



Partial FCC Test Report

EQUIPMENT : Uplink 2550
BRAND NAME : Uplink 2550
MODEL NAME : Uplink 2550
FCC ID : TWV192513384X
STANDARD : 47 CFR Part 2, 22(H), 24(E)
Tx/Rx FREQUENCY RANGE : GSM850 : 824.2 ~ 848.8 / 869.2 ~ 893.8 MHz
GSM1900 : 1850.2 ~ 1909.8 / 1930.2 ~ 1989.8 MHz
MAX. ERP/EIRP POWER : GSM850(GSM) : 1.70 W
GSM1900(GSM) : 1.54 W
EMISSION DESIGNATOR : GSM : 300KGXW
APPLICANT : Numerex Corp
1600 Parkwood Circle, Suite 200, Atlanta, GA 30339

The product sample received on Oct. 14, 2008 and completely tested on Oct. 28, 2008. 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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APPENDIX A. PHOTOGRAPHS OF EUT

**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



REVISION HISTORY



1 General Description

1.1 Applicant

Numerex Corp

1600 Parkwood Circle, Suite 200, Atlanta, GA 30339

1.2 Manufacturer

Numerex

1600 Parkwood Circle, Suite 200, Atlanta, GA 30339

1.3 Feature of Equipment Under Test

Product Feature & Specification	
Equipment	Uplink 2550
Brand Name	Uplink 2550
Model Name	Uplink 2550
Tx Frequency	GSM850 : 824 MHz ~ 849 MHz GSM1900 : 1850 MHz ~ 1910 MHz
Rx Frequency	GSM850 : 869 MHz ~ 894 MHz GSM1900 : 1930 MHz ~ 1990 MHz
Channel Spacing	200 KHz
Maximum ERP/EIRP	GSM850(GSM) : 1.70 W (32.30 dBm) GSM1900(GSM) : 1.54 W (31.87 dBm)
Antenna Type	PSKN-900/1900s
HW Version	2.05
SW Version	308V
Type of Modulation	GMSK
Type of Emission	300KGXW
EUT Stage	Production Unit



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.	Sportun Site No.	FCC/IC Registration No.
	OTA02-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:

- ♦ 47 CFR Part 2, 22(H), 24(E)
- ♦ ANSI C63.4-2003
- ♦ ANSI / TIA / EIA-603-C-2004
- ♦ IC RSS-132, RSS-133

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.



2 Test Configuration of Equipment Under Test

2.1 Test Mode

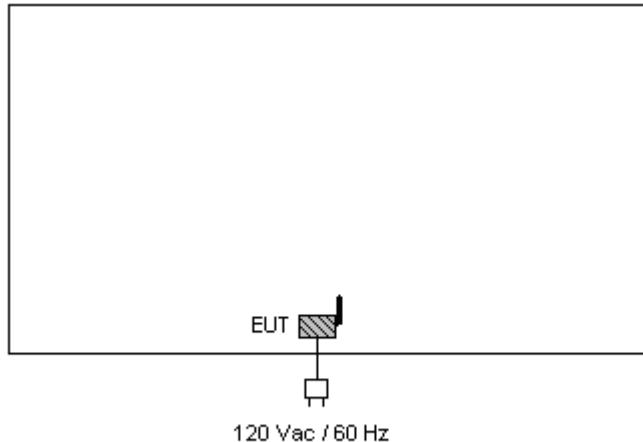
During all testing, EUT is in link mode with base station emulator at maximum power level. The spurious emission measurements were carried out in semi-anechoic chamber with 3-meter test range, and EUT is rotated on three test planes to find out the worst emission.

Frequency range investigated for radiated emission is as follows:

1. 30 MHz to 9000 MHz for GSM850
2. 30MHz to 19000 MHz for GSM1900

Test Modes	
Band	ERP / EIRP
GSM 850	■ GSM Link
GSM 1900	■ GSM Link

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. $ERP/EIRP = Ps + Et - Es + Gs = Ps + Rt - Rs + Gs$

Ps (dBm) : Input power to substitution antenna.

Gs (dBi or dBd) : Substitution antenna Gain.

$Et = Rt + AF$

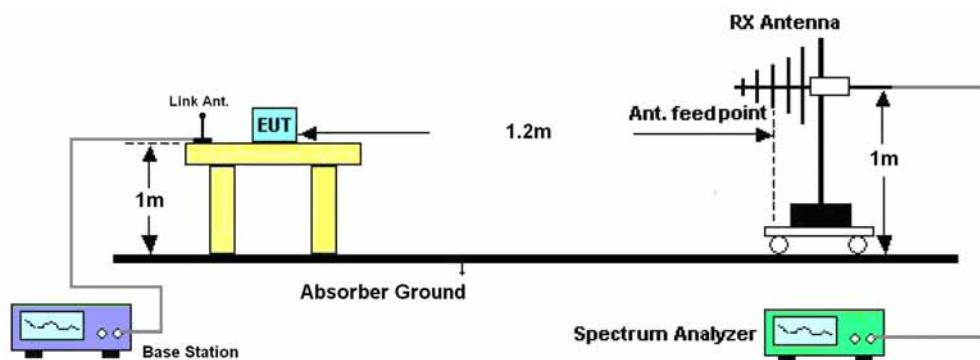
$Es = Rs + AF$

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 (GSM) Radiated Power ERP						
Horizontal Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBD)	ERP (dBm)	ERP (W)
824.20	-17.71	-48.12	0.00	-1.08	29.33	0.86
836.40	-18.47	-48.28	0.00	-0.93	28.88	0.77
848.80	-18.80	-48.35	0.00	-0.76	28.79	0.76

GSM850 (GSM) Radiated Power ERP						
Vertical Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBD)	ERP (dBm)	ERP (W)
824.20	-14.59	-47.97	0.00	-1.08	32.30	1.70
836.40	-15.39	-48.01	0.00	-0.93	31.69	1.48
848.80	-15.98	-48.05	0.00	-0.76	31.31	1.35

GSM1900 (GSM) Radiated Power EIRP						
Horizontal Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBi)	EIRP (dBm)	EIRP (W)
1850.20	-22.87	-51.88	0.00	1.96	30.97	1.25
1880.00	-24.24	-52.99	0.00	2.00	30.75	1.19
1909.80	-24.95	-54.28	0.00	1.98	31.31	1.35

GSM1900 (GSM) Radiated Power EIRP						
Vertical Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBi)	EIRP (dBm)	EIRP (W)
1850.20	-22.22	-52.13	0.00	1.96	31.87	1.54
1880.00	-23.42	-53.17	0.00	2.00	31.75	1.50
1909.80	-24.47	-54.13	0.00	1.98	31.64	1.46



4 List of Measuring Equipments

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Due Date	Remark
Base Station	R&S	CMU200	116456	N/A	Jun. 05, 2008	Jun. 04, 2009	OTA02-HY
Spectrum Analyzer	R&S	FSP40	100055	9kHz~40GHz	Jun. 26, 2008	Jun. 25, 2009	OTA02-HY



5 Certification of TAF Accreditation



Certificate No. L1190-070110

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

Jay-San Chen
President, Taiwan Accreditation Foundation
Date : January 10, 2007

P1, total 9 pages

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



Appendix A. Photographs of EUT

Please refer to Sporton report number EP8O1413 as below.