Output Power to Antenna :	GSM850 : 32.19 dBm (GPRS8) / 29.62 dBm (GPRS10) / 27.09 dBm (GPRS12) 26.74 dBm (EDGE8) / 24.23 dBm (EDGE 10) / 22.00 dBm (EDGE12) PCS1900 : 28.39 dBm (GPRS8) / 26.40 dBm (GPRS10) / 23.85 dBm (GPRS12) 25.03 dBm (EDGE8) / 22.53 dBm (EDGE 10) / 20.18 dBm (EDGE 12) WCDMA : 22.13 dBm(12.2kbps) / 22.14 dBm(64kbps) / 22.19 dBm(144kbps) Band V 22.08 dBm(384kbps) / 21.72 dBm (12.2kbps+HSDPA) WCDMA : 21.20 dBm(12.2kbps) / 21.39 dBm(64kbps) / 21.34 dBm(144kbps) Band II 21.42 dBm(384kbps) / 21.15 dBm (12.2kbps+HSDPA)
Maximum ERP/EIRP :	GSM850(GPRS) : 0.21 W (23.31 dBm) GSM850(EDGE) : 0.06 W (18.10 dBm) PCS1900(GPRS) : 1.03 W (30.11 dBm) PCS1900(EDGE) : 0.55 W (27.41 dBm) WCDMA Band V : 0.02 W (13.61 dBm) WCDMA Band V(HSDPA) : 0.02 W (12.57 dBm) WCDMA Band II : 0.16 W (21.98 dBm) WCDMA Band II(HSDPA) : 0.15 W (21.84 dBm)
Type of Antenna Connector	N/A
Antenna Type :	Fixed Internal
HW Version :	4.1
SW Version :	R2.0.4
Power Rating (DC/AC , Voltage and Current of RF element or PA) :	DC 5V / 650mA
GPRS / EGPRS Multislot class :	12
Type of Modulation :	GSM / GPRS : GMSK EDGE : 8PSK WCDMA / HSDPA : QPSK
Type of Emission :	GSM : 300KGXW EDGE : 300KG7W WCDMA : 4M22F9W
DUT Stage :	Production Unit

1.4 Report Date

EUT Received : Mar. 03, 2008

Report Date : Mar. 13, 2008

2. Test Configuration of Equipment under Test

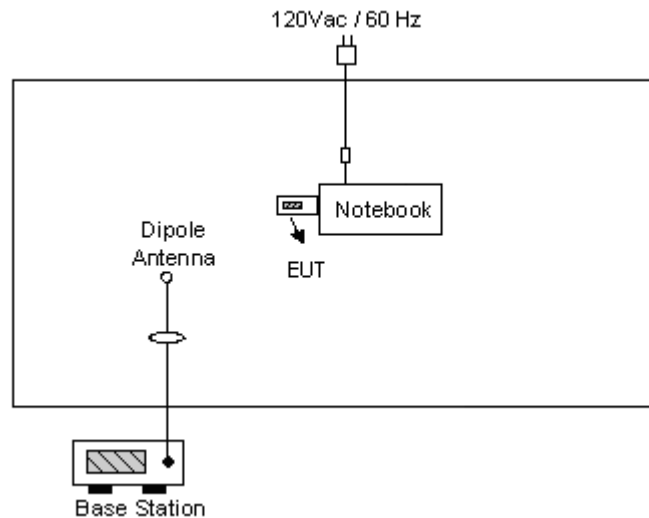
2.1 Test Manner

- The spurious emission measurements were carried out in semi-anechoic chamber with 3-meter test range.
- During all testings, EUT is in link mode with base station emulator at maximum power level.
- Frequency range investigated: radiated emission 30 MHz to 9000 MHz for GPRS850 and WCDMA Band V; 30MHz to 19000 MHz for GPRS1900 and WCDMA Band II.

2.2 Test Mode

Application	GSM850	PCS1900	WCDMA Band V	WCDMA Band II
Radiated Emission	☒ Mode 1: GPRS Link	☒ Mode 3: GPRS Link	☒ Mode 5: WCDMA Link	☒ Mode 7: WCDMA Link
	☒ Mode 2: EDGE Link	☒ Mode 4: EDGE Link	☒ Mode 6: HSDPA Link	☒ Mode 8: HSDPA Link
Conducted Measurement	☒ Mode 1: GPRS Link	☒ Mode 3: GPRS Link	☒ Mode 5: WCDMA Link	☒ Mode 7: WCDMA Link
	☒ Mode 2: EDGE Link	☒ Mode 4: EDGE Link	☒ Mode 6: HSDPA Link	☒ Mode 8: HSDPA Link

2.3 Connection Diagram of Test System



2.4 Ancillary Equipment List

Item	Equipment	Trade Name	Model Name	FCC ID	Data Cable	Power Cord
1.	Base Station	R&S	CMU 200	N/A	N/A	Unshielded, 1.8 m
2.	Notebook	DELL	D400	E2K24GBRL	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m



3. General Information of Test Site

Test Site Location : No. 52, Hwa Ya 1st Rd., Hwa Ya Technology Park,
Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C.
TEL : 886-3-327-3456
FAX : 886-3-328-4978
Test Site No : 03CH06-HY, TH02-HY

The chamber meets the characteristics of ANSI C63.4-2003. This site is on file with the FCC.

3.1 Test Voltage

AC 120V / 60Hz

3.2 Test Compliance

47 CFR Part 22H, 24E, Part 2

Preliminary Guidance for Receiving Applications for Certification of 3G Device. May 9, 2006.

3.3 Frequency Range

- a. Radiation: from 30MHz to 9000MHz for GPRS850 and WCDMA Band V.
- b. Radiation: from 30 MHz to 19000 MHz for GPRS1900 and WCDMA Band II.

3.4 Test Distance

The test distance of radiated emission from antenna to EUT is 3 m.

4. Test Data and Test Result

4.1 List of Measurements and Examinations

FCC Rule	Description of Test	Result	Section
§2.1046	RF Output Power	Passed	4.2
§ 22.913 §24.232	ERP / EIRP	Passed	4.3
§2.1049, § 22.917, § 24.238(b)	Occupied Bandwidth & Band Edge Measurement	Passed	4.4
§2.1051	Conducted Emission	Passed	4.5
§2.1053	Field Strength of Spurious Radiation	Passed	4.6
§2.1055, § 22.355, §24.235	Frequency Stability vs. Temperature	Passed	4.7
§2.1055, §22.355, §24.235	Frequency Stability vs. Voltage	Passed	4.8

4.2 RF Output Power

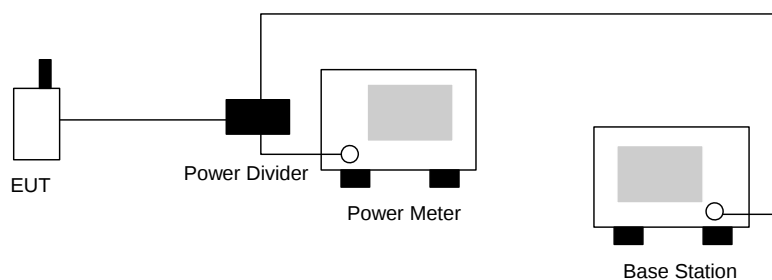
4.2.1 Measurement Instruments

As described in chapter 5 of this test report.

4.2.2 Test Procedure

- The transmitter output was connected to power meter and base station through power divider.
- Set EUT at maximum power through base station.
- Select lowest, middle, and highest channels for each band.

4.2.3 Test Setup Layout



**4.2.4 Test Result**

Bands	Channel	Frequency (MHz)	Conducted Power (dBm)	Conducted Power (Watts)
GSM850 (GPRS)	128	824.2 (Low)	32.02	1.59
	189	836.4 (Mid)	32.14	1.64
	251	848.8 (High)	32.19	1.66
GSM850 (EDGE)	128	824.2 (Low)	26.60	0.46
	189	836.4 (Mid)	26.71	0.47
	251	848.8 (High)	26.74	0.47
PCS1900 (GPRS)	512	1850.2 (Low)	28.23	0.67
	661	1880.0 (Mid)	28.33	0.68
	810	1909.8 (High)	28.39	0.69
PCS1900 (EDGE)	512	1850.2 (Low)	24.85	0.31
	661	1880.0 (Mid)	24.94	0.31
	810	1909.8 (High)	25.03	0.32
WCDMA Band V (12.2k bps)	4132	826.4 (Low)	22.13	0.16
	4182	836.4 (Mid)	21.95	0.16
	4233	846.6 (High)	22.12	0.16
WCDMA Band V (64k bps)	4132	826.4 (Low)	21.90	0.15
	4182	836.4 (Mid)	21.82	0.15
	4233	846.6 (High)	22.14	0.16
WCDMA Band V (144k bps)	4132	826.4 (Low)	22.19	0.17
	4182	836.4 (Mid)	21.84	0.15
	4233	846.6 (High)	22.10	0.16
WCDMA Band V (384k bps)	4132	826.4 (Low)	22.08	0.16
	4182	836.4 (Mid)	21.85	0.15
	4233	846.6 (High)	21.71	0.15
WCDMA Band V (AMR)	4132	826.4 (Low)	21.29	0.13
	4182	836.4 (Mid)	21.07	0.13
	4233	846.6 (High)	21.18	0.13
WCDMA Band V (HSDPA)	4132	826.4 (Low)	21.55	0.14
	4182	836.4 (Mid)	21.38	0.14
	4233	846.6 (High)	21.72	0.15



Bands	Channel	Frequency (MHz)	Conducted Power (dBm)	Conducted Power (Watts)
WCDMA Band II (12.2k bps)	9262	1852.4 (Low)	21.20	0.13
	9400	1880.0 (Mid)	21.03	0.13
	9538	1907.6 (High)	21.06	0.13
WCDMA Band II (64k bps)	9262	1852.4 (Low)	21.39	0.14
	9400	1880.0 (Mid)	21.04	0.13
	9538	1907.6 (High)	21.05	0.13
WCDMA Band II (144k bps)	9262	1852.4 (Low)	21.34	0.14
	9400	1880.0 (Mid)	21.06	0.13
	9538	1907.6 (High)	21.08	0.13
WCDMA Band II (384k bps)	9262	1852.4 (Low)	21.42	0.14
	9400	1880.0 (Mid)	21.14	0.13
	9538	1907.6 (High)	21.14	0.13
WCDMA Band II (AMR)	9262	1852.4 (Low)	21.20	0.13
	9400	1880.0 (Mid)	20.90	0.12
	9538	1907.6 (High)	20.71	0.12
WCDMA Band II (HSDPA)	9262	1852.4 (Low)	21.15	0.13
	9400	1880.0 (Mid)	20.90	0.12
	9538	1907.6 (High)	20.78	0.12

4.3 ERP / EIRP Measurement

Equivalent isotropic radiated power measurements by substitution method according to ANSI/TIA/EIA-603-C.

4.3.1 Measurement Instruments

As described in chapter 5 of this test report.

4.3.2 Test Procedure

- a. The EUT was placed on a table with 1.0 meter height in an fully anechoic chamber.
- b. The EUT was set 1.2 meters from the receiving antenna which was mounted on the antenna tower.
- c. The table was rotated 360 degrees to determine the position of the highest radiated power.
- d. The height of the receiving antenna is also kept at 1.0M height.
- e. Taking the record of maximum ERP/EIRP.
- f. A dipole antenna was substituted in place of the EUT and was driven by a signal generator.
- g. The conducted power at the terminal of the dipole antenna is measured.
- h. Repeat step 3 to step 5 to get the maximum ERP/EIRP of the substitution antenna.
- i. $ERP/EIRP = P_s + E_t - E_s + G_s = P_s + R_t - R_s + G_s$

P_s (dBm) : Input power to substitution antenna.

G_s (dBi or dBd) : Substitution antenna Gain.

$E_t = R_t + AF$

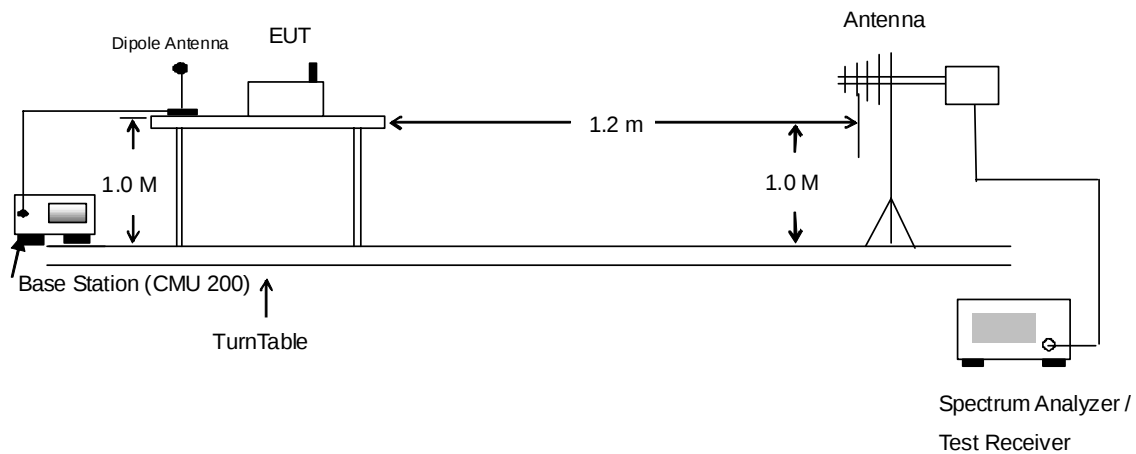
$E_s = R_s + AF$

AF (dB/m) : Receive antenna factor

R_t : The highest received signal in Spectrum Analyzer for EUT.

R_s : The highest received signal in spectrum analyzer for substitution antenna.

4.3.3 Test Setup Layout of ERP/EIRP



**4.3.4 Test Result**

GPRS850 Radiated Power ERP						
Horizontal Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBd)	ERP (dBm)	ERP (W)
824.20	-24.99	-48.12	0.00	-1.08	22.05	0.16
836.40	-25.09	-48.28	0.00	-0.93	22.26	0.17
848.80	-24.28	-48.35	0.00	-0.76	23.31	0.21
Vertical Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBd)	ERP (dBm)	ERP (W)
824.20	-27.01	-47.97	0.00	-1.08	19.88	0.10
836.40	-27.74	-48.01	0.00	-0.93	19.34	0.09
848.80	-27.91	-48.05	0.00	-0.76	19.38	0.09

EDGE850 Radiated Power ERP						
Horizontal Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBd)	ERP (dBm)	ERP (W)
824.20	-30.24	-48.12	0.00	-1.08	16.80	0.05
836.40	-30.21	-48.28	0.00	-0.93	17.14	0.05
848.80	-29.49	-48.35	0.00	-0.76	18.10	0.06
Vertical Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBd)	ERP (dBm)	ERP (W)
824.20	-31.66	-47.97	0.00	-1.08	15.23	0.03
836.40	-33.13	-48.01	0.00	-0.93	13.95	0.02
848.80	-33.23	-48.05	0.00	-0.76	14.06	0.03

**GPRS1900 Radiated Power EIRP****Horizontal Polarization**

Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBi)	EIRP (dBm)	EIRP (W)
1850.20	-25.66	-51.88	0.00	1.96	28.18	0.66
1880.00	-25.64	-52.99	0.00	2.00	29.35	0.86
1909.80	-26.15	-54.28	0.00	1.98	30.11	1.03

Vertical Polarization

Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBi)	EIRP (dBm)	EIRP (W)
1850.20	-26.47	-52.13	0.00	1.96	27.62	0.58
1880.00	-26.59	-53.17	0.00	2.00	28.58	0.72
1909.80	-27.49	-54.13	0.00	1.98	28.62	0.73

EDGE1900 Radiated Power EIRP**Horizontal Polarization**

Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBi)	EIRP (dBm)	EIRP (W)
1850.20	-28.53	-51.88	0.00	1.96	25.31	0.34
1880.00	-28.84	-52.99	0.00	2.00	26.15	0.41
1909.80	-28.85	-54.28	0.00	1.98	27.41	0.55

Vertical Polarization

Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBi)	EIRP (dBm)	EIRP (W)
1850.20	-30.43	-52.13	0.00	1.96	23.66	0.23
1880.00	-30.13	-53.17	0.00	2.00	25.04	0.32
1909.80	-30.64	-54.13	0.00	1.98	25.47	0.35



WCDMA Band V Radiated Power ERP						
Horizontal Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBd)	ERP (dBm)	ERP (W)
826.40	-34.20	-48.12	0.00	-1.08	12.84	0.02
836.60	-33.84	-48.28	0.00	-0.93	13.51	0.02
846.60	-33.98	-48.35	0.00	-0.76	13.61	0.02
Vertical Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBd)	ERP (dBm)	ERP (W)
826.40	-37.31	-47.97	0.00	-1.08	9.58	0.01
836.60	-36.78	-48.01	0.00	-0.93	10.30	0.01
846.60	-37.30	-48.05	0.00	-0.76	9.99	0.01

WCDMA Band V (HSDPA) Radiated Power ERP						
Horizontal Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBd)	ERP (dBm)	ERP (W)
826.40	-35.83	-48.12	0.00	-1.08	11.21	0.01
836.60	-34.91	-48.28	0.00	-0.93	12.44	0.02
846.60	-35.02	-48.35	0.00	-0.76	12.57	0.02
Vertical Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBd)	ERP (dBm)	ERP (W)
826.40	-38.48	-47.97	0.00	-1.08	8.41	0.01
836.60	-37.71	-48.01	0.00	-0.93	9.37	0.01
846.60	-38.19	-48.05	0.00	-0.76	9.10	0.01

WCDMA Band II Radiated Power EIRP						
Horizontal Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBi)	EIRP (dBm)	EIRP (W)
1852.40	-31.86	-51.88	0.00	1.96	21.98	0.16
1880.00	-33.17	-52.99	0.00	2.00	21.82	0.15
1907.60	-34.43	-54.28	0.00	1.98	21.83	0.15
Vertical Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBi)	EIRP (dBm)	EIRP (W)
1852.40	-35.49	-52.13	0.00	1.96	18.60	0.07
1880.00	-35.89	-53.17	0.00	2.00	19.28	0.08
1907.60	-36.29	-54.13	0.00	1.98	19.82	0.10

WCDMA Band II (HSDPA) Radiated Power EIRP						
Horizontal Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBi)	EIRP (dBm)	EIRP (W)
1852.40	-32.39	-51.88	0.00	1.96	21.45	0.14
1880.00	-33.15	-52.99	0.00	2.00	21.84	0.15
1907.60	-35.17	-54.28	0.00	1.98	21.09	0.13
Vertical Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBi)	EIRP (dBm)	EIRP (W)
1852.40	-35.65	-52.13	0.00	1.96	18.44	0.07
1880.00	-36.06	-53.17	0.00	2.00	19.11	0.08
1907.60	-37.01	-54.13	0.00	1.98	19.10	0.08

4.4 Occupied Bandwidth and Band Edge Measurement

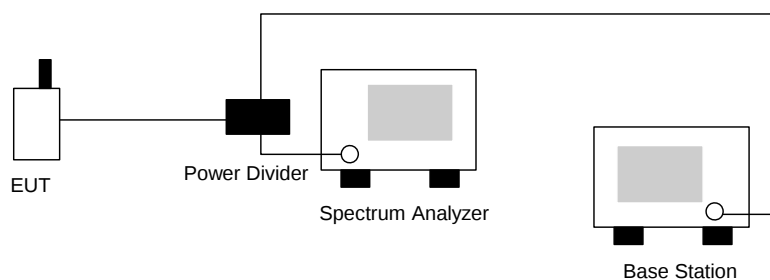
4.4.1 Measurement Instruments

As described in chapter 5 of this test report.

4.4.2 Test Procedure

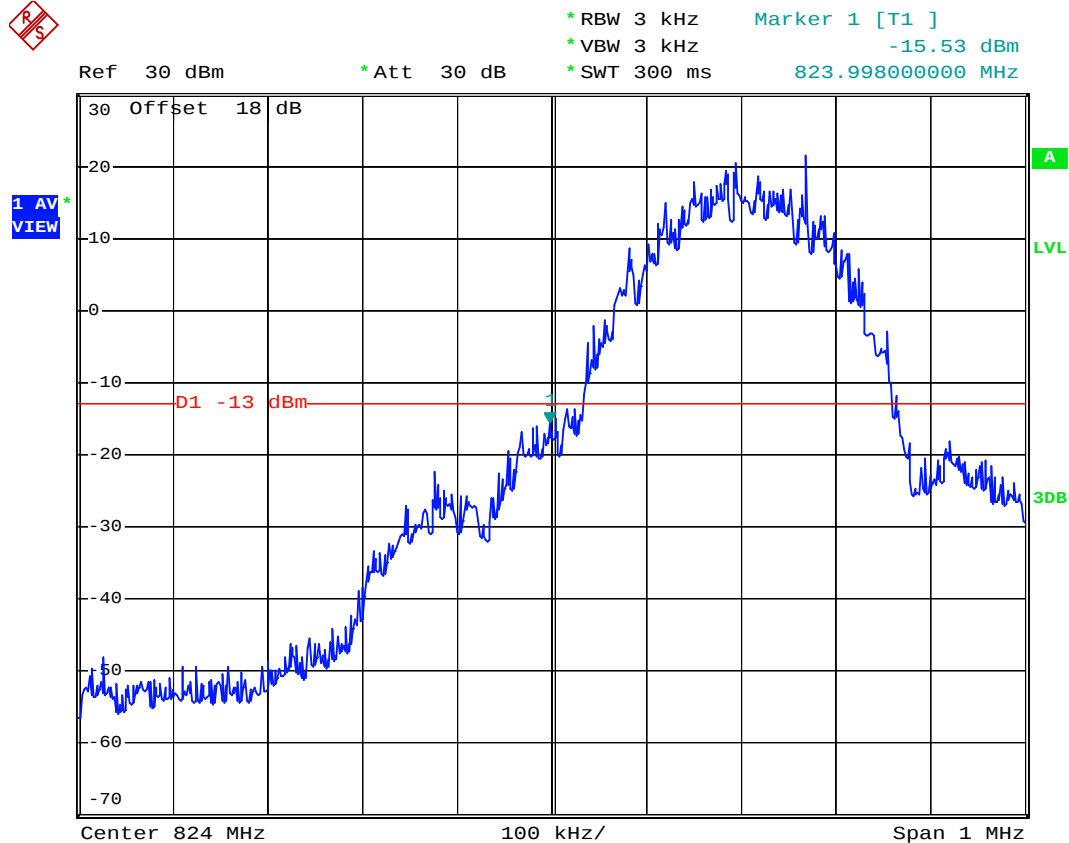
- The EUT was connected to Spectrum Analyzer and Base Station via power divider.
- The 99% occupied bandwidth of middle channel for the highest and lowest RF powers were measured.
- The bandedge of low and high channels for the highest RF powers within the transmitting frequency band were measured. Setting RBW as roughly BW/100.

4.4.3 Test Setup Layout



**4.4.4 Test Result**

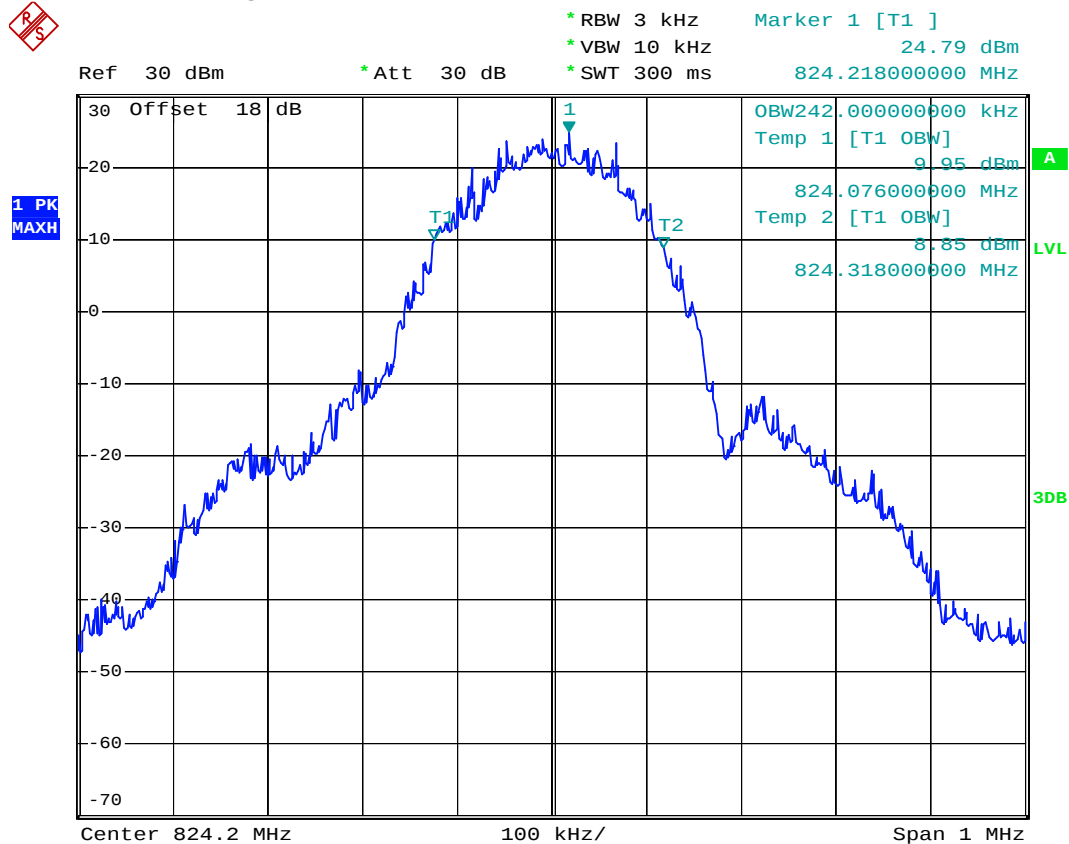
- Mode 1
- Test Mode : GPRS850 CH128 Lower Band Edge
- Power State : High



Date: 9.MAR.2008 05:23:59



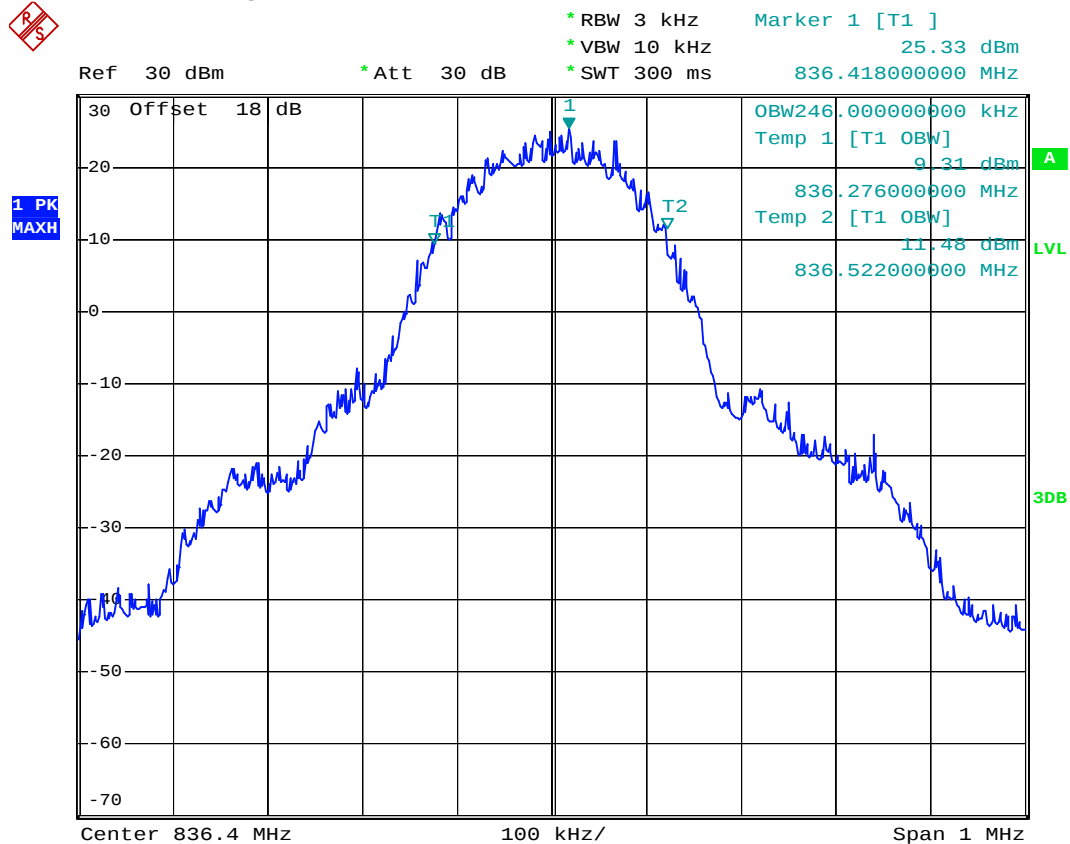
- Test Mode : GPRS850 CH128 99% Occupied Bandwidth
- Power State : High



Date: 9.MAR.2008 05:20:42



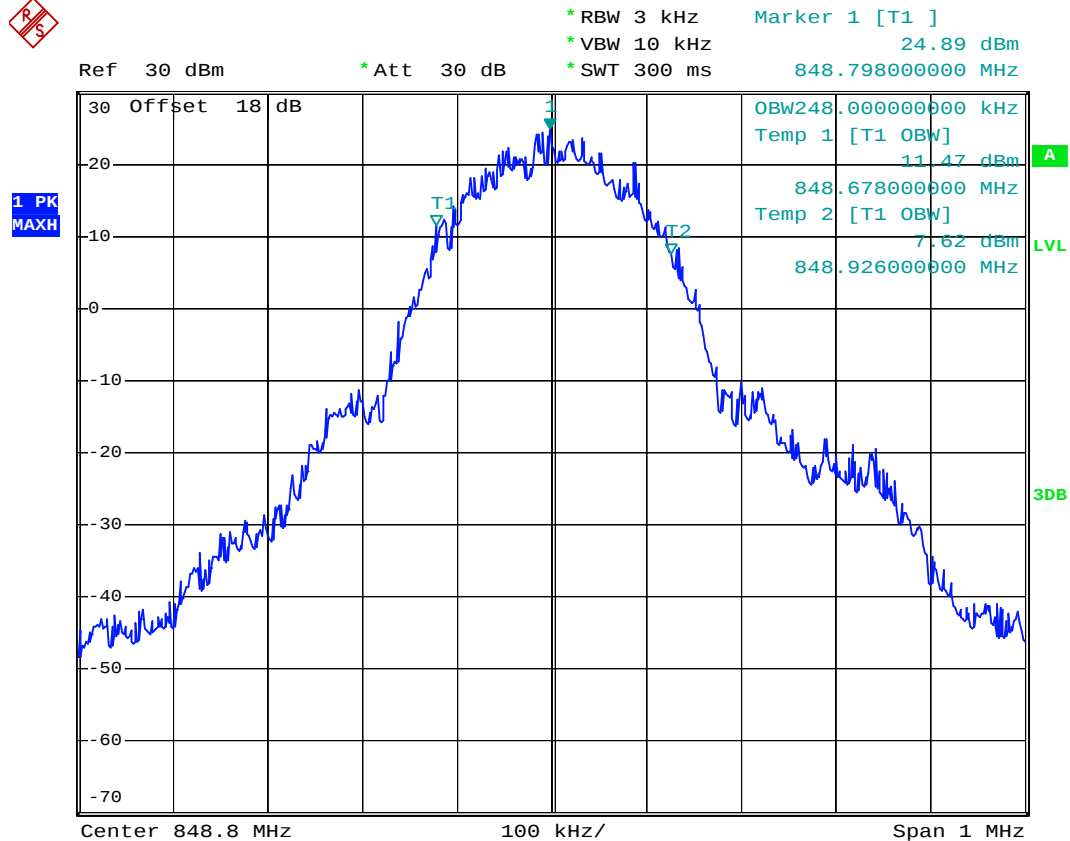
- Test Mode : GPRS850 CH189 99% Occupied Bandwidth
- Power State : High



Date: 9.MAR.2008 05:21:43



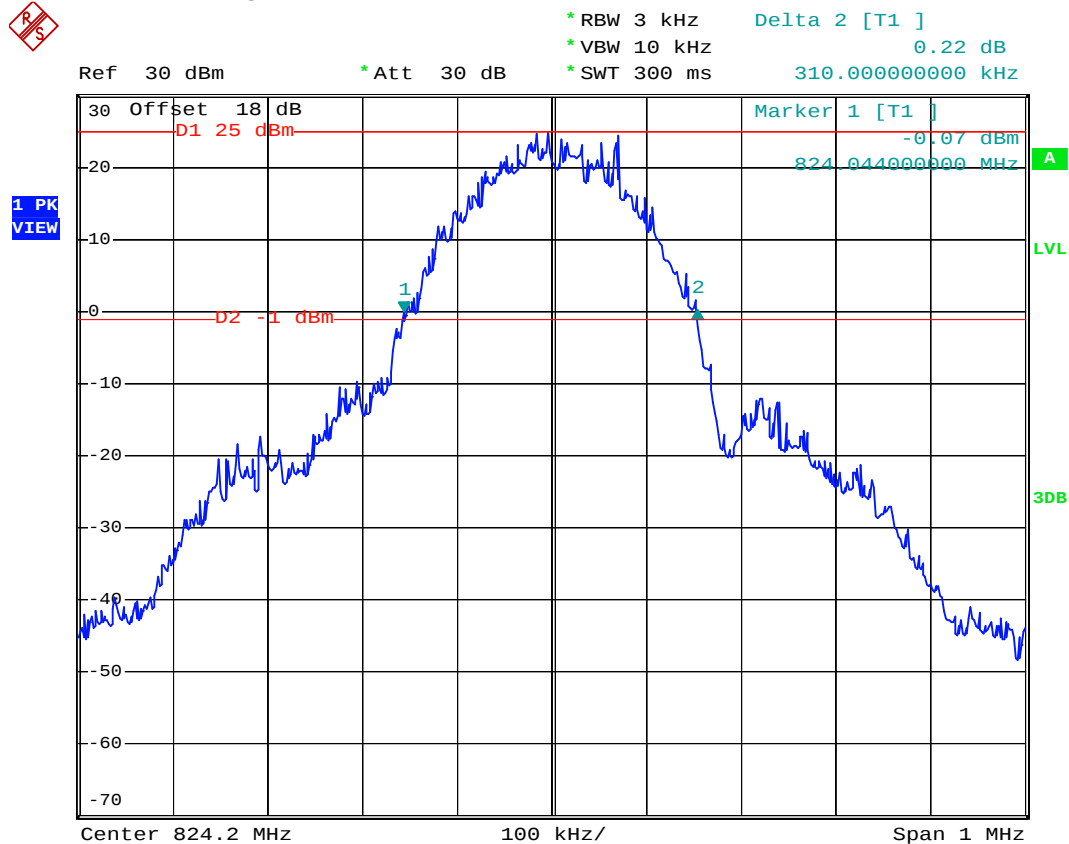
- Test Mode : GPRS850 CH 251 99% Occupied Bandwidth
- Power State : High



Date: 9.MAR.2008 05:20:15



- Test Mode : GPRS850 CH128 26dB Bandwidth
- Power State : High



Date: 9.MAR.2008 05:16:49



- 

Delta 2 [T1]

* Att 30 dB

1.45 dB

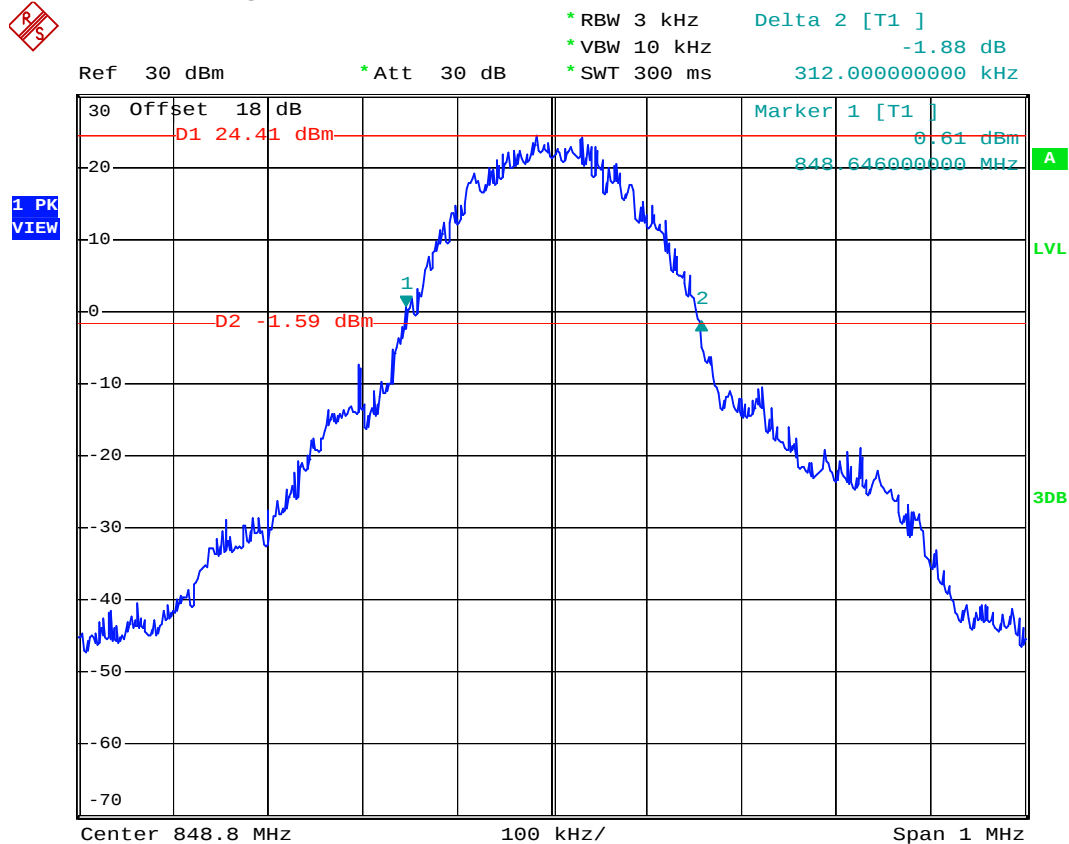
310.000000000 kHz



Date: 9.MAR.2008 05:17:53



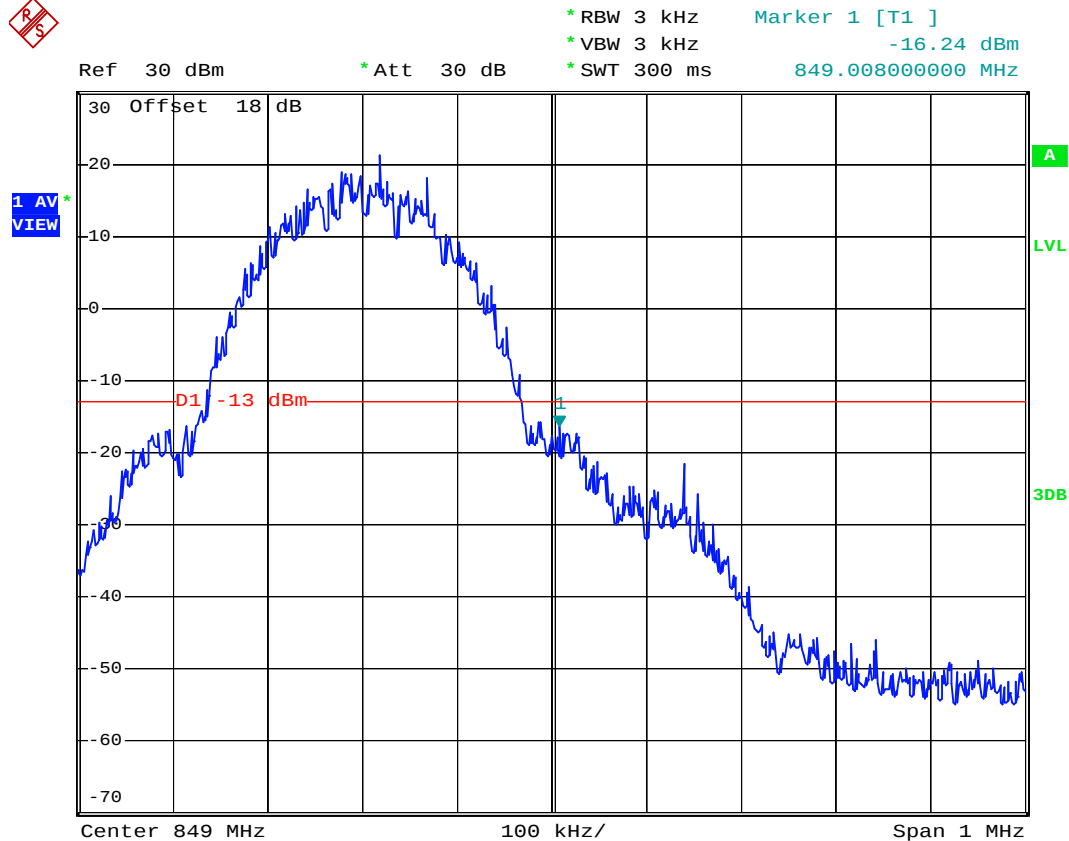
- Test Mode : GPRS850 CH 251 26dB Bandwidth
- Power State : High



Date: 9.MAR.2008 05:19:38



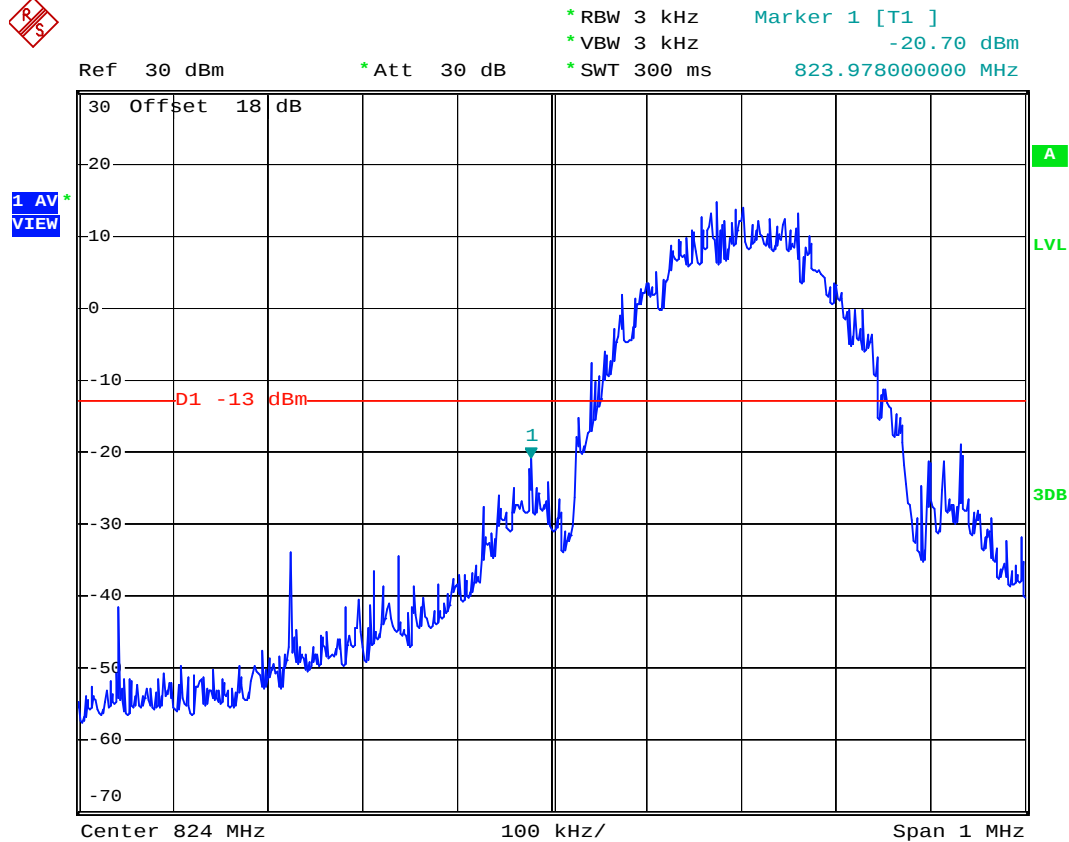
- Test Mode : GPRS850 CH251 Higher Band Edge
- Power State : High



Date: 9.MAR.2008 05:28:01



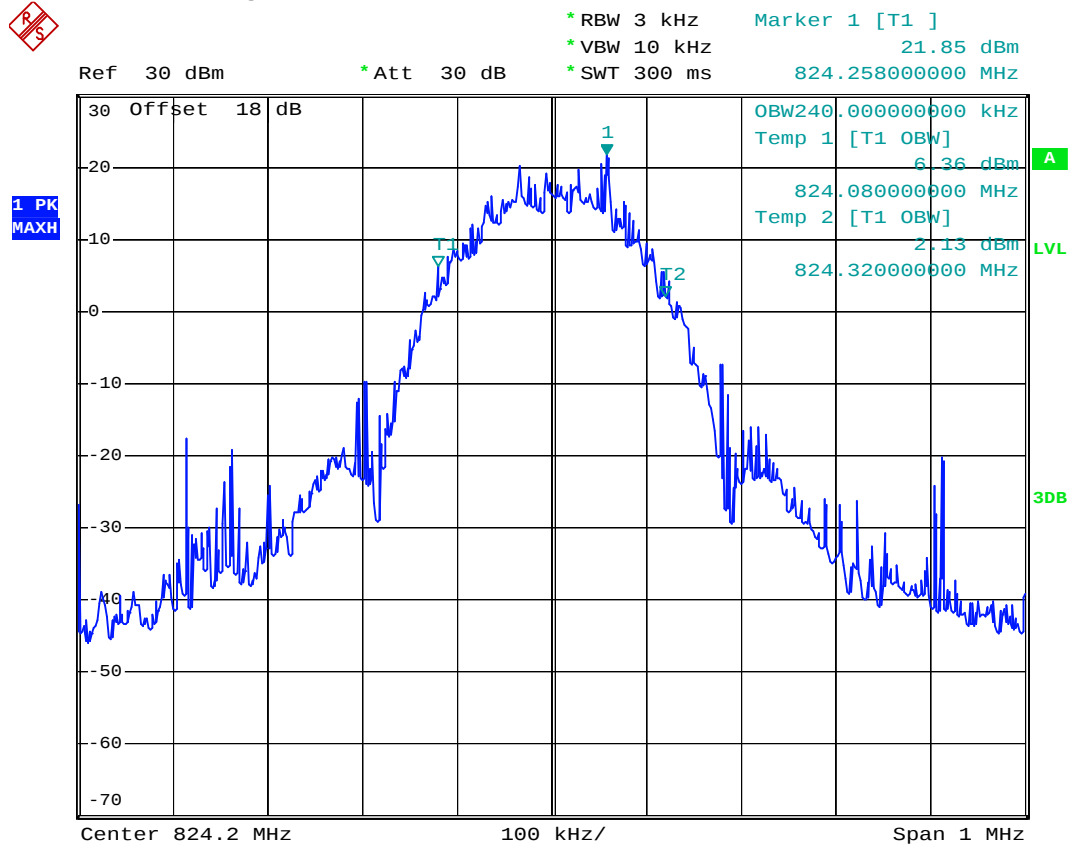
- Mode 2
- Test Mode : EDGE850 CH128 Lower Band Edge
- Power State : High



Date: 9.MAR.2008 06:39:24



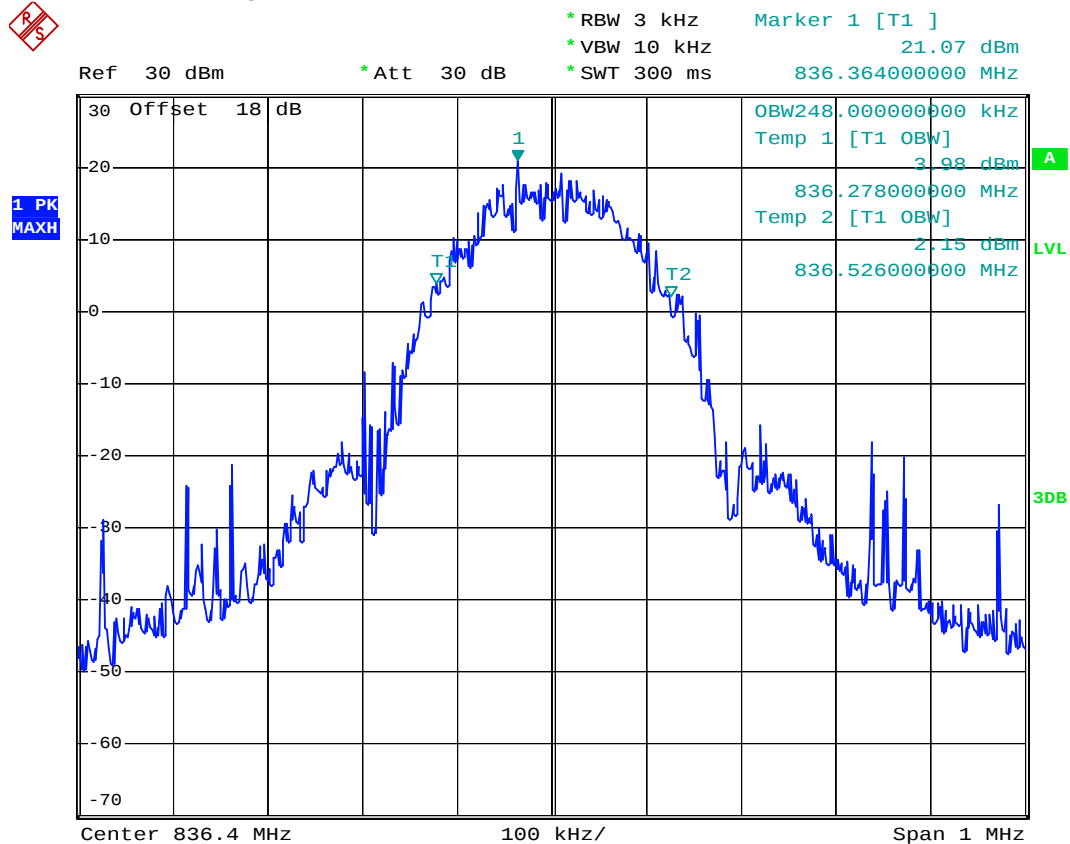
- Test Mode : EDGE850 CH128 99% Occupied Bandwidth
- Power State : High



Date: 9.MAR.2008 06:36:32



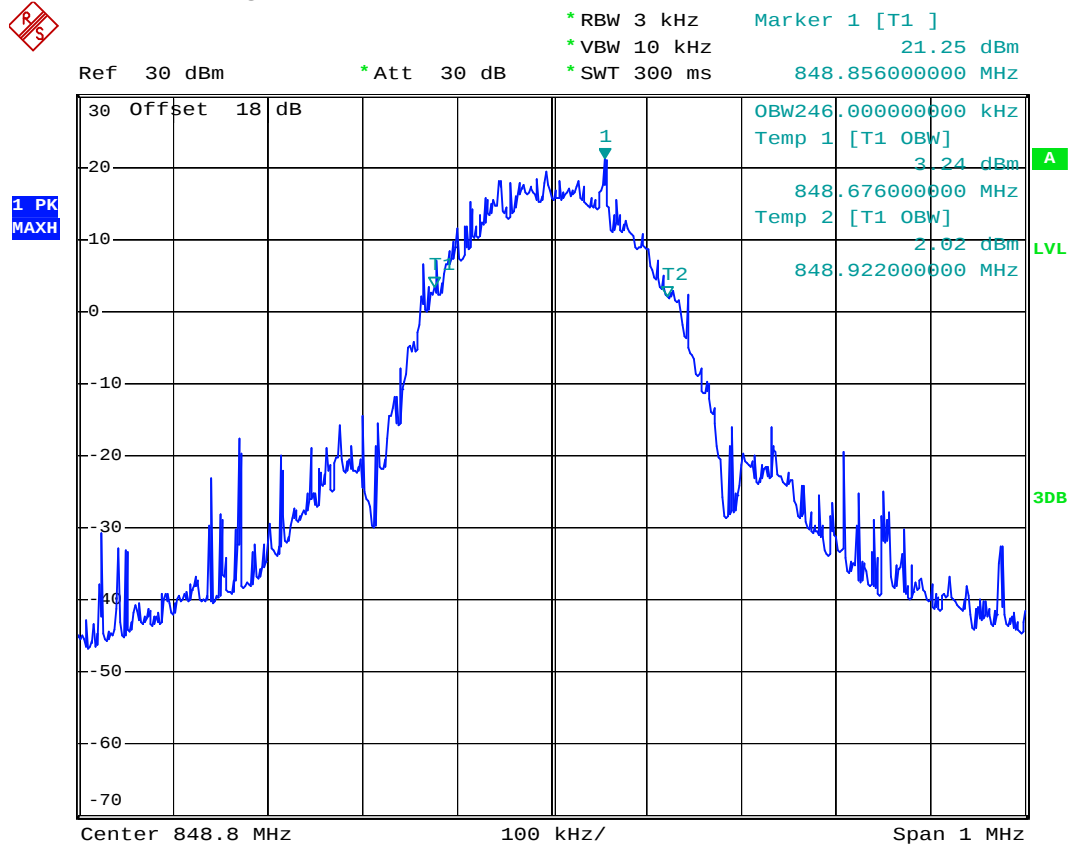
- Test Mode : EDGE850 CH189 99% Occupied Bandwidth
- Power State : High



Date: 9.MAR.2008 06:37:03



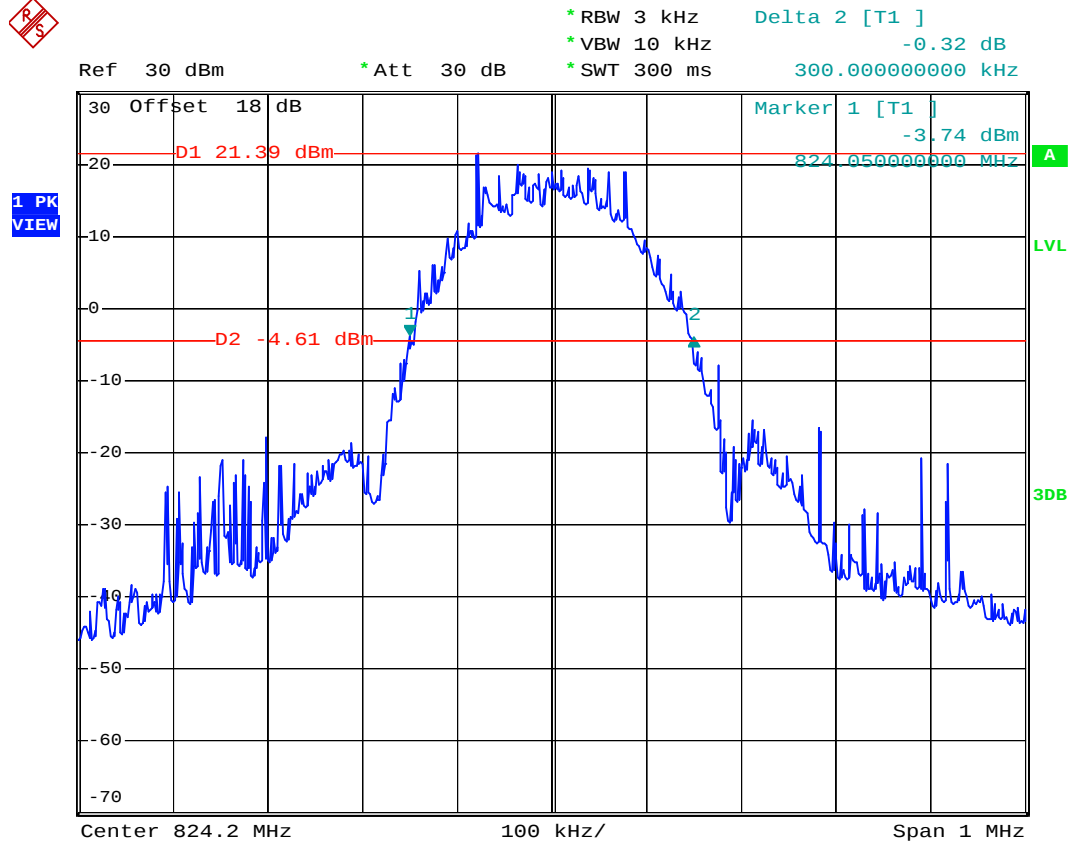
- Test Mode : EDGE850 CH 251 99% Occupied Bandwidth
- Power State : High



Date: 9.MAR.2008 06:35:58



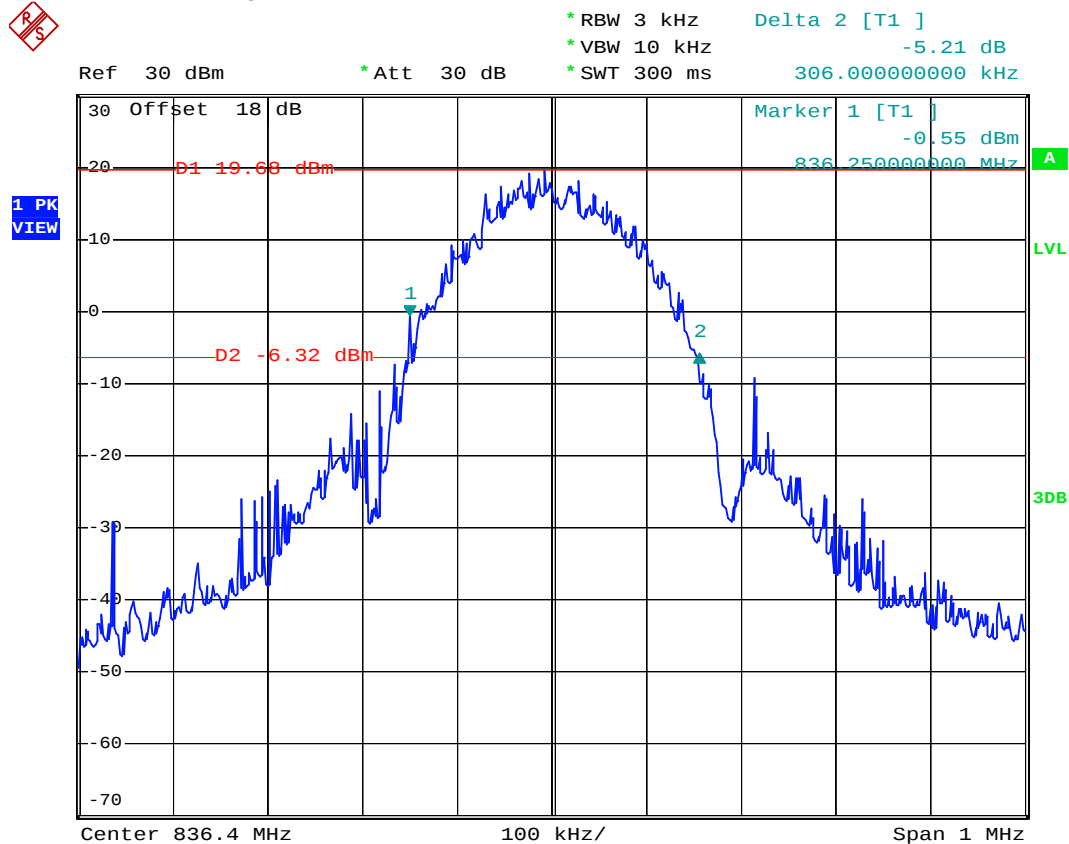
- Test Mode : EDGE850 CH128 26dB Bandwidth
- Power State : High



Date: 9.MAR.2008 06:33:02



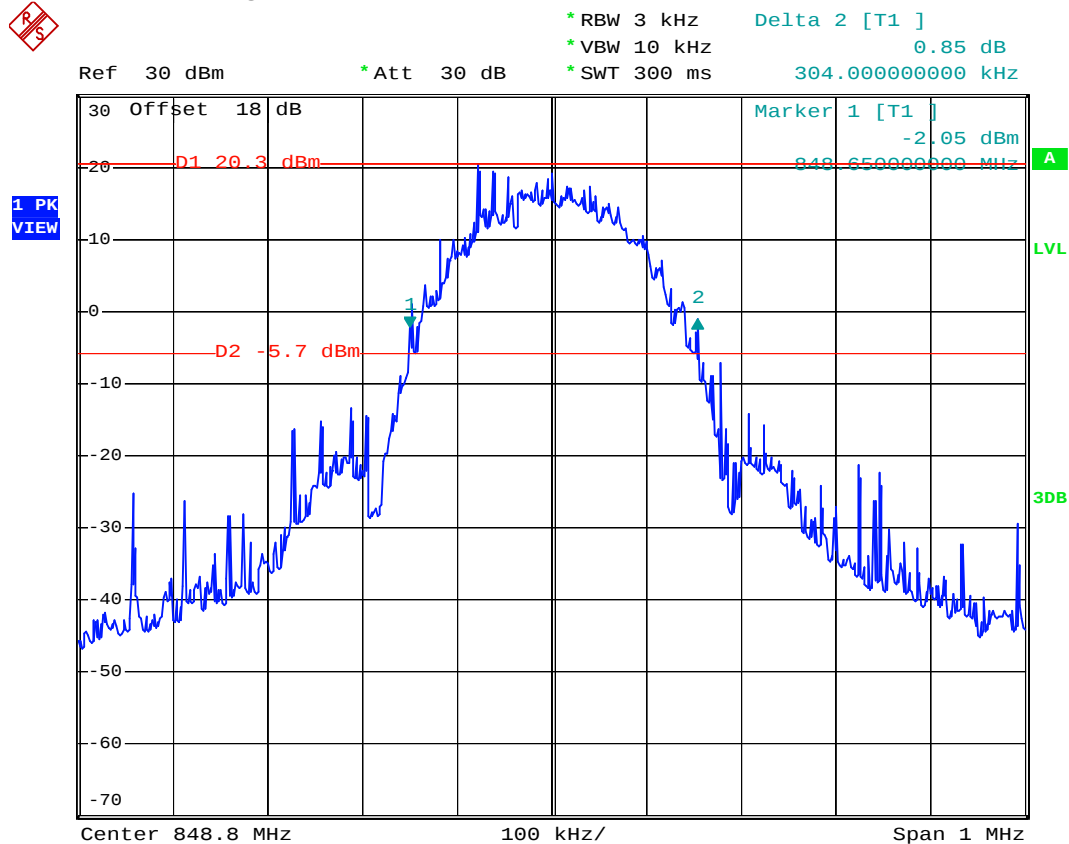
- Test Mode : EDGE850 CH189 26dB Bandwidth
- Power State : High



Date: 9.MAR.2008 06:31:46



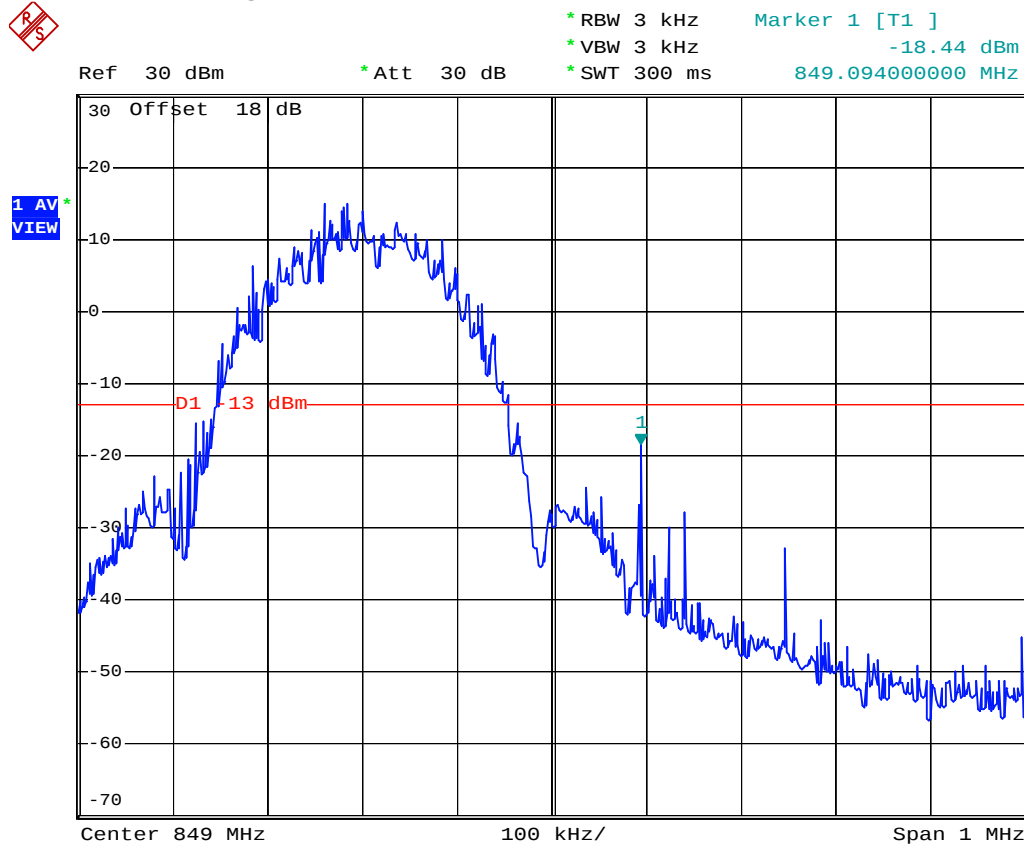
- Test Mode : EDGE850 CH 251 26dB Bandwidth
- Power State : High



Date: 9.MAR.2008 06:34:02



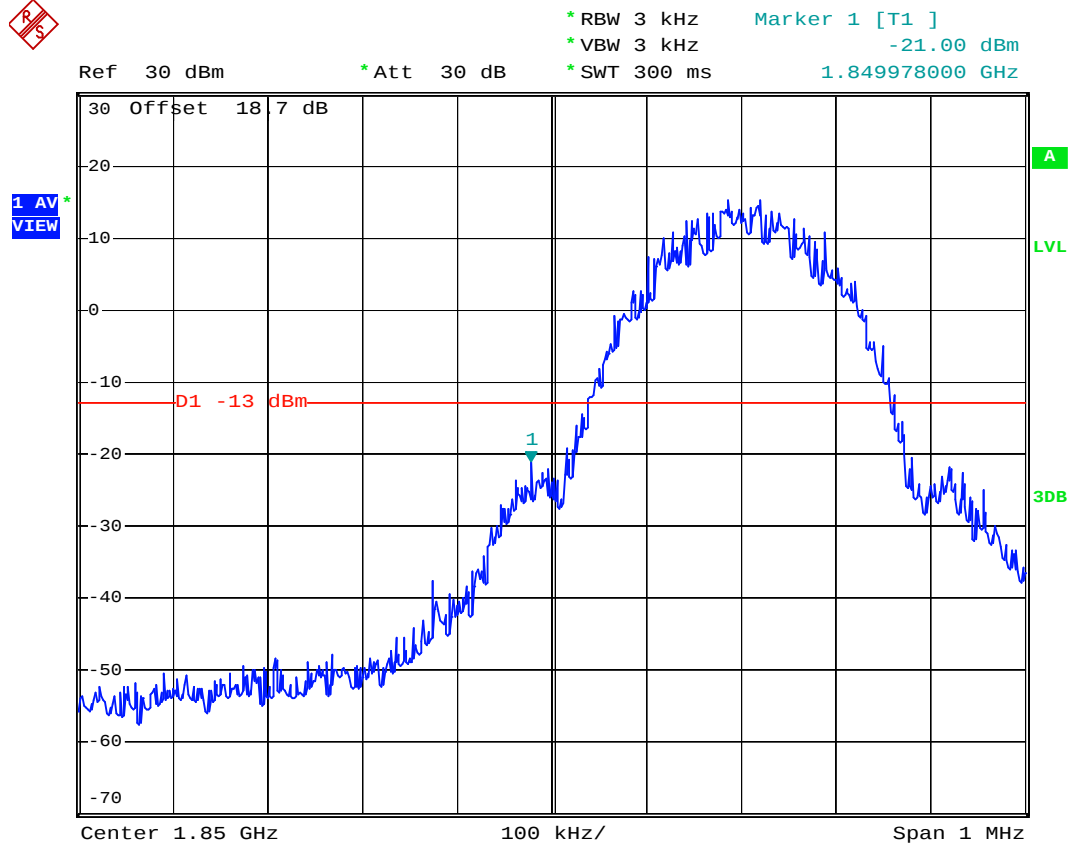
- Test Mode : EDGE850 CH251 Higher Band Edge
- Power State : High



Date: 9.MAR.2008 06:42:30



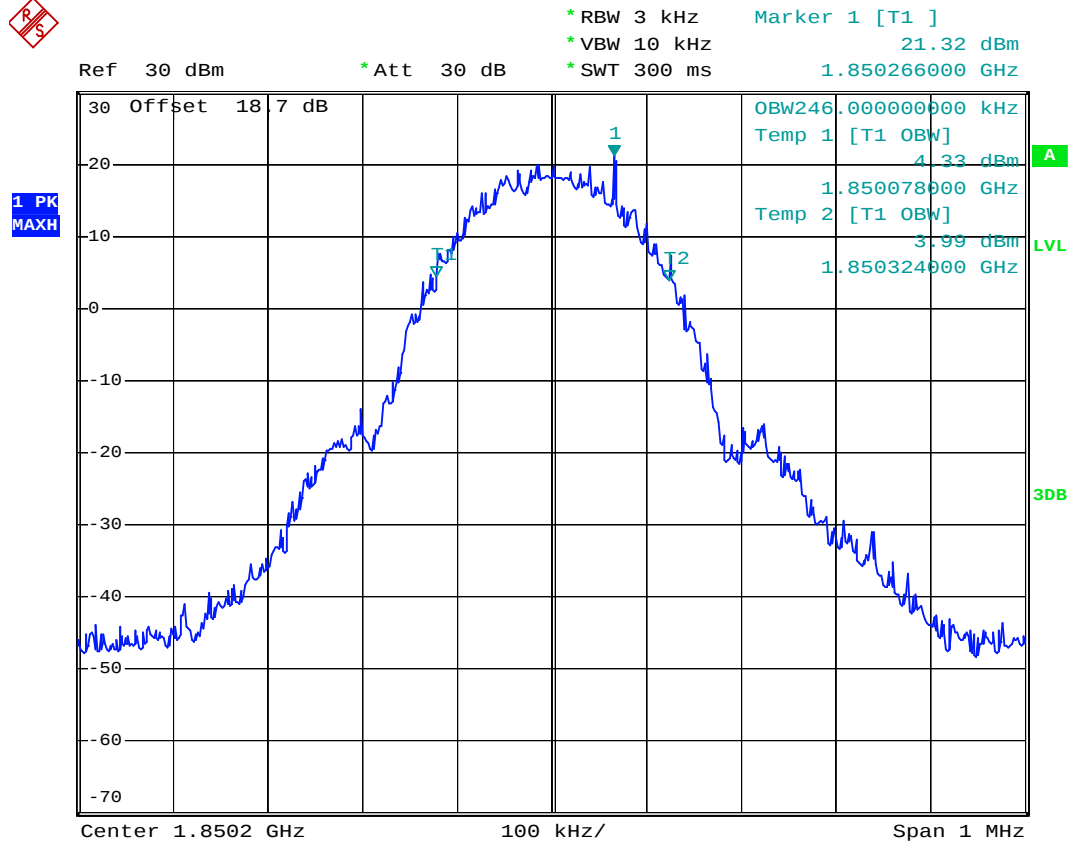
- Mode 3
- Test Mode : GPRS1900 CH512 Lower Band Edge
- Power State : High



Date: 9.MAR.2008 07:31:27



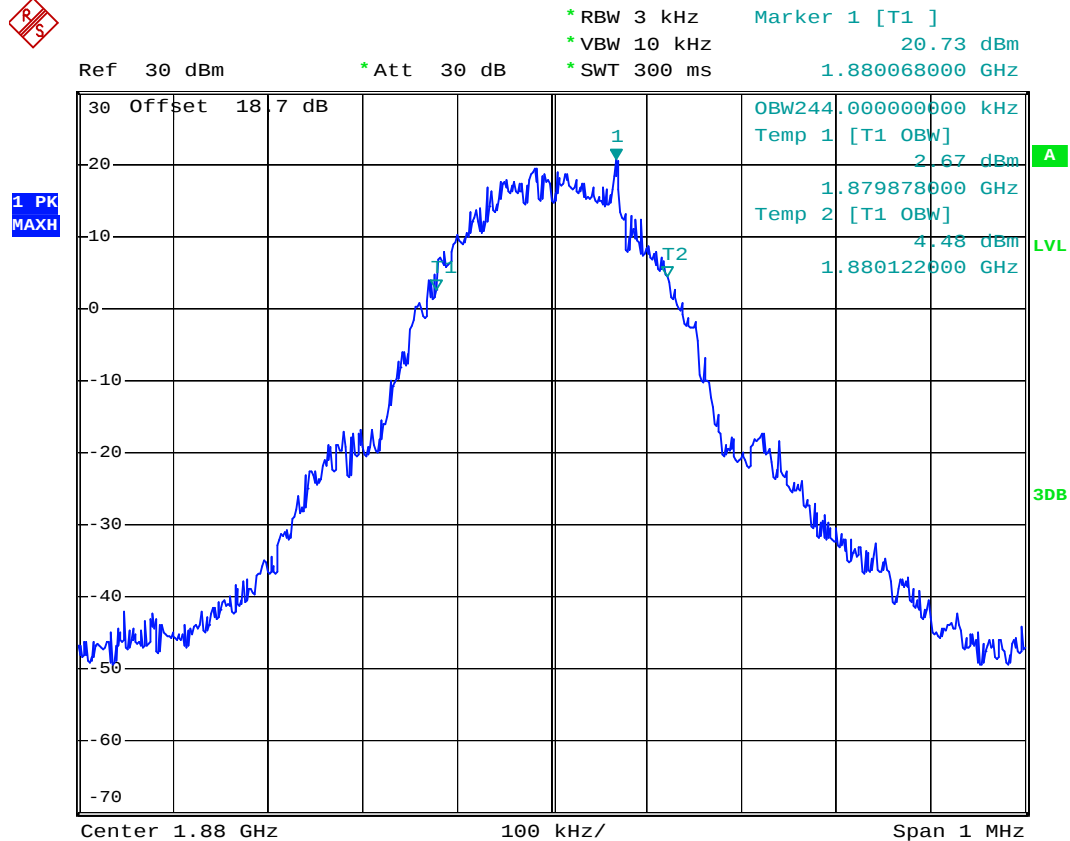
- Test Mode : GPRS1900 CH512 99% Occupied Bandwidth
- Power State : High



Date: 9.MAR.2008 07:27:59



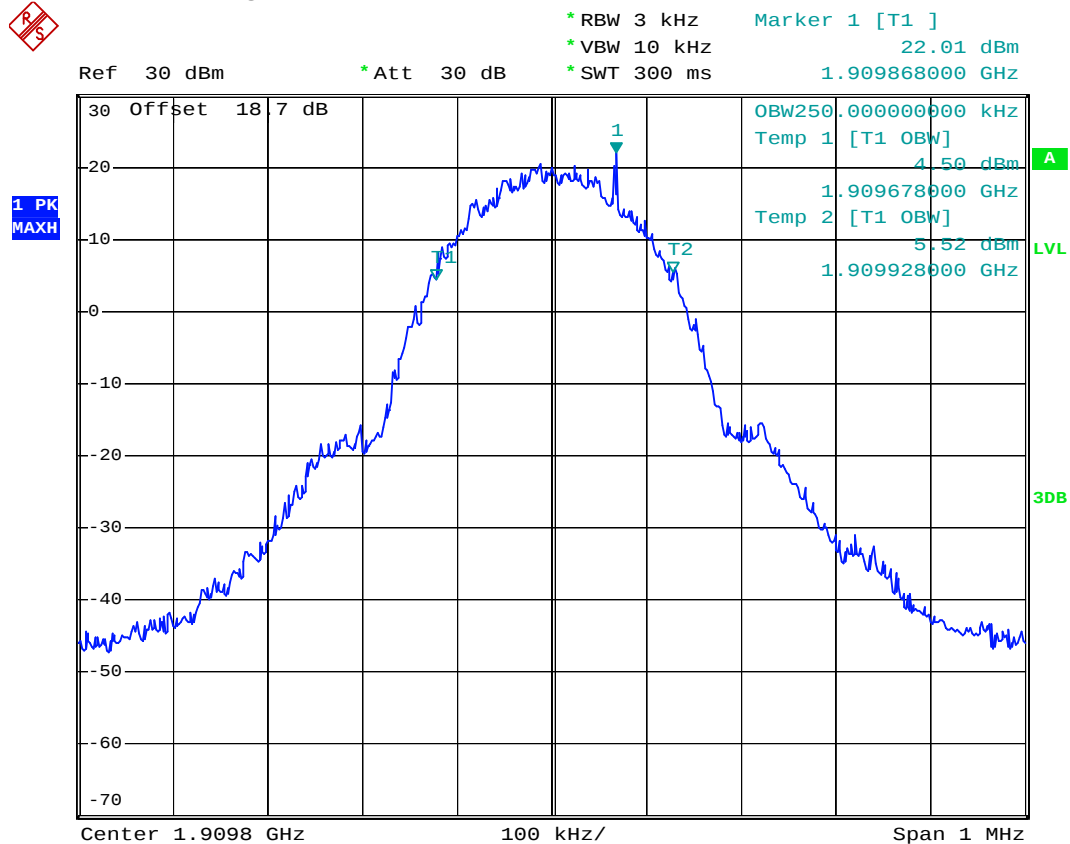
- Test Mode : GPRS1900 CH661 99% Occupied Bandwidth
- Power State : High



Date: 9.MAR.2008 07:28:33



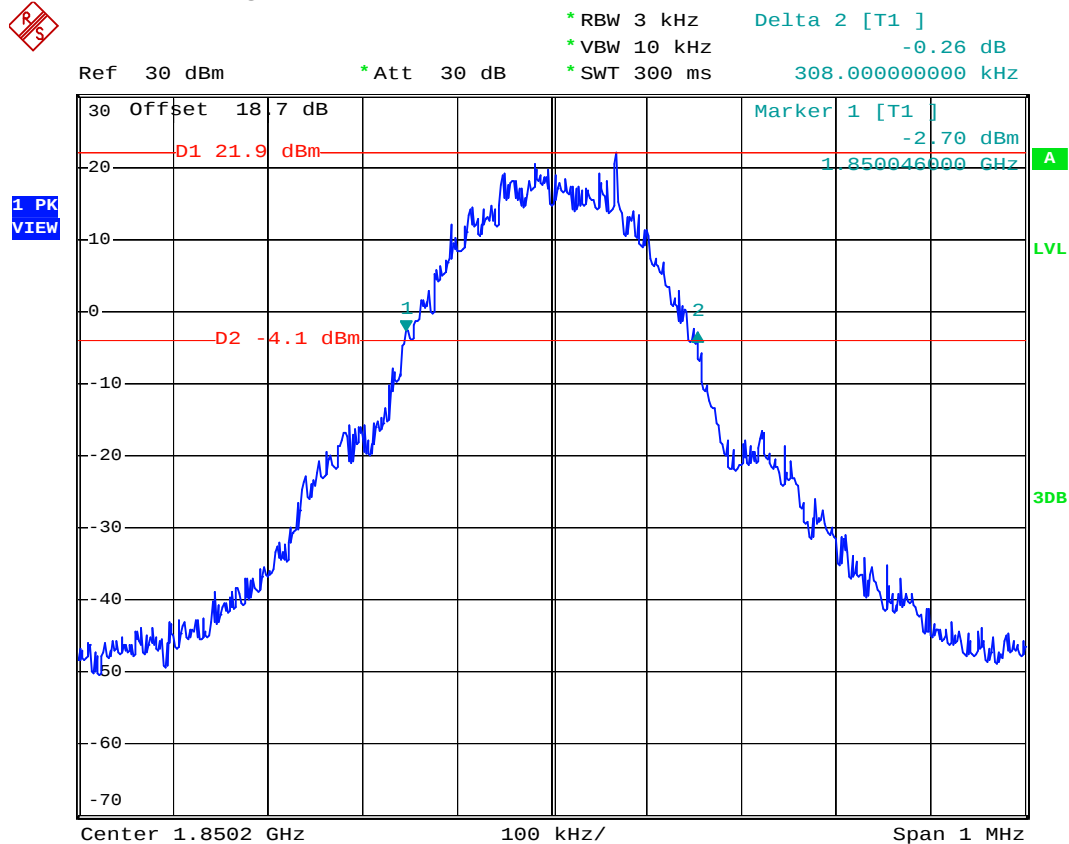
- Test Mode : GPRS1900 CH810 99% Occupied Bandwidth
- Power State : High



Date: 9.MAR.2008 07:27:05



- Test Mode : GPRS1900 CH512 26dB Bandwidth
- Power State : High

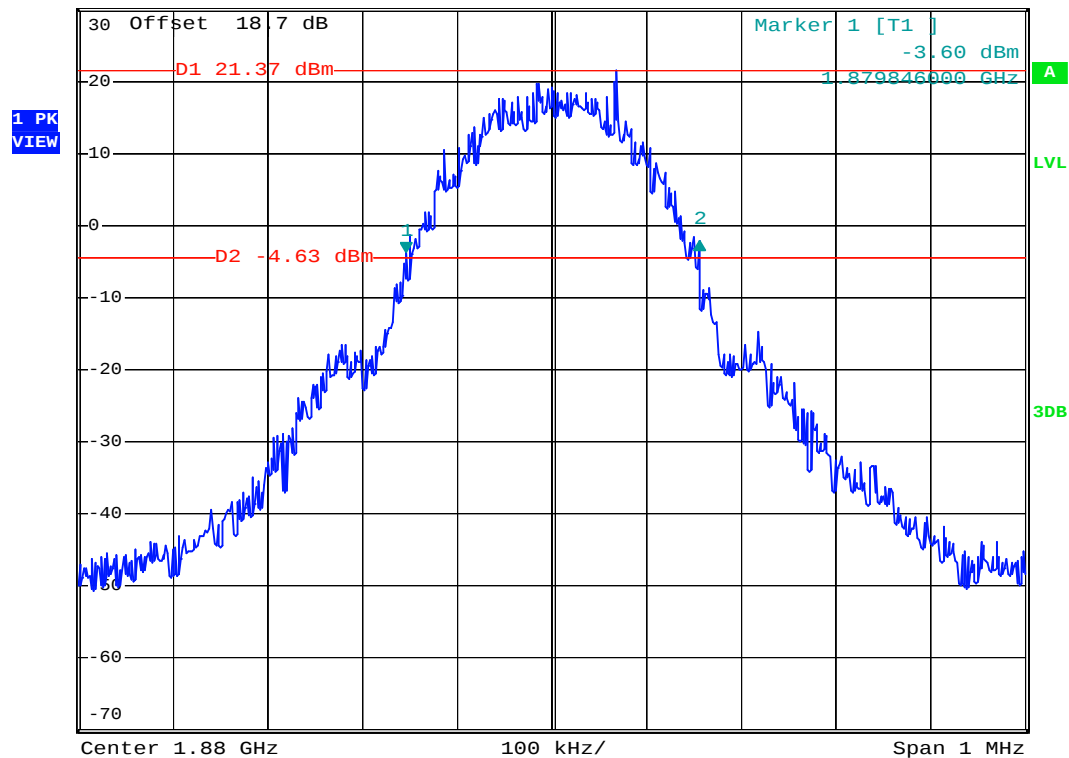


Date: 9.MAR.2008 07:20:05

- Test Mode : GPRS1900 CH661 26dB Bandwidth
- Power State : High



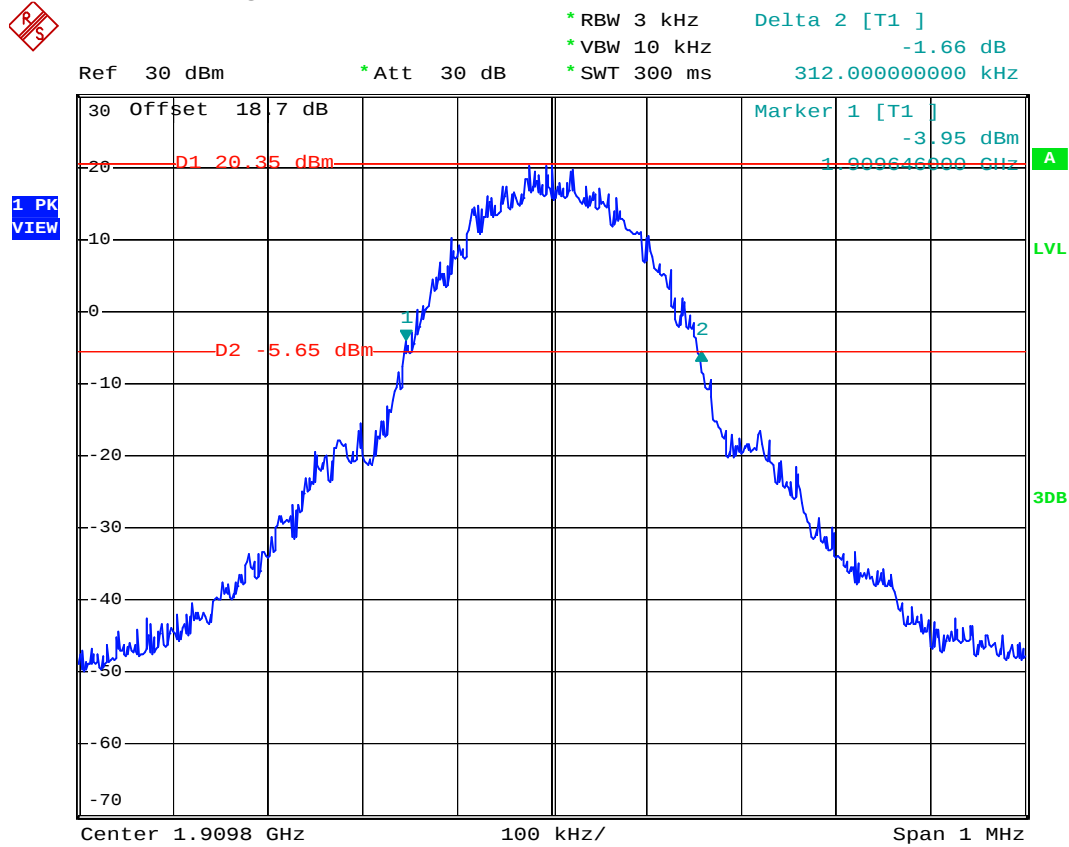
Ref	30 dBm	* Att	30 dB	* RBW	3 kHz	Delta 2 [T1]	
				* VBW	10 kHz		1.47 dB
				* SWT	300 ms		310.000000000 kHz



Date: 9.MAR.2008 07:21:07



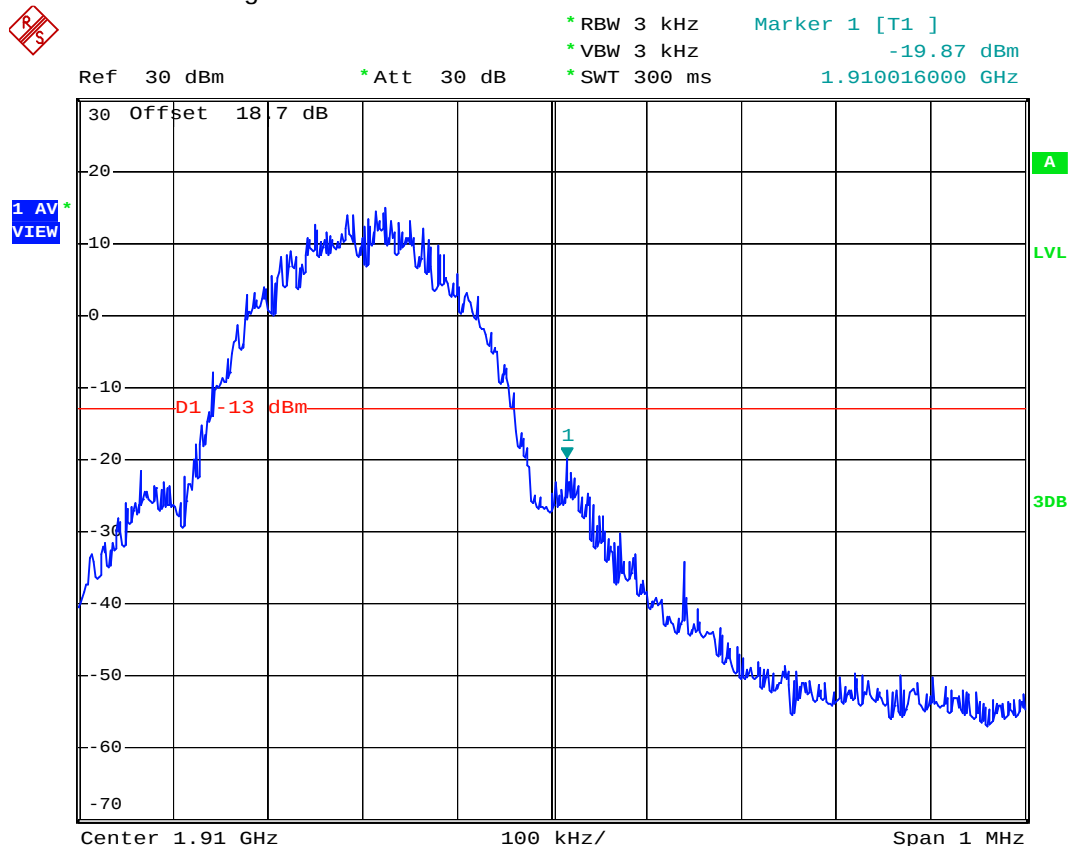
- Test Mode : GPRS1900 CH810 26dB Bandwidth
- Power State : High



Date: 9.MAR.2008 07:24:43



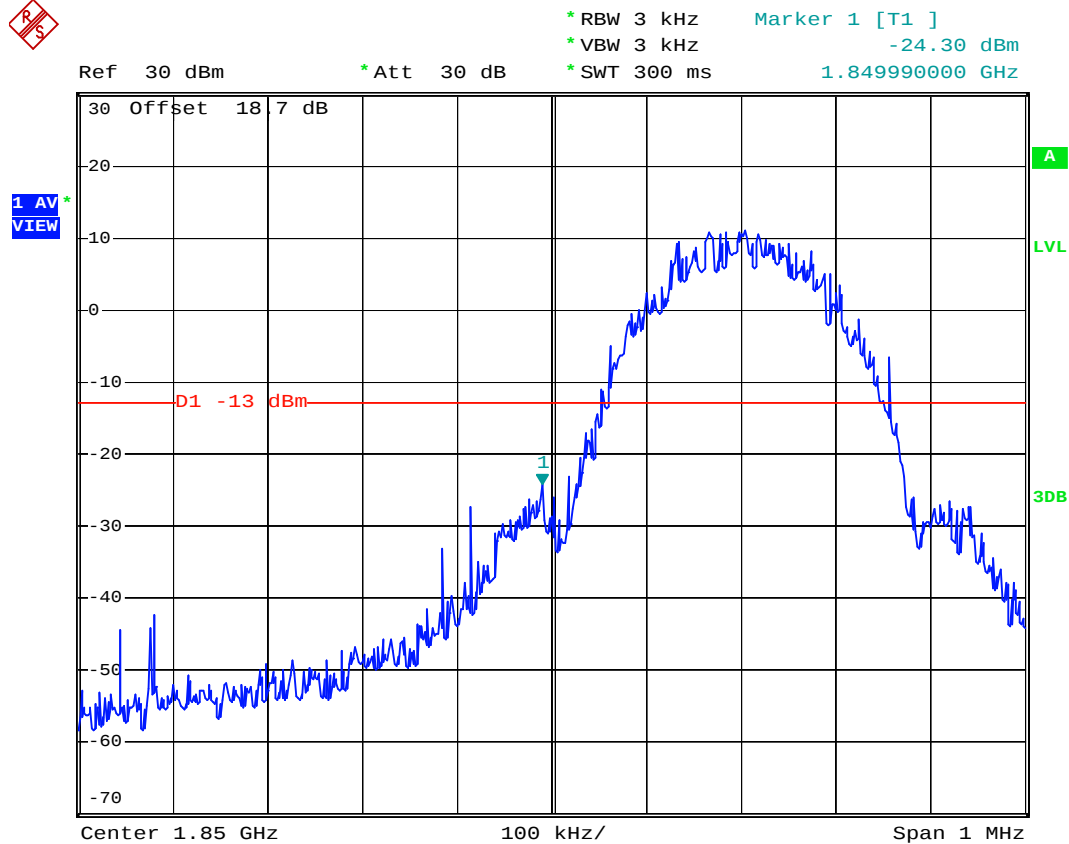
- Test Mode : GPRS1900 CH810 Higher Band Edge
- Power State : High



Date: 9.MAR.2008 07:32:35



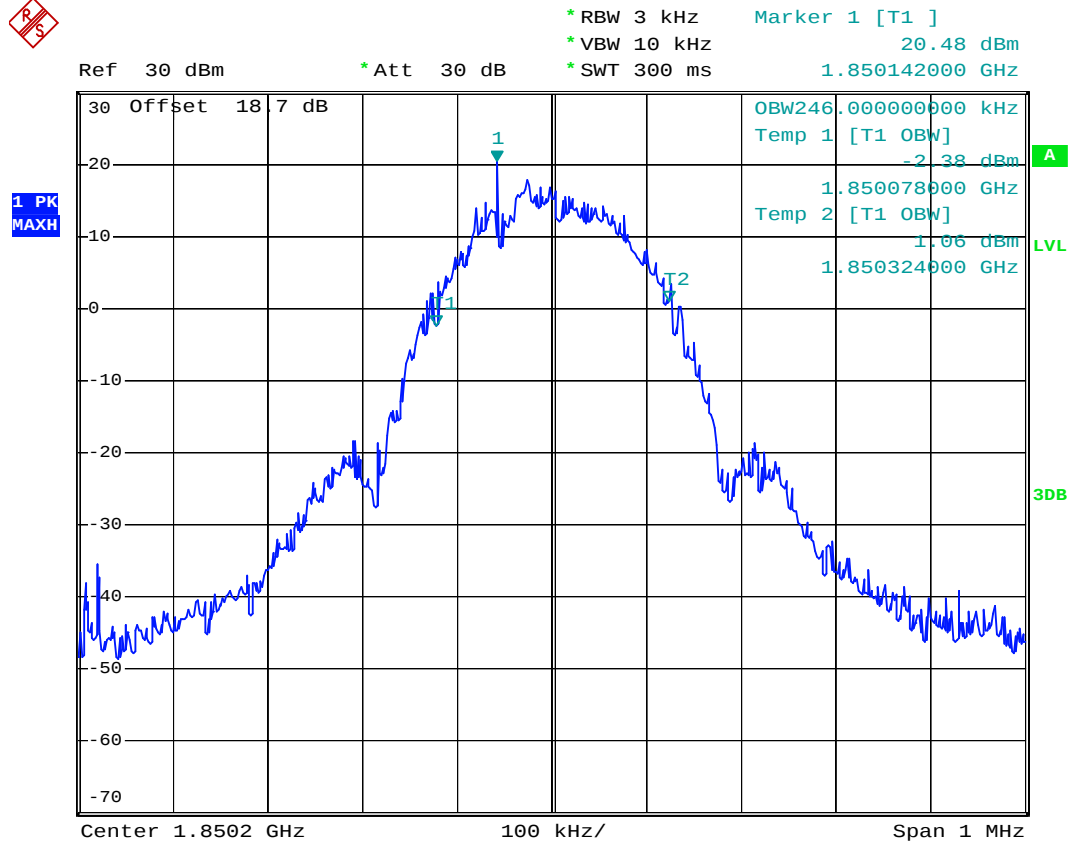
- Mode 4
- Test Mode : EDGE1900 CH512 Lower Band Edge
- Power State : High



Date: 9.MAR.2008 07:54:59



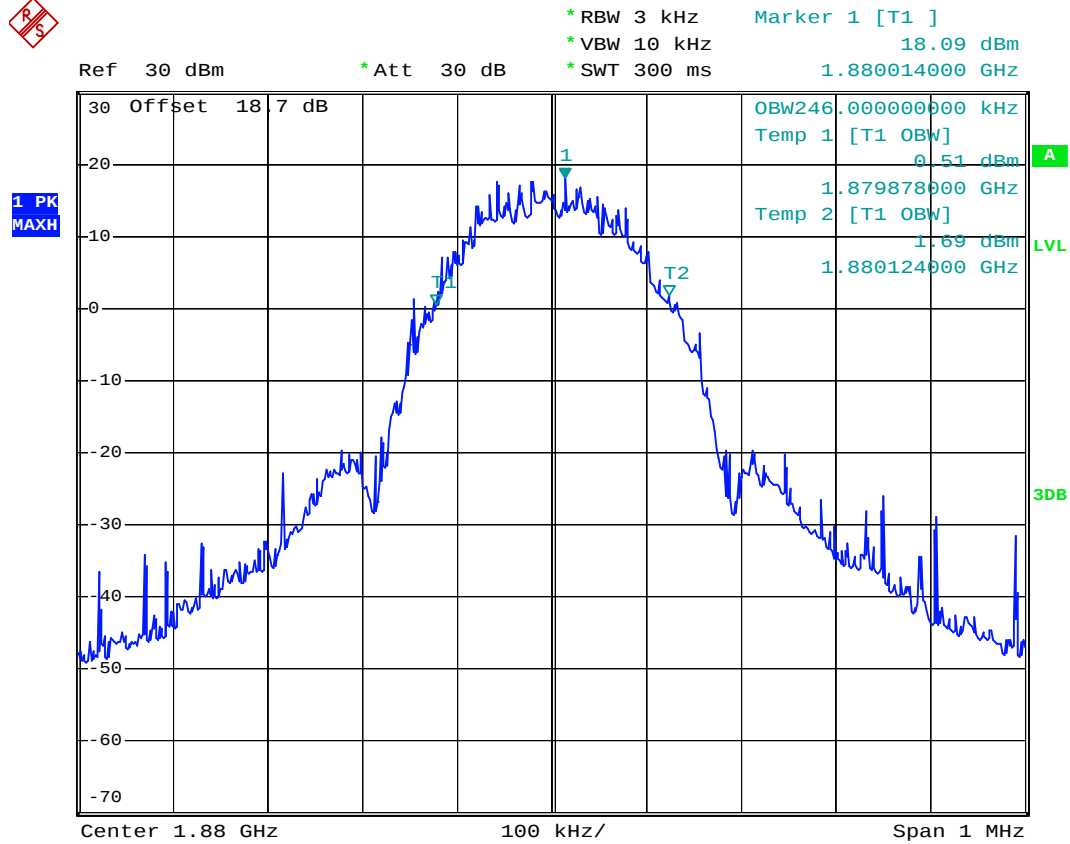
- Test Mode : EDGE1900 CH512 99% Occupied Bandwidth
- Power State : High



Date: 9.MAR.2008 07:51:28



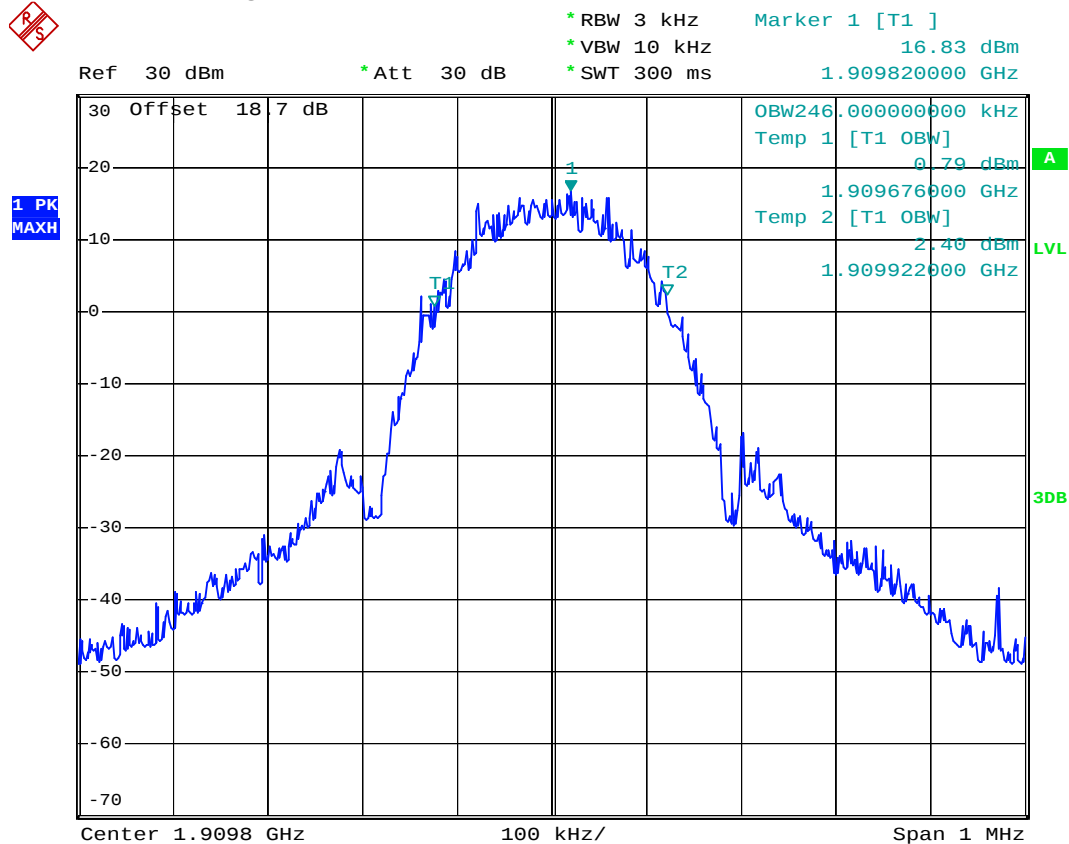
- Test Mode : EDGE1900 CH661 99% Occupied Bandwidth
- Power State : High



Date: 9.MAR.2008 07:52:32



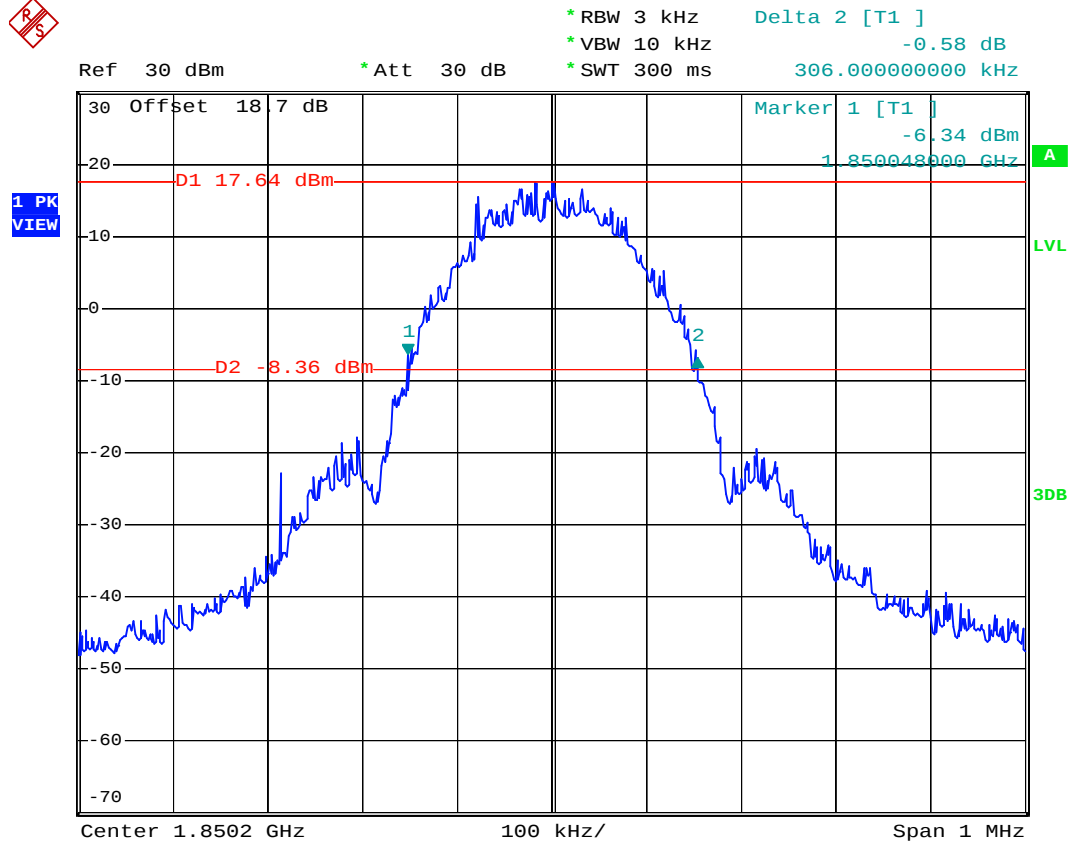
- Test Mode : EDGE1900 CH810 99% Occupied Bandwidth
- Power State : High



Date: 9.MAR.2008 07:49:41



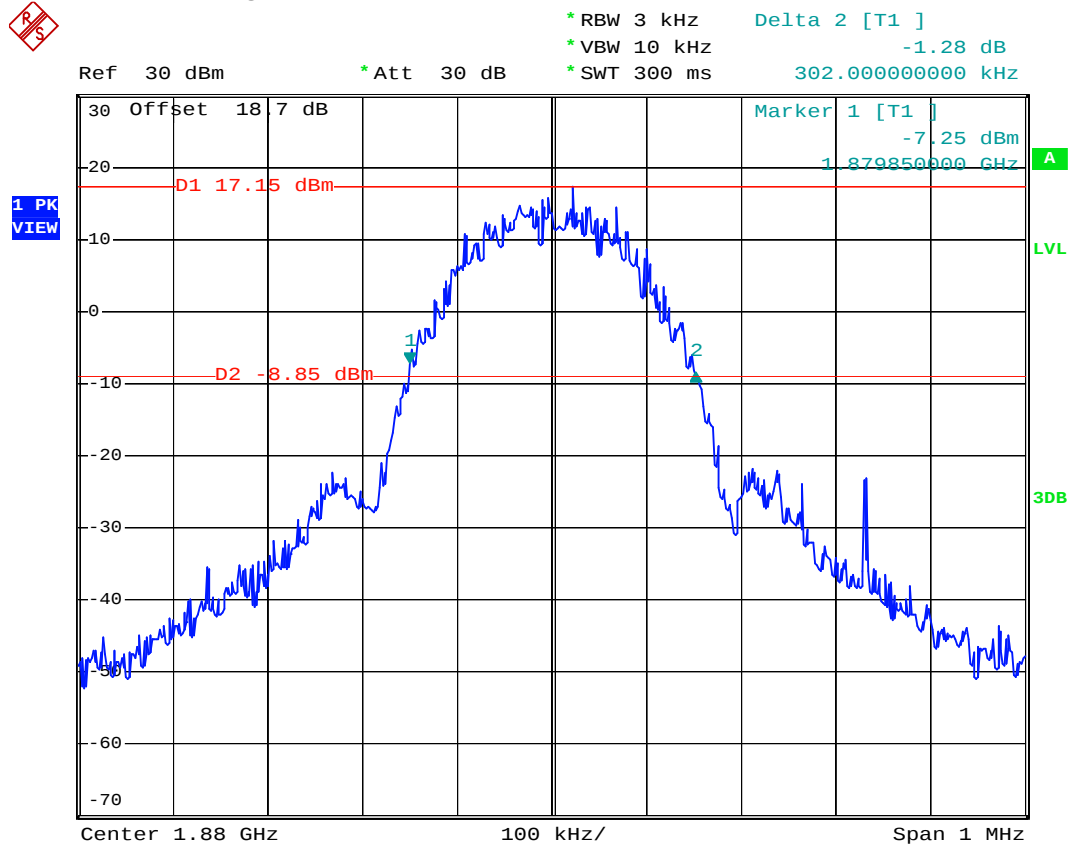
- Test Mode : EDGE1900 CH512 26dB Bandwidth
- Power State : High



Date: 9.MAR.2008 07:46:18



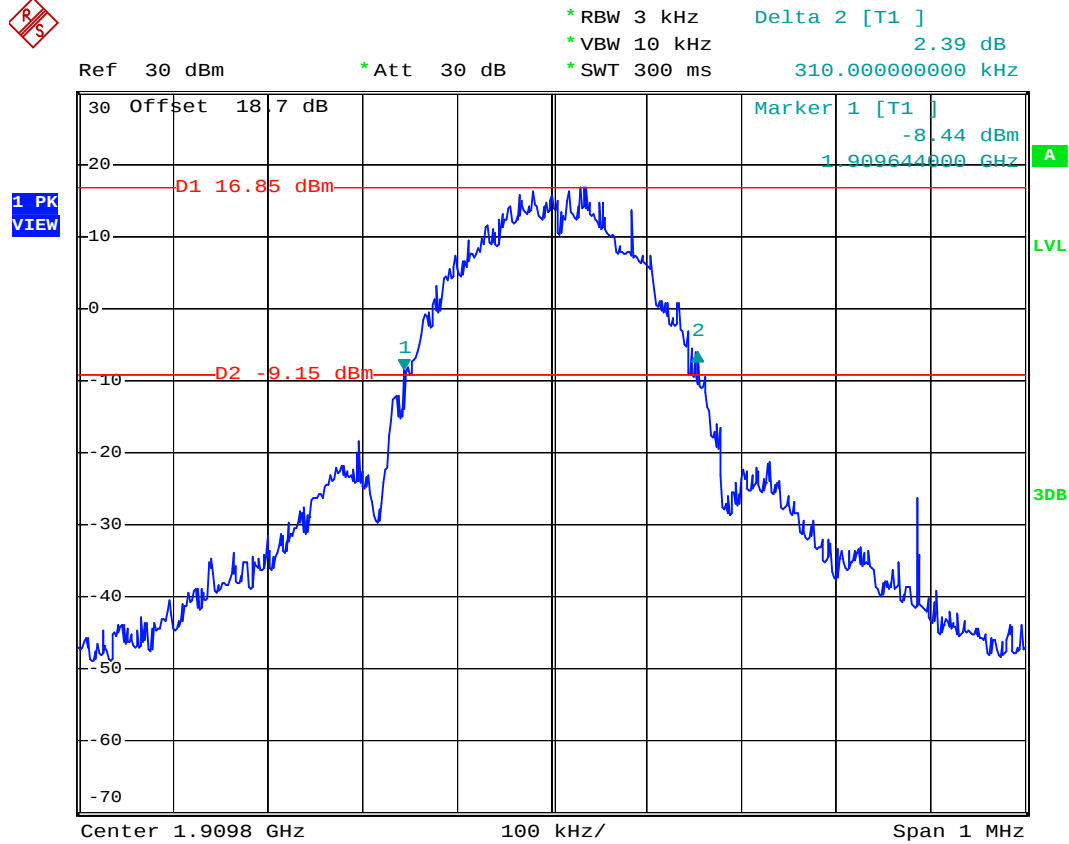
- Test Mode : EDGE1900 CH661 26dB Bandwidth
- Power State : High



Date: 9.MAR.2008 07:47:21



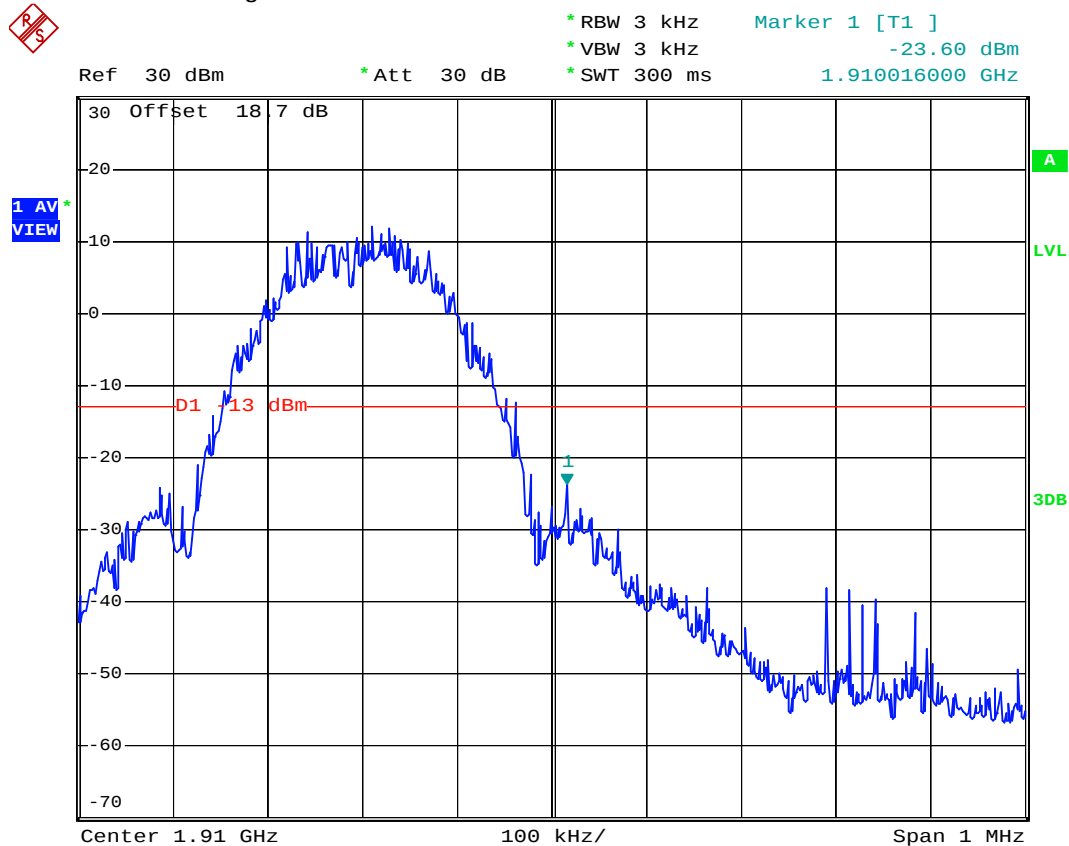
- Test Mode : EDGE1900 CH810 26dB Bandwidth
- Power State : High



Date: 9.MAR.2008 07:48:44



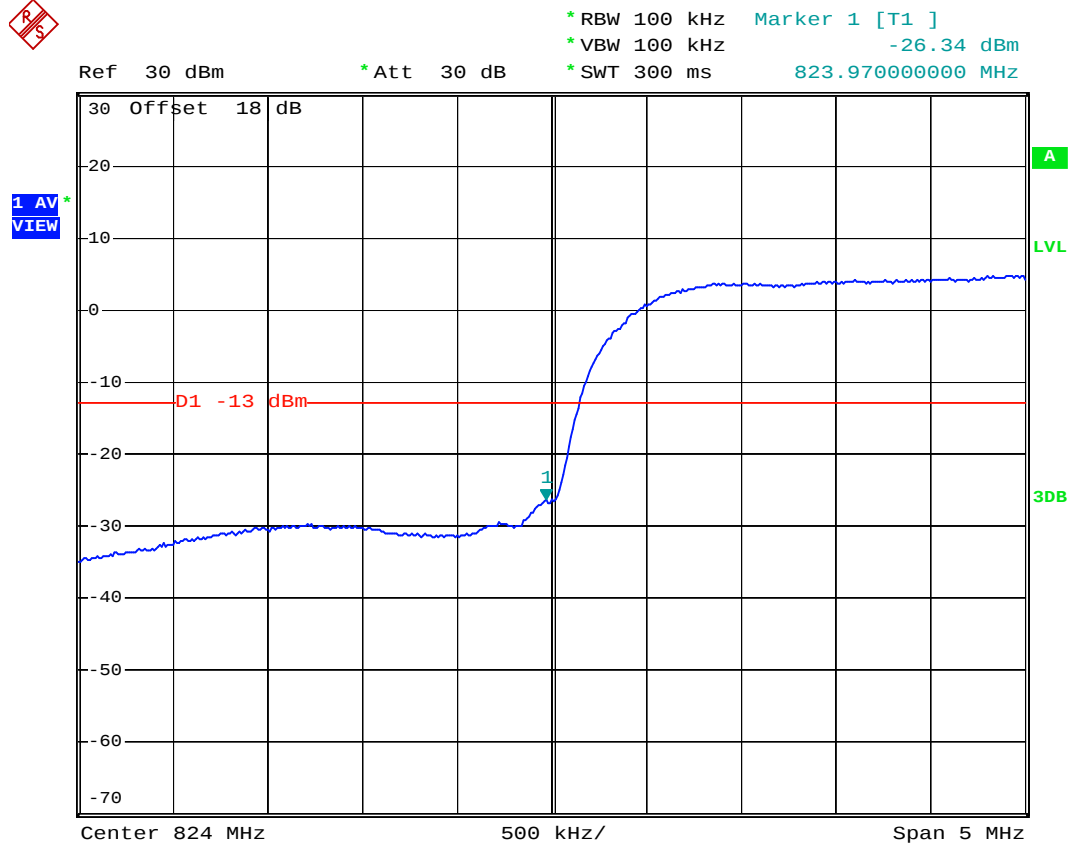
- Test Mode : EDGE1900 CH810 Higher Band Edge
- Power State : High



Date: 9.MAR.2008 07:57:21



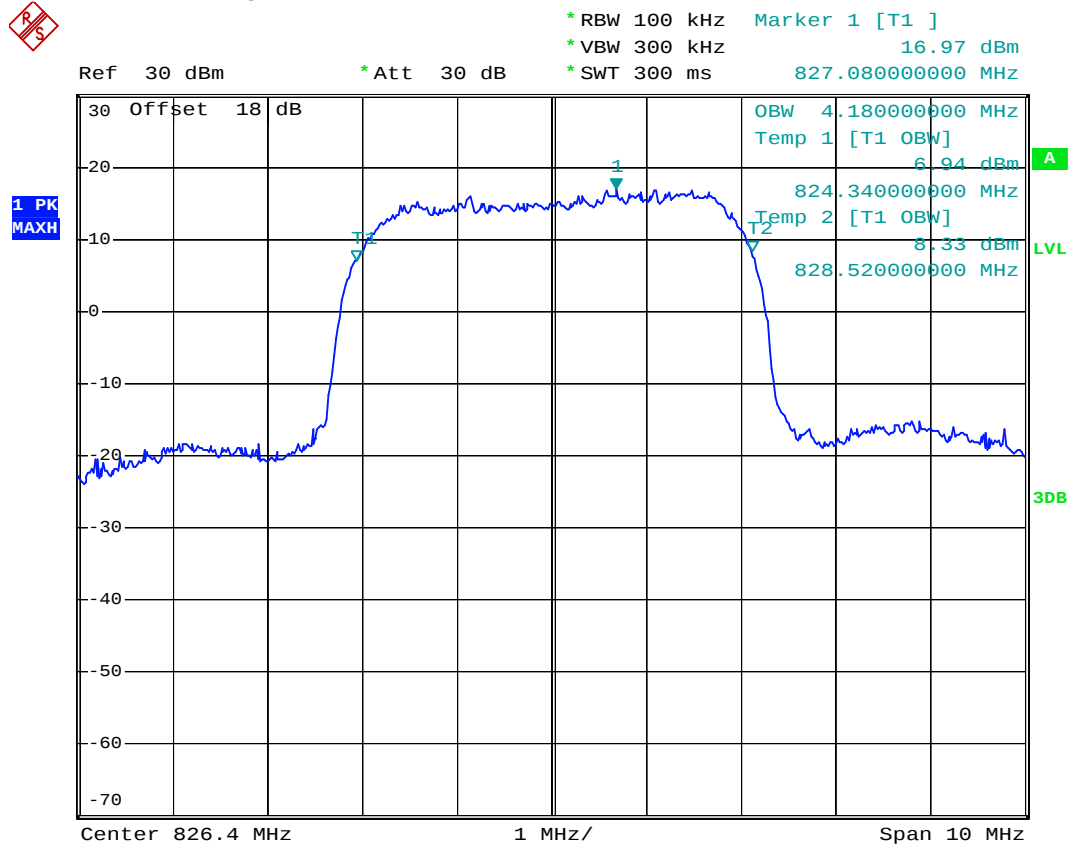
- Mode 5
- Test Mode : WCDMA Band V CH4132 Lower Band Edge
- Power State : High



Date: 9.MAR.2008 09:06:51



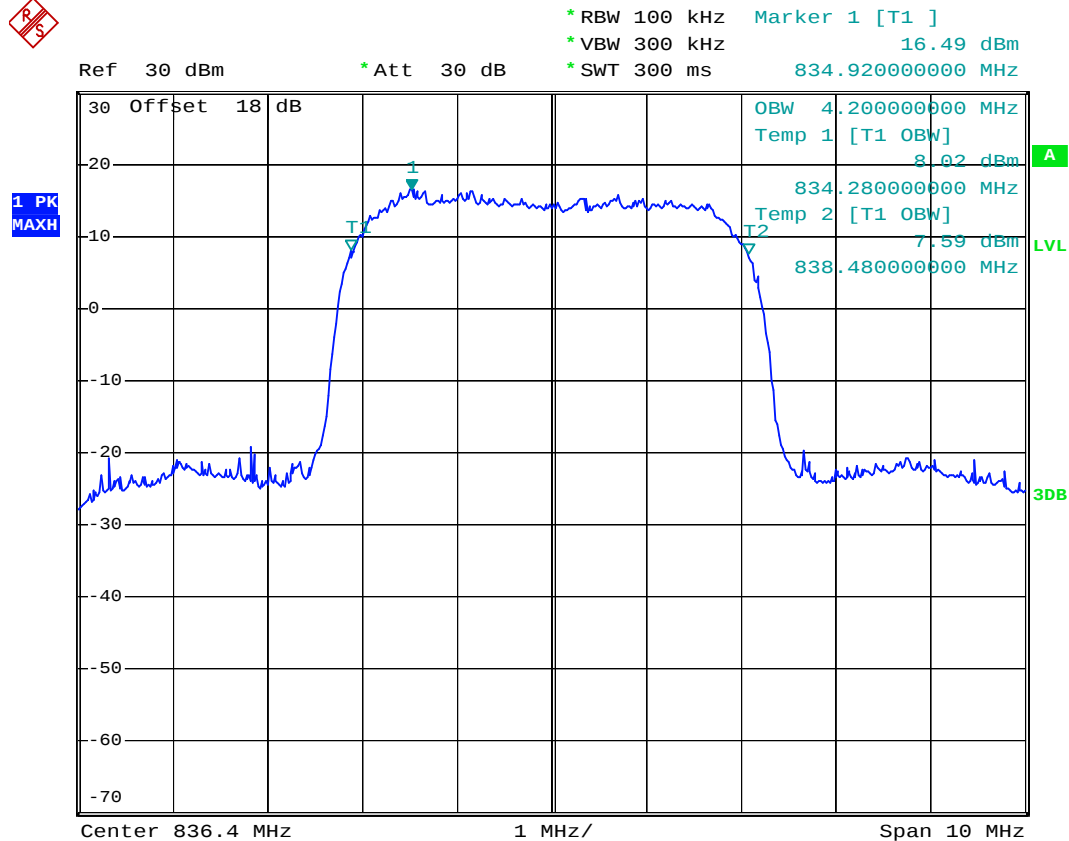
- Test Mode : WCDMA Band V CH4132 99% Occupied Bandwidth
- Power State : High



Date: 9.MAR.2008 08:58:16



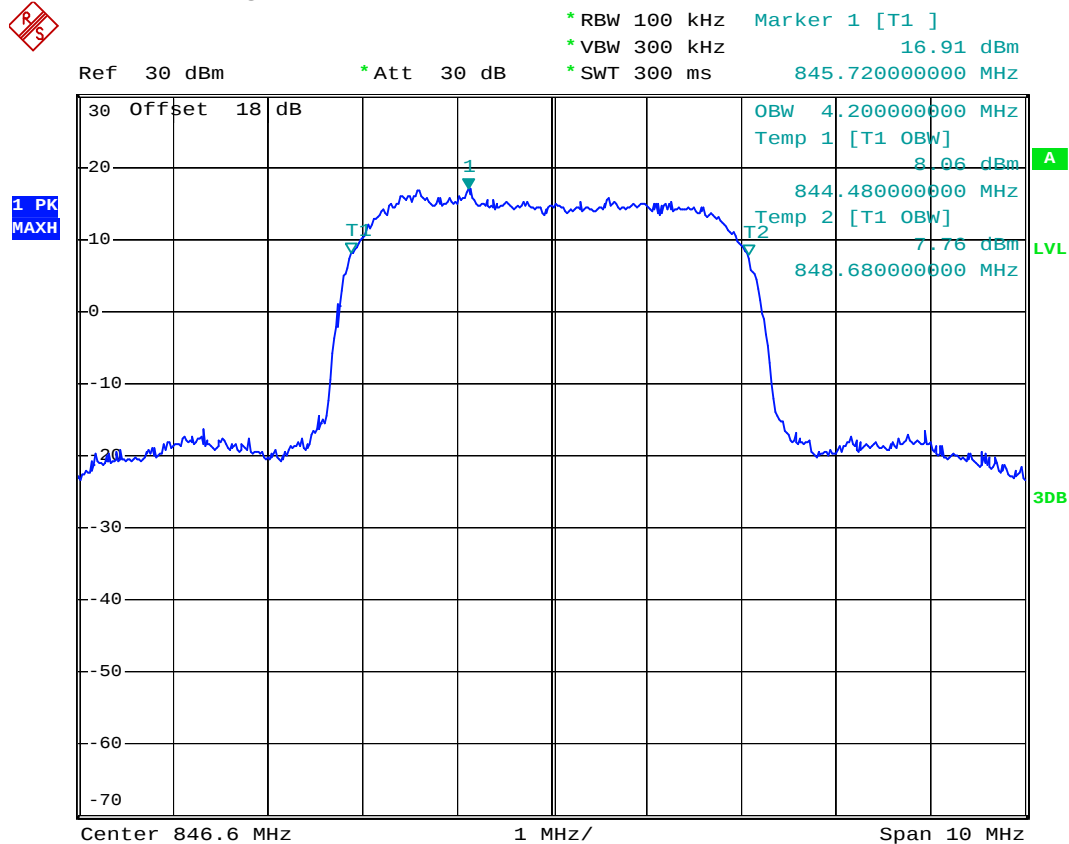
- Test Mode : WCDMA Band V CH4182 99% Occupied Bandwidth
- Power State : High



Date: 9.MAR.2008 08:58:51



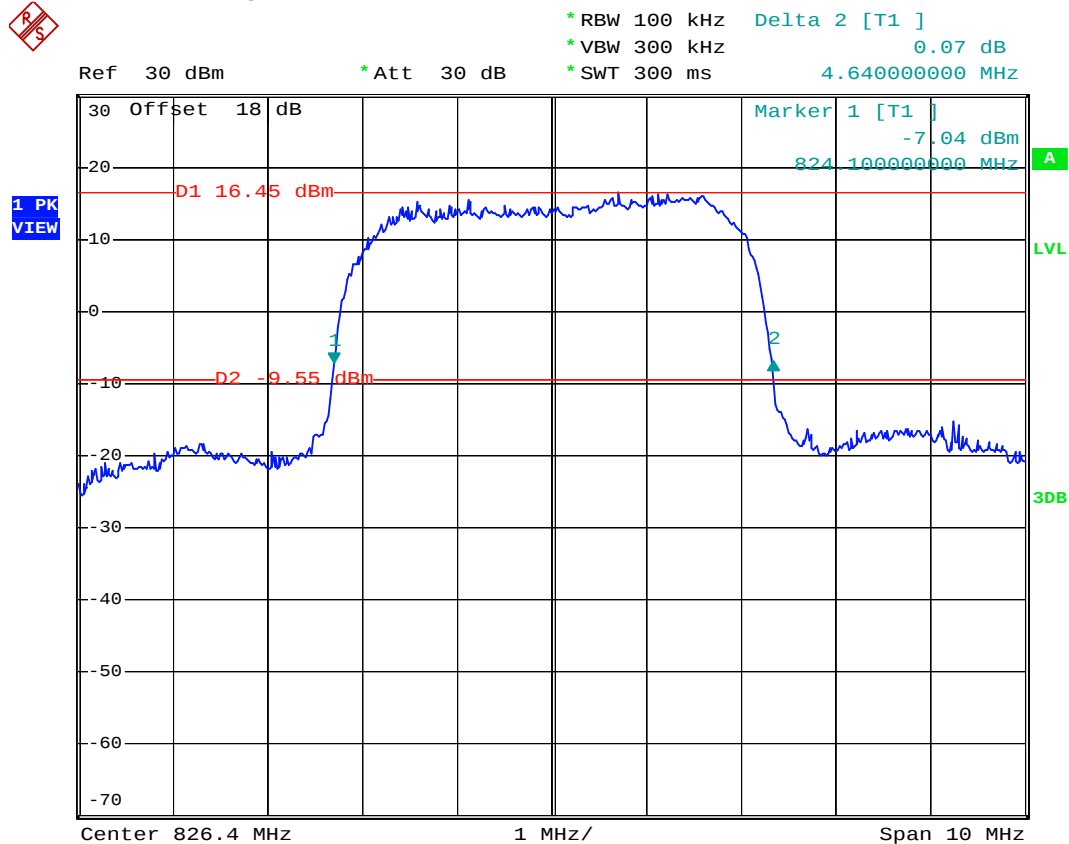
- Test Mode : WCDMA Band V CH4233 99% Occupied Bandwidth
- Power State : High



Date: 9.MAR.2008 08:57:27



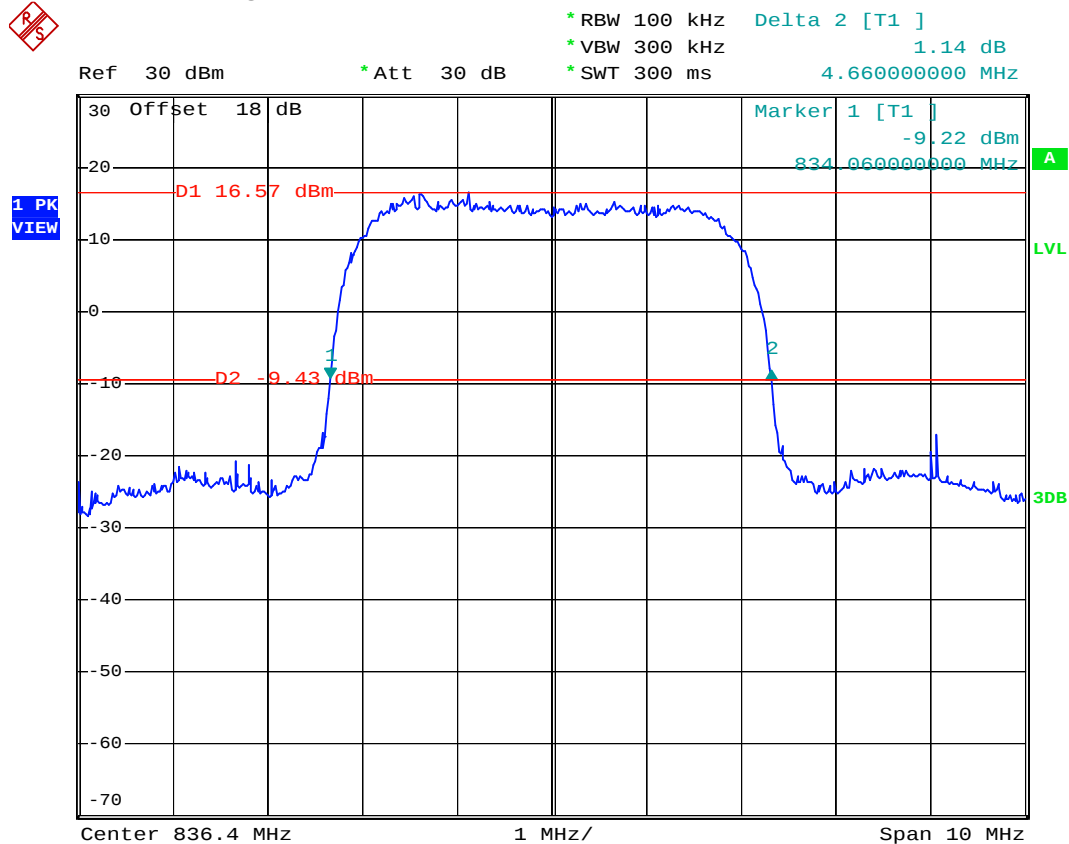
- Test Mode : WCDMA Band V CH4132 26dB Bandwidth
- Power State : High



Date: 9.MAR.2008 08:54:09



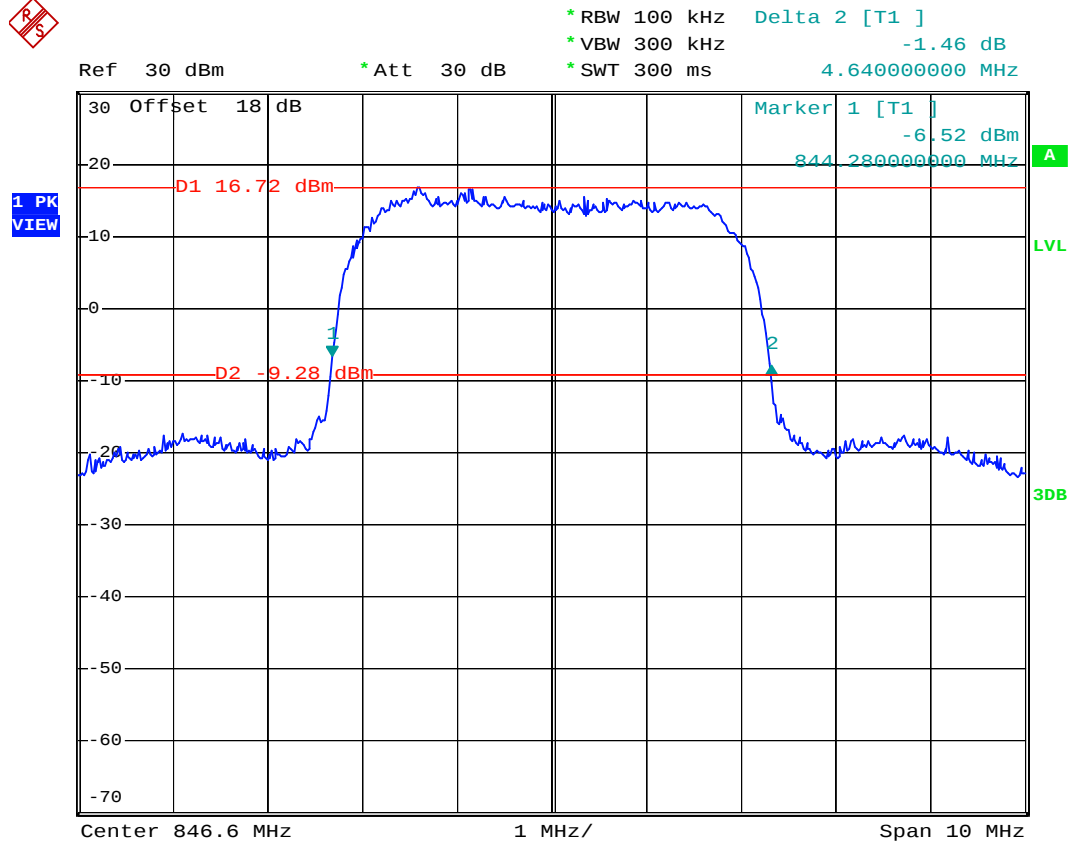
- Test Mode : WCDMA Band V CH4182 26dB Bandwidth
- Power State : High



Date: 9.MAR.2008 08:55:58



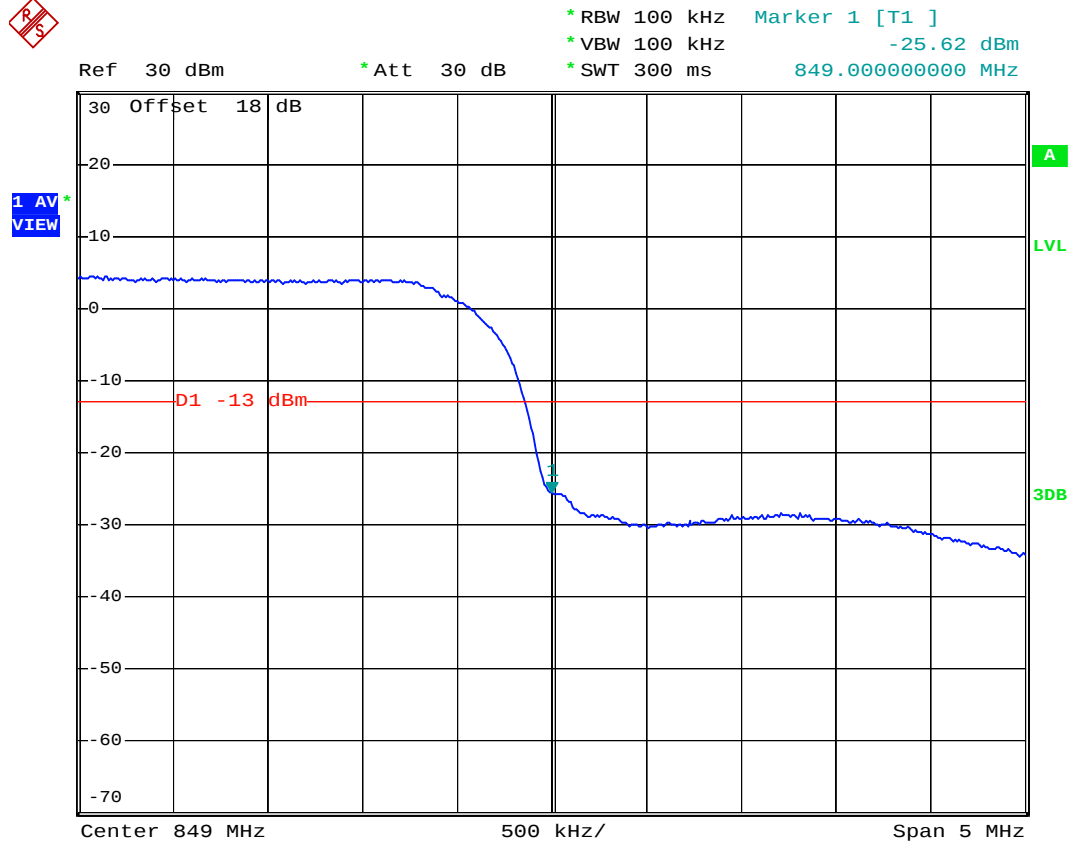
- Test Mode : WCDMA Band V CH4233 26dB Bandwidth
- Power State : High



Date: 9.MAR.2008 08:56:48



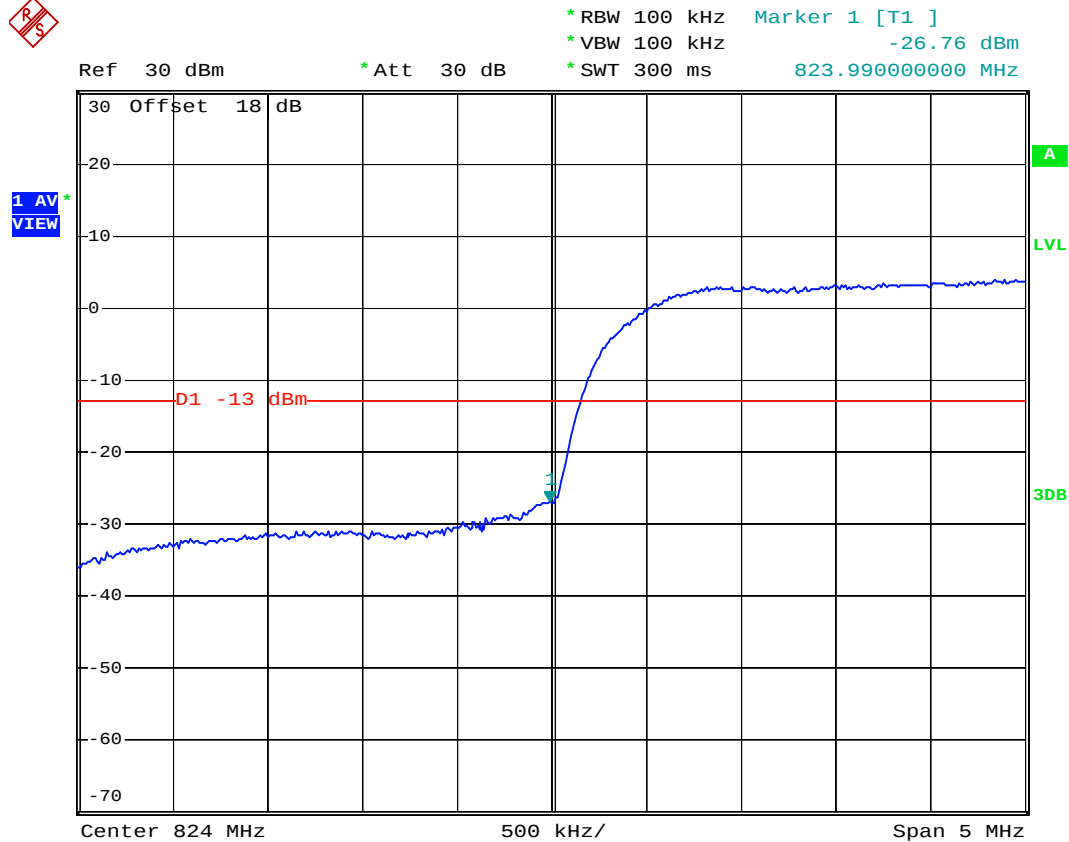
- Test Mode : WCDMA Band V CH4233 Higher Band Edge
- Power State : High



Date: 9.MAR.2008 09:25:30



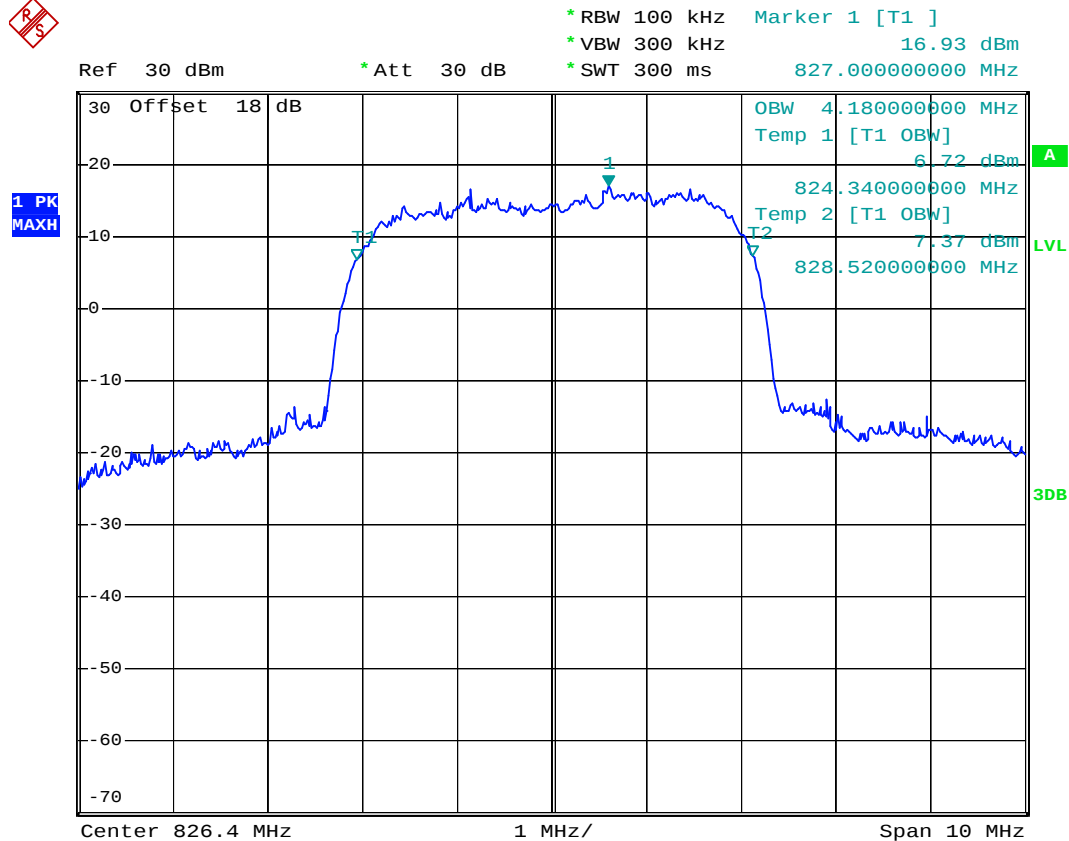
- Mode 6
- Test Mode : WCDMA Band V (HSDPA) CH4132 Lower Band Edge
- Power State : High



Date: 9.MAR.2008 09:09:46



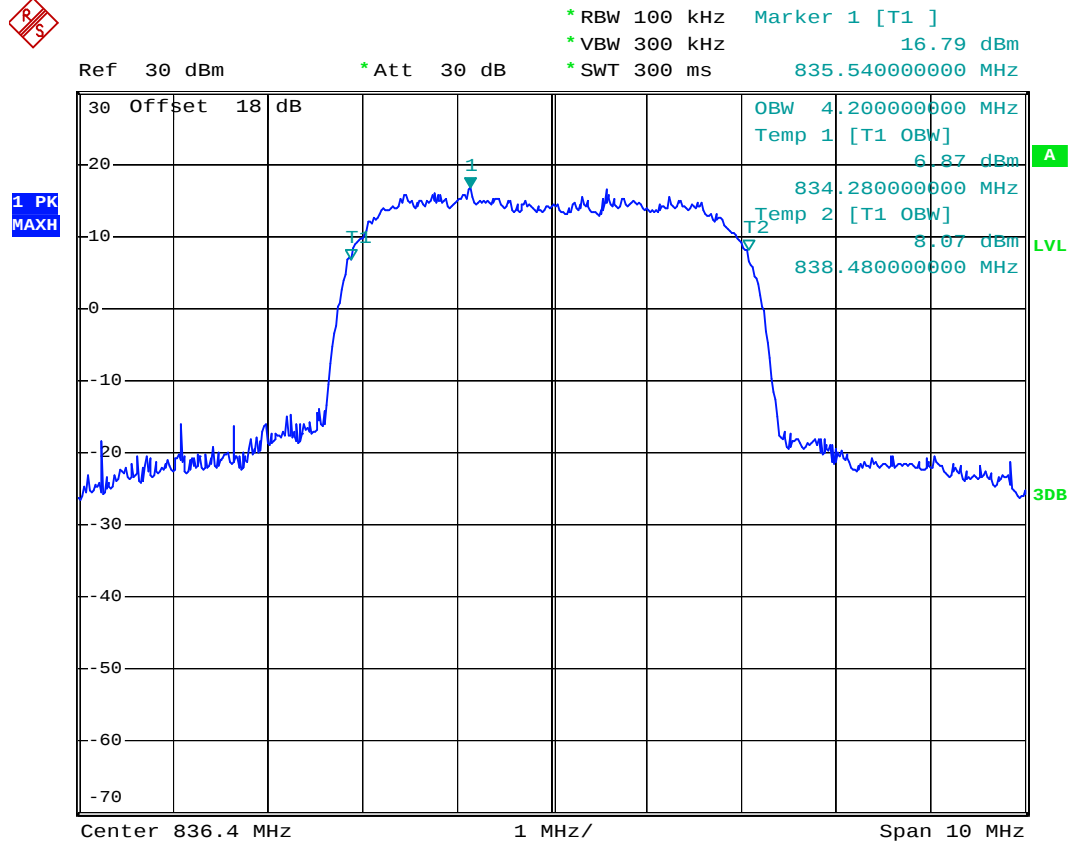
- Test Mode : WCDMA Band V (HSDPA) CH4132 99% Occupied Bandwidth
- Power State : High



Date: 9.MAR.2008 09:37:26



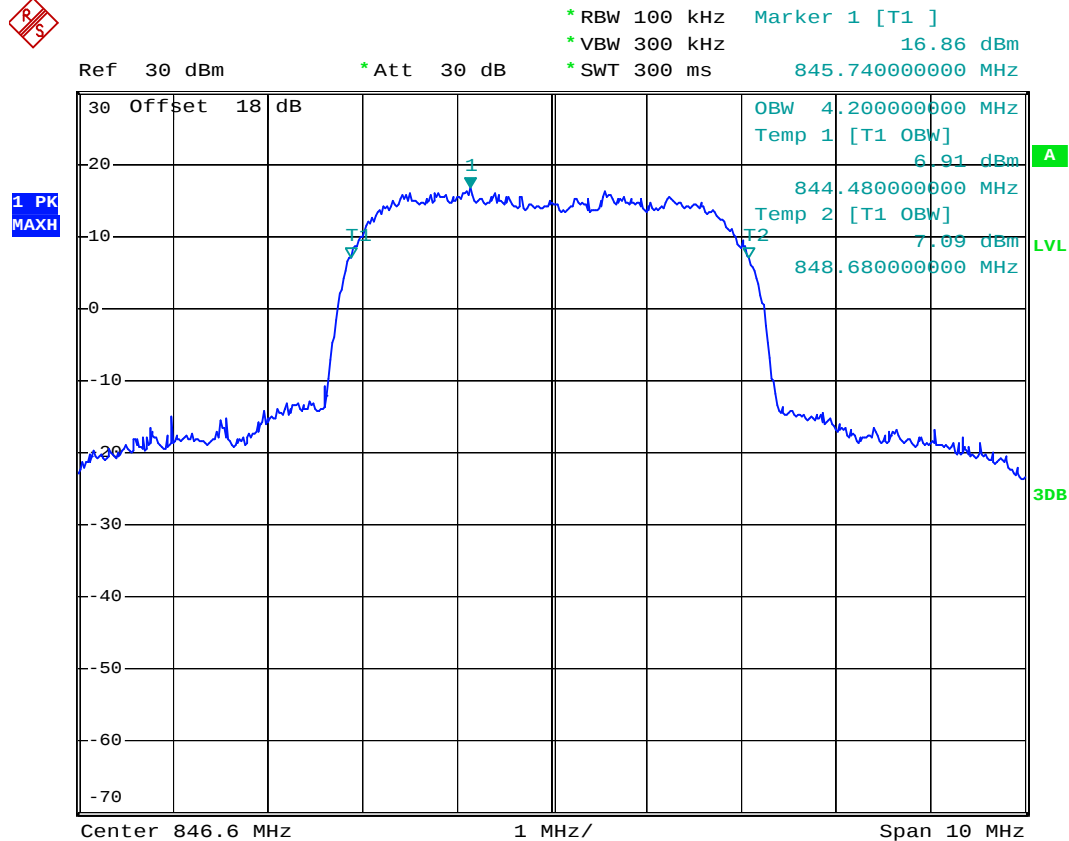
- Test Mode : WCDMA Band V (HSDPA) CH4182 99% Occupied Bandwidth
- Power State : High



Date: 9.MAR.2008 09:38:02



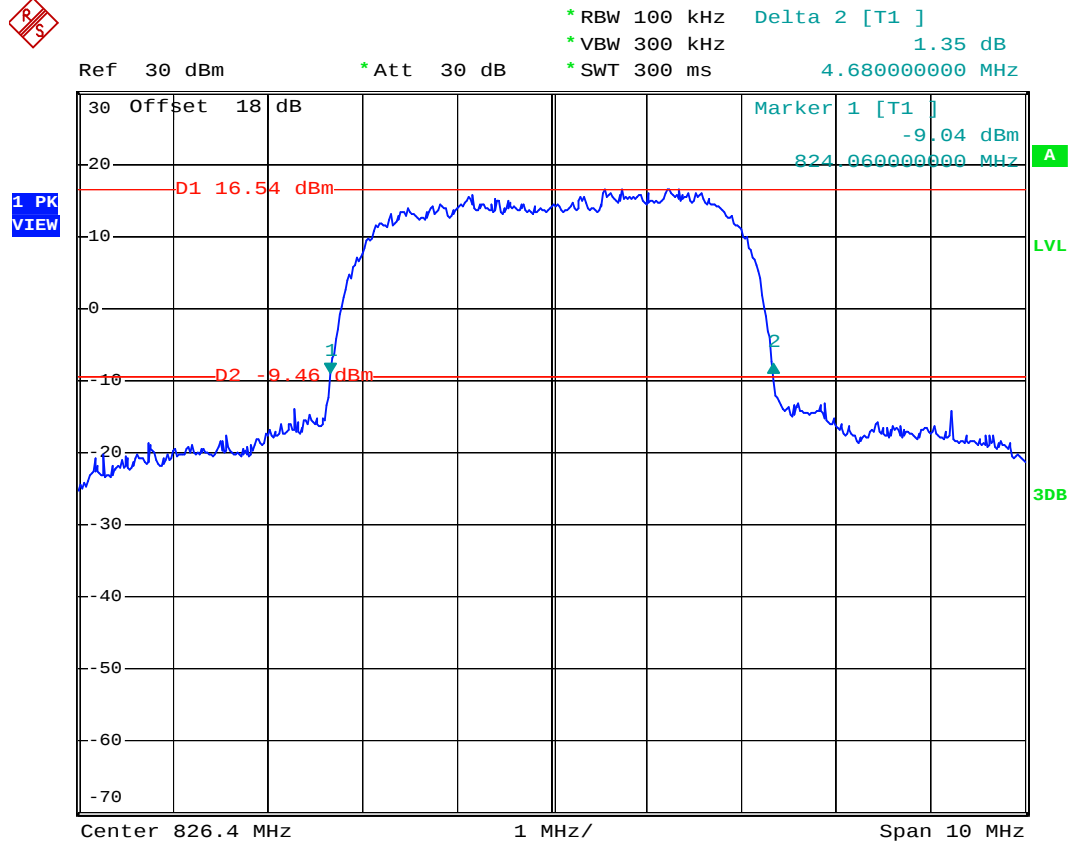
- Test Mode : WCDMA Band V (HSDPA) CH4233 99% Occupied Bandwidth
- Power State : High



Date: 9.MAR.2008 09:36:57



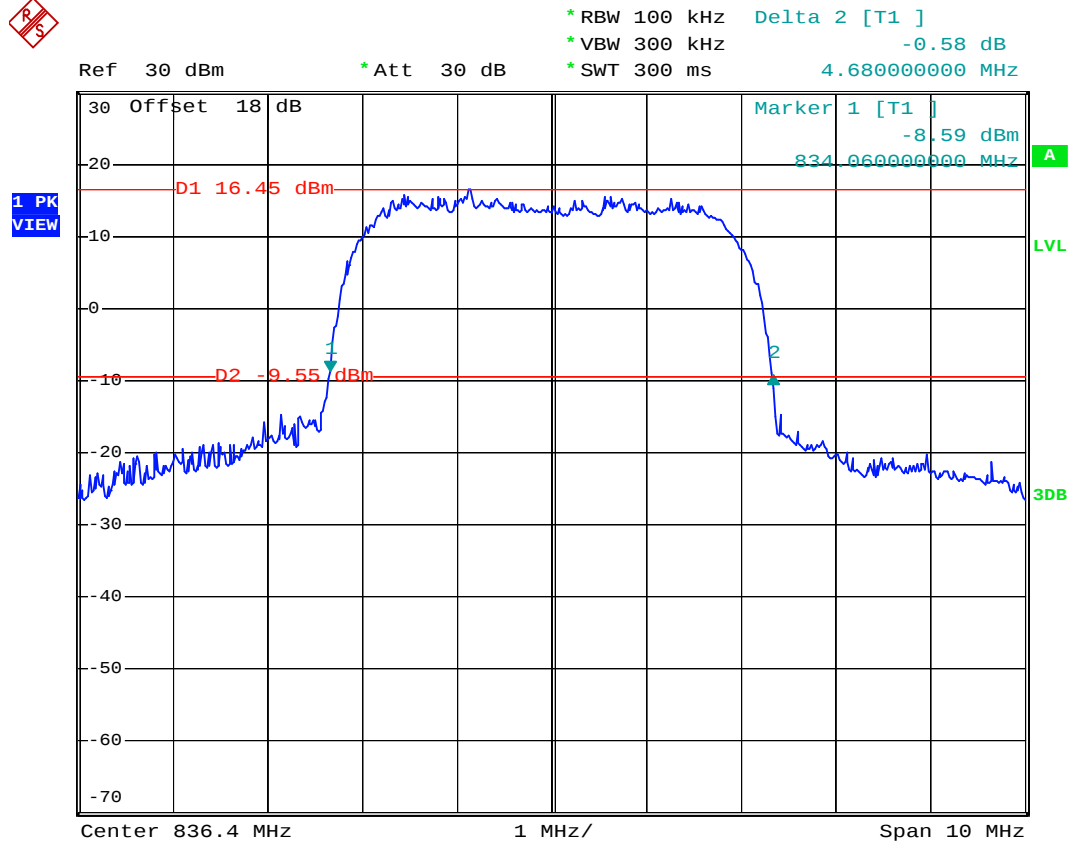
- Test Mode : WCDMA Band V (HSDPA) CH4132 26dB Bandwidth
- Power State : High



Date: 9.MAR.2008 09:32:54



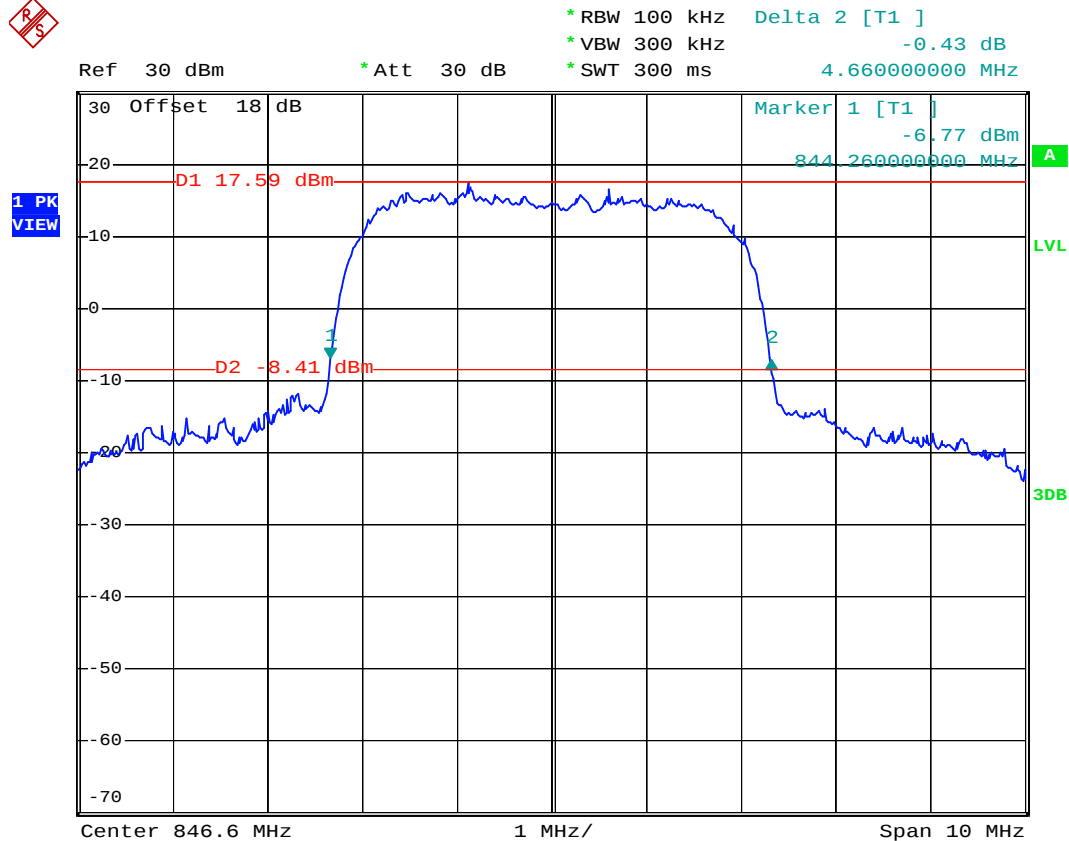
- Test Mode : WCDMA Band V (HSDPA) CH4182 26dB Bandwidth
- Power State : High



Date: 9.MAR.2008 09:33:52



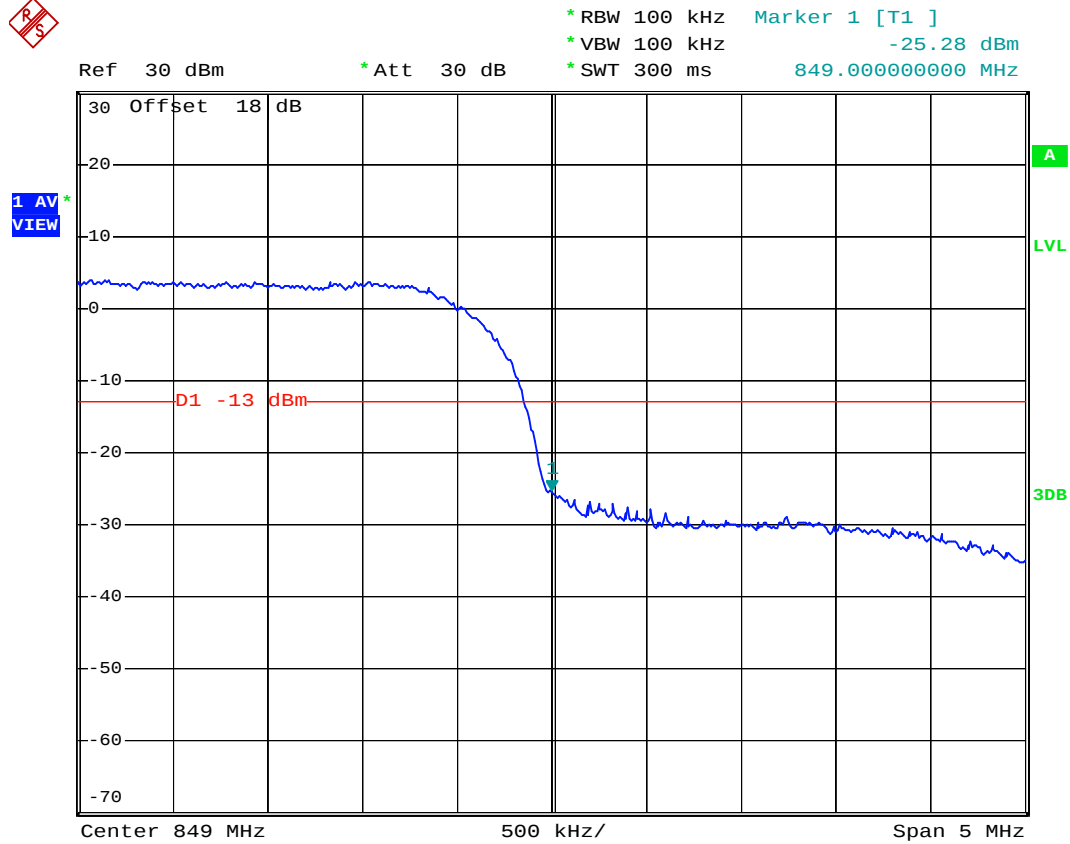
- Test Mode : WCDMA Band V (HSDPA) CH4233 26dB Bandwidth
- Power State : High



Date: 9.MAR.2008 09:36:04



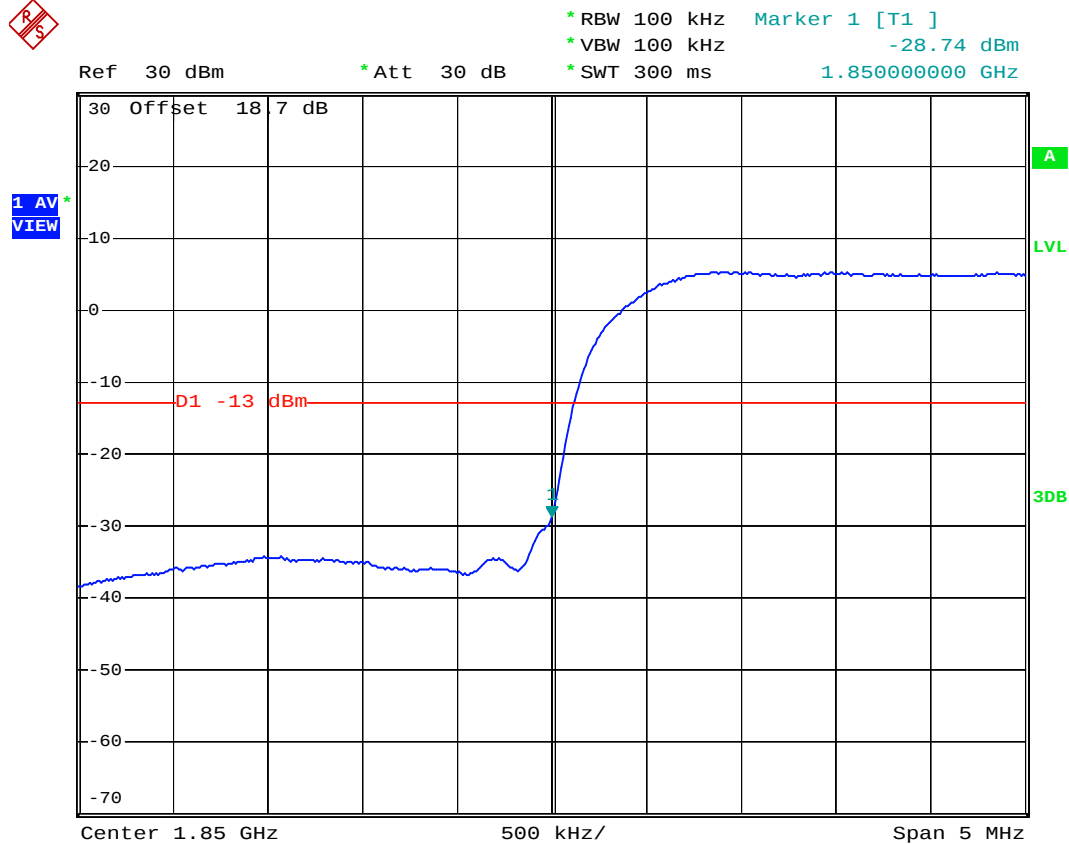
- Test Mode : WCDMA Band V (HSDPA) CH4233 Higher Band Edge
- Power State : High



Date: 9.MAR.2008 09:12:22



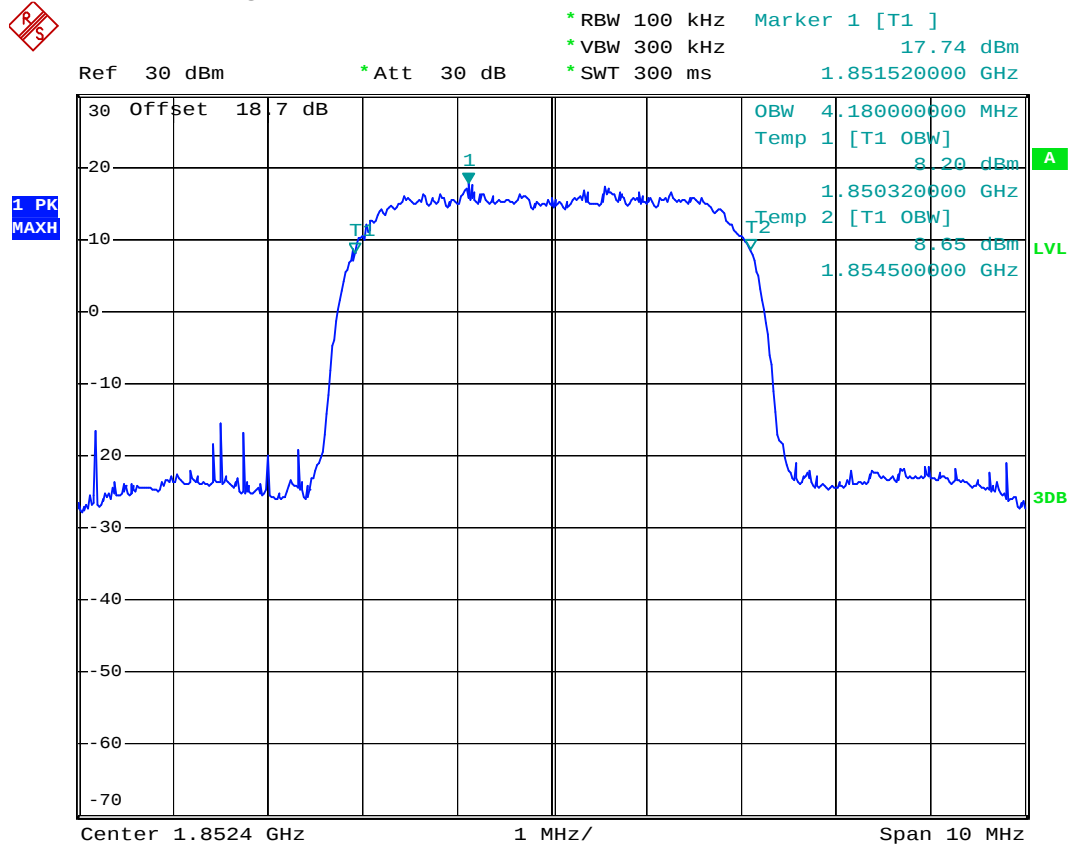
- Mode 7
- Test Mode : WCDMA Band II CH9262 Lower Band Edge
- Power State : High



Date: 9.MAR.2008 10:10:24



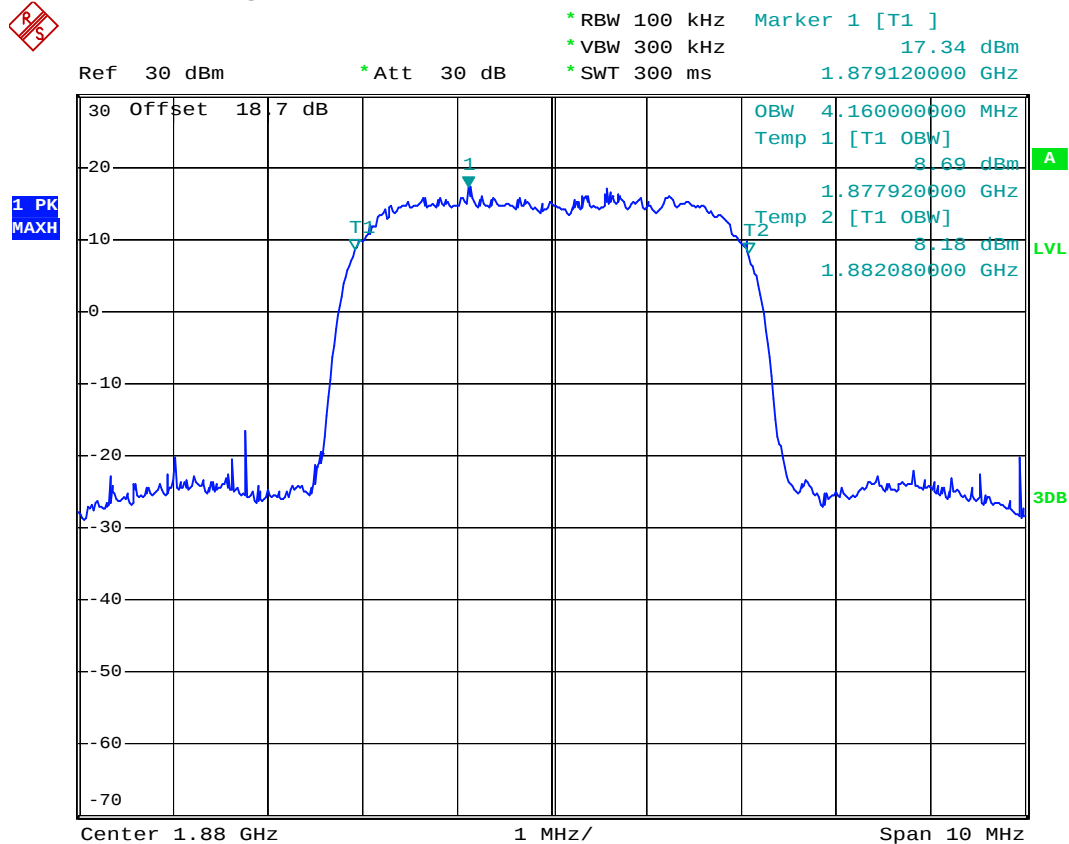
- Test Mode : WCDMA Band II CH9262 99% Occupied Bandwidth
- Power State : High



Date: 9.MAR.2008 10:20:21



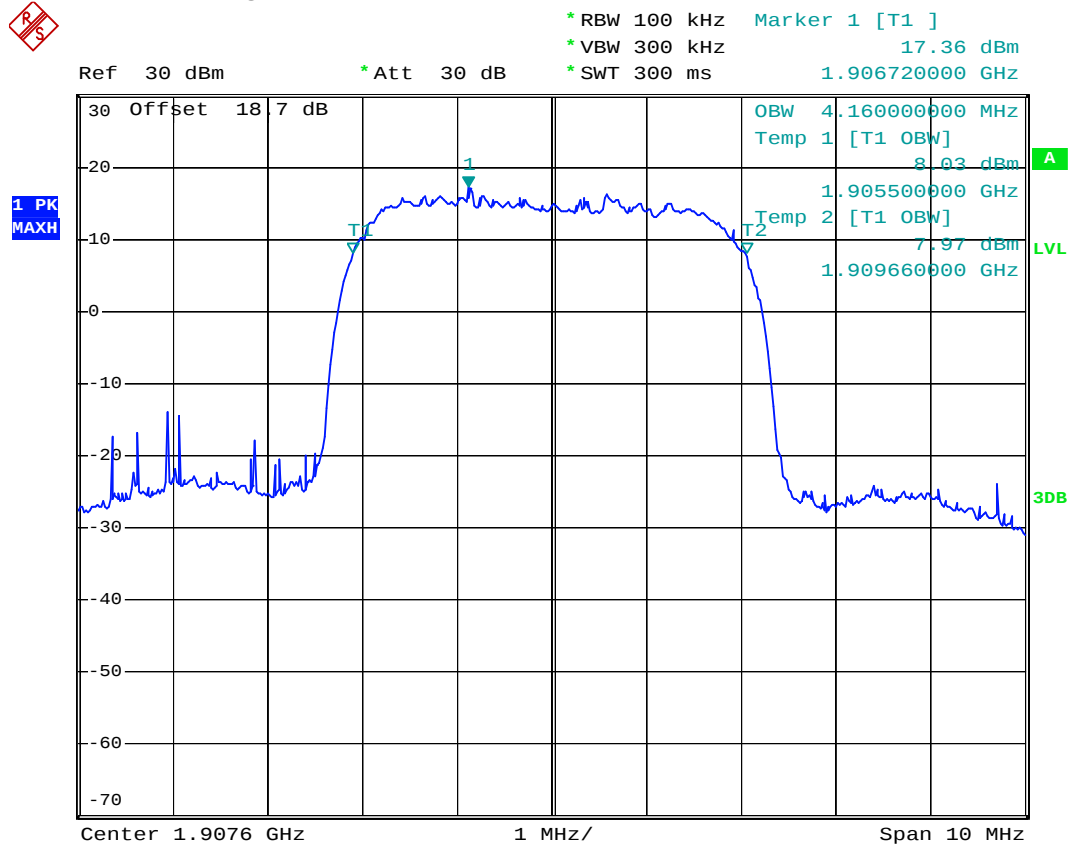
- Test Mode : WCDMA Band II CH9400 99% Occupied Bandwidth
- Power State : High



Date: 9.MAR.2008 10:20:42



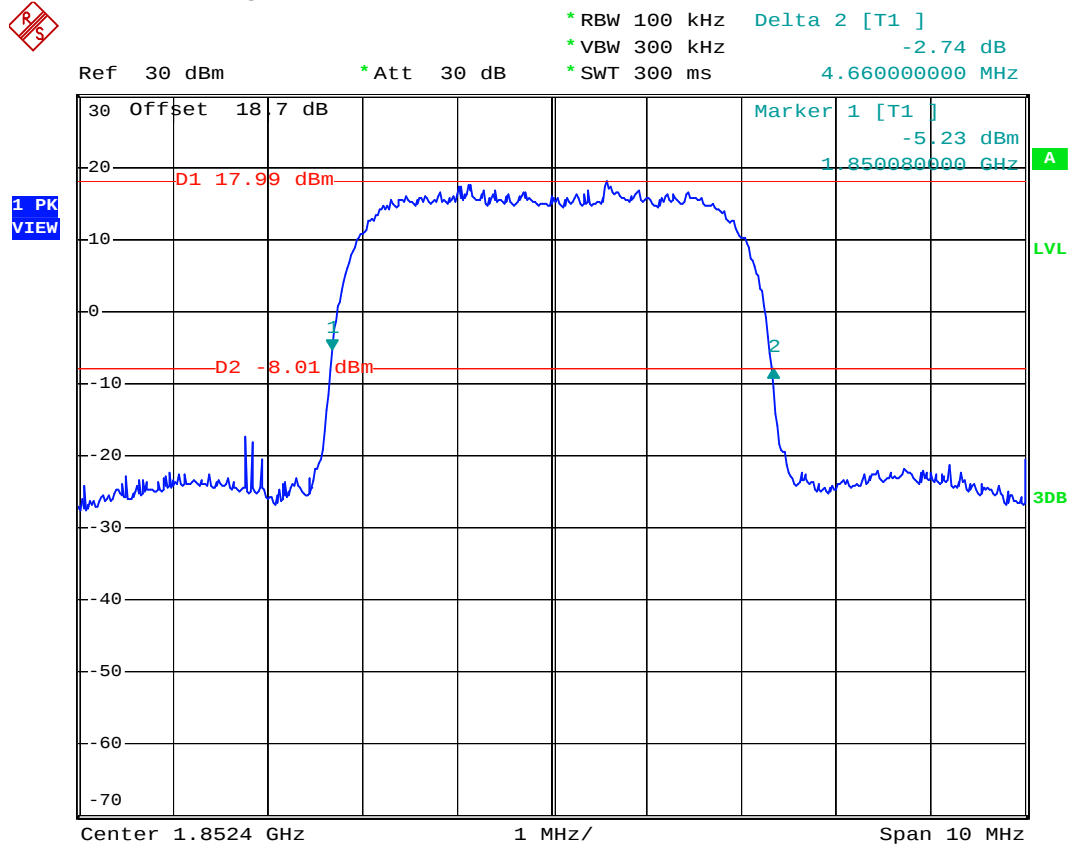
- Test Mode : WCDMA Band II CH9538 99% Occupied Bandwidth
- Power State : High



Date: 9.MAR.2008 10:19:58



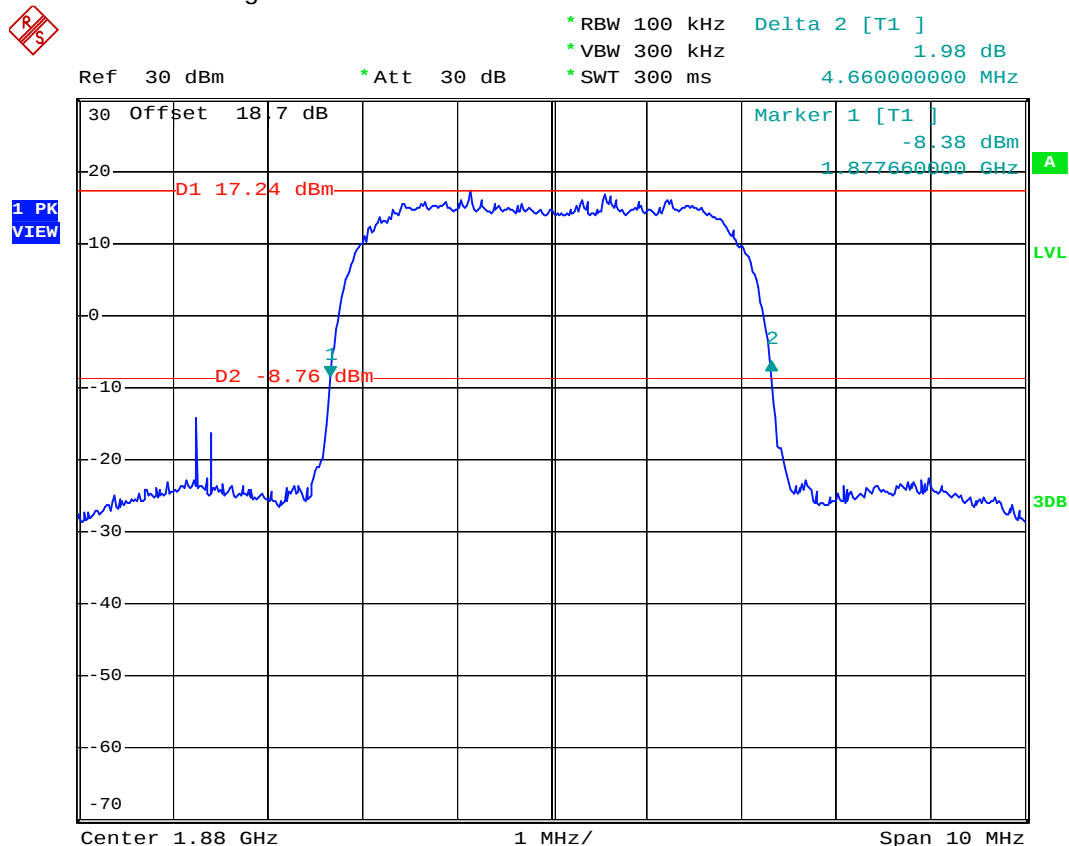
- Test Mode : WCDMA Band II CH9262 26dB Bandwidth
- Power State : High



Date: 9.MAR.2008 10:17:45



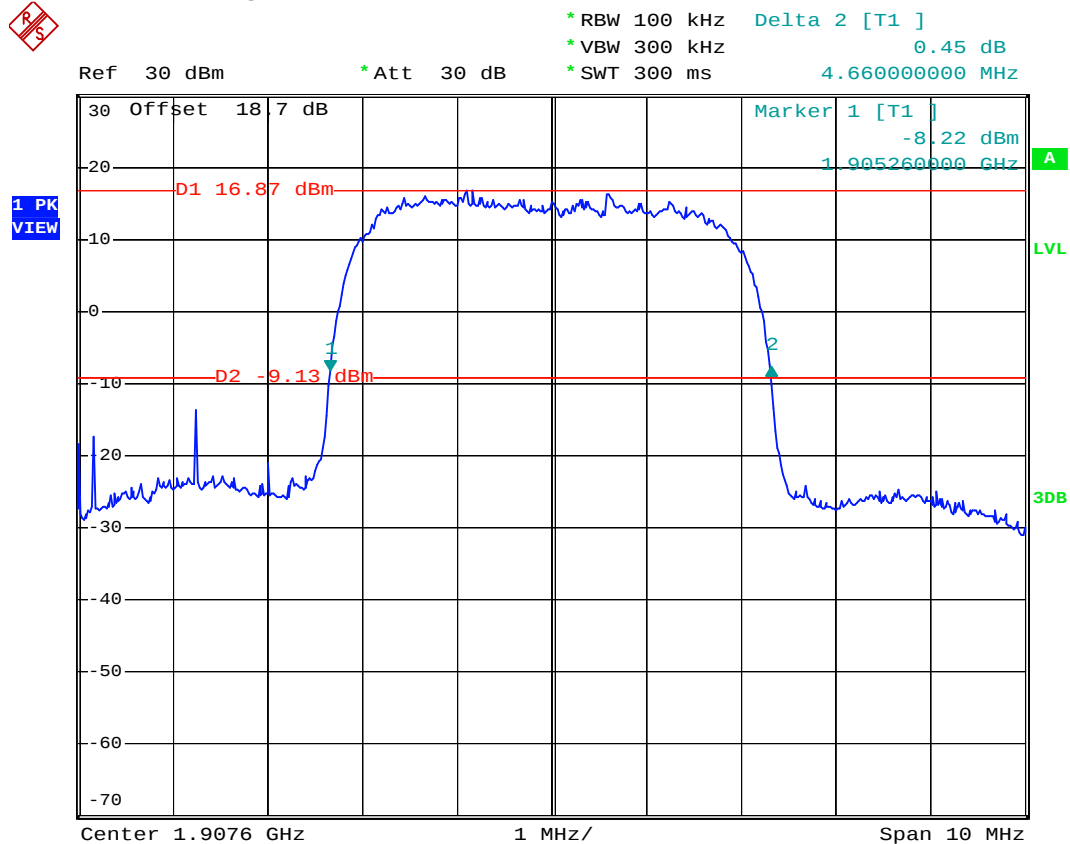
- Test Mode : WCDMA Band II CH9400 26dB Bandwidth
- Power State : High



Date: 9.MAR.2008 10:18:26



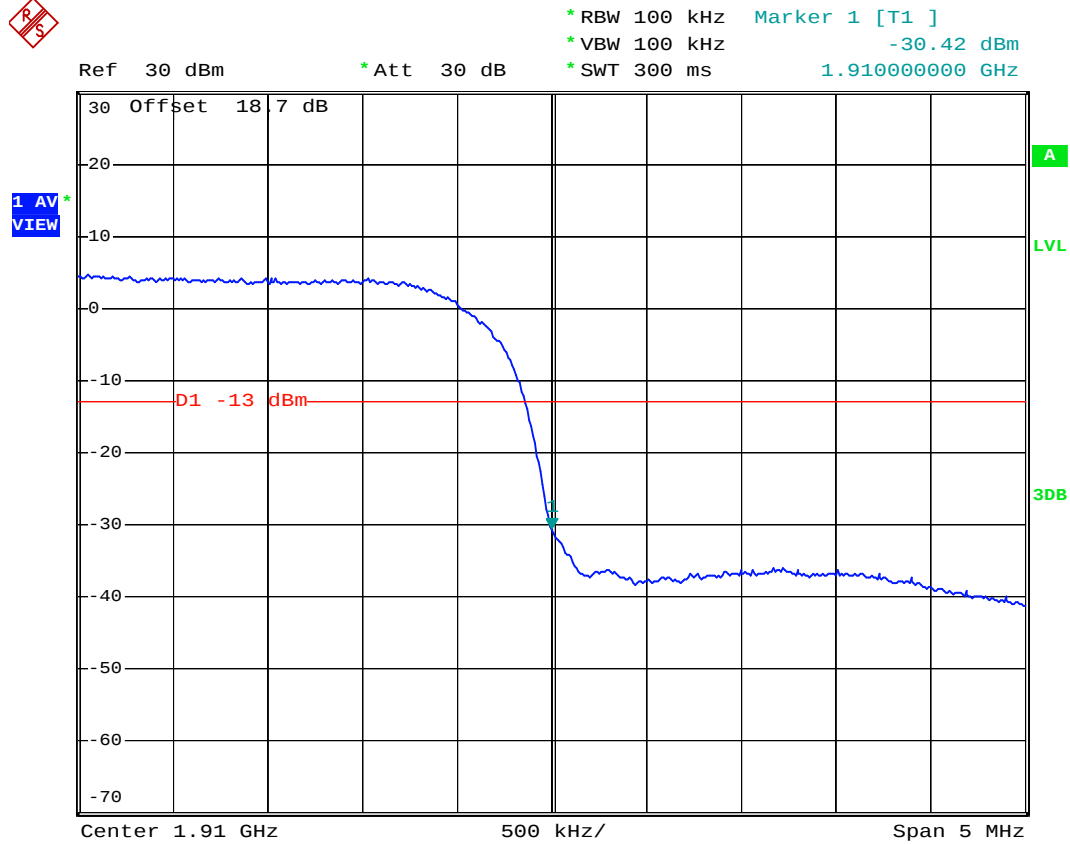
- Test Mode : WCDMA Band II CH9538 26dB Bandwidth
- Power State : High



Date: 9.MAR.2008 10:19:27



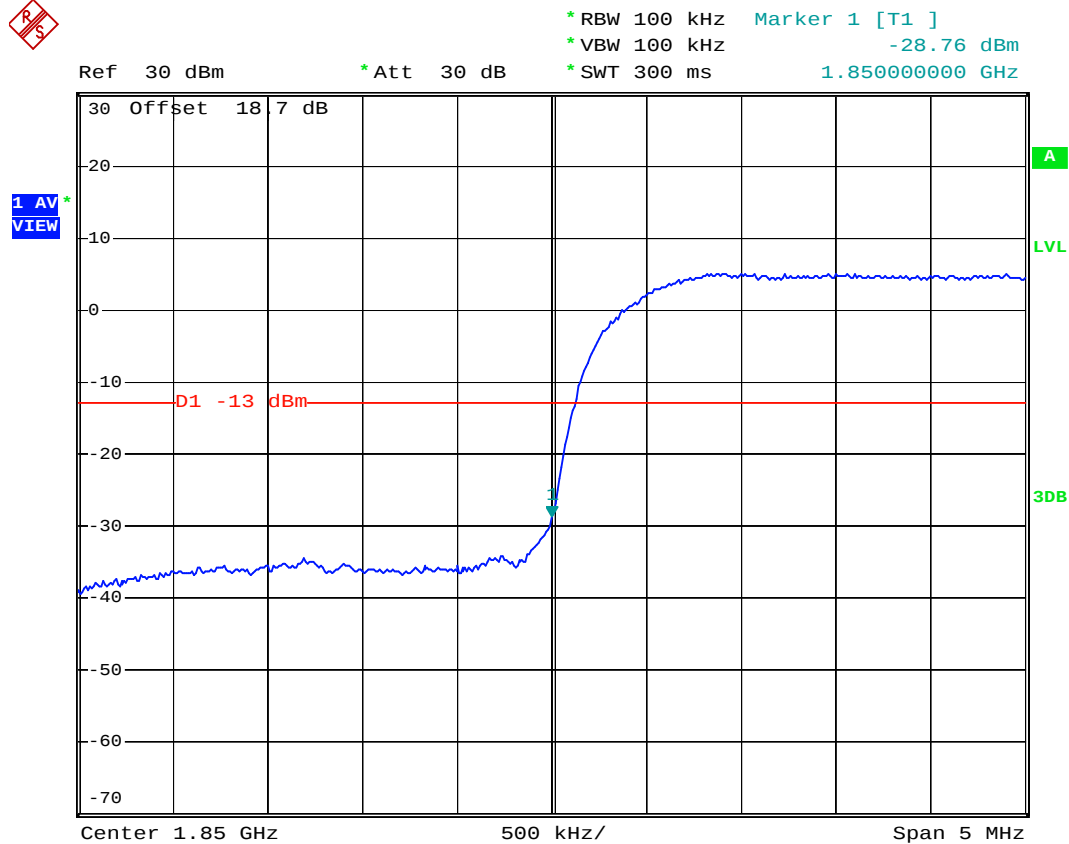
- Test Mode : WCDMA Band II CH9538 Higher Band Edge
- Power State : High



Date: 9.MAR.2008 10:12:04



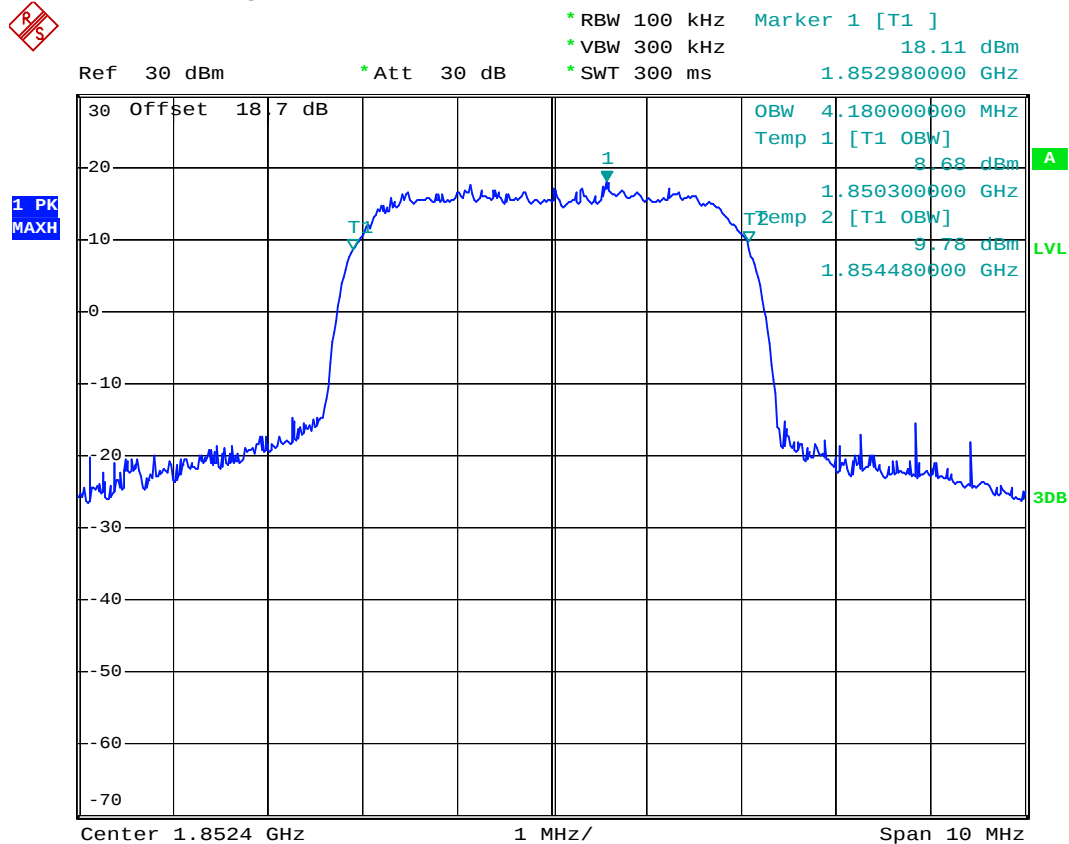
- Mode 8
- Test Mode : WCDMA Band II (HSDPA) CH9262 Lower Band Edge
- Power State : High



Date: 9.MAR.2008 09:54:19



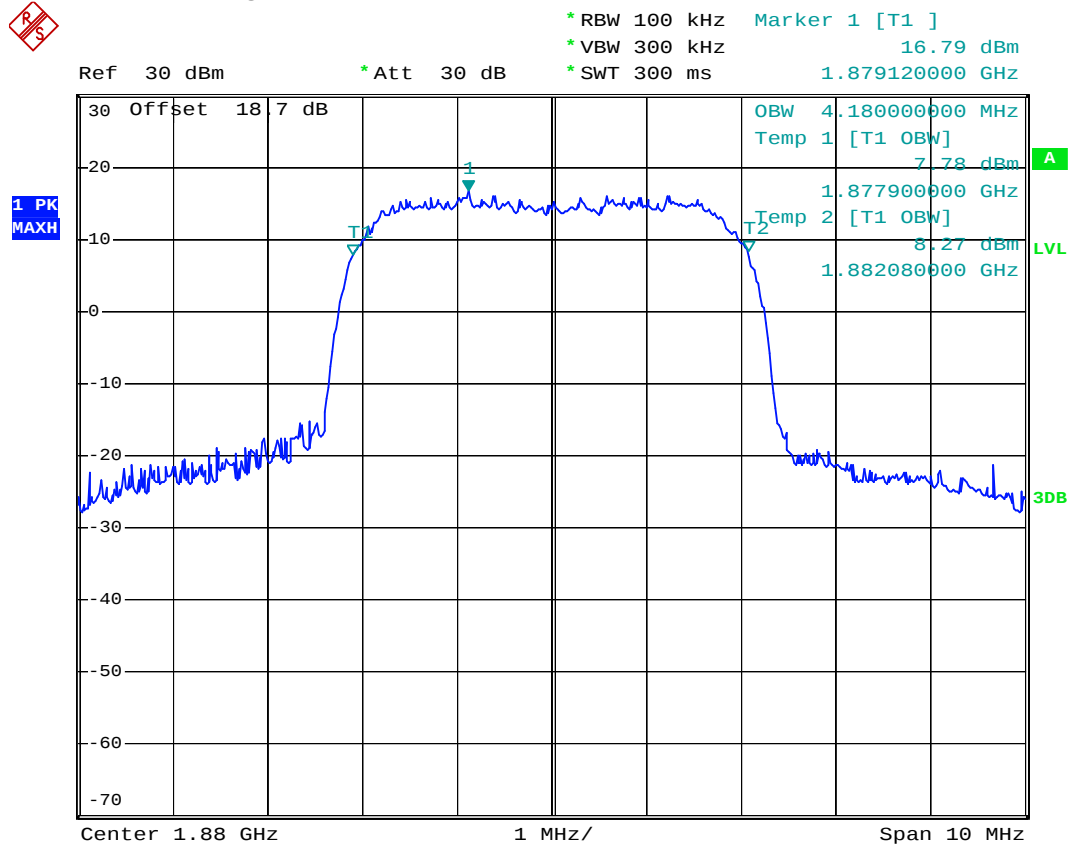
- Test Mode : WCDMA Band II (HSDPA) CH9262 99% Occupied Bandwidth
- Power State : High



Date: 9.MAR.2008 09:51:08



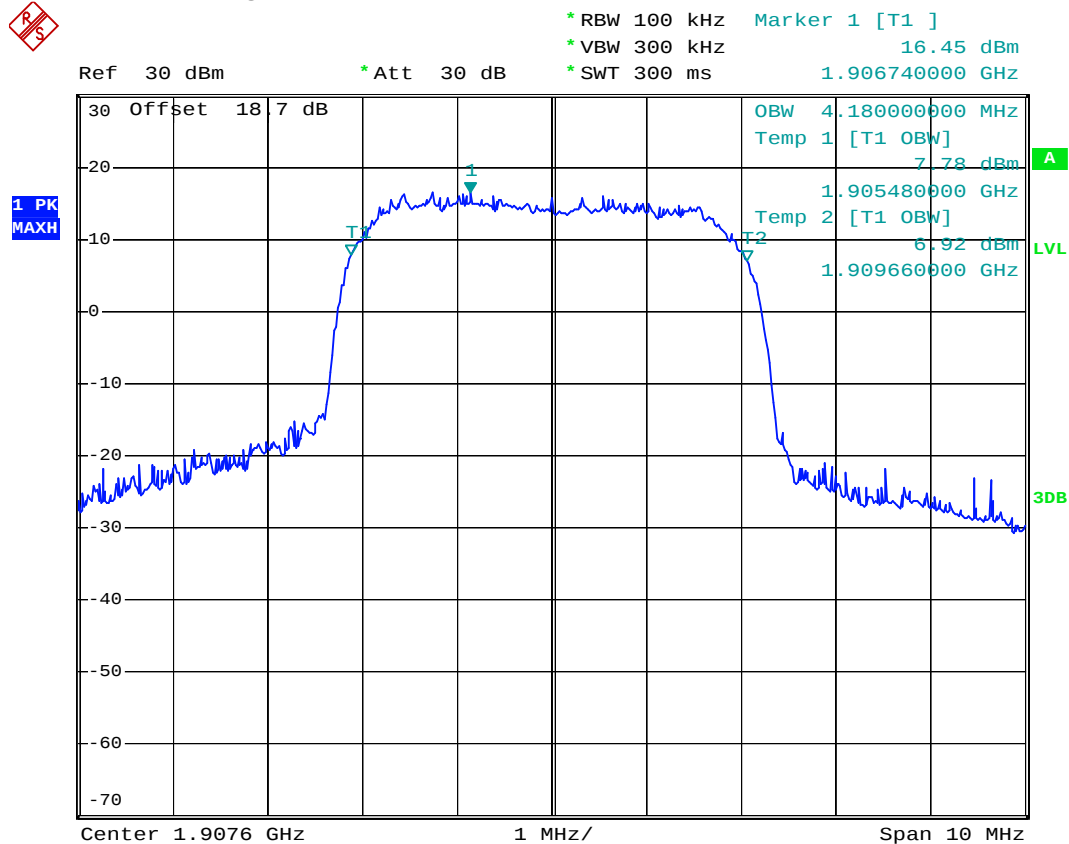
- Test Mode : WCDMA Band II (HSDPA) CH9400 99% Occupied Bandwidth
- Power State : High



Date: 9.MAR.2008 09:52:02



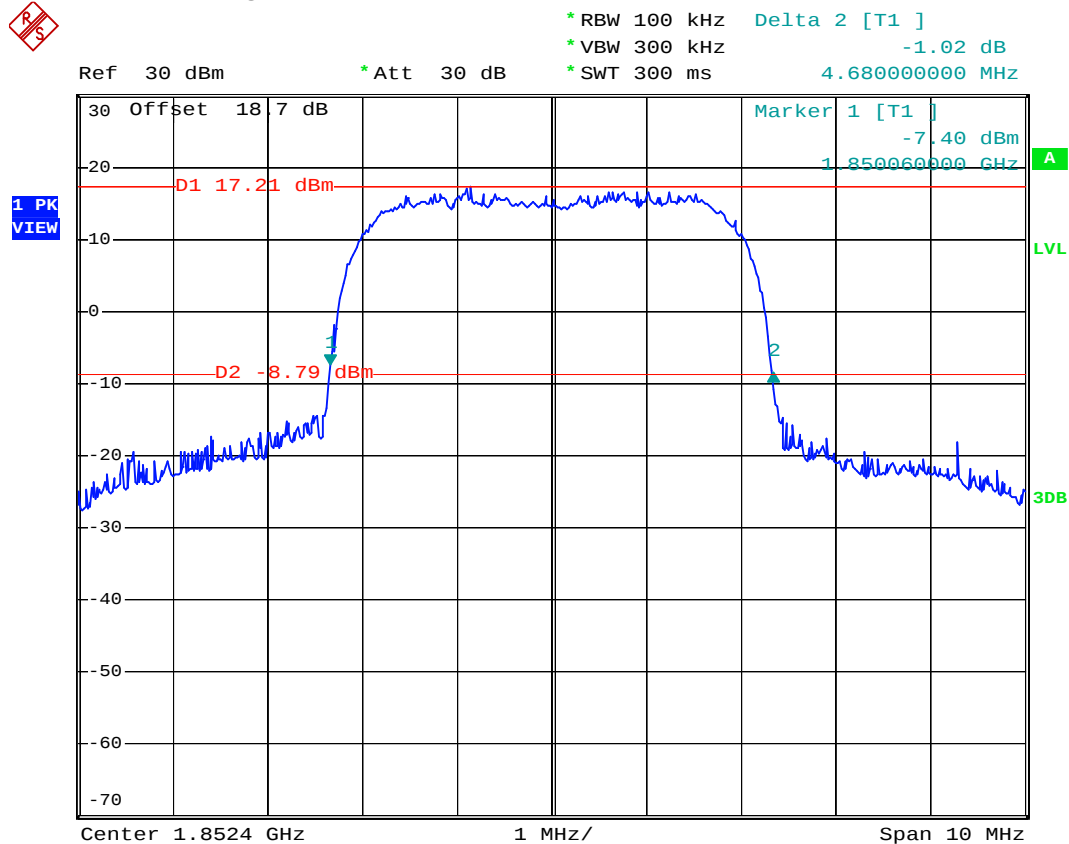
- Test Mode : WCDMA Band II (HSDPA) CH9538 99% Occupied Bandwidth
- Power State : High



Date: 9.MAR.2008 09:51:38



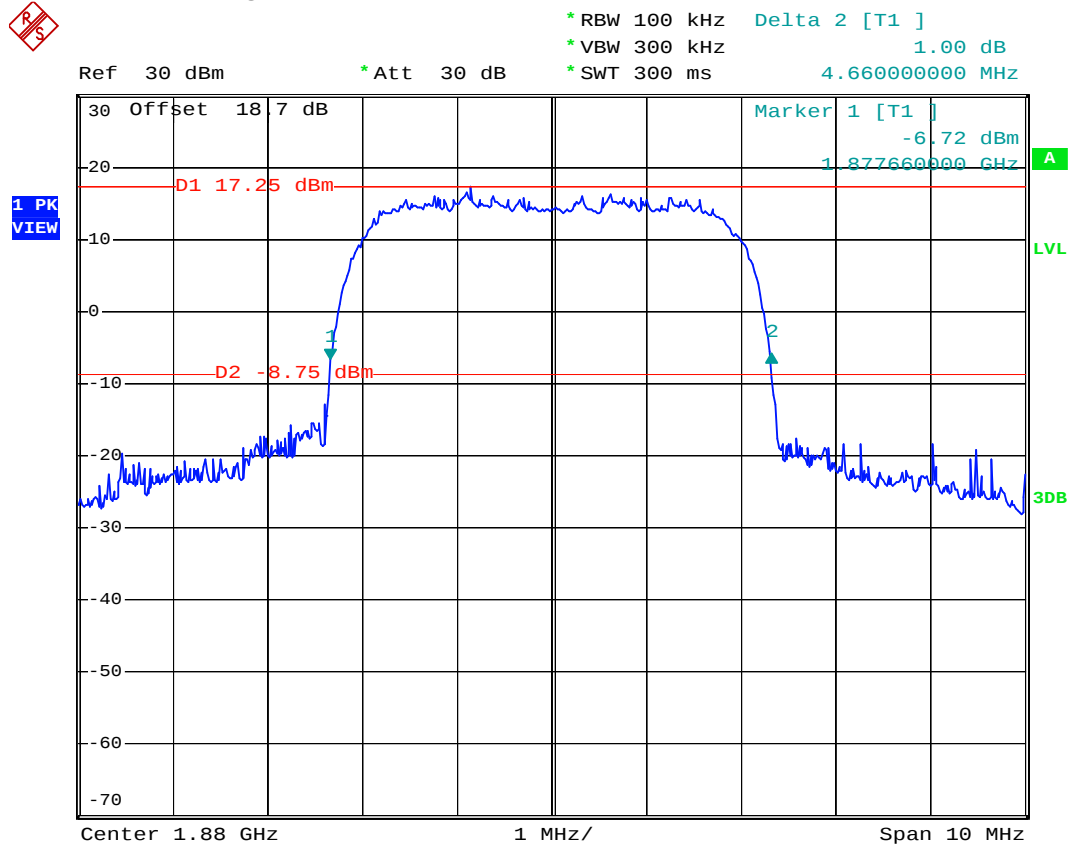
- Test Mode : WCDMA Band II (HSDPA) CH9262 26dB Bandwidth
- Power State : High



Date: 9.MAR.2008 09:50:34



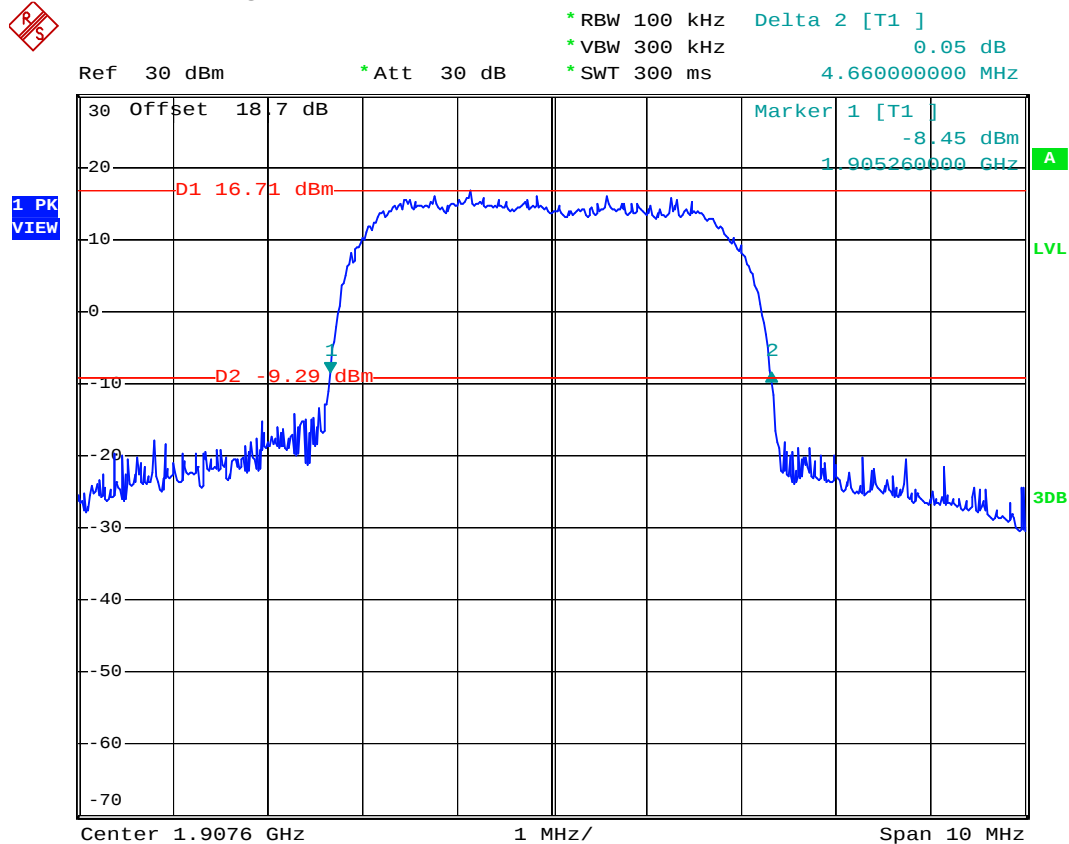
- Test Mode : WCDMA Band II (HSDPA) CH9400 26dB Bandwidth
- Power State : High



Date: 9.MAR.2008 09:49:37



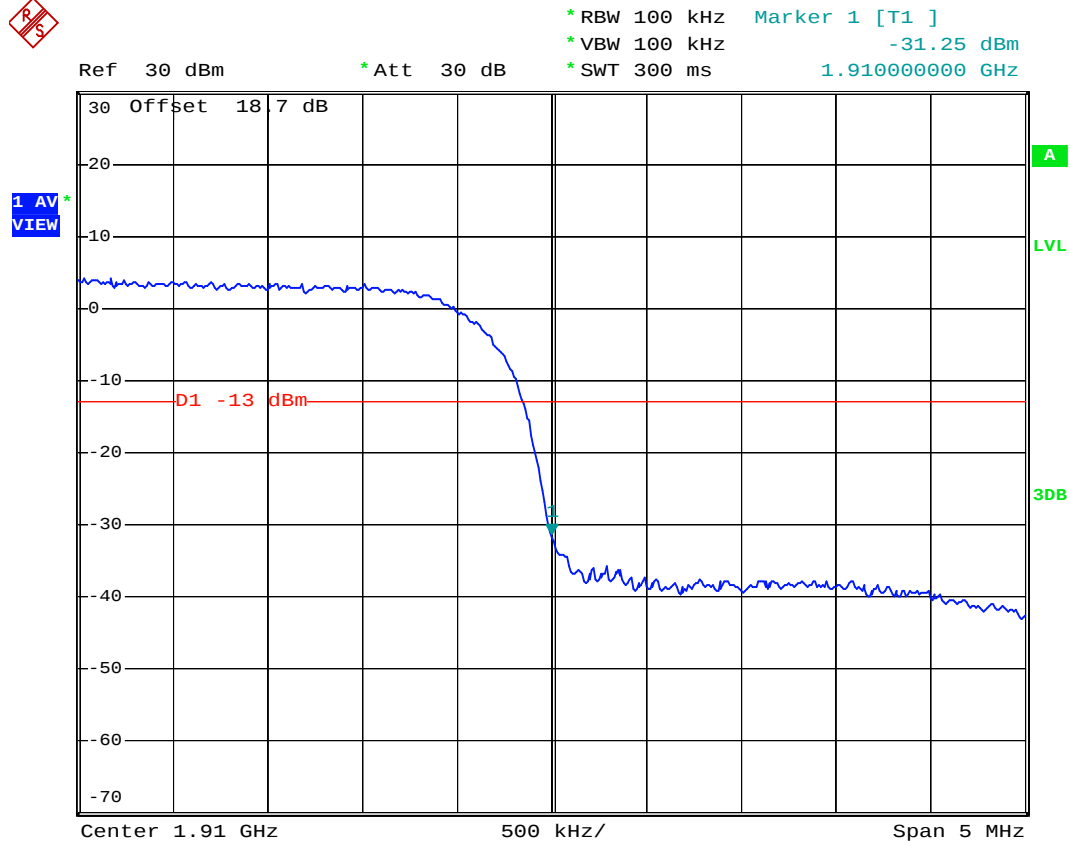
- Test Mode : WCDMA Band II (HSDPA) CH9538 26dB Bandwidth
- Power State : High



Date: 9.MAR.2008 09:48:43



- Test Mode : WCDMA Band II (HSDPA) CH9538 Higher Band Edge
- Power State : High



Date: 9.MAR.2008 09:55:11

4.5 Conducted Emission

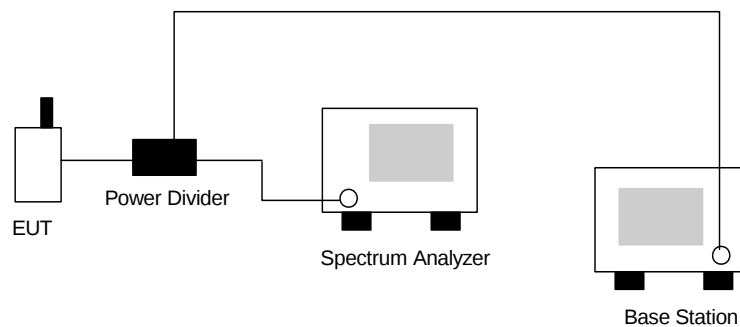
4.5.1 Measurement Instruments

As described in chapter 5 of this test report.

4.5.2 Test Procedure

- The EUT was connected to Spectrum Analyzer and Base Station via power divider.
- The middle channel for the highest RF power within the transmitting frequency was measured.
- The conducted spurious emission for the whole frequency range was taken.

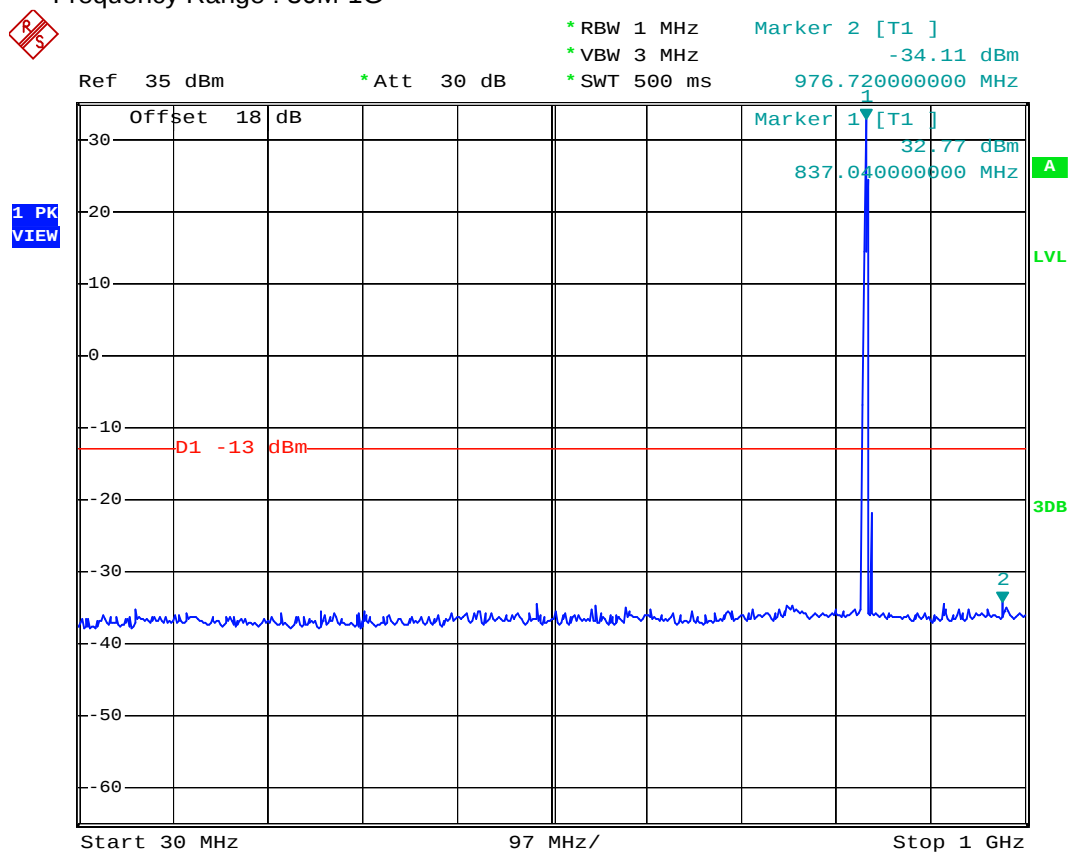
4.5.3 Test Setup Layout





4.5.4 Test Result

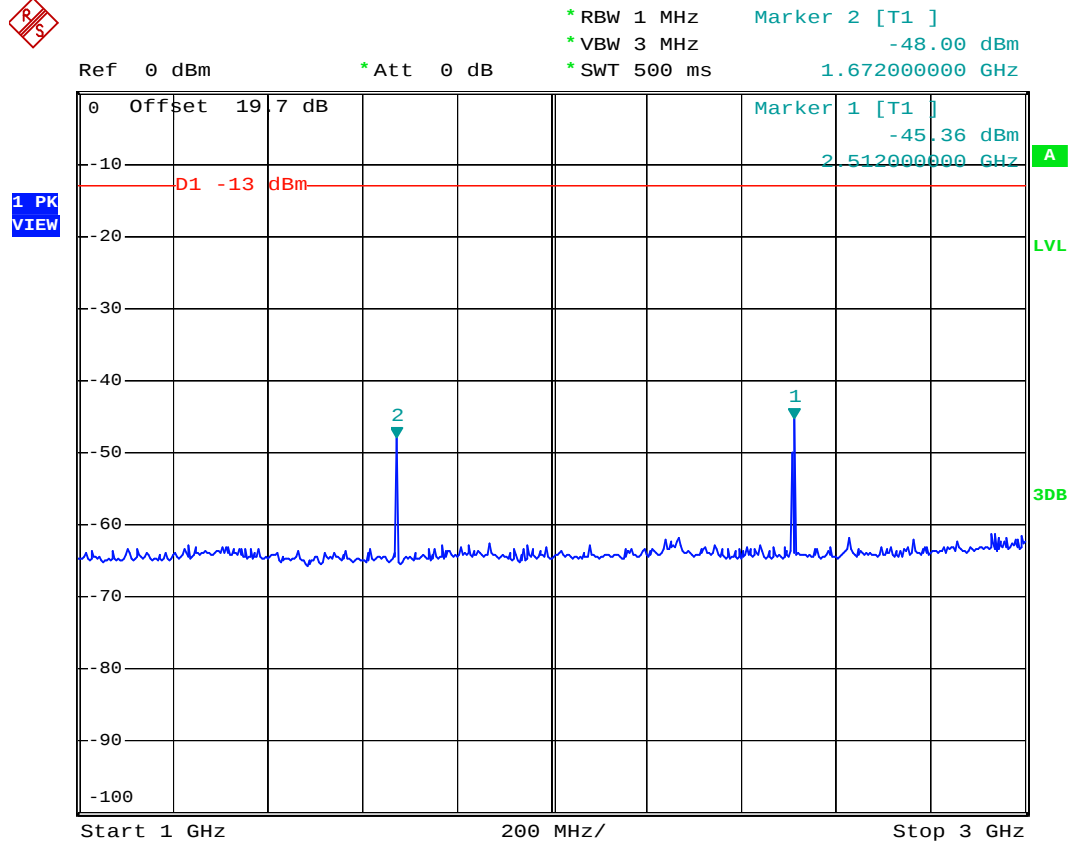
- Mode 1
- Test Mode : GPRS850 CH189
- Frequency Range : 30M-1G



Date: 9.MAR.2008 08:09:40



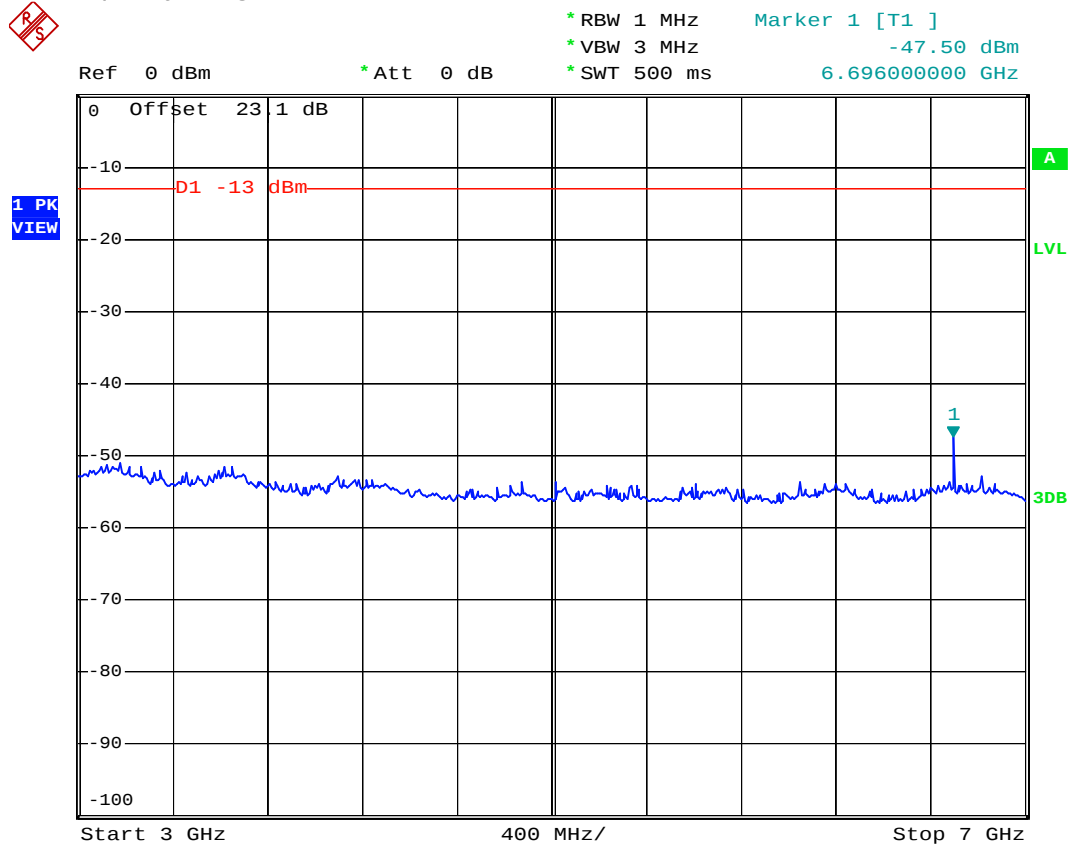
- Test Mode : GPRS850 CH189
- Frequency Range : 1G-3G



Date: 9.MAR.2008 08:29:25



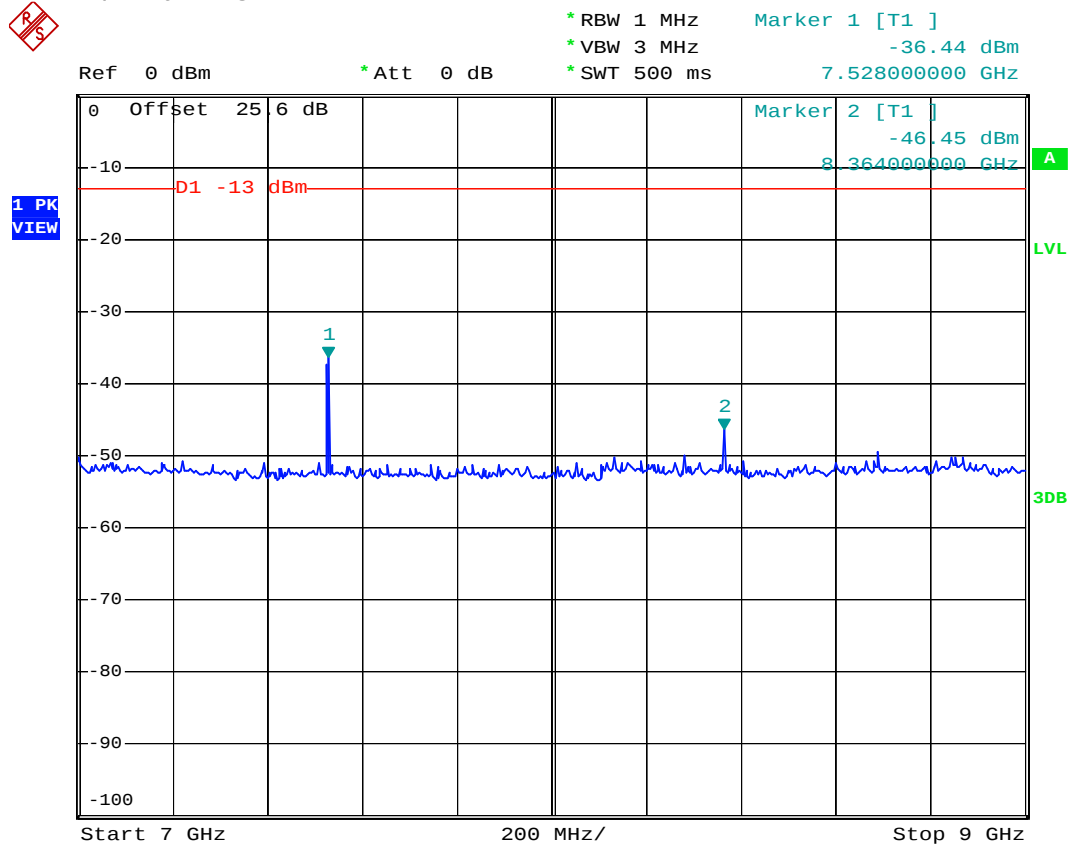
- Test Mode : GPRS850 CH189
- Frequency Range : 3G-7G



Date: 9.MAR.2008 08:30:56



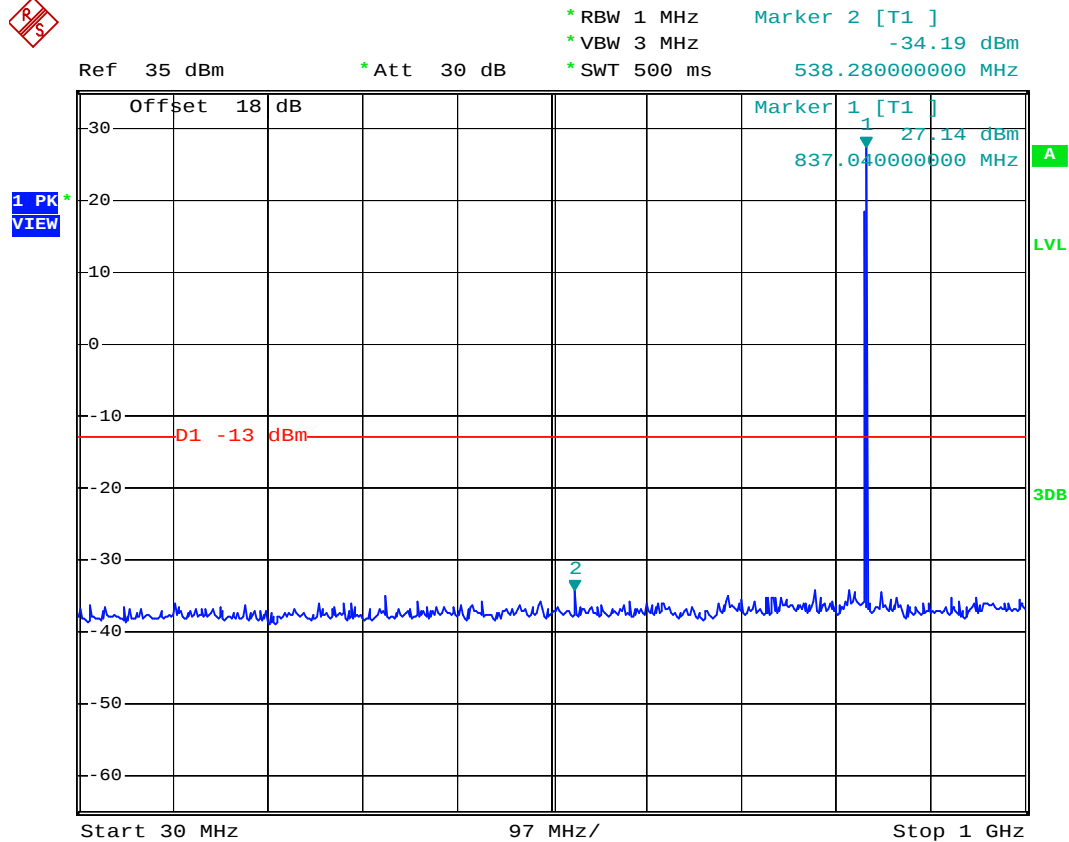
- Test Mode : GPRS850 CH189
- Frequency Range : 7G-9G



Date: 9.MAR.2008 08:35:24



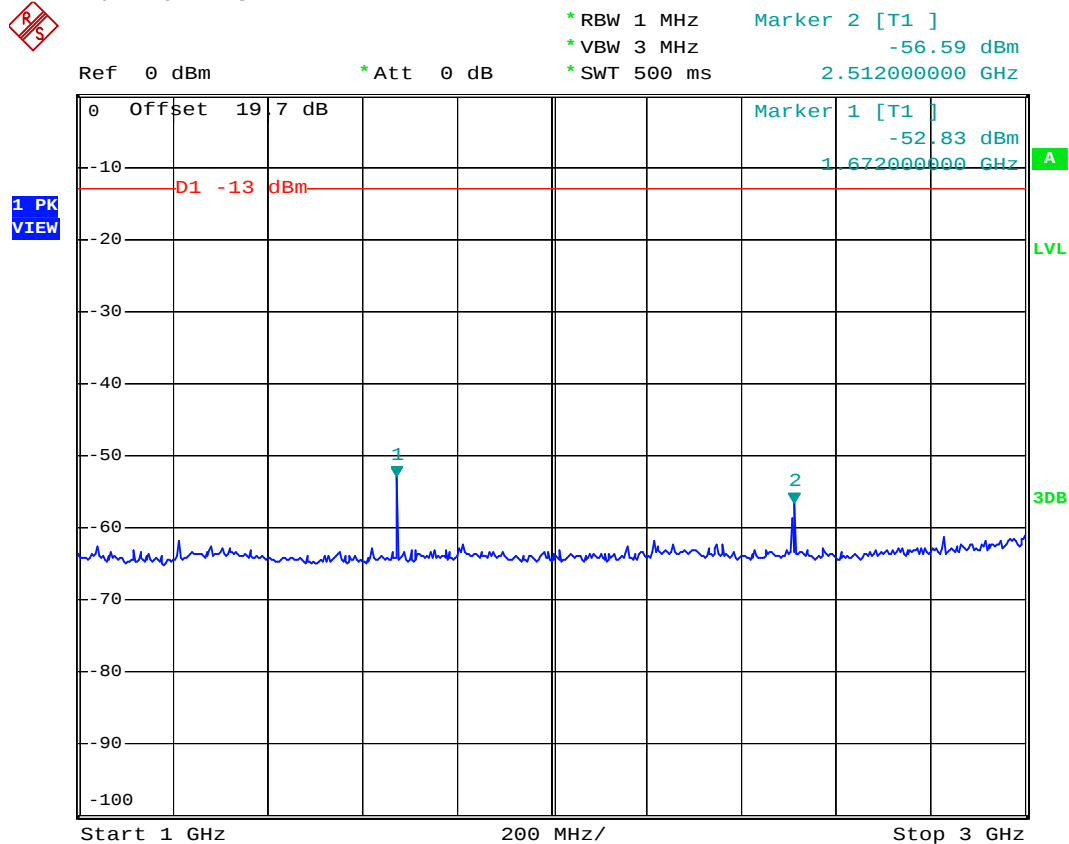
- Mode 2
- Test Mode : EDGE850 CH189
- Frequency Range : 30M-1G



Date: 9.MAR.2008 08:13:40



- Test Mode : EDGE850 CH189
- Frequency Range : 1G-3G



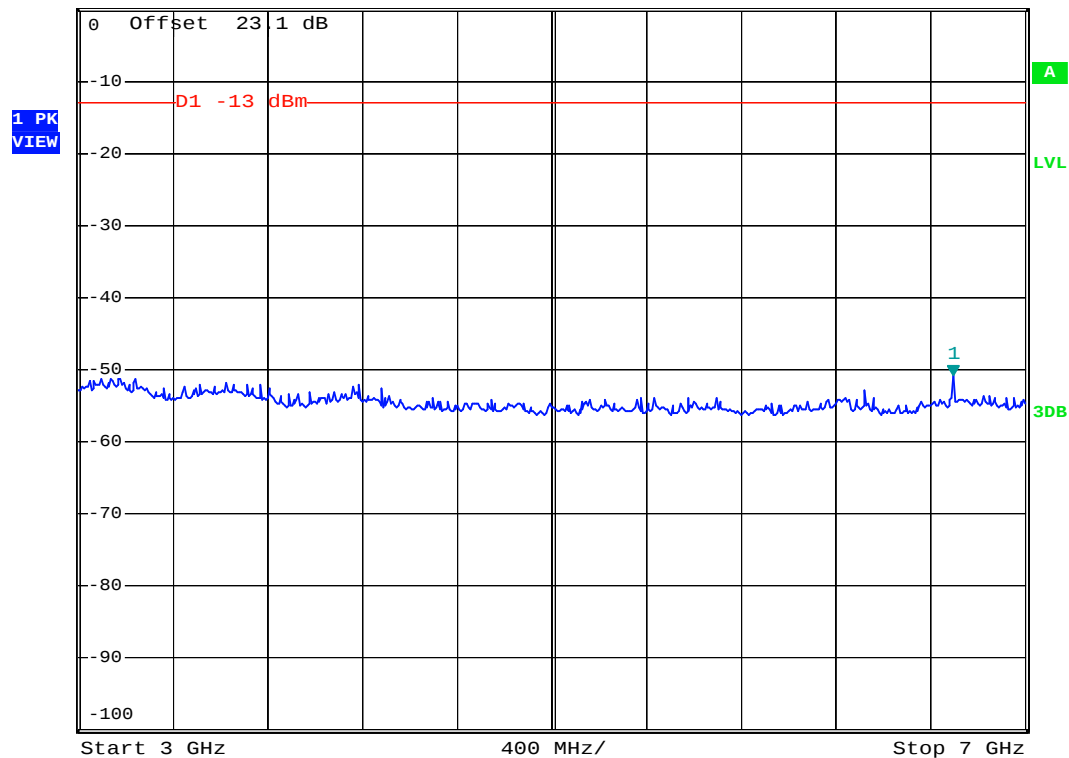
Date: 9.MAR.2008 08:28:53



- Test Mode : EDGE850 CH189
- Frequency Range : 3G-7G



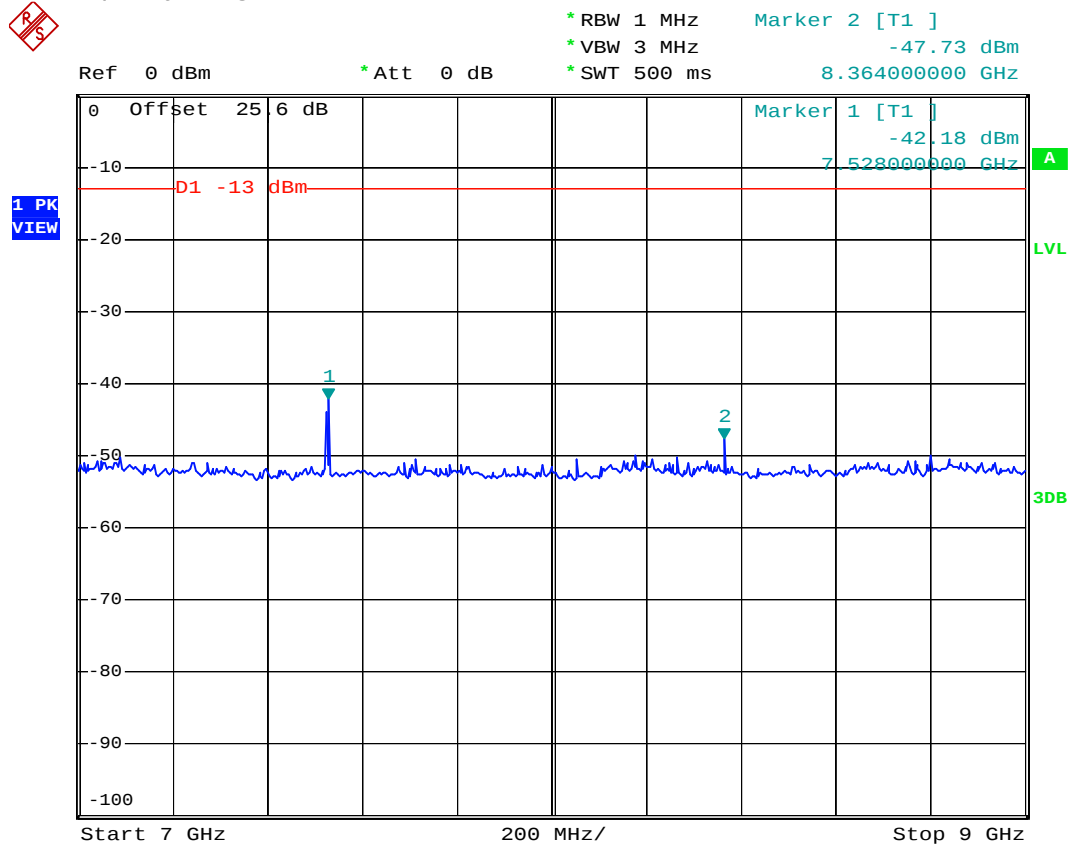
Ref 0 dBm *Att 0 dB *RBW 1 MHz Marker 1 [T1]
*VBW 3 MHz -50.82 dBm
*SWT 500 ms 6.696000000 GHz



Date: 9.MAR.2008 08:33:00



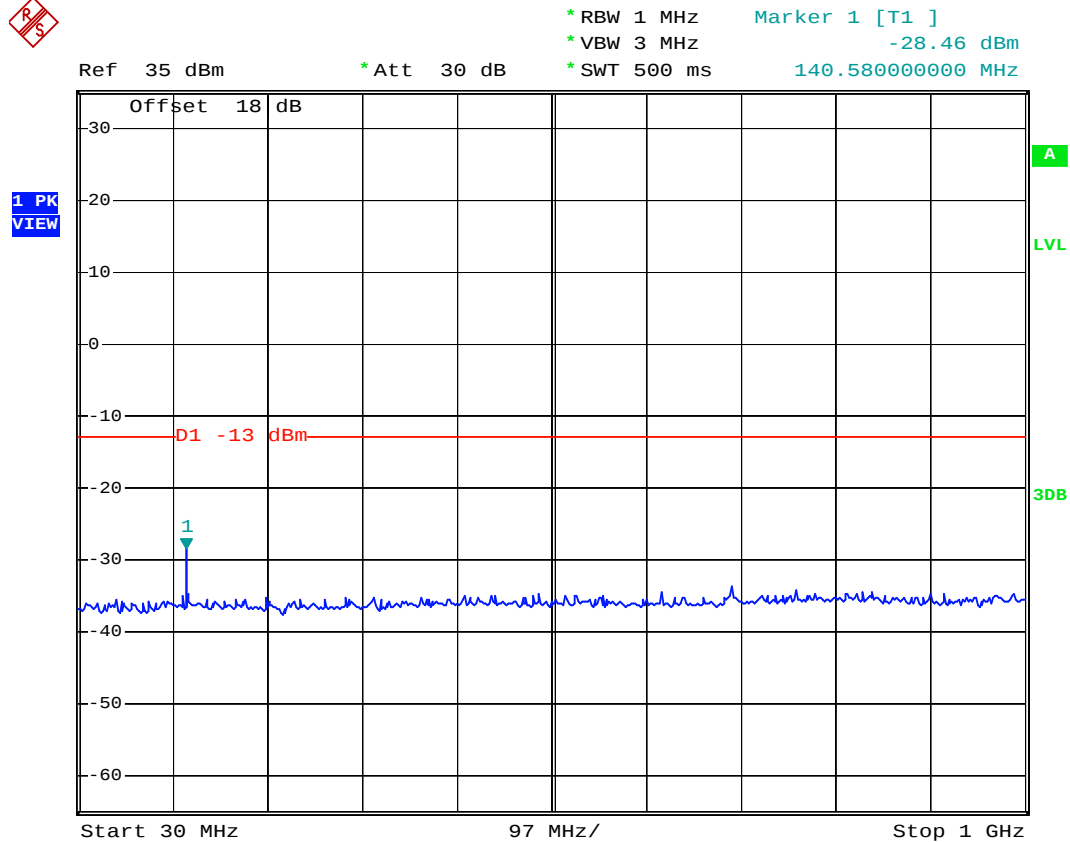
- Test Mode : EDGE850 CH189
- Frequency Range : 7G-9G



Date: 9.MAR.2008 08:34:38



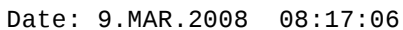
- Mode 3
- Test Mode : GPRS1900 CH661
- Frequency Range : 30M-1G



Date: 9.MAR.2008 08:15:06



- Test Mode : GPRS1900 CH661
- Frequency Range : 1G-3G

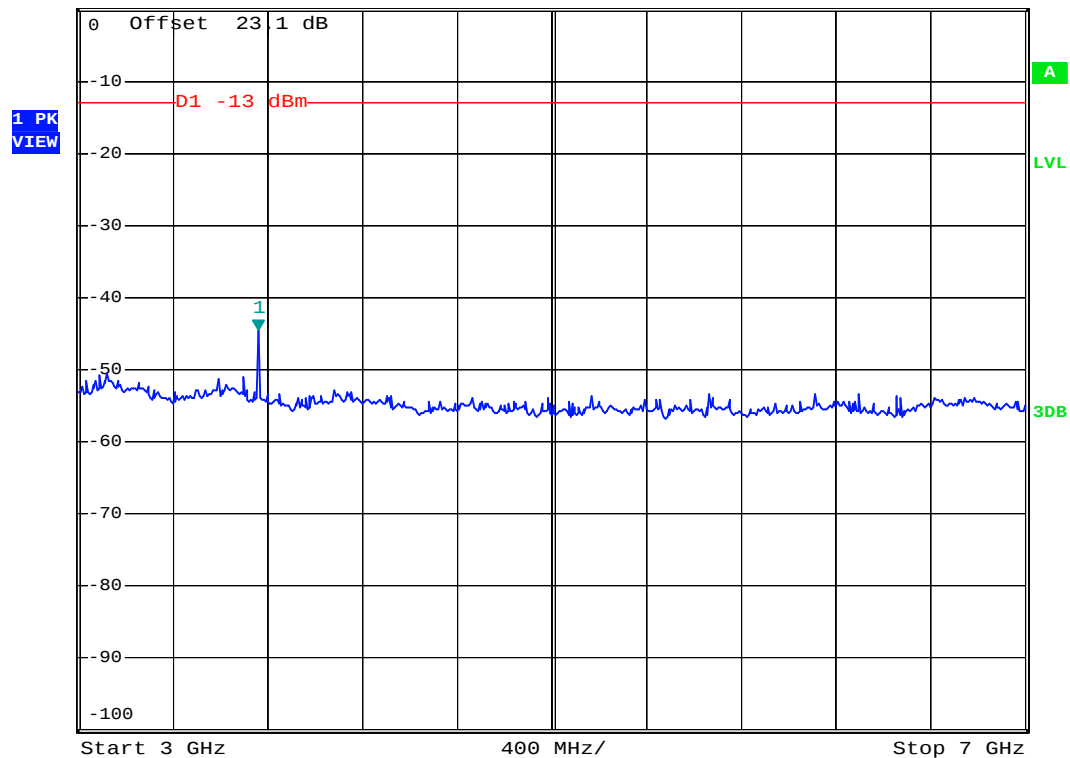




- Test Mode : GPRS1900 CH661
- Frequency Range : 3G-7G



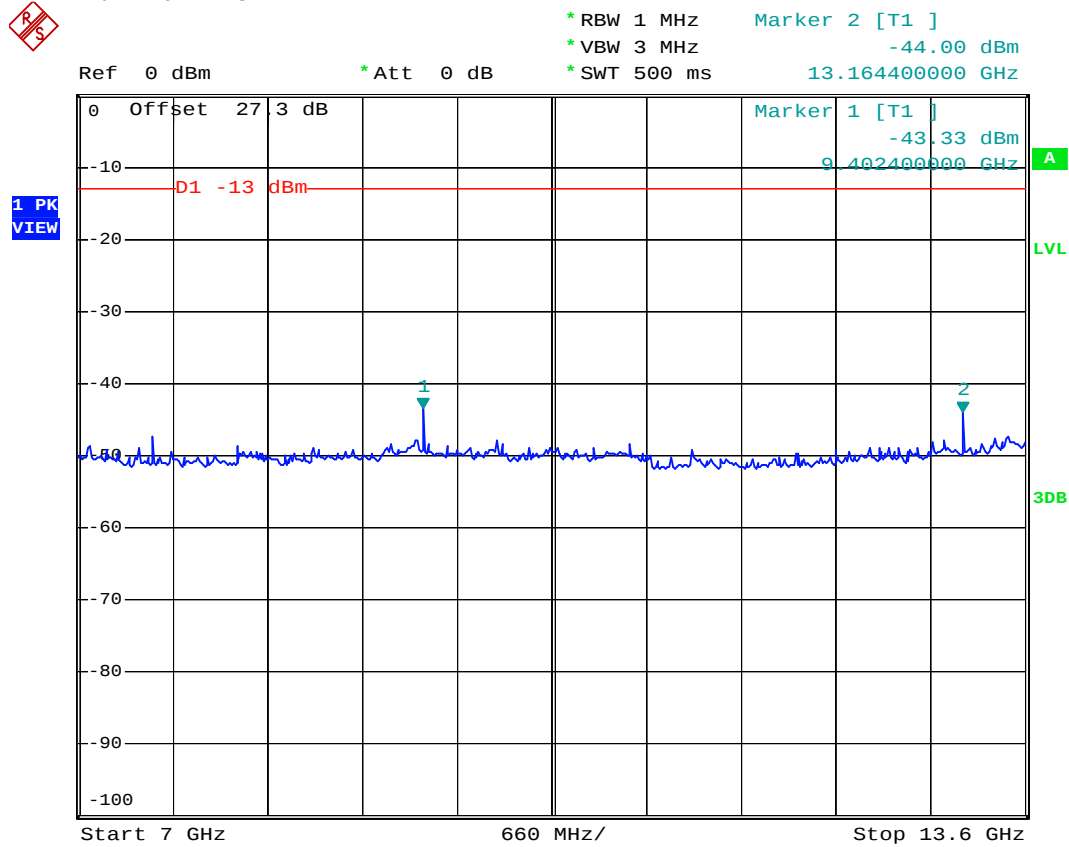
Ref 0 dBm *Att 0 dB *RBW 1 MHz Marker 1 [T1]
*VBW 3 MHz -44.49 dBm
*SWT 500 ms 3.760000000 GHz



Date: 9.MAR.2008 08:31:52



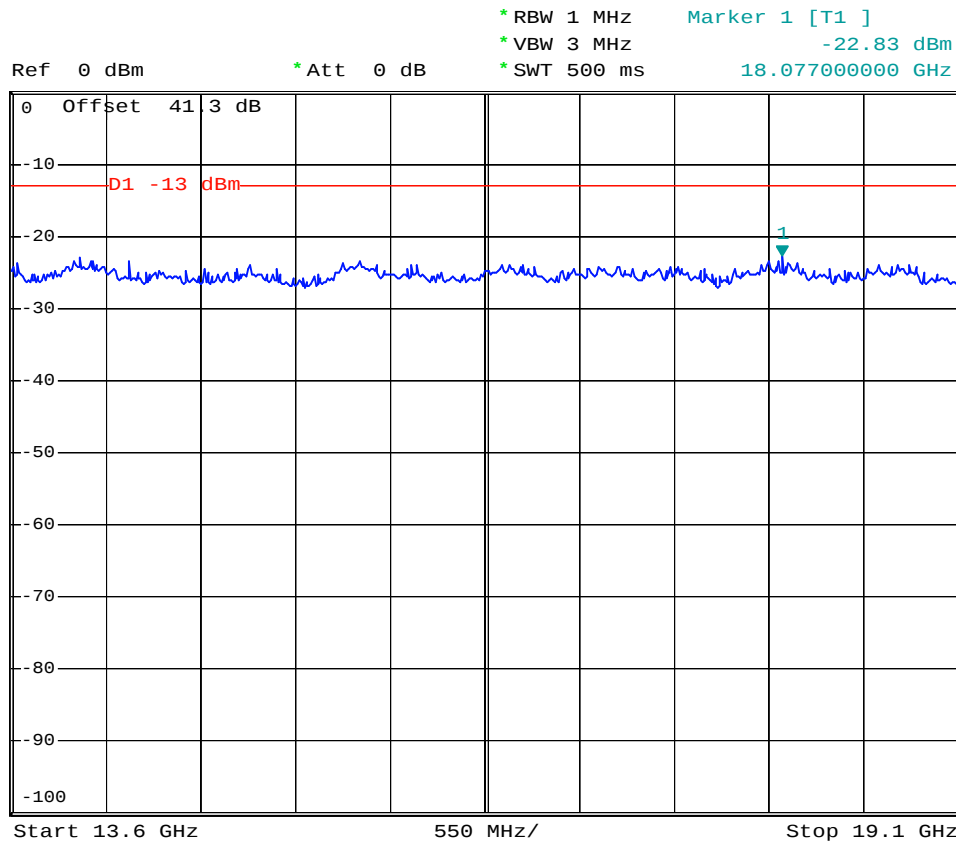
- Test Mode : GPRS1900 CH661
- Frequency Range : 7G-13.6G



Date: 9.MAR.2008 08:37:21



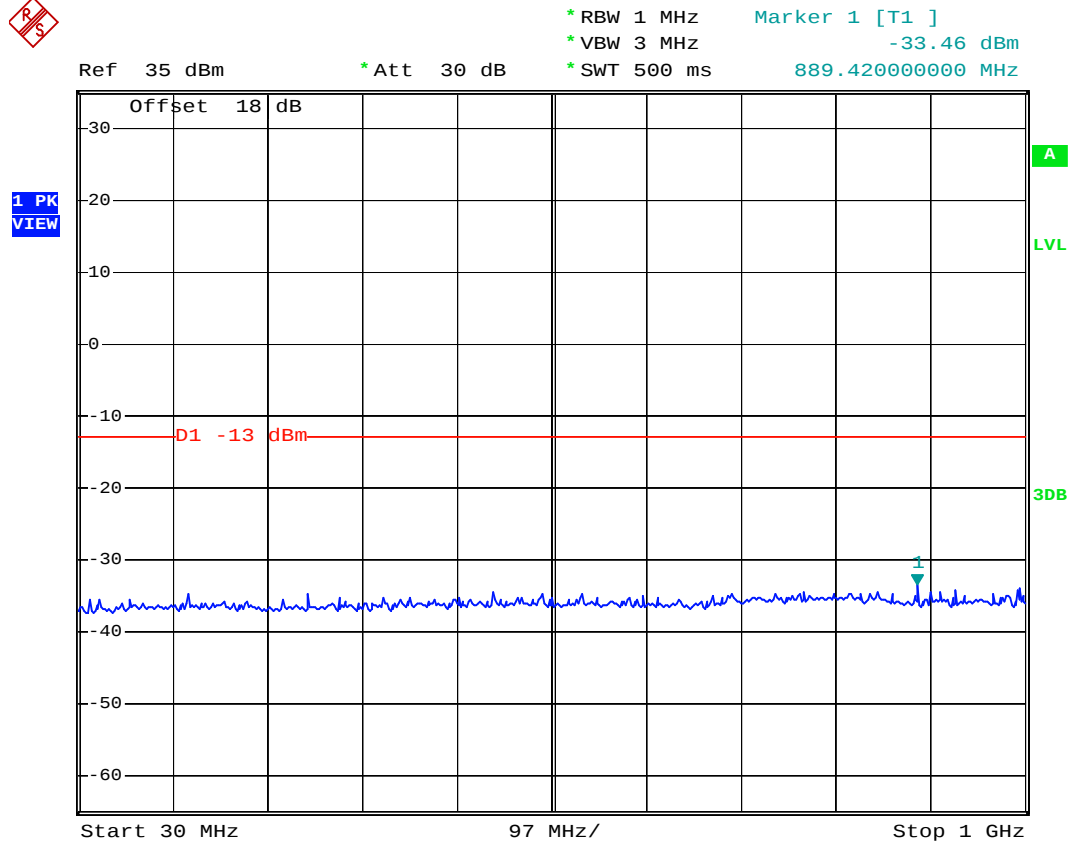
- Test Mode : GPRS1900 CH661
- Frequency Range : 13.6G-19.1G



Date: 9.MAR.2008 08:38:00



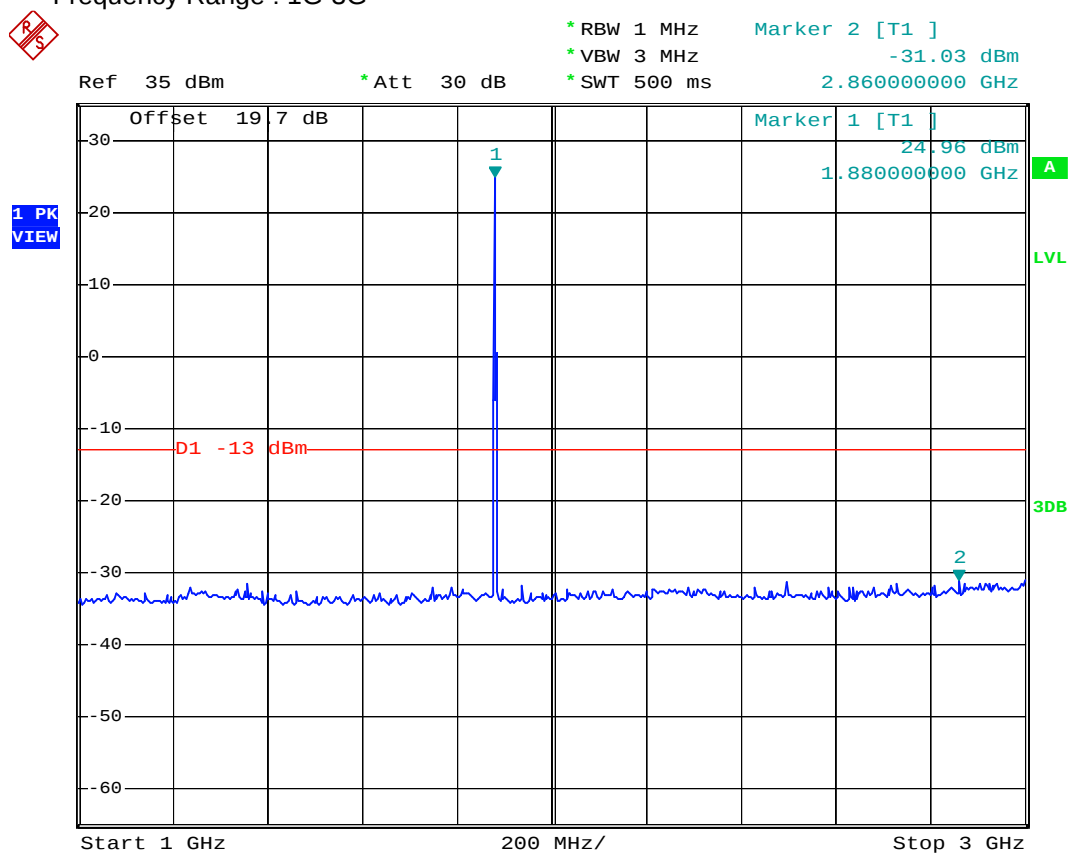
- Mode 4
- Test Mode : EDGE1900 CH661
- Frequency Range : 30M-1G



Date: 9.MAR.2008 08:14:15



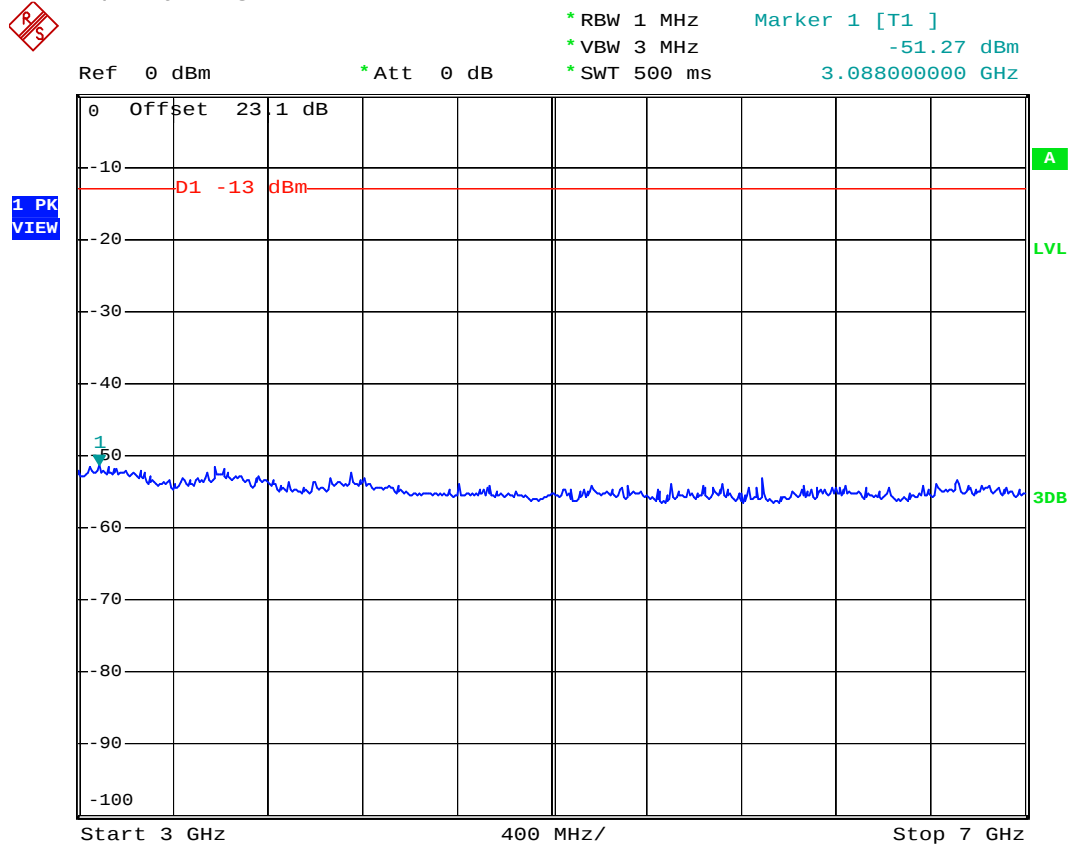
- Test Mode : EDGE1900 CH661
- Frequency Range : 1G-3G



Date: 9.MAR.2008 08:22:24



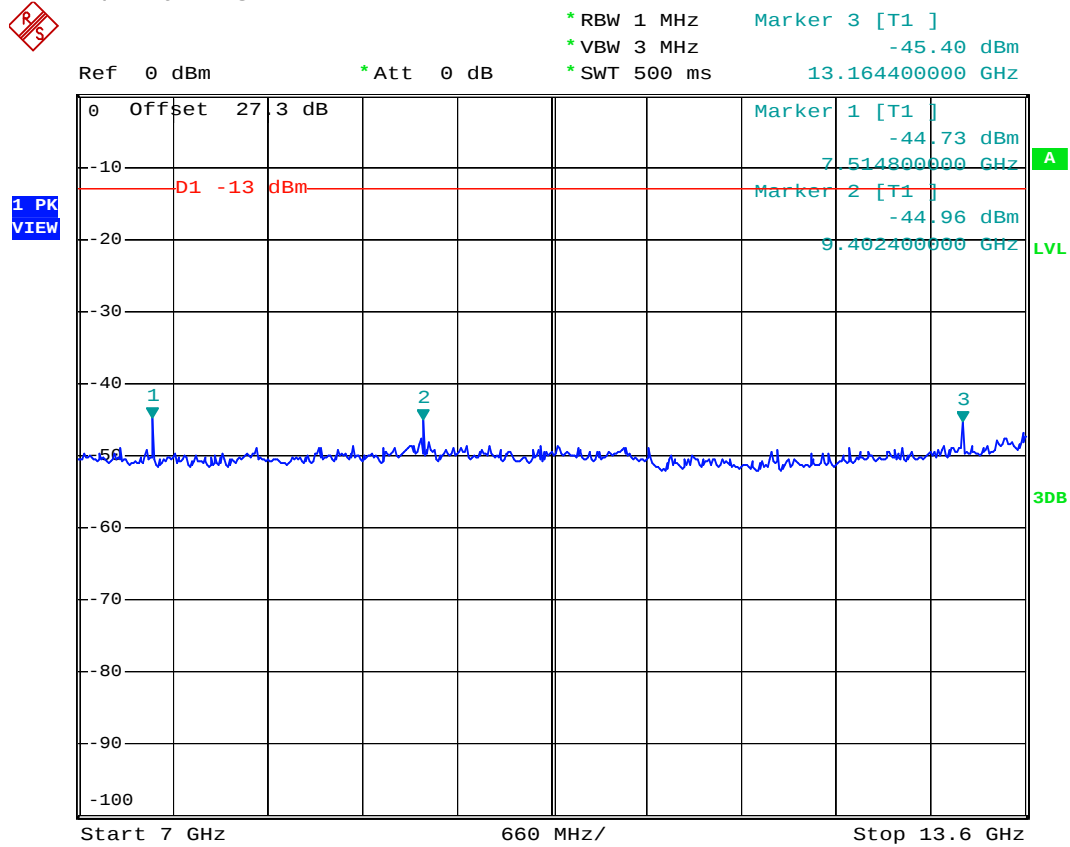
- Test Mode : EDGE1900 CH661
- Frequency Range : 3G-7G



Date: 9.MAR.2008 08:33:33



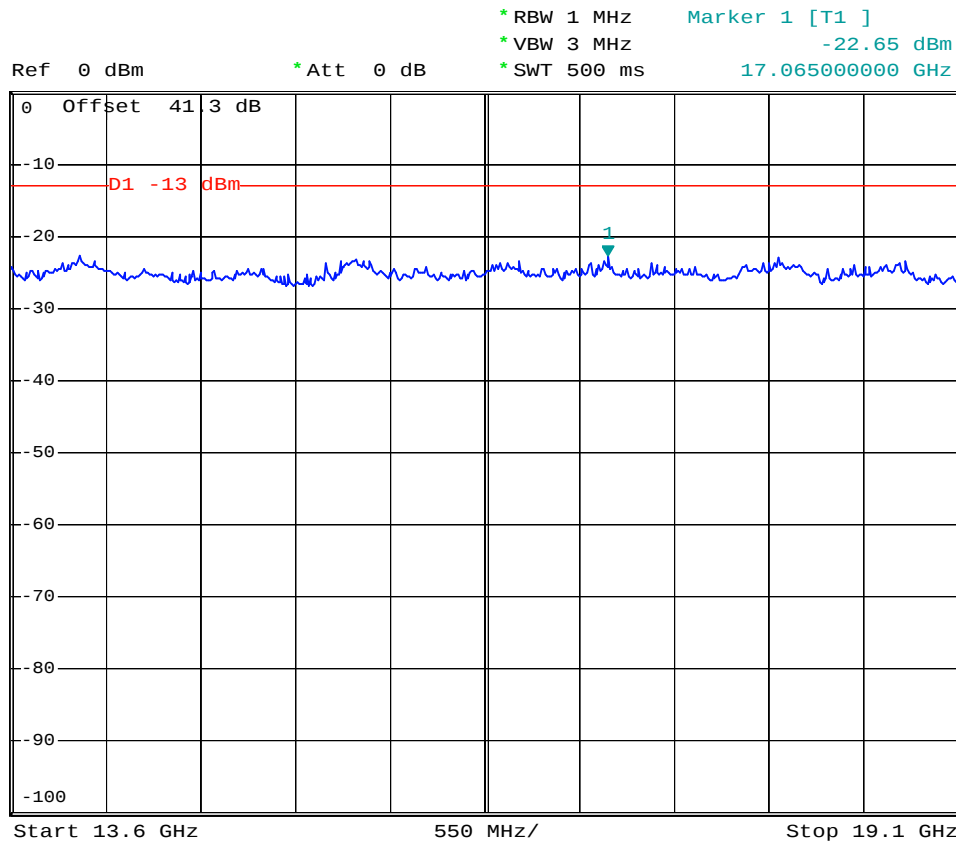
- Test Mode : EDGE1900 CH661
- Frequency Range : 7G-13.6G



Date: 9.MAR.2008 08:36:41



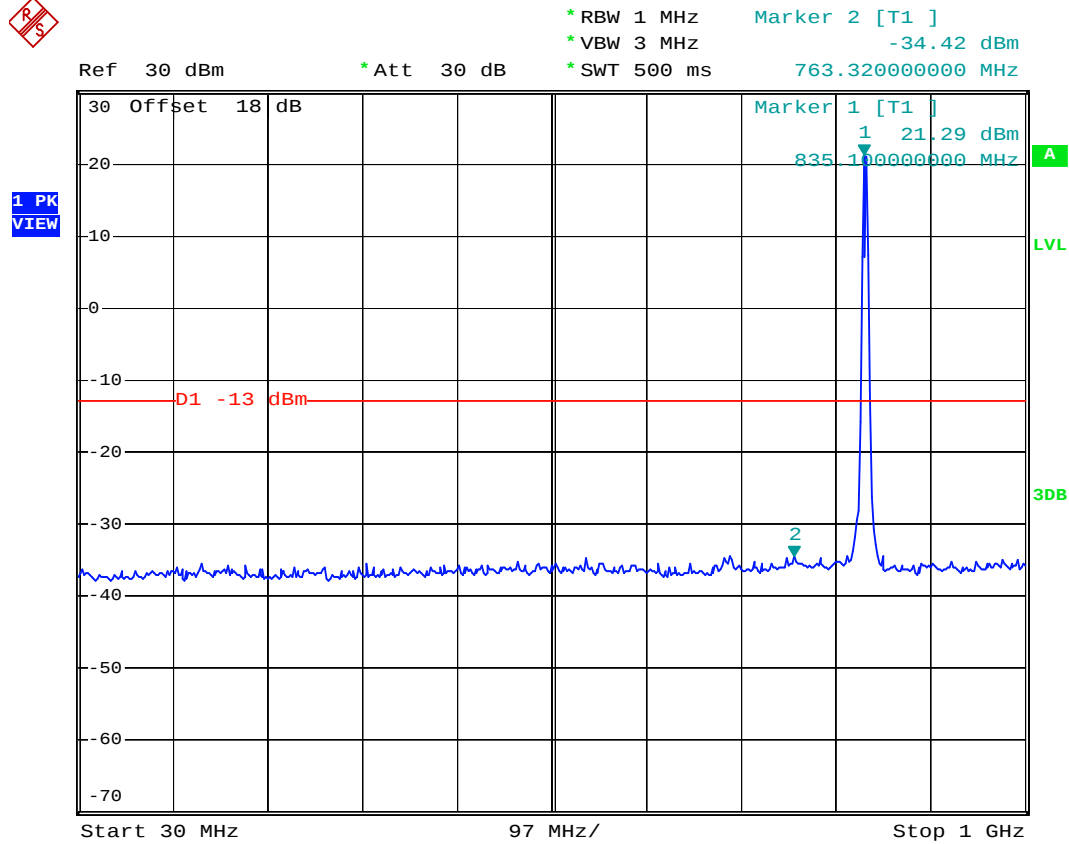
- Test Mode : EDGE1900 CH661
- Frequency Range : 13.6G-19.1G



Date: 9.MAR.2008 08:38:54



- Mode 5
- Test Mode : WCDMA Band V CH4182
- Frequency Range : 30M-1G



Date: 9.MAR.2008 10:29:16

- Test Mode : WCDMA Band V CH4182
- Frequency Range : 1G-3G



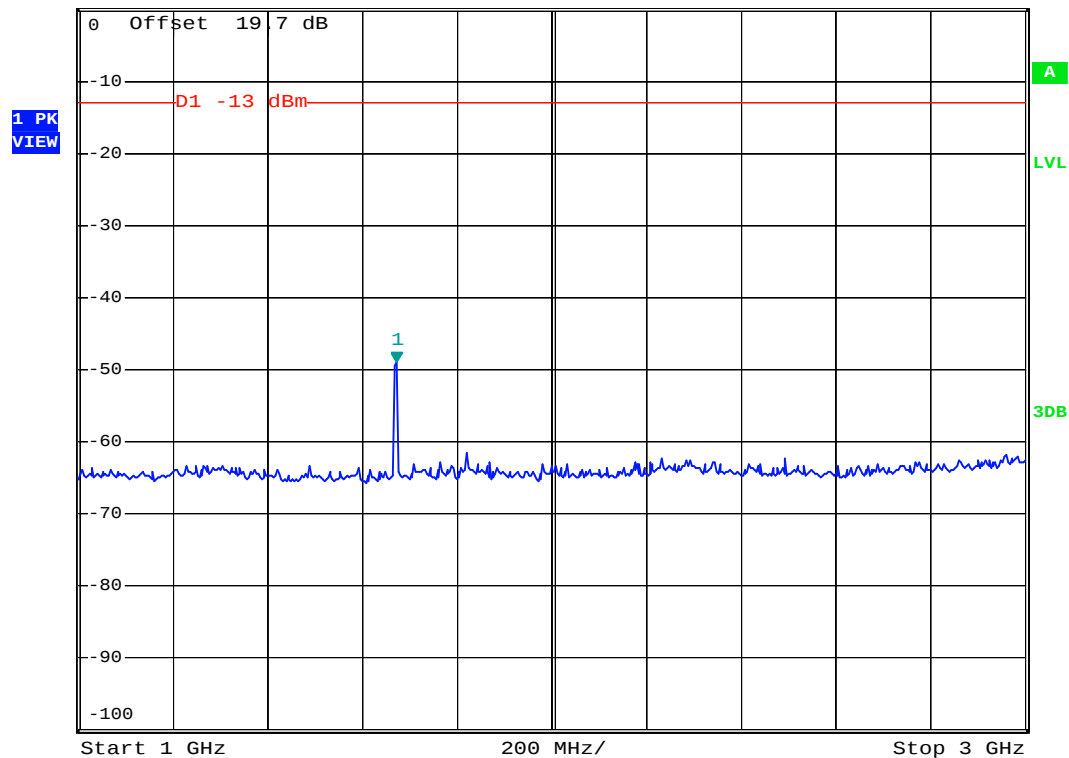
```
* RBW 1 MHz      Marker 1 [T1 ]
* VBW 3 MHz      -48.95 dBm
* SWT 500 ms     1.672000000 GHz
```

Ref 0 dBm

* Att 0 dB

* SWT 500 ms

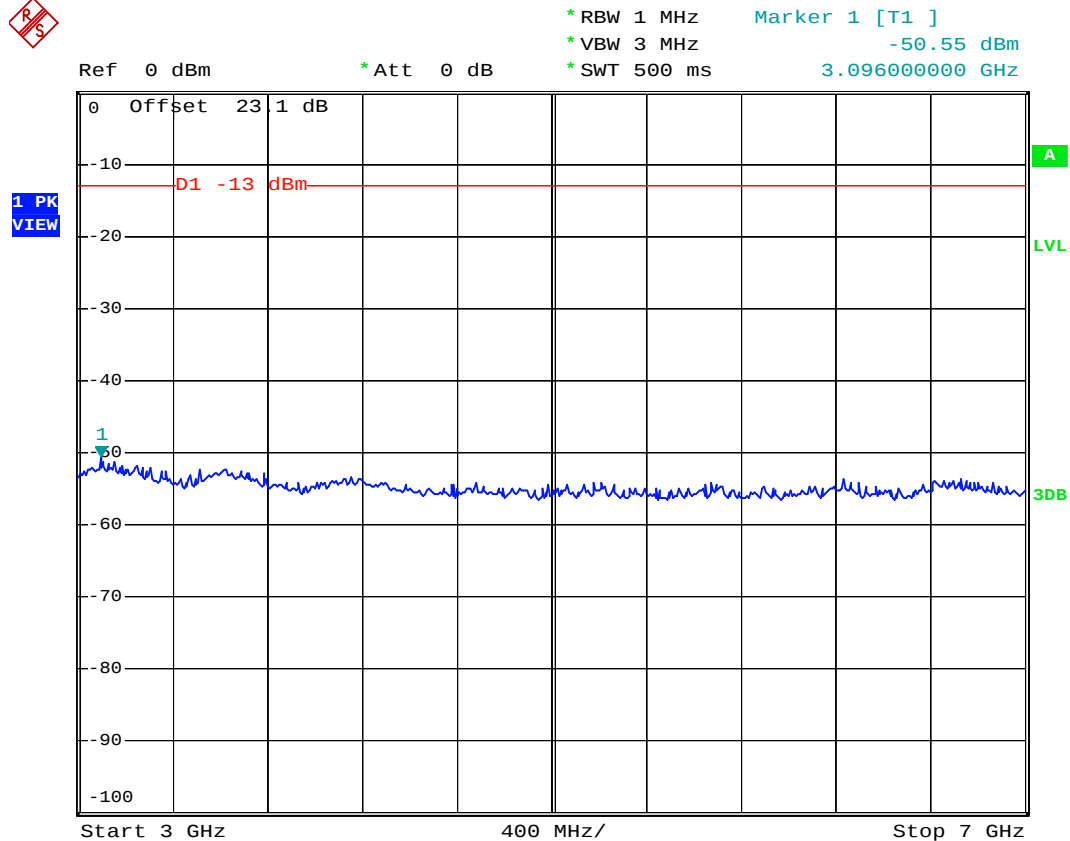
1.672000000 GHz



Date: 9.MAR.2008 10:36:50



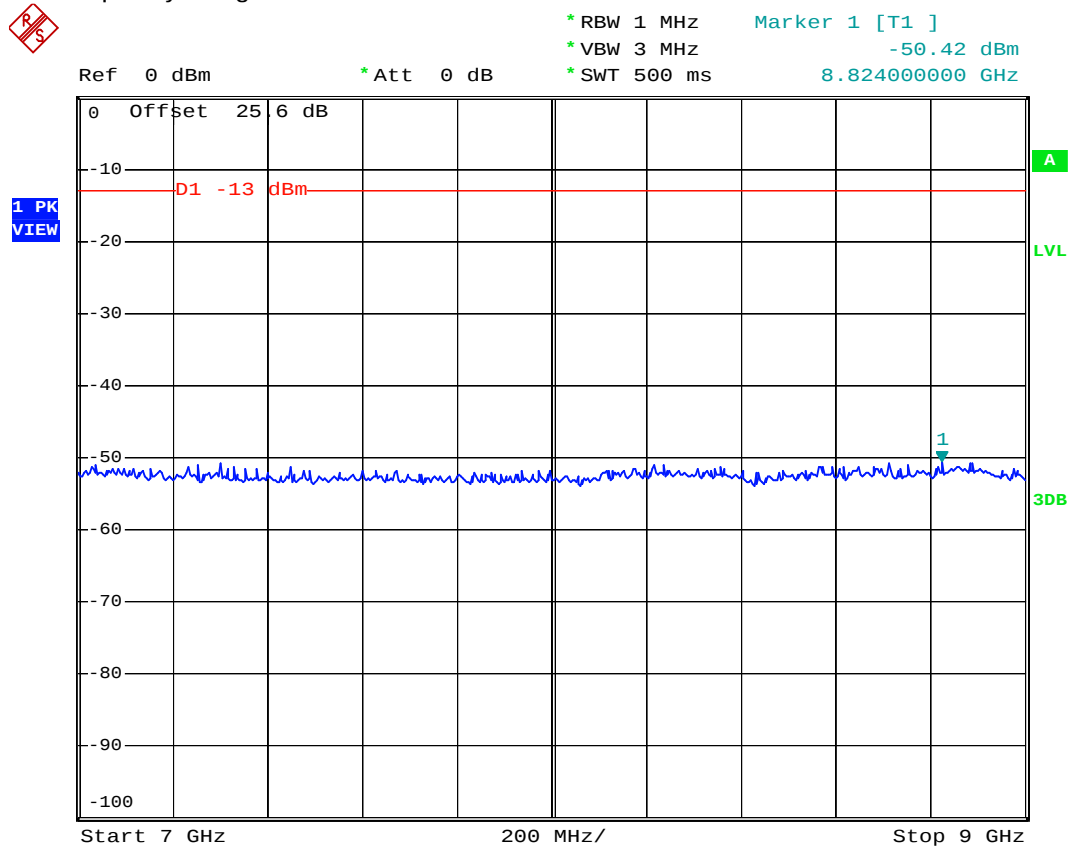
- Test Mode : WCDMA Band V CH4182
- Frequency Range : 3G-7G



Date: 9.MAR.2008 10:40:55



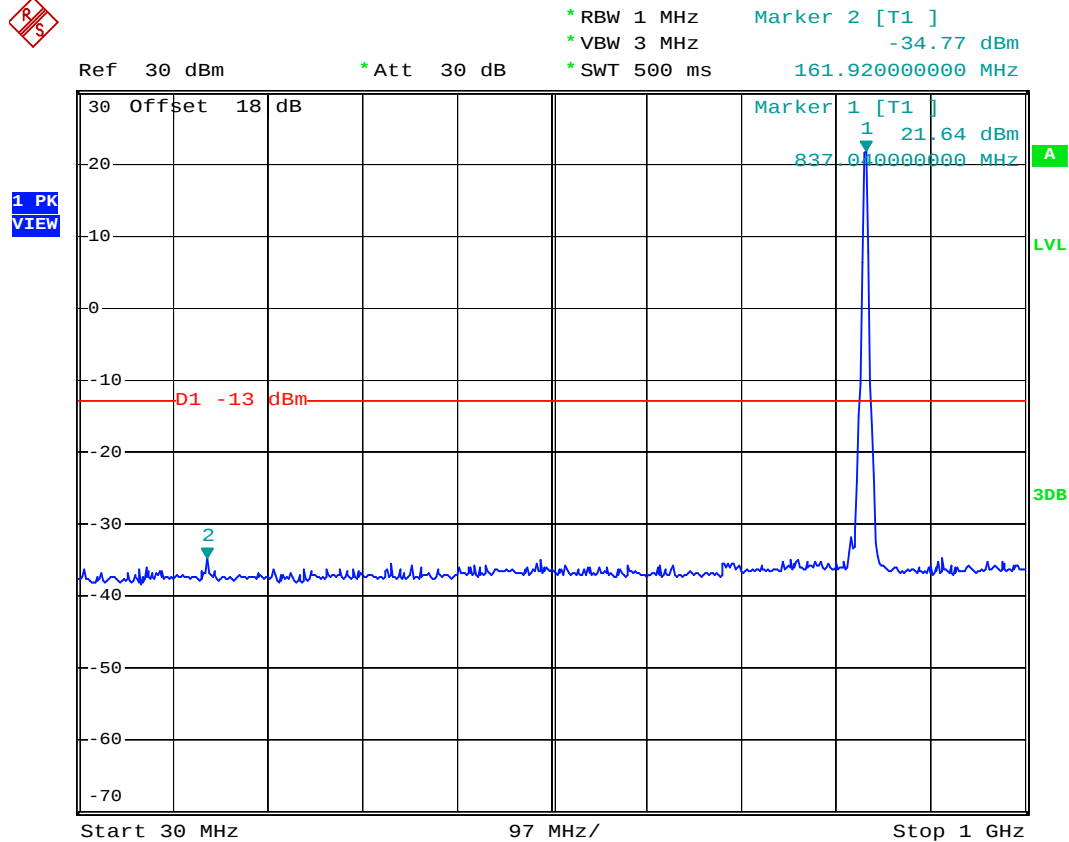
- Test Mode : WCDMA Band V CH4182
- Frequency Range : 7G-9G



Date: 9.MAR.2008 10:41:40



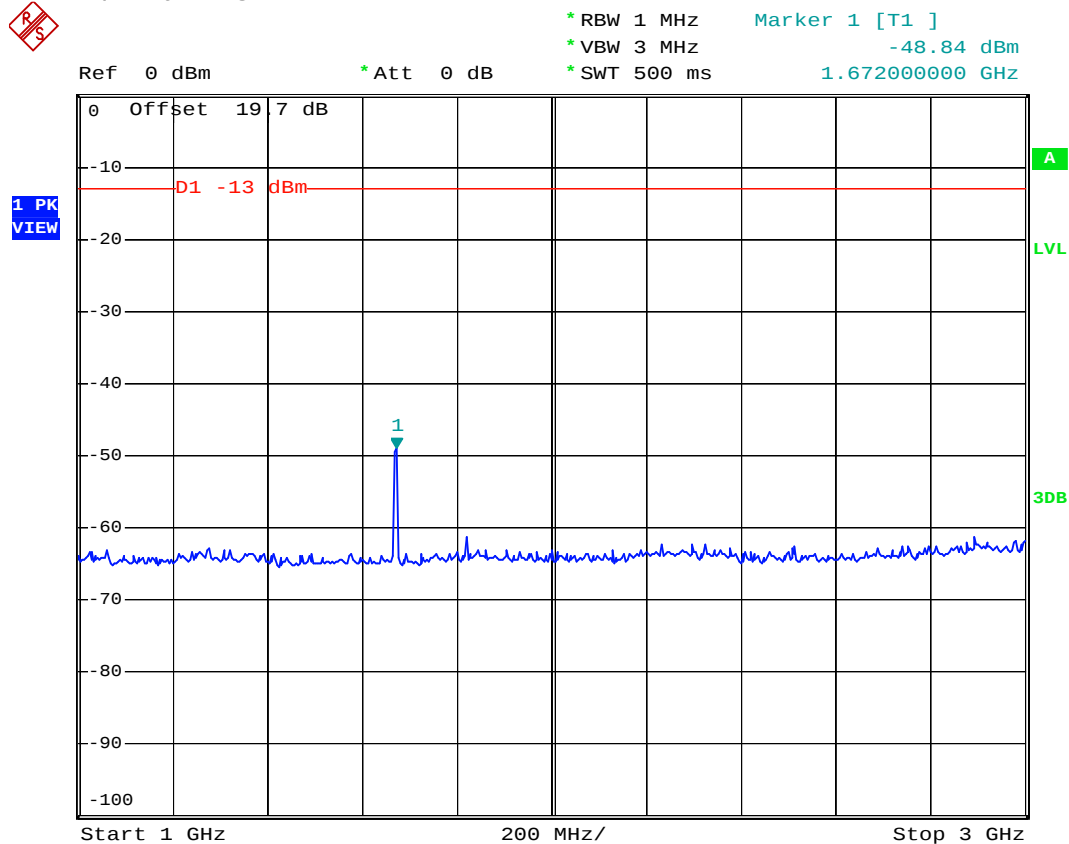
- Mode 6
- Test Mode : WCDMA Band V (HSDPA) CH4182
- Frequency Range : 30M-1G



Date: 9.MAR.2008 10:30:04



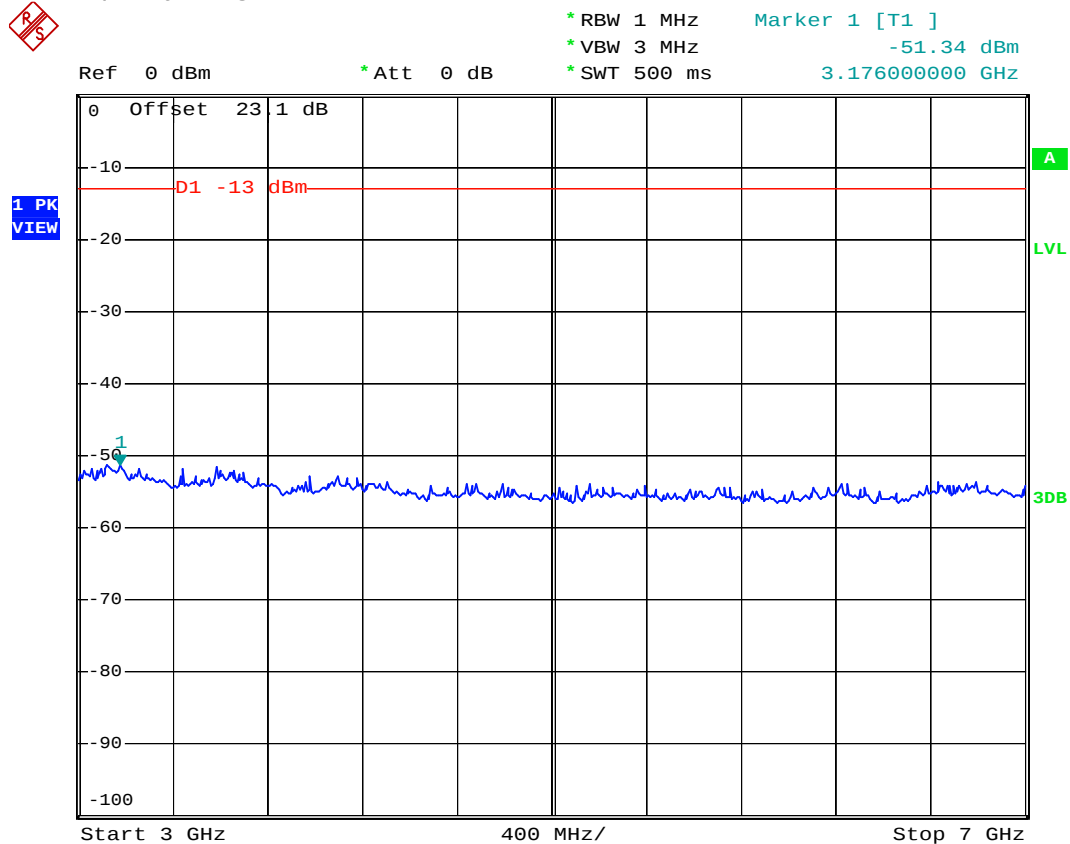
- Test Mode : WCDMA Band V (HSDPA) CH4182
- Frequency Range : 1G-3G



Date: 9.MAR.2008 10:37:29



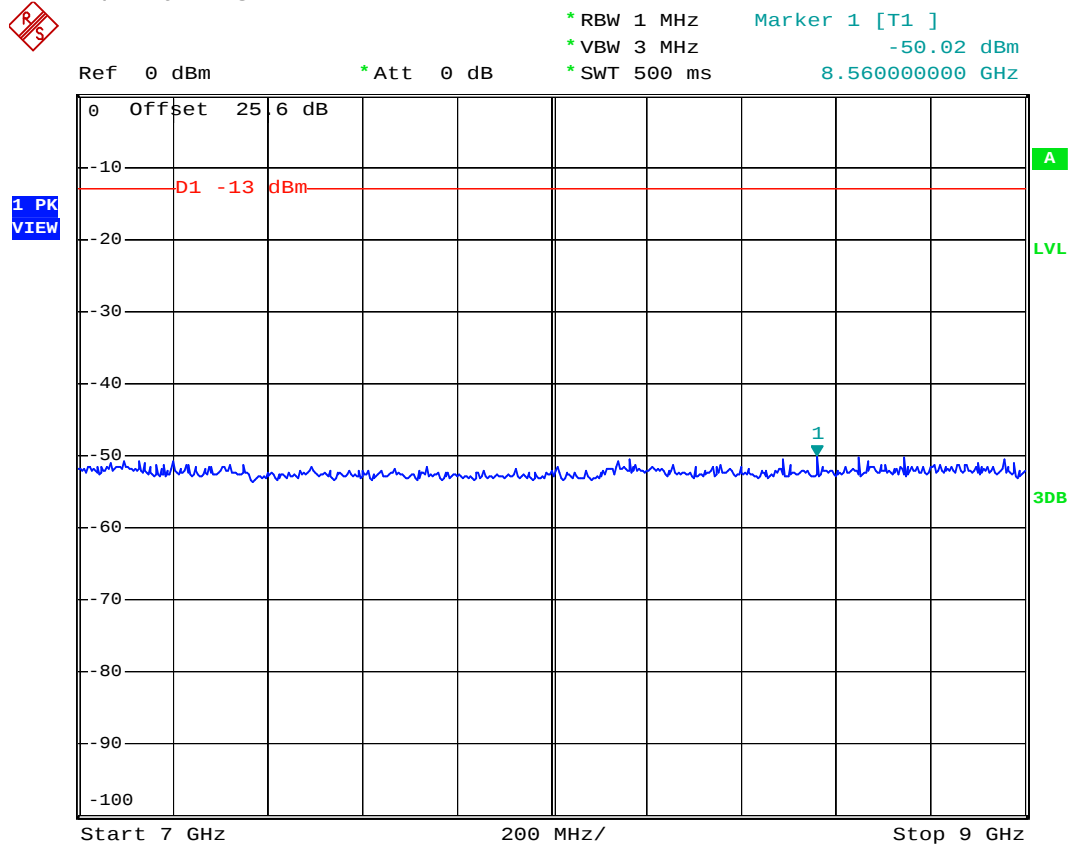
- Test Mode : WCDMA Band V (HSDPA) CH4182
- Frequency Range : 3G-7G



Date: 9.MAR.2008 10:38:51



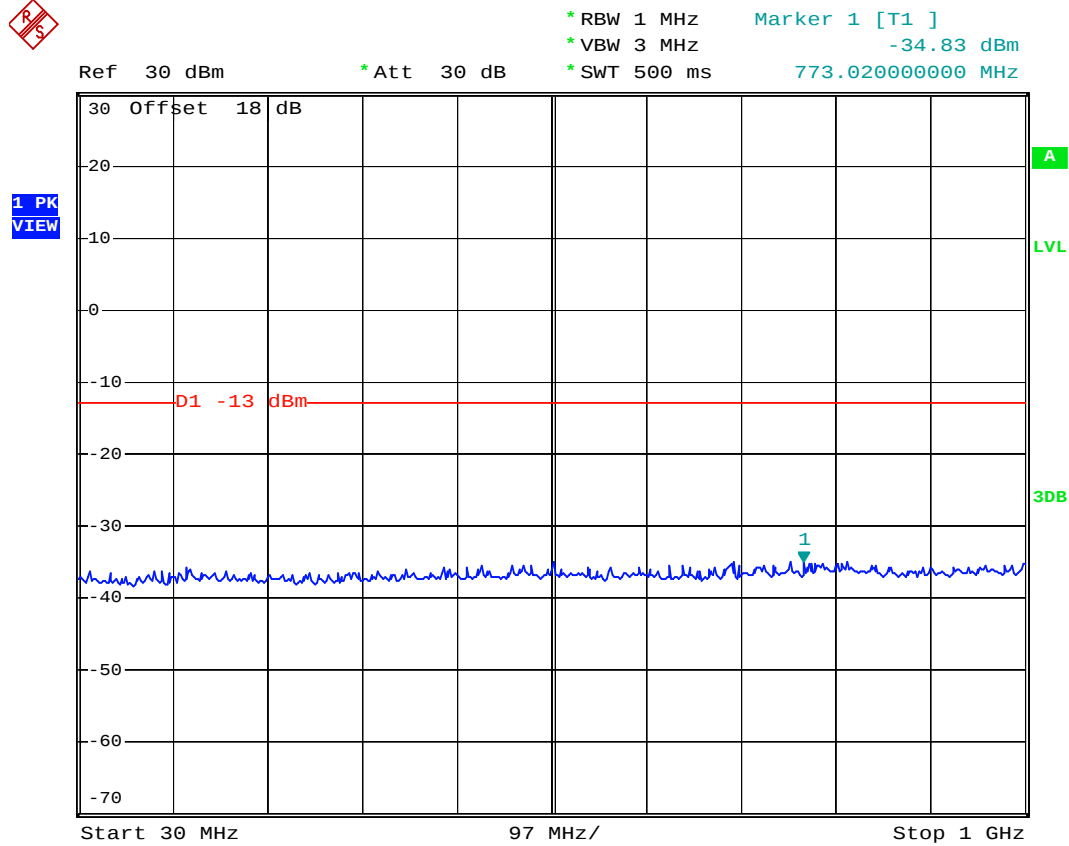
- Test Mode : WCDMA Band V (HSDPA) CH4182
- Frequency Range : 7G-9G



Date: 9.MAR.2008 10:42:12



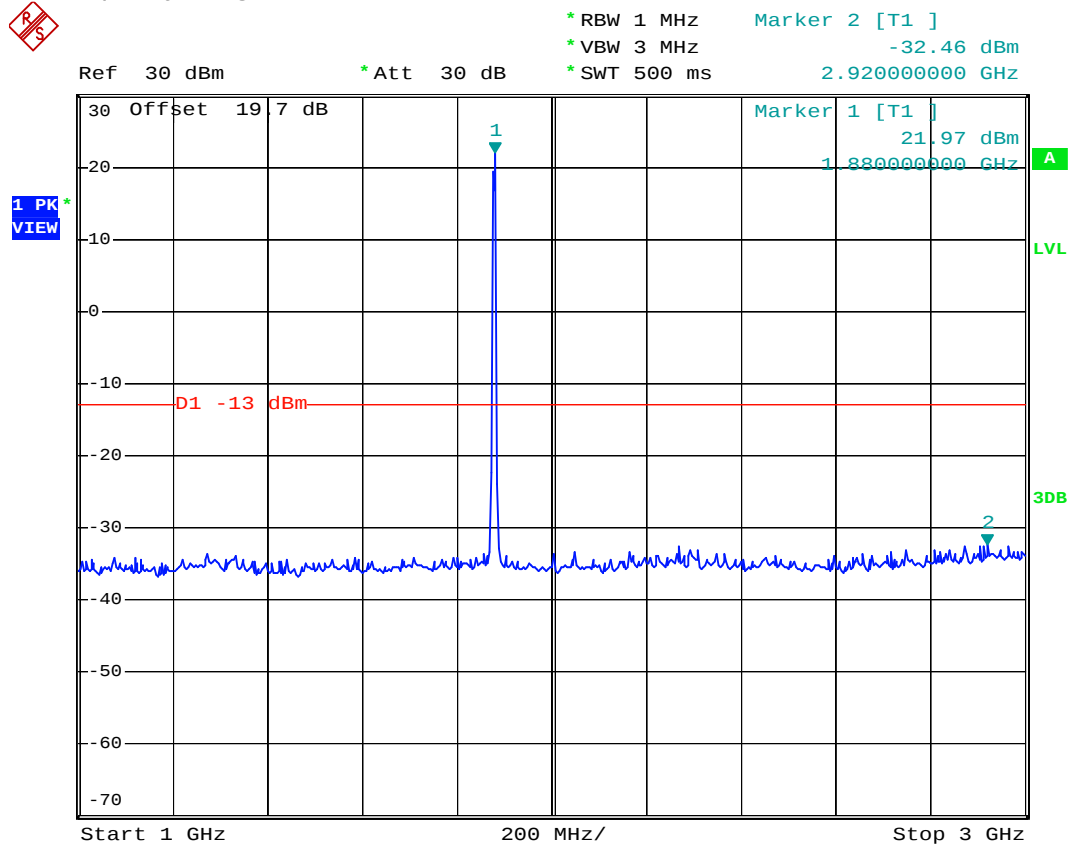
- Mode 7
- Test Mode : WCDMA Band II CH9400
- Frequency Range : 30M-1G



Date: 9.MAR.2008 10:27:35



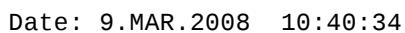
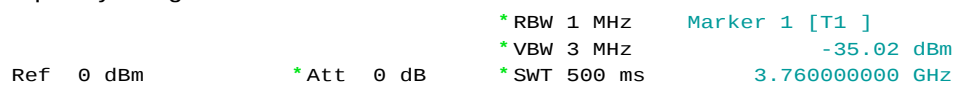
- Test Mode : WCDMA Band II CH9400
- Frequency Range : 1G-3G



Date: 9.MAR.2008 10:35:29

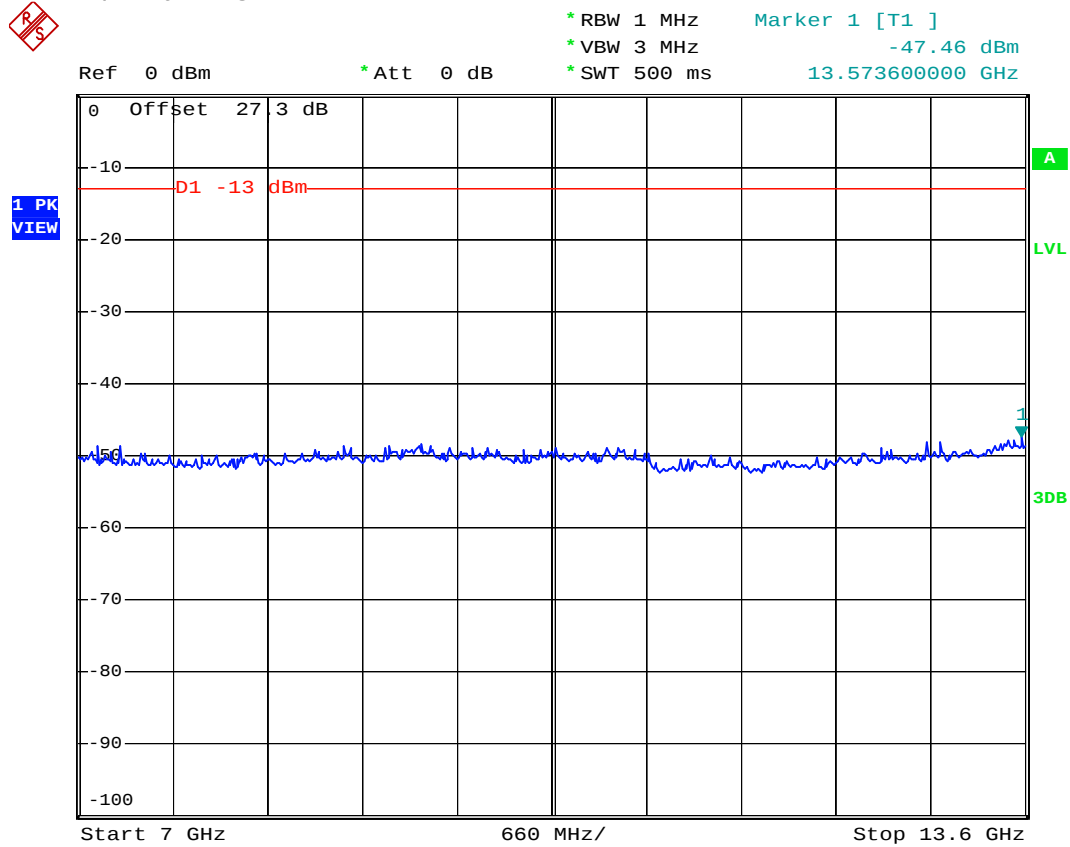


- Test Mode : WCDMA Band II CH9400
- Frequency Range : 3G-7G





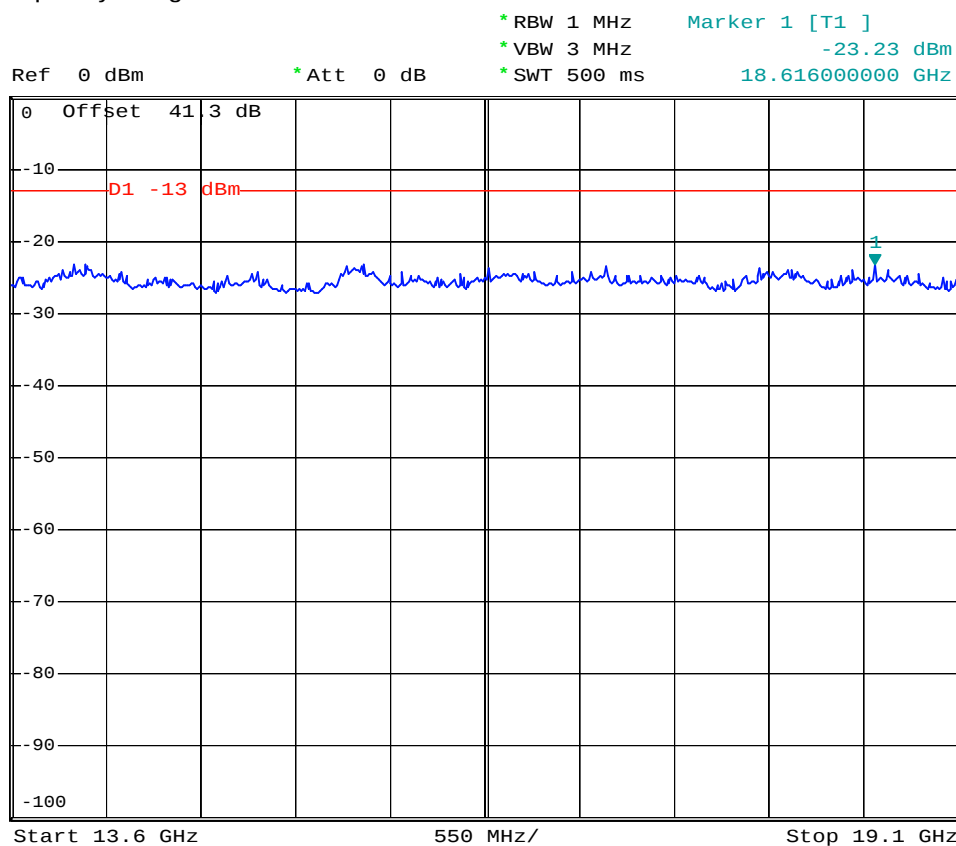
- Test Mode : WCDMA Band II CH9400
- Frequency Range : 7G-13.6G



Date: 9.MAR.2008 10:43:51



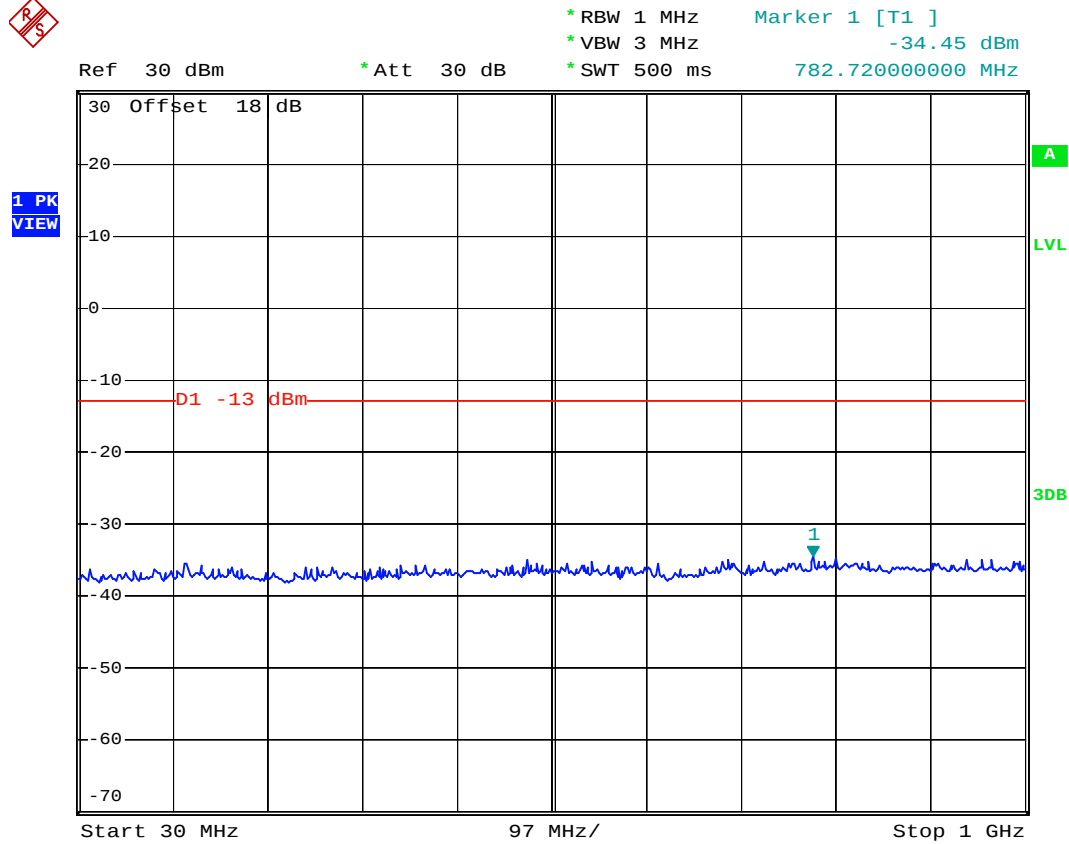
- Test Mode : WCDMA Band II CH9400
- Frequency Range : 13.6G-19.1G



Date: 9.MAR.2008 10:44:43



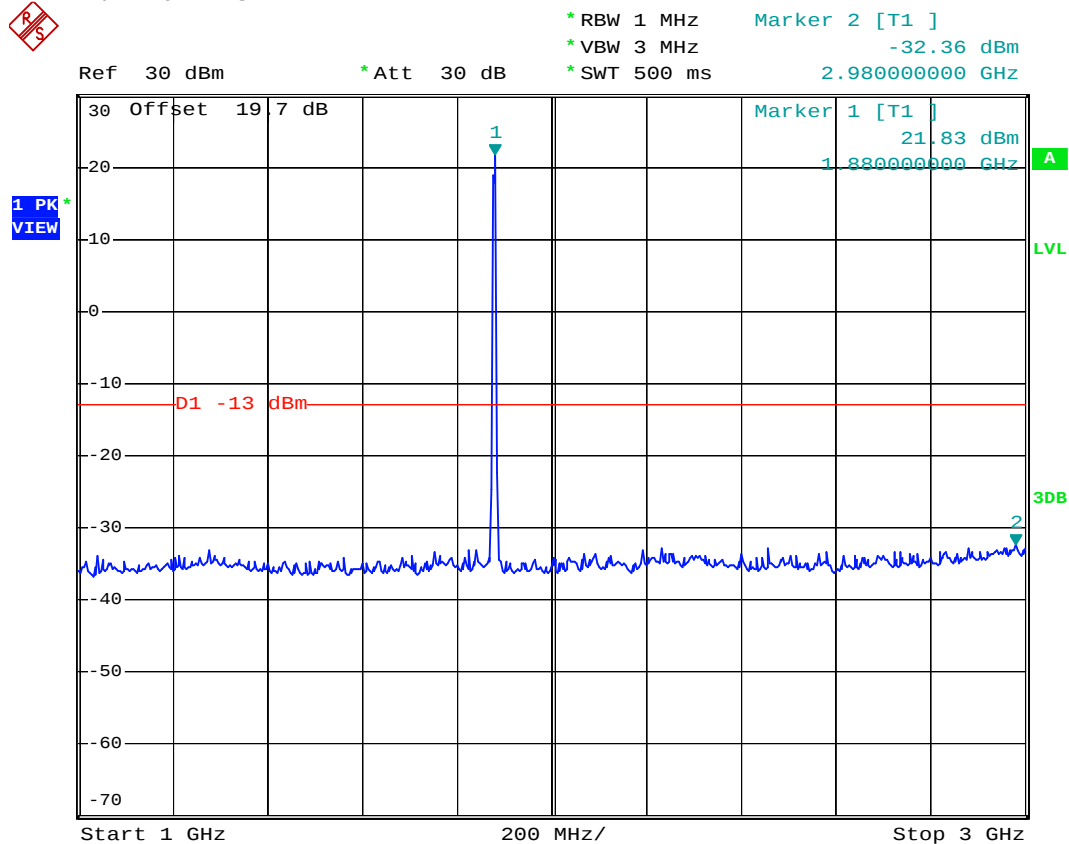
- Mode 8
- Test Mode : WCDMA Band II (HSDPA) CH9400
- Frequency Range : 30M-1G



Date: 9.MAR.2008 10:30:55



- Test Mode : WCDMA Band II (HSDPA) CH9400
- Frequency Range : 1G-3G



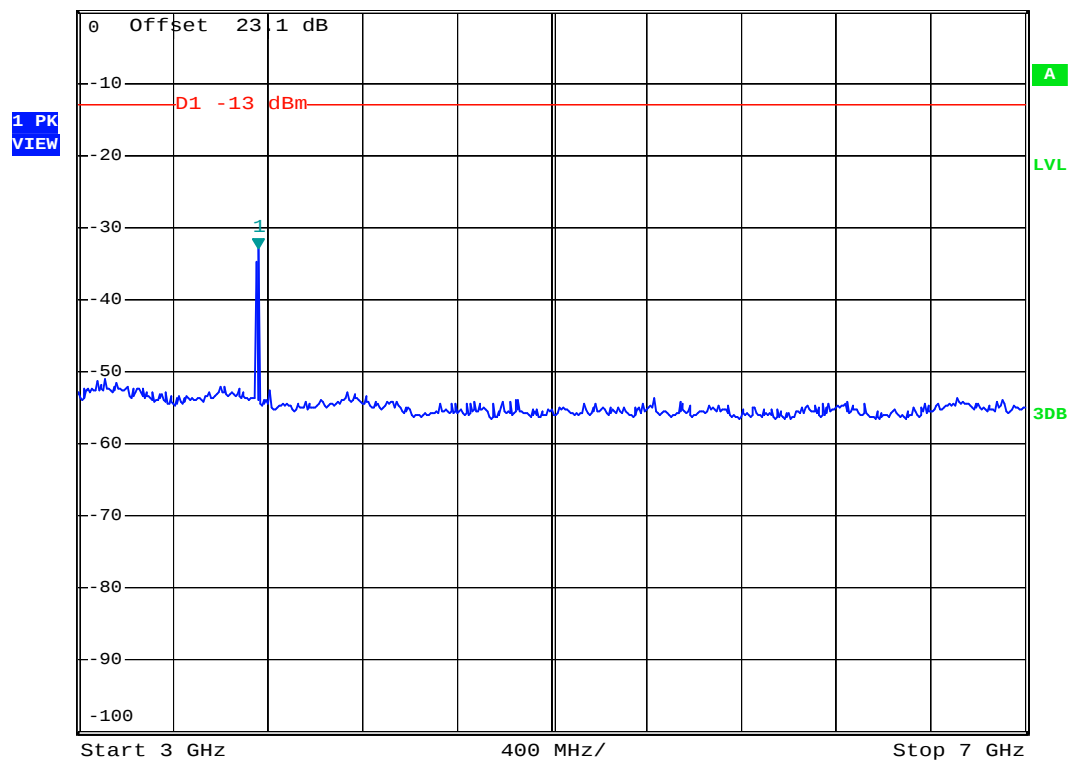
Date: 9.MAR.2008 10:33:05



- Test Mode : WCDMA Band II (HSDPA) CH9400
- Frequency Range : 3G-7G



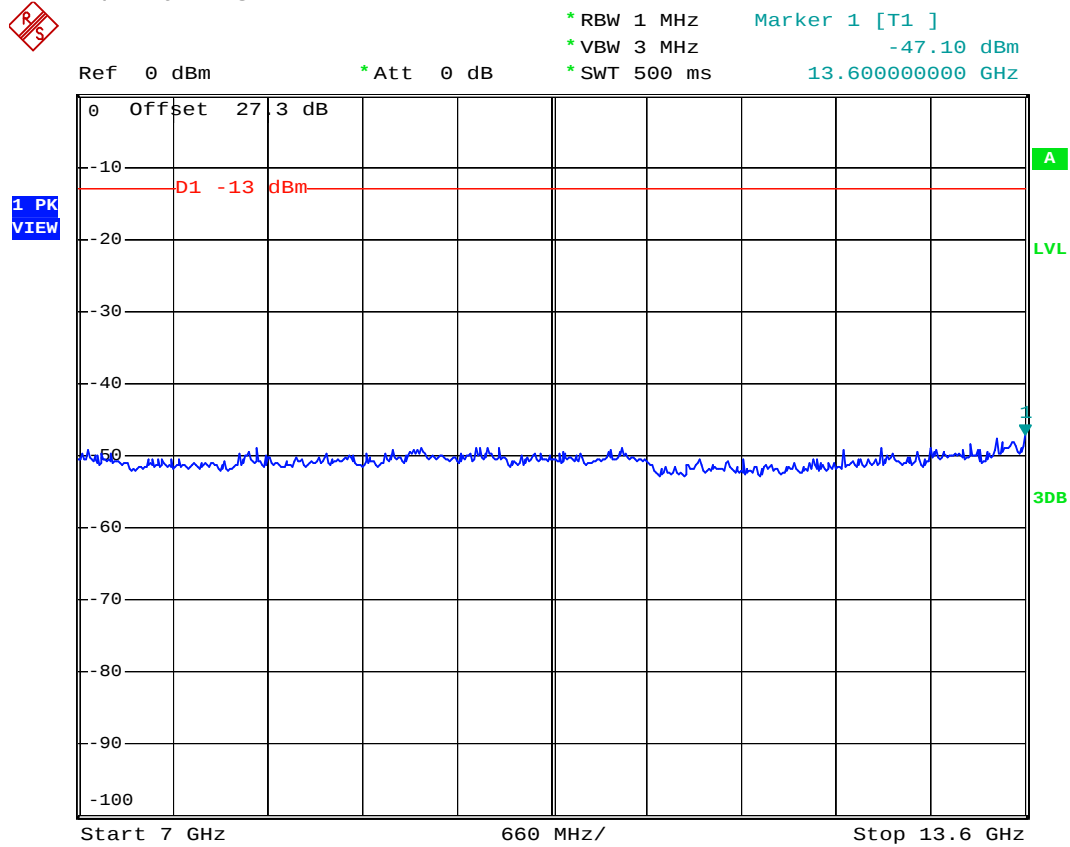
Ref 0 dBm *Att 0 dB *RBW 1 MHz Marker 1 [T1] -32.86 dBm
*VBW 3 MHz 3.760000000 GHz
*SWT 500 ms



Date: 9.MAR.2008 10:39:27



- Test Mode : WCDMA Band II (HSDPA) CH9400
- Frequency Range : 7G-13.6G



Date: 9.MAR.2008 10:43:04



- 

Ref 0 dBm * Att 0 dB * SWT 500 ms 15.547000000 GHz



Date: 9.MAR.2008 10:45:19

4.6 Field Strength of Spurious Radiation

Equivalent isotropic radiated Power Measurements by substitution method according to ANSI/TIA/EIA-603-C.

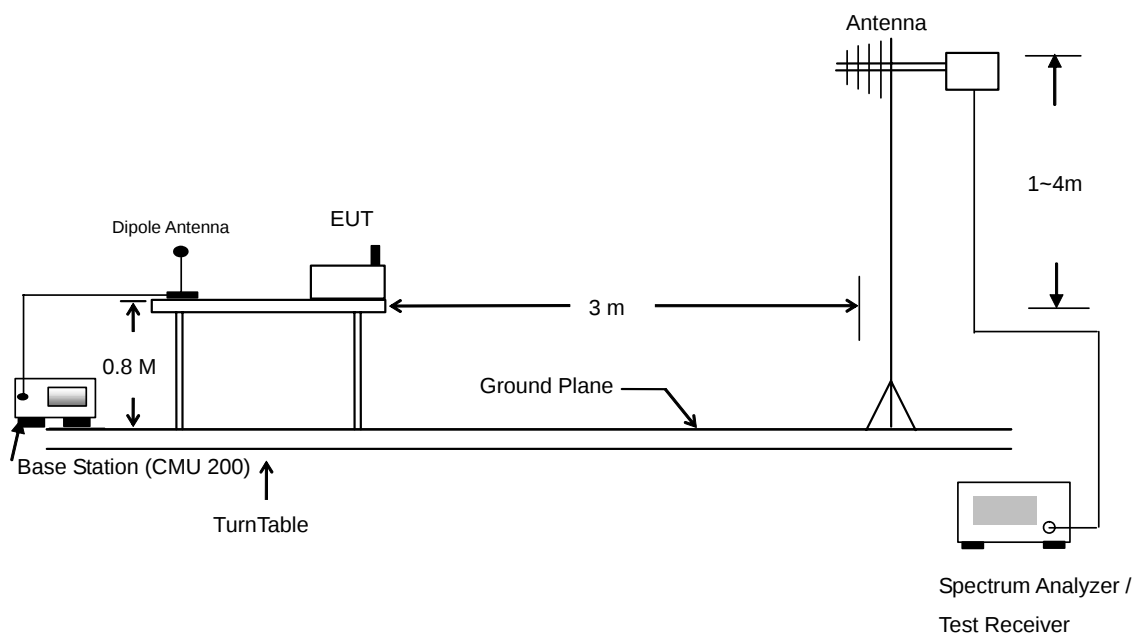
4.6.1 Measurement Instruments

As described in chapter 5 of this test report.

4.6.2 Test Procedure

- The EUT was placed on a rotatable wooden table with 0.8 meter about ground.
- The EUT was set 3 meters from the receiving antenna which was mounted on the antenna tower.
- The table was rotated 360 degrees to determine the position of the highest spurious emission.
- The height of the receiving antenna is varied between one meter and four meters to reach the maximum spurious emission for both horizontal and vertical polarizations.
- Taking the record of maximum spurious emission.
- A Horn antenna was substituted in place of the EUT and was driven by a signal generator.
- Tune the output power of signal generator to the same emission level with EUT maximum spurious emission.
- Taking the record of output power at antenna port.
- Repeat step 7 to step 8 for another polarization.
- Emission level (dBm) = output power + substitution Gain.

4.6.3 Test Setup Layout

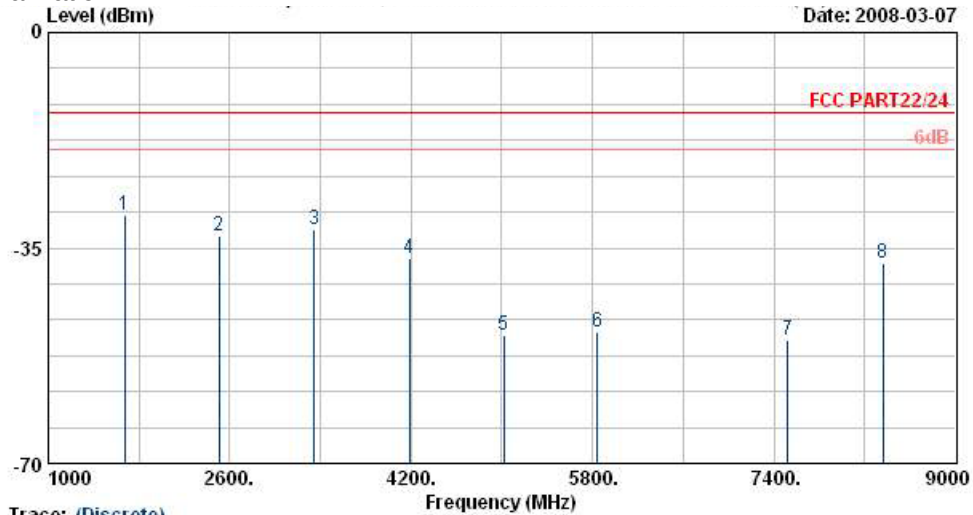




4.6.4 Test Data

4.6.4.1 Mode 1

Horizontal Polarization



Trace: (Discrete)

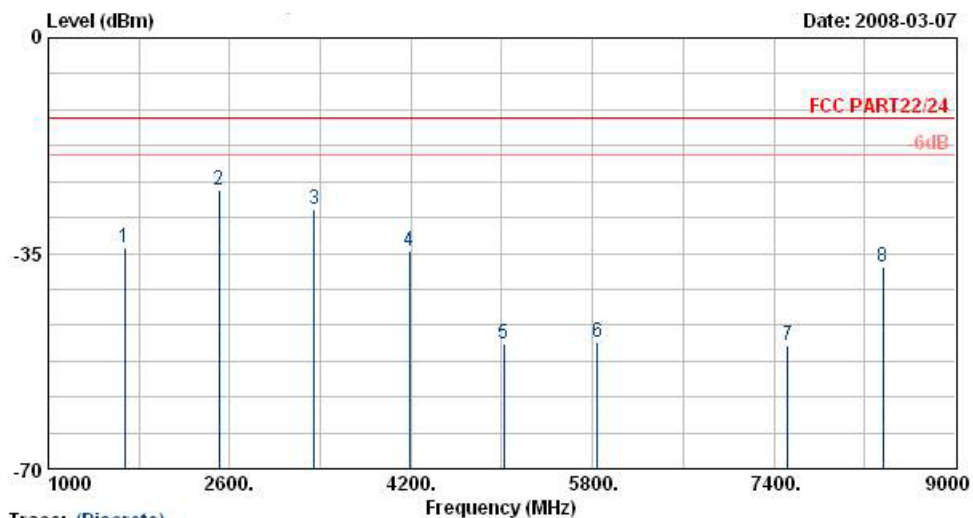
Site : 03CH06-HY
 Condition : FCC PART22/24 ETRP-071107 HORIZONTAL
 EUT : USB Dongle
 Power : From System
 Model : FG 822811-01
 Memo : GSM850 Link ; CH169
 Plane : E2

Frequency (MHz)	ERP (dBm)	Limit (dBm)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1672	-29.65	-13	-33.74	-28.8	5.05	6.35	H	Pass
2506	-32.95	-13	-37.94	-33.0	5.93	8.13	H	Pass
3346	-32.03	-13	-39.70	-32.9	6.88	9.90	H	Pass
4185	-36.75	-13	-46.27	-37.7	7.52	10.62	H	Pass
5020	-49.21	-13	-58.06	-48.1	8.49	9.53	H	Pass
5845	-48.71	-13	-59.74	-48.0	9.20	10.64	H	Pass
7520	-49.86	-13	-60.07	-44.9	10.21	7.40	H	Pass
8360	-37.46	-13	-53.40	-33.0	10.87	8.56	H	Pass

Remark : Spurious emissions within 30-1000MHz were found more than 20dB below limit line.



Vertical Polarization



Site : 03CH06-HY
 Condition : FCC PART22/24 ETRP-071107 VERTICAL
 EUT : USB Dongle
 Power : From System
 Model : FC 822811-01
 Memo : GSM850 Link ; CH189
 Plane : E2

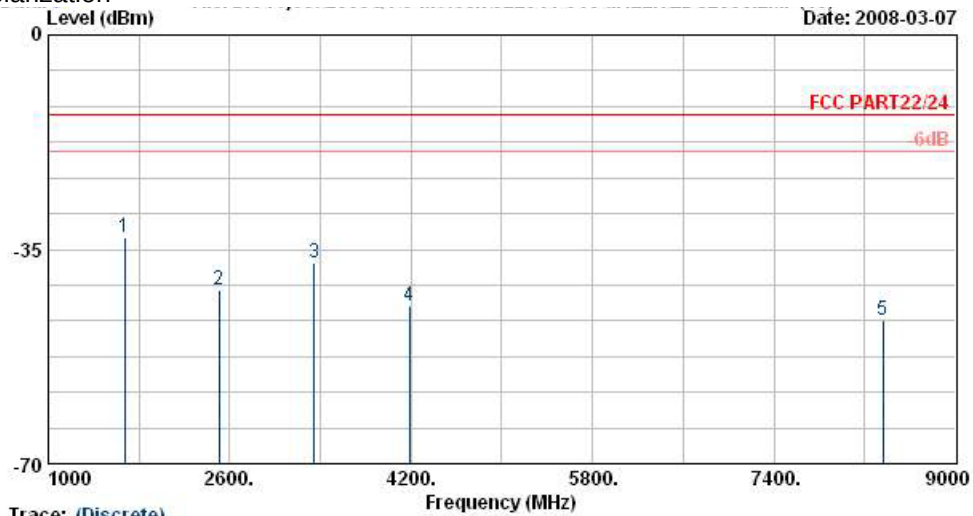
Frequency (MHz)	ERP (dBm)	Limit (dBm)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1672	-34.15	-13	-39.02	-33.3	5.05	6.35	V	Pass
2506	-24.75	-13	-36.23	-24.8	5.93	8.13	V	Pass
3346	-27.73	-13	-38.39	-28.6	6.88	9.90	V	Pass
4185	-34.55	-13	-46.40	-35.5	7.52	10.62	V	Pass
5020	-49.61	-13	-57.58	-48.5	8.49	9.53	V	Pass
5845	-49.51	-13	-59.00	-48.8	9.20	10.64	V	Pass
7520	-49.86	-13	-59.20	-44.9	10.21	7.40	V	Pass
8360	-37.16	-13	-52.87	-32.7	10.87	8.56	V	Pass

Remark : Spurious emissions within 30-1000MHz were found more than 20dB below limit line.



4.6.4.2 Mode 2

Horizontal Polarization



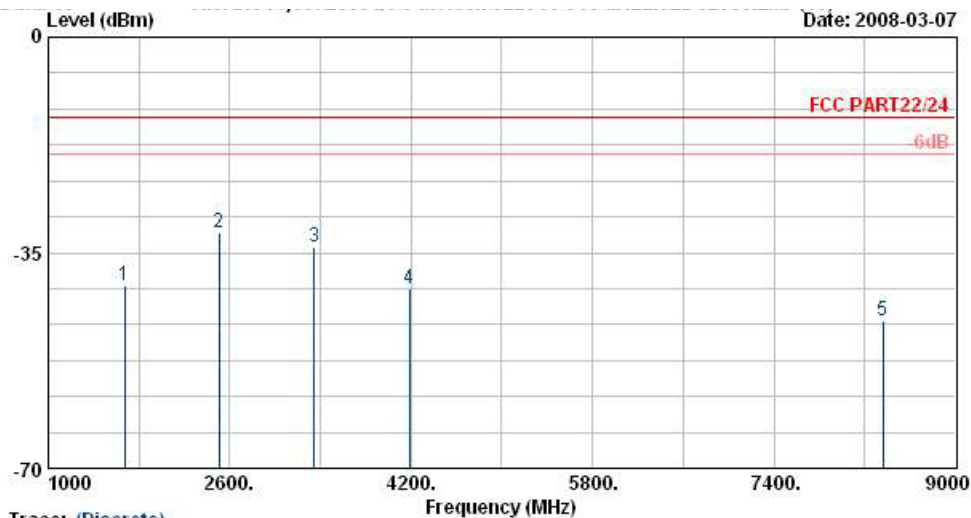
Trace: (Discrete)
 Site : 03CH06-HY
 Condition : FCC PART22/24 ETRP-071107 HORIZONTAL
 EUT : USB Dongle
 Power : From System
 Model : FG 822811-01
 Memo : EDGE650 Link ; CH189
 Plane : E2

Frequency (MHz)	ERP (dBm)	Limit (dBm)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1672	-32.95	-13	-36.93	-32.1	5.05	6.35	H	Pass
2506	-41.55	-13	-45.84	-41.6	5.93	8.13	H	Pass
3346	-37.33	-13	-46.76	-38.2	6.88	9.90	H	Pass
4185	-44.35	-13	-56.29	-45.3	7.52	10.62	H	Pass
8360	-46.46	-13	-59.71	-42.0	10.87	8.56	H	Pass

Remark : Spurious emissions within 30-1000MHz were found more than 20dB below limit line.



Vertical Polarization



Trace: (Discrete)
 Site : 03CH06-HV
 Condition : FCC PART22/24 ETRP-071107 VERTICAL
 EUT : USB Dongle
 Power : From System
 Model : FG 822811-01
 Memo : EDGE650 Link ; CH189
 Plane : E2

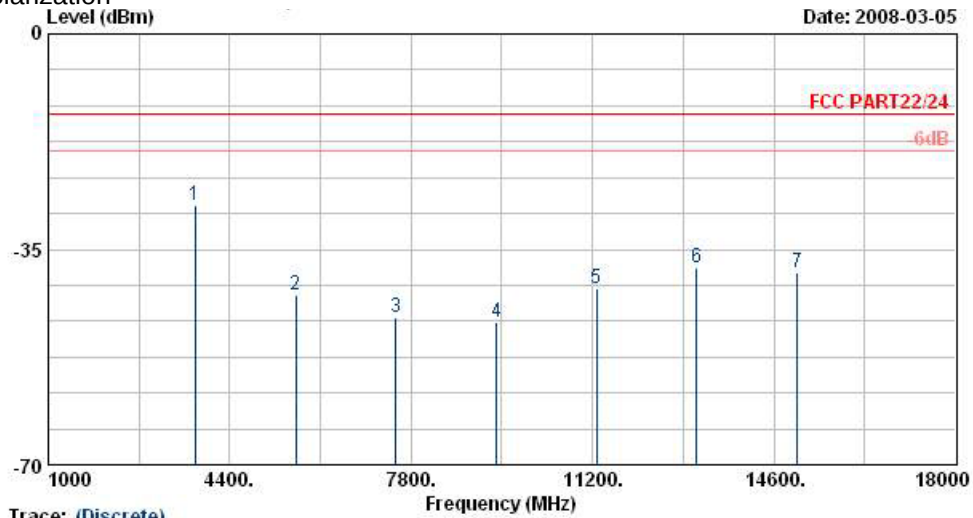
Frequency (MHz)	ERP (dBm)	Limit (dBm)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1672	-40.35	-13	-44.58	-39.5	5.05	6.35	V	Pass
2506	-31.85	-13	-42.91	-31.9	5.93	8.13	V	Pass
3346	-34.03	-13	-44.15	-34.9	6.88	9.90	V	Pass
4185	-40.75	-13	-51.57	-41.7	7.52	10.62	V	Pass
8360	-46.06	-13	-59.07	-41.6	10.87	8.56	V	Pass

Remark : Spurious emissions within 30-1000MHz were found more than 20dB below limit line.



4.6.4.3 Mode 3

Horizontal Polarization



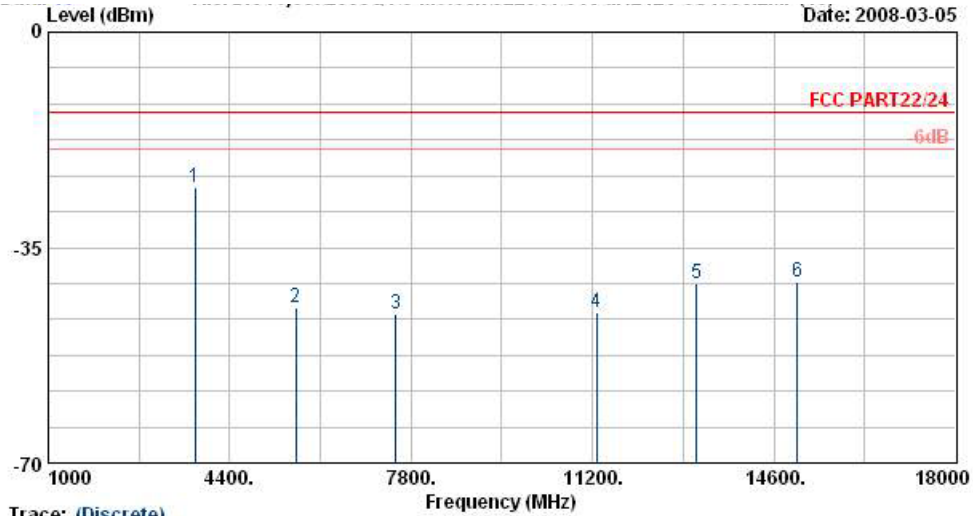
Site : 03CH06-HY
 Condition : FCC PART22/24 ETRP-071107 HORIZONTAL
 EUT : USB Dongle
 Power : From System
 Model : FG 822811-01
 Memo : PCS1900 Link ; CH661
 Plane : E2

Frequency (MHz)	ERP (dBm)	Limit (dBm)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3756	-27.77	-13	-36.62	-31.7	7.17	11.10	H	Pass
5636	-42.41	-13	-52.90	-44.2	8.77	10.56	H	Pass
7516	-46.01	-13	-56.42	-43.2	10.21	7.40	H	Pass
9396	-46.95	-13	-58.49	-45.1	11.61	9.76	H	Pass
11276	-41.49	-13	-55.47	-38.5	13.32	10.33	H	Pass
13156	-37.94	-13	-54.73	-34.9	13.81	10.77	H	Pass
15036	-38.88	-13	-57.14	-35.6	14.48	11.20	H	Pass

Remark : Spurious emissions within 30-1000MHz were found more than 20dB below limit line.



Vertical Polarization



Trace: (Discrete)
 Site : 03CH06-HV
 Condition : FCC PART22/24 ETRP-071107 VERTICAL
 EUT : USB Dongle
 Power : From System
 Model : FG 822811-01
 Memo : PCS1900 Link ; CH661
 Plane : E2

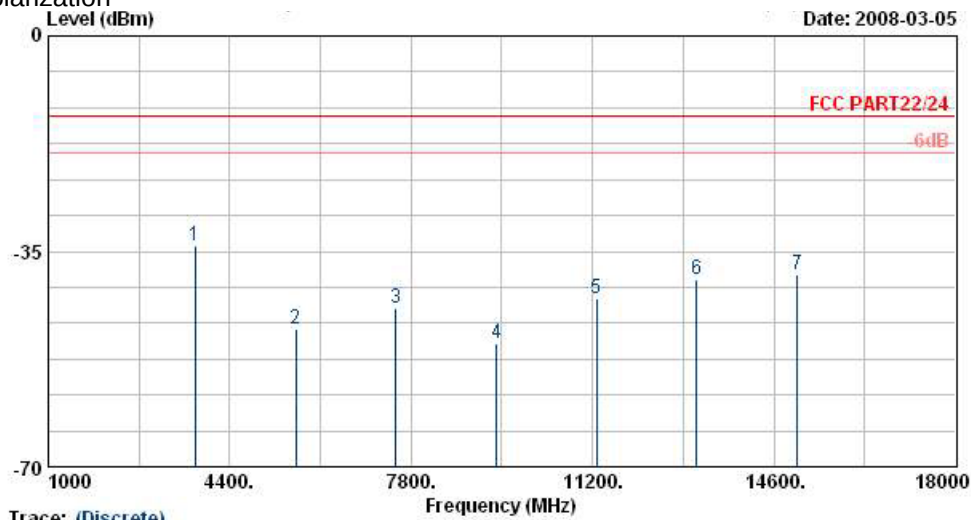
Frequency (MHz)	ERP (dBm)	Limit (dBm)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3756	-25.17	-13	-34.06	-29.1	7.17	11.1	V	Pass
5636	-44.71	-13	-54.10	-46.5	8.77	10.56	V	Pass
7516	-45.81	-13	-55.95	-43.0	10.21	7.40	V	Pass
11276	-45.59	-13	-59.90	-42.6	13.32	10.33	V	Pass
13156	-40.84	-13	-57.14	-37.8	13.81	10.77	V	Pass
15036	-40.68	-13	-59.24	-37.4	14.48	11.20	V	Pass

Remark : Spurious emissions within 30-1000MHz were found more than 20dB below limit line.



4.6.4.4 Mode 4

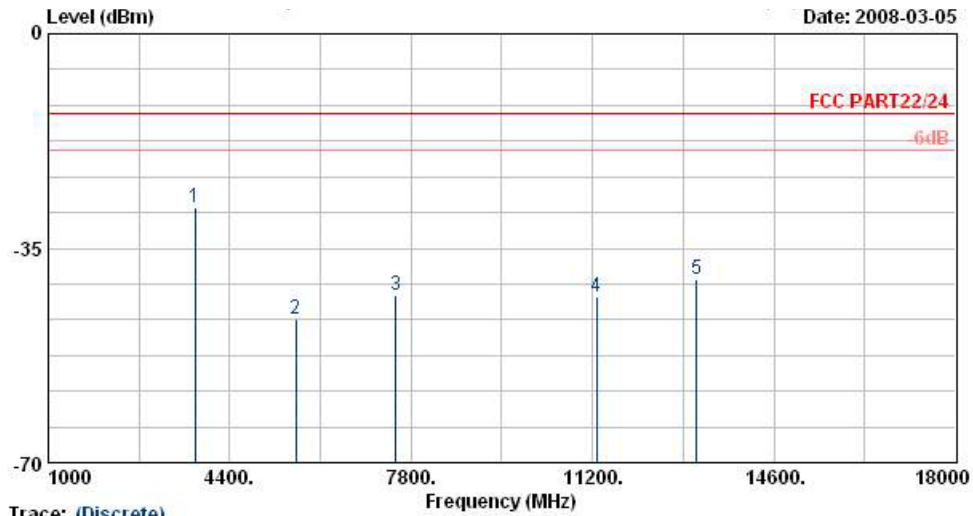
Horizontal Polarization



Site : 03CH06-HY
 Condition : FCC PART22/24 ETRP-071107 HORIZONTAL
 EUT : USB Dongle
 Power : From System
 Model : FG 822811-01
 Memo : EDGE Link ; CH661
 Plane : E2

Frequency (MHz)	ERP (dBm)	Limit (dBm)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3756	-33.97	-13	-40.46	-37.9	7.17	11.1	H	Pass
5636	-47.51	-13	-57.51	-49.3	8.77	10.56	H	Pass
7516	-44.31	-13	-54.10	-41.5	10.21	7.40	H	Pass
9396	-49.95	-13	-55.72	-48.1	11.61	9.76	H	Pass
11276	-42.59	-13	-56.01	-39.6	13.32	10.33	H	Pass
13156	-39.44	-13	-56.57	-36.4	13.81	10.77	H	Pass
15036	-38.88	-13	-57.07	-35.6	14.48	11.20	H	Pass

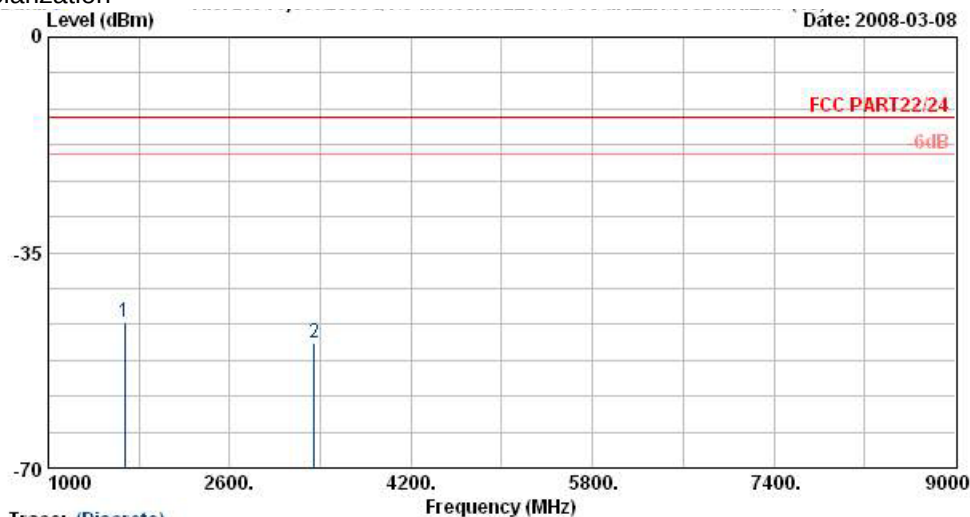
Remark : Spurious emissions within 30-1000MHz were found more than 20dB below limit line.

**Vertical Polarization**

Site : 03CH06-HY
Condition : FCC PART22/24 ETRP-071107 VERTICAL
EUT : USB Dongle
Power : From System
Model : FG 822811-01
Memo : EDGE Link ; CH661
Plane : E2

Frequency (MHz)	ERP (dBm)	Limit (dBm)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3756	-28.47	-13	-37.43	-32.4	7.17	11.1	V	Pass
5636	-46.51	-13	-56.51	-48.3	8.77	10.56	V	Pass
7516	-42.61	-13	-52.95	-39.8	10.21	7.40	V	Pass
11276	-42.99	-13	-59.83	-40.0	13.32	10.33	V	Pass
13156	-40.04	-13	-58.79	-37.0	13.81	10.77	V	Pass

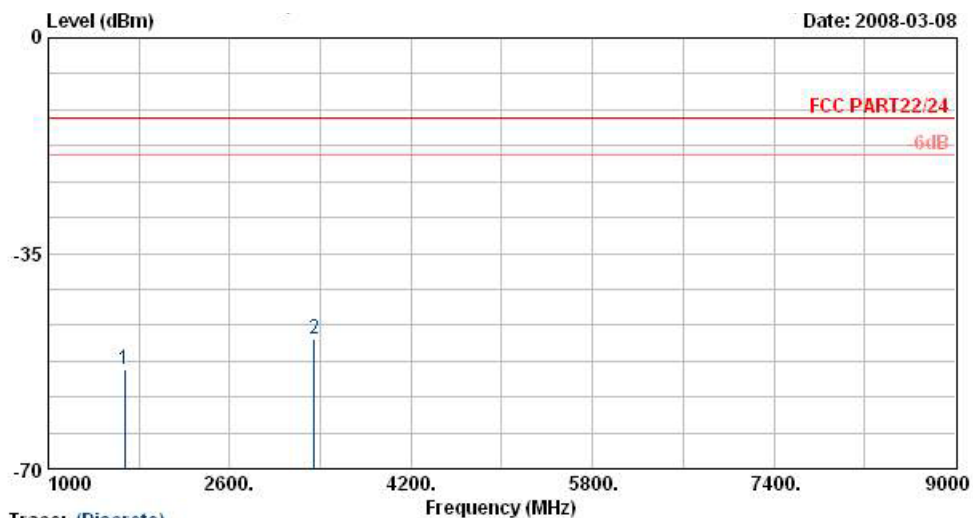
Remark : Spurious emissions within 30-1000MHz were found more than 20dB below limit line.

**4.6.4.5 Mode 5****Horizontal Polarization**

Trace: (Discrete)
Site : 03CH06-HY
Condition : FCC PART22/24 ETRP-071107 HORIZONTAL
EUT : USB Dongle
Power : From System
Model : FG 822811-01
Memo : WCDMA Band V Link ; Ch4182
Plane : E2

Frequency (MHz)	ERP (dBm)	Limit (dBm)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1672	-46.25	-13	-48.64	-45.4	5.05	6.35	H	Pass
3346	-49.73	-13	-56.21	-50.6	6.88	9.90	H	Pass

Remark : Spurious emissions within 30-1000MHz were found more than 20dB below limit line.

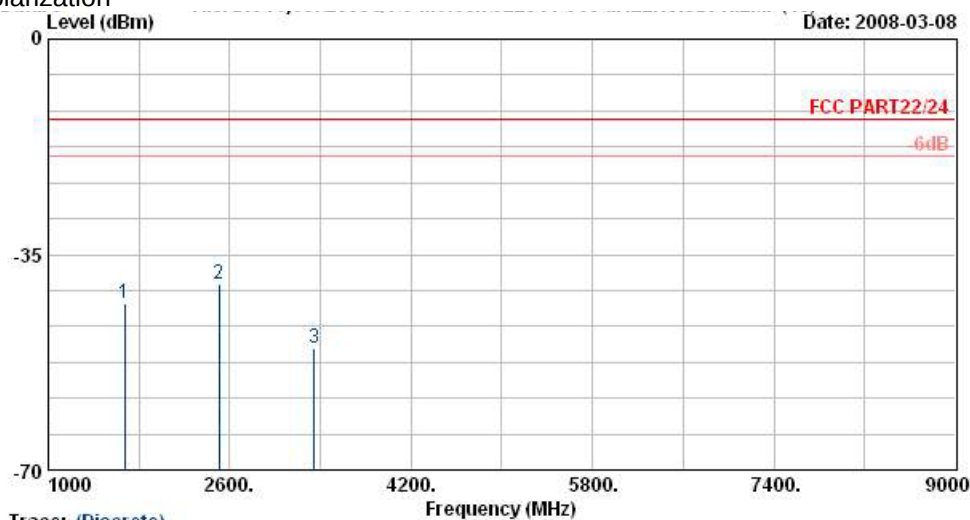
**Vertical Polarization**

Trace: (Discrete)

Site : 03CH06-HY
Condition : FCC PART22/24 EIRP-071107 VERTICAL
EUT : USB Dongle
Power : From System
Model : FC 822811-01
Memo : WCDMA Band V Link ; Ch4182
Plane : E2

Frequency (MHz)	ERP (dBm)	Limit (dBm)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1672	-53.85	-13	-55.26	-53	5.05	6.35	V	Pass
3346	-49.03	-13	-56.18	-49.9	6.88	9.90	V	Pass

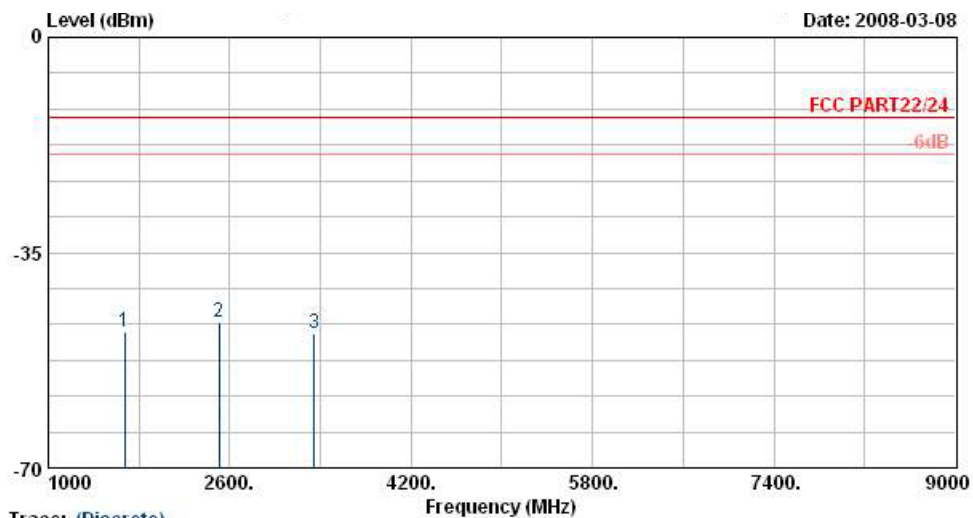
Remark : Spurious emissions within 30-1000MHz were found more than 20dB below limit line.

**4.6.4.6 Mode 6****Horizontal Polarization**

Site : 03CH06-HY
Condition : FCC PART22/24 EIRP-071107 HORIZONTAL
EUT : USB Dongle
Power : From System
Model : FG 822811-01
Memo : HSDPA Band V Link ; Chd182
Plane : E2

Frequency (MHz)	ERP (dBm)	Limit (dBm)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1672	-42.95	-13	-45.94	-42.1	5.05	6.35	H	Pass
2506	-39.85	-13	-44.36	-39.9	5.93	8.13	H	Pass
3346	-50.23	-13	-56.03	-51.1	6.88	9.90	H	Pass

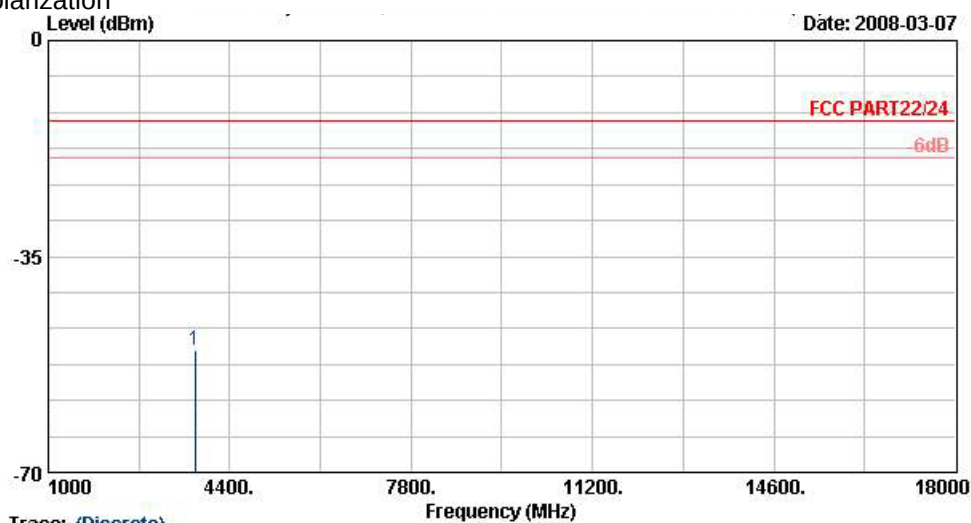
Remark : Spurious emissions within 30-1000MHz were found more than 20dB below limit line.

**Vertical Polarization**

Trace: (Discrete)
Site : 03CH06-HY
Condition : FCC PART22/24 ETRP-071107 VERTICAL
EUT : USB Dongle
Power : From System
Model : FC 822811-01
Memo : HSDPA Band V Link ; Chd182
Plane : E2

Frequency (MHz)	ERP (dBm)	Limit (dBm)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Polarization Gain (dBi) (H/V)	Result
1672	-47.95	-13	-50.92	-47.1	5.05	6.35 V	Pass
2506	-46.25	-13	-54.9	-46.3	5.93	8.13 V	Pass
3346	-48.03	-13	-55.33	-48.9	6.88	9.90 V	Pass

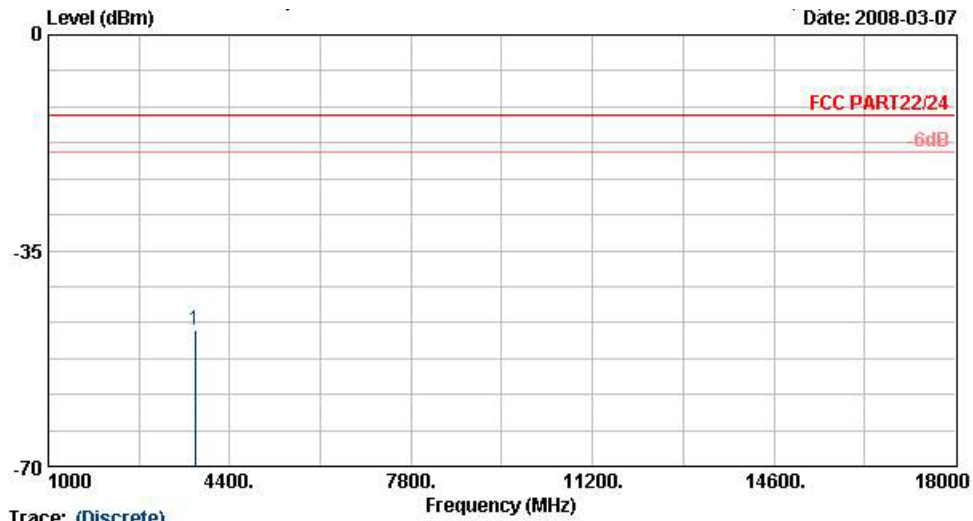
Remark : Spurious emissions within 30-1000MHz were found more than 20dB below limit line.

**4.6.4.7 Mode 7****Horizontal Polarization**

Trace: (Discrete)
Site : 03CH06-HY
Condition : FCC PART22/24 EIRP-071107 HORIZONTAL
EUT : USB Dongle
Power : From System
Model : FC 822811-01
Memo : WCDMA Band II Link ; CH661
Plane : E2

Frequency	ERP	Limit	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Reading (dBm)	Power (dBm)	loss (dB)	Gain (dBi)	(H/V)	
3756	-50.27	-13	-57.13	-54.2	7.17	11.1	H	Pass

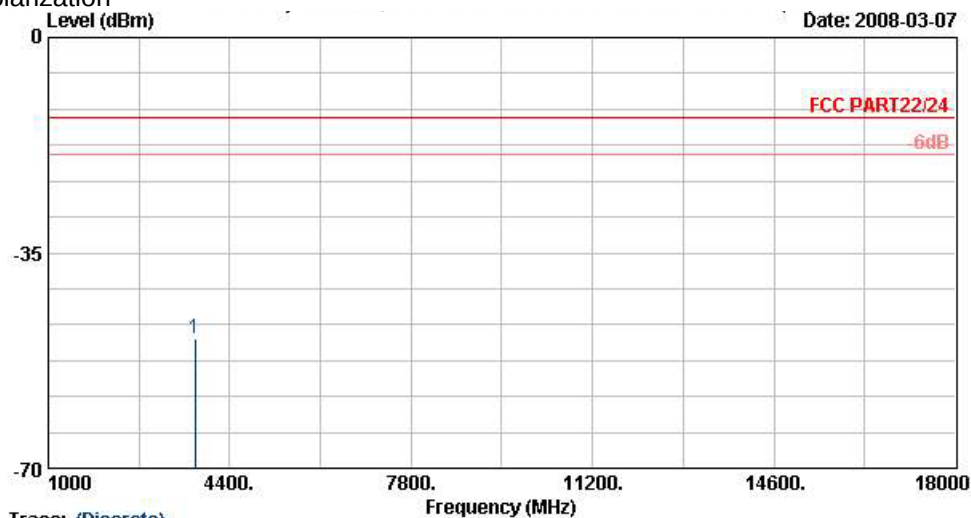
Remark : Spurious emissions within 30-1000MHz were found more than 20dB below limit line.

**Vertical Polarization**

Trace: (Discrete)
Site : 03CH06-HY
Condition : FCC PART22/24 EIRP-071107 VERTICAL
EUT : USB Dongle
Power : From System
Model : FG 822811-01
Memo : WCDMA Band II Link ; CH661
Plane : E2

Frequency (MHz)	ERP (dBm)	Limit (dBm)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Polarization Gain (dBi)	Polarization (H/V)	Result
3756	-47.87	-13	-54.26	-51.8	7.17	11.1	V	Pass

Remark : Spurious emissions within 30-1000MHz were found more than 20dB below limit line.

**4.6.4.8 Mode 8****Horizontal Polarization**

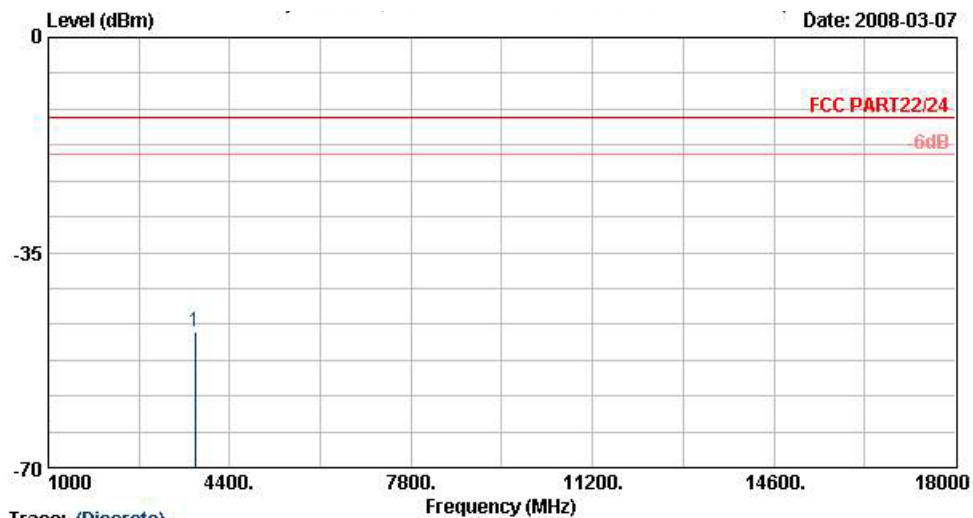
Trace: (Discrete)
Site : 03CH06-HY
Condition : FCC PART22/24 ETRP-071107 HORIZONTAL
EUT : USB Dongle
Power : From System
Model : FG 822811-01
Memo : HSDPA Band II Link ; CH661
Plane : E2

Frequency	ERP	Limit	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Reading	Power	loss	Gain	(H/V)	
3756	-48.87	-13	-55.95	-52.8	7.17	11.1	H	Pass

Remark : Spurious emissions within 30-1000MHz were found more than 20dB below limit line.



Vertical Polarization



Trace: (Discrete)
Site : 03CH06-HV
Condition : FCC PART22/24 EIRP-071107 VERTICAL
EUT : USB Dongle
Power : From System
Model : FG 822811-01
Memo : HSDPA Band II Link ; CH661
Plane : E2

Frequency (MHz)	ERP (dBm)	Limit (dBm)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3756	-47.97	-13	-54.34	-51.9	7.17	11.1	V	Pass

Remark : Spurious emissions within 30-1000MHz were found more than 20dB below limit line.

4.7 Frequency Stability (Temperature Variation)

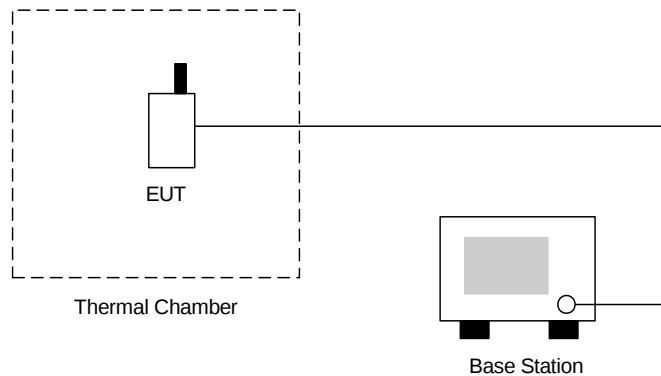
4.7.1 Measurement Instrument

As described in chapter 5 of this test report.

4.7.2 Test Procedure

- a. The EUT and test equipment were set up as shown on the following section.
- b. With all power removed, the temperature was decreased to -30°C and permitted to stabilize for three hours. Power was applied and the maximum change in frequency was noted within one minute.
- c. With power OFF, the temperature was raised in 10°C steps. The sample was permitted to stabilize at each step for at least one-half hour. Power was applied and the maximum frequency change was noted within one minute.
- d. The temperature tests were performed for the worst case.
- e. Test data was recorded.

4.7.3 Test Setup Layout



**4.7.4 Test Result**

• Test Mode : GPRS850 CH189

Temperature(°C)	Change (Hz)	Change (ppm)	Limit (ppm)	Result
-30	11	0.01	2.5	Passed
-20	24	0.03		
-10	28	0.03		
0	32	0.04		
10	21	0.02		
20	34	0.04		
30	36	0.04		
40	41	0.05		
50	45	0.05		

• Test Mode : EDGE850 CH189

Temperature(°C)	Change (Hz)	Change (ppm)	Limit (ppm)	Result
-30	33	0.02	2.5	Passed
-20	38	0.04		
-10	45	0.05		
0	40	0.05		
10	46	0.05		
20	42	0.05		
30	45	0.05		
40	37	0.04		
50	41	0.05		

• Test Mode : GPRS1900 CH661

Temperature(°C)	Change (Hz)	Change (ppm)	Limit (ppm)	Result
-30	-57	-0.03	2.5	Passed
-20	22	0.01		
-10	-9	0.00		
0	15	0.01		
10	-15	-0.01		
20	17	0.01		
30	25	0.01		
40	14	0.01		
50	33	0.02		

• Test Mode : EDGE1900 CH661

Temperature(°C)	Change (Hz)	Change (ppm)	Limit (ppm)	Result
-30	-12	-0.01	2.5	Passed
-20	-34	-0.02		
-10	27	0.01		
0	42	0.02		
10	32	0.02		
20	38	0.02		
30	29	0.02		
40	41	0.02		
50	34	0.02		

• Test Mode : WCDMA Band V CH4182

Temperature(°C)	Change (Hz)	Change (ppm)	Limit (ppm)	Result
-30	14	0.02	2.5	Passed
-20	10	0.01		
-10	16	0.02		
0	9	0.01		
10	11	0.01		
20	13	0.02		
30	16	0.02		
40	13	0.02		
50	15	0.02		

• Test Mode : WCDMA Band V (HSDPA) CH4182

Temperature(°C)	Change (Hz)	Change (ppm)	Limit (ppm)	Result
-30	-12	-0.01	2.5	Passed
-20	13	0.02		
-10	12	0.01		
0	16	0.02		
10	20	0.02		
20	11	0.01		
30	16	0.02		
40	15	0.02		
50	13	0.02		



- Test Mode : WCDMA Band II CH9400

Temperature(°C)	Change (Hz)	Change (ppm)	Limit (ppm)	Result
-30	-20	-0.01	2.5	Passed
-20	-23	-0.01		
-10	-16	-0.01		
0	29	0.02		
10	-20	-0.01		
20	-15	-0.01		
30	33	0.02		
40	-19	-0.01		
50	-22	-0.01		

- Test Mode : WCDMA Band II (HSDPA) CH9400

Temperature(°C)	Change (Hz)	Change (ppm)	Limit (ppm)	Result
-30	-30	-0.02	2.5	Passed
-20	-27	-0.01		
-10	-16	-0.01		
0	22	0.01		
10	16	0.01		
20	23	0.01		
30	27	0.01		
40	23	0.01		
50	-28	-0.01		

4.8 Frequency Stability (Voltage Variation)

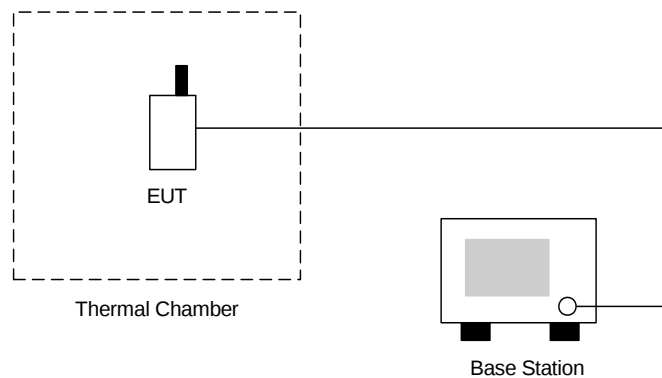
4.8.1 Measurement Instrument

As described in chapter 5 of this test report.

4.8.2 Test Procedure

- The EUT was placed in a temperature chamber at $25 \pm 5^{\circ}\text{C}$ and connected as the following section.
- The power supply voltage to the EUT was varied from BEP to 115% of the nominal value measured at the input to the EUT.
- The variation in frequency was measured for the worst case.

4.8.3 Test Setup Layout



4.8.4 Test Result

- Test Mode : GPRS850 CH189

Voltage(Volt)	Change (Hz)	Change (ppm)	Limit (ppm)	Result
5.0	16.0	0.02	2.5	Passed
BEP	-52.0	-0.06		
5.8	6.0	0.01		

- Test Mode : EDGE850 CH189

Voltage(Volt)	Change (Hz)	Change (ppm)	Limit (ppm)	Result
5.0	25.0	0.03	2.5	Passed
BEP	-41.0	-0.05		
5.8	14.0	0.02		

- Test Mode : GPRS1900 CH661

Voltage(Volt)	Change (Hz)	Change (ppm)	Limit (ppm)	Result
5.0	-28.0	-0.01	2.5	Passed
BEP	-36.0	-0.02		
5.8	-46.0	-0.02		

- Test Mode : EDGE1900 CH661

Voltage(Volt)	Change (Hz)	Change (ppm)	Limit (ppm)	Result
5.0	-35.0	-0.02	2.5	Passed
BEP	-45.0	-0.02		
5.8	-49.0	-0.03		

- Test Mode : WCDMA Band V CH4182

Voltage(Volt)	Change (Hz)	Change (ppm)	Limit (ppm)	Result
5.0	18	0.02	2.5	Passed
BEP	22	0.03		
5.8	25	0.03		

- Test Mode : WCDMA Band V (HSDPA) CH4182

Voltage(Volt)	Change (Hz)	Change (ppm)	Limit (ppm)	Result
5.0	15	0.02	2.5	Passed
BEP	-19	-0.02		
5.8	12	0.01		

- Test Mode : WCDMA Band II CH9400

Voltage(Volt)	Change (Hz)	Change (ppm)	Limit (ppm)	Result
5.0	26	0.01	2.5	Passed
BEP	37	0.02		
5.8	22	0.01		

- Test Mode : WCDMA Band II (HSDPA) CH9400

Voltage(Volt)	Change (Hz)	Change (ppm)	Limit (ppm)	Result
5.0	-45	-0.02	2.5	Passed
BEP	-38	-0.02		
5.8	-36	-0.02		

Remark:

- Normal Voltage = 5.0V.
- Battery End Point (BEP) = 4.3V.

5. List of Measurement Equipments

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Due Date	Remark
Spectrum Analyzer	Agilent	E4408B	MY44211028	9KHz-26.5GHz	Oct. 17, 2007	Oct. 16, 2008	Radiation (03CH06-HY)
EMI Test Receiver	R&S	ESCS30	100356	9KHz-2.75GHz	Jul. 26, 2007	Jul. 25, 2008	Radiation (03CH06-HY)
Bilog Antenna	SCHAFFNER	CBL6112B	2885	30MHz -2GHz	Dec. 01, 2007	Nov. 30, 2008	Radiation (03CH06-HY)
Double Ridge Horn Antenna	Com-Power	AH118	071025	1G~18G	Jun. 04, 2007	Jun. 03, 2008	Radiation (03CH06-HY)
SHF-EHF Horn	SCHWARZBECK	BBHA 9170	9170-251	14G - 40G	Oct. 17, 2007	Oct. 16, 2008	Radiation (03CH06-HY)
Pre Amplifier	Agilent	8449B	3008A01917	1G - 26.5G	Nov. 22, 2007	Nov. 21, 2008	Radiation (03CH06-HY)
Pre Amplifier	EMEC	PA303	PA303-SMA-059	100K~3GHz	Nov. 26, 2007	Nov. 25, 2008	Radiation (03CH06-HY)
Base Station Simulator	R & S	CMU200	103937	Third-Band	Oct. 19, 2007	Oct. 18, 2008	Radiation (03CH06-HY)
Thermal Chamber	Tenxi technology	TTH-D35P	TBN-930701	N/A	Aug. 02, 2007	Aug. 01, 2008	Conduction (TH02-HY)
Spectrum	R&S	FSP40	100055	9KHz~40GHz	Jun. 25, 2007	Jun. 24, 2008	Conduction (TH02-HY)
Bluetooth Test	ANRITSU	MT8852A	6K00003939	N/A	N/A	N/A	Conduction (TH02-HY)
Power Divider	ARRA	5200-1	3871	N/A	Oct. 01, 2007	Sep. 30, 2008	Conduction (TH02-HY)
DC Power Supply	TOPWARD	3303D	740889	N/A	May 25, 2007	May 24, 2009	Conduction (TH02-HY)
Power Meter	Agilent	E4416A	GB41292344	N/A	Feb. 21, 2008	Feb. 20, 2009	Conduction (TH02-HY)
Power Sensor	Agilent	E9327A	US40441548	N/A	Feb. 21, 2008	Feb. 20, 2009	Conduction (TH02-HY)

6. Uncertainty Evaluation

Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz)

Contribution	Uncertainty of x_i		$u(x_i)$
	dB	Probability Distribution	
Receiver reading	0.41	Normal(k=2)	0.21
Antenna factor calibration	0.83	Normal(k=2)	0.42
Cable loss calibration	0.25	Normal(k=2)	0.13
Pre Amplifier Gain calibration	0.27	Normal(k=2)	0.14
RCV/SPA specification	2.50	Rectangular	0.72
Antenna Factor Interpolation for Frequency	1.00	Rectangular	0.29
Site imperfection	1.43	Rectangular	0.83
Mismatch	+0.39/-0.41	U-shaped	0.28
Combined standard uncertainty Uc(y)	1.27		
Measuring uncertainty for a level of confidence of 95% U=2Uc(y)	2.54		

Uncertainty of Radiated Emission Measurement (1 GHz ~ 40 GHz)

Contribution	Uncertainty of x_i		$u(x_i)$	C_i	$C_i * u(x_i)$
	dB	Probability Distribution			
Receiver reading	±0.10	Normal(k=1)	0.10	1	0.10
Antenna factor calibration	±1.70	Normal(k=2)	0.85	1	0.85
Cable loss calibration	±0.50	Normal(k=2)	0.25	1	0.25
Receiver Correction	±2.00	Rectangular	1.15	1	1.15
Antenna Factor Directional	±1.50	Rectangular	0.87	1	0.87
Site imperfection	±2.80	Triangular	1.14	1	1.14
Mismatch Receiver VSWR $\Gamma_1 = 0.197$ Antenna VSWR $\Gamma_2 = 0.194$ Uncertainty = $20 \log(1 - \Gamma_1 * \Gamma_2 * \Gamma_3)$	+0.34/-0.35	U-shaped	0.244	1	0.244
Combined standard uncertainty Uc(y)	2.36				
Measuring uncertainty for a level of confidence of 95% U=2Uc(y)	4.72				

END OF TEST REPORT