



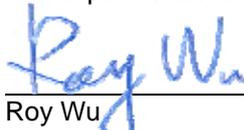
FCC Test Report

According to

47 CFR Part 22H, 24E

Equipment : iPAQ Voice Messenger
Trade Name : HP
Model Name : HSTNH-F20C-85
FCC ID : B94HHF20C85
Tx Frequency Range : GSM850 : 824.2 ~ 848.8 MHz
GSM1900 : 1850.2 ~1909.8 MHz
WCDMA Band V : 826.4 ~ 846.6 MHz
WCDMA Band II : 1852.4 ~ 1907.6 MHz
Max. ERP/EIRP Power : GSM850(GSM) : 0.81 W
GSM850(EDGE) : 0.27 W
GSM1900(GSM) : 0.80 W
GSM1900(EDGE) : 0.43 W
WCDMA Band V : 0.10 W
WCDMA Band II : 0.20 W
Emission Designator : GSM : 300KGXW
EDGE : 300KG7W
WCDMA : 4M22F9W
Applicant : Hewlett-Packard Company
10955 Tantau Ave., CupertinoCA, 95014-0770, USA

- The test result refers exclusively to the tested model / sample.
- Without written approval of SPORTON International Inc., the test report shall not be reproduced except in full.
- The data shown in this test report were carried out on Nov. 20, 2008 at **Sporton International Inc. LAB.**
- Report No.: FG852219-04, Report Version: Rev. 02.



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Report Version: Rev. 02



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1. General Information

1.1 Applicant

Hewlett-Packard Company
10955 Tantau Ave., CupertinoCA, 95014-0770, USA

1.2 Manufacturer

FOXCONN Technology Group
4F G5 No.2,2nd Donghuan Road, 10th Yousong Industrial District, Longhua, Baoan, Shenzhen City, Guangdong Province, China 518109

1.3 Basic Description of Equipment under Test

AC Adapter 1	Brand Name	HP
	Model Name	PSAA05-050
	Power Rating	I/P:100-240Vac, 50-60Hz, 200mA; O/P: 5Vdc, 1A
	AC Power Cord Type	1.8 meter shielded cable without ferrite core
AC Adapter 2	Brand Name	HP
	Model Name	PSB05R-050Q
	Power Rating	I/P:100-240Vac, 50-60Hz, 200mA; O/P: 5Vdc, 1A
Battery 1	Brand Name	HP
	Model Name	HSTNH-T20B-S
	Power Rating	3.7Vdc, 1200mAh
	Type	Li-ion
Battery 2	Brand Name	HP
	Model Name	HSTNH-K20B-H
	Power Rating	3.7Vdc, 1940mAh
	Type	Li-ion
Earphone	Brand Name	FOSTER
	Model Name	480052
	Signal Line Type	1.45 meter non-shielded cable without ferrite core
USB Cable	Brand Name	Foxconn
	Model Name	CUNC005B-T45-EF
	Signal Line Type	1.4 meter shielded cable without ferrite core
LCD Panel	Brand Name	SAMSUNG
	Model Name	LMS241GF17
Camera	Brand Name	SAMSUNG
	Model Name	MOMBE547G6A

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

Product Feature & Specification	
EUT Type :	iPAQ Voice Messenger
Trade Name :	HP
Model Name :	HSTNH-F20C-85
FCC ID :	B94HHF20C85
Tx Frequency :	GSM850 : 824 MHz ~ 849 MHz GSM1900 : 1850 MHz ~ 1910 MHz WCDMA Band V : 824 MHz ~ 849 MHz WCDMA Band II : 1850 MHz ~ 1910 MHz
Rx Frequency :	GSM850 : 869 MHz ~ 894 MHz GSM1900 : 1930 MHz ~ 1990 MHz WCDMA Band V : 869 MHz ~ 894 MHz WCDMA Band II : 1930 MHz ~ 1990 MHz
Maximum Output Power to Antenna :	GSM850 : 32.05 dBm GSM1900 : 29.22 dBm WCDMA Band V : 23.80 dBm WCDMA Band II : 23.15 dBm
Maximum ERP/EIRP :	GSM850(GSM) : 0.81 W (29.09 dBm) GSM850(EDGE) : 0.27 W (24.26 dBm) GSM1900(GSM) : 0.80 W (29.04 dBm) GSM1900(EDGE) : 0.43 W (26.36 dBm) WCDMA Band V : 0.10 W (19.89 dBm) WCDMA Band II : 0.20 W (22.94 dBm)
Antenna Type :	Fixed Internal Antenna
HW Version :	DVT
SW Version :	0.10.0.283
Type of Modulation :	GSM / GPRS : GMSK EDGE : 8PSK WCDMA : QPSK HSDPA : QPSK / 16QAM HSUPA : BPSK
Type of Emission :	GSM : 300KGXW EDGE : 300KG7W WCDMA : 4M22F9W
EUT Stage :	Identical Prototype

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 and WCDMA Band V; 30MHz to 19000 MHz for GSM1900 and WCDMA Band II.

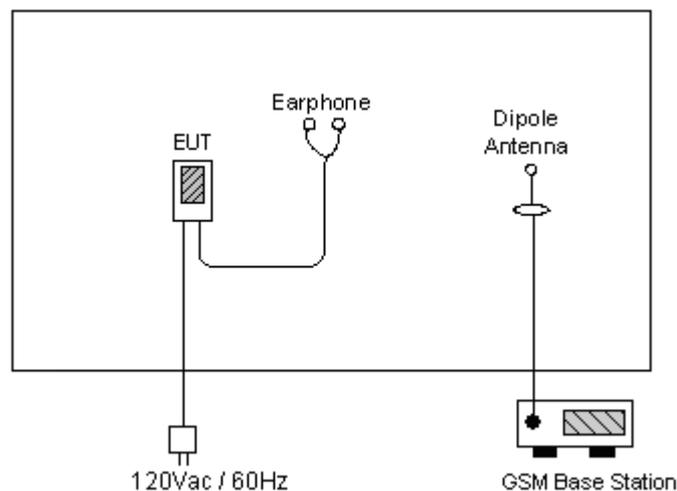
2.2 Test Mode

Application	GSM850	GSM1900
Radiated Emission	<input checked="" type="checkbox"/> Mode 1: GSM Link <input checked="" type="checkbox"/> Mode 2: EDGE Link <input checked="" type="checkbox"/> Mode 9: GSM Link + BT Link <input checked="" type="checkbox"/> Mode 10: GSM Link + WLAN Link	<input checked="" type="checkbox"/> Mode 3: GSM Link <input checked="" type="checkbox"/> Mode 4: EDGE Link
Conducted Measurement	<input checked="" type="checkbox"/> Mode 1: GSM Link <input checked="" type="checkbox"/> Mode 2: EDGE Link	<input checked="" type="checkbox"/> Mode 3: GSM Link <input checked="" type="checkbox"/> Mode 4: EDGE Link

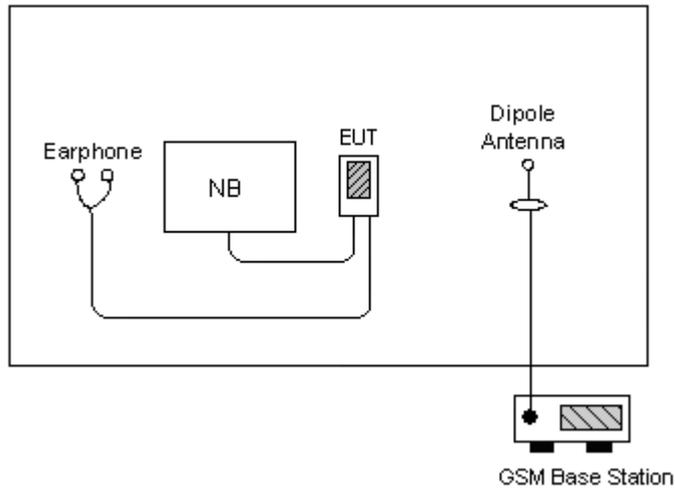
Application	WCDMA Band V	WCDMA Band II
Radiated Emission	<input checked="" type="checkbox"/> Mode 5: WCDMA Link <input checked="" type="checkbox"/> Mode 6: HSDPA Link	<input checked="" type="checkbox"/> Mode 7: WCDMA Link <input checked="" type="checkbox"/> Mode 8: HSDPA Link
Conducted Measurement	<input checked="" type="checkbox"/> Mode 5: WCDMA Link <input checked="" type="checkbox"/> Mode 6: HSDPA Link <input checked="" type="checkbox"/> Mode 7: HSUPA Link	<input checked="" type="checkbox"/> Mode 8: WCDMA Link <input checked="" type="checkbox"/> Mode 9: HSDPA Link <input checked="" type="checkbox"/> Mode 10: HSUPA Link

2.3 Connection Diagram of Test System

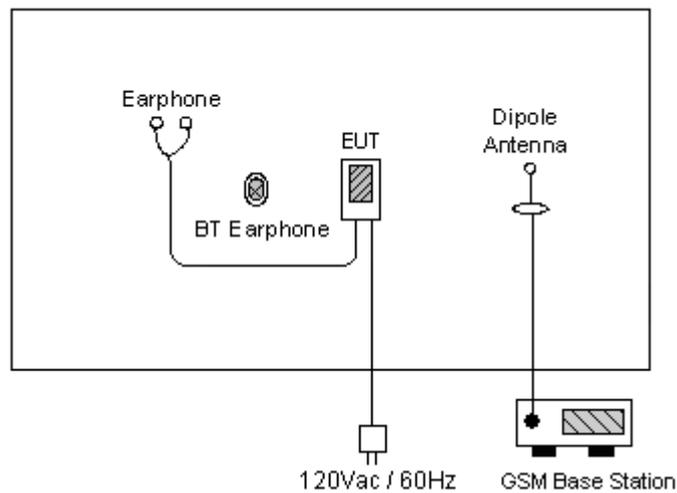
GSM Link Mode



GSM+WLAN Link Mode



GSM+BT Link Mode



2.4 Ancillary Equipment List

Item	Equipment	Trade Name	Model No.	FCC ID	Data Cable	Power Code
1.	GSM Base Station	R&S	CMU200	N/A	N/A	Unshielded, 1.8m
2.	WLAN AP	SMC	SMC-100	N/A	N/A	Unshielded, 1.8m
3.	NOTE BOOK	ASUS	N/A	N/A	N/A	N/A



3. General Information of Test Site

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

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

3.3 Frequency Range

- a. Radiation: from 30MHz to 9000MHz for GSM850 and WCDMA Band V.
- b. Radiation: from 30 MHz to 19000 MHz for GSM1900 and WCDMA Band II.

3.4 Test Distance

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



4. Test Data and Test Result

4.1 List of Measurements and Examinations

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

4.2 RF Output Power

4.2.1 Measurement Instruments

As described in chapter 5 of this test report.

4.2.2 Test Procedure

- a. The transmitter output was connected to power meter and base station.
- b. Set EUT 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

Cellular					
Modes	Channel	Frequency (MHz)	Conducted Power		
			(dBm)	(Watts)	
GSM	128 (Low)	824.2	31.77	1.50	
	189 (Mid)	836.4	31.90	1.55	
	251 (High)	848.8	32.05	1.60	
EDGE	128 (Low)	824.2	26.97	0.50	
	189 (Mid)	836.4	27.10	0.51	
	251 (High)	848.8	27.24	0.53	
WCDMA Band V	12.2k bps	4132 (Low)	826.4	23.47	0.22
		4182 (Mid)	836.4	23.49	0.22
		4233 (High)	846.6	23.69	0.23
	HSDPA Subtest-1	4132 (Low)	826.4	23.76	0.24
		4182 (Mid)	836.4	23.75	0.24
		4233 (High)	846.6	23.80	0.24
	HSDPA Subtest-2	4132 (Low)	826.4	23.04	0.20
		4182 (Mid)	836.4	23.14	0.21
		4233 (High)	846.6	23.24	0.21
	HSDPA Subtest-3	4132 (Low)	826.4	23.18	0.21
		4182 (Mid)	836.4	23.20	0.21
		4233 (High)	846.6	23.31	0.21
	HSDPA Subtest-4	4132 (Low)	826.4	22.56	0.18
		4182 (Mid)	836.4	22.66	0.18
		4233 (High)	846.6	22.78	0.19
	HSUPA Subtest-1	4132 (Low)	826.4	23.39	0.22
		4182 (Mid)	836.4	23.47	0.22
		4233 (High)	846.6	23.57	0.23
	HSUPA Subtest-2	4132 (Low)	826.4	21.22	0.13
		4182 (Mid)	836.4	21.25	0.13
		4233 (High)	846.6	21.47	0.14
	HSUPA Subtest-3	4132 (Low)	826.4	22.24	0.17
		4182 (Mid)	836.4	22.25	0.17
		4233 (High)	846.6	22.49	0.18
	HSUPA Subtest-4	4132 (Low)	826.4	21.61	0.14
		4182 (Mid)	836.4	21.59	0.14
		4233 (High)	846.6	21.73	0.15
	HSUPA Subtest-5	4132 (Low)	826.4	23.48	0.22
		4182 (Mid)	836.4	23.53	0.23
		4233 (High)	846.6	23.46	0.22



PCS					
Modes	Channel	Frequency (MHz)	Conducted Power		
			(dBm)	(Watts)	
GSM	512 (Low)	1850.2	29.22	0.84	
	661 (Mid)	1880.0	29.06	0.81	
	810 (High)	1909.8	29.11	0.81	
EDGE	512 (Low)	1850.2	26.43	0.44	
	661 (Mid)	1880.0	26.29	0.43	
	810 (High)	1909.8	26.32	0.43	
WCDMA Band II	12.2k bps	9262 (Low)	1852.4	23.02	0.20
		9400 (Mid)	1880.0	22.85	0.19
		9538 (High)	1907.6	22.98	0.20
	HSDPA Subtest-1	9262 (Low)	1852.4	23.15	0.21
		9400 (Mid)	1880.0	22.96	0.20
		9538 (High)	1907.6	23.01	0.20
	HSDPA Subtest-2	9262 (Low)	1852.4	22.59	0.18
		9400 (Mid)	1880.0	22.50	0.18
		9538 (High)	1907.6	22.31	0.17
	HSDPA Subtest-3	9262 (Low)	1852.4	22.74	0.19
		9400 (Mid)	1880.0	22.65	0.18
		9538 (High)	1907.6	22.58	0.18
	HSDPA Subtest-4	9262 (Low)	1852.4	22.26	0.17
		9400 (Mid)	1880.0	22.12	0.16
		9538 (High)	1907.6	22.07	0.16
	HSUPA Subtest-1	9262 (Low)	1852.4	22.77	0.19
		9400 (Mid)	1880.0	22.69	0.19
		9538 (High)	1907.6	22.74	0.19
	HSUPA Subtest-2	9262 (Low)	1852.4	20.77	0.12
		9400 (Mid)	1880.0	20.70	0.12
		9538 (High)	1907.6	20.73	0.12
	HSUPA Subtest-3	9262 (Low)	1852.4	21.78	0.15
		9400 (Mid)	1880.0	21.73	0.15
		9538 (High)	1907.6	21.74	0.15
	HSUPA Subtest-4	9262 (Low)	1852.4	21.34	0.14
		9400 (Mid)	1880.0	21.26	0.13
		9538 (High)	1907.6	21.30	0.13
	HSUPA Subtest-5	9262 (Low)	1852.4	22.84	0.19
		9400 (Mid)	1880.0	22.70	0.19
		9538 (High)	1907.6	22.73	0.19

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.

$E_t = R_t + AF$

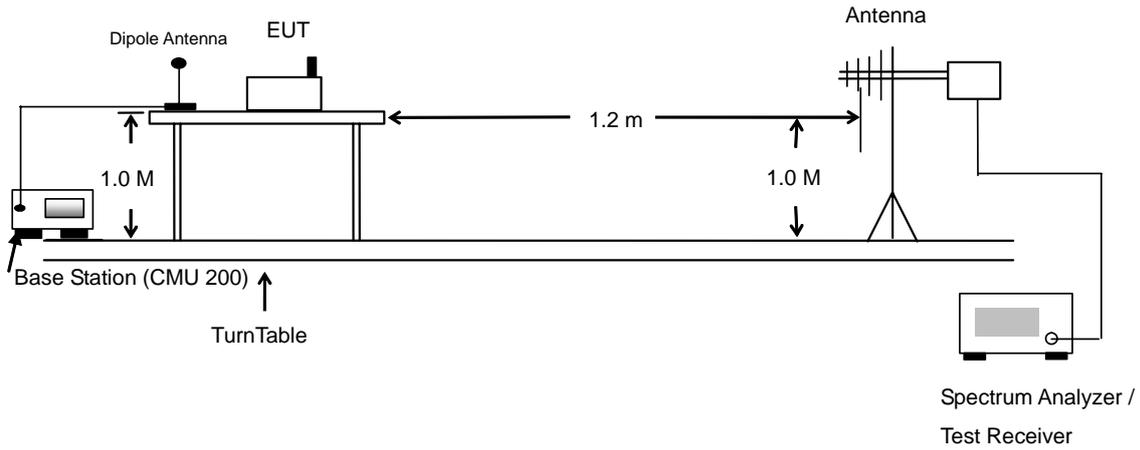
$E_s = R_s + AF$

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

GSM850 (GSM) Radiated Power ERP						
Horizontal Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBd)	ERP (dBm)	ERP (W)
824.20	-36.37	-48.12	0.00	-1.08	10.67	0.01
836.40	-37.44	-48.28	0.00	-0.93	9.91	0.01
848.80	-38.07	-48.35	0.00	-0.76	9.52	0.01
Vertical Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBd)	ERP (dBm)	ERP (W)
824.20	-17.80	-47.97	0.00	-1.08	29.09	0.81
836.40	-18.43	-48.01	0.00	-0.93	28.65	0.73
848.80	-18.70	-48.05	0.00	-0.76	28.59	0.72

GSM850 (EDGE) Radiated Power ERP						
Horizontal Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBd)	ERP (dBm)	ERP (W)
824.20	-40.84	-48.12	0.00	-1.08	6.20	0.00
836.40	-41.79	-48.28	0.00	-0.93	5.56	0.00
848.80	-42.39	-48.35	0.00	-0.76	5.20	0.00
Vertical Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBd)	ERP (dBm)	ERP (W)
824.20	-22.63	-47.97	0.00	-1.08	24.26	0.27
836.40	-23.23	-48.01	0.00	-0.93	23.85	0.24
848.80	-23.54	-48.05	0.00	-0.76	23.75	0.24



WCDMA Band V Radiated Power ERP						
Horizontal Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBd)	ERP (dBm)	ERP (W)
826.40	-43.49	-48.12	0.00	-1.08	3.55	0.00
836.40	-44.07	-48.28	0.00	-0.93	3.28	0.00
846.60	-43.75	-48.35	0.00	-0.76	3.84	0.00
Vertical Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBd)	ERP (dBm)	ERP (W)
826.40	-27.13	-47.97	0.00	-1.08	19.76	0.09
836.40	-27.39	-48.01	0.00	-0.93	19.69	0.09
846.60	-27.40	-48.05	0.00	-0.76	19.89	0.10



4.3.5 Test Result of EIRP

GSM1900 (GSM) Radiated Power EIRP						
Horizontal Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBi)	EIRP (dBm)	EIRP (W)
1850.20	-31.80	-51.88	0.00	1.96	22.04	0.16
1880.00	-34.11	-52.99	0.00	2.00	20.88	0.12
1909.80	-35.94	-54.28	0.00	1.98	20.32	0.11
Vertical Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBi)	EIRP (dBm)	EIRP (W)
1850.20	-25.05	-52.13	0.00	1.96	29.04	0.80
1880.00	-26.86	-53.17	0.00	2.00	28.31	0.68
1909.80	-28.30	-54.13	0.00	1.98	27.81	0.60

GSM1900 (EDGE) Radiated Power EIRP						
Horizontal Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBi)	EIRP (dBm)	EIRP (W)
1850.20	-34.46	-51.88	0.00	1.96	19.38	0.09
1880.00	-37.16	-52.99	0.00	2.00	17.83	0.06
1909.80	-38.85	-54.28	0.00	1.98	17.41	0.06
Vertical Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBi)	EIRP (dBm)	EIRP (W)
1850.20	-27.73	-52.13	0.00	1.96	26.36	0.43
1880.00	-29.88	-53.17	0.00	2.00	25.29	0.34
1909.80	-31.64	-54.13	0.00	1.98	24.47	0.28



WCDMA Band II Radiated Power EIRP						
Horizontal Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBi)	EIRP (dBm)	EIRP (W)
1852.40	-38.07	-51.88	0.00	1.96	15.77	0.04
1880.00	-40.55	-52.99	0.00	2.00	14.44	0.03
1907.60	-41.80	-54.28	0.00	1.98	14.46	0.03
Vertical Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBi)	EIRP (dBm)	EIRP (W)
1852.40	-31.15	-52.13	0.00	1.96	22.94	0.20
1880.00	-33.01	-53.17	0.00	2.00	22.16	0.16
1907.60	-34.73	-54.13	0.00	1.98	21.38	0.14

4.4 Occupied Bandwidth and Band Edge Measurement

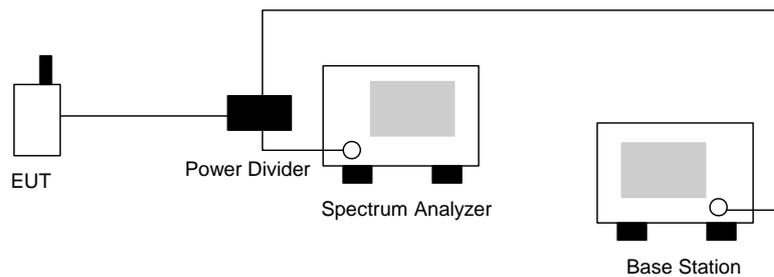
4.4.1 Measurement Instruments

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 $BW/100$.

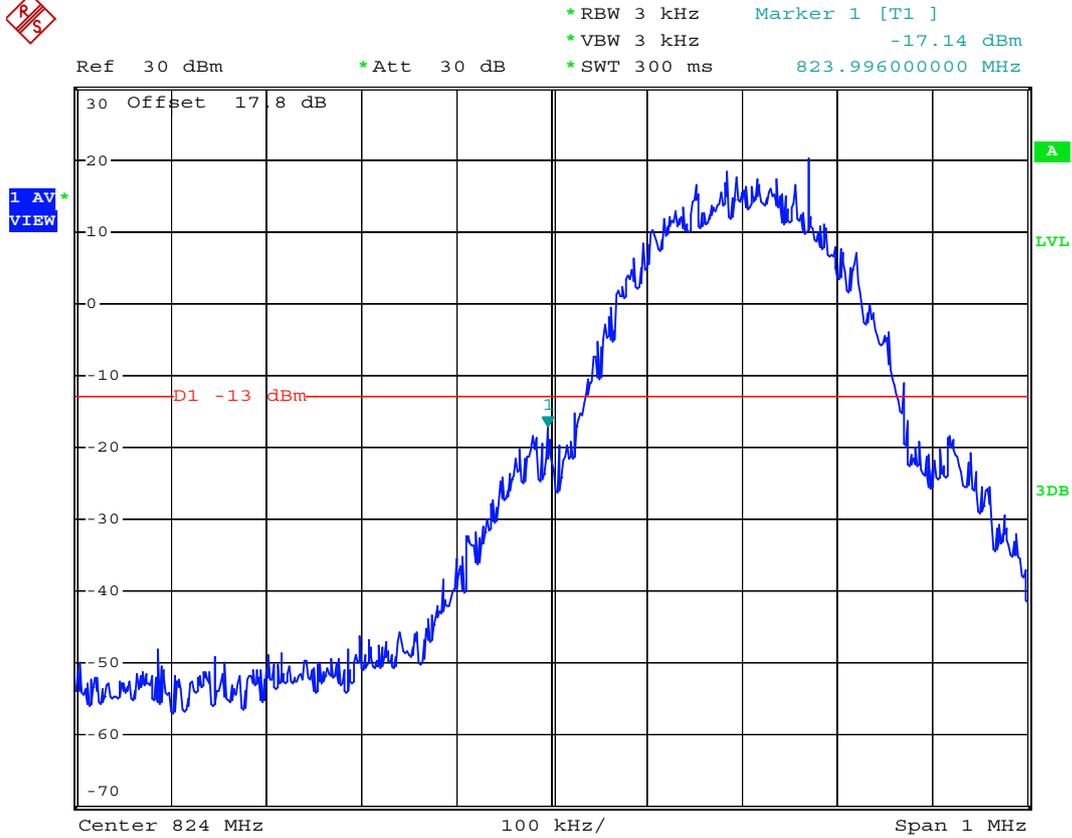
4.4.3 Test Setup Layout





4.4.4 Test Result

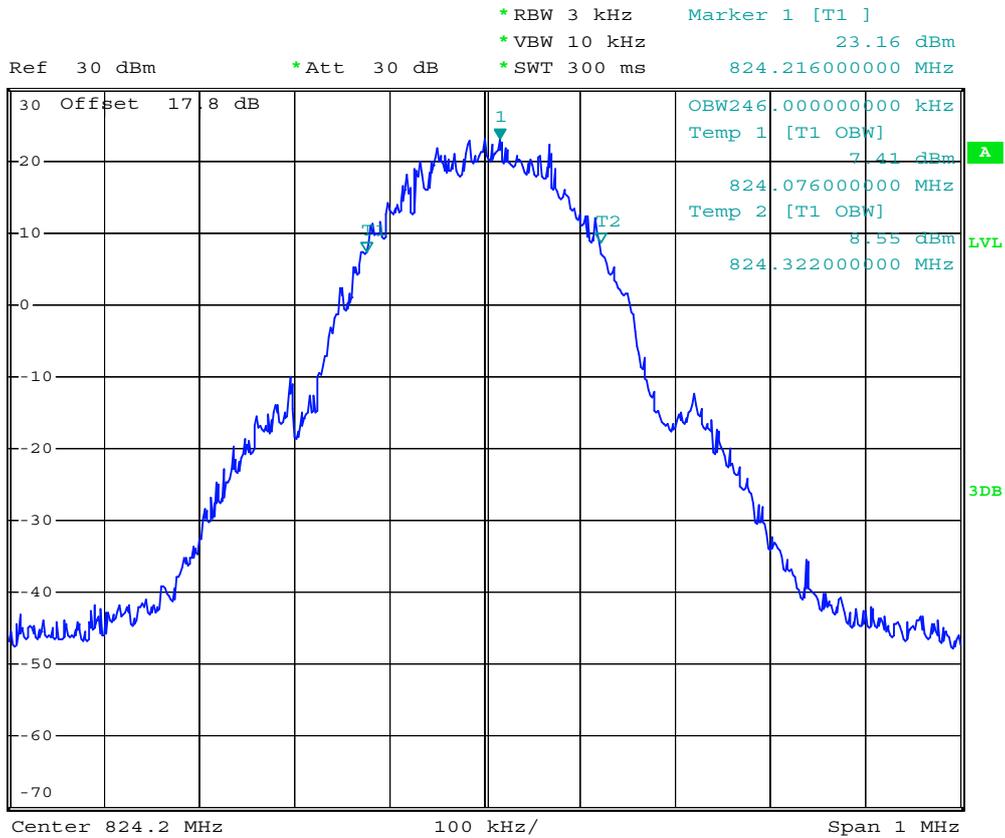
- Mode 1
- Test Mode : GSM850 (GSM) CH128 Lower Band Edge
- Power State : High



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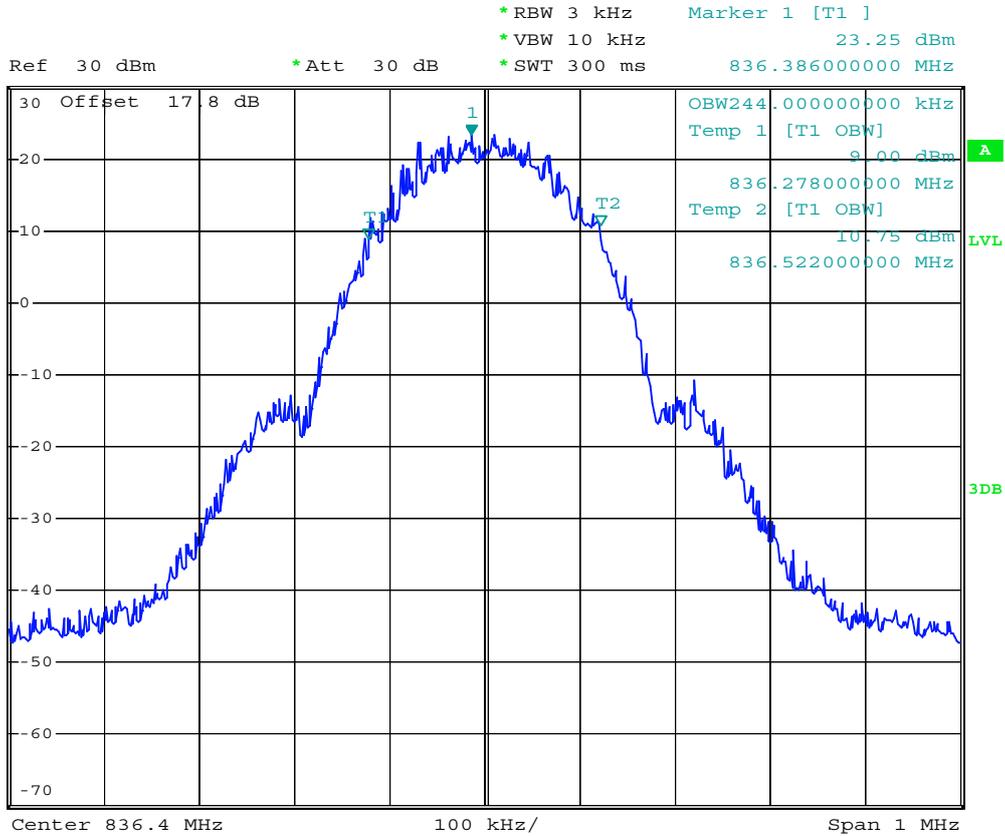
- Test Mode : GSM850 (GSM) CH128 99% Occupied Bandwidth
- Power State : High



Date: 18.JUL.2008 10:49:53



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



Date: 18.JUL.2008 10:50:30



- Test Mode : GSM850 (GSM) CH251 Higher Band Edge
- Power State : High

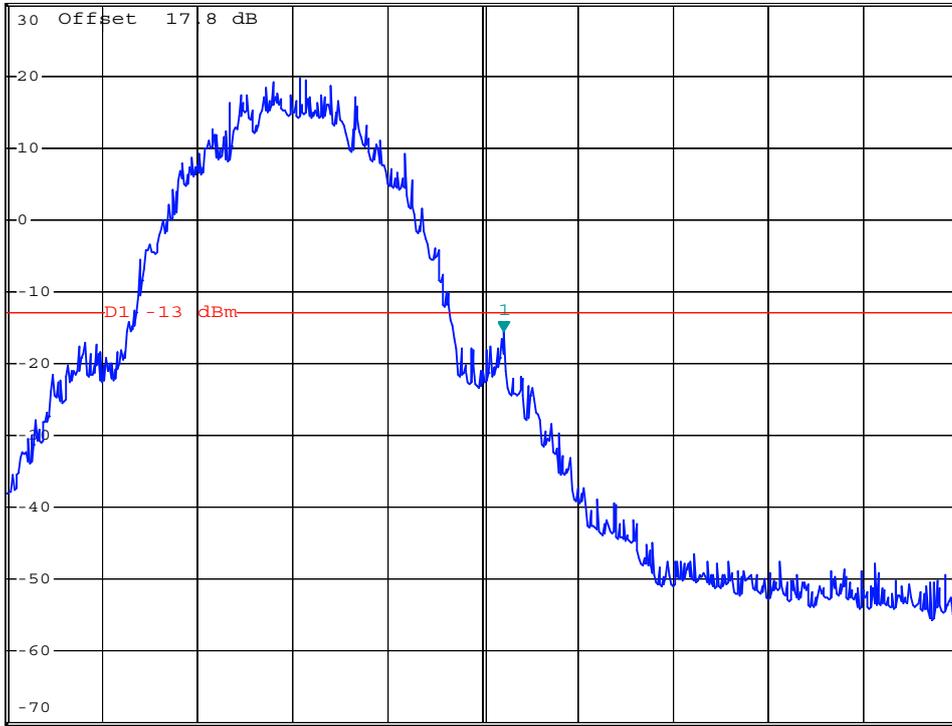


*RBW 3 kHz Marker 1 [T1]
 *VBW 3 kHz -15.58 dBm
 *SWT 300 ms 849.022000000 MHz

Ref 30 dBm

*Att 30 dB

1 AV *
VIEW



Center 849 MHz

100 kHz/

Span 1 MHz

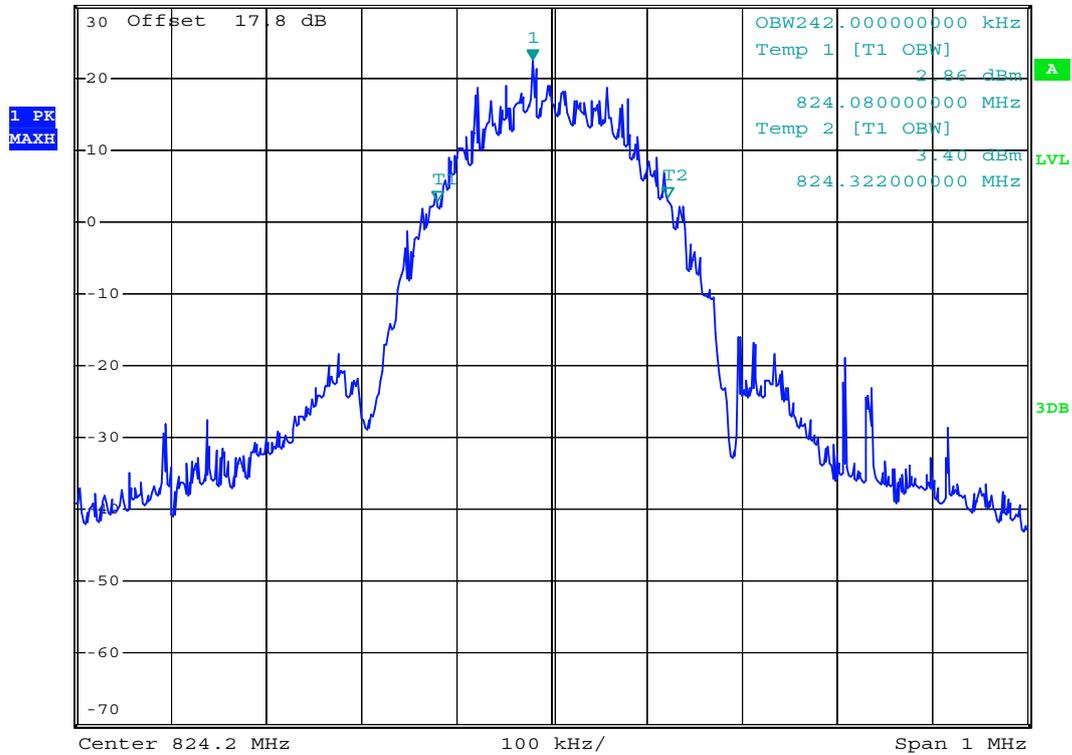
Date: 18.JUL.2008 10:58:29



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



*RBW 3 kHz Marker 1 [T1]
 *VBW 10 kHz 22.40 dBm
 *Att 30 dB 824.18000000 MHz
 *SWT 300 ms



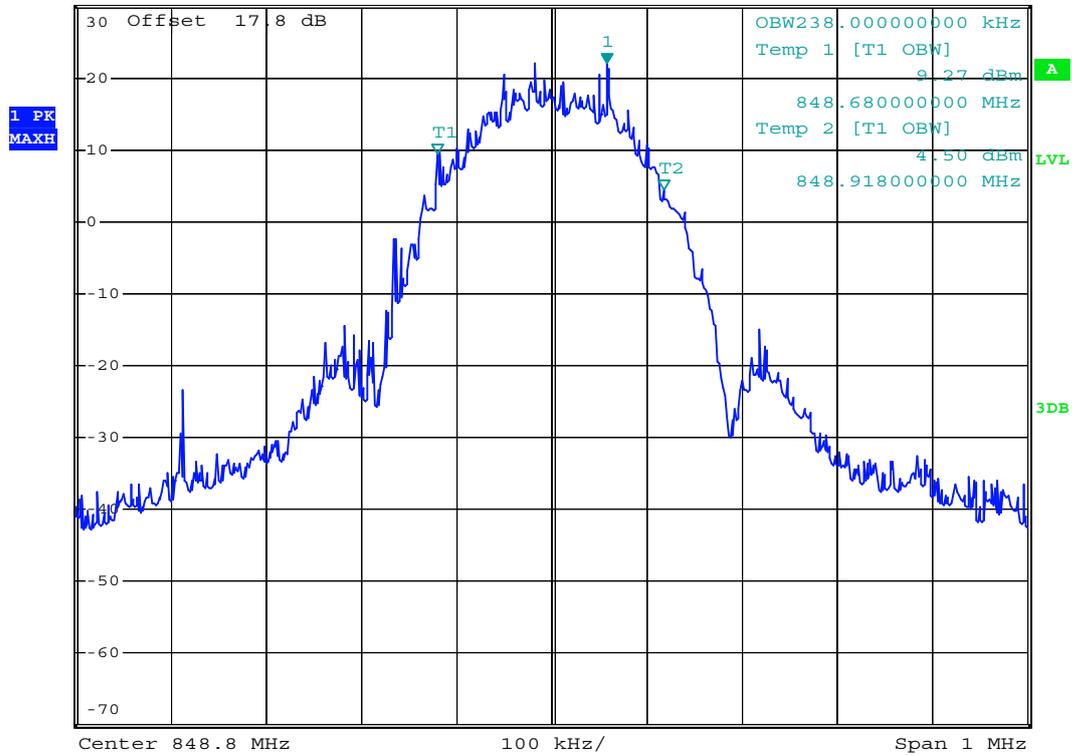
Date: 18.JUL.2008 11:57:06



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



*RBW 3 kHz Marker 1 [T1]
 *VBW 10 kHz 21.89 dBm
 *SWT 300 ms 848.858000000 MHz
 Ref 30 dBm *Att 30 dB



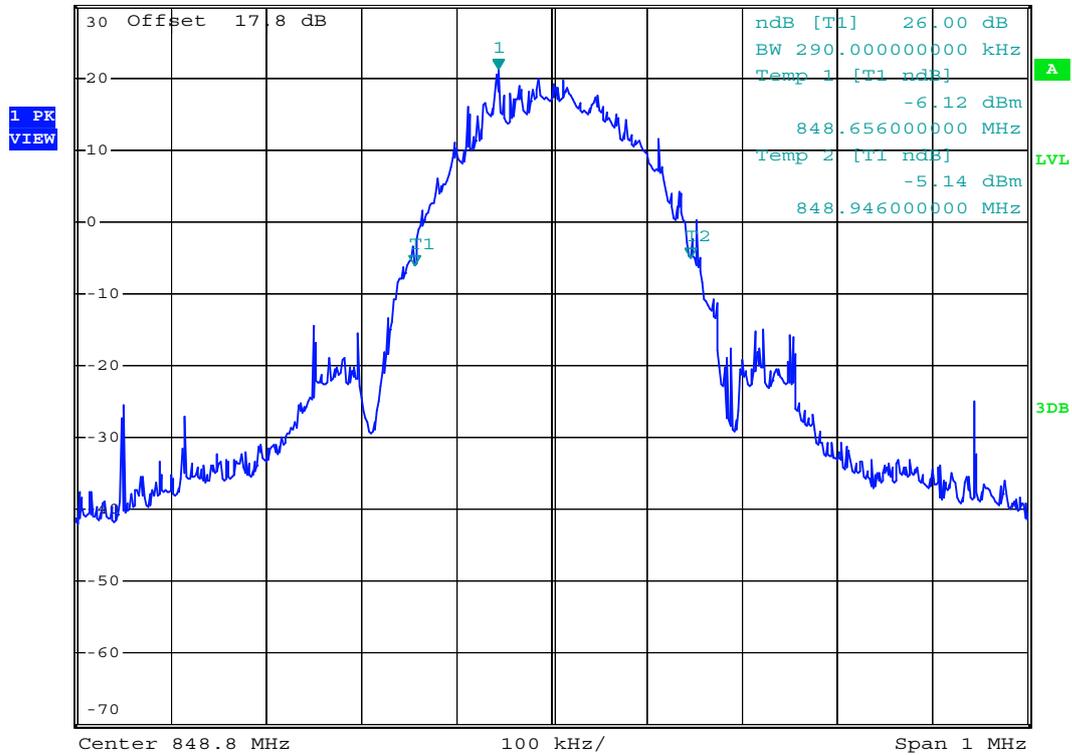
Date: 18.JUL.2008 11:57:52



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



Ref 30 dBm *Att 30 dB *RBW 3 kHz Marker 1 [T1]
 *VBW 10 kHz 21.26 dBm
 *SWT 300 ms 848.744000000 MHz



Date: 18.JUL.2008 12:00:36



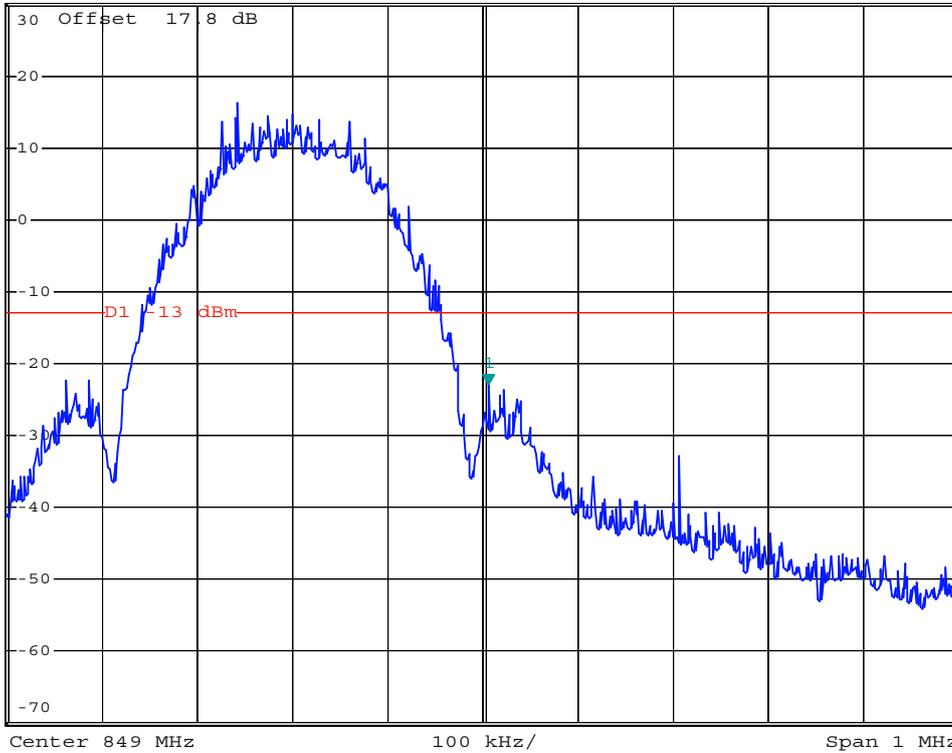
- Test Mode : GSM850 (EDGE) CH251 Higher Band Edge
- Power State : High



*RBW 3 kHz Marker 1 [T1]
 *VBW 3 kHz -22.81 dBm
 *SWT 300 ms 849.006000000 MHz

Ref 30 dBm

*Att 30 dB



Date: 18.JUL.2008 12:05:18



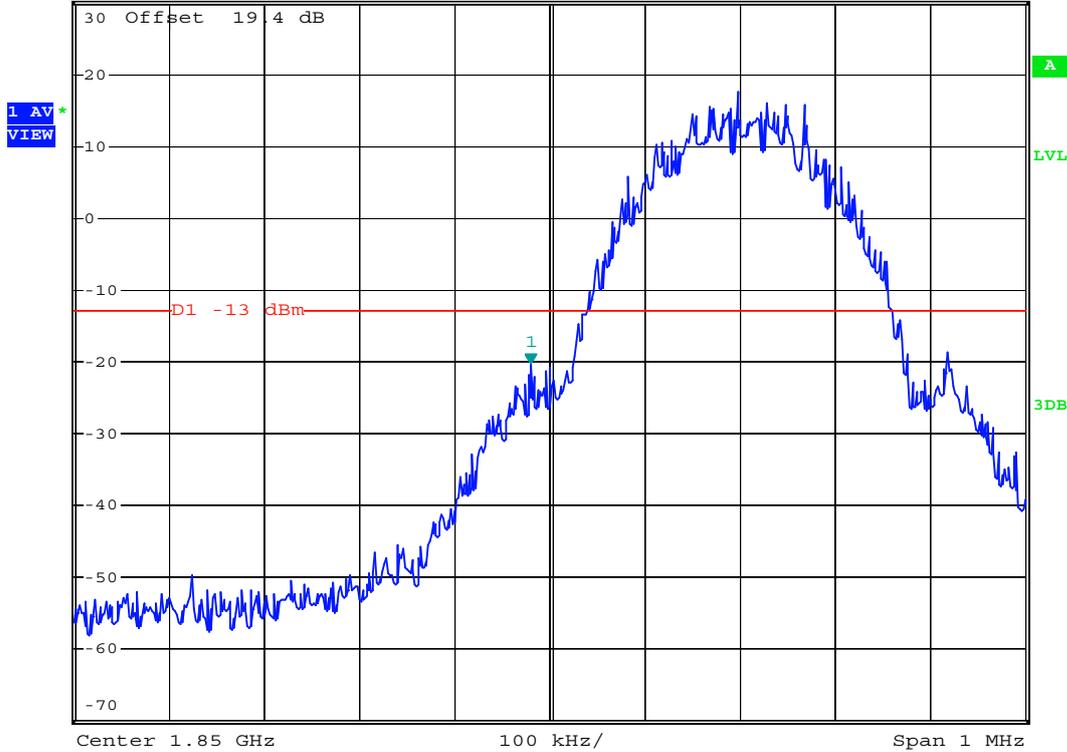
- Mode 3
- Test Mode : GSM1900 (GSM) CH512 Lower Band Edge
- Power State : High



*RBW 3 kHz Marker 1 [T1]
*VBW 3 kHz -20.37 dBm
*SWT 300 ms 1.849980000 GHz

Ref 30 dBm

*Att 30 dB



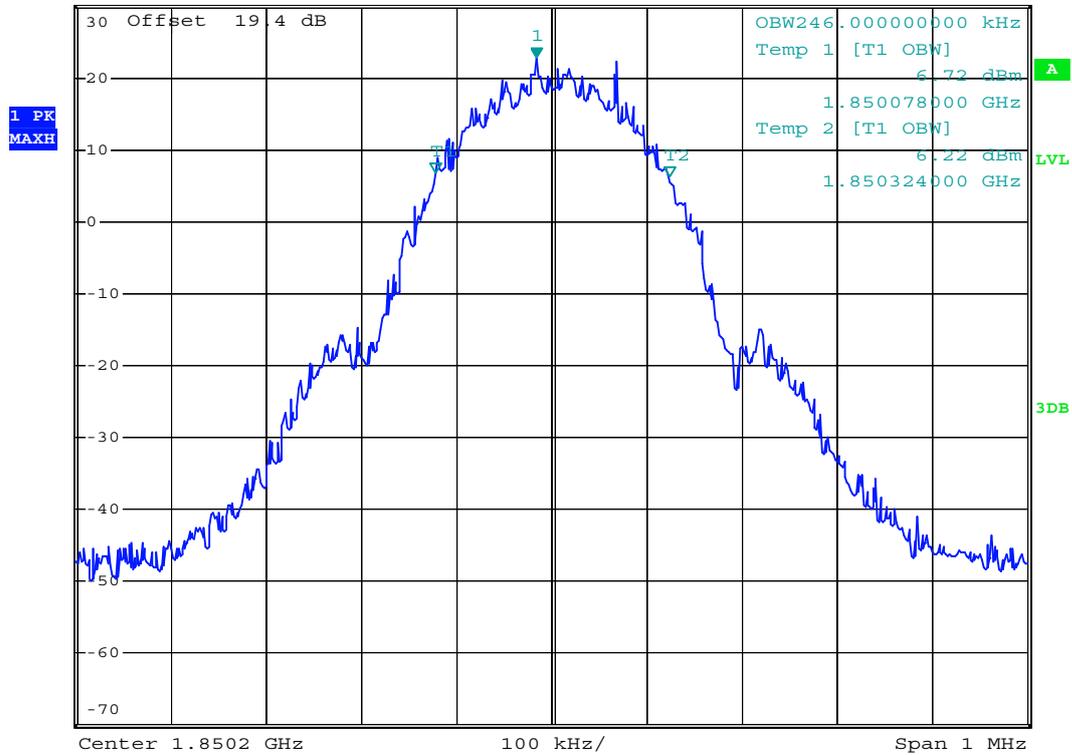
Date: 18.JUL.2008 12:13:57



- Test Mode : GSM1900 (GSM) CH512 99% Occupied Bandwidth
- Power State : High



*RBW 3 kHz Marker 1 [T1]
 *VBW 10 kHz 22.79 dBm
 *SWT 300 ms 1.850184000 GHz
 Ref 30 dBm *Att 30 dB



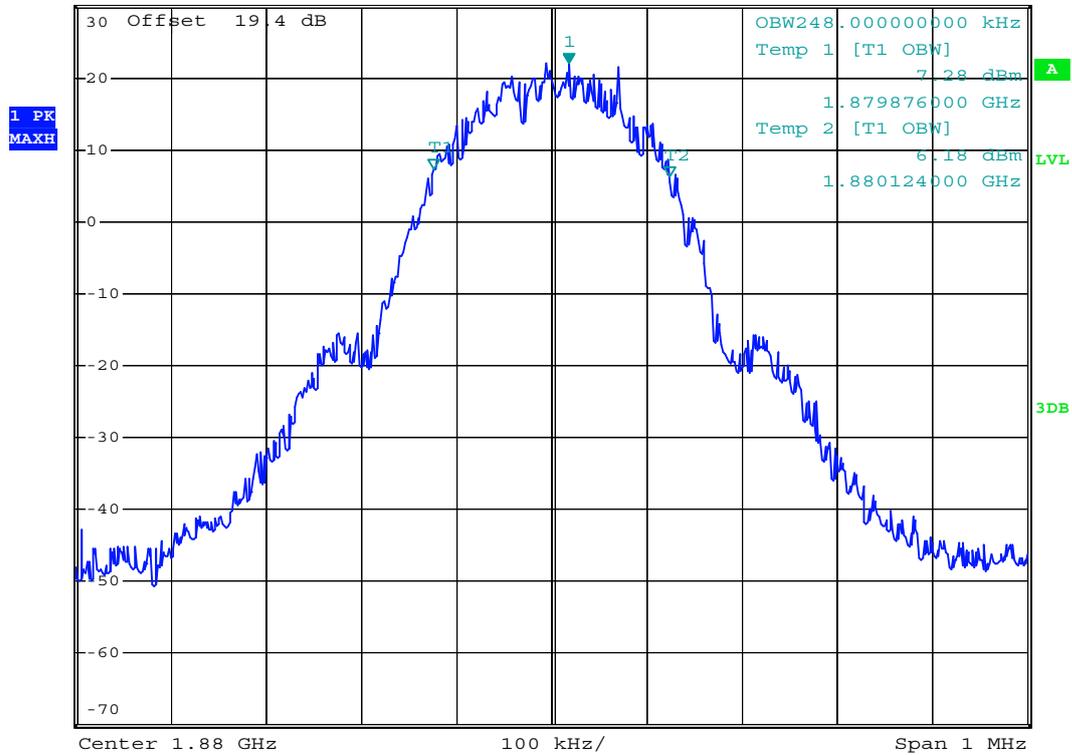
Date: 18.JUL.2008 12:12:49



- Test Mode : GSM1900 (GSM) CH661 99% Occupied Bandwidth
- Power State : High



*RBW 3 kHz Marker 1 [T1]
 *VBW 10 kHz 21.92 dBm
 *SWT 300 ms 1.880018000 GHz
 Ref 30 dBm *Att 30 dB



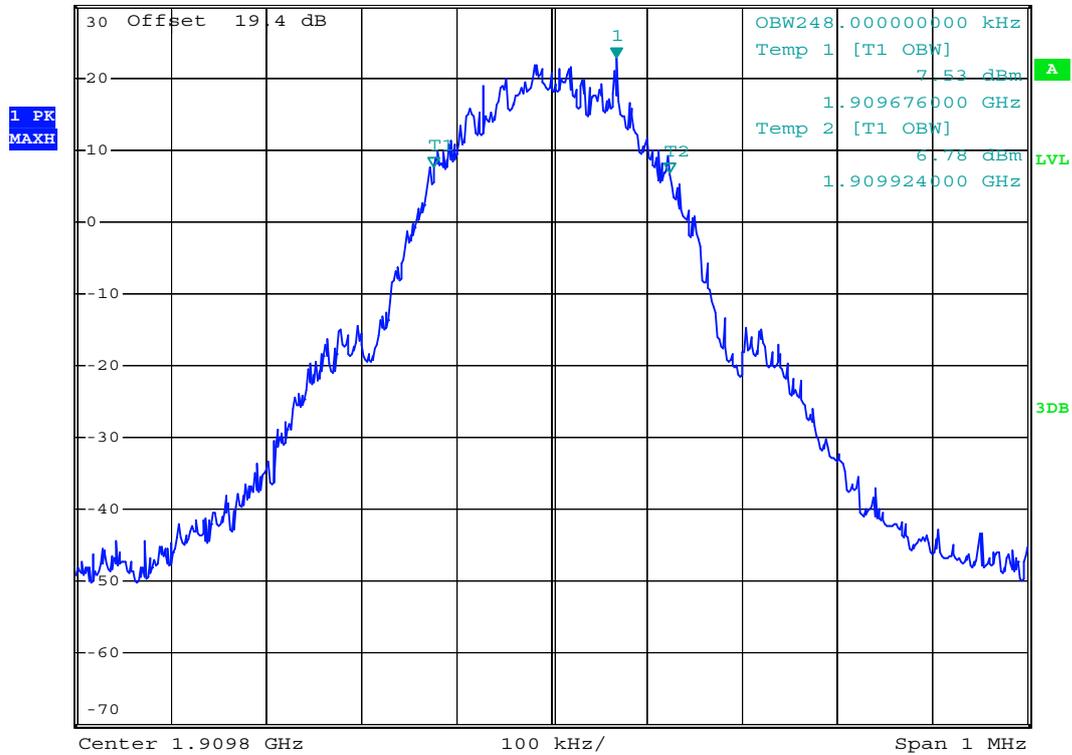
Date: 18.JUL.2008 12:11:09



- Test Mode : GSM1900 (GSM) CH810 99% Occupied Bandwidth
- Power State : High



*RBW 3 kHz Marker 1 [T1]
 *VBW 10 kHz 22.73 dBm
 *SWT 300 ms 1.909868000 GHz
 Ref 30 dBm *Att 30 dB



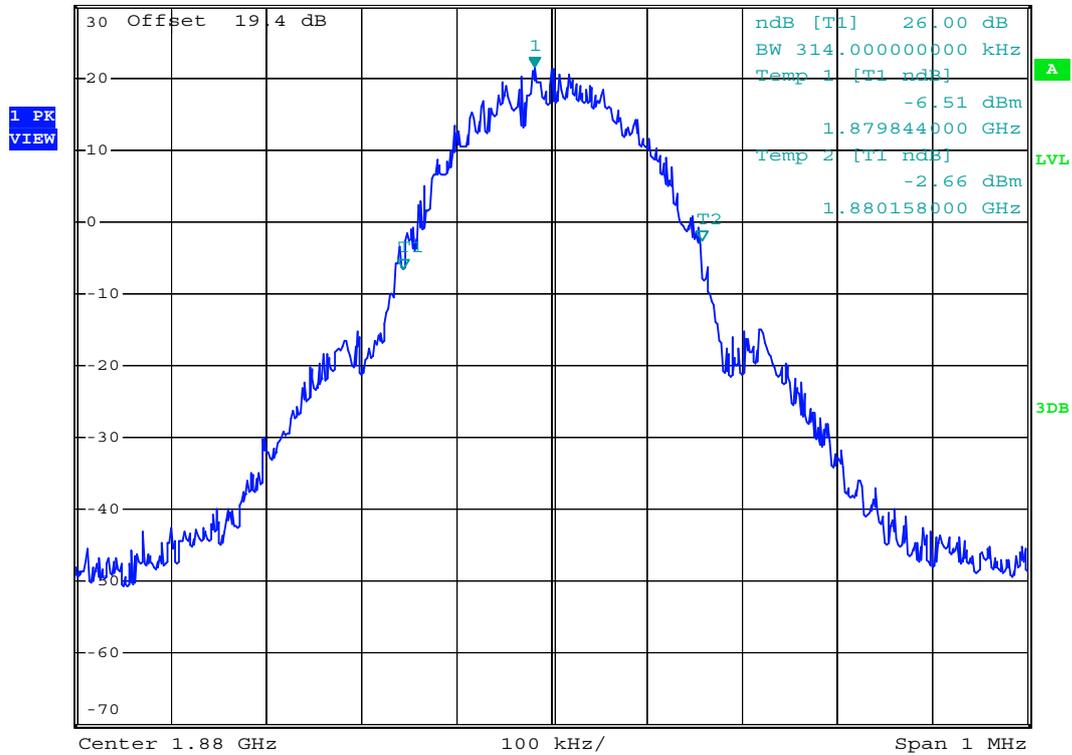
Date: 18.JUL.2008 12:10:42



- Test Mode : GSM1900 (GSM) CH661 26dB Bandwidth
- Power State : High



*RBW 3 kHz Marker 1 [T1]
 *VBW 10 kHz 21.35 dBm
 *SWT 300 ms 1.879982000 GHz
 Ref 30 dBm *Att 30 dB



Date: 18.JUL.2008 12:09:21



- Test Mode : GSM1900 (GSM) CH810 26dB Bandwidth
- Power State : High

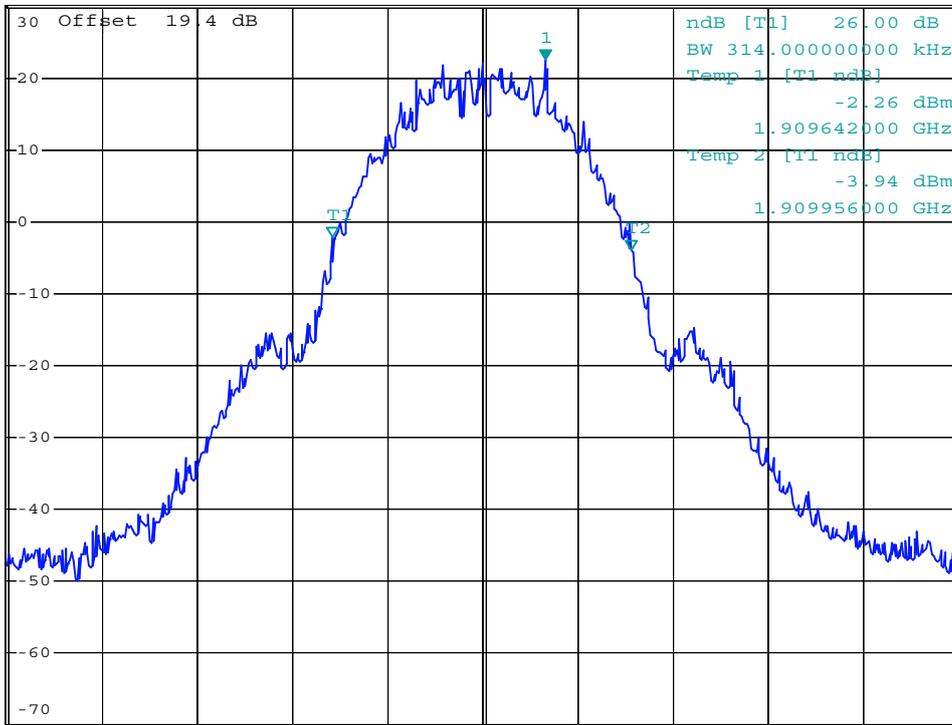


*RBW 3 kHz Marker 1 [T1]
 *VBW 10 kHz 22.63 dBm
 *SWT 300 ms 1.909866000 GHz

Ref 30 dBm

*Att 30 dB

1 PK
VIEW



Center 1.9098 GHz

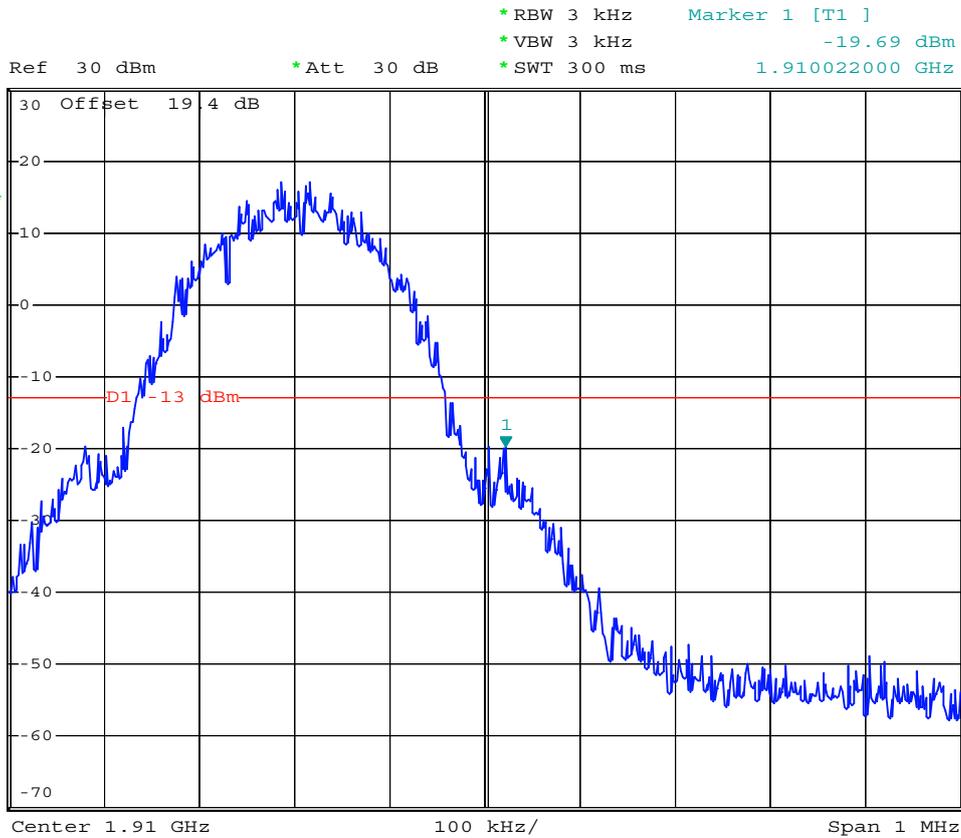
100 kHz/

Span 1 MHz

Date: 18.JUL.2008 12:10:08



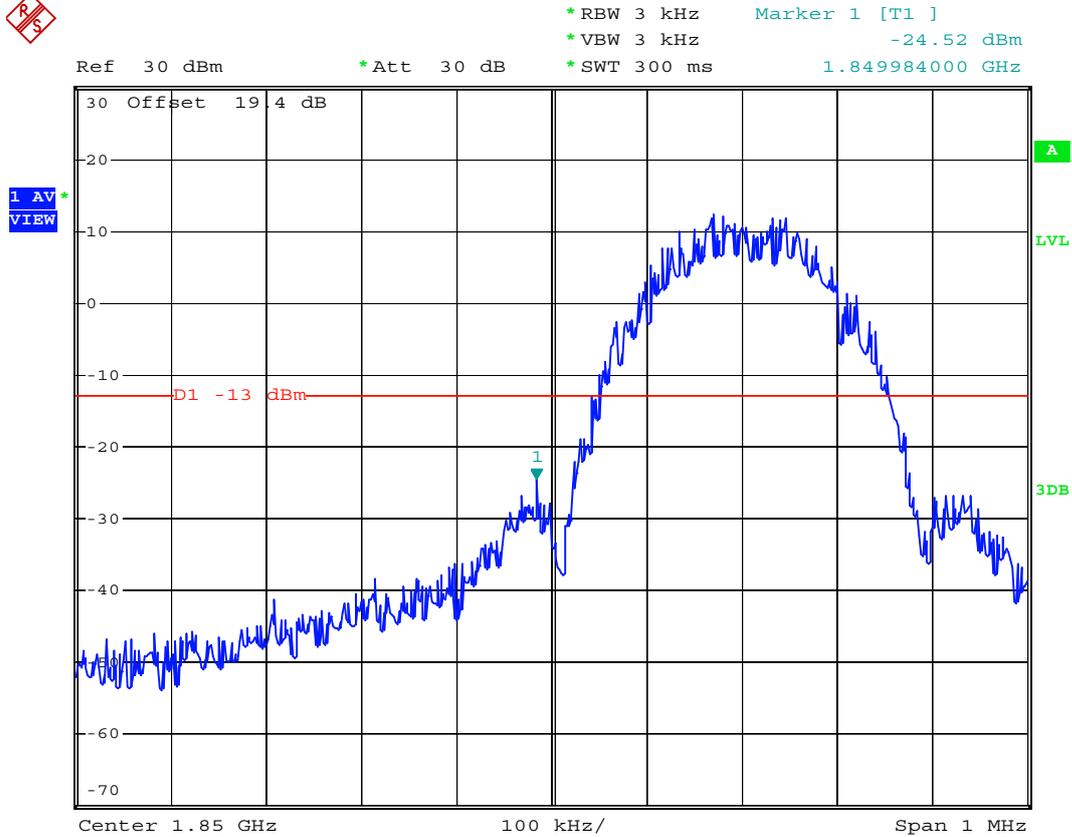
- Test Mode : GSM1900 (GSM) CH810 Higher Band Edge
- Power State : High



Date: 18.JUL.2008 12:16:57



- Mode 4
- Test Mode : GSM1900 (EDGE) CH512 Lower Band Edge
- Power State : High



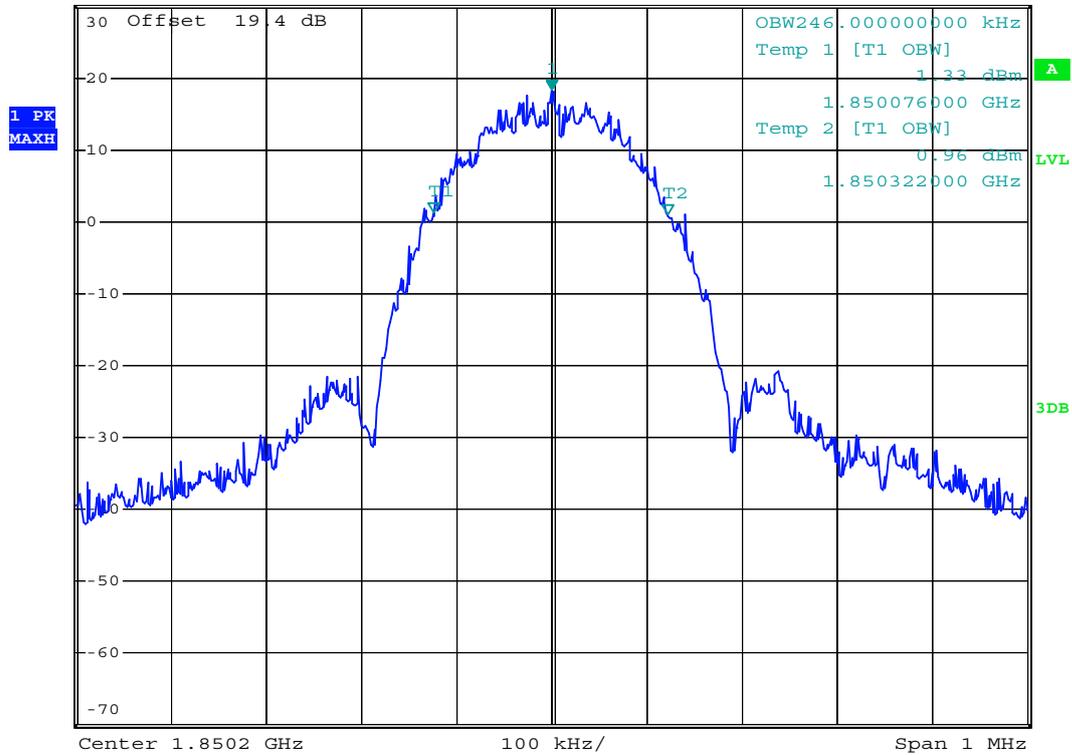
Date: 18.JUL.2008 14:22:33



- Test Mode : GSM1900 (EDGE) CH512 99% Occupied Bandwidth
- Power State : High



Ref 30 dBm *Att 30 dB *RBW 3 kHz Marker 1 [T1]
 *VBW 10 kHz 18.27 dBm
 *SWT 300 ms 1.850200000 GHz



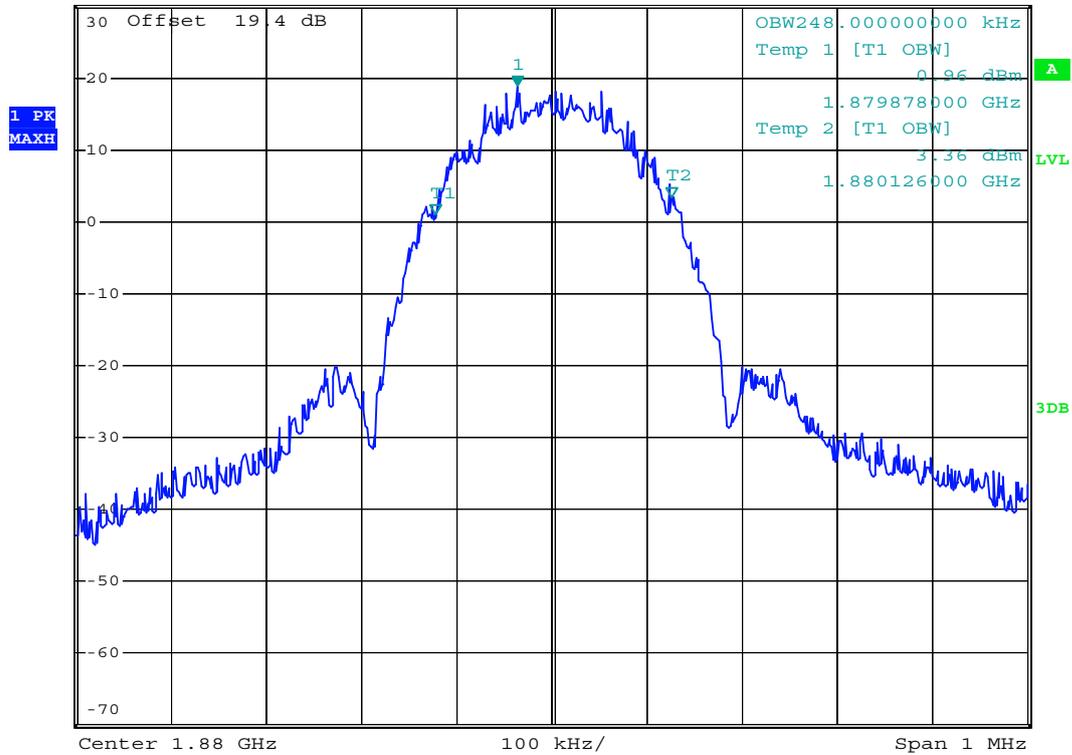
Date: 18.JUL.2008 14:19:28



- Test Mode : GSM1900 (EDGE) CH661 99% Occupied Bandwidth
- Power State : High



Ref 30 dBm *Att 30 dB *RBW 3 kHz Marker 1 [T1]
 *VBW 10 kHz 18.79 dBm
 *SWT 300 ms 1.879964000 GHz



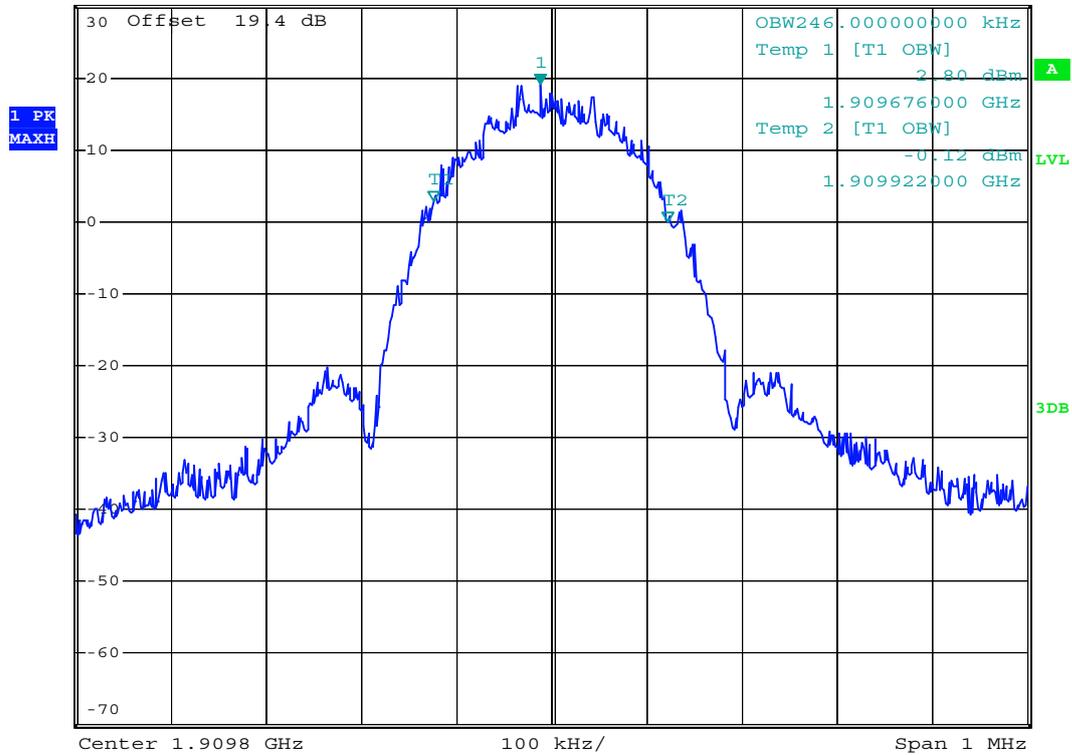
Date: 18.JUL.2008 14:20:07



- Test Mode : GSM1900 (EDGE) CH810 99% Occupied Bandwidth
- Power State : High



Ref 30 dBm *Att 30 dB *RBW 3 kHz Marker 1 [T1]
 *VBW 10 kHz 19.11 dBm
 *SWT 300 ms 1.909788000 GHz



Date: 18.JUL.2008 14:21:30



- Test Mode : GSM1900 (EDGE) CH661 26dB Bandwidth
- Power State : High

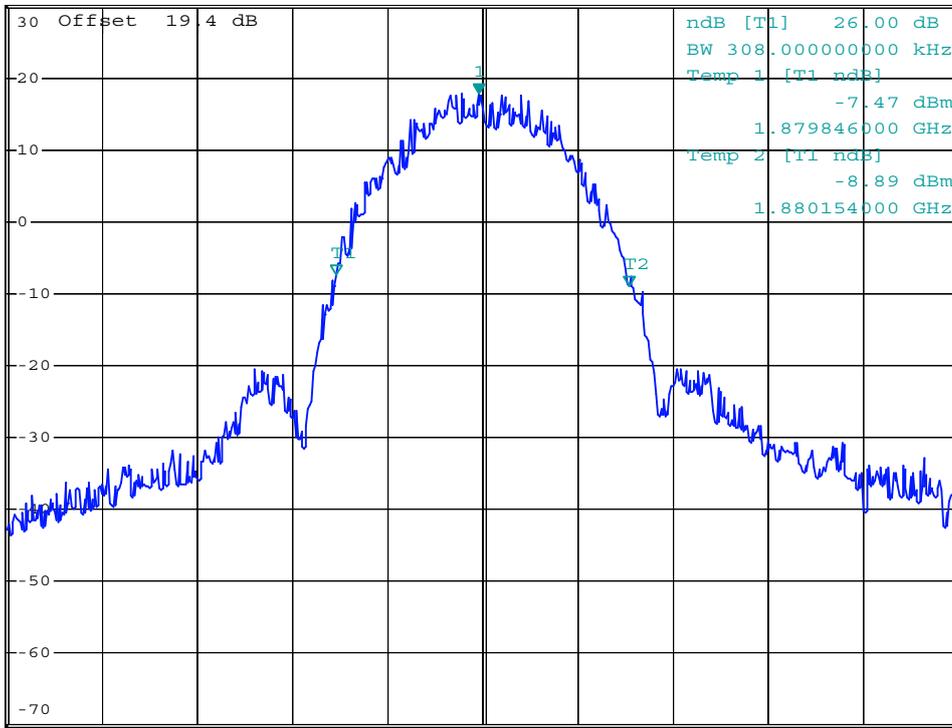


*RBW 3 kHz Marker 1 [T1]
 *VBW 10 kHz 17.91 dBm
 *SWT 300 ms 1.879996000 GHz

Ref 30 dBm

*Att 30 dB

1 PK VIEW



Center 1.88 GHz

100 kHz/

Span 1 MHz

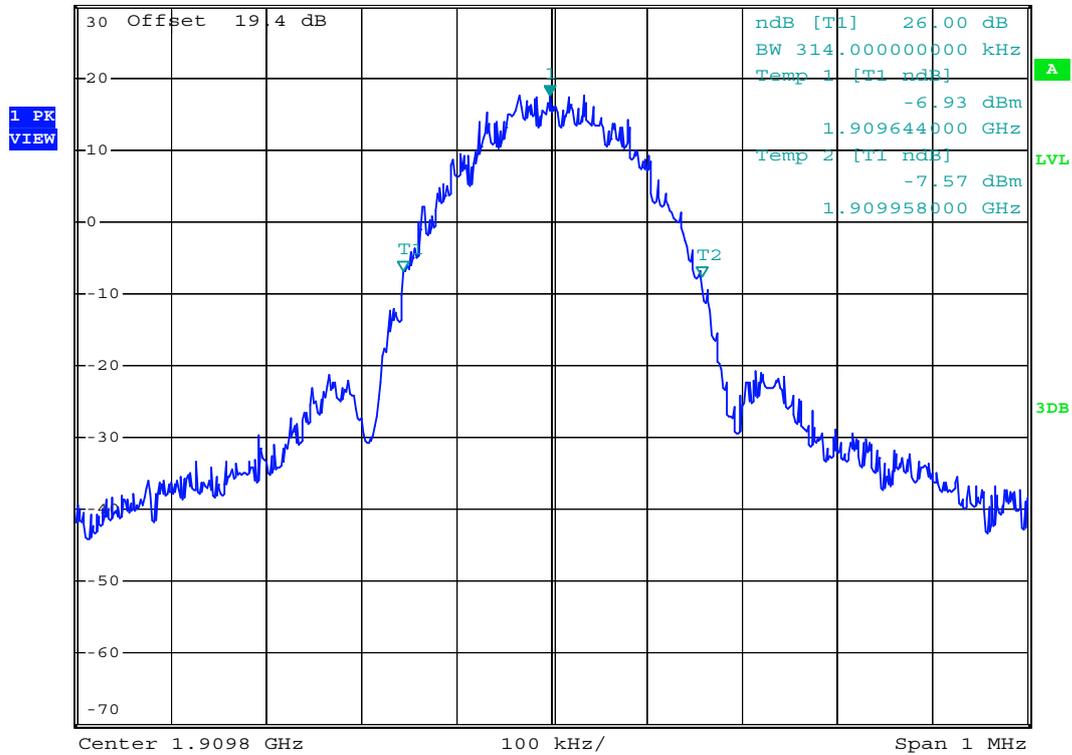
Date: 18.JUL.2008 14:17:17



- Test Mode : GSM1900 (EDGE) CH810 26dB Bandwidth
- Power State : High



*RBW 3 kHz Marker 1 [T1]
 *VBW 10 kHz 17.63 dBm
 *SWT 300 ms 1.909798000 GHz
 Ref 30 dBm *Att 30 dB



Date: 18.JUL.2008 14:18:14



- Test Mode : GSM1900(EDGE) CH810 Higher Band Edge
- Power State : High

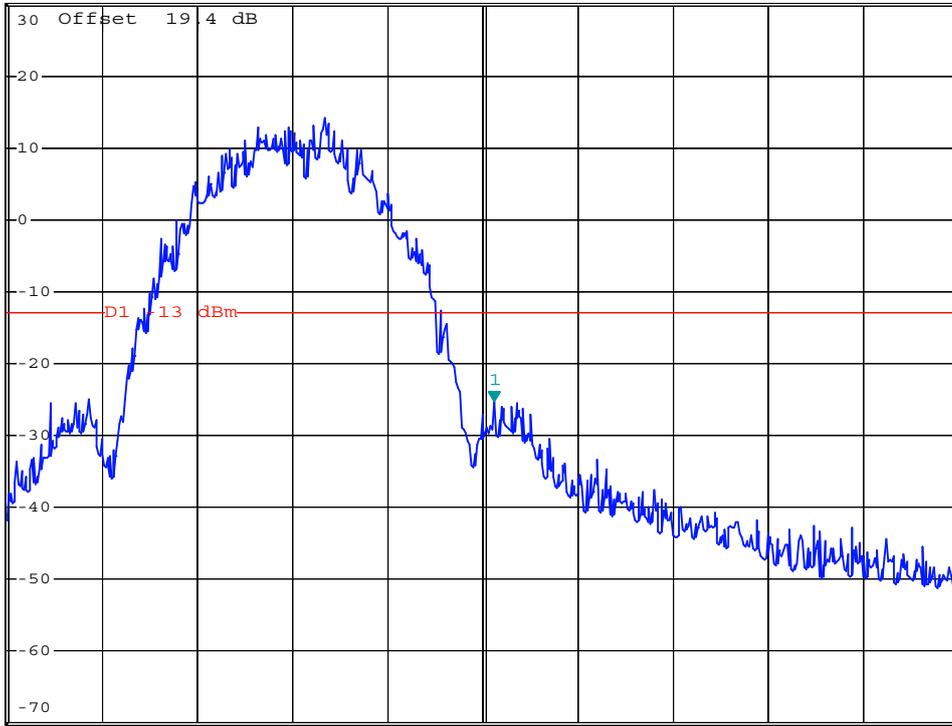


*RBW 3 kHz Marker 1 [T1]
 *VBW 3 kHz -25.17 dBm
 *SWT 300 ms 1.910012000 GHz

Ref 30 dBm

*Att 30 dB

1 AV *
VIEW



Center 1.91 GHz

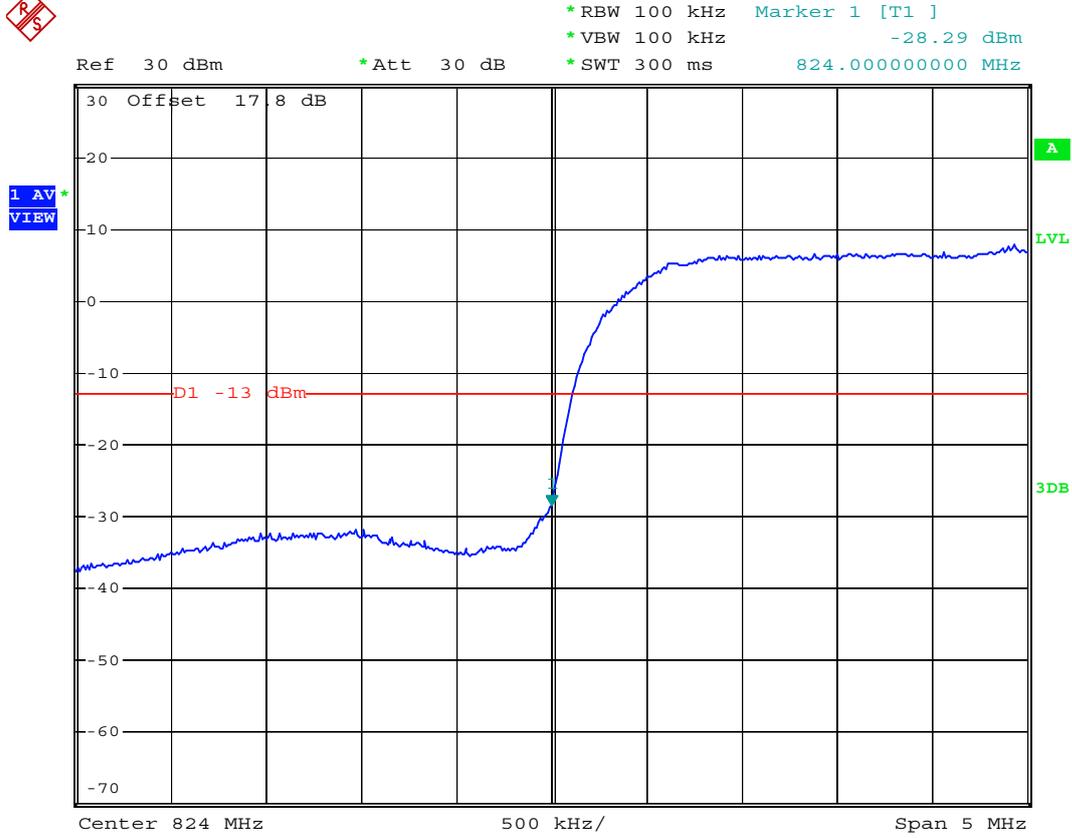
100 kHz/

Span 1 MHz

Date: 18.JUL.2008 14:25:10



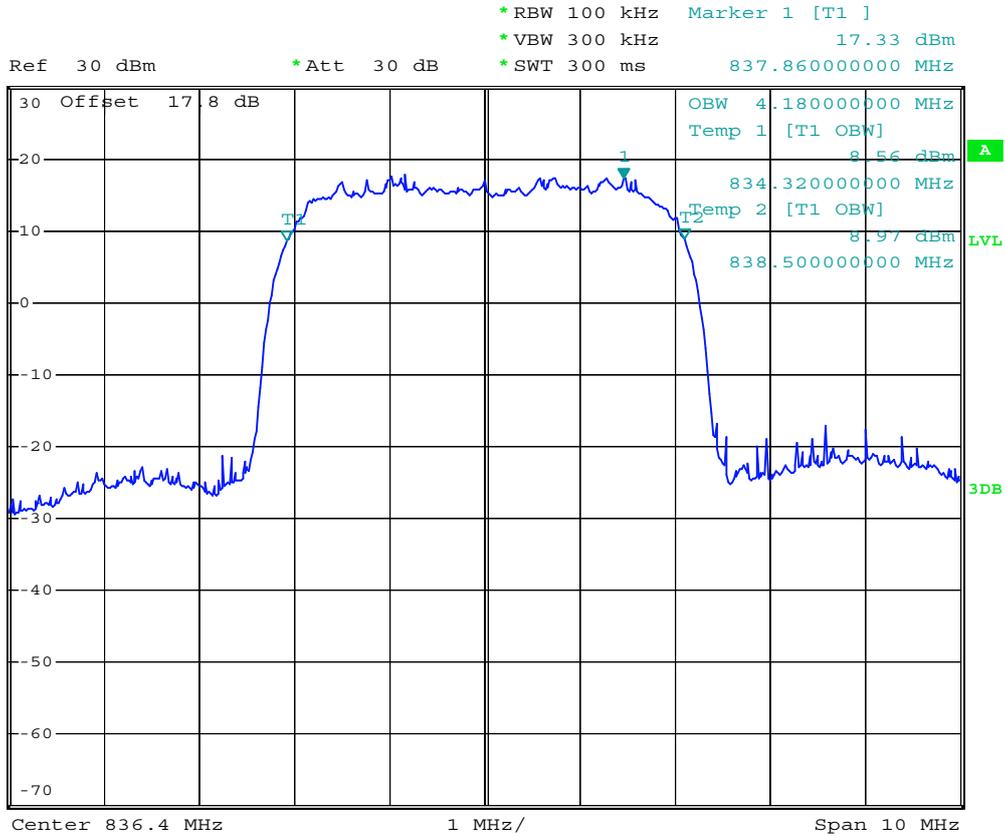
- Mode 5
- Test Mode : WCDMA Band V CH4132 Lower Band Edge
- Power State : High



Date: 20.NOV.2008 21:52:25



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



Date: 20.NOV.2008 21:43:32



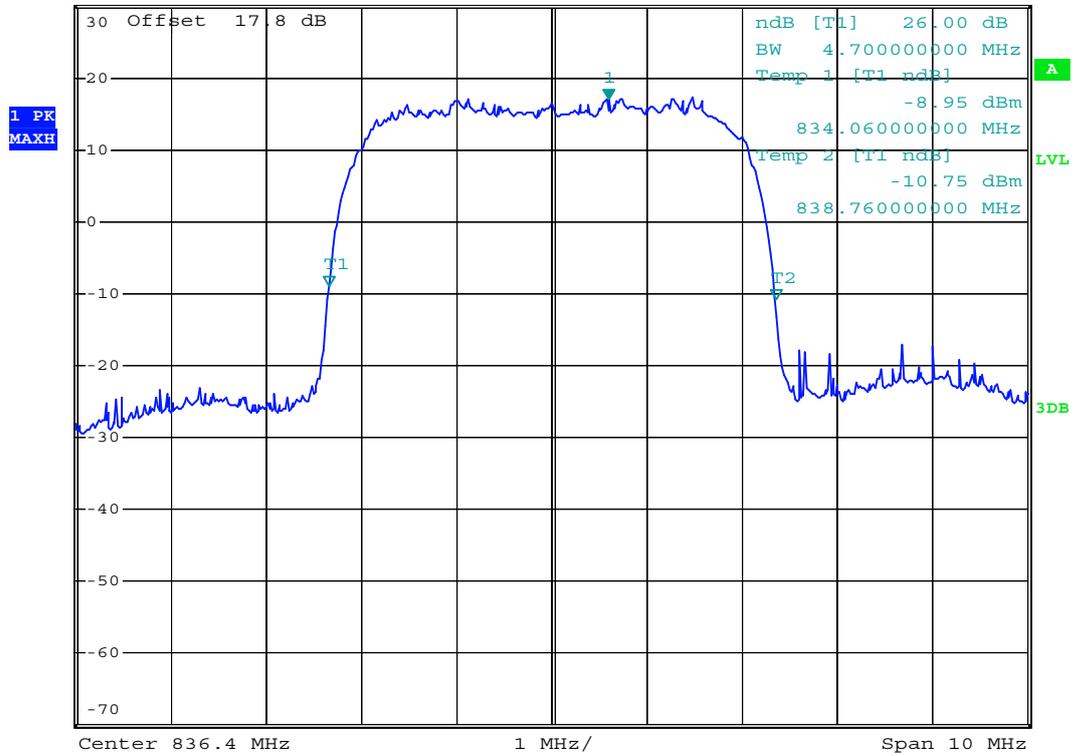
- Test Mode : WCDMA Band V CH4182 26dB Bandwidth
- Power State : High



*RBW 100 kHz Marker 1 [T1]
 *VBW 300 kHz 17.11 dBm
 *SWT 300 ms 837.000000000 MHz

Ref 30 dBm

*Att 30 dB



Date: 20.NOV.2008 21:42:03



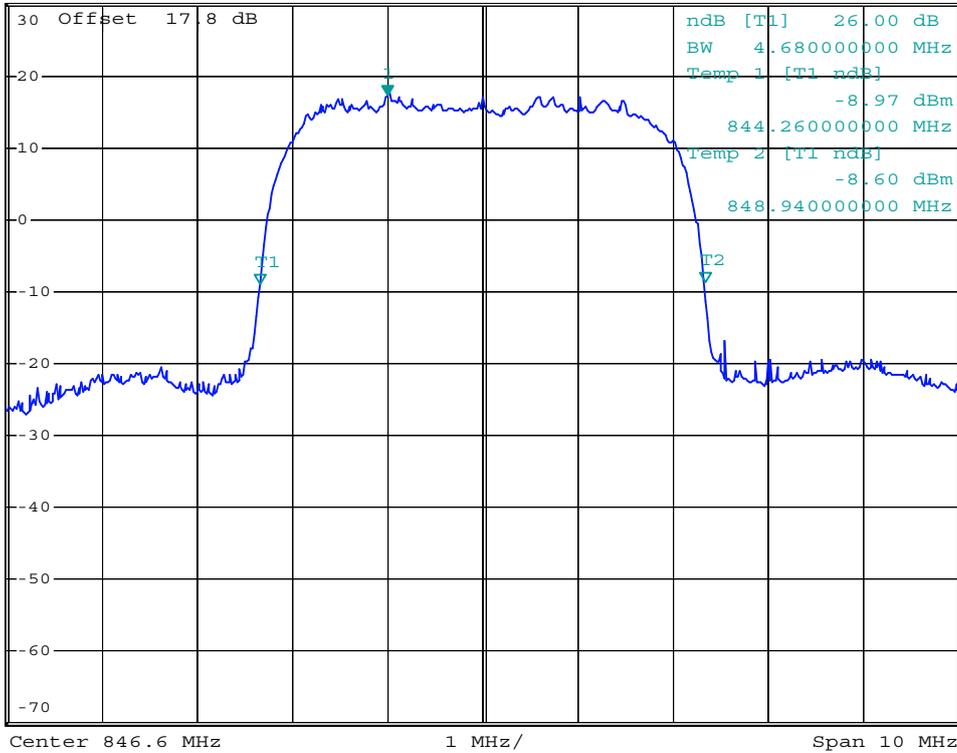
- Test Mode : WCDMA Band V CH4233 26dB Bandwidth
- Power State : High



*RBW 100 kHz Marker 1 [T1]
 *VBW 300 kHz 17.23 dBm
 *SWT 300 ms 845.600000000 MHz

Ref 30 dBm

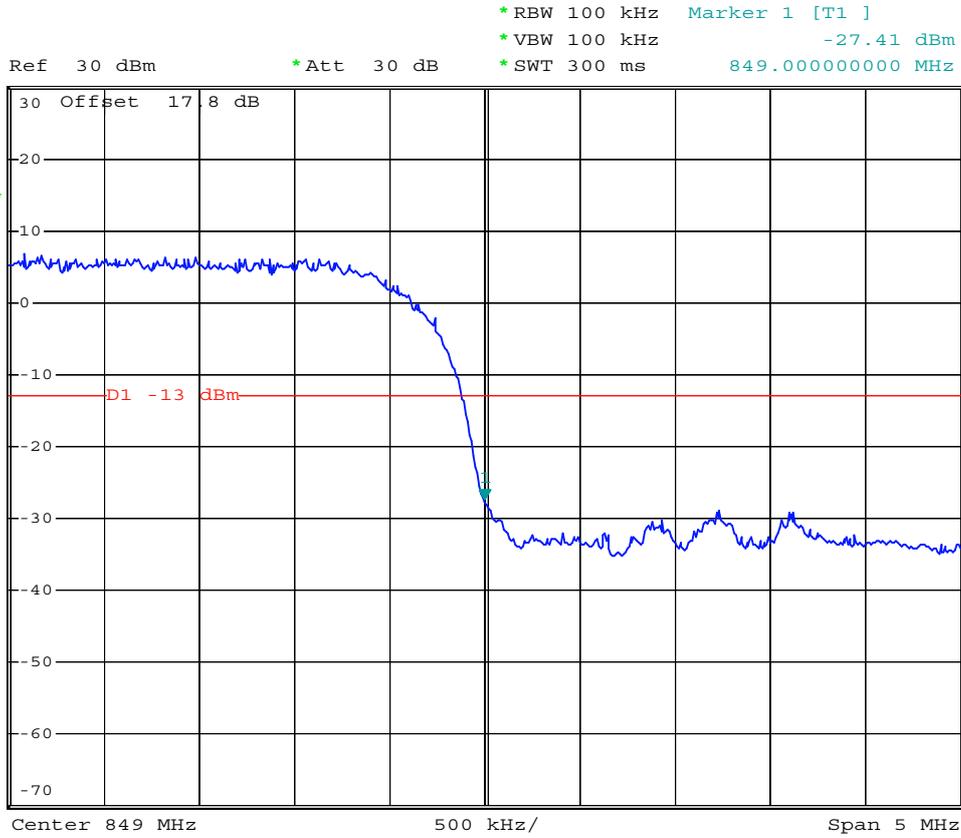
*Att 30 dB



Date: 20.NOV.2008 21:42:31



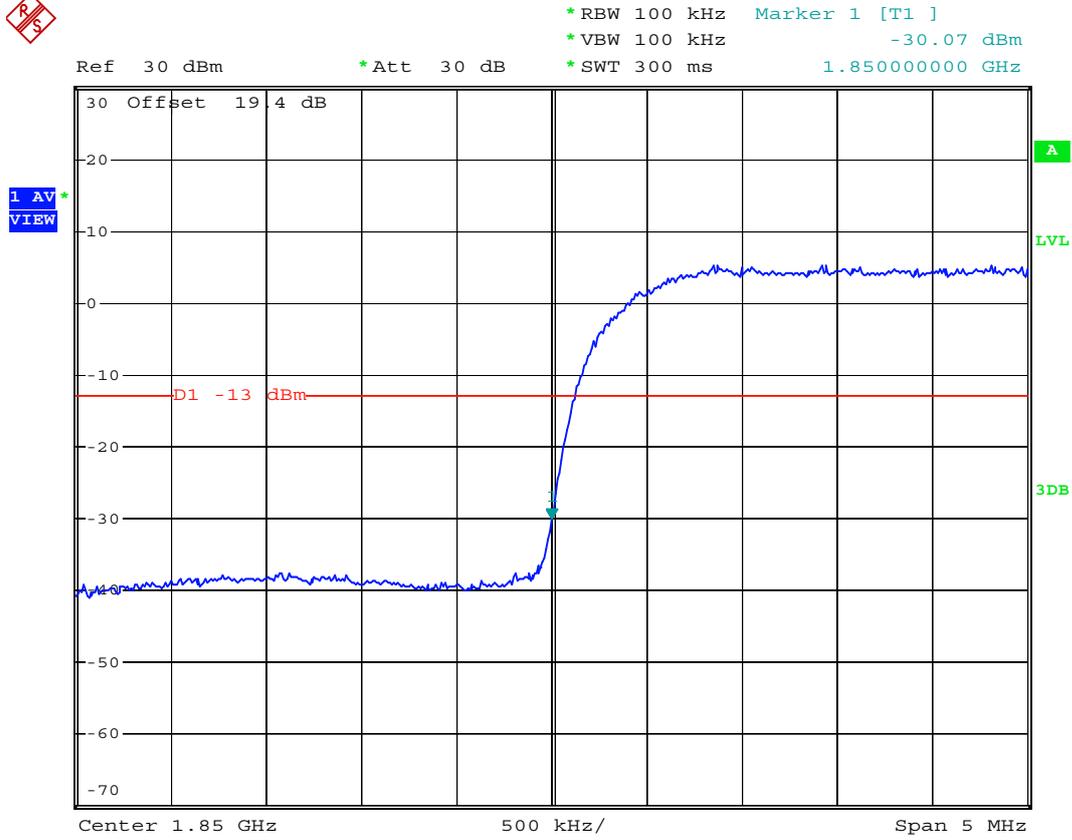
- Test Mode : WCDMA Band V CH4233 Higher Band Edge
- Power State : High



Date: 20.NOV.2008 21:53:21



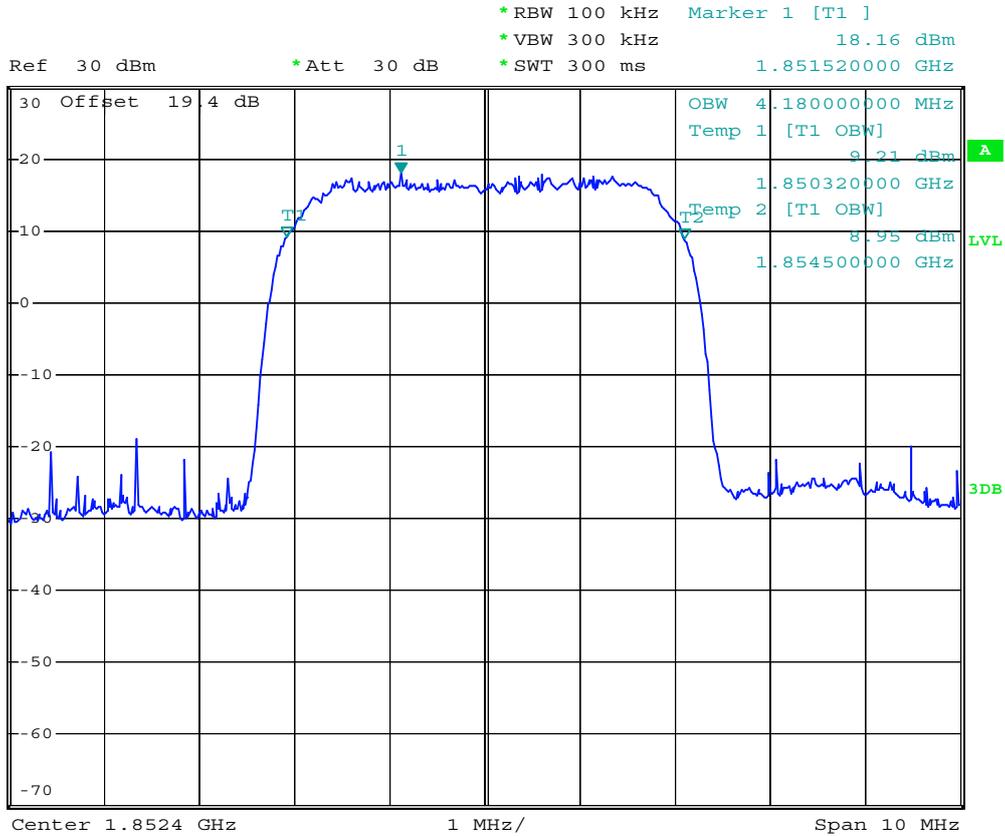
- Mode 6
- Test Mode : WCDMA Band II CH9262 Lower Band Edge
- Power State : High



Date: 18.JUL.2008 17:17:59



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



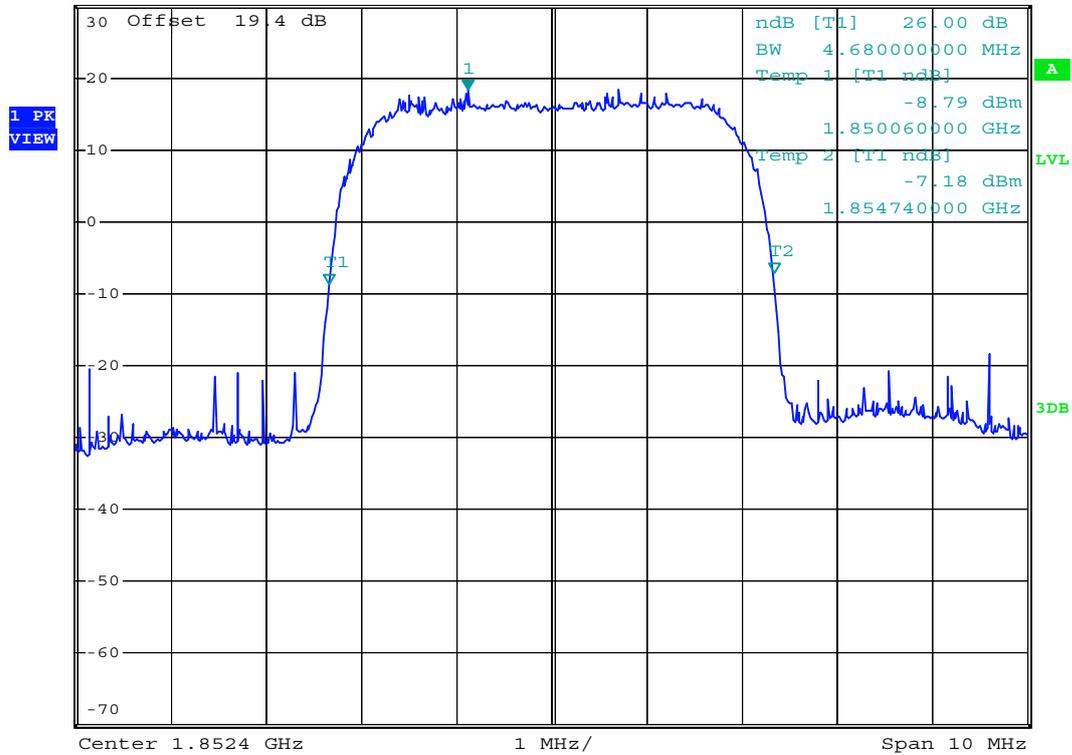
Date: 18.JUL.2008 17:04:22



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



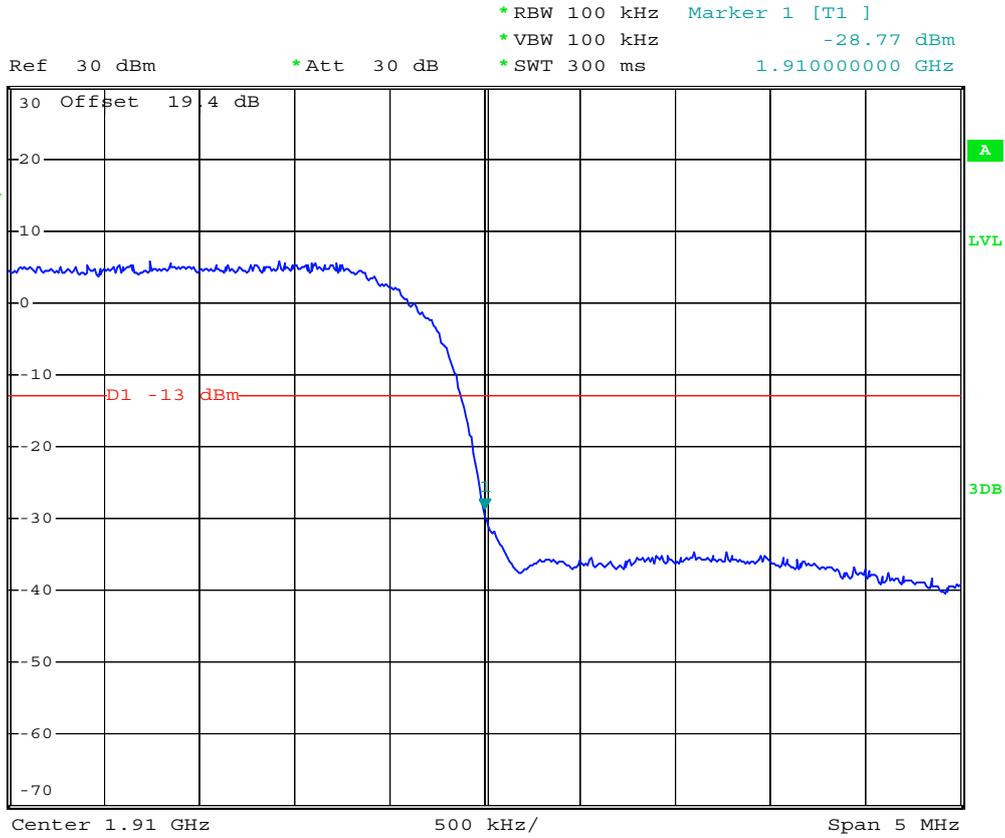
Ref 30 dBm *Att 30 dB *RBW 100 kHz Marker 1 [T1]
 *VBW 300 kHz 18.31 dBm
 *SWT 300 ms 1.851520000 GHz



Date: 18.JUL.2008 16:59:20



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



Date: 18.JUL.2008 17:24:28

4.5 Conducted Emission

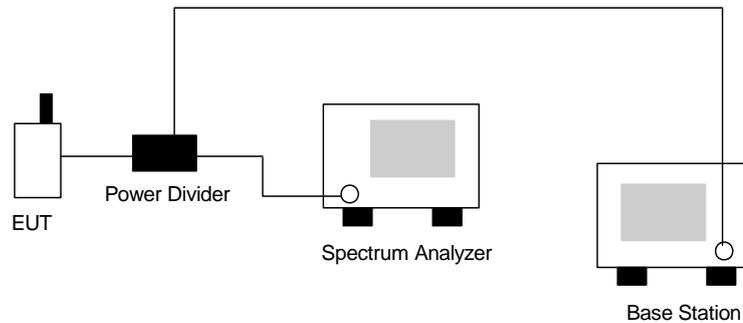
4.5.1 Measurement Instruments

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.

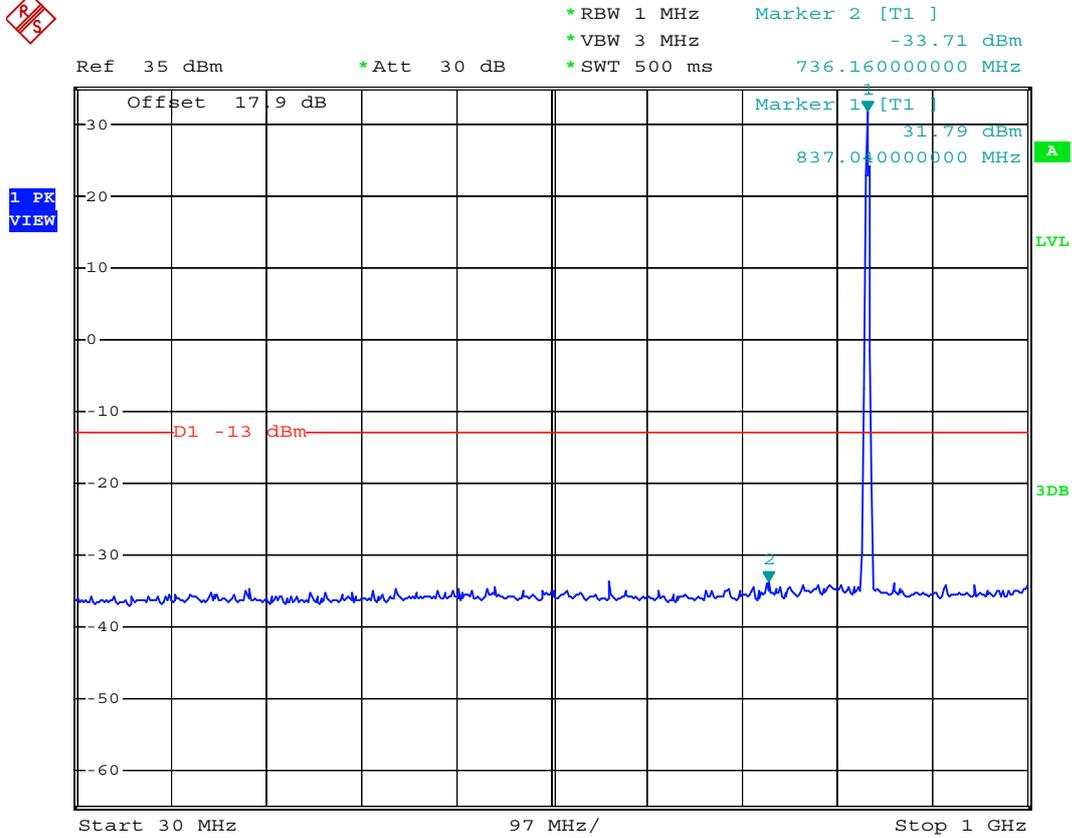
4.5.3 Test Setup Layout





4.5.4 Test Result

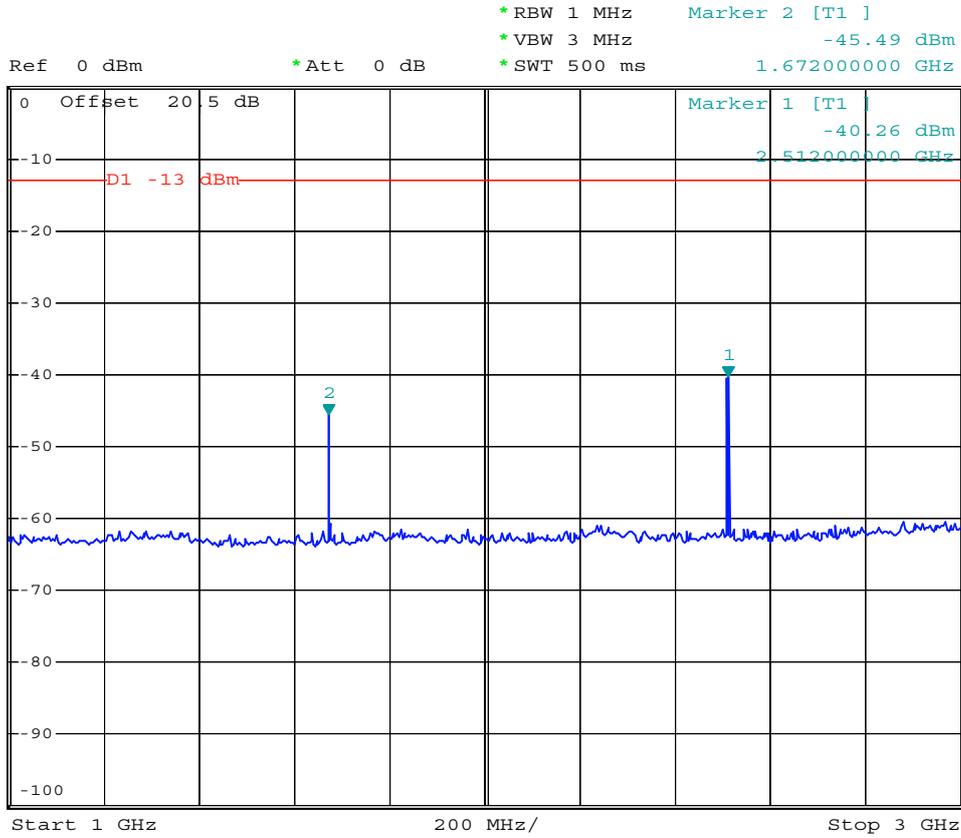
- Mode 1
- Test Mode : GSM850 (GSM) CH189
- Frequency Range : 30M-1G



Date: 18.JUL.2008 14:47:26



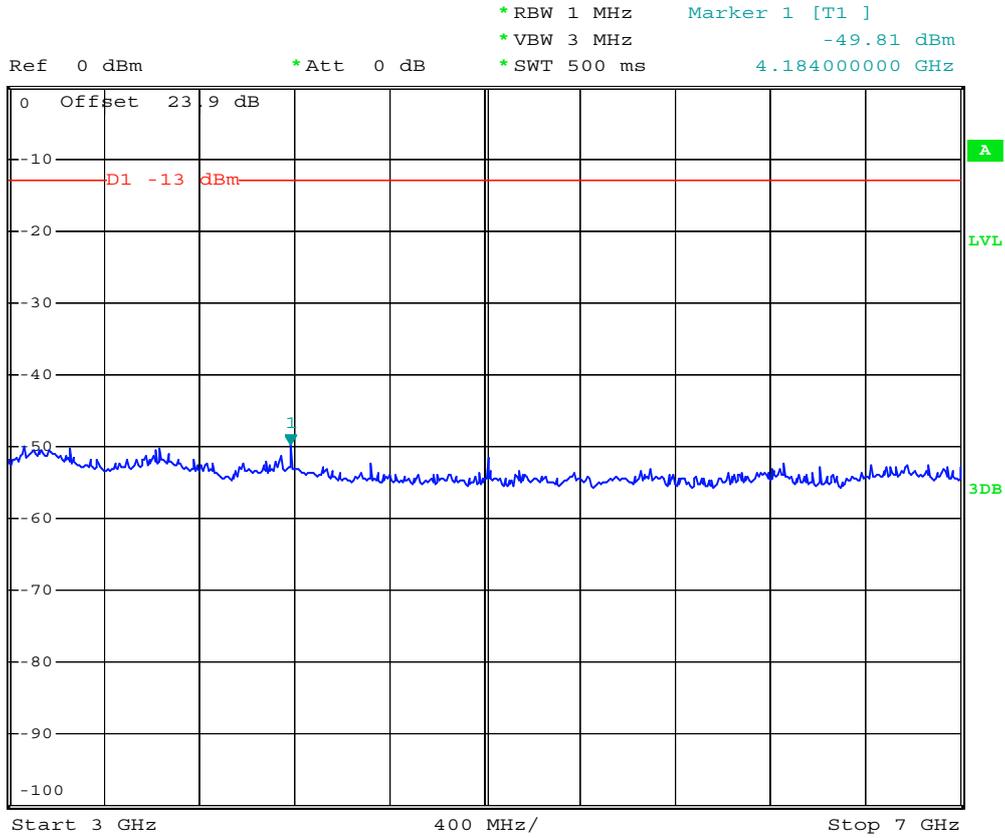
- Test Mode : GSM850 (GSM) CH189
- Frequency Range : 1G-3G



Date: 18.JUL.2008 16:19:11



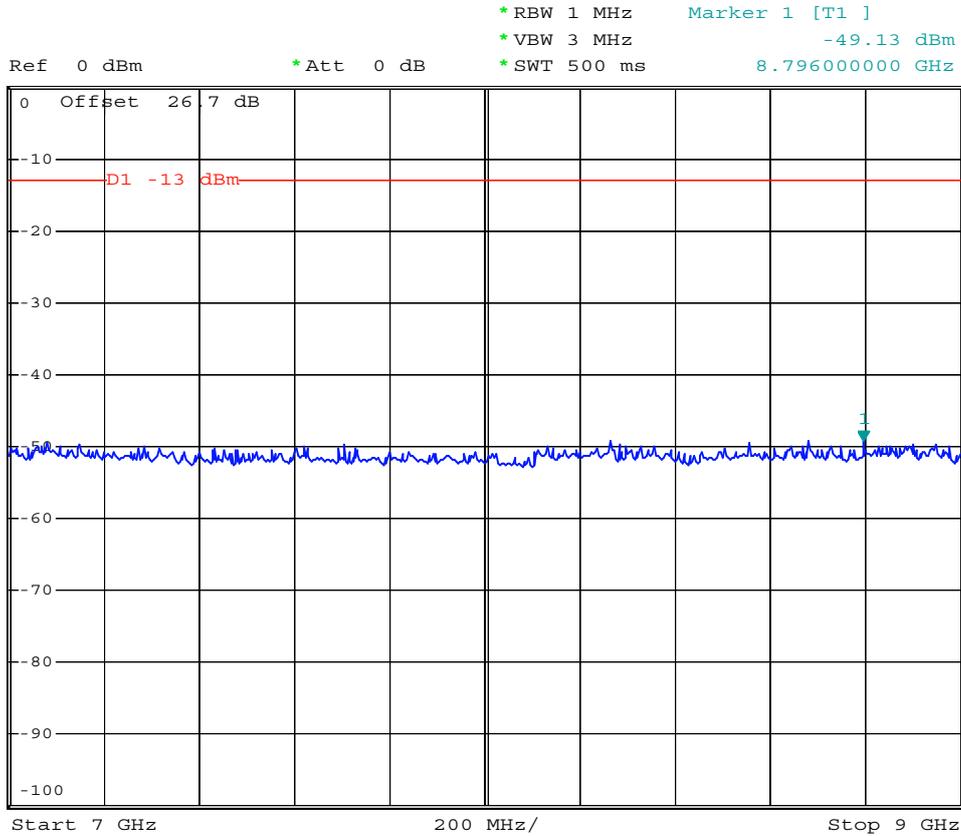
- Test Mode : GSM850 (GSM) CH189
- Frequency Range : 3G-7G



Date: 18.JUL.2008 16:21:57



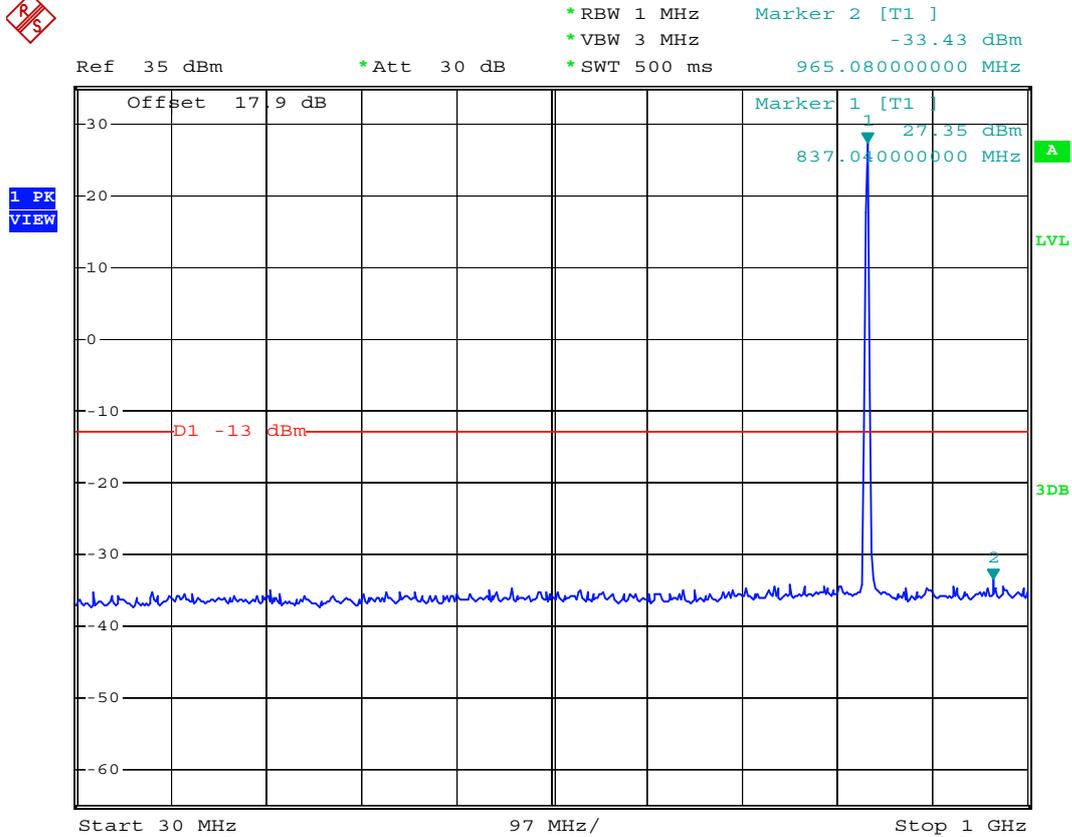
- Test Mode : GSM850 (GSM) CH189
- Frequency Range : 7G-9G



Date: 18.JUL.2008 16:23:14



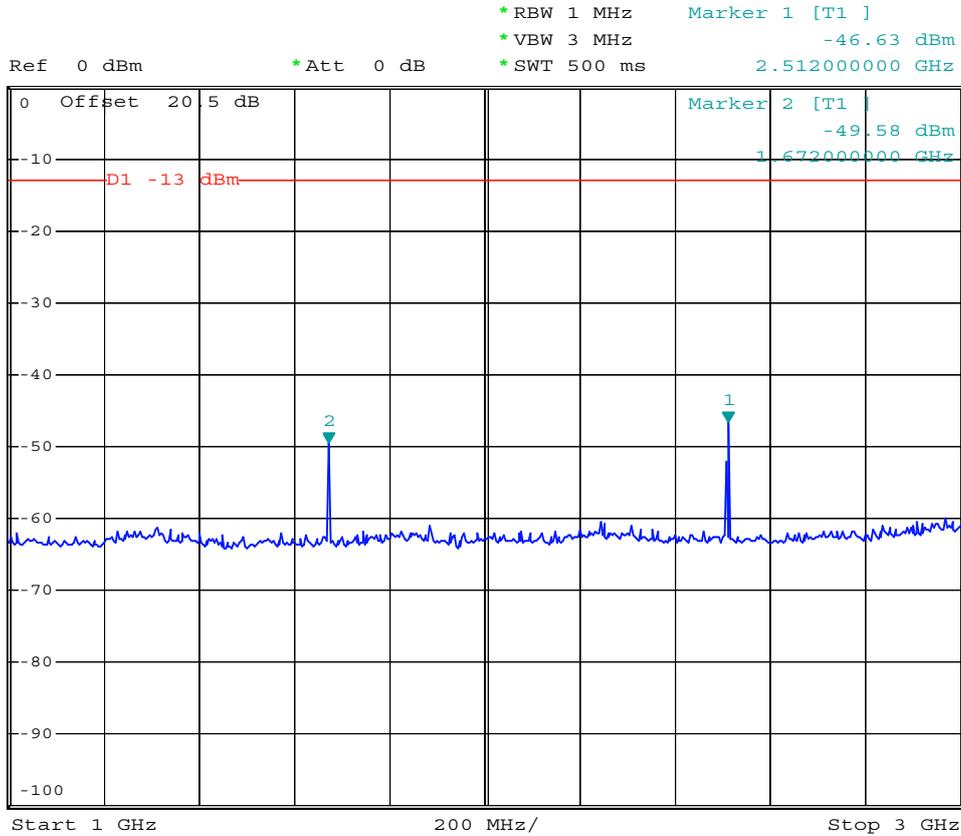
- Mode 2
- Test Mode : GSM850 (EDGE) CH189
- Frequency Range : 30M-1G



Date: 18.JUL.2008 14:45:33



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



Date: 18.JUL.2008 16:19:38



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

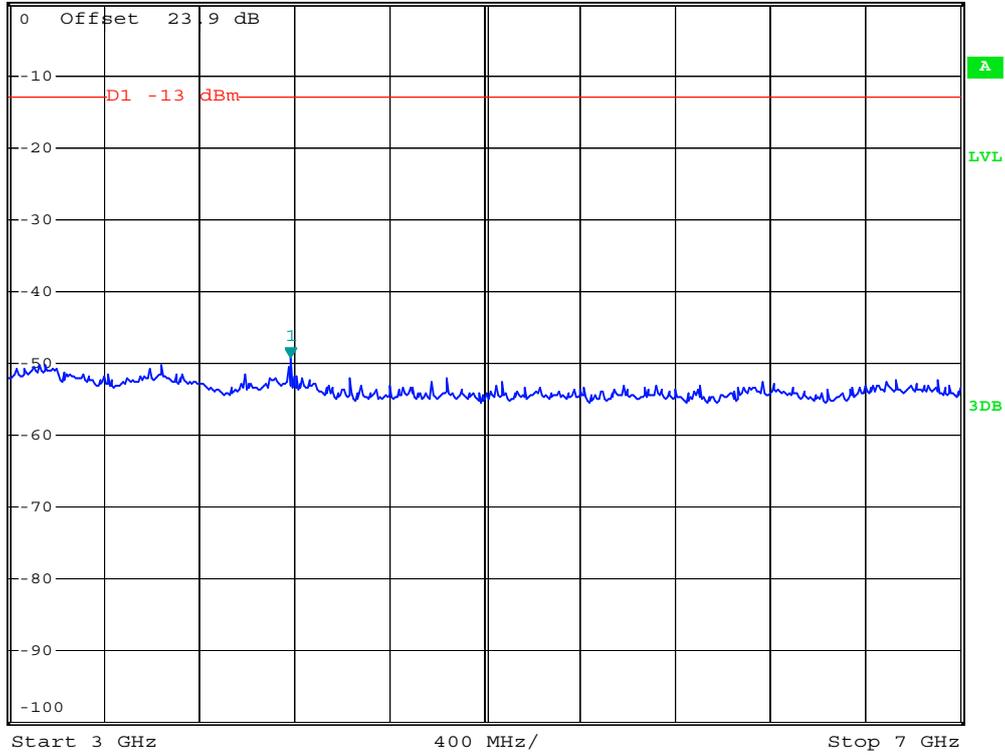


*RBW 1 MHz Marker 1 [T1]
 *VBW 3 MHz -49.21 dBm
 *SWT 500 ms 4.184000000 GHz

Ref 0 dBm

*Att 0 dB

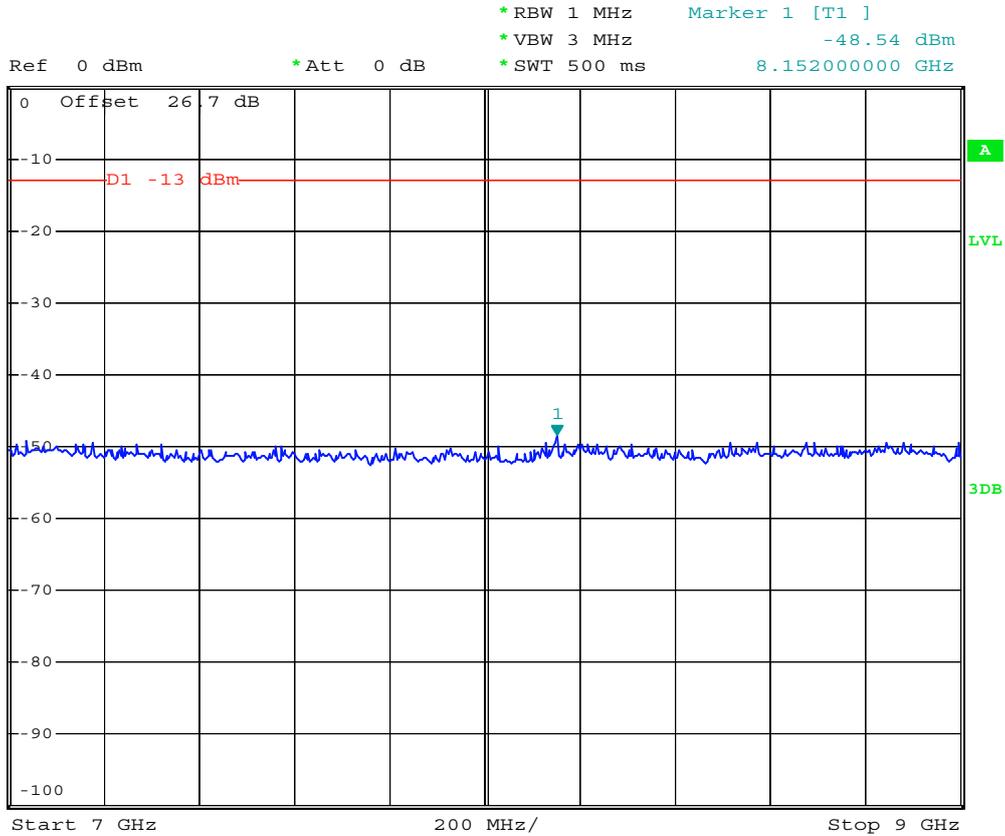
1 PK
VIEW



Date: 18.JUL.2008 16:20:22



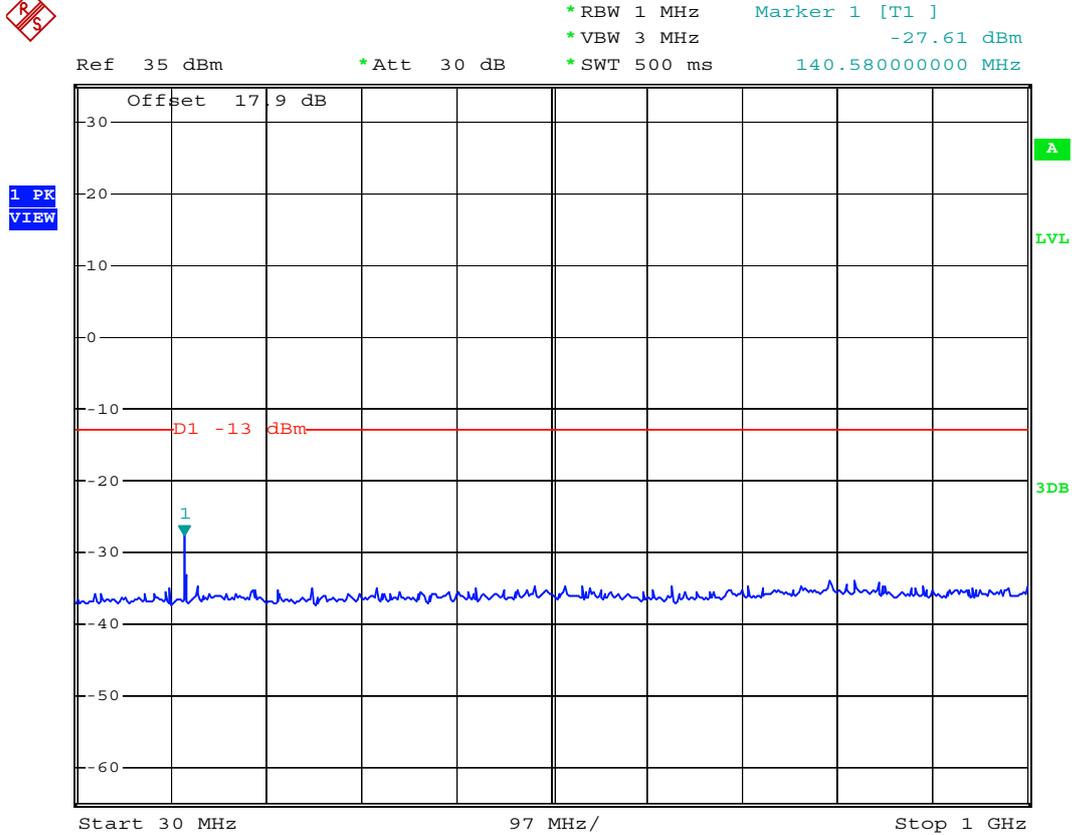
- Test Mode : GSM850 (EDGE) CH189
- Frequency Range : 7G-9G



Date: 18.JUL.2008 16:23:38



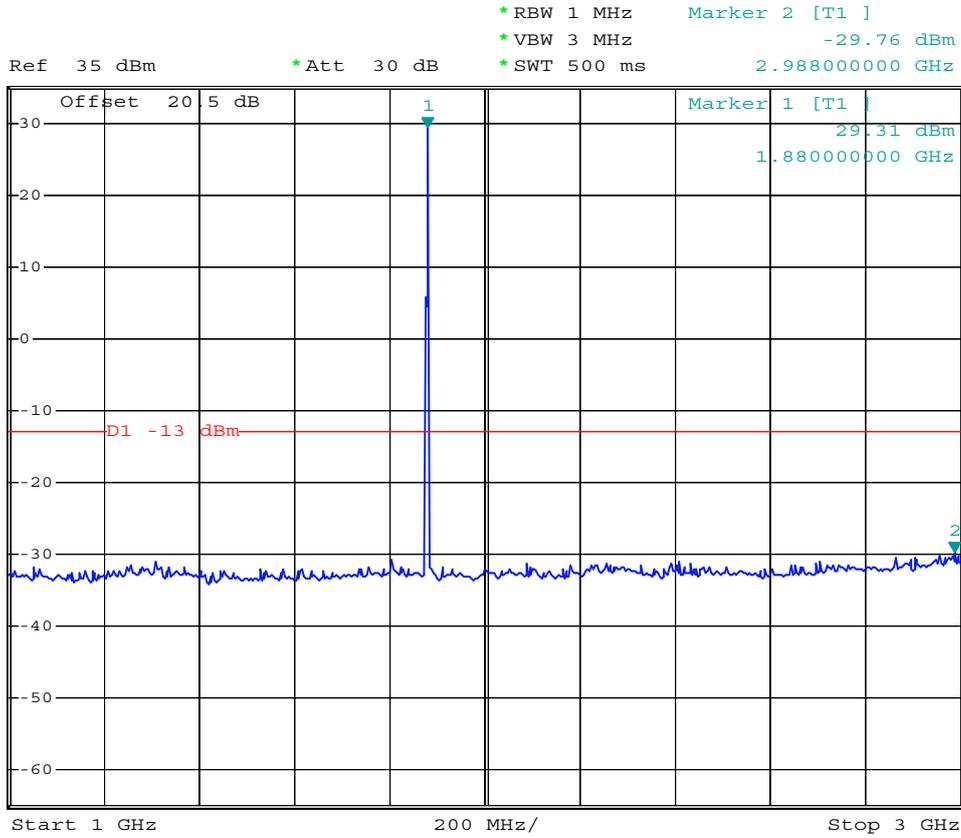
- Mode 3
- Test Mode : GSM1900 (GSM) CH661
- Frequency Range : 30M-1G



Date: 18.JUL.2008 14:46:16



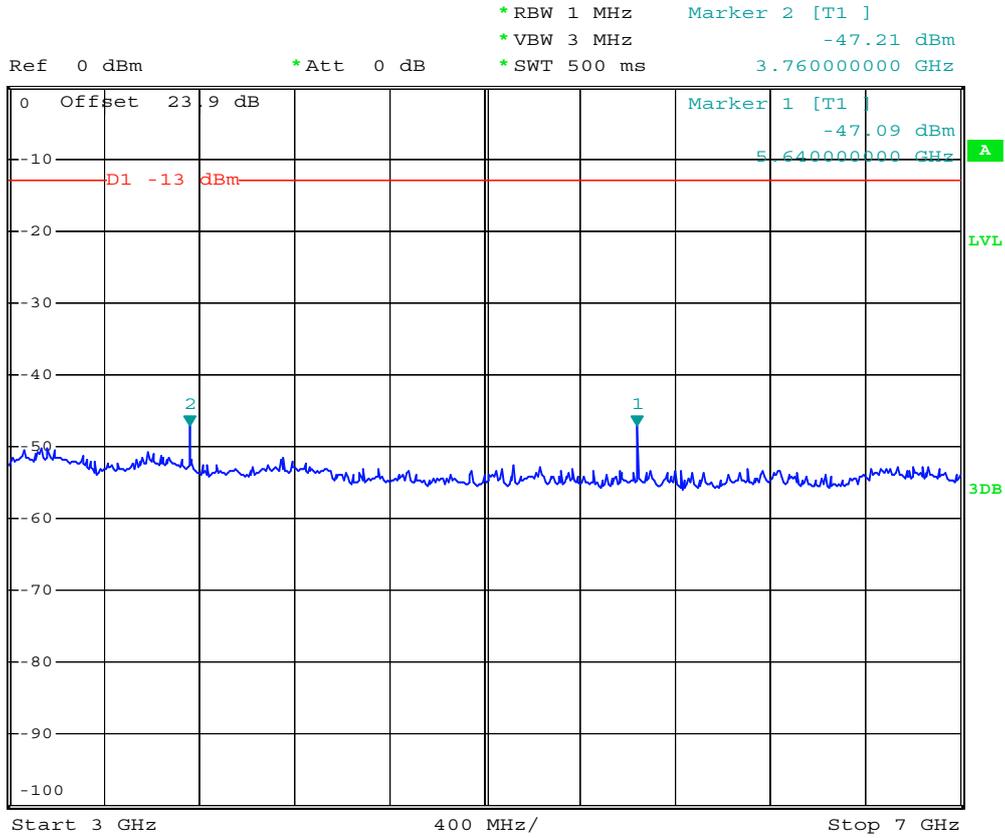
- Test Mode : GSM1900 (GSM) CH661
- Frequency Range : 1G-3G



Date: 18.JUL.2008 14:49:16



- Test Mode : GSM1900 (GSM) CH661
- Frequency Range : 3G-7G



Date: 18.JUL.2008 16:22:20



- Test Mode : GSM1900 (GSM) CH661
- Frequency Range : 7G-13.6G

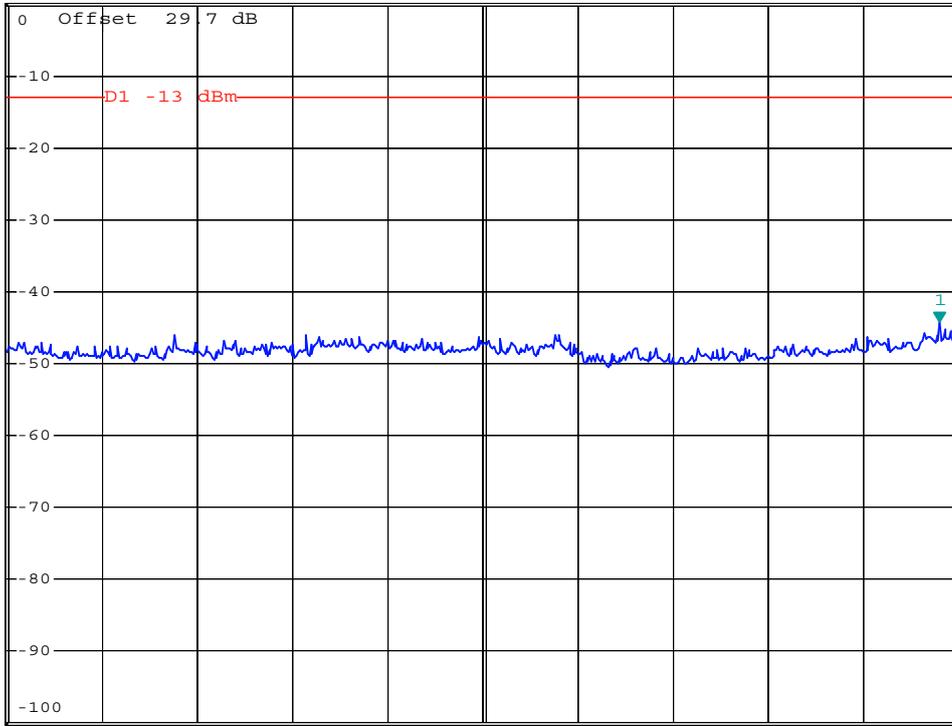


*RBW 1 MHz Marker 1 [T1]
 *VBW 3 MHz -44.18 dBm
 *SWT 500 ms 13.468000000 GHz

Ref 0 dBm

*Att 0 dB

1 PK
VIEW



Start 7 GHz

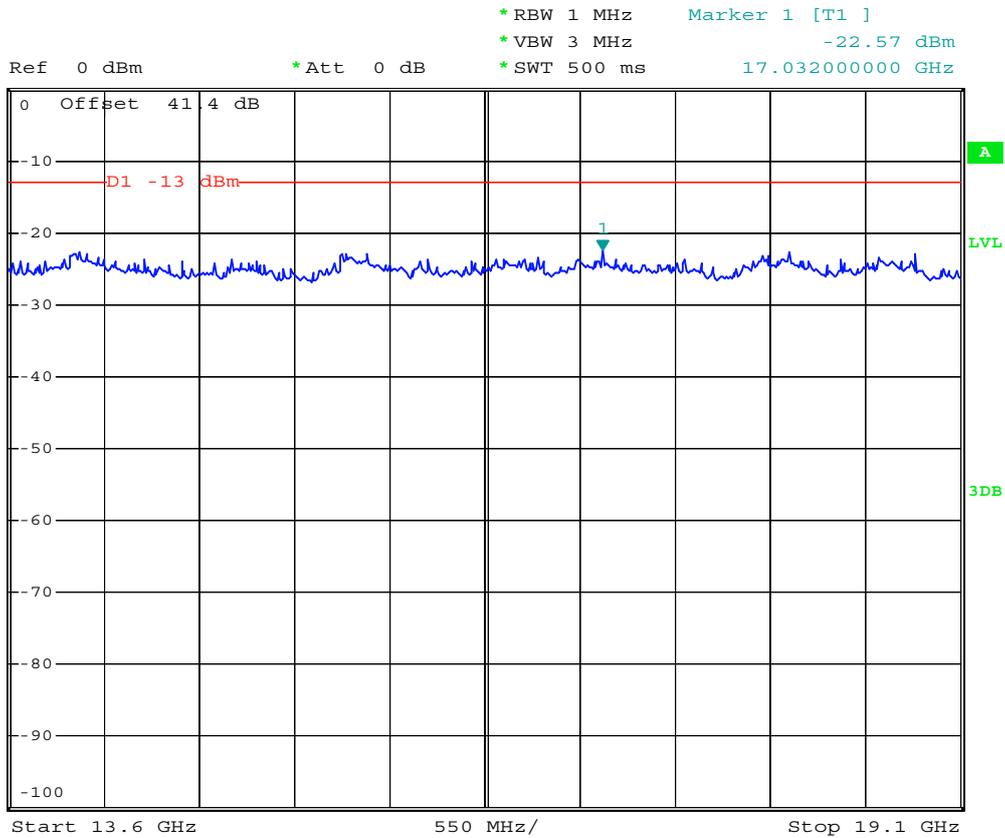
660 MHz/

Stop 13.6 GHz

Date: 18.JUL.2008 16:25:36



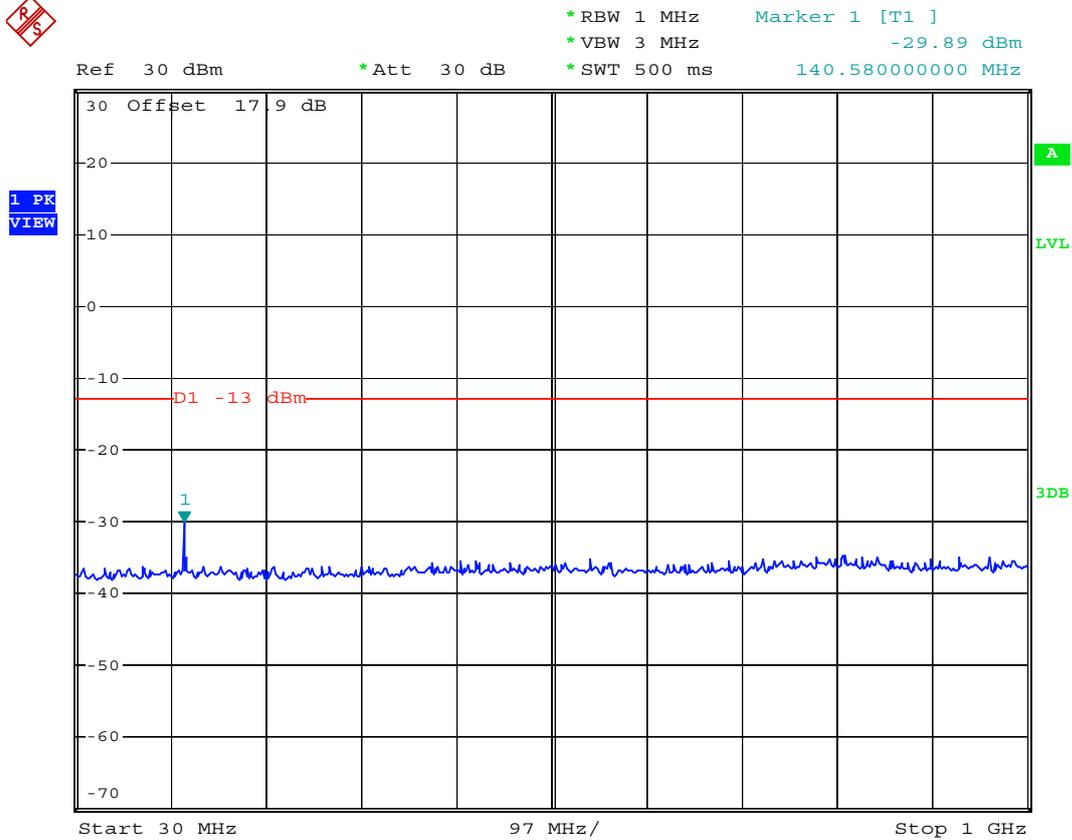
- Test Mode : GSM1900 (GSM) CH661
- Frequency Range : 13.6G-19.1G



Date: 18.JUL.2008 16:27:00



- Mode 4
- Test Mode : GSM1900 (EDGE) CH661
- Frequency Range : 30M-1G



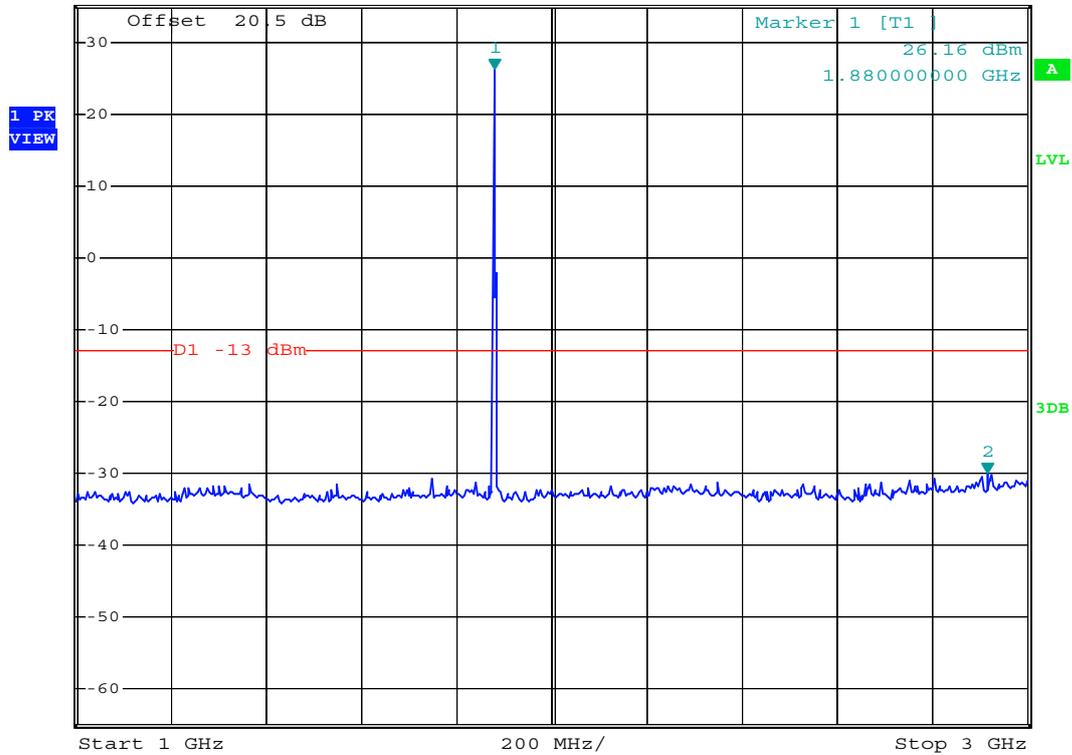
Date: 18.JUL.2008 14:34:13



- Test Mode : GSM1900 (EDGE) CH661
- Frequency Range : 1G-3G



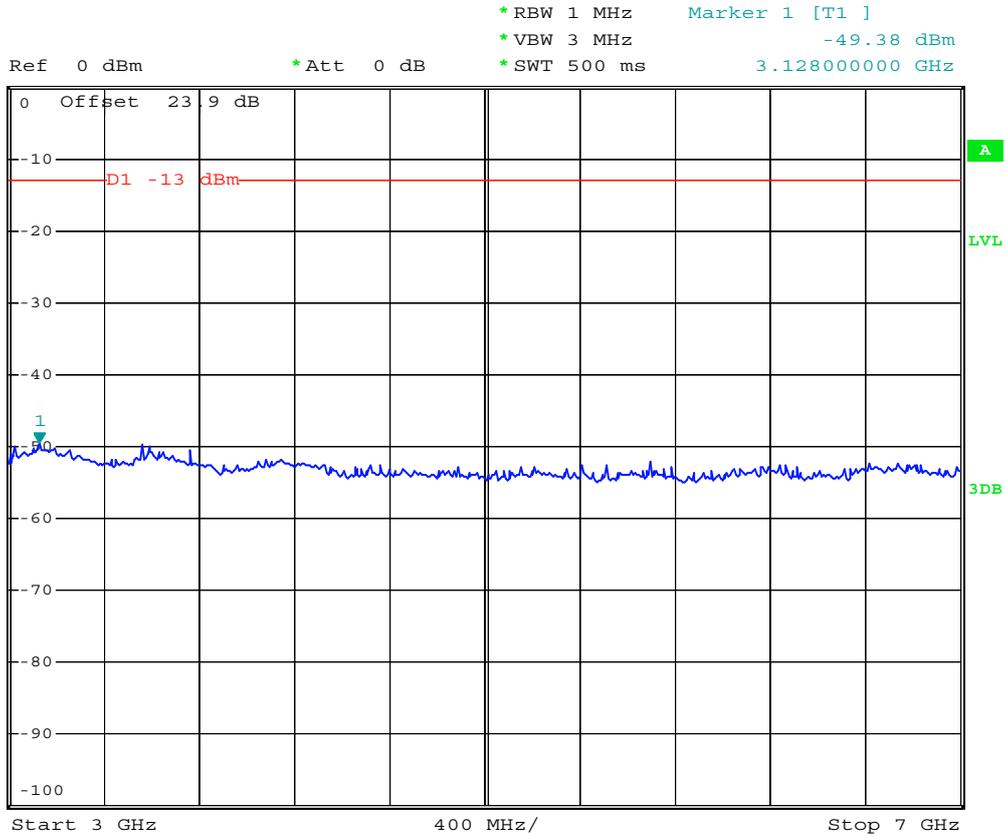
Ref 35 dBm *Att 30 dB *RBW 1 MHz Marker 2 [T1]
 *VBW 3 MHz -29.86 dBm
 *SWT 500 ms 2.916000000 GHz



Date: 18.JUL.2008 14:56:17



- Test Mode : GSM1900 (EDGE) CH661
- Frequency Range : 3G-7G



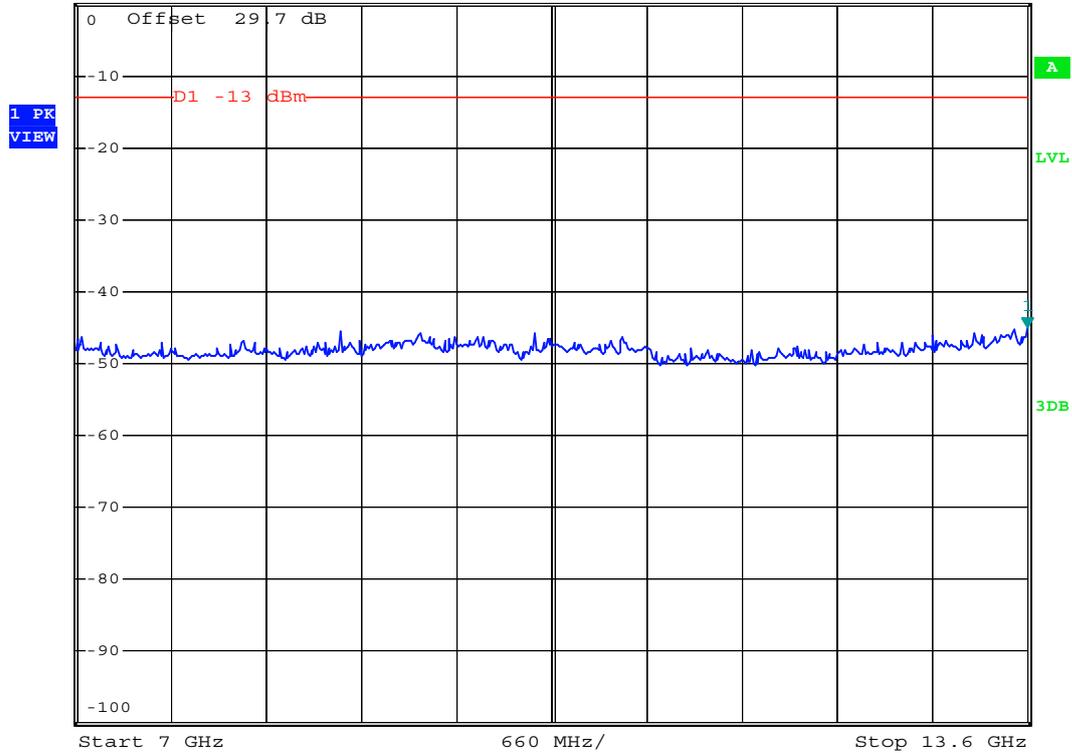
Date: 18.JUL.2008 16:21:17



- Test Mode : GSM1900 (EDGE) CH661
- Frequency Range : 7G-13.6G



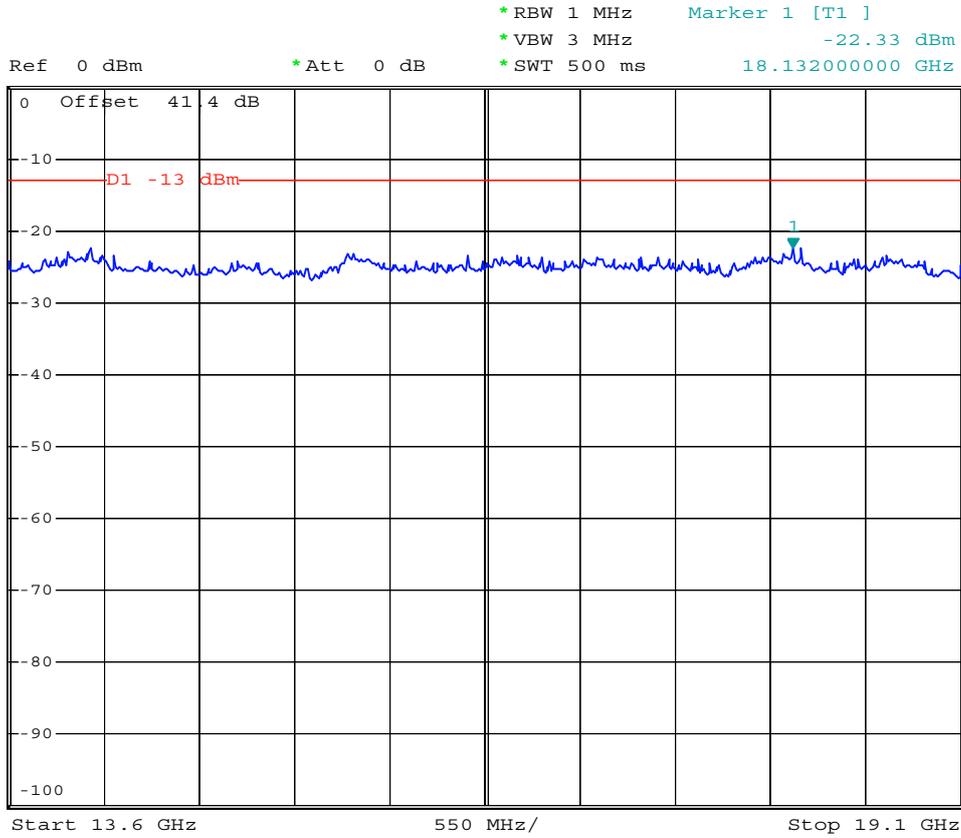
Ref 0 dBm *Att 0 dB *RBW 1 MHz Marker 1 [T1]
*VBW 3 MHz -45.07 dBm
*SWT 500 ms 13.600000000 GHz



Date: 18.JUL.2008 16:24:36



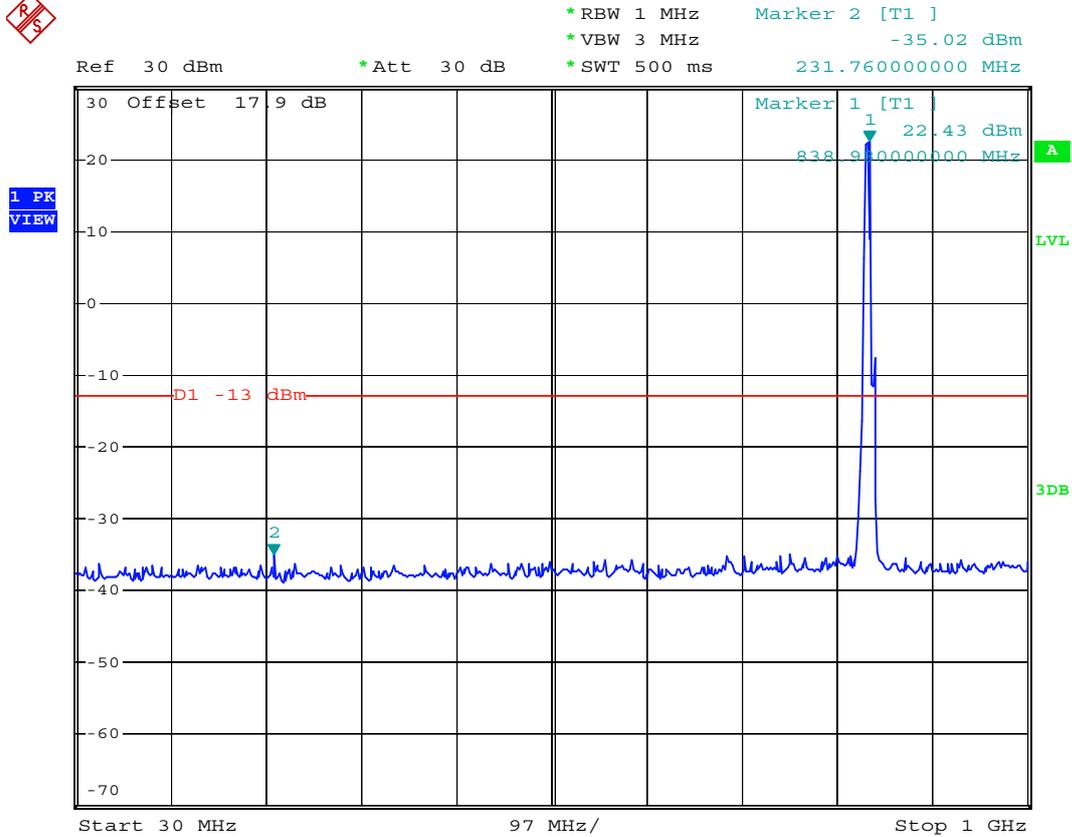
- Test Mode : GSM1900 (EDGE) CH661
- Frequency Range : 13.6G-19.1G



Date: 18.JUL.2008 16:27:45



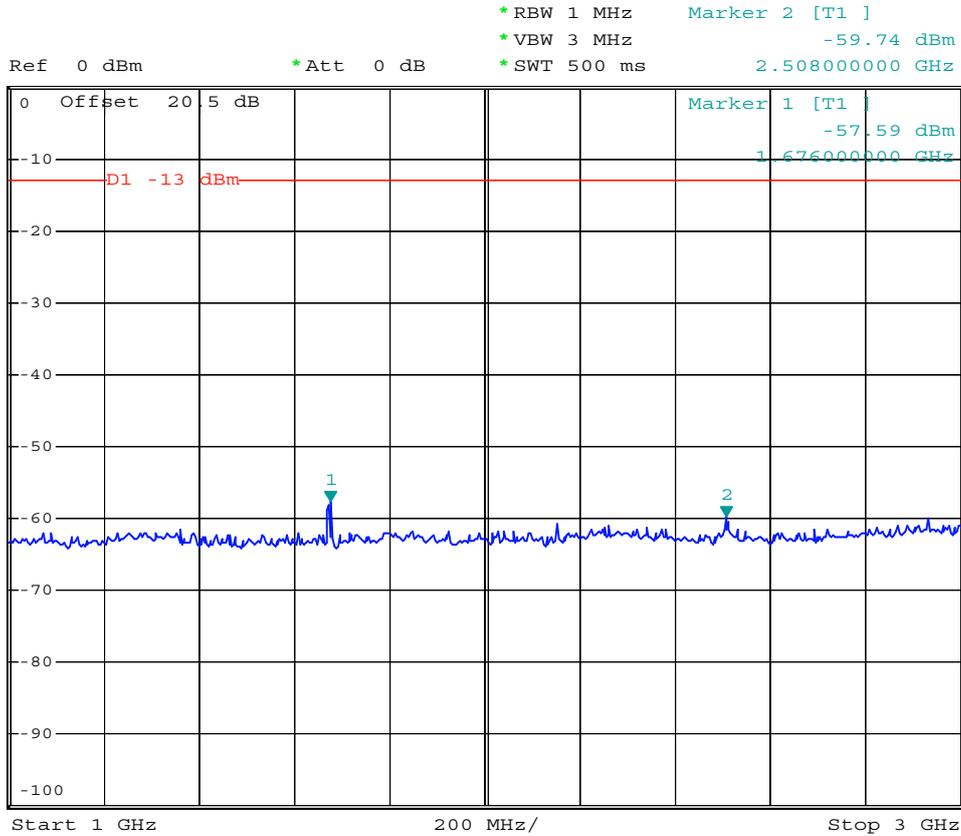
- Mode 5
- Test Mode : WCDMA Band V CH4182
- Frequency Range : 30M-1G



Date: 20.NOV.2008 23:22:18



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



Date: 20.NOV.2008 23:26:45



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

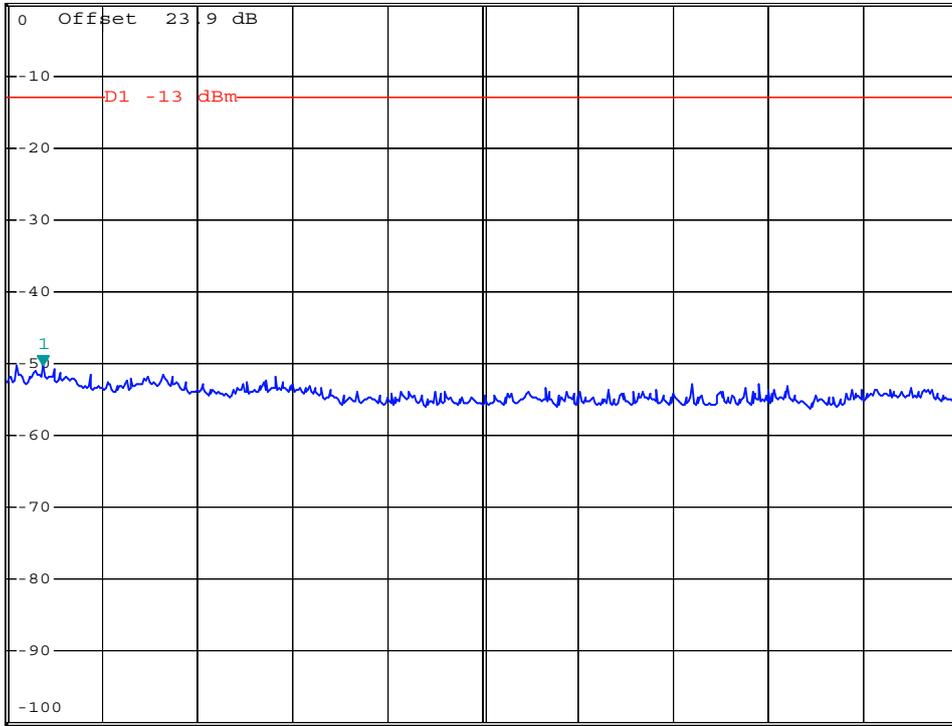


*RBW 1 MHz Marker 1 [T1]
 *VBW 3 MHz -50.37 dBm
 *SWT 500 ms 3.152000000 GHz

Ref 0 dBm

*Att 0 dB

1 PK
VIEW



Start 3 GHz

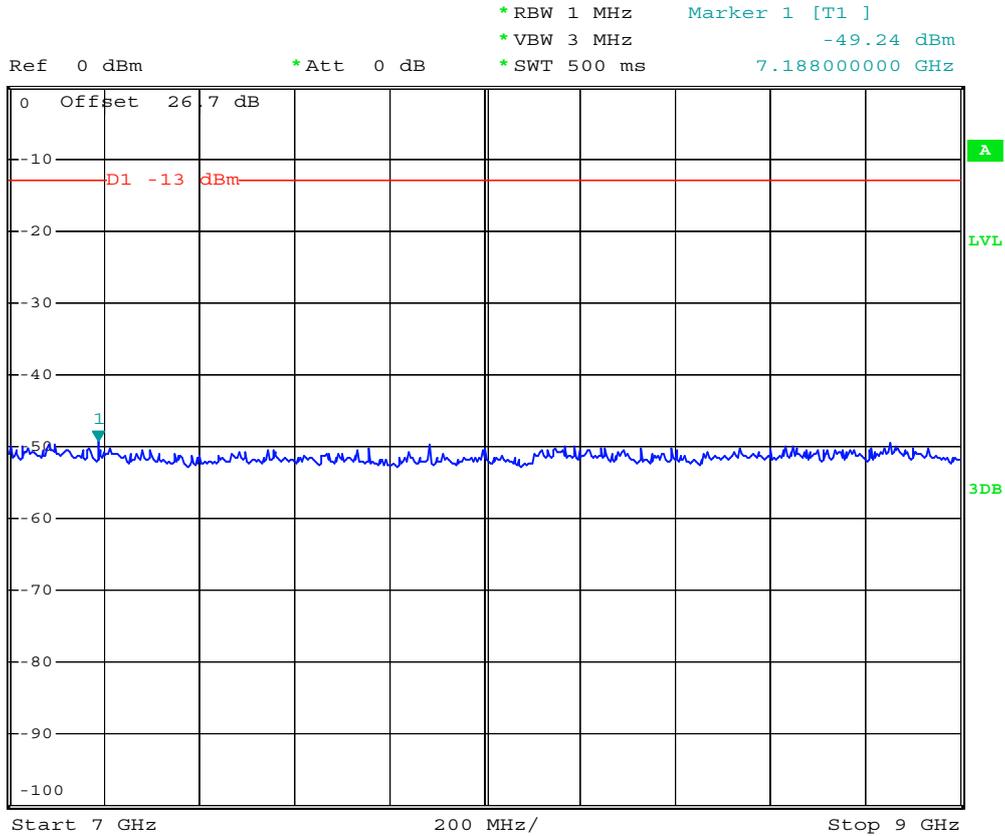
400 MHz/

Stop 7 GHz

Date: 20.NOV.2008 23:30:34



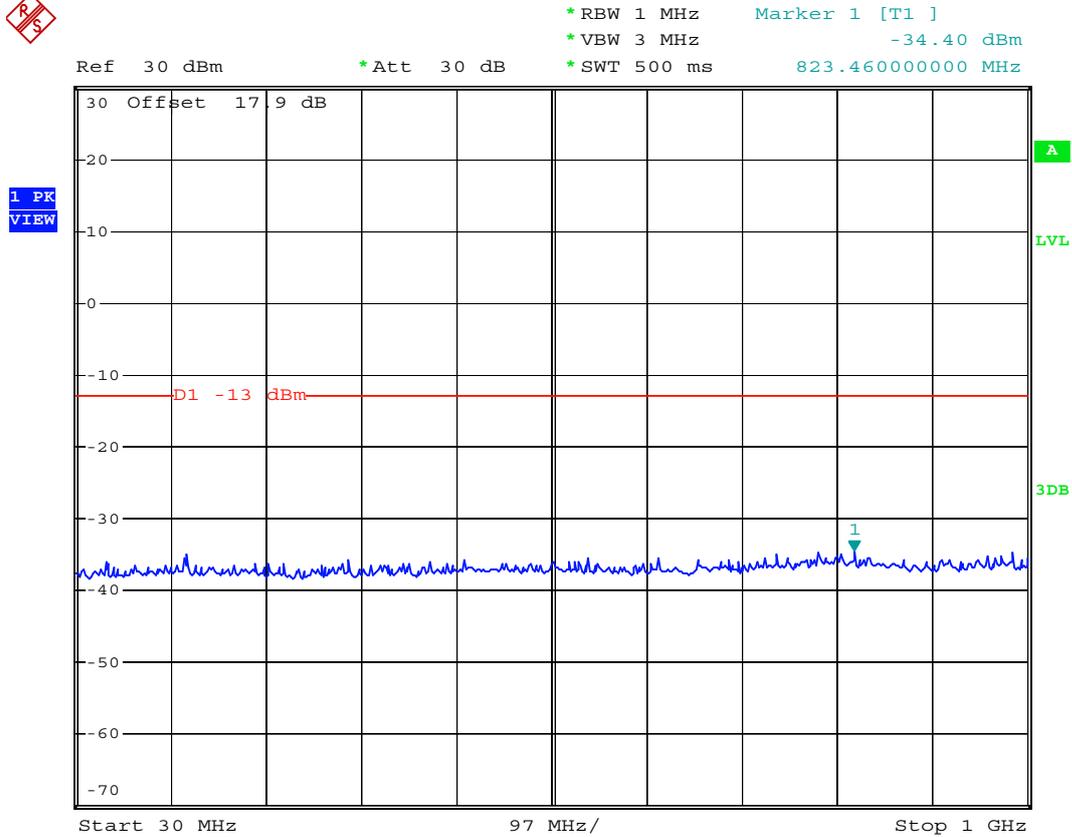
- Test Mode : WCDMA Band V CH4182
- Frequency Range : 7G-9G



Date: 20.NOV.2008 23:32:24



- Mode 6
- Test Mode : WCDMA Band II CH9400
- Frequency Range : 30M-1G



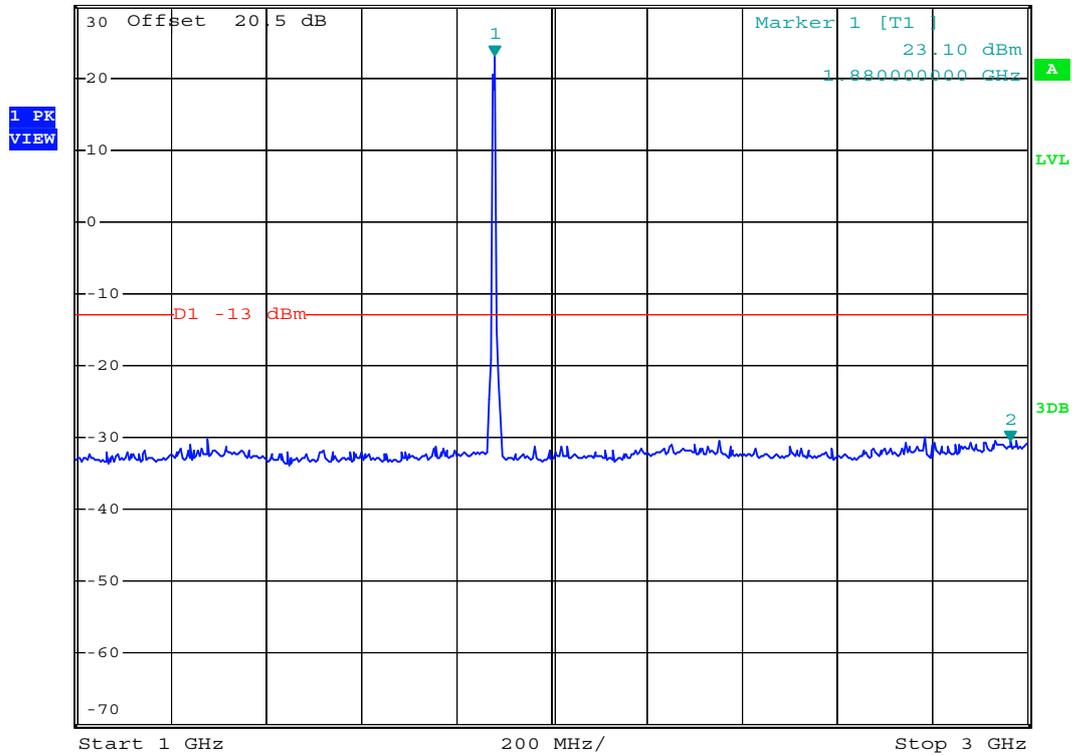
Date: 18.JUL.2008 17:37:00



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



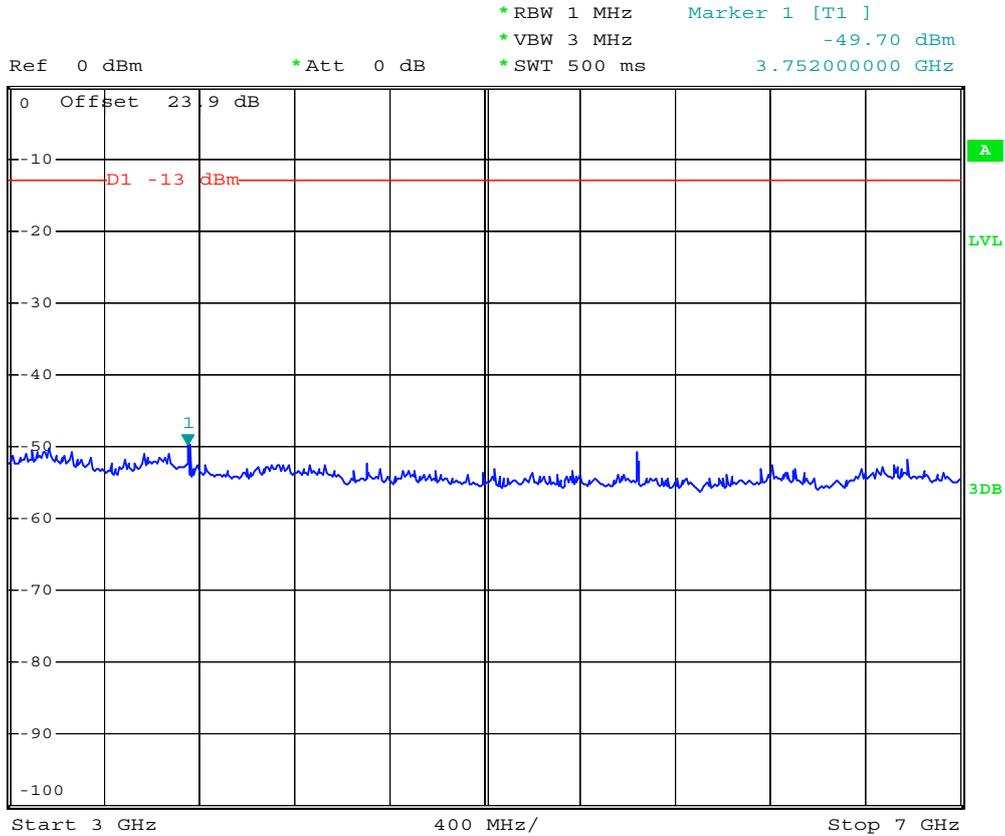
Ref 30 dBm *Att 30 dB *RBW 1 MHz Marker 2 [T1]
 *VBW 3 MHz -30.46 dBm
 *SWT 500 ms 2.964000000 GHz



Date: 18.JUL.2008 17:39:37



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



Date: 18.JUL.2008 17:43:00



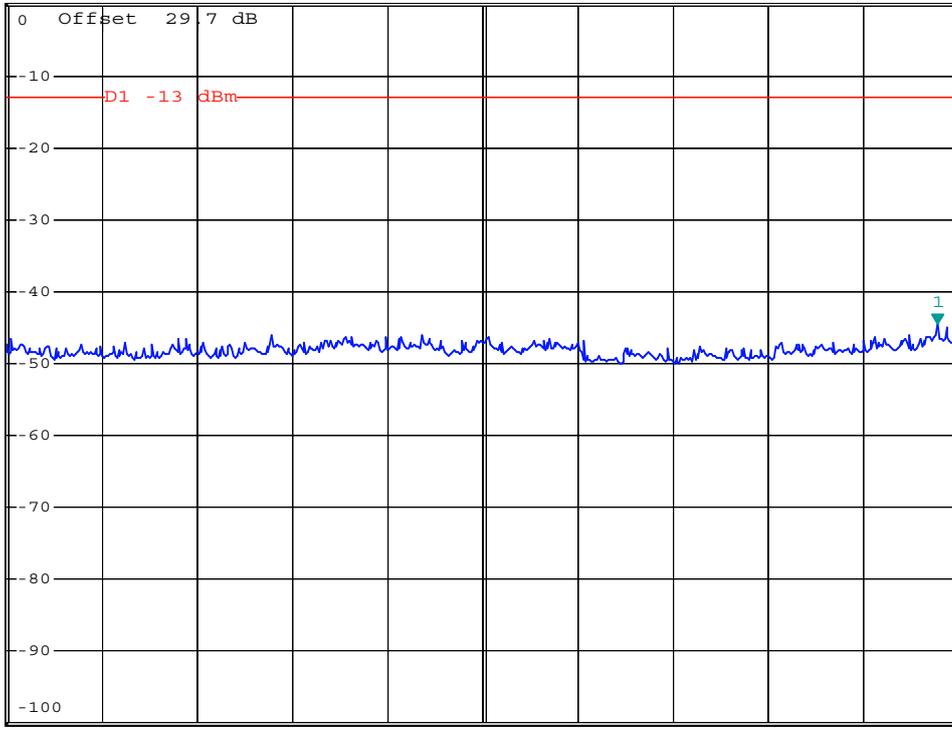
- Test Mode : WCDMA Band II CH9400
- Frequency Range : 7G-13.6G



*RBW 1 MHz Marker 1 [T1]
 *VBW 3 MHz -44.56 dBm
 *SWT 500 ms 13.454800000 GHz

Ref 0 dBm

*Att 0 dB



Start 7 GHz

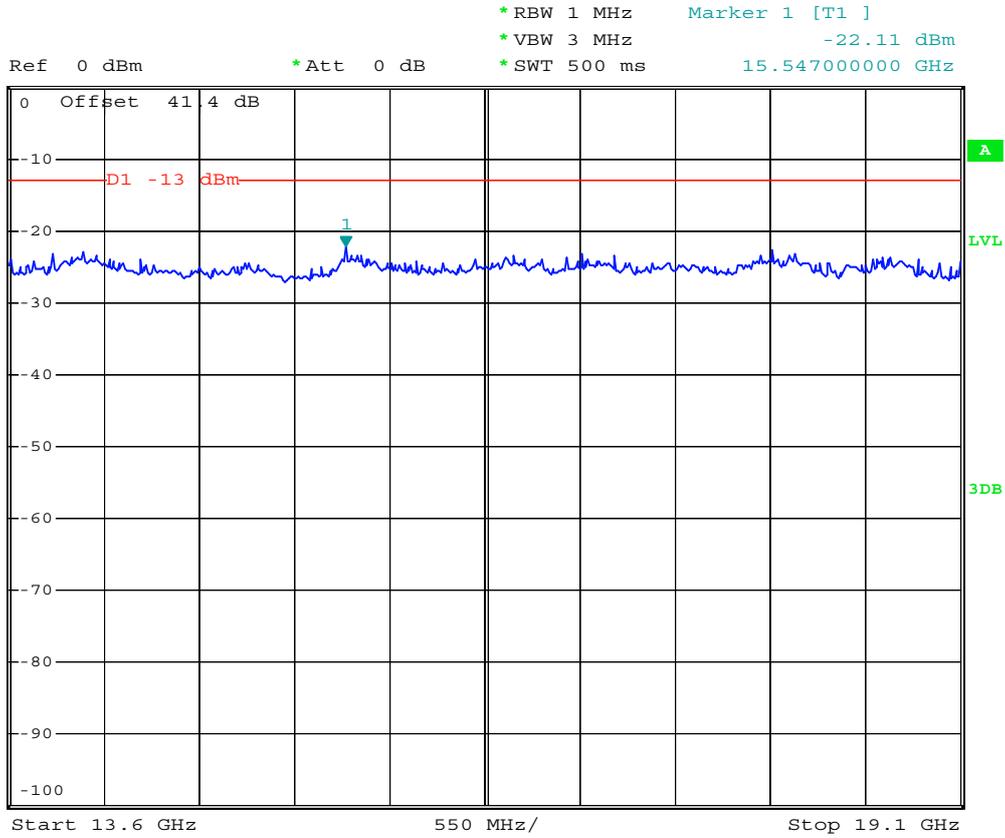
660 MHz/

Stop 13.6 GHz

Date: 18.JUL.2008 17:41:38



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



Date: 18.JUL.2008 17:42:13



4.6 Field Strength of Spurious Radiation

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

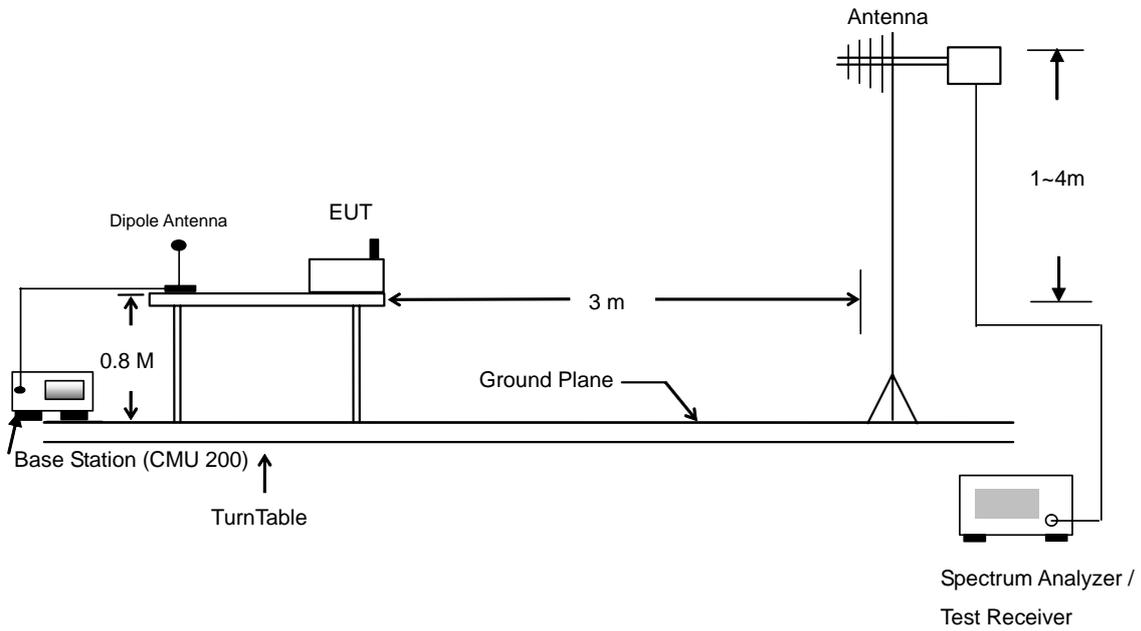
4.6.1 Measurement Instruments

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.

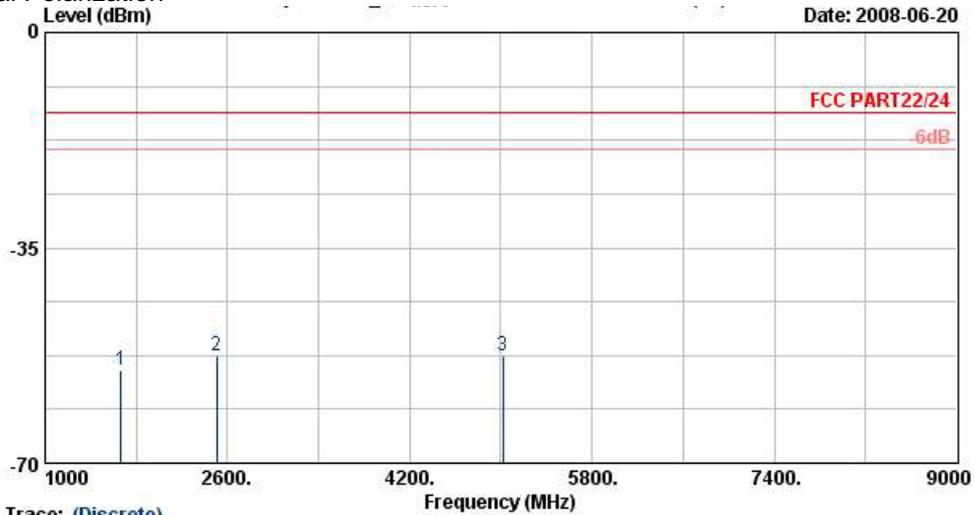
4.6.3 Test Setup Layout





4.6.4 Test Data

- Mode 1
- Horizontal Polarization



Site : 03CH07-HY
 Condition : HF-EIRP(080306) HORIZONTAL
 EUT : Mobile Phone (GSM Qual-band_GPRS
 : /EDGE,WCDMA Tri-band_HSDPA/HSUPA)
 : ,WiFi_WOIP,Bhuetooth 2.1 EDR,A-GPS
 Power : 120 Vac/60 Hz
 Model : FG 852219
 Mode : GSM 850 Link ; Ch189+ Adaptor + Earphone
 Plane : E2
 IMEI : 359979010012641

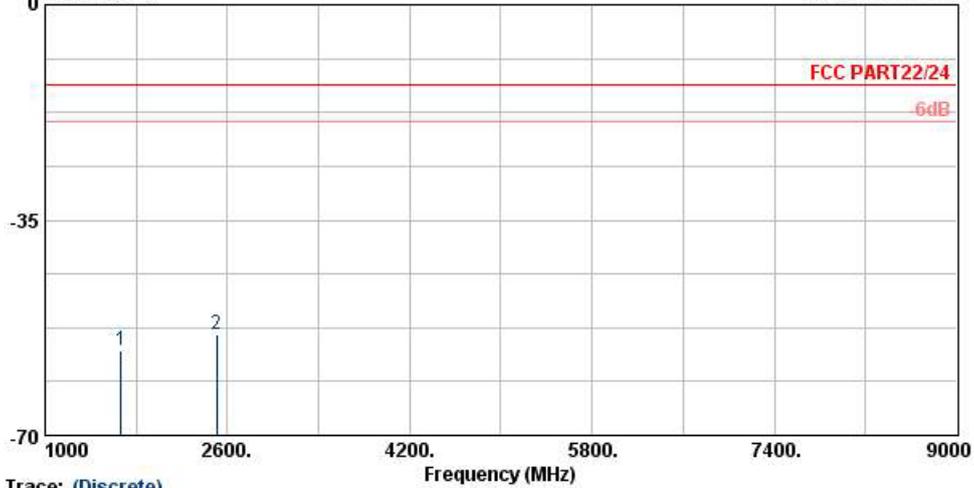
Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1669	-55.00	-13	-42.00	-59.63	-54.01	3.39	4.55	H	Pass
2506	-52.68	-13	-39.68	-62.82	-52.74	3.71	5.92	H	Pass
5015	-52.64	-13	-39.64	-67.44	-56.39	2.61	8.51	H	Pass

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



Vertical Polarization
Level (dBm)

Date: 2008-06-20



Trace: (Discrete)

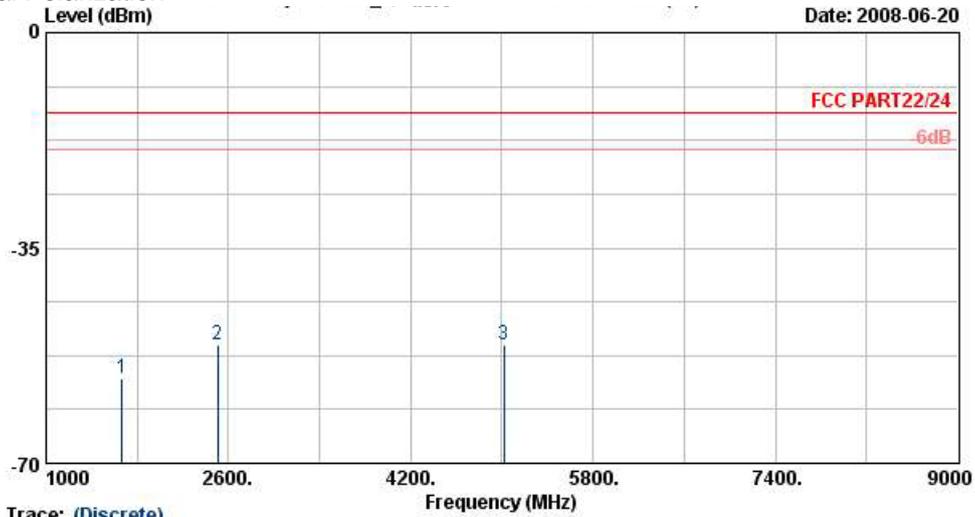
Site : 03CH07-HY
 Condition : HF-EIRP(080306) VERTICAL
 EUT : Mobile Phone (GSM Qual-band_GPRS
 : /EDGE,WCDMA Tri-band_HSDPA/HSUPA)
 : ,WiFi_WOIP,Bluetooth 2.1 EDR_A-GPS
 Power : 120 Vac/60 Hz
 Model : FG 852219
 Mode : GSM 850 Link ; Ch189+ Adaptor + Earphone
 Plane : E2
 IMEI : 359979010012641

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	-56.20	-13	-43.20	-64.12	-54.82	3.39	4.16	V	Pass
2509	-53.60	-13	-40.60	-64.19	-53.46	3.71	5.72	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 : Mobile Phone (GSM Qual-band_GPRS
 : /EDGE,WCDMA Tri-band_HSDPA/HSUPA)
 : ,WiFi_VOIP,Bhuetooth 2.1 EDR,A-GPS
 Power : 120 Vac/60 Hz
 Model : FG 852219
 Mode : EDGE Link ; Ch189+ Adaptor + Earphone
 Plane : E2
 IMEI : 359979010012641

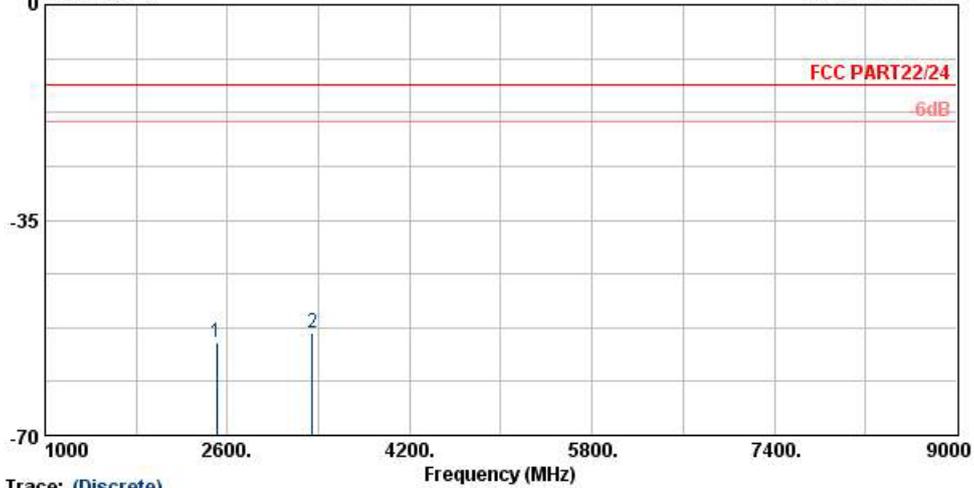
Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1669	-56.11	-13	-43.11	-61.8	-55.12	3.39	4.55	H	Pass
2509	-50.65	-13	-37.65	-60.79	-50.71	3.71	5.92	H	Pass
5015	-50.81	-13	-37.81	-65.57	-54.56	2.61	8.51	H	Pass

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



Vertical Polarization
Level (dBm)

Date: 2008-06-20



Trace: (Discrete)

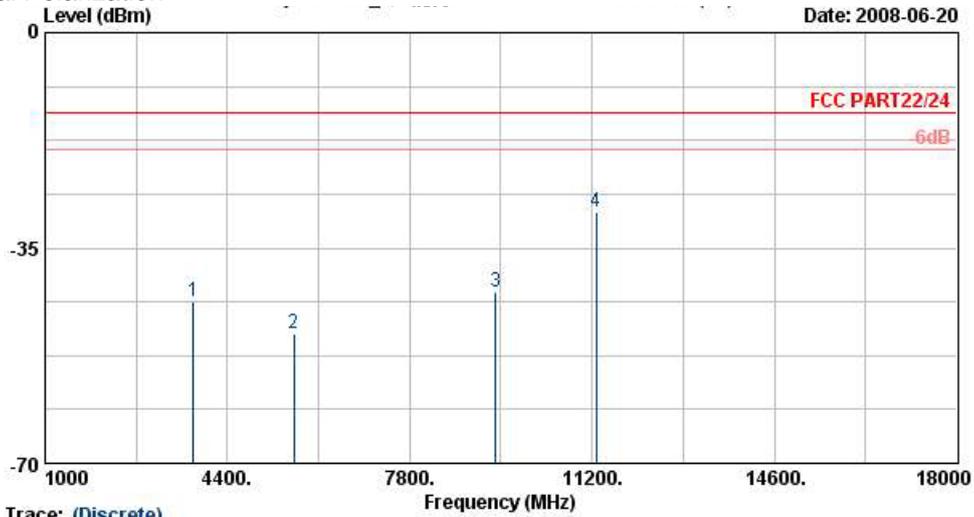
Site : 03CH07-HY
 Condition : HF-EIRP(080306) VERTICAL
 EUT : Mobile Phone (GSM Qual-band_GPRS
 : /EDGE,WCDMA Tri-band_HSDPA/HSUPA)
 : ,WiFi_WOIP,Bhuetooth 2.1 EDR,A-GPS
 Power : 120 Vac/60 Hz
 Model : FG 852219
 Mode : EDGE Link ; Ch189+ Adaptor + Earphone
 Plane : E2
 IMEI : 359979010012641

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	-54.83	-13	-41.83	-65.42	-54.69	3.71	5.72	V	Pass
3349	-53.44	-13	-40.44	-65.88	-55.64	3.13	7.48	V	Pass

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



- Mode 3
- Horizontal Polarization



Trace: (Discrete)

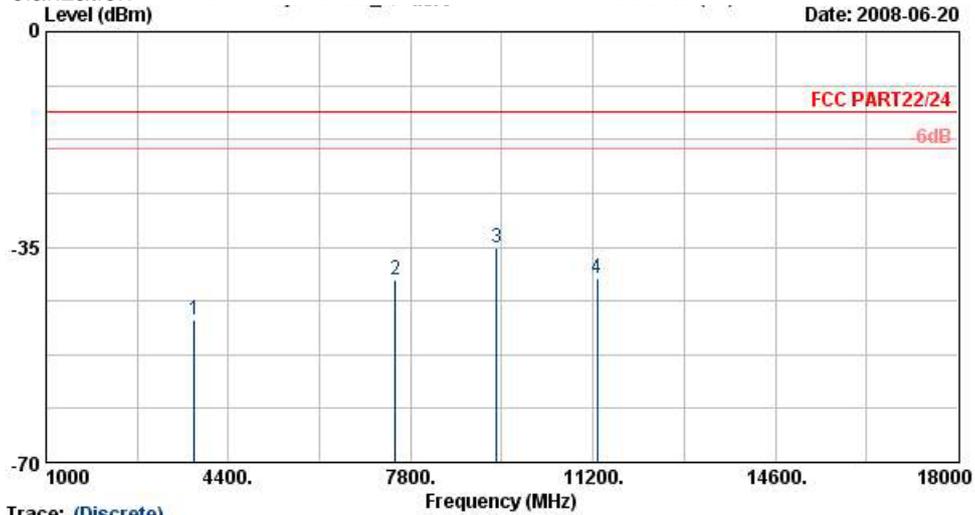
Site : 03CH07-HY
 Condition : HF-EIRP(080306) HORIZONTAL
 EUT : Mobile Phone (GSM Qual-band_GPRS
 : /EDGE,WCDMA Tri-band_HSDPA/HSUPA)
 : ,WiFi_VOIP,Bhuetooth 2.1 EDR,A-GPS
 Power : 120 Vac/60 Hz
 Model : FG 852219
 Mode : PCS1900 Link ; Ch661+ Adaptor + Earphone
 Plane : E2
 IMEI : 359979010012641

Frequency (MHz)	EIRP (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	-43.70	-13	-30.70	-58.42	-47.07	4.03	7.40	H	Pass
5636	-48.96	-13	-35.96	-66.5	-53.9	3.87	8.81	H	Pass
9396	-42.05	-13	-29.05	-64.71	-46.75	6.02	10.72	H	Pass
11280	-29.02	-13	-16.02	-61.26	-31.3	8.48	10.76	H	Pass

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



Vertical Polarization



Date: 2008-06-20

Trace: (Discrete)

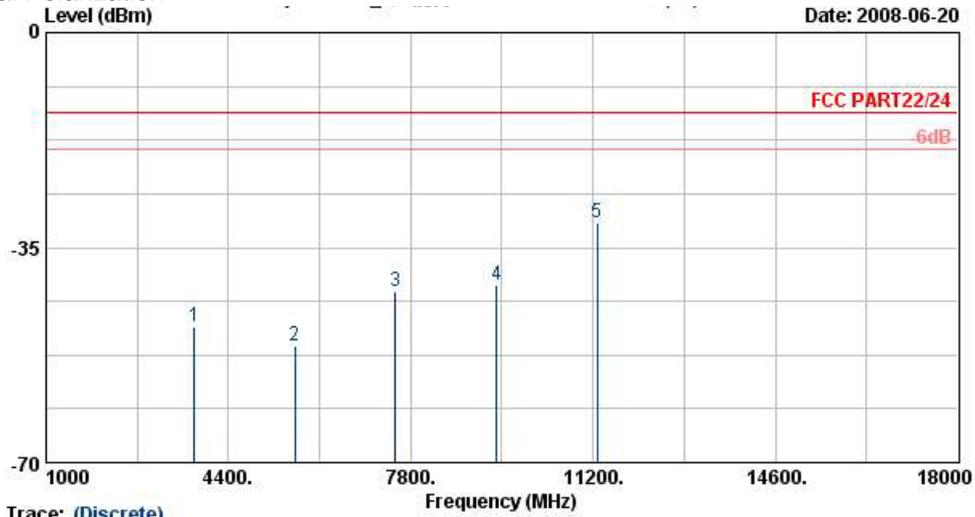
Site : 03CH07-HY
 Condition : HF-EIRP(080306) VERTICAL
 EUT : Mobile Phone (GSM Qual-band_GPRS
 : /EDGE,WCDMA Tri-band_HSDPA/HSUPA)
 : ,WiFi_WOIP,Bluetooth 2.1 EDR,A-GPS
 Power : 120 Vac/60 Hz
 Model : FG 852219
 Mode : PCS1900 Link ; Ch561+ Adaptor + Earphone
 Plane : E2
 IMEI : 359979010012641

Frequency (MHz)	EIRP (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	-46.92	-13	-33.92	-62.61	-50.8	4.03	7.91	V	Pass
7520	-40.25	-13	-27.25	-66.4	-45.23	5.83	10.81	V	Pass
9396	-35.18	-13	-22.18	-60.73	-40.68	6.02	11.52	V	Pass
11280	-39.97	-13	-26.97	-70.15	-42.85	8.48	11.36	V	Pass

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



- Mode 4
- Horizontal Polarization



Trace: (Discrete)

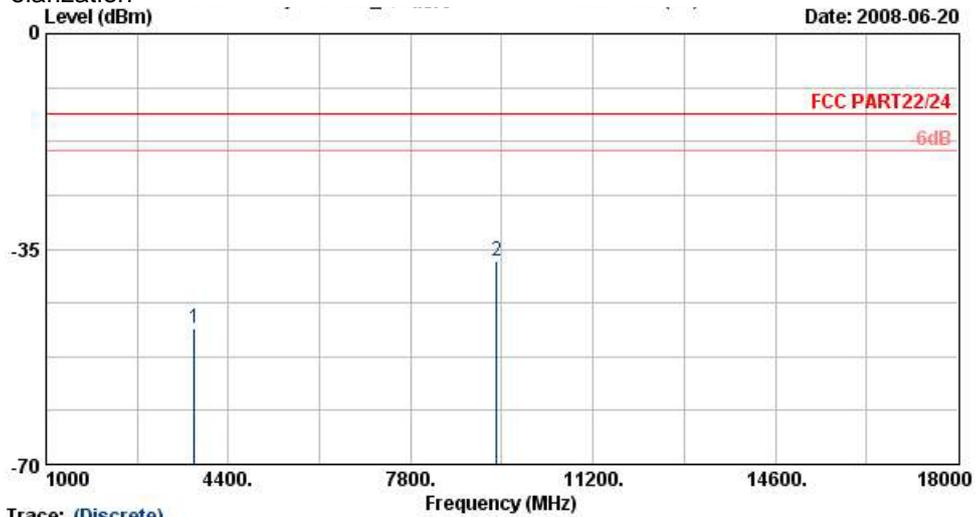
Site : 03CH07-HY
 Condition : HF-EIRP(080306) HORIZONTAL
 EUT : Mobile Phone (GSM Qual-band_GPRS
 : /EDGE,WCDMA Tri-band_HSDPA/HSUPA)
 : ,WiFi_VOIP,Bluetooth 2.1 EDR,A-GPS
 Power : 120 Vac/60 Hz
 Model : FG 852219
 Mode : EDGE Link ; Ch661+ Adaptor + Earphone
 Plane : E2
 IMEI : 359979010012641

Frequency (MHz)	EIRP (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	-47.88	-13	-34.88	-61.76	-51.25	4.03	7.40	H	Pass
5636	-50.92	-13	-37.92	-67.52	-55.86	3.87	8.81	H	Pass
7520	-42.08	-13	-29.08	-68.35	-45.96	5.83	9.71	H	Pass
9396	-41.07	-13	-28.07	-63.59	-45.77	6.02	10.72	H	Pass
11280	-30.97	-13	-17.97	-62.79	-33.25	8.48	10.76	H	Pass

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



Vertical Polarization



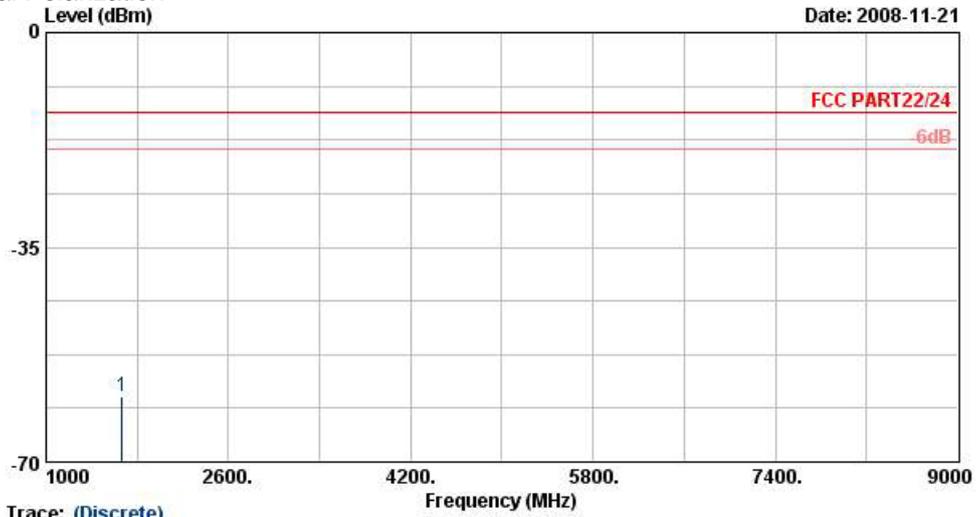
Trace: (Discrete)
 Site : 03CH07-HY
 Condition : HF-EIRP(080306) VERTICAL
 EUT : Mobile Phone (GSM Qual-band_GPRS
 : /EDGE,WCDMA Tri-band_HSDPA/HSUPA)
 : ,WiFi_WOIP,Bhuetooth 2.1 EDR,A-GPS
 Power : 120 Vac/60 Hz
 Model : FG 852219
 Mode : EDGE Link ; Ch661+ Adaptor + Earphone
 Plane : E2
 IMEI : 359979010012641

Frequency (MHz)	EIRP (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	-47.91	-13	-34.91	-63.29	-51.79	4.03	7.91	V	Pass
9396	-37.05	-13	-24.05	-64.37	-42.55	6.02	11.52	V	Pass

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



- Mode 5
- Horizontal Polarization



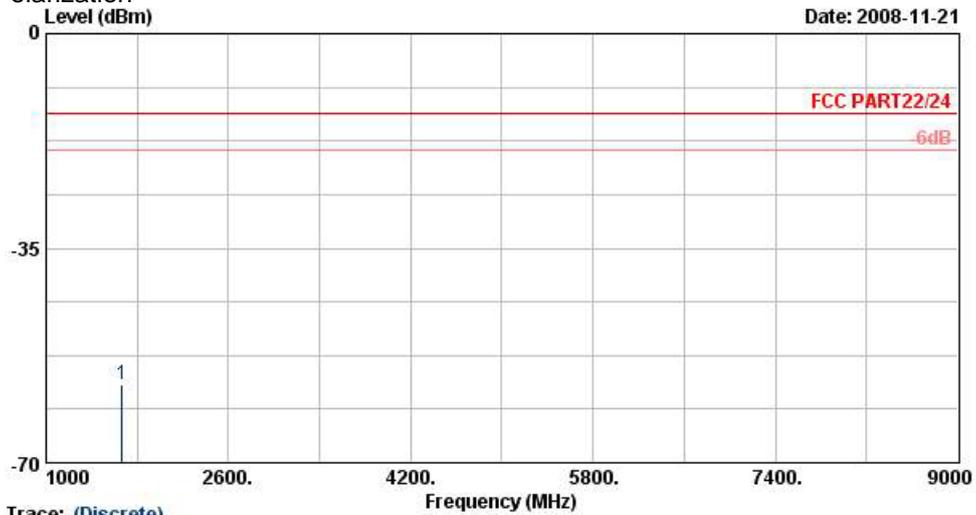
Site : 03CH07-HY
 Condition : HF-EIRP(080306) HORIZONTAL
 Model : FG 852219-04
 Mode : Mode 1
 Plane : F1

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	-59.32	-13	-46.32	-65.01	-58.33	3.39	4.55	H	Pass

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



Vertical Polarization



Date: 2008-11-21

Trace: (Discrete)

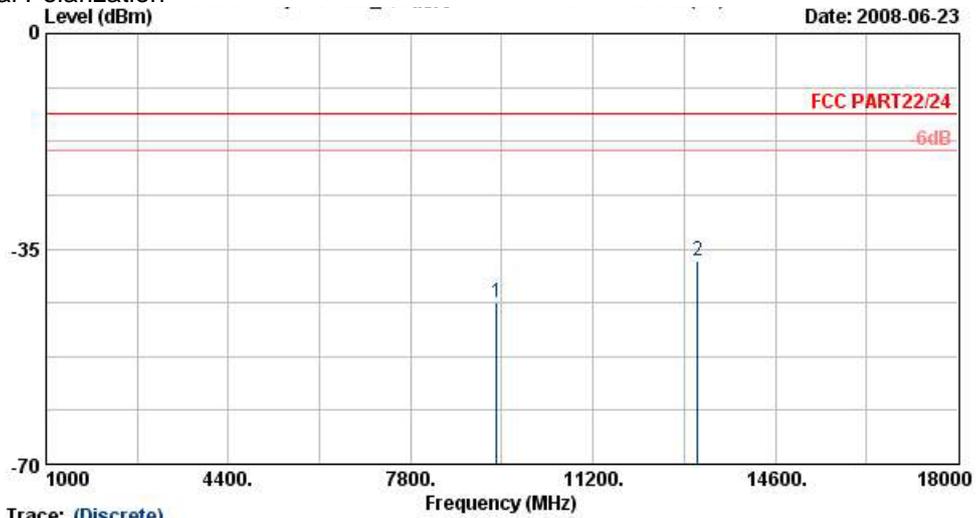
Site : 03CH07-HY
 Condition : HF-EIRP(080306) VERTICAL
 Model : FG 852219-04
 Mode : Mode 1
 Plane : E1

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	-57.26	-13	-44.26	-65.18	-55.88	3.39	4.16	V	Pass

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



- Mode 7
- Horizontal Polarization



Trace: (Discrete)

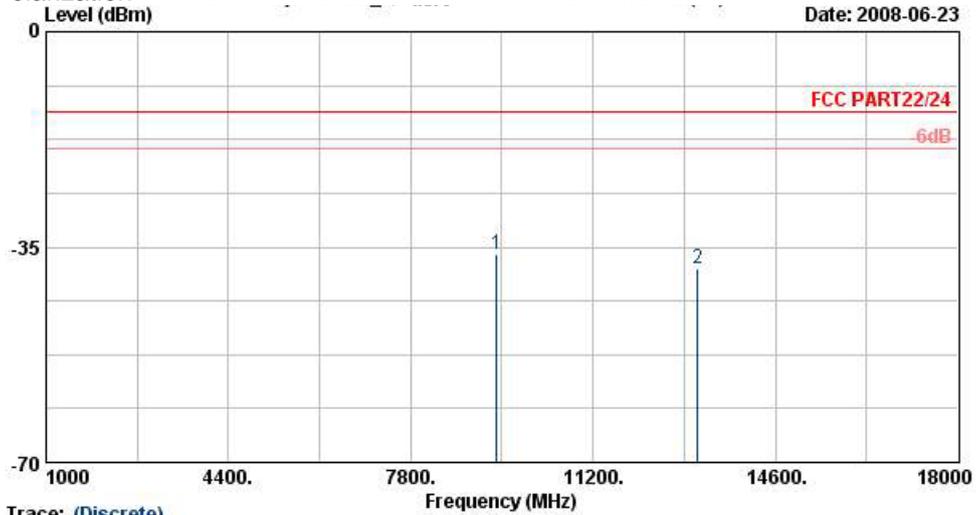
Site : 03CH07-HY
 Condition : HF-EIRP(080306) HORIZONTAL
 EUT : Mobile Phone (GSM Qual-band_GPRS
 : /EDGE,WCDMA Tri-band_HSDPA/HSUPA)
 : ,WiFi_WOIP,Bluetooth 2.1 EDR_A-GPS
 Power : 120 Vac/60 Hz
 Model : FG 852219
 Mode : WCDMA Link ; Ch9400+ Adaptor + Earphone
 Plane : E2
 IMEI : 359979010012641

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
9396	-43.66	-13	-30.66	-68.09	-48.36	6.02	10.72	H	Pass
13156	-36.85	-13	-23.85	-68.2	-39.75	8.13	11.03	H	Pass

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



Vertical Polarization



Date: 2008-06-23

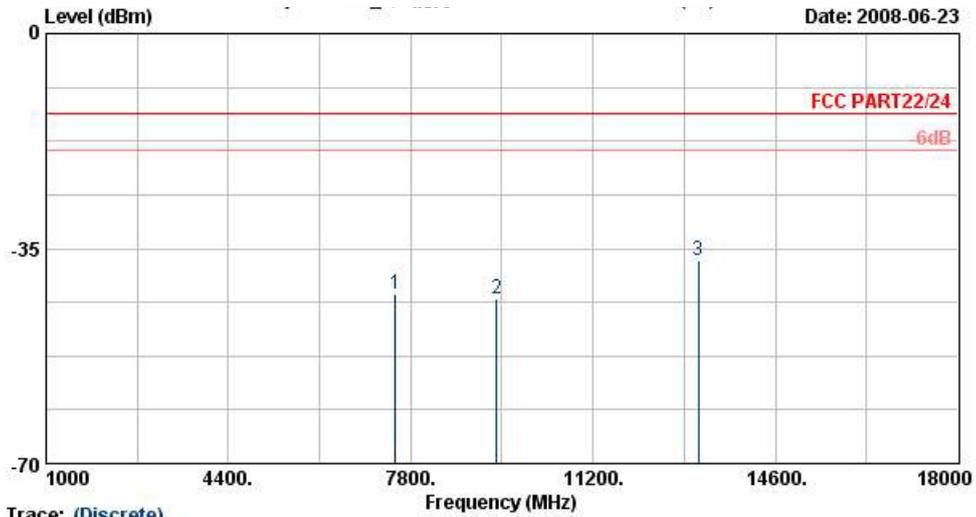
Site : 03CH07-HY
 Condition : HF-EIRP(080306) VERTICAL
 EUT : Mobile Phone (GSM Qual-band_GPRS
 : /EDGE,WCDMA Tri-band_HSDPA/HSUPA)
 : ,WiFi_WOIP,Bluetooth 2.1 EDR_A-GPS
 Power : 120 Vac/60 Hz
 Model : FG 852219
 Mode : WCDMA Link ; Ch9400+ Adaptor + Earphone
 Plane : E2
 IMEI : 359979010012641

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
9408	-36.08	-13	-23.08	-63.98	-41.58	6.02	11.52	V	Pass
13152	-38.60	-13	-25.60	-69.83	-42.63	8.13	12.16	V	Pass

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



- Mode 8
- Horizontal Polarization



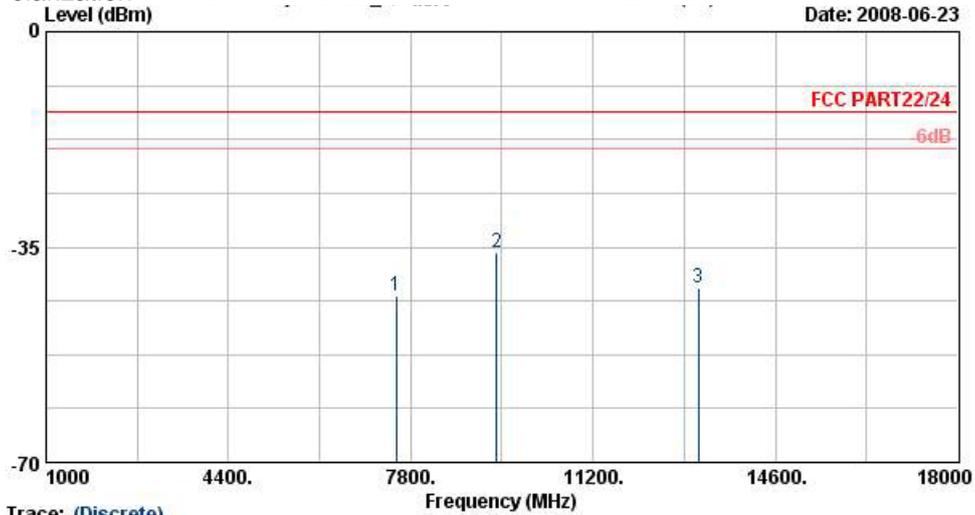
Site : 03CH07-HY
 Condition : HF-EIRP(080306) HORIZONTAL
 EUT : Mobile Phone (GSM Qual-band_GPRS
 : /EDGE,WCDMA Tri-band_HSDPA/HSUPA)
 : ,WiFi_WOIP,Bluetooth 2.1 EDR_A-GPS
 Power : 120 Vac/60 Hz
 Model : FG 852219
 Mode : HSUPA Link ; Ch9400+ Adaptor + Earphone
 Plane : E2
 IMEI : 359979010012641

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
7520	-42.45	-13	-29.45	-68.6	-46.33	5.83	9.71	H	Pass
9408	-43.14	-13	-30.14	-68.55	-47.84	6.02	10.72	H	Pass
13168	-37.05	-13	-24.05	-69.41	-39.95	8.13	11.03	H	Pass

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



Vertical Polarization



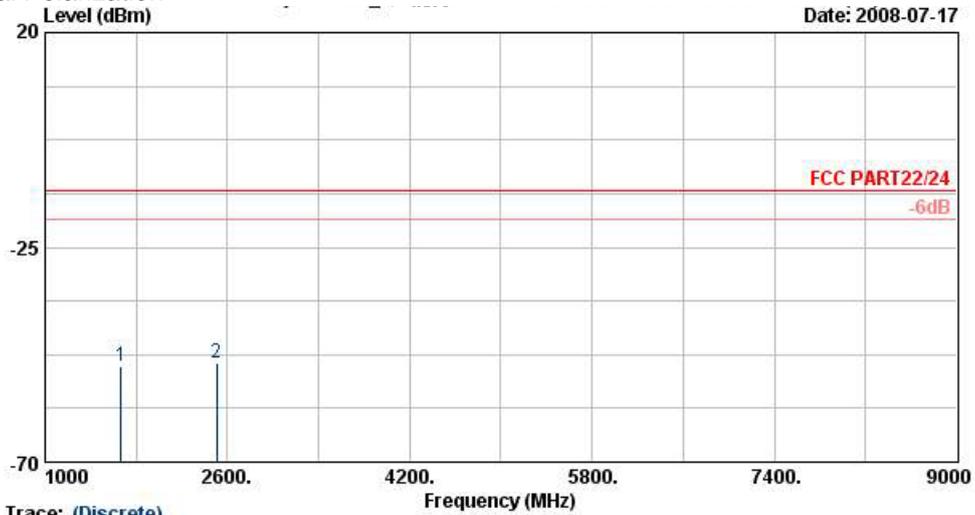
Trace: (Discrete)
 Site : 03CH07-HY
 Condition : HF-EIRP(080306) VERTICAL
 EUT : Mobile Phone (GSM Qual-band_GPRS
 : /EDGE,WCDMA Tri-band_HSDPA/HSUPA)
 : ,WiFi_WOIP,Bhuetooth 2.1 EDR,A-GPS
 Power : 120 Vac/60 Hz
 Model : FG 852219
 Mode : HSUPA Link ; Ch9400+ Adaptor + Earphone
 Plane : E2
 IMEI : 359979010012641

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
7524	-42.86	-13	-29.86	-67.89	-47.84	5.83	10.81	V	Pass
9408	-35.95	-13	-22.95	-63.88	-41.45	6.02	11.52	V	Pass
13168	-41.70	-13	-28.70	-71.08	-45.73	8.13	12.16	V	Pass

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



- Mode 9
- Horizontal Polarization



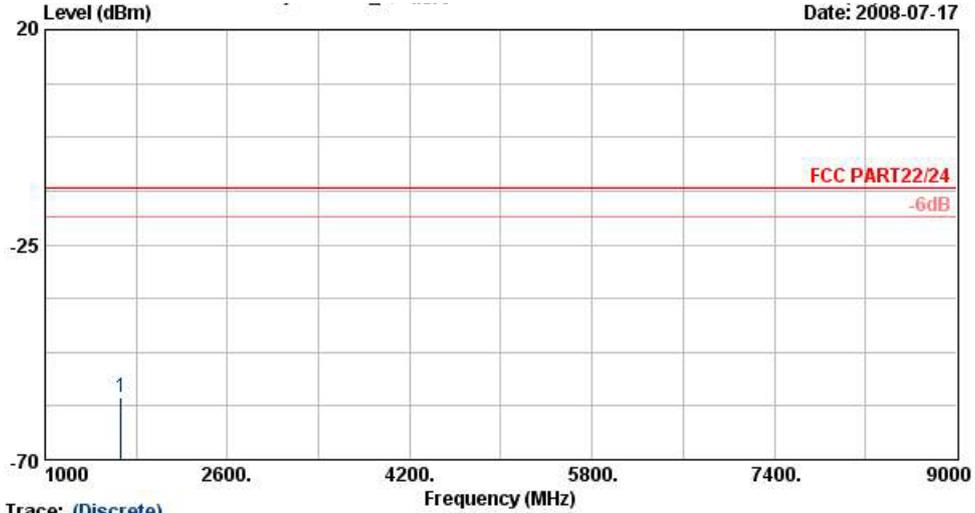
Site : 03CH07-HY
 Condition : HF-EIRP(080306) HORIZONTAL
 EUT : Mobile Phone (GSM Qual-band_GPRS
 : /EDGE,WCDMA Tri-band_HSDPA/HSUPA)
 : ,WiFi_WOIP,Bhuetooth 2.1 EDR,A-GPS
 Power : 120 Vac/60 Hz
 Model : FG 852219
 Mode : GSM 850 Link ; Ch189 + BT Link
 : + Adaptor + Earphone
 Plane : E2
 IMEI : 359979010012641

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	-49.86	-13	-36.86	-56.15	-48.87	3.39	4.55	H	Pass
2509	-49.10	-13	-36.10	-55.84	-49.16	3.71	5.92	H	Pass

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



Vertical Polarization



Trace: (Discrete)

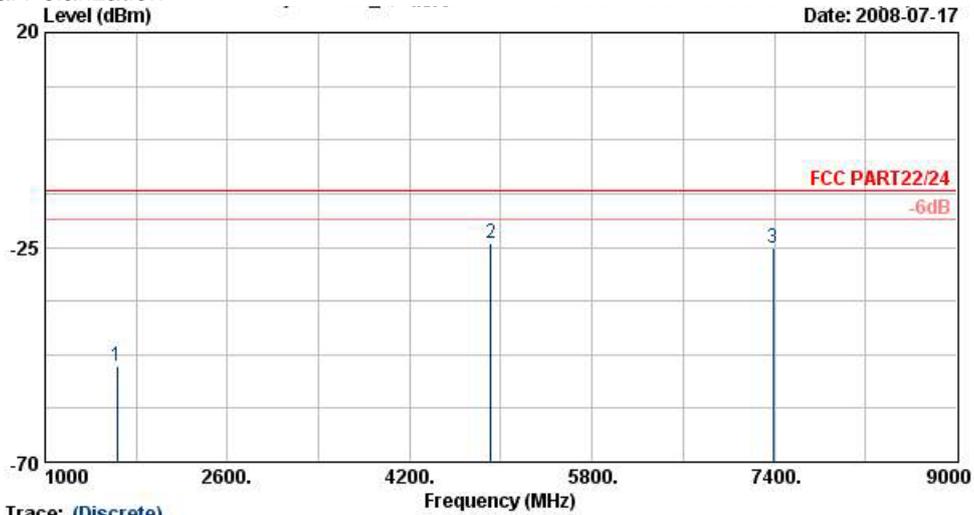
Site : 03CH07-HY
 Condition : HF-EIRP(080306) VERTICAL
 EUT : Mobile Phone (GSM Qual-band_GPRS
 : /EDGE,WCDMA Tri-band_HSDPA/HSUPA)
 : ,WiFi_VOIP,Bhuetooth 2.1 EDR_A-GPS
 Power : 120 Vac/60 Hz
 Model : FG 852219
 Mode : GSM 850 Link ; Ch189 + BT Link
 : + Adaptor + Earphone
 Plane : E2
 IMEI : 359979010012641

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	-56.84	-13	-43.84	-59.42	-55.46	3.39	4.16	V	Pass

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



- Mode 10
- Horizontal Polarization



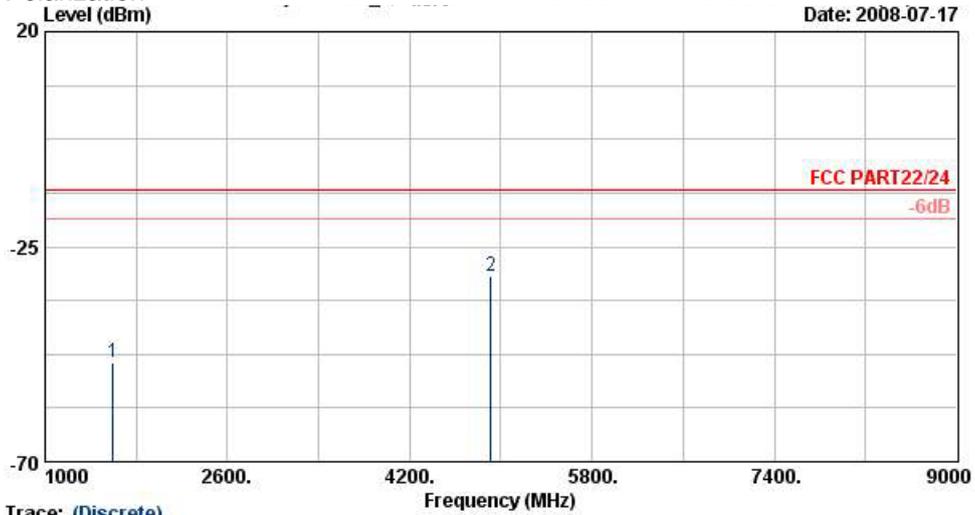
Site : 03CH07-HY
 Condition : HF-EIRP(080306) HORIZONTAL
 EUT : Mobile Phone (GSM Qual-band_GPRS
 : /EDGE,WCDMA Tri-band_HSDPA/HSUPA)
 : ,WiFi_WOIP,Bhuetooth 2.1 EDR,A-GPS
 Power : From System
 Model : FG 852219
 Mode : GSM 850 Link ; Ch189 + 11g Tx_Ch1
 : + Adaptor + Earphone
 Plane : E2
 IMEI : 359979010012641

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
1630	-50.03	-13	-37.03	-56.31	-49.03	3.35	4.50	H	Pass
4915	-24.00	-13	-11.00	-39.67	-27.76	2.65	8.56	H	Pass
7390	-25.10	-13	-12.10	-44.00	-26.43	6.17	9.65	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 : Mobile Phone (GSM Qual-band_GPRS
 : /EDGE,WCDMA Tri-band_HSDPA/HSUPA)
 : ,WiFi_WOIP,Bhuetooth 2.1 EDR_A-GPS
 Power : From System
 Model : FG 852219
 Mode : GSM 850 Link ; Ch189 + 11g Tx_Ch11
 : + Adaptor + Earphone
 Plane : E2
 IMEI : 359979010012641

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
1597	-49.17	-13	-36.17	-53.88	-47.78	3.33	4.09	V	Pass
4915	-31.34	-13	-18.34	-48.32	-35.71	2.65	9.17	V	Pass

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

4.7 Frequency Stability (Temperature Variation)

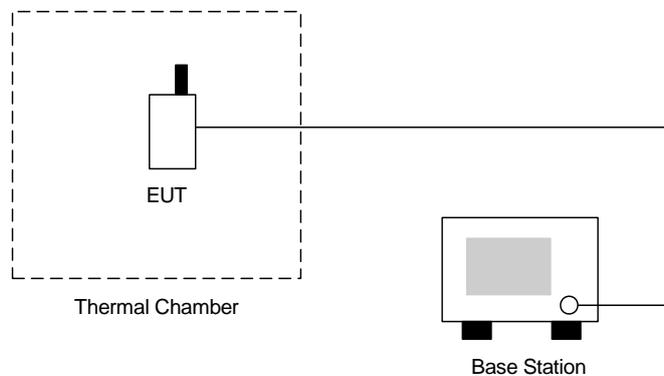
4.7.1 Measurement Instrument

As described in chapter 5 of this test report.

4.7.2 Test Procedure

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

4.7.3 Test Setup Layout





4.7.4 Test Result

• Test Mode : GSM850 (GSM) CH189

Temperature()	Change (Hz)	Change (ppm)	Limit (ppm)	Result
-30	-58	-0.07	2.5	Passed
-20	-41	-0.05		
-10	-44	-0.05		
0	-49	-0.06		
10	-51	-0.06		
20	-57	-0.07		
30	-51	-0.06		
40	-39	-0.05		
50	-49	-0.06		

• Test Mode : GSM850 (EDGE) CH189

Temperature()	Change (Hz)	Change (ppm)	Limit (ppm)	Result
-30	-23	-0.03	2.5	Passed
-20	-40	-0.05		
-10	-42	-0.05		
0	-50	-0.06		
10	-52	-0.06		
20	-47	-0.06		
30	-65	-0.08		
40	-51	-0.06		
50	-48	-0.06		



• Test Mode : GSM1900 (GSM) CH661

Temperature()	Change (Hz)	Change (ppm)	Limit (ppm)	Result
-30	-27	-0.01	2.5	Passed
-20	-46	-0.02		
-10	-44	-0.02		
0	-39	-0.02		
10	-58	-0.03		
20	-32	-0.02		
30	-59	-0.03		
40	-51	-0.03		
50	-49	-0.03		

• Test Mode : GSM1900 (EDGE) CH661

Temperature()	Change (Hz)	Change (ppm)	Limit (ppm)	Result
-30	-40	-0.02	2.5	Passed
-20	-44	-0.02		
-10	-36	-0.02		
0	-55	-0.03		
10	-39	-0.02		
20	-47	-0.02		
30	-44	-0.02		
40	-46	-0.02		
50	-43	-0.02		



• Test Mode : WCDMA Band V CH4182

Temperature()	Change (Hz)	Change (ppm)	Limit (ppm)	Result
-30	-16	-0.02	2.5	Passed
-20	-30	-0.04		
-10	-17	-0.02		
0	-24	-0.03		
10	-9	-0.01		
20	15	0.02		
30	-21	-0.02		
40	-20	-0.02		
50	-15	-0.02		

• Test Mode : WCDMA Band II CH9400

Temperature()	Change (Hz)	Change (ppm)	Limit (ppm)	Result
-30	-54	-0.03	2.5	Passed
-20	-59	-0.03		
-10	-50	-0.03		
0	-47	-0.02		
10	-65	-0.03		
20	-48	-0.03		
30	-41	-0.02		
40	-62	-0.03		
50	-46	-0.02		

4.8 Frequency Stability (Voltage Variation)

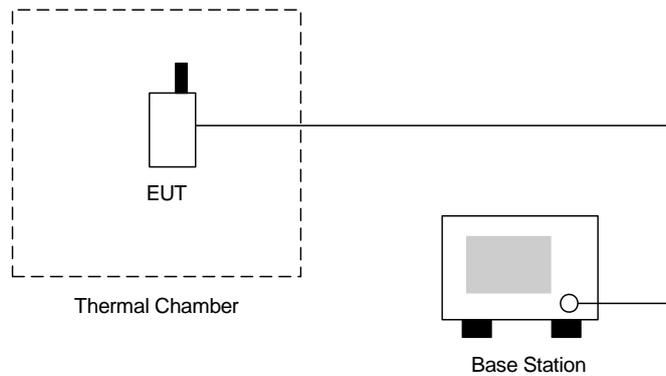
4.8.1 Measurement Instrument

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 (GSM) CH189

Voltage(Volt)	Change (Hz)	Change (ppm)	Limit (ppm)	Result
3.7	-57	-0.07	2.5	Passed
BEP	-53	-0.06		
4.2	-61	-0.07		

- Test Mode : GSM850 (EDGE) CH189

Voltage(Volt)	Change (Hz)	Change (ppm)	Limit (ppm)	Result
3.7	-47	-0.06	2.5	Passed
BEP	-39	-0.05		
4.2	-75	-0.09		



- Test Mode : GSM1900 (GSM) CH661

Voltage(Volt)	Change (Hz)	Change (ppm)	Limit (ppm)	Result
3.7	-32	-0.02	2.5	Passed
BEP	-76	-0.04		
4.2	-78	-0.04		

- Test Mode : GSM1900 (EDGE) CH661

Voltage(Volt)	Change (Hz)	Change (ppm)	Limit (ppm)	Result
3.7	-47	-0.02	2.5	Passed
BEP	-48	-0.03		
4.2	-43	-0.02		

- Test Mode : WCDMA Band V CH4182

Voltage(Volt)	Change (Hz)	Change (ppm)	Limit (ppm)	Result
3.7	-20	-0.02	2.5	Passed
BEP	18	0.02		
4.2	22	0.03		

- Test Mode : WCDMA Band II CH9400

Voltage(Volt)	Change (Hz)	Change (ppm)	Limit (ppm)	Result
3.7	-48	-0.03	2.5	Passed
BEP	-68	-0.04		
4.2	-53	-0.03		

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
Bilog Antenna	SCHAFFNER	CBL6111C	2726	30MHz ~ 1GHz	Dec. 01, 2007	Nov. 30, 2008	Radiation (03CH07-HY)
Spectrum Analyzer	R&S	FSP	101067	9KHz~30GHz	Dec. 05, 2007	Dec. 04, 2008	Radiation (03CH07-HY)
Double Ridge Horn Antenna	ESCO	3117	75962	1G~18GHz	Aug. 13, 2008	Aug. 12, 2009	Radiation (03CH07-HY)
Pre Amplifier	Agilent	8449B	3008A01917	1G - 26.5GHz	Nov. 11, 2008	Nov. 10, 2009	Radiation (03CH07-HY)
Pre Amplifier	COM-POWER	PA-103A	161241	10-1000MHz. 32dB.GAIN	Mar. 31, 2008	Mar. 30, 2009	Radiation (03CH07-HY)
Double Ridge Horn Antenna	ESCO	3117	66584	1G~18GHz	Aug. 06, 2008	Aug. 05, 2009	Radiation (03CH07-HY)
Base Station	R&S	CMU200	116456	NA	Jul. 05, 2008	Jul. 04, 2009	Radiation (03CH07-HY)
BT Base Station	Anritsu	MT8852B	6K00005722	N/A	Oct. 23, 2007	Oct. 22, 2009	Radiation (03CH07-HY)
Base Station	R&S	CMU200	105934	NA	Nov. 08, 2008	Nov. 07, 2009	Conducted (TH02-HY)
Spectrum Analyzer	R&S	FSP40	100055	9KHz~40GHz	Jun. 26, 2008	Jun. 25, 2009	Conducted (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
Combined standard uncertainty Uc(y)	1.27		
Measuring uncertainty for a level of Confidence of 95% U=2Uc(y)	2.54		

Uncertainty of Radiated Emission Measurement (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 = $20 \log(1 - \Gamma_1 * \Gamma_2)$	+0.34/-0.35	U-shaped	0.244	1	0.244
Combined standard uncertainty Uc(y)	2.36				
Measuring uncertainty for a level of Confidence of 95% U=2Uc(y)	4.72				

END OF TEST REPORT



Appendix A. Photographs of EUT

Please refer to Sporton report number EP852219-04 as below.