



FCC TEST REPORT

for

47 CFR Part 22H, 24E

Equipment : Smart Phone
Trade Name : BenQ
Model No. : E72
Marketing Name : P21B1A
FCC ID : JVPE72
Tx Frequency Range : GSM850 : 824.2~848.8 MHz
PCS1900 : 1850.2~1909.8 MHz
Max. ERP/EIRP Power : GSM850(GSM) : 0.74 W
GSM850(EDGE) : 0.09 W
PCS1900(GSM) : 1.33 W
PCS1900(EDGE) : 0.28 W
Emission Designator : GSM : 300KGXW
EDGE : 300KG7W
Applicant : BenQ Corporation
157 Shan-Ying Road, Gueishan Taoyuan 333, Taiwan

- The test result refers exclusively to the test presented test model / sample.
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- The data shown in this test report were carried out on Jun. 18, 2007 at **Sporton International Inc. LAB.**
- Report No.: FG761417, Report Version: Rev. 01.

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Report Version: Rev. 01



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History of this test report

Report Issue Date: Jul. 27, 2007

Report No.	Description



1. General Information

1.1. Applicant

BenQ Corporation
157 Shan-Ying Road, Gueishan Taoyuan 333, Taiwan

1.2 Manufacturer

1. BenQ Corporation
157 Shan-Ying Road, Gueishan Taoyuan 333, Taiwan
2. BenQ (Shanghai Pudong) Co., Ltd.
777 Chuangjiao Road, Pudong, Shanghai 201206, P.R., China

1.3 Basic Description of Equipment under Test

Equipment		Smart Phone
Trade Name		BenQ
Model Name		E72
AC Adapter	Brand Name	BenQ
	Model Name	JSP050100UU
	Power Rating	I/P:100-240Vac,50-60Hz,0.3A; O/P:5Vdc,1A,5W
	AC Power Cord Type	1.2 meter non-shielded cable without ferrite core
Battery	Brand Name	BenQ
	Model Name	2C.2H200.101
	Rating	3.7Vdc, 900mAh
	Type	Li-ion
Earphone	Brand Name	BenQ
	Model Name	2C.43060.311
	Signal line Type	1.4 meter non-shielded cable without ferrite core
USB Cable	Brand Name	BenQ
	Model Name	5K.G4702.011
	Signal line Type	60 cm non-shielded cable without ferrite core

**1.4 Feature of Equipment under Test**

DUT Type :	Smart Phone
Trade Name :	BenQ
Model Name :	E72
FCC ID :	JVPE72
Support Band :	850/900/1800/1900/Bluetooth/802.11g
Tx Frequency :	GSM850 : 824 ~ 849 MHz PCS1900 : 1850 ~ 1910 MHz WLAN / Bluetooth : 2400 ~ 2483.5MHz
Rx Frequency :	GSM850 : 869 ~ 894 MHz PCS1900 : 1930 ~ 1990 MHz WLAN / Bluetooth : 2400 ~ 2483.5MHz
Maximum Output Power to Antenna :	GSM850 : 32.99 dBm (GSM) ; 25.72 dBm (EDGE) PCS1900 : 29.65 dBm (GSM) ; 23.81 dBm (EDGE) Bluetooth (1 Mbps) : 0.32 dBm Bluetooth EDR (2 Mbps) : 0.88 dBm Bluetooth EDR (3 Mbps) : 1.03 dBm 802.11b : 13.56 dBm 802.11g : 11.95 dBm
Maximum ERP/EIRP :	GSM850(GSM) : 0.74 W (28.72 dBm) GSM850(EDGE) : 0.09 W (19.57 dBm) PCS1900(GSM) : 1.33 W (31.24 dBm) PCS1900(EDGE) : 0.28 W (24.42 dBm)
Antenna Type :	GSM850 / PCS1900 : Fixed Internal Bluetooth : Chip Antenna WLAN : Chip Antenna
Type of Antenna Connector	N/A
Power Rating (DC/AC ,Voltage) :	DC 3.8V / 1648mA
HW Version :	LPR4
SW Version :	V070530
Digital Modulation Emission :	GSM / GPRS : GMSK EDGE : 8PSK Bluetooth : GFSK WLAN : DSSS / OFDM
Type of Emission :	GSM : 300KGXW EDGE : 300KG7W
DUT Stage :	Production Unit



1.5 Report Date

EUT Received : Jul. 17, 2007

Report Date : Jul. 27, 2007

2 Test Configuration of Equipment under Test

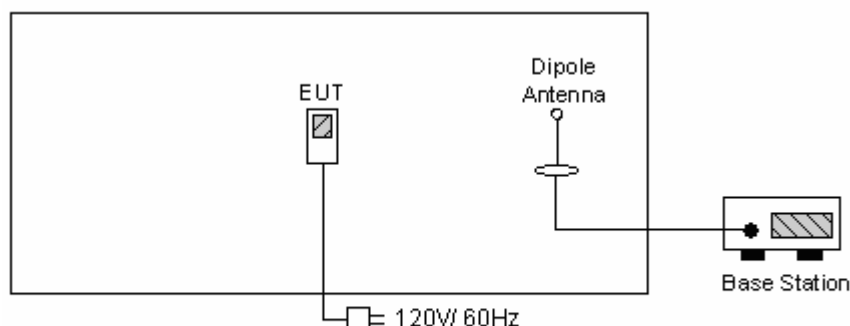
2.1 Test Manner

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

2.2 Test Mode

Application	GSM850	PCS1900
Radiated Emission	☒ Mode 1: GSM Link	☒ Mode 3: GSM Link
	☒ Mode 2: EDGE Link	☒ Mode 4: EDGE Link
	☒ Mode 5: GSM Link + WLAN Link	
Conducted Measurement	☒ Mode 1: GSM Link	☒ Mode 3: GSM Link
	☒ Mode 2: EDGE Link	☒ Mode 4: EDGE Link

2.3 Connection Diagram of Test System



**2.4 Ancillary Equipment List**

Item	Equipment	Trade Name	Model No.	FCC ID	Serial No.
1.	Base Station	R&S	CMU200	N/A	106656
2.	Bluetooth Earphone	Free Style	JD-100	PQY471087	N/A
3.	USB Cable*	BenQ	5K.G4702.011	N/A	N/A
4.	Earphone*	BenQ	N/A	N/A	N/A
5.	Adapter*	BenQ	JSP050100UU	N/A	N/A
6.	Battery*	BenQ	2C.2H200.101	N/A	N/A

* Please refer to section 1.3



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 : 886-3-318-0055
Test Site No : 03CH06-HY

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

3.1 Test Voltage

AC 120V / 60Hz

3.2 Test Compliance

47 CFR Part 22H, 24E, Part 2

3.3 Frequency Range

- a. Radiation: from 30MHz to 9000MHz for GSM850.
- b. Radiation: from 30 MHz to 19000 MHz for PCS1900.

3.4 Test Distance

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



4. Test Data and Test Result

4.1 List of Measurements and Examinations

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

4.2 RF Output Power

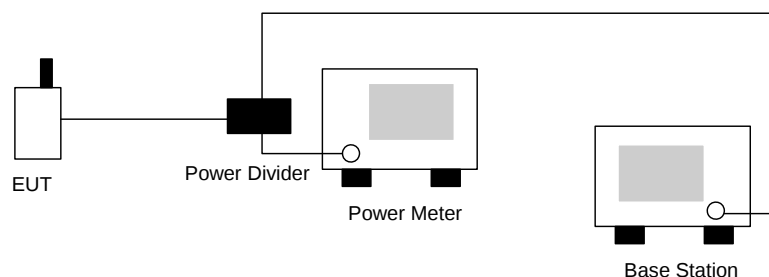
4.2.1 Measurement Instruments :

As described in chapter 5 of this test report.

4.2.2 Test Procedure :

1. The transmitter output was connected to power meter and base station through power divider.
2. Set EUT at PCL=5 for GSM850 and/or PCL=0 for PCS1900 maximum power through base station.
3. Select lowest, middle, and highest channels for each band.

4.2.3 Test Setup Layout :



4.2.4 Test Result :

Bands	Channel	Frequency (MHz)	Conducted Power (dBm)	Conducted Power (Watts)
GSM850 (GSM)	128	824.2 (Low)	32.7	1.862
	189	836.4 (Mid)	32.99	1.991
	251	848.8 (High)	33.25	2.113
GSM850 (EDGE)	128	824.2 (Low)	25.72	0.373
	189	836.4 (Mid)	25.48	0.353
	251	848.8 (High)	25.3	0.339
PCS1900 (GSM)	512	1850.2 (Low)	29.65	0.923
	661	1880.0 (Mid)	29.64	0.920
	810	1909.8 (High)	29.64	0.920
PCS1900 (EDGE)	512	1850.2 (Low)	23.81	0.240
	661	1880.0 (Mid)	23.6	0.229
	810	1909.8 (High)	23.62	0.230



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

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

P_s (dBm) : Input power to substitution antenna.

G_s (dBi or dBd) : Substitution antenna Gain.

$E_t = R_t + AF$

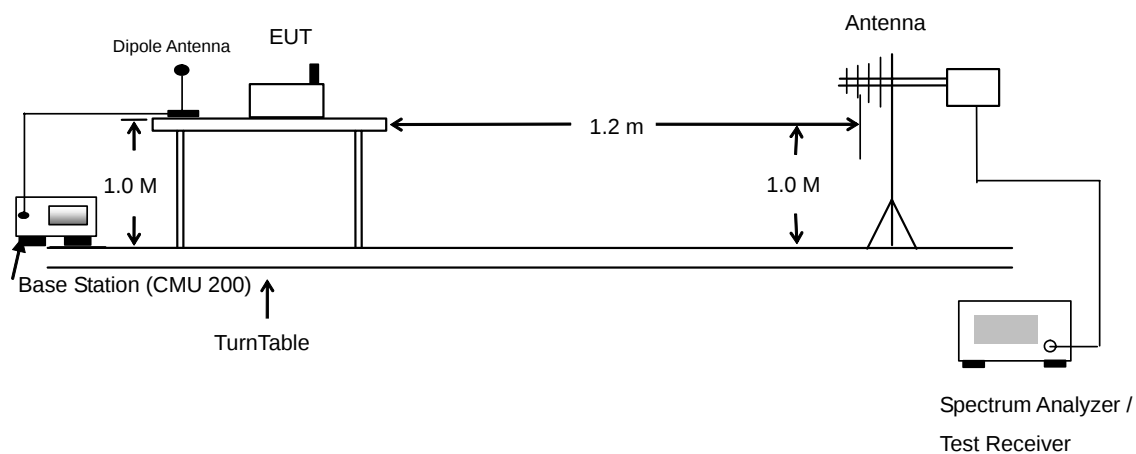
$E_s = R_s + AF$

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	-33.65	-48.12	0.00	-1.08	13.39	0.02
836.40	-33.36	-48.28	0.00	-0.93	13.99	0.03
848.80	-32.11	-48.35	0.00	-0.76	15.48	0.04
Vertical Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBd)	ERP (dBm)	ERP (W)
824.20	-20.63	-47.97	0.00	-1.08	26.26	0.42
836.40	-19.31	-48.01	0.00	-0.93	27.77	0.60
848.80	-18.57	-48.05	0.00	-0.76	28.72	0.74

GSM850 (EDGE) Radiated Power ERP						
Horizontal Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBd)	ERP (dBm)	ERP (W)
824.20	-41.44	-48.12	0.00	-1.08	5.60	0.00
836.40	-43.11	-48.28	0.00	-0.93	4.24	0.00
848.80	-41.29	-48.35	0.00	-0.76	6.30	0.00
Vertical Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBd)	ERP (dBm)	ERP (W)
824.20	-28.37	-47.97	0.00	-1.08	18.52	0.07
836.40	-28.81	-48.01	0.00	-0.93	18.27	0.07
848.80	-27.72	-48.05	0.00	-0.76	19.57	0.09



PCS1900 (GSM) Radiated Power EIRP						
Horizontal Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBi)	EIRP (dBm)	EIRP (W)
1850.20	-23.07	-51.88	0.00	1.96	30.77	1.19
1880.00	-23.75	-52.99	0.00	2.00	31.24	1.33
1909.80	-25.11	-54.28	0.00	1.98	31.15	1.30
Vertical Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBi)	EIRP (dBm)	EIRP (W)
1850.20	-29.51	-52.13	0.00	1.96	24.58	0.29
1880.00	-29.75	-53.17	0.00	2.00	25.42	0.35
1909.80	-30.48	-54.13	0.00	1.98	25.63	0.37

PCS1900 (EDGE) Radiated Power EIRP						
Horizontal Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBi)	EIRP (dBm)	EIRP (W)
1850.20	-29.42	-51.88	0.00	1.96	24.42	0.28
1880.00	-31.03	-52.99	0.00	2.00	23.96	0.25
1909.80	-32.87	-54.28	0.00	1.98	23.39	0.22
Vertical Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBi)	EIRP (dBm)	EIRP (W)
1850.20	-36.47	-52.13	0.00	1.96	17.62	0.06
1880.00	-36.77	-53.17	0.00	2.00	18.40	0.07
1909.80	-38.18	-54.13	0.00	1.98	17.93	0.06

4.4 Occupied Bandwidth and Band Edge Measurement

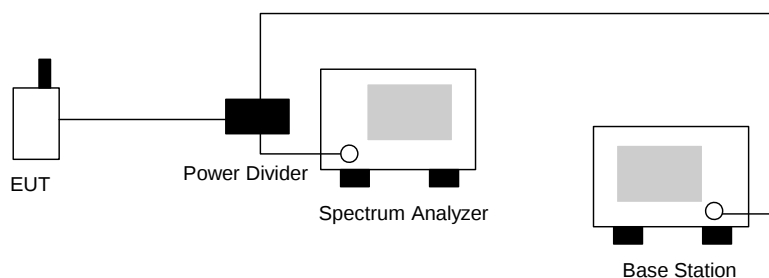
4.4.1 Measurement Instruments

As described in chapter 5 of this test report.

4.4.2 Test Procedure

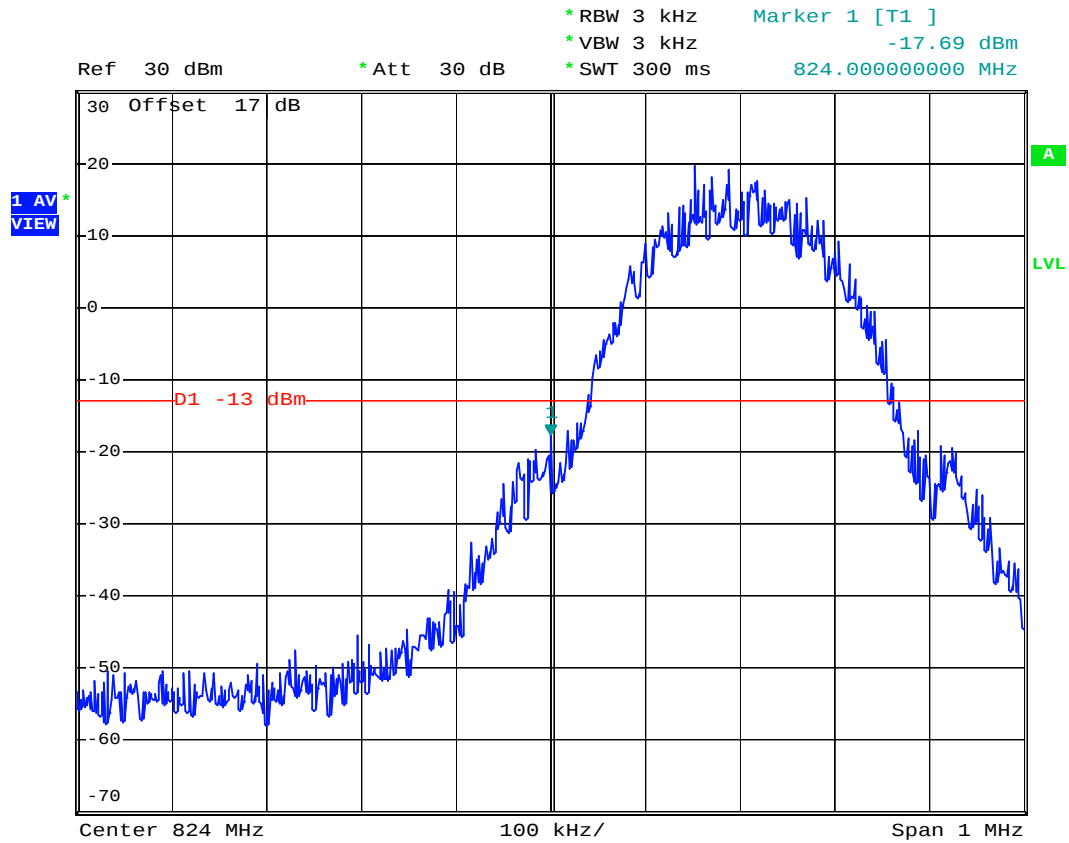
1. The EUT was connected to Spectrum Analyzer and Base Station via power divider.
2. The 99% occupied bandwidth of middle channel for the highest and lowest RF powers were measured.
3. The bandedge of low and high channels for the highest RF powers within the transmitting frequency band were measured. 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



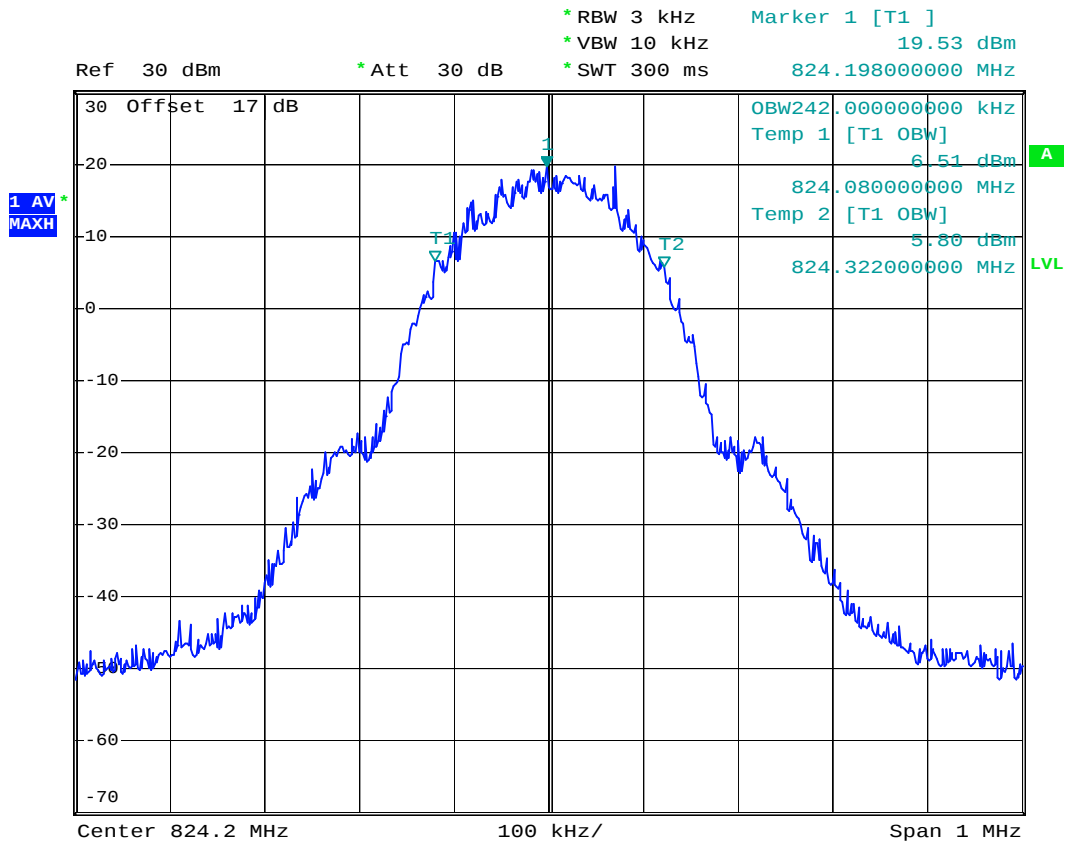
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FCC TEST REPORT

Report No. : FG761417

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



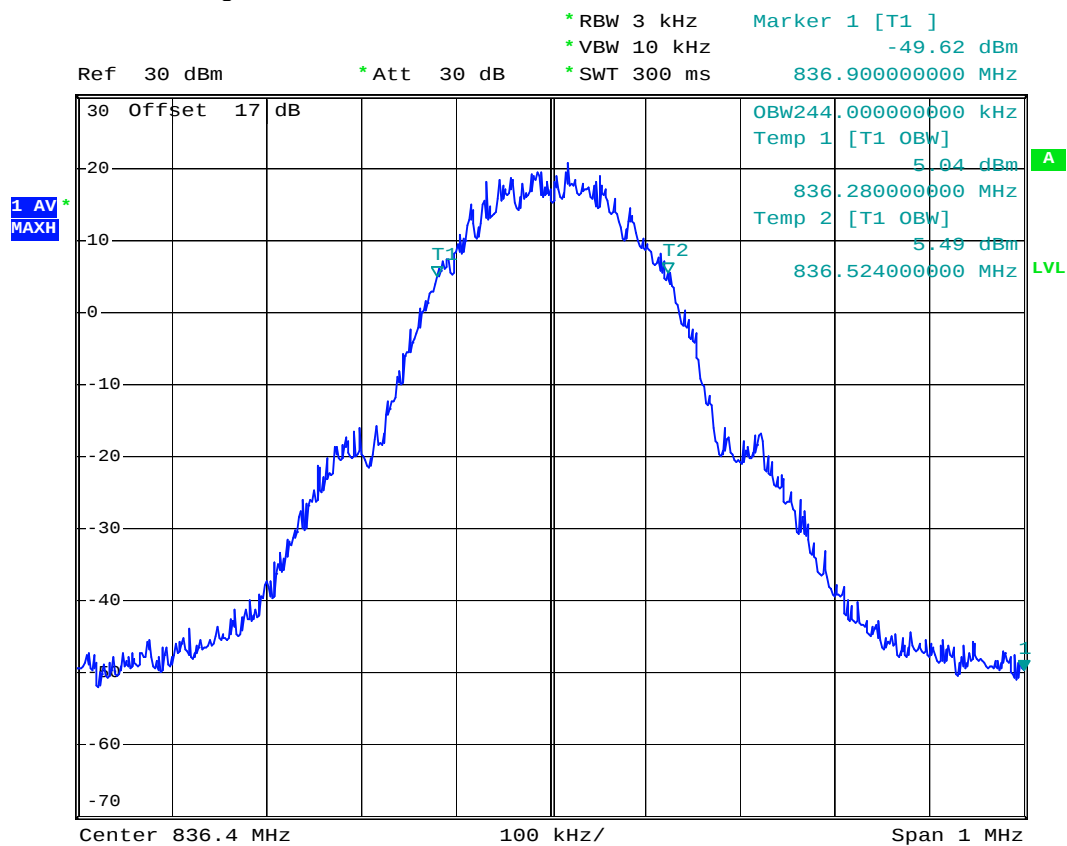
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FCC TEST REPORT

Report No. : FG761417

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



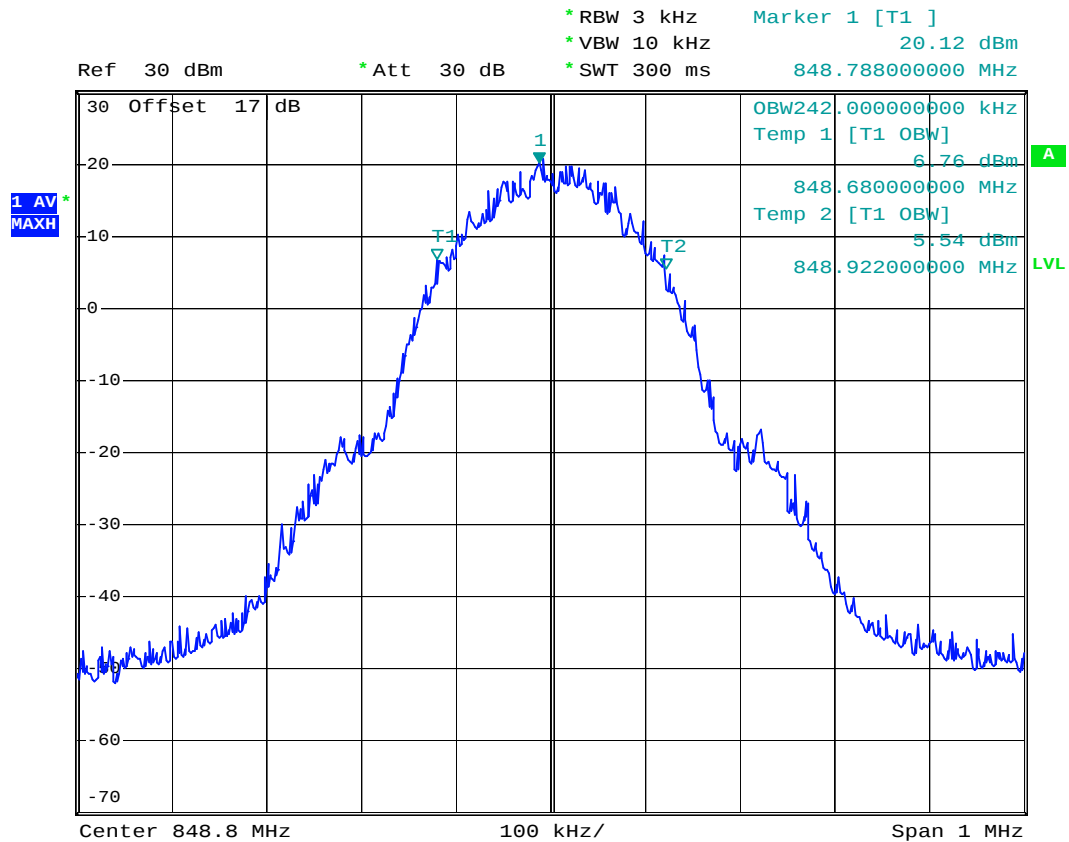
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FCC TEST REPORT

Report No. : FG761417

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



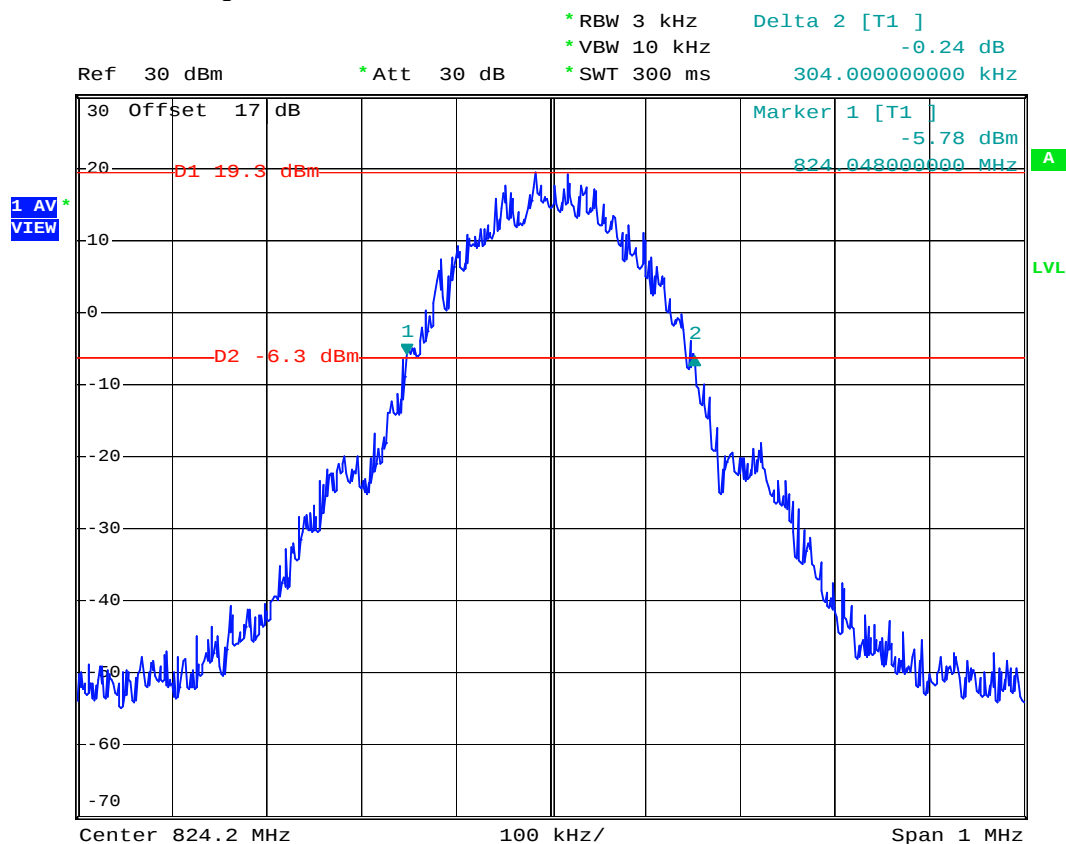
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FCC TEST REPORT

Report No. : FG761417

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



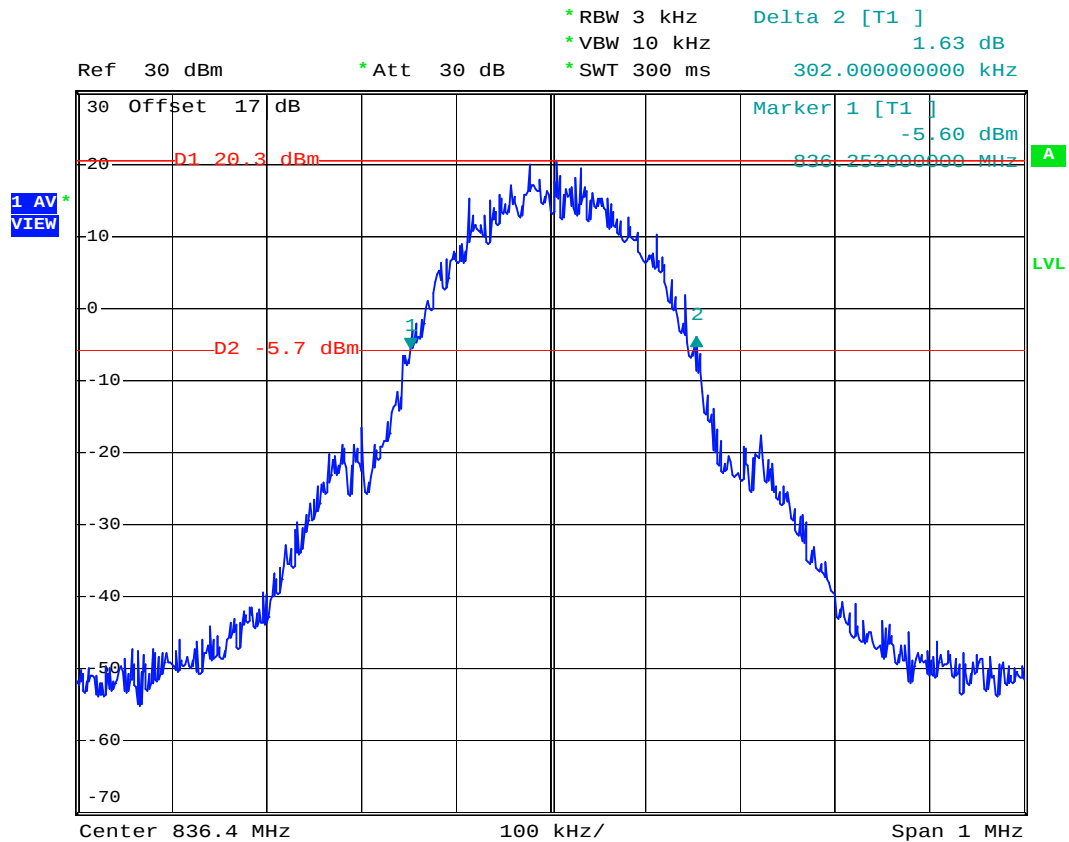
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FCC TEST REPORT

Report No. : FG761417

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



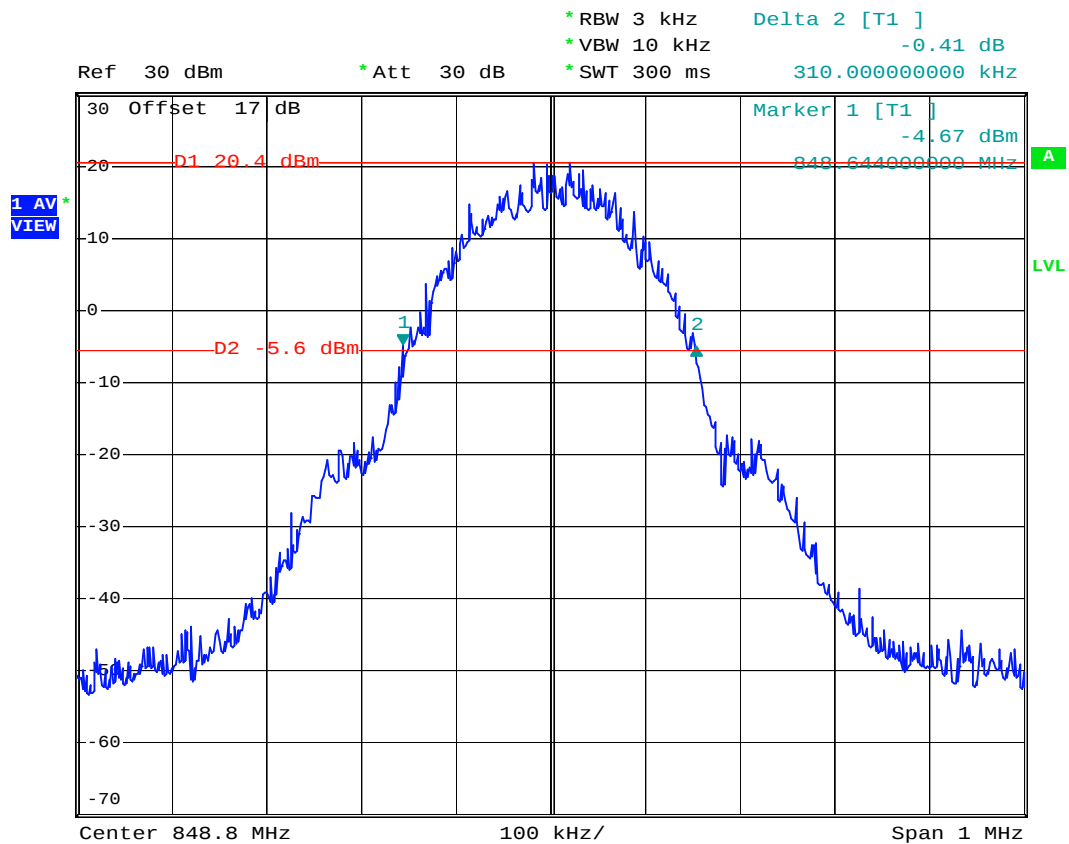
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FCC TEST REPORT

Report No. : FG761417

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



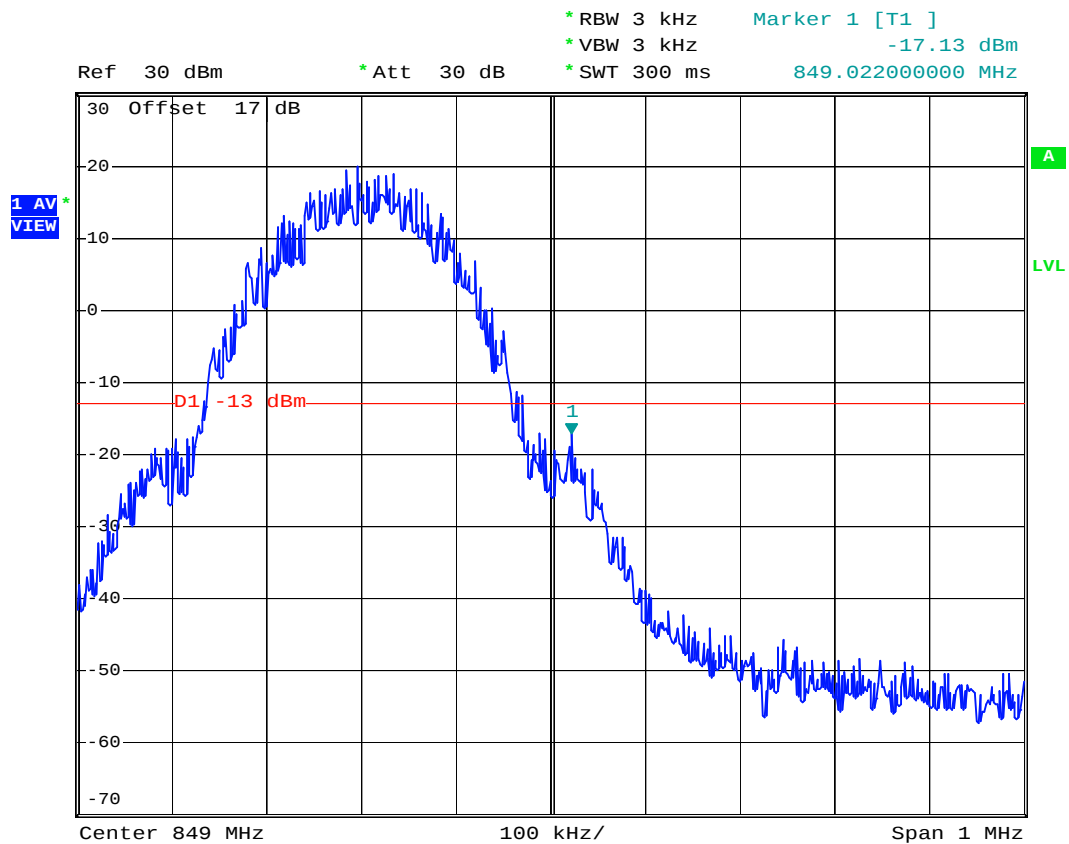
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FCC TEST REPORT

Report No. : FG761417

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



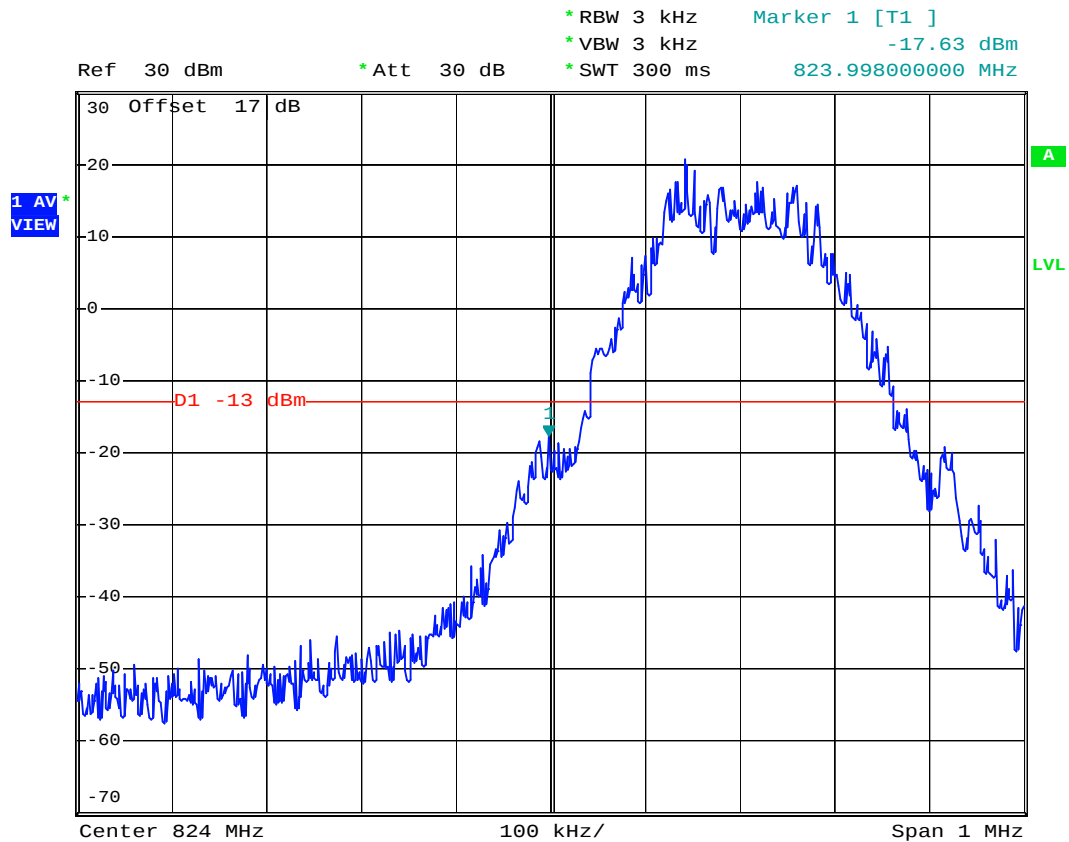
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FCC TEST REPORT

Report No. : FG761417

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



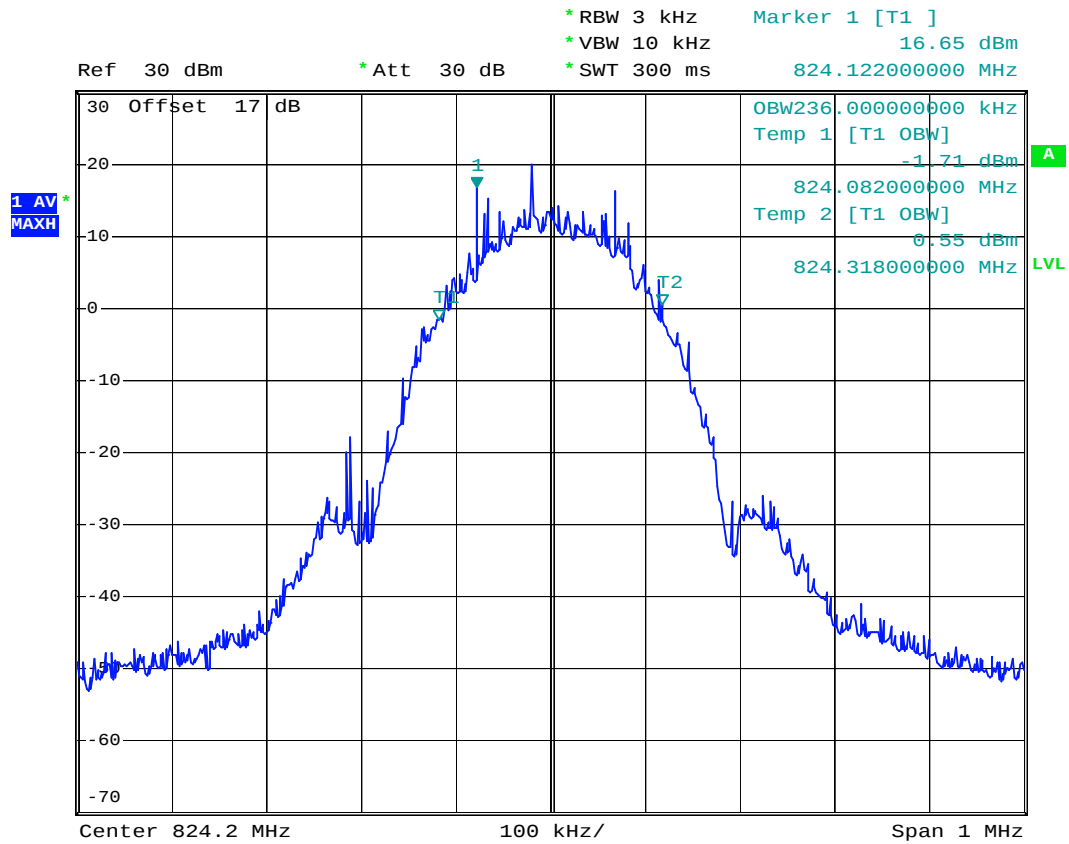
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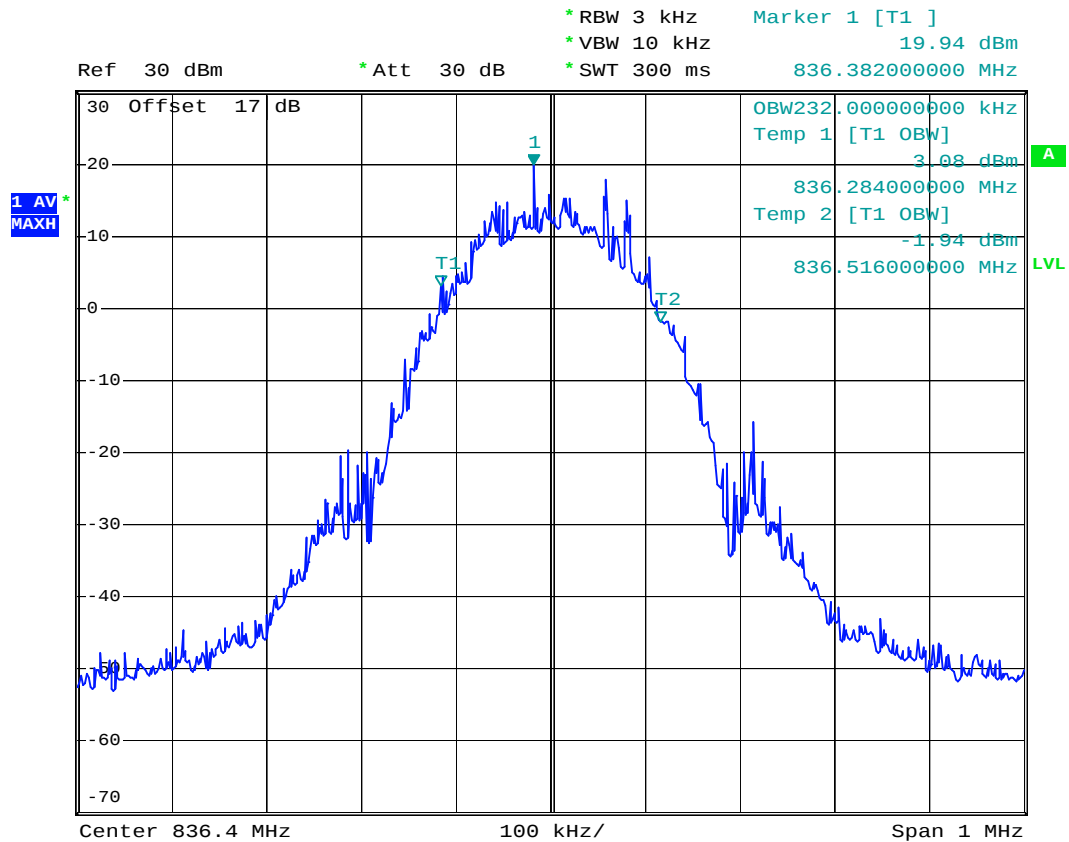
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- Power State : High



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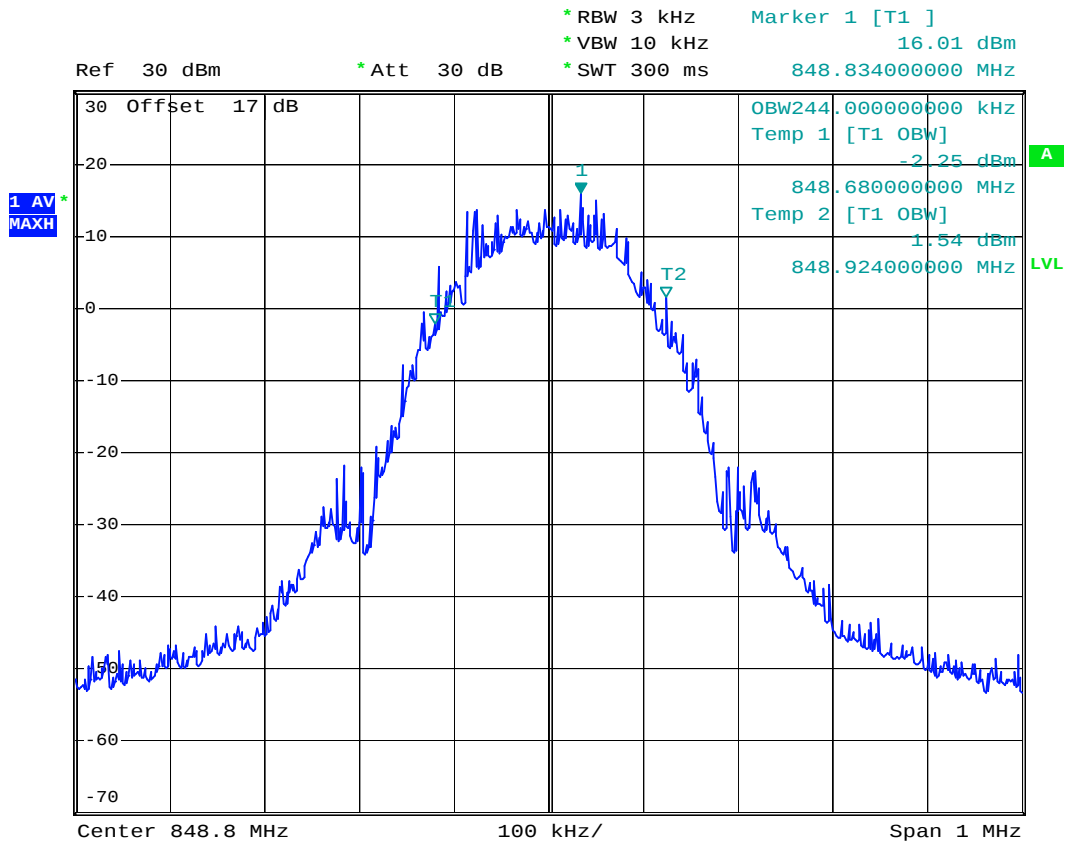
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- Power State : High



Date: 22.JUN.2007 06:43:55



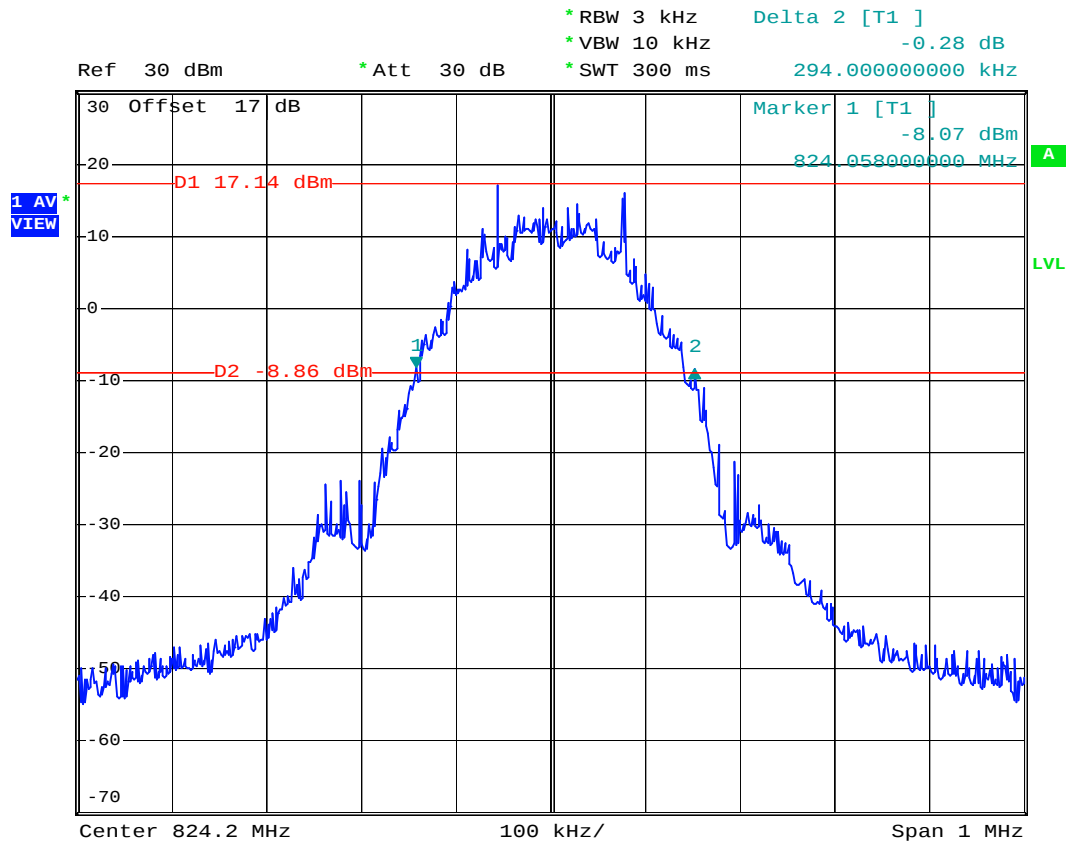
- Test Mode : GSM850 (EDGE) CH 251 99% Occupied Bandwidth
- Power State : High



Date: 22.JUN.2007 07:34:38



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



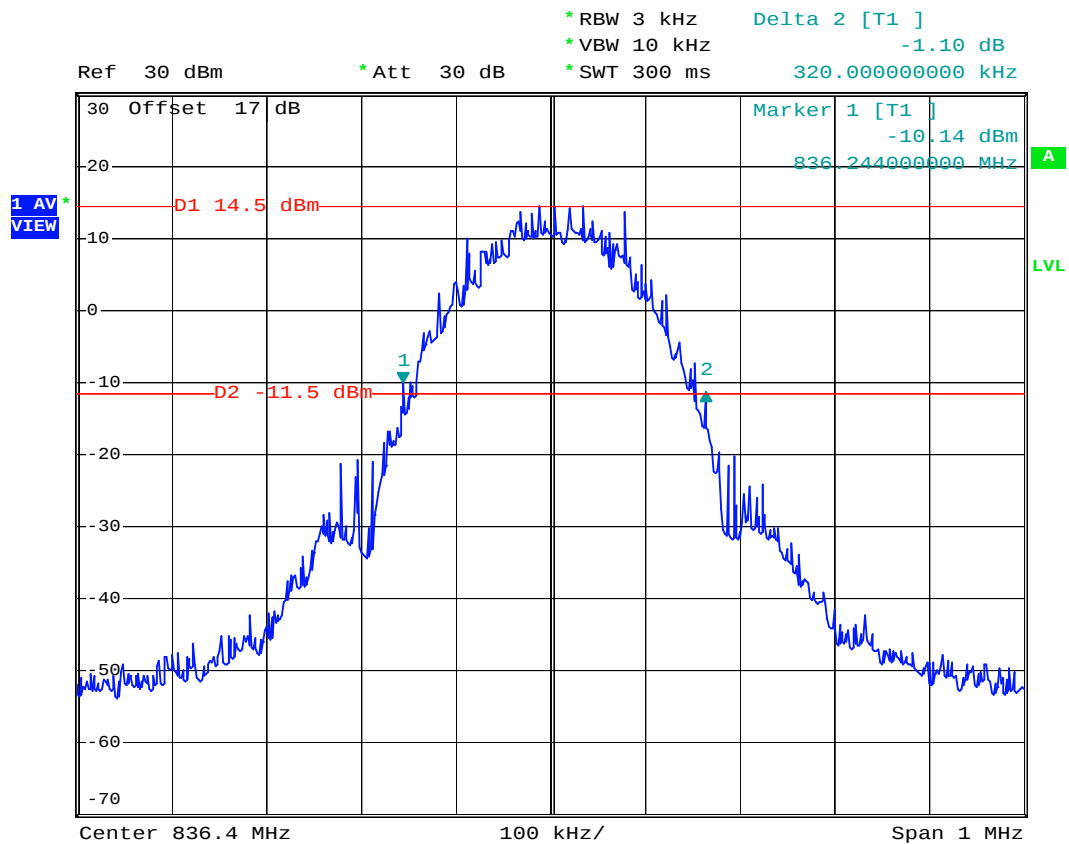
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FCC TEST REPORT

Report No. : FG761417

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



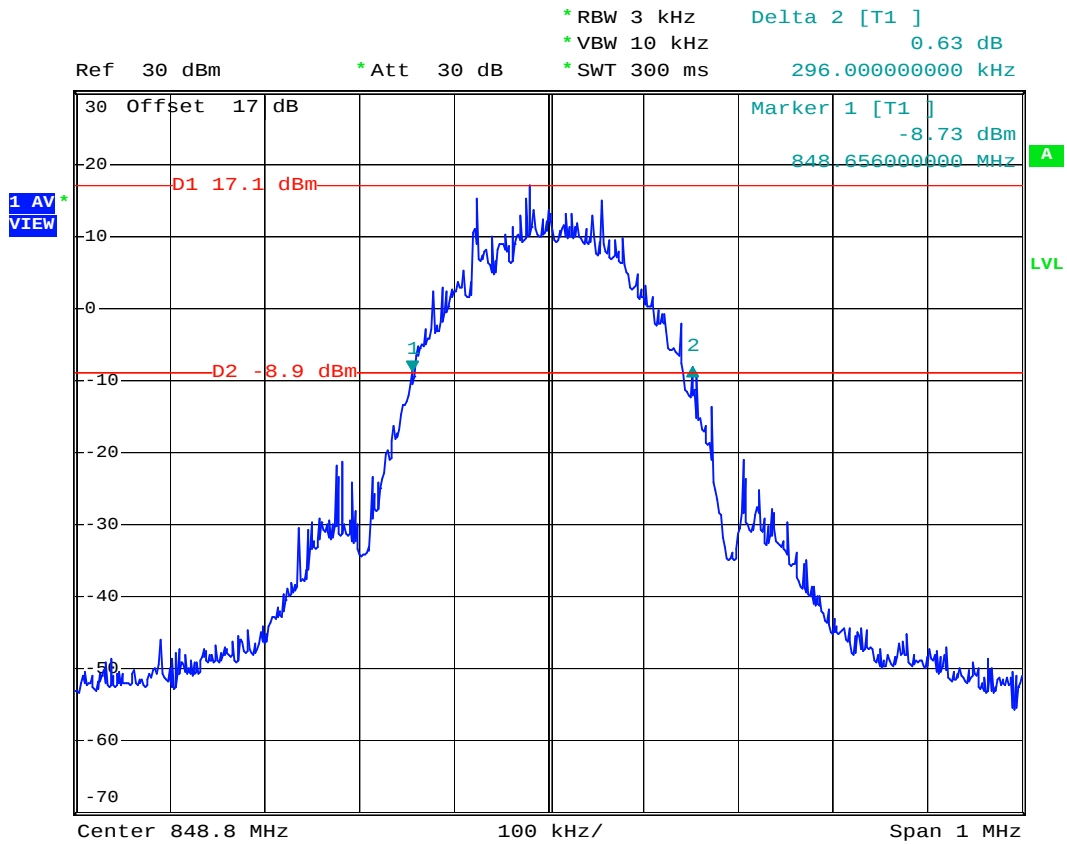
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FCC TEST REPORT

Report No. : FG761417

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



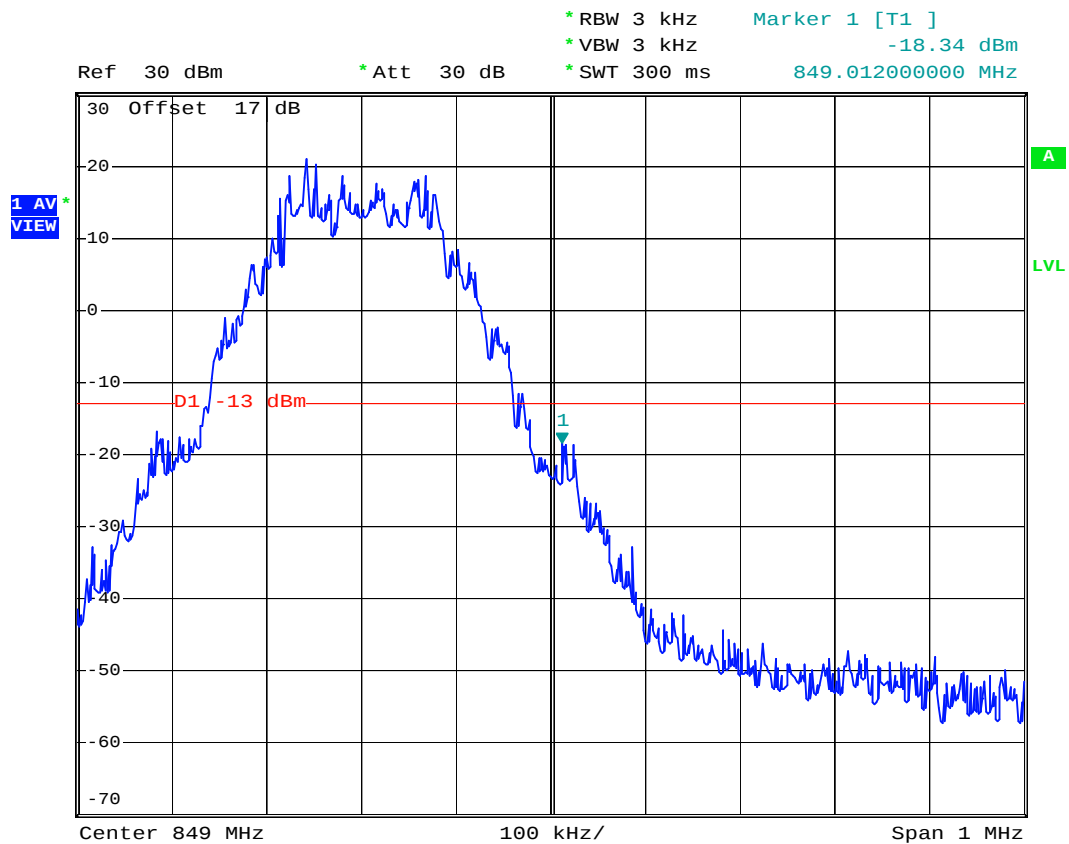
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FCC TEST REPORT

Report No. : FG761417

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



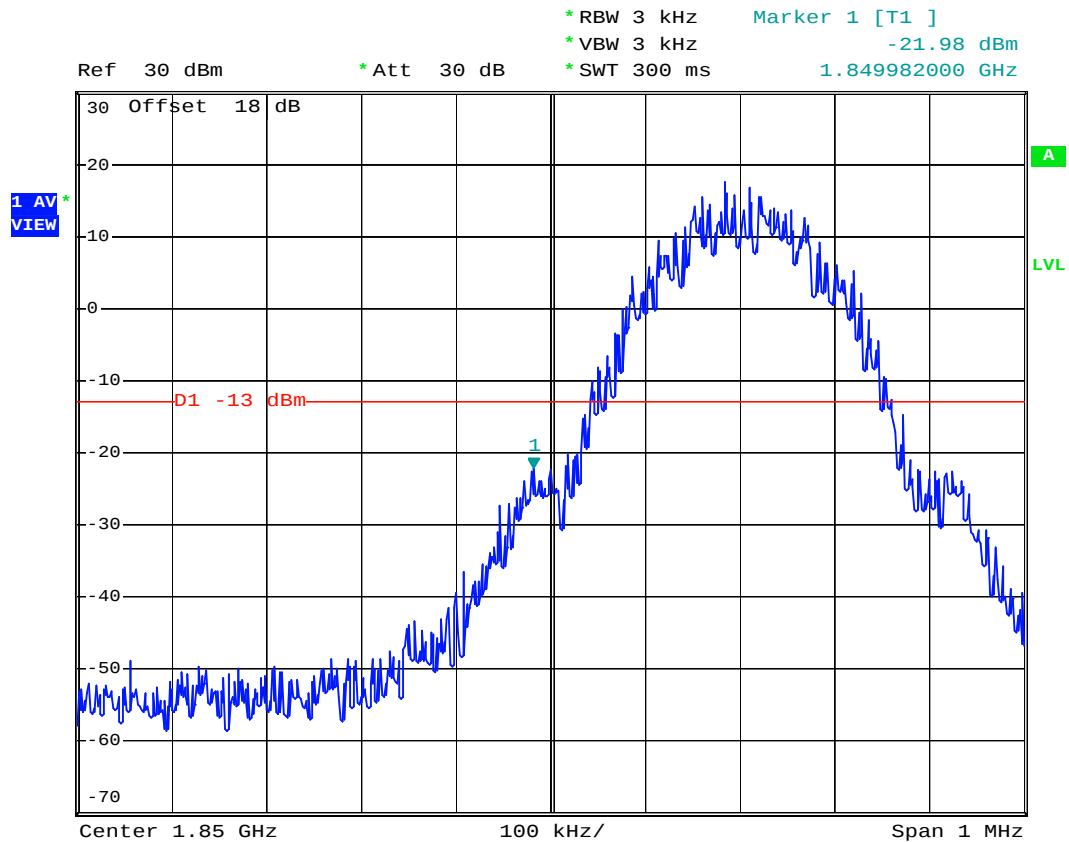
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FCC TEST REPORT

Report No. : FG761417

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



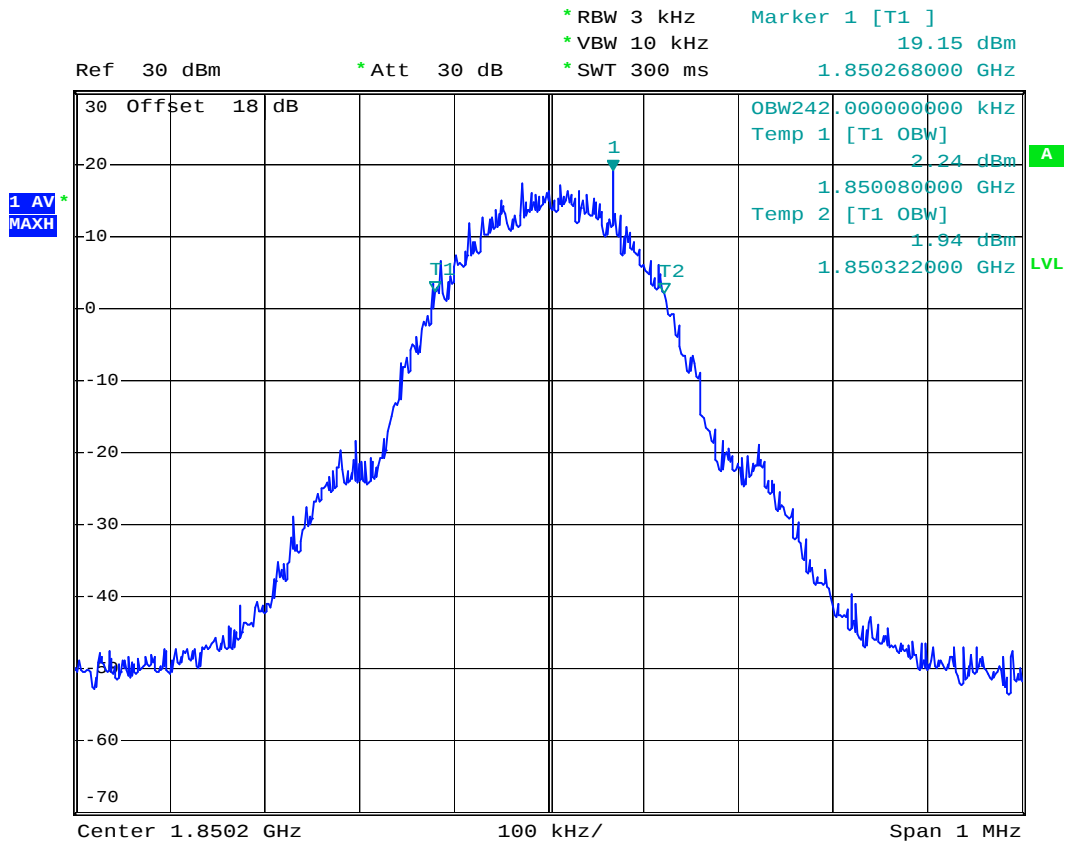
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FCC TEST REPORT

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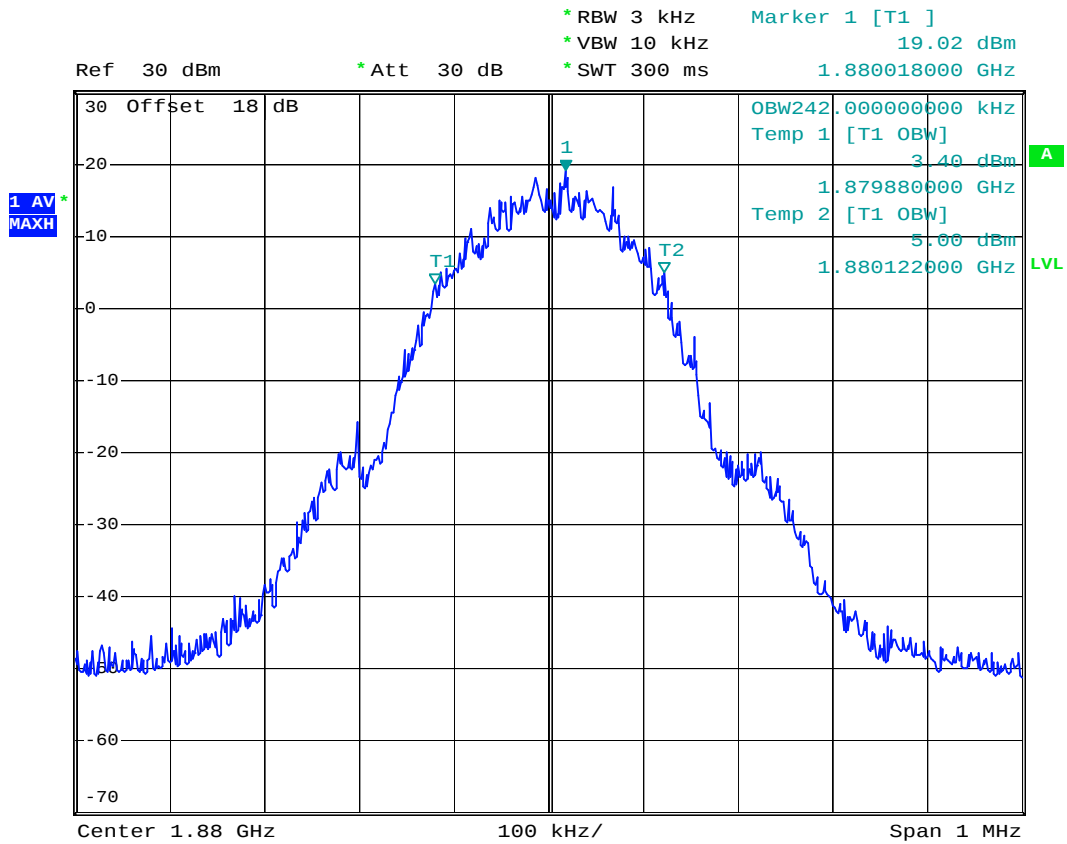
- Test Mode : PCS1900 (GSM) CH512 99% Occupied Bandwidth
- Power State : High



Date: 22.JUN.2007 07:29:00



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



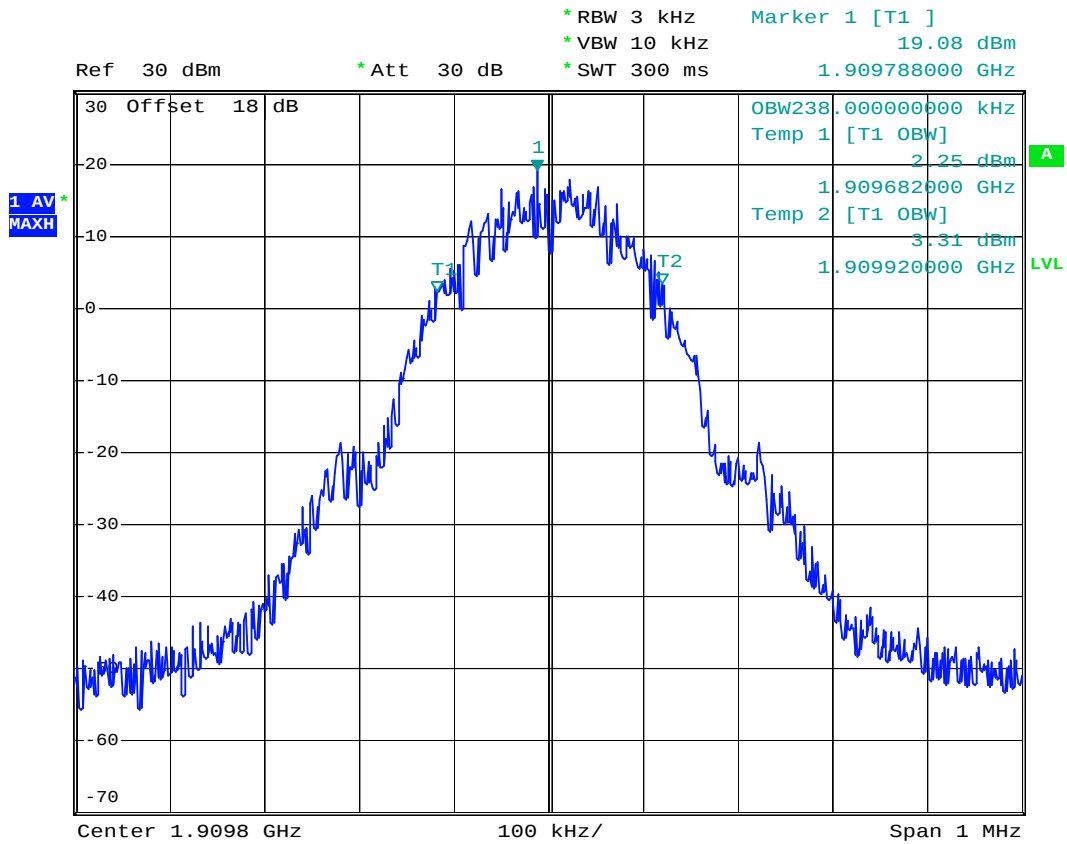
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FCC TEST REPORT

Report No. : FG761417

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



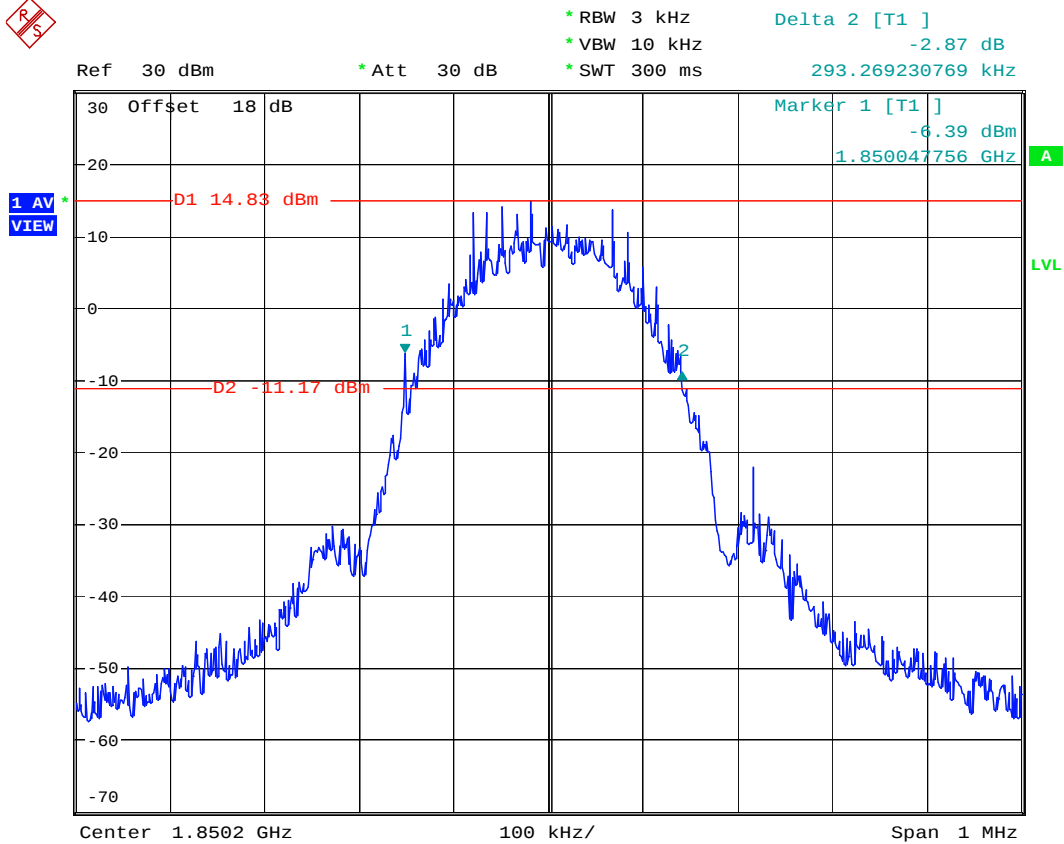
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FCC TEST REPORT

Report No. : FG761417

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



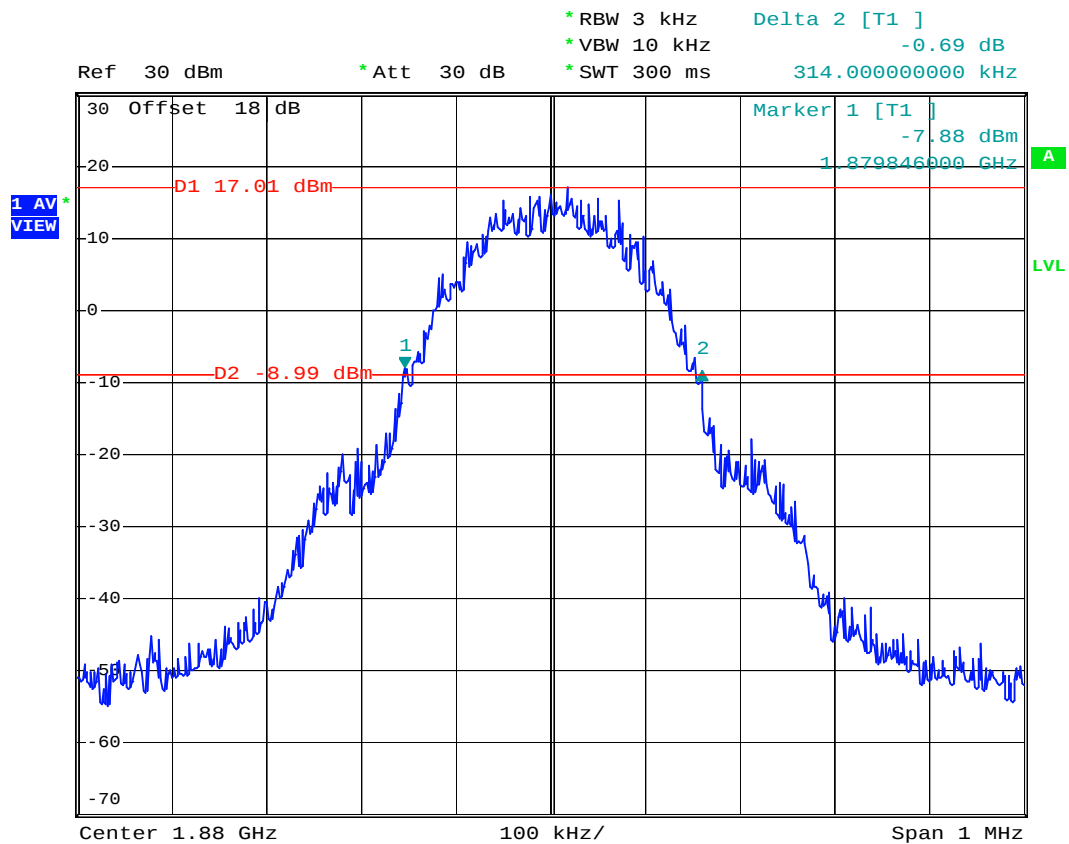
Date: 23.JUN.2007 02:48:47



FCC TEST REPORT

Report No. : FG761417

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



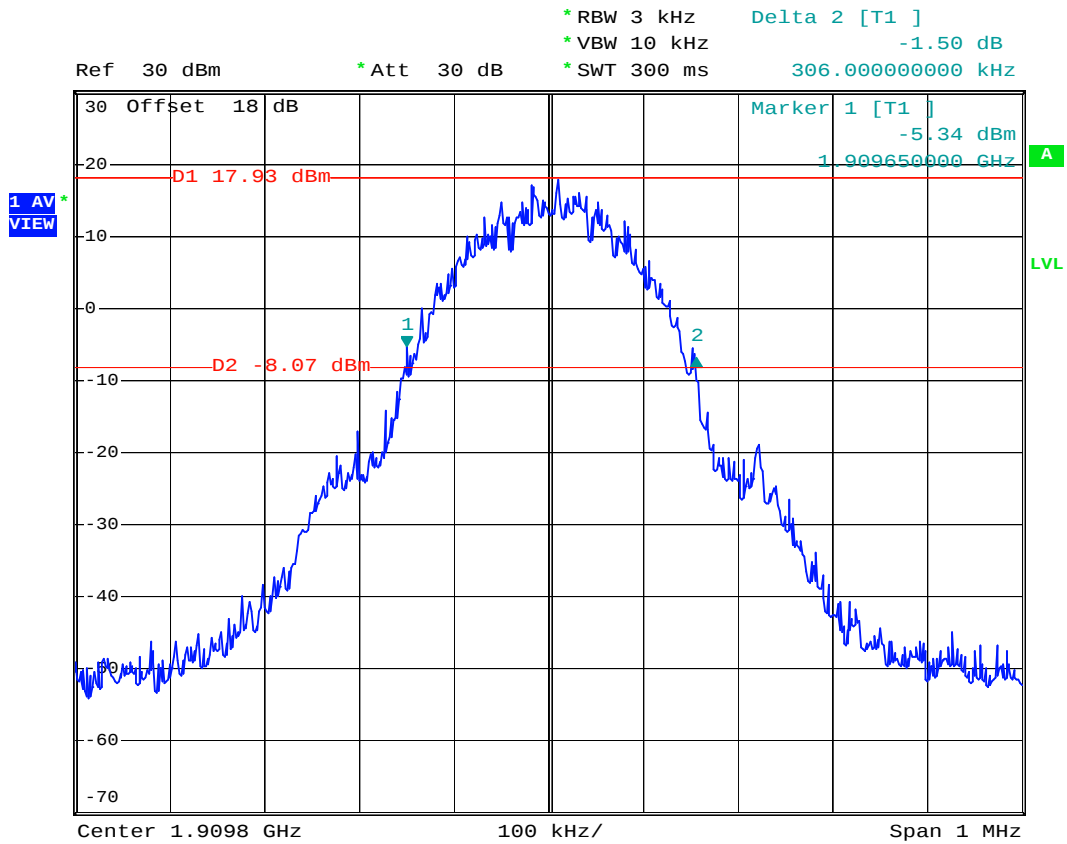
Date: 22.JUN.2007 06:28:50



FCC TEST REPORT

Report No. : FG761417

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



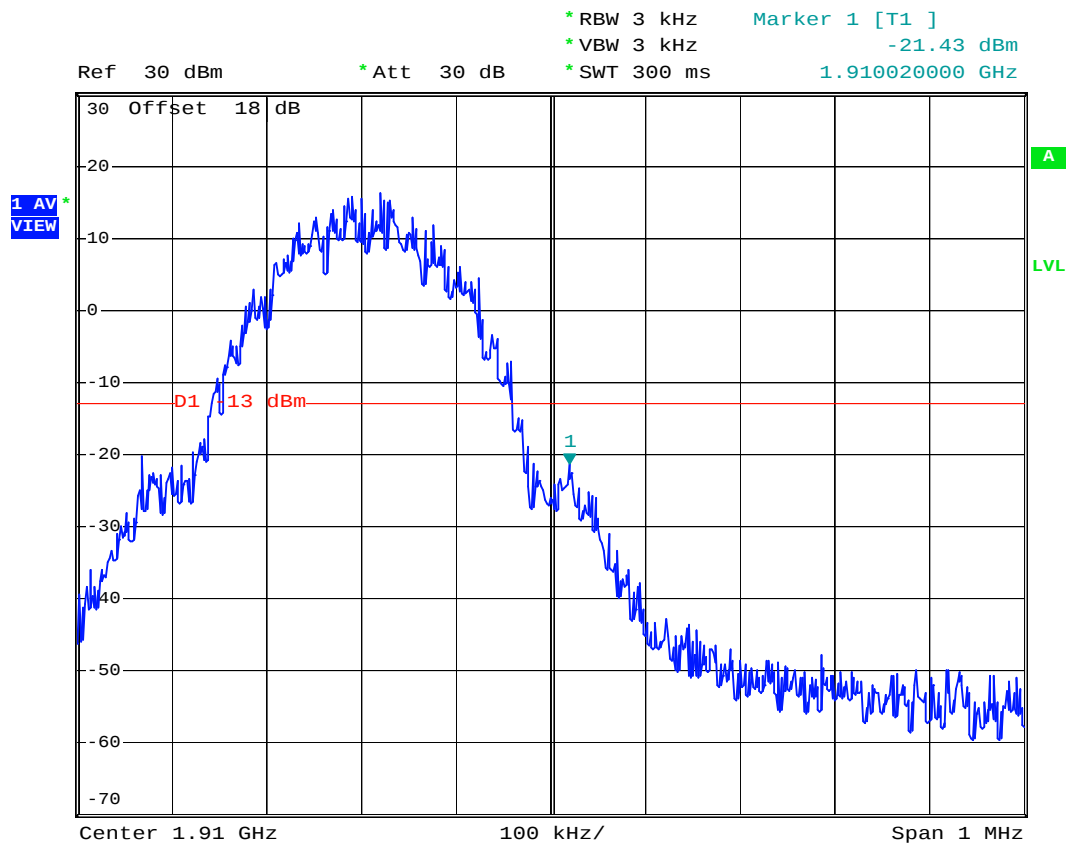
Date: 22.JUN.2007 06:33:31



FCC TEST REPORT

Report No. : FG761417

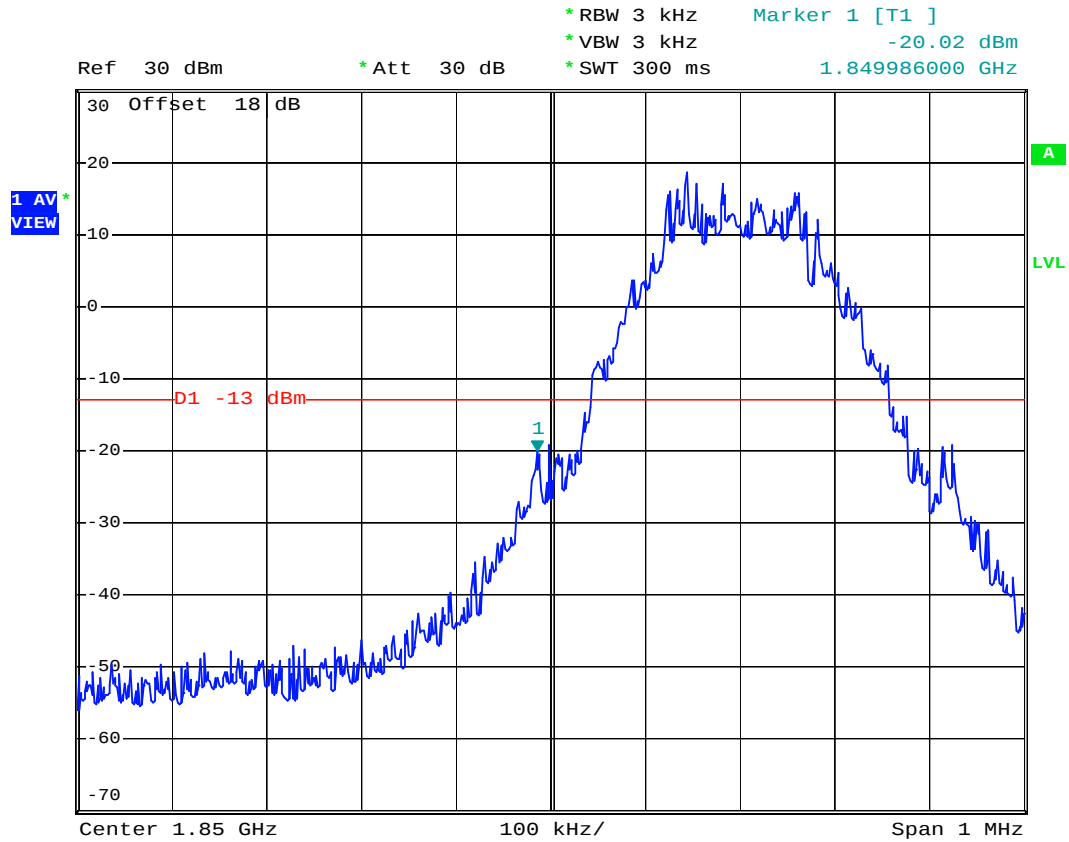
- Test Mode : PCS1900 (GSM) CH810 Higher Band Edge
- Power State : High



Date: 17.JUN.2007 12:44:51



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



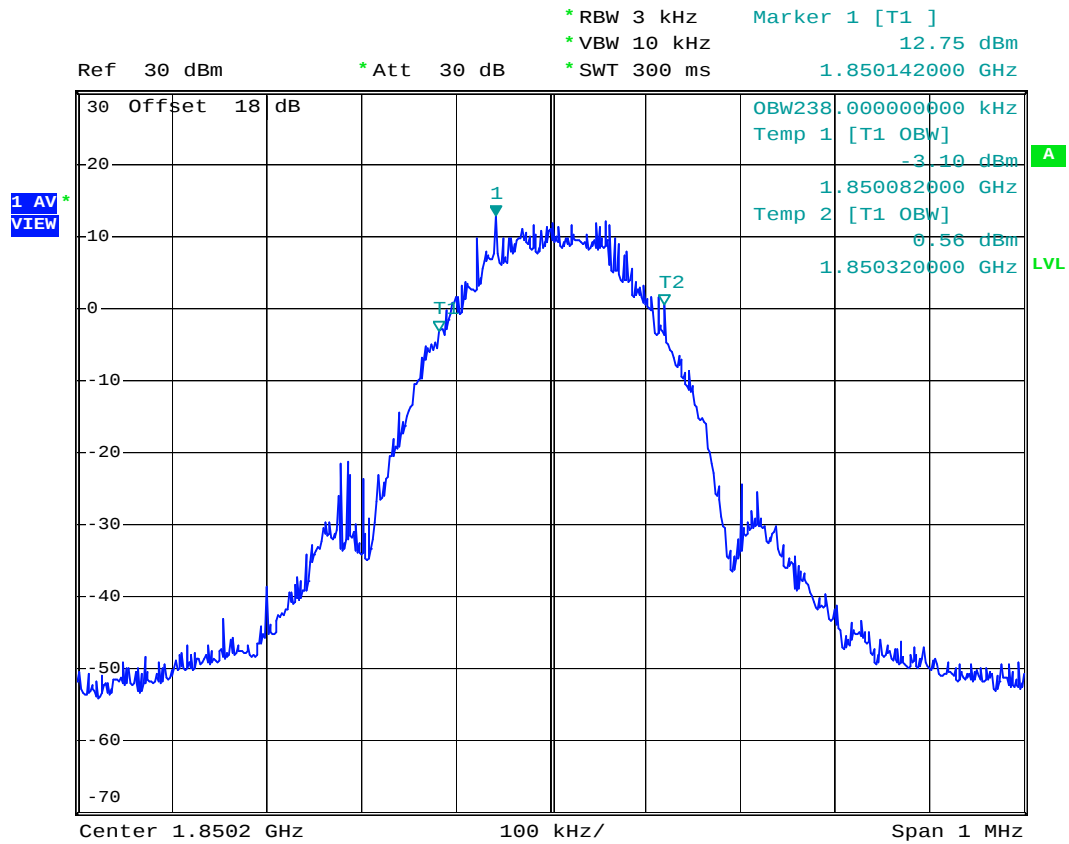
Date: 17.JUN.2007 13:09:41



FCC TEST REPORT

Report No. : FG761417

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



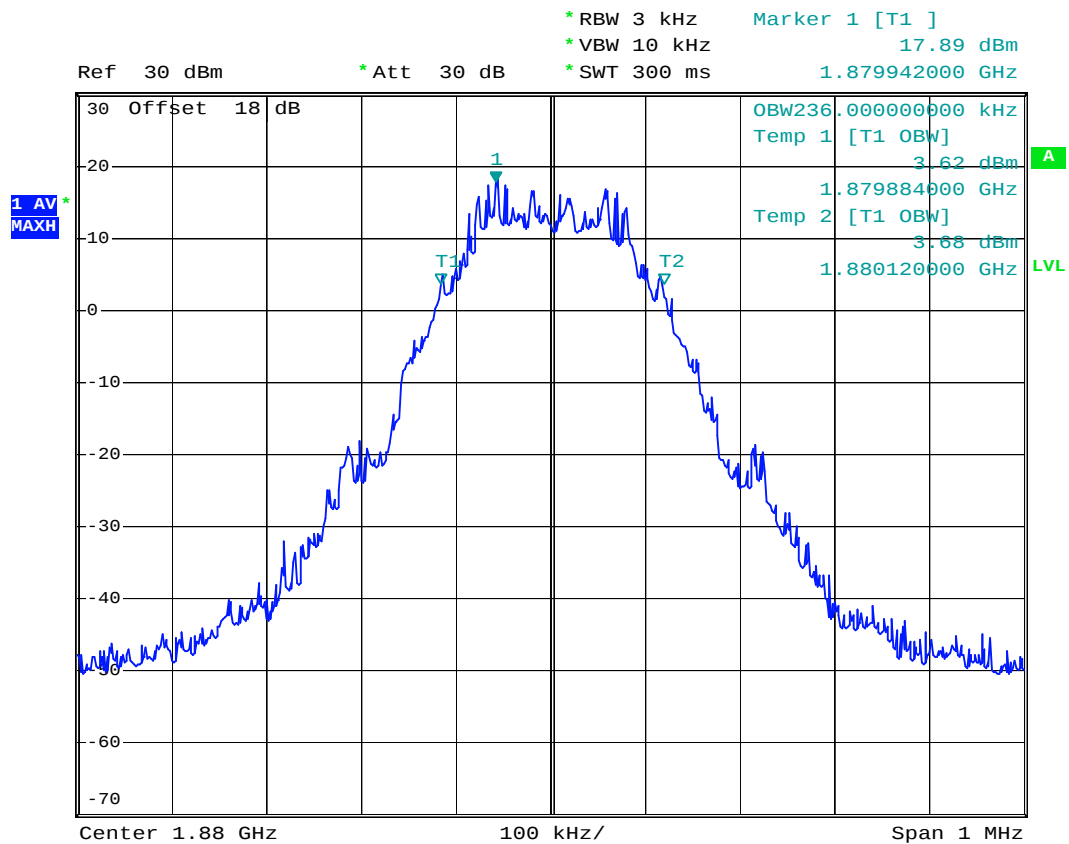
Date: 22.JUN.2007 07:36:12



FCC TEST REPORT

Report No. : FG761417

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



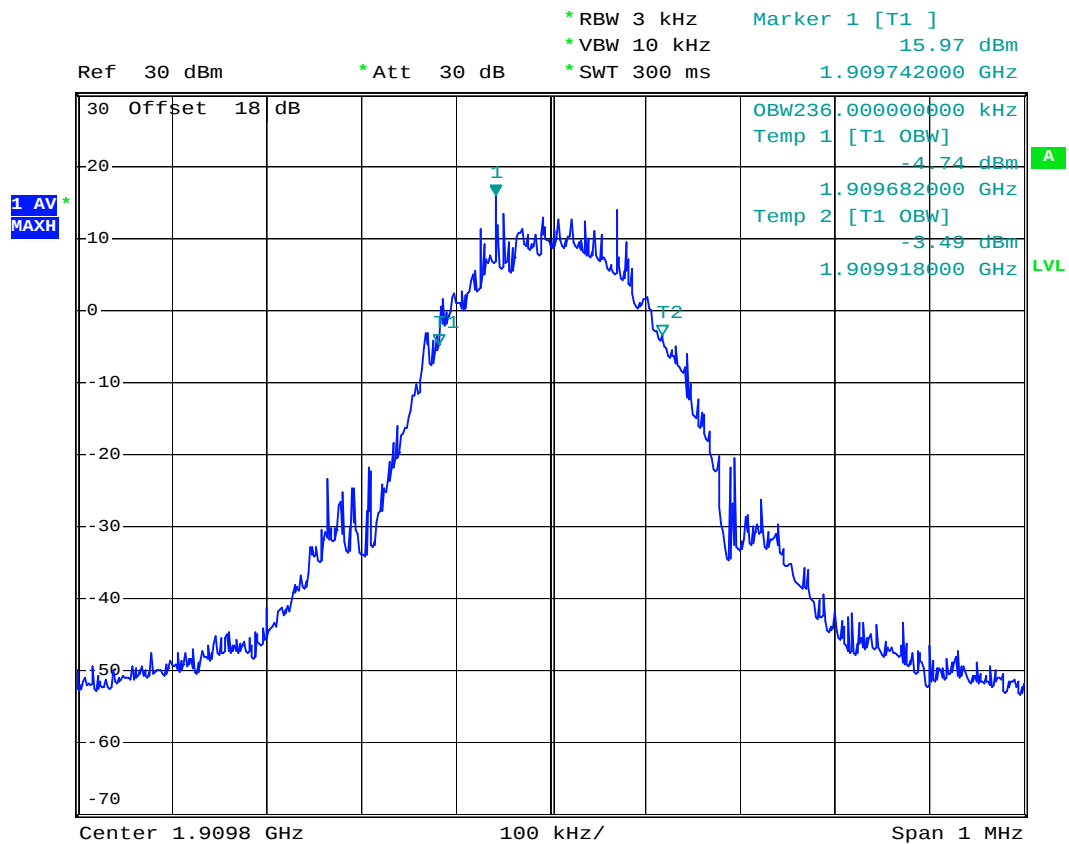
Date: 22.JUN.2007 07:02:27



FCC TEST REPORT

Report No. : FG761417

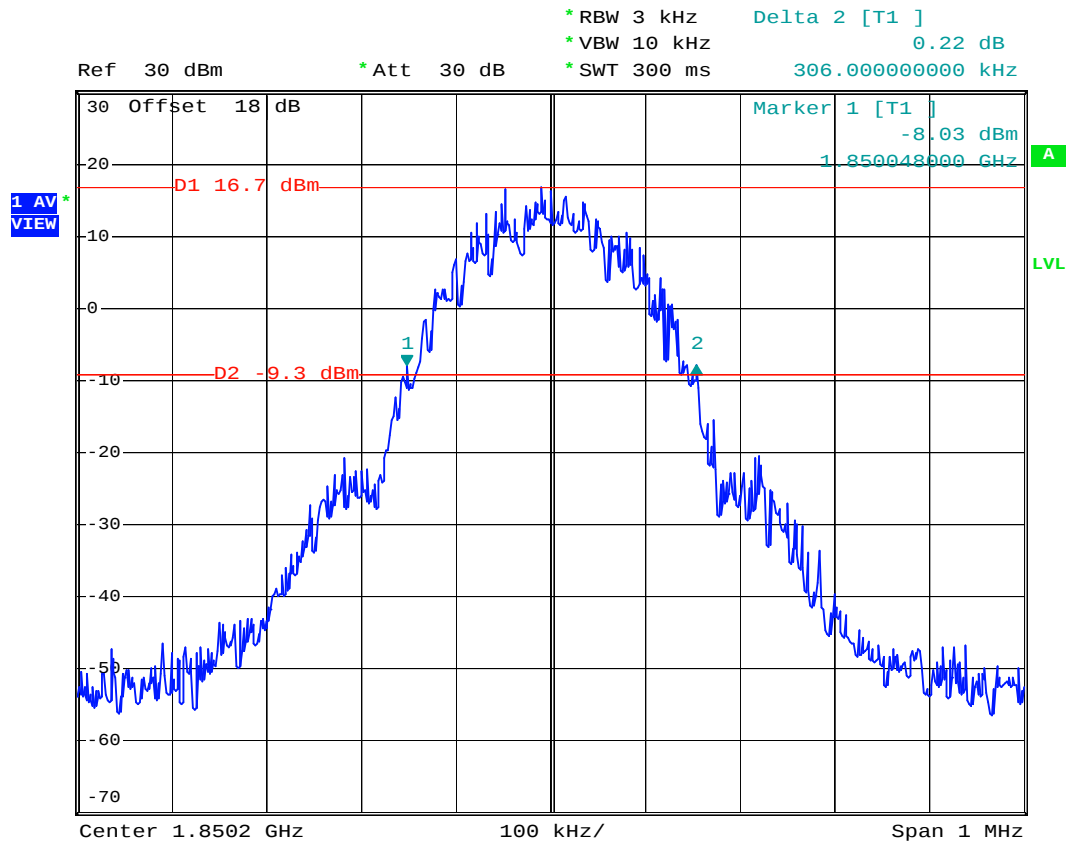
- Test Mode : PCS1900 (EDGE) CH810 99% Occupied Bandwidth
- Power State : High



Date: 22.JUN.2007 07:37:18



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



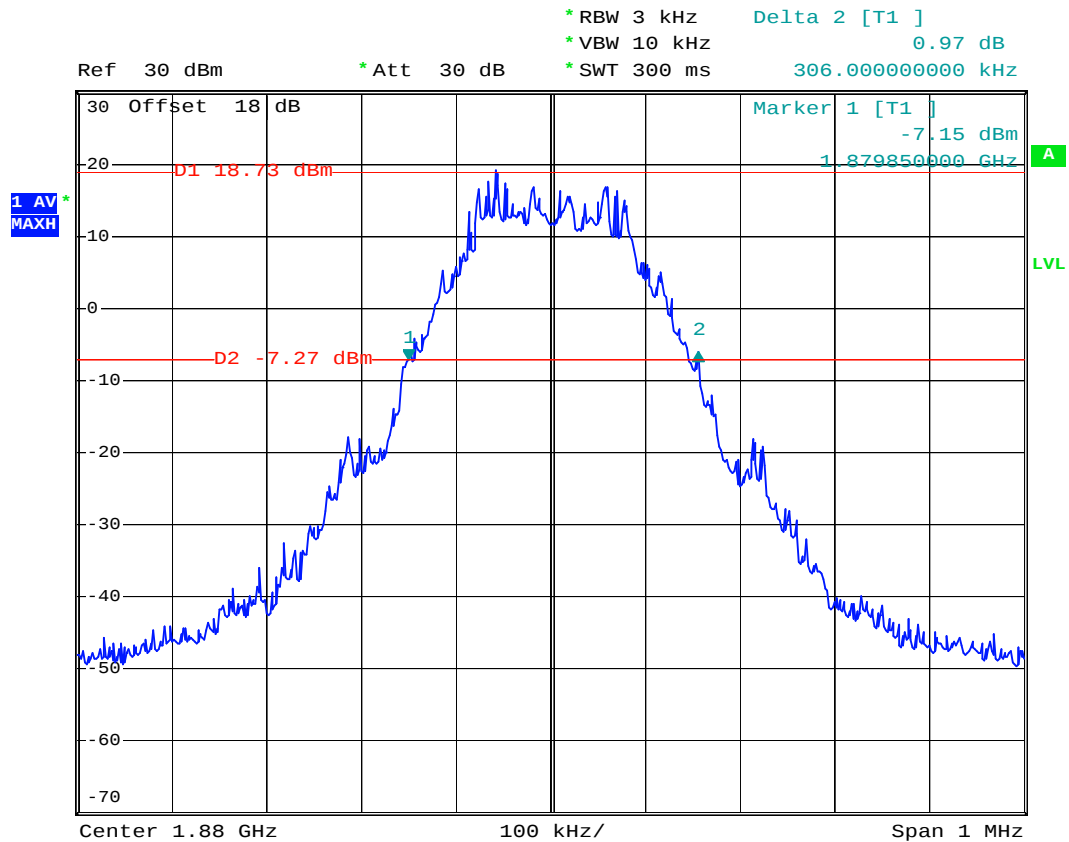
Date: 28.JUN.2007 17:56:32



FCC TEST REPORT

Report No. : FG761417

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



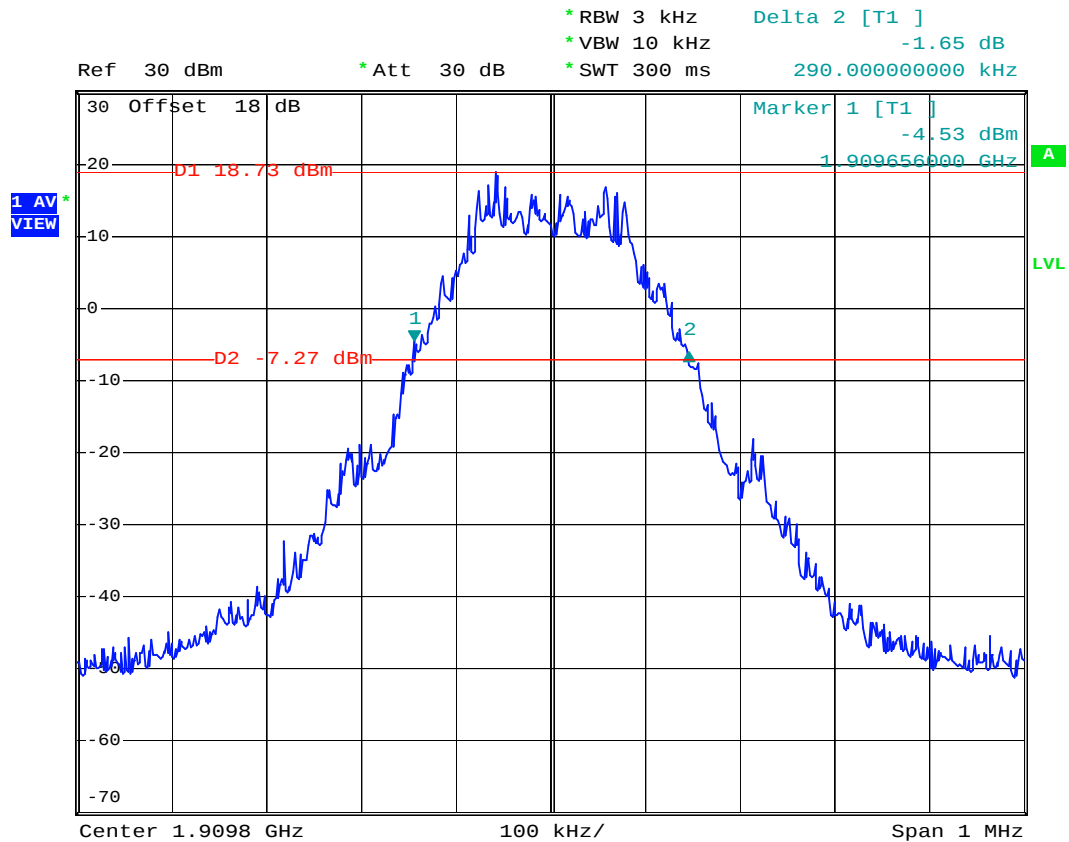
Date: 22.JUN.2007 06:56:59



FCC TEST REPORT

Report No. : FG761417

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



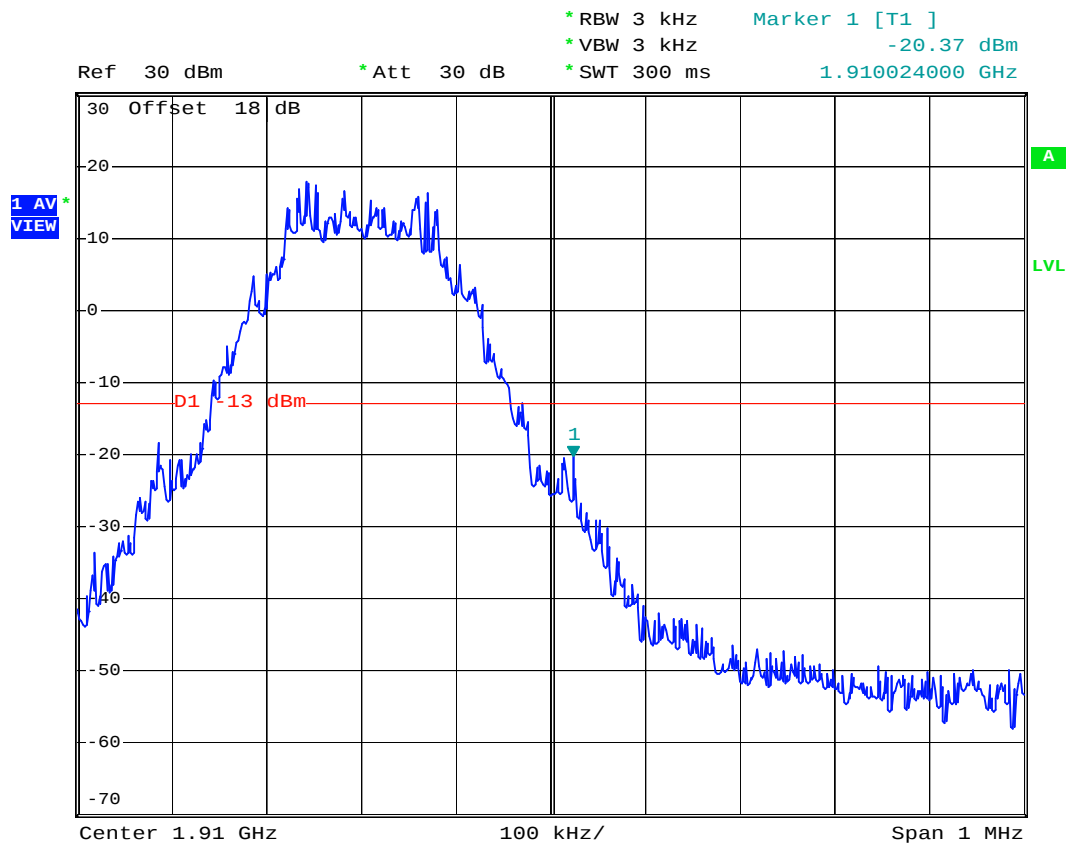
Date: 22.JUN.2007 07:00:59



FCC TEST REPORT

Report No. : FG761417

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



Date: 17.JUN.2007 13:11:12

4.5 Conducted Emission

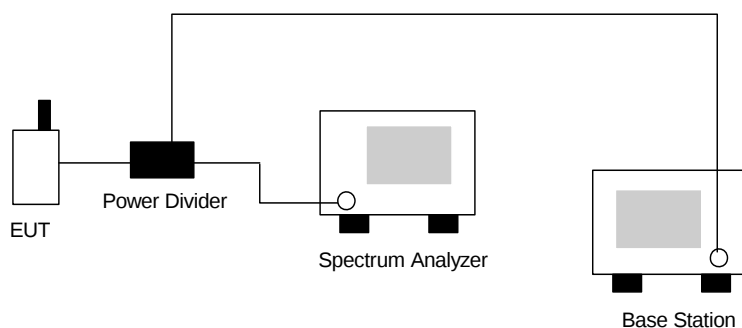
4.5.1 Measurement Instruments

As described in chapter 5 of this test report.

4.5.2 Test Procedure

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

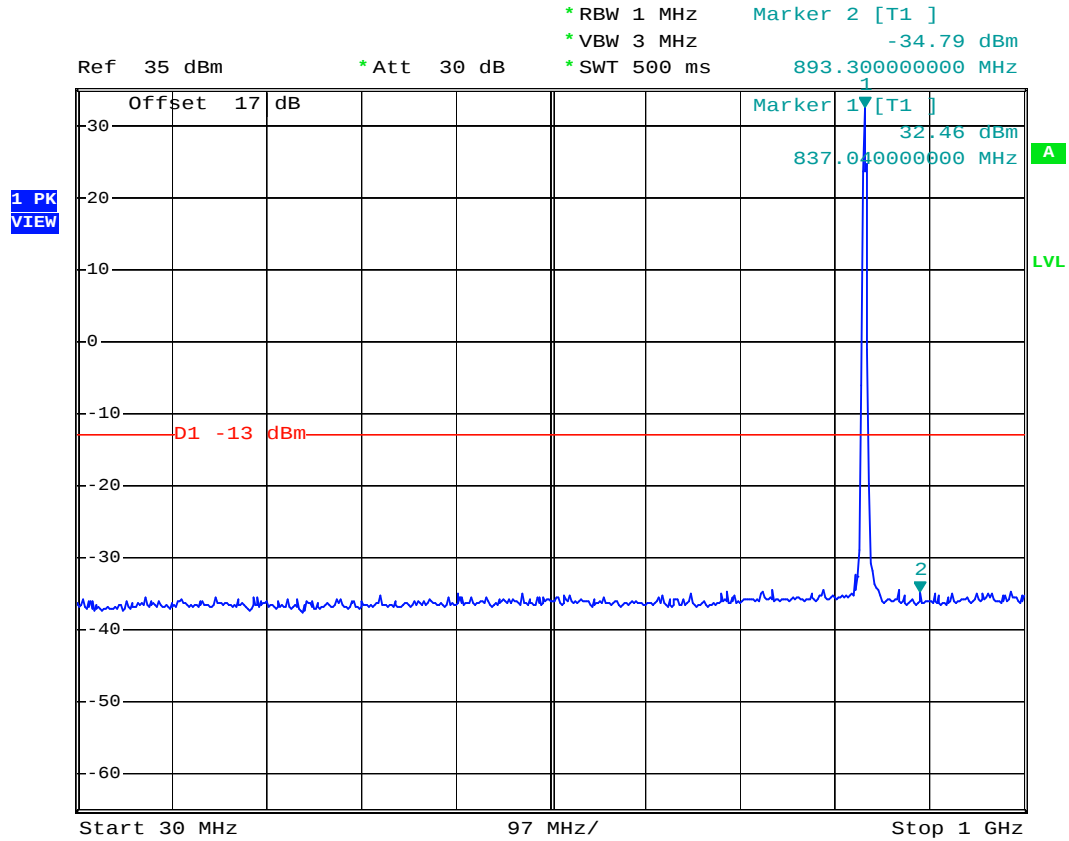
4.5.3 Test Setup Layout





4.5.4 Test Result

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



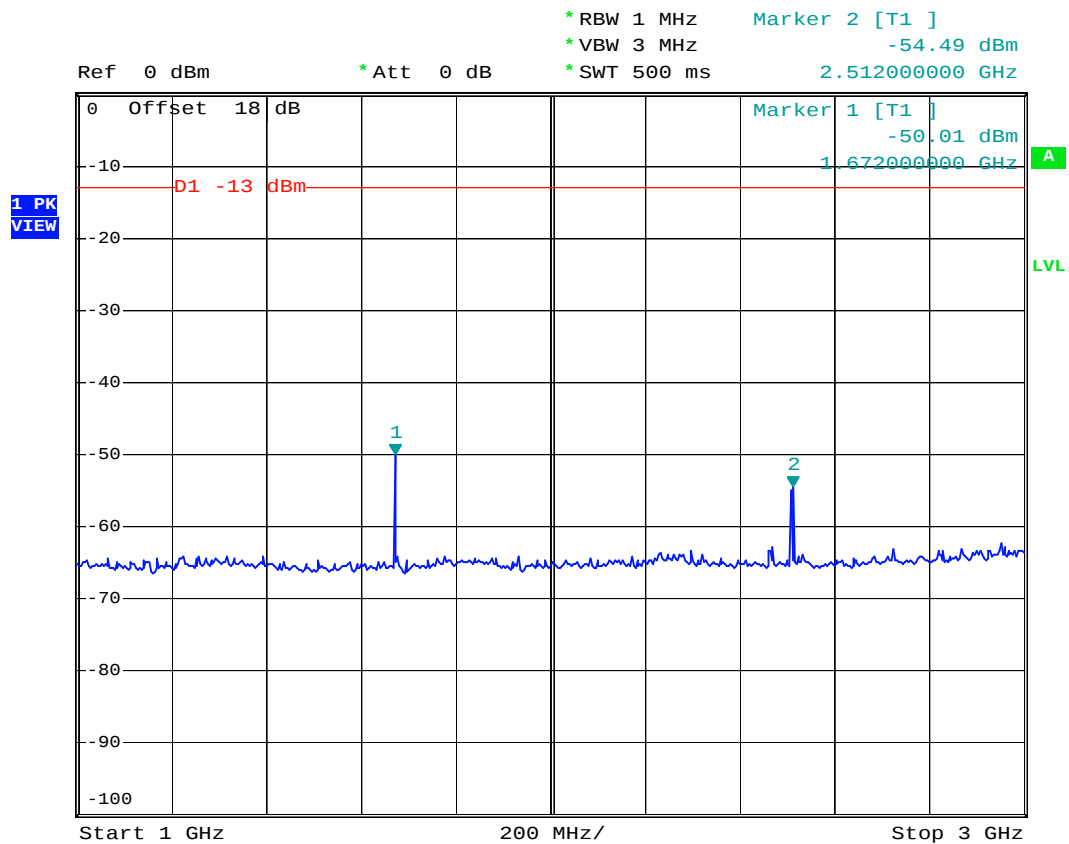
Date: 17.JUN.2007 12:05:29



FCC TEST REPORT

Report No. : FG761417

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



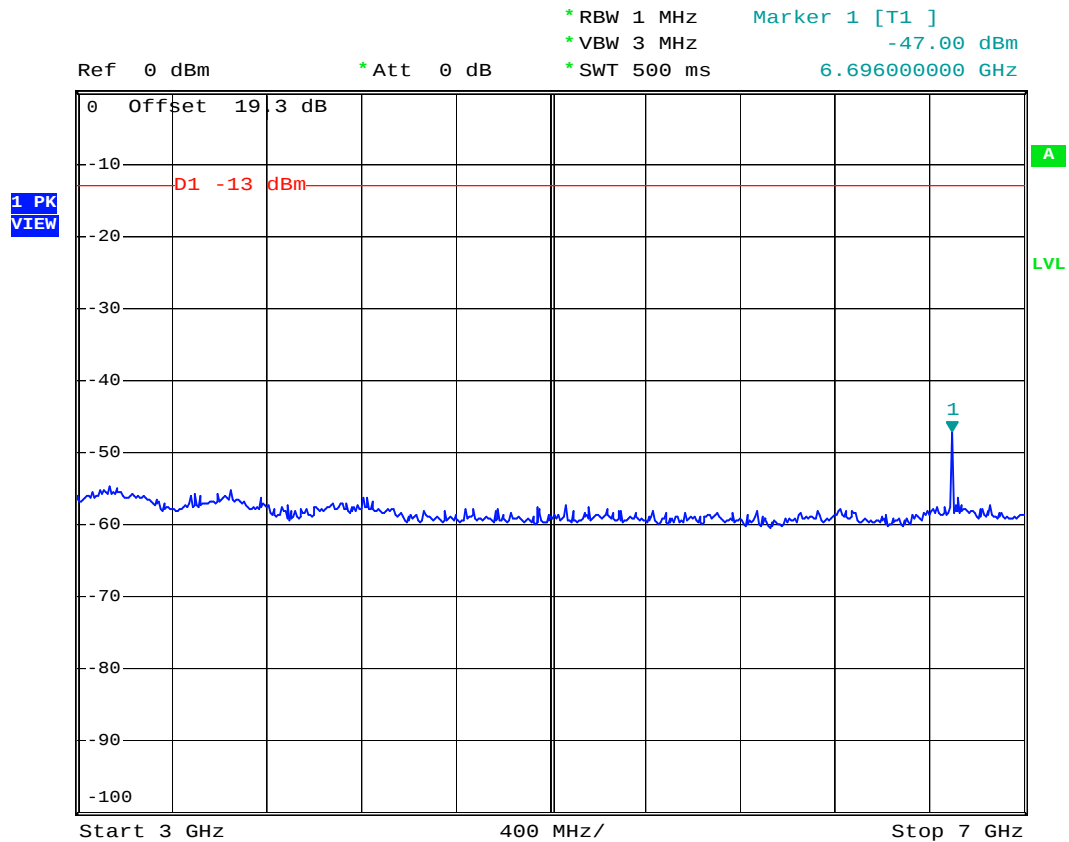
Date: 17.JUN.2007 12:10:27



FCC TEST REPORT

Report No. : FG761417

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



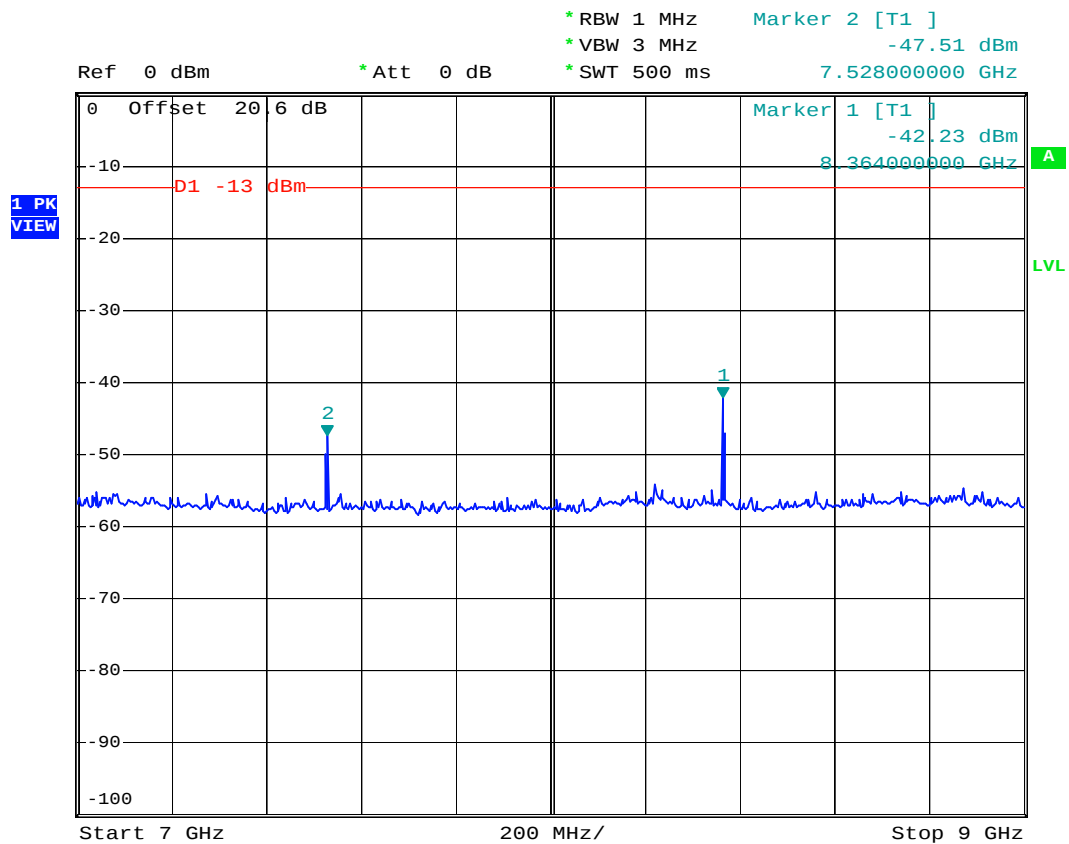
Date: 17.JUN.2007 12:11:52



FCC TEST REPORT

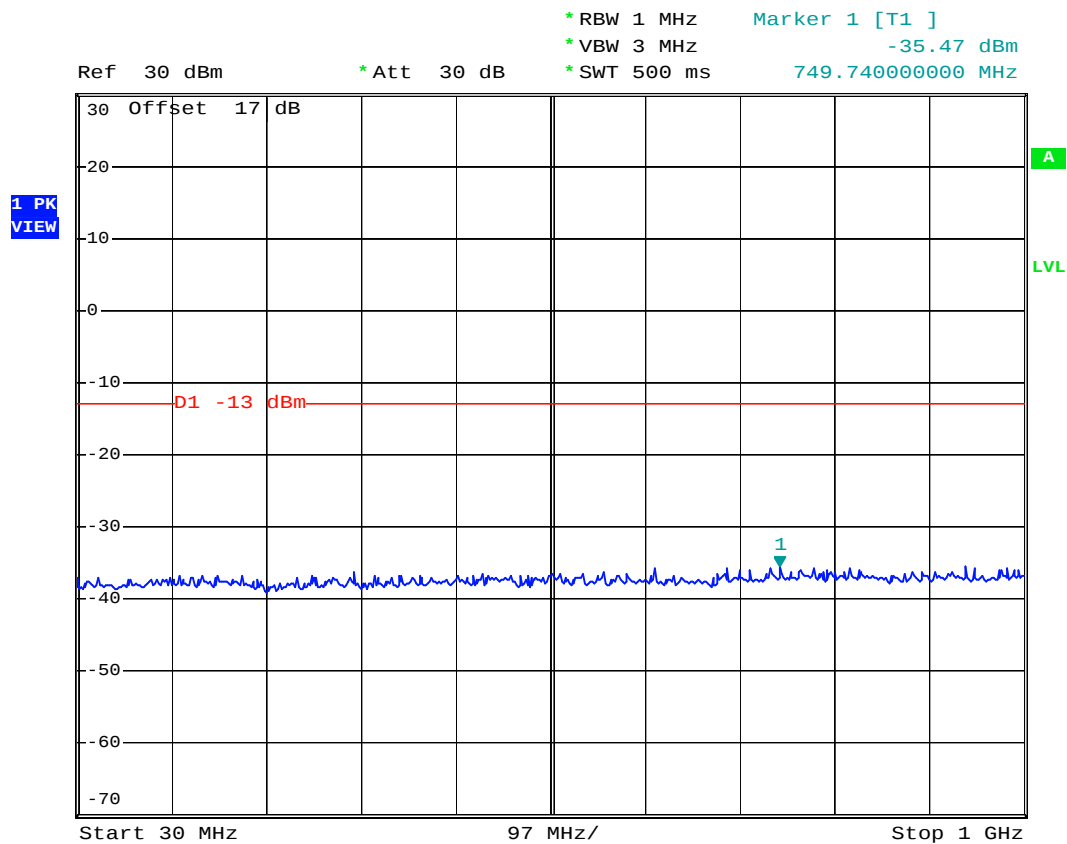
Report No. : FG761417

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



Date: 17.JUN.2007 12:13:05

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



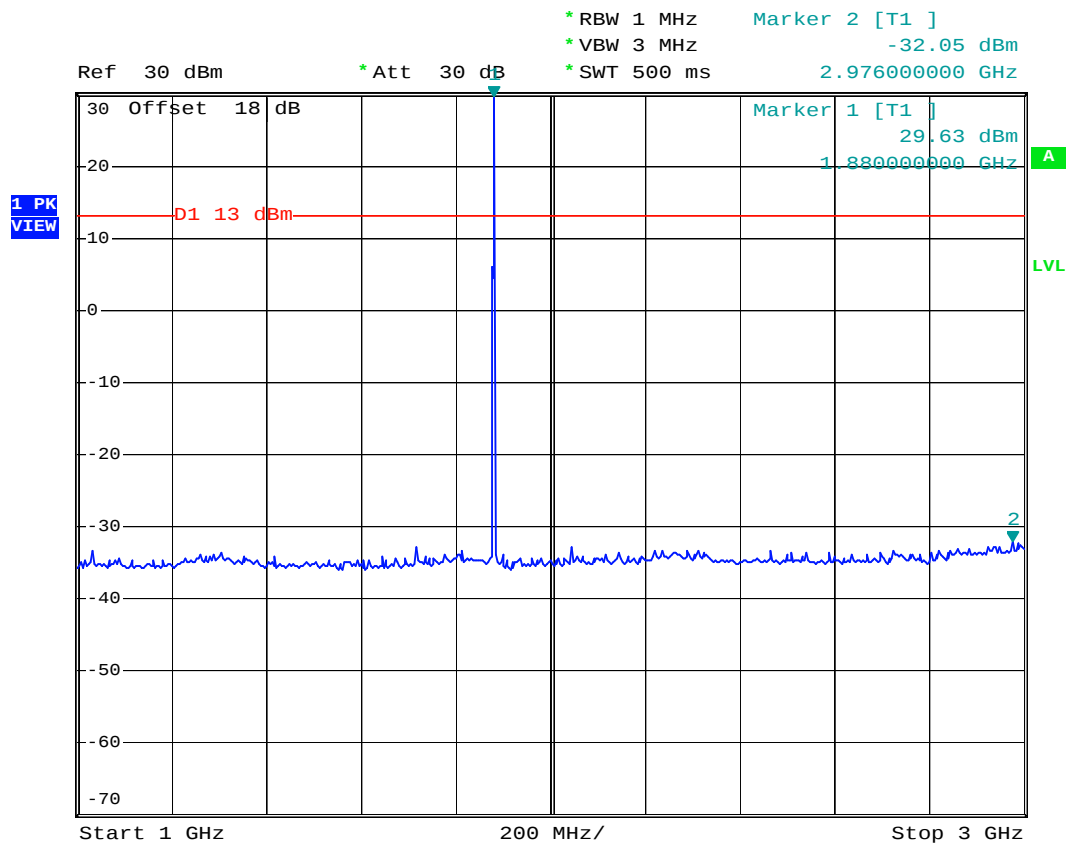
Date: 17.JUN.2007 12:51:13



FCC TEST REPORT

Report No. : FG761417

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



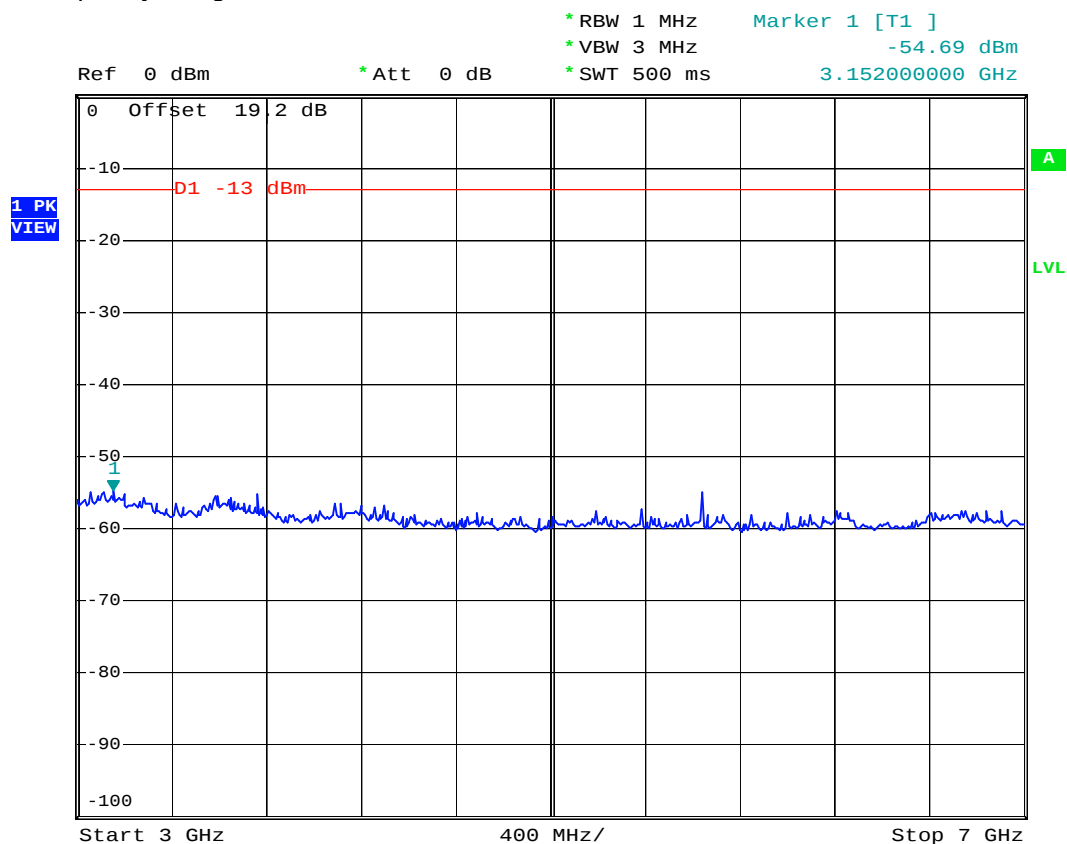
Date: 17.JUN.2007 12:53:16



FCC TEST REPORT

Report No. : FG761417

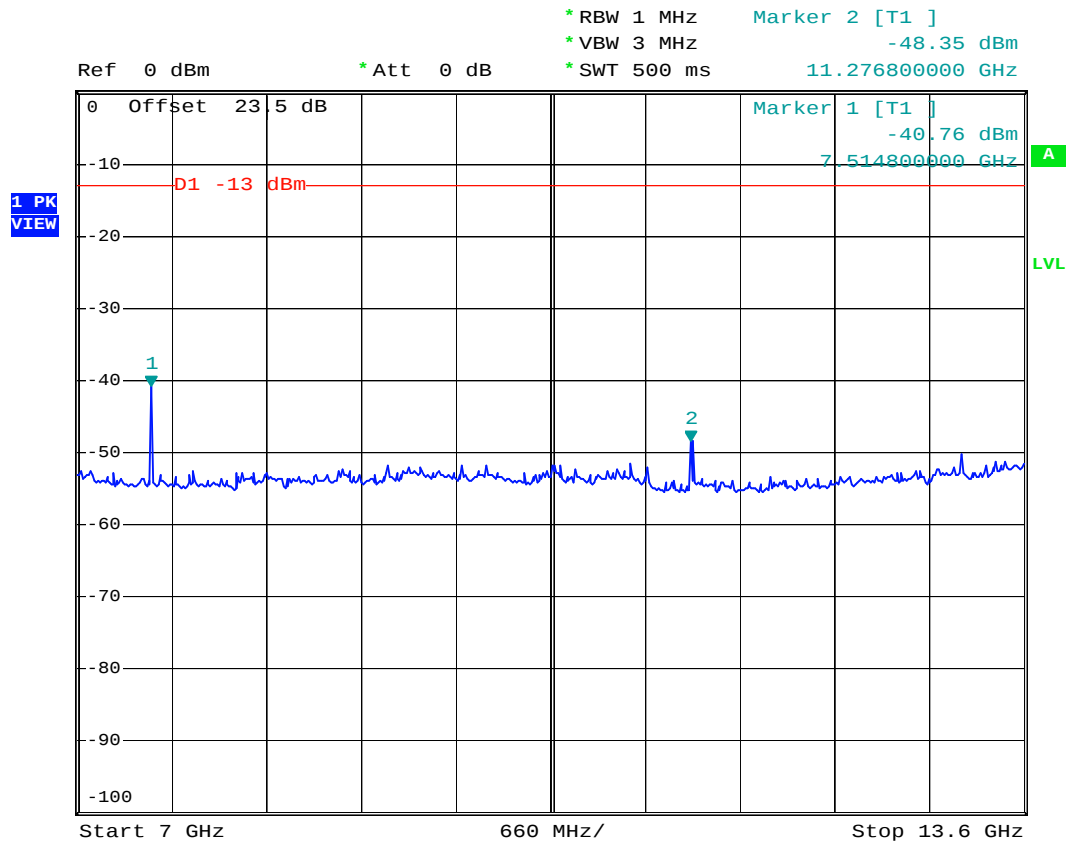
- Test Mode : PCS1900 (GSM) CH661
- Frequency Range : 3G-7G



Date: 17.JUN.2007 12:53:53



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



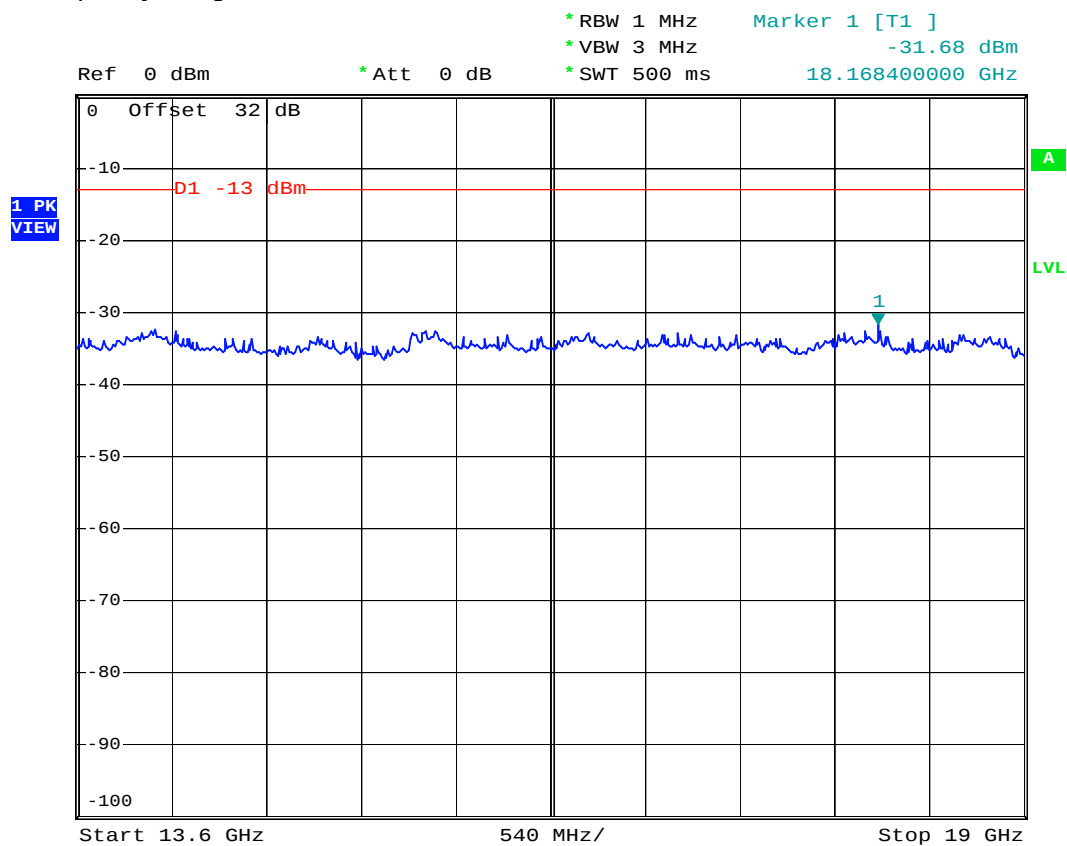
Date: 17.JUN.2007 12:54:53



FCC TEST REPORT

Report No. : FG761417

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



Date: 17.JUN.2007 12:55:35

4.6 Field Strength of Spurious Radiation

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

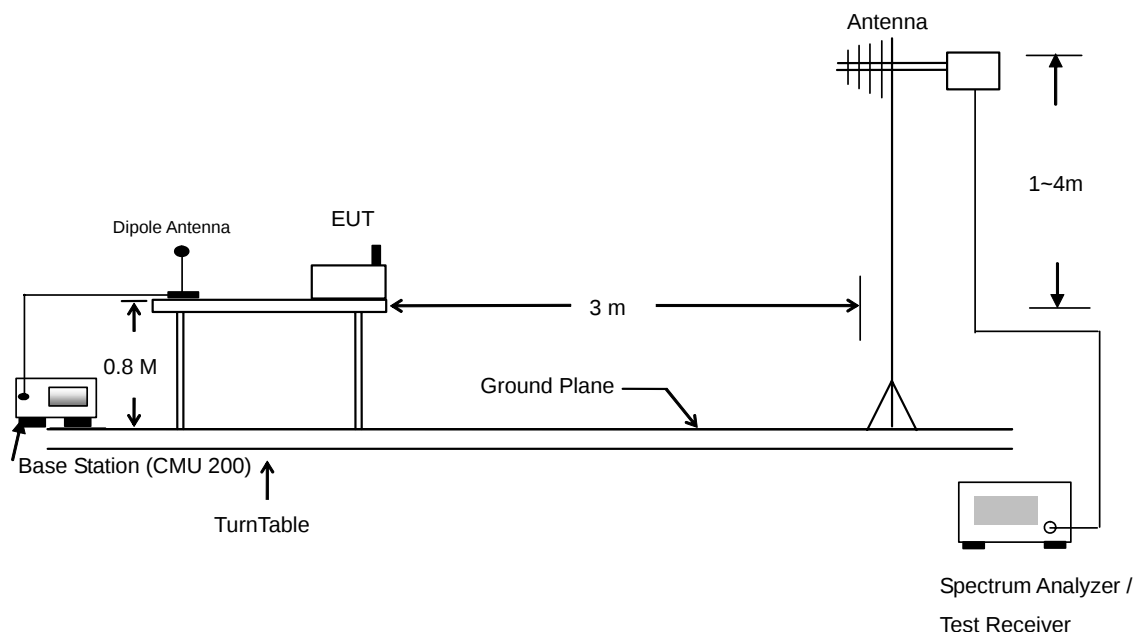
4.6.1 Measurement Instruments

As described in chapter 5 of this test report.

4.6.2 Test Procedure

1. The EUT was placed on a rotatable wooden table with 0.8 meter about ground.
2. The EUT was set 3 meters from the receiving antenna which was mounted on the antenna tower.
3. The table was rotated 360 degrees to determine the position of the highest spurious emission.
4. 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.
5. Taking the record of maximum spurious emission.
6. A Horn antenna was substituted in place of the EUT and was driven by a signal generator.
7. Tune the output power of signal generator to the same emission level with EUT maximum spurious emission.
8. Taking the record of output power at antenna port.
9. Repeat step 7 to step 8 for another polarization.
10. Emission level (dBm) = output power + substitution Gain.

4.6.3 Test Setup Layout



4.6.4 Test Result

- Test Mode : Mode 1

GSM850 (GSM) Radiated Spurious ERP							
H Polarization				V Polarization			
Frequency (MHz)	ERP (dBm)	Limit (dBm)	Margin (dB)	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Margin (dB)
32.160	-58.670	-13	-45.67	33.240	-51.970	-13	-38.97
83.730	-54.430	-13	-41.43	83.190	-53.970	-13	-40.97
91.290	-59.260	-13	-46.26	179.580	-58.090	-13	-45.09
364.400	-61.860	-13	-48.86	385.400	-63.680	-13	-50.68
1674.000	-43.720	-13	-30.72	1248.000	-59.300	-13	-46.30
1718.000	-59.760	-13	-46.76	1674.000	-51.400	-13	-38.40
2508.000	-52.940	-13	-39.94	2508.000	-56.410	-13	-43.41
3344.000	-56.230	-13	-43.23	3344.000	-57.370	-13	-44.37
5854.000	-52.820	-13	-39.82	5018.000	-49.730	-13	-36.73
6688.000	-43.670	-13	-30.67	5854.000	-51.460	-13	-38.46
				6688.000	-45.840	-13	-32.84



- Test Mode : Mode 2

GSM850 (EDGE) Radiated Spurious ERP							
H Polarization				V Polarization			
Frequency (MHz)	ERP (dBm)	Limit (dBm)	Margin (dB)	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Margin (dB)
32.430	-56.480	-13	-43.48	31.890	-59.610	-13	-46.61
78.330	-56.820	-13	-43.82	52.140	-59.320	-13	-46.32
99.930	-60.200	-13	-47.20	73.740	-58.700	-13	-45.70
483.400	-58.080	-13	-45.08	990.900	-63.300	-13	-50.30
1674.000	-53.540	-13	-40.54	1178.000	-58.850	-13	-45.85
1714.000	-58.580	-13	-45.58	1674.000	-55.050	-13	-42.05
2508.000	-56.260	-13	-43.26	2508.000	-53.870	-13	-40.87
3344.000	-57.260	-13	-44.26	5018.000	-50.170	-13	-37.17
5018.000	-53.460	-13	-40.46	5854.000	-51.130	-13	-38.13
6688.000	-44.130	-13	-31.13	6688.000	-45.300	-13	-32.30



- Test Mode : Mode 3

PCS1900 (GSM) Radiated Spurious EIRP							
H Polarization				V Polarization			
Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)
81.030	-55.800	-13	-42.80	30.540	-55.660	-13	-42.66
104.790	-54.560	-13	-41.56	73.740	-54.120	-13	-41.12
123.690	-55.450	-13	-42.45	115.590	-56.540	-13	-43.54
381.900	-55.470	-13	-42.47	474.300	-63.330	-13	-50.33
495.300	-62.480	-13	-49.48	861.400	-61.860	-13	-48.86
677.300	-63.230	-13	-50.23	994.400	-60.770	-13	-47.77
1714.000	-39.050	-13	-26.05	1714.000	-48.140	-13	-35.14
2044.000	-54.890	-13	-41.89	2044.000	-55.120	-13	-42.12
3758.000	-51.890	-13	-38.89	3758.000	-44.470	-13	-31.47
5638.000	-49.890	-13	-36.89	5638.000	-46.290	-13	-33.29



- Test Mode : Mode 4

PCS1900 (EDGE) Radiated Spurious EIRP							
H Polarization				V Polarization			
Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)
33.780	-60.620	-13	-47.62	33.780	-61.060	-13	-48.06
76.980	-60.640	-13	-47.64	76.980	-50.400	-13	-37.40
210.090	-51.570	-13	-38.57	90.480	-62.240	-13	-49.24
362.300	-62.490	-13	-49.49	589.800	-59.790	-13	-46.79
378.400	-52.960	-13	-39.96	869.800	-61.790	-13	-48.79
484.800	-51.390	-13	-38.39	990.900	-60.800	-13	-47.80
1714.000	-39.130	-13	-26.13	1714.000	-48.680	-13	-35.68
2044.000	-52.020	-13	-39.02	2044.000	-55.340	-13	-42.34
3758.000	-50.020	-13	-37.02	3758.000	-48.390	-13	-35.39
5638.000	-51.010	-13	-38.01	5638.000	-49.840	-13	-36.84



- Test Mode : Mode 5

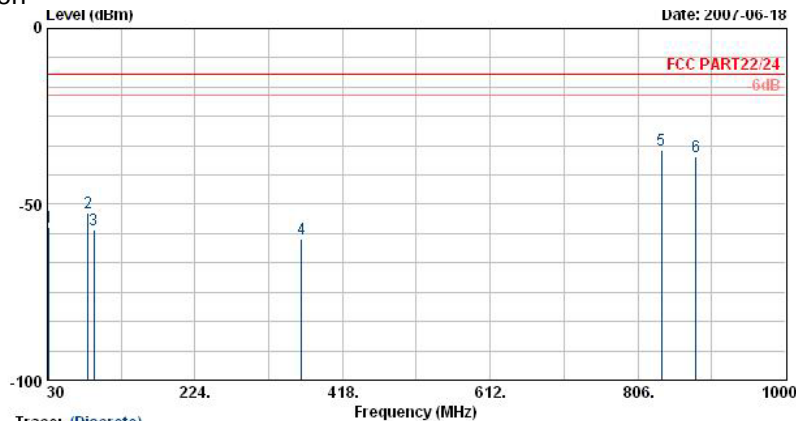
GSM850 (GSM) with WLAN Co-location Radiated Spurious ERP							
H Polarization				V Polarization			
Frequency (MHz)	ERP (dBm)	Limit (dBm)	Margin (dB)	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Margin (dB)
30.000	-62.440	-13	-49.44	30.000	-65.010	-13	-52.01
71.580	-60.610	-13	-47.61	80.490	-57.830	-13	-44.83
91.830	-67.240	-13	-54.24	91.830	-59.070	-13	-46.07
840.400	-41.030	-13	-28.03	836.900	-44.330	-13	-31.33
880.300	-43.580	-13	-30.58	881.000	-39.030	-13	-26.03
974.800	-61.710	-13	-48.71	981.800	-63.600	-13	-50.60
6688.000	-41.210	-13	-28.21	4924.000	-49.710	-13	-36.71
				5854.000	-53.560	-13	-40.56
				6688.000	-42.050	-13	-29.05



4.6.5 Test Data

4.6.5.1 Mode 1

Horizontal Polarization

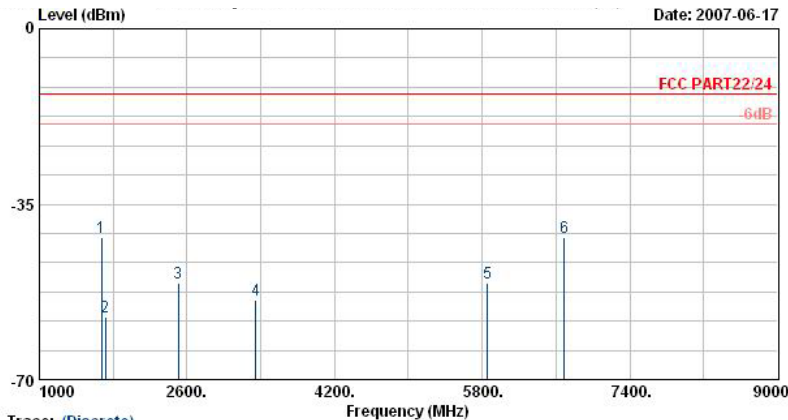


Trace: (Discrete)
Site : 03CH06-HY
Condition : LF-SPURIOUS HORIZONTAL
EUT : GSM/EDGE 850/900/1800/1900 Mobile Phone
(802.11b/g and Bluetooth)
Power : 120Vac/60Hz
Model : FG 761417
Memo : GSM 850 Link Mode;Ch189+Adaptor
Plane : E2

	Freq	Level	Over	Limit	Read	Factor	Remark
	MHz	dBm	Limit	Line	Level	dB	
1	32.16	-56.52	-43.52	-13.00	-55.66	-0.86	Peak
2	83.73	-52.28	-39.28	-13.00	-39.98	-12.30	Peak
3	91.29	-57.11	-44.11	-13.00	-44.83	-12.27	Peak
4	364.40	-59.71	-46.71	-13.00	-52.01	-7.70	Peak
5 @	836.90	-34.48			-33.14	-1.33	Peak
6	882.40	-36.35			-35.46	-0.89	Peak

Remark:

1. #5: MS Signal
2. #6: BS Signal

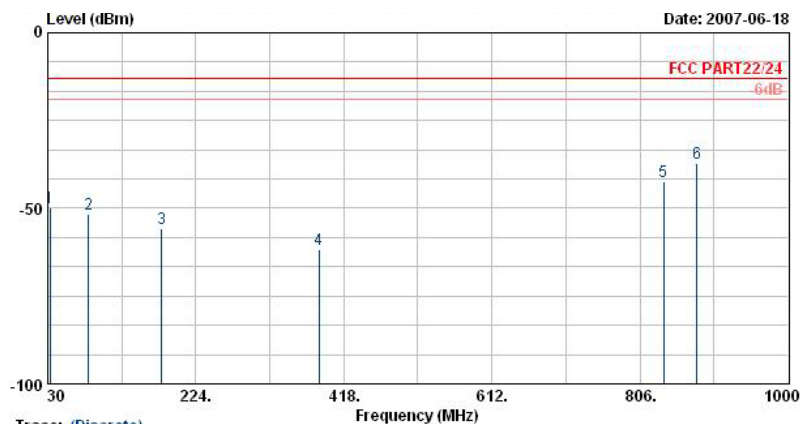


Trace: (Discrete)
Site : 03CH06-HY
Condition : HF-SPURIOUS HORIZONTAL
EUT : GSM/EDGE 850/900/1800/1900 Mobile Phone
(802.11b/g and Bluetooth)
Power : 120Vac/60Hz
Model : FG 761417
Memo : GSM 850 Link Mode;Ch189+Adaptor
Plane : E2

	Freq	Level	Over	Limit	Read	Factor	Remark
	MHz	dBm	Limit	Line	Level	dB	
1	1674.00	-41.57	-28.57	-13.00	-41.80	0.22	Peak
2	1718.00	-57.61	-44.61	-13.00	-57.69	0.08	Peak
3	2508.00	-50.79	-37.79	-13.00	-51.98	1.20	Peak
4	3344.00	-54.08	-41.08	-13.00	-59.49	5.41	Peak
5	5854.00	-50.67	-37.67	-13.00	-60.89	10.22	Peak
6	6688.00	-41.52	-28.52	-13.00	-54.66	13.14	Peak

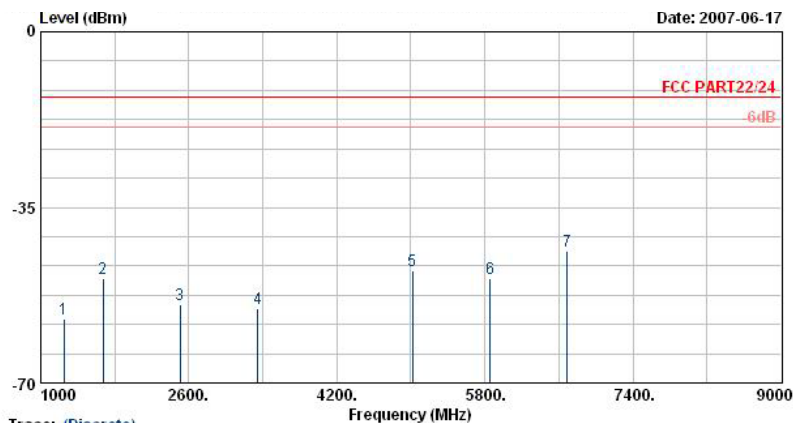


Vertical Polarization



Remark:

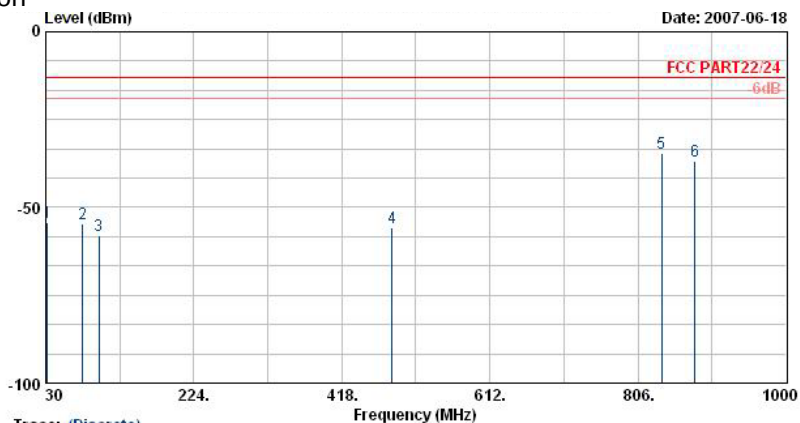
1. #5: MS Signal
2. #6: BS Signal





4.6.5.2 Mode 2

Horizontal Polarization

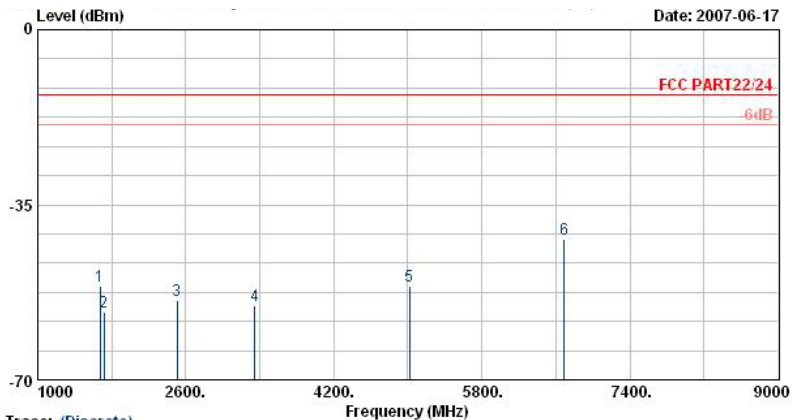


Site : 03CH06-HY
Condition : LF-SPURIOUS HORIZONTAL
EUT : GSM/EDGE 850/900/1800/1900 Mobile Phone
(802.11b/g and Bluetooth)
Power : 120Vac/60Hz
Model : FG 761417
Memo : EDGE Link Mode;Ch189+Adaptor
Plane : E2

	Freq	Level	Over	Limit	Read	Factor	Remark
	MHz	dBm	Limit	Line	Level	dB	
1	32.43	-54.33	-41.33	-13.00	-52.86	-1.47	Peak
2	78.33	-54.67	-41.67	-13.00	-42.35	-12.32	Peak
3	99.93	-58.05	-45.05	-13.00	-45.81	-12.24	Peak
4	483.40	-55.93	-42.93	-13.00	-50.58	-5.35	Peak
5	836.90	-34.40			-33.06	-1.33	Peak
6	880.30	-36.72			-35.80	-0.91	Peak

Remark:

- #5: MS Signal
- #6: BS Signal

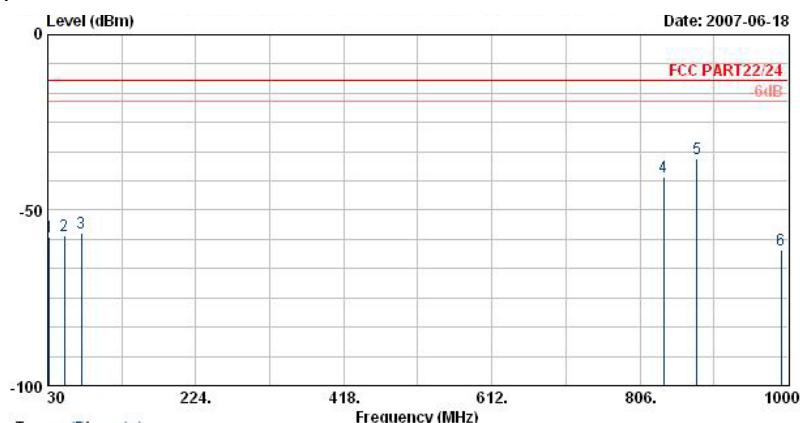


Site : 03CH06-HY
Condition : HF-SPURIOUS HORIZONTAL
EUT : GSM/EDGE 850/900/1800/1900 Mobile Phone
(802.11b/g and Bluetooth)
Power : 120Vac/60Hz
Model : FG 761417
Memo : EDGE Link Mode;Ch189+Adaptor
Plane : E2

	Freq	Level	Over	Limit	Read	Factor	Remark
	MHz	dBm	Limit	Line	Level	dB	
1	1674.00	-51.39	-38.39	-13.00	-51.61	0.22	Peak
2	1714.00	-56.43	-43.43	-13.00	-56.51	0.08	Peak
3	2508.00	-54.11	-41.11	-13.00	-55.31	1.20	Peak
4	3344.00	-55.11	-42.11	-13.00	-60.52	5.41	Peak
5	5018.00	-51.31	-38.31	-13.00	-61.55	10.24	Peak
6	6688.00	-41.98	-28.98	-13.00	-55.12	13.14	Peak



Vertical Polarization

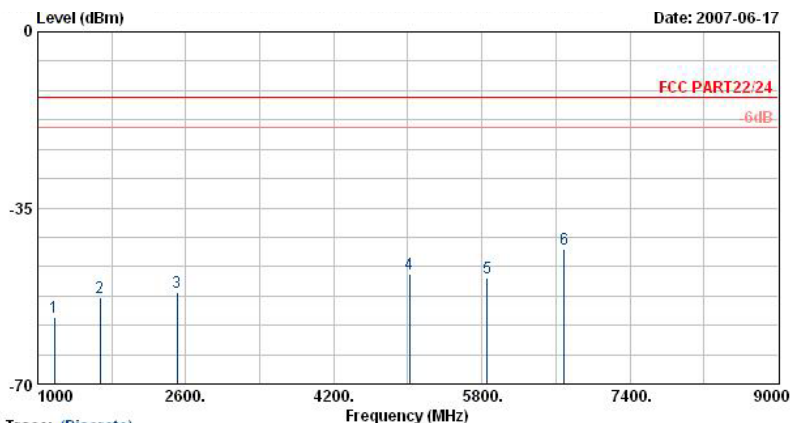


Site : 03CH06-HY
Condition : LF-SPORTIOUS VERTICAL
EUT : GSM/EDGE 850/900/1800/1900 Mobile Phone
(802.11b/g and Bluetooth)
Power : 120Vac/60Hz
Model : FG 761417
Memo : EDGE Link Mode;Ch189+Adaptor
Plane : E2

	Freq	Level	Over	Limit	Read		
	MHz	dBm	Limit	Line	Level	Factor	Remark
			dB	dBm	dBm	dB	
1	31.89	-57.46	-44.46	-13.00	-47.84	-9.62	Peak
2	52.14	-57.17	-44.17	-13.00	-42.63	-14.54	Peak
3	73.74	-56.55	-43.55	-13.00	-45.08	-11.46	Peak
4	836.90	-40.50			-41.86	1.36	Peak
5	880.30	-35.32			-37.03	1.71	Peak
6	990.90	-61.15	-48.15	-13.00	-63.75	2.59	Peak

Remark:

1. #4: MS Signal
2. #5: BS Signal



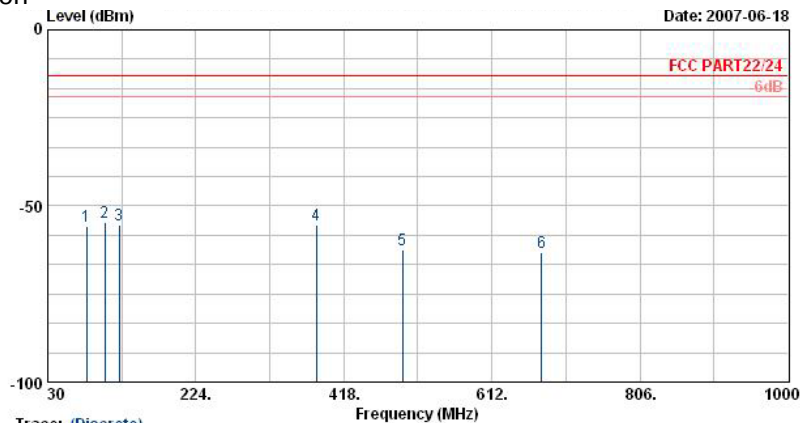
Site : 03CH06-HY
Condition : HF-SPORTIOUS VERTICAL
EUT : GSM/EDGE 850/900/1800/1900 Mobile Phone
(802.11b/g and Bluetooth)
Power : 120Vac/60Hz
Model : FG 761417
Memo : EDGE Link Mode;Ch189+Adaptor
Plane : E2

	Freq	Level	Over	Limit	Read		
	MHz	dBm	Limit	Line	Level	Factor	Remark
			dB	dBm	dBm	dB	
1	1178.00	-56.70	-43.70	-13.00	-55.96	-0.73	Peak
2	1674.00	-52.90	-39.90	-13.00	-52.42	-0.48	Peak
3	2508.00	-51.72	-38.72	-13.00	-53.99	2.27	Peak
4	5018.00	-48.02	-35.02	-13.00	-56.86	8.85	Peak
5	5854.00	-48.98	-35.98	-13.00	-57.79	8.81	Peak
6	6688.00	-43.15	-30.15	-13.00	-54.68	11.53	Peak



4.6.5.3 Mode 3

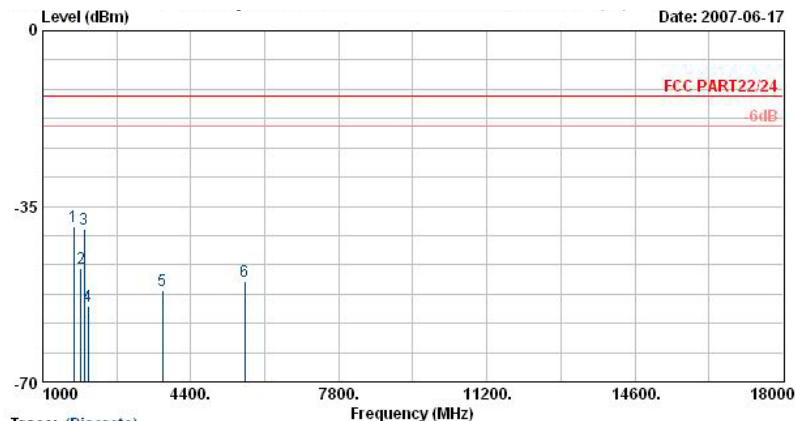
Horizontal Polarization



Trace: (Discrete)

Site : 03CH06-HY
Condition : LF-SPORTON HORIZONTAL
EUT : GSM/EDGE 850/900/1800/1900 Mobile Phone
(802.11b/g and Bluetooth)
Power : 120Vac/60Hz
Model : FG 761417
Memo : PCS 1900 Link Mode;Ch661+Adaptor
Plane : E2

	Freq	Level	Over	Limit	Read		
	MHz	dBm	Limit	Line	Level	Factor	Remark
			dB	dBm	dBm	dB	
1	81.03	-55.80	-42.80	-13.00	-43.49	-12.31	Peak
2 @	104.79	-54.56	-41.56	-13.00	-42.26	-12.30	Peak
3	123.69	-55.45	-42.45	-13.00	-42.93	-12.52	Peak
4	381.90	-55.47	-42.47	-13.00	-48.37	-7.10	Peak
5	495.30	-62.48	-49.48	-13.00	-57.30	-5.18	Peak
6	677.30	-63.23	-50.23	-13.00	-60.28	-2.95	Peak



Trace: (Discrete)

Site : 03CH06-HY
Condition : HF-SPORTON HORIZONTAL
EUT : GSM/EDGE 850/900/1800/1900 Mobile Phone
(802.11b/g and Bluetooth)
Power : 120Vac/60Hz
Model : FG 761417
Memo : PCS 1900 Link Mode;Ch661+Adaptor
Plane : E2

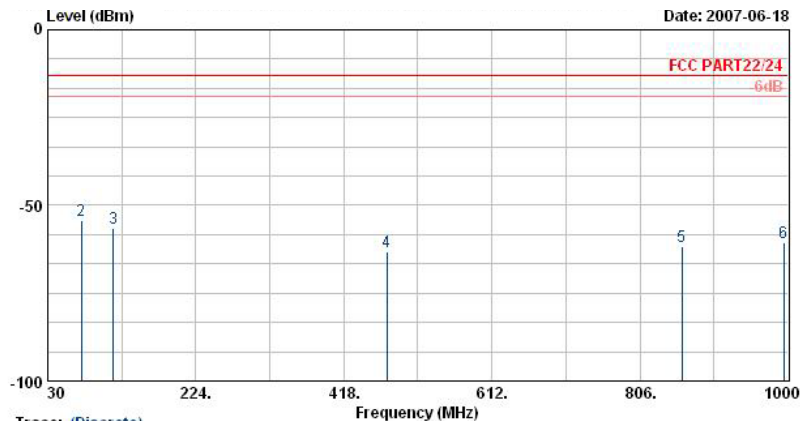
	Freq	Level	Over	Limit	Read		
	MHz	dBm	Limit	Line	Level	Factor	Remark
			dB	dBm	dBm	dB	
1 @	1714.00	-39.05	-26.05	-13.00	-39.13	0.08	Peak
2 @	1884.00	-47.41			-46.73	-0.68	Peak
3 @	1958.00	-39.68			-38.57	-1.11	Peak
4	2044.00	-54.89	-41.89	-13.00	-54.16	-0.73	Peak
5 @	3758.00	-51.89	-38.89	-13.00	-59.81	7.92	Peak
6 @	5638.00	-49.89	-36.89	-13.00	-59.86	9.97	Peak

Remark:

- #2: MS Signal
- #3: BS Signal

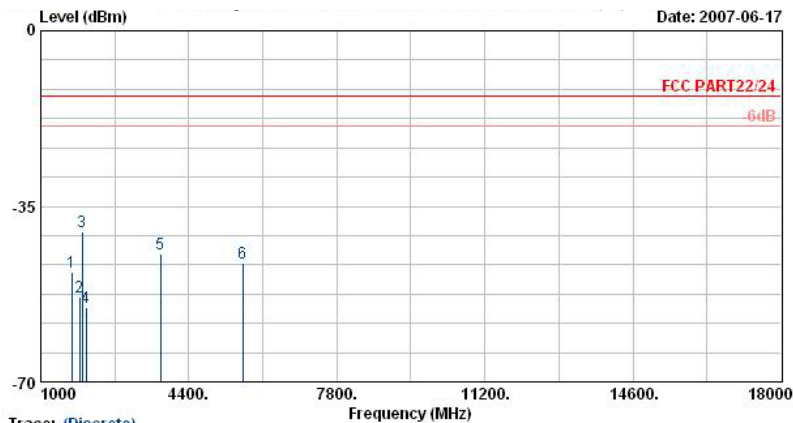


Vertical Polarization



Site : 03CH06-HY
Condition : LF-SPURIOUS VERTICAL
EUT : GSM/EDGE 850/900/1800/1900 Mobile Phone
(802.11b/g and Bluetooth)
Power : 120Vac/60Hz
Model : FG 761417
Memo : PCS 1900 Link Mode;Ch661+Adaptor
Plane : E2

	Freq	Level	Over	Limit	Read		
	MHz	dBm	Limit	Line	Level	Factor	Remark
			dB	dBm	dBm	dB	
1	30.54	-55.66	-42.66	-13.00	-46.31	-9.34	Peak
2 @	73.74	-54.12	-41.12	-13.00	-42.65	-11.46	Peak
3	115.59	-56.54	-43.54	-13.00	-48.71	-7.83	Peak
4	474.30	-63.33	-50.33	-13.00	-59.90	-3.44	Peak
5	861.40	-61.86	-48.86	-13.00	-63.41	1.56	Peak
6	994.40	-60.77	-47.77	-13.00	-63.39	2.61	Peak

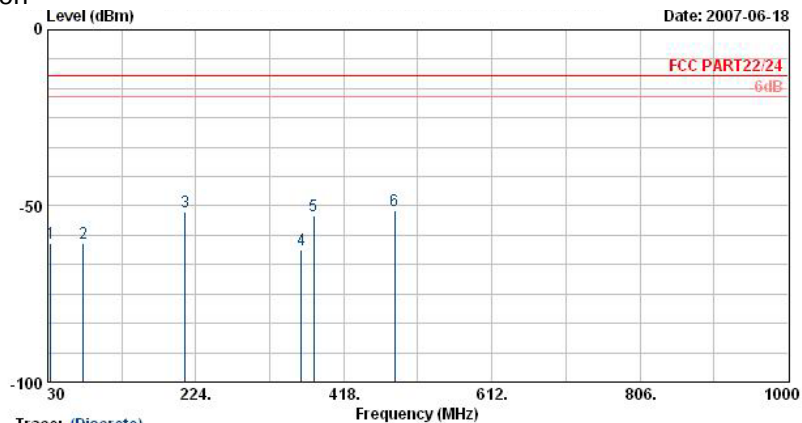


Site : 03CH06-HY
Condition : HF-SPURIOUS VERTICAL
EUT : GSM/EDGE 850/900/1800/1900 Mobile Phone
(802.11b/g and Bluetooth)
Power : 120Vac/60Hz
Model : FG 761417
Memo : PCS 1900 Link Mode;Ch661+Adaptor
Plane : E2

	Freq	Level	Over	Limit	Read		
	MHz	dBm	Limit	Line	Level	Factor	Remark
			dB	dBm	dBm	dB	
1 @	1714.00	-48.14	-35.14	-13.00	-47.72	-0.42	Peak
2 @	1894.00	-52.99			-52.49	-0.50	Peak
3 @	1958.00	-40.01			-39.41	-0.60	Peak
4	2044.00	-55.12	-42.12	-13.00	-55.08	-0.04	Peak
5 @	3758.00	-44.47	-31.47	-13.00	-51.11	6.64	Peak
6 @	5638.00	-46.29	-33.29	-13.00	-54.94	8.65	Peak

Remark:

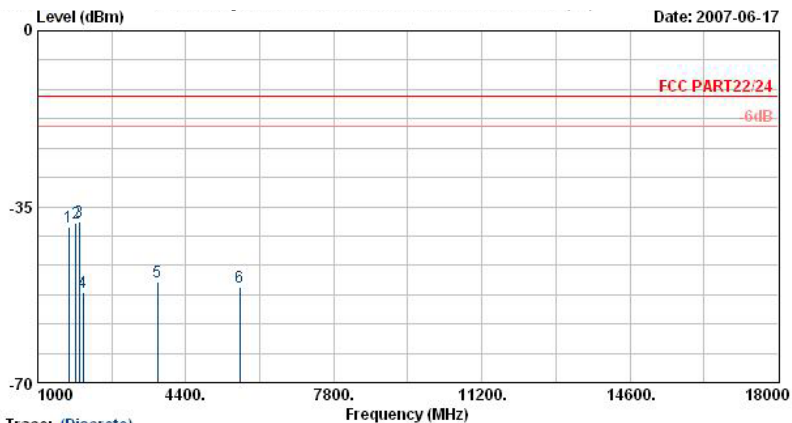
1. #2: MS Signal
2. #3: BS Signal

4.6.5.4 Mode 4
Horizontal Polarization

Trace: (Discrete)

Site : 03CH06-HY
Condition : LF-SPURIOUS HORIZONTAL
EUT : GSM/EDGE 850/900/1800/1900 Mobile Phone
(802.11b/g and Bluetooth)
Power : 120Vac/60Hz
Model : FG 761417
Memo : EDGE Link Mode;Ch661+Adaptor
Plane : E2

	Freq	Level	Over	Limit	Read		
	MHz	dBm	Limit	Line	Level	Factor	Remark
			dB	dBm	dBm	dB	
1	33.78	-60.62	-47.62	-13.00	-58.54	-2.08	Peak
2	76.98	-60.64	-47.64	-13.00	-48.31	-12.33	Peak
3	210.09	-51.57	-38.57	-13.00	-38.54	-13.02	Peak
4	362.30	-62.49	-49.49	-13.00	-54.72	-7.77	Peak
5	378.40	-52.96	-39.96	-13.00	-45.73	-7.24	Peak
6 @	484.80	-51.39	-38.39	-13.00	-46.07	-5.33	Peak



Trace: (Discrete)

Site : 03CH06-HY
Condition : HF-SPURIOUS HORIZONTAL
EUT : GSM/EDGE 850/900/1800/1900 Mobile Phone
(802.11b/g and Bluetooth)
Power : 120Vac/60Hz
Model : FG 761417
Memo : EDGE Link Mode;Ch661+Adaptor
Plane : E2

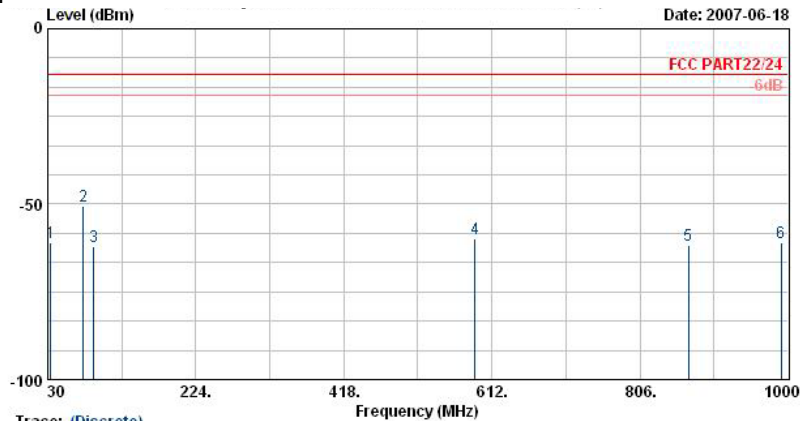
	Freq	Level	Over	Limit	Read		
	MHz	dBm	Limit	Line	Level	Factor	Remark
			dB	dBm	dBm	dB	
1 @	1714.00	-39.13	-26.13	-13.00	-39.20	0.08	Peak
2 @	1884.00	-38.33			-37.65	-0.68	Peak
3 @	1958.00	-38.05			-36.94	-1.11	Peak
4	2044.00	-52.02	-39.02	-13.00	-51.29	-0.73	Peak
5 @	3758.00	-50.02	-37.02	-13.00	-57.94	7.92	Peak
6 @	5638.00	-51.01	-38.01	-13.00	-60.97	9.97	Peak

Remark:

1. #2: MS Signal
2. #3: BS Signal

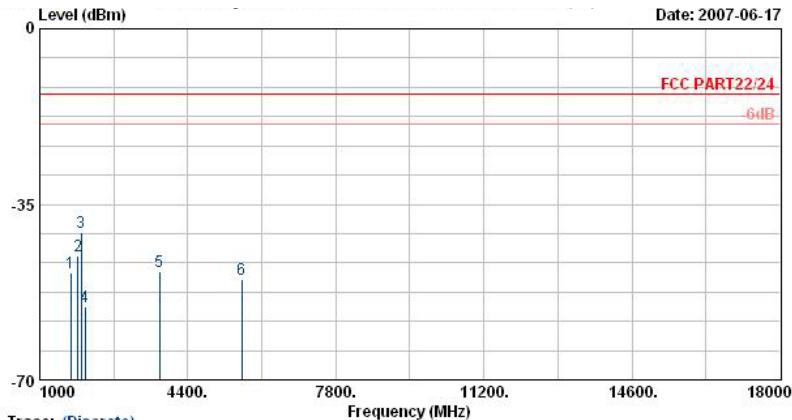


Vertical Polarization



Site : 03CH06-HY
Condition : LF-SPURIOUS VERTICAL
EUT : GSM/EDGE 850/900/1800/1900 Mobile Phone
(802.11b/g and Bluetooth)
Power : 120Vac/60Hz
Model : FG 761417
Memo : EDGE Link Mode;Ch661+Adaptor
Plane : E2

	Freq	Level	Over	Limit	Read		
	MHz	dBm	Limit	Line	Level	Factor	Remark
	MHz	dBm	dB	dBm	dBm	dB	
1	33.78	-61.06	-48.06	-13.00	-50.89	-10.17	Peak
2 @	76.98	-50.40	-37.40	-13.00	-39.36	-11.05	Peak
3	90.48	-62.24	-49.24	-13.00	-53.15	-9.09	Peak
4	589.80	-59.79	-46.79	-13.00	-57.74	-2.06	Peak
5	869.80	-61.79	-48.79	-13.00	-63.41	1.63	Peak
6	990.90	-60.80	-47.80	-13.00	-63.39	2.59	Peak

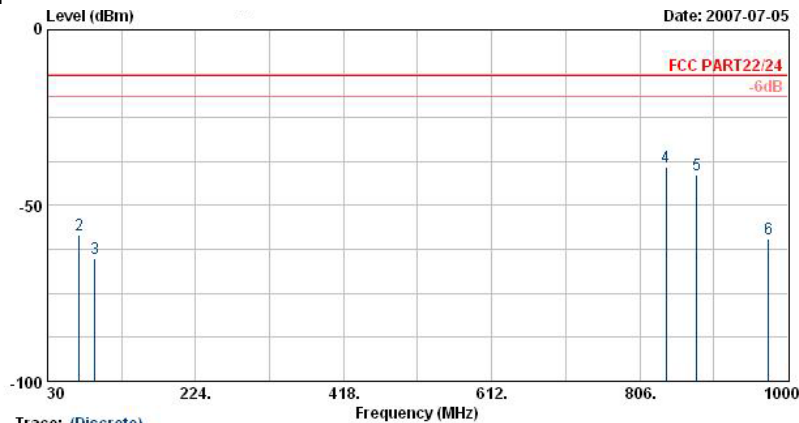


Site : 03CH06-HY
Condition : HF-SPURIOUS VERTICAL
EUT : GSM/EDGE 850/900/1800/1900 Mobile Phone
(802.11b/g and Bluetooth)
Power : 120Vac/60Hz
Model : FG 761417
Memo : EDGE Link Mode;Ch661+Adaptor
Plane : E2

	Freq	Level	Over	Limit	Read		
	MHz	dBm	Limit	Line	Level	Factor	Remark
	MHz	dBm	dB	dBm	dBm	dB	
1 @	1714.00	-48.68	-35.68	-13.00	-48.25	-0.42	Peak
2 @	1884.00	-45.24			-44.74	-0.50	Peak
3 @	1958.00	-40.56			-39.96	-0.60	Peak
4	2044.00	-55.34	-42.34	-13.00	-55.30	-0.04	Peak
5 @	3758.00	-48.39	-35.39	-13.00	-55.03	6.64	Peak
6 @	5638.00	-49.84	-36.84	-13.00	-58.49	8.65	Peak

Remark:

1. #2: MS Signal
2. #3: BS Signal

4.6.5.5 Mode 5
Horizontal Polarization

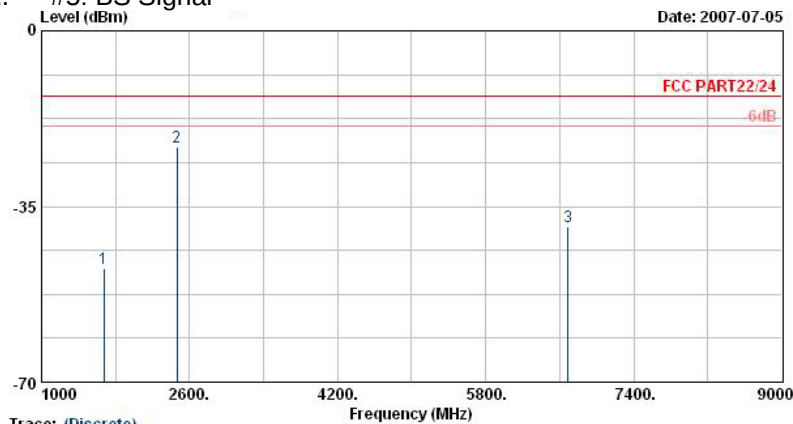
Trace: (Discrete)

Site : 03CH06-HY
Condition : LF-SPURIOUS HORIZONTAL
EUT : GSM/EDGE 850/900/1800/1900 Mobile Phone
(802.11b/g and Bluetooth)
Power : 120Vac/60Hz
Model : FG 761417
Memo : GSM 850 Link Mode;Ch189+WLAN Link;
WLAN 11b Tx_Ch11;2462MHz + Adaptor
Plane : E2

	Freq	Level	Over	Limit	Read	
	MHz	dBm	Limit	Line	Level	Factor Remark
			dB	dBm	dBm	dB
1	30.00	-60.29	-47.29	-13.00	-60.65	0.36 Peak
2	71.58	-58.46	-45.46	-13.00	-46.12	-12.35 Peak
3	91.83	-65.09	-52.09	-13.00	-52.82	-12.27 Peak
4	840.40	-38.88			-37.57	-1.31 Peak
5	880.30	-41.43			-40.52	-0.91 Peak
6	974.80	-59.56	-46.56	-13.00	-59.56	0.00 Peak

Remark:

1. #4: MS Signal
2. #5: BS Signal



Trace: (Discrete)

Site : 03CH06-HY
Condition : HF-SPURIOUS HORIZONTAL
EUT : GSM/EDGE 850/900/1800/1900 Mobile Phone
(802.11b/g and Bluetooth)
Power : 120Vac/60Hz
Model : FG 761417
Memo : GSM 850 Link Mode;Ch189+WLAN Link;
WLAN 11b Tx_Ch11;2462MHz + Adaptor
Plane : E2

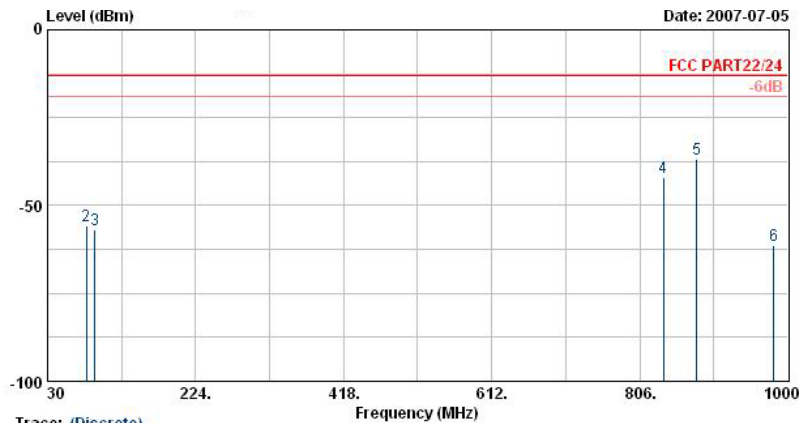
	Freq	Level	Over	Limit	Read	
	MHz	dBm	Limit	Line	Level	Factor Remark
			dB	dBm	dBm	dB
1	1674.00	-47.39	-34.39	-13.00	-47.61	0.22 Peak
2 @	2462.00	-23.21			-24.21	1.00 Peak
3	6688.00	-39.06	-26.06	-13.00	-52.19	13.14 Peak

Remark:

1. #2: WLAN Signal



Vertical Polarization

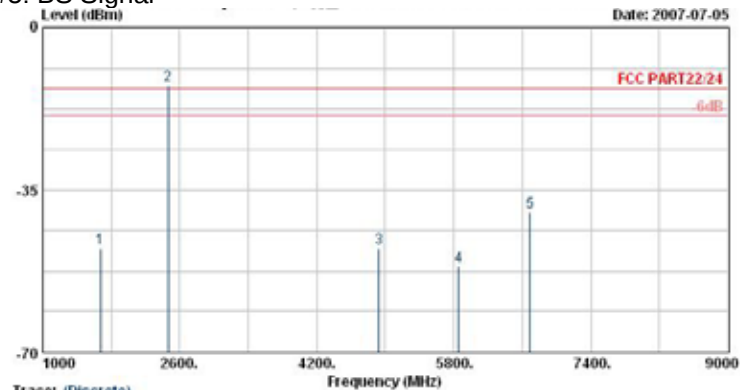


Site : 03CR06-HY
Condition : LF-SPURIOUS VERTICAL
EUT : CSM/EDGE 850/900/1800/1900 Mobile Phone
Power : (802.11b/g and Bluetooth)
Model : 120Vac/60Hz
Memo : FG 761417
Plane : CSM 850 Link Mode;Ch189+WLAN Link;
WLAN 11b Tx_Ch11;2462MHz + Adaptor
E2

	Freq	Level	Over	Limit	Read		
	MHz	dBm	Limit	Line	Level	Factor	Remark
	MHz	dBm	dB	dBm	dBm	dB	
1	30.00	-62.86	-49.86	-13.00	-53.79	-9.07	Peak
2	80.49	-55.68	-42.68	-13.00	-45.19	-10.49	Peak
3	91.83	-56.92	-43.92	-13.00	-48.12	-8.81	Peak
4	806.49	-42.18			-43.54	1.36	Peak
5	881.00	-36.88			-38.60	1.71	Peak
6	981.80	-61.45	-48.45	-13.00	-63.96	2.51	Peak

Remark:

1. #4: MS Signal
2. #5: BS Signal



Site : 03CR06-HY
Condition : HF-SPURIOUS VERTICAL
EUT : CSM/EDGE 850/900/1800/1900 Mobile Phone
Power : (802.11b/g and Bluetooth)
Model : 120Vac/60Hz
Memo : FG 761417
Plane : CSM 850 Link Mode;Ch189+WLAN Link;
WLAN 11b Tx_Ch11;2462MHz + Adaptor
E2

	Freq	Level	Over	Limit	Read		
	MHz	dBm	Limit	Line	Level	Factor	Remark
	MHz	dBm	dB	dBm	dBm	dB	
1	1674.00	-47.75	-34.75	-13.00	-47.27	-0.48	Peak
2	2462.00	-12.51			-14.52	2.01	Peak
3	4924.00	-47.56	-34.56	-13.00	-57.02	9.46	Peak
4	5854.00	-51.41	-38.41	-13.00	-60.22	8.81	Peak
5	6688.00	-39.90	-26.90	-13.00	-51.44	11.53	Peak

Remark:

1. #2: WLAN Signal

4.7 Frequency Stability (Temperature Variation)

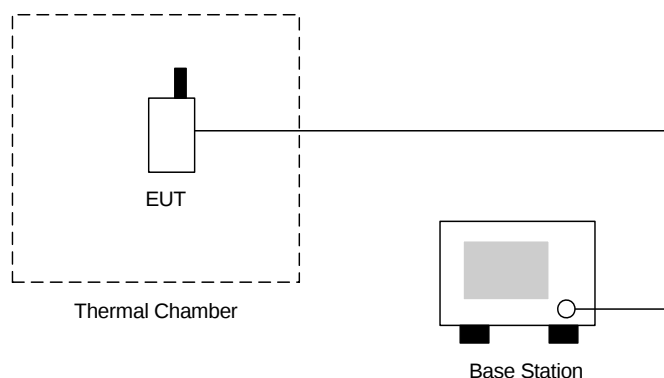
4.7.1 Measurement Instrument

As described in chapter 5 of this test report.

4.7.2 Test Procedure

1. The EUT and test equipment were set up as shown on the following section.
2. 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.
3. With power OFF, the temperature was raised in 10°C steps. The sample was permitted to stabilize at each step for at least one and half hours. Power was applied and the maximum frequency change was noted within one minute.
4. The temperature tests were performed for the worst case.
5. 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	N/A	N/A	2.5	Passed
-20	-58	-0.07		
-10	-38	-0.04		
0	24	0.03		
10	19	0.02		
20	-16	-0.02		
30	25	0.03		
40	-8	-0.01		
50	24	0.03		

Remark : EUT could not be turned on at Temperature -30

- Test Mode : GSM850 (EDGE) CH189

Temperature()	Change (Hz)	Change (ppm)	Limit (ppm)	Result
-30	N/A	N/A	2.5	Passed
-20	-31	-0.04		
-10	-35	-0.04		
0	12	0.01		
10	10	0.01		
20	25	0.03		
30	-9	-0.01		
40	22	0.03		
50	17	0.02		

Remark : EUT could not be turned on at Temperature -30

▪ Test Mode : PCS1900 (GSM) CH661

Temperature()	Change (Hz)	Change (ppm)	Limit (ppm)	Result
-30	N/A	N/A	2.5	Passed
-20	-57	-0.03		
-10	-20	-0.01		
0	10	0.01		
10	-8	0.00		
20	-28	-0.01		
30	6	0.00		
40	-24	-0.01		
50	13	0.01		

Remark : EUT could not be turned on at Temperature -30

▪ Test Mode : PCS1900 (EDGE) CH661

Temperature()	Change (Hz)	Change (ppm)	Limit (ppm)	Result
-30	N/A	N/A	2.5	Passed
-20	-24	-0.01		
-10	-18	-0.01		
0	-7	0.00		
10	-14	-0.01		
20	-12	-0.01		
30	8	0.00		
40	-33	-0.02		
50	-42	-0.02		

Remark : EUT could not be turned on at Temperature -30

4.8 Frequency Stability (Voltage Variation)

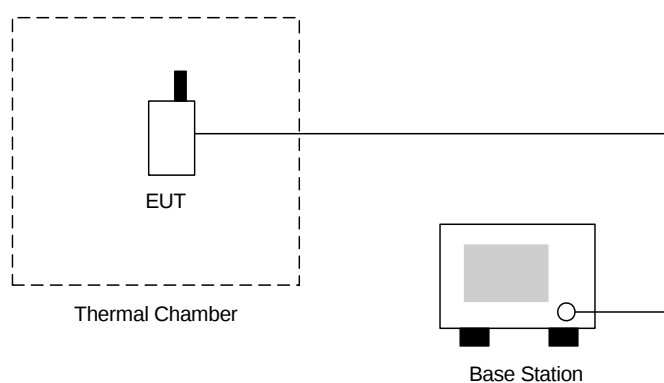
4.8.1 Measurement Instrument

As described in chapter 5 of this test report.

4.8.2 Test Procedure

1. The EUT was placed in a temperature chamber at $25 \pm 5^{\circ}\text{C}$ and connected as the following section.
2. The power supply voltage to the EUT was varied from BEP to 115% of the nominal value measured at the input to the EUT.
3. 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	-14.0	-0.02	2.5	Passed
BEP	18.0	0.02		
4.2	-10.0	-0.01		

- Test Mode : GSM850 (EDGE) CH189

Voltage(Volt)	Change (Hz)	Change (ppm)	Limit (ppm)	Result
3.7	22.0	0.03	2.5	Passed
BEP	-18.0	-0.02		
4.2	23.0	0.03		

- Test Mode : PCS1900 (GSM) CH661

Voltage(Volt)	Change (Hz)	Change (ppm)	Limit (ppm)	Result
3.7	-26.0	-0.01	2.5	Passed
BEP	-14.0	-0.01		
4.2	-20.0	-0.01		

- Test Mode : PCS1900 (EDGE) CH661

Voltage(Volt)	Change (Hz)	Change (ppm)	Limit (ppm)	Result
3.7	-24.0	-0.01	2.5	Passed
BEP	12.0	0.01		
4.2	-31.0	-0.02		

Remark:

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

5 List of Measurement Equipments

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Due Date	Remark
Spectrum analyzer	Agilent	E4408B	MY44211030	9KHz-26.5GHz	Oct. 05, 2006	Oct. 04, 2007	Radiation (03CH06-HY)
EMI Test Receiver	R&S	ESCS30	100356	9KHz-2.75GHz	Jul. 26, 2007	Jul. 25, 2008	Radiation (03CH06-HY)
Bilog Antenna	SCHAFFNER	CBL6112B	2885	30MHz -2GHz	Nov. 20, 2006	Nov. 19, 2007	Radiation (03CH06-HY)
Double Ridge Horn Antenna	Com-Power	AH118	071025	1G~18G	Jun. 04, 2007	Jun. 03, 2008	Radiation (03CH06-HY)
SHF-EHF Horn	SCHWARZBECK	BBHA 9170	9170-249	14G - 40G	Nov. 20, 2006	Nov. 19, 2008	Radiation (03CH06-HY)
Pre Amplifier	Agilent	8449B	3008A01917	1G - 26.5G	Nov. 15, 2006	Nov. 14, 2007	Radiation (03CH06-HY)
Pre Amplifier	Mini Circuits	ZKL-2	D092004-1	10~2500MHz	Nov. 15, 2006	Nov. 14, 2007	Radiation (03CH06-HY)
Base Station Simulator	R & S	CMU200	106656	WCDMA	Nov. 20, 2006	Nov. 19, 2007	Radiation (03CH06-HY)
Thermal Chamber	Ten Million	TTH-D35P	TBN-930701	N/A	Jul. 24, 2006	Jul. 23, 2007	TH02-HY
Spectrum	R&S	FSP40	100055	9KHz~40GHz	Jun. 25, 2007	Jun. 24, 2008	TH02-HY
Bluetooth Test	ANRITSU	MT8852A	6K00003939	N/A	N/A	N/A	TH02-HY
POWER DIVIDER	ARRA	5200-1	3871	N/A	Oct. 07, 2006	Oct. 06, 2007	TH02-HY
DC POWER SUPPLY	TOPWARD	3303D	740889	N/A	May 25, 2005	May 24, 2009	TH02-HY
Power Meter	Agilent	E4416A	GB41292344	N/A	Feb. 08, 2007	Feb. 07, 2008	TH02-HY
Power Sensor	Agilent	E9327A	US40441548	N/A	Feb. 08, 2007	Feb. 07, 2008	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 = $20 \log(1 - \Gamma_1 * \Gamma_2 * \Gamma_3)$	+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