Variant FCC RF Test Report

APPLICANT	:	Doro AB
EQUIPMENT	:	GSM Tri-band Digital Mobile Telephone
BRAND NAME	:	Doro
MODEL NAME	:	Doro PhoneEasy 338gsm
FCC ID	:	WS5DORO338G
STANDARD	:	FCC 47 CFR Part 2, 22(H), 24(E)
CLASSIFICATION	:	PCS Licensed Transmitter Held to Ear (PCE)
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) : 0.68 W GSM1900 (GSM) : 0.93 W

This is a variant report which is only valid together with the original test report.

The product was received on Dec. 09, 2009 and completely tested on Jan. 15, 2010. We, SPORTON INTERNATIONAL INC., would like to declare that the tested sample has been evaluated in accordance with the procedures given in ANSI / TIA / EIA-603-C-2004 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

Testing Laboratory 1190

SPORTON INTERNATIONAL (KUNSHAN) INC.
No. 3-2, PingXiang Road, Kunshan, Jiangsu Province, P.R.C.

TABLE OF CONTENTS

REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FG931114-02	Rev. 01	Doro PhoneEasy 338gsm is a serial model of Doro PhoneEasy 345gsm. About the differences, please refer to the declaration as Appendix C. And all the test results please refer to the original report-FG931114 as Appendix D. This report only verified ERP / EIRP of Doro PhoneEasy 338gsm.	Jan. 05, 2010
FG931114-02	Rev. 02	Add test data of Field Strength of Spurious Radiation Measurement	Jan. 15, 2010

SUMMARY OF TEST RESULT

Report Section	FCC Rule	IC Rule	Description	Limit	Result	Remark
-	§2.1046	N/A	Conducted Output Power	N/A	PASS	Note 1
3.1	§22.913(a)(2)	RSS-132(4.4) SRSP-503(5.1.3)	Effective Radiated Power	< 7 Watts	PASS	-
3.1	§24.232(c)	RSS-133 (6.4) SRSP-510(5.1.2)	Equivalent Isotropic Radiated Power	< 2 Watts	PASS	-
-	§2.1049 §22.917(a) §24.238(a)	N/A	Occupied Bandwidth	N/A	PASS	Note 1
-	§2.1051 §22.917(a) §24.238(a)	RSS-132 (4.5.1) RSS-133 (6.5.1)	Band Edge Measurement	< $43+10\log_{10}$(P[Watts])	PASS	Note 1
-	§2.1051 §22.917(a) §24.238(a)	RSS-132 (4.5.1) RSS-133 (6.5.1)	Conducted Emission	< $43+10\log_{10}$(P[Watts])	PASS	Note 1
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	< $43+10\log_{10}$(P[Watts])	PASS	Under limit 16.88 dB at 5639.00 MHz
-	§2.1055 §22.355 §24.235	RSS-132(4.3) RSS-133(6.3)	Frequency Stability for Temperature & Voltage	< 2.5 ppm	PASS	Note 1

Note 1: Because of the change did not affect the test, therefore all the test results please refer to the original report- FG931114 as Appendix D.

1 General Description

1.1 Applicant

Doro AB
Magistratsvägen 10 SE-226 44 Lund Sweden

1.2 Manufacturer

CK TELECOM LTD.
Technology Road, High-Tech Development Zone, Heyuan, Guangdong, P.R.China

1.3 Feature of Equipment Under Test

Product Feature & Specification	
Equipment	GSM Tri-band Digital Mobile Telephone
Brand Name	Doro
Model Name	Doro PhoneEasy 338gsm
FCC ID	WS5DORO338G
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) : 0.68 W (28.35 dBm) GSM1900 (GSM) : 0.93 W (29.67 dBm)
Antenna Type	Fixed Internal Antenna
HW Version	CARE-V2.0
SW Version	CARE-S12_DORO338_L14SP_100_091126_MCP32+16
Type of Modulation	GMSK
EUT Stage	Identical Prototype

Remark: This test report recorded only product characteristics and test results of PCS Licensed Transmitter Held to Ear (PCE).

List of Accessory:

Specification of Accessory		
AC Adapter	**Brand Name**	Doro
	Model Name	HKC0045365-2A
	Power Rating	I/P:100-240Vac, 50-60Hz, 0.2A; O/P: 5.3Vdc, 650mA
	AC Power Cord Type	1.55 meter non-shielded cable without ferrite core
Battery	**Brand Name**	Doro
	Cell Manufacturer	Ningbo Veken Battery Co., Ltd.
	Model Name	01.10.CAREP0103
	Power Rating	3.7Vdc, 850mAh
	Type	Li-ion
LCD Panel	**Brand Name**	LINDA
	Model Name	KGM870A0

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.

1.4 Testing Site

Test Site	SPORTON INTERNATIONAL (KUNSHAN) INC.
Test Site Location	No. 3-2, PingXiang Road, Kunshan, Jiangsu Province, P.R.C. TEL: +86-0512-5790-0158 FAX: +86-0512-5790-0958
Test Site No.	**Sporton Site No.**
	03CH01-KS

1.5 Applied Standards

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

- FCC 47 CFR Part 2, 22(H), 24(E)
- 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

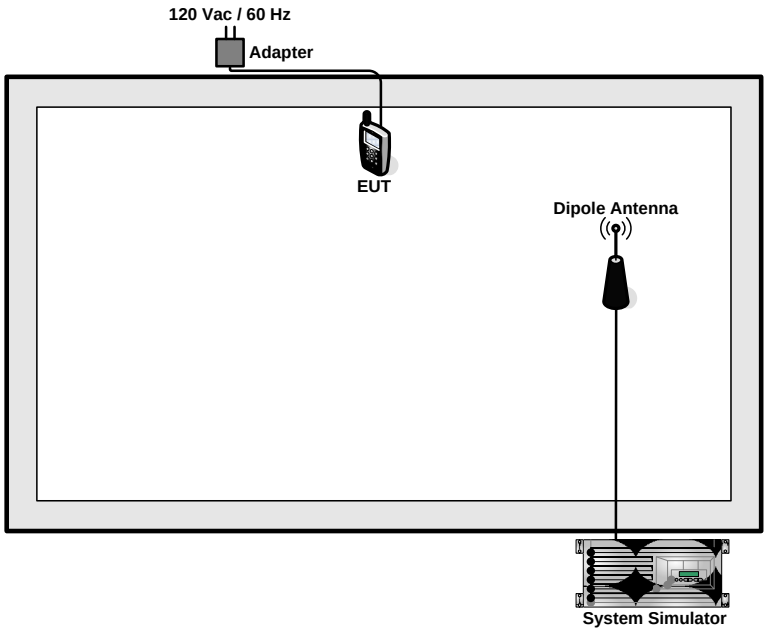
2 Test Configuration of Equipment Under Test

2.1 Test Mode

Test Modes	
Band	**Radiated TCs**
GSM 850	■ GSM Link
GSM 1900	■ GSM Link

Note: Because of the change did not affect the tests, therefore the test results of Conducted could be referred to the original report- FG931114 as Appendix D. And the EUT only verified ERP/EIRP and RSE test.

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.

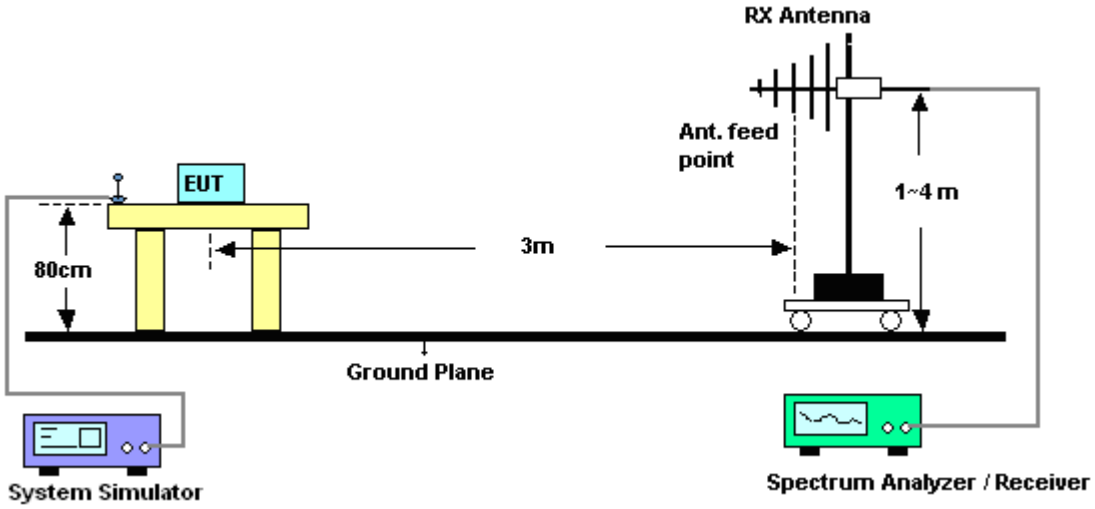
3.1.2 Measuring Instruments

See list of measuring instruments of this test report.

3.1.3 Test Procedures

1. The EUT was placed on an 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 + 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	1.90	28.11	27.86	0.61
836.4	2.65	27.85	28.35	0.68
848.8	1.66	27.90	27.41	0.55
Vertical Polarization				
Frequency (MHz)	**LVL (dBm)**	**Correction Factor (dB)**	**ERP (dBm)**	**ERP (W)**
824.2	-10.81	32.22	19.26	0.08
836.4	-9.83	31.78	19.80	0.10
848.8	-11.48	32.24	18.61	0.07

* 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	-11.09	39.03	27.94	0.62
1880.0	-11.97	40.19	28.22	0.66
1909.8	-9.52	39.07	29.55	0.90
Vertical Polarization				
Frequency (MHz)	**LVL (dBm)**	**Correction Factor (dB)**	**EIRP (dBm)**	**EIRP (W)**
1850.2	-12.54	42.21	29.67	0.93
1880.0	-13.43	43.90	30.47	1.11
1909.8	-13.83	43.38	29.55	0.90

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

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.

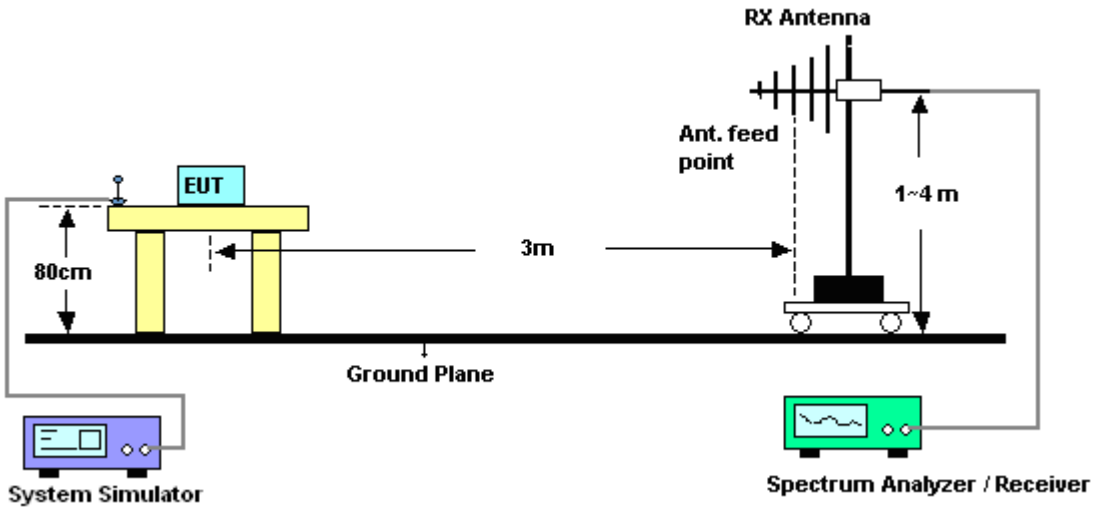
3.2.2 Measuring Instruments

See list of measuring instruments of this test report.

3.2.3 Test Procedures

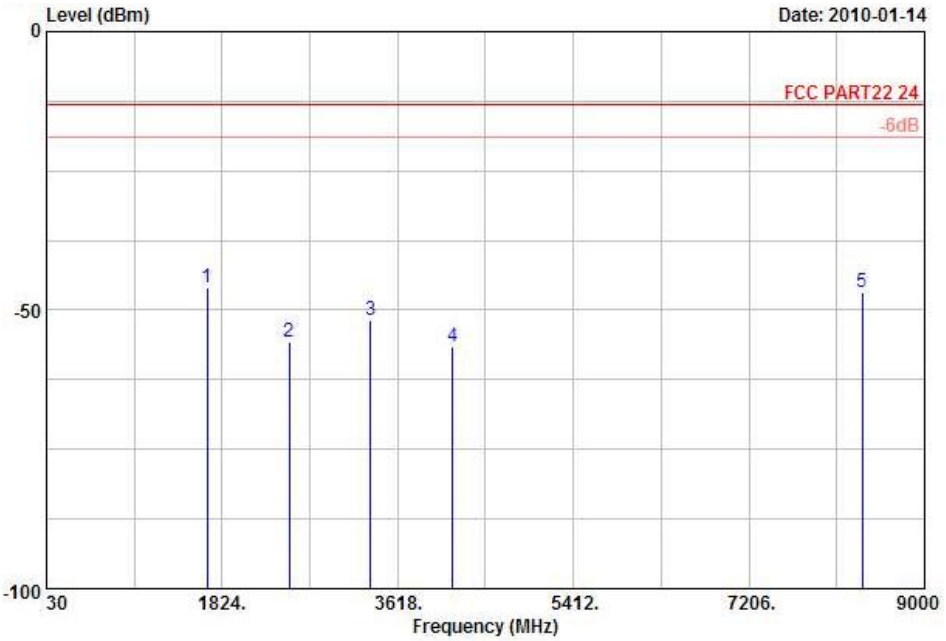
1. The EUT was placed on a rotatable wooden table with 0.8 meter about ground.
2. The EUT was set 3 meters from the receiving antenna, which was mounted on the antenna tower.
3. The table was rotated 360 degrees to determine the position of the highest spurious emission.
4. The height of the receiving antenna is varied between one meter and four meters to search the maximum spurious emission for both horizontal and vertical polarizations.
5. Make the measurement with the spectrum analyzer's RBW = 1MHz, VBW = 3MHz, Sweep = 500ms, 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. EIRP (dBm) = S.G. Power – Tx Cable Loss + Tx Antenna Gain
11. ERP (dBm) = EIRP - 2.15

3.2.4 Test Setup



3.2.5 Test Result of Field Strength of Spurious Radiated

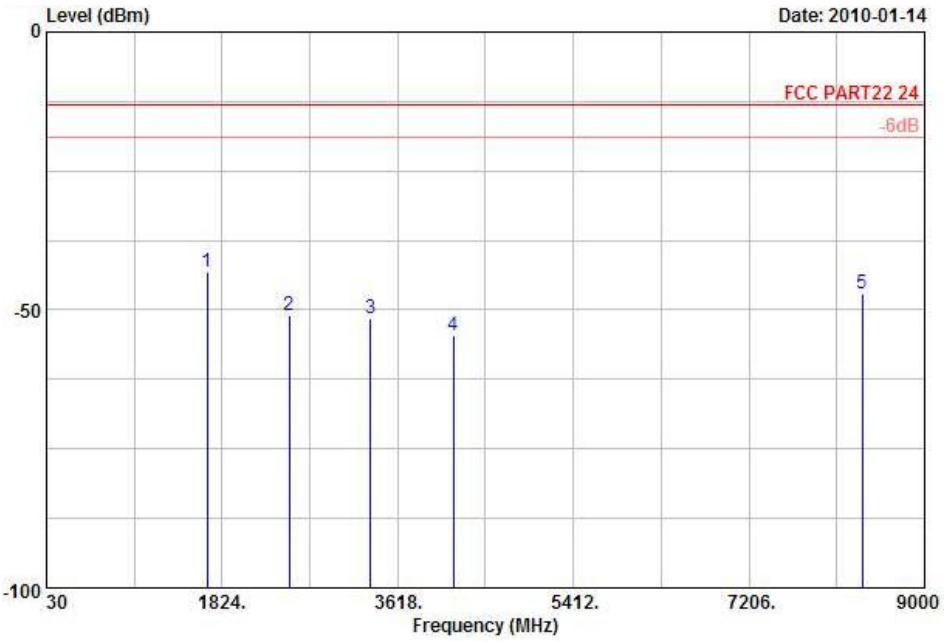
Band :	GSM850	**Temperature :**	23~24°C
Test Mode :	GSM Link	**Relative Humidity :**	45~46%
Test Engineer :	Harvey Tang	**Polarization :**	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



Site : 03CH01-KS
Condition: FCC PART22 24 HF EIRP FACTOR-09020 HORIZONTAL

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
1674	-45.95	-13	-32.95	-45.33	-46.60	0.57	3.37	H	Pass
2510	-55.62	-13	-42.62	-57.80	-57.85	0.78	5.16	H	Pass
3344	-51.90	-13	-38.90	-53.83	-55.54	0.87	6.66	H	Pass
4182	-56.41	-13	-43.41	-59.47	-61.00	0.97	7.71	H	Pass
8364	-46.90	-13	-33.90	-59.97	-55.48	1.50	12.23	H	Pass

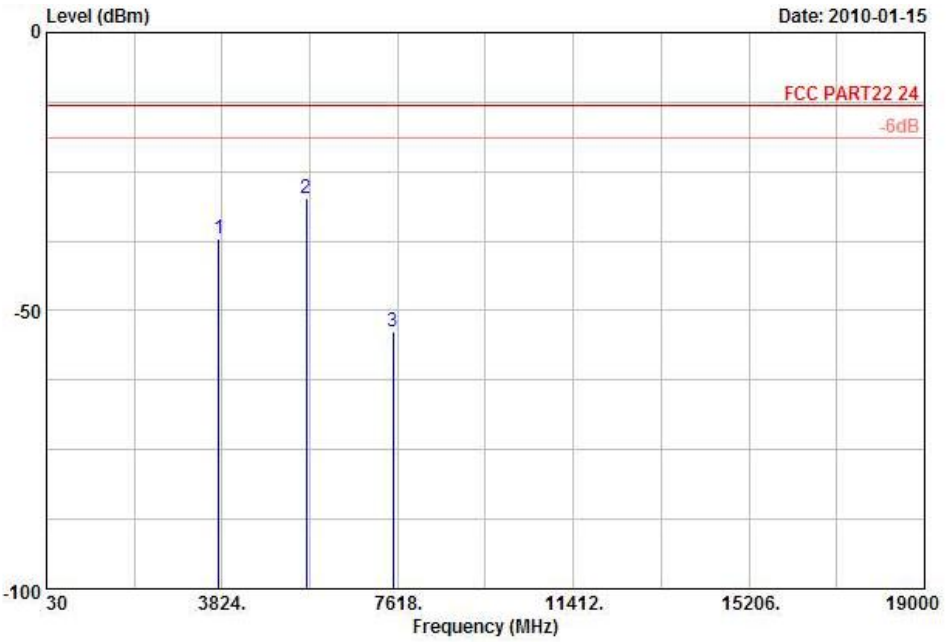
Band :	GSM850	Temperature :	23~24°C
Test Mode :	GSM Link	Relative Humidity :	45~46%
Test Engineer :	Harvey Tang	Polarization :	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



Site : 03CH01-KS
Condition: FCC PART22 24 HF EIRP FACTOR-09020 VERTICAL

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
1672	-43.13	-13	-30.13	-46.99	-43.78	0.57	3.37	V	Pass
2510	-50.93	-13	-37.93	-54.08	-53.16	0.78	5.16	V	Pass
3344	-51.55	-13	-38.55	-53.84	-55.19	0.87	6.66	V	Pass
4184	-54.47	-13	-41.47	-58.89	-59.06	0.97	7.71	V	Pass
8366	-47.10	-13	-34.10	-60.08	-55.68	1.50	12.23	V	Pass

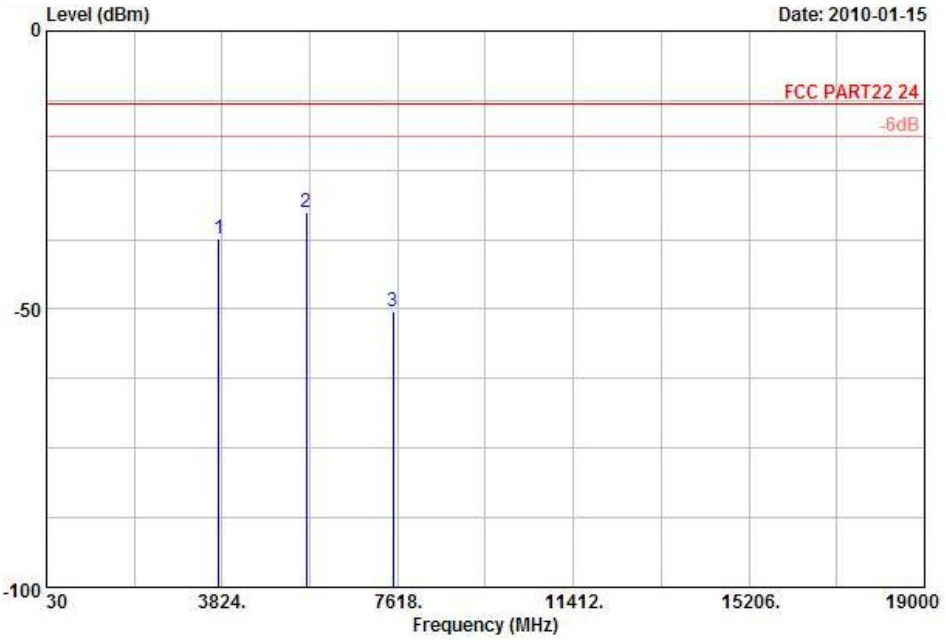
Band :	GSM1900	Temperature :	23~24°C
Test Mode :	GSM Link	Relative Humidity :	45~46%
Test Engineer :	Harvey Tang	Polarization :	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



Site : 03CH01-KS
Condition: FCC PART22 24 HF EIRP FACTOR-09020 HORIZONTAL

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	-36.92	-13	-23.92	-44.03	-43.30	0.78	7.16	H	Pass
5639	-29.88	-13	-16.88	-43.44	-38.42	1.04	9.58	H	Pass
7520	-53.88	-13	-40.88	-59.72	-63.99	1.35	11.46	H	Pass

Band :	GSM1900	Temperature :	23~24°C
Test Mode :	GSM Link	Relative Humidity :	45~46%
Test Engineer :	Harvey Tang	Polarization :	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



Site : 03CH01-KS
Condition: FCC PART22 24 HF EIRP FACTOR-09020 VERTICAL

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	-37.31	-13	-24.31	-47.27	-43.69	0.78	7.16	V	Pass
5639	-32.64	-13	-19.64	-46.35	-41.18	1.04	9.58	V	Pass
7520	-50.35	-13	-37.35	-57.98	-60.46	1.35	11.46	V	Pass

4 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Due Date	Remark
EMI Test Receiver	R&S	ESCI	100724	9kHz – 2.75GHz	Mar. 04, 2009	Mar. 03, 2010	Radiation (03CH01-KS)
Spectrum Analyzer	R&S	FSP40	100319	9kHz~40GHz	Dec. 08, 2009	Dec. 07, 2010	Radiation (03CH01-KS)
Bilog Antenna	SCHAFFNER	CBL6112D	23182	25MHz~2GHz	Dec. 16, 2009	Dec. 15, 2010	Radiation (03CH01-KS)
Double Ridge Horn Antenna	EMCO	3117	75959	1GHz~18GHz	Dec. 16, 2009	Dec. 15, 2010	Radiation (03CH01-KS)
Amplifier	Wireless	FPA6592G	600006	30MHz~2GHz	Dec. 16, 2009	Dec. 15, 2010	Radiation (03CH01-KS)
Amplifier	Agilent	8449B	3008A02370	1GHz~26.5GHz	Dec. 16, 2009	Dec. 15, 2010	Radiation (03CH01-KS)
Signal Generator	R&S	SMR40	100455	10MHz~40GHz	Dec. 08, 2009	Dec. 07, 2010	Radiation (03CH01-KS)
System Simulator	R&S	CMU200	837587/066	Full-Band/BT	Jan. 08, 2009	Jan. 07, 2011	Radiation (03CH01-KS)

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-Shape	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=2)	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 Γ1 = 0.197 Antenna VSWR Γ2 = 0.194 Uncertainty = 20Log(1-Γ1*Γ2)	+0.34 / -0.35	U-Shape	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 Arrangment with Foreign Authorities

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 EP931114-02 as below.

Appendix C. Product Equality Declaration

The declaration is shown as follows.

Appendix D. Original Report

Please refer to Sporton report number FG931114 as below.