



FCC Test Report

According to

47 CFR Part 22H, 24E

Equipment : GPS Navigation System
Trade Name : TomTom
Model Name : GO740LIVE
FCC ID : S4L4CF7
Tx Frequency Range : GSM850 : 824.2 ~ 848.8MHz
GSM1900 : 1850.2 ~ 1909.8 MHz
Max. ERP/EIRP Power : GSM850 : 0.45 W
GSM1900 : 0.54 W
Emission Designator : 300KGXW
Applicant : TomTom International BV
Rembrandtplein 35 1017 CT Amsterdam The Netherlands

- The test result refers exclusively to the test presented test model / sample.
- Without written approval of SPORTON International Inc., the test report shall not be reproduced except in full.
- The data shown in this test report were carried out on Aug. 27, 2008 at **Sporton International Inc. LAB.**
- Report No.: FG870721, Report Version: Rev. 01.

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Report Version: Rev. 01



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History of This Test Report

Report Issue Date: Sep. 11, 2008

Report No.	Description



1. General Information

1.1 Applicant

TomTom International BV

Rembrandtplein 35 1017 CT Amsterdam The Netherlands

1.2 Manufacturer

Tech-Giant (Shanghai) Computer Co., Ltd.

C#,No.1, South Rongteng Road, Songjiang Export Processing Zone, Shanghai, China

1.3 Basic Description of Accessories

AC Adapter 1	Brand Name	TomTom
	Manufacturer	AKII
	Model Name	A05T2-05MU
	Power Rating	I/P: 100-240Vac, 47-63Hz, 0.2A; O/P: 5Vdc, 1A
AC Adapter 2	Brand Name	TomTom
	Manufacturer	Phihong
	Model Name	PSB05R-050Q
	Power Rating	I/P: 100-240Vac, 50-60Hz, 200mA; O/P: 5Vdc, 1A
Battery	Brand Name	Welldone
	Manufacturer	Welldone
	Cell	Maxell ICP553450AR
	P/N	AHL03711001
	Power Rating	3.7Vdc, 1100mAh
Car Charger	Type	Li-ion
	Brand Name	TomTom
	Manufacturer	Supa
	Model Name	GO Car Charger 1.2A
	P/N	4CZ0.001.02
	Power Rating	I/P: 12V/24V; O/P: 5Vdc, 1.2A
Dock 1	Power Cord Type	1.4 meter non-shielded cable without ferrite core
	Brand Name	TomTom
	Manufacturer	Foxlink
	Model Name	GO x40 Desk Dock
Dock 2	P/N	4CF0.000.00
	Brand Name	TomTom
	Manufacturer	Quanta
	Model Name	GO x40 Windscreen Dock non iPod
Dock 3	P/N	4CF0.000.01
	Brand Name	TomTom
	Manufacturer	Quanta
	Model Name	GO x40 Windscreen Dock w. iPod
Cable	P/N	4CF0.000.02
	Brand Name	TomTom
	Manufacturer	Foxlink
	Model Name	iPod Connect and Audio cable
Cable	P/N	9V00.001

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 :	GPS Navigation System
Trade Name :	TomTom
Model Name :	GO740LIVE
FCC ID :	S4L4CF7
Tx Frequency :	GSM850 : 824 MHz ~ 849 MHz GSM1900 : 1850 MHz ~ 1910 MHz
Rx Frequency :	GSM850 : 869 MHz ~ 894 MHz GSM1900 : 1930 MHz ~ 1990 MHz
Maximum Output Power to Antenna :	GSM850 : 31.06dBm GSM1900 : 29.49dBm
Maximum ERP/EIRP :	GSM850 : 0.45 W (26.53 dBm) GSM1900 : 0.54 W (27.35 dBm)
Antenna Type :	Fixed Internal
HW Version :	Rev 1.0
SW Version :	Rev.04
Type of Modulation :	GMSK
EUT Stage :	Identical Prototype

2. Test Configuration of Equipment under Test

2.1 Test Manner

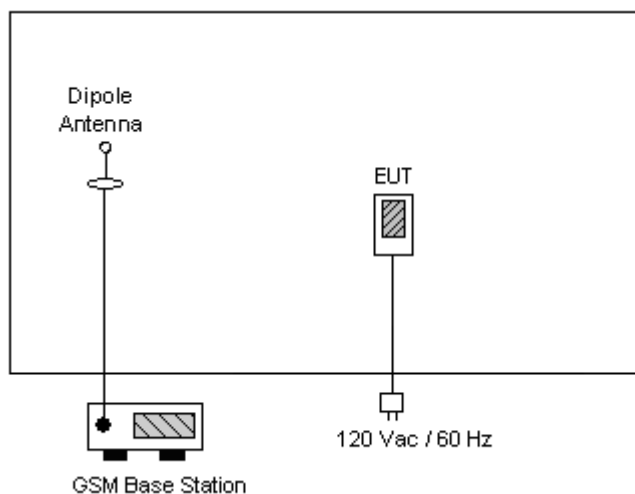
1. The spurious emission measurements were carried out in semi-anechoic chamber with 3-meter test range.
2. During all testings, EUT is in link mode with base station emulator at maximum power level.
3. Frequency range investigated: radiated emission 30 MHz to 9000 MHz for GSM850; 30MHz to 19000 MHz for GSM1900.

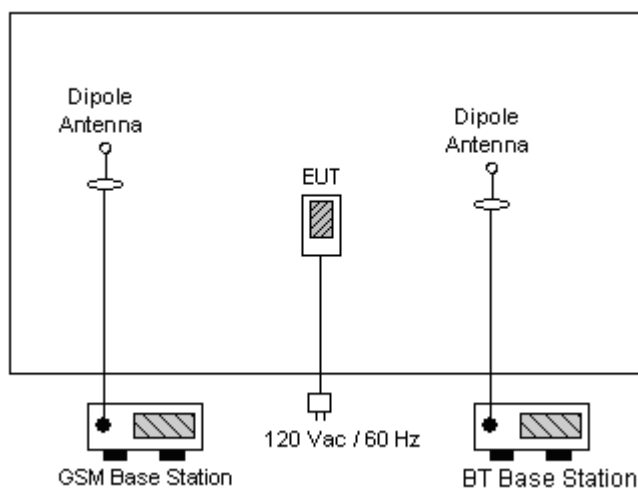
2.2 Test Mode

Application	GPRS850	GSM1900
Radiated Emission	☒ Mode 1: GPRS Link	☒ Mode 2: GPRS Link
	☒ Mode 3: GPRS Link + BT Link	
Conducted Measurement	☒ Mode 1: GPRS Link	☒ Mode 2: GPRS Link

2.3 Connection Diagram of Test System

<GPRS Link Mode>



<GPRS and BT co-location 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.	GSM Base Station	Agilent	E5515C	N/A	N/A	Unshielded, 1.8m
3.	BT Base Station	Anritus	8852B	N/A	N/A	Unshielded, 1.8m



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

3.3 Frequency Range

- a. Radiation: from 1000 MHz to 9000MHz for GSM850.
- b. Radiation: from 1000 MHz to 18000 MHz for GSM1900.

3.4 Test Distance

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



4. Test Data and Test Result

4.1 List of Measurements and Examinations

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

4.2 RF Output Power

4.2.1 Measurement Instruments

As described in chapter 5 of this test report.

4.2.2 Test Procedure

- The transmitter output was connected to power meter and base station.
- Set EUT at PCL=5 for GSM850 and/or PCL=0 for GSM1900 maximum power through base station.
- Select lowest, middle, and highest channels for each band.

4.2.3 Test Setup Layout



4.2.4 Test Result

Bands	Channel	Frequency (MHz)	Conducted Power (dBm)	Conducted Power (Watts)
GSM850	128	824.2 (Low)	30.81	1.205
	189	836.4 (Mid)	31.00	1.259
	251	848.8 (High)	31.06	1.276
GSM1900	512	1850.2 (Low)	29.24	0.839
	661	1880.0 (Mid)	29.22	0.836
	810	1909.8 (High)	29.49	0.889

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.

$E_t = R_t + AF$

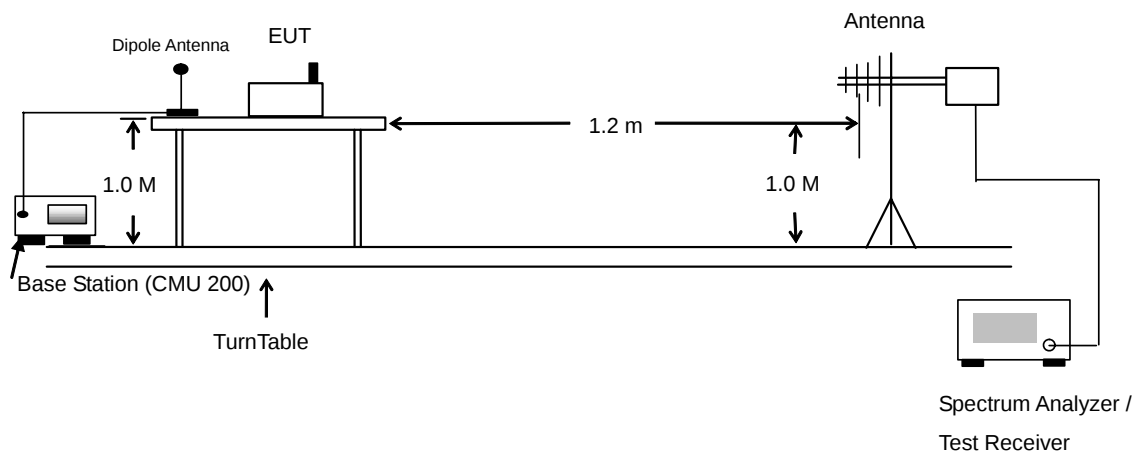
$E_s = R_s + AF$

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 Radiated Power ERP						
Horizontal Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBd)	ERP (dBm)	ERP (W)
824.20	-24.27	-48.12	0.00	-1.08	22.77	0.19
836.40	-22.64	-48.28	0.00	-0.93	24.71	0.30
848.80	-21.21	-48.35	0.00	-0.76	26.38	0.43
Vertical Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBd)	ERP (dBm)	ERP (W)
824.20	-23.62	-47.97	0.00	-1.08	23.27	0.21
836.40	-22.00	-48.01	0.00	-0.93	25.08	0.32
848.80	-20.76	-48.05	0.00	-0.76	26.53	0.45

GSM1900 Radiated Power EIRP						
Horizontal Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBi)	EIRP (dBm)	EIRP (W)
1850.20	-26.74	-51.88	0.00	1.96	27.10	0.51
1880.00	-27.84	-52.99	0.00	2.00	27.15	0.52
1909.80	-28.91	-54.28	0.00	1.98	27.35	0.54
Vertical Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBi)	EIRP (dBm)	EIRP (W)
1850.20	-27.21	-52.13	0.00	1.96	26.88	0.49
1880.00	-28.25	-53.17	0.00	2.00	26.92	0.49
1909.80	-29.27	-54.13	0.00	1.98	26.84	0.48

4.4 Occupied Bandwidth and Band Edge Measurement

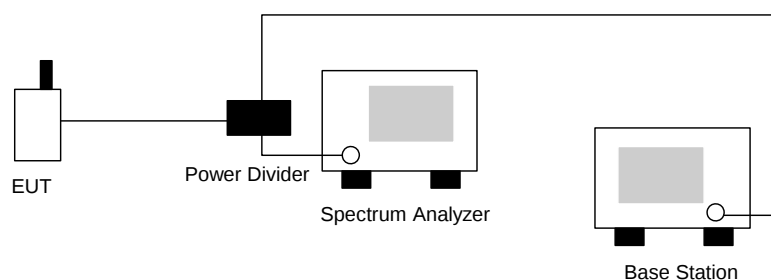
4.4.1 Measurement Instruments

As described in chapter 5 of this test report.

4.4.2 Test Procedure

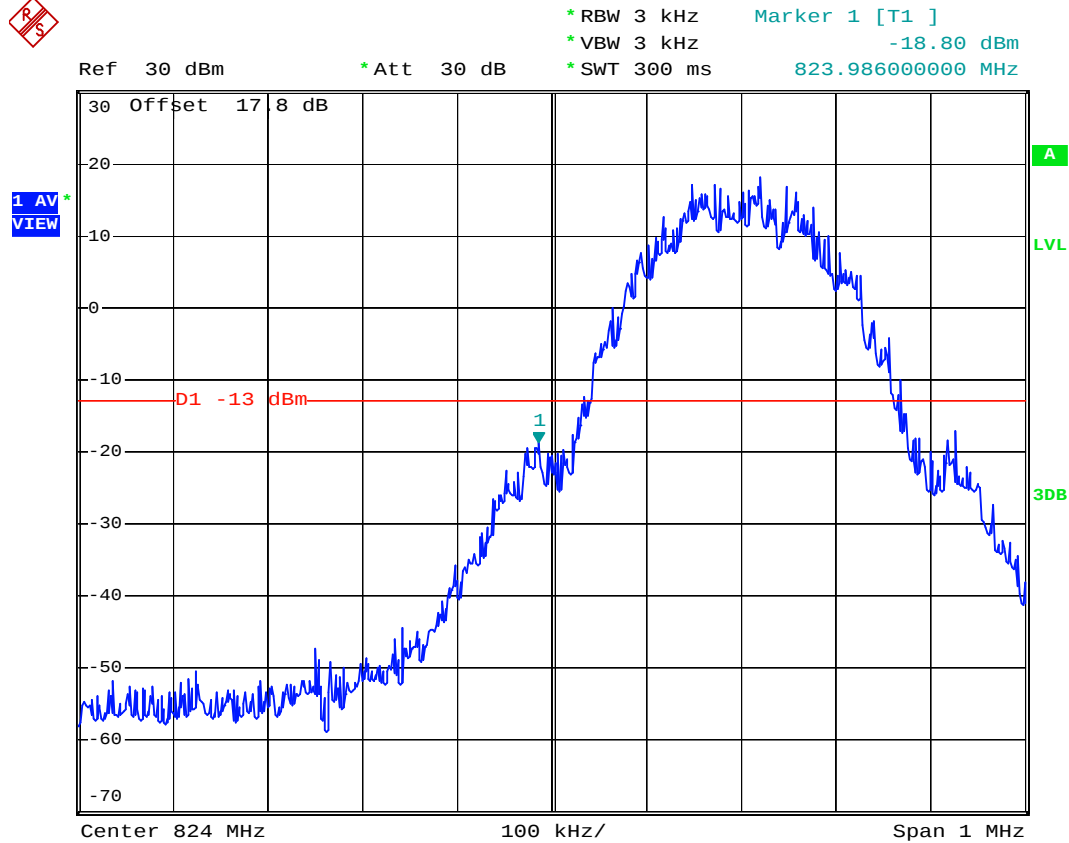
- The EUT was connected to Spectrum Analyzer and Base Station via power divider.
- The 99% occupied bandwidth of middle channel for the highest and lowest RF powers were measured.
- The bandedge of low and high channels for the highest RF powers within the transmitting frequency band were measured. Setting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

4.4.3 Test Setup Layout



**4.4.4 Test Result**

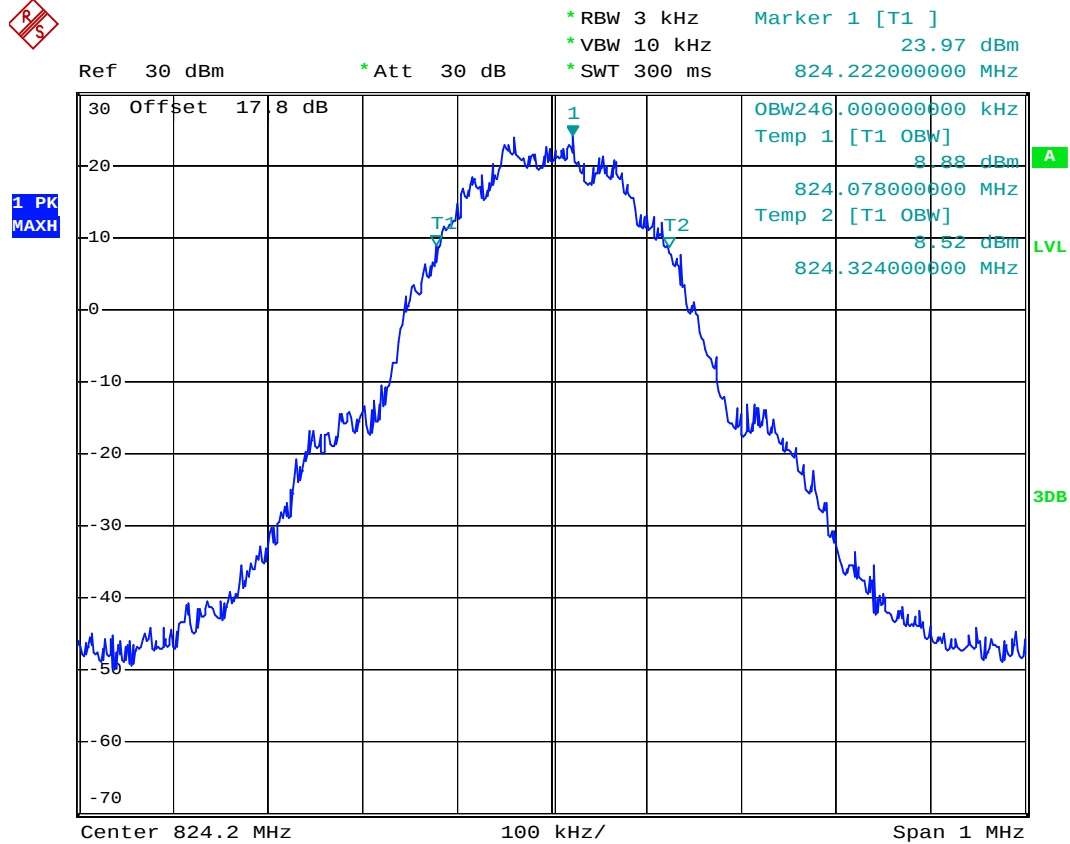
- Mode 1
- Test Mode : GSM850 CH128 Lower Band Edge
- Power State : High



Date: 25.JUL.2008 17:42:15



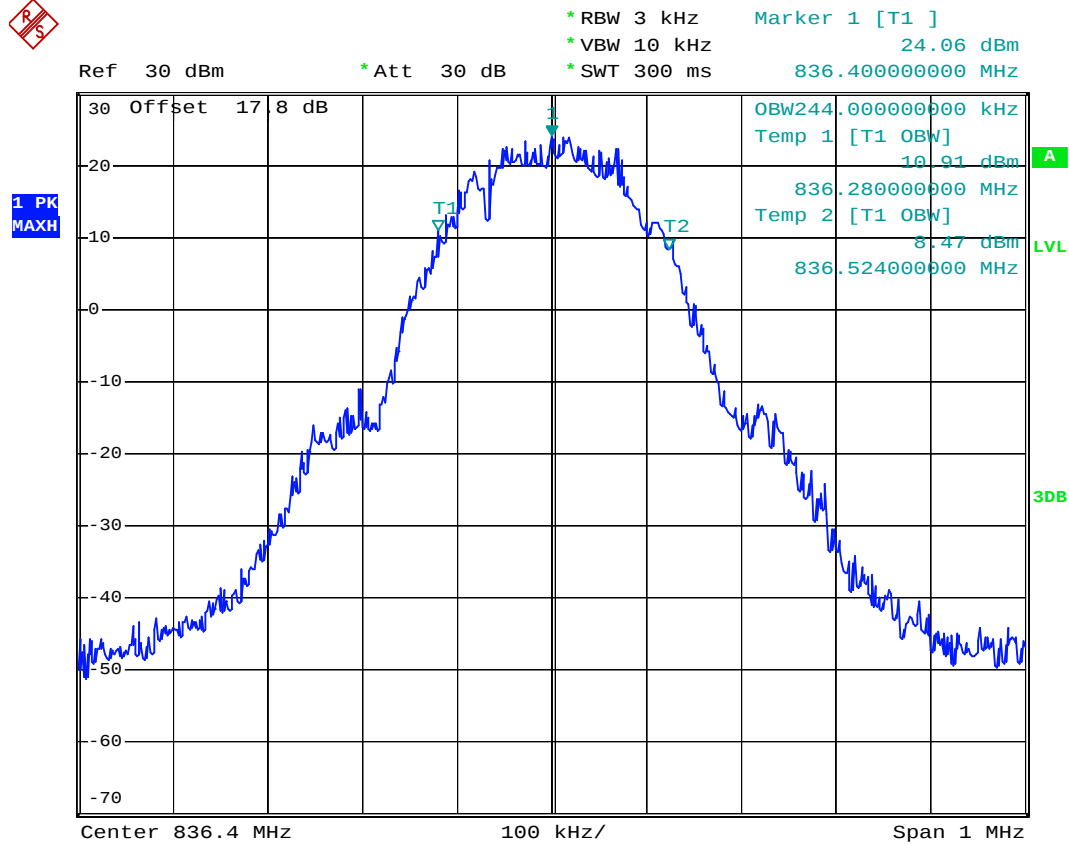
- Test Mode : GSM850 CH128 99% Occupied Bandwidth
- Power State : High



Date: 25.JUL.2008 17:38:52

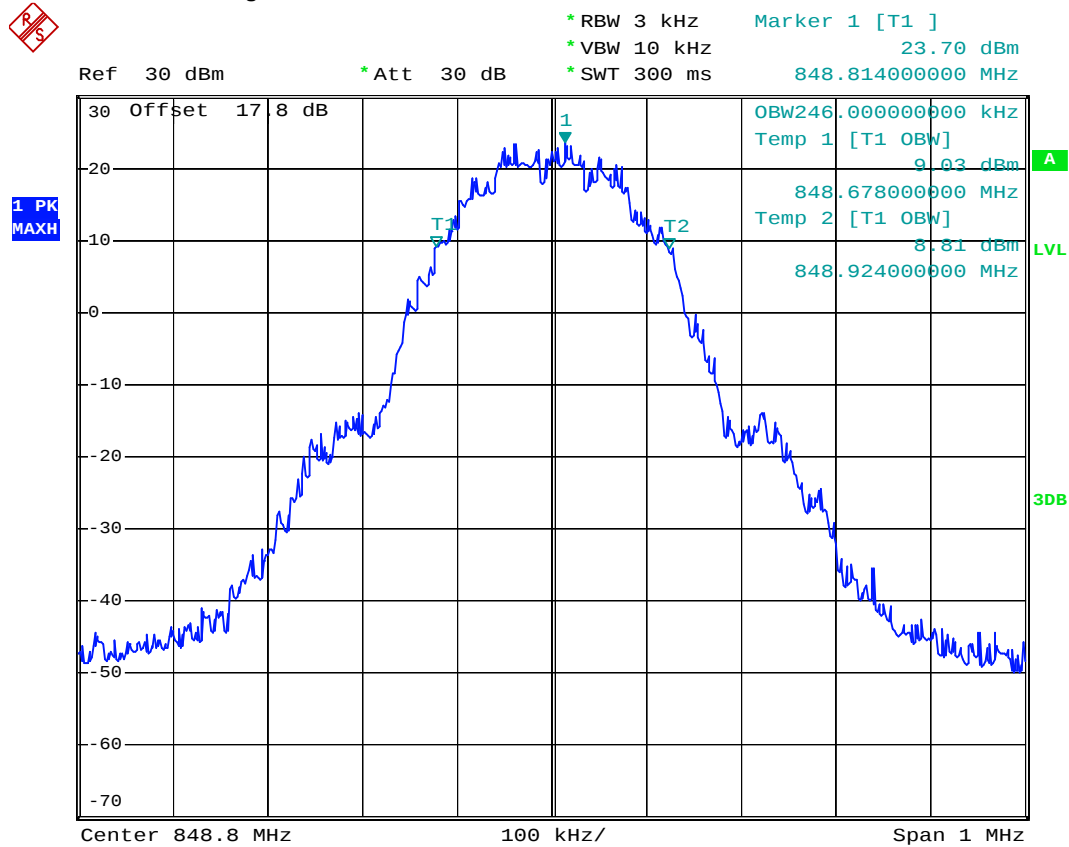


- Test Mode : GSM850 CH189 99% Occupied Bandwidth
- Power State : High



Date: 25.JUL.2008 17:40:31

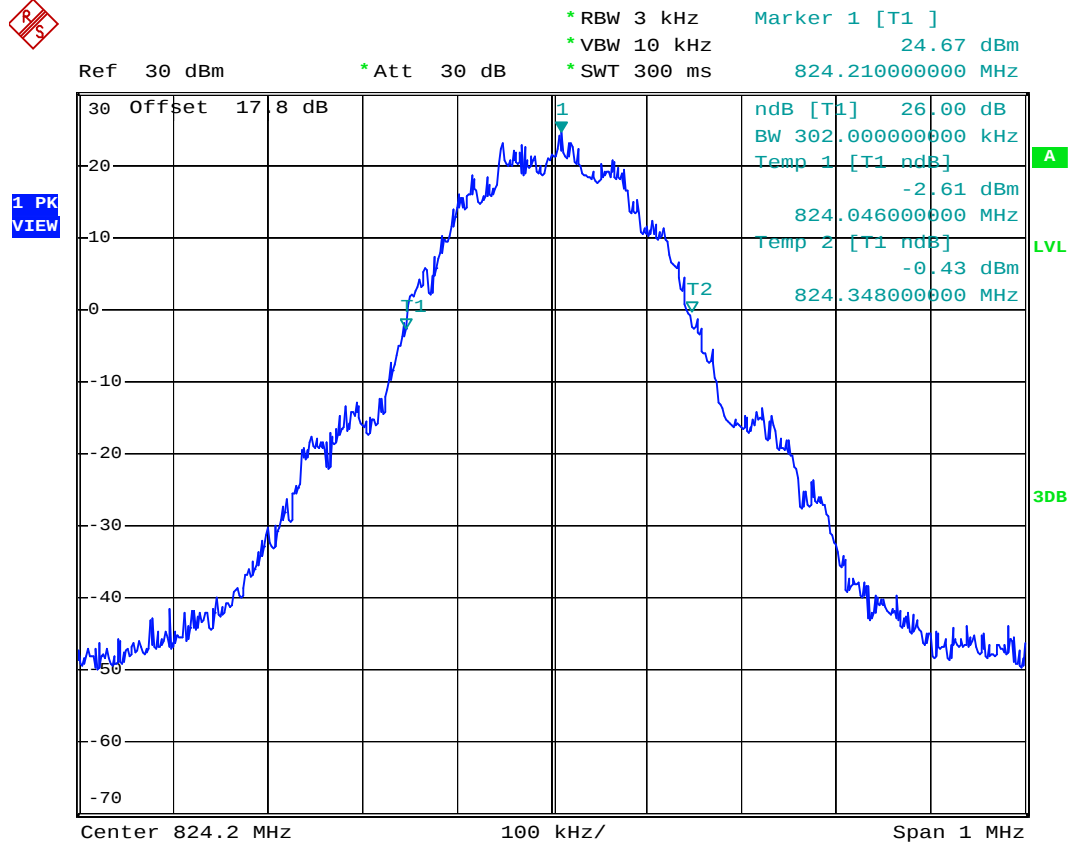
- Test Mode : GSM850 CH 251 99% Occupied Bandwidth
- Power State : High



Date: 25.JUL.2008 17:39:31



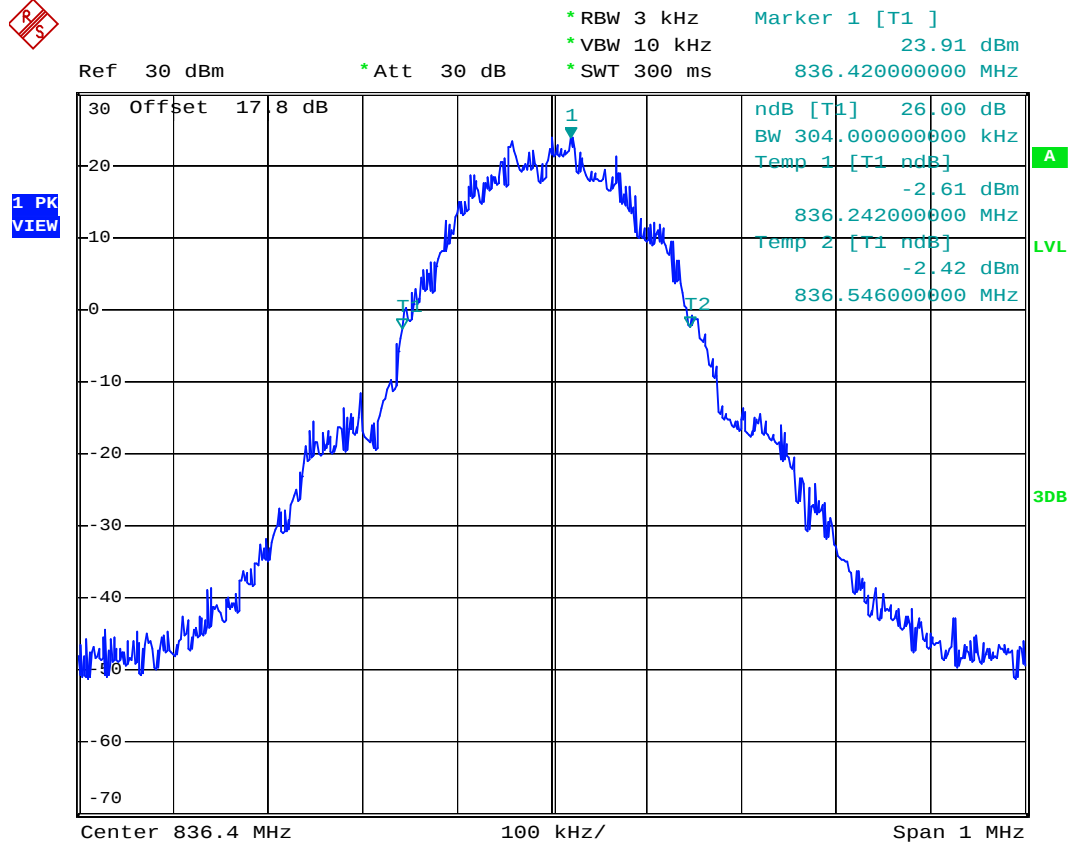
- Test Mode : GSM850 CH128 26dB Bandwidth
- Power State : High



Date: 25.JUL.2008 17:37:57



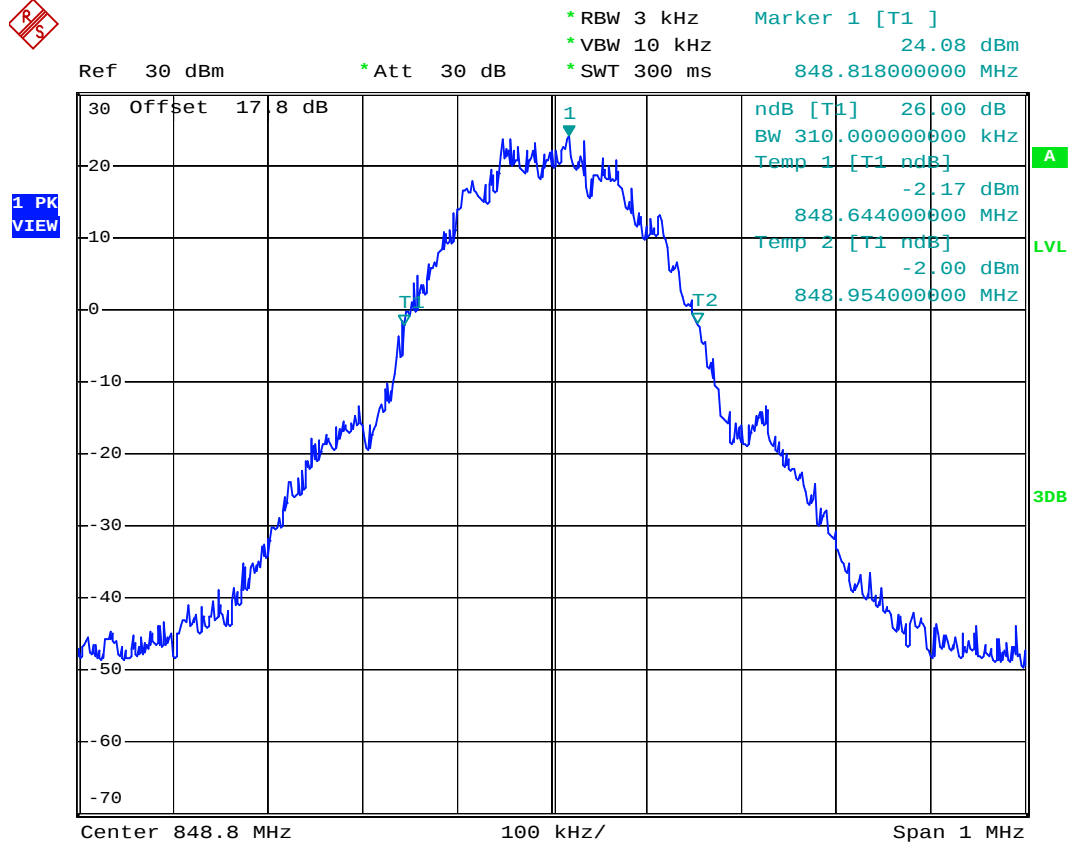
- Test Mode : GSM850 CH189 26dB Bandwidth
- Power State : High



Date: 25.JUL.2008 17:37:02



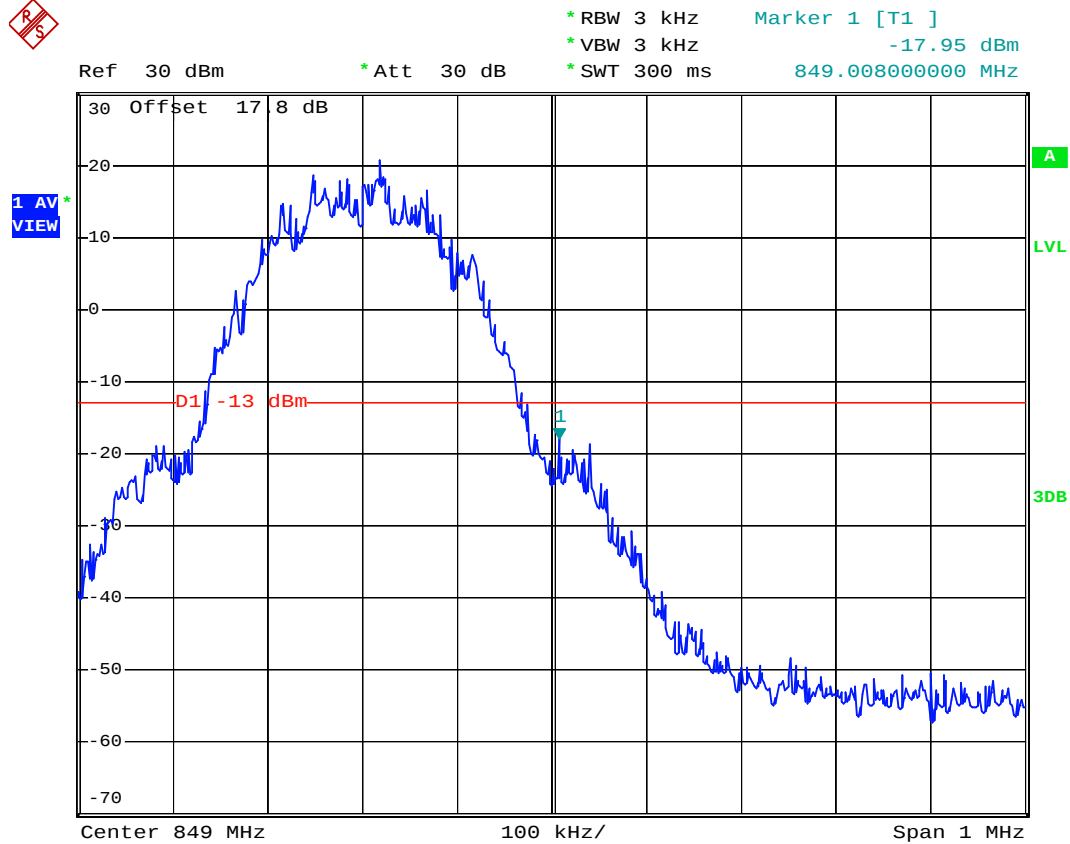
- Test Mode : GSM850 CH 251 26dB Bandwidth
- Power State : High



Date: 25.JUL.2008 17:36:12



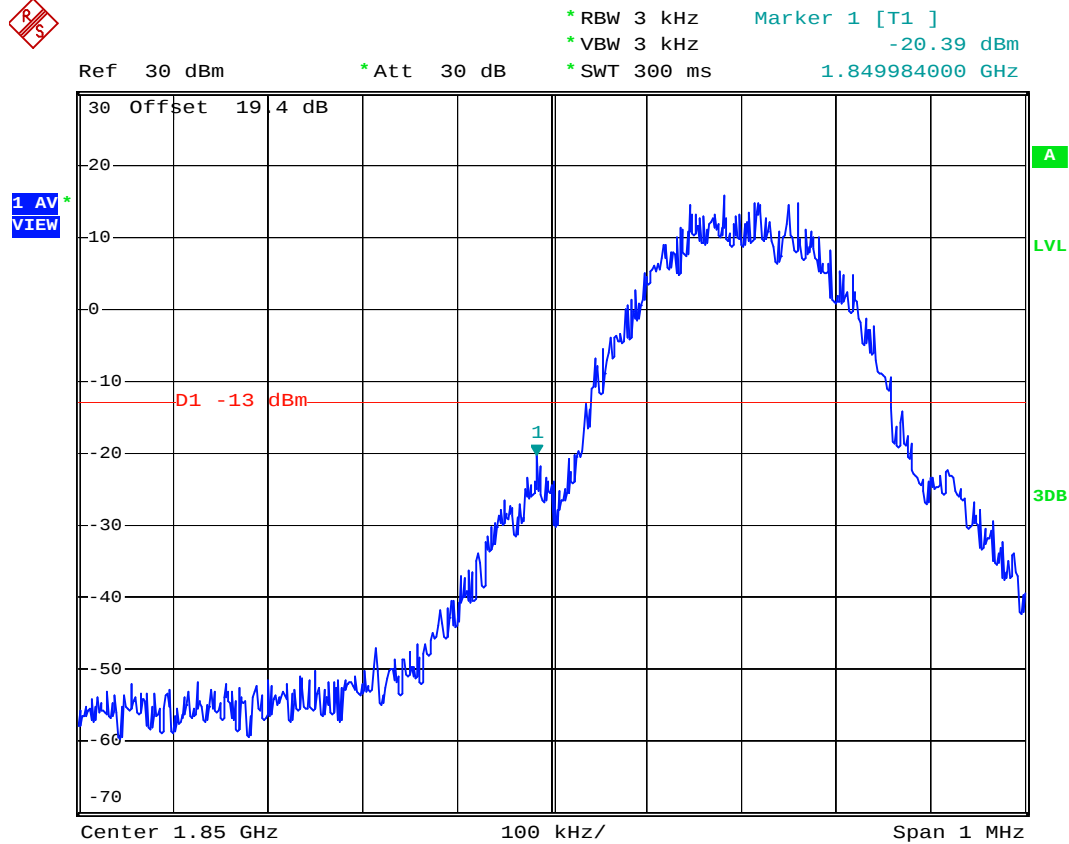
- Test Mode : GSM850 (GSM) CH251 Higher Band Edge
- Power State : High



Date: 25.JUL.2008 17:45:14



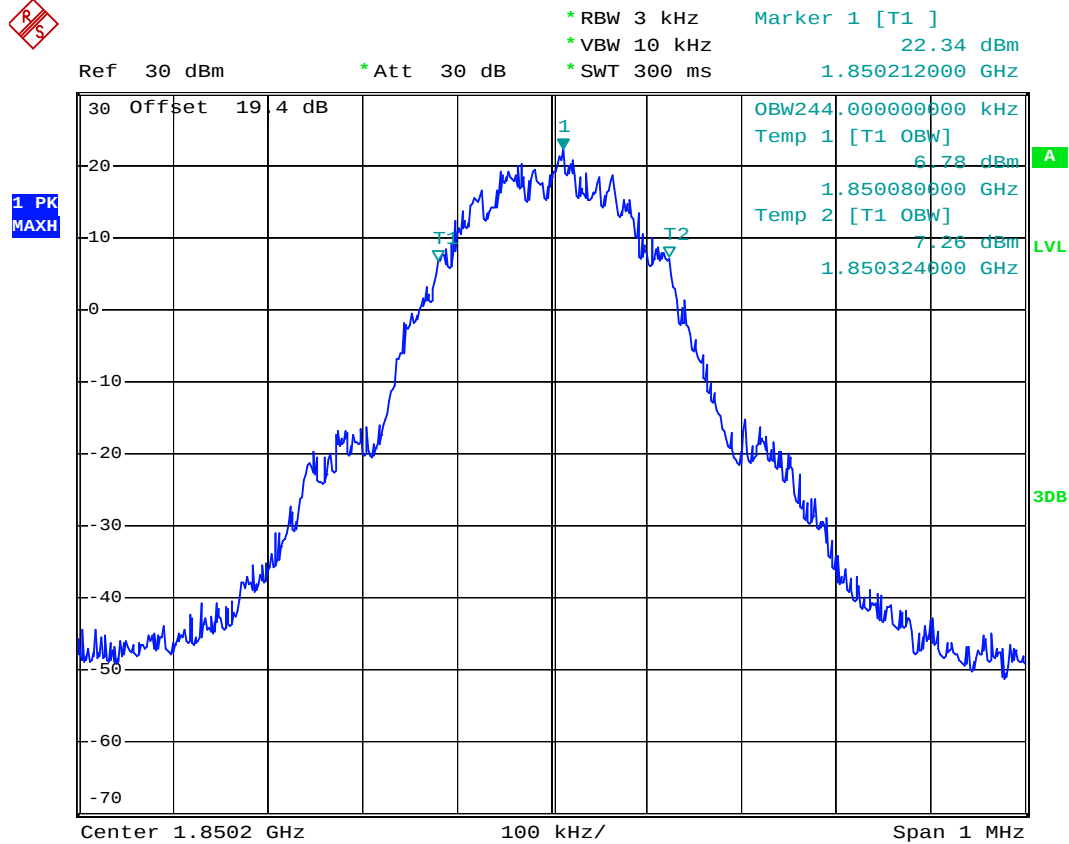
- Mode 2
- Test Mode : GSM1900 CH512 Lower Band Edge
- Power State : High



Date: 25.JUL.2008 17:51:12



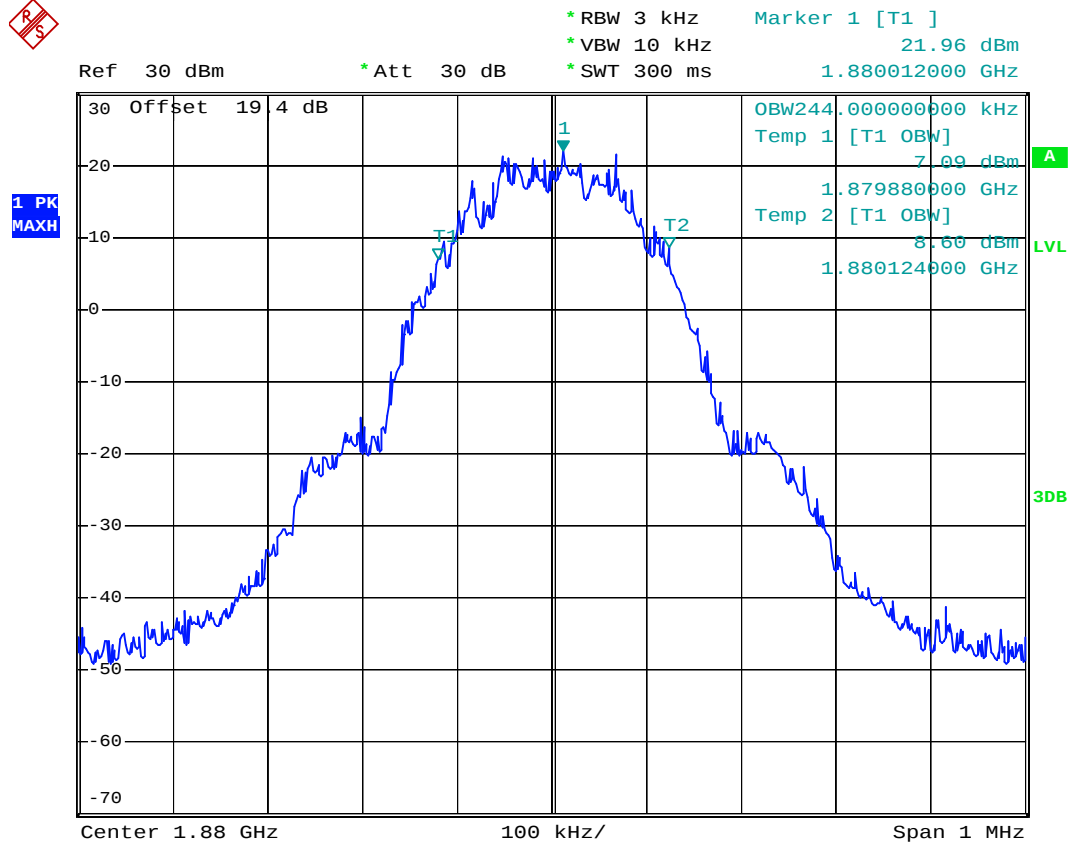
- Test Mode : GSM1900 CH512 99% Occupied Bandwidth
- Power State : High



Date: 25.JUL.2008 17:59:33



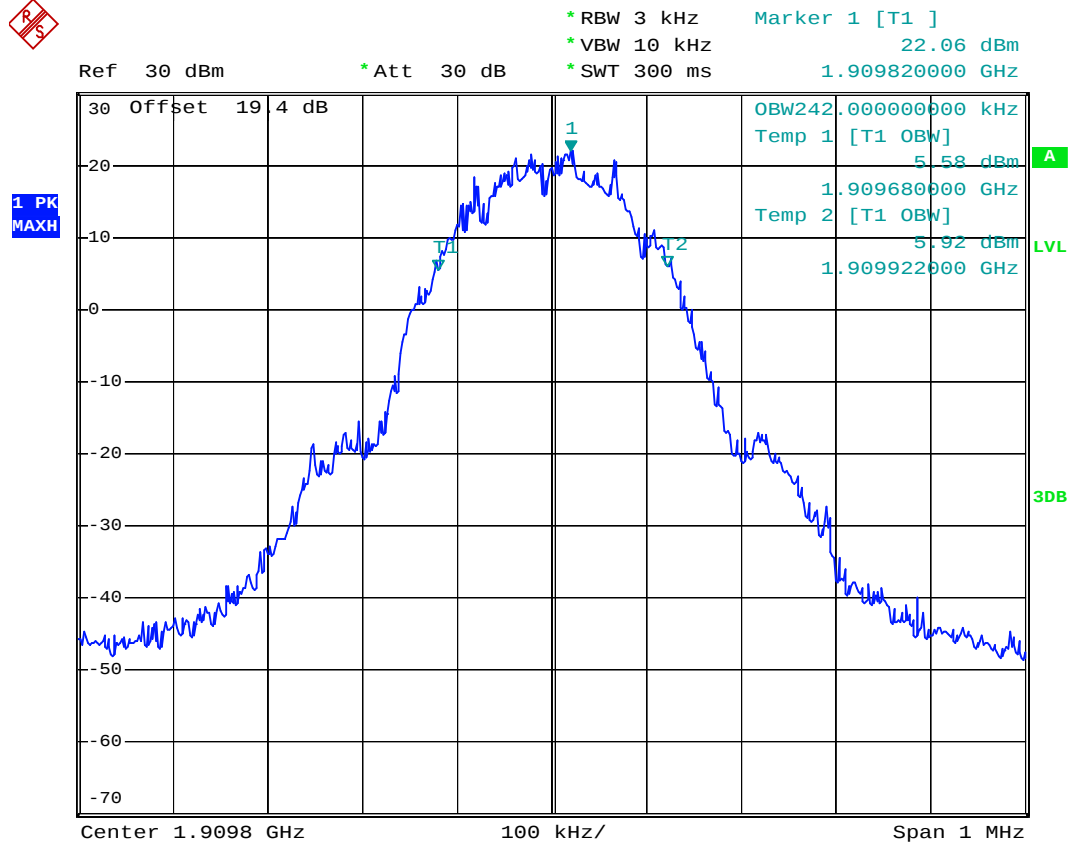
- Test Mode : GSM1900 CH661 99% Occupied Bandwidth
- Power State : High



Date: 25.JUL.2008 18:00:10



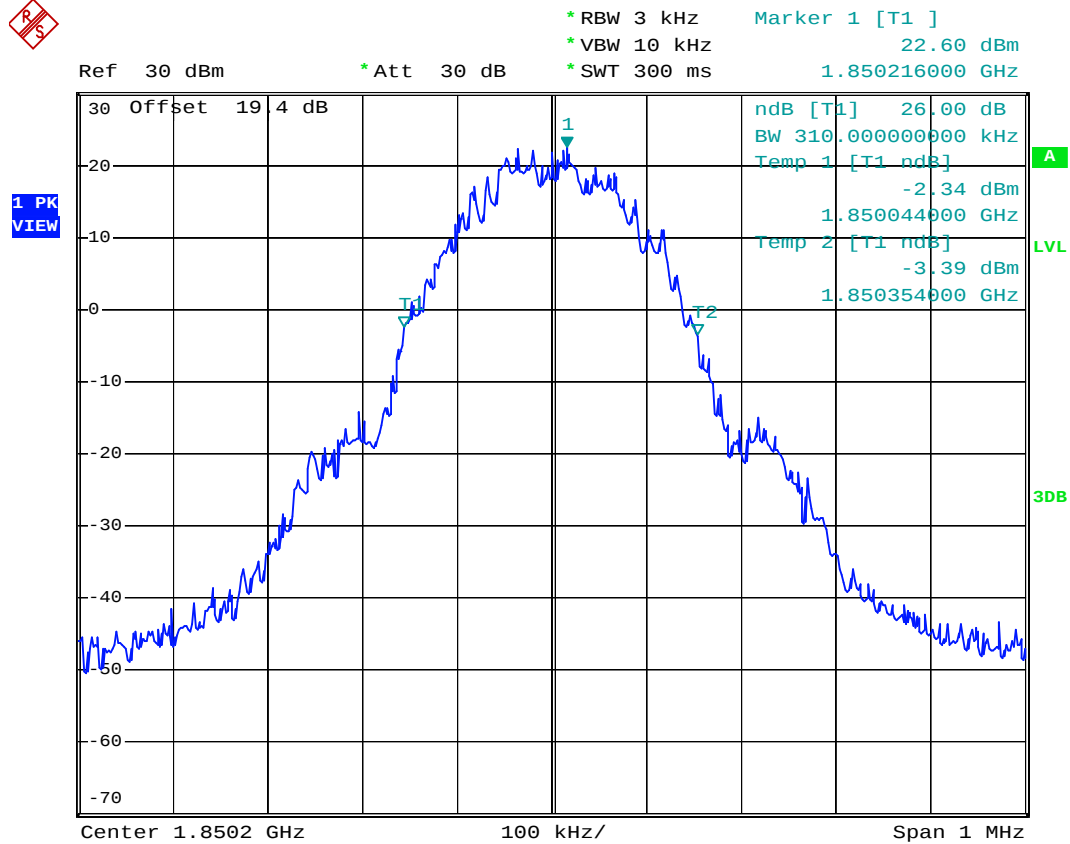
- Test Mode : GSM1900 CH810 99% Occupied Bandwidth
- Power State : High



Date: 25.JUL.2008 17:58:10



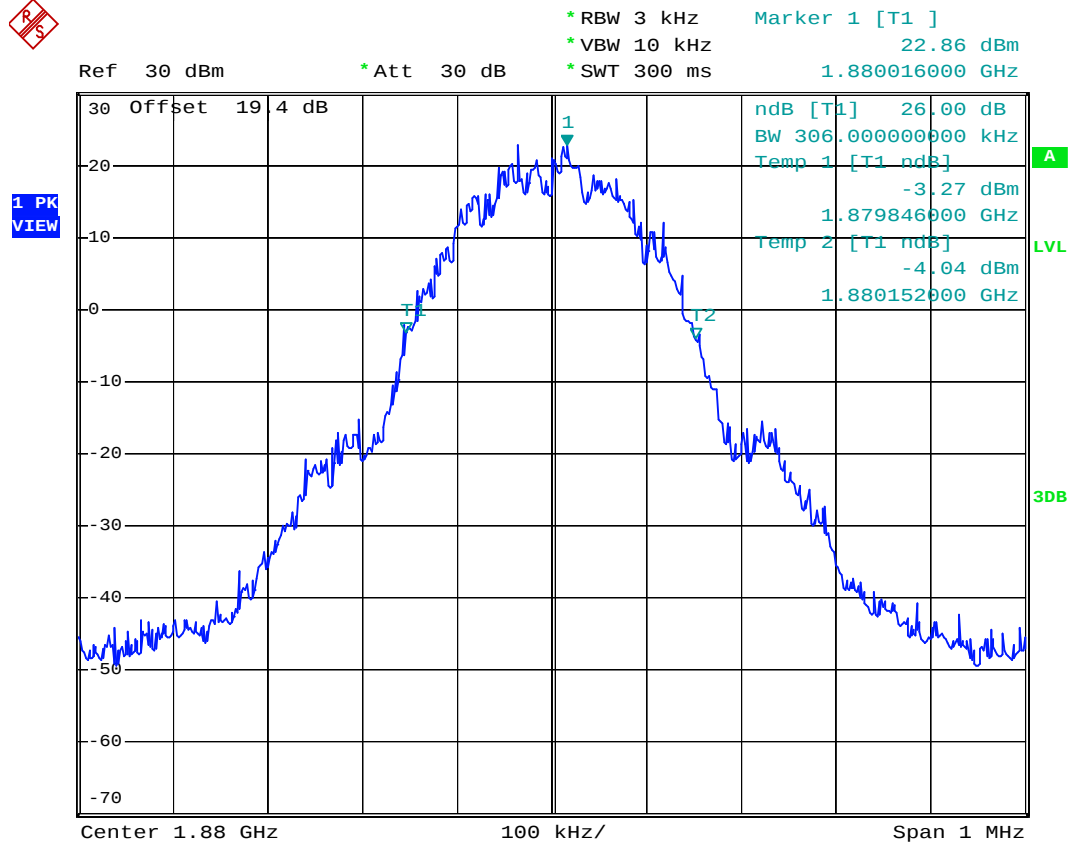
- Test Mode : GSM1900 CH512 26dB Bandwidth
- Power State : High



Date: 25.JUL.2008 17:55:53



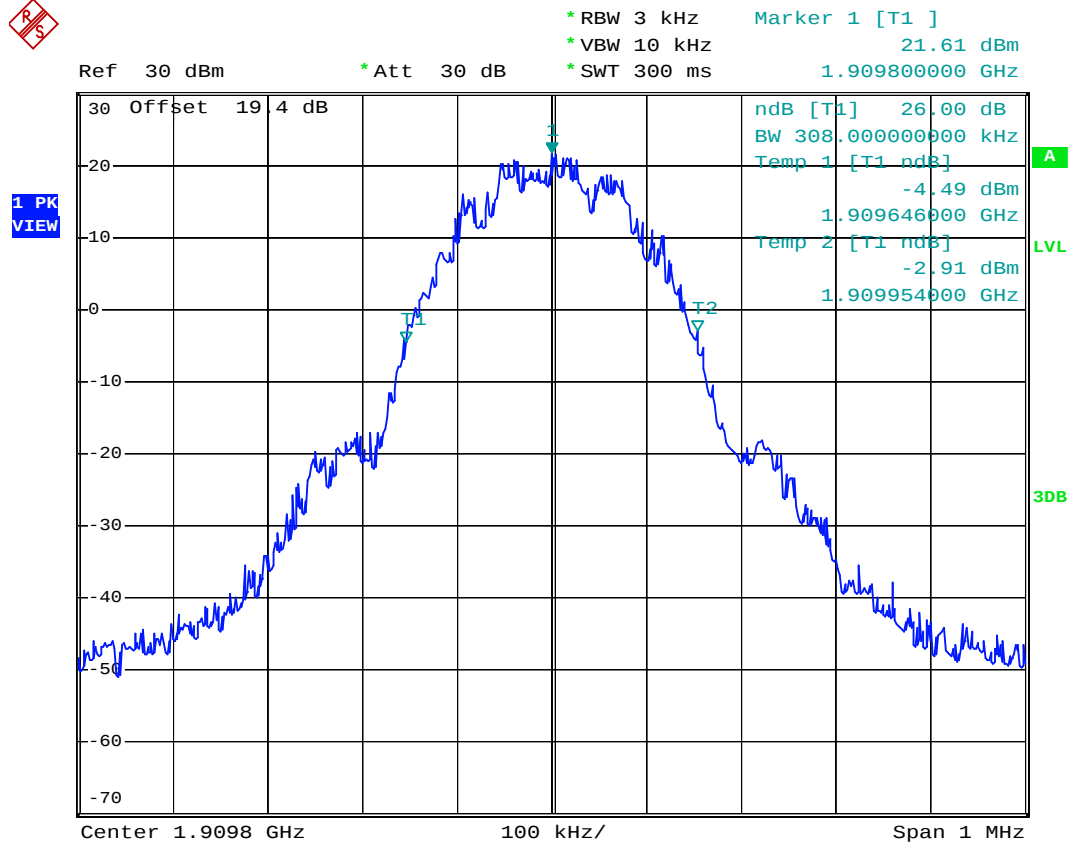
- Test Mode : GSM1900 CH661 26dB Bandwidth
- Power State : High



Date: 25.JUL.2008 17:56:35



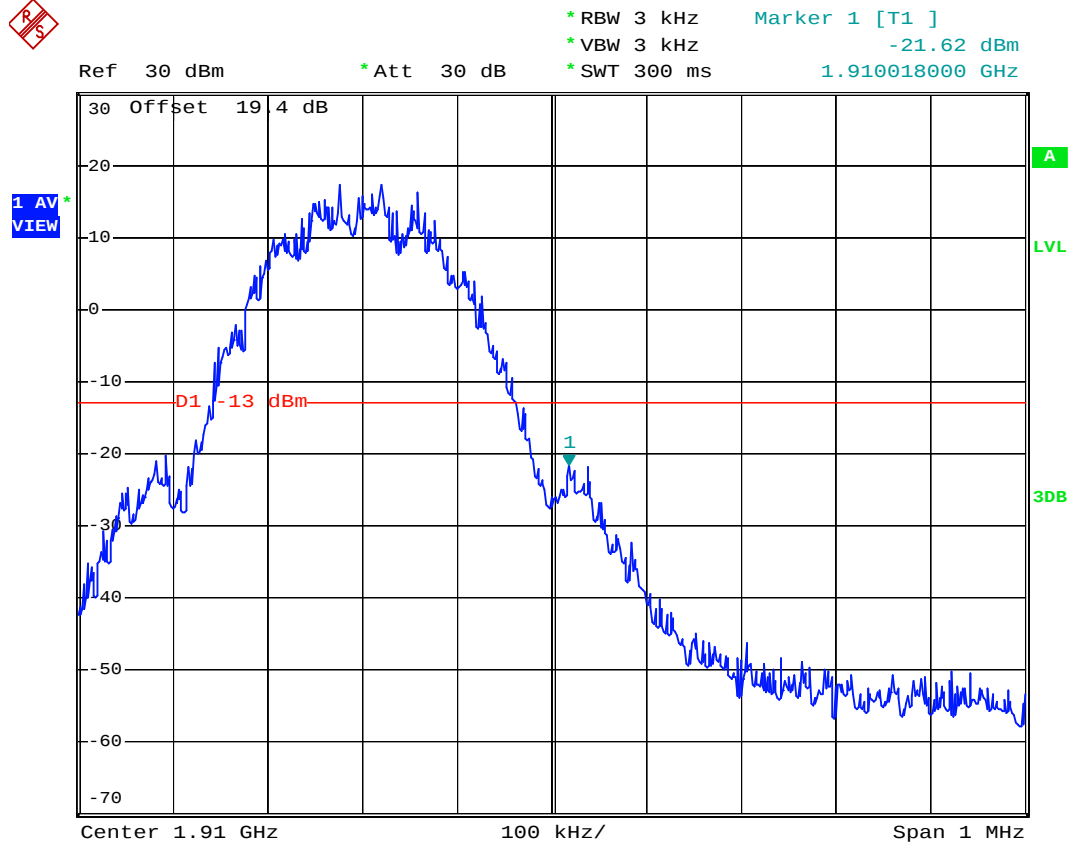
- Test Mode : GSM1900 CH810 26dB Bandwidth
- Power State : High



Date: 25.JUL.2008 17:57:25



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



Date: 25.JUL.2008 17:53:11

4.5 Conducted Emission

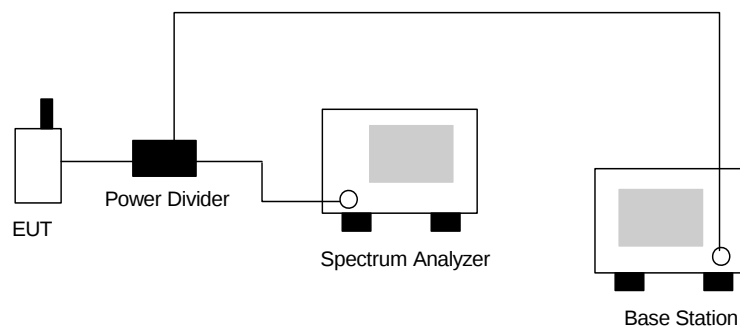
4.5.1 Measurement Instruments

As described in chapter 5 of this test report.

4.5.2 Test Procedure

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

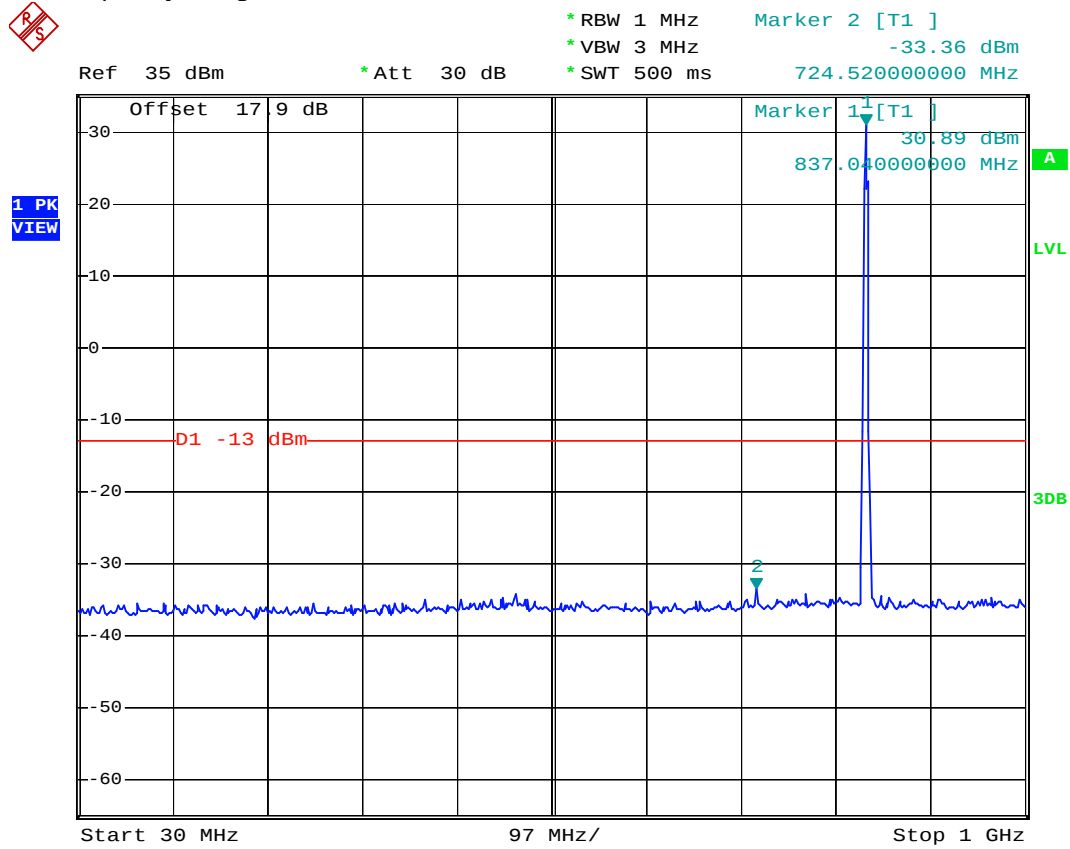
4.5.3 Test Setup Layout





4.5.4 Test Result

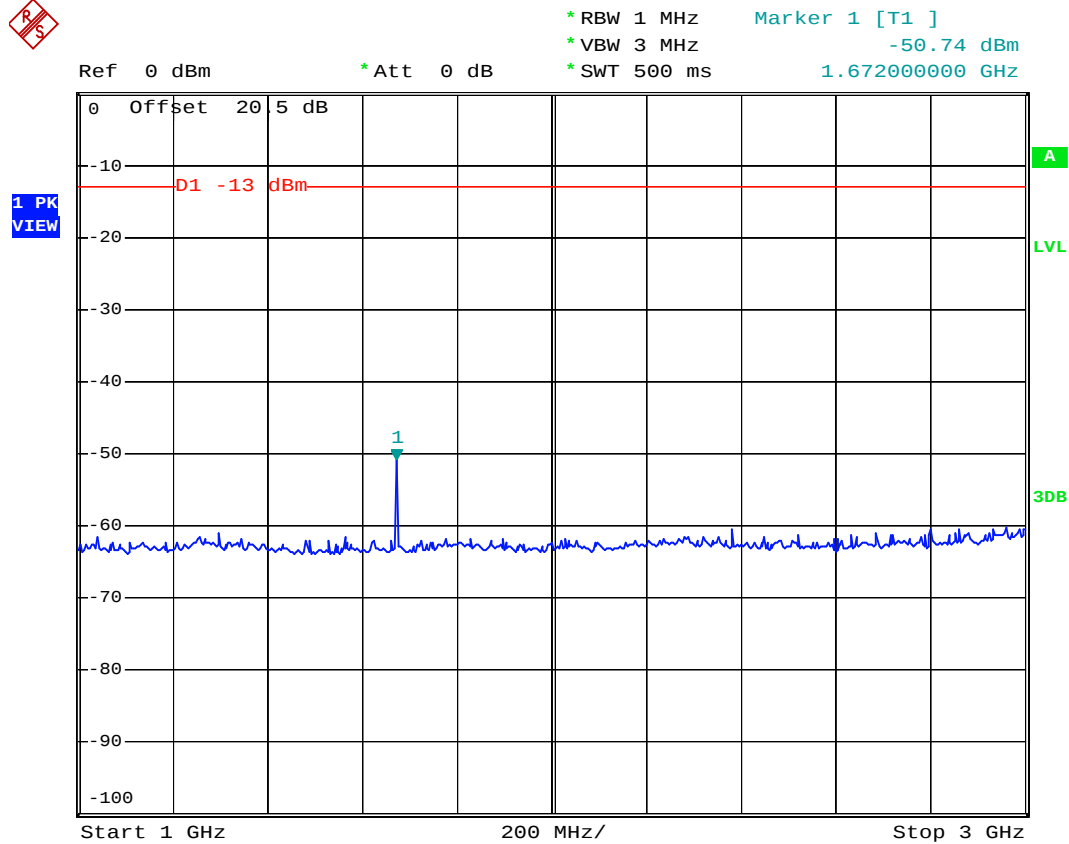
- Mode 1
- Test Mode : GSM850 CH189
- Frequency Range : 30M-1G



Date: 25.JUL.2008 18:07:45



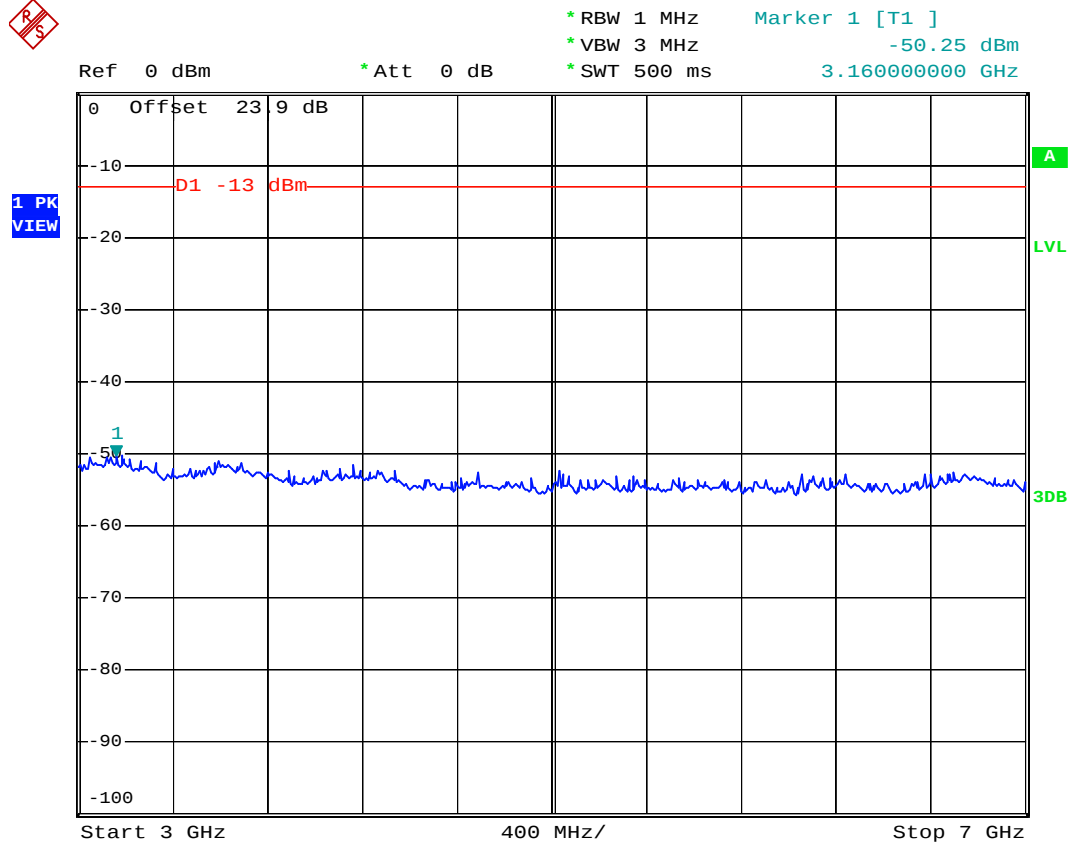
- Test Mode : GSM850 CH189
- Frequency Range : 1G-3G



Date: 25.JUL.2008 18:12:11



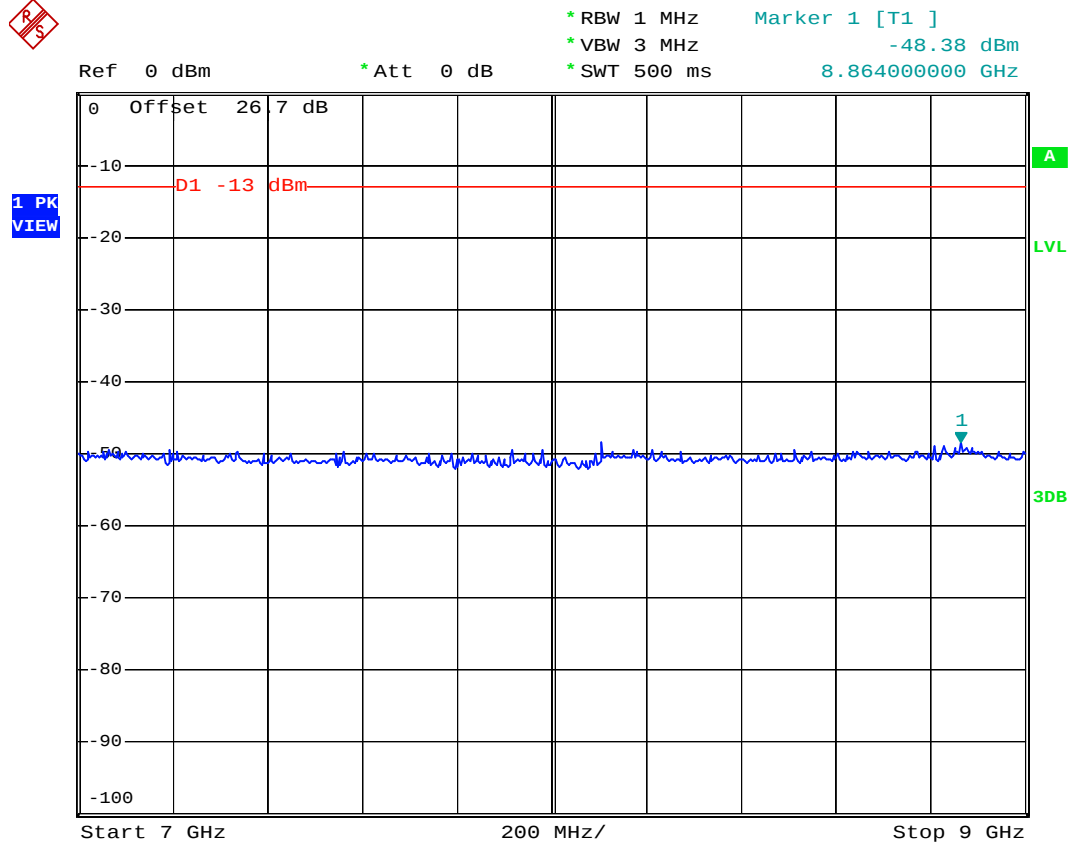
- Test Mode : GSM850 CH189
- Frequency Range : 3G-7G



Date: 25.JUL.2008 18:26:32



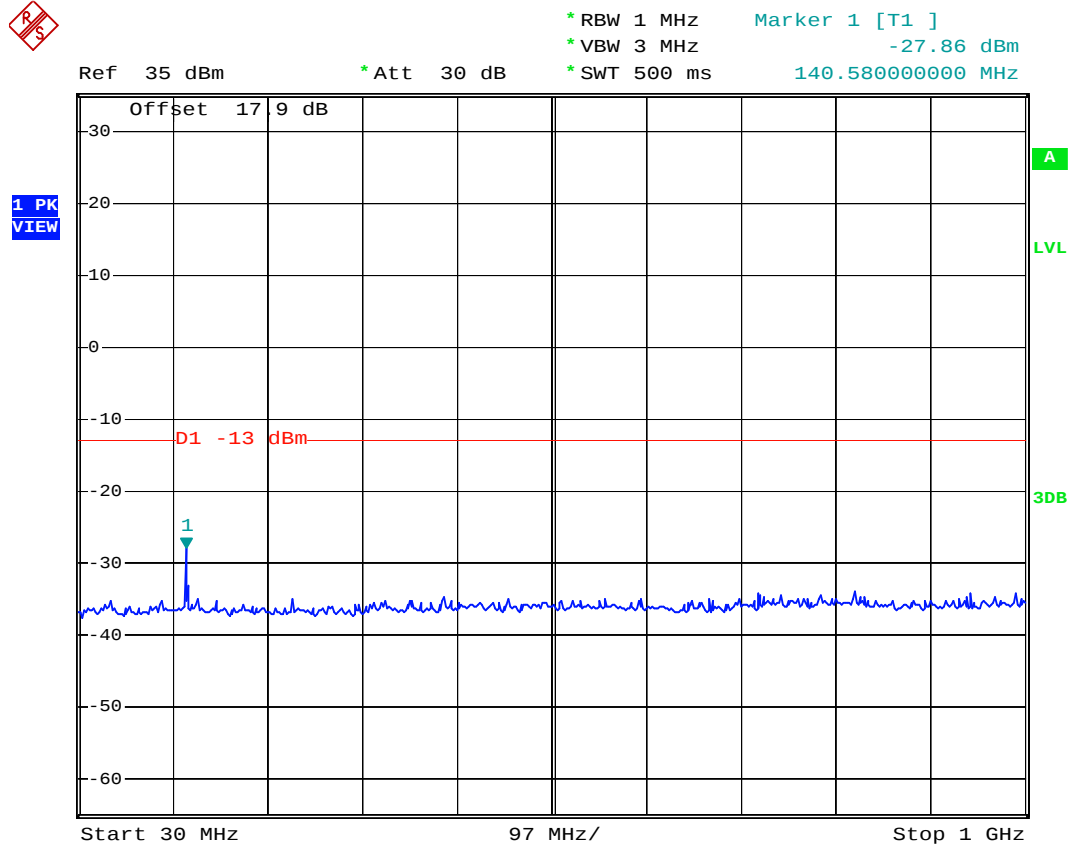
- Test Mode : GSM850 CH189
- Frequency Range : 7G-9G



Date: 25.JUL.2008 18:28:08



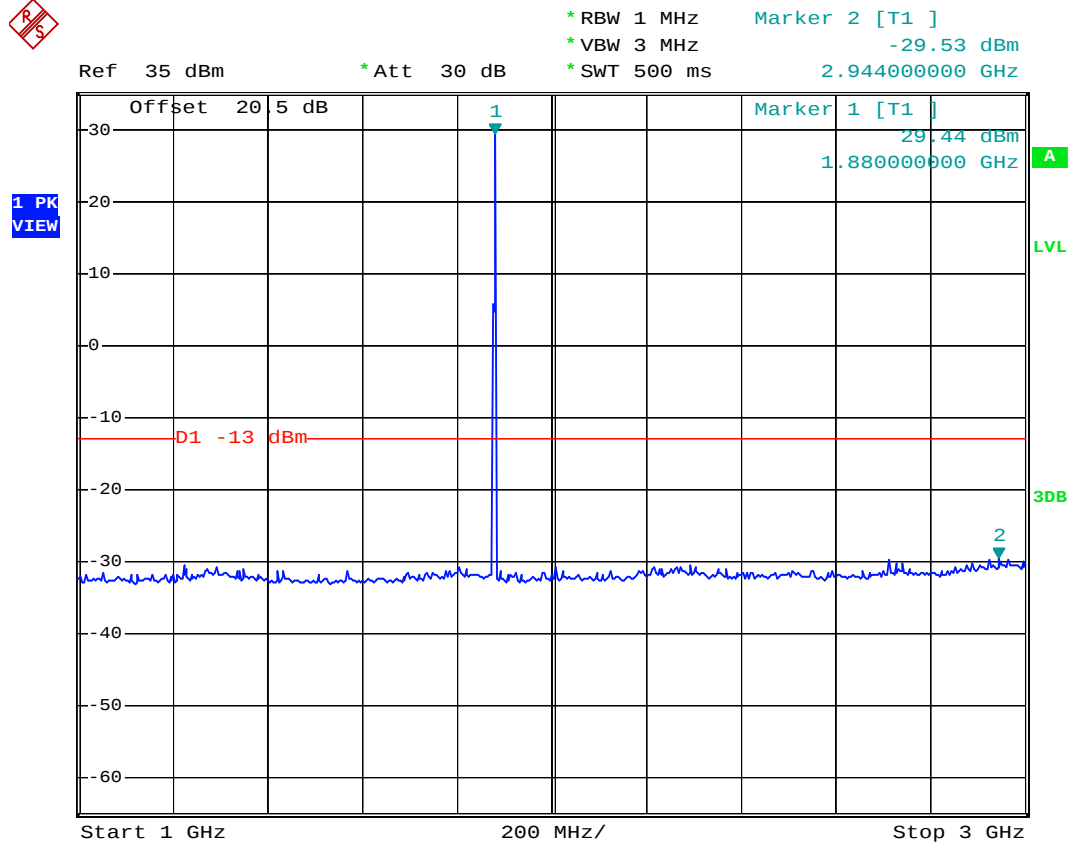
- Mode 2
- Test Mode : GSM1900 CH661
- Frequency Range : 30M-1G



Date: 25.JUL.2008 18:06:39



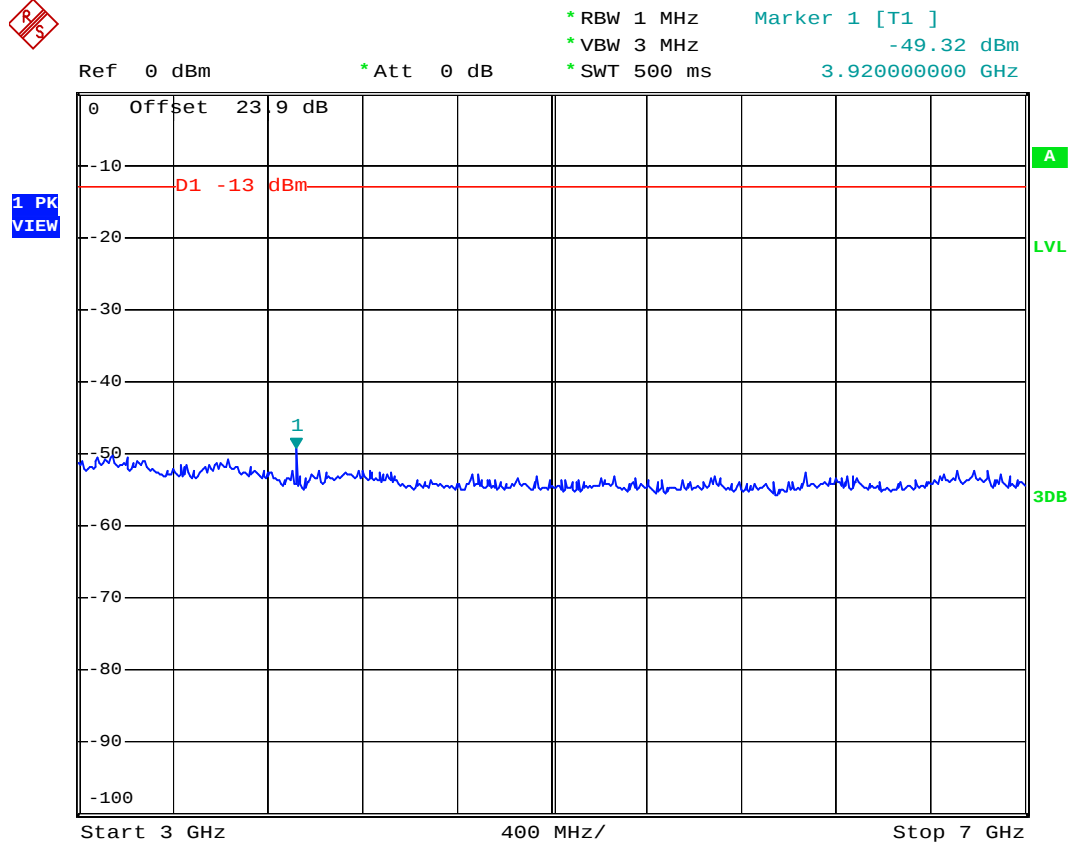
- Test Mode : GSM1900 CH661
- Frequency Range : 1G-3G



Date: 25.JUL.2008 18:11:03



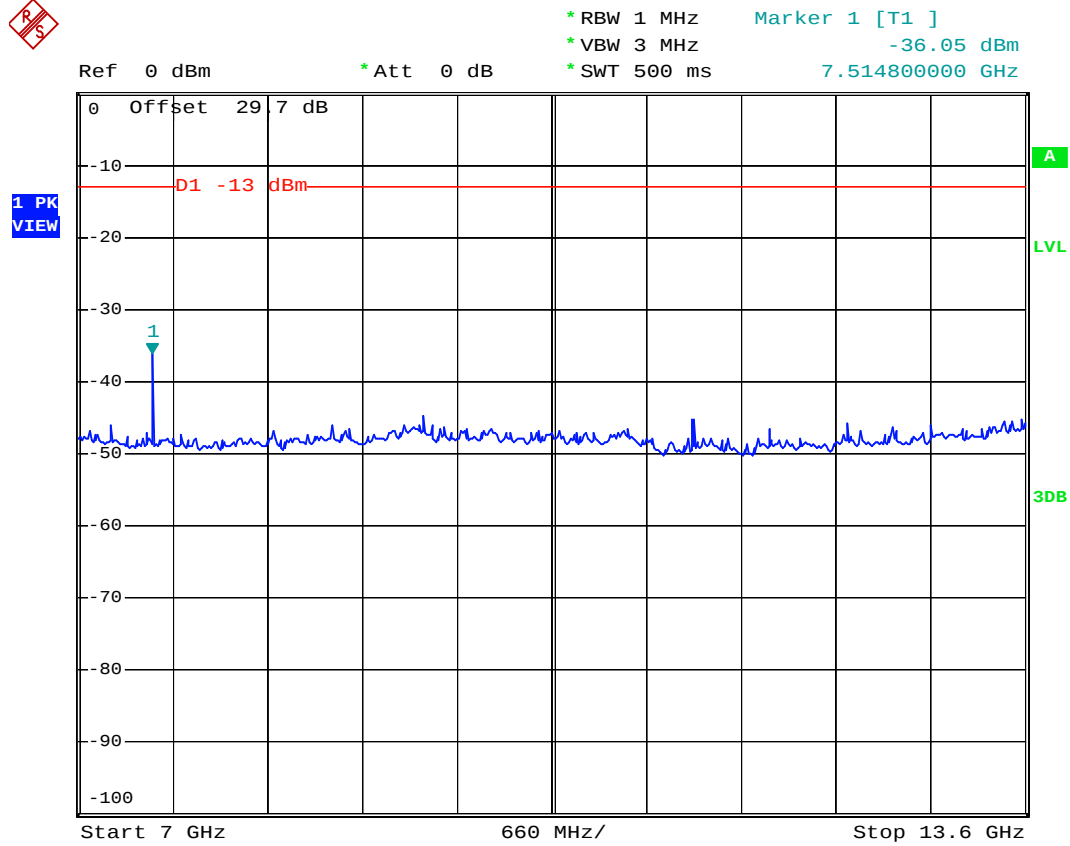
- Test Mode : GSM1900 CH661
- Frequency Range : 3G-7G



Date: 25.JUL.2008 18:27:02



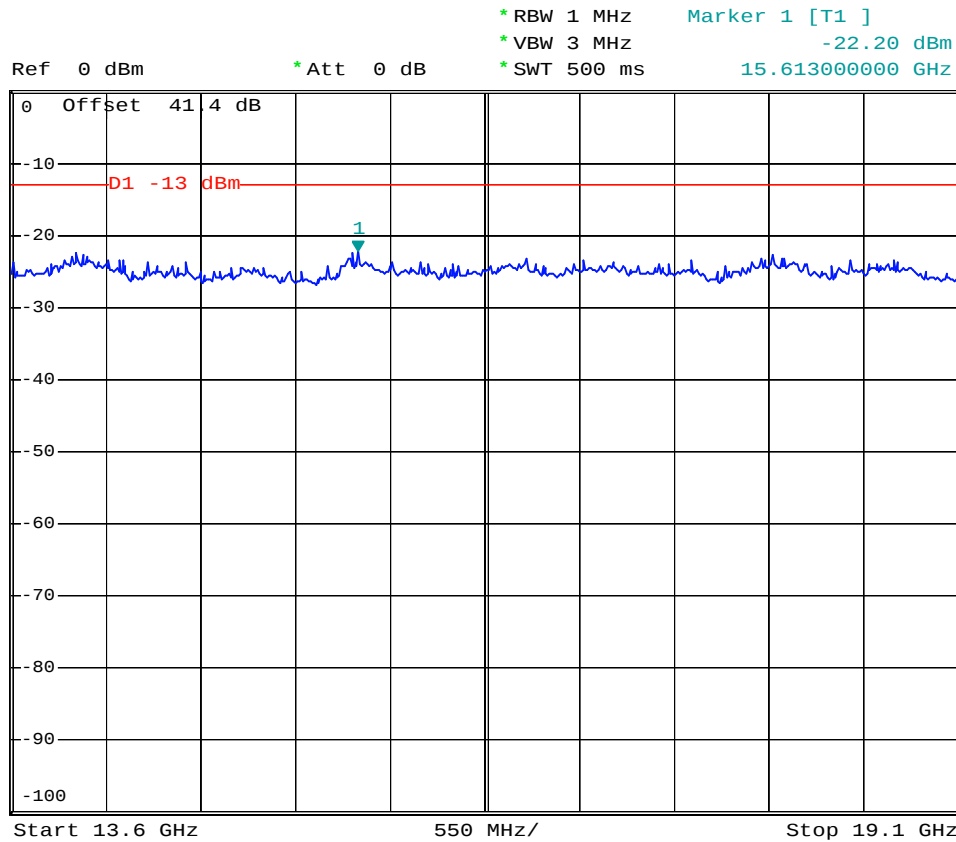
- Test Mode : GSM1900 CH661
- Frequency Range : 7G-13.6G



Date: 25.JUL.2008 18:28:50



- Test Mode : GSM1900 CH661
- Frequency Range : 13.6G-19.1G



Date: 25.JUL.2008 18:29:30

4.6 Field Strength of Spurious Radiation

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

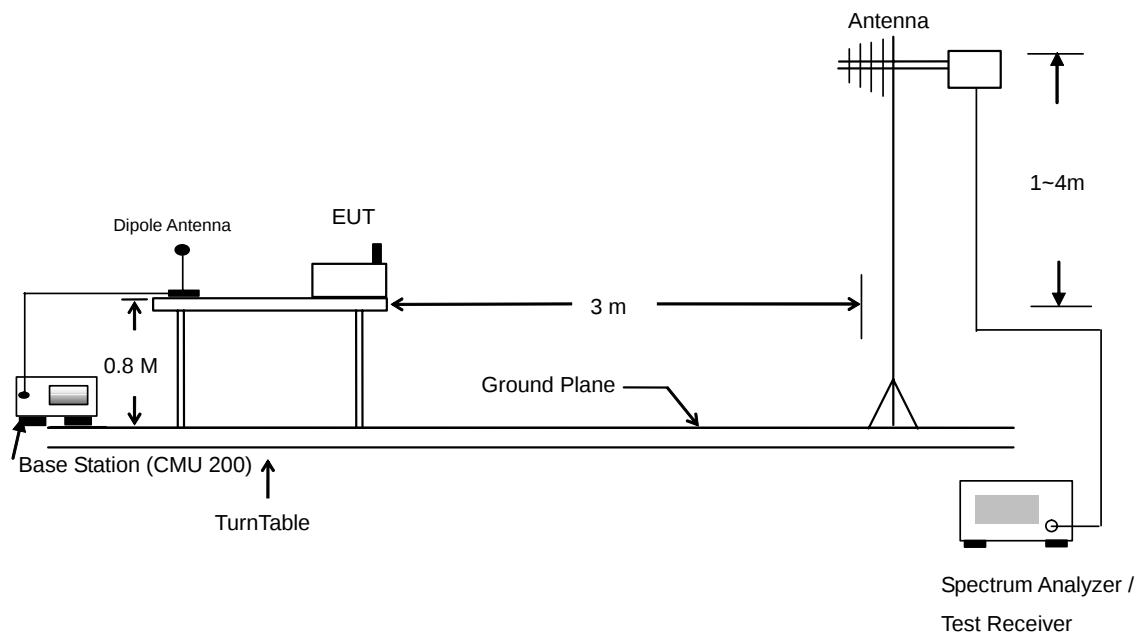
4.6.1 Measurement Instruments

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.

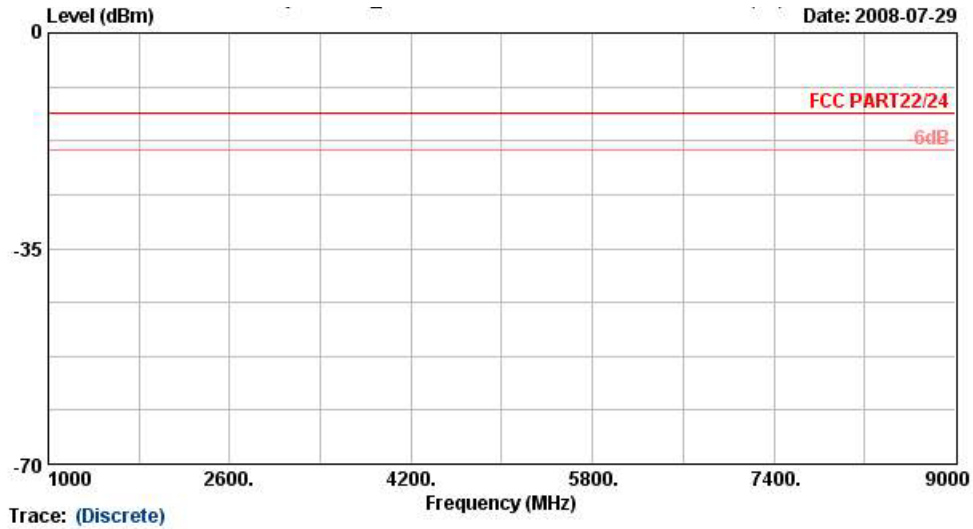
4.6.3 Test Setup Layout





4.6.4 Test Data

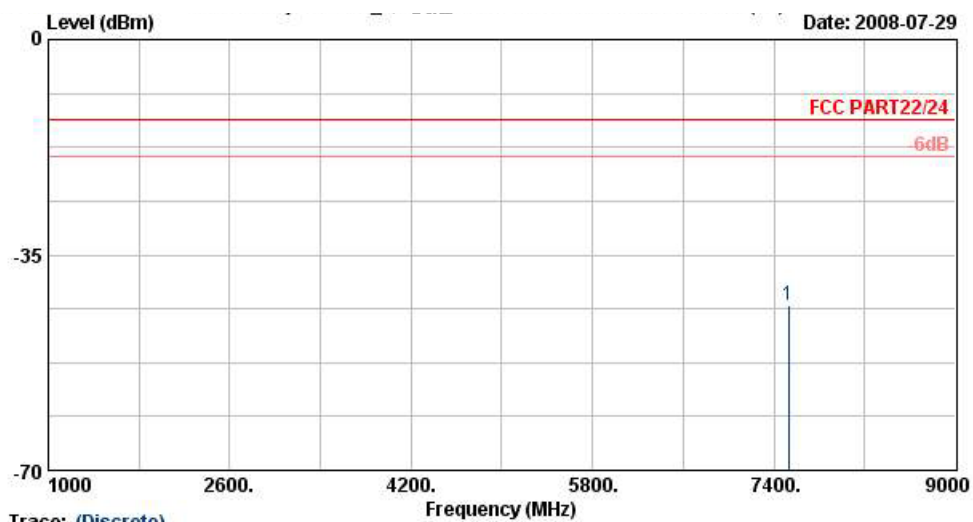
- Mode 1
- Horizontal Polarization



Site : 03CH07-HY
Condition : HF-EIRP(080306) HORIZONTAL
EUT : PND
Power : 120Vac/60Hz
Model : FG 870721
Mode : GPRS 850 Link Mode Ch189 + Adaptor
IMEI : 35422602020868501
S/N : WB4258G00253



▪ Vertical Polarization



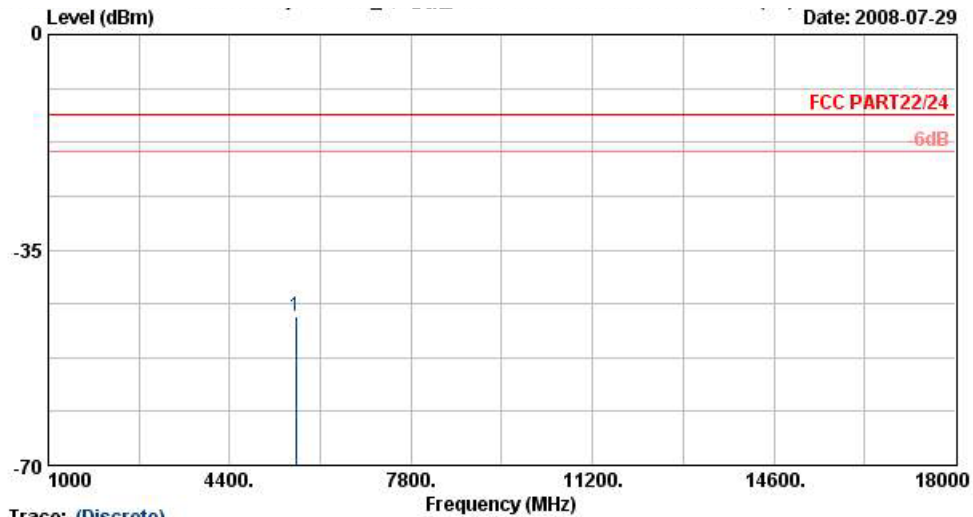
Trace: (Discrete)

Site : 03CH07-HY
Condition : HF-EIRP(080306) VERTICAL 0cm 0deg
EUT : PND
Power : 120Vac/60Hz
Model : FG 870721
Mode : GPRS 850 Link Mode Ch189 + Adaptor
IMEI : 35422602020868501
S/N : WB4258G00253

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
7530	-43.23	-13	-30.23	-64.66	-45.67	6.22	10.81	V	Pass



- Mode 2
- Horizontal Polarization

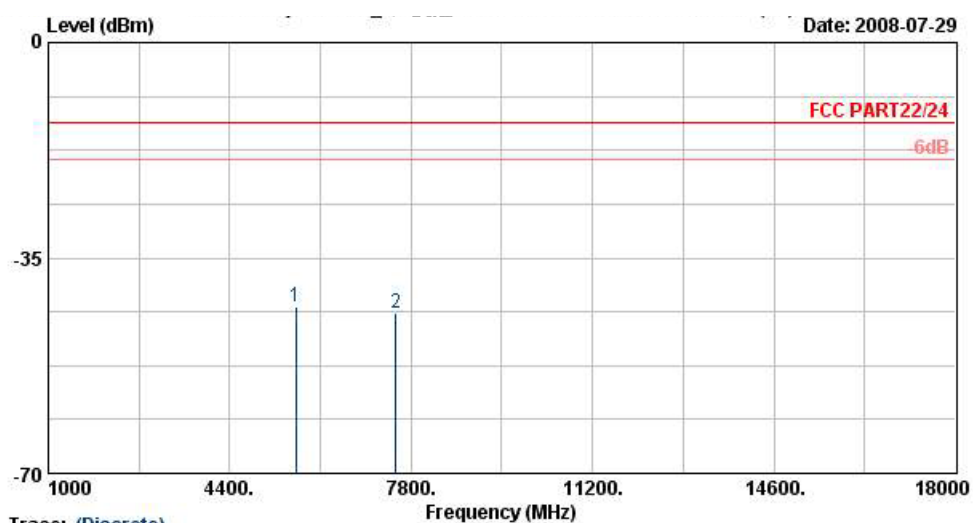


Site : 03CH07-HY
Condition : HF-EIRP(080306) HORIZONTAL
EUT : PND
Power : 120Vac/60Hz
Model : FG 870721
Mode : GPRS 1900 Link Mode Ch661 + Adaptor
IMEI : 35422602020868501
S/N : WB4258G00253

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
5636	-45.70	-13	-32.70	-64.83	-50.64	3.87	8.81	H	Pass



▪ Vertical Polarization

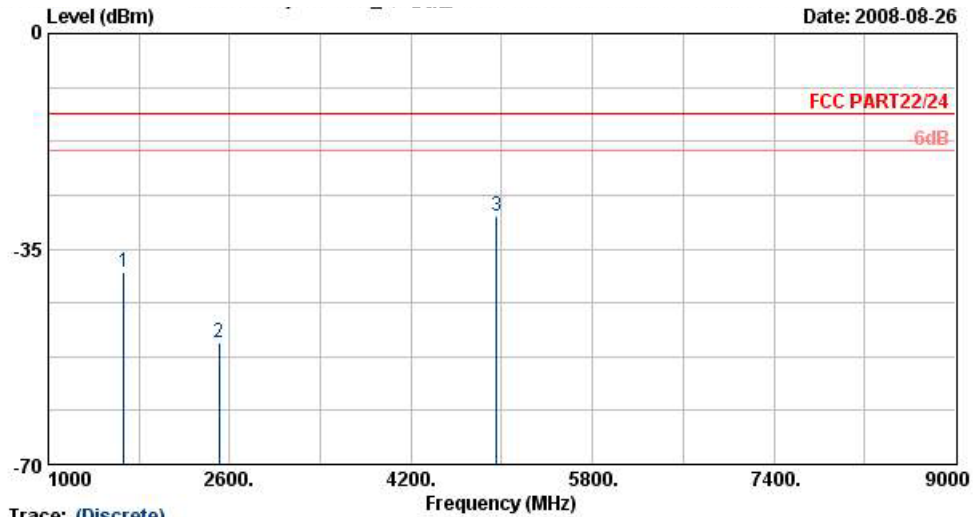


Site : 03CH07-HY
Condition : HF-EIRP(080306) VERTICAL
EUT : PND
Power : 120Vac/60Hz
Model : FG 870721
Mode : GPRS 1900 Link Mode Ch661 + Adaptor
IMEI : 35422602020868501
S/N : WB4258G00253

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
5636	-43.01	-13	-30.01	-63.41	-48.91	3.87	9.77	V	Pass
7520	-43.95	-13	-30.95	-65.41	-48.93	5.83	10.81	V	Pass



- Mode 3
- Horizontal Polarization

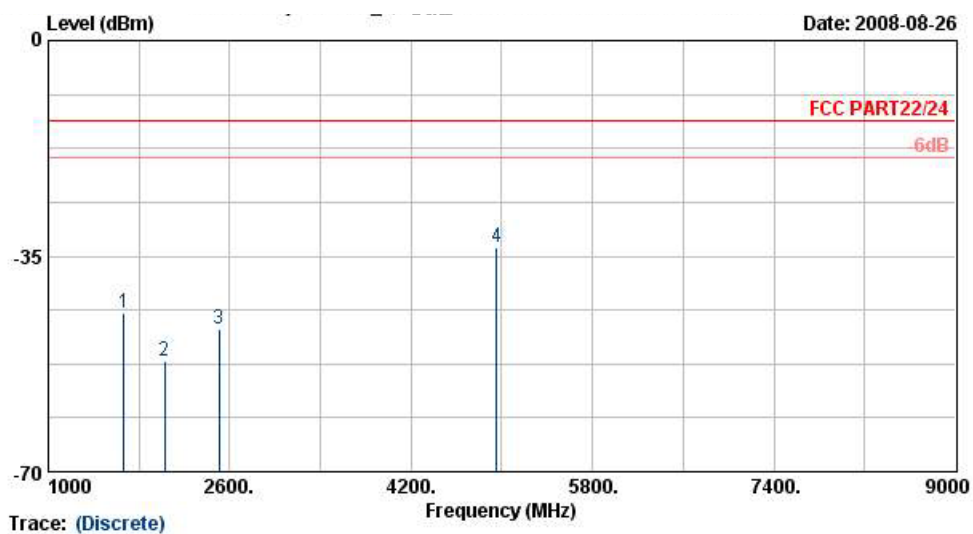


Site : 03CH07-HY
Condition : HF-EIRP(080306) HORIZONTAL
Model : FG 870721

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
1669	-38.78	-13	-25.78	-46.91	-37.79	3.39	4.55	H	Pass
2509	-50.19	-13	-37.19	-60.33	-50.25	3.71	5.92	H	Pass
4955	-29.63	-13	-16.63	-44.2	-29.28	5.88	7.68	H	Pass



▪ Vertical Polarization



Site : 03CH07-HY
Condition : HF-EIRP(080306) VERTICAL
Model : FG 870721

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
1672	-44.33	-13	-31.33	-49.71	-42.95	3.39	4.16	V	Pass
2029	-51.98	-13	-38.98	-61.81	-51.12	3.55	4.84	V	Pass
2509	-46.95	-13	-33.95	-56.8	-46.81	3.71	5.72	V	Pass
4955	-33.45	-13	-20.45	-48.23	-33.1	5.88	7.68	V	Pass

4.7 Frequency Stability (Temperature Variation)

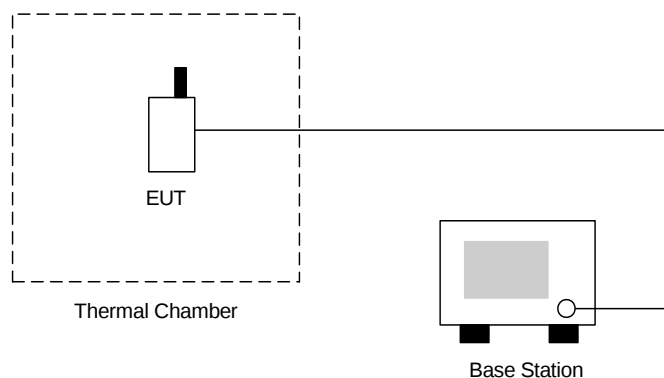
4.7.1 Measurement Instrument

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 CH189

Temperature(°C)	Change (Hz)	Change (ppm)	Limit (ppm)	Result
-30	26	0.01	2.5	Passed
-20	19	0.02		
-10	12	0.01		
0	15	0.02		
10	17	0.02		
20	14	0.02		
30	10	0.01		
40	16	0.02		
50	21	0.02		

▪ Test Mode : GSM1900 CH661

Temperature(°C)	Change (Hz)	Change (ppm)	Limit (ppm)	Result
-30	35	0.02	2.5	Passed
-20	30	0.02		
-10	22	0.01		
0	28	0.01		
10	20	0.01		
20	12	0.01		
30	19	0.01		
40	14	0.01		
50	16	0.01		

4.8 Frequency Stability (Voltage Variation)

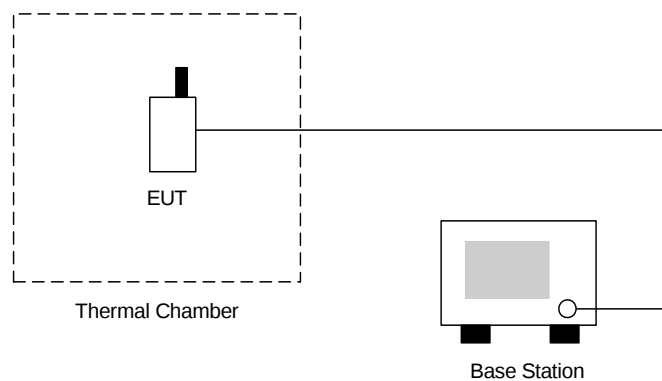
4.8.1 Measurement Instrument

As described in chapter 5 of this test report.

4.8.2 Test Procedure

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

4.8.3 Test Setup Layout



4.8.4 Test Result

- Test Mode : GSM850 CH189

Voltage(Volt)	Change (Hz)	Change (ppm)	Limit (ppm)	Result
3.7	14	0.02	2.5	Passed
BEP	37	0.04		
4.2	23	0.03		

- Test Mode : GSM1900 CH661

Voltage(Volt)	Change (Hz)	Change (ppm)	Limit (ppm)	Result
3.7	12	0.01	2.5	Passed
BEP	11	0.01		
4.2	30	0.02		

Remark:

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



5. List of Measurement Equipments

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Due Date	Remark
Spectrum	R&S	FSP40	100055	9KHz~40GHz	Jun. 26, 2008	Jun. 25, 2009	Conducted (TH02-HY)
Thermal Chamber	TEN BILLION	TTH-D35P	TBN-930701	N/A	Aug. 01, 2008	Jul. 31, 2009	Conducted (TH02-HY)
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~18G	Aug. 13, 2008	Aug. 12, 2009	Radiation (03CH07-HY)
PreAmplifier	Agilent	8449B	3008A02362	1~26.5GHz	Dec. 22, 2007	Dec. 21, 2008	Radiation (03CH07-HY)
PreAmplifier	COM-POWER	PA-103A	161241	10-1000MHz.32d B.GAIN	Mar. 31, 2008	Mar. 30, 2009	Radiation (03CH07-HY)
Double Ridge Horn Antenna	ESCO	3117	66584	1G~18G	Aug. 06, 2008	Aug. 05, 2009	Radiation (03CH07-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 = $20 \log(1 - \Gamma_1 * \Gamma_2 * \Gamma_3)$	+0.34/-0.35	U-shaped	0.244	1	0.244
Combined standard uncertainty Uc(y)	2.36				
Measuring uncertainty for a level of Confidence of 95% U=2Uc(y)	4.72				

END OF TEST REPORT



Appendix A. Photographs of EUT

Please refer to Sporton report number EP870721 as below.