



# FCC Test Report

for

## 47 CFR Part 22H, 24E

**Equipment** : Qual-Bend PDA Phone  
**Trade Name** : ASUS  
**Model No.** : P320  
**FCC ID** : MSQP320  
**Tx Frequency Range** : GSM850 : 824.2 ~ 848.8 MHz  
PCS1900 : 1850.2 ~1909.8 MHz  
**Max. ERP/EIRP Power** : GSM850(GSM) : 0.14 W  
GSM850(EDGE) : 0.07 W  
PCS1900(GSM) : 0.67 W  
PCS1900(EDGE) : 0.48 W  
**Emission Designator** : GSM : 300KGXW  
EDGE : 300KG7W  
**Applicant** : ASUSTek COMPUTER INC.  
4F., No. 150, Li-Te Rd., Peitou, Taipei, Taiwan

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- The data shown in this test report were carried out on Mar. 27, 2008 at **Sporton International Inc. LAB.**
- Report No.: FG822203, Report Version: Rev. 01.

Roy Wu  
Manager

**SPORTON International Inc.**

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SPORTON International Inc.

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Report Version: Rev. 01



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# 1. General Information

## 1.1 Applicant

**ASUSTek COMPUTER INC.**

4F., No. 150, Li-Te Rd., Peitou, Taipei, Taiwan

## 1.2 Manufacturer

### 1. Pegatron Corporation Taoyuan Mfg.

No.5, Shing Yeh Street, 333 Kwei Shan Hsiang, Taoyuan Hsien, Taiwan

### 2. ProTek (Shanghai) Ltd.

No.3768, Xiu Yan Road, Nanhui District, 201315 Shanghai, People's Republic of China

### 3. MainTek Computer (Suzhou) Co., Ltd.

No.233 Jing Feng Road, 215011 Suzhou New District, Jiangsu, People's Republic of China

## 1.3 Basic Description of Equipment under Test

<b>Equipment</b>		Qual-Bend PDA Phone
<b>Trade Name</b>		ASUS
<b>Model Name</b>		P320
<b>FCC ID :</b>		MSQP320
<b>AC Adapter</b>	<b>Trade Name</b>	TAMURA
	<b>Model Name</b>	JSP050090UU
	<b>Power Rating</b>	I/P: 100-240Vac, 50-60Hz, 0.3A; O/P: 5Vdc, 0.9A
	<b>AC Power Cord Type</b>	1.5 meter shielded cable without ferrite core
<b>Car Charger</b>	<b>Brand Name</b>	L&K
	<b>Model Name</b>	04G267011910
	<b>Power Rating</b>	I/P: 12V/24V; O/P: 5V, 900mA
	<b>Power Cord Type</b>	1.8 meter shielded cable without ferrite core
<b>Battery</b>	<b>Trade Name</b>	ASUS
	<b>Model Name</b>	SBP-17
	<b>Rating</b>	3.7Vdc, 1100mAh
	<b>Type</b>	Li-ion
<b>Earphone</b>	<b>Trade Name</b>	ASUS
	<b>Model Name</b>	04G171301270
	<b>Signal line Type</b>	1.5 meter shielded cable without ferrite core
<b>USB Cable</b>	<b>Trade Name</b>	Foxconn
	<b>Model Name</b>	14G000506200
	<b>Signal Line Type</b>	1 meter shielded cable without ferrite core

Remark: Above EUT's information was declared by manufacturer. Please refer to the specifications of manufacturer or User's Manual for more detailed features description.



1.4 Feature of Equipment under Test

DUT Type	Qual-Bend PDA Phone
Trade Name	ASUS
Model Name	P320
FCC ID	MSQP320
Tx Frequency	GSM850 : 824 ~ 849 MHz PCS1900 : 1850 ~1910 MHz Bluetooth / Bluetooth EDR : 2400 ~ 2483.5 MHz 802.11b / 802.11g : 2400 ~ 2483.5 MHz
Rx Frequency	GSM850 : 869 ~ 894 MHz PCS1900 : 1930 ~ 1990 MHz Bluetooth / Bluetooth EDR : 2400 ~ 2483.5 MHz 802.11b / 802.11g : 2400 ~ 2483.5 MHz GPS : 1575.42 MHz
Antenna Type	GSM850 / PCS1900 : Fixed Internal GPS : Fixed Internal Bluetooth / Bluetooth EDR : Chip Antenna 802.11b / 802.11g : Chip Antenna
Power Rating	DC 4.2V, 2.5A
HW Version	ER2
SW Version	20080221_Version 2.6.4
Maximum Output Power to Antenna	GSM850 : 32.07 dBm(GSM) / 32.04 dBm(GPRS10) / 27.23 dBm(EGPRS10) PCS1900 : 29.24 dBm(GSM) / 29.20 dBm(GPRS10) / 26.06 dBm(GPRS10) Bluetooth : 2.06 dBm(1Mbps) Bluetooth EDR : -0.1 dBm(2Mbps) / 0.1 dBm(3Mbps) 802.11b : 14.42 dBm 802.11g : 16.81 dBm
Maximum ERP/EIRP	GSM850(GSM) : 0.14 W ( 23.63 dBm) GSM850(EDGE) : 0.07 W (20.31 dBm) PCS1900(GSM) : 0.67 W ( 28.24 dBm) PCS1900(EDGE) : 0.48 W (26.83 dBm)
Channel Spacing	GSM / DCS : 200 KHz Bluetooth / Bluetooth EDR : 1 MHz 802.11b / 802.11g : 5 MHz
Type of Antenna Connector	N/A
GPRS / EGPRS Multislot class	10
Type of Modulation	GSM / GPRS : GMSK EDGE : 8PSK Bluetooth (1Mbps) : GFSK Bluetooth EDR (2Mbps) : $\pi/4$ -DQPSK, 8-DPSK 802.11b/g : DSSS, OFDM
DUT Stage	Production Unit



## **1.5 Report Date**

EUT Received : Feb. 22, 2008

Report Date : Apr. 02, 2008



## 2. Test Configuration of Equipment under Test

### 2.1 Test Manner

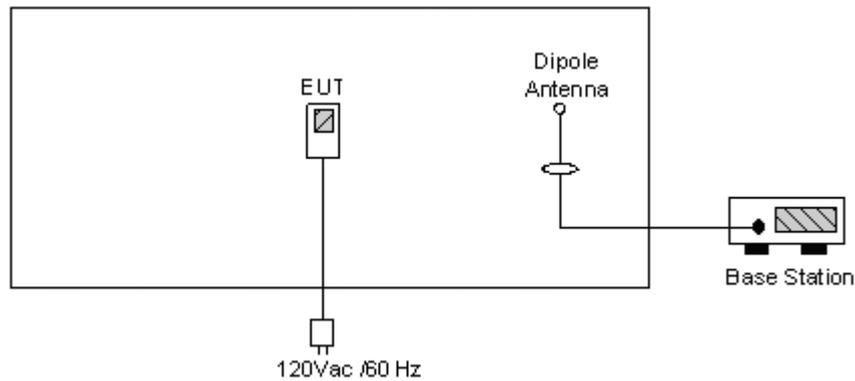
1. The spurious emission measurements were carried out in semi-anechoic chamber with 3-meter test range.
2. During all testings, EUT is in link mode with base station emulator at maximum power level.
3. Frequency range investigated: radiated emission 30 MHz to 9000 MHz for GSM850; 30MHz to 19000 MHz for PCS1900.

### 2.2 Test Mode

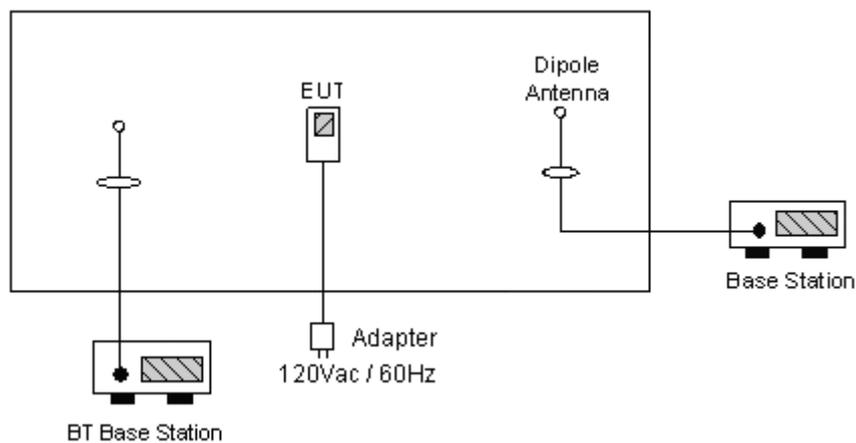
Application	GSM850	PCS1900
Radiated Emission	<input checked="" type="checkbox"/> Mode 1: GSM Link	<input checked="" type="checkbox"/> Mode 5: GSM Link
	<input checked="" type="checkbox"/> Mode 2: EDGE Link	<input checked="" type="checkbox"/> Mode 6: EDGE Link
	<input checked="" type="checkbox"/> Mode 3: GSM Link + BT Link	
	<input checked="" type="checkbox"/> Mode 4: GSM Link + WLAN Link	
Conducted Measurement	<input checked="" type="checkbox"/> Mode 1: GSM Link	<input checked="" type="checkbox"/> Mode 3: GSM Link
	<input checked="" type="checkbox"/> Mode 2: EDGE Link	<input checked="" type="checkbox"/> Mode 4: EDGE Link

## 2.3 Connection Diagram of Test System

### <GSM Link or GSM + WLAN Link>



### <GSM + BT Link>



## 2.4 Ancillary Equipment List

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



### **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

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 GSM850.
- b. Radiation: from 30 MHz to 19000 MHz for PCS1900.

#### **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

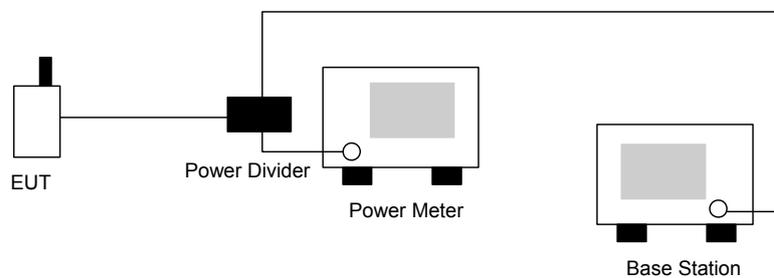
### 4.2.1 Measurement Instruments

As described in chapter 5 of this test report.

### 4.2.2 Test Procedure

- a. The transmitter output was connected to power meter and base station through power divider.
- b. Set EUT at PCL=5 for GSM850 and/or PCL=0 for PCS1900 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	Channel	Frequency (MHz)	Conducted Power (dBm)	Conducted Power (Watts)
GSM850 (GSM)	128	824.2 (Low)	32.07	1.611
	189	836.4 (Mid)	32.06	1.607
	251	848.8 (High)	32.01	1.589
GSM850 (EDGE)	128	824.2 (Low)	27.23	0.528
	189	836.4 (Mid)	27.23	0.528
	251	848.8 (High)	27.06	0.508
PCS1900 (GSM)	512	1850.2 (Low)	29.24	0.839
	661	1880.0 (Mid)	29.17	0.826
	810	1909.8 (High)	28.81	0.760
PCS1900 (EDGE)	512	1850.2 (Low)	26.06	0.404
	661	1880.0 (Mid)	25.86	0.385
	810	1909.8 (High)	25.59	0.362



### 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.

$E_t = R_t + AF$

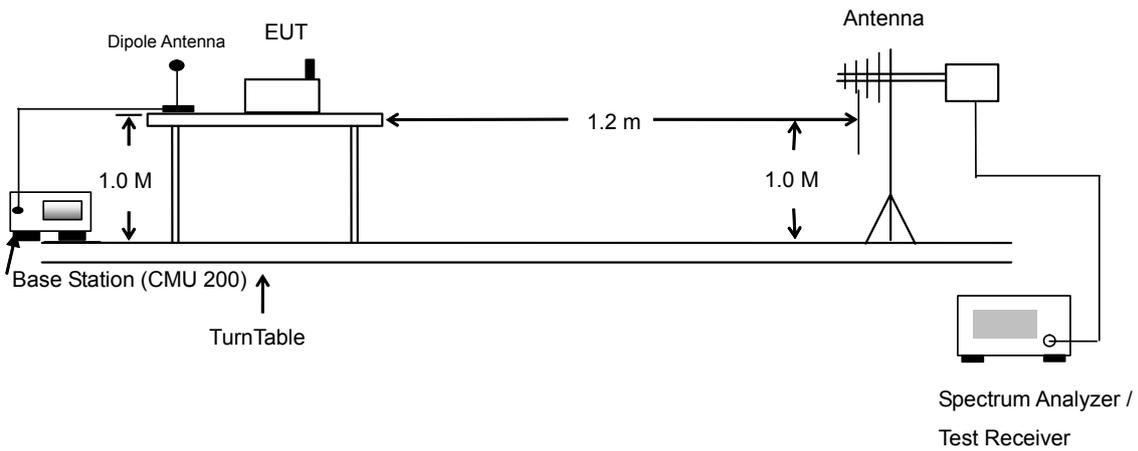
$E_s = R_s + AF$

$AF$  (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

<b>GSM850 (GSM) Radiated Power ERP</b>						
Horizontal Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBd)	ERP (dBm)	ERP (W)
824.20	-30.29	-48.12	0.00	-1.08	16.75	0.05
836.40	-31.66	-48.28	0.00	-0.93	15.69	0.04
848.80	-31.30	-48.35	0.00	-0.76	16.29	0.04
Vertical Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBd)	ERP (dBm)	ERP (W)
824.20	-25.41	-47.97	0.00	-1.08	21.48	0.14
836.40	-26.54	-48.01	0.00	-0.93	20.54	0.11
848.80	-26.61	-48.05	0.00	-0.76	20.68	0.12

<b>GSM850 (EDGE) Radiated Power ERP</b>						
Horizontal Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBd)	ERP (dBm)	ERP (W)
824.20	-33.75	-48.12	0.00	-1.08	13.29	0.02
836.40	-34.68	-48.28	0.00	-0.93	12.67	0.02
848.80	-35.56	-48.35	0.00	-0.76	12.03	0.02
Vertical Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBd)	ERP (dBm)	ERP (W)
824.20	-28.73	-47.97	0.00	-1.08	18.16	0.07
836.40	-29.84	-48.01	0.00	-0.93	17.24	0.05
848.80	-31.23	-48.05	0.00	-0.76	16.06	0.04



PCS1900 (GSM) Radiated Power EIRP						
Horizontal Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBi)	EIRP (dBm)	EIRP (W)
1850.20	-28.04	-51.88	0.00	1.96	25.80	0.38
1880.00	-31.60	-52.99	0.00	2.00	23.39	0.22
1909.80	-34.31	-54.28	0.00	1.98	21.95	0.16
Vertical Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBi)	EIRP (dBm)	EIRP (W)
1850.20	-25.85	-52.13	0.00	1.96	28.24	0.67
1880.00	-28.53	-53.17	0.00	2.00	26.64	0.46
1909.80	-30.58	-54.13	0.00	1.98	25.53	0.36

PCS1900 (EDGE) Radiated Power EIRP						
Horizontal Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBi)	EIRP (dBm)	EIRP (W)
1850.20	-30.07	-51.88	0.00	1.96	23.77	0.24
1880.00	-33.76	-52.99	0.00	2.00	21.23	0.13
1909.80	-36.97	-54.28	0.00	1.98	19.29	0.08
Vertical Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBi)	EIRP (dBm)	EIRP (W)
1850.20	-27.26	-52.13	0.00	1.96	26.83	0.48
1880.00	-30.31	-53.17	0.00	2.00	24.86	0.31
1909.80	-32.91	-54.13	0.00	1.98	23.20	0.21

## 4.4 Occupied Bandwidth and Band Edge Measurement

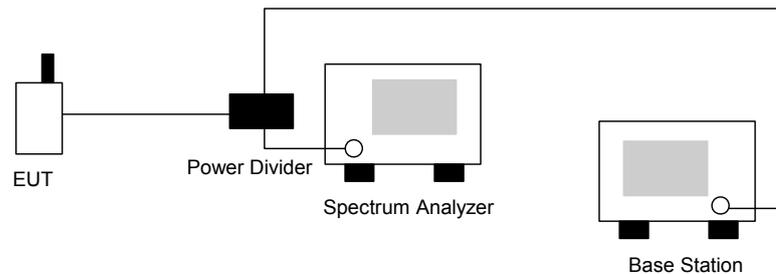
### 4.4.1 Measurement Instruments

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 of middle channel for the highest and lowest 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  $BW/100$ .

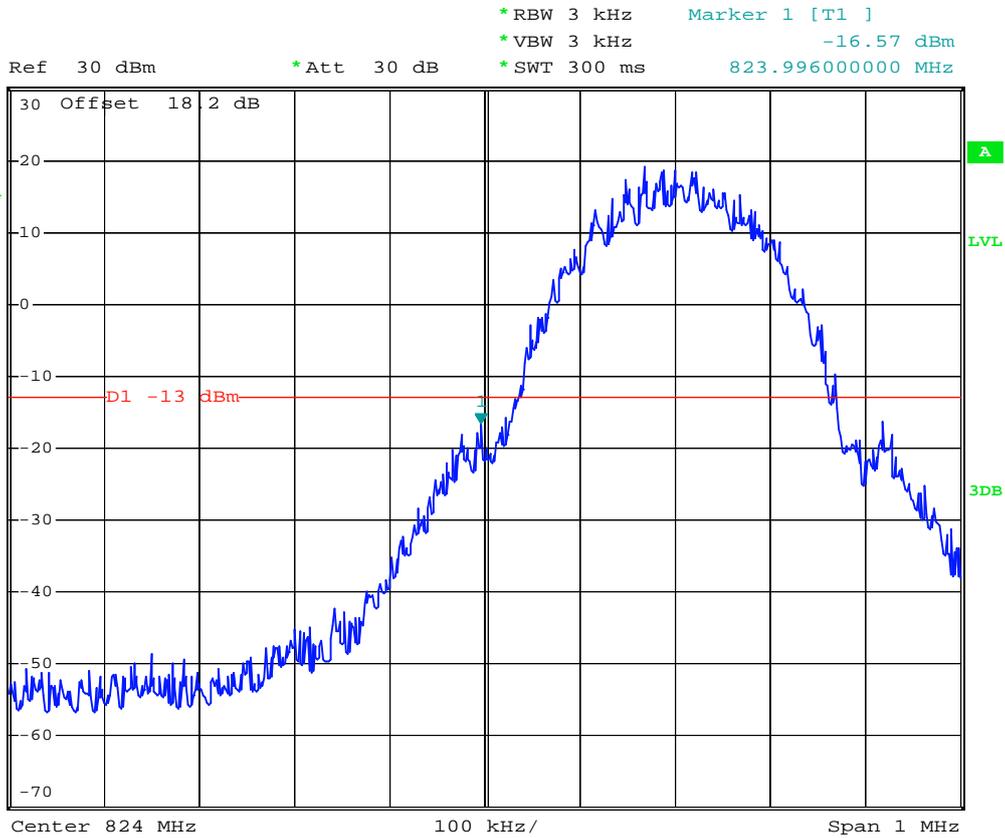
### 4.4.3 Test Setup Layout





4.4.4 Test Result

- Mode 1
- Test Mode : GSM850 (GSM) CH128 Lower Band Edge
- Power State : High



Date: 20.MAR.2008 23:20:17

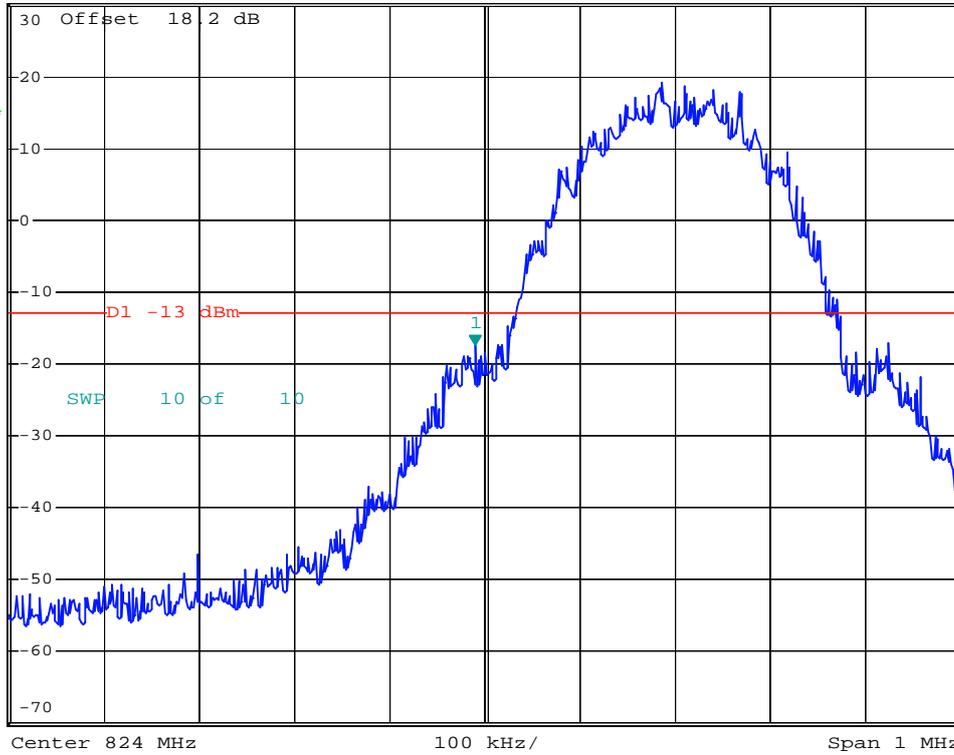


\*RBW 3 kHz    Marker 1 [T1 ]  
\*VBW 10 kHz    -17.25 dBm  
\*SWT 300 ms    823.990000000 MHz

Ref 30 dBm

\*Att 30 dB

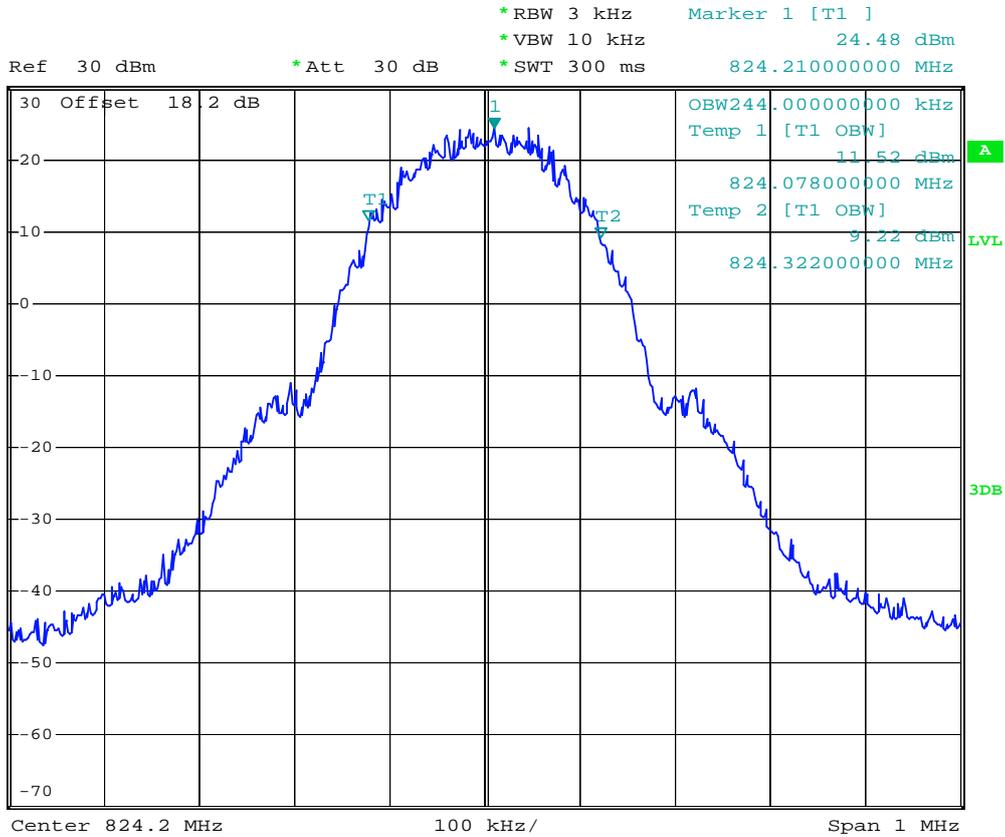
1 AV\*  
VIEW



Date: 20.MAR.2008 23:22:23



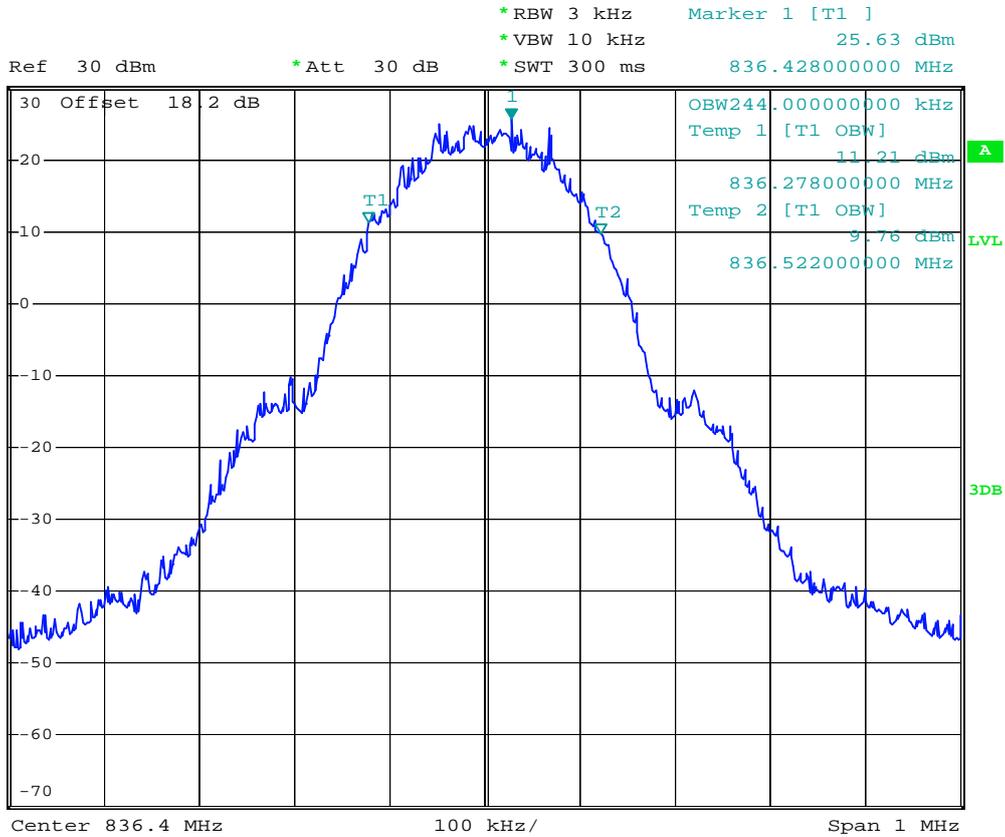
- Test Mode : GSM850 (GSM) CH128 99% Occupied Bandwidth
- Power State : High



Date: 20.MAR.2008 23:10:58



- Test Mode : GSM850 (GSM) CH189 99% Occupied Bandwidth
- Power State : High



Date: 20.MAR.2008 23:12:18

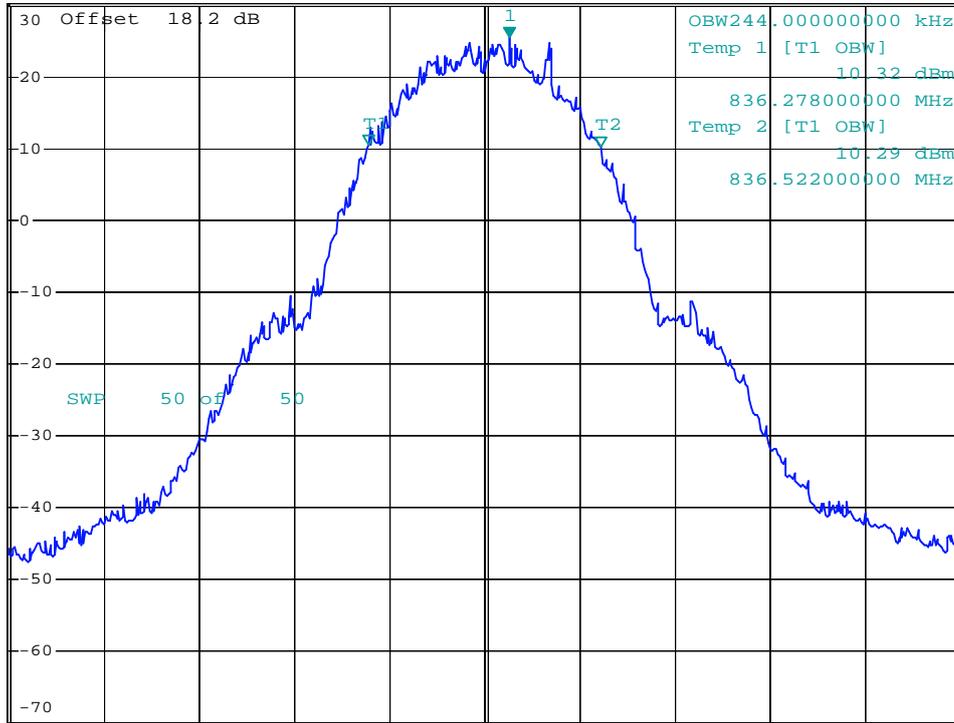


\*RBW 3 kHz      Marker 1 [T1 ]  
 \*VBW 30 kHz      25.39 dBm  
 \*SWT 300 ms      836.426000000 MHz

Ref 30 dBm

\*Att 30 dB

1 PK  
MAXH



Center 836.4 MHz

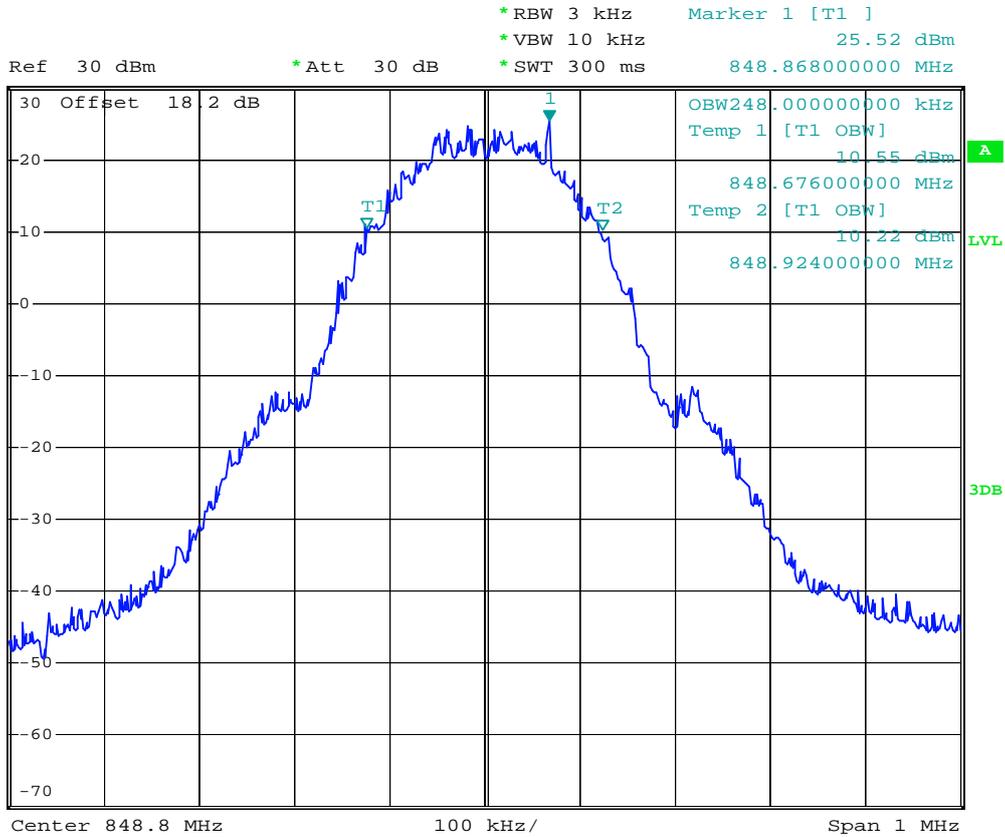
100 kHz/

Span 1 MHz

Date: 20.MAR.2008 23:15:05



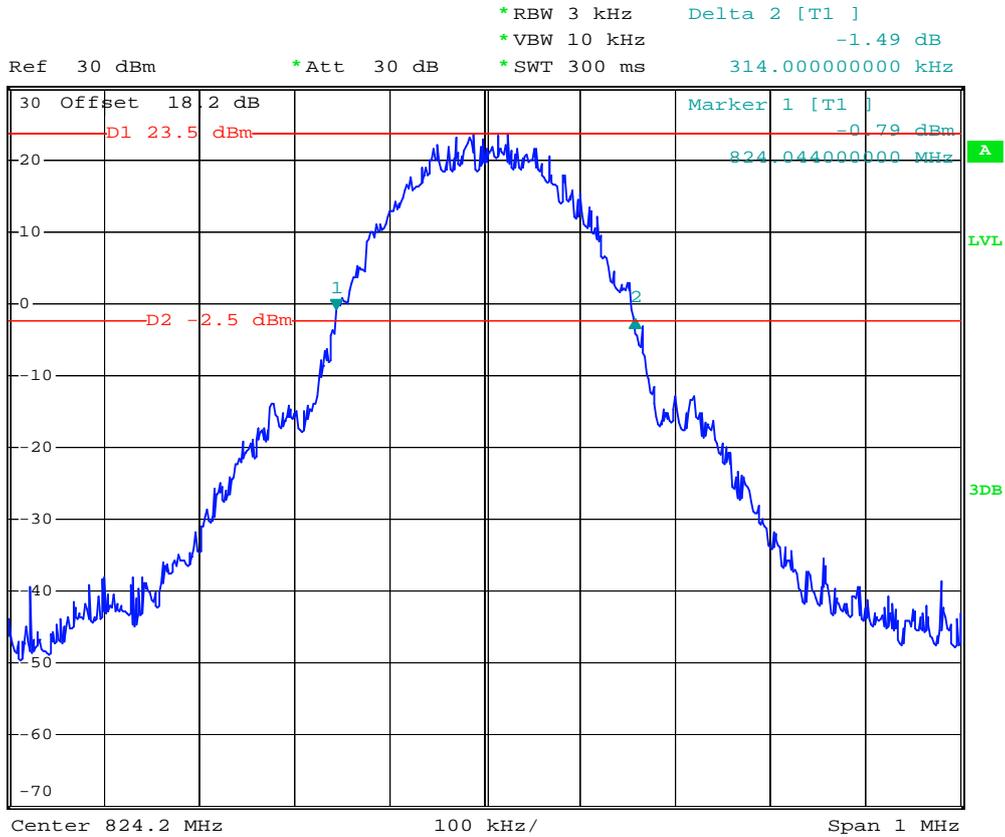
- Test Mode : GSM850 (GSM) CH 251 99% Occupied Bandwidth
- Power State : High



Date: 20.MAR.2008 23:13:26



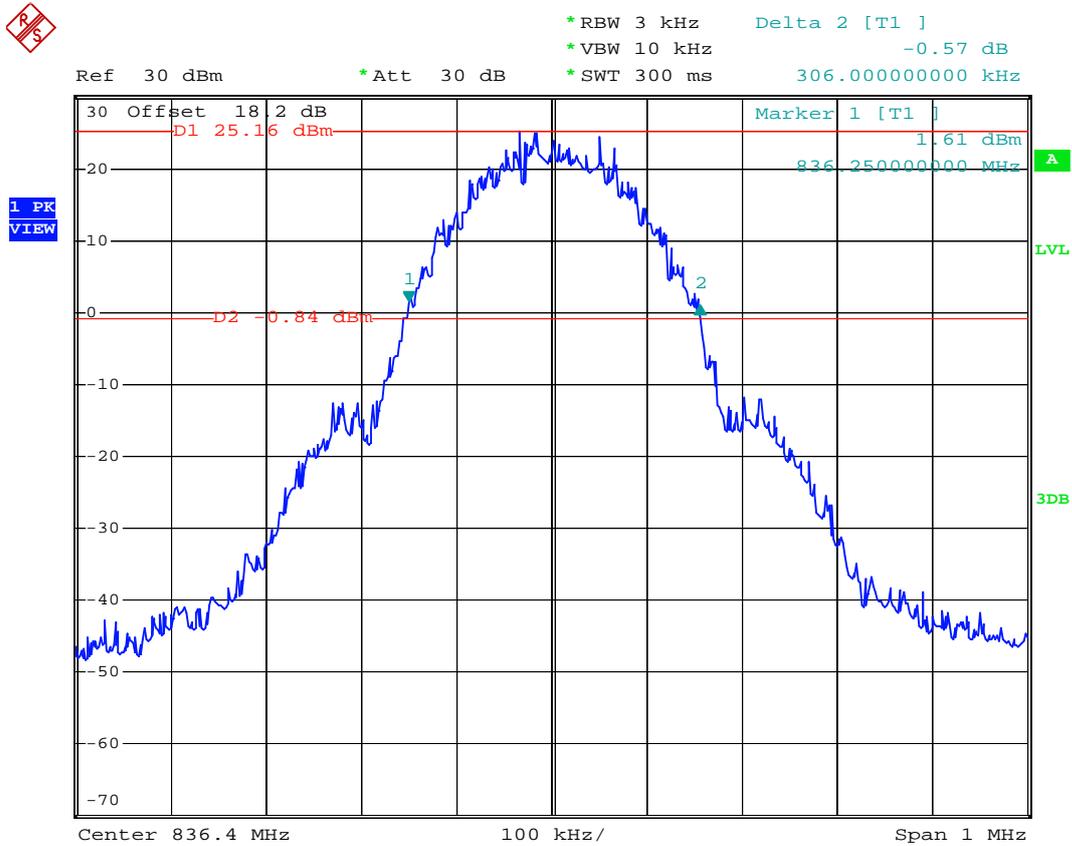
- Test Mode : GSM850 (GSM) CH128 26dB Bandwidth
- Power State : High



Date: 18.MAR.2008 16:05:56



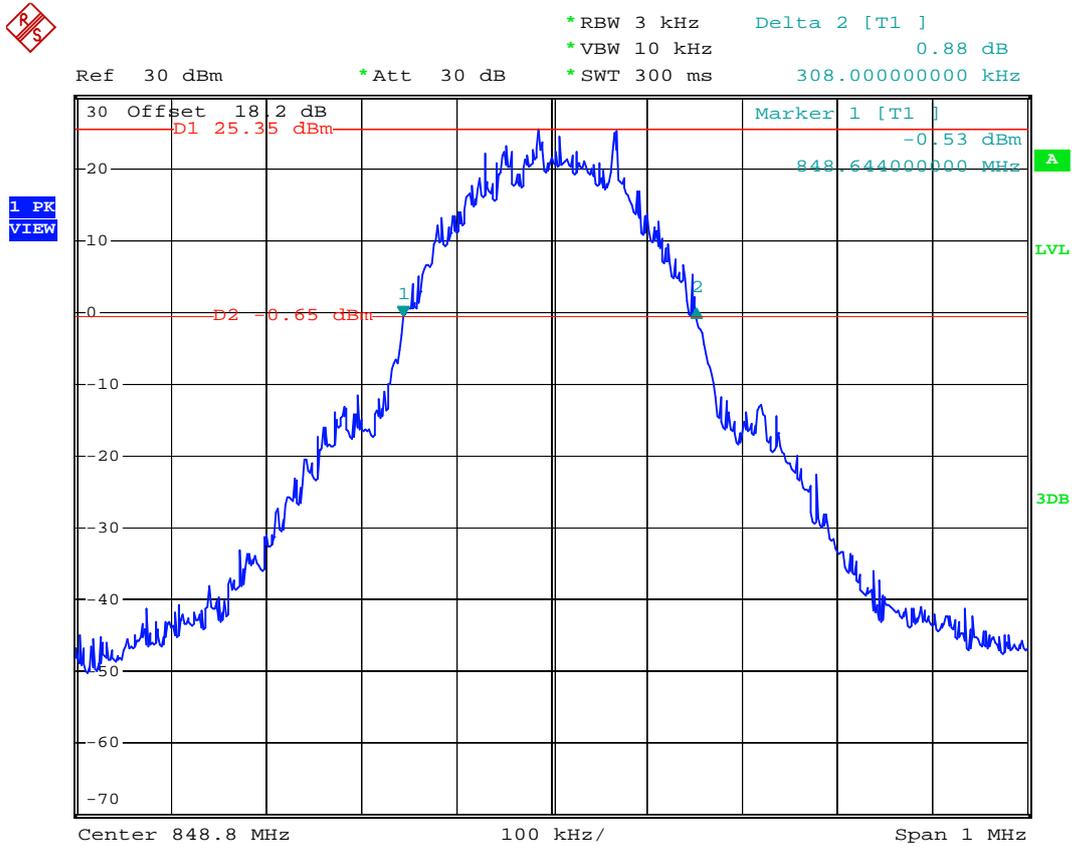
- Test Mode : GSM850 (GSM) CH189 26dB Bandwidth
- Power State : High



Date: 18.MAR.2008 16:08:22



- Test Mode : GSM850 (GSM) CH 251 26dB Bandwidth
- Power State : High



Date: 18.MAR.2008 16:09:18



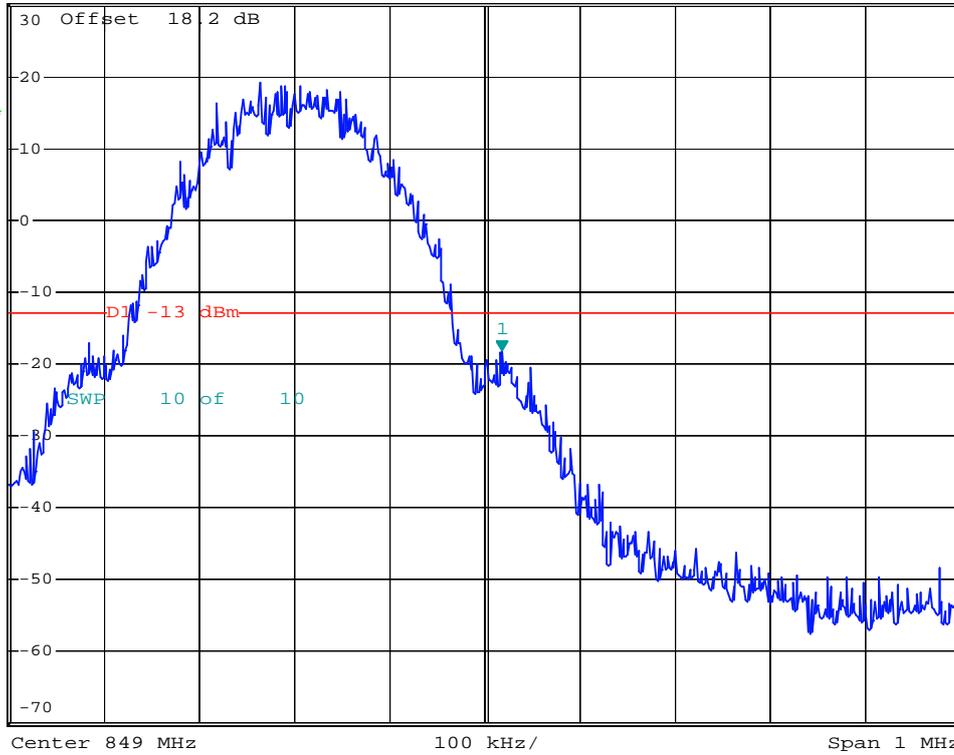


\*RBW 3 kHz      Marker 1 [T1 ]  
 \*VBW 10 kHz      -18.18 dBm  
 \*SWT 300 ms      849.018000000 MHz

Ref 30 dBm

\*Att 30 dB

1 AV\*  
VIEW



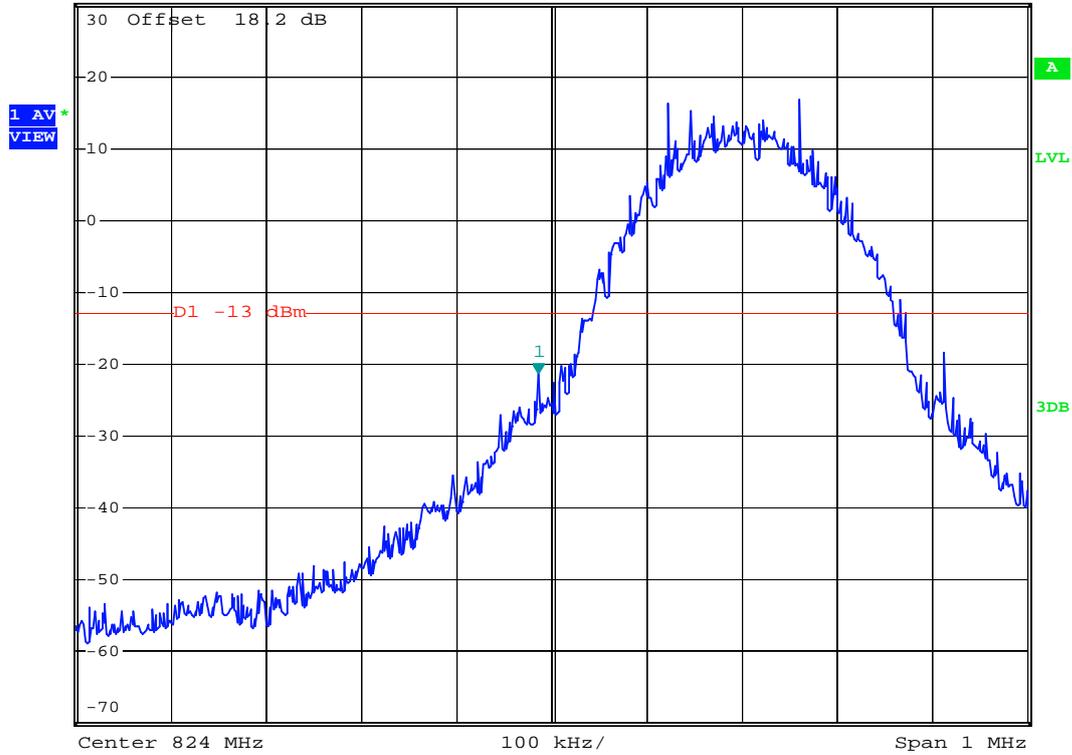
Date: 20.MAR.2008 23:26:51



- Mode 2
- Test Mode : GSM850 (EDGE) CH128 Lower Band Edge
- Power State : High



Ref 30 dBm      \*Att 30 dB      \*RBW 3 kHz      Marker 1 [T1 ]  
 \*VBW 3 kHz      -21.44 dBm  
 \*SWT 300 ms      823.986000000 MHz



Date: 21.MAR.2008 00:19:51

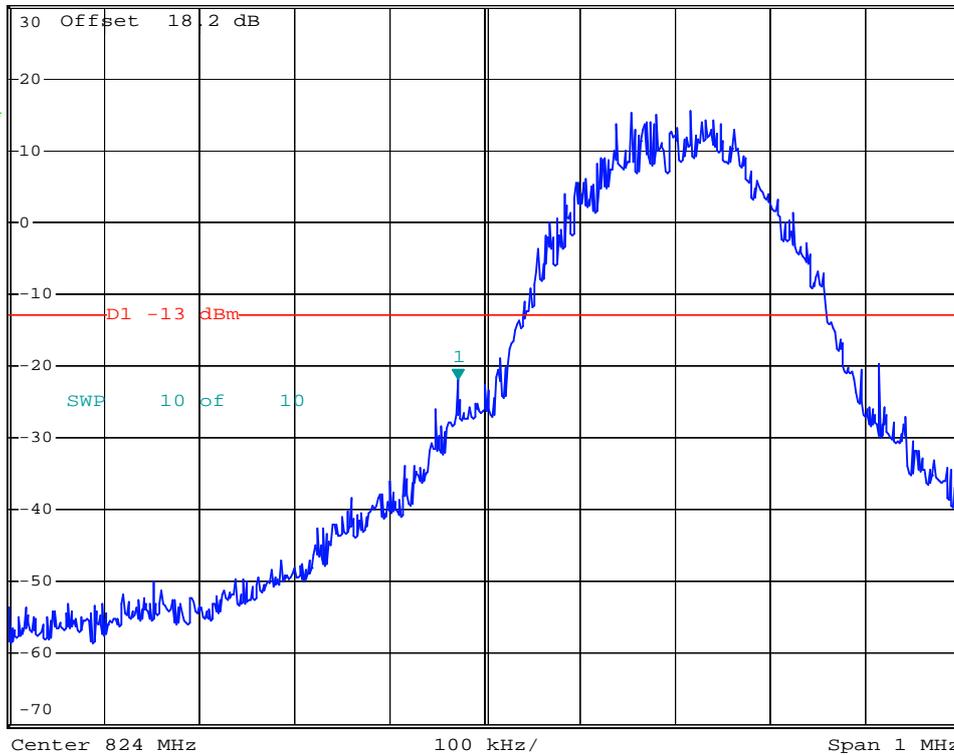


\*RBW 3 kHz    Marker 1 [T1 ]  
\*VBW 10 kHz    -21.79 dBm  
\*SWT 300 ms    823.972000000 MHz

Ref 30 dBm

\*Att 30 dB

1 AV\*  
VIEW



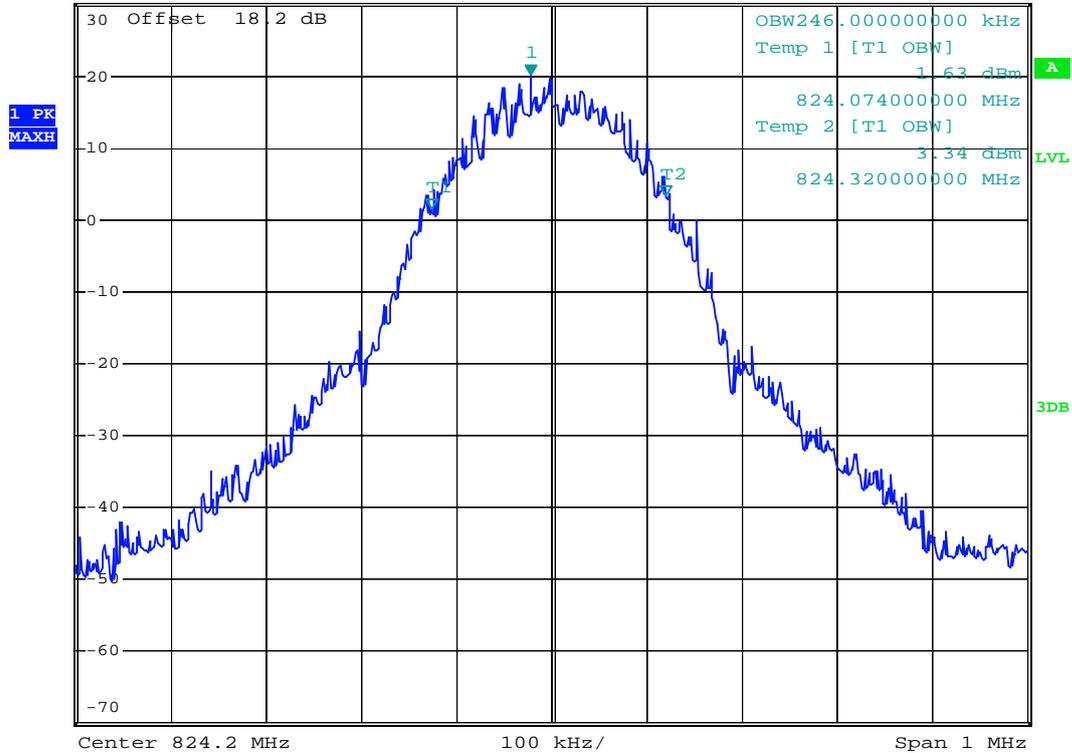
Date: 21.MAR.2008 00:20:46



- Test Mode : GSM850 (EDGE) CH128 99% Occupied Bandwidth
- Power State : High



Ref 30 dBm      \*Att 30 dB      \*RBW 3 kHz      Marker 1 [T1 ]  
 \*VBW 10 kHz      20.04 dBm  
 \*SWT 300 ms      824.178000000 MHz



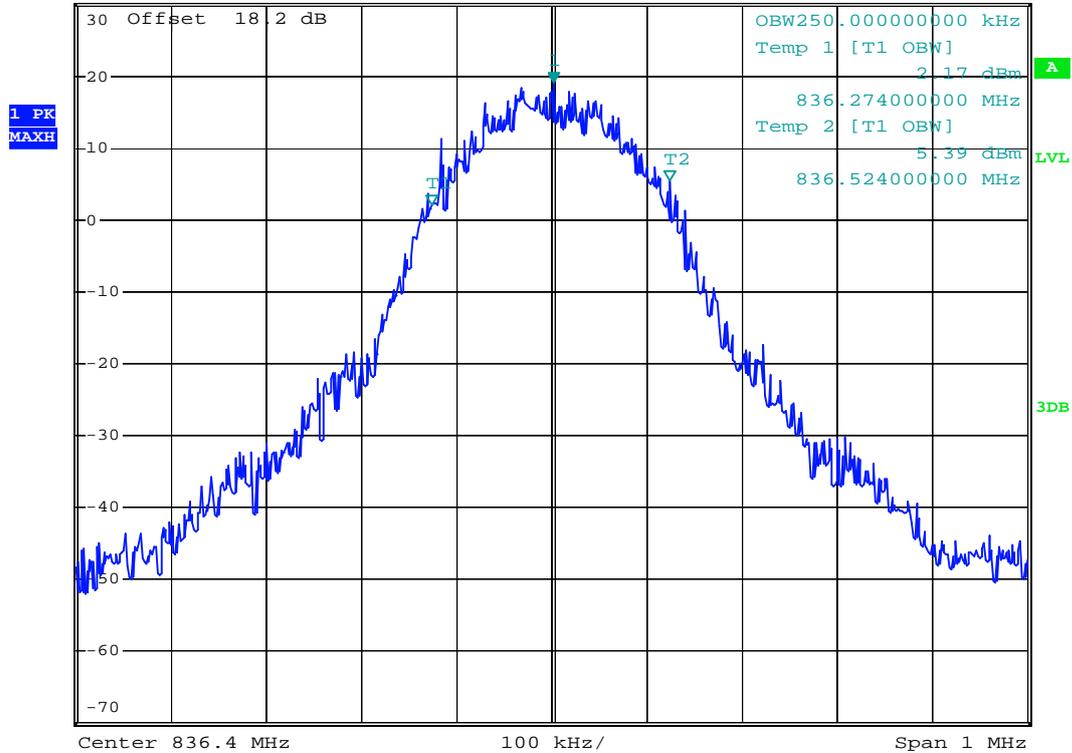
Date: 21.MAR.2008 00:15:20



- Test Mode : GSM850 (EDGE) CH189 99% Occupied Bandwidth
- Power State : High



Ref 30 dBm      \*Att 30 dB      \*RBW 3 kHz      Marker 1 [T1 ]  
 \*VBW 10 kHz      19.01 dBm  
 \*SWT 300 ms      836.40200000 MHz



Date: 21.MAR.2008 00:15:53

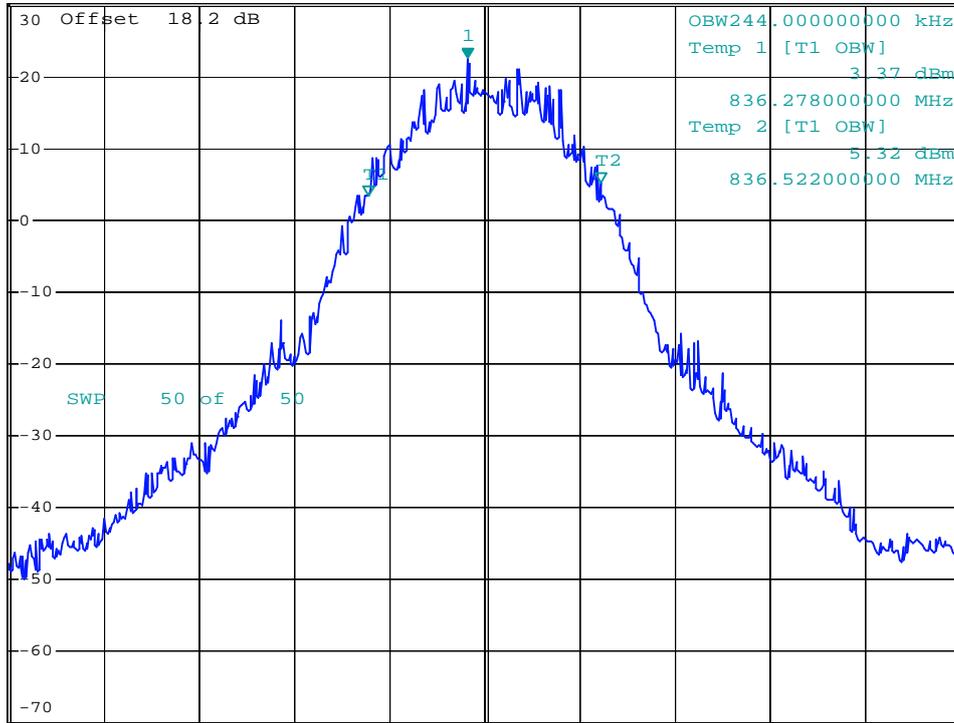


\*RBW 3 kHz      Marker 1 [T1 ]  
 \*VBW 30 kHz      22.43 dBm  
 \*SWT 300 ms      836.382000000 MHz

Ref 30 dBm

\*Att 30 dB

1 PK  
MAXH



Center 836.4 MHz

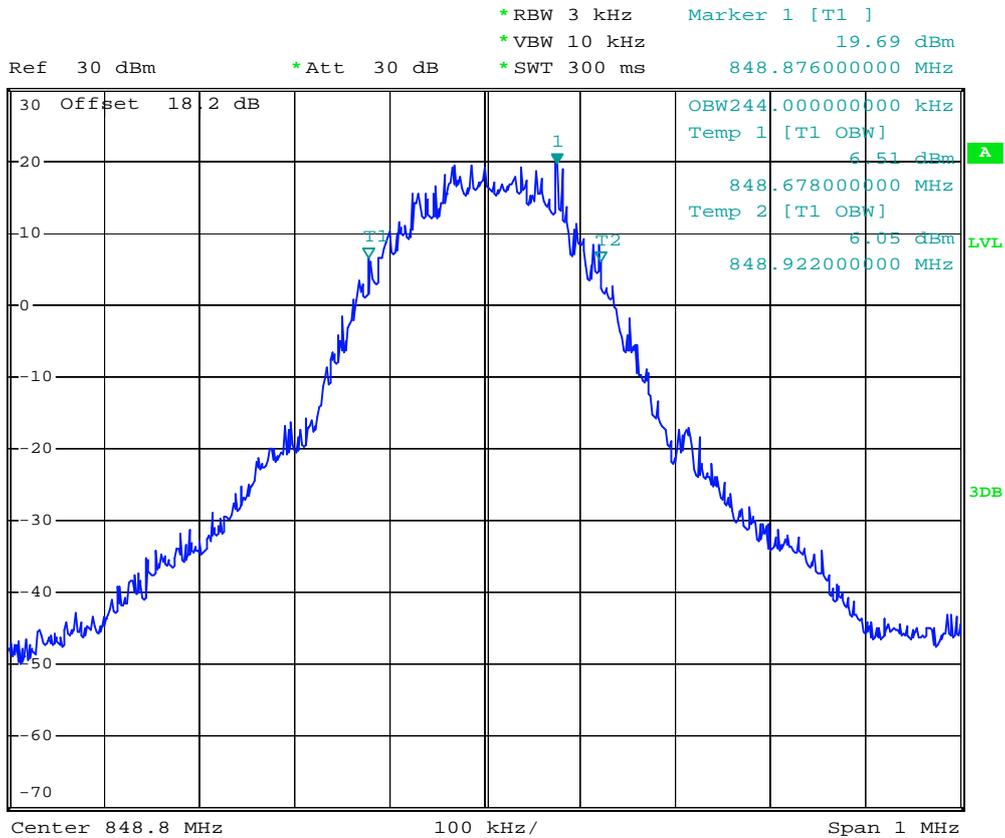
100 kHz/

Span 1 MHz

Date: 21.MAR.2008 00:16:49



- Test Mode : GSM850 (EDGE) CH 251 99% Occupied Bandwidth
- Power State : High



Date: 21.MAR.2008 00:14:48



- Test Mode : GSM850 (EDGE) CH128 26dB Bandwidth
- Power State : High

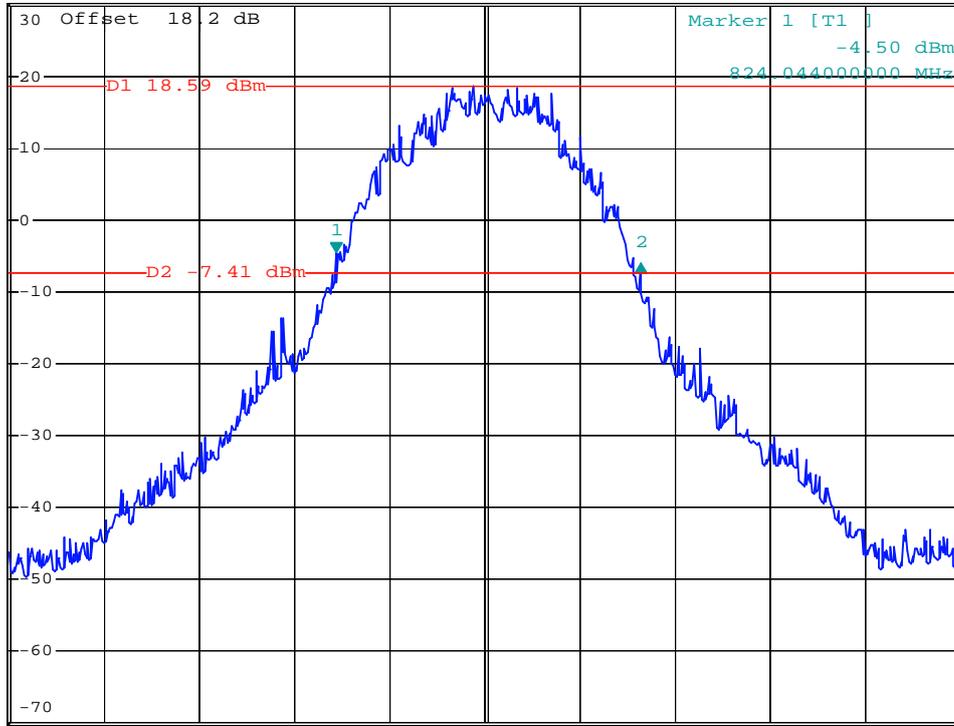


\*RBW 3 kHz      Delta 2 [T1 ]  
 \*VBW 10 kHz      -1.66 dB  
 \*SWT 300 ms      320.000000000 kHz

Ref 30 dBm

\*Att 30 dB

1 PK  
VIEW



Center 824.2 MHz

100 kHz/

Span 1 MHz

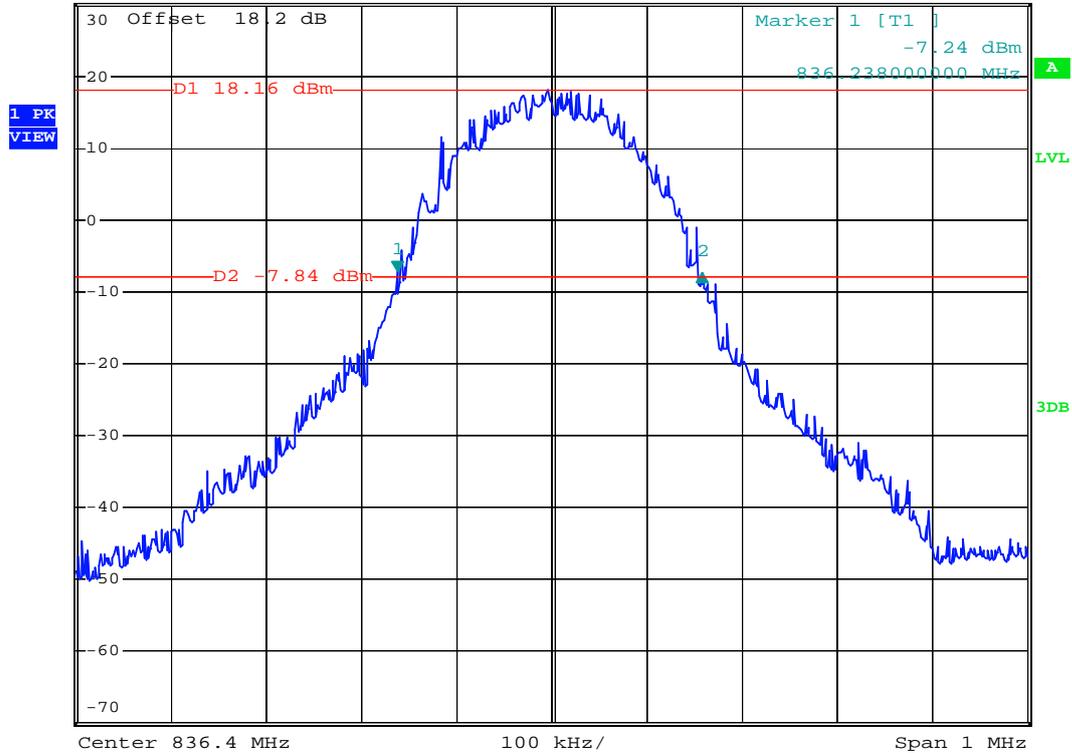
Date: 21.MAR.2008 00:09:46



- Test Mode : GSM850 (EDGE) CH189 26dB Bandwidth
- Power State : High



Ref 30 dBm      \*Att 30 dB      \*RBW 3 kHz      Delta 2 [T1 ]  
 \*VBW 10 kHz      -0.14 dB  
 \*SWT 300 ms      320.000000000 kHz



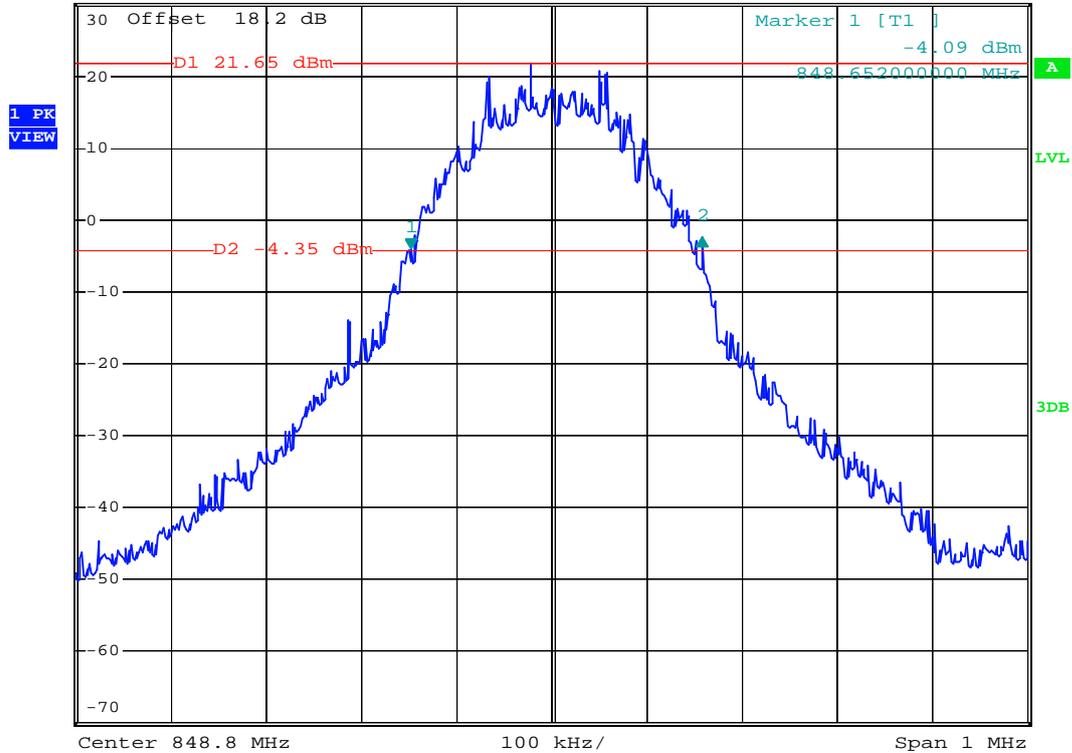
Date: 21.MAR.2008 00:06:03



- Test Mode : GSM850 (EDGE) CH 251 26dB Bandwidth
- Power State : High



Ref 30 dBm      \*Att 30 dB      \*RBW 3 kHz      Delta 2 [T1 ]  
 \*VBW 10 kHz      1.68 dB  
 \*SWT 300 ms      306.000000000 kHz



Date: 21.MAR.2008 00:12:04



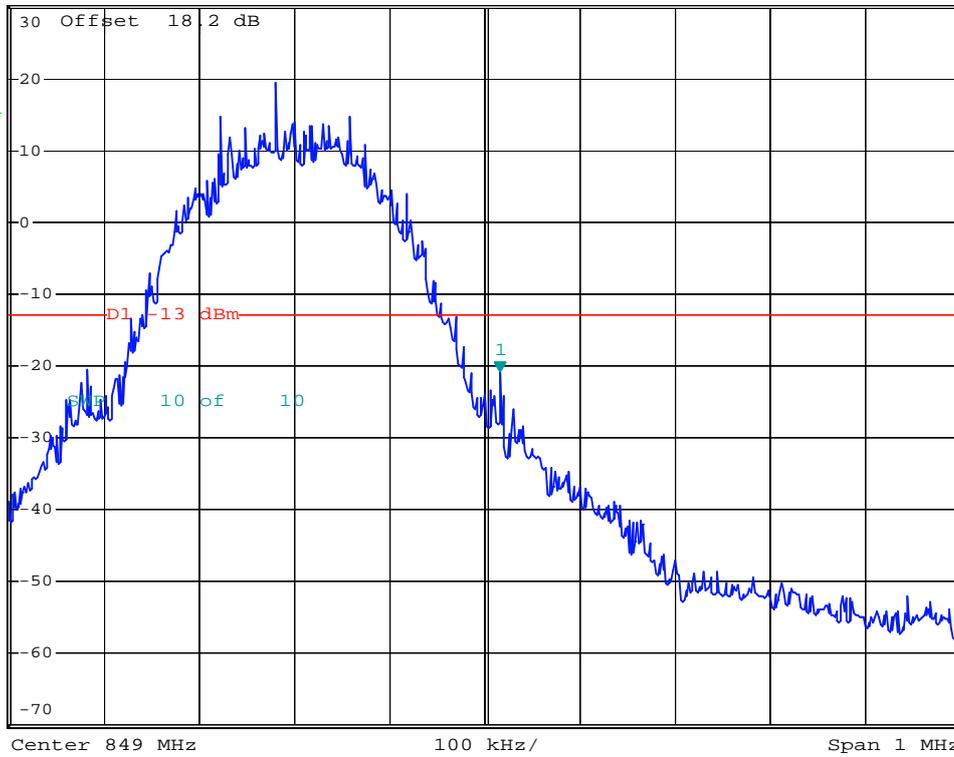


\*RBW 3 kHz      Marker 1 [T1 ]  
 \*VBW 10 kHz      -20.84 dBm  
 \*SWT 300 ms      849.016000000 MHz

Ref 30 dBm

\*Att 30 dB

1 AV\*  
VIEW



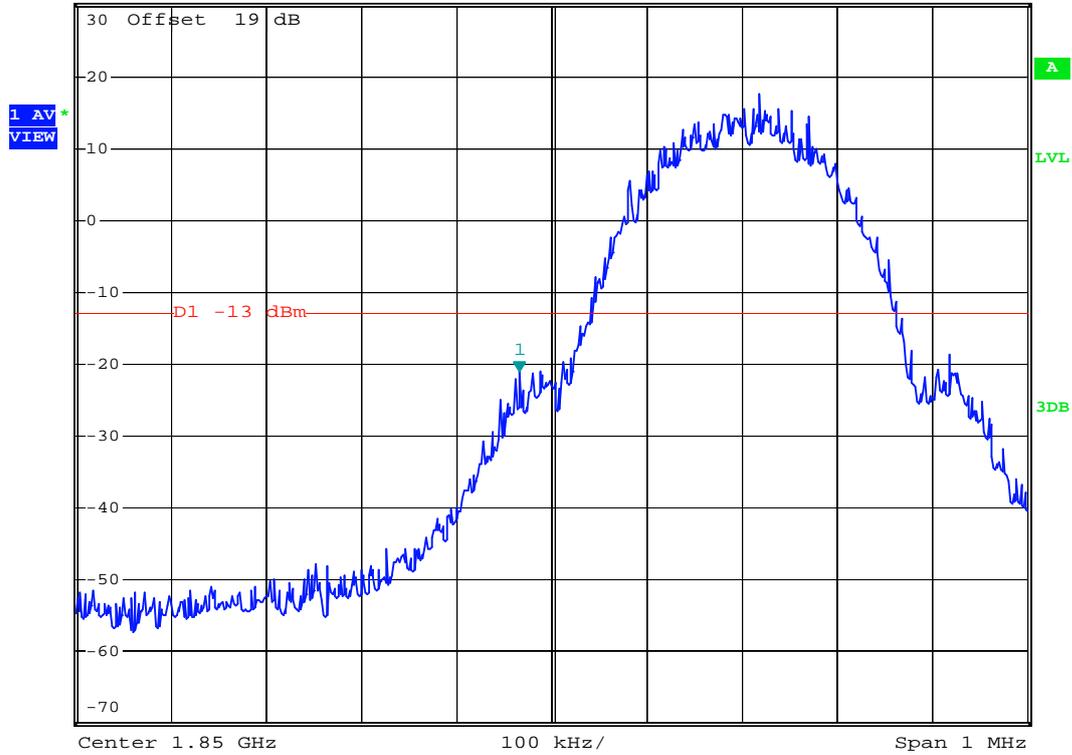
Date: 21.MAR.2008 00:21:47



- Mode 3
- Test Mode : PCS1900 (GSM) CH512 Lower Band Edge
- Power State : High



Ref 30 dBm      \*Att 30 dB      \*RBW 3 kHz      Marker 1 [T1 ]  
 \*VBW 3 kHz      -21.07 dBm  
 \*SWT 300 ms      1.849966000 GHz



Date: 21.MAR.2008 01:52:17

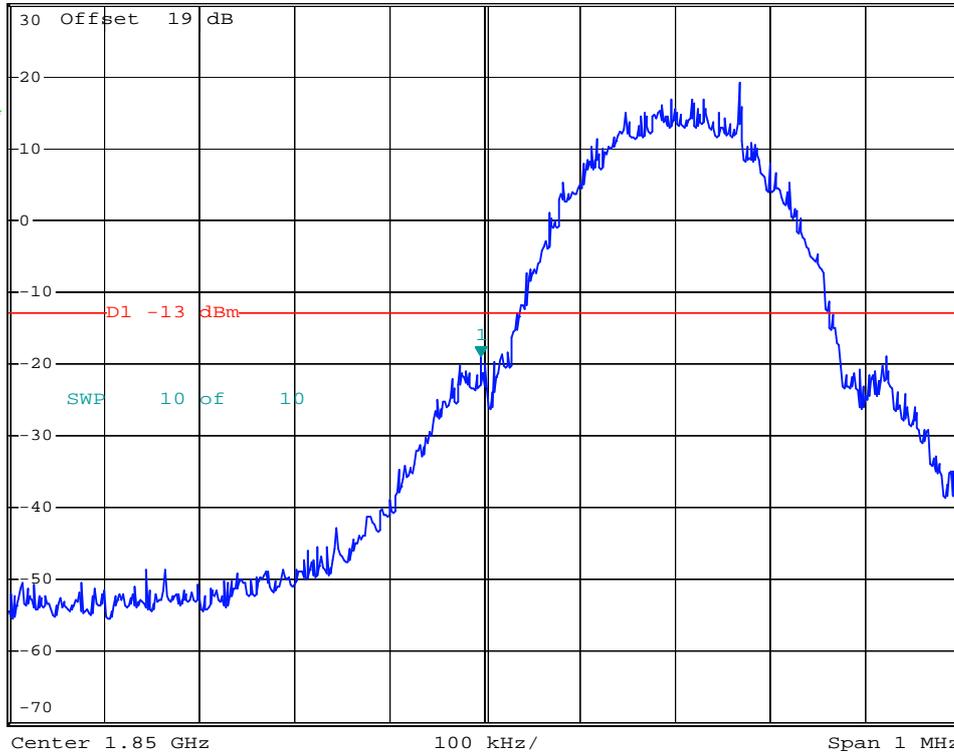


\*RBW 3 kHz      Marker 1 [T1 ]  
 \*VBW 10 kHz      -19.00 dBm  
 \*SWT 300 ms      1.849996000 GHz

Ref 30 dBm

\*Att 30 dB

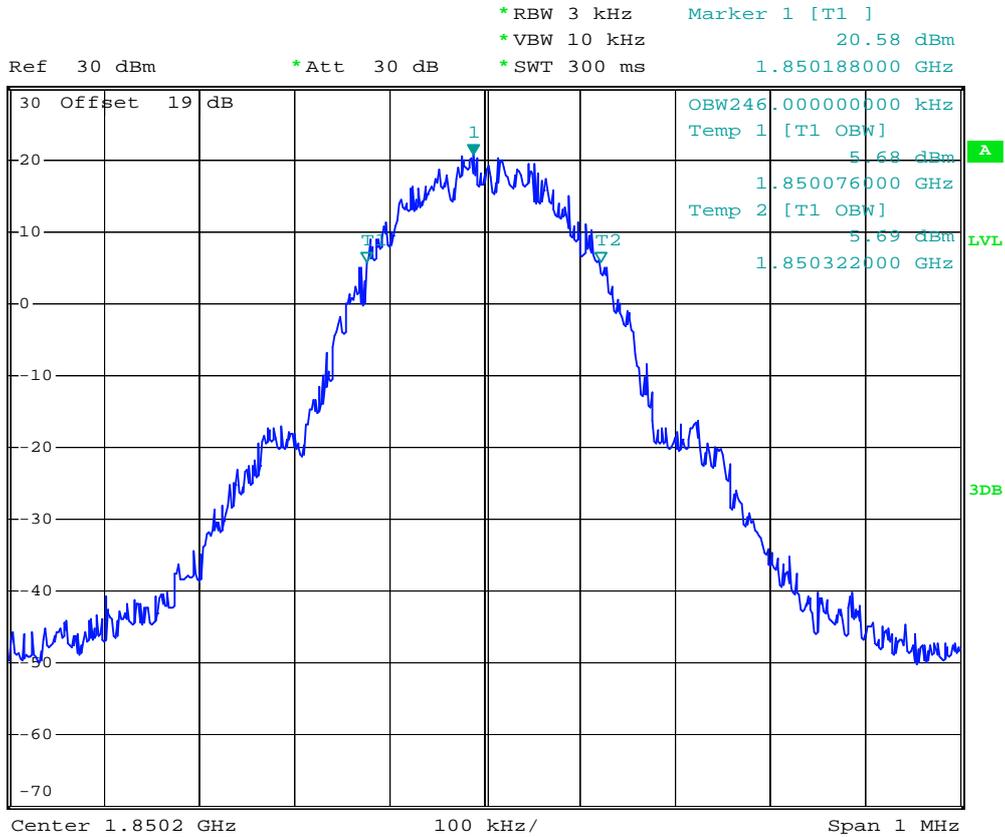
1 AV\*  
VIEW



Date: 21.MAR.2008 01:53:53



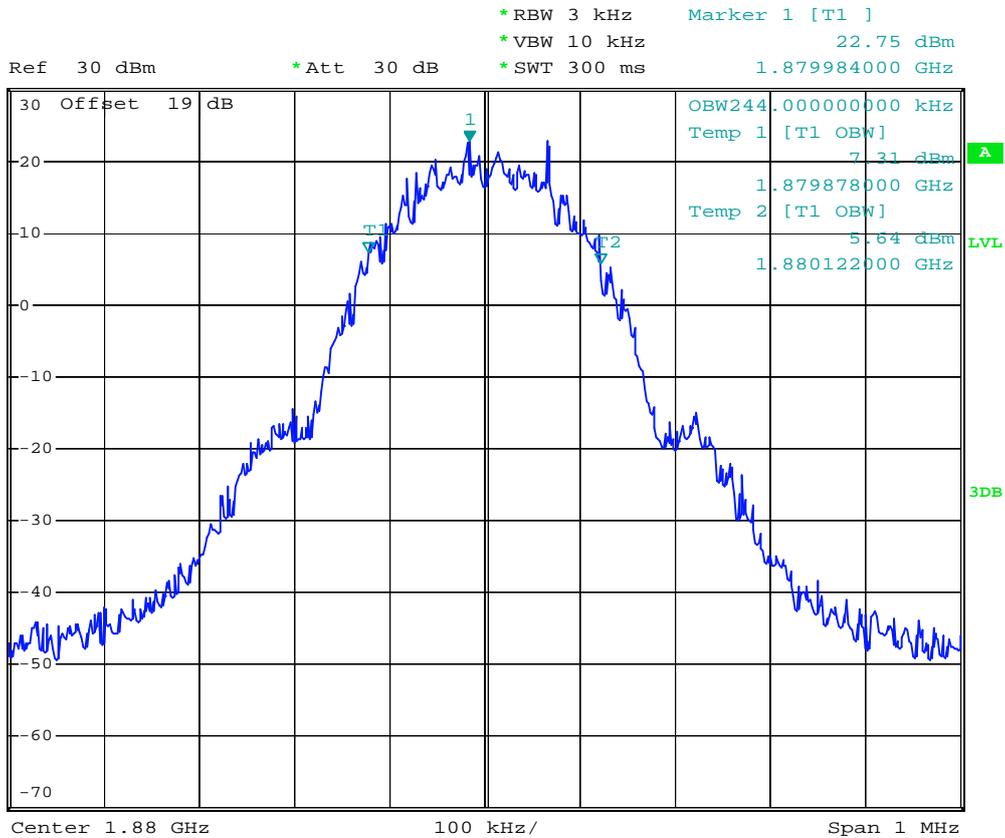
- Test Mode : PCS1900 (GSM) CH512 99% Occupied Bandwidth
- Power State : High



Date: 21.MAR.2008 01:47:05



- Test Mode : PCS1900 (GSM) CH661 99% Occupied Bandwidth
- Power State : High



Date: 21.MAR.2008 01:47:52

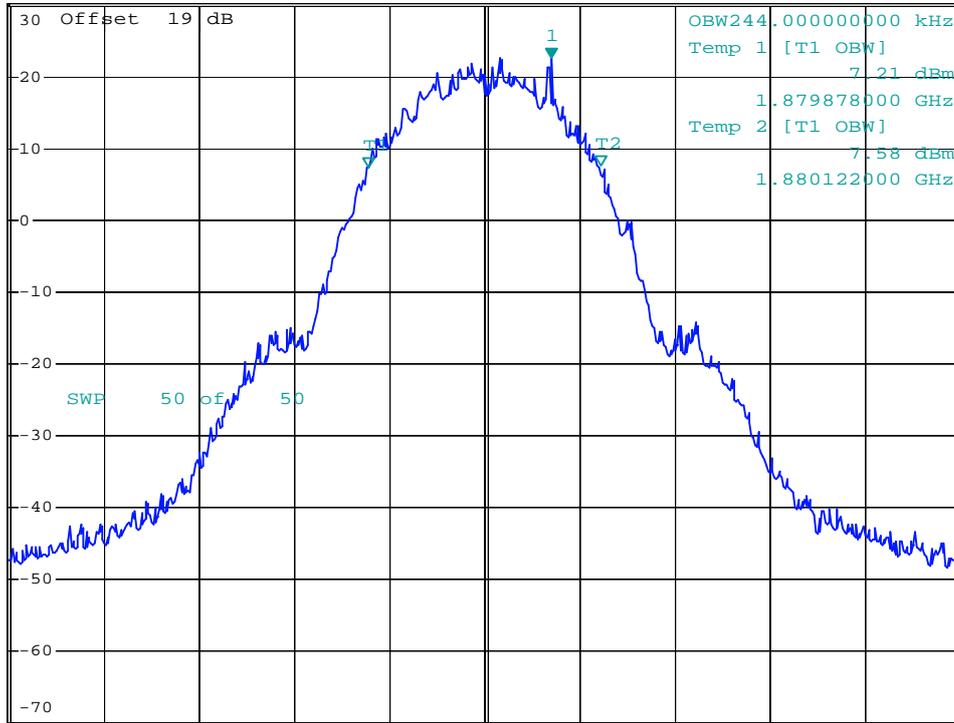


\*RBW 3 kHz      Marker 1 [T1 ]  
 \*VBW 30 kHz      22.48 dBm  
 \*SWT 300 ms      1.880070000 GHz

Ref 30 dBm

\*Att 30 dB

1 PK  
MAXH

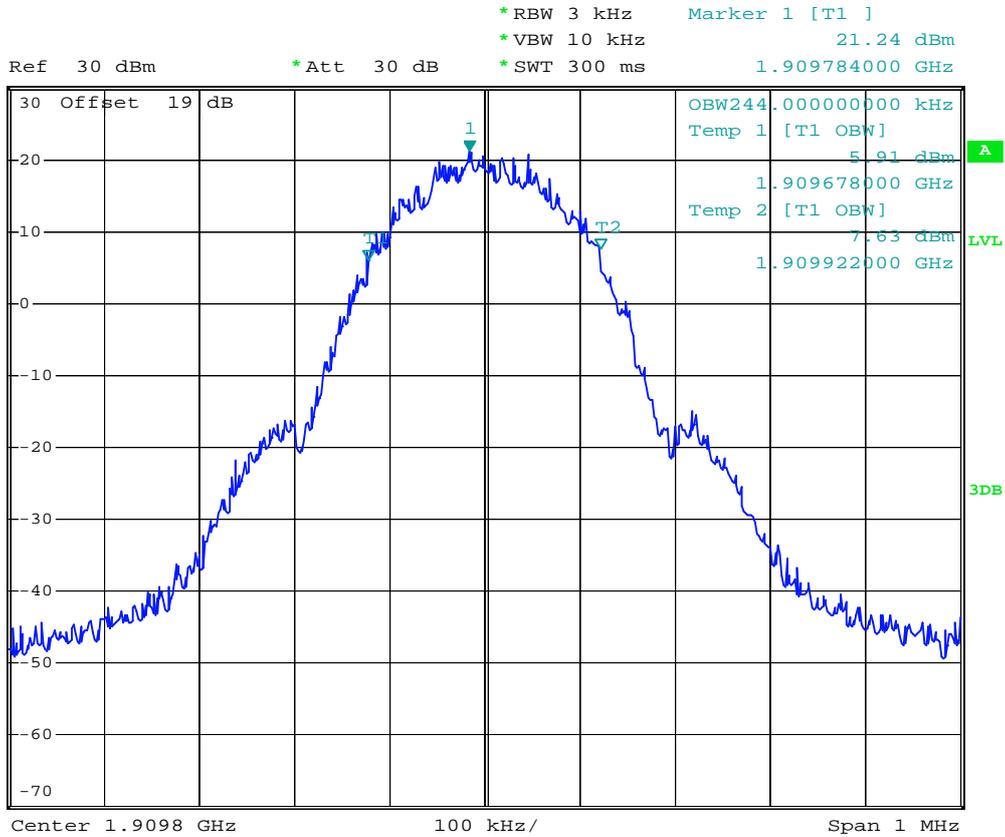


Center 1.88 GHz      100 kHz/      Span 1 MHz

Date: 21.MAR.2008 01:50:11



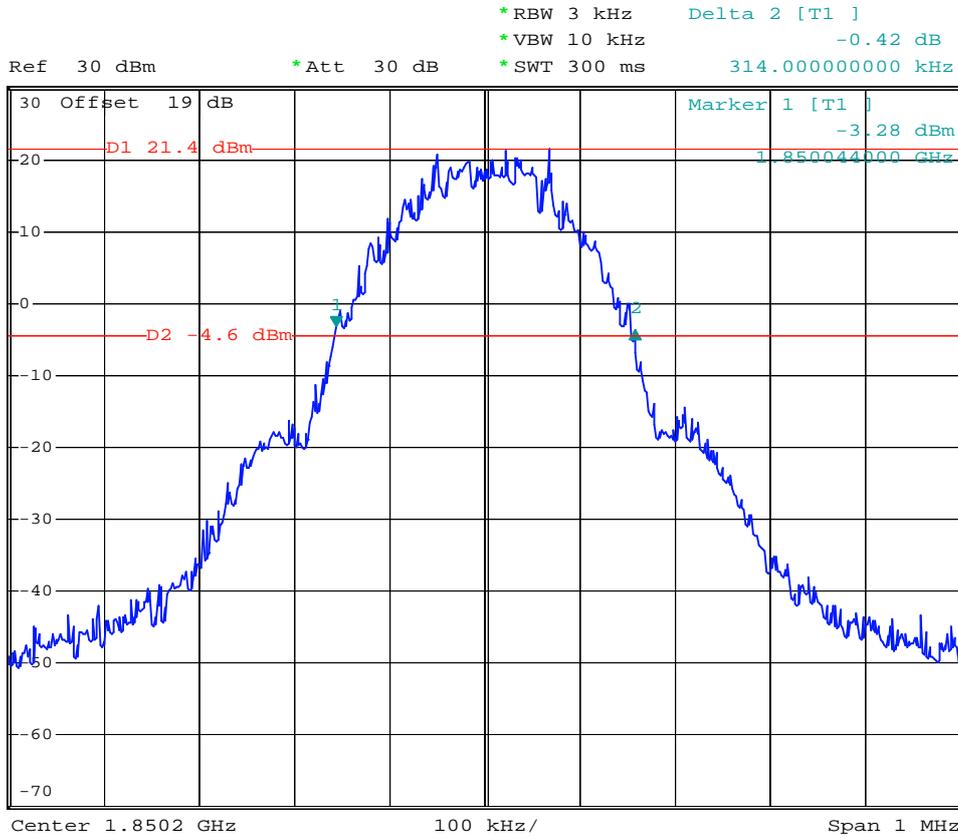
- Test Mode : PCS1900 (GSM) CH810 99% Occupied Bandwidth
- Power State : High



Date: 21.MAR.2008 01:46:33



- Test Mode : PCS1900 (GSM) CH512 26dB Bandwidth
- Power State : High



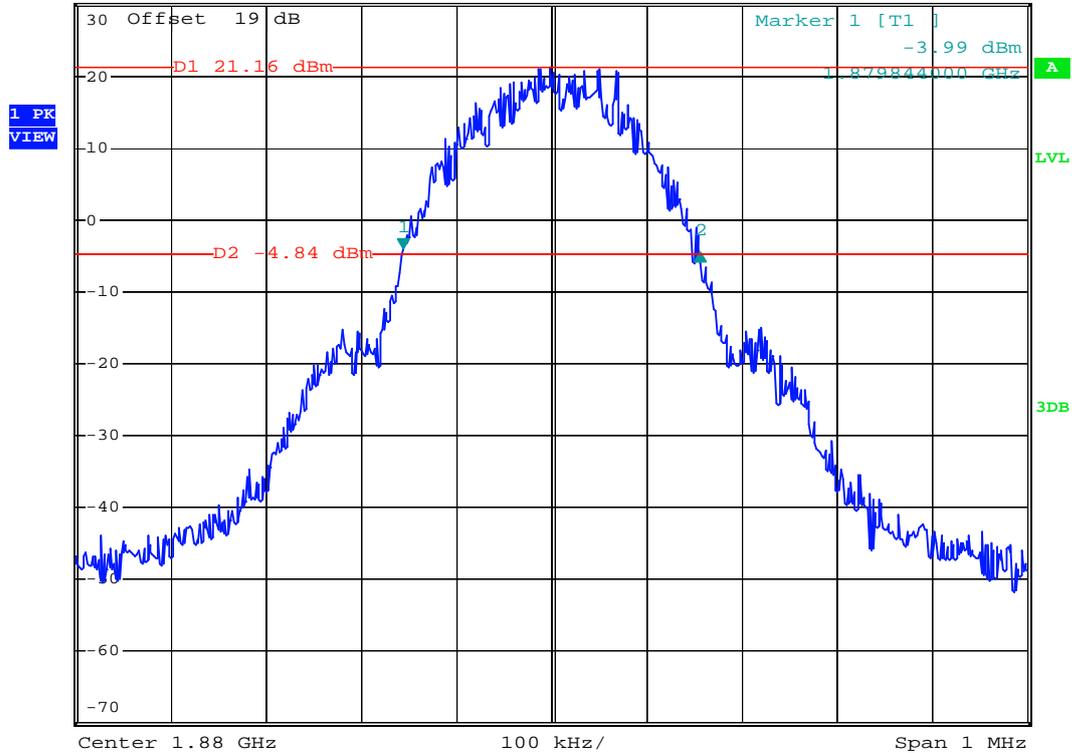
Date: 21.MAR.2008 01:43:08



- Test Mode : PCS1900 (GSM) CH661 26dB Bandwidth
- Power State : High



Ref 30 dBm      \*Att 30 dB      \*RBW 3 kHz      Delta 2 [T1 ]  
 \*VBW 10 kHz      -0.44 dB  
 \*SWT 300 ms      312.000000000 kHz



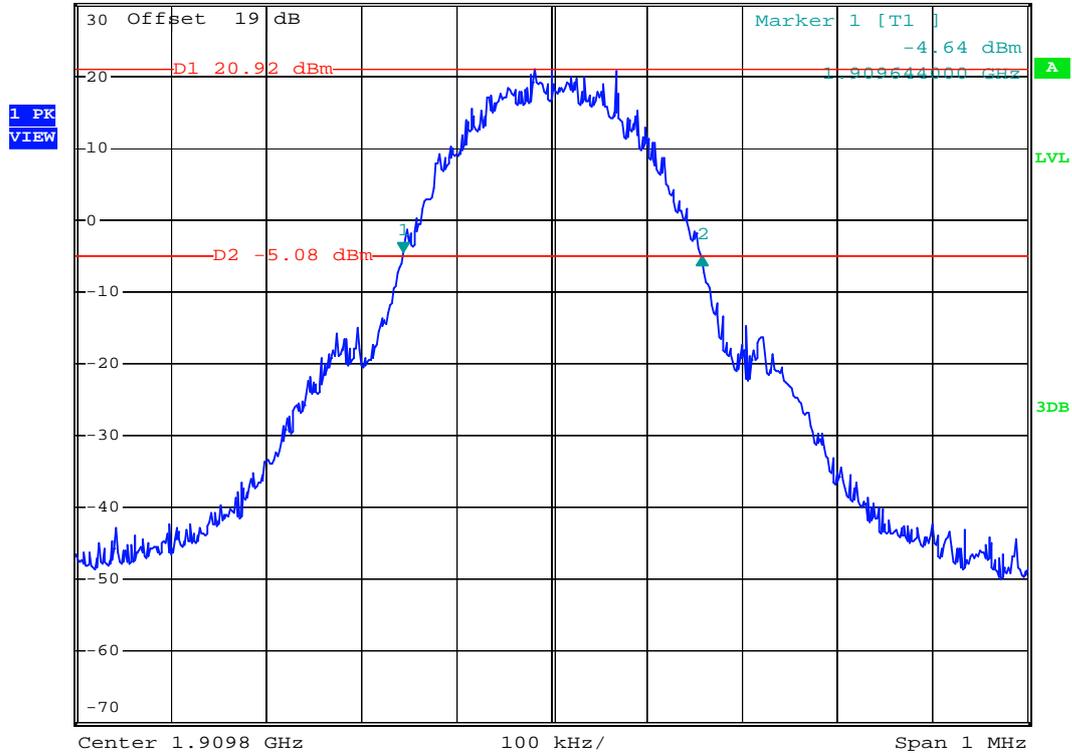
Date: 21.MAR.2008 01:44:29



- Test Mode : PCS1900 (GSM) CH810 26dB Bandwidth
- Power State : High



Ref 30 dBm      \*Att 30 dB      \*RBW 3 kHz      Delta 2 [T1 ]  
 \*VBW 10 kHz      -0.27 dB  
 \*SWT 300 ms      314.000000000 kHz



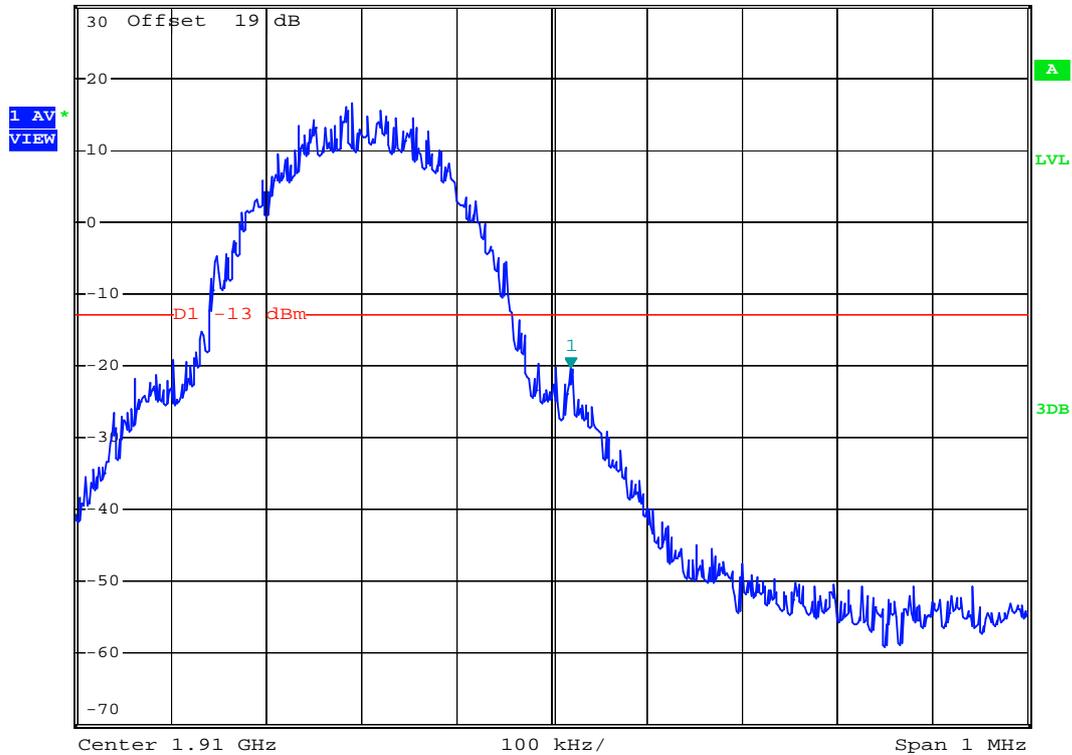
Date: 21.MAR.2008 01:45:45



- Test Mode : PCS1900 (GSM) CH810 Higher Band Edge
- Power State : High



Ref 30 dBm      \*Att 30 dB      \*RBW 3 kHz      Marker 1 [T1 ]  
\*VBW 3 kHz      -20.18 dBm  
\*SWT 300 ms      1.910020000 GHz



Date: 21.MAR.2008 01:55:18

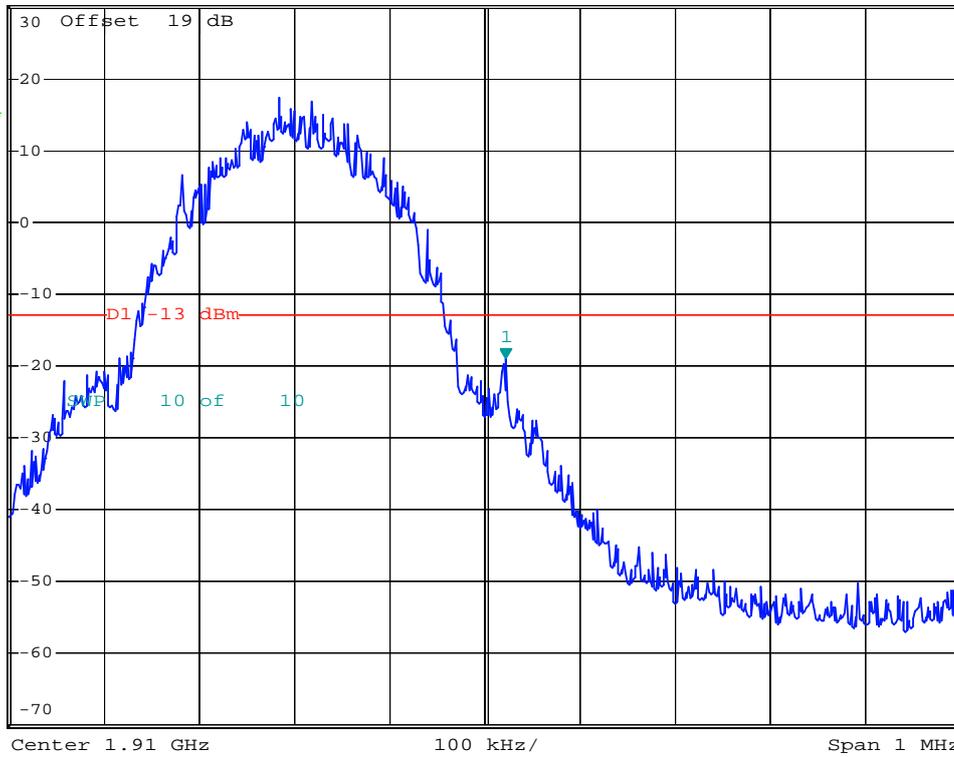


\*RBW 3 kHz      Marker 1 [T1 ]  
 \*VBW 10 kHz      -19.04 dBm  
 \*SWT 300 ms      1.910022000 GHz

Ref 30 dBm

\*Att 30 dB

1 AV\*  
VIEW



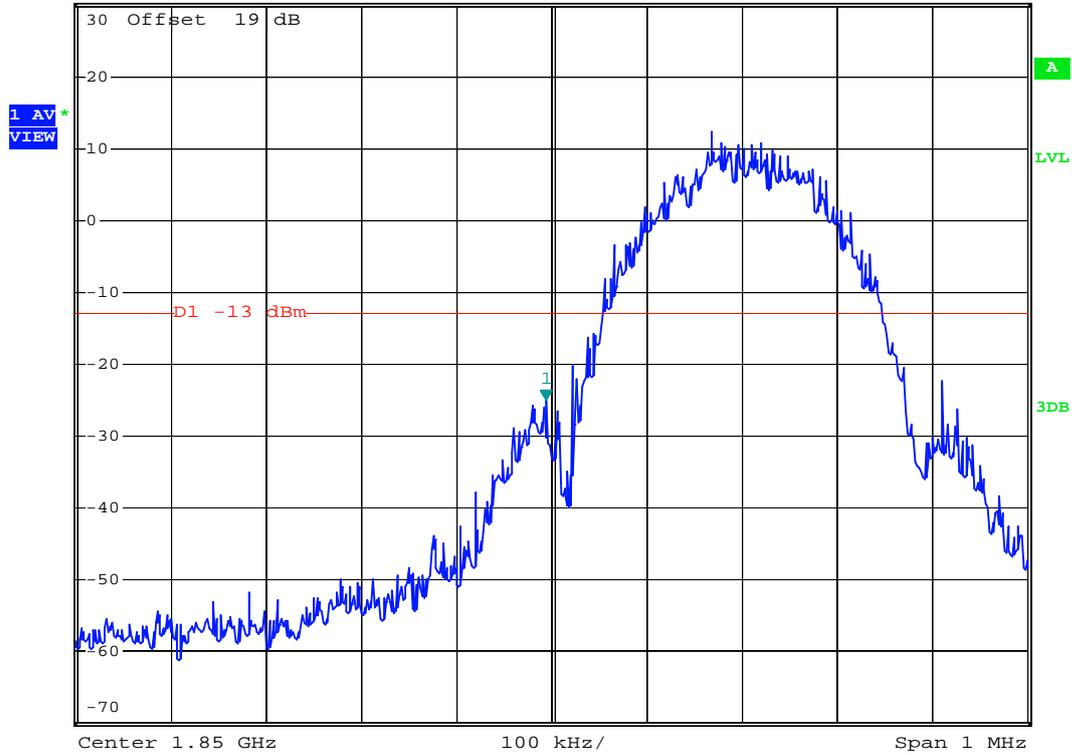
Date: 21.MAR.2008 01:54:42



- Mode 4
- Test Mode : PCS1900 (EDGE) CH512 Lower Band Edge
- Power State : High



Ref 30 dBm      \*Att 30 dB      \*RBW 3 kHz      Marker 1 [T1 ]  
\*VBW 3 kHz      -24.89 dBm  
\*SWT 300 ms      1.849994000 GHz



Date: 21.MAR.2008 00:31:23

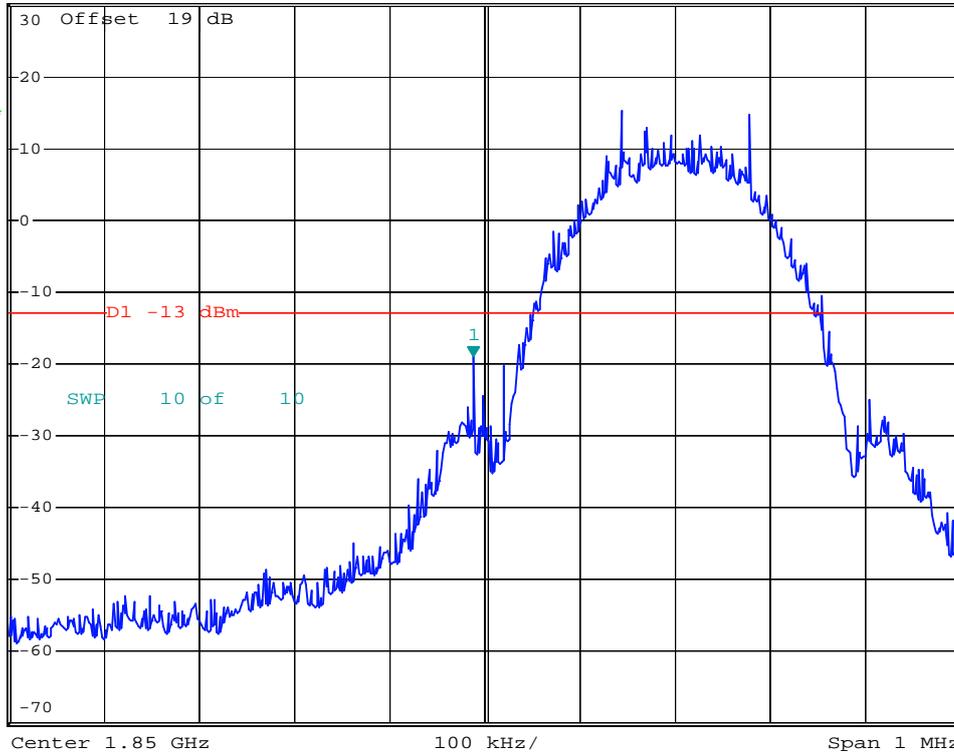


\*RBW 3 kHz      Marker 1 [T1 ]  
\*VBW 10 kHz      -19.07 dBm  
\*SWT 300 ms      1.849988000 GHz

Ref 30 dBm

\*Att 30 dB

1 AV\*  
VIEW



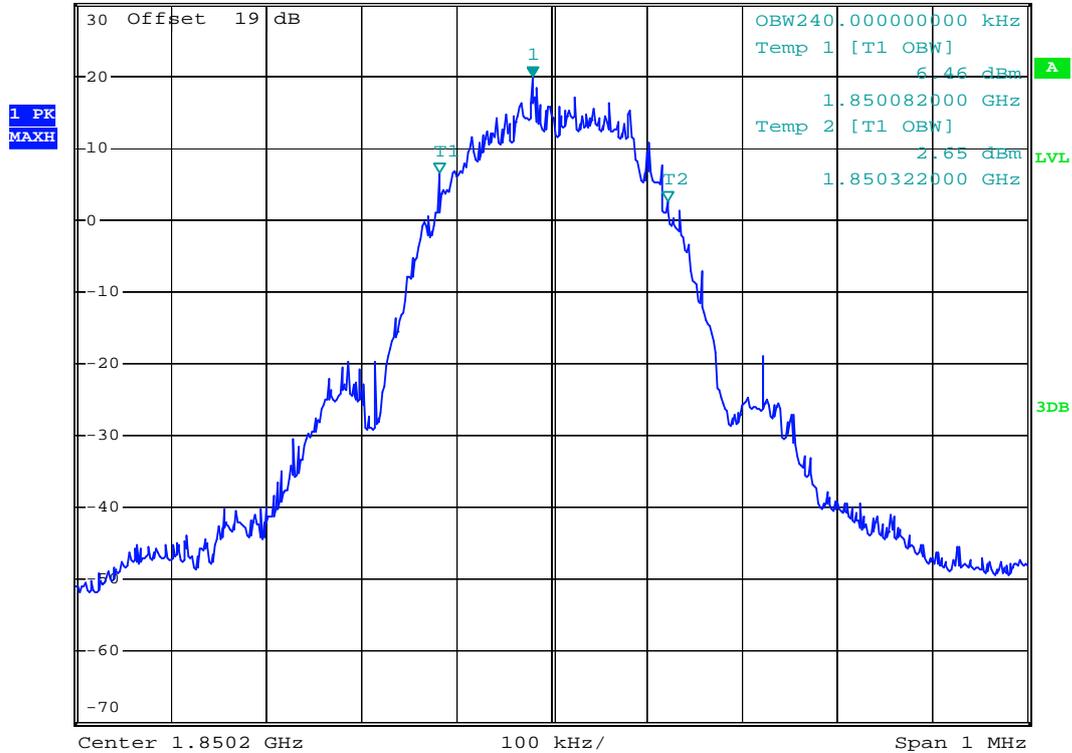
Date: 21.MAR.2008 00:32:21



- Test Mode : PCS1900 (EDGE) CH512 99% Occupied Bandwidth
- Power State : High



Ref 30 dBm      \*Att 30 dB      \*RBW 3 kHz      Marker 1 [T1 ]  
 \*VBW 10 kHz      19.78 dBm  
 \*SWT 300 ms      1.850180000 GHz



Date: 21.MAR.2008 00:43:14



- Test Mode : PCS1900 (EDGE) CH661 99% Occupied Bandwidth
- Power State : High

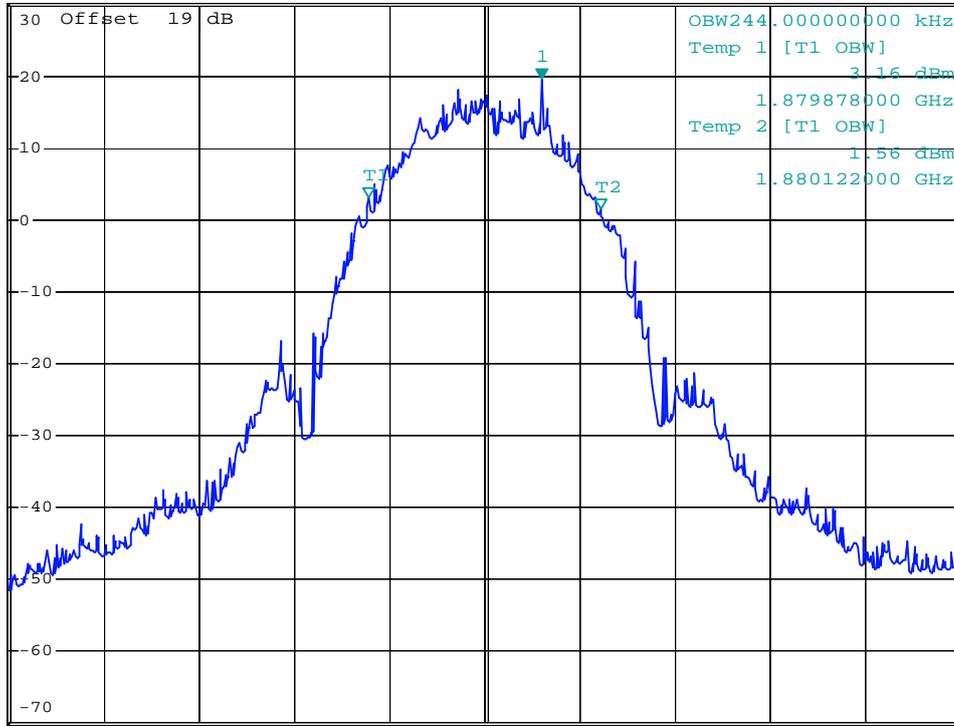


\*RBW 3 kHz      Marker 1 [T1 ]  
 \*VBW 10 kHz      19.68 dBm  
 \*SWT 300 ms      1.880060000 GHz

Ref 30 dBm

\*Att 30 dB

1 PK  
MAXH



Center 1.88 GHz

100 kHz/

Span 1 MHz

Date: 21.MAR.2008 00:44:39

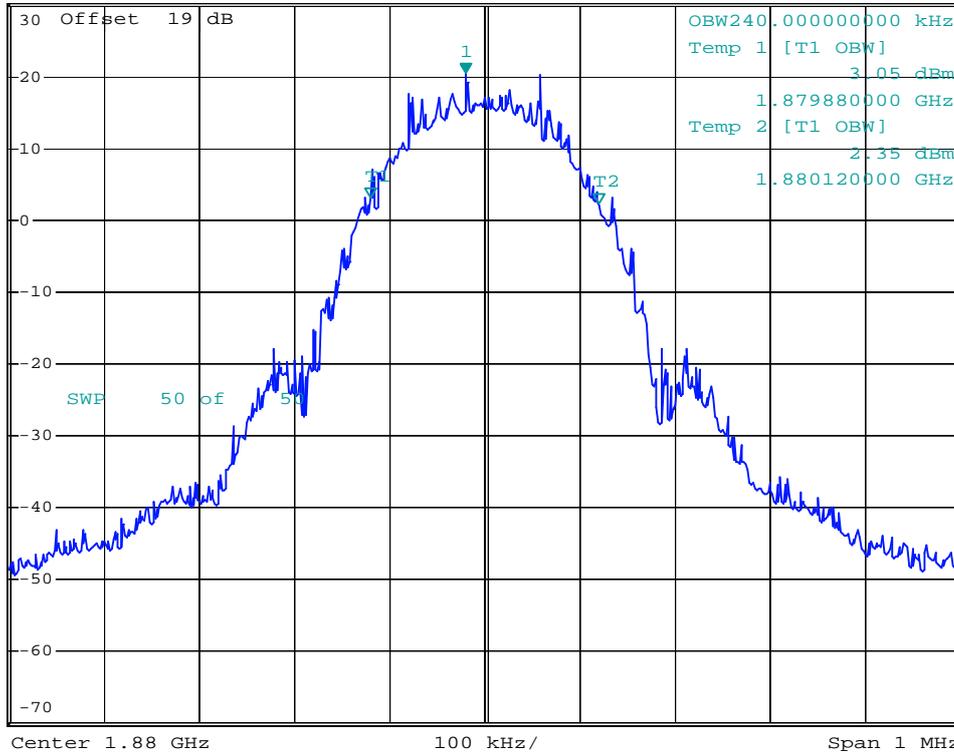


\*RBW 3 kHz      Marker 1 [T1 ]  
 \*VBW 30 kHz      20.49 dBm  
 \*SWT 300 ms      1.879980000 GHz

Ref 30 dBm

\*Att 30 dB

1 PK  
MAXH



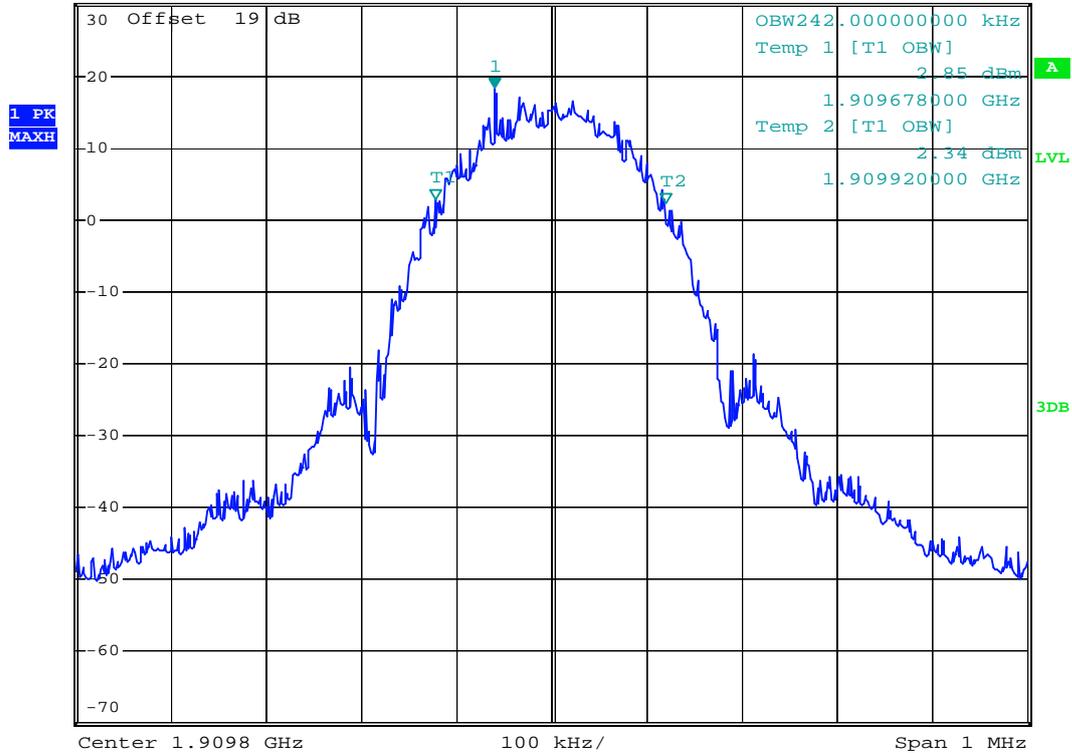
Date: 21.MAR.2008 00:46:48



- Test Mode : PCS1900 (EDGE) CH810 99% Occupied Bandwidth
- Power State : High



Ref 30 dBm      \*Att 30 dB      \*RBW 3 kHz      Marker 1 [T1 ]  
 \*VBW 10 kHz      18.23 dBm  
 \*SWT 300 ms      1.909740000 GHz



Date: 21.MAR.2008 00:43:56



- Test Mode : PCS1900 (EDGE) CH512 26dB Bandwidth
- Power State : High

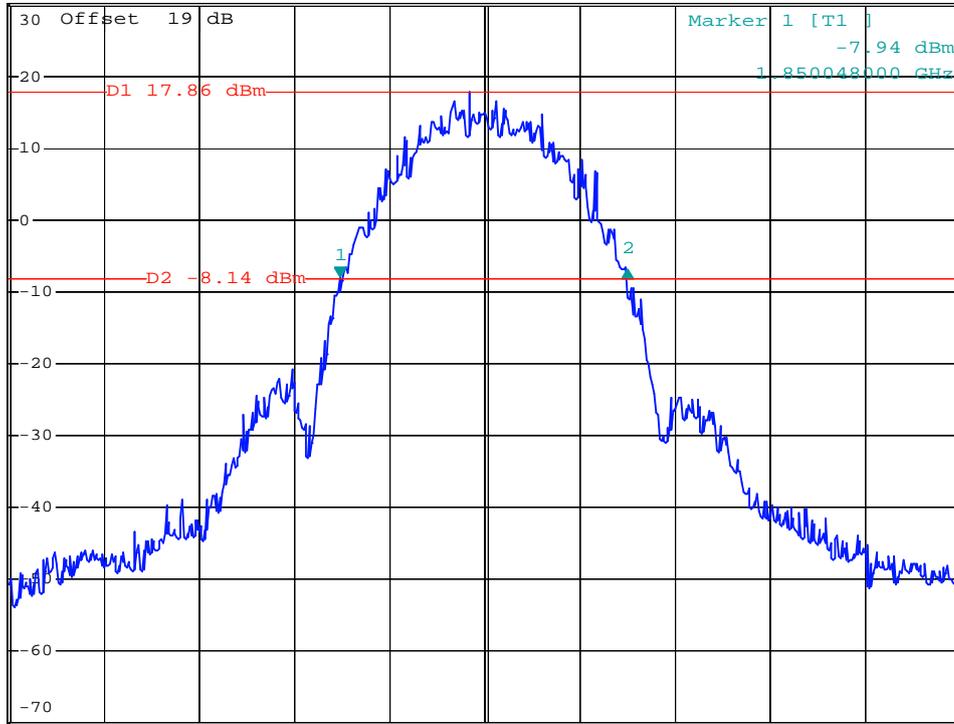


\*RBW 3 kHz      Delta 2 [T1 ]  
 \*VBW 10 kHz      1.18 dB  
 \*SWT 300 ms      302.000000000 kHz

Ref 30 dBm

\*Att 30 dB

1 PK  
VIEW



Center 1.8502 GHz

100 kHz/

Span 1 MHz

Date: 21.MAR.2008 00:42:12



- Test Mode : PCS1900 (EDGE) CH661 26dB Bandwidth
- Power State : High

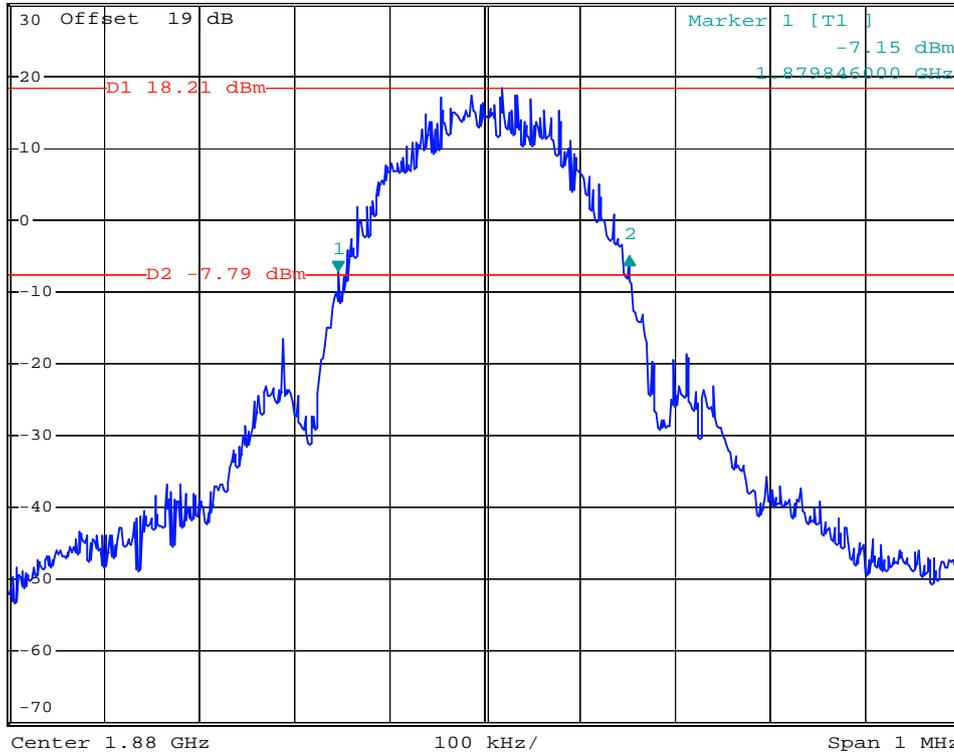


\*RBW 3 kHz      Delta 2 [T1 ]  
 \*VBW 10 kHz      2.06 dB  
 \*SWT 300 ms      306.00000000 kHz

Ref 30 dBm

\*Att 30 dB

1 PK  
VIEW



Date: 21.MAR.2008 00:38:21



- Test Mode : PCS1900 (EDGE) CH810 26dB Bandwidth
- Power State : High

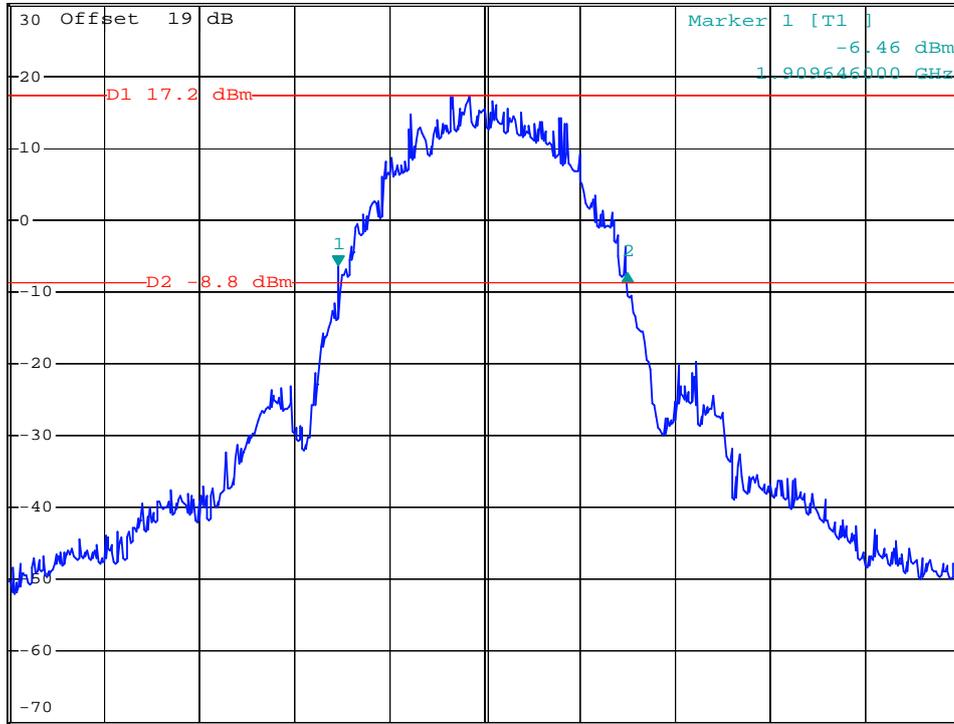


\*RBW 3 kHz      Delta 2 [T1 ]  
 \*VBW 10 kHz      -1.00 dB  
 \*SWT 300 ms      304.000000000 kHz

Ref 30 dBm

\*Att 30 dB

1 PK VIEW



Center 1.9098 GHz

100 kHz/

Span 1 MHz

Date: 21.MAR.2008 00:40:49



- Test Mode : PCS1900 (EDGE) CH810 Higher Band Edge
- Power State : High



\*RBW 3 kHz      Marker 1 [T1 ]  
 \*VBW 3 kHz      -23.31 dBm  
 \*SWT 300 ms      1.910012000 GHz

Ref 30 dBm

\*Att 30 dB

1 AV\*  
VIEW



Date: 21.MAR.2008 00:34:06

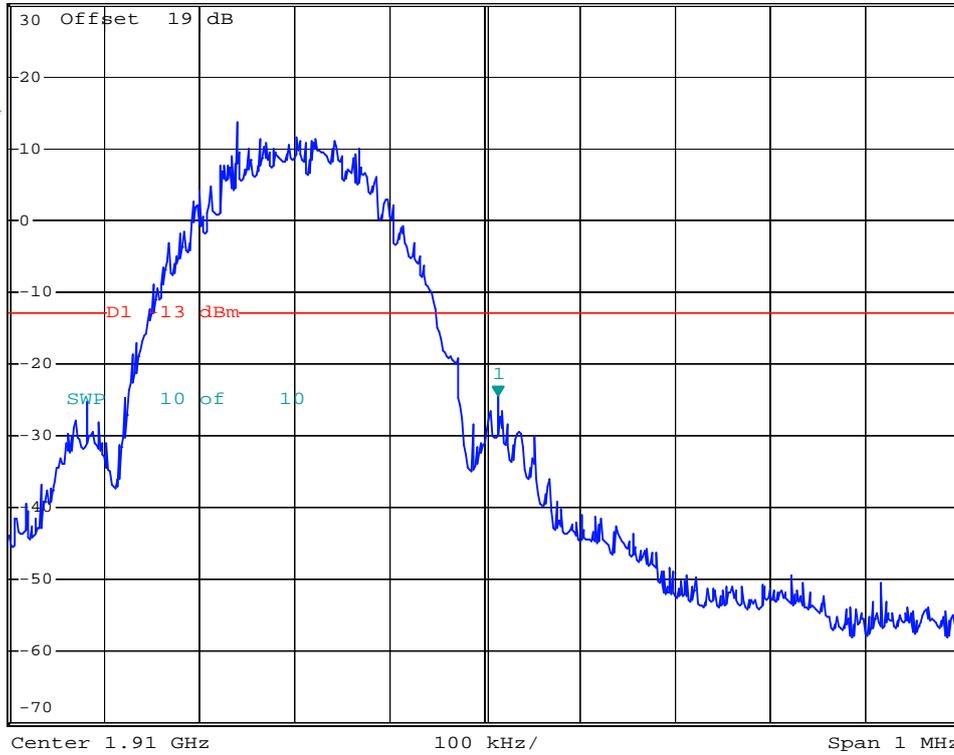


\*RBW 3 kHz      Marker 1 [T1 ]  
\*VBW 10 kHz      -24.47 dBm  
\*SWT 300 ms      1.910014000 GHz

Ref 30 dBm

\*Att 30 dB

1 AV\*  
VIEW



Date: 21.MAR.2008 00:33:26

## 4.5 Conducted Emission

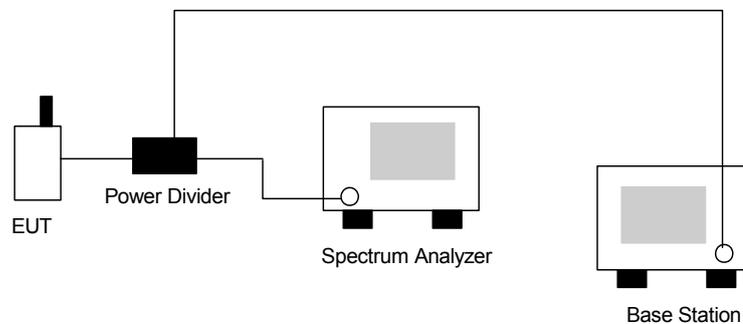
### 4.5.1 Measurement Instruments

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.

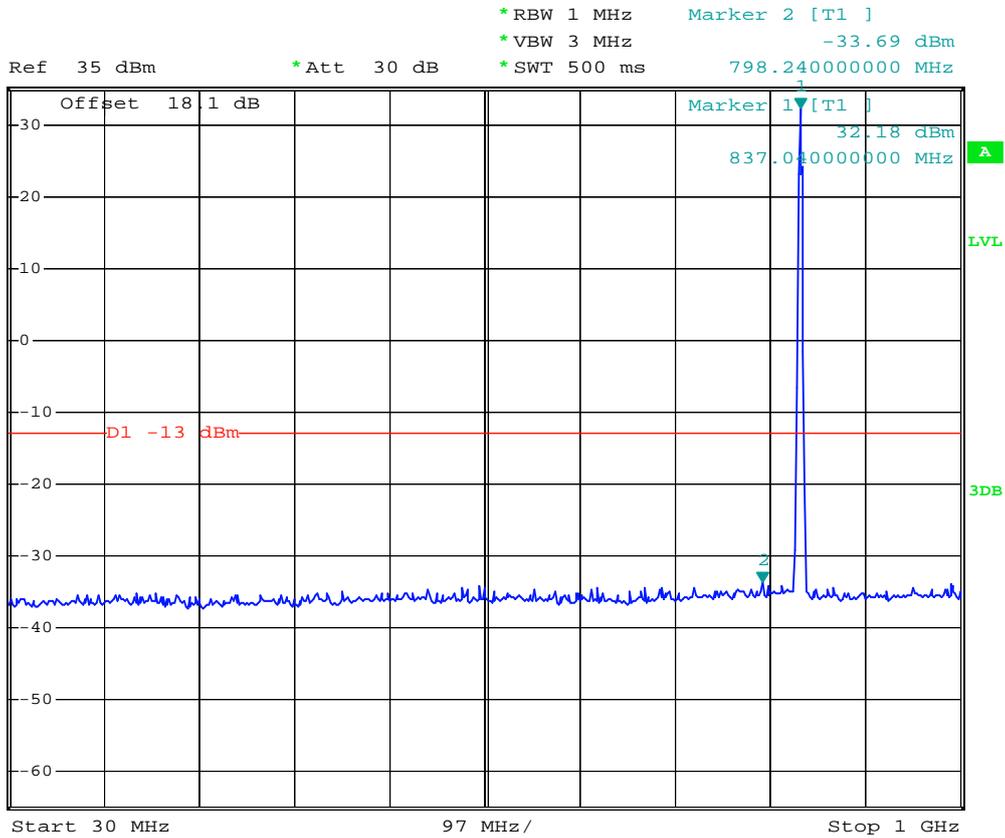
### 4.5.3 Test Setup Layout





4.5.4 Test Result

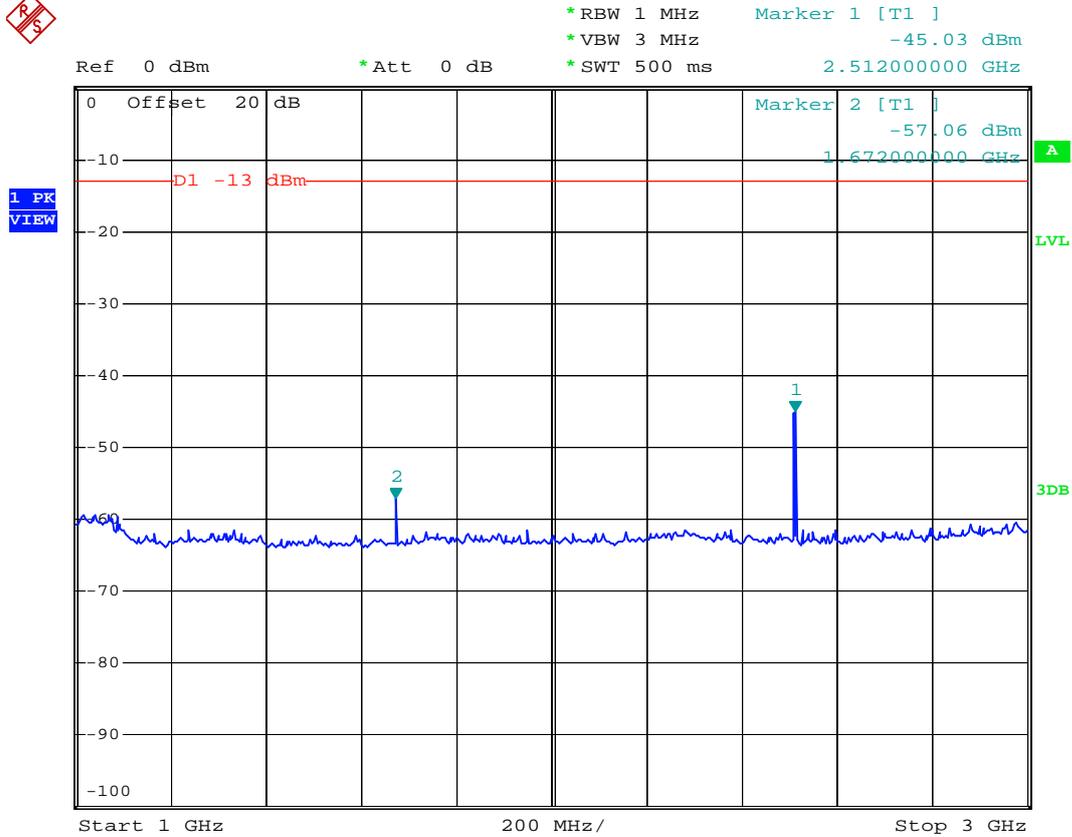
- Mode 1
- Test Mode : GSM850 CH189
- Frequency Range : 30M-1G



Date: 21.MAR.2008 02:15:08



- Test Mode : GSM850 CH189
- Frequency Range : 1G-3G



Date: 21.MAR.2008 02:48:46



- Test Mode : GSM850 CH189
- Frequency Range : 3G-7G

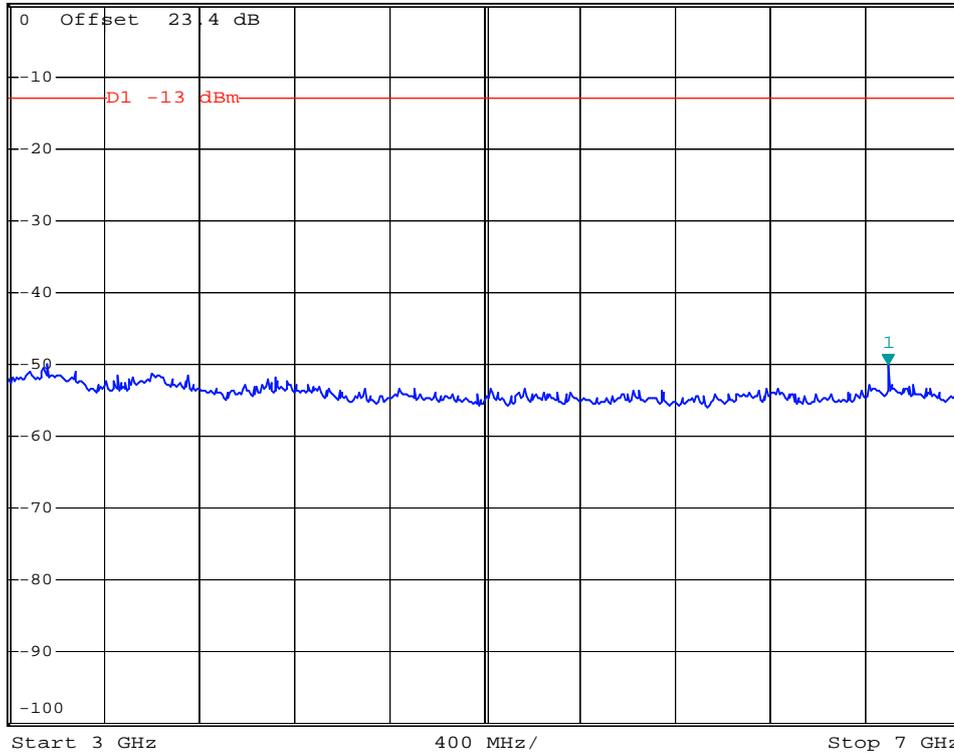


\*RBW 1 MHz      Marker 1 [T1 ]  
 \*VBW 3 MHz      -50.01 dBm  
 \*SWT 500 ms      6.696000000 GHz

Ref 0 dBm

\*Att 0 dB

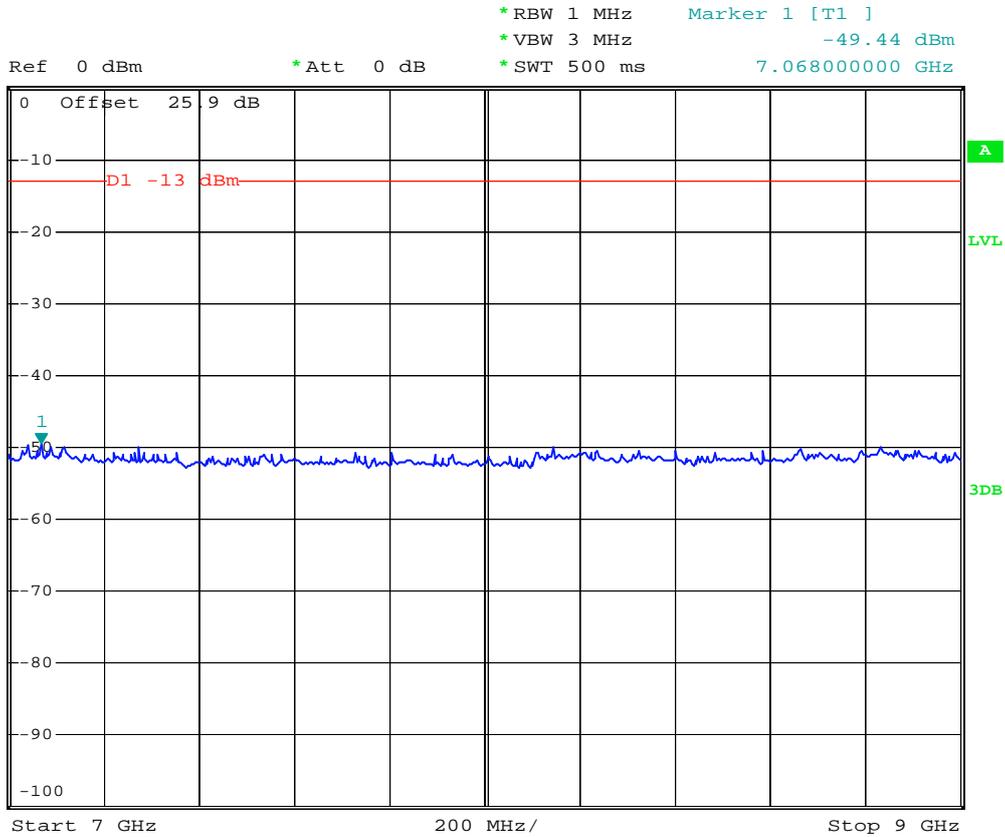
1 PK  
VIEW



Date: 21.MAR.2008 02:59:00



- Test Mode : GSM850 CH189
- Frequency Range : 7G-9G



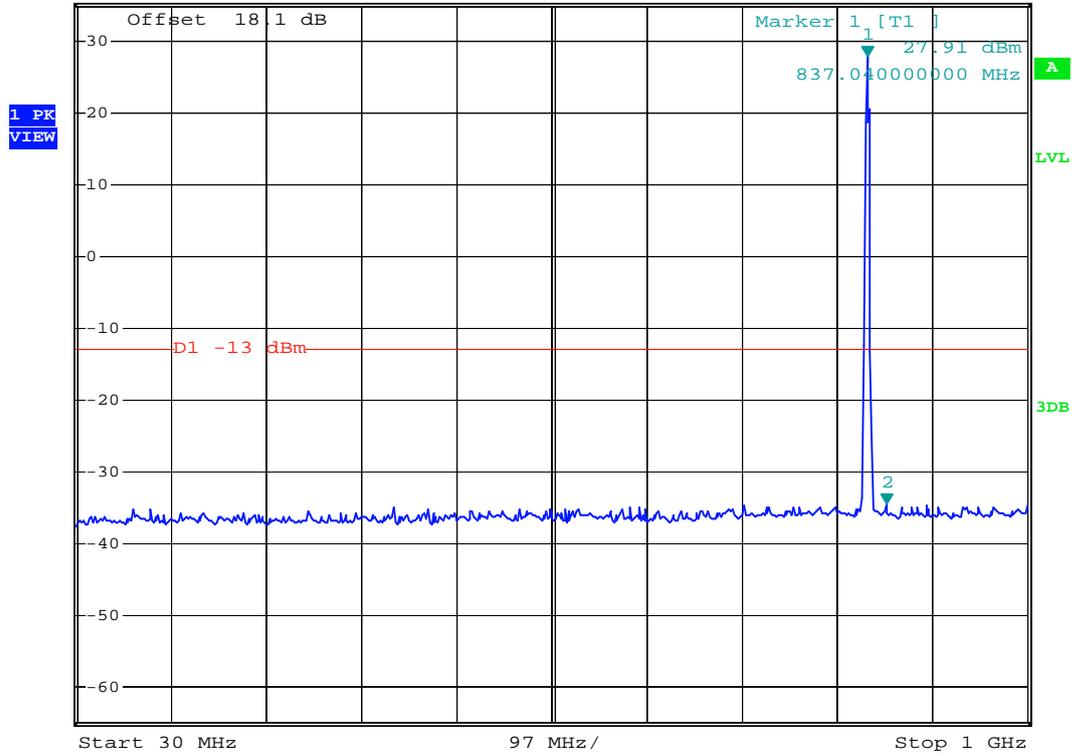
Date: 21.MAR.2008 03:02:08



- Mode 2
- Test Mode : GSM850 (EDGE) CH189
- Frequency Range : 30M-1G



Ref 35 dBm      \*Att 30 dB      \*RBW 1 MHz      Marker 2 [T1 ]  
 \*VBW 3 MHz      -34.49 dBm  
 \*SWT 500 ms      856.440000000 MHz



Date: 21.MAR.2008 02:18:24

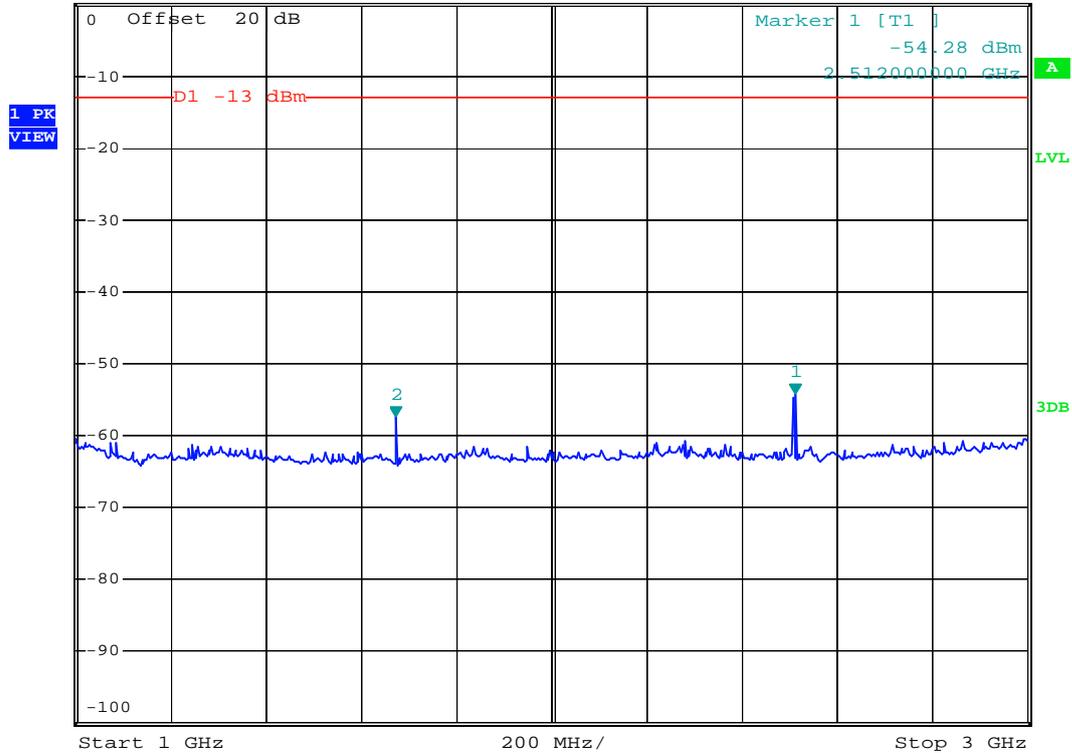


- Test Mode : GSM850 (EDGE) CH189
- Frequency Range : 1G-3G



\*RBW 1 MHz      Marker 2 [T1 ]  
 \*VBW 3 MHz      -57.41 dBm  
 \*SWT 500 ms      1.672000000 GHz

Ref 0 dBm      \*Att 0 dB



Date: 21.MAR.2008 02:50:53



- Test Mode : GSM850 (EDGE) CH189
- Frequency Range : 3G-7G

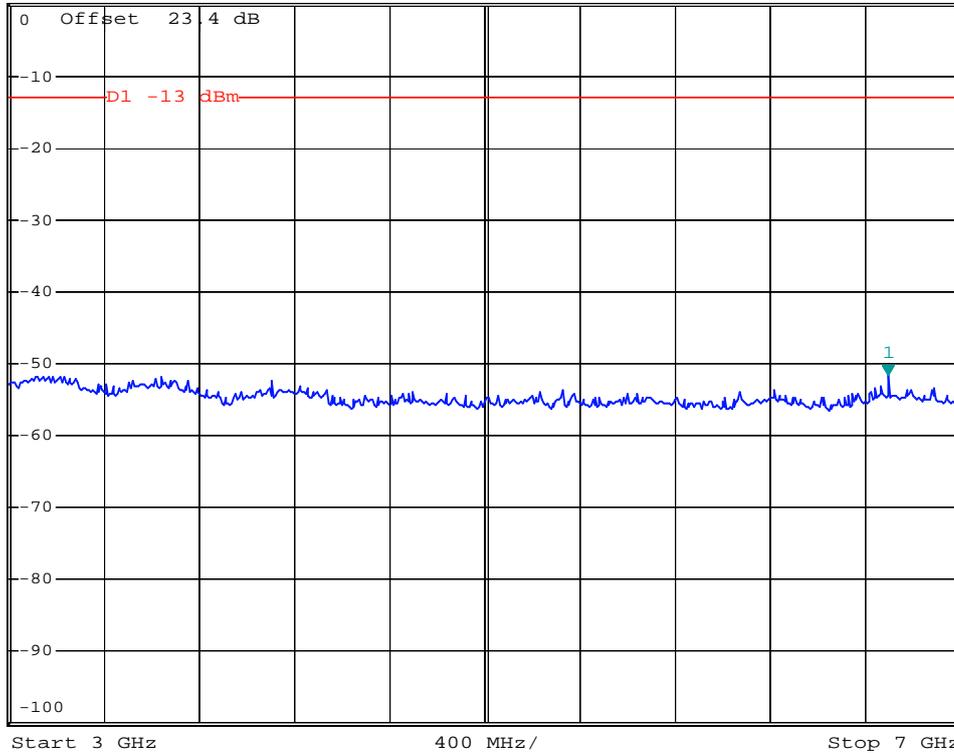


\*RBW 1 MHz      Marker 1 [T1 ]  
 \*VBW 3 MHz      -51.45 dBm  
 \*SWT 500 ms      6.696000000 GHz

Ref 0 dBm

\*Att 0 dB

1 PK  
VIEW



Date: 21.MAR.2008 03:00:12



- Test Mode : GSM850 (EDGE) CH189
- Frequency Range : 7G-9G

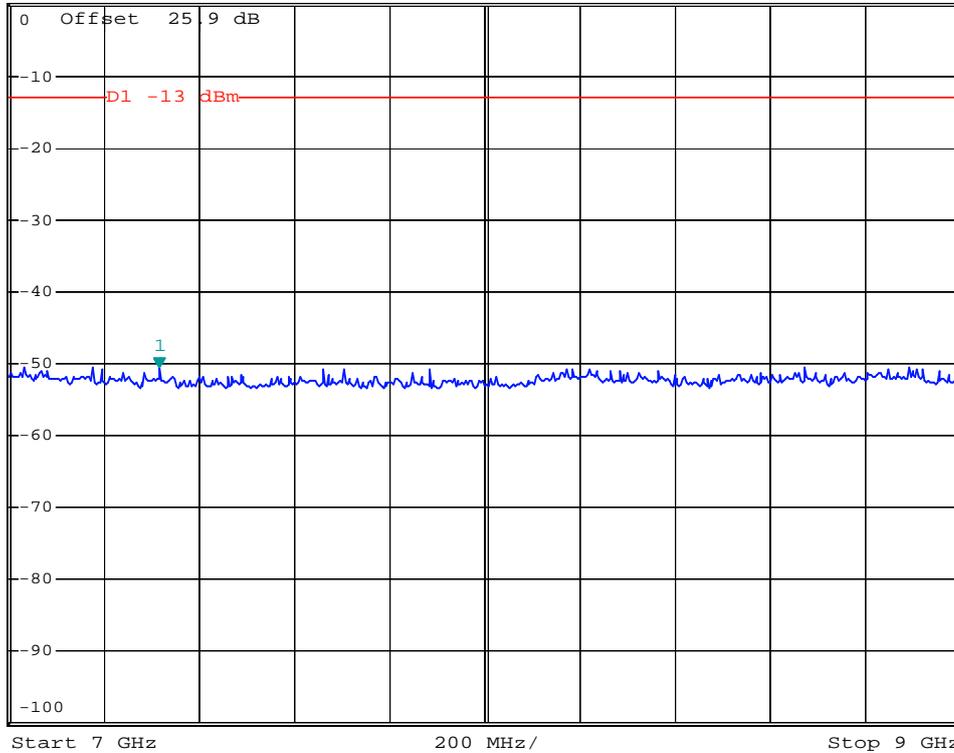


\*RBW 1 MHz      Marker 1 [T1 ]  
 \*VBW 3 MHz      -50.41 dBm  
 \*SWT 500 ms      7.316000000 GHz

Ref 0 dBm

\*Att 0 dB

1 PK  
VIEW



Date: 21.MAR.2008 03:01:15



- Mode 3
- Test Mode : PCS1900 CH661
- Frequency Range : 30M-1G

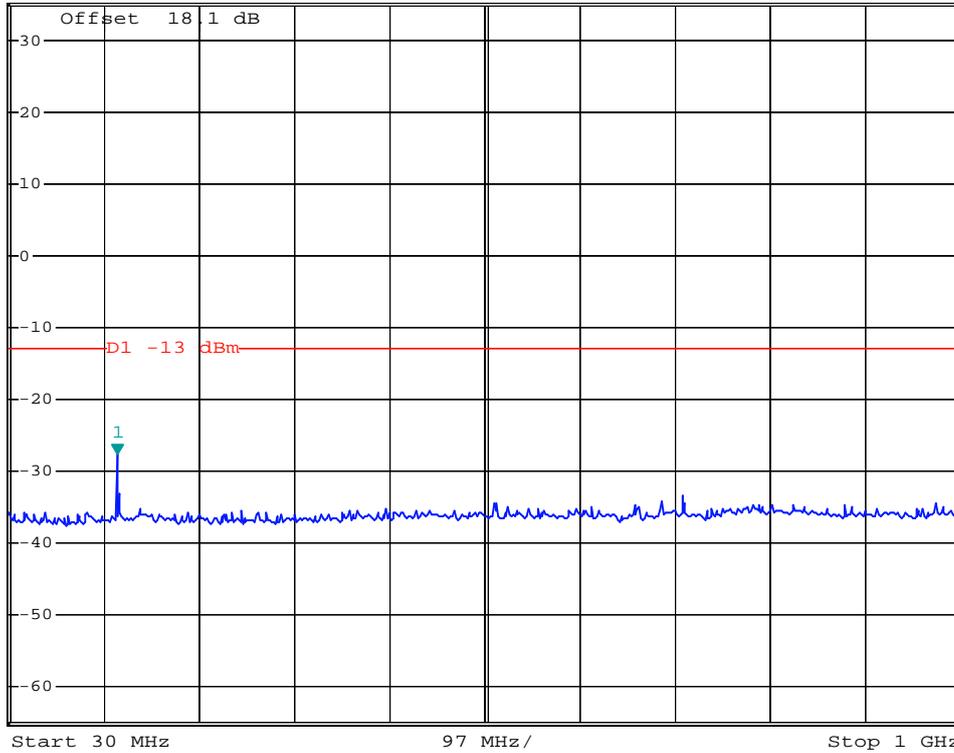


\*RBW 1 MHz      Marker 1 [T1 ]  
 \*VBW 3 MHz      -27.58 dBm  
 \*SWT 500 ms      140.580000000 MHz

Ref 35 dBm

\*Att 30 dB

1 PK  
VIEW



Date: 21.MAR.2008 02:13:12



- Test Mode : PCS1900 CH661
- Frequency Range : 1G-3G

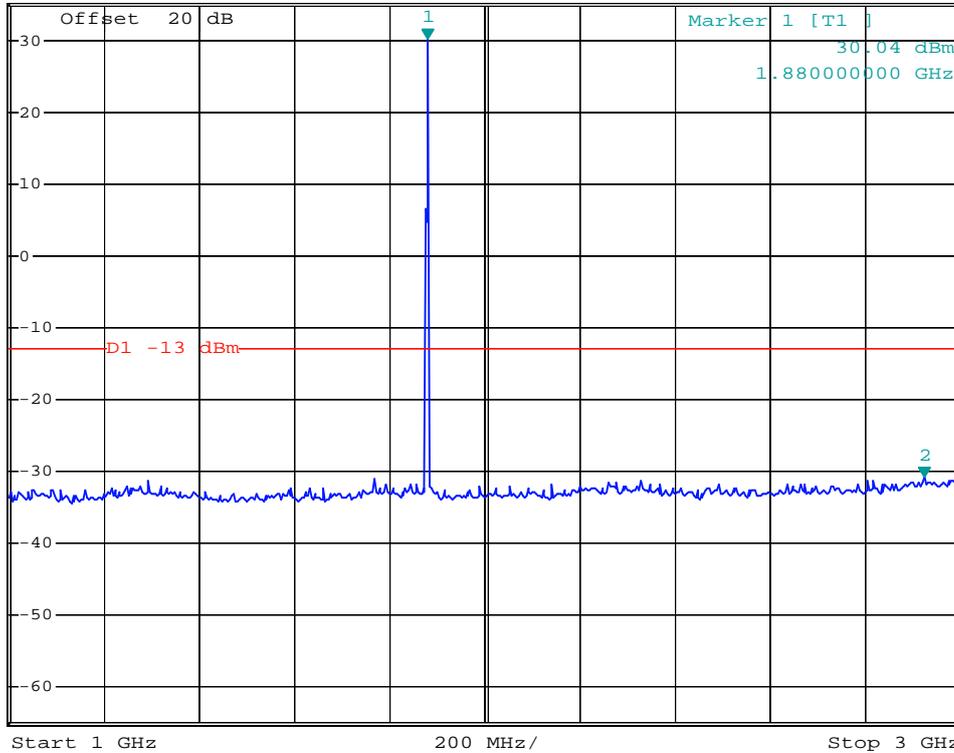


\*RBW 1 MHz      Marker 2 [T1 ]  
 \*VBW 3 MHz      -30.86 dBm  
 \*SWT 500 ms      2.924000000 GHz

Ref 35 dBm

\*Att 30 dB

1 PK  
VIEW



Date: 21.MAR.2008 02:57:01



- Test Mode : PCS1900 CH661
- Frequency Range : 3G-7G

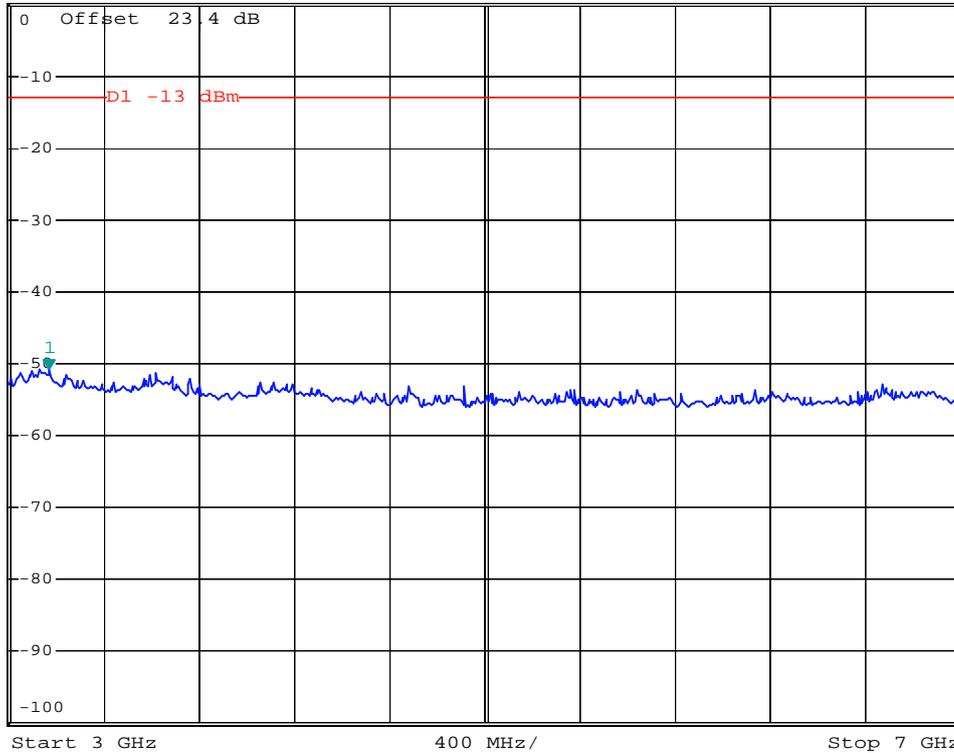


\*RBW 1 MHz      Marker 1 [T1 ]  
 \*VBW 3 MHz      -50.70 dBm  
 \*SWT 500 ms      3.168000000 GHz

Ref 0 dBm

\*Att 0 dB

1 PK  
VIEW



Date: 21.MAR.2008 02:58:16



- Test Mode : PCS1900 CH661
- Frequency Range : 7G-13.6G

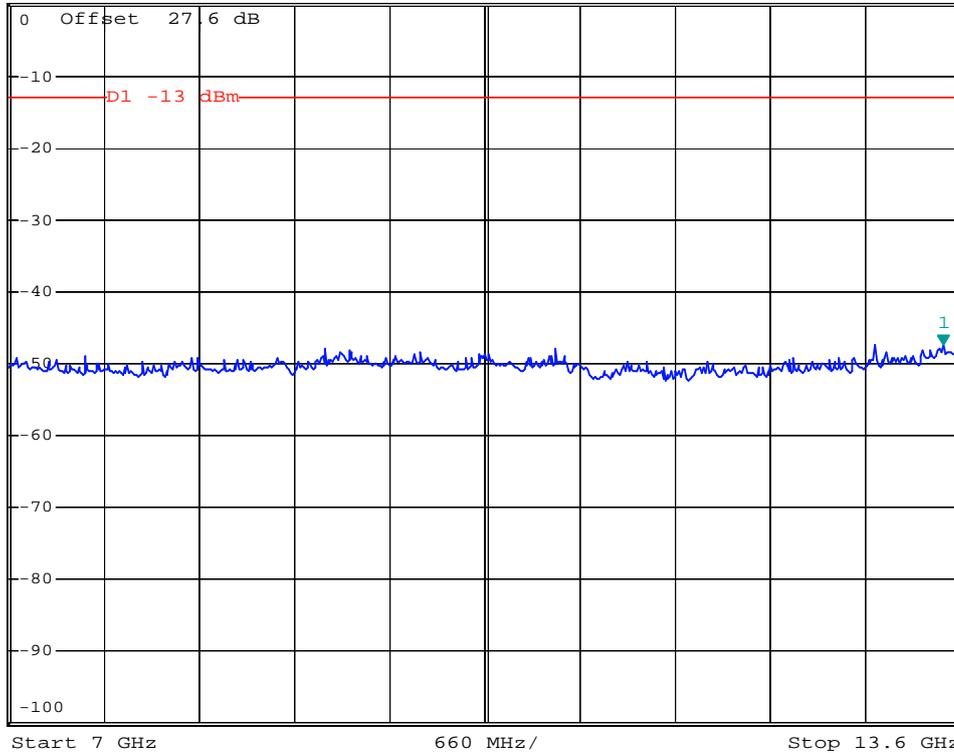


\*RBW 1 MHz      Marker 1 [T1 ]  
 \*VBW 3 MHz      -47.31 dBm  
 \*SWT 500 ms      13.481200000 GHz

Ref 0 dBm

\*Att 0 dB

1 PK  
VIEW



Date: 21.MAR.2008 03:03:23



- Test Mode : PCS1900 CH661
- Frequency Range : 13.6G-19.1G

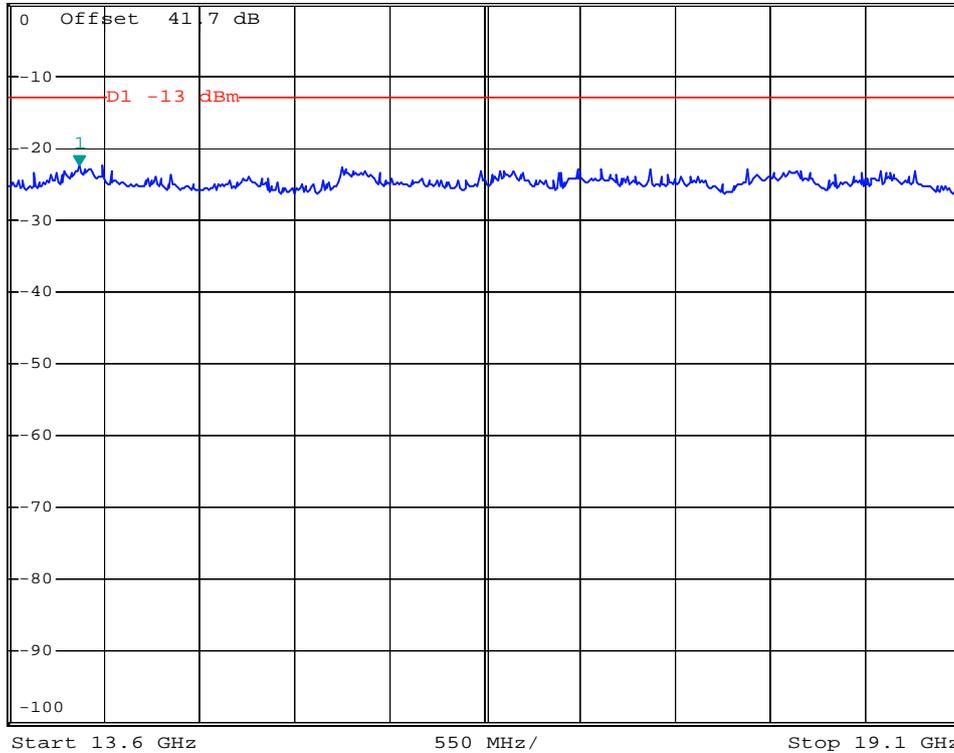


\*RBW 1 MHz      Marker 1 [T1 ]  
 \*VBW 3 MHz      -22.47 dBm  
 \*SWT 500 ms      14.007000000 GHz

Ref 0 dBm

\*Att 0 dB

1 PK VIEW



Date: 21.MAR.2008 03:05:49



- Mode 4
- Test Mode : PCS1900 (EDGE) CH661
- Frequency Range : 30M-1G

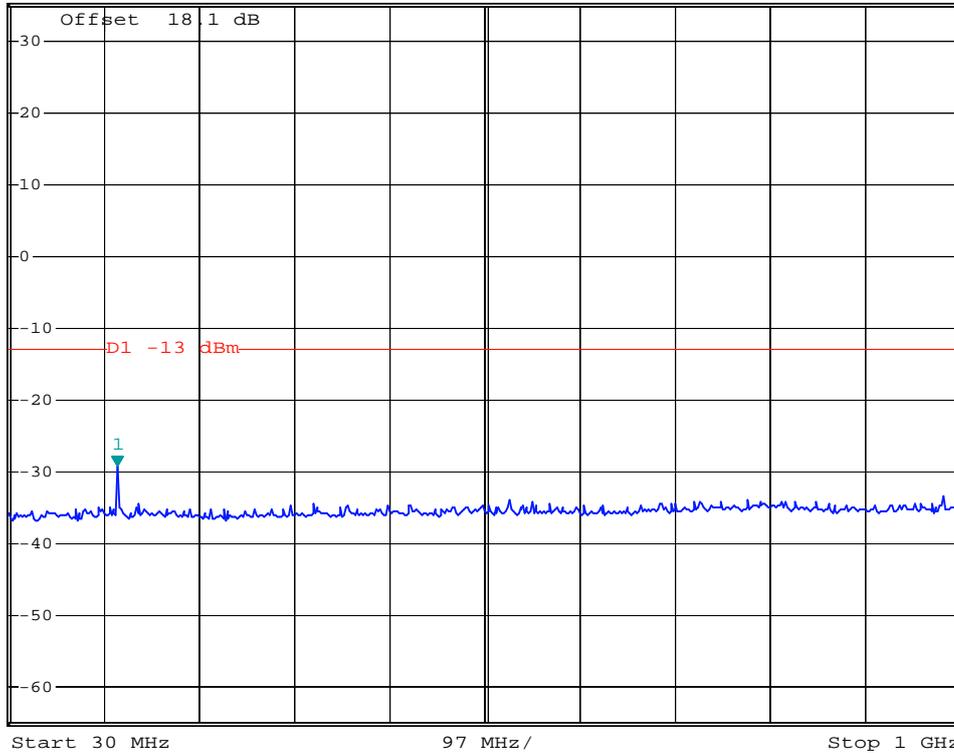


\*RBW 1 MHz      Marker 1 [T1 ]  
 \*VBW 3 MHz      -29.24 dBm  
 \*SWT 500 ms      140.58000000 MHz

Ref 35 dBm

\*Att 30 dB

1 PK VIEW



Date: 21.MAR.2008 02:16:22



- Test Mode : PCS1900 (EDGE) CH661
- Frequency Range : 1G-3G

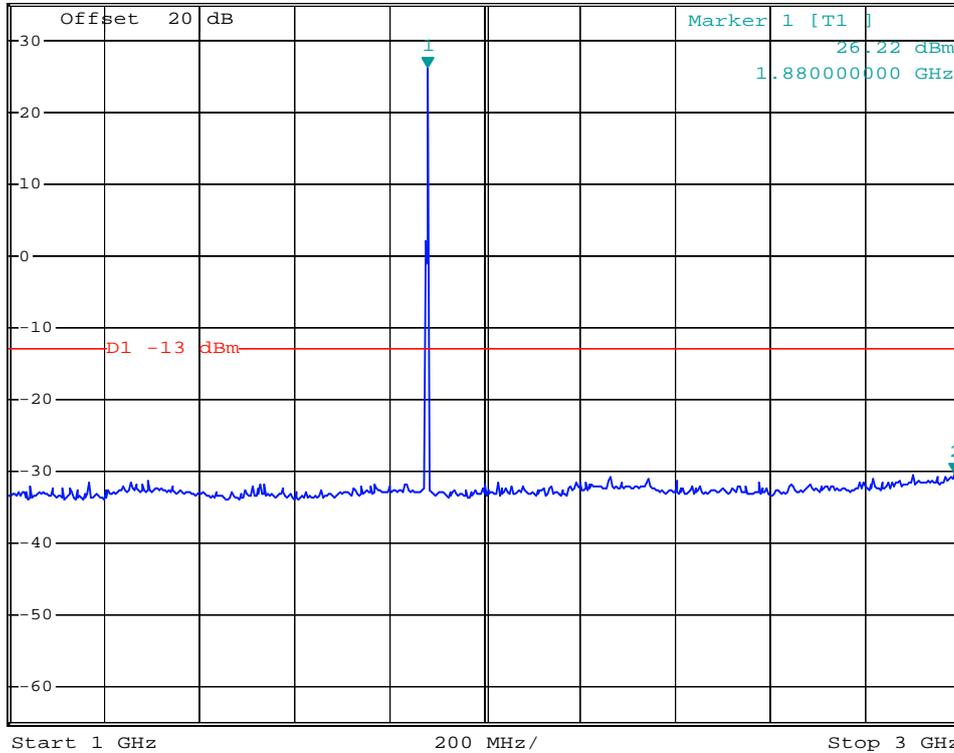


\*RBW 1 MHz      Marker 2 [T1 ]  
 \*VBW 3 MHz      -30.21 dBm  
 \*SWT 500 ms      2.988000000 GHz

Ref 35 dBm

\*Att 30 dB

1 PK  
VIEW



Date: 21.MAR.2008 03:17:15



- Test Mode : PCS1900 (EDGE) CH661
- Frequency Range : 3G-7G

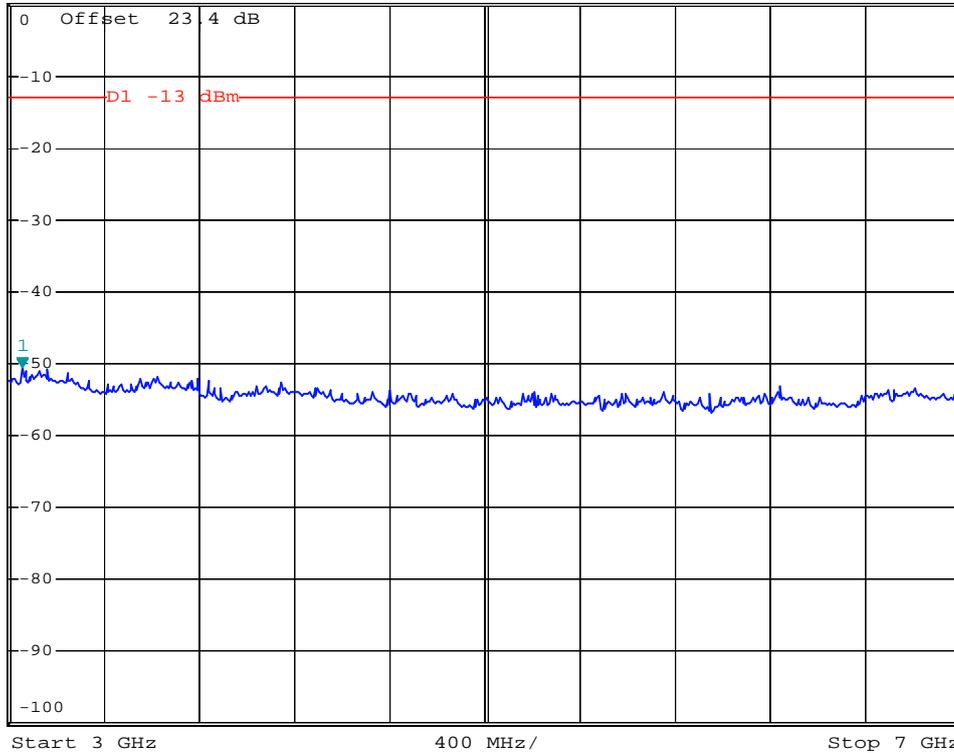


\*RBW 1 MHz      Marker 1 [T1 ]  
 \*VBW 3 MHz      -50.60 dBm  
 \*SWT 500 ms      3.056000000 GHz

Ref 0 dBm

\*Att 0 dB

1 PK  
VIEW



Date: 21.MAR.2008 02:59:32

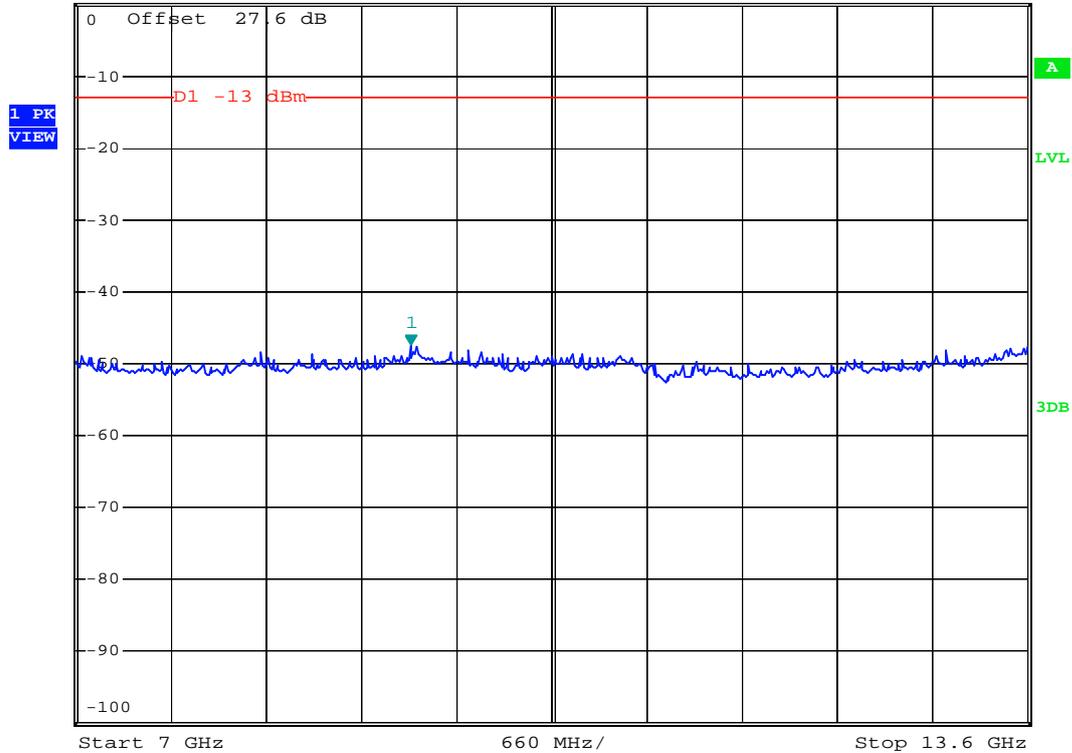


- Test Mode : PCS1900 (EDGE) CH661
- Frequency Range : 7G-13.6G



\*RBW 1 MHz      Marker 1 [T1 ]  
 \*VBW 3 MHz      -47.27 dBm  
 \*SWT 500 ms      9.323200000 GHz

Ref 0 dBm      \*Att 0 dB



Date: 21.MAR.2008 03:03:54



- Test Mode : PCS1900 (EDGE) CH661
- Frequency Range : 13.6G-19.1G

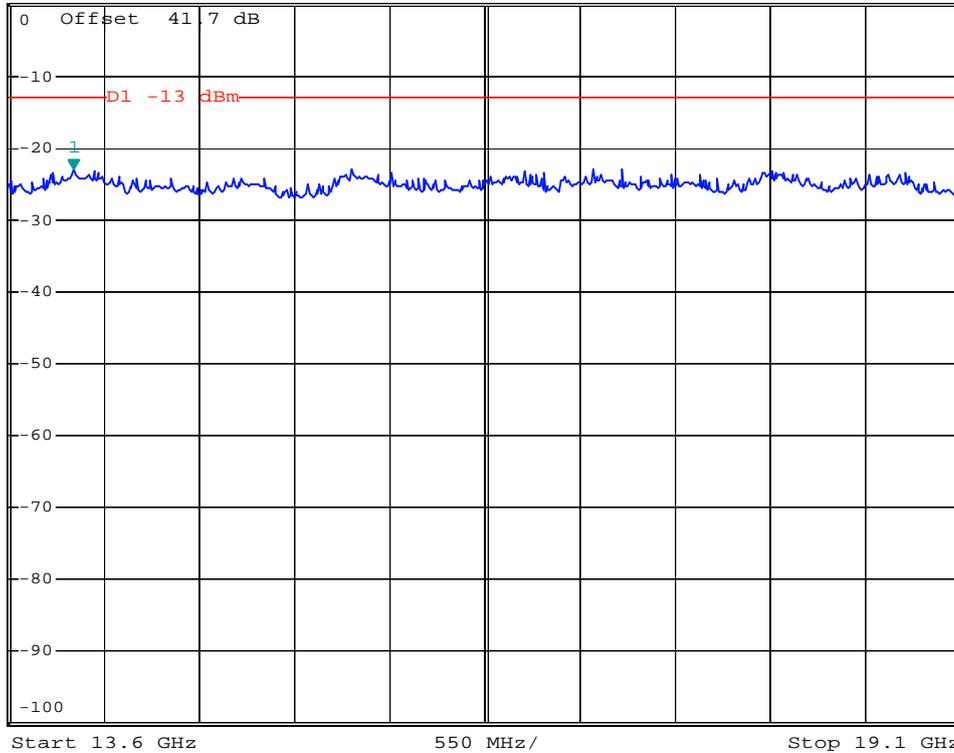


\*RBW 1 MHz      Marker 1 [T1 ]  
 \*VBW 3 MHz      -22.99 dBm  
 \*SWT 500 ms      13.974000000 GHz

Ref 0 dBm

\*Att 0 dB

1 PK VIEW



Date: 21.MAR.2008 03:05:11

## 4.6 Field Strength of Spurious Radiation

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

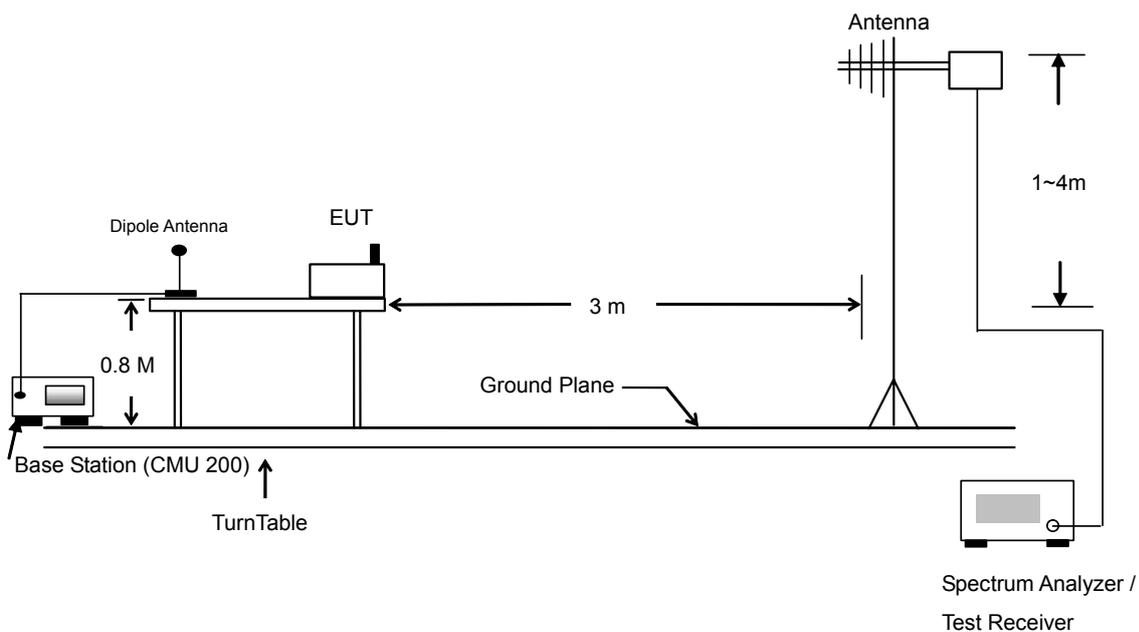
### 4.6.1 Measurement Instruments

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 record 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

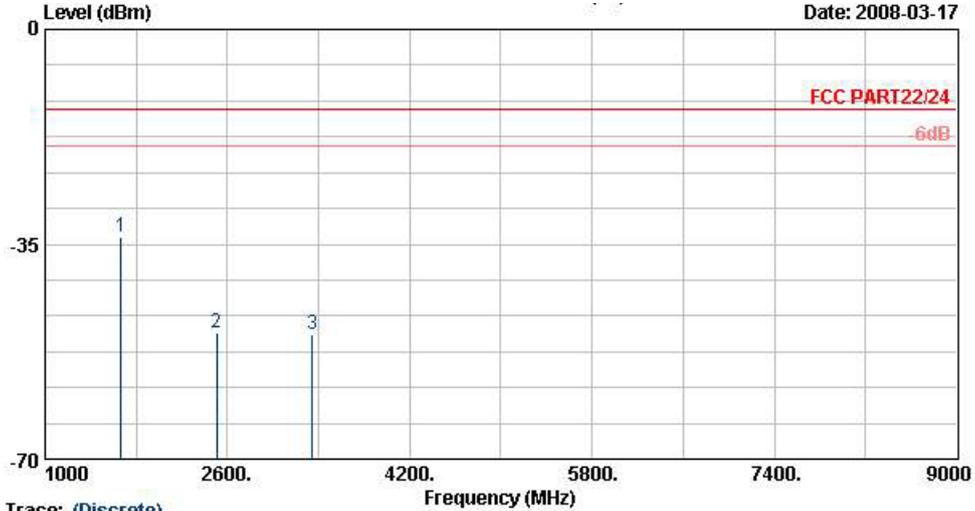




4.6.4 Test Data

4.6.4.1 Mode 1

Horizontal Polarization



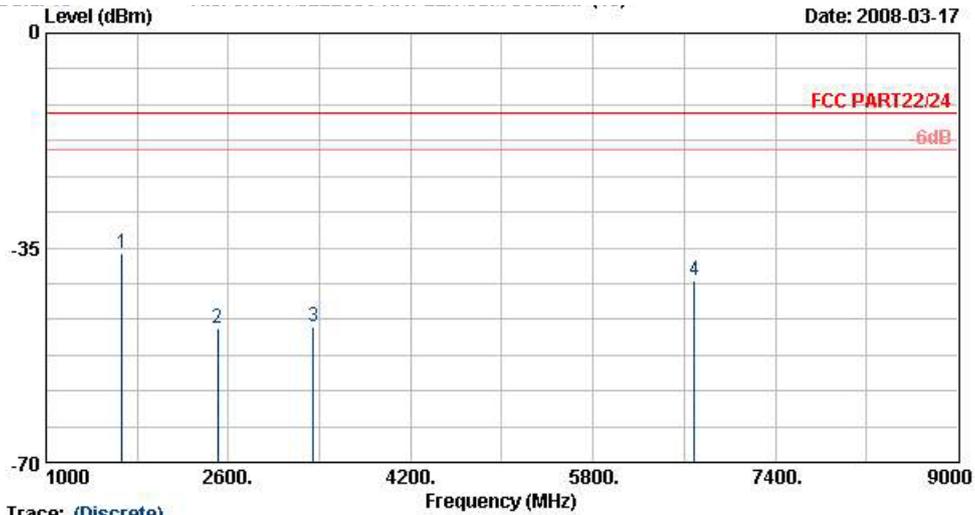
Site : 03CH07-HY  
 Condition : FCC PART22/24 HF-ETRP(060306) HORIZONTAL  
 EUT : PDA Phone  
 Power : 120Vac/60Hz  
 Model : FG 822203  
 Mode : GSM 850 Link ; Ch189 + Adaptor  
 Plane : E2  
 TMET : 00440000350111800

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
1669	-33.79	-13	-40.87	-32.8	3.39	4.55	H	Pass
2509	-49.54	-13	-58.66	-49.6	3.71	5.92	H	Pass
3346	-49.67	-13	-59.72	-51.6	3.13	7.21	H	Pass

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



Vertical Polarization



Trace: (Discrete)

Site : 03CH07-HY  
 Condition : FCC PART22/24 HF-EIRP(080306) VERTICAL  
 EUT : PDA Phone  
 Power : 120Vac/60Hz  
 Model : FC 822203  
 Mode : GSM 850 Link ; Ch189 + Adaptor  
 Plane : E2  
 TMET : 00440000350111900

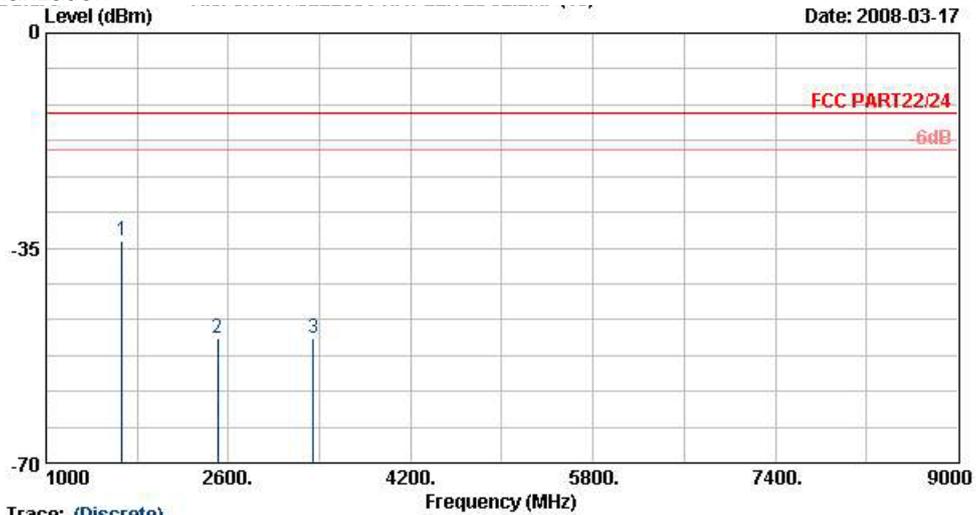
Frequency (MHz)	ERP (dBm)	Limit (dBm)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1669	-35.98	-13	-44.82	-34.6	3.39	4.16	V	Pass
2509	-48.14	-13	-57.17	-48	3.71	5.72	V	Pass
3346	-48.00	-13	-59.37	-50.2	3.13	7.48	V	Pass
6690	-40.25	-13	-59.99	-43.5	5.22	10.62	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)

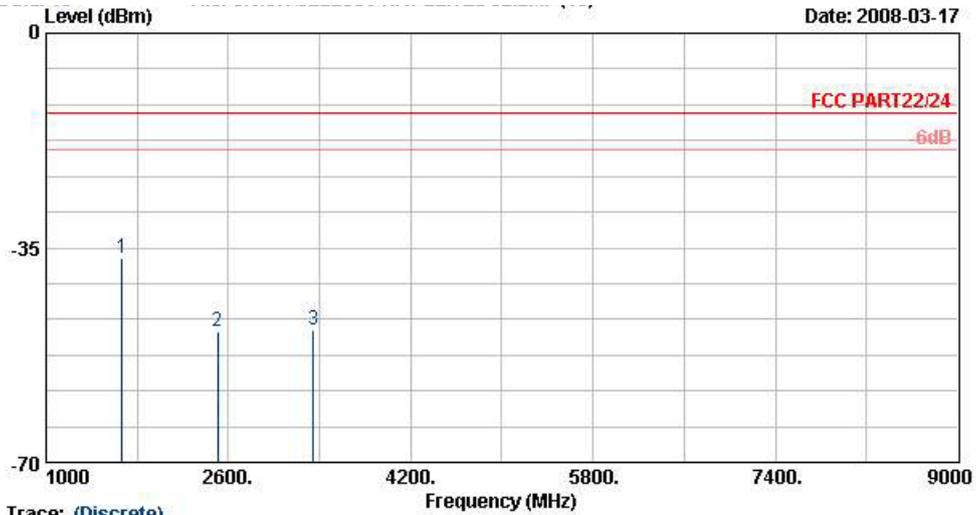
Site : 03CH07-HY  
 Condition : FCC PART22/24 HF-ETRP(060306) HORIZONTAL  
 EUT : PDA Phone  
 Power : 120Vac/60Hz  
 Model : FG 822203  
 Mode : EDGE Link ; Ch189 + Adaptor  
 Plane : E2  
 TMET : 0044000035011900

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
1669	-33.89	-13	-40.98	-32.9	3.39	4.55	H	Pass
2509	-49.74	-13	-58.85	-49.8	3.71	5.92	H	Pass
3346	-49.77	-13	-59.86	-51.7	3.13	7.21	H	Pass

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



Vertical Polarization



Trace: (Discrete)

Site : 03CH07-HY  
 Condition : FCC PART22/24 HF-EIRP(080306) VERTICAL  
 EUT : PDA Phone  
 Power : 120Vac/60Hz  
 Model : FC 822203  
 Mode : EDGE Link ; Ch189 + Adaptor  
 Plane : E2  
 IMEI : 0044000035011900

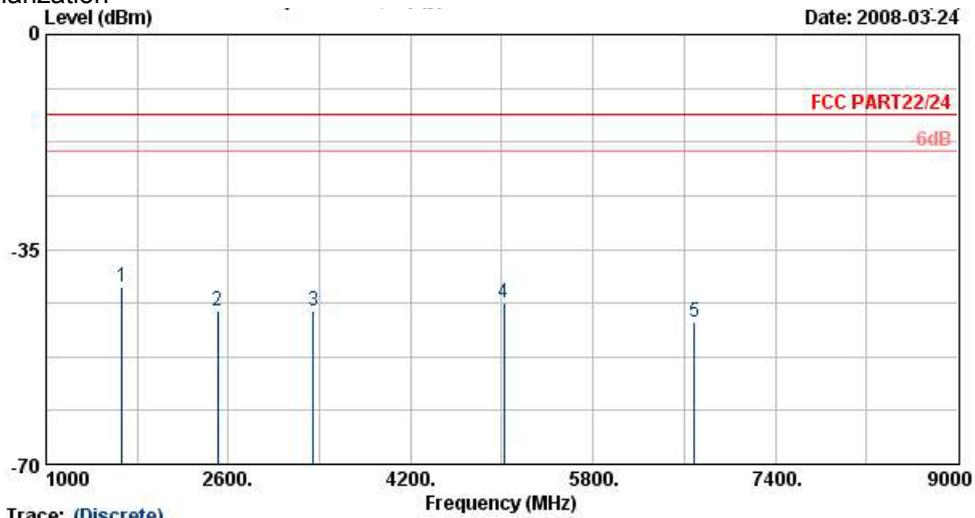
Frequency (MHz)	ERP (dBm)	Limit (dBm)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1669	-36.78	-13	-45.82	-35.4	3.39	4.16	V	Pass
2509	-48.74	-13	-57.89	-48.6	3.71	5.72	V	Pass
3346	-48.40	-13	-59.87	-50.6	3.13	7.48	V	Pass

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



4.6.4.3 Mode 3

Horizontal Polarization



Trace: (Discrete)

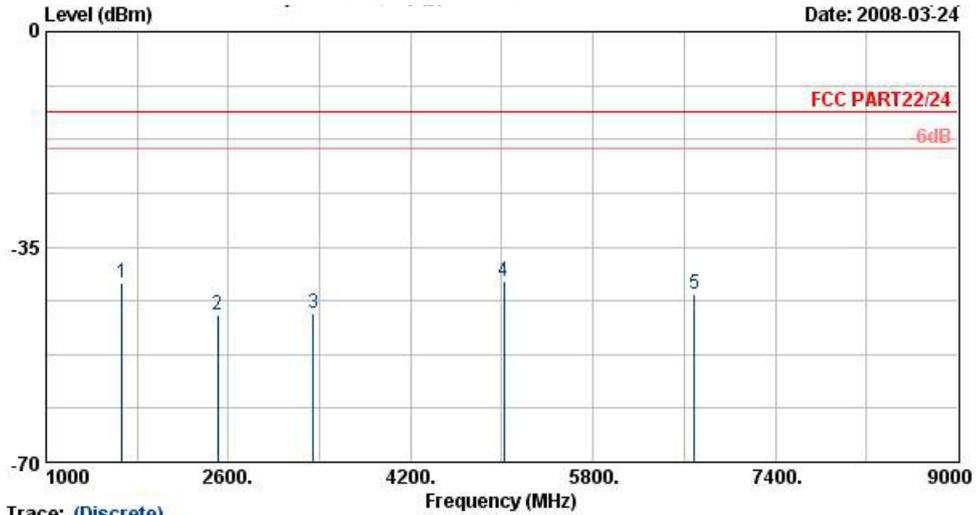
Site : 03CH07-HY  
 Condition : FCC PART22/24 HF-EIRP(080306) HORIZONTAL  
 EUT : PDA Phone  
 Power : 120Vac/60Hz  
 Model : FG 822203  
 Mode : GSM 850 Link ; Ch189 + Adaptor  
 : + BT Tx CH39  
 Plane : E2  
 IMEI : 00440000350111900

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
1669	-40.99	-13	-49.81	-40	3.39	4.55	H	Pass
2509	-44.94	-13	-54.91	-45	3.71	5.92	H	Pass
3346	-45.07	-13	-57.66	-47	3.13	7.21	H	Pass
5015	-43.75	-13	-60.31	-47.5	2.61	8.51	H	Pass
6690	-46.81	-13	-65.59	-49	5.22	9.56	H	Pass

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



Vertical Polarization



Trace: (Discrete)

Site : 03CH07-HY  
 Condition : FCC PART22/24 HF-EIRP(080306) VERTICAL  
 EUT : PDA Phone  
 Power : 120Wac/60Hz  
 Model : FG 822203  
 Mode : GSM 850 Link , Ch189 + Adaptor  
 : + BT Tx CH39  
 Plane : E2  
 IMEI : 00440000350111900

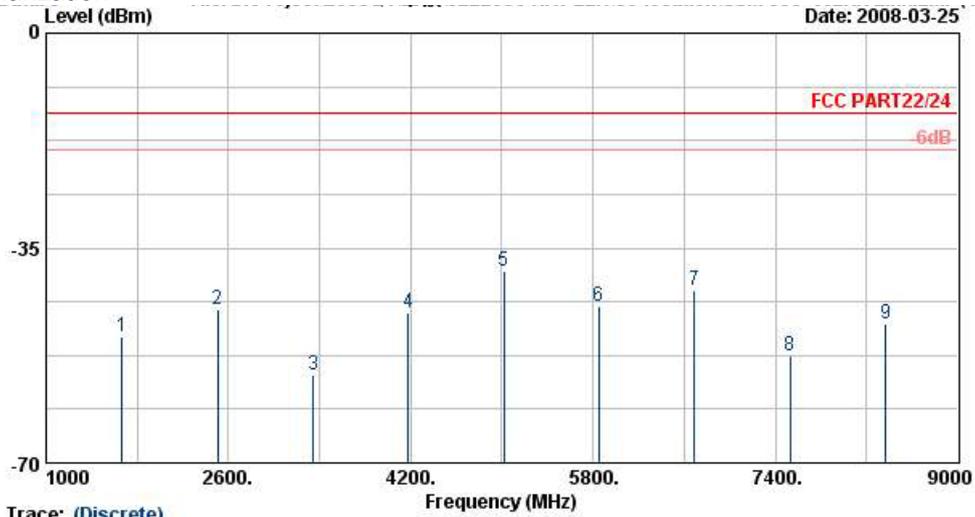
Frequency (MHz)	ERP (dBm)	Limit (dBm)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1669	-40.88	-13	-50.7	-39.5	3.39	4.16	V	Pass
2509	-46.14	-13	-59.85	-46	3.71	5.72	V	Pass
3346	-45.80	-13	-58.93	-48	3.13	7.48	V	Pass
5015	-40.64	-13	-58.57	-45	2.61	9.12	V	Pass
6690	-42.75	-13	-61.96	-46	5.22	10.62	V	Pass

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



4.6.4.4 Mode 4

Horizontal Polarization



Trace: (Discrete)

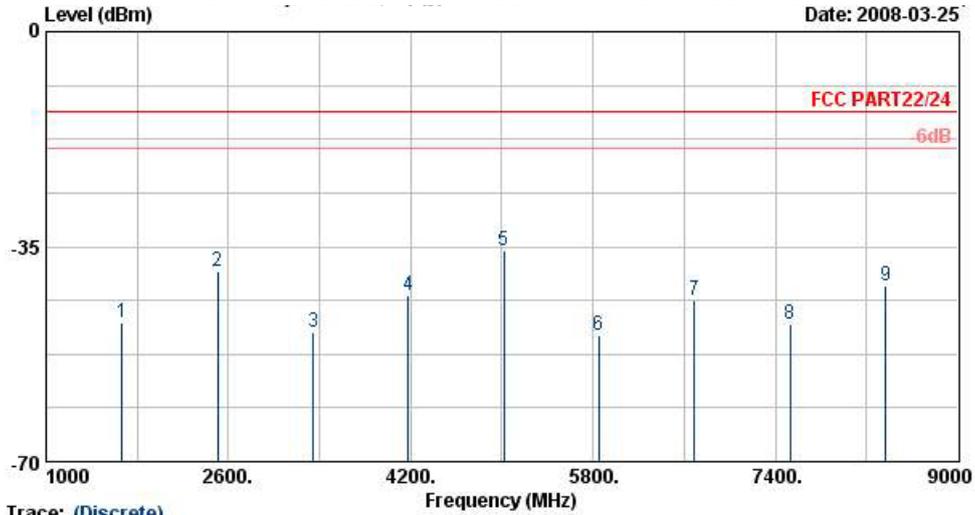
Site : 03CH07-HY  
 Condition : FCC PART22/24 HF-EIRP(080306) HORIZONTAL  
 EUT : PDA Phone  
 Power : 120Vac/60Hz  
 Model : FG 822203  
 Mode : GSM 850 Link ; Ch189 + Adaptor  
 : + WLAN Tx 11b CH06,2437MHz  
 Plane : E2  
 IMEI : 00440000350111900

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
1669	-49.49	-13	-57.33	-48.5	3.39	4.55	H	Pass
2509	-44.94	-13	-55.26	-45	3.71	5.92	H	Pass
3346	-55.57	-13	-64.87	-57.5	3.13	7.21	H	Pass
4175	-45.59	-13	-65.72	-48	3.01	7.57	H	Pass
5015	-38.75	-13	-57.93	-42.5	2.61	8.51	H	Pass
5850	-44.55	-13	-68.74	-47	4.38	8.98	H	Pass
6690	-41.81	-13	-67.72	-44	5.22	9.56	H	Pass
7530	-52.66	-13	-68.36	-54	6.22	9.71	H	Pass
8370	-47.26	-13	-67.63	-50	5.59	10.48	H	Pass

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



Vertical Polarization



Trace: (Discrete)

Site : 03CH07-HY  
 Condition : FCC PART22/24 HF-EIRP(080306) VERTICAL  
 EUT : PDA Phone  
 Power : 120Vac/60Hz  
 Model : FG 822203  
 Mode : GSM 850 Link ; Ch189 + Adaptor  
 : + WLAN Tx 11b CH06,2437MHz  
 Plane : E2  
 IMEI : 00440000350111900

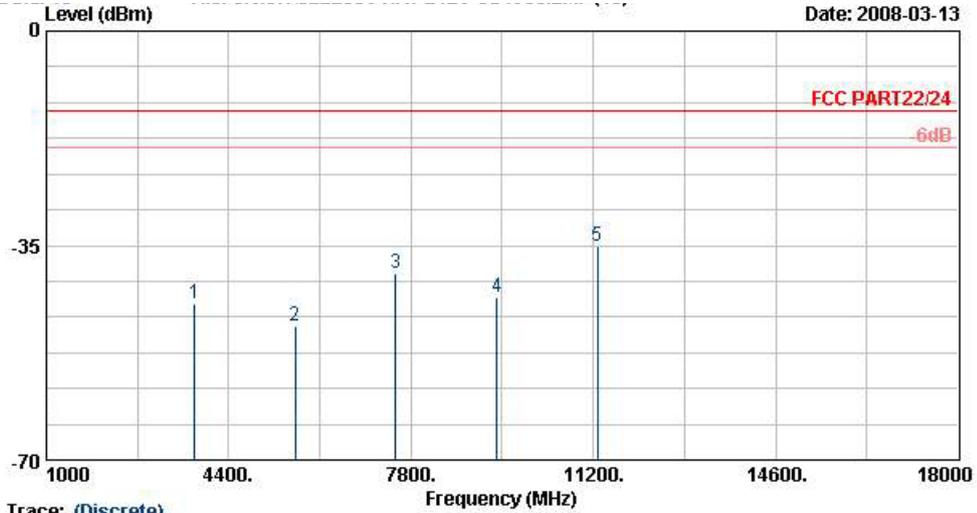
Frequency (MHz)	ERP (dBm)	Limit (dBm)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1669	-47.38	-13	-56.31	-46	3.39	4.16	V	Pass
2509	-39.14	-13	-53.65	-39	3.71	5.72	V	Pass
3346	-48.80	-13	-61.53	-51	3.13	7.48	V	Pass
4175	-42.88	-13	-58.61	-46	3.01	8.28	V	Pass
5015	-35.64	-13	-55.85	-40	2.61	9.12	V	Pass
5850	-49.51	-13	-67.44	-53	4.38	10.02	V	Pass
6690	-43.75	-13	-63.54	-47	5.22	10.62	V	Pass
7530	-47.56	-13	-67.37	-50	6.22	10.81	V	Pass
8370	-41.38	-13	-64.41	-45	5.59	11.36	V	Pass

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



4.6.4.5 Mode 5

Horizontal Polarization



Date: 2008-03-13

Trace: (Discrete)

```

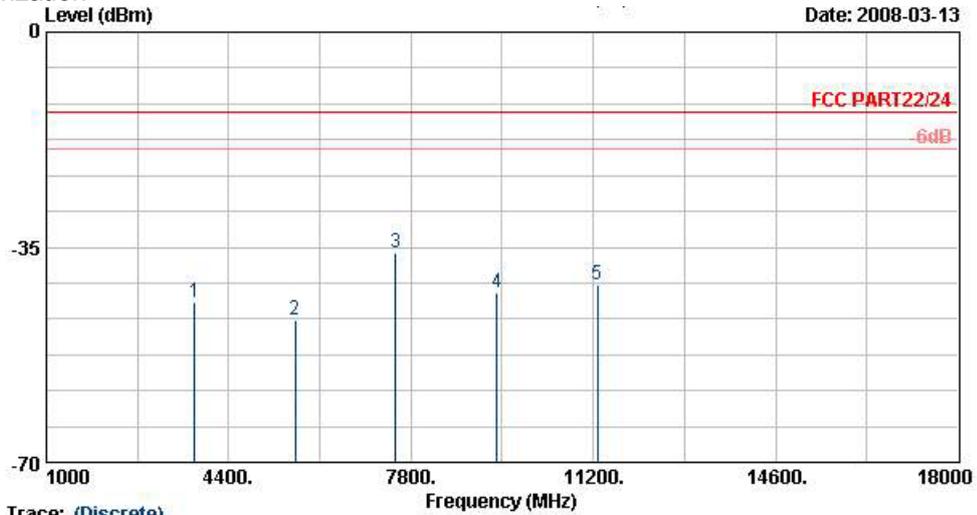
Site      : 03CH07-HY
Condition : FCC PART22/24 HF-ETRP(060306) HORIZONTAL
EUT      : PDA Phone
Power    : 120Vac/60Hz
Model    : FG 822203
Mode     : PCS 1900 Link ; Ch661 + Adaptor
Plane    : E2
IMEI     : 00440000350111900
    
```

Frequency (MHz)	EIRP (dBm)	Limit (dBm)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3760	-44.53	-13	-58.19	-47.9	4.03	7.40	H	Pass
5636	-48.16	-13	-66.96	-53.1	3.87	8.81	H	Pass
7520	-39.52	-13	-63.72	-43.4	5.83	9.71	H	Pass
9396	-43.5	-13	-66.98	-48.2	6.02	10.72	H	Pass
11280	-35.12	-13	-52.18	-37.4	8.48	10.76	H	Pass

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



Vertical Polarization



Trace: (Discrete)

```

Site      : 03CH07-HY
Condition : FCC PART22/24 HF-ETRP(080306) VERTICAL
EUT      : PDA Phone
Power     : 120Vac/60Hz
Model     : FG 822203
Mode      : PCS 1900 Link ; Ch661 + Adaptor
Plane     : E2
TMET     : 0044000035011900

```

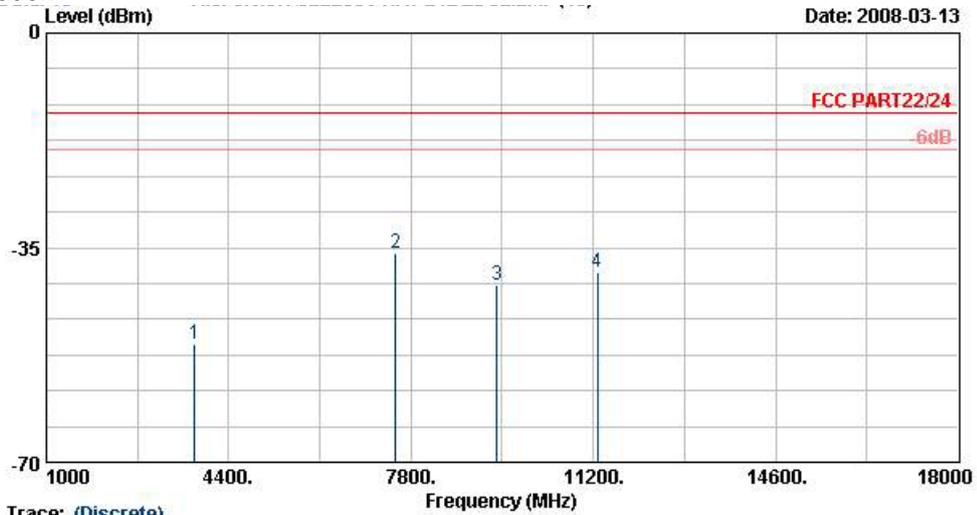
Frequency (MHz)	EIRP (dBm)	Limit (dBm)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3760	-43.92	-13	-58.98	-47.8	4.03	7.91	V	Pass
5636	-46.9	-13	-65.75	-52.8	3.87	9.77	V	Pass
7520	-35.82	-13	-60.94	-40.8	5.83	10.81	V	Pass
9396	-42.5	-13	-66.33	-48	6.02	11.52	V	Pass
11280	-41.22	-13	-67.5	-44.1	8.48	11.36	V	Pass

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



4.6.4.6 Mode 6

Horizontal Polarization



Date: 2008-03-13

Trace: (Discrete)

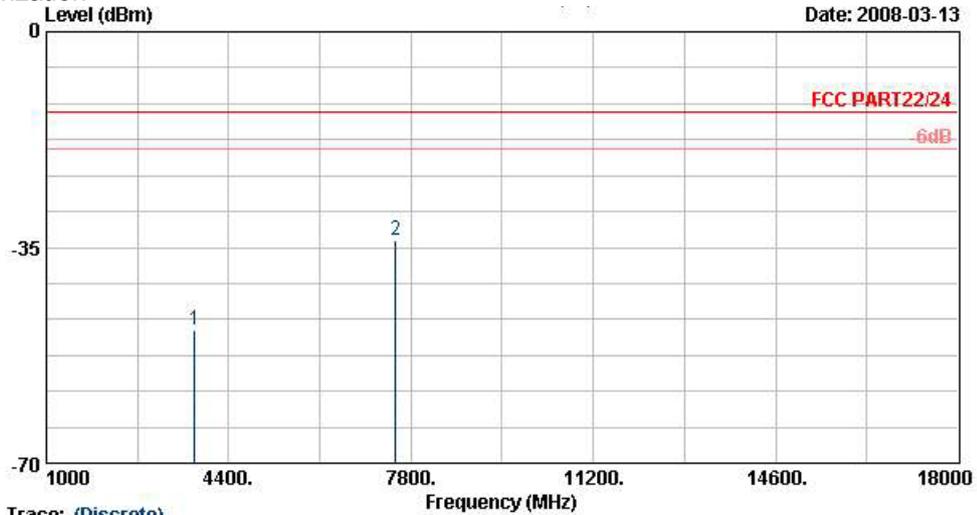
Site : 03CH07-HY  
 Condition : FCC PART22/24 HF-ETRP(060306) HORIZONTAL  
 EUT : PDA Phone  
 Power : 120Vac/60Hz  
 Model : FC 822203  
 Mode : EDGE Link ; Ch661 + Adaptor  
 Plane : E2  
 IMET : 00440000350111900

Frequency (MHz)	EIRP (dBm)	Limit (dBm)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3760	-50.73	-13	-63.98	-54.1	4.03	7.40	H	Pass
7520	-35.82	-13	-61.18	-39.7	5.83	9.71	H	Pass
9396	-41.1	-13	-65.44	-45.8	6.02	10.72	H	Pass
11280	-39	-13	-64.89	-41.3	8.48	10.76	H	Pass

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



Vertical Polarization



Trace: (Discrete)

```

Site      : 03CH07-HY
Condition : FCC PART22/24 HF-ETRP(060306) VERTICAL
EUT       : PDA Phone
Power     : 120Vac/60Hz
Model     : FG 822203
Mode      : EDGE Link ; Ch661 + Adaptor
Plane     : E2
TMET      : 00440000350111900

```

Frequency (MHz)	EIRP (dBm)	Limit (dBm)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3760	-48.52	-13	-62.68	-52.4	4.03	7.91	V	Pass
7520	-33.82	-13	-59.18	-38.8	5.83	10.81	V	Pass

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

## 4.7 Frequency Stability (Temperature Variation)

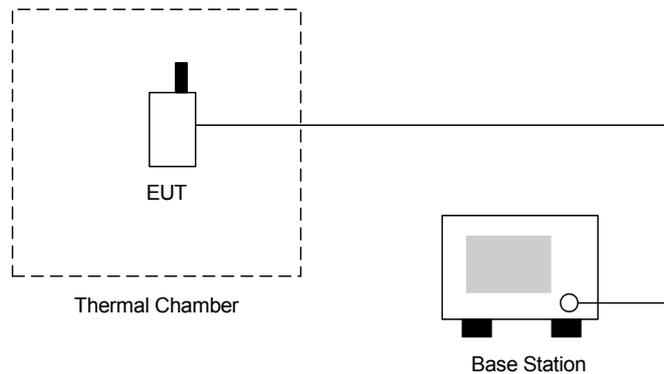
### 4.7.1 Measurement Instrument

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 : GSM850 (GSM) CH189

Temperature(°C)	Change (Hz)	Change (ppm)	Limit (ppm)	Result
-30	n/a	n/a	2.5	Passed
-20	n/a	n/a		
-10	-29	-0.03		
0	-36	-0.04		
10	-36	-0.04		
20	-24	-0.03		
30	-34	-0.04		
40	-24	-0.03		
50	-31	-0.04		

Remark : The EUT can not be turn on at -20 and -30°C.

• Test Mode : GSM850 (EDGE) CH189

Temperature(°C)	Change (Hz)	Change (ppm)	Limit (ppm)	Result
-30	n/a	n/a	2.5	Passed
-20	n/a	n/a		
-10	-41	-0.05		
0	-42	-0.05		
10	-48	-0.06		
20	-30	-0.04		
30	-34	-0.04		
40	-28	-0.03		
50	-33	-0.04		

Remark : The EUT can not be turn on at -20 and -30°C.



• Test Mode : PCS1900 (GSM) CH661

Temperature(°C)	Change (Hz)	Change (ppm)	Limit (ppm)	Result
-30	n/a	n/a	2.5	Passed
-20	n/a	n/a		
-10	-34	-0.02		
0	-41	-0.02		
10	-46	-0.02		
20	-30	-0.02		
30	-20	-0.01		
40	-37	-0.02		
50	-37	-0.02		

Remark : The EUT can not be turn on at -20 and -30°C.

• Test Mode : PCS1900 (GSM) CH661

Temperature(°C)	Change (Hz)	Change (ppm)	Limit (ppm)	Result
-30	n/a	n/a	2.5	Passed
-20	n/a	n/a		
-10	-29	-0.02		
0	-22	-0.01		
10	-50	-0.03		
20	-21	-0.01		
30	-38	-0.02		
40	-32	-0.02		
50	-26	-0.01		

Remark : The EUT can not be turn on at -20 and -30°C.

## 4.8 Frequency Stability (Voltage Variation)

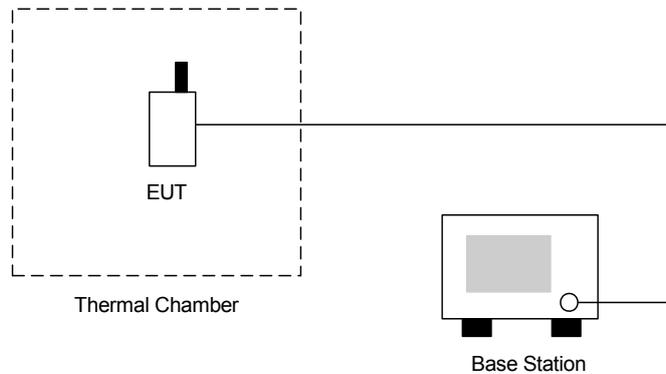
### 4.8.1 Measurement Instrument

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 : GSM850 CH189

Voltage(Volt)	Change (Hz)	Change (ppm)	Limit (ppm)	Result
3.7	-30.0	-0.04	2.5	Passed
BEP	-30.0	-0.04		
4.2	-19.0	-0.02		

- Test Mode : GSM850 (EDGE) CH189

Voltage(Volt)	Change (Hz)	Change (ppm)	Limit (ppm)	Result
3.7	-30.0	-0.04	2.5	Passed
BEP	-32.0	-0.04		
4.2	-30.0	-0.04		



- Test Mode : PCS1900 CH661

Voltage(Volt)	Change (Hz)	Change (ppm)	Limit (ppm)	Result
3.7	-28.0	-0.01	2.5	Passed
BEP	-32.0	-0.02		
4.2	-34.0	-0.02		

- est Mode : PCS1900 (EDGE) CH661

Voltage(Volt)	Change (Hz)	Change (ppm)	Limit (ppm)	Result
3.7	-28.0	-0.01	2.5	Passed
BEP	-23.0	-0.01		
4.2	-28.0	-0.01		

Remark:

- Normal Voltage = 3.7V.
- Battery End Point (BEP) = 3.5V.



## 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 (03CH07-HY)
EMI Test Receiver	R&S	ESCS30	100356	9KHz-2.75GHz	Jul. 26, 2007	Jul. 25, 2008	Radiation (03CH07-HY)
Bilog Antenna	SCHAFFNER	CBL6112B	2885	30MHz -2GHz	Dec. 01, 2007	Nov. 30, 2008	Radiation (03CH07-HY)
Double Ridge Horn Antenna	Com-Power	AH118	071025	1G~18G	Jun. 04, 2007	Jun. 03, 2008	Radiation (03CH07-HY)
SHF-EHF Horn	SCHWARZBECK	BBHA 9170	9170-251	14G - 40G	Oct. 17, 2007	Oct. 16, 2008	Radiation (03CH07-HY)
Pre Amplifier	Agilent	8449B	3008A01917	1G - 26.5G	Nov. 22, 2007	Nov. 21, 2008	Radiation (03CH07-HY)
Pre Amplifier	EMEC	PA303	PA303-SMA-059	100K~3GHz	Nov. 26, 2007	Nov. 25, 2008	Radiation (03CH07-HY)
Base Station Simulator	R & S	CMU200	103937	Third-Band	Oct. 19, 2007	Oct. 18, 2008	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	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 (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