



Partial FCC RF Test Report

APPLICANT : Sony Corporation
EQUIPMENT : Personal Computer
BRAND NAME : SONY
MODEL NAME : PCG-1R1L
FCC ID : AK8PCG1R1L
STANDARD : FCC 47 CFR Part 2, 22(H), 24(E)
CLASSIFICATION : PCS Licensed Transmitter (PCB)
Tx/Rx FREQUENCY RANGE : CDMA2000 Cellular : 824.70 ~ 848.31 MHz /
869.70 ~ 893.31 MHz
CDMA2000 PCS : 1851.25 ~ 1908.75 MHz /
1931.25 ~ 1988.75 MHz
MAX. ERP/EIRP POWER : CDMA2000 Cellular : 0.12 W
CDMA2000 PCS : 0.39 W

This is a partial report which is only valid combined with the Integrated WWAN Module (Brand Name: Qualcomm / Model Name: Gobi2000, FCC ID: J9CGOBI2000) Report.

The product was received on Jun. 17, 2009 and completely tested on Jul. 15, 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 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.

No. 52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C.



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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
3.1	§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 ₁₀ (P[Watts])	PASS



1 General Description

1.1 Applicant

Sony Corporation
1-7-1 Konan, Minato-ku, Tokyo 108-0075 Japan

1.2 Manufacturer

Sony Corporation
1-7-1 Konan, Minato-ku, Tokyo 108-0075 Japan

1.3 Feature of Equipment under Test

Product Feature & Specification	
Equipment	Personal Computer
Brand Name	SONY
Model Name	PCG-1R1L
FCC ID	AK8PCG1R1L
Tx Frequency	CDMA2000 Cellular : 824 MHz ~ 849 MHz CDMA2000 PCS : 1850 MHz ~1910 MHz
Rx Frequency	CDMA2000 Cellular : 869 MHz ~ 894 MHz CDMA2000 PCS : 1930 MHz ~ 1990 MHz
Maximum ERP/EIRP	CDMA2000 Cellular : 0.12 W (20.74 dBm) CDMA2000 PCS : 0.39 W (25.92 dBm)
Antenna Type	Monopole Antenna with gain -0.3 dBi for CDMA2000 Cellular Monopole Antenna with gain 1.18 dBi for CDMA2000 PCS
Antenna Connector Type	I-PEX
Type of Modulation	QPSK
EUT Stage	Identical Prototype

Remark:

1. For other wireless features of this EUT, the test report will be issued separately.
2. This test report recorded only product characteristics and test results of PCS Licensed Transmitter (PCB).

List of Accessory:

Specification of Accessory		
AC Adapter	Brand Name	Sony
	Model Name	VGP-AC10V2
	Power Rating	I/P:100-240Vac, 50-60Hz, 0.48-0.28A; O/P: 10.5Vdc, 1.9A
	AC Power Cord Type	0.6 meter shielded cable without ferrite core
	DC Power Cord Type	1.8 meter non-shielded cable without ferrite core
Battery	Brand Name	Sony
	Model Name	VGP-BPS15 & VGP-BPL15
	Power Rating	7.4Vdc, 2100mAh, 16Wh
	Type	Li-ion
WWAN Module	Brand Name	Qualcomm
	Model Name	Gobi2000
WLAN Module	Brand Name	Atheros
	Model Name	AR5BH91

Remark:

1. The above EUT'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 EUT, please refer to the appendix of the external photo.
3. VGP-BPS15 and VGP-BPL15 are the same. Only VGP-BPS15 was used for the test.

1.4 Testing Site

Test Site	SPORTON INTERNATIONAL INC.	
Test Site Location	No. 52, Hwa Ya 1 st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C. TEL: +886-3-327-3456 FAX: +886-3-328-4978	
Test Site No.	Sporton Site No.	FCC/IC Registration No.
	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.
- ♦ FCC 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	CMU 200	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 CDMA2000 Cellular.
2. 30 MHz to 19000 MHz for CDMA2000 PCS.

Test Modes	
Band	Radiated TCs
CDMA2000 Cellular	<ul style="list-style-type: none"> ■ 1xRTT Link Mode ■ 1xRTT Link + 802.11g Tx CH06
CDMA2000 PCS	<ul style="list-style-type: none"> ■ 1xRTT Link Mode ■ 1xRTT Link + 802.11g Tx CH06
<p>Remark: Only the radiated emission was performed in this report, and the conducted test cases can be referred to Qualcomm module report (FCC ID: J9CGOBI2000).</p>	

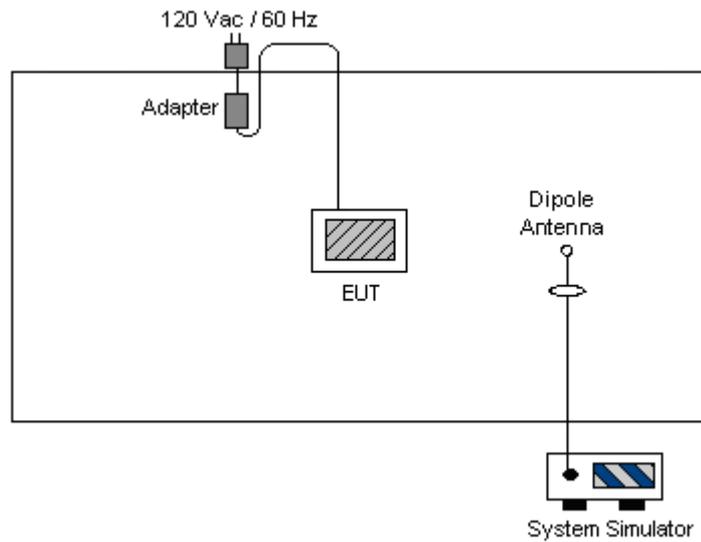
Note: The maximum RF output power level is 1xRTT RC3+SO55 mode for QPSK Link; only this mode was used for all tests.

The conducted power table is as follow:

Conducted Power						
Band	CDMA2000 Cellular			CDMA2000 PCS		
Channel	1013	384	777	25	600	1175
Frequency	824.7	836.52	848.31	1851.25	1880	1908.75
1xRTT FCH_RC1+SO55	24.16	24.03	24.05	24.14	24.60	24.31
1xRTT FCH_RC3+SO55	24.18	24.30	24.17	24.11	24.62	24.20
1xRTT FCH+SCH_RC3+SO32	24.11	23.98	23.93	24.03	24.14	24.13
1xEV-DO RTAP 9.6K	23.97	23.75	23.72	23.93	24.24	24.06
1xEV-DO RTAP 38.4K	23.97	23.77	23.81	23.94	24.33	24.04
1xEV-DO RTAP 153.6K	24.03	23.92	23.94	23.93	24.47	24.07
1xEV-DO RETAP 128K	23.65	23.57	23.40	23.62	24.06	23.80
1xEV-DO RETAP 2048K	23.66	23.54	23.55	23.66	24.16	23.81
1xEV-DO RETAP 4096K	23.52	23.42	23.45	23.66	24.12	23.72

(*Unit: dBm)

2.2 Connection Diagram of Test System



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. $ERP/EIRP = P_s + E_t - E_s + G_s = P_s + R_t - R_s + G_s$

P_s (dBm) : Input power to substitution antenna.

G_s (dBi or dBd) : Substitution antenna Gain.

$E_t = R_t + AF$

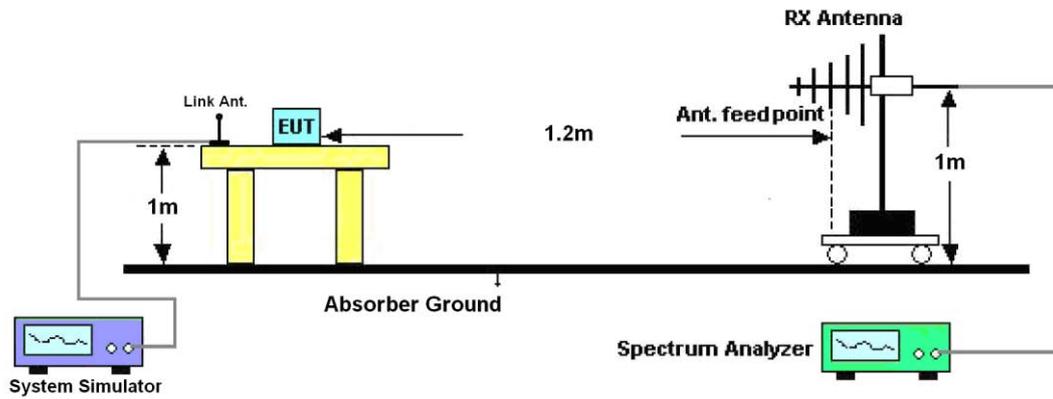
$E_s = R_s + AF$

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.

3.1.4 Test Setup





3.1.5 Test Result of ERP

CDMA2000 Cellular 1xRTT_FCH_RC3 Radiated Power ERP						
Horizontal Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBd)	ERP (dBm)	ERP (W)
824.70	-26.30	-48.12	0.00	-1.08	20.74	0.12
836.52	-27.40	-48.28	0.00	-0.93	19.95	0.10
848.31	-27.26	-48.35	0.00	-0.76	20.33	0.11
Vertical Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBd)	ERP (dBm)	ERP (W)
824.70	-26.74	-47.97	0.00	-1.08	20.15	0.10
836.52	-27.58	-48.01	0.00	-0.93	19.50	0.09
848.31	-27.45	-48.05	0.00	-0.76	19.84	0.10

3.1.6 Test Result of EIRP

CDMA2000 PCS 1xRTT_FCH_RC3 Radiated Power EIRP						
Horizontal Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBi)	EIRP (dBm)	EIRP (W)
1851.25	-28.06	-51.88	0.00	1.96	25.78	0.38
1880.00	-29.07	-52.99	0.00	2.00	25.92	0.39
1908.75	-30.62	-54.28	0.00	1.98	25.64	0.37
Vertical Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBi)	EIRP (dBm)	EIRP (W)
1851.25	-29.33	-52.13	0.00	1.96	24.76	0.30
1880.00	-30.67	-53.17	0.00	2.00	24.50	0.28
1908.75	-32.14	-54.13	0.00	1.98	23.97	0.25



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 $43+10\log_{10}(P[\text{Watts}])$ dB. The spectrum is scanned from 30 MHz up to a frequency including its 10th harmonic.

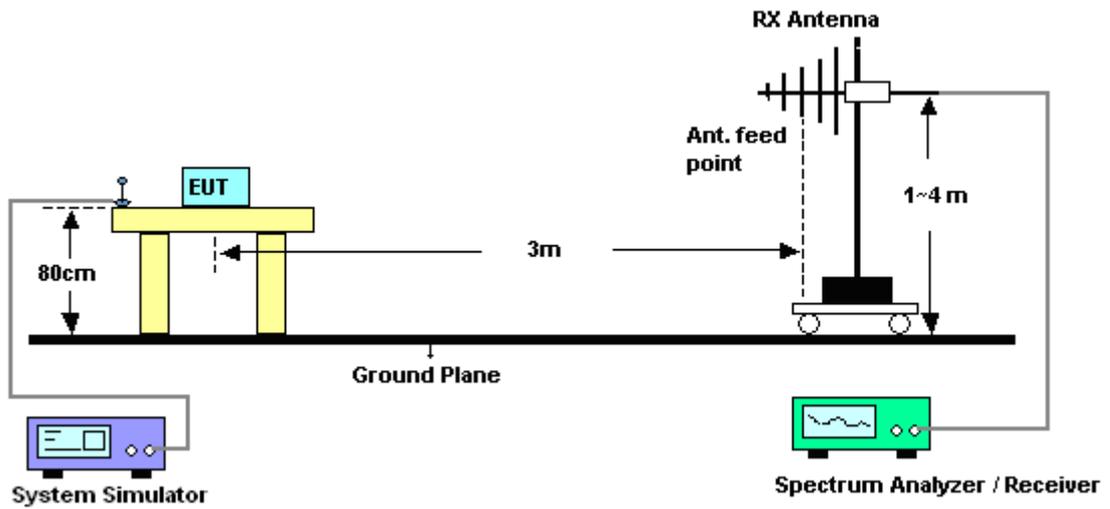
3.2.2 Measuring Instruments

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. $\text{EIRP (dBm)} = \text{S.G. Power} - \text{Tx Cable Loss} + \text{Tx Antenna Gain}$
11. $\text{ERP (dBm)} = \text{EIRP} - 2.15$

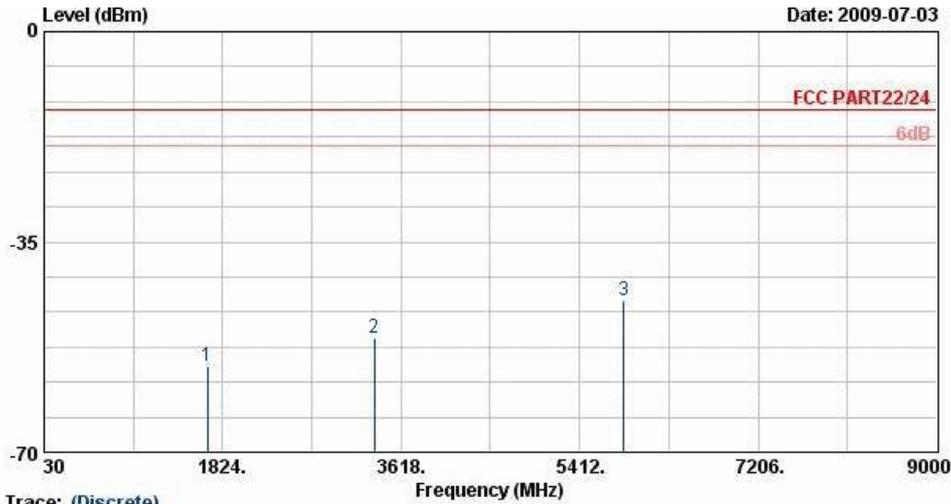
3.2.4 Test Setup





3.2.5 Test Result of Field Strength of Spurious Radiated

Band :	CDMA2000 Cellular	Temperature :	24~26°C
Test Mode :	1xRTT_FCH_RC3	Relative Humidity :	42~44%
Test Engineer :	Kai Wang	Polarization :	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

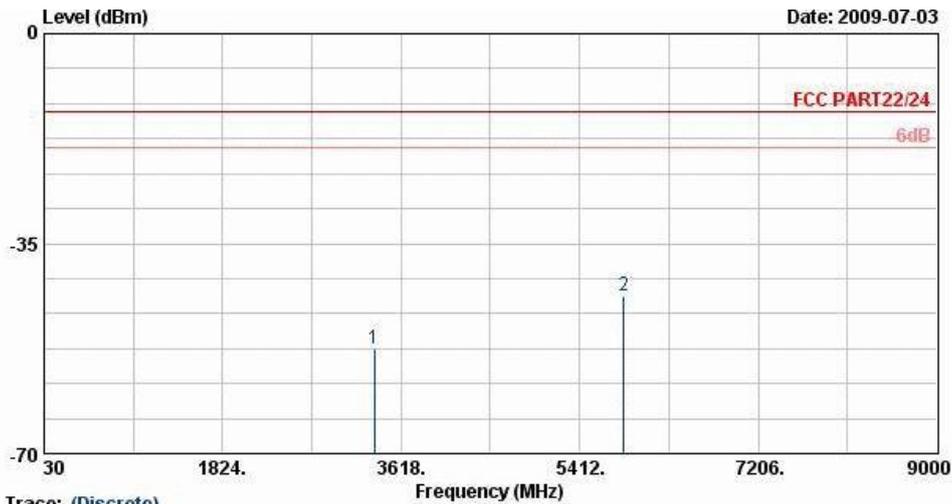


Trace: (Discrete)
 Site : 03CH07-HY
 Condition : FCC PART22/24 HF-ETRP(080306) HORIZONTAL
 Temp : 25 °C
 Humidity : 43 %
 Project : FG 961707

Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1669	-55.64	-13	-42.64	-60.54	-55.49	3.39	5.39	H	Pass
3346	-51.00	-13	-38.00	-60.9	-53.72	3.13	8.00	H	Pass
5855	-44.75	-13	-31.75	-61.13	-48.62	4.38	10.40	H	Pass



Band :	CDMA2000 Cellular	Temperature :	24~26°C
Test Mode :	1xRTT_FCH_RC3	Relative Humidity :	42~44%
Test Engineer :	Kai Wang	Polarization :	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

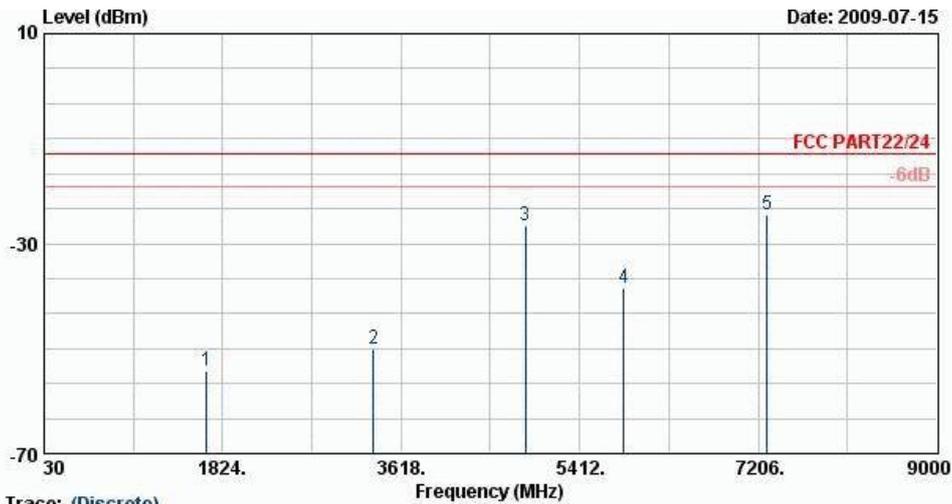


Trace: (Discrete)
 Site : 03CH07-HY
 Condition : FCC PART22/24 HF-ETRP(080306) VERTICAL
 Temp : 25 °C
 Humidity : 43 %
 Project : FG 961707

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
3346	-52.47	-13	-39.47	-63.23	-55.19	3.13	8.00	V	Pass
5855	-43.69	-13	-30.69	-59.86	-47.56	4.38	10.40	V	Pass



Band :	CDMA2000 Cellular	Temperature :	27~28°C
Test Mode :	1xRTT_FCH_RC3 + 802.11g Tx CH06	Relative Humidity :	41~42%
Test Engineer :	Sam Chen	Polarization :	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

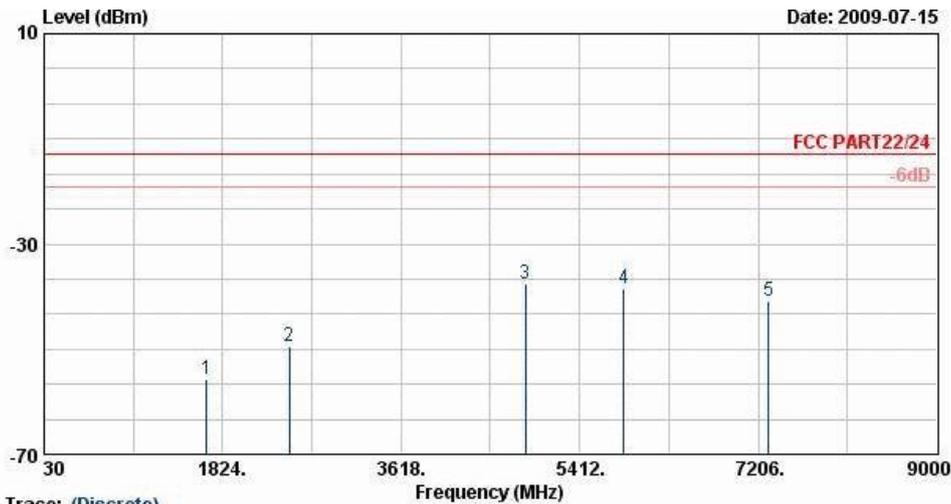


Trace: (Discrete)
 Site : D3CH07-HY
 Condition : FCC PART22/24 HF-ETRP(080306) HORIZONTAL
 Temp : 28 °C
 Humidity : 41 %
 Project : FG 961707

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
1666	-54.16	-13	-41.16	-59.80	-54.01	3.39	5.39	H	Pass
3343	-50.21	-13	-37.21	-58.81	-52.93	3.13	8.00	H	Pass
4870	-26.51	-13	-13.51	-41.66	-31.28	2.68	9.60	H	Pass
5855	-38.58	-13	-25.58	-56.21	-42.45	4.38	10.40	H	Pass
7295	-24.50	-13	-11.50	-48.48	-28.82	5.36	11.83	H	Pass



Band :	CDMA2000 Cellular	Temperature :	27~28°C
Test Mode :	1xRTT_FCH_RC3 + 802.11g Tx CH06	Relative Humidity :	41~42%
Test Engineer :	Sam Chen	Polarization :	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

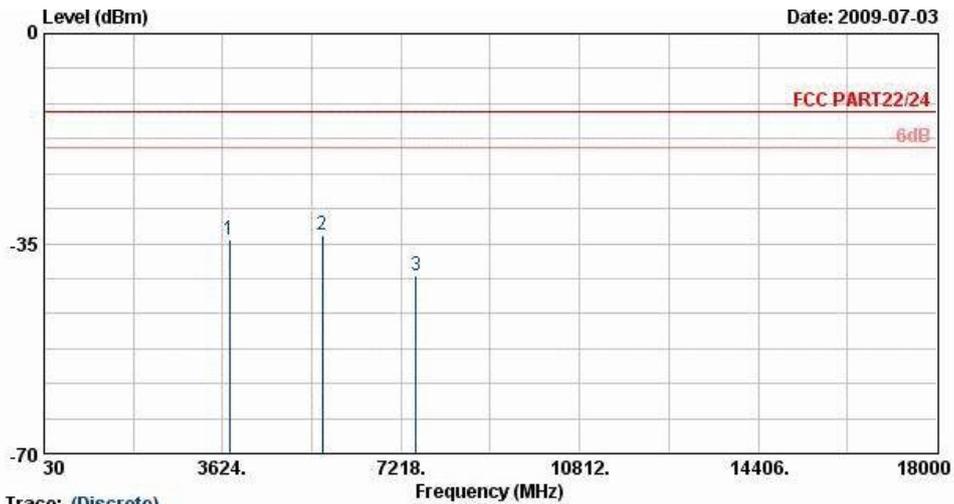


Trace: (Discrete)
 Site : 03CH07-HY
 Condition : FCC PART22/24 HF-ETRP(080306) VERTICAL
 Temp : 28 °C
 Humidity : 41 %
 Project : FG 961707

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
1666	-55.77	-13	-42.77	-59.23	-55.62	3.39	5.39	V	Pass
2497	-49.60	-13	-36.60	-59.04	-49.86	3.71	6.12	V	Pass
4870	-37.59	-13	-24.59	-54.09	-42.36	2.68	9.60	V	Pass
5855	-38.62	-13	-25.62	-54.39	-42.49	4.38	10.40	V	Pass
7315	-40.99	-13	-27.99	-62.45	-45.31	5.36	11.83	V	Pass



Band :	CDMA2000 PCS	Temperature :	23~24°C
Test Mode :	1xRTT_FCH_RC3	Relative Humidity :	41~45%
Test Engineer :	Kai Wang	Polarization :	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

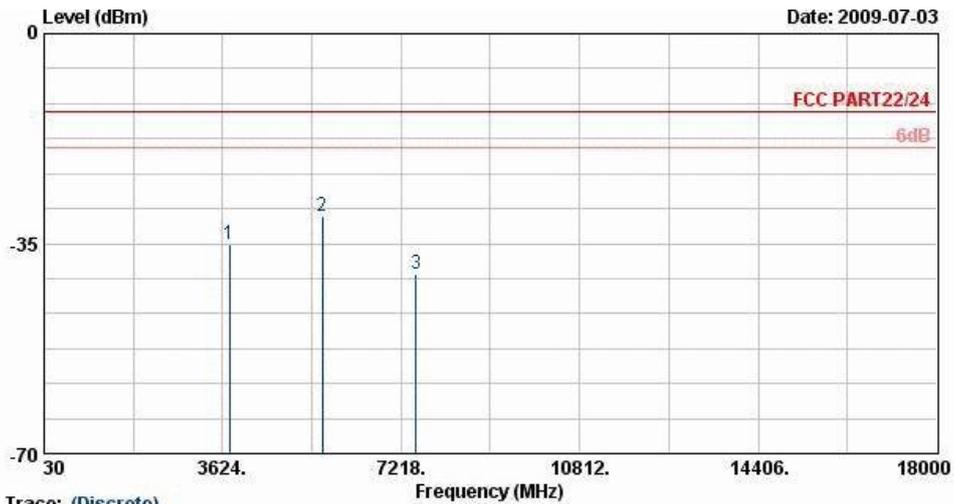


Trace: (Discrete)
 Site : 03CH07-HY
 Condition : FCC PART22/24 HF-ETRP(080306) HORIZONTAL
 Temp : 25 °C
 Humidity : 43 %
 Project : FG 961707

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	-34.46	-13	-21.46	-49.21	-36.98	4.88	7.40	H	Pass
5636	-33.49	-13	-20.49	-53.86	-36.75	5.55	8.81	H	Pass
7520	-40.24	-13	-27.24	-62.03	-43.31	6.64	9.71	H	Pass



Band :	CDMA2000 PCS	Temperature :	23~24°C
Test Mode :	1xRTT_FCH_RC3	Relative Humidity :	41~45%
Test Engineer :	Kai Wang	Polarization :	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

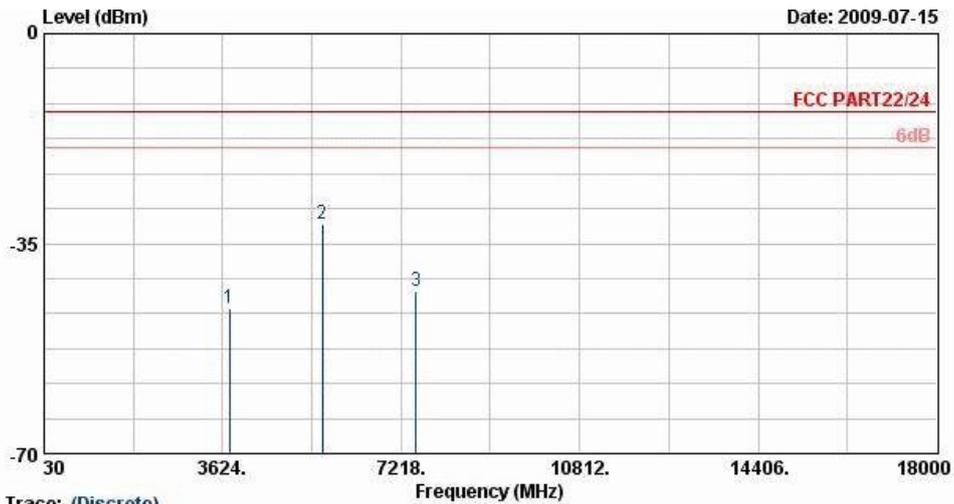


Trace: (Discrete)
 Site : 03CH07-HY
 Condition : FCC PART22/24 HF-ETRP(080306) VERTICAL
 Temp : 25 °C
 Humidity : 43 %
 Project : FG 961707

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	-35.23	-13	-22.23	-53.04	-38.26	4.88	7.91	V	Pass
5636	-30.54	-13	-17.54	-52.17	-34.76	5.55	9.77	V	Pass
7520	-40.08	-13	-27.08	-61.91	-44.25	6.64	10.81	V	Pass



Band :	CDMA2000 PCS	Temperature :	27~28°C
Test Mode :	1xRTT_FCH_RC3 + 802.11g Tx CH06	Relative Humidity :	41~42%
Test Engineer :	Sam Chen	Polarization :	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

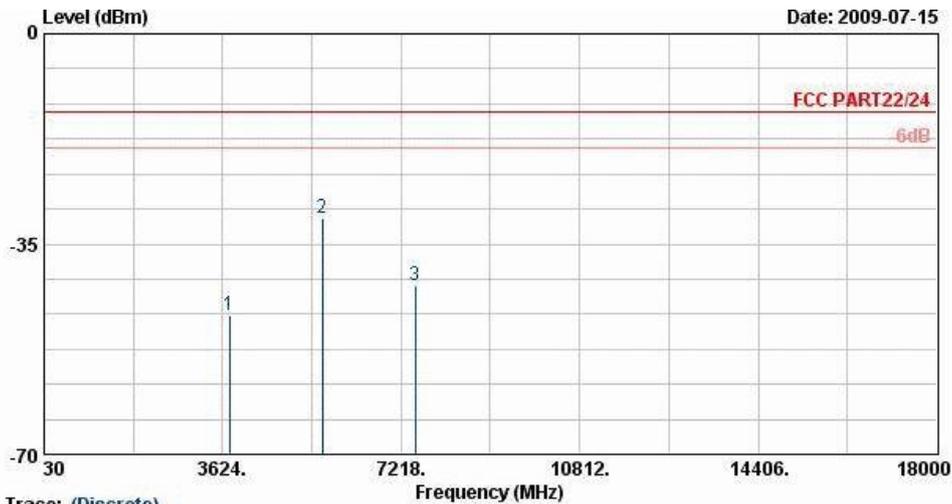


Trace: (Discrete)
 Site : 03CH07-HY
 Condition : FCC PART22/24 HF-ETRP(080306) HORIZONTAL
 Temp : 28 °C
 Humidity : 41 %
 Project : FG 961707

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
3760	-45.85	-13	-32.85	-45.64	-48.37	4.88	7.40	H	Pass
5636	-31.68	-13	-18.68	-52.50	-34.94	5.55	8.81	H	Pass
7520	-42.81	-13	-29.81	-63.60	-45.88	6.64	9.71	H	Pass



Band :	CDMA2000 PCS	Temperature :	27~28°C
Test Mode :	1xRTT_FCH_RC3 + 802.11g Tx CH06	Relative Humidity :	41~42%
Test Engineer :	Sam Chen	Polarization :	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



Trace: (Discrete)
 Site : 03CH07-HY
 Condition : FCC PART22/24 HF-ETRP(080306) VERTICAL
 Temp : 28 °C
 Humidity : 41 %
 Project : FG 961707

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
3760	-46.85	-13	-33.85	-47.35	-49.88	4.88	7.91	V	Pass
5636	-30.68	-13	-17.68	-51.98	-34.9	5.55	9.77	V	Pass
7520	-41.81	-13	-28.81	-63.58	-45.98	6.64	10.81	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	117997	N/A	May 14, 2009	May 13, 2011	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
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 (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
Combined standard uncertainty Uc(y)	2.36				
Measuring uncertainty for a level of confidence of 95% U=2Uc(y)	4.72				

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

Accreditation Criteria	: ISO/IEC 17025:2005
Accreditation Number	: 1190
Originally Accredited	: December 15, 2003
Effective Period	: January 10, 2007 to January 09, 2010
Accredited Scope	: Testing Field, see described in the Appendix
Specific Accreditation Program	: 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

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