

FCC TEST REPORT

for

47 CFR Part 22H and 24E

Equipment : **Wireless Point-of-Sale Terminal**
Model No. : **OMNI 3750**
FCC ID : **B32OMNI 3750G**
Filing Type : **Certification**
Applicant : **VeriFone Systems Pte., Ltd. Taiwan Branch**
2F, 19-2, Sanchung Road, Nankang Dist.,
Taipei, Taiwan 115, R.O.C.

- 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.
- **Certificate or Test Report must not be used by the applicant to claim the product in this test report endorsement by NVLAP or any agency of U.S. government.**

SPORTON International Inc.

6F, No.106, Sec. 1, Hsin Tai Wu Rd., Hsi Chih, Taipei Hsien, Taiwan, R.O.C.

The applicant has been cautioned as to the following:

15.21 Information to User.

The users manual or instruction manual for an intentional radiator shall caution the user that changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

15.27(a) Special Accessories.

Equipment marketed to a consumer must be capable of complying with the necessary regulations in the configuration in which the equipment is marketed. Where special accessories, such as shielded cables and/or special connectors are required to enable an unintentional or intentional radiator to comply with the emission limits in this part, the equipment must be marketed with, i.e. shipped and sold with, those special accessories. However, in lieu of shipping or packaging the special accessories with the unintentional or intentional radiator, the responsible party may employ other methods of ensuring that the special accessories are provided to the consumer, without additional charge.

Information detailing any alternative method used to supply the special accessories for a grant of equipment authorization or retained in the verification records, as appropriate. The party responsible for the equipment, as detailed in § 2.909 of this chapter, shall ensure that these special accessories are provided with the equipment. The instruction manual for such devices shall include appropriate instructions on the first page of text concerned with the installation of the device that these special accessories must be used with the device. It is the responsibility of the user to use the needed special accessories supplied with the equipment.

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Required information per ISO/IEC Guide 25-1990, paragraph 13.2:

a) **Test Report**

b) Laboratory: Sporton International Inc.
No.52, Hwa-Ya 1st RD., Hwa Ya Technology Park, Kwei-Shan Hsiang,
TaoYuan Hsien, Taiwan, R.O.C.

c) Report Number: F441316

d) Client: **VeriFone Systems Ptd., Ltd. Taiwan Branch**
2F, 19-2, Sanchung Road, Nankang Dist., Taipei, Taiwan 115, R.O.C.

e) Identification: Model Name: OMNI 3750
FCC ID : B32OMNI 3750G
Description: GSM/GPRS 850/1900 Radio

f) EUT Condition: Not required unless specified in individual tests.

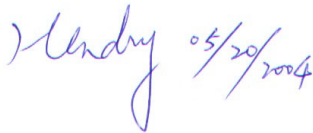
g) Report Date: May 20, 2004
EUT Received: May 07, 2004

h, j, k): As indicated in individual tests.

i) Sampling method: No sampling procedure used.

l) Uncertainty: In accordance with Sporton internal quality manual.

m) Supervised by:



Hendry Yang

n) Results: The results presented in this report relate only to the item tested.

o) Reproduction: This report must not be reproduced, except in full, without written permission from this laboratory.

Accessories Used During Testing:

Type	Model
EUT	OMNI 3750
RJ-11	N/A
RJ-232	N/A
Base Station Simulator	CMU200
Base Station Simulator	E5515C

List of General Information Required for Certification

In Accordance with FCC Rules and Regulations,
Volume II, Part 2 and
22H, 24E, Confidentiality

Sub-Part 2.1033

(c)(1): **Name and Address of Applicant:**

VeriFone Systems Ptd., Ltd. Taiwan Branch
2F, 19-2, Sanchung Road, Nankang Dist., Taipei,
Taiwan 115, R.O.C.

Manufacturer

As above

(c)(2): **FCC ID:** B32OMNI 3750G

Model Number: OMNI 3750

(c)(3): **Instruction Manual(s):**

Please See Attached Exhibits

(c)(4): **Type of Emission:** 300KGXW

(c)(5): **FREQUENCY RANGE, MHz:** 824.2 to 848.8 GSM/GPRS 850
1850.2 to 1909.8 GSM/GPRS 1900

(c)(6): Power Rating, Watts:	GSM 850:	1.737801	(conducted) /	0.542	(ERP)
	PCS 1900:	1.023293	(conducted) /	1.050	(EIRP)
	Switchable	x	Variable		N/A

(c)(7): **Maximum Power Rating, Watts:** 2 GSM 850
1 PCS 1900

Subpart 2.1033 (continued)

(c)(8): Voltages & Currents in All Elements in Final RF Stage, Including Final Transistor or Solid State Device:

Collector Current, A = 0.5
Collector Voltage, Vdc = 24.0
Supply Voltage, Vdc = 24.0

(c)(9): **Tune-Up Procedure:**

Please See Attached Exhibits

(c)(10): **Circuit Diagram/Circuit Description:**

Please See Attached Exhibits

(c)(11): **Label Information:**

Please See Attached Exhibits

(c)(12): **Photographs:**

Please See Attached Exhibits

(c)(13): **Digital Modulation Description:**

Attached Exhibits
 N/A

(c)(14): **Test and Measurement Data:**

Follows

**Testimonial
and
Statement of Certification**

This is to certify that:

1. **That** the application was prepared either by, or under the direct supervision of, the undersigned.
2. **That** the technical data supplied with the application was taken under my direction and supervision.
3. **That** the data was obtained on representative units, randomly selected.
4. **That**, to the best of my knowledge and belief, the facts set forth in the application and accompanying technical data are true and correct.

Certified by:

Daniel Lee 5/20/2004

Daniel Lee

Certificate of NVLAP Accreditation

United States Department of Commerce
National Institute of Standards and Technology

NVLAP[®]

ISO/IEC 17025:1999
ISO 9002:1994

Certificate of Accreditation



SPORTON INTERNATIONAL, INC.
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all requirements of ISO/IEC 17025:1999, and relevant requirements of ISO 9002:1994.
Accreditation is awarded for specific services, listed on the Scope of Accreditation, for:*

ELECTROMAGNETIC COMPATIBILITY AND TELECOMMUNICATIONS

December 31, 2004

Effective through


For the National Institute of Standards and Technology
NVLAP Lab Code: 200079-0

NVLAP-01C (06-01)

Sub-part

2.1033(c)(14): Test and Measurement Data

All tests and measurement data shown were performed in accordance with FCC Rules and Regulations, Volume II; Part 2, Sub-part J, Sections 2.947, 2.1033(c), 2.1041, 2.1046, 2.1047, 2.1079, 2.1051, 2.1053, 2.1055, 2.1057 and the following individual Parts:

- 22 – Public Mobile Services
- x 22 Subpart H - Cellular Radiotelephone Service
 - 22.901(d) - Alternative technologies and auxiliary services
- x 24 – Personal Communications Services

General Information

Product Feature & Specification	
DUT Type	Wireless Point-of-Sale Terminal
Model Name	OMNI 3750
Tx Frequency	GSM 850: 824 MHz~849 MHz GSM 1900: 1850 MHz~1910 MHz
Rx Frequency	GSM 850: 869 MHz~894 MHz GSM 1900: 1930 MHz~1990 MHz
Channel Spacing	200 kHz
Maximum Output Power to Antenna	GSM850: 32.4 dBm GSM1900: 30.1 dBm
Temperature Range (Operating)	0~40°C
DC Voltages	DC 24V, 1.7A max
Antenna Size	108.45mm * 9.35mm
Antenna Gain for each band (850/1900)	Average -1 to 1 dBi/ Peak +2 to +4 dBi
Type of Modulation	GMSK
DUT Stage	Production Unit
Application Type	Certification

**Standard Test Conditions
and
Engineering Practices**

Except as noted herein, the following conditions and procedures were observed during the testing:

In accordance with TIA603, and unless otherwise indicated in the specific measurement results, the ambient temperature of the actual EUT was maintained within the range of 10° to 40°C (50° to 104 °F) unless the particular equipment requirements specify testing over a different temperature range. Also, unless otherwise indicated, the humidity levels were in the range of 10% to 90% relative humidity.

Prior to testing, the EUT was tuned up in accordance with the manufacturer's alignment procedures. All external gain controls were maintained at the position of maximum and/or optimum gain throughout the testing.

Measurement results, unless otherwise noted, are worst-case measurements.

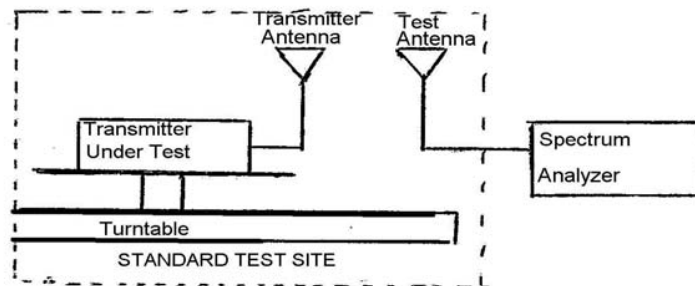
Name of Test: EIRP Carrier Power (Radiated)

Specification: TIA/EIA 603A (Substitution Method)

Definition: The average radiated power of device is the equivalent power required, when delivered to a substitution antenna, to produce at a distant point the same average received power as produced by the licensed device.

Method Of Measurement:

a) Connect the equipment as illustrated. Place the transmitter to be tested on the turntable in the standard test site.



b) Raise and lower the test antenna from 1m to 4m and rotate turntable from 0° to 360°. Record the highest received signal showed in spectrum analyzer as R_t . Calculate electric field strength in receive antenna as E_t .

$$E_t = R_t + AF$$

AF (dB/m): Receive Antenna Factor

c) Replace the transmitter under test with a substitution antenna. The center of the antenna should be at the same location as the transmitter under test. Connect the antenna to a signal generator with a known output power level P_s . Raise and lower the test antenna like in step b) and record the highest received signal showed in spectrum analyzer as R_s . Calculate electric field strength in receive antenna as E_s .

$$E_s = R_s + AF$$

AF (dB/m): Receive Antenna Factor

d) Calculate radiated power as following:

$$EIRP = P_s + E_t - E_s + G_s$$

P_s (dBm): Input Power to Substitution Antenna

G_s (dBi) : Substitution Antenna Gain

Results Attached

Tim Kao

Tested By:

Tim Kao

FCC TEST REPORT

Report No. : F441316

Test Results For: ERP/EIRP Carrier Power (Radiated)**Conducted Power**

GSM 850

Bands	Channel	Frequency (MHz)	Conducted Power (dBm)	Conducted Power (Watts)
GSM 850	128	824.2 (Low)	31.8	1.513561
	189	836.4 (Mid)	32.3	1.698244
	251	848.8 (High)	32.4	1.737801

PCS 1900

Bands	Channel	Frequency (MHz)	Conducted Power (dBm)	Conducted Power (Watts)
PCS 1900	512	1850.2 (Low)	30.1	1.023293
	661	1880.0 (Mid)	29.9	0.977237
	810	1909.8 (High)	29.7	0.933254

ERP/EIRP

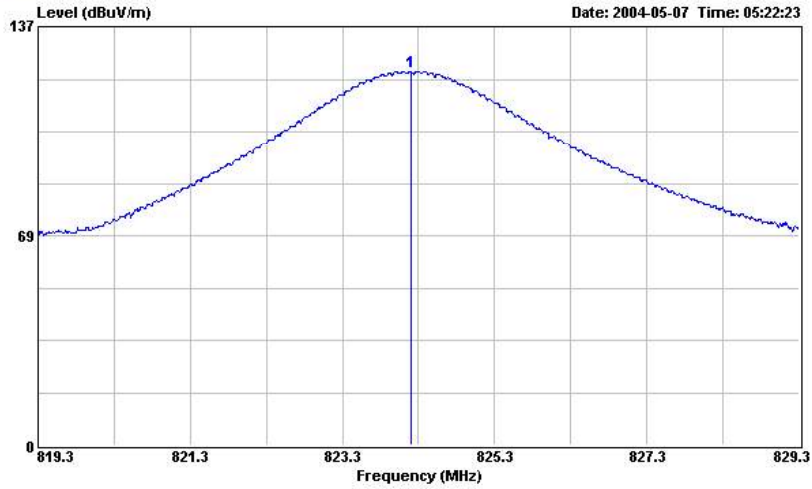
GSM 850 ERP

Freq MHz	Pol	Substitution Antenna Input Power (dBm)	Substitution Antenna Gain (dBd)	Et (dBuV/m)	Es (dBuV/m)	Et - Es (dB)	Radiated Power (dBm)	Radiated Power (Watts)
824.20	H	-2.49	-1.62	122.52	93.63	28.89	24.79	0.301
836.46	H	-2.49	-1.54	123.33	93.86	29.47	25.45	0.351
848.90	H	-2.48	-1.46	125.37	94.09	31.28	27.34	0.542
824.17	V	-2.49	-1.62	111.56	93.63	17.93	13.83	0.024
836.35	V	-2.49	-1.54	111.15	93.85	17.30	13.27	0.021
848.82	V	-2.48	-1.46	111.37	94.09	17.28	13.34	0.022

PCS 1900 EIRP

Freq MHz	Pol	Substitution Antenna Input Power (dBm)	Substitution Antenna Gain (dBi)	Et (dBuV/m)	Es (dBuV/m)	Et - Es (dB)	Radiated Power (dBm)	Radiated Power (Watts)
1850.15	H	-3.76	6.64	128.04	101.70	26.34	29.23	0.837
1879.95	H	-3.78	6.65	128.98	101.64	27.34	30.21	1.050
1909.83	H	-3.81	6.66	128.27	101.58	26.69	29.54	0.900
1850.15	V	-3.76	6.64	118.97	101.70	17.27	20.16	0.104
1850.15	V	-3.76	6.64	118.97	101.70	17.27	20.16	0.104
1909.87	V	-3.81	6.66	118.13	101.58	16.55	19.40	0.087

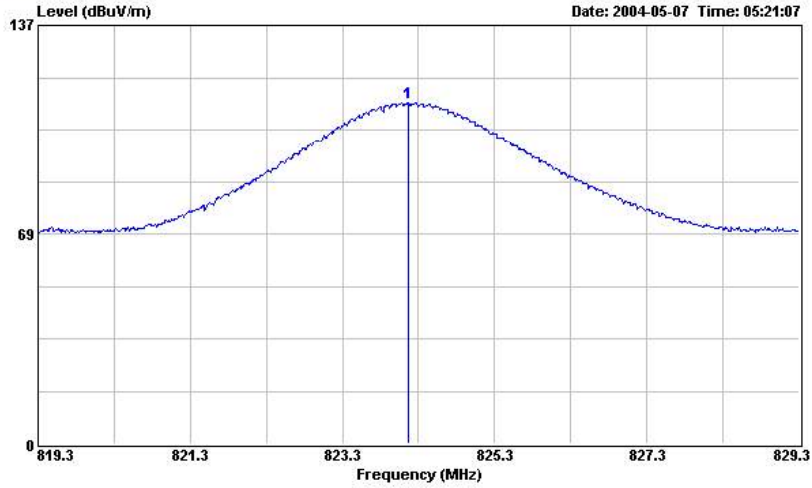
GSM 850 CH128 Horizontal Polarization



Site : 03CH03-HY
 Condition : 3m LOG-9111-221 HORIZONTAL
 EUT :
 Power : 120V/60Hz
 Model :
 Memo : GSM 850MHz (CH 128)

1	Freq	Level	Over	Limit	Line	Read	Probe	Cable	Preamp	Remark	Ant	Table
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB	dB		cm	deg
1	824.200	122.52	-----	-----	96.75	20.62	5.15	0.00	0.00	Peak	---	---

GSM 850 CH128 Vertical Polarization



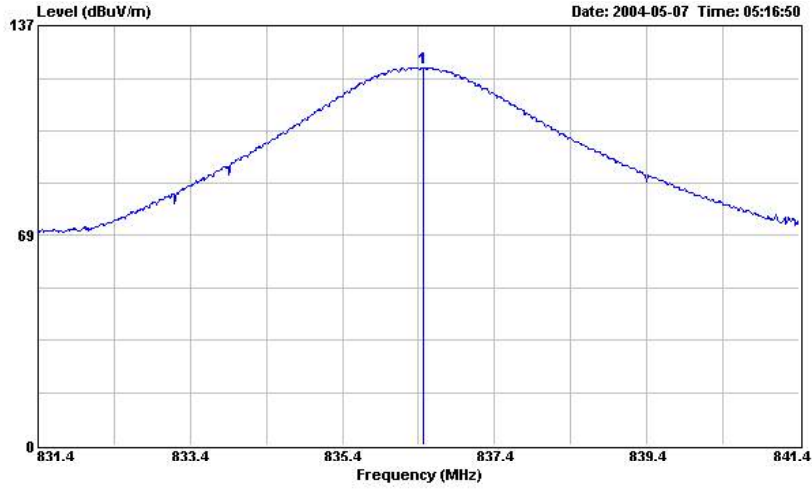
Site : 03CH03-HY
 Condition : 3m LOG-9111-221 VERTICAL
 EUT :
 Power : 120V/60Hz
 Model :
 Memo : GSM 850MHz (CH 128)

1	Freq	Level	Over	Limit	Line	Read	Probe	Cable	Preamp	Remark	Ant	Table
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB	dB		cm	deg
1	824.170	111.56	-----	-----	85.79	20.62	5.15	0.00	0.00	Peak	---	---

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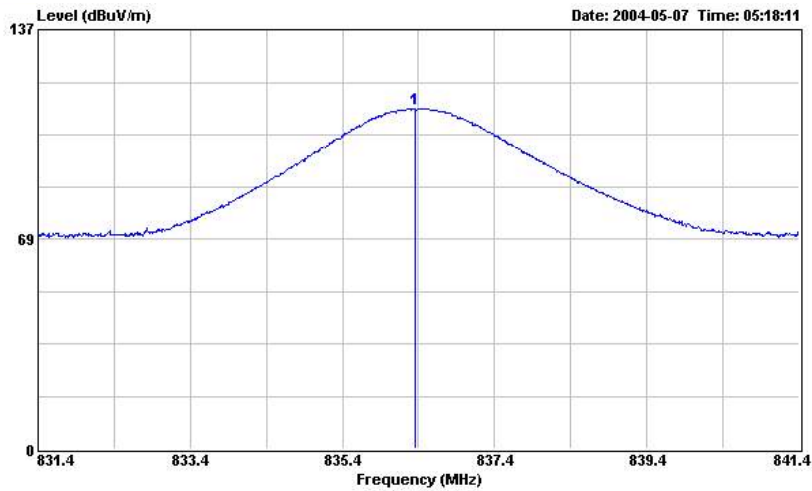
GSM 850 CH189 Horizontal Polarization



Site : 03CH03-HY
 Condition : 3m LOG-9111-221 HORIZONTAL
 EUT :
 Power : 120V/60Hz
 Model :
 Memo : GSM 850MHz (CH 189)

1	Freq MHz	Level dBuV/m	Over Limit dB	Limit Line dBuV/m	Read Level dBuV	Probe Factor dB	Cable Loss dB	Preamp Factor dB	Remark	Ant Pos cm	Table Pos deg
1	836.460	123.33	-----	-----	97.33	20.74	5.26	0.00	Peak	---	---

GSM 850 CH189 Vertical Polarization



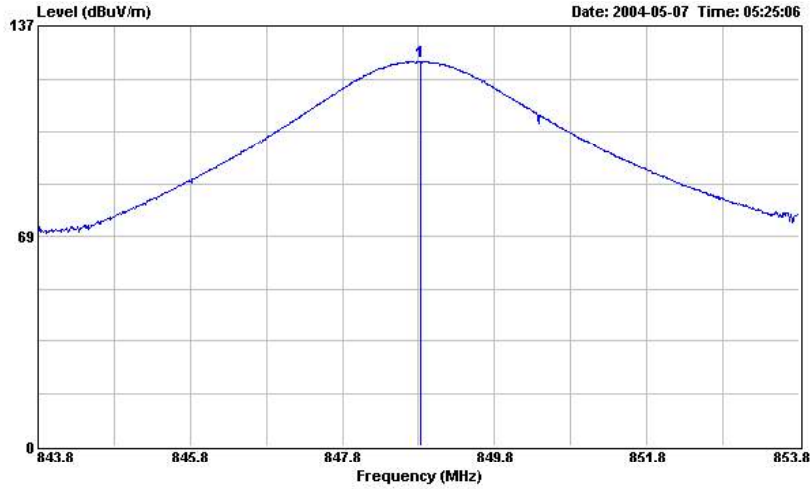
Site : 03CH03-HY
 Condition : 3m LOG-9111-221 VERTICAL
 EUT :
 Power : 120V/60Hz
 Model :
 Memo : GSM 850MHz (CH 189)

1	Freq MHz	Level dBuV/m	Over Limit dB	Limit Line dBuV/m	Read Level dBuV	Probe Factor dB	Cable Loss dB	Preamp Factor dB	Remark	Ant Pos cm	Table Pos deg
1	836.350	111.15	-----	-----	85.15	20.74	5.26	0.00	Peak	---	---

FCC TEST REPORT

Report No. : F441316

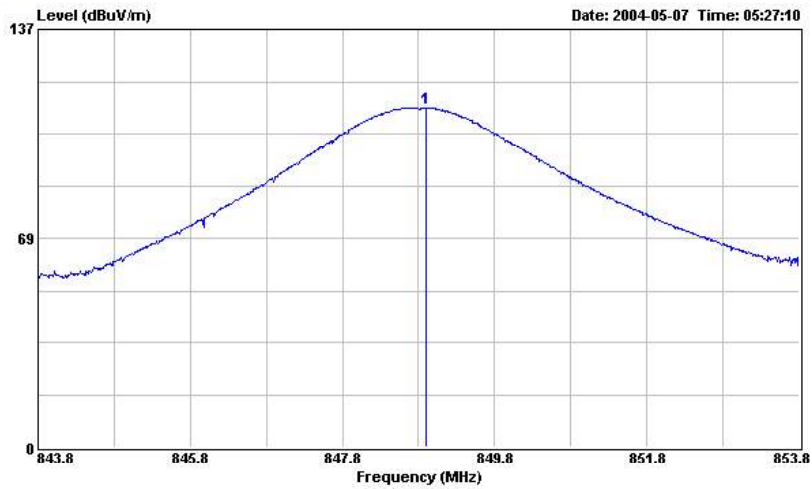
GSM 850 CH251 Horizontal Polarization



Site : 03CH03-HY
 Condition : 3m LOG-9111-221 HORIZONTAL
 EUT :
 Power : 120V/60Hz
 Model :
 Memo : GSM 850MHz (CH 251)

Over	Limit	Read	Probe	Cable	Preamp	Ant	Table			
Level	Line	Level	Factor	Loss	Factor	Pos	Pos			
dB	dBuV/m	dBuV	dB	dB	dB	cm	deg			
1	848.820	125.33	-----	99.21	20.86	5.26	0.00	Peak	---	---

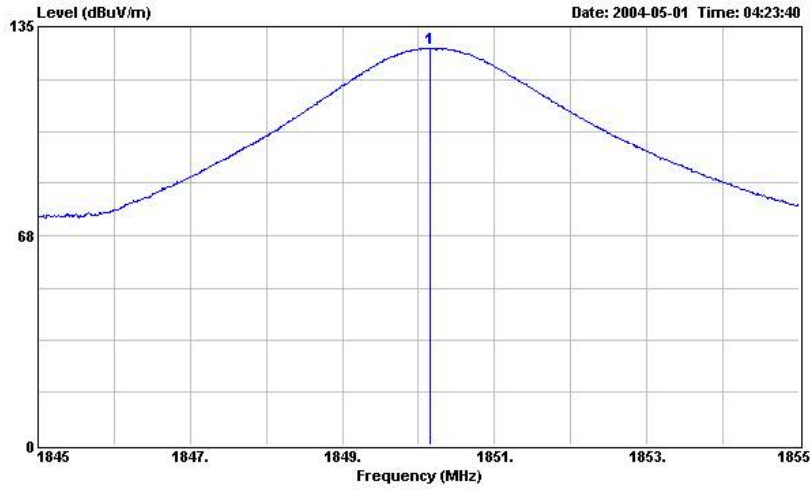
GSM 850 CH251 Vertical Polarization



Site : 03CH03-HY
 Condition : 3m LOG-9111-221 VERTICAL
 EUT :
 Power : 120V/60Hz
 Model :
 Memo : GSM 850MHz (CH 251)

Over	Limit	Read	Probe	Cable	Preamp	Ant	Table			
Level	Line	Level	Factor	Loss	Factor	Pos	Pos			
dB	dBuV/m	dBuV	dB	dB	dB	cm	deg			
1	848.900	111.37	-----	85.25	20.86	5.26	0.00	Peak	---	---

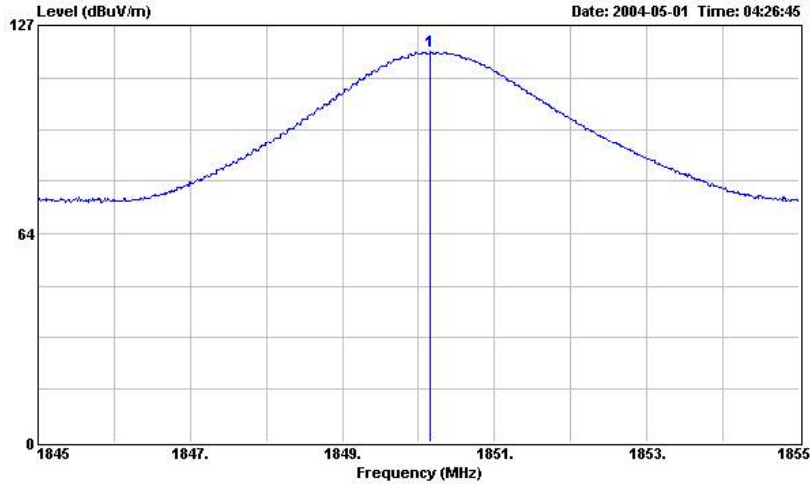
PCS 1900 CH512 Horizontal Polarization



Site : 03CH03-HY
 Condition : 3m HORN-ANT-6741 HORIZONTAL
 EUT :
 Power : 120V/60Hz
 Model :
 Memo : PCS CH 512

Freq	Level	Over	Limit	Read	Probe	Cable	Preamp	Remark	Ant	Table
MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1 1850.150	128.04	-----	-----	99.62	26.77	1.65	0.00	Peak	---	---

PCS 1900 CH512 Vertical Polarization



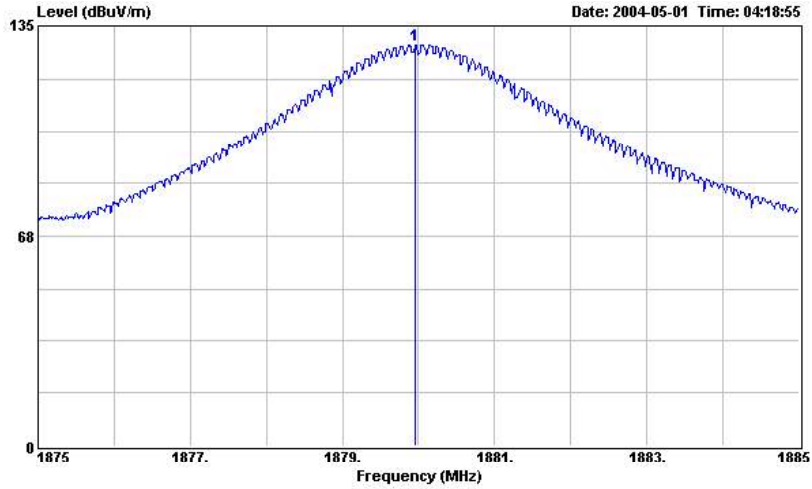
Site : 03CH03-HY
 Condition : 3m HORN-ANT-6741 VERTICAL
 EUT :
 Power : 120V/60Hz
 Model :
 Memo : PCS CH 512

Freq	Level	Over	Limit	Read	Probe	Cable	Preamp	Remark	Ant	Table
MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1 1850.150	118.97	-----	-----	90.55	26.77	1.65	0.00	Peak	---	---

FCC TEST REPORT

Report No. : F441316

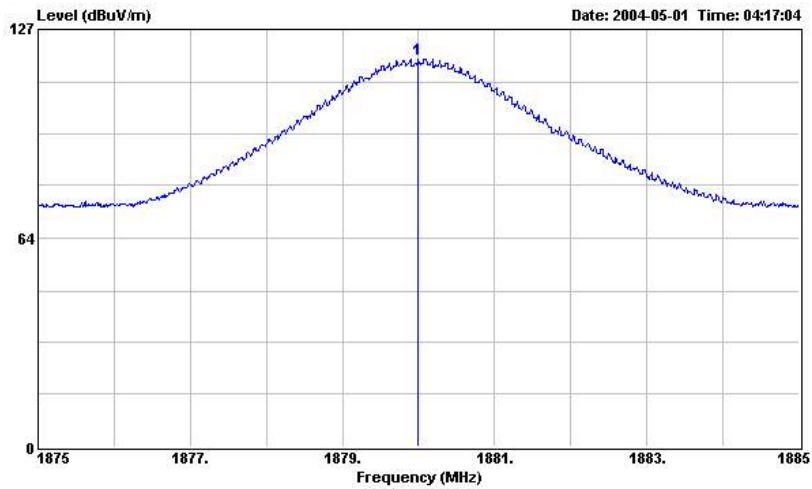
PCS 1900 CH661 Horizontal Polarization



Site : 03CH03-HY
 Condition : 3m HORN-ANT-6741 HORIZONTAL
 EUT :
 Power : 120V/60Hz
 Model :
 Memo : PCS CH 661

Freq	Level	Over	Limit	Read	Probe	Cable	Preamp	Remark	Ant	Table
MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1 1879.950	128.98	-----	-----	100.48	26.91	1.59	0.00	Peak	---	---

PCS 1900 CH661 Vertical Polarization



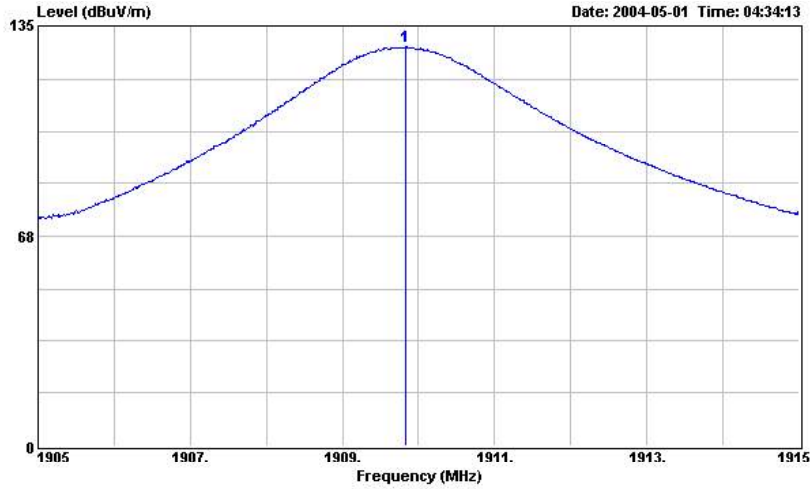
Site : 03CH03-HY
 Condition : 3m HORN-ANT-6741 VERTICAL
 EUT :
 Power : 120V/60Hz
 Model :
 Memo : PCS CH 661

Freq	Level	Over	Limit	Read	Probe	Cable	Preamp	Remark	Ant	Table
MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1 1879.990	117.94	-----	-----	89.44	26.91	1.59	0.00	Peak	---	---

FCC TEST REPORT

Report No. : F441316

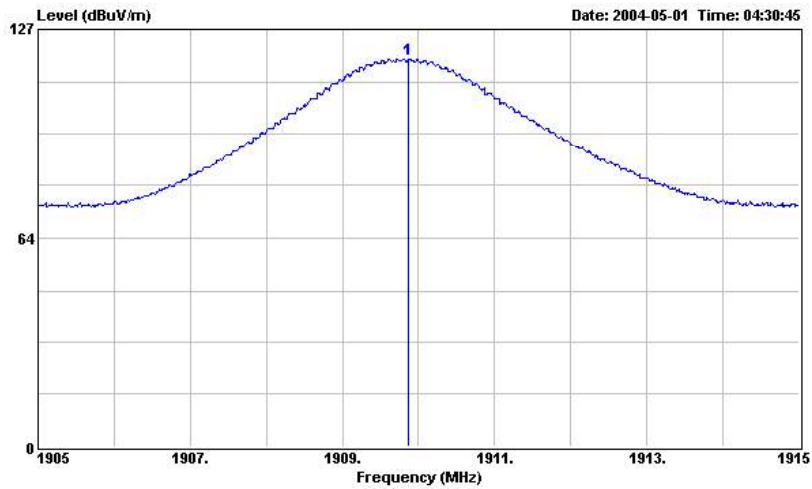
PCS 1900 CH810 Horizontal Polarization



Site : 03CH03-HY
 Condition : 3m HORN-ANT-6741 HORIZONTAL
 EUT :
 Power : 120V/60Hz
 Model :
 Memo : PCS CH 810

1	Freq MHz	Level dBuV/m	Over Limit dB	Limit Line dBuV/m	Read Level dBuV	Probe Factor dB	Cable Loss dB	Preamp Factor dB	Remark	Ant Pos cm	Table Pos deg
1	1909.830	128.27	-----	-----	99.63	27.05	1.59	0.00	Peak	---	---

PCS 1900 CH810 Vertical Polarization



Site : 03CH03-HY
 Condition : 3m HORN-ANT-6741 VERTICAL
 EUT :
 Power : 120V/60Hz
 Model :
 Memo : PCS CH 810

1	Freq MHz	Level dBuV/m	Over Limit dB	Limit Line dBuV/m	Read Level dBuV	Probe Factor dB	Cable Loss dB	Preamp Factor dB	Remark	Ant Pos cm	Table Pos deg
1	1909.870	118.13	-----	-----	89.49	27.05	1.59	0.00	Peak	---	---

Name of Test: Emission Masks (Occupied Bandwidth)

Specification: 47 CFR 2.1049(c)(1), 22

Test Equipment: As per attached page

Measurement Procedure

1. The EUT and test equipment were set up as shown on the following page with the Spectrum Analyzer connected.
2. For EUTs supporting digital modulation, the digital modulation mode was operated to its maximum extent.
3. The occupied bandwidth was measured with the Spetrum Analyzer controls set as shown on the test results.
4. Measurement Results: Attached

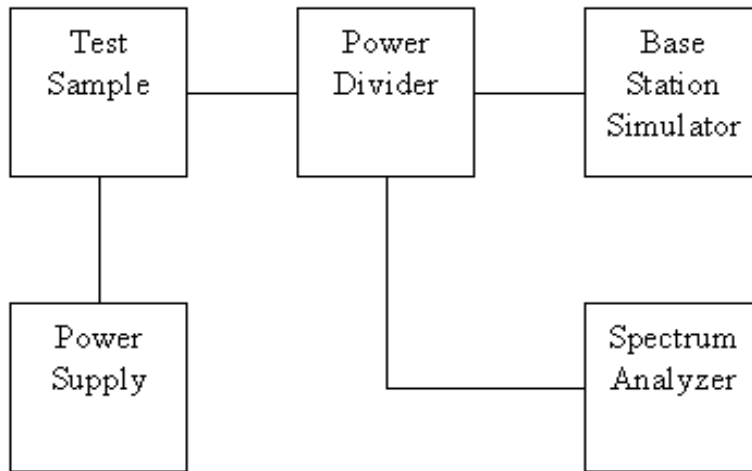
Tested By:



Tim Kao

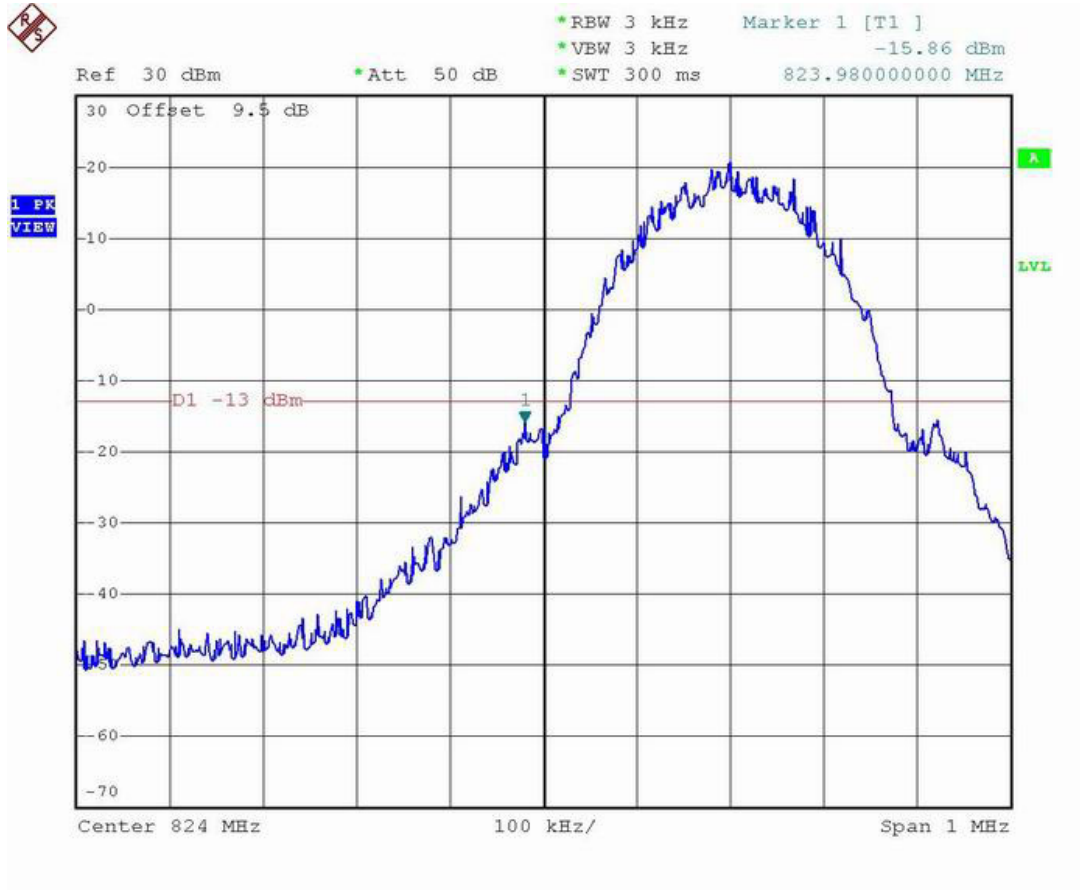
Transmitter Spurious Emission

Test A. Occupied Bandwidth (In-Band Spurious)
Test B. Out-of-Band Spurious



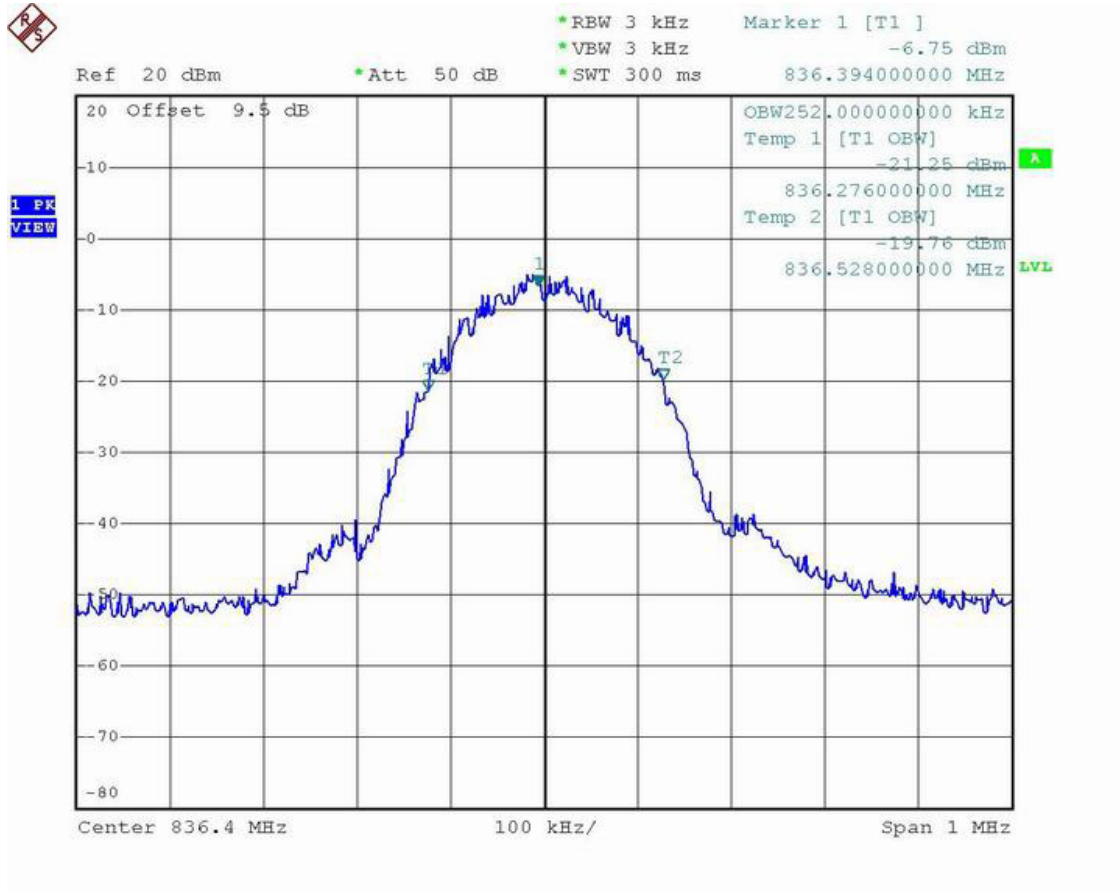
Asset	Model Name	S/N
Base Station Simulator	CMU200	102278
Base Station Simulator	E5515C	GB43460754
Spectrum Analyzer	FSP30	838858/014
AC/DC Power Source	HPA-500W	HPA0100024

Name of Test: Emission Masks (Occupied Bandwidth)
 State 2:High Power



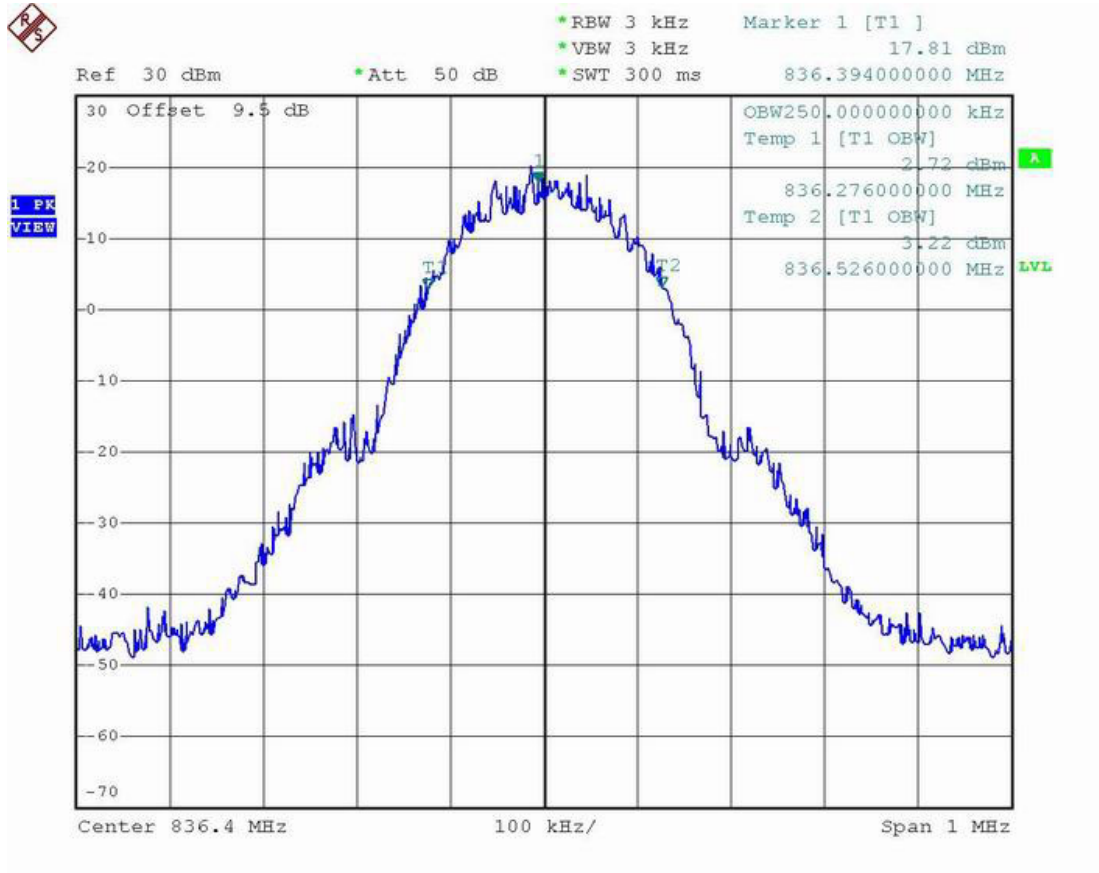
Power: HIGH
 Modulation: GSM 850
 LOWER BAND EDGE

Name of Test: Emission Masks (Occupied Bandwidth)
 State 1:Low Power



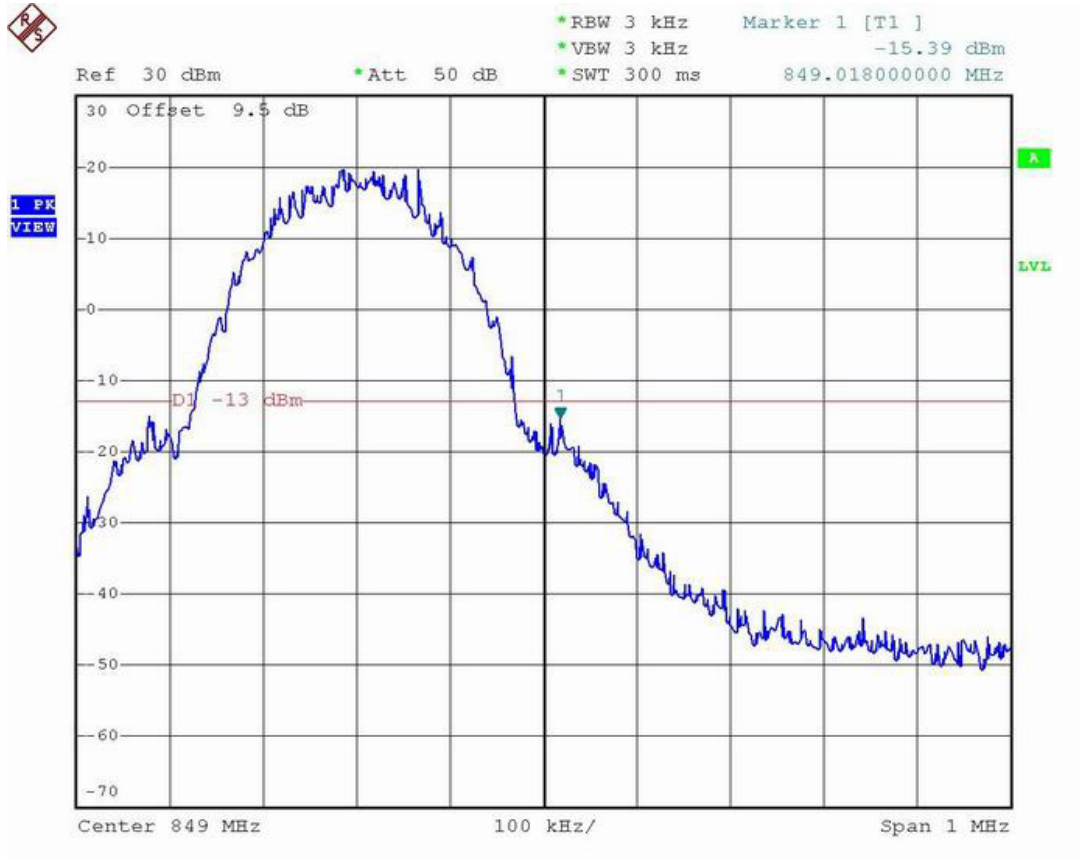
Power: LOW
 Modulation: GSM 850
 99% BANDWIDTH

Name of Test: Emission Masks (Occupied Bandwidth)
State 2:High Power



Power: HIGH
Modulation: GSM 850
99% BANDWIDTH

Name of Test: Emission Masks (Occupied Bandwidth)
State 2:High Power



Power: HIGH
Modulation: GSM 850
UPPER BAND EDGE

Name of Test: Transmitter Conducted Measurements

Specification: 47 CFR 2.1051: Unwanted (spurious) Emissions
2.1049(c), 24.238(b): Occupied Bandwidth
24: Emissions at Band Edges

Test Equipment: As per attached page

Measurement Procedure

1. The EUT and test equipment were set up as shown on the following page with the Spectrum Analyzer connected.
2. The low and high channels for all RF powers within the Transmitting frequency band were measured.
3. Measurement Results: Attached

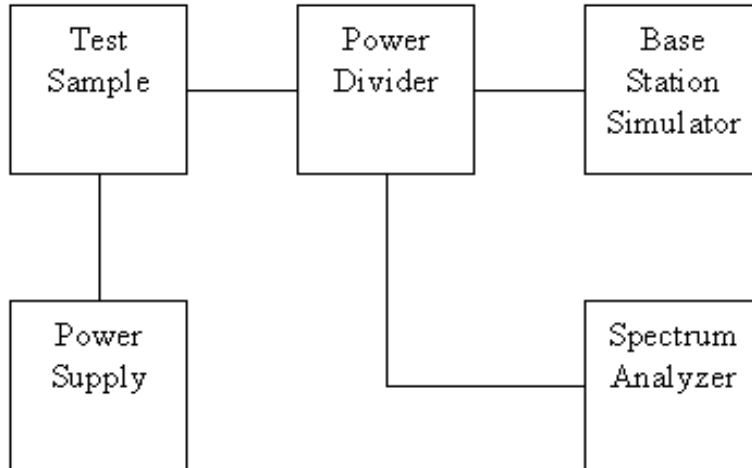


Tested By:

Tim Kao

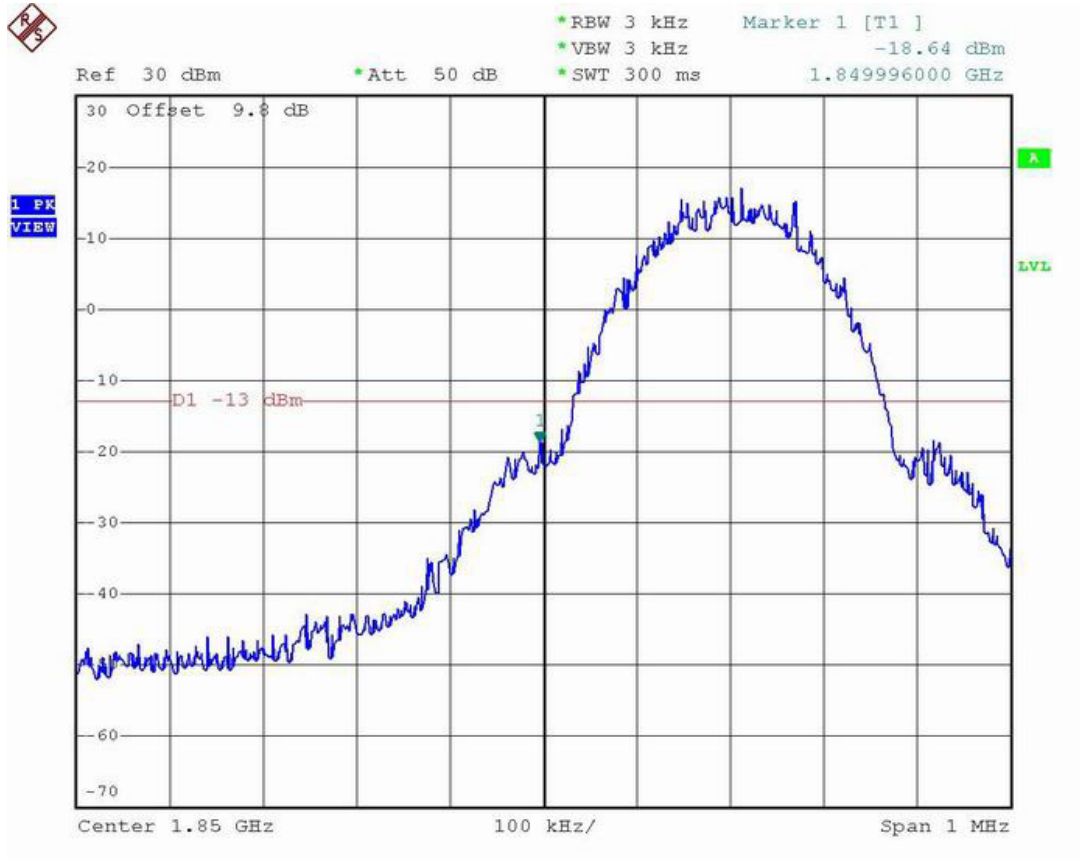
Transmitter Spurious Emission

Test A. Occupied Bandwidth (In-Band Spurious)
Test B. Out-of-Band Spurious



Asset	Model Name	S/N
Base Station Simulator	CMU200	102278
Base Station Simulator	E5515C	GB43460754
Spectrum Analyzer	FSP30	838858/014
AC/DC Power Source	HPA-500W	HPA0100024

Name of Test: Emission Masks (Occupied Bandwidth)
State 2:High Power



Power: HIGH
Modulation: PCS 1900
LOWER BAND EDGE