

Report No.: FC393001

# **FCC Test Report**

**APPLICANT**: Brightstar Corporation

EQUIPMENT : Mobile phone
BRAND NAME : Avvio / NOBLEX

MODEL NAME : Avvio SN53 / Noblex SN53

FCC ID : WVBASN53

STANDARD : FCC 47 CFR FCC Part 15 Subpart B

CLASSIFICATION : Certification

The product was received on Sep. 30, 2013 and testing was completed on Oct. 22, 2013. We, SPORTON INTERNATIONAL (SHENZHEN) 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 to be compliant with the applicable technical standards.

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

Reviewed by: Louis Wu / Manager

Louis Win

Approved by: Jones Tsai / Manager

### SPORTON INTERNATIONAL (SHENZHEN) INC.

No. 3 Building, the third floor of south, Shahe River west, Fengzeyuan warehouse, Nanshan District, Shenzhen, Guangdong, P.R.C.

SPORTON INTERNATIONAL (SHENZHEN) INC.

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Testing Laboratory 2353



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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FC393001	Rev. 01	Initial issue of report	Oct. 24, 2013

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## **SUMMARY OF TEST RESULT**

Report Section	FCC Rule	Description	Limit	Result	Remark
					Under limit
3.1	15.107	AC Conducted Emission	< 15.107 limits	PASS	3.58 dB at
					0.440 MHz
					Under limit
3.2	15 100	Dadiated Emission	< 15.109 limits	DACC	0.07 dB at
3.2	15.109	Radiated Emission	< 15.109 IIIIIIIS	PASS	263.770 MHz for
					Quasi-Peak

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## 1. General Description

### 1.1. Applicant

#### **Brightstar Corporation**

9725 NW 117th Ave., Miami, Florida, FL 33178, United States

### 1.2. Manufacturer

#### **Skycom Telecommunications Co Limited**

Room 604, East Block, Shengtang Building, Futian District, Shenzhen, China

## 1.3. Feature of Equipment Under Test

	Product Feature				
Equipment	Mobile phone				
Brand Name	Avvio / NOBLEX				
Model Name	Avvio SN53 / Noblex SN53				
FCC ID	WVBASN53				
EUT supports Radios application	GSM/GPRS WLAN2.4GHz 802.11b/g/n HT20/HT40 Bluetooth v2.1 + EDR				
HW Version	X508-MB-V0.5				
SW Version	X508_7h_NOBLEX_V01_20130913_1410				
EUT Stage	Identical Prototype				

Remark:

The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.

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## 1.4. Product Specification of Equipment Under Test

Product Specif	Product Specification subjective to this standard				
	GSM850 : 824.2 MHz ~ 848.8 MHz				
Tx Frequency	GSM1900 : 1850.2 MHz ~ 1909.8MHz				
TXTTOquency	802.11b/g/n: 2412 MHz ~ 2462 MHz				
	Bluetooth: 2402 MHz ~ 2480 MHz				
	GSM850 : 869.2 MHz ~ 893.8 MHz				
Rx Frequency	GSM1900 : 1930.2 MHz ~ 1989.8 MHz				
I TEQUEICY	802.11b/g/n: 2412 MHz ~ 2462 MHz				
	Bluetooth: 2402 MHz ~ 2480 MHz				
	WWAN : PIFA Antenna				
Antenna Type	WLAN : Monopole Antenna				
	Bluetooth : Monopole Antenna				
	GSM: GMSK				
	GPRS: GMSK				
	802.11b: DSSS (DBPSK / DQPSK / CCK)				
Type of Modulation	802.11g/n: OFDM (BPSK / QPSK / 16QAM / 64QAM)				
	Bluetooth v2.1 BR (1Mbps) : GFSK				
	Bluetooth v2.1 EDR (2Mbps) : π /4-DQPSK				
	Bluetooth v2.1 EDR (3Mbps) : 8-DPSK				

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## 1.5. Modification of EUT

No modifications are made to the EUT during all test items.

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#### 1.6. Test Site

Test Site	SPORTON INTERNATIONAL (SHENZHEN) INC.			
Test Site Location	No. 3 Building, the third floor of south, Shahe River west, Fengzeyuan warehouse, Nanshan District, Shenzhen, Guangdong, P.R.C.  TEL: +86-755- 3320-2398			
	Sporton		FCC Registration No.	
Test Site No.	CO01-SZ	03CH01-SZ	831040	

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## 1.7. Applied Standards

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

- FCC 47 CFR FCC Part 15 Subpart B
- ANSI C63.4-2003

**Remark:** All test items were verified and recorded according to the standards and without any deviation during the test.

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## 2. Test Configuration of Equipment Under Test

#### 2.1. Test Mode

The EUT has been associated with peripherals pursuant to ANSI C63.4-2003 and configuration operated in a manner tended to maximize its emission characteristics in a typical application.

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Frequency range investigated: conduction (150 kHz to 30 MHz), radiation (30MHz to the 5th harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower).

The following tables are showing the test modes as the worst cases and recorded in this report.

		Te	st Condition	on
Item	EUT Configuration	EMI AC	EMI RE<1G	EMI RE≥1G
1.	Charging Mode (EUT with adapter)	$\boxtimes$	$\boxtimes$	$\boxtimes$
2.	Data application transferred mode (EUT with notebook)	$\boxtimes$	$\boxtimes$	$\boxtimes$

#### Abbreviations:

EMI AC: AC conducted emissions

EMI RE ≥ 1G: EUT radiated emissions ≥ 1GHz

• EMI RE < 1G: EUT radiated emissions < 1GHz

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Test Items	EUT Configure Mode	Function Type
		Mode 1: GSM850 Idle + Bluetooth Idle + WLAN Idle + Adapter + Earphone + Camera <fig.1></fig.1>
AC Conducted Emission	1/2	Mode 2: GSM1900 Idle + Bluetooth Idle + WLAN Idle + Adapter + Earphone + MPEG4 <fig.1></fig.1>
		Mode 3: GSM1900 Idle + Bluetooth Idle + WLAN Idle + USB Cable (Data Link with Notebook) + Earphone <fig.2></fig.2>
		Mode 1: GSM850 Idle + Bluetooth Idle + WLAN Idle + Adapter + Earphone + Camera <fig.1></fig.1>
Radiated Emissions < 1GHz	1//	Mode 2: GSM1900 Idle + Bluetooth Idle + WLAN Idle + Adapter + Earphone + MPEG4 <fig.1></fig.1>
		Mode 3: GSM1900 Idle + Bluetooth Idle + WLAN Idle + USB Cable (Data Link with Notebook) + Earphone <fig.2></fig.2>
Radiated	4/0	Mode 1: GSM850 Idle + Bluetooth Idle + WLAN Idle + Adapter + Earphone + Camera < Fig.1>
Emissions ≥ 1GHz	1/2	Mode 2: GSM1900 Idle + Bluetooth Idle + WLAN Idle + USB Cable (Data Link with Notebook) + Earphone <fig.2></fig.2>

#### Remark:

- 1. The worst case of AC is mode 2; the test data of this mode is reported. And the USB Link mode of AC is mode 3; the test data of this mode is also reported.
- 2. The worst case of RE < 1G is mode 1; the test data of this mode was reported. And the USB Link mode of RE is mode 3; the test data of this mode is also reported.
- 3. Link with Notebook means data application transferred mode between EUT and Notebook.

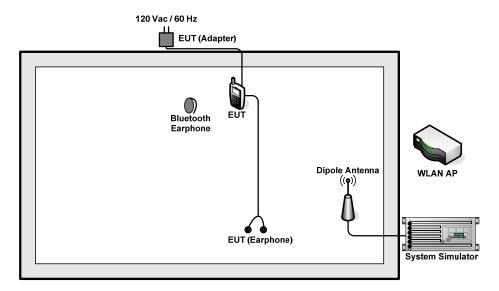
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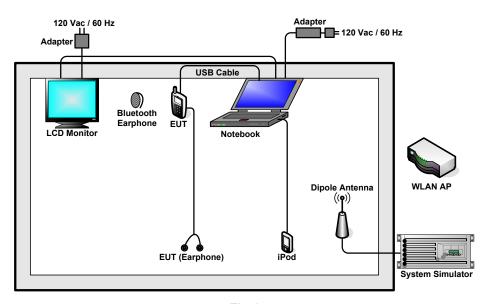


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## 2.2. Connection Diagram of Test System



<Fig.1>



<Fig.2>

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2.3. Support Unit used in test configuration and system

Item	Equipment	Trade Name	Model Name	FCC ID	Data Cable	Power Cord
1.	System Simulator	Agilent	E5515C	N/A	N/A	Unshielded, 1.8 m
2.	WLAN AP	ESD-dlink	DIR-612	N/A	N/A	Unshielded, 1.8 m
3.	WLAN AP	D-link	DIR-615	N/A	N/A	Unshielded, 1.8 m
4.	Bluetooth Earphone	Nokia	BH-108	N/A	N/A	N/A
5.	Notebook	DELL	P08S	FCC DoC	N/A	AC I/P: Unshielded, 1.8 m DC O/P: Shielded, 1.8 m
6.	LCD Monitor	DELL	IN1940MWB	FCC DoC	Shielded, 1.2 m	Unshielded, 1.8 m
7.	LCD Monitor	DELL	E1707FPt	FCC DoC	Shielded, 1.2 m	Unshielded, 1.8 m
8.	iPod	Apple	MC525 ZP/A	FCC DoC	Unshielded, 1.0 m	N/A

### 2.4. EUT Operation Test Setup

The EUT was in GSM idle mode during the testing. The EUT was synchronized to the BCCH, and was in continuous receiving mode by setting system simulator's paging reorganization.

At the same time, the EUT was attached to the Bluetooth earphone or WLAN AP, and the following programs installed in the EUT were programmed during the test.

- 1. Execute the program, "Winthrax" under WIN7 installed in notebook for files transfer with EUT via USB cable.
- 2. Execute "Windows Media Player" to play MPEG4 files.
- 3. Turn on camera to capture images.

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#### 3. Test Result

#### 3.1. Test of AC Conducted Emission Measurement

#### 3.1.1 Limits of AC Conducted Emission

For equipment that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table.

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Frequency of emission	Conducted	limit (dBuV)
(MHz)	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

<sup>\*</sup>Decreases with the logarithm of the frequency.

#### 3.1.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

#### 3.1.3 Test Procedure

- 1. The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
- 2. Connect EUT to the power mains through a line impedance stabilization network (LISN).
- 3. All the support units are connecting to the other LISN.
- 4. The LISN provides 50 ohm coupling impedance for the measuring instrument.
- 5. The FCC states that a 50 ohm, 50 microhenry LISN should be used.
- 6. Both sides of AC line were checked for maximum conducted interference.
- 7. The frequency range from 150 kHz to 30 MHz was searched.
- 8. Set the test-receiver system to Peak Detect Function and specified bandwidth with Maximum Hold Mode.

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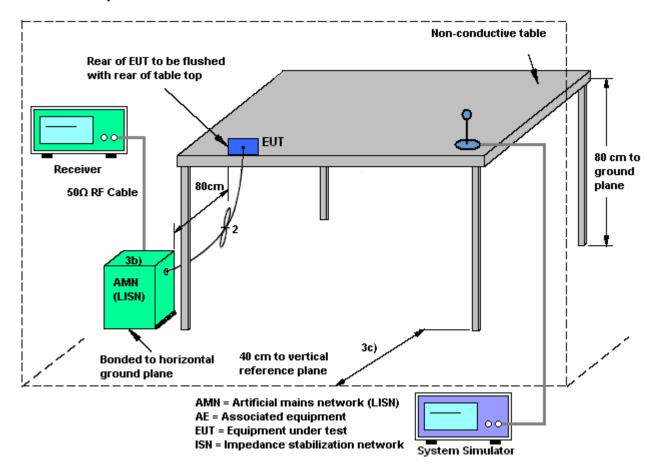
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#### 3.1.4 Test Setup

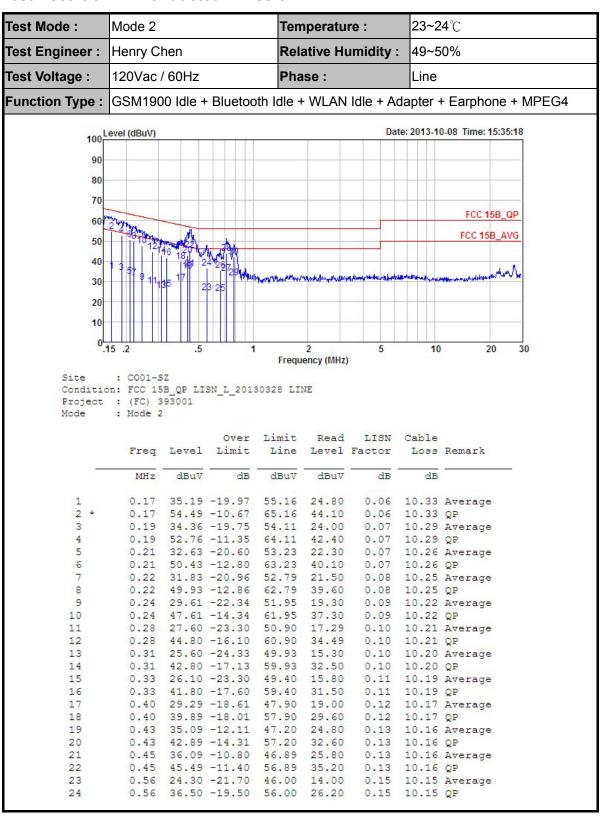


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3.1.5 Test Result of AC Conducted Emission



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#### FCC Test Report

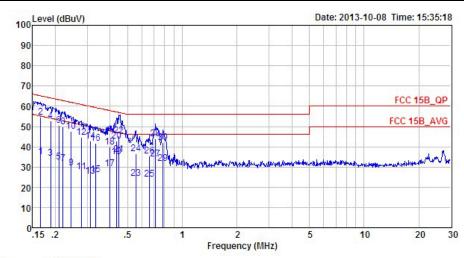
Test Engineer: Henry Chen Relative Humidity: 49~50%	Test Mode :	23~24°ℂ
rest Engineer. Themy offers	Test Engineer :	49~50%
Test Voltage: 120Vac / 60Hz Phase: Line	Test Voltage :	Line

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Function Type: GSM1900 Idle + Bluetooth Idle + WLAN Idle + Adapter + Earphone + MPEG4



: CO01-SZ

Condition: FCC 15B\_QP LISN\_L\_20130328 LINE Project : (FC) 393001 Mode : Mode 2

	Freq	Level	Over Limit	100	17.00	LISN Factor		Remark
-	MHz	dBuV	dB	dBuV	dBuV	dB	dB	-
25	0.66	23.91	-22.09	46.00	13.60	0.16	10.15	Average
26	0.66	35.61	-20.39	56.00	25.30	0.16	10.15	QP
27	0.71	33.81	-12.19	46.00	23.50	0.16	10.15	Average
28	0.71	43.81	-12.19	56.00	33.50	0.16	10.15	QP
29	0.78	31.82	-14.18	46.00	21.50	0.17	10.15	Average
30	0.78	42.12	-13.88	56.00	31.80	0.17	10.15	QP

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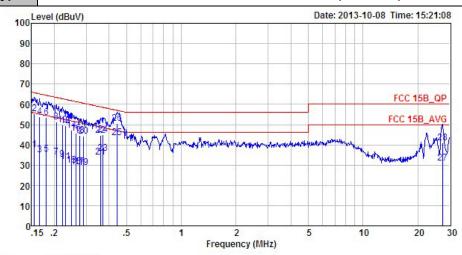


 Test Mode :
 Mode 2
 Temperature :
 23~24℃

 Test Engineer :
 Henry Chen
 Relative Humidity :
 49~50%

 Test Voltage :
 120Vac / 60Hz
 Phase :
 Neutral

Function Type: GSM1900 Idle + Bluetooth Idle + WLAN Idle + Adapter + Earphone + MPEG4



Site : CO01-SZ

Condition: FCC 15B\_QP LISN\_N\_20130328 NEUTRAL

Project : (FC) 393001

Over		Limit	Read	Read LISN Cable				
Freq	Level	Limit	Line	Level	Factor	Loss	Remark	
MHz	dBuV	dB	dBuV	dBuV	dB	dB		
0.16	37.59	-18.10	55.69	27.20	0.04	10.35	Average	
0.16	55.49	-10.20	65.69	45.10	0.04	10.35	QP	
0.17	35.17	-19.99	55.16	24.80	0.04	10.33	Average	
0.17	53.97	-11.19	65.16	43.60	0.04	10.33	QP	
0.18	35.34	-19.12	54.46	25.00	0.04	10.30	Average	
0.18	53.34	-11.12	64.46	43.00	0.04			
0.21	34.00	-19.40	53.40	23.70	0.04	10.26	Average	
0.21	51.30	-12.10	63.40	41.00	0.04	10.26	QP	
0.22	32.69	-20.05	52.74	22.40	0.04	10.25	Average	
0.22	49.99	-12.75	62.74	39.70	0.04			
0.23	31.78	-20.66	52.44	21.50	0.04		Average	
0.23	49.28	-13.16			0.04			
0.25	29.76	-22.02	51.78	19.50	0.04	10.22	Average	
0.25	47.36	-14.42	61.78	37.10	0.04	10.22	QP	
0.26	29.25	-22.04	51.29	19.00	0.04	10.21	Average	
0.26	45.85	-15.44	61.29	35.60	0.04			
0.28	29.05	-21.89	50.94	18.80	0.04	10.21	Average	
0.28	44.65	-16.29	60.94	34.40				
0.29	28.94	-21.60	50.54	18.70	0.04	10.20	Average	
0.29	44.24	-16.30	60.54	34.00	0.04	10.20	QP	
0.36	33.92	-14.82	48.74	23.70	0.04	10.18	Average	
0.36	44.82	-13.92	58.74	34.60	0.04	10.18	QP	
0.37	35.62	-12.85	48.47			10.18	Average	
0.37	44.92	-13.55	58.47	34.70	0.04			
0.44	43.40	-3.58	46.98	33.20	0.04		Average	
		-6.38						
							Average	
27.42	40.98	-19.02	60.00	29.20	1.21			
	MHz  0.16 0.16 0.17 0.17 0.18 0.18 0.21 0.22 0.22 0.23 0.25 0.25 0.26 0.26 0.28 0.29 0.29 0.36 0.36 0.37 0.44 0.44 27.42	MHz dBuV  0.16 37.59 0.16 55.49 0.17 35.17 0.17 53.97 0.18 35.34 0.18 53.34 0.21 34.00 0.21 51.30 0.22 49.99 0.23 31.78 0.23 49.28 0.25 29.76 0.25 47.36 0.26 29.25 0.26 45.85 0.28 29.05 0.28 44.65 0.29 28.94 0.29 44.24 0.36 33.92 0.36 44.82 0.37 35.62 0.37 44.92 0.44 43.40 0.44 50.60 27.42 30.98	MHz dBuV dB  0.16 37.59 -18.10 0.16 55.49 -10.20 0.17 35.17 -19.99 0.17 53.97 -11.19 0.18 35.34 -19.12 0.18 53.34 -11.12 0.21 34.00 -19.40 0.21 51.30 -12.10 0.22 32.69 -20.05 0.22 49.99 -12.75 0.23 31.78 -20.66 0.23 49.28 -13.16 0.25 29.76 -22.02 0.25 47.36 -14.42 0.26 29.25 -22.04 0.26 45.85 -15.44 0.28 29.05 -21.89 0.28 44.65 -16.29 0.29 28.94 -21.60 0.29 44.24 -16.30 0.36 33.92 -14.82 0.36 44.82 -13.92 0.37 35.62 -12.85 0.37 44.92 -13.55 0.44 43.40 -3.58 0.44 50.60 -6.38 27.42 30.98 -19.02	Hreq Level Limit Line           MHz         dBuV         dBuV           0.16         37.59         -18.10         55.69           0.16         55.49         -10.20         65.69           0.17         35.17         -19.99         55.16           0.17         53.97         -11.19         65.16           0.18         35.34         -19.12         54.46           0.18         53.34         -11.12         64.46           0.21         34.00         -19.40         53.40           0.21         51.30         -12.10         63.40           0.22         32.69         -20.05         52.74           0.22         49.99         -12.75         62.74           0.23         31.78         -20.66         52.44           0.23         31.78         -20.66         52.44           0.23         49.28         -13.16         62.44           0.25         29.76         -22.02         51.78           0.26         29.25         -22.04         51.29           0.26         45.85         -15.44         61.29           0.28         24.65         -16.29	MHz dBuV dB dBuV dBuV  0.16 37.59 -18.10 55.69 27.20 0.16 55.49 -10.20 65.69 45.10 0.17 35.17 -19.99 55.16 24.80 0.17 53.97 -11.19 65.16 43.60 0.18 35.34 -19.12 54.46 25.00 0.18 35.34 -19.12 64.46 43.00 0.21 34.00 -19.40 53.40 23.70 0.21 51.30 -12.10 63.40 41.00 0.22 32.69 -20.05 52.74 22.40 0.22 49.99 -12.75 62.74 39.70 0.23 31.78 -20.66 52.44 21.50 0.23 49.28 -13.16 62.44 39.00 0.25 29.76 -22.02 51.78 19.50 0.25 47.36 -14.42 61.78 37.10 0.26 29.25 -22.04 51.29 19.00 0.26 45.85 -15.44 61.29 35.60 0.28 29.05 -21.89 50.94 18.80 0.29 44.65 -16.29 60.94 34.40 0.29 28.94 -21.60 50.54 18.70 0.29 44.24 -16.30 60.54 34.00 0.36 33.92 -14.82 48.74 23.70 0.36 44.82 -13.92 58.74 34.60 0.37 35.62 -12.85 48.47 25.40 0.37 44.92 -13.55 58.47 34.70 0.44 43.40 -3.58 46.98 33.20 0.44 50.60 -6.38 56.98 40.40 27.42 30.98 -19.02 50.00 19.20	Hreq Level Limit Line Level Factor           MHz         dBuV         dBuV <th col<="" td=""><td>MHz         dBuV         dB         dBuV         dBuV         dBuV         dB         dB</td></th>	<td>MHz         dBuV         dB         dBuV         dBuV         dBuV         dB         dB</td>	MHz         dBuV         dB         dBuV         dBuV         dBuV         dB         dB

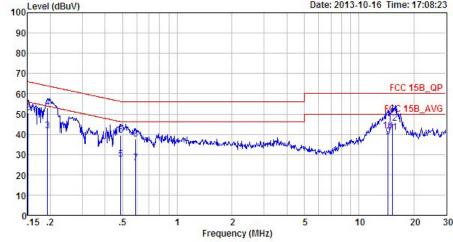
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Test Mode :	Mode 3	Temperature :	<b>23~24</b> ℃				
Test Engineer :	Henry Chen	Relative Humidity :	49~50%				
Test Voltage :	120Vac / 60Hz	Phase :	Line				
Function Type :	GSM1900 Idle + Bluetooth Idle + WLAN Idle + USB Cable (Data Link with						
Function Type :	Notebook) + Earphone						
100 <sup>L</sup>	evel (dBuV)	Date:	2013-10-16 Time: 17:08:23				
90							



Site : COO1-SZ

Condition: FCC 15B\_QP LISN\_L\_20130328 LINE

Project : (FC) 393001 Mode : Mode 3

		Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	-	MHz	dBu∀	dB	dBu∇	dBuV	dB	dB	-
1		0.15	36.22	-19.78	56.00	25.80	0.06	10.36	Average
2		0.15	50.42	-15.58	66.00	40.00	0.06	10.36	QP
3		0.19	41.85	-12.04	53.89	31.50	0.07	10.28	Average
4		0.19	53.05	-10.84	63.89	42.70	0.07	10.28	QP
5		0.49	27.50	-18.69	46.19	17.20	0.14	10.16	Average
6		0.49	39.60	-16.59	56.19	29.30	0.14	10.16	QP
7		0.59	25.90	-20.10	46.00	15.60	0.15	10.15	Average
8		0.59	37.60	-18.40	56.00	27.30	0.15	10.15	QP
9		14.44	38.60	-11.40	50.00	27.29	0.89	10.42	Average
10		14.44	41.60	-18.40	60.00	30.29	0.89	10.42	QP
11	*	15.23	41.05	-8.95	50.00	29.70	0.92	10.43	Average
12		15.23	45.35	-14.65	60.00	34.00	0.92	10.43	QP

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 Test Mode :
 Mode 3
 Temperature :
 23~24℃

 Test Engineer :
 Henry Chen
 Relative Humidity :
 49~50%

 Test Voltage :
 120Vac / 60Hz
 Phase :
 Neutral

 Function Type :
 GSM1900 Idle + Bluetooth Idle + WLAN Idle + USB Cable (Data Link with Notebook) + Earphone

100 Level (dBuV) Date: 2013-10-16 Time: 17:03:42 90 80 70 FCC 15B\_QP 60 FCC 15B\_AVG 50 40 30 20 5 10 20 30 Frequency (MHz)

Site : CO01-SZ

Condition: FCC 15B\_QP LISN\_N\_20130328 NEUTRAL

Project : (FC) 393001 Mode : Mode 3

		Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	=	MHz	dBu∇	dB	dBu∇	dBuV	dB	dB	-
1		0.15	36.00	-20.00	56.00	25.60	0.04	10.36	Average
2		0.15	50.40	-15.60	66.00	40.00	0.04	10.36	QP
3		0.19	41.92	-11.92	53.84	31.60	0.04	10.28	Average
4		0.19	54.32	-9.52	63.84	44.00	0.04	10.28	QP
5		0.22	36.99	-16.02	53.01	26.70	0.04	10.25	Average
6		0.22	51.29	-11.72	63.01	41.00	0.04	10.25	QP
7		0.56	26.19	-19.81	46.00	16.00	0.04	10.15	Average
8		0.56	36.79	-19.21	56.00	26.60	0.04	10.15	QP
9		14.36	37.61	-12.39	50.00	26.71	0.49	10.41	Average
10		14.36	41.71	-18.29	60.00	30.81	0.49	10.41	QP
11	*	15.89	41.03	-8.97	50.00	30.00	0.58	10.45	Average
12		15.89	45.13	-14.87	60.00	34.10	0.58	10.45	QP

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#### 3.2. Test of Radiated Emission Measurement

#### 3.2.1. Limit of Radiated Emission

The emissions from an unintentional radiator shall not exceed the field strength levels specified in the following table:

Frequency (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
30 – 88	100	3
88 – 216	150	3
216 - 960	200	3
Above 960	500	3

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3.2.2. Measuring Instruments

#### •

The measuring equipment is listed in the section 4 of this test report.

#### 3.2.3. Test Procedures

- 1. The EUT was placed on a turntable with 0.8 meter above ground.
- 2. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.
- 3. The table was rotated 360 degrees to determine the position of the highest radiation.
- 4. The antenna is a Bi-Log antenna and its height is adjusted between one to four meters above ground to find the maximum value of the field strength for both horizontal polarization and vertical polarization of the antenna.
- 5. For each suspected emission, the EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading.
- 6. Set the test-receiver system to Peak Detect Function and specified bandwidth with Maximum Hold Mode.
- 7. If the emission level of the EUT in peak mode was 3 dB lower than the limit specified, peak values of EUT will be reported. Otherwise, the emission will be repeated by using the quasi-peak method and reported.
- 8. Emission level (dB $\mu$ V/m) = 20 log Emission level ( $\mu$ V/m)
- 9. Corrected Reading: Antenna Factor + Cable Loss + Read Level Preamp Factor = Level

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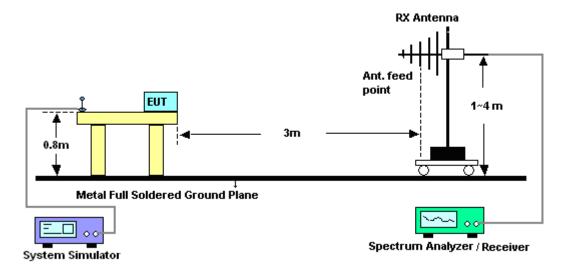
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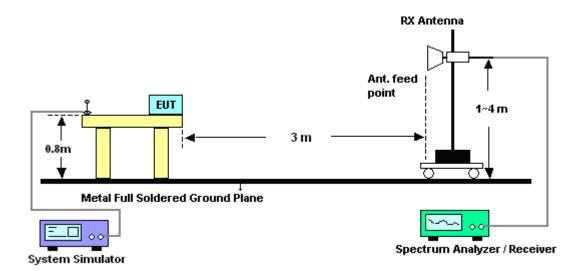
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#### 3.2.4. Test Setup of Radiated Emission

For radiated emissions from 30MHz to 1GHz



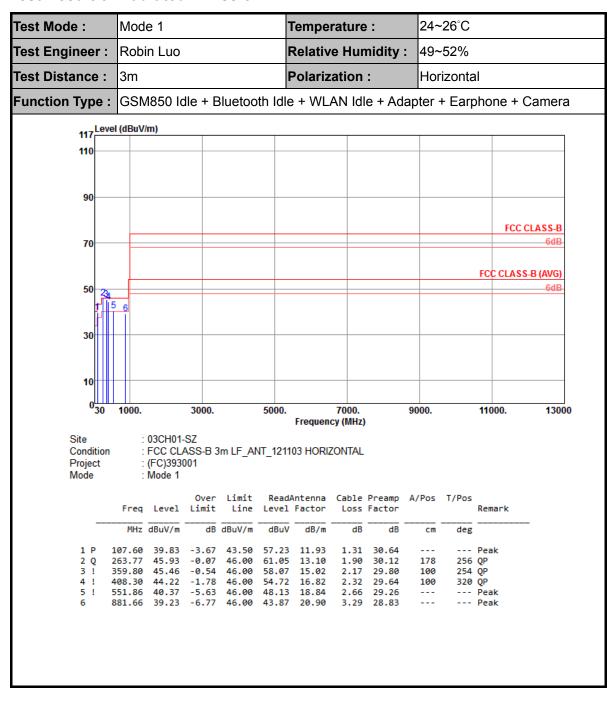
#### For radiated emissions above 1GHz



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3.2.5. Test Result of Radiated Emission



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24~26°C Test Mode: Mode 1 Temperature: **Relative Humidity:** 49~52% Test Engineer: Robin Luo Test Distance: Polarization: 3m Vertical Function Type: GSM850 Idle + Bluetooth Idle + WLAN Idle + Adapter + Earphone + Camera 117 Level (dBuV/m) 110 90 FCC CLASS-B FCC CLASS-B (AVG) 30 10 0<mark>30</mark> 5000. 9000. 11000. 13000 1000. 3000. 7000. Frequency (MHz) : 03CH01-SZ Site Condition : FCC CLASS-B 3m LF\_ANT\_121103 VERTICAL Project : (FC)393001 Mode : Mode 1 Over Limit ReadAntenna Freq Level Limit Line Level Factor ReadAntenna Cable Preamp A/Pos T/Pos Remark Loss Factor MHz dBuV/m dB dBuV/m dBuV deg dB/m dB cm 107.60 36.22 -7.28 43.50 53.62 11.93 30.64 --- Peak 2 263.77 39.55 -6.45 46.00 54.67 13.10 1.90 30.12 --- Peak 3 P 408.30 39.77 -6.23 46.00 50.27 16.82 2.32 29.64 112 205 Peak 551.86 37.57 -8.43 46.00 45.33 18.84 696.39 36.89 -9.11 46.00 43.64 19.36 2.66 29.26 --- Peak 2.96 29.07 --- Peak 839.95 35.66 -10.34 46.00 40.42 20.90 3.22 28.88 --- Peak

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24~26°C Test Mode: Mode 3 Temperature: **Relative Humidity:** 49~52% Test Engineer: Robin Luo Polarization: Test Distance: 3m Horizontal GSM1900 Idle + Bluetooth Idle + WLAN Idle + USB Cable (Data Link with Function Type: Notebook) + Earphone 117 Level (dBuV/m) 110 90 FCC CLASS-B 70 FCC CLASS-B (AVG) 50 30 10 0<mark>30</mark> 1000. 3000. 5000. 7000. 9000. 11000. 13000 Frequency (MHz) : 03CH01-SZ Site Condition : FCC CLASS-B 3m LF\_ANT\_121103 HORIZONTAL Project : (FC)393001 Mode : Mode 3 Over Limit ReadAntenna Cable Preamp A/Pos T/Pos Freq Level Limit Line Level Factor Remark Loss Factor MHz dBuV/m dB dBuV/m dBuV dB/m dB dB cm deg 120.21 33.86 -9.64 43.50 50.91 12.20 1.35 30.60 --- Peak 2! 39.22 -4.28 43.50 58.25 9.67 1.66 3 Q 4 P 42.28 -3.72 46.00 316.15 56.41 13.76 2.06 29.95 132 248 QP 358.83 39.01 -6.99 46.00 707.06 32.95 -13.05 46.00 51.62 15.02 39.40 19.64 2.17 29.80 ------ Peak --- Peak 2.97 29.06

3.22 28.88

839.95 32.33 -13.67 46.00 37.09 20.90

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--- Peak

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24~26°C Test Mode: Mode 3 Temperature: Test Engineer: **Relative Humidity:** 49~52% Robin Luo Polarization: Test Distance: 3m Vertical GSM1900 Idle + Bluetooth Idle + WLAN Idle + USB Cable (Data Link with Function Type: Notebook) + Earphone 117 Level (dBuV/m) 110 90 FCC CLASS-B 70 FCC CLASS-B (AVG) 6dE 50 10 1000. 3000. 7000. 9000. 11000. 13000 Frequency (MHz) Site : 03CH01-SZ : FCC CLASS-B 3m LF\_ANT\_121103 VERTICAL Condition Project : (FC)393001 Mode : Mode 3 ReadAntenna Cable Preamp A/Pos T/Pos Over Limit Freq Level Limit Line Level Factor Remark Loss Factor MHz dBuV/m dB dBuV/m dBuV dB/m dB dB deg 122.15 25.98 -17.52 43.50 42.96 12.25 1.36 30.59 --- Peak ---191.99 30.38 -13.12 43.50 49.41 9.67 Peak 1.66 30.36 3 P 316.15 36.91 -9.09 46.00 51.04 13.76 2.06 29.95 200 360 Peak 408.30 34.22 -11.78 46.00 44.72 16.82 609.09 32.27 -13.73 46.00 39.48 19.20 741.98 35.43 -10.57 46.00 40.83 20.56 4 2.32 29.64 --- Peak ------ Peak 5 2.78 29.19 3.05 --- Peak 29.01

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## 4. List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristic s	Calibration Date	Test Date	Due Date	Remark
ESCIO TEST Receiver	R&S	1142.8007.03	100724	9kHz~3GHz	Mar. 28, 2013	Oct. 08, 2013~ Oct. 16, 2013	Mar. 27, 2014	Conduction (CO01-SZ)
AC LISN	EMCO	3816/2SH	00103912	9kHz~30MHz	Mar. 28, 2013	Oct. 08, 2013~ Oct. 16, 2013	Mar. 27, 2014	Conduction (CO01-SZ)
AC LISN (for auxiliary equipment)	EMCO	3816/2SH	00103892	9kHz~30MHz	Mar. 28, 2013	Oct. 08, 2013~ Oct. 16, 2013	Mar. 27, 2014	Conduction (CO01-SZ)
AC Power Source	Chroma	61602	6160200008 91	N/A	Nov. 20, 2012	Oct. 08, 2013~ Oct. 16, 2013	Nov. 19, 2013	Conduction (CO01-SZ)
ESCI TEST Receiver	R&S	ESCI	100724	9K-3GHz	Mar. 28, 2013	Oct. 22, 2013	Mar. 27, 2014	Radiation (03CH01-SZ)
Spectrum Analyzer	R&S	FSP30	101362	9kHz~30GHz	Nov. 11, 2012	Oct. 22, 2013	Nov. 10, 2013	Radiation (03CH01-SZ)
Double Ridge Horn Antenna	ETS Lindgren	3117	00119436	1GHz~18GHz	Nov. 12, 2012	Oct. 22, 2013	Nov. 11, 2013	Radiation (03CH01-SZ)
Bilog Antenna	SCHAFFNER	CBL6112B	2614	30Mhz~2Ghz	Nov. 03, 2012	Oct. 22, 2013	Nov. 02, 2013	Radiation (03CH01-SZ)
Amplifier	ADVANTEST	BB525C	E9007003	9K-3000MHz GAIN 30db	Mar. 28, 2013	Oct. 22, 2013	Mar. 27, 2014	Radiation (03CH01-SZ)
Amplifier	Yiai	AV3860B	04030	2GHz~26.5GH z	Mar. 28, 2013	Oct. 22, 2013	Mar. 27, 2014	Radiation (03CH01-SZ)
Turn Table	EM Electronics	EM 1000	N/A	0 ~ 360 degree	N/A	Oct. 22, 2013	N/A	Radiation (03CH01-SZ)
Antenna Mast	EM Electronics	EM 1000	N/A	1 m - 4 m	N/A	Oct. 22, 2013	N/A	Radiation (03CH01-SZ)

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## 5. Uncertainty of Evaluation

#### <u>Uncertainty of Conducted Emission Measurement (150 kHz ~ 30 MHz)</u>

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	2.26
20111401100 01 0070 (0 200(37)	

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#### <u>Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz)</u>

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	2.54
Confidence of 35% (0 = 200(y))	

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

Measuring Uncertainty for a Level of	
Confidence of 95% (U = 2Uc(y))	4.72
20111acrice 01 00 /0 (3 200(y))	

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