



Partial FCC Test Report

EQUIPMENT	: Uplink 2550
BRAND NAME	: Uplink 2550
MODEL NAME	: Uplink 2550: (Radio module: 00-25570-841 in Metal Case: 00-25596-021-2)
FCC ID	: TWV192513384X
STANDARD	: 47 CFR Part 2, 22(H), 24(E)
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
MAX. ERP/EIRP POWER	: GSM850(GSM) : 0.84 W GSM1900(GSM) : 1.52 W
EMISSION DESIGNATOR	: 300KGXW
APPLICANT	: Numerex Corp 1600 Parkwood Circle Suite 200 Atlanta GA 30339
CONTACT NAME OF APPLICANT	: Ed Jansson

The product sample received on Nov. 19, 2008 and completely tested on Nov. 27, 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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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

(Contact Name of Applicant: Ed Jansson)

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: (Radio module: 00-25570-841 in Metal Case: 00-25596-021-2)
Tx Frequency	GSM850 : 824 MHz ~ 849 MHz GSM1900 : 1850 MHz ~ 1910 MHz
Rx Frequency	GSM850 : 869 MHz ~ 894 MHz GSM1900 : 1930 MHz ~ 1990 MHz
Maximum ERP/EIRP	GSM850(GSM) : 0.84 W (29.22 dBm) GSM1900(GSM) : 1.52 W (31.83 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



Accessories List:

Accessories Specification		
AC Adapter	Brand Name	Universal
	Model Name	UB1640W
	Power Rating	I/P:120Vac, 60Hz, 48W; O/P: 16.5V, 40VA
	AC Power Cord Type	1.72 meter non-shielded cable without ferrite core
Battery	Brand Name	UltraTech
	Model Name	UT 1240
	Power Rating	12V, 4.5Ah
	Type	Lead Acid Battery

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. For other wireless features of this EUT, the test report will be issued separately.

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:

- ♦ 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.

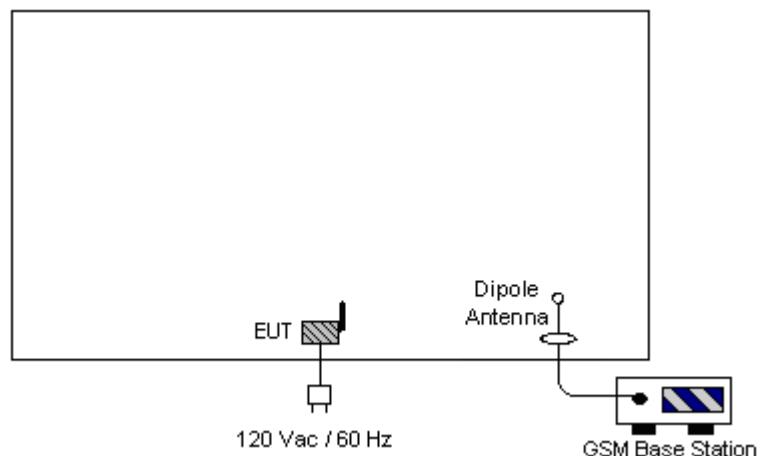
2 Test Configuration of Equipment Under Test

2.1 Test Mode

During all testing, EUT is in link mode with base station emulator at maximum power level.

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.

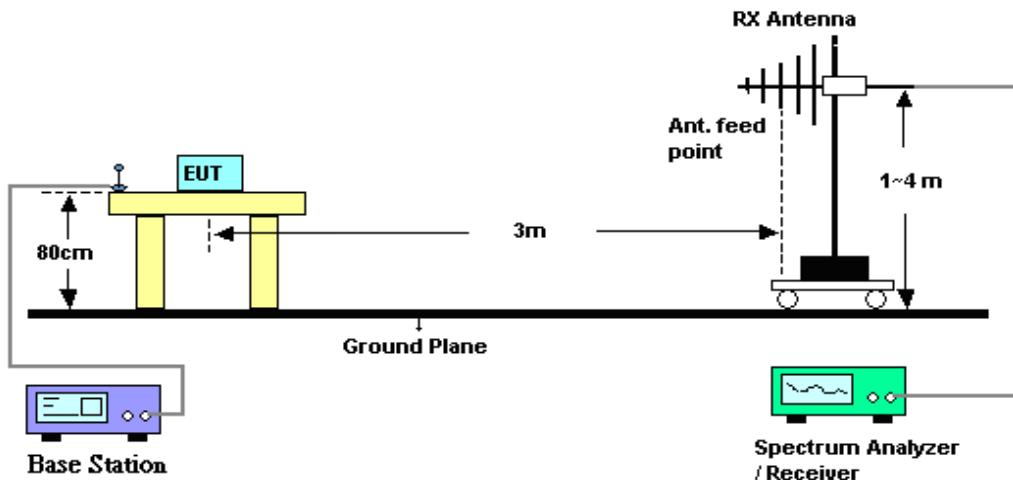
3.1.2 Measuring Instruments

See list of measuring instruments of this test report.

3.1.3 Test Procedures

1. The EUT was placed on a non-conductive rotating platform with 0.8 meter height in a semi-anechoic chamber. The radiated emission at the fundamental frequency was measured at 3 m with a test antenna and a spectrum analyzer with RBW= 3MHz, VBW= 3MHz, and peak detector settings.
2. During the measurement, the EUT was enforced in maximum power and linked with a base station. The highest emission was recorded from analyzer power level (LVL) from the 360 degrees rotation of the turntable and the test antenna raised and lowered over a range from 1 to 4 meters in both horizontally and vertically polarized orientations.
3. Effective Isotropic Radiated Power(EIRP) was measured by substitution method according to TIA/EIA-603-C. The EUT was replaced by dipole antenna (substitution antenna) at same location, and then a known power from S.G. was applied into the dipole antenna through a Tx cable, and then recorded the maximum Analyzer reading through raised and lowered the test antenna. The correction factor (in dB) = S.G. - Tx Cable loss + Substitution antenna gain - Analyzer reading. Then the EUT's EIRP was calculated with the correction factor, $EIRP = LVL + \text{Correction factor}$ and $ERP = EIRP - 2.15$.

3.1.4 Test Setup





3.1.5 Test Result of ERP

GSM850 (GSM) Radiated Power ERP				
Horizontal Polarization				
Frequency (MHz)	LVL (dBm)	Correction Factor (dB)	ERP (dBm)	ERP (W)
824.2	-2.42	33.02	28.45	0.70
836.4	-4.73	35.06	28.18	0.66
848.8	-5.44	36.81	29.22	0.84
Vertical Polarization				
Frequency (MHz)	LVL (dBm)	Correction Factor (dB)	ERP (dBm)	ERP (W)
824.2	-5.11	35.83	28.57	0.72
836.4	-7.13	35.21	25.93	0.39
848.8	-8.67	36.01	25.19	0.33

* ERP = LVL (dBm) + Correction Factor (dB) – 2.15

3.1.6 Test Result of EIRP

GSM1900 (GSM) Radiated Power EIRP				
Horizontal Polarization				
Frequency (MHz)	LVL (dBm)	Correction Factor (dB)	EIRP (dBm)	EIRP (W)
1850.2	-19.07	44.09	25.02	0.32
1880.0	-20.39	45.42	25.03	0.32
1909.8	-20.13	43.31	23.18	0.21
Vertical Polarization				
Frequency (MHz)	LVL (dBm)	Correction Factor (dB)	EIRP (dBm)	EIRP (W)
1850.2	-15.55	47.38	31.83	1.52
1880.0	-16.77	47.52	30.75	1.19
1909.8	-16.61	46.57	29.96	0.99

* EIRP = LVL (dBm) + Correction Factor (dB)



4 List of Measuring Equipments

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. 05, 2007	Dec. 04, 2008	Radiation (03CH07-HY)
Double Ridge Horn Antenna	ESCO	3117	75962	1G~18GHz	Aug. 13, 2008	Aug. 12. 2009	Radiation (03CH07-HY)
Pre Amplifier	Agilent	8449B	3008A01917	1G~26.5GHz	Nov. 11, 2008	Nov. 10, 2009	Radiation (03CH07-HY)
Pre Amplifier	COM-POWER	PA-103A	161241	10~1000MHz. 32dB.GAIN	Mar. 31, 2008	Mar. 30, 2009	Radiation (03CH07-HY)
Double Ridge Horn Antenna	ESCO	3117	66584	1G~18GHz	Aug. 06, 2008	Aug. 05. 2009	Radiation (03CH07-HY)
GSM Base Station	R&S	CMU200	116456	NA	Jul. 05, 2008	Jul. 04, 2009	Radiation (03CH07-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

Sportun 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

PL, total 9 pages

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