

# Partial FCC Test Report

APPLICANT : Acer Inc.  
EQUIPMENT : 3G Module  
BRAND NAME : Acer, Gateway, PackardBell  
MODEL NAME : Gobi2000  
FCC ID : HLZGOBI2000A  
STANDARD : 47 CFR Part 2, 22(H), 24(E)  
CLASSIFICATION : PCS Licensed Transmitter (PCB)  
Tx/Rx FREQUENCY RANGE : GSM850 : 824.2 ~ 848.8 MHz /  
869.2 ~ 893.8 MHz  
GSM1900 : 1850.2 ~ 1909.8 MHz /  
1930.2 ~ 1989.8 MHz  
WCDMA Band V : 826.4 ~ 846.6 MHz /  
871.4 ~ 891.6 MHz  
WCDMA Band II : 1852.4 ~ 1907.6 MHz /  
1932.4 ~ 1987.6 MHz  
MAX. ERP/EIRP POWER : GSM850 (GPRS 8) : 0.36 W  
GSM850 (EDGE 8) : 0.11 W  
GSM1900 (GPRS 8) : 1.32 W  
GSM1900 (EDGE 8) : 0.65 W  
WCDMA Band V (WCDMA) : 0.08 W  
WCDMA Band II (WCDMA) : 0.51 W

This is a partial report which is only valid combined with the Integrated WWAN Module (brand name: Qualcomm / model name: Gobi 2000, FCC ID: J9CGOBI2000) Report.

The product sample received on May 18, 2009 and completely tested on May 24, 2009. We, SPORTON INTERNATIONAL INC., would like to declare that the tested sample has been evaluated in accordance with the procedures given in ANSI C63.4-2003 and shown compliance with the applicable technical standards.

The EUT was installed into Acer laptop computer (brand name: Acer, Gateway, PackardBell, model name: ZA3, marketing name: Aspire one, AO751) during test.

The test results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC., the test report shall not be reproduced except in full.

Reviewed by:



Roy Wu / Manager



## SPORTON INTERNATIONAL INC.

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SPORTON INTERNATIONAL INC.

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FCC ID : HLZGOBI2000A

Page Number : 1 of 35

Report Issued Date : Jun. 29, 2009

Report Version : Rev. 02



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### SUMMARY OF TEST RESULT

Report Section	FCC Rule	IC Rule	Description	Limit	Result
3.1	§22.913(a)(2)	RSS-132(4.4) SRSP-503(5.1.3)	Effective Radiated Power	< 7 Watts for FCC (<6.3 Watts for IC)	PASS
3.2	§24.232(c)	RSS-133 (6.4) SRSP-510(5.1.2)	Equivalent Isotropic Radiated Power	< 2 Watts	PASS
3.2	§2.1053 §22.917(a) §24.238(a)	RSS-132 (4.5.1) RSS-133 (6.5.1)	Field Strength of Spurious Radiation	< 43+10log <sub>10</sub> (P[Watts])	PASS

# 1 General Description

## 1.1 Applicant

**Acer Inc.**

8F., No. 88, Sec. 1, Hsin Tai Wu Rd., Hsichih Taipei Hsien 221 Taiwan, R.O.C.

## 1.2 Manufacturer

**Quanta Computer Inc.**

1. No. 2, Lane 58, Sanzhuang Road, Songjiang Export Processing Zone, Shanghai, P.R. China
2. No. 4, Wen Ming 1st Street, Kuei Shan Hsiang, Taoyuan Shien 333, Taiwan, R.O.C.
3. No. 8, Dongjing Rd., Songjiang Industrial Zone, Shanghai, P.R. China
4. No. 4, Lane 58 Sanzhuang Road, Songjiang Export Processing Zone, Shanghai, P.R. China
5. North to Songsheng. Road, Songjiang Industrial Zone, Shanghai, P.R. China
6. B#, No. 1 South Rongteng Road, Songjiang Export Processing Zone, Shanghai, P.R. China
7. Standard Factory, South to Valqua, Rongxin Road, Songjiang Export Processing Zone, Shanghai, P.R. China
8. C#, No. 1 South Rongteng Road, Songhjang Export Processing Zone, Shanghai, P.R. China
9. No. 6, Lane 66 Sanzhuang Road, Songjiang Export Processing Zone, Shanghai, P.R. China
10. No. 6, Lane 58 Sanzhuang Road, Songjiang Export Processing Zone, Shanghai, P.R. China
11. Huade Building, No. 18 ChuangYe Rd., ShandDi Zone, HaiDian District, Beijing, P.R.C.
12. No. 68, Sanzhuang Road, Songjiang Export Processing Zone, Shanghai, P.R. China
13. 2F., C Building, XinYe Rd, Export Processing District In Torch, Zhongshan, Guangdong, P.R.C.

### 1.3 Feature of Equipment under Test

Product Feature & Specification	
Equipment	3G Module
Brand Name	Acer, Gateway, PackardBell
Model Name	Gobi2000
FCC ID	HLZGOBI2000A
Host Laptop Computer	Brand Name : Acer, Gateway, PackardBell Model Name : ZA3 Marketing Name : Aspire one, AO751
Tx Frequency	GSM850 : 824 MHz ~ 849 MHz GSM1900 : 1850 MHz ~ 1910 MHz WCDMA Band V : 824 MHz ~ 849 MHz WCDMA Band II : 1850 MHz ~ 1910 MHz
Rx Frequency	GSM850 : 869 MHz ~ 894 MHz GSM1900 : 1930 MHz ~ 1990 MHz WCDMA Band V : 869 MHz ~ 894 MHz WCDMA Band II : 1930 MHz ~ 1990 MHz
Maximum ERP/EIRP	GSM850 (GPRS 8) : 0.36 W (25.61 dBm) GSM850 (EDGE 8) : 0.11 W (20.59 dBm) GSM1900 (GPRS 8) : 1.32 W (31.21 dBm) GSM1900 (EDGE 8) : 0.65 W (28.15 dBm) WCDMA Band V (WCDMA) : 0.08 W (19.25 dBm) WCDMA Band II (WCDMA) : 0.51 W (27.07 dBm)
Antenna Type	PIFA Antenna
Module HW Version	P3 Rev C
Module SW Version	3574
Type of Modulation	GSM / GPRS : GMSK EDGE : 8PSK WCDMA : QPSK HSDPA : QPSK / 16QAM HSUPA : BPSK
EUT Stage	Production Unit

**Remark:** This test report recorded only product characteristics and test results of PCS Licensed Transmitter (PCB).

**Accessory of host laptop computer:**

Specification of Accessory		
<b>AC Adapter</b>	<b>Brand Name</b>	Hipro
	<b>Model Name</b>	HP-A0301R3
	<b>Power Rating</b>	I/P:100-240Vac, 50-60Hz, 1.0A; O/P: 19Vdc, 1.58A
	<b>AC Power Cord Type</b>	1.5 meter shielded cable without ferrite core
<b>Battery</b>	<b>Brand Name</b>	Sony
	<b>Model Name</b>	UM09A41
	<b>Power Rating</b>	11.1Vdc, 2200mAh
	<b>Type</b>	Li-ion
<b>WLAN Module</b>	<b>Brand Name</b>	Atheros
	<b>Model Name</b>	AR5BHB63

**Remark:**

1. The above host laptop computer's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.
2. For accessories equipped with this host laptop computer, please refer to the appendix of the external photo.

## 1.4 Testing Site

<b>Test Site</b>	SPORTON INTERNATIONAL INC.	
<b>Test Site Location</b>	No. 52, Hwa Ya 1 <sup>st</sup> Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C. TEL: +886-3-327-3456 FAX: +886-3-328-4978	
<b>Test Site No.</b>	<b>Sporton Site No.</b>	<b>FCC/IC Registration No.</b>
	03CH07-HY	TW1022/4086B-1



### 1.5 Applied Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- ♦ Preliminary Guidance for Receiving Applications for Certification of 3G Device. May 9, 2006.
- ♦ 47 CFR Part 2, 22(H), 24(E)
- ♦ ANSI C63.4-2003
- ♦ ANSI / TIA / EIA-603-C-2004
- ♦ IC RSS-132 Issue 2
- ♦ IC RSS-133 Issue 5

**Remark:**

1. All test items were verified and recorded according to the standards and without any deviation during the test.
2. This EUT has also been tested and complied with the requirements of FCC Part 15, Subpart B (DoC), recorded in a separate test report.

### 1.6 Ancillary Equipment List

Item	Equipment	Trade Name	Model No.	FCC ID	Data Cable	Power Cord
1.	System Simulator	R&S	CMU200	N/A	N/A	Unshielded, 1.8 m



## 2 Test Configuration of Equipment under Test

### 2.1 Test Mode

During all testing, EUT is in link mode with base station emulator at maximum power level. The spurious emission measurements were carried out in semi-anechoic chamber with 3-meter test range.

Frequency range investigated for radiated emission is as follows:

1. 30 MHz to 9000 MHz for GSM850 and WCDMA Band V.
2. 30 MHz to 19000 MHz for GSM1900 and WCDMA Band II.

Test Modes	
Band	Radiated TCs
GSM 850	<ul style="list-style-type: none"> <li>■ GPRS 8 Link</li> <li>■ EDGE 8 Link</li> <li>■ GPRS 8 Link + WLAN Link</li> </ul>
GSM 1900	<ul style="list-style-type: none"> <li>■ GPRS 8 Link</li> <li>■ EDGE 8 Link</li> </ul>
WCDMA Band V	<ul style="list-style-type: none"> <li>■ WCDMA Link</li> </ul>
WCDMA Band II	<ul style="list-style-type: none"> <li>■ WCDMA Link</li> </ul>

**Remark:** Only the radiated emission of the WWAN module in the host laptop computer was performed in this report, and the conducted test cases can be referred to Qualcomm module report (FCC ID: J9CGOBI2000).

**Note:** The maximum power levels are GPRS multi-slot class 8 mode for GMSK link, EDGE multi-slot class 8 mode for 8PSK link, RMC 12.2Kbps mode for WCDMA band V and WCDMA band II, only these modes were used for all tests. The power tables are listed as follows:

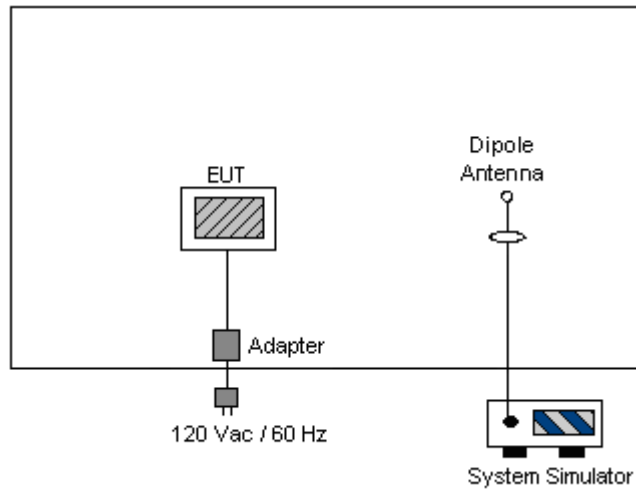
Conducted Power						
Band	GSM850			GSM1900		
Channel	128	189	251	512	661	810
Frequency	824.2	836.4	848.8	1850.2	1880	1909.8
GPRS 8	32.13	32.07	31.89	29.08	29.16	29.17
GPRS 10	32.11	32.03	31.84	29.05	29.13	29.15
EGPRS 8	27.31	27.24	27.08	25.90	25.94	25.95
EGPRS 10	27.26	27.21	27.04	25.92	25.90	25.93

(\*Unit: dBm)

Conducted Power						
Band	WCDMA Band V			WCDMA Band II		
Channel	4132	4182	4233	9262	9400	9538
Frequency	826.4	836.4	846.6	1852.4	1880.0	1907.6
RMC 12.2K	24.12	24.11	24.12	24.04	24.08	23.83
HSDPA Subtest-1	24.04	23.98	23.96	23.94	24.07	23.73
HSDPA Subtest-2	23.85	23.79	23.80	23.84	23.98	23.69
HSDPA Subtest-3	23.37	23.28	23.33	23.41	23.58	23.51
HSDPA Subtest-4	23.32	23.38	23.31	23.30	23.60	23.29
HSUPA Subtest-1	23.84	23.55	23.82	23.35	23.48	23.23
HSUPA Subtest-2	22.18	22.13	22.02	22.06	21.93	21.86
HSUPA Subtest-3	22.61	22.52	22.44	22.40	22.47	22.44
HSUPA Subtest-4	22.23	22.19	22.14	22.17	22.82	22.04
HSUPA Subtest-5	23.81	23.62	23.83	23.01	23.52	23.48

(\*Unit: dBm)

## 2.2 Connection Diagram of Test System



**Note:** The EUT was a 3G Module which was installed in the host laptop computer (brand name: Acer, Gateway, PackardBell / model name: ZA3 / marketing name: Aspire one, AO751).



### 3 Test Result

#### 3.1 Effective Radiated Power and Effective Isotropic Radiated Power Measurement

##### 3.1.1 Description of the ERP/EIRP Measurement

ERP/EIRP is measured by substitution method according to ANSI / TIA / EIA-603-C-2004. The ERP of mobile transmitters must not exceed 7 Watts and the EIRP of mobile transmitters are limited to 2 Watts.

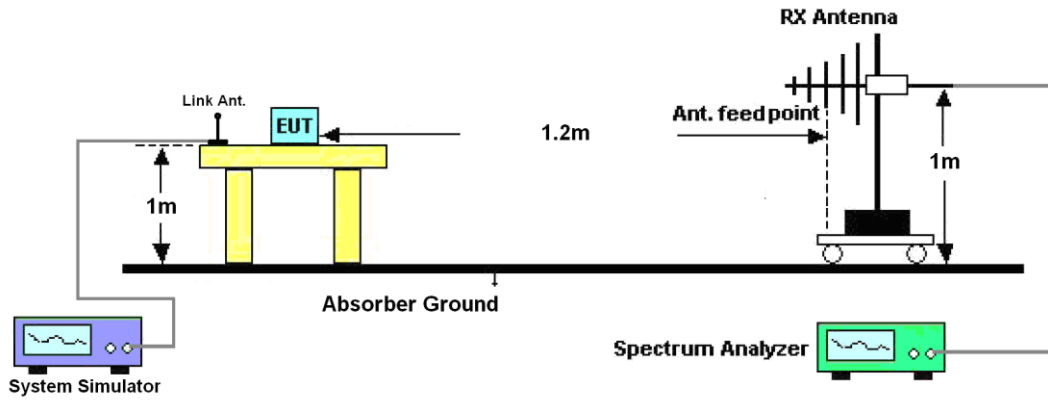
##### 3.1.2 Measuring Instruments

See list of measuring instruments of this test report.

##### 3.1.3 Test Procedures

1. The EUT was placed on a turntable with 1.0 meter height in a fully anechoic chamber.
2. The EUT was set at 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 adjusted to look for the maximum ERP/EIRP.
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.  $ERP/EIRP = P_s + E_t - E_s + G_s = P_s + R_t - R_s + G_s$   
Ps (dBm) : Input power to substitution antenna.  
Gs (dBi or dBd) : Substitution antenna Gain.  
Et = Rt + AF  
Es = Rs + AF  
AF (dB/m) : Receive antenna factor  
Rt : The highest received signal in spectrum analyzer for EUT.  
Rs : The highest received signal in spectrum analyzer for substitution antenna.

### 3.1.4 Test Setup





3.1.5 Test Result of ERP

GSM850 (GPRS 8) Radiated Power ERP						
Horizontal Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBd)	ERP (dBm)	ERP (W)
824.20	-21.43	-48.12	0.00	-1.08	25.61	0.36
836.40	-23.15	-48.28	0.00	-0.93	24.20	0.26
848.80	-22.63	-48.35	0.00	-0.76	24.96	0.31
Vertical Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBd)	ERP (dBm)	ERP (W)
824.20	-24.14	-47.97	0.00	-1.08	22.75	0.19
836.40	-24.75	-48.01	0.00	-0.93	22.33	0.17
848.80	-23.99	-48.05	0.00	-0.76	23.30	0.21

GSM850 (EDGE 8) Radiated Power ERP						
Horizontal Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBd)	ERP (dBm)	ERP (W)
824.20	-26.45	-48.12	0.00	-1.08	20.59	0.11
836.40	-28.13	-48.28	0.00	-0.93	19.22	0.08
848.80	-27.66	-48.35	0.00	-0.76	19.93	0.10
Vertical Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBd)	ERP (dBm)	ERP (W)
824.20	-29.26	-47.97	0.00	-1.08	17.63	0.06
836.40	-29.80	-48.01	0.00	-0.93	17.28	0.05
848.80	-28.92	-48.05	0.00	-0.76	18.37	0.07



WCDMA Band V (WCDMA) Radiated Power ERP						
Horizontal Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBd)	ERP (dBm)	ERP (W)
826.40	-27.79	-48.12	0.00	-1.08	19.25	0.08
836.40	-29.92	-48.28	0.00	-0.93	17.43	0.06
846.60	-29.63	-48.35	0.00	-0.76	17.96	0.06
Vertical Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBd)	ERP (dBm)	ERP (W)
826.40	-30.56	-47.97	0.00	-1.08	16.33	0.04
836.40	-31.93	-48.01	0.00	-0.93	15.15	0.03
846.60	-31.11	-48.05	0.00	-0.76	16.18	0.04



3.1.6 Test Result of EIRP

GSM1900 (GPRS 8) Radiated Power EIRP						
Horizontal Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBi)	EIRP (dBm)	EIRP (W)
1850.20	-22.63	-51.88	0.00	1.96	31.21	1.32
1880.00	-24.01	-52.99	0.00	2.00	30.98	1.25
1909.80	-26.04	-54.28	0.00	1.98	30.22	1.05
Vertical Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBi)	EIRP (dBm)	EIRP (W)
1850.20	-23.49	-52.13	0.00	1.96	30.60	1.15
1880.00	-25.61	-53.17	0.00	2.00	29.56	0.90
1909.80	-27.12	-54.13	0.00	1.98	28.99	0.79

GSM1900 (EDGE 8) Radiated Power EIRP						
Horizontal Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBi)	EIRP (dBm)	EIRP (W)
1850.20	-25.69	-51.88	0.00	1.96	28.15	0.65
1880.00	-27.01	-52.99	0.00	2.00	27.98	0.63
1909.80	-29.14	-54.28	0.00	1.98	27.12	0.52
Vertical Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBi)	EIRP (dBm)	EIRP (W)
1850.20	-26.76	-52.13	0.00	1.96	27.33	0.54
1880.00	-28.16	-53.17	0.00	2.00	27.01	0.50
1909.80	-29.70	-54.13	0.00	1.98	26.41	0.44



WCDMA Band II (WCDMA) Radiated Power EIRP						
Horizontal Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBi)	EIRP (dBm)	EIRP (W)
1852.40	-27.66	-51.88	0.00	1.96	26.18	0.41
1880.00	-27.92	-52.99	0.00	2.00	27.07	0.51
1907.60	-30.64	-54.28	0.00	1.98	25.62	0.36
Vertical Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBi)	EIRP (dBm)	EIRP (W)
1852.40	-28.47	-52.13	0.00	1.96	25.62	0.36
1880.00	-29.53	-53.17	0.00	2.00	25.64	0.37
1907.60	-31.75	-54.13	0.00	1.98	24.36	0.27



## 3.2 Field Strength of Spurious Radiation Measurement

### 3.2.1 Description of Field Strength of Spurious Radiated Measurement

The radiated spurious emission was measured by substitution method according to ANSI / TIA / EIA-603-C-2004. The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitter power (P) by a factor of at least  $43 + 10 \log (P)$  dB. The spectrum is scanned from 30 MHz up to a frequency including its 10th harmonic.

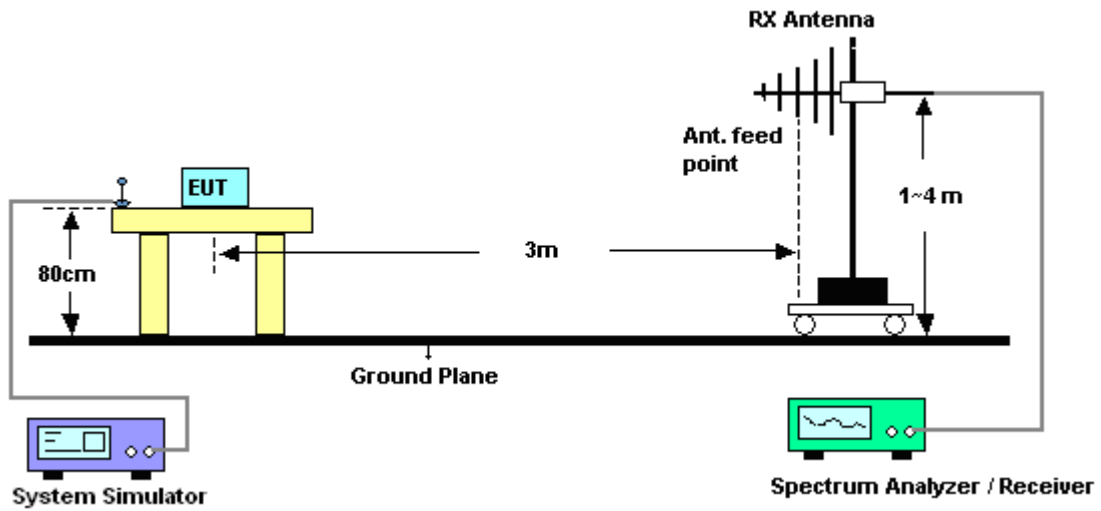
### 3.2.2 Measuring Instruments

See list of measuring instruments of this test report.

### 3.2.3 Test Procedures

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 search 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.

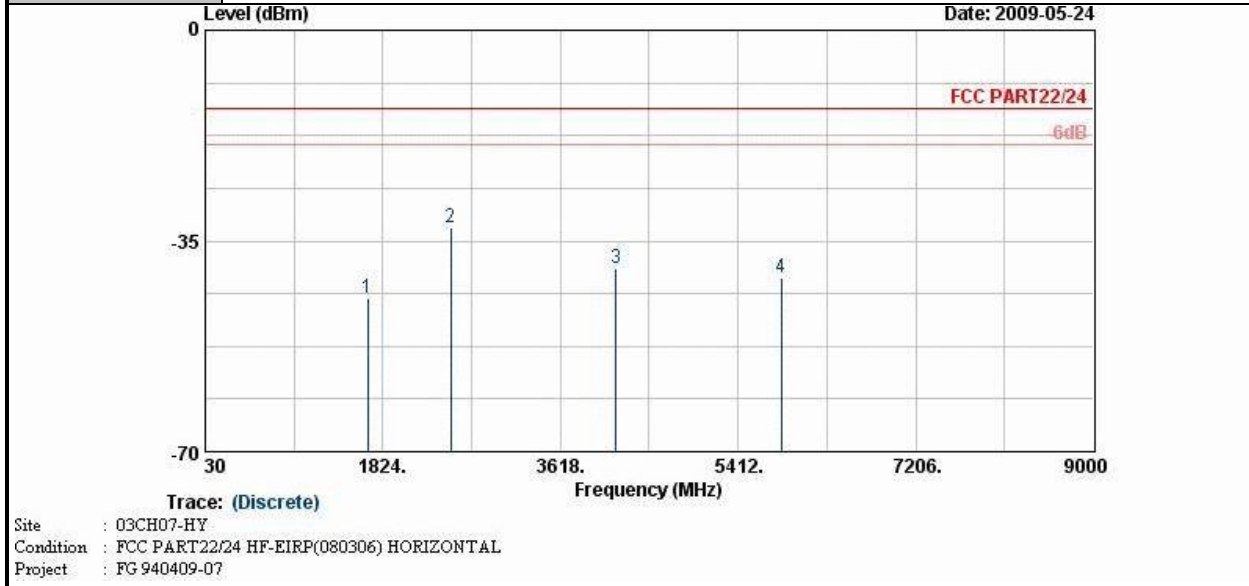
### 3.2.4 Test Setup





3.2.5 Test Result of Field Strength of Spurious Radiated

Band :	GSM850	Temperature :	26.9~27°C
Test Mode :	GPRS 8 Link	Relative Humidity :	34~35%
Test Engineer :	Nadir Wang	Polarization :	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

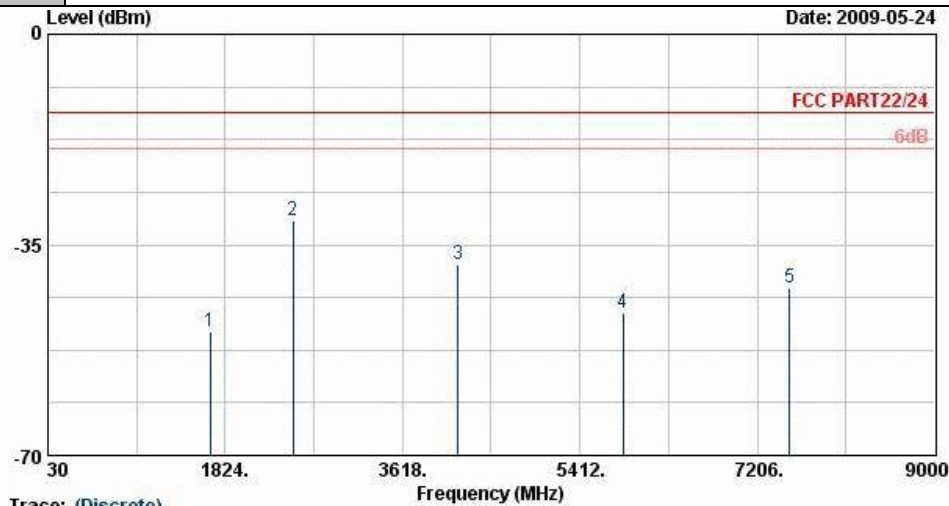


Site : 03CH07-HY  
 Condition : FCC PART22/24 HF-EIRP(080306) HORIZONTAL  
 Project : FG 940409-07

Frequency ( MHz )	ERP ( dBm )	Limit ( dBm )	Over Limit ( dB )	SPA Reading ( dBm )	S.G. Power ( dBm )	TX Cable loss ( dB )	TX Antenna Gain ( dBi )	Polarization ( H/V )	Result
1669	-44.47	-13	-31.47	-52.63	-44.32	3.39	5.39	H	Pass
2509	-32.71	-13	-19.71	-41.38	-32.97	3.71	6.12	H	Pass
4175	-39.64	-13	-26.64	-52.36	-43.48	3.01	9.00	H	Pass
5850	-41.08	-13	-28.08	-58.42	-44.95	4.38	10.40	H	Pass



<b>Band :</b>	GSM850	<b>Temperature :</b>	26.9~27°C
<b>Test Mode :</b>	GPRS 8 Link	<b>Relative Humidity :</b>	34~35%
<b>Test Engineer :</b>	Nadir Wang	<b>Polarization :</b>	Vertical
<b>Remark :</b>	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

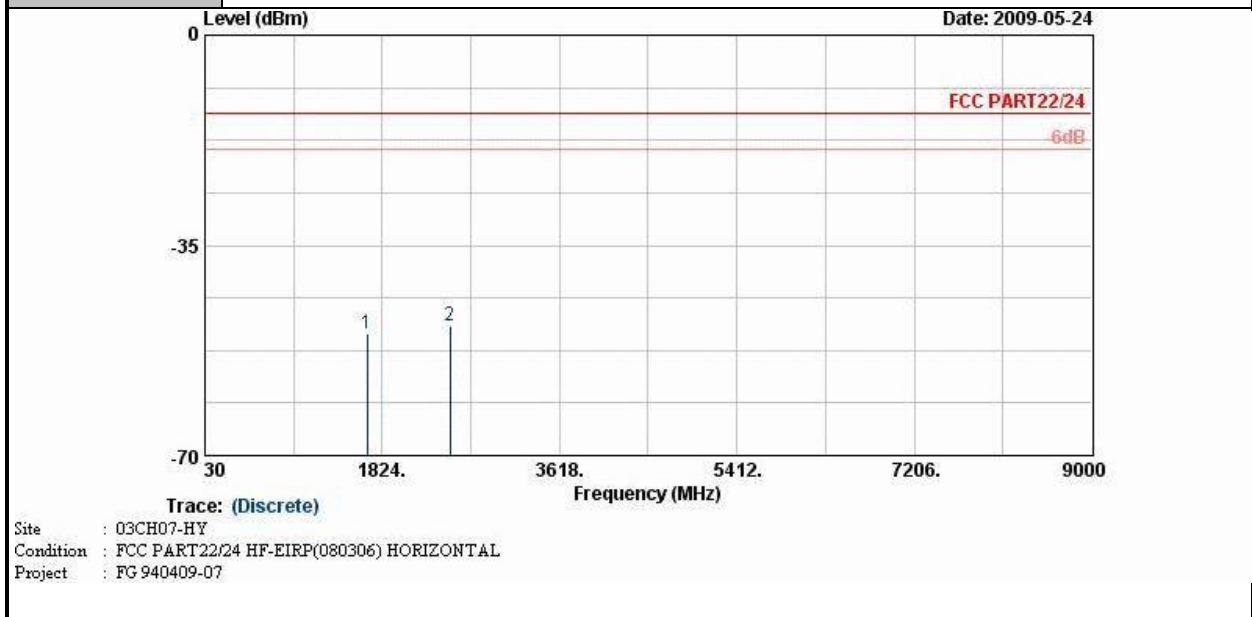


Trace: (Discrete)  
 Site : 03CH07-HY  
 Condition : FCC PART22/24 HF-EIRP(080306) VERTICAL  
 Project : FG 940409-07

Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1669	-49.34	-13	-36.34	-58	-49.19	3.39	5.39	V	Pass
2509	-30.91	-13	-17.91	-43	-31.17	3.71	6.12	V	Pass
4175	-38.23	-13	-25.23	-53.09	-42.07	3.01	9.00	V	Pass
5850	-46.25	-13	-33.25	-64.37	-50.12	4.38	10.40	V	Pass
7530	-42.07	-13	-29.07	-65.97	-45.92	6.22	12.22	V	Pass



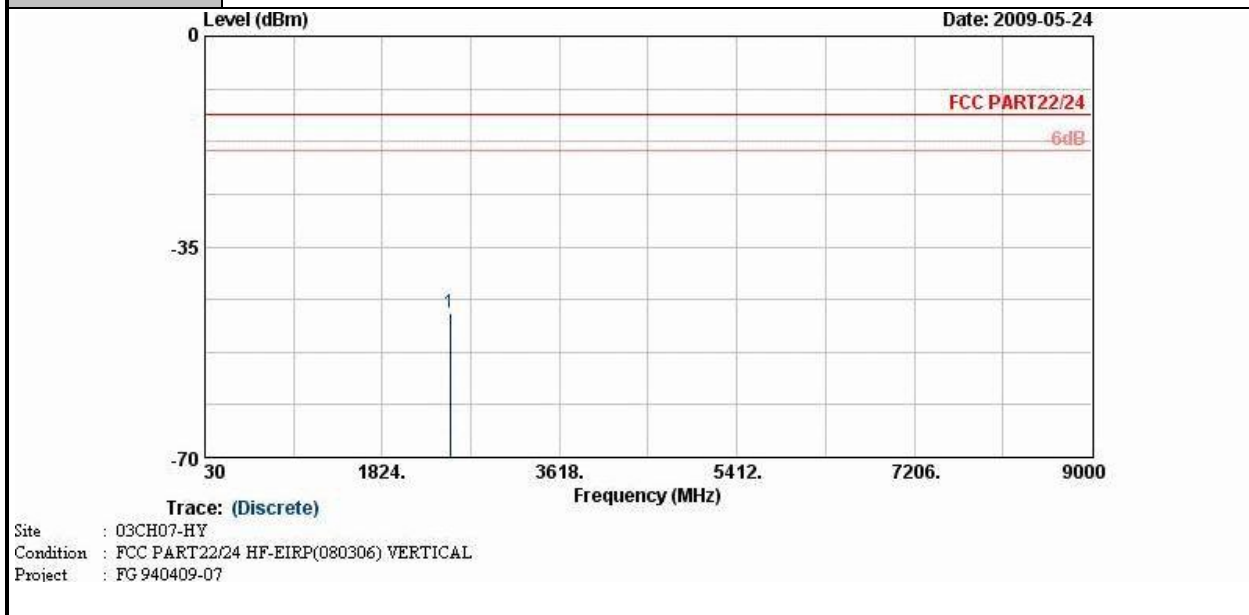
Band :	GSM850	Temperature :	26.9~27°C
Test Mode :	EDGE 8 Link	Relative Humidity :	34~35%
Test Engineer :	Nadir Wang	Polarization :	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



Frequency ( MHz )	ERP ( dBm )	Limit ( dBm )	Over Limit ( dB )	SPA Reading ( dBm )	S.G. Power ( dBm )	TX Cable loss ( dB )	TX Antenna Gain ( dBi )	Polarization ( H/V )	Result
1669	-49.62	-13	-36.62	-56.75	-49.47	3.39	5.39	H	Pass
2509	-48.52	-13	-35.52	-55.46	-48.78	3.71	6.12	H	Pass



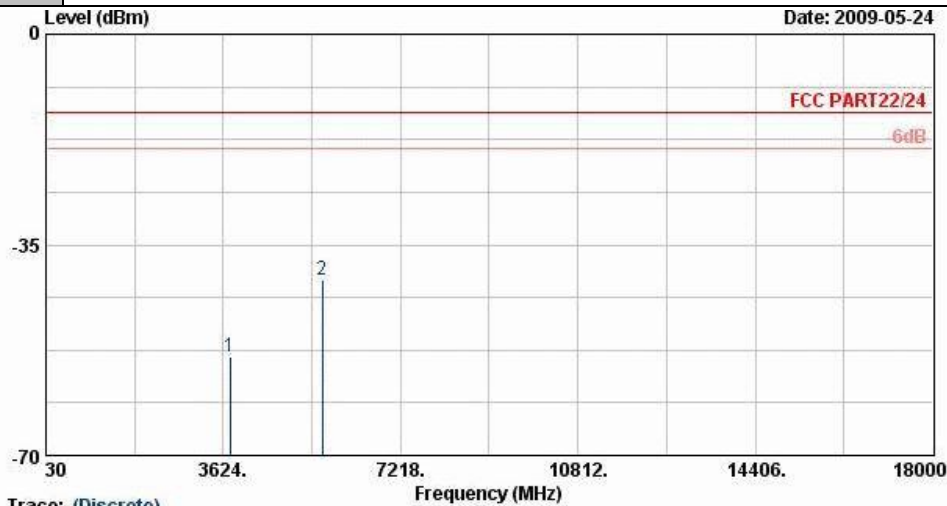
<b>Band :</b>	GSM850	<b>Temperature :</b>	26.9~27°C
<b>Test Mode :</b>	EDGE 8 Link	<b>Relative Humidity :</b>	34~35%
<b>Test Engineer :</b>	Nadir Wang	<b>Polarization :</b>	Vertical
<b>Remark :</b>	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



Frequency ( MHz )	ERP ( dBm )	Limit ( dBm )	Over Limit ( dB )	SPA Reading ( dBm )	S.G. Power ( dBm )	TX Cable loss ( dB )	TX Antenna Gain ( dBi )	Polarization ( H/V )	Result
2509	-46.17	-13	-33.17	-56.42	-46.43	3.71	6.12	V	Pass



<b>Band :</b>	GSM1900	<b>Temperature :</b>	26.9~27°C
<b>Test Mode :</b>	GPRS 8 Link	<b>Relative Humidity :</b>	34~35%
<b>Test Engineer :</b>	Nadir Wang	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

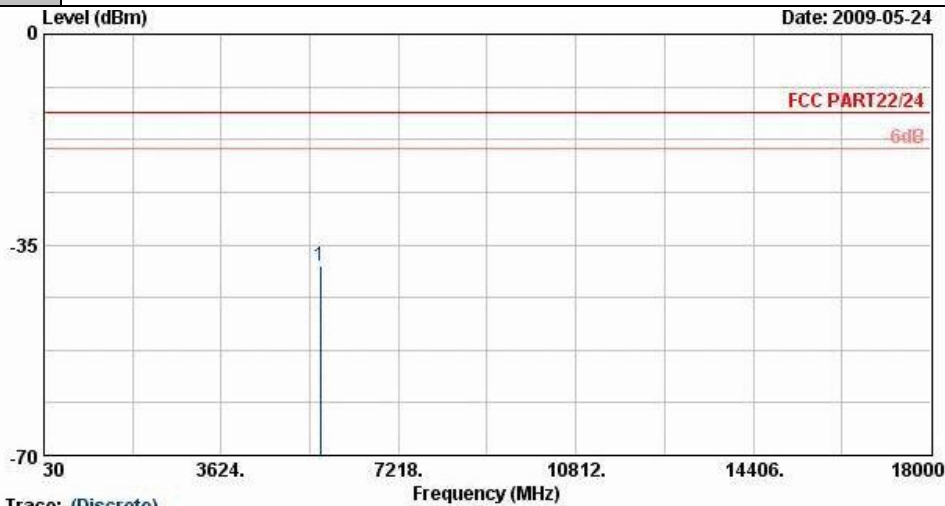


Site : 03CH07-HY  
 Condition : FCC PART22/24 HF-EIRP(080306) HORIZONTAL  
 Project : FG 940409-07

Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3760	-53.71	-13	-40.71	-63.91	-56.23	4.88	7.40	H	Pass
5636	-40.73	-13	-27.73	-59.95	-43.99	5.55	8.81	H	Pass



<b>Band :</b>	GSM1900	<b>Temperature :</b>	26.9~27°C
<b>Test Mode :</b>	GPRS 8 Link	<b>Relative Humidity :</b>	34~35%
<b>Test Engineer :</b>	Nadir Wang	<b>Polarization :</b>	Vertical
<b>Remark :</b>	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



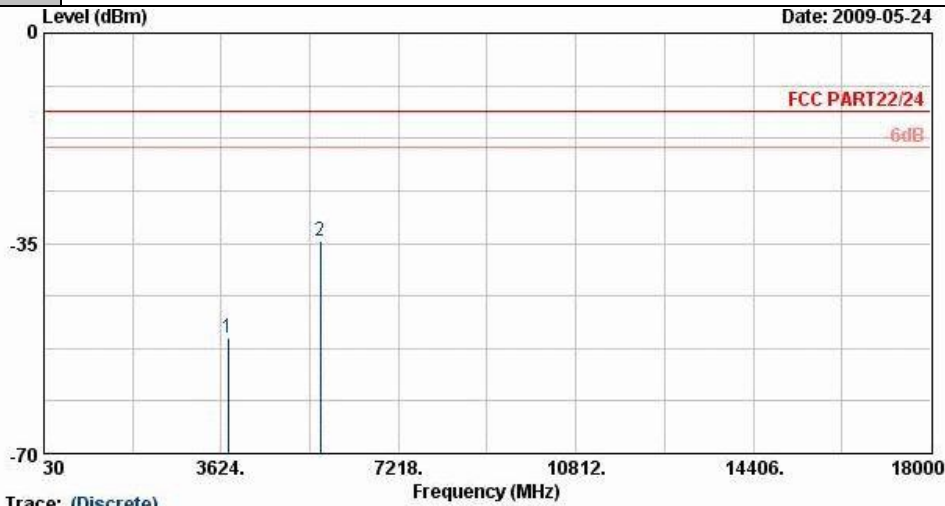
Site : 03CH07-HY  
 Condition : FCC PART22/24 HF-EIRP(080306) VERTICAL  
 Project : FG 940409-07

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	-38.54	-13	-25.54	-59.16	-42.76	5.55	9.77	V	Pass





<b>Band :</b>	GSM1900	<b>Temperature :</b>	26.9~27°C
<b>Test Mode :</b>	EDGE 8 Link	<b>Relative Humidity :</b>	34~35%
<b>Test Engineer :</b>	Nadir Wang	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

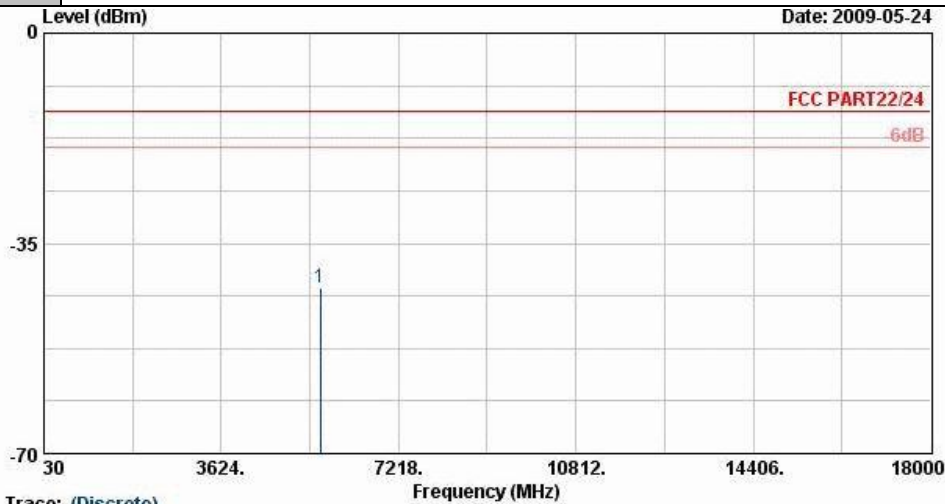


Trace: (Discrete)  
 Site : 03CH07-HY  
 Condition : FCC PART22/24 HF-EIRP(080306) HORIZONTAL  
 Project : FG 940409-07

Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3760	-50.65	-13	-37.65	-62.3	-53.17	4.88	7.40	H	Pass
5636	-34.61	-13	-21.61	-54.81	-37.87	5.55	8.81	H	Pass



<b>Band :</b>	GSM1900	<b>Temperature :</b>	26.9~27°C
<b>Test Mode :</b>	EDGE 8 Link	<b>Relative Humidity :</b>	34~35%
<b>Test Engineer :</b>	Nadir Wang	<b>Polarization :</b>	Vertical
<b>Remark :</b>	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

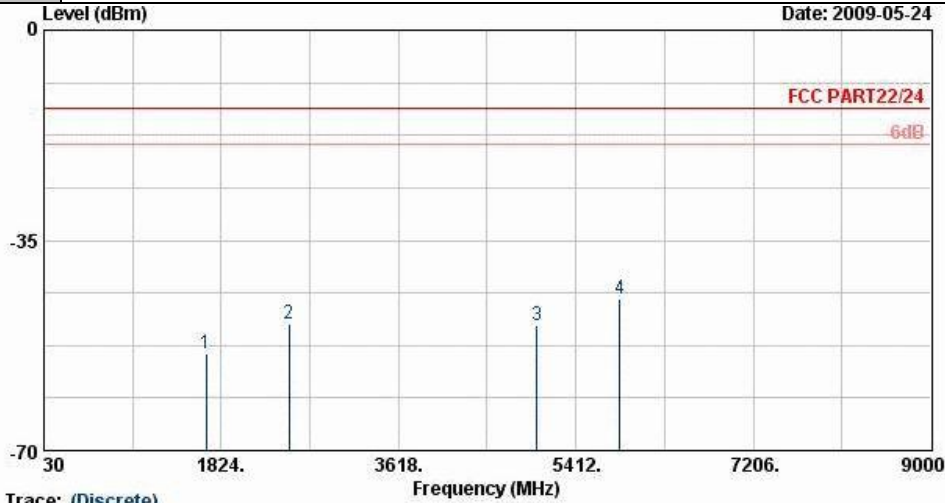


Trace: (Discrete)  
 Site : 03CH07-HY  
 Condition : FCC PART22/24 HF-EIRP(080306) VERTICAL  
 Project : FG 940409-07

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	-42.38	-13	-29.38	-61.87	-46.6	5.55	9.77	V	Pass



<b>Band :</b>	WCDMA Band V	<b>Temperature :</b>	26.9~27°C
<b>Test Mode :</b>	WCDMA Link	<b>Relative Humidity :</b>	34~35%
<b>Test Engineer :</b>	Nadir Wang	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

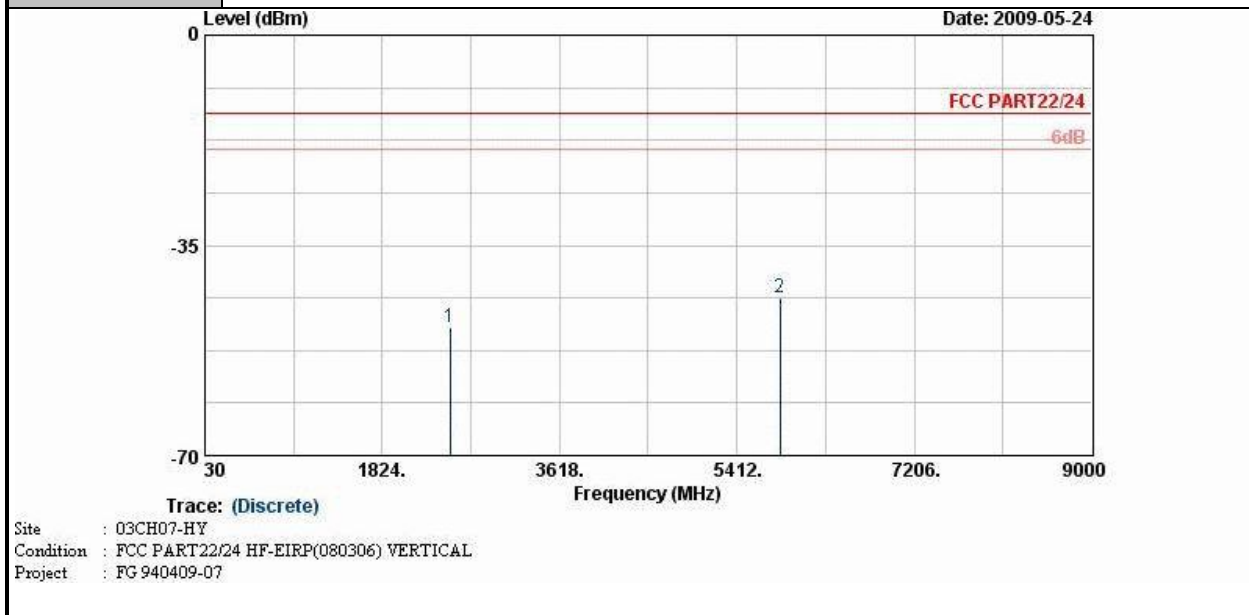


Site : 03CH07-HY  
 Condition : FCC PART22/24 HF-EIRP(080306) HORIZONTAL  
 Project : FG 940409-07

Frequency ( MHz )	ERP ( dBm )	Limit ( dBm )	Over Limit ( dB )	SPA Reading ( dBm )	S.G. Power ( dBm )	TX Cable loss ( dB )	TX Antenna Gain ( dBi )	Polarization ( H/V )	Result
1669	-53.85	-13	-40.85	-59.53	-53.7	3.39	5.39	H	Pass
2509	-48.92	-13	-35.92	-59.06	-49.18	3.71	6.12	H	Pass
5015	-49.27	-13	-36.27	-64.03	-54.24	2.61	9.73	H	Pass
5855	-44.79	-13	-31.79	-61.47	-48.66	4.38	10.40	H	Pass



<b>Band :</b>	WCDMA Band V	<b>Temperature :</b>	26.9~27°C
<b>Test Mode :</b>	WCDMA Link	<b>Relative Humidity :</b>	34~35%
<b>Test Engineer :</b>	Nadir Wang	<b>Polarization :</b>	Vertical
<b>Remark :</b>	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

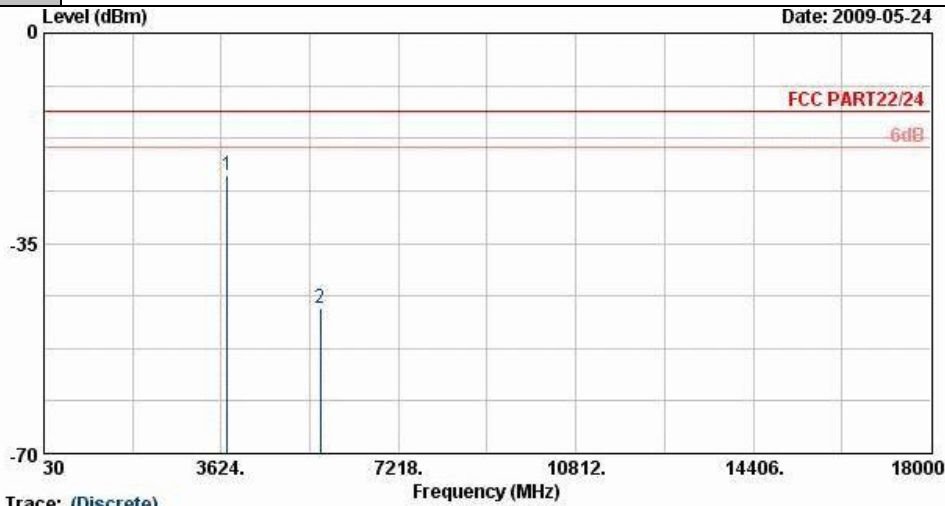


Site : 03CH07-HY  
 Condition : FCC PART22/24 HF-EIRP(080306) VERTICAL  
 Project : FG 940409-07

Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
2509	-48.57	-13	-35.57	-58.24	-48.83	3.71	6.12	V	Pass
5850	-43.71	-13	-30.71	-61.83	-47.58	4.38	10.40	V	Pass



<b>Band :</b>	WCDMA Band II	<b>Temperature :</b>	26.9~27°C
<b>Test Mode :</b>	WCDMA Link	<b>Relative Humidity :</b>	34~35%
<b>Test Engineer :</b>	Nadir Wang	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

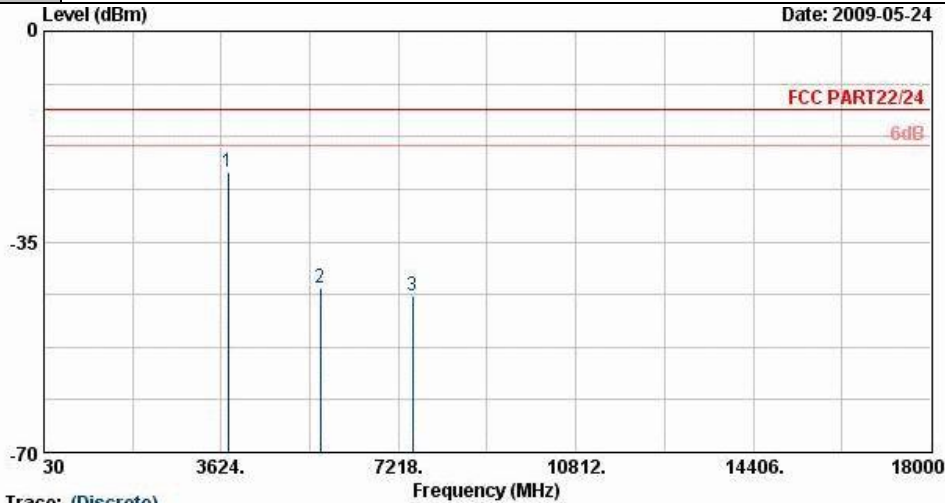


Trace: (Discrete)  
 Site : 03CH07-HY  
 Condition : FCC PART22/24 HF-EIRP(080306) HORIZONTAL  
 Project : FG 940409-07

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
3748	-23.71	-13	-10.71	-36.14	-26.23	4.88	7.40	H	Pass
5636	-45.77	-13	-32.77	-63.01	-49.03	5.55	8.81	H	Pass



<b>Band :</b>	WCDMA Band II	<b>Temperature :</b>	26.9~27°C
<b>Test Mode :</b>	WCDMA Link	<b>Relative Humidity :</b>	34~35%
<b>Test Engineer :</b>	Nadir Wang	<b>Polarization :</b>	Vertical
<b>Remark :</b>	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

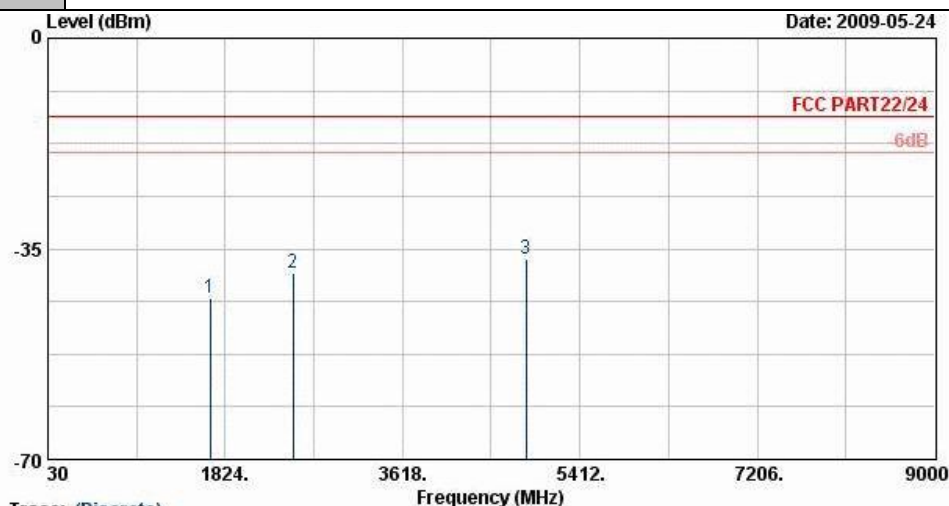


Site : 03CH07-HY  
 Condition : FCC PART22/24 HF-EIRP(080306) VERTICAL  
 Project : FG 940409-07

Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3760	-23.36	-13	-10.36	-41.55	-26.39	4.88	7.91	V	Pass
5636	-42.57	-13	-29.57	-62.03	-46.79	5.55	9.77	V	Pass
7508	-44.03	-13	-31.03	-64.88	-48.2	6.64	10.81	V	Pass



<b>Band :</b>	GSM850	<b>Temperature :</b>	26.9~27°C
<b>Test Mode :</b>	GPRS 8 + WLAN Link	<b>Relative Humidity :</b>	34~35%
<b>Test Engineer :</b>	Nadir Wang	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

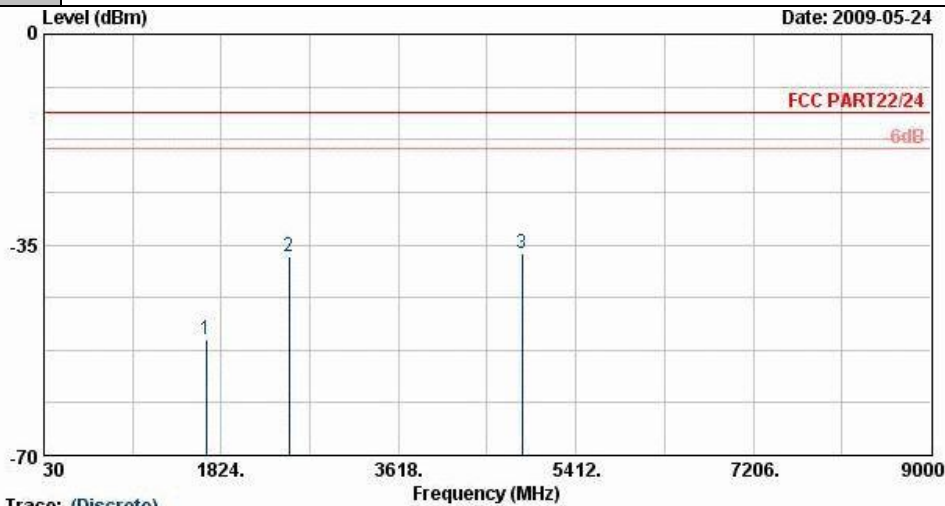


Trace: (Discrete)  
 Site : 03CH07-HY  
 Condition : FCC PART22/24 HF-EIRP(080306) HORIZONTAL  
 Project : FG 940409-07

Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1669	-43.26	-13	-30.26	-51.59	-43.11	3.39	5.39	H	Pass
2509	-38.94	-13	-25.94	-47.18	-39.2	3.71	6.12	H	Pass
4870	-36.58	-13	-23.58	-52.17	-41.35	2.68	9.60	H	Pass



<b>Band :</b>	GSM850	<b>Temperature :</b>	26.9~27°C
<b>Test Mode :</b>	GPRS 8 + WLAN Link	<b>Relative Humidity :</b>	34~35%
<b>Test Engineer :</b>	Nadir Wang	<b>Polarization :</b>	Vertical
<b>Remark :</b>	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



Trace: (Discrete)  
 Site : 03CH07-HY  
 Condition : FCC PART22/24 HF-EIRP(080306) VERTICAL  
 Project : FG 940409-07

Frequency ( MHz )	ERP ( dBm )	Limit ( dBm )	Over Limit ( dB )	SPA Reading ( dBm )	S.G. Power ( dBm )	TX Cable loss ( dB )	TX Antenna Gain ( dBi )	Polarization ( H/V )	Result
1669	-50.67	-13	-37.67	-56.12	-50.52	3.39	5.39	V	Pass
2509	-37.08	-13	-24.08	-48.86	-37.34	3.71	6.12	V	Pass
4870	-36.48	-13	-23.48	-53.3	-41.25	2.68	9.60	V	Pass





### 4 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Due Date	Remark
Bilog Antenna	SCHAFFNER	CBL6111C	2726	30MHz~1GHz	Nov. 20, 2008	Nov. 19, 2009	Radiation (03CH07-HY)
Spectrum Analyzer	R&S	FSP	101067	9kHz~30GHz	Dec. 02, 2008	Dec. 01, 2009	Radiation (03CH07-HY)
Double Ridge Horn Antenna	ESCO	3117	00075962	1G~18GHz	Aug. 18, 2008	Aug. 17, 2009	Radiation (03CH07-HY)
Pre Amplifier	Agilent	8449B	3008A02362	1G~26.5GHz	Dec. 17, 2008	Dec. 16, 2009	Radiation (03CH07-HY)
Pre Amplifier	COM-POWER	PA-103A	161241	10~1000MHz. 32dB.GAIN	Mar. 27, 2009	Mar. 26, 2010	Radiation (03CH07-HY)
Double Ridge Horn Antenna	ESCO	3117	00066584	1G~18GHz	Aug. 06, 2008	Aug. 05, 2009	Radiation (03CH07-HY)
Loop Antenna	R&S	HFH2-Z2	860004/001	9 kHz~30 MHz	May 22, 2008	May 21, 2010	Radiation (03CH07-HY)
System Simulator	R&S	CMU200	117591	N/A	Oct. 23, 2008	Oct. 22, 2010	Radiation (03CH07-HY)

## 5 Uncertainty of Evaluation

### Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz)

Contribution	Uncertainty of $x_i$		$u(x_i)$
	dB	Probability Distribution	
Receiver reading	0.41	Normal(k=2)	0.21
Antenna factor calibration	0.83	Normal(k=2)	0.42
Cable loss calibration	0.25	Normal(k=2)	0.13
Pre Amplifier Gain calibration	0.27	Normal(k=2)	0.14
RCV/SPA specification	2.50	Rectangular	0.72
Antenna Factor Interpolation for Frequency	1.00	Rectangular	0.29
Site imperfection	1.43	Rectangular	0.83
Mismatch	+0.39/-0.41	U-shaped	0.28
<b>Combined standard uncertainty Uc(y)</b>	<b>1.27</b>		
<b>Measuring uncertainty for a level of confidence of 95% U=2Uc(y)</b>	<b>2.54</b>		

### Uncertainty of Radiated Emission Measurement (1 GHz ~ 40 GHz)

Contribution	Uncertainty of $x_i$		$u(x_i)$	$C_i$	$C_i * u(x_i)$
	dB	Probability Distribution			
Receiver reading	±0.10	Normal(k=1)	0.10	1	0.10
Antenna factor calibration	±1.70	Normal(k=2)	0.85	1	0.85
Cable loss calibration	±0.50	Normal(k=2)	0.25	1	0.25
Receiver Correction	±2.00	Rectangular	1.15	1	1.15
Antenna Factor Directional	±1.50	Rectangular	0.87	1	0.87
Site imperfection	±2.80	Triangular	1.14	1	1.14
Mismatch Receiver VSWR $\Gamma_1 = 0.197$ Antenna VSWR $\Gamma_2 = 0.194$ Uncertainty = $20 \log(1 - \Gamma_1 * \Gamma_2)$	+0.34/-0.35	U-shaped	0.244	1	0.244
<b>Combined standard uncertainty Uc(y)</b>	<b>2.36</b>				
<b>Measuring uncertainty for a level of confidence of 95% U=2Uc(y)</b>	<b>4.72</b>				

## 6 Certification of TAF Accreditation



Certificate No. : L1190-090417

財團法人全國認證基金會  
Taiwan Accreditation Foundation

### Certificate of Accreditation

This is to certify that

**Sporton International Inc.**  
**EMC & Wireless Communications Laboratory**  
No.52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien,  
Taiwan, R.O.C.

**is accredited in respect of laboratory**

<b>Accreditation Criteria</b>	: ISO/IEC 17025:2005
<b>Accreditation Number</b>	: 1190
<b>Originally Accredited</b>	: December 15, 2003
<b>Effective Period</b>	: January 10, 2007 to January 09, 2010
<b>Accredited Scope</b>	: Testing Field, see described in the Appendix
<b>Specific Accreditation Program</b>	: Accreditation Program for Designated Testing Laboratory for Commodities Inspection Accreditation Program for Telecommunication Equipment Testing Laboratory Accreditation Program for BSMI Mutual Recognition Arrangement with Foreign Authorities

*Jay-san Chen*

Jay-San Chen  
President, Taiwan Accreditation Foundation  
Date : April 17, 2009

P1, total 20 pages

The Appendix forms an integral part of this Certificate, which shall be invalid when use without the Appendix



## **Appendix A. Photographs of EUT**

Please refer to Sporton report number EP940409-07 as below.