



# FCC Test Report

According to

47 CFR Part 22H, 24E

Equipment : Pocket PC Phone  
Trade Name : NIL  
Model No. : NEON400  
FCC ID : NM8NEON400  
Uplink Frequency Range : CDMA2000 Cellular : 824.7 ~ 848.31 MHz  
CDMA2000 PCS : 1851.25 ~ 1908.75 MHz  
Max. ERP/EIRP Power : CDMA2000 Cellular : 0.10 W for 1xRTT  
CDMA2000 Cellular : 0.12 W for 1xEVDO  
CDMA2000 PCS : 0.21 W for 1xRTT  
CDMA2000 PCS : 0.24 W for 1xEVDO  
Emission Designator : 1M25F9W  
Applicant : High Tech Computer Corp.  
1F, No. 6-3, BoqiangRd., Xindian City, Taipei Country, Taiwan

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- The data shown in this test report were carried out on Jun. 23, 2008 at **Sporton International Inc. LAB.**
- Report No.: FG860909, Report Version: Rev. 01.

Roy Wu  
Manager

**SPORTON International Inc.**

No. 52, Hwa Ya 1<sup>st</sup> Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C.

SPORTON International Inc.

TEL : 886-3-327-3456

FAX : 886-3-328-4978

Report Version: Rev. 01



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## **1. General Information**

### **1.1. Applicant**

**High Tech Computer Corp.**

1F, No. 6-3, BoqiangRd., Xindian City, Taipei Country, Taiwan

### **1.2. Manufacturer**

**High Tech Computer Corp.**

1F, No. 6-3, BoqiangRd., Xindian City, Taipei Country, Taiwan



1.3. Feature of Equipment under Test

Product Feature & Specification	
DUT Type :	Pocket PC Phone
Trade Name	NIL
Model Name :	NEON400
FCC ID :	NM8NEON400
Tx Frequency :	CDMA2000 Cellular : 824 MHz ~ 849 MHz CDMA2000 PCS : 1850 MHz ~1910 MHz
Rx Frequency :	CDMA2000 Cellular : 869 MHz ~ 894 MHz CDMA2000 PCS : 1930 MHz ~ 1990 MHz
Maximum Output Power :	<b>CDMA2000 Cellular (1xRTT)</b> FCH_RC1 : 23.79 dBm FCH_RC3 : 23.85 dBm FCH+SCH_RC3 : 23.85 dBm <b>CDMA2000 Cellular (1xEV-DO)</b> 128Kbps : 24.50dBm 2048Kbps : 24.23 dBm 12288Kbps : 24.44 dBm <b>CDMA2000 PCS (1xRTT)</b> FCH_RC1 : 23.81 dBm FCH_RC3 : 23.76 dBm FCH+SCH_RC3 : 23.90 dBm <b>CDMA2000 PCS (1xEV-DO)</b> 128Kbps : 24.67 dBm 2048Kbps : 24.38 dBm 12288Kbps : 24.67 dBm
Maximum ERP/EIRP :	CDMA2000 Cellular : 0.10 W (20.00 dBm) for 1xRTT 0.12 W (20.88 dBm) for 1xEV-DO CDMA2000 PCS : 0.21 W (23.20 dBm) for 1xRTT 0.24 W (23.81 dBm) for 1xEV-DO
Antenna Type :	Fixed Internal
Power Rating (DC/AC, Voltage and Current of RF element or PA) :	DC 4.2V / 0.5A
Type of Emission :	1M25F9W
Device Power Class :	CDMA2000 Cellular : 3 CDMA2000 PCS : 2
DUT Stage :	Production Unit

1.4. Report Date

EUT Received : Jun. 09, 2008

Report Date : Jun. 25, 2008

## 2. Test Configuration of Equipment under Test

### 2.1 Test Manner

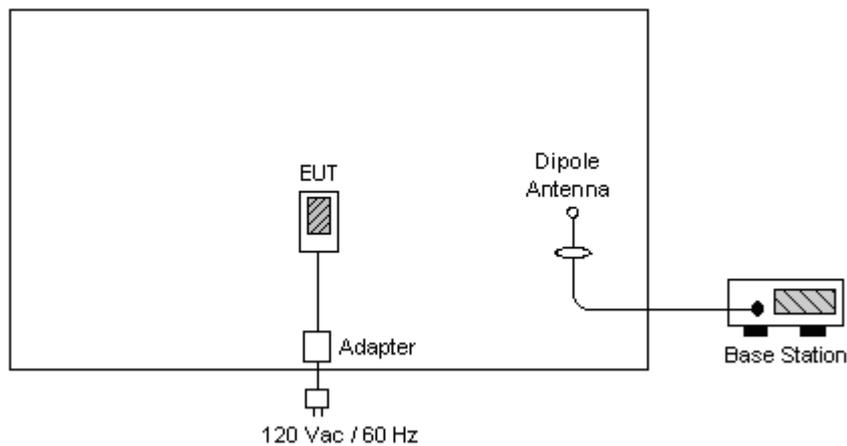
- a. The spurious emission measurements were carried out in semi-anechoic chamber with 3-meter test range.
- b. During all testings, EUT is in link mode with base station emulator at maximum power level.
- c. Frequency range investigated: radiated emission 30 MHz to 9000 MHz for CDMA2000 Cellular; 30MHz to 19000 MHz for CDMA2000 PCS.

### 2.2 Test Mode

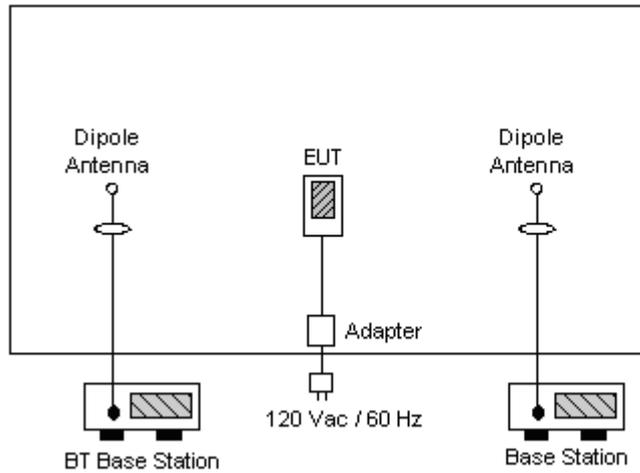
Application	CDMA2000 Cellular	CDMA2000 PCS
Radiated Emission	<input checked="" type="checkbox"/> Mode 1: 1xEV-DO Link Mode_CH384	<input checked="" type="checkbox"/> Mode 2: 1xEV-DO Link Mode_CH600
	<input checked="" type="checkbox"/> Mode 3: 1xEV-DO Link Mode_CH384 + BT Tx_CH78	
Conducted Measurement	<input checked="" type="checkbox"/> Mode 1: 1xRTT Link Mode	<input checked="" type="checkbox"/> Mode 3: 1xRTT Link Mode
	<input checked="" type="checkbox"/> Mode 2: 1xEV-DO Link Mode	<input checked="" type="checkbox"/> Mode 4: 1xEV-DO Link Mode

### 2.3 Connection Diagram of Test System

#### CDMA2000 Link Mode



**CDMA2000 with Bluetooth Link Mode**



**2.4 Ancillary Equipmnt List**

Item	Equipment	Trade Name	Model No.	FCC ID	Data Cable	Power Code
1.	Base Station	R&S	CMU200	N/A	N/A	Unshielded, 1.8m
2.	BT Base Station	Anritus	8852A	N/A	N/A	Unshielded, 1.8 m



### **3. General Information of Test Site**

Test Site Location : No. 52, Hwa Ya 1<sup>st</sup> 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 : 03CH07-HY, TH02-HY

FCC Designation No : TW1022

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

#### **3.3 Frequency Range**

- a. Radiation: from 30MHz to 9000MHz for CDMA2000 Cellular.
- b. Radiation: from 30 MHz to 19000 MHz for CDMA2000 PCS.

#### **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

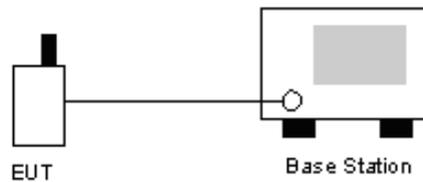
### 4.2.1 Measurement Instruments

As described in chapter 5 of this test report.

### 4.2.2 Test Procedure

- a. The transmitter output was connected to base station.
- b. Set EUT with all up bits at maximum power through base station.
- c. Select lowest, middle, and highest channels for each band.

### 4.2.3 Test Setup Layout





4.2.4 Test Result

Bands	Test Mode	Test Status	Channel	Frequency (MHz)	Conducted Power (dBm)	Conducted Power (Watts)
CDMA2000 Cellular	1xRTT	FCH_RC1	1013	824.70 (Low)	23.79	0.24
			384	836.52 (Mid)	23.79	0.24
			777	848.31 (High)	23.69	0.23
		FCH_RC3	1013	824.70 (Low)	23.85	0.24
			384	836.52 (Mid)	23.80	0.24
			777	848.31 (High)	23.66	0.23
		FCH+SCH_RC3	1013	824.70 (Low)	23.85	0.24
			384	836.52 (Mid)	23.82	0.24
			777	848.31 (High)	23.72	0.24
	1xEV-DO	EVDO-UL: 128Kbps	1013	824.70 (Low)	24.25	0.27
			384	836.52 (Mid)	24.50	0.28
			777	848.31 (High)	24.24	0.27
		EVDO-UL: 2048Kbps	1013	824.70 (Low)	24.07	0.26
			384	836.52 (Mid)	24.23	0.26
			777	848.31 (High)	24.06	0.25
		EVDO-UL: 12288Kbps	1013	824.70 (Low)	24.21	0.26
			384	836.52 (Mid)	24.44	0.28
			777	848.31 (High)	24.22	0.26
CDMA2000 PCS	1xRTT	FCH_RC1	25	1851.25 (Low)	23.63	0.23
			600	1880.00 (Mid)	23.80	0.24
			1177	1908.75 (High)	23.81	0.24
		FCH_RC3	25	1851.25 (Low)	23.57	0.23
			600	1880.00 (Mid)	23.76	0.24
			1177	1908.75 (High)	23.72	0.24
		FCH+SCH_RC3	25	1851.25 (Low)	23.64	0.23
			600	1880.00 (Mid)	23.90	0.25
			1177	1908.75 (High)	23.76	0.24
	1xEV-DO	EVDO-UL: 128Kbps	25	1851.25 (Low)	24.67	0.29
			600	1880.00 (Mid)	24.51	0.28
			1177	1908.75 (High)	24.54	0.28
		EVDO-UL: 2048Kbps	25	1851.25 (Low)	24.38	0.27
			600	1880.00 (Mid)	24.25	0.27
			1177	1908.75 (High)	24.23	0.26
		EVDO-UL: 12288Kbps	25	1851.25 (Low)	24.67	0.29
			600	1880.00 (Mid)	24.50	0.28
			1177	1908.75 (High)	24.39	0.27

Note:

1. For cellular band, the worst case adopted as maximum output power 24.50dBm, is at CDMA 2000 1xEV-DO, EVDO-UL: 128Kbps.
2. For PCS band, the worst case adopted as maximum output power 24.67dBm, is at CDMA 2000 1xEV-DO, EVDO-UL: 128Kbps.



### 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.

$E_t = R_t + AF$

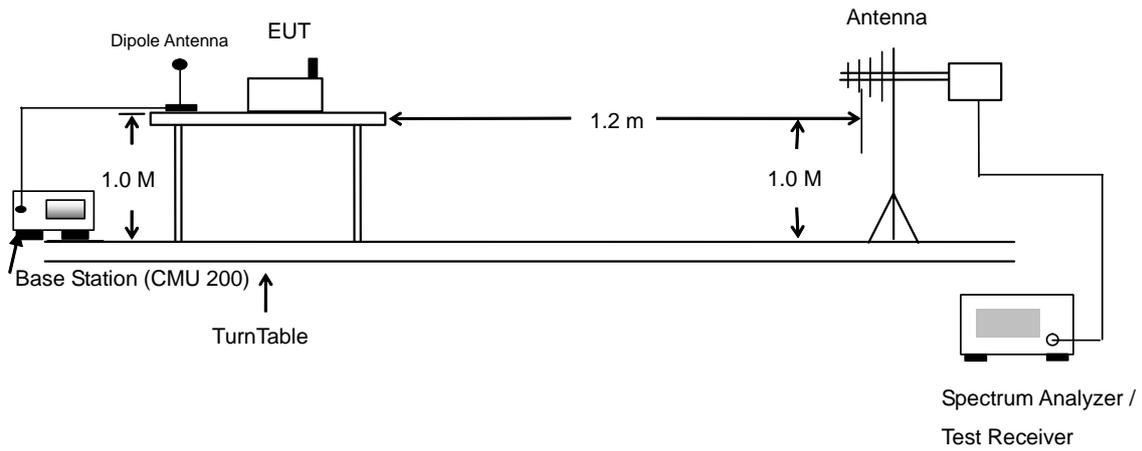
$E_s = R_s + AF$

$AF$  (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

CDMA2000 Cellular 1xRTT FCH+SCH_RC3 Radiated Power ERP						
Horizontal Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBd)	ERP (dBm)	ERP (W)
824.70	-40.68	-48.12	0.00	-1.08	6.36	0.00
836.52	-41.84	-48.28	0.00	-0.93	5.51	0.00
848.31	-42.84	-48.35	0.00	-0.76	4.75	0.00
Vertical Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBd)	ERP (dBm)	ERP (W)
824.70	-26.89	-47.97	0.00	-1.08	20.00	0.10
836.52	-28.03	-48.01	0.00	-0.93	19.05	0.08
848.31	-29.26	-48.05	0.00	-0.76	18.03	0.06

CDMA2000 Cellular 1xEV-DO 128Kbps Radiated Power ERP						
Horizontal Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBd)	ERP (dBm)	ERP (W)
824.70	-40.32	-48.12	0.00	-1.08	6.72	0.00
836.52	-42.04	-48.28	0.00	-0.93	5.31	0.00
848.31	-43.02	-48.35	0.00	-0.76	4.57	0.00
Vertical Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBd)	ERP (dBm)	ERP (W)
824.70	-26.01	-47.97	0.00	-1.08	20.88	0.12
836.52	-27.30	-48.01	0.00	-0.93	19.78	0.10
848.31	-28.12	-48.05	0.00	-0.76	19.17	0.08



CDMA2000 PCS 1xRTT FCH+SCH_RC3 Radiated Power EIRP						
Horizontal Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBi)	EIRP (dBm)	EIRP (W)
1851.25	-31.14	-51.88	0.00	1.96	22.70	0.19
1880.00	-32.94	-52.99	0.00	2.00	22.05	0.16
1908.75	-35.46	-54.28	0.00	1.98	20.80	0.12
Vertical Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBi)	EIRP (dBm)	EIRP (W)
1851.25	-30.89	-52.13	0.00	1.96	23.20	0.21
1880.00	-32.37	-53.17	0.00	2.00	22.80	0.19
1908.75	-34.49	-54.13	0.00	1.98	21.62	0.15

CDMA2000 PCS 1xEV-DO 128Kbps Radiated Power EIRP						
Horizontal Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBi)	EIRP (dBm)	EIRP (W)
1851.25	-30.77	-51.88	0.00	1.96	23.07	0.20
1880.00	-32.32	-52.99	0.00	2.00	22.67	0.18
1908.75	-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)
1851.25	-30.28	-52.13	0.00	1.96	23.81	0.24
1880.00	-31.77	-53.17	0.00	2.00	23.40	0.22
1908.75	-33.69	-54.13	0.00	1.98	22.42	0.17

## 4.4 Occupied Bandwidth and Band Edge Measurement

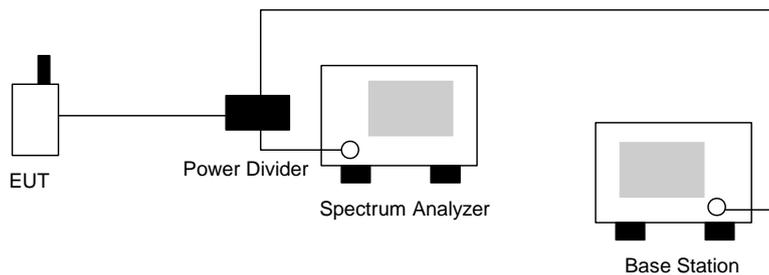
### 4.4.1 Measurement Instruments

As described in chapter 5 of this test report.

### 4.4.2 Test Procedure

- a. The EUT was connected to Spectrum Analyzer and Base Station via power divider.
- b. The 99% occupied bandwidth and 26 dB Bandwidth of middle channel for the highest RF powers were measured.
- c. The bandedge of low and high channels for the highest RF powers within the transmitting frequency band were measured. Setting RBW as roughly  $BW/100$ .
- d. The RBW was replaced 30KHz with 10KHz, due to the spectrum analyzer IF-Filter leading to an exceeding of the limit, a worst case correction factor of  $10 \log (1\% \text{ Occupy Bandwidth} / \text{Measured RBW})$  was used.

### 4.4.3 Test Setup Layout





4.4.4 Test Data

• Mode 1

Bands	Test Mode	Test Status	Channel	Frequency (MHz)	Measurement Value (dBm)	Correction Factor (dB)	Band Edge (dBm)
CDMA2000 Cellular	1xRTT	FCH_RC1	1013	824.70 (Low)	-18.26	1.07	-17.19
			777	848.31 (High)	-15.30	1.07	-14.23
		FCH_RC3	1013	824.70 (Low)	-19.00	1.07	-17.93
			777	848.31 (High)	-14.62	1.07	-13.55
		FCH+SCH_RC3	1013	824.70 (Low)	-18.51	1.07	-17.44
			777	848.31 (High)	-14.68	1.07	-13.61

Note:

\*Occupy Bandwidth = 1280.00KHz

\*Correction Factor =  $10 \cdot \log(1\% \text{ Occupy Bandwidth} / \text{Measurement RBW})$   
 $= 10 \cdot \log[(0.01 \cdot 1280.00\text{KHz}) / 10\text{KHz}]$   
 $= 1.07 \text{ dB}$

\*Band Edge = Measurement Value + Correction Factor

• Mode 2

Bands	Test Mode	Test Status	Channel	Frequency (MHz)	Measurement Value (dBm)	Correction Factor (dB)	Band Edge (dBm)
CDMA2000 Cellular	1xEV-DO	128Kbps	1013	824.70 (Low)	-17.37	1.11	-16.26
			777	848.31 (High)	-15.40	1.11	-14.29
		2048Kbps	1013	824.70 (Low)	-17.68	1.11	-16.57
			777	848.31 (High)	-15.24	1.11	-14.13
		12288Kbps	1013	824.70 (Low)	-18.33	1.11	-17.22
			777	848.31 (High)	-15.55	1.11	-14.44

Note:

\*Occupy Bandwidth = 1292.00KHz

\*Correction Factor =  $10 \cdot \log(1\% \text{ Occupy Bandwidth} / \text{Measurement RBW})$   
 $= 10 \cdot \log[(0.01 \cdot 1292.00\text{KHz}) / 10\text{KHz}]$   
 $= 1.11 \text{ dB}$

\*Band Edge = Measurement Value + Correction Factor



• Mode 3

Bands	Test Mode	Test Status	Channel	Frequency (MHz)	Measurement Value (dBm)	Correction Factor (dB)	Band Edge (dBm)
CDMA2000 PCS	1xRTT	FCH_RC1	25	1851.25 (Low)	-27.88	1.10	-26.78
			1177	1908.75 (High)	-29.43	1.10	-28.33
		FCH_RC3	25	1851.25 (Low)	-32.60	1.10	-31.50
			1177	1908.75 (High)	-34.15	1.10	-33.05
		FCH+SCH_RC3	25	1851.25 (Low)	-33.56	1.10	-32.46
			1177	1908.75 (High)	-33.75	1.10	-32.65

Note:

\*Occupy Bandwidth = 1288.00KHz

\*Correction Factor =  $10 \cdot \log(1\% \text{ Occupy Bandwidth} / \text{Measurement RBW})$   
 $= 10 \cdot \log[(0.01 \cdot 1288.00\text{KHz}) / 10\text{KHz}]$   
 $= 1.10 \text{ dB}$

\*Band Edge = Measurement Value + Correction Factor

• Mode 4

Bands	Test Mode	Test Status	Channel	Frequency (MHz)	Measurement Value (dBm)	Correction Factor (dB)	Band Edge (dBm)
CDMA2000 PCS	1xEV-DO	128Kbps	25	1851.25 (Low)	-29.49	1.10	-28.39
			1177	1908.75 (High)	-28.83	1.10	-27.73
		2048Kbps	25	1851.25 (Low)	-31.24	1.10	-30.14
			1177	1908.75 (High)	-31.28	1.10	-30.18
		12288Kbps	25	1851.25 (Low)	-25.35	1.10	-24.61
			1177	1908.75 (High)	-25.71	1.10	-24.25

Note:

\*Occupy Bandwidth = 1288.00KHz

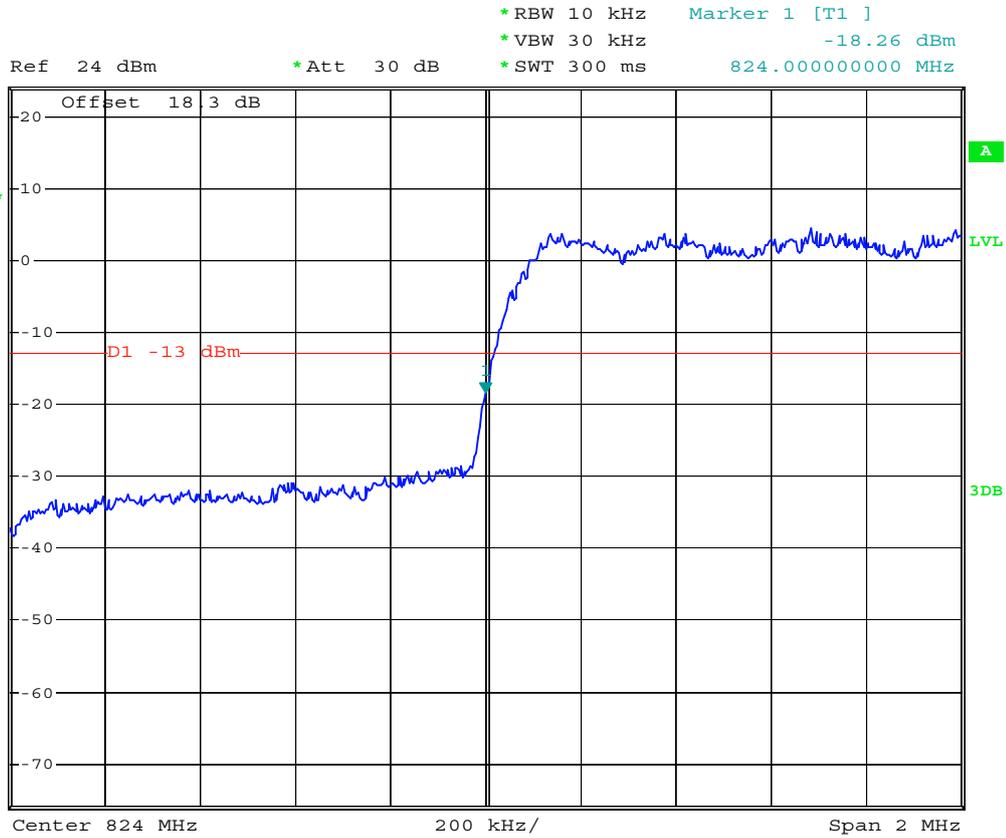
\*Correction Factor =  $10 \cdot \log(1\% \text{ Occupy Bandwidth} / \text{Measurement RBW})$   
 $= 10 \cdot \log[(0.01 \cdot 1288.00\text{KHz}) / 10\text{KHz}]$   
 $= 1.10 \text{ dB}$

\*Band Edge = Measurement Value + Correction Factor



4.4.5 Test Result

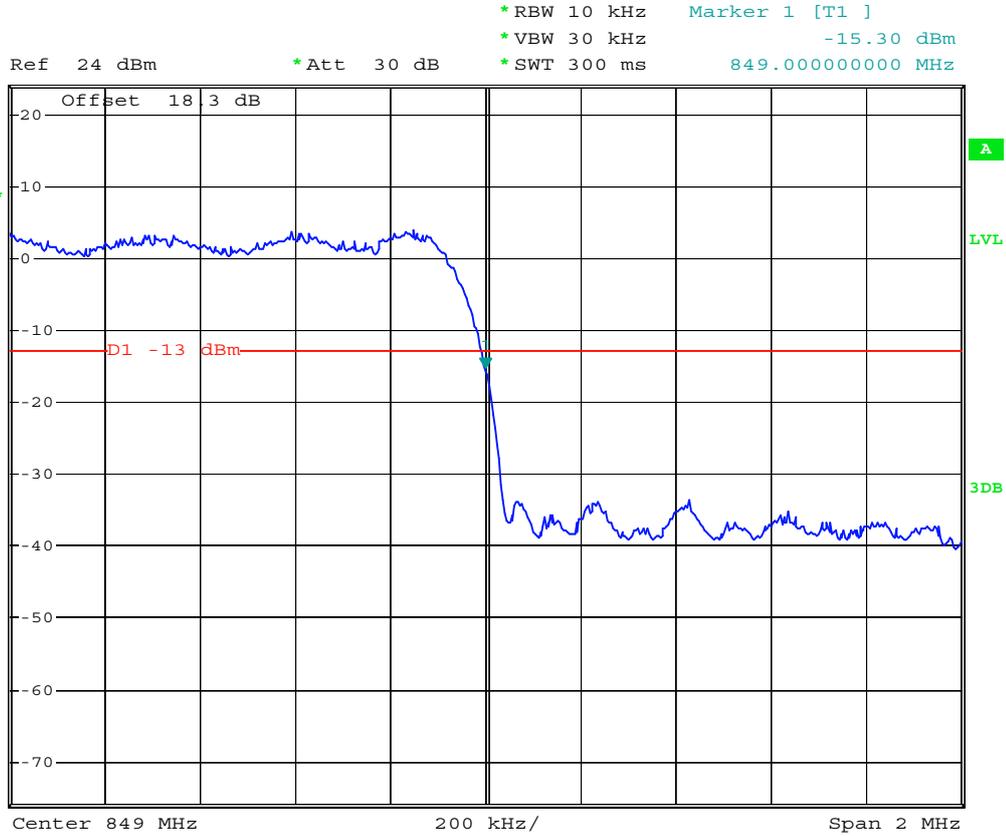
- Mode 1
- Test Mode : CDMA2000 Cellular Band CH1013\_FCH\_RC1 Lower Band Edge for 1xRTT
- Power State : High



Date: 15.JUN.2008 18:15:09



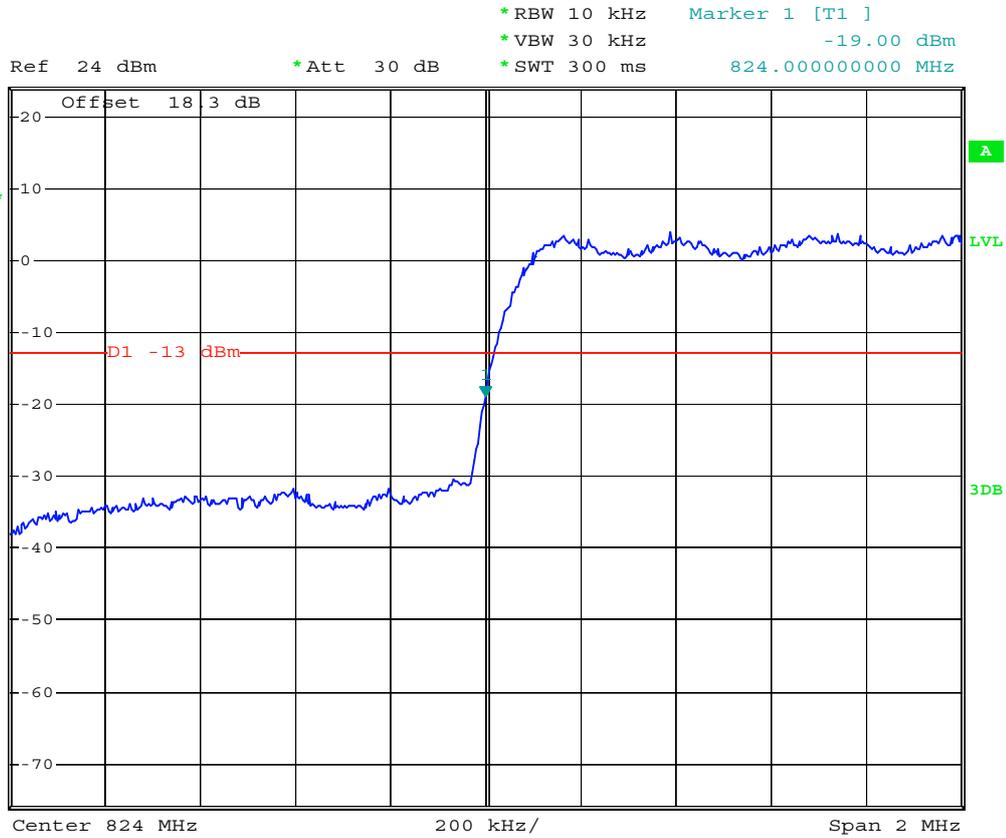
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- Power State : High



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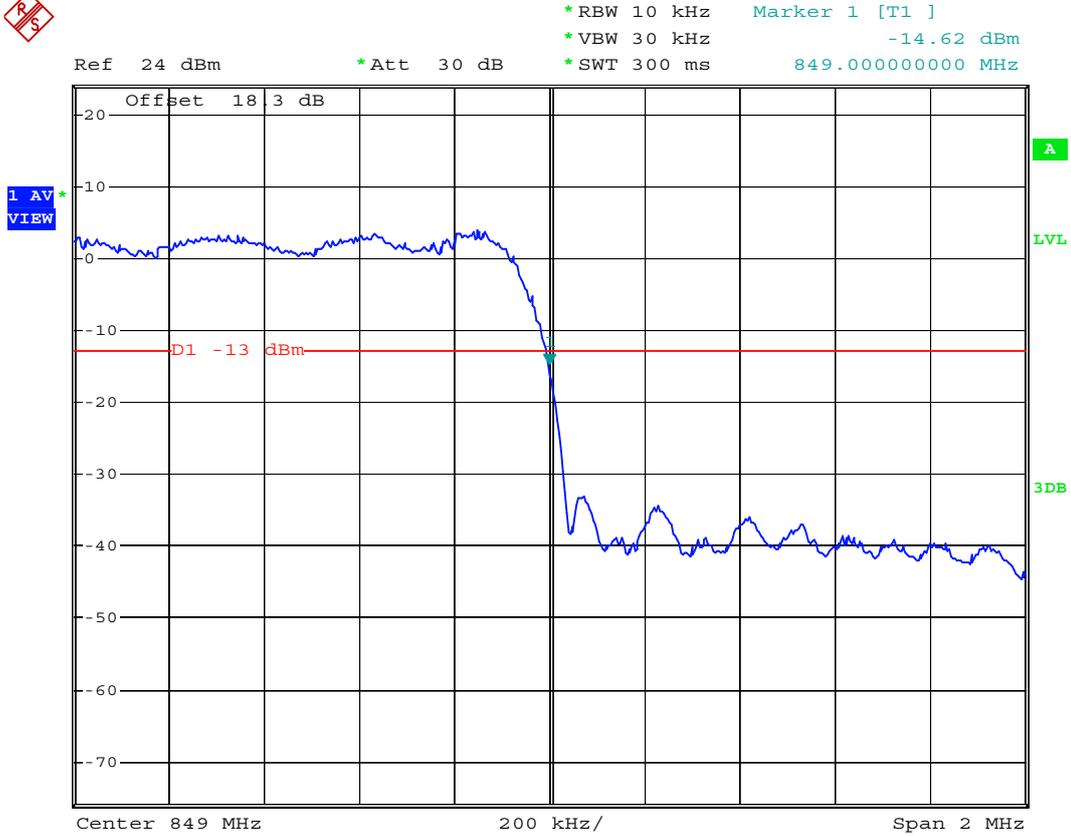
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- Power State : High



Date: 15.JUN.2008 18:15:30



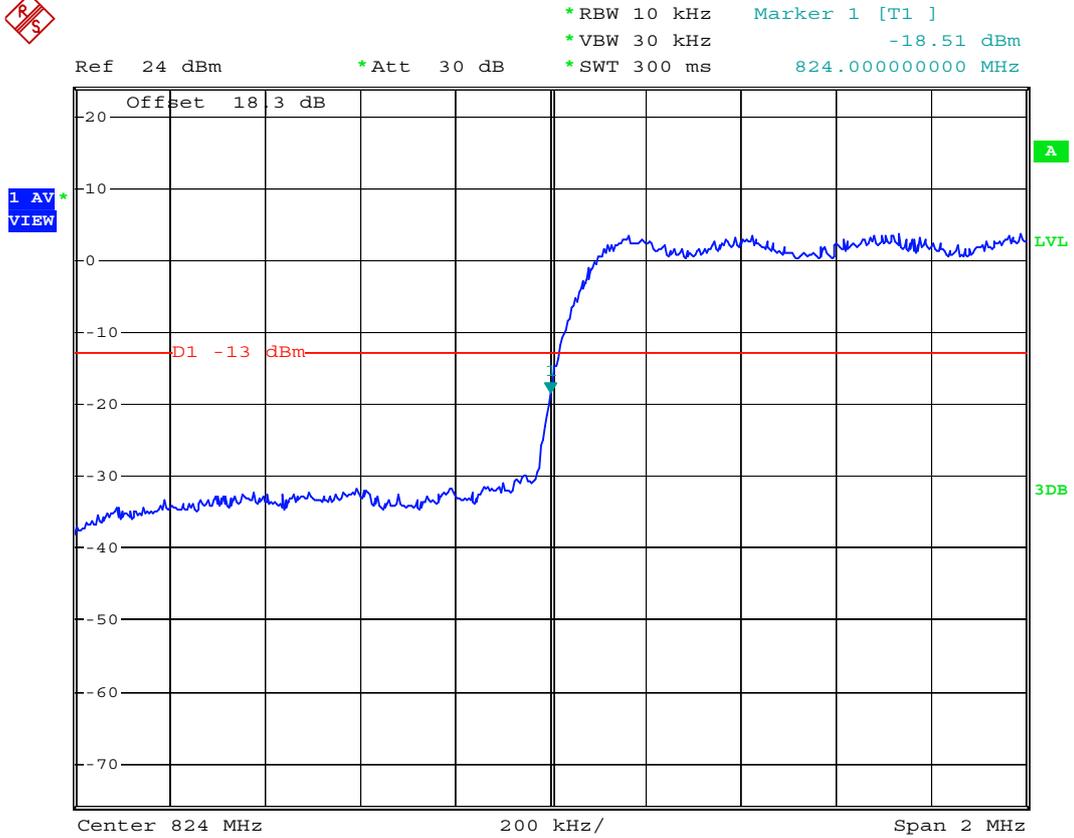
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- Power State : High



Date: 15.JUN.2008 18:16:15



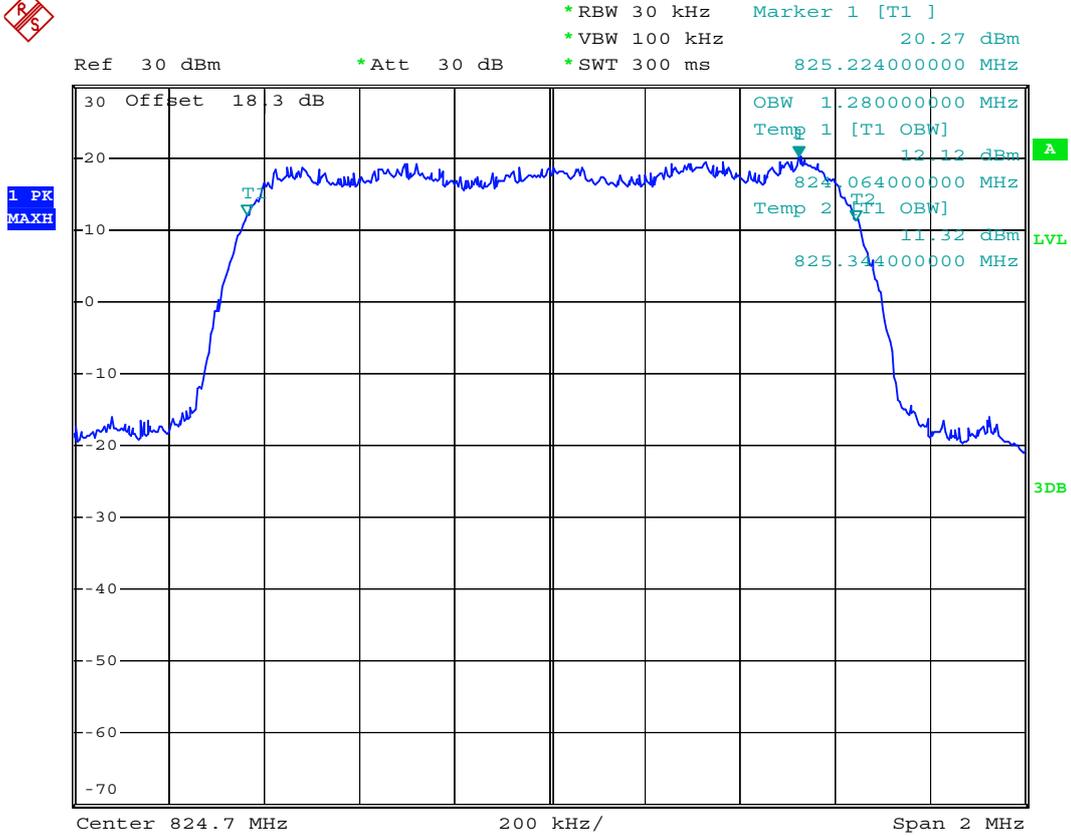
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- Power State : High



Date: 15.JUN.2008 18:26:25



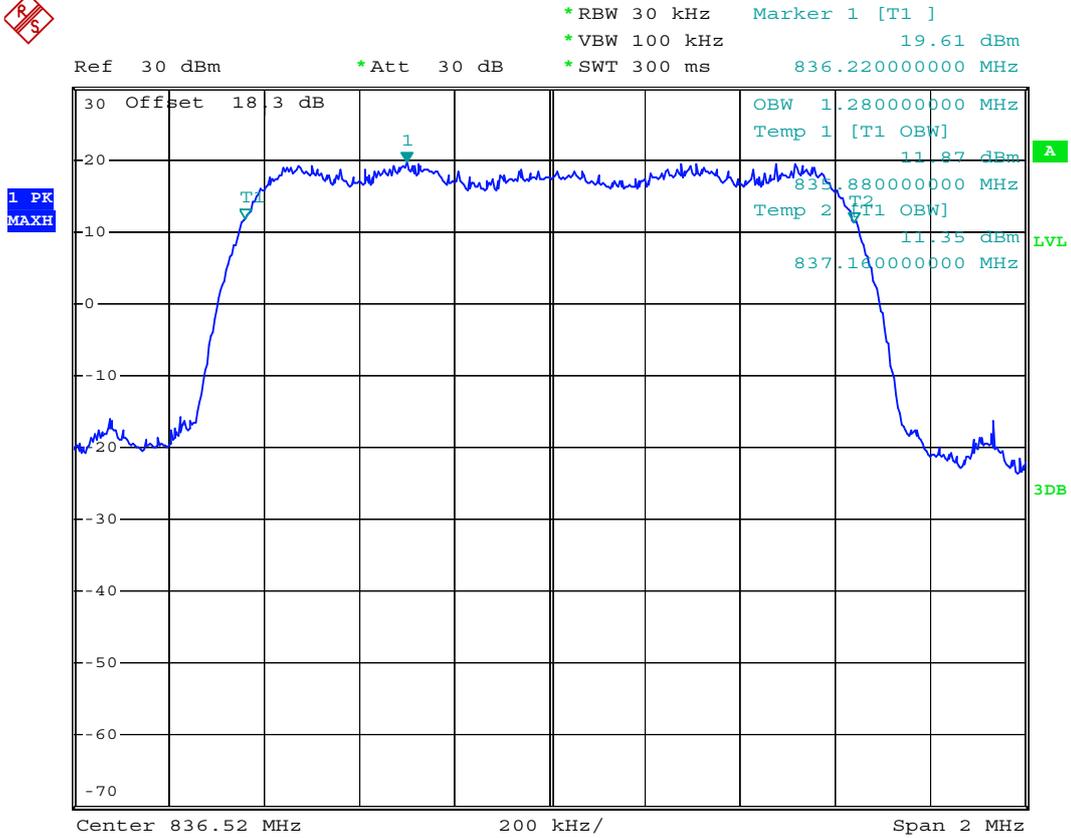
- Test Mode : CDMA2000 Cellular CH1013\_FCH+SCH\_RC3 99% Occupied Bandwidth for 1xRTT
- Power State : High



Date: 15.JUN.2008 17:02:39



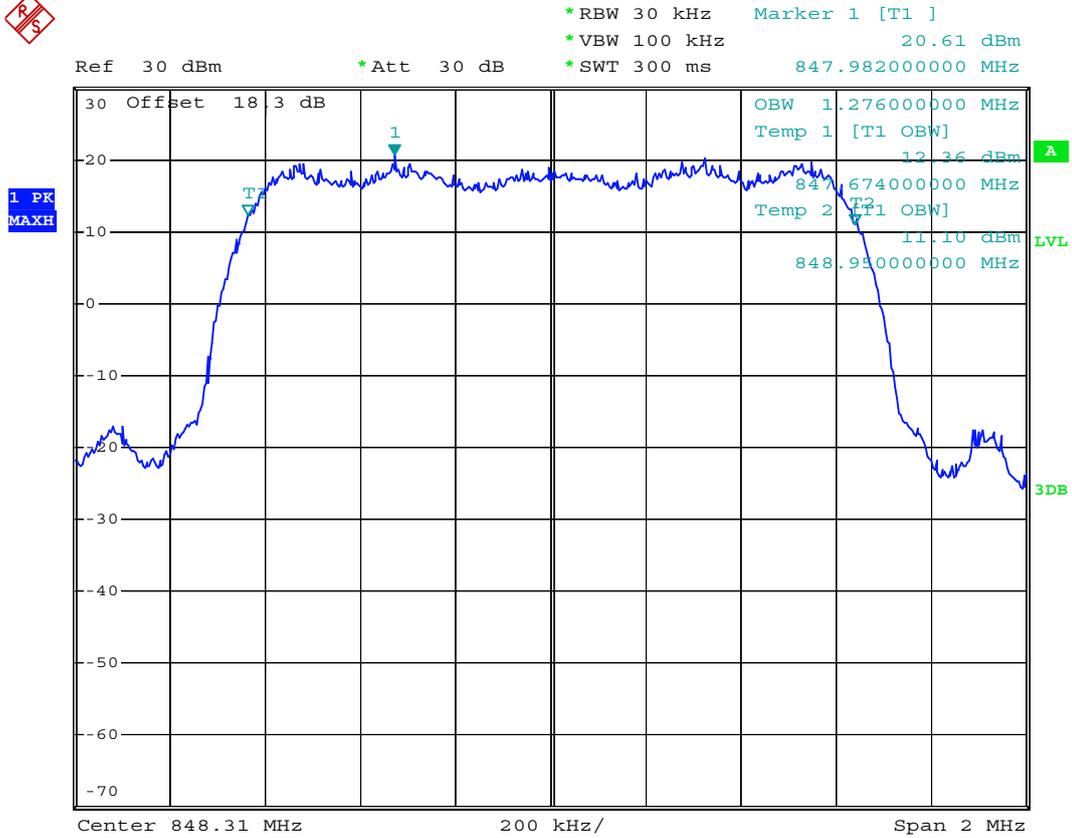
- Test Mode : CDMA2000 Cellular CH384\_FCH+SCH\_RC3 99% Occupied Bandwidth for 1xRTT
- Power State : High



Date: 15.JUN.2008 16:59:40



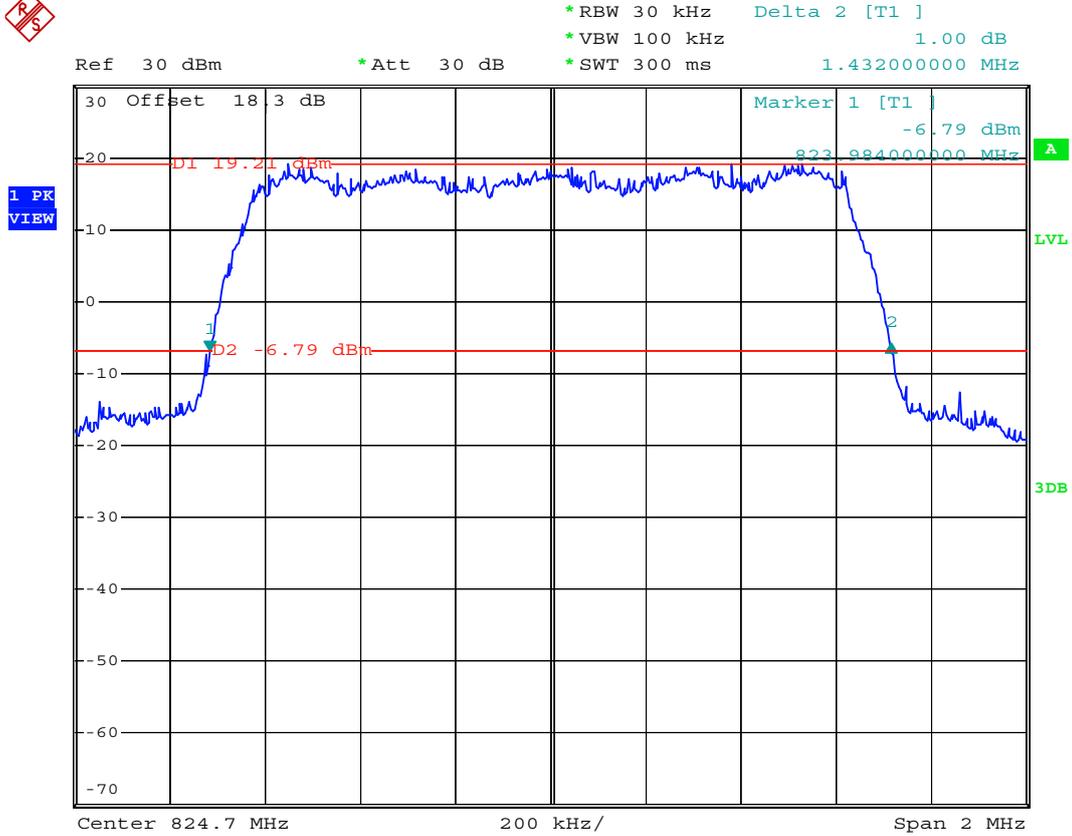
- Test Mode : CDMA2000 Cellular CH777\_FCH+SCH\_RC3 99% Occupied Bandwidth for 1xRTT
- Power State : High



Date: 15.JUN.2008 17:01:35



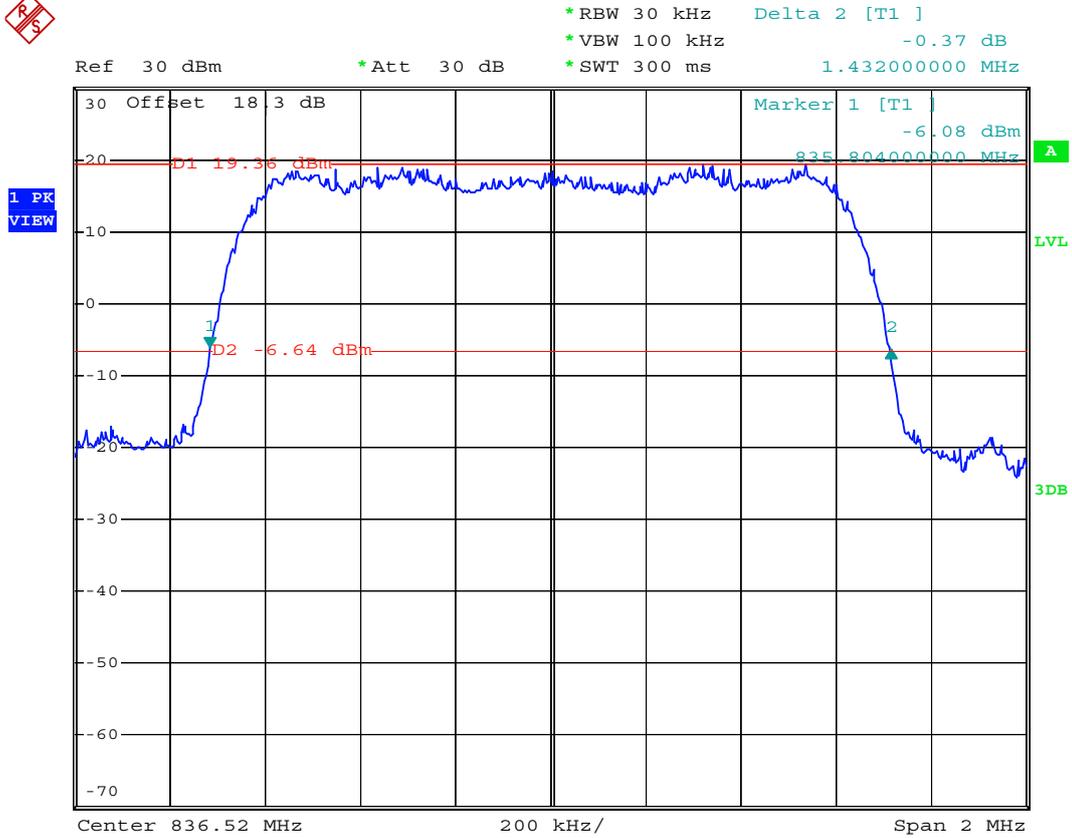
- Test Mode : CDMA2000 Cellular CH1013\_FCH+SCH\_RC3 26 dB Bandwidth for 1xRTT
- Power State : High



Date: 15.JUN.2008 20:26:41



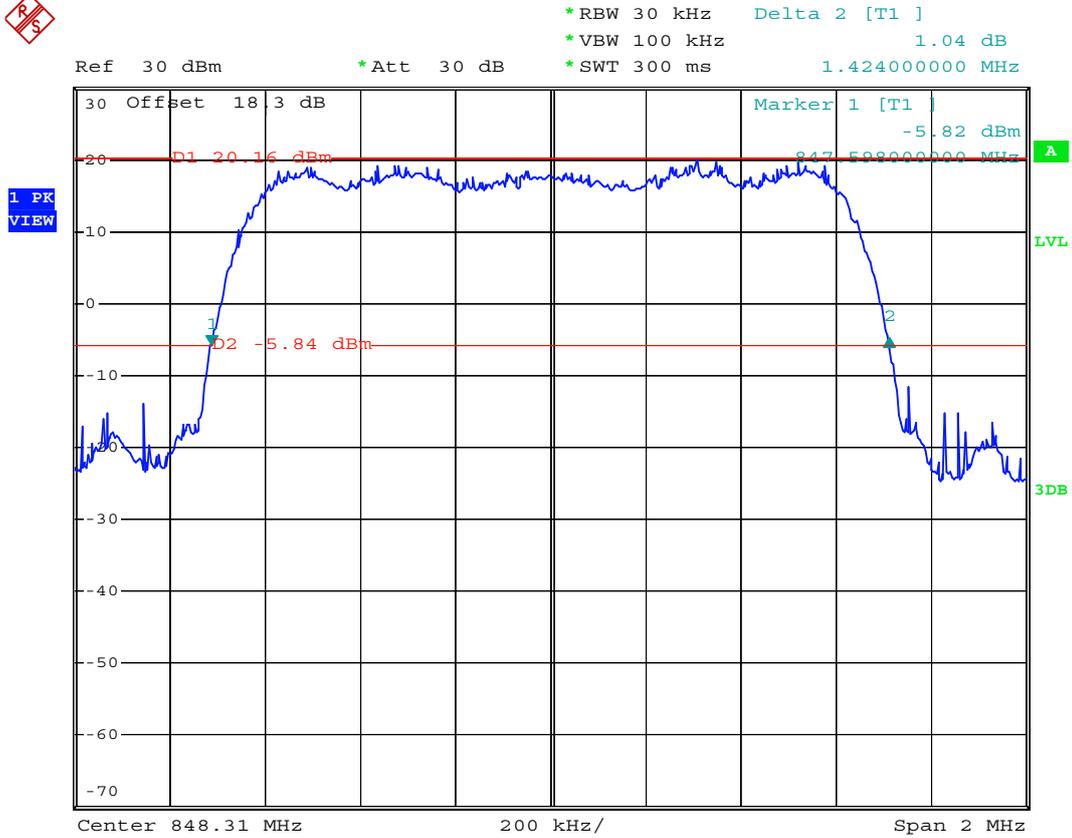
- Test Mode : CDMA2000 Cellular CH384\_FCH+SCH\_RC3 26 dB Bandwidth for 1xRTT
- Power State : High



Date: 15.JUN.2008 17:05:45



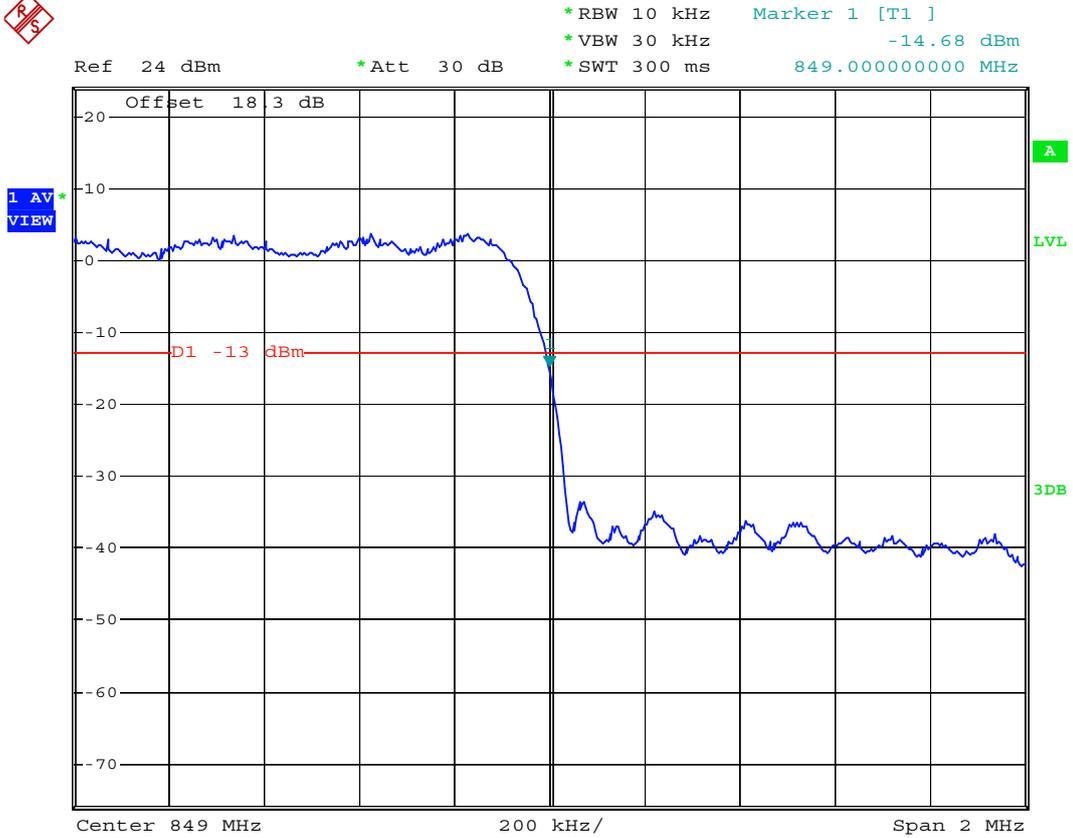
- Test Mode : CDMA2000 Cellular CH777\_FCH+SCH\_RC3 26 dB Bandwidth for 1xRTT
- Power State : High



Date: 15.JUN.2008 17:07:11



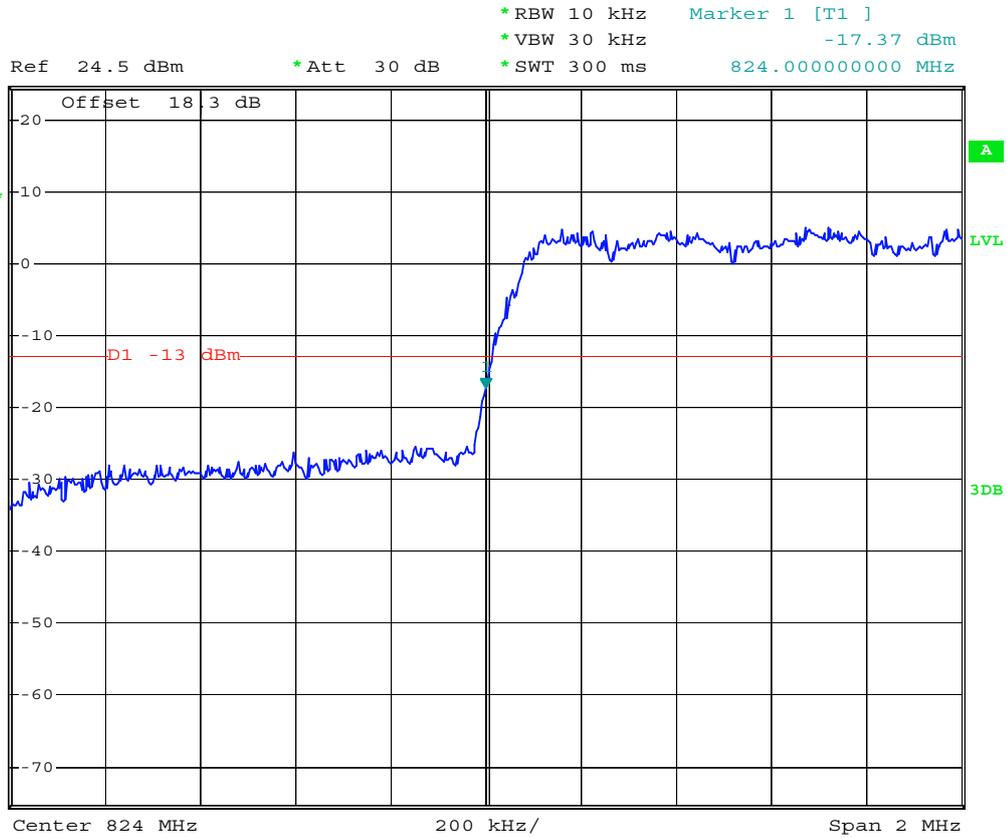
- Test Mode : CDMA2000 Cellular CH777\_FCH+SCH\_RC3 Higher Band Edge for 1xRTT
- Power State : High



Date: 15.JUN.2008 18:17:58



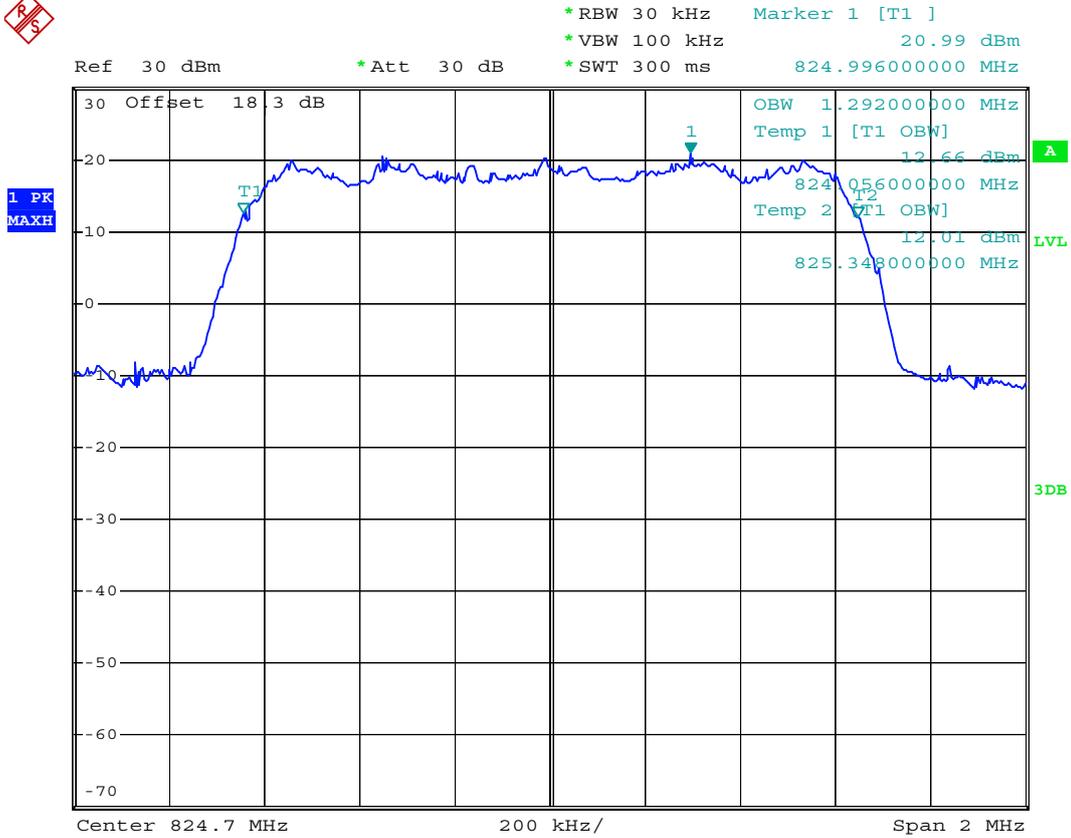
- Mode 2
- Test Mode : CDMA2000 Cellular CH1013\_128Kbps Lower Band Edge for 1xEV-DO
- Power State : High



Date: 17.JUN.2008 18:17:28



- Test Mode : CDMA2000 Cellular CH1013\_128Kbps 99% Occupied Bandwidth for 1xEV-DO
- Power State : High



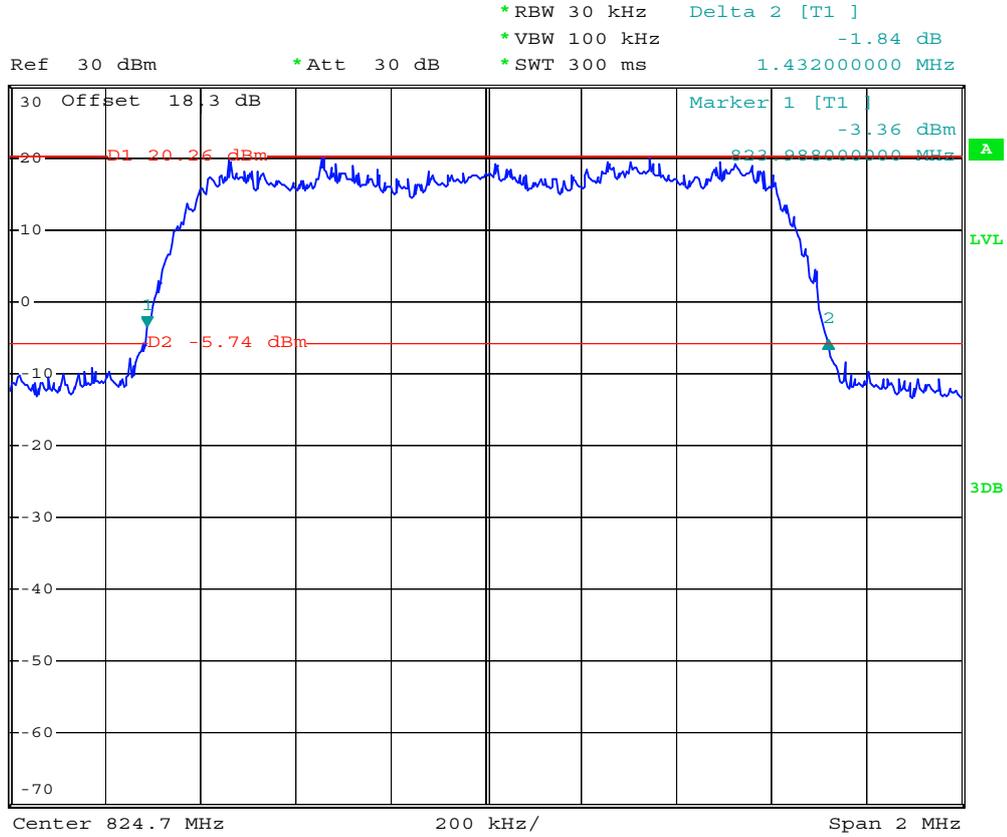
Date: 16.JUN.2008 16:05:11







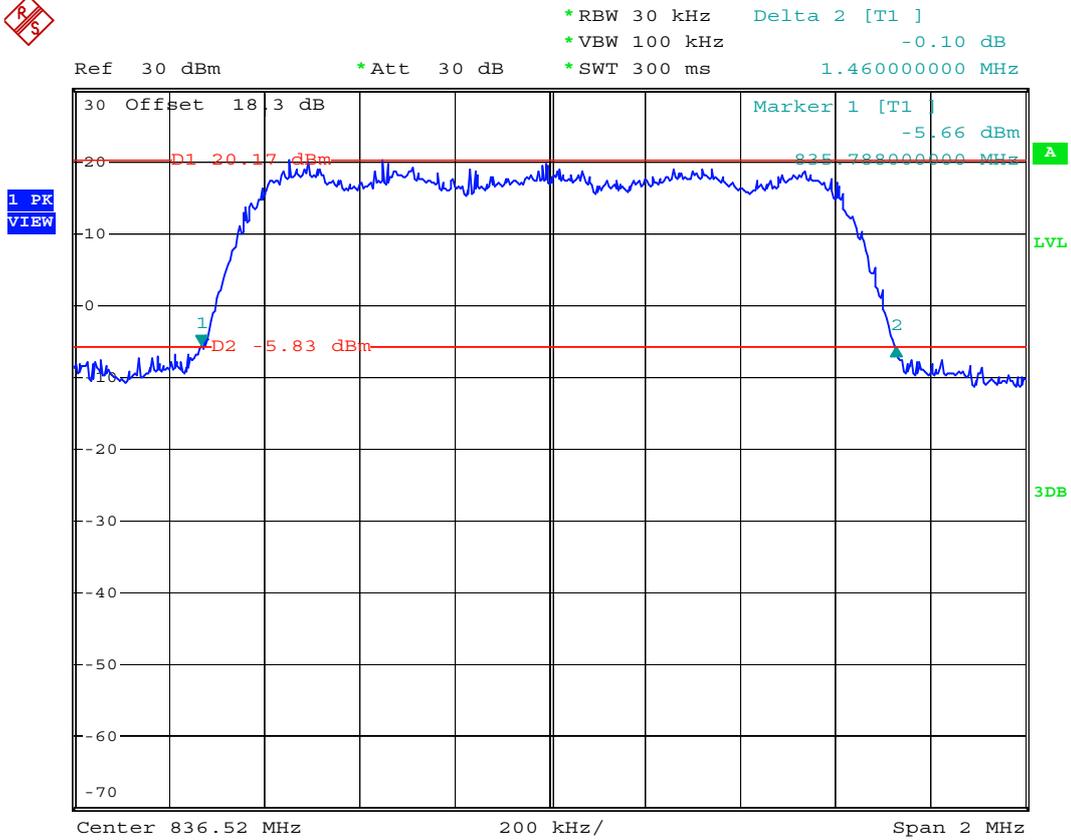
- Test Mode : CDMA2000 Cellular CH1013\_128Kbps 26 dB Bandwidth for 1xEV-DO
- Power State : High



Date: 16.JUN.2008 16:00:15



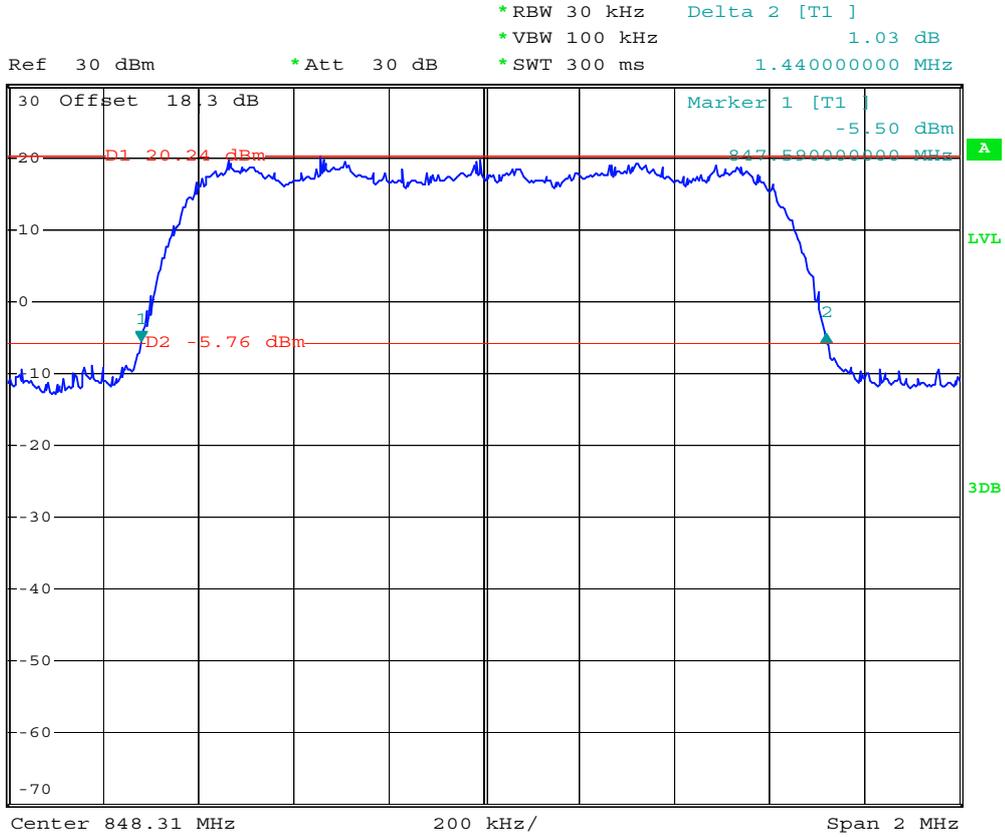
- Test Mode : CDMA2000 Cellular CH384\_128Kbps 26 dB Bandwidth for 1xEV-DO
- Power State : High



Date: 16.JUN.2008 16:02:07



- Test Mode : CDMA2000 Cellular CH777\_128Kbps 26 dB Bandwidth for 1xEV-DO
- Power State : High



Date: 16.JUN.2008 16:03:26

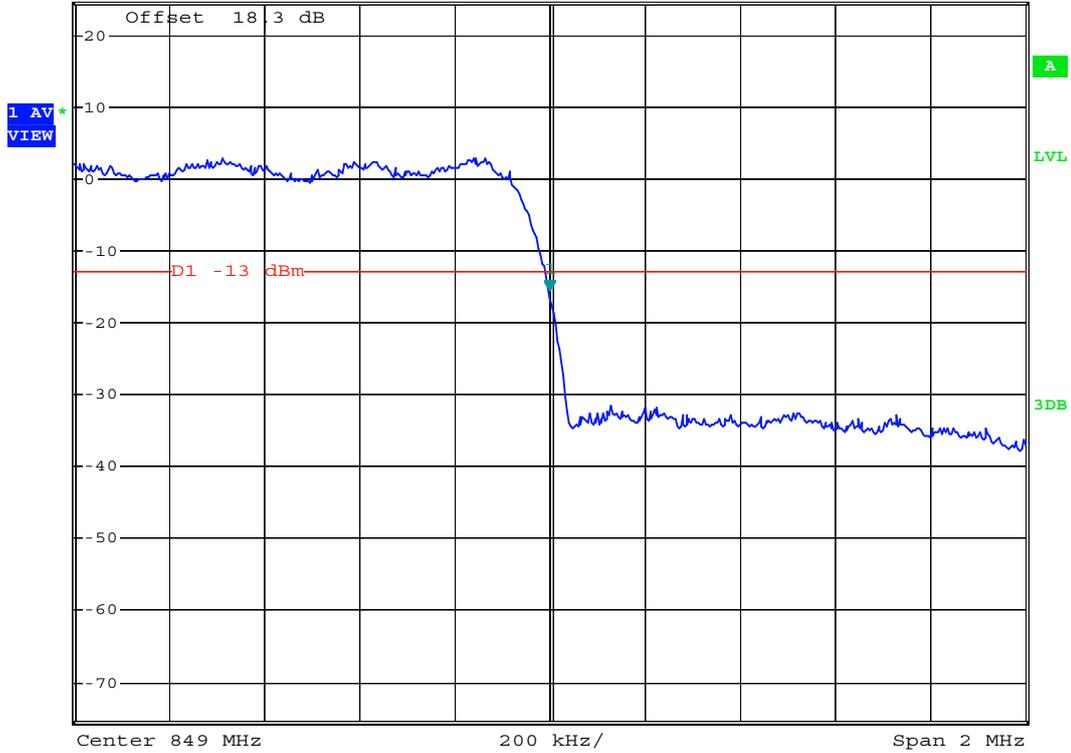


- Test Mode : CDMA2000 Cellular CH777\_128Kbps Higher Band Edge for 1xEV-DO
- Power State : High



\*RBW 10 kHz    Marker 1 [T1 ]  
\*VBW 30 kHz    -15.40 dBm  
\*SWT 300 ms    849.00000000 MHz

Ref 24.5 dBm    \*Att 30 dB



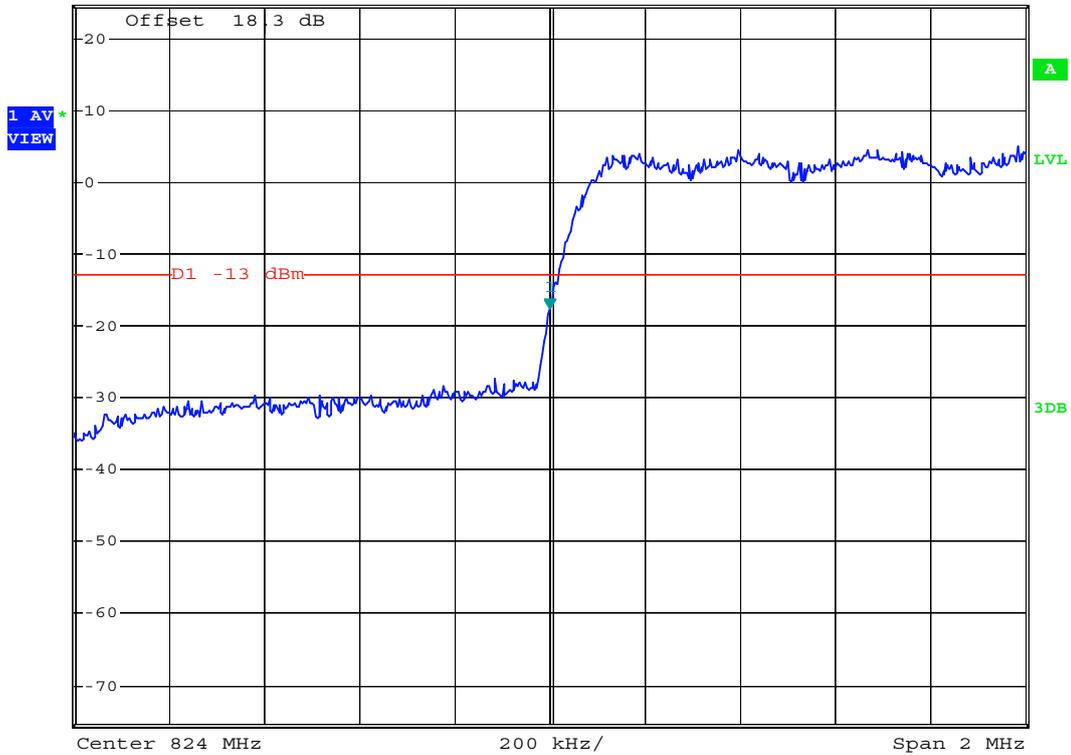
Date: 17.JUN.2008 18:18:23



- Test Mode : CDMA2000 Cellular CH1013\_2048Kbps Lower Band Edge for 1xEV-DO
- Power State : High



Ref 24.5 dBm      \*Att 30 dB      \*RBW 10 kHz      Marker 1 [T1]      -17.68 dBm  
\*VBW 30 kHz      \*SWT 300 ms      824.00000000 MHz



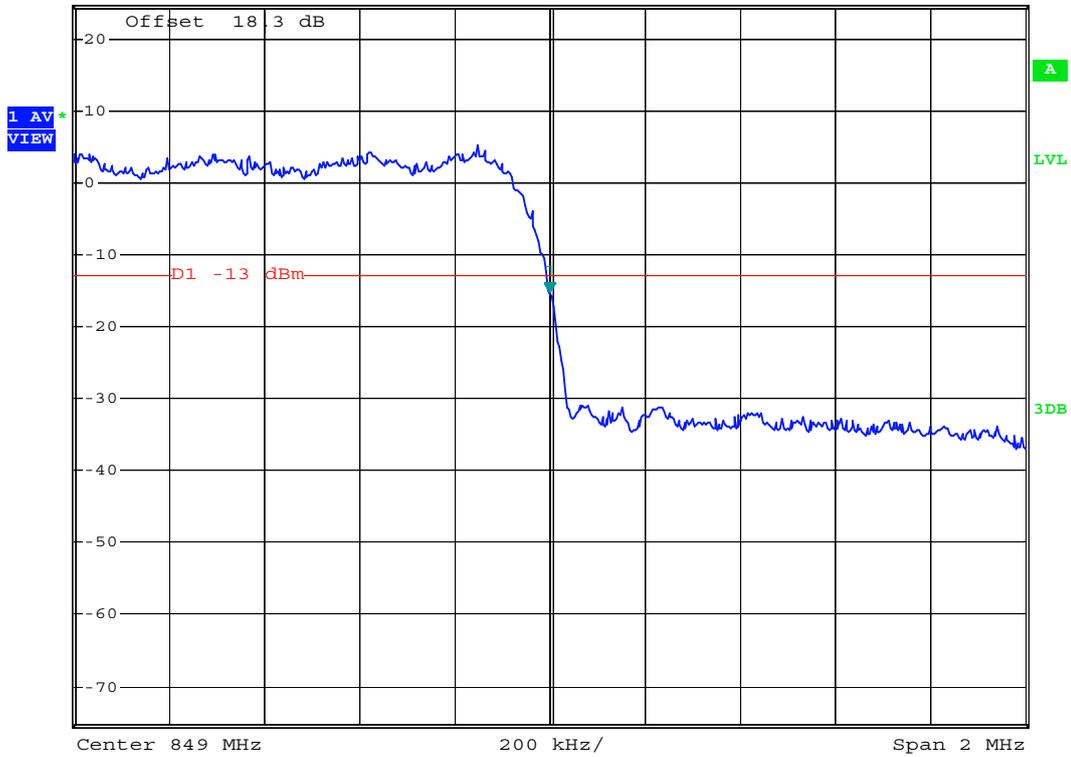
Date: 17.JUN.2008 18:16:43



- Test Mode : CDMA2000 Cellular CH777\_2048Kbps Higher Band Edge for 1xEV-DO
- Power State : High



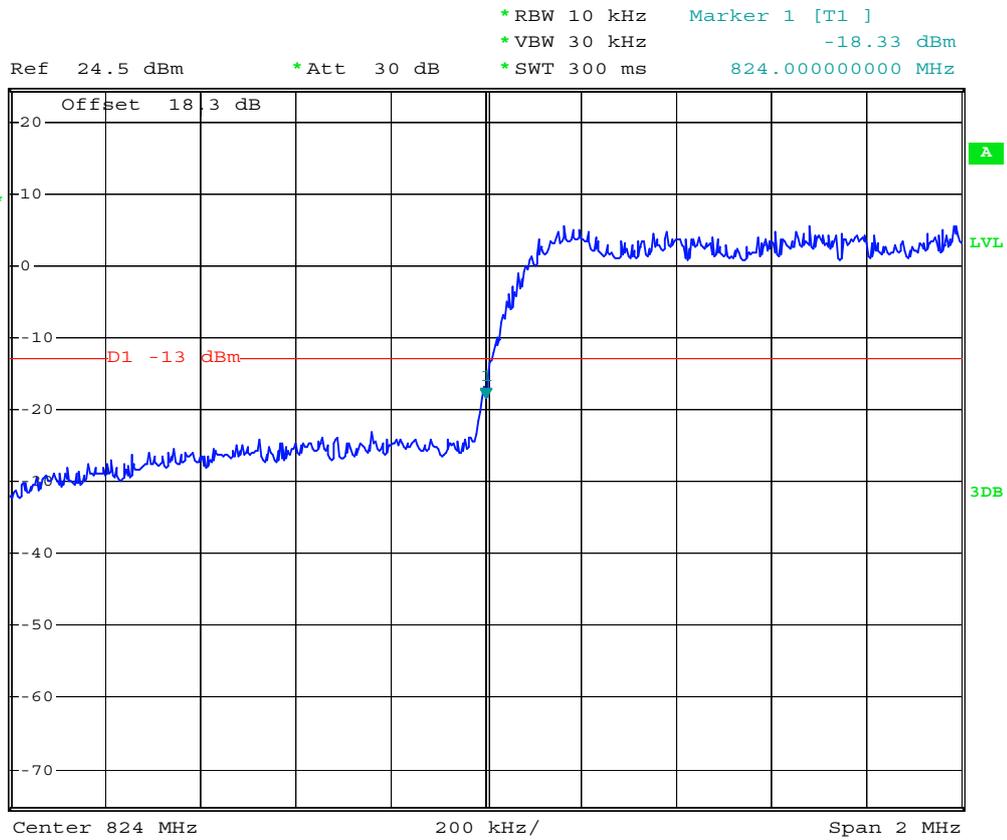
Ref 24.5 dBm      \*Att 30 dB      \*RBW 10 kHz      Marker 1 [T1 ]  
\*VBW 30 kHz      -15.24 dBm  
\*SWT 300 ms      849.000000000 MHz



Date: 17.JUN.2008 18:15:36



- Test Mode : CDMA2000 Cellular CH1013\_12288Kbps Lower Band Edge for 1xEV-DO
- Power State : High



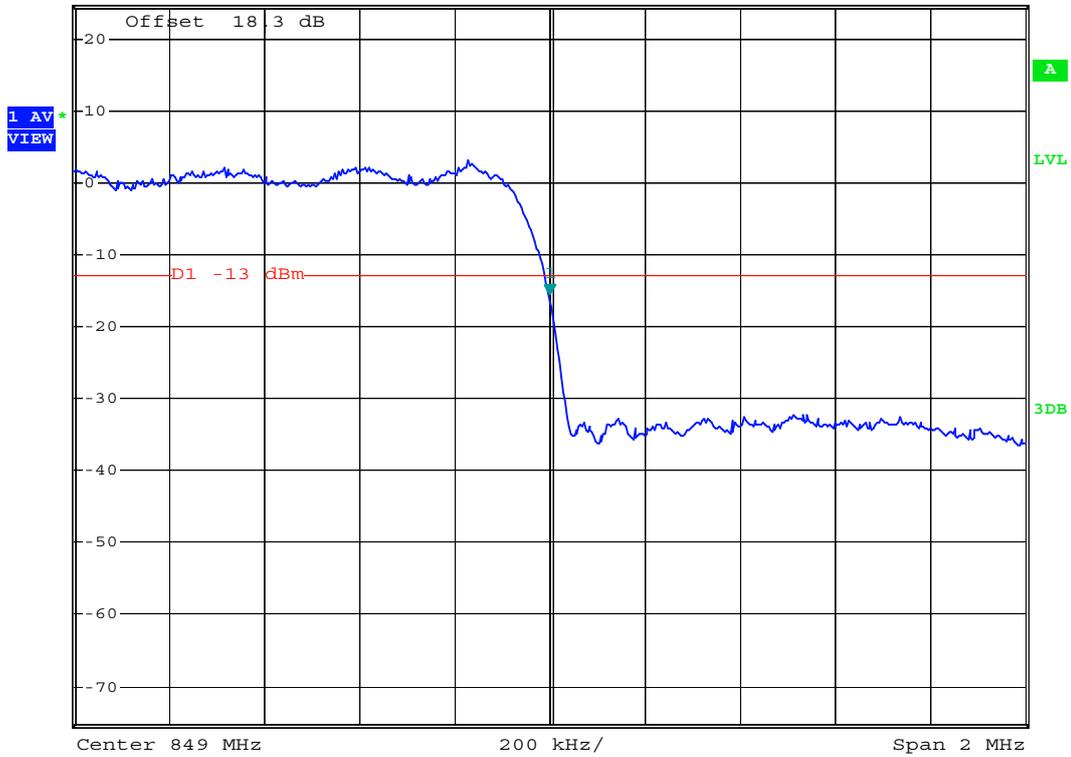
Date: 17.JUN.2008 18:12:27



- Test Mode : CDMA2000 Cellular CH777\_12288Kbps Higher Band Edge for 1xEV-DO
- Power State : High



Ref 24.5 dBm      \*Att 30 dB      \*RBW 10 kHz      Marker 1 [T1 ]  
 \*VBW 30 kHz      -15.55 dBm  
 \*SWT 300 ms      849.00000000 MHz



Date: 17.JUN.2008 18:14:14





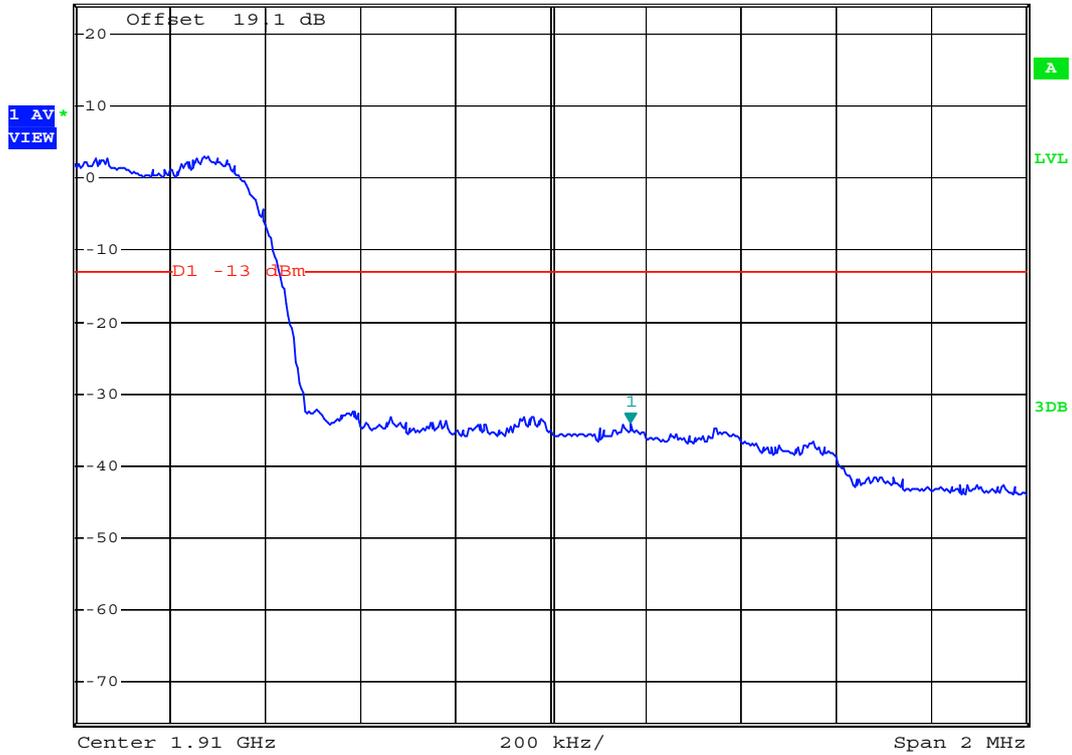




- Test Mode : CDMA2000 PCS Band CH1175\_FCH\_RC3 Higher Band Edge for 1xRTT
- Power State : High



Ref 24.1 dBm \*Att 30 dB \*RBW 10 kHz Marker 1 [T1 ]  
\*VBW 30 kHz -34.15 dBm  
\*SWT 300 ms 1.910168000 GHz



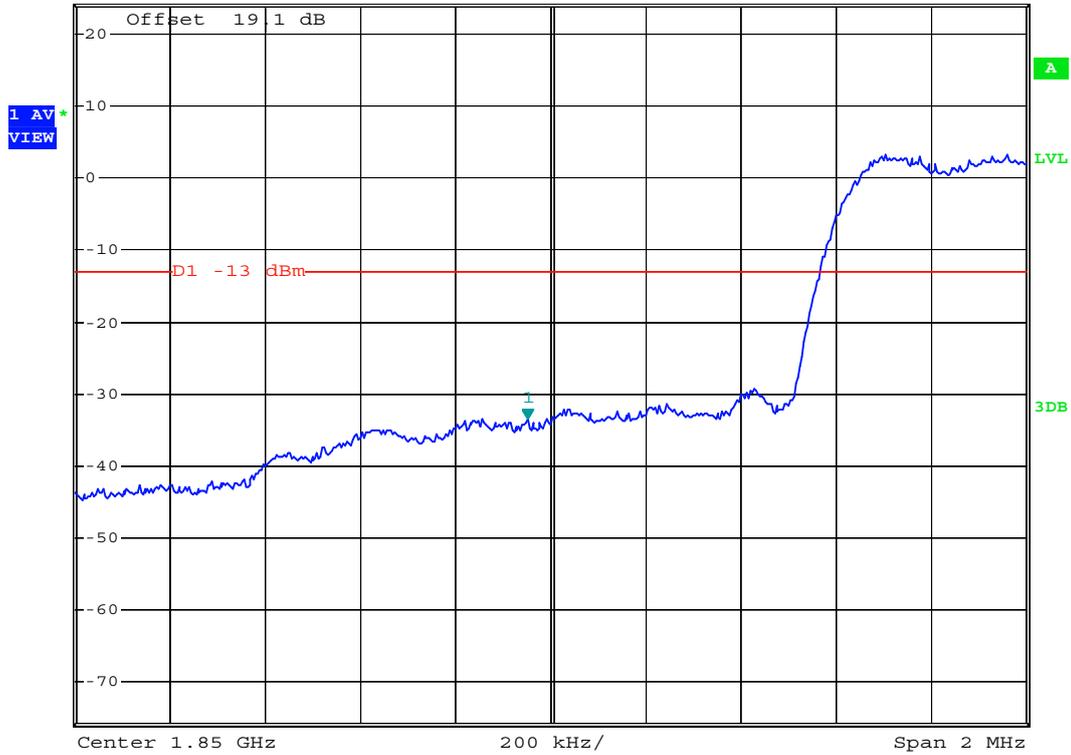
Date: 15.JUN.2008 18:36:24



- Test Mode : CDMA2000 PCS Band CH25\_ FCH+SCH\_RC3 Lower Band Edge for 1xRTT
- Power State : High



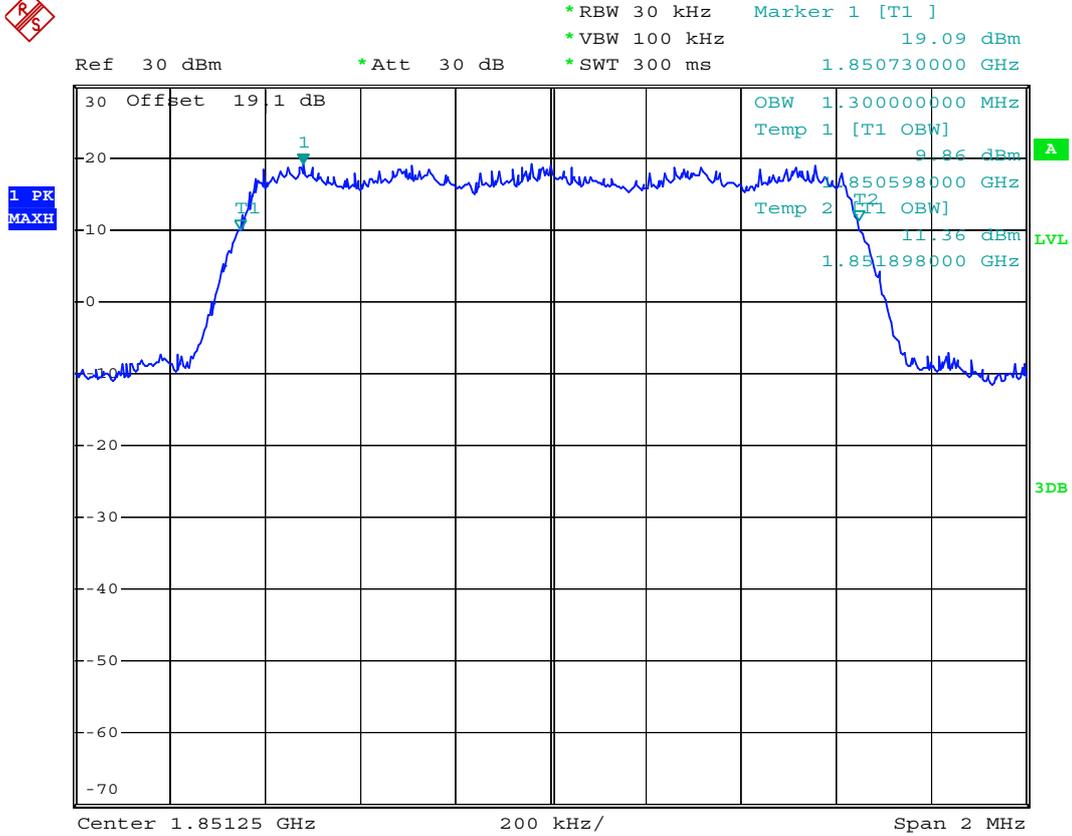
Ref 24.1 dBm      \*Att 30 dB      \*RBW 10 kHz      Marker 1 [T1]      -33.56 dBm  
 \*VBW 30 kHz  
 \*SWT 300 ms      1.849952000 GHz



Date: 15.JUN.2008 18:32:42



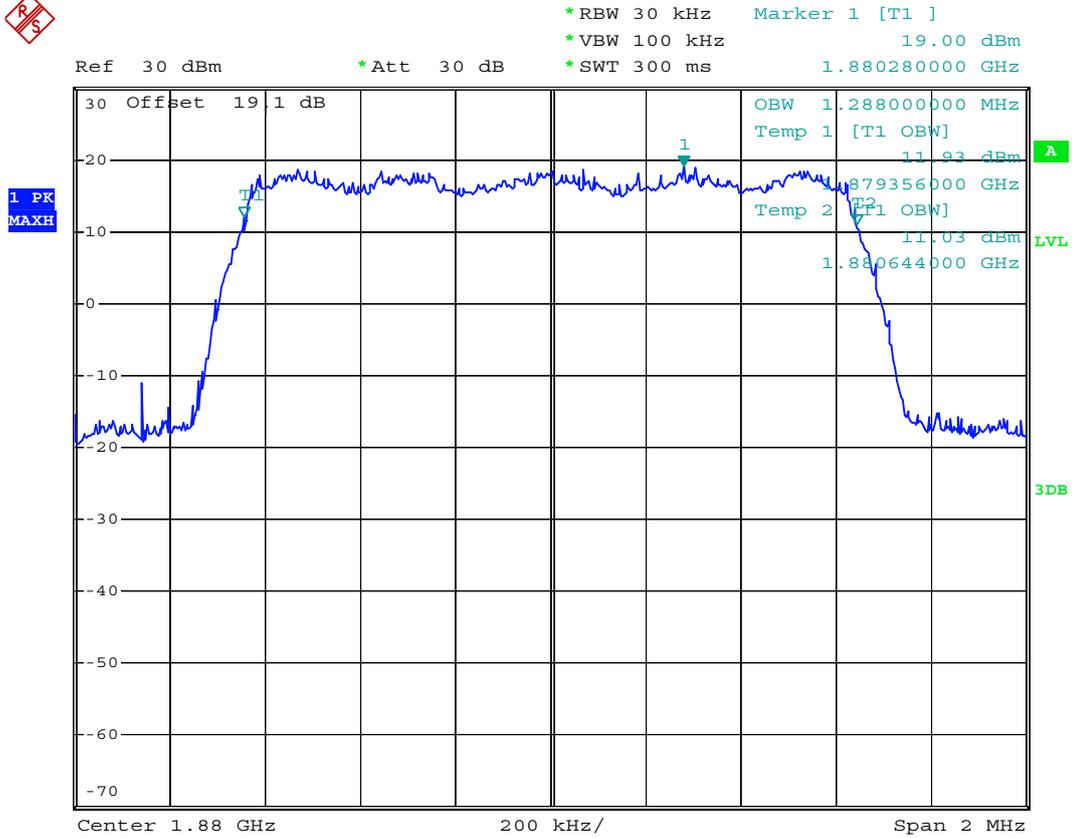
- Test Mode : CDMA2000 PCS Band CH25\_ FCH+SCH\_RC3 99% Occupied Bandwidth for 1xRTT
- Power State : High



Date: 15.JUN.2008 18:51:43



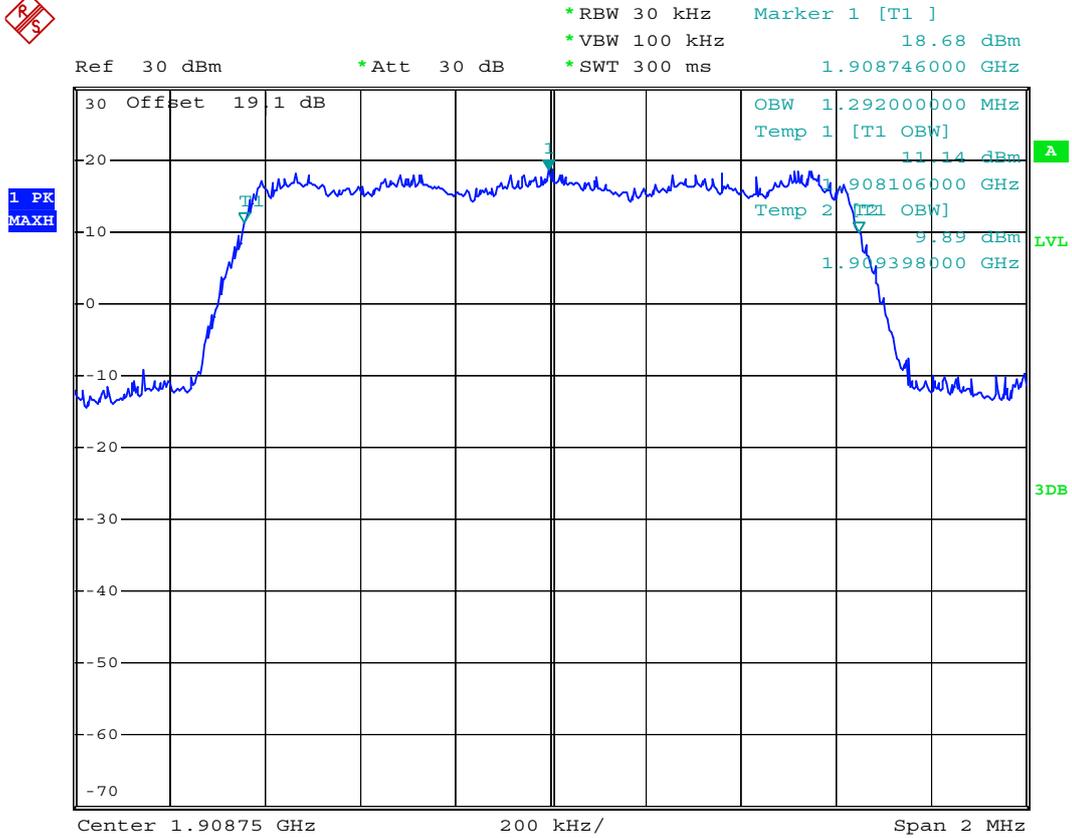
- Test Mode : CDMA2000 PCS Band CH600\_ FCH+SCH\_RC3 99% Occupied Bandwidth for 1xRTT
- Power State : High



Date: 15.JUN.2008 18:52:53



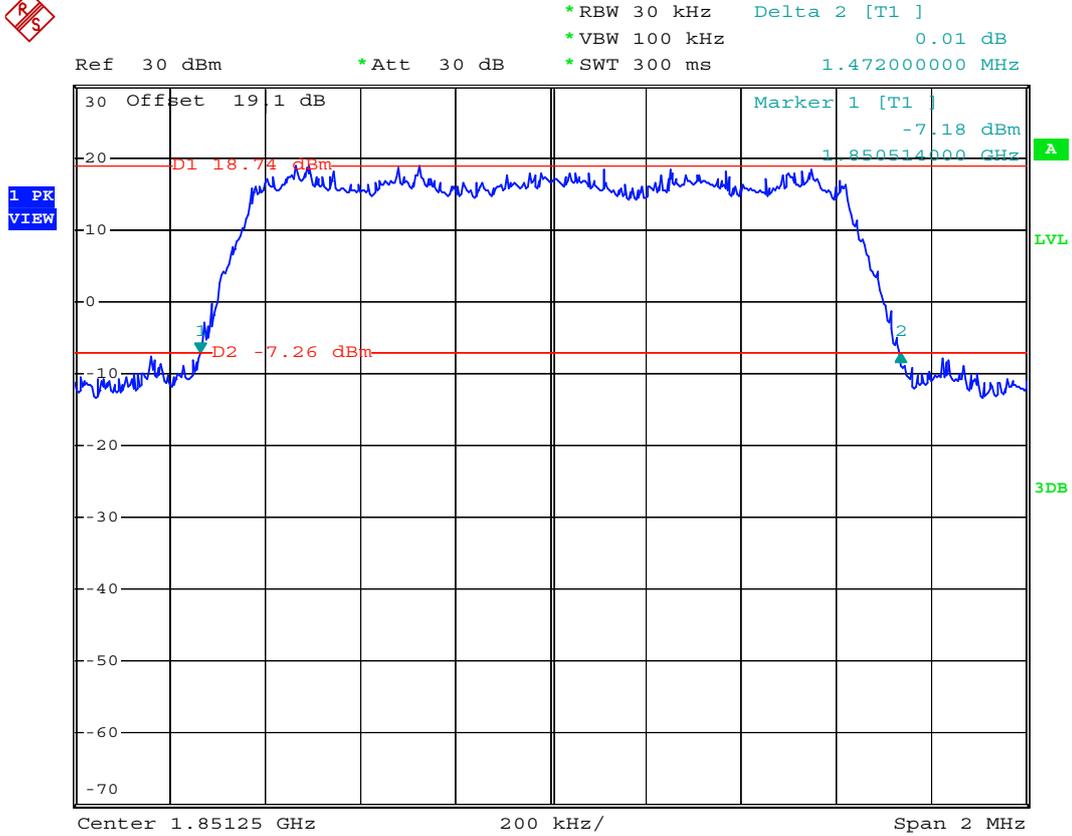
- Test Mode : CDMA2000 PCS Band CH1175\_ FCH+SCH\_RC3 99% Occupied Bandwidth for 1xRTT
- Power State : High



Date: 15.JUN.2008 18:52:25



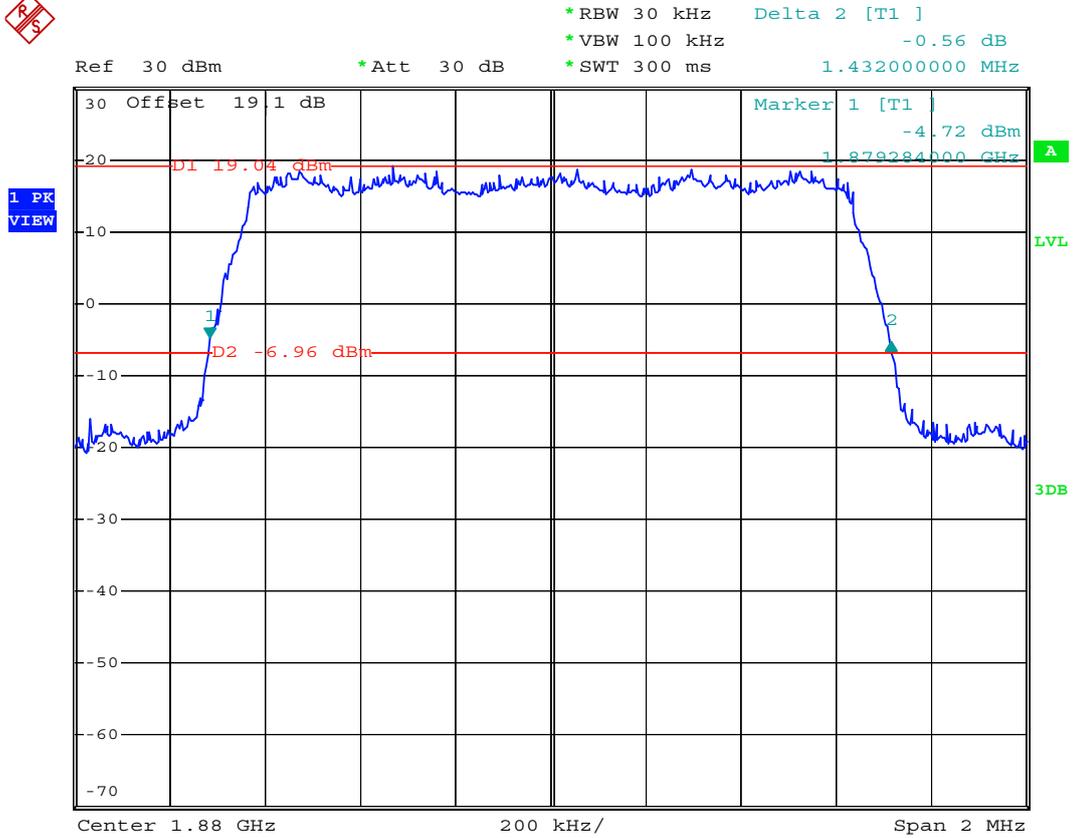
- Test Mode : CDMA2000 PCS Band CH25\_ FCH+SCH\_RC3 26 dB Bandwidth for 1xRTT
- Power State : High



Date: 15.JUN.2008 18:44:31



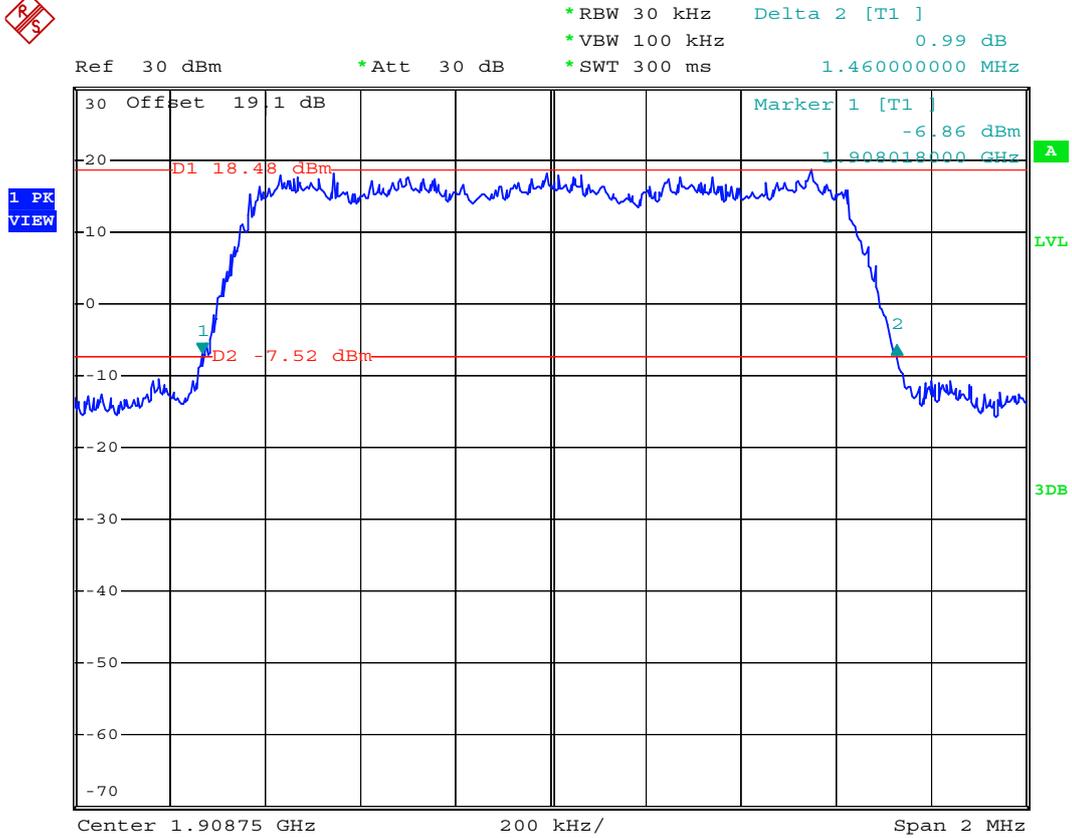
- Test Mode : CDMA2000 PCS Band CH600\_ FCH+SCH\_RC3 26 dB Bandwidth for 1xRTT
- Power State : High



Date: 15.JUN.2008 18:45:20



- Test Mode : CDMA2000 CS 1900 Band CH1175\_ FCH+SCH\_RC3 26 dB Bandwidth for 1xRTT
- Power State : High



Date: 15.JUN.2008 18:46:28

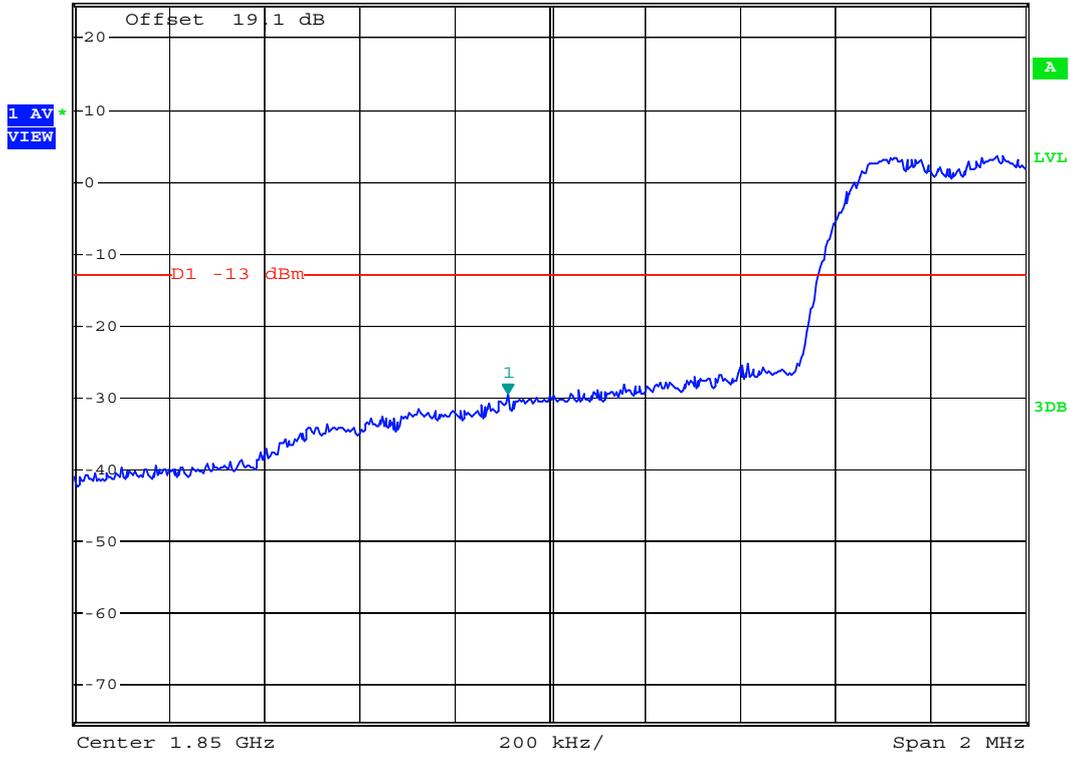




- Mode 4
- Test Mode : CDMA2000 PCS CH25\_128Kbps Lower Band Edge for 1xEV-DO
- Power State : High



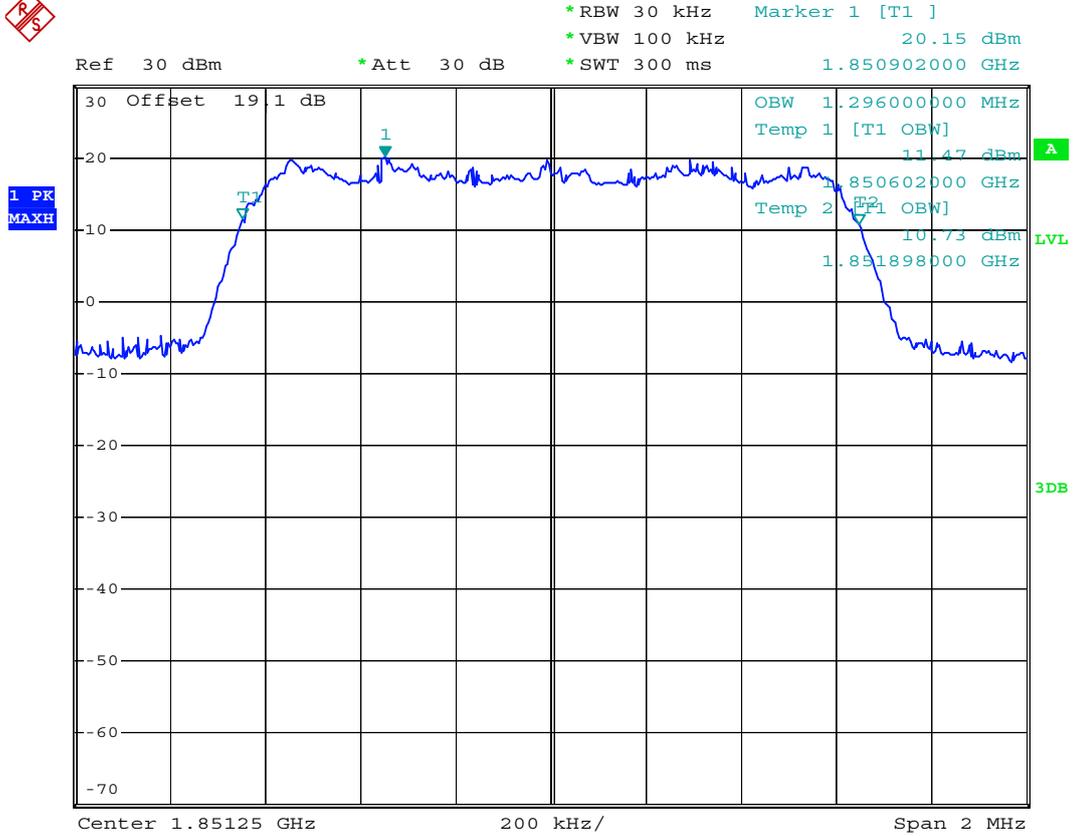
Ref 24.7 dBm      \*Att 30 dB      \*RBW 10 kHz      Marker 1 [T1 ]  
 \*VBW 30 kHz      -29.49 dBm  
 \*SWT 300 ms      1.849912000 GHz



Date: 17.JUN.2008 18:01:35



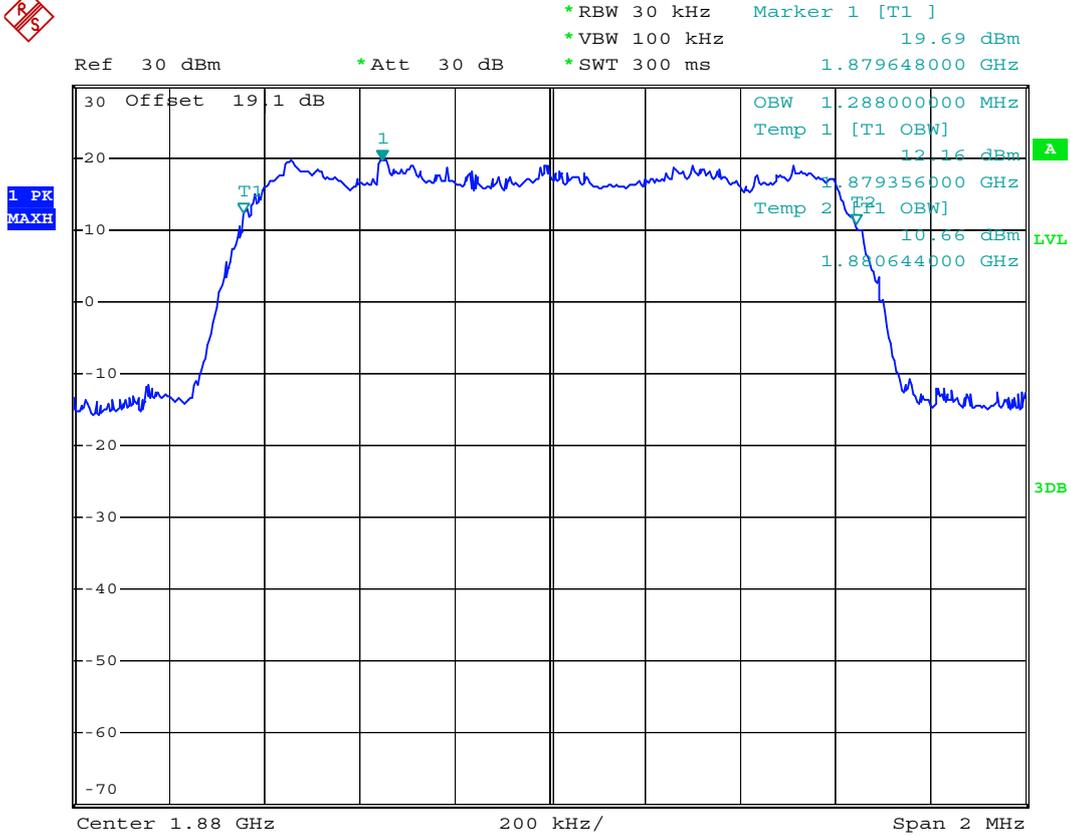
- Test Mode : CDMA2000 PCS CH25\_128Kbps 99% Occupied Bandwidth for 1xEV-DO
- Power State : High



Date: 16.JUN.2008 15:29:54



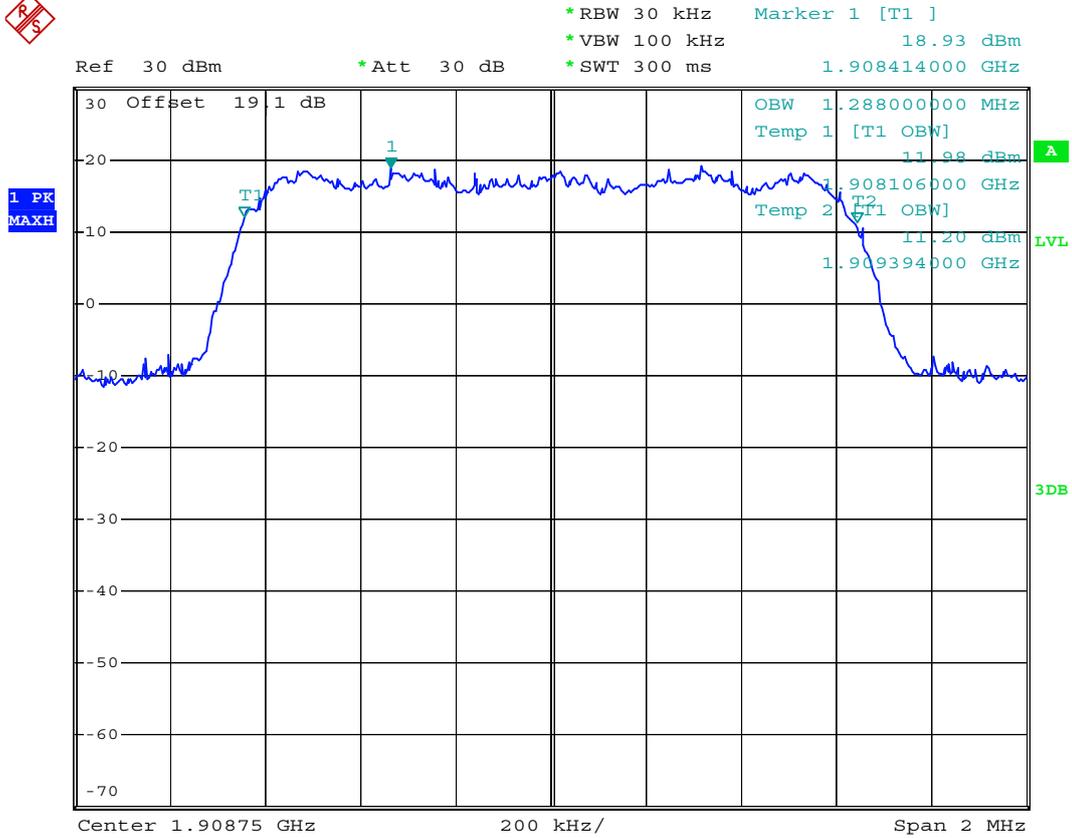
- Test Mode : CDMA2000 PCS CH600\_128Kbps 99% Occupied Bandwidth for 1xEV-DO
- Power State : High



Date: 16.JUN.2008 15:30:39



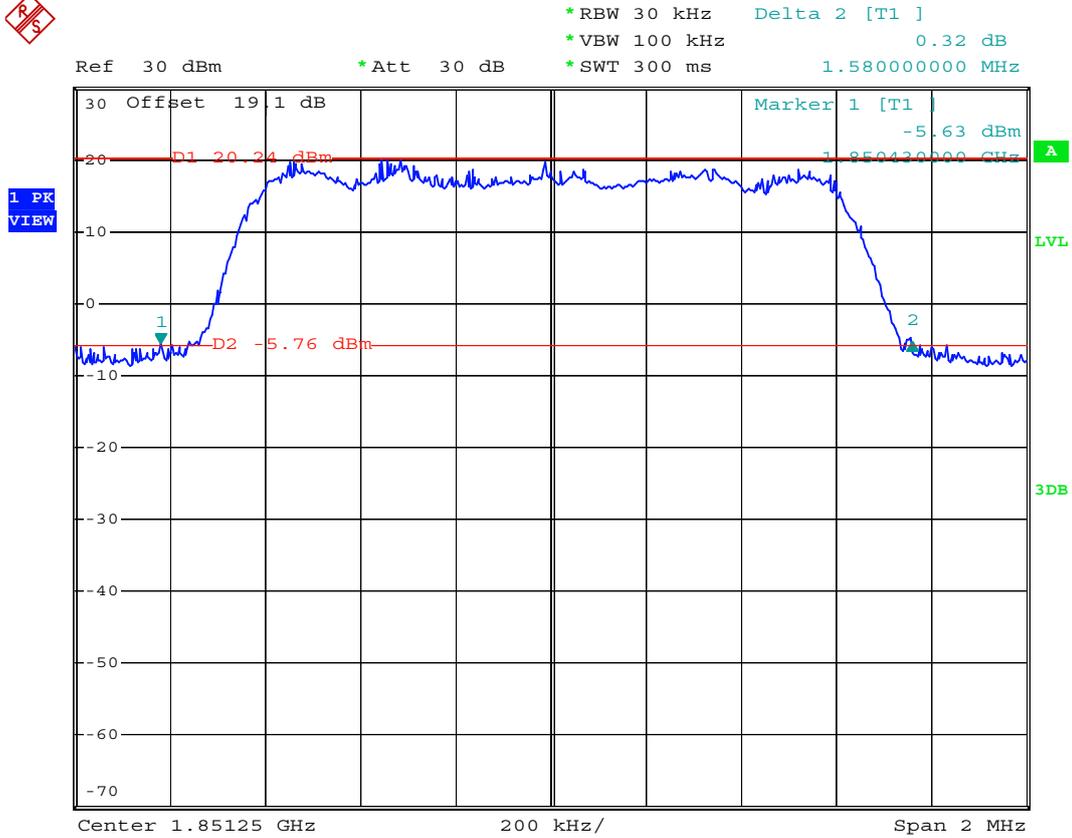
- Test Mode : CDMA2000 PCS CH1175\_128Kbps 99% Occupied Bandwidth for 1xEV-DO
- Power State : High



Date: 16.JUN.2008 15:35:46



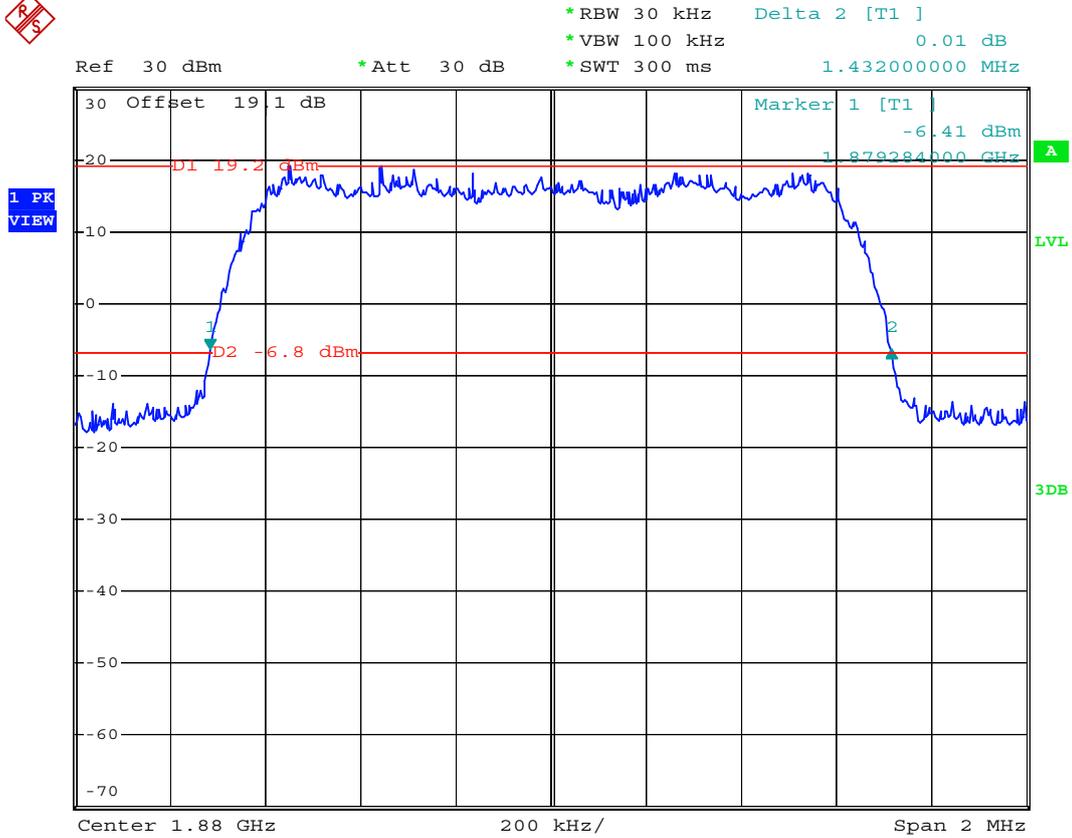
- Test Mode : CDMA2000 PCS CH25\_128Kbps 26 dB Bandwidth for 1xEV-DO
- Power State : High



Date: 16.JUN.2008 15:27:52



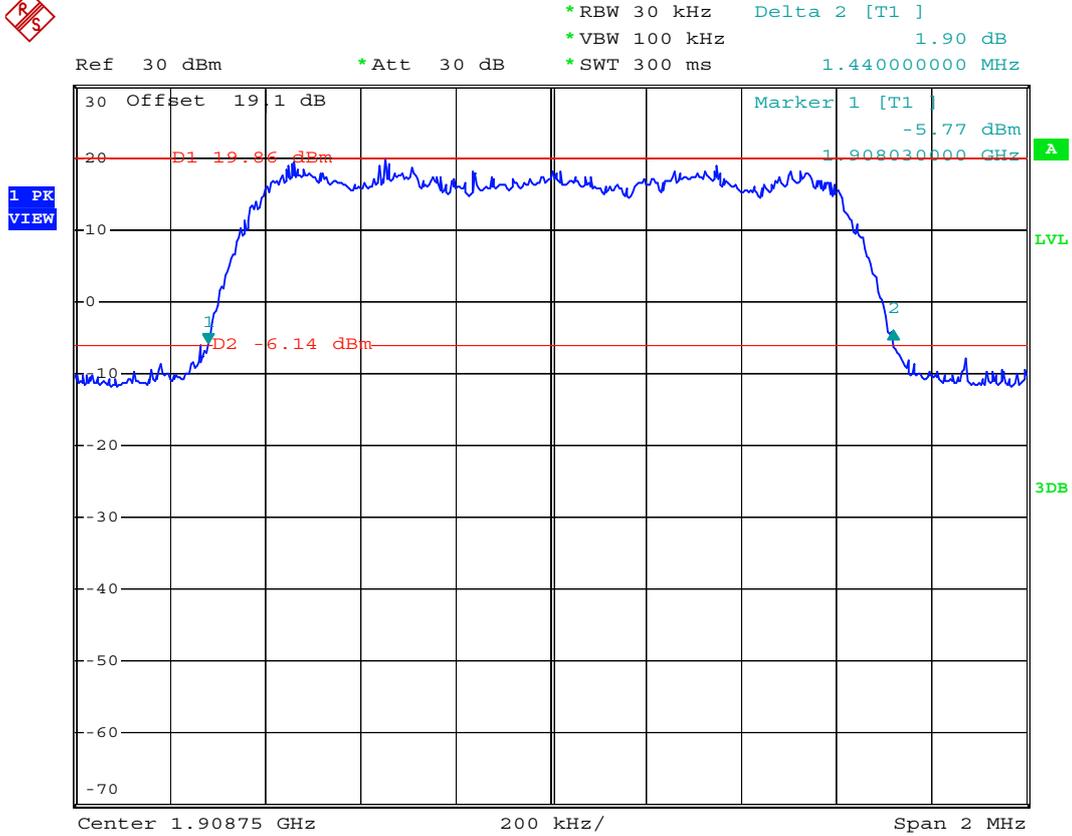
- Test Mode : CDMA2000 PCS CH600\_128Kbps 26 dB Bandwidth for 1xEV-DO
- Power State : High



Date: 16.JUN.2008 15:17:36



- Test Mode : CDMA2000 PCS CH1175\_128Kbps 26 dB Bandwidth for 1xEV-DO
- Power State : High



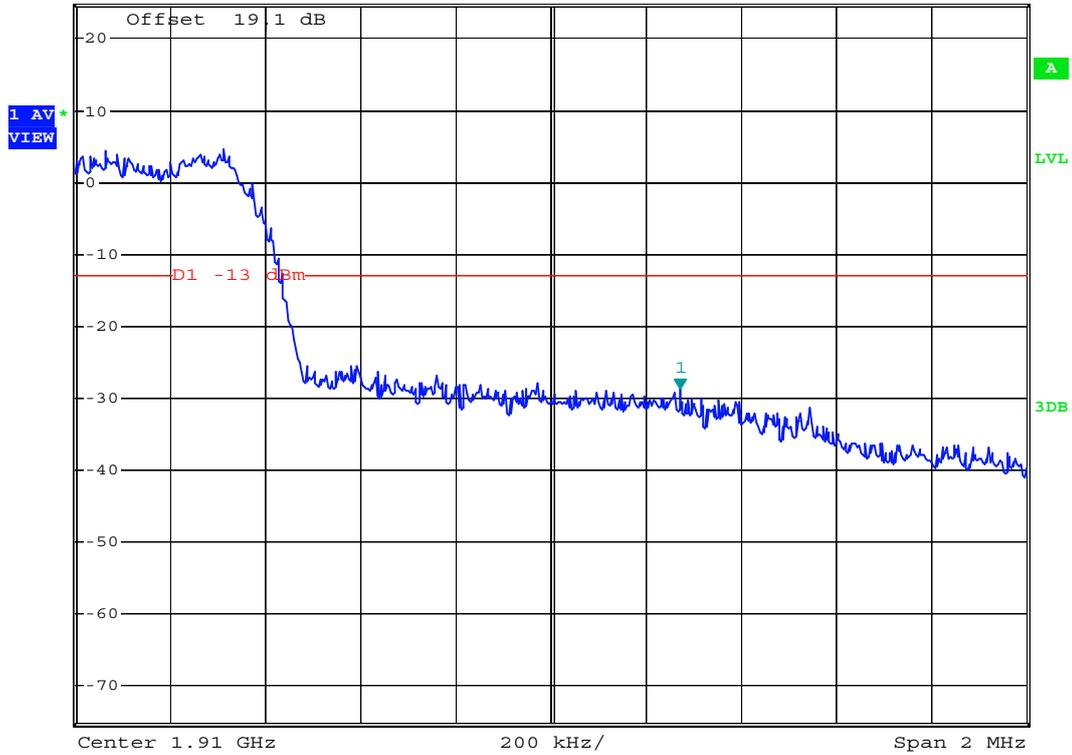
Date: 16.JUN.2008 15:18:22



- Test Mode : CDMA2000 PCS CH1175\_128Kbps Higher Band Edge for 1xEV-DO
- Power State : High



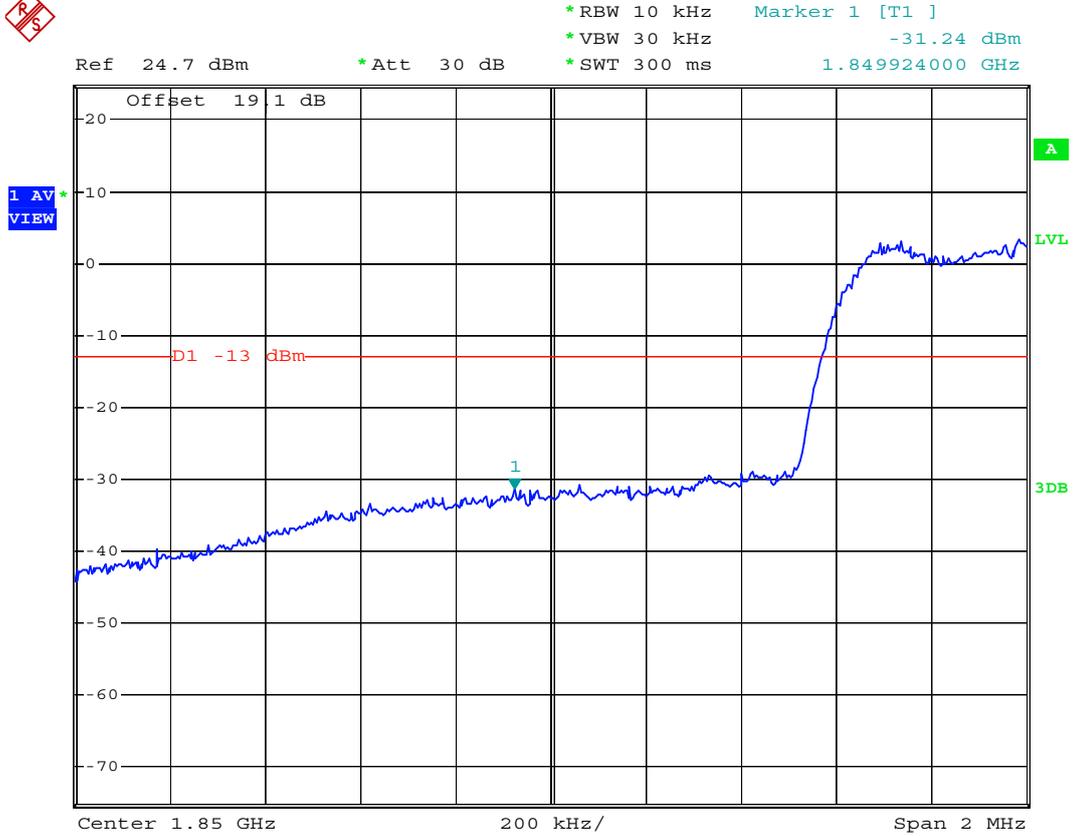
Ref 24.7 dBm      \*Att 30 dB      \*RBW 10 kHz      Marker 1 [T1]      -28.83 dBm  
\*VBW 30 kHz      \*SWT 300 ms      1.910272000 GHz



Date: 17.JUN.2008 18:03:49



- Test Mode : CDMA2000 PCS CH25\_2048Kbps Lower Band Edge for 1xEV-DO
- Power State : High



Date: 17.JUN.2008 18:07:30

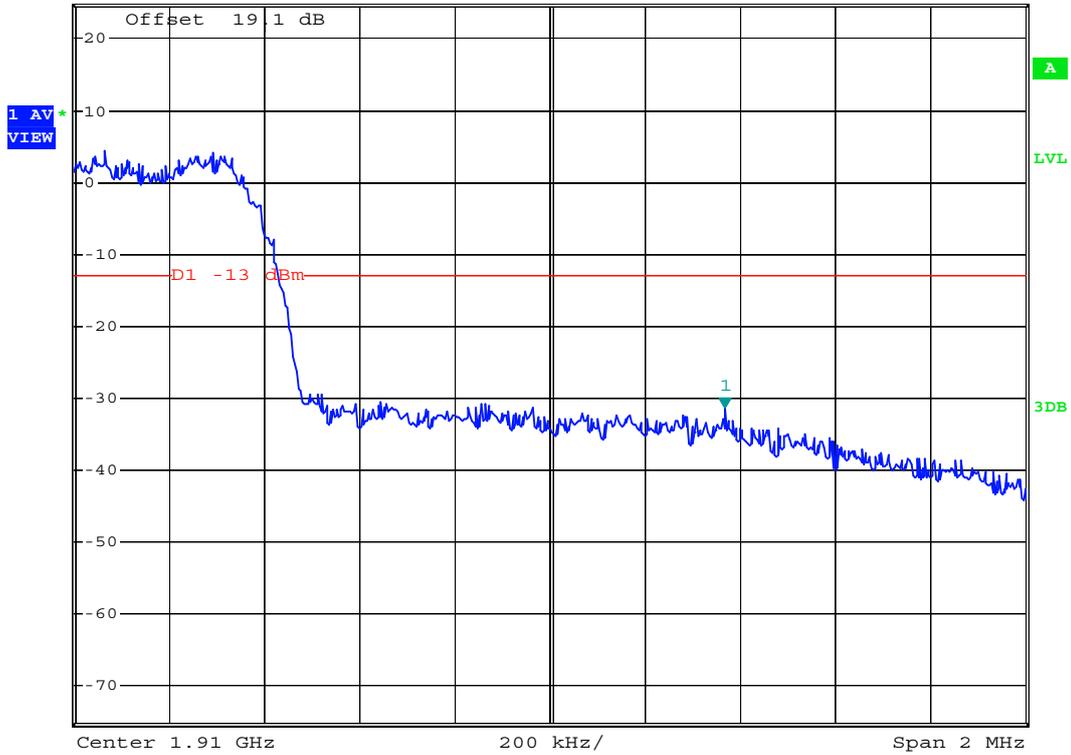


- Test Mode : CDMA2000 PCS CH1175\_2048Kbps Higher Band Edge for 1xEV-DO
- Power State : High



\*RBW 10 kHz    Marker 1 [T1 ]  
\*VBW 30 kHz    -31.28 dBm  
\*SWT 300 ms    1.910368000 GHz

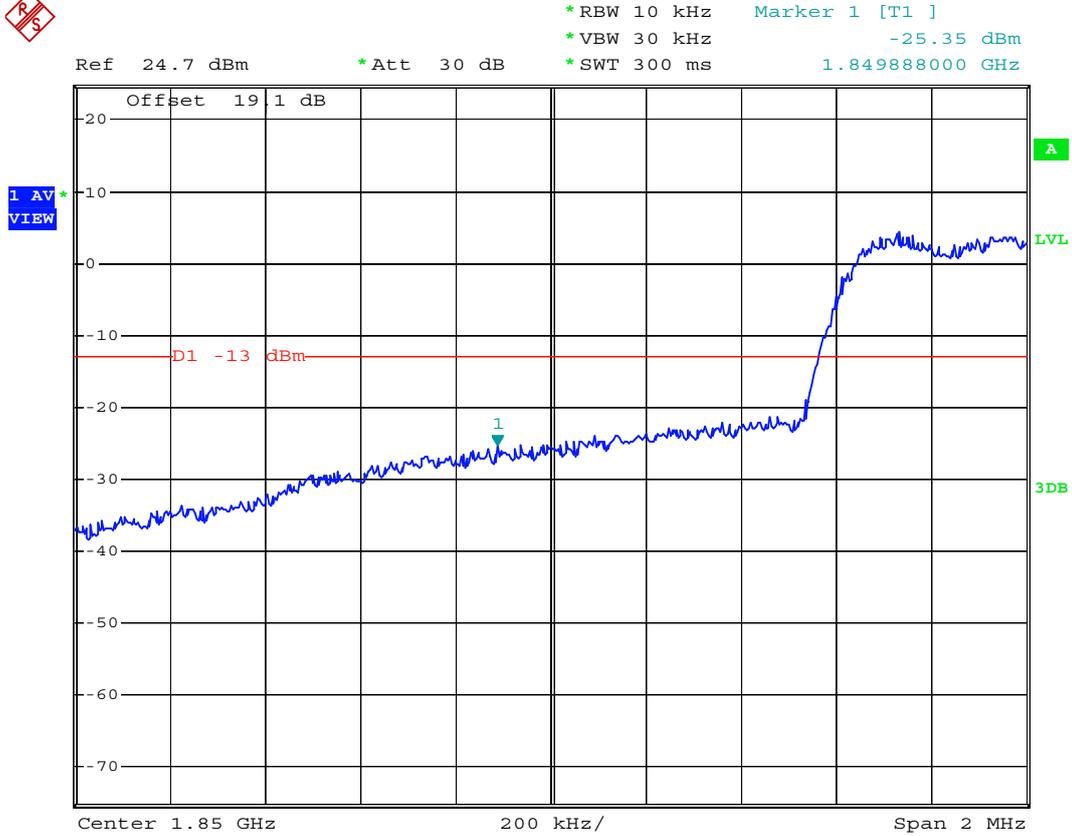
Ref 24.7 dBm    \*Att 30 dB



Date: 17.JUN.2008 18:05:35



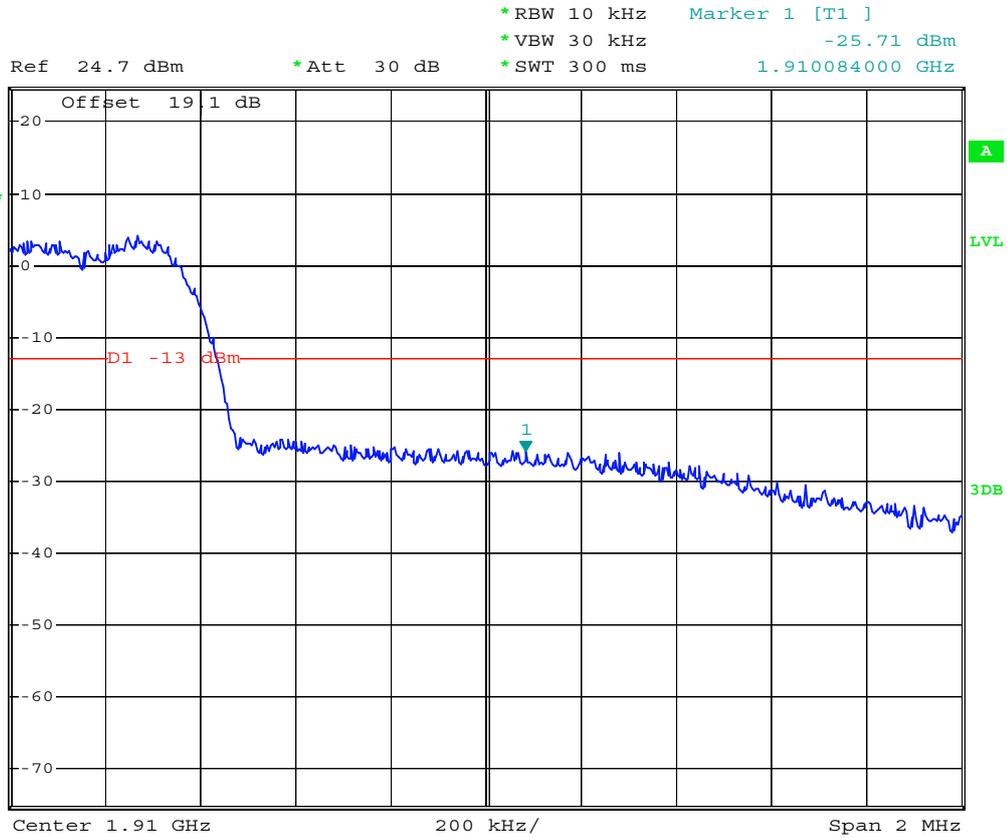
- Test Mode : CDMA2000 PCS CH25\_12288bps Lower Band Edge for 1xEV-DO
- Power State : High



Date: 17.JUN.2008 18:09:24



- Test Mode : CDMA2000 PCS CH1175\_12288Kbps Higher Band Edge for 1xEV-DO
- Power State : High



Date: 17.JUN.2008 18:10:39

## 4.5 Conducted Emission

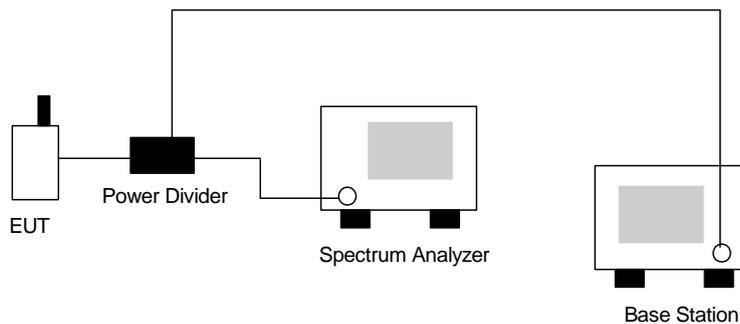
### 4.5.1 Measurement Instruments

As described in chapter 5 of this test report.

### 4.5.2 Test Procedure

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

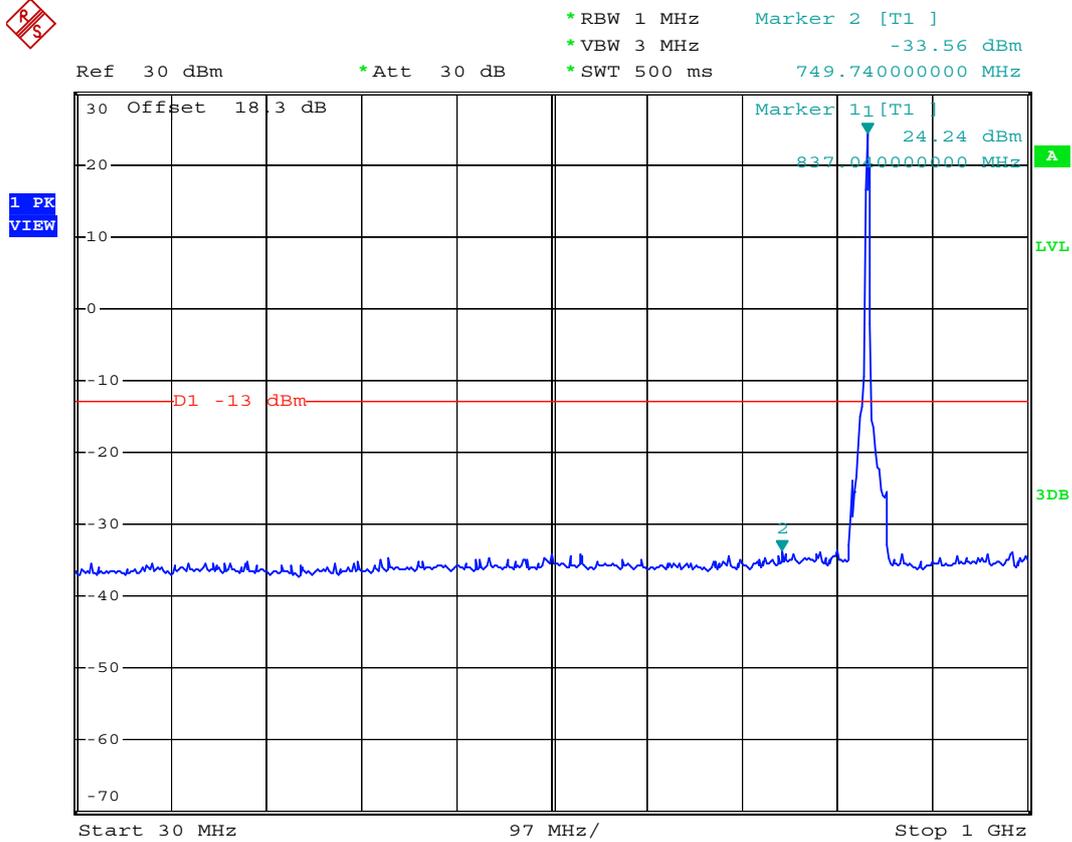
### 4.5.3 Test Setup Layout





4.5.4 Test Result

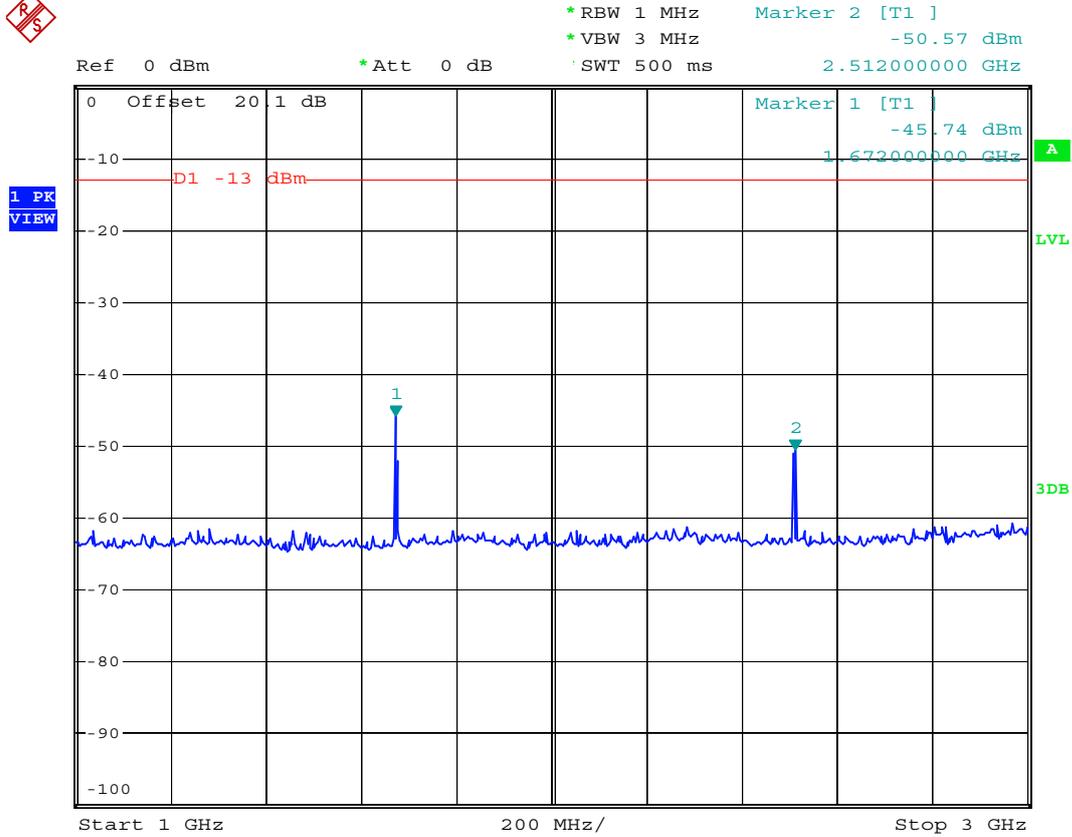
- Mode 1
- Test Mode : CDMA2000 Cellular CH384 for 1xRTT
- Frequency Range : 30M-1G



Date: 15.JUN.2008 19:56:54



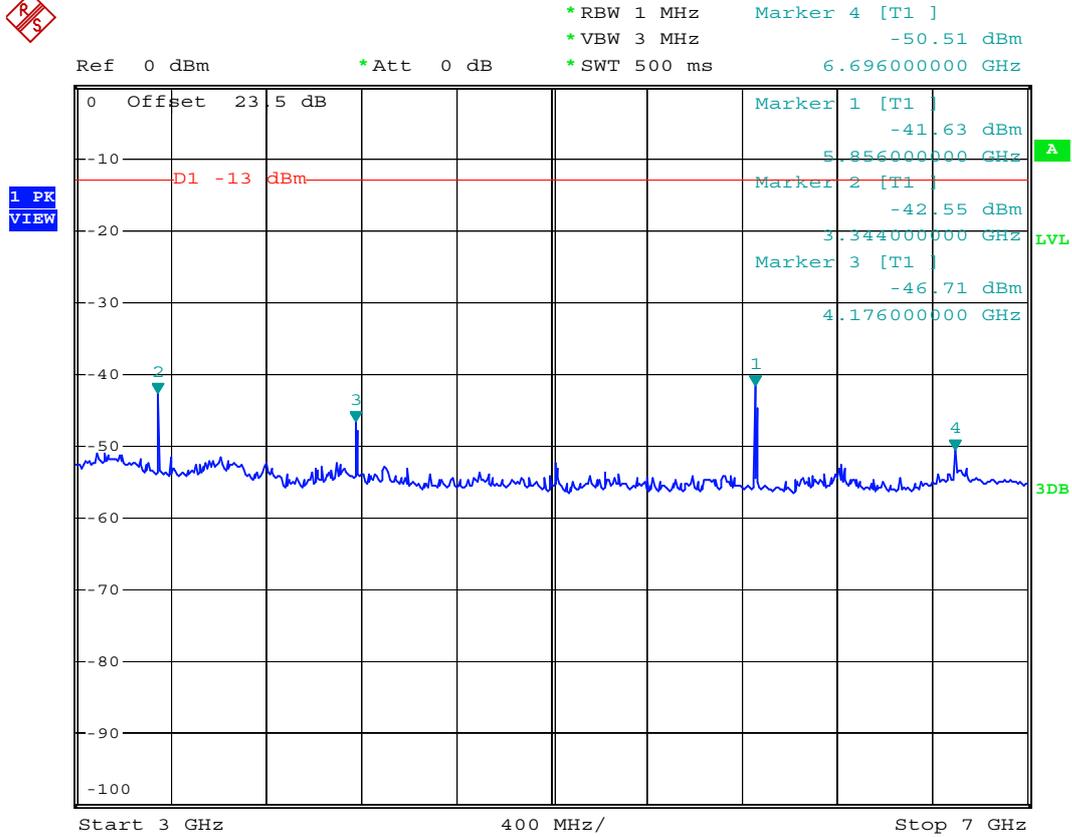
- Test Mode : CDMA2000 Cellular CH384 for 1xRTT
- Frequency Range : 1G-3G



Date: 15.JUN.2008 20:03:03



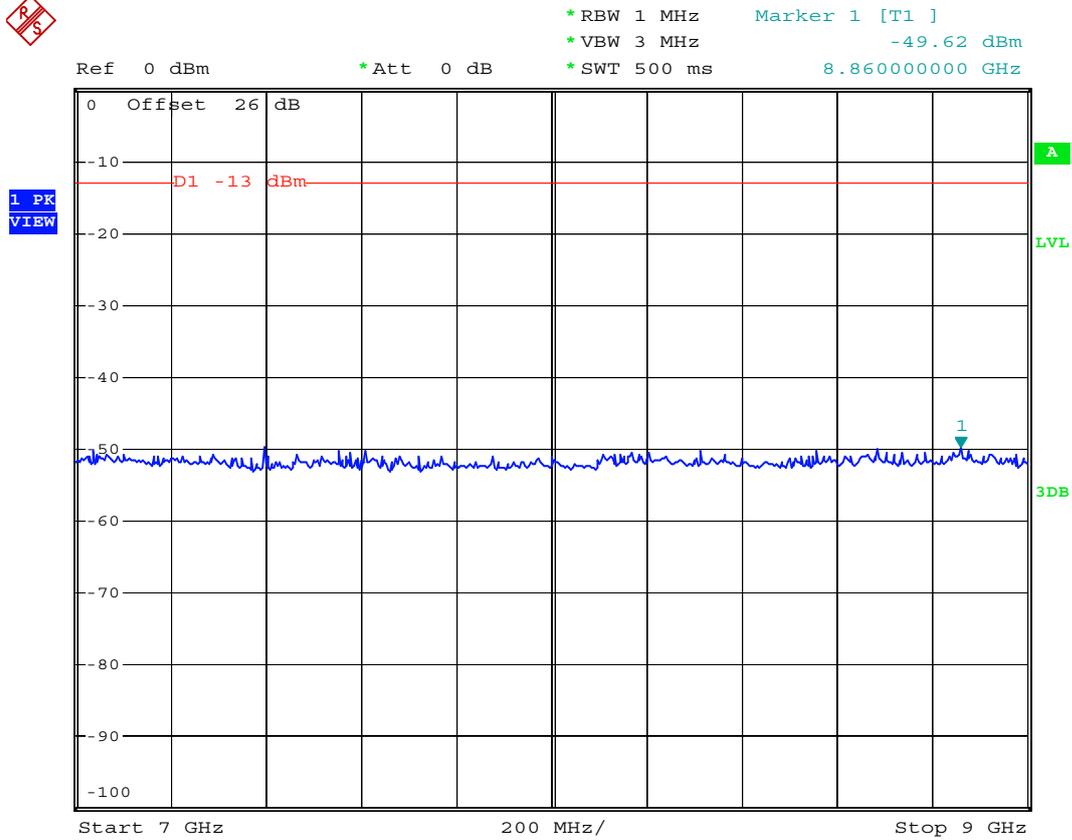
- Test Mode : CDMA2000 Cellular CH384 for 1xRTT
- Frequency Range : 3G-7G



Date: 15.JUN.2008 20:04:10



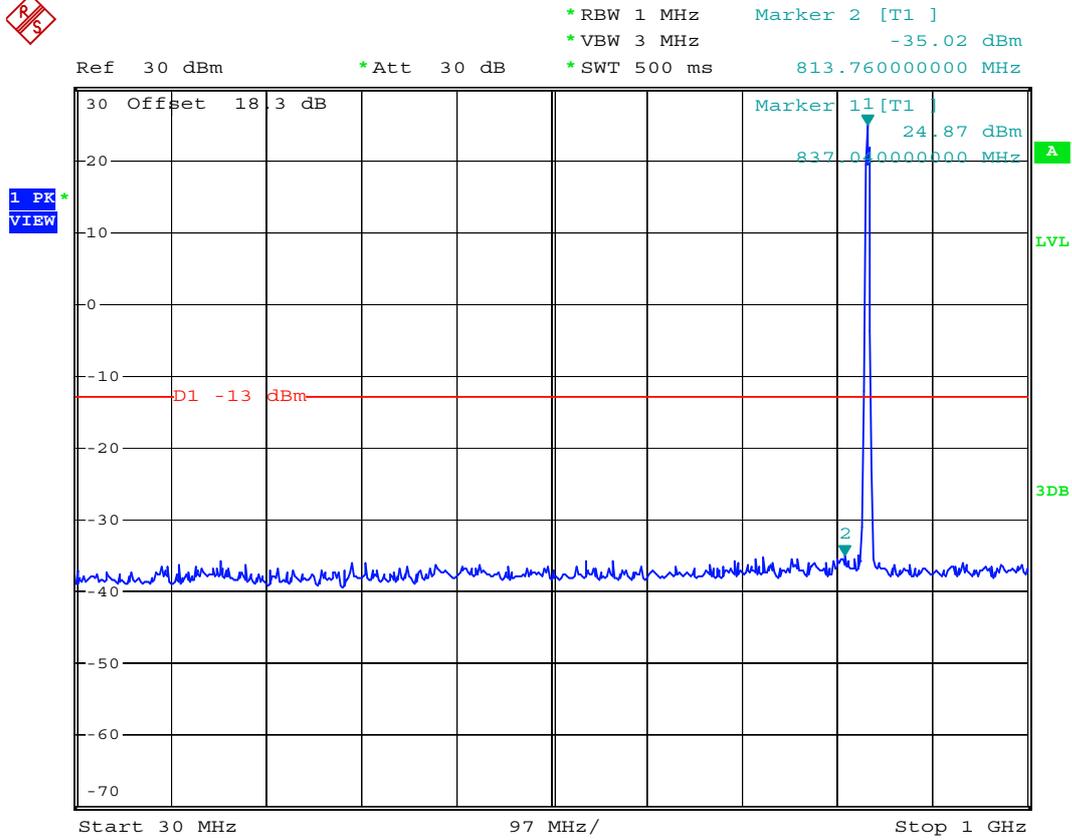
- Test Mode : CDMA2000 Cellular CH384 for 1xRTT
- Frequency Range : 7G-9G



Date: 15.JUN.2008 20:06:55



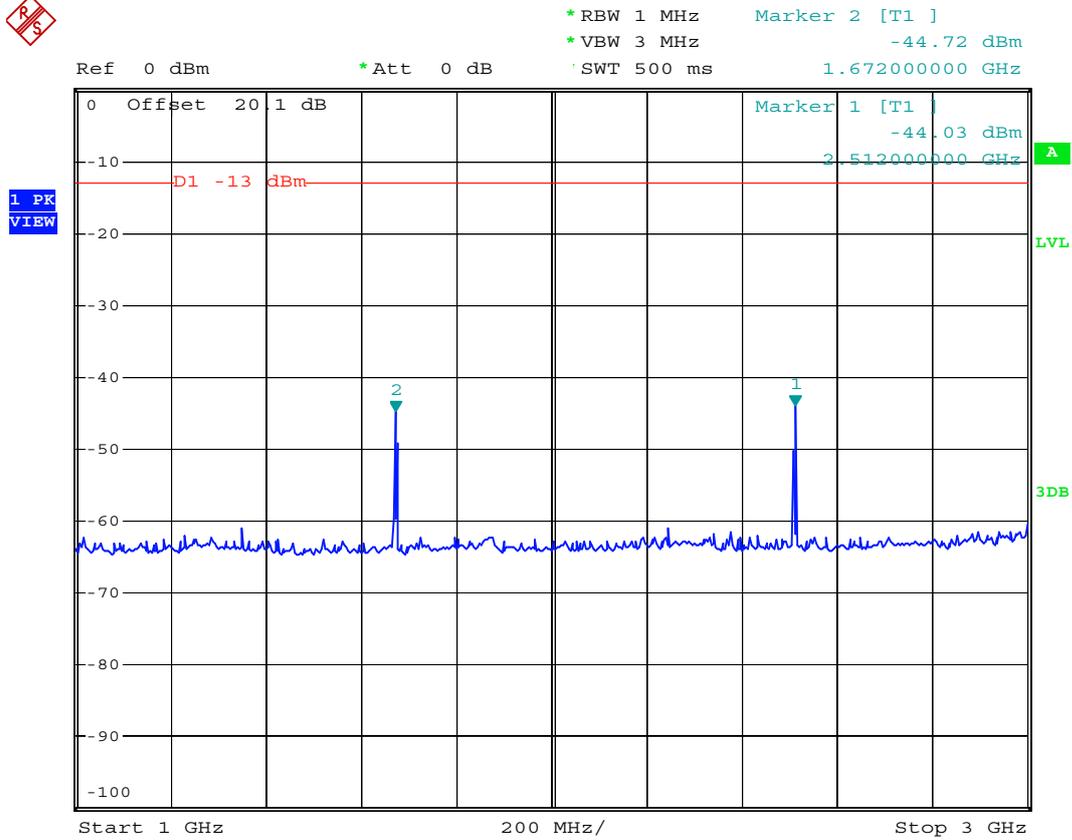
- Mode 2
- Test Mode : CDMA2000 Cellular CH384 for 1xEVDO
- Frequency Range : 30M-1G



Date: 16.JUN.2008 16:59:39



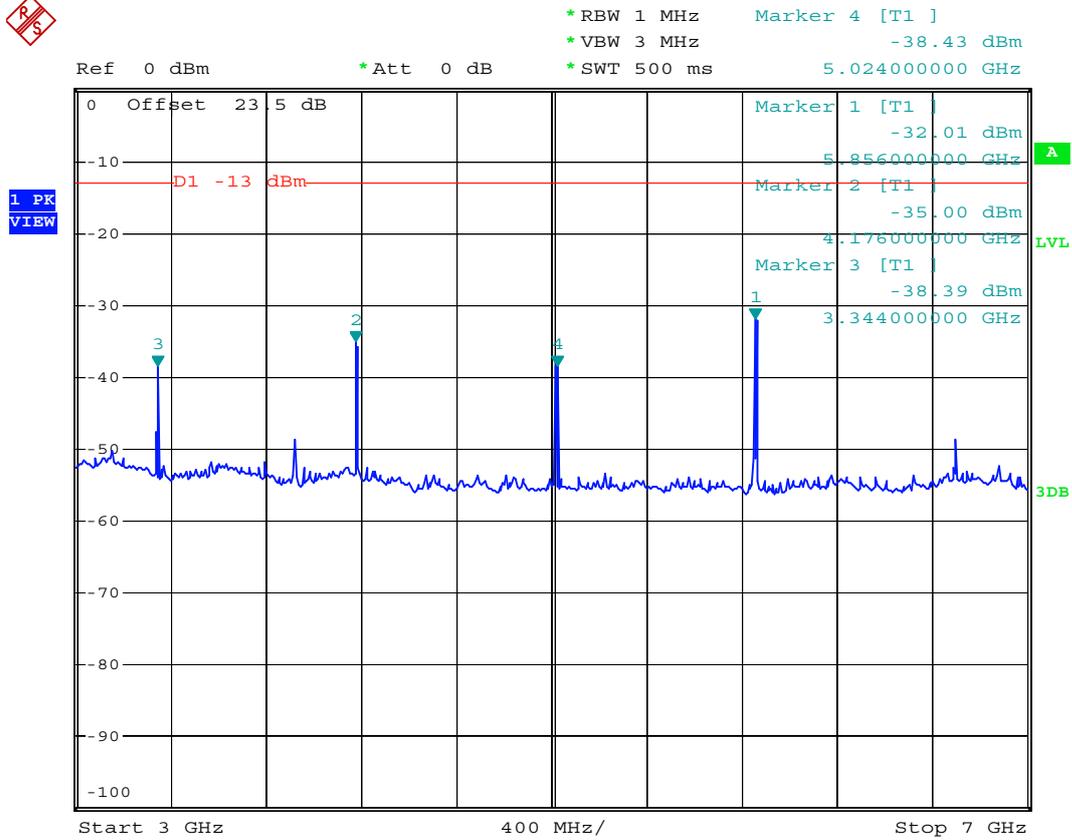
- Test Mode : CDMA2000 Cellular CH384 for 1xEVDO
- Frequency Range : 1G-3G



Date: 16.JUN.2008 17:07:18



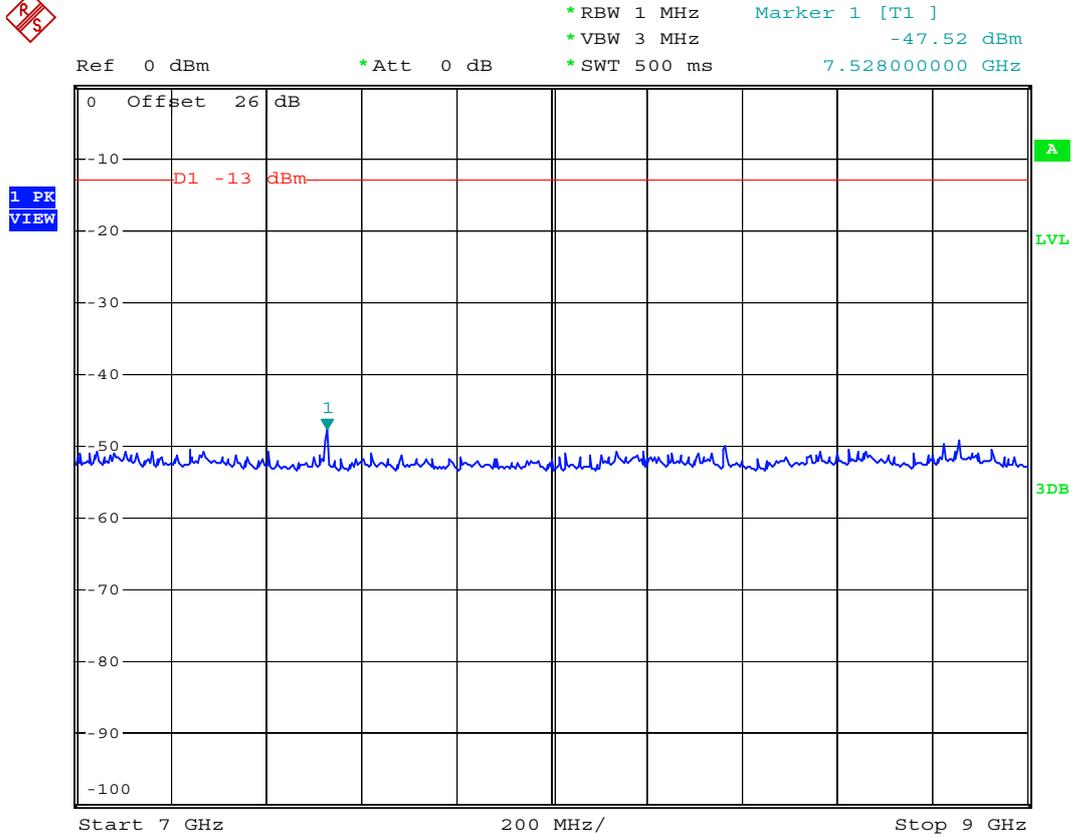
- Test Mode : CDMA2000 Cellular CH384 for 1xEVDO
- Frequency Range : 3G-7G



Date: 16.JUN.2008 17:08:20



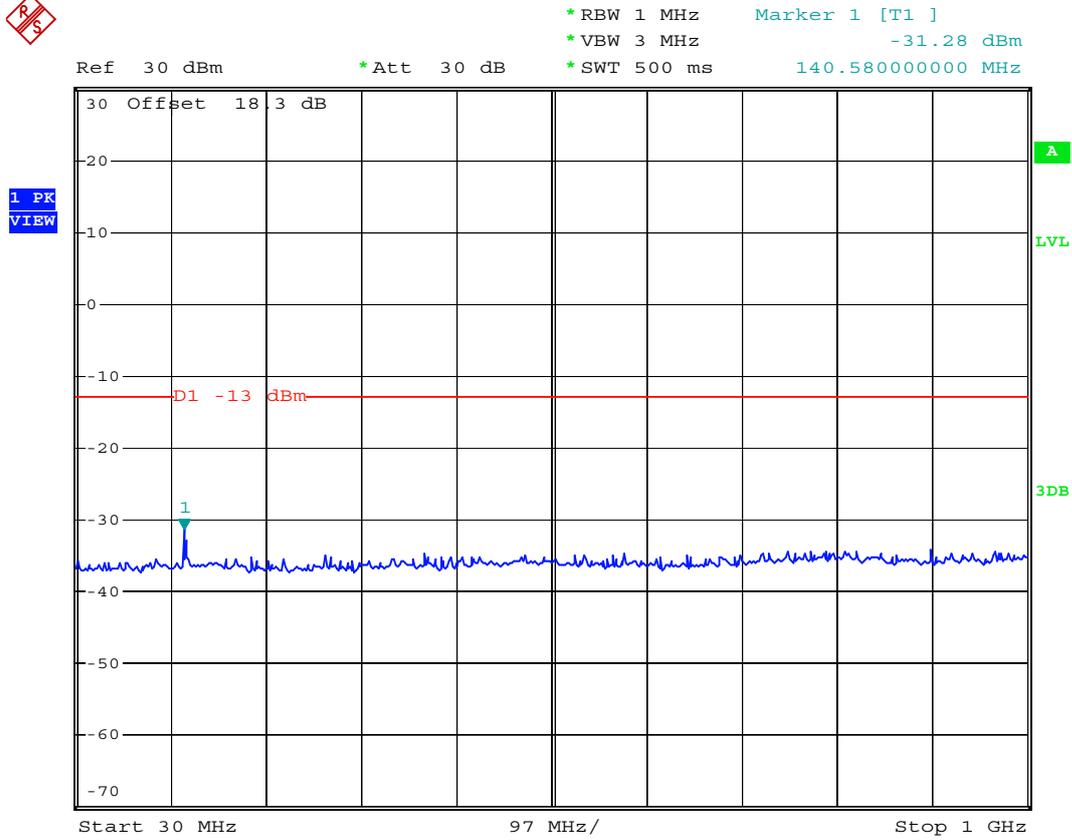
- Test Mode : CDMA2000 Cellular CH384 for 1xEVDO
- Frequency Range : 7G-9G



Date: 16.JUN.2008 17:15:12



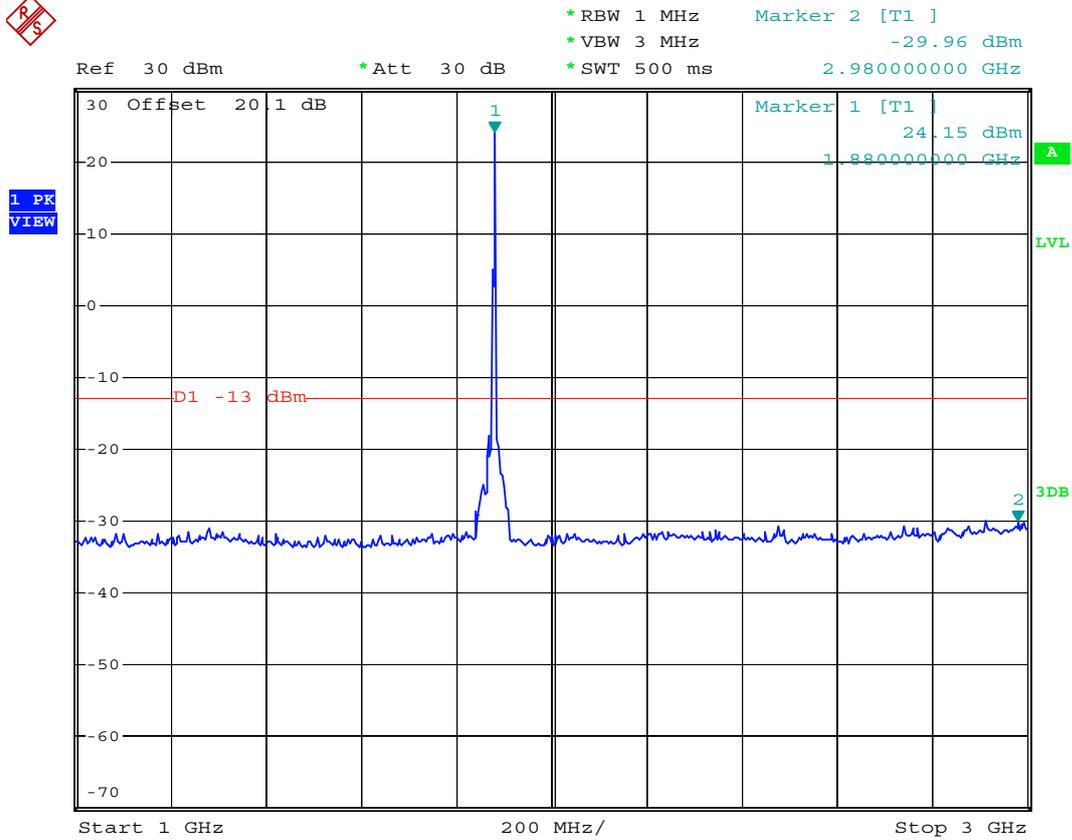
- Mode 3
- Test Mode : CDMA2000 PCS CH600 for 1xRTT
- Frequency Range : 30M-1G



Date: 15.JUN.2008 19:57:22



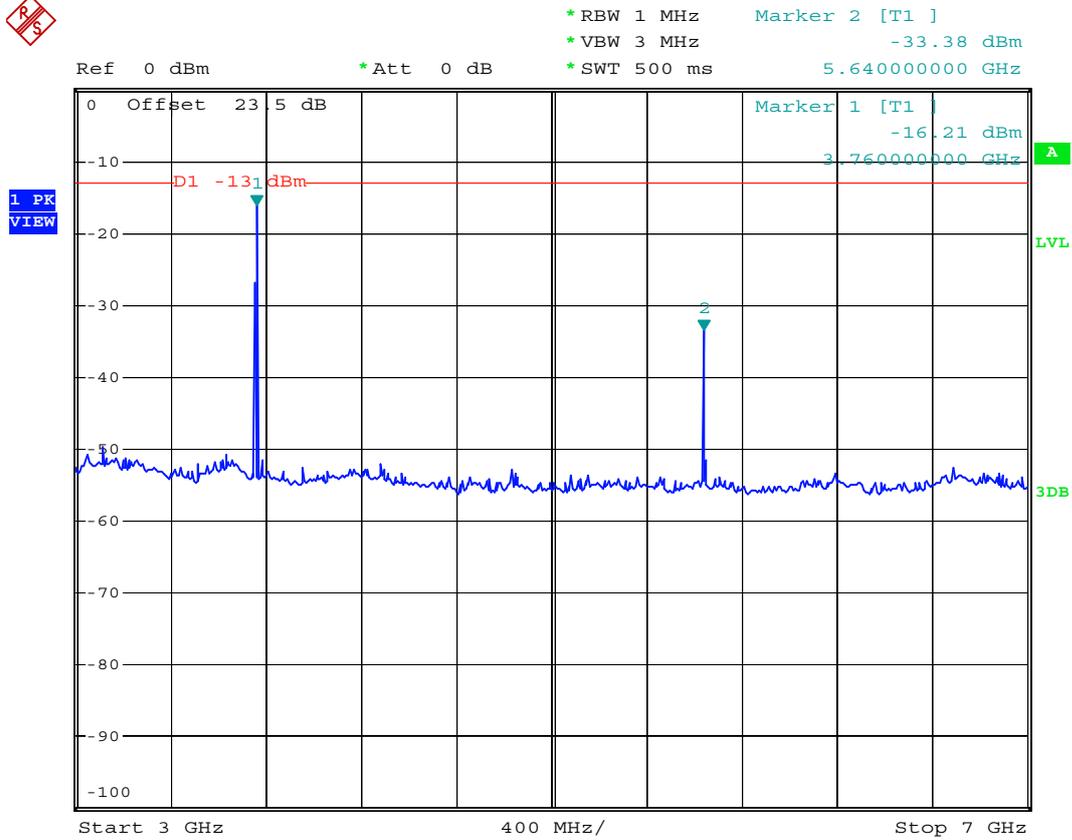
- Test Mode : CDMA2000 PCS CH600 for 1xRTT
- Frequency Range : 1G-3G



Date: 15.JUN.2008 20:00:12



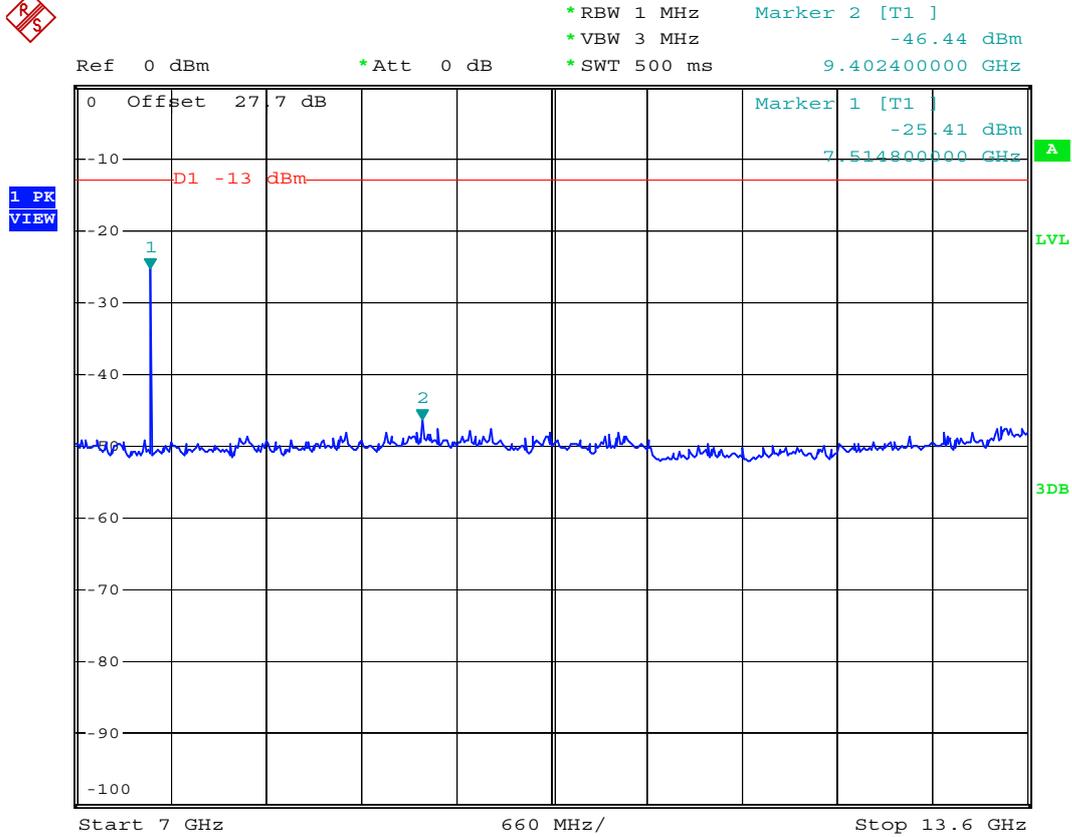
- Test Mode : CDMA2000 PCS CH600 for 1xRTT
- Frequency Range : 3G-7G



Date: 15.JUN.2008 20:05:51



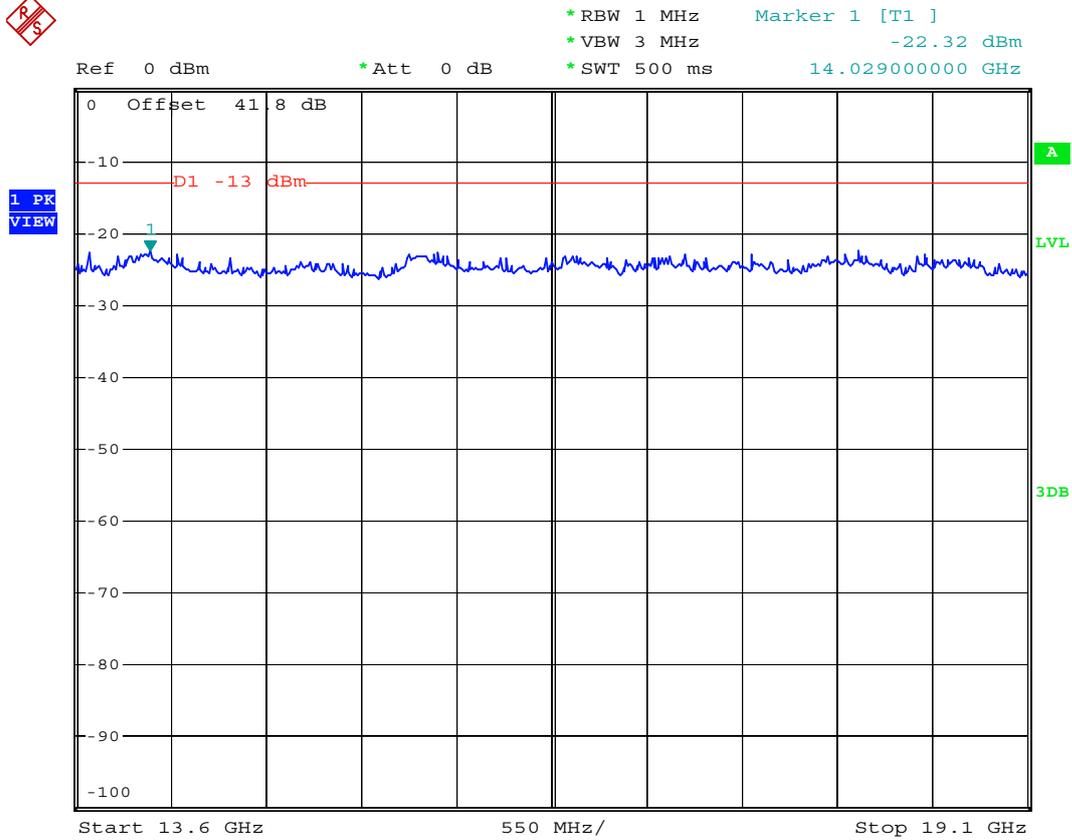
- Test Mode : CDMA2000 PCS CH600 for 1xRTT
- Frequency Range : 7G-13.6G



Date: 15.JUN.2008 20:07:57



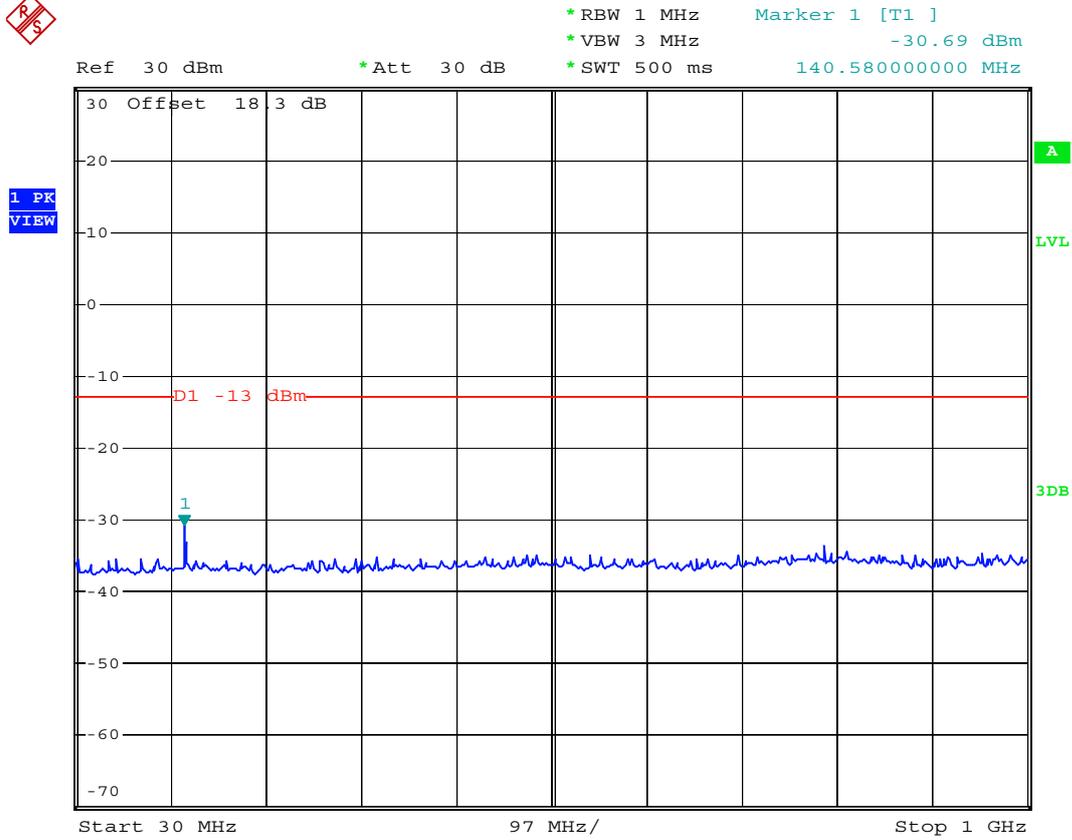
- Test Mode : CDMA2000 PCS CH600 for 1xRTT
- Frequency Range : 13.6G-19.1G



Date: 15.JUN.2008 20:08:42



- Mode 4
- Test Mode : CDMA2000 PCS CH600 for 1xEVDO
- Frequency Range : 30M-1G

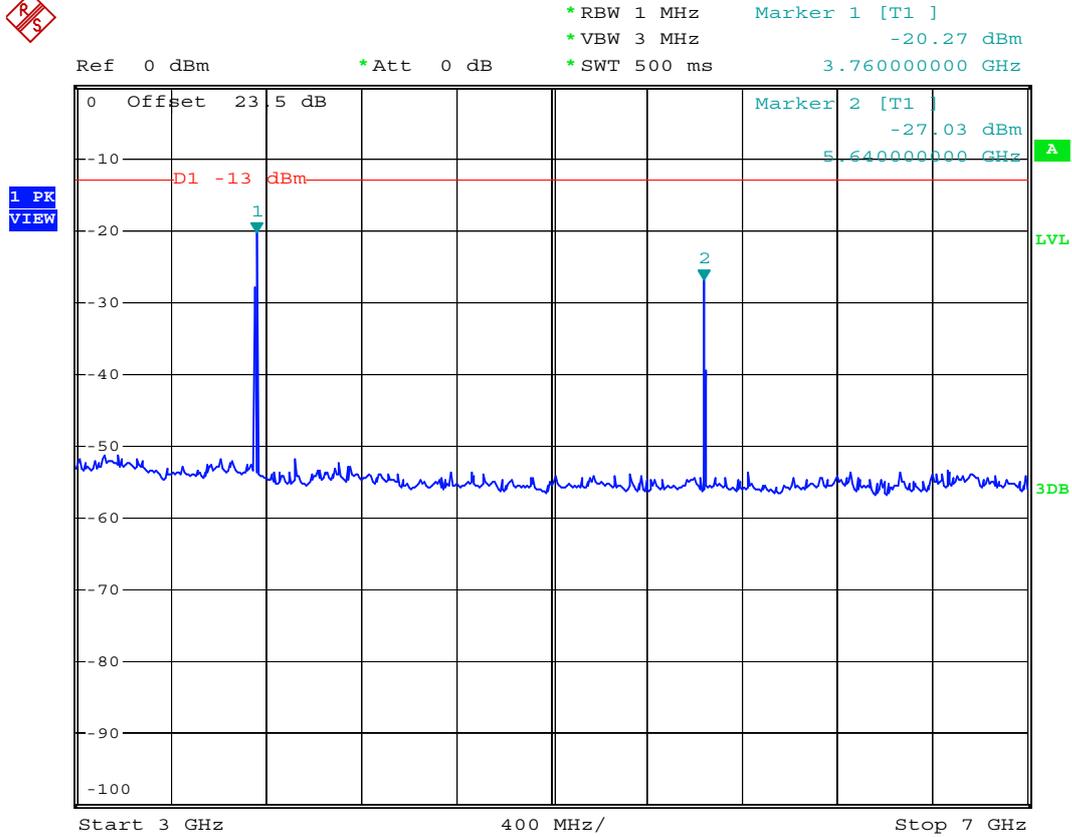


Date: 16.JUN.2008 17:00:30





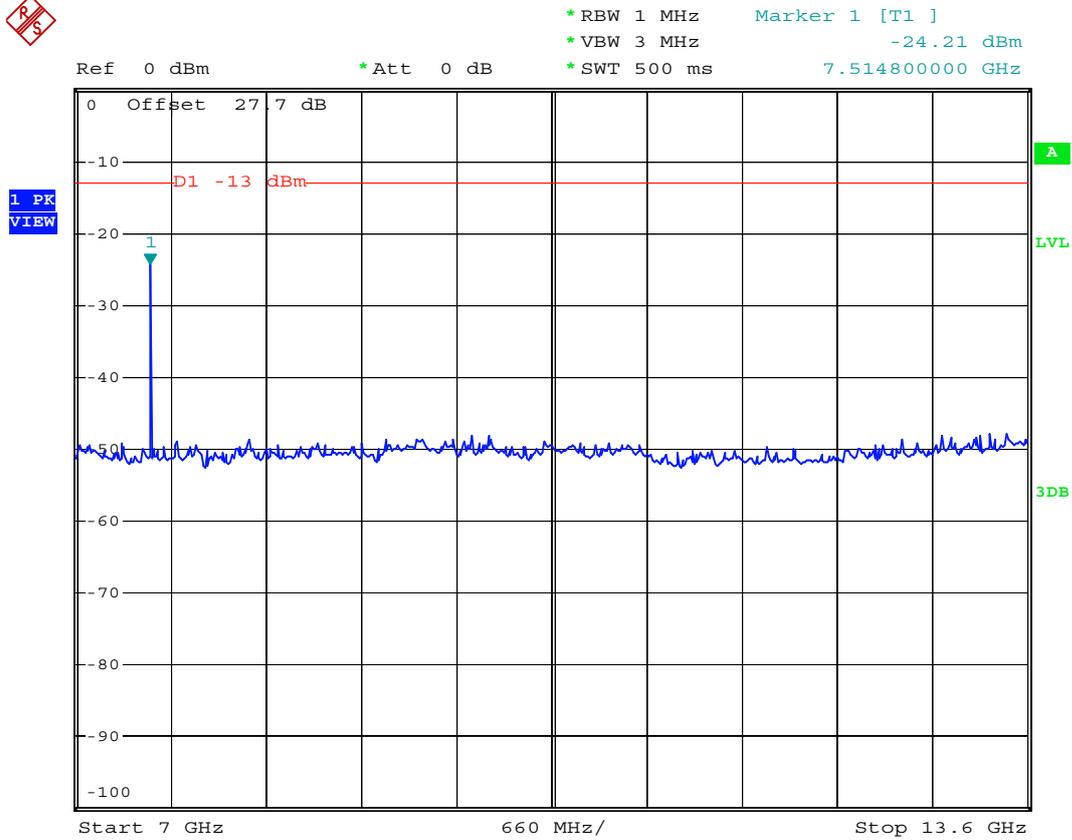
- Test Mode : CDMA2000 PCS CH600 for 1xEVDO
- Frequency Range : 3G-7G



Date: 16.JUN.2008 17:11:16



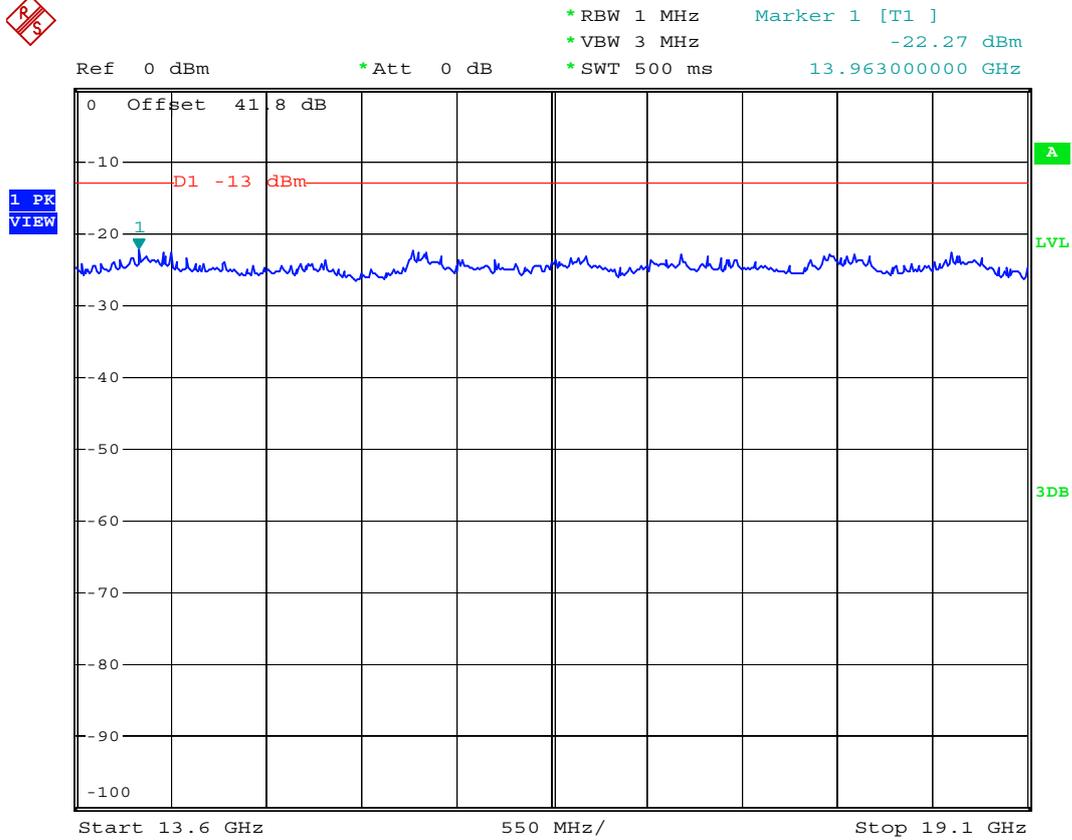
- Test Mode : CDMA2000 PCS CH600 for 1xEVDO
- Frequency Range : 7G-13.6G



Date: 16.JUN.2008 17:16:26



- Test Mode : CDMA2000 PCS CH600 for 1xEVDO
- Frequency Range : 13.6G-19.1G



Date: 16.JUN.2008 17:17:07



## **4.6 Field Strength of Spurious Radiation**

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

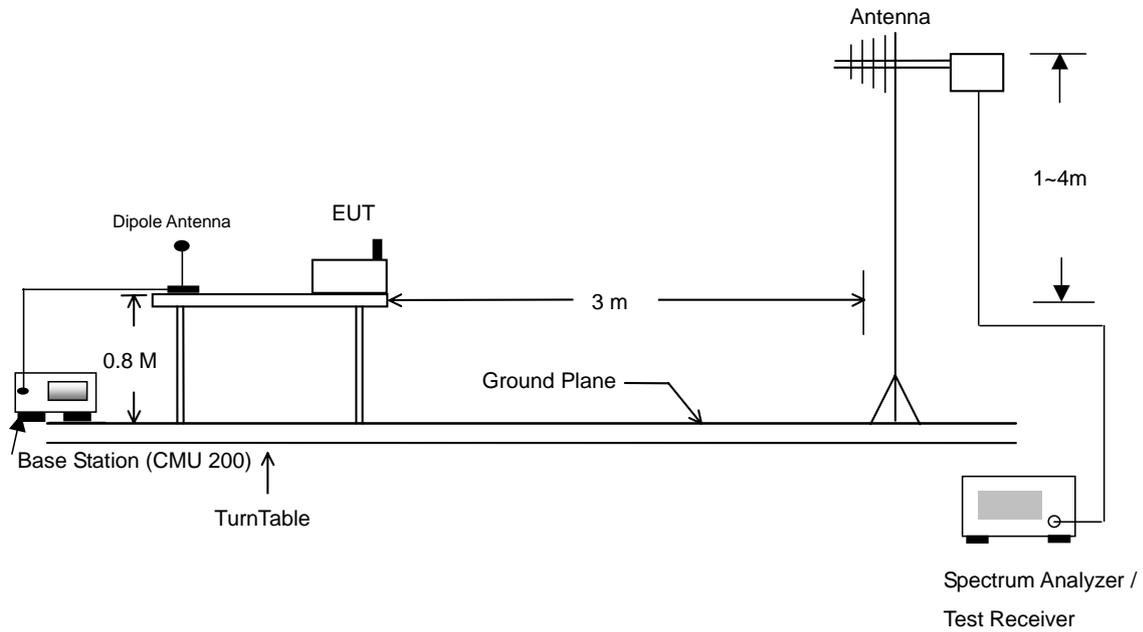
### **4.6.1 Measurement Instruments**

As described in chapter 5 of this test report.

### **4.6.2 Test Procedure**

- a. The EUT was placed on a rotatable wooden table with 0.8 meter about ground.
- b. The EUT was set 3 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 spurious emission.
- d. 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.
- e. Taking the record of maximum spurious emission.
- f. A Horn antenna was substituted in place of the EUT and was driven by a signal generator.
- g. Tune the output power of signal generator to the same emission level with EUT maximum spurious emission.
- h. Taking the recored of output power at antenna port.
- i. Repeat step 7 to step 8 for another polarization.
- j. Emission level (dBm) = output power + substitution Gain.

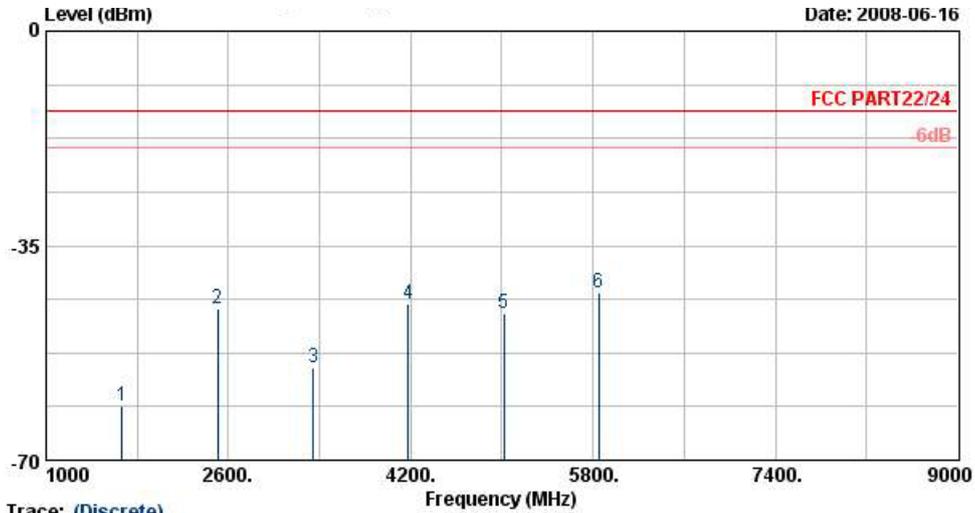
4.6.3 Test Setup Layout





4.6.4 Test Data

- Mode 1
- Horizontal Polarization



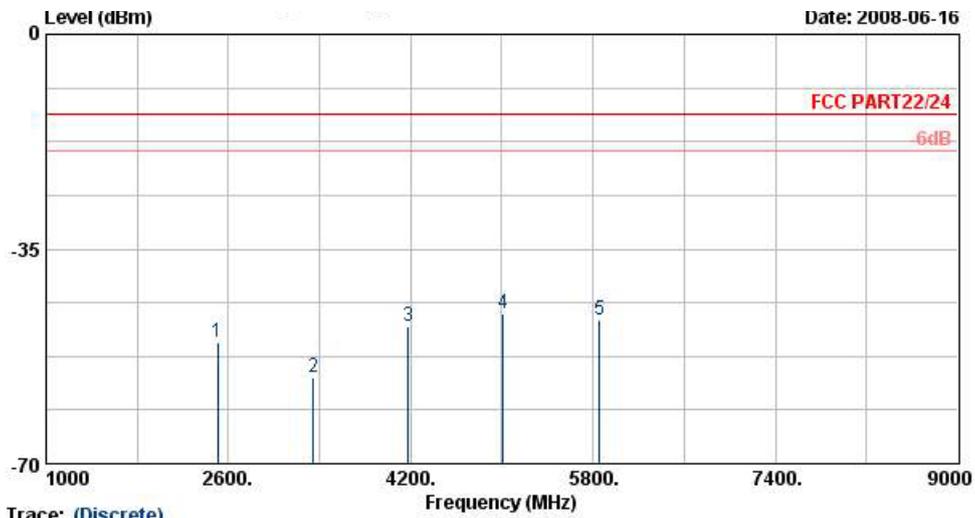
Site : 03CH07-HY  
 Condition : HF-EIRP(080306) HORIZONTAL  
 EUT : CDMA2000/1XRTT/EVDO 800/1900 with BT  
 : Samrt phone\_Slide Type  
 Power : 120Vac/60W  
 Model : FG860909  
 Mode : CDMA2000 Cellular Link ; Ch384 + Adaptor  
 Plane : E2(滑蓋打開)

Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1669	-61.07	-13	-48.07	-63.99	-60.08	3.39	4.55	H	Pass
2509	-45.31	-13	-32.31	-53.19	-45.37	3.71	5.92	H	Pass
3346	-55.02	-13	-42.02	-63.36	-56.95	3.13	7.21	H	Pass
4175	-44.51	-13	-31.51	-55.20	-46.92	3.01	7.57	H	Pass
5015	-46.10	-13	-33.10	-59.80	-49.85	2.61	8.51	H	Pass
5850	-42.56	-13	-29.56	-58.74	-45.01	4.38	8.98	H	Pass

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



Vertical Polarization



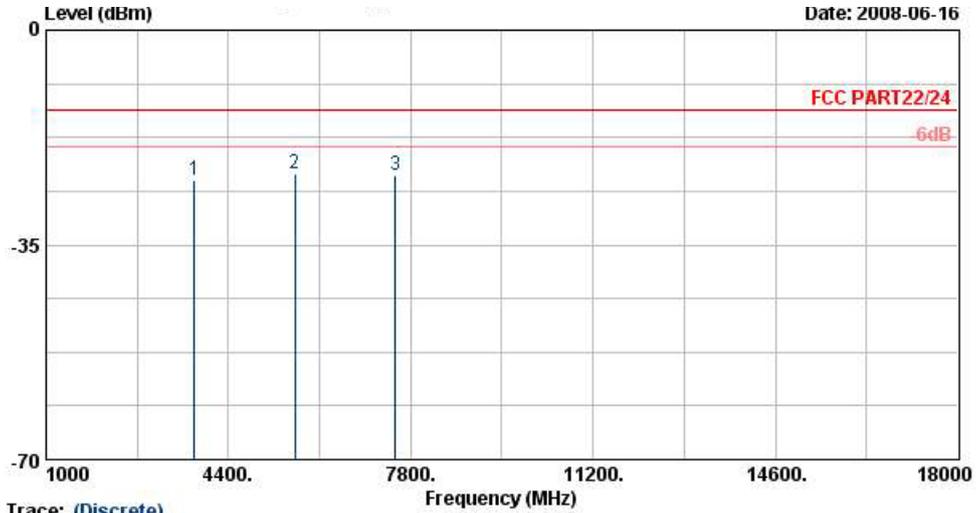
Site : 03CH07-HY  
 Condition : HF-EIRP(080306) VERTICAL  
 EUT : CDMA2000/1XRTT/EVDO 800/1900 with BT  
 : Samrt phone\_Slide Type  
 Power : 120Vac/60Hz  
 Model : FG860909  
 Mode : CDMA2000 Cellular Link ; Ch384 + Adaptor  
 Plane : E2(滑蓋打開)

Frequency ( MHz )	ERP ( dBm )	Limit ( dBm )	Over Limit ( dB )	SPA Reading ( dBm )	S.G. Power ( dBm )	TX Cable loss ( dB )	TX Antenna Gain ( dBi )	Polarization ( H/V )	Result
2509	-50.18	-13	-37.18	-59.08	-50.04	3.71	5.72	V	Pass
3346	-55.97	-13	-42.97	-65.40	-58.17	3.13	7.48	V	Pass
4175	-47.69	-13	-34.69	-59.90	-50.81	3.01	8.28	V	Pass
5010	-45.56	-13	-32.56	-59.73	-49.92	2.61	9.12	V	Pass
5855	-46.69	-13	-33.69	-61.25	-50.18	4.38	10.02	V	Pass

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



- Mode 2
- Horizontal Polarization



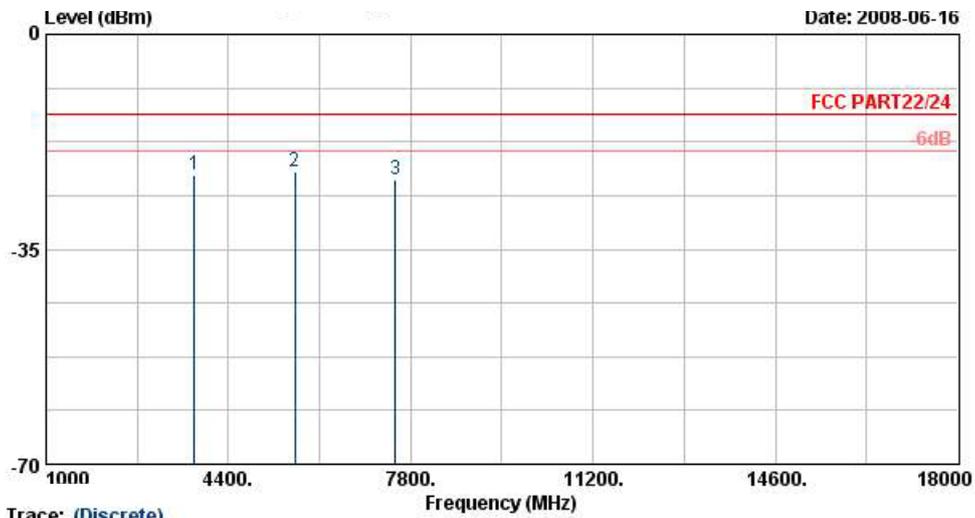
Trace: (Discrete)  
 Site : 03CH07-HY  
 Condition : HF-EIRP(080306) HORIZONTAL  
 EUT : CDMA2000/1XRTT/EVDO 800/1900 with BT  
 : Samrt phone\_Slide Type  
 Power : 120Vac/60"  
 Model : FG860909  
 Mode : CDMA2000 PCS Link ; Ch600 + Adaptor  
 Plane : E2(滑蓋打開)

Frequency ( MHz )	ERP ( dBm )	Limit ( dBm )	Over Limit ( dB )	SPA Reading ( dBm )	S.G. Power ( dBm )	TX Cable loss ( dB )	TX Antenna Gain ( dBi )	Polarization ( H/V )	Result
3760	-24.44	-13	-11.44	-40.59	-27.81	4.03	7.40	H	Pass
5636	-23.52	-13	-10.52	-46.25	-28.46	3.87	8.81	H	Pass
7520	-23.56	-13	-10.56	-48.03	-27.44	5.83	9.71	H	Pass

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



Vertical Polarization



Trace: (Discrete)

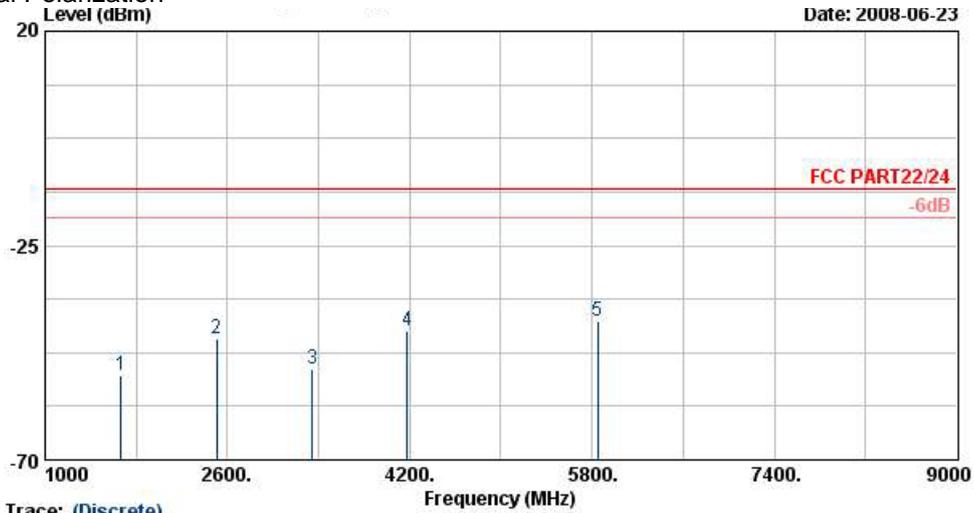
Site : 03CH07-HY  
 Condition : HF-EIRP(080306) VERTICAL  
 EUT : CDMA2000/1XRTT/EVDO 800/1900 with BT  
 : Samrt phone\_Slide Type  
 Power : 120Vac/60Hz  
 Model : FG860909  
 Mode : CDMA2000 PCS Link ; Ch600 + Adaptor  
 Plane : E2(滑蓋打開)

Frequency ( MHz )	ERP ( dBm )	Limit ( dBm )	Over Limit ( dB )	SPA Reading ( dBm )	S.G. Power ( dBm )	TX Cable loss ( dB )	TX Antenna Gain ( dBi )	Polarization ( H/V )	Result
3760	-22.86	-13	-9.86	-42.01	-26.74	4.03	7.91	V	Pass
5636	-22.47	-13	-9.47	-45.91	-28.37	3.87	9.77	V	Pass
7520	-23.70	-13	-10.70	-48.28	-28.68	5.83	10.81	V	Pass

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



- Mode 3
- Horizontal Polarization



Trace: (Discrete)

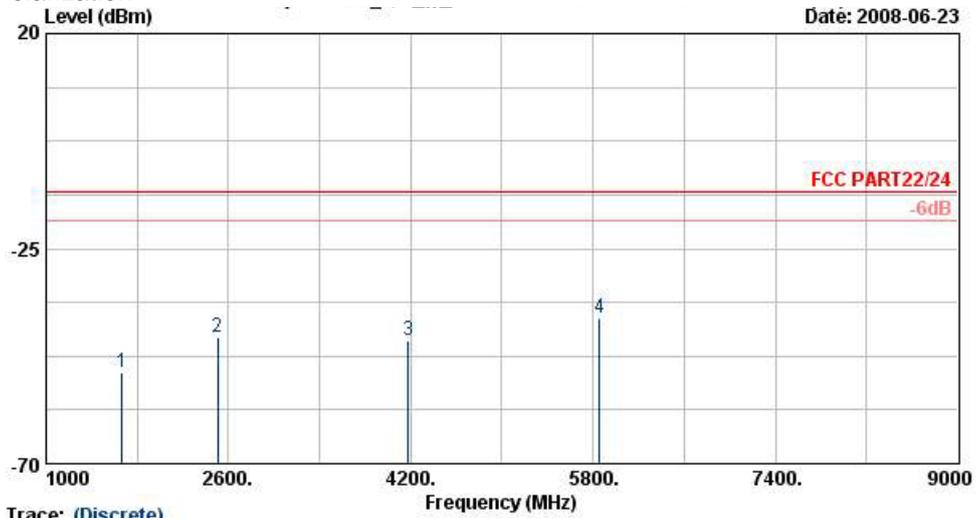
Site : 03CH07-HY  
 Condition : HF-EIRP(080306) HORIZONTAL  
 EUT : CDMA2000/1XRTT/EVDO 800/1900 with BT  
 : Samrt phone\_Slide Type  
 Power : 120Vac/60Hz  
 Model : FG860909  
 Mode : CDMA2000 Cellular Link ; Ch384  
 : +BT Tx\_CH78 + Adaptor  
 Plane : E2(滑蓋打開)

Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1669	-52.11	-13	-39.11	-57.99	-51.12	3.39	4.55	H	Pass
2509	-44.48	-13	-31.48	-54.62	-44.54	3.71	5.92	H	Pass
3346	-50.85	-13	-37.85	-61.80	-52.78	3.13	7.21	H	Pass
4175	-42.80	-13	-29.80	-54.87	-45.21	3.01	7.57	H	Pass
5850	-40.92	-13	-27.92	-56.91	-43.37	4.38	8.98	H	Pass

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



Vertical Polarization



Date: 2008-06-23

Site : 03CH07-HY  
 Condition : HF-EIRP(080306) VERTICAL  
 EUT : CDMA2000/1XRTT/EVDO 800/1900 with BT  
 : Samrt phone\_Slide Type  
 Power : 120Vac/60Hz  
 Model : FG860909  
 Mode : CDMA2000 Cellular Link ; Ch384  
 : +BT Tx\_CH78 + Adaptor  
 Plane : E2(滑蓋打開)

Frequency ( MHz )	ERP ( dBm )	Limit ( dBm )	Over Limit ( dB )	SPA Reading ( dBm )	S.G. Power ( dBm )	TX Cable loss ( dB )	TX Antenna Gain ( dBi )	Polarization ( H/V )	Result
1669	-50.79	-13	-37.79	-58.71	-49.41	3.39	4.16	V	Pass
2509	-43.67	-13	-30.67	-54.16	-43.53	3.71	5.72	V	Pass
4175	-44.22	-13	-31.22	-57.11	-47.34	3.01	8.28	V	Pass
5855	-39.47	-13	-26.47	-57.64	-42.96	4.38	10.02	V	Pass

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

## 4.7 Frequency Stability (Temperature Variation)

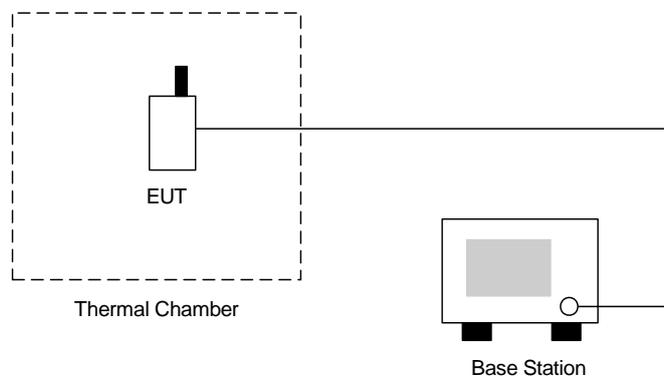
### 4.7.1 Measurement Instrument

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  $-30^{\circ}\text{C}$  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  $10^{\circ}\text{C}$  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 : CDMA2000 Cellular 1xRTT FCH+SCH\_RC3 CH384

Temperature(°C)	Change (Hz)	Change (ppm)	Limit (ppm)	Result
-30	-16	-0.02	2.5	Passed
-20	20	0.02		
-10	-17	-0.02		
0	-15	-0.02		
10	13	0.02		
20	16	0.02		
30	12	0.01		
40	-14	-0.02		
50	11	0.01		

• Test Mode : CDMA2000 Cellular 1xEV-DO 128Kbps CH384

Temperature(°C)	Change (Hz)	Change (ppm)	Limit (ppm)	Result
-30	-4	0.00	2.5	Passed
-20	6	0.01		
-10	7	0.01		
0	-6	-0.01		
10	-5	-0.01		
20	9	0.01		
30	7	0.01		
40	8	0.01		
50	4	0.00		

• Test Mode : CDMA2000 PCS 1xRTT FCH+SCH\_RC3 CH600

Temperature(°C)	Change (Hz)	Change (ppm)	Limit (ppm)	Result
-30	-29	-0.02	2.5	Passed
-20	-26	-0.01		
-10	-31	-0.02		
0	27	0.01		
10	32	0.02		
20	28	0.01		
30	-26	-0.01		
40	-33	-0.02		
50	-34	-0.02		



▪ Test Mode : CDMA2000 PCS 1xEV-DO 128Kbps CH600

Temperature(°C)	Change (Hz)	Change (ppm)	Limit (ppm)	Result
-30	12	0.01	2.5	Passed
-20	14	0.01		
-10	-17	-0.01		
0	11	0.01		
10	-15	-0.01		
20	18	0.01		
30	13	0.01		
40	-10	-0.01		
50	-8	0.00		

## 4.8 Frequency Stability (Voltage Variation)

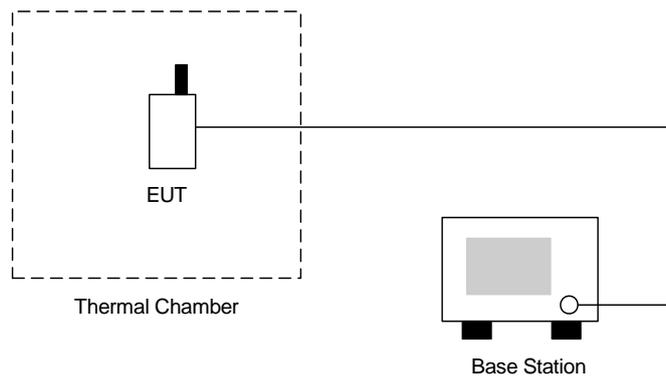
### 4.8.1 Measurement Instrument

As described in chapter 5 of this test report.

### 4.8.2 Test Procedure

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

### 4.8.3 Test Setup Layout





4.8.4 Test Result

- Test Mode : CDMA2000 Cellular 1xRTT FCH+SCH\_RC3 CH384

Voltage(Volt)	Change (Hz)	Change (ppm)	Limit (ppm)	Result
3.7	15.0	0.02	2.5	Passed
BEP	17.0	0.02		
4.2	13.0	0.02		

- Test Mode : CDMA2000 Cellular 1xEV-DO 128Kbps CH384

Voltage(Volt)	Change (Hz)	Change (ppm)	Limit (ppm)	Result
3.7	6.0	0.01	2.5	Passed
BEP	7.0	0.01		
4.2	11.0	0.01		

- Test Mode : CDMA2000 PCS 1xRTT FCH+SCH\_RC3 CH600

Voltage(Volt)	Change (Hz)	Change (ppm)	Limit (ppm)	Result
3.7	29.0	0.02	2.5	Passed
BEP	27.0	0.01		
4.2	36.0	0.02		

- Test Mode : CDMA2000 PCS 1xEV-DO 128Kbps CH600

Voltage(Volt)	Change (Hz)	Change (ppm)	Limit (ppm)	Result
3.7	14.0	0.01	2.5	Passed
BEP	10.0	0.01		
4.2	-14.0	-0.01		

Remark:

- Normal Voltage = 3.7V.
- Battery End Point (BEP) = 3.2 V.



## 5 List of Measurement Equipments

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Due Date	Remark
Spectrum Analyzer	R & S	FSP30	101067	9KHz-40GHz	Nov. 30, 2007	Nov. 29, 2008	Radiation (03CH07-HY)
Bilog Antenna	SCHAFFNER	CBL6111C	2726	30MHz -1GHz	Dec. 01, 2007	Nov. 30, 2008	Radiation (03CH07-HY)
Double Ridge Horn Antenna	EMCO	3117	00075962	1G~18G	Dec. 20, 2007	Dec. 19, 2008	Radiation (03CH07-HY)
Pre Amplifier	Agilent	8449B	3008A02362	1G - 26.5G	Dec. 18, 2007	Dec. 17, 2008	Radiation (03CH07-HY)
Pre Amplifier	COM - POWER	PA-103	161069	10M~1GHz	Mar. 31, 2008	Mar. 30, 2009	Radiation (03CH07-HY)
Thermal Chamber	Tenyi technology	TTH-D35P	TBN-930701	N/A	Aug. 02, 2007	Aug. 01, 2008	Conduction (TH02-HY)
Spectrum	R&S	FSP40	100057	9KHz~40GHz	Aug. 09, 2007	Aug. 09, 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 (30MHz ~ 1000MHz)

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
<b>Combined standard uncertainty Uc(y)</b>	<b>1.27</b>		
<b>Measuring uncertainty for a level of confidence of 95% U=2Uc(y)</b>	<b>2.54</b>		

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

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
<b>Combined standard uncertainty Uc(y)</b>	<b>2.36</b>				
<b>Measuring uncertainty for a level of confidence of 95% U=2Uc(y)</b>	<b>4.72</b>				

END OF TEST REPORT



## **Appendix A. Photographs of EUT**

Please refer to Sporton report number EP860909 as below.