

Report No. : FC431702

# **FCC Test Report**

APPLICANT : CT Asia

**EQUIPMENT**: Mobile Phone

BRAND NAME : BLU

MODEL NAME : Tank II

FCC ID : YHLBLUTANK2

STANDARD : FCC 47 CFR FCC Part 15 Subpart B

CLASSIFICATION : Certification

The product was received on Mar. 17, 2014 and testing was completed on Apr. 17, 2014. 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
FC431702	Rev. 01	Initial issue of report	Apr. 21, 2014

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**SUMMARY OF TEST RESULT** 

Report Section	FCC Rule	FCC Rule Description Limit		Result	Remark
					Under limit
3.1	15.107	AC Conducted Emission	< 15.107 limits	PASS	5.68 dB at
					0.460 MHz
					Under limit
3.2	15.109	Radiated Emission	< 15.109 limits	PASS	0.27 dB at
3.2	15.109	Radiated Emission	< 15.109 liffills	PASS	295.140 MHz
					for Quasi-Peak

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# 1. General Description

# 1.1. Applicant

**CT** Asia

Unit 01, 15/F, Seaview Centre, 139-141 Hoi bun road, Kwun Tong, Kowloon, Hongkong

#### 1.2. Manufacturer

Zechin Communications Co., Ltd.

Unit804, 8th Floor Desay Tech Building, Gaoxin Road South, Nanshan District, Shenzhen, China

### 1.3. Feature of Equipment Under Test

	Product Feature
Equipment	Mobile Phone
Brand Name	BLU
Model Name	Tank II
FCC ID	YHLBLUTANK2
EUT supports Radios application	GSM/Bluetooth v3.0+EDR
HW Version	S323-MT-V1.0
SW Version	BLU_T192_V07_GENERIC
EUT Stage	Production Unit

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 Specification subjective to this standard					
Tx Frequency	GSM850 : 824.2 MHz ~ 848.8 MHz GSM1900 : 1850.2 MHz ~ 1909.8MHz Bluetooth: 2402 MHz ~ 2480 MHz				
Rx Frequency	GSM850 : 869.2 MHz ~ 893.8 MHz GSM1900 : 1930.2 MHz ~ 1989.8 MHz Bluetooth: 2402 MHz ~ 2480 MHz				
Antenna Type  WWAN : PIFA Antenna Bluetooth : PIFA Antenna					
Type of Modulation	GSM: GMSK Bluetooth v3.0 EDR: GFSK, $\pi$ /4-DQPSK, 8-DPSK				

#### 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					
Test Site No.	Sporton Site No. FCC Registration No.					
Test Site NO.	CO01-SZ	03CH01-SZ	831040			

# 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.

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.

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

#### Abbreviations:

EMI AC: AC conducted emissions

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

EMI RE < 1G: EUT radiated emissions < 1GHz</li>

Note 1: Testing for this mode is not required or not the worst case.

Remark: For signal above 1GHz, the worst case was test item 2.

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

### Remark:

- The worst case of AC is mode 1, and the USB Link mode of AC is mode 3, the test data of these modes are reported.
- 2. The worst case of RE < 1G is mode 3; only the test data of this mode is reported.
- 3. Link with Notebook means data application transferred mode between EUT and Notebook.

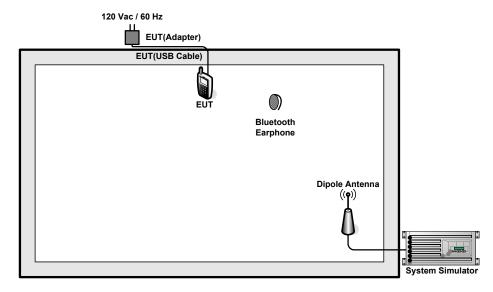
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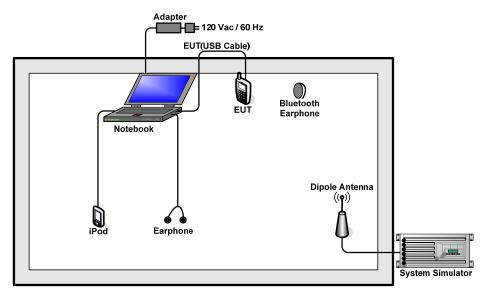


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# 2.2. Connection Diagram of Test System



<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	R&S	CMW 500	N/A	N/A	Unshielded, 1.8 m
2.	Bluetooth Earphone	Lenovo	LBH301	N/A	N/A	N/A
3.	Notebook	Lenovo	G480	N/A	N/A	AC I/P: Unshielded, 0.8 m DC O/P: Shielded, 1.8 m
4.	iPod nano 8GB	Apple	MC690 ZP/A	FCC DoC	Shielded, 1.2m	N/A
5.	Earphone	Apple	MC690 ZP/A	FCC DoC	Unshielded, 1.6m	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, 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 "Video 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.

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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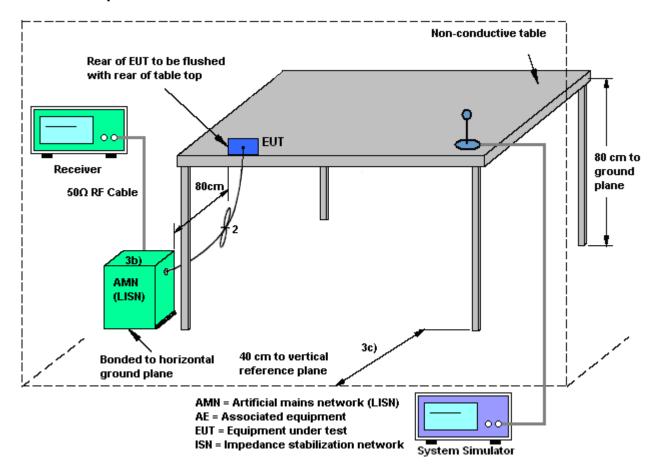
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### 3.1.4 Test Setup



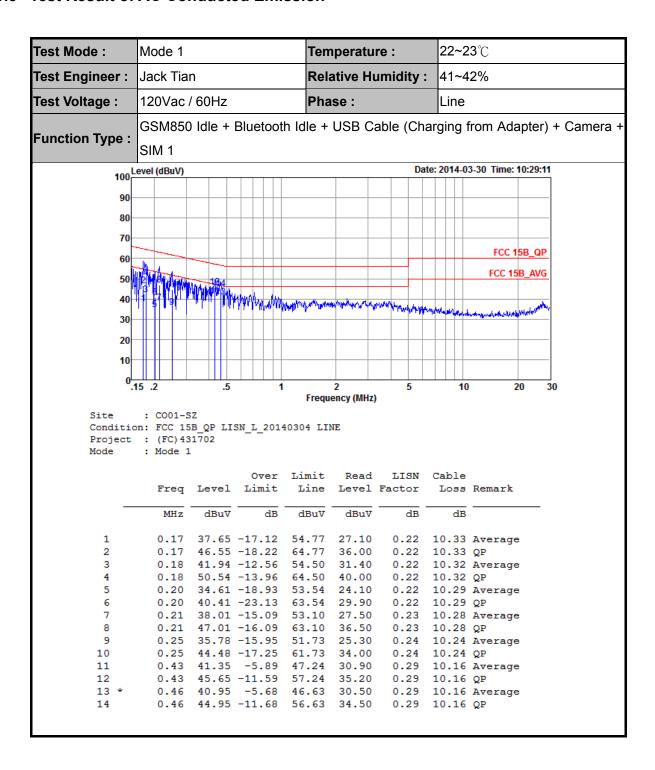
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#### 3.1.5 Test Result of AC Conducted Emission



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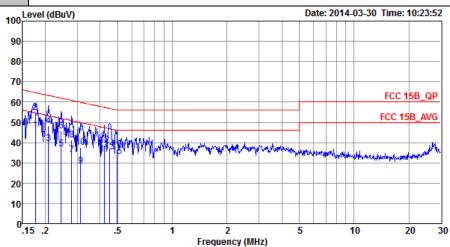


Test Mode: Mode 1 Temperature: 22~23°C

Test Engineer: Jack Tian Relative Humidity: 41~42%

Test Voltage: 120Vac / 60Hz Phase: Neutral

GSM850 Idle + Bluetooth Idle + USB Cable (Charging from Adapter) + Camera + SIM 1



Site : CO01-SZ

Condition: FCC 15B\_QP LISN\_N\_20140304 NEUTRAL

Project : (FC)431702 Mode : Mode 1

			Over	Limit	Read	LISN	Cable	
	Freq	Level	Limit	Line	Level	Factor	Loss	Remark
_								
	MHz	dBu∀	dB	dBu∀	dBu∀	dB	dB	
1 *	0.18	46.25	-8.39	54.64	35.61	0.32	10.32	Average
2	0.18	55.15	-9.49	64.64	44.51	0.32	10.32	QP
3	0.21	39.61	-13.66	53.27	29.01	0.32	10.28	Average
4	0.21	48.31	-14.96	63.27	37.71	0.32	10.28	QP
5	0.24	36.79	-15.16	51.95	26.20	0.34	10.25	Average
6	0.24	45.89	-16.06	61.95	35.30	0.34	10.25	QP
7	0.28	34.07	-16.78	50.85	23.50	0.35	10.22	Average
8	0.28	41.47	-19.38	60.85	30.90	0.35	10.22	QP
9	0.31	28.36	-21.52	49.88	17.80	0.36	10.20	Average
10	0.31	37.56	-22.32	59.88	27.00	0.36	10.20	QP
11	0.42	34.36	-13.06	47.42	23.80	0.39	10.17	Average
12	0.42	38.76	-18.66	57.42	28.20	0.39	10.17	QP
13	0.45	35.36	-11.49	46.85	24.80	0.40	10.16	Average
14	0.45	36.86	-19.99	56.85	26.30	0.40	10.16	QP
15	0.49	33.37	-12.73	46.10	22.80	0.41	10.16	Average
16	0.49	36.67	-19.43	56.10	26.10	0.41	10.16	QP

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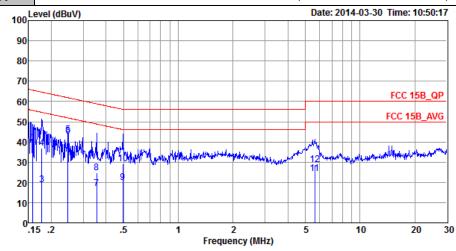


### FCC Test Report

Test Mode :	Mode 3	Temperature :	22~23℃
Test Engineer :	Jack Tian	Relative Humidity :	41~42%
Test Voltage :	120Vac / 60Hz	Phase :	Line

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Function Type: GSM850 Idle + Bluetooth Idle + USB Cable (Data Link with Notebook) + SIM 1



Site : CO01-SZ

Condition: FCC 15B\_QP LISN\_L\_20140304 LINE

Project : (FC) 431702 : Mode 3

	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.16	37.07	-18.53	55.60	26.50	0.22	10.35	Average
2	0.16	39.27	-26.33	65.60	28.70	0.22	10.35	QP
3	0.18	18.74	-35.85	54.59	8.20	0.22	10.32	Average
4	0.18	36.94	-27.65	64.59	26.40	0.22	10.32	QP
5 *	0.25	43.58	-8.28	51.86	33.09	0.24	10.25	Average
6	0.25	42.78	-19.08	61.86	32.29	0.24	10.25	QP
7	0.36	16.85	-31.98	48.83	6.40	0.27	10.18	Average
8	0.36	24.75	-34.08	58.83	14.30	0.27	10.18	QP
9	0.49	19.96	-26.14	46.10	9.50	0.30	10.16	Average
10	0.49	29.06	-27.04	56.10	18.60	0.30	10.16	QP
11	5.62	24.46	-25.54	50.00	13.80	0.41	10.25	Average
12	5.62	28.66	-31.34	60.00	18.00	0.41	10.25	QP

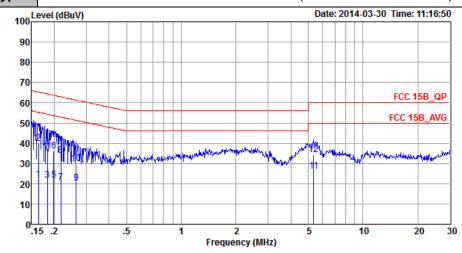
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**22~23**℃ Test Mode: Mode 3 Temperature: Jack Tian Relative Humidity: 41~42% Test Engineer: 120Vac / 60Hz Phase: Test Voltage : Neutral

GSM850 Idle + Bluetooth Idle + USB Cable (Data Link with Notebook) + SIM 1 Function Type:



: CO01-SZ

Condition: FCC 15B\_QP LISN\_N\_20140304 NEUTRAL Project : (FC)431702

: Mode 3 Mode

	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBu∀	dB	dBu∇	dBu∀	dB	dB	
1	0.16	21.97	-33.33	55.30	11.30	0.33	10.34	Average
2	0.16	39.77	-25.53	65.30	29.10	0.33	10.34	QP
3	0.18	21.64	-32.69	54.33	11.01	0.32	10.31	Average
4	0.18	37.74	-26.59	64.33	27.11	0.32	10.31	QP
5	0.20	21.62	-32.05	53.67	11.00	0.32	10.30	Average
6	0.20	36.22	-27.45	63.67	25.60	0.32	10.30	QP
7	0.22	20.60	-32.32	52.92	10.00	0.33	10.27	Average
8	0.22	34.00	-28.92	62.92	23.40	0.33	10.27	QP
9	0.26	20.28	-31.01	51.29	9.70	0.35	10.23	Average
10	0.26	29.78	-31.51	61.29	19.20	0.35	10.23	QP
11 *	5.36	26.13	-23.87	50.00	15.40	0.48	10.25	Average
12	5.36	34.33	-25.67	60.00	23.60	0.48	10.25	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	Field Strength	Measurement Distance		
(MHz)	(microvolts/meter)	(meters)		
30 – 88	100	3		
88 – 216	150	3		
216 - 960	200	3		
Above 960	500	3		

### 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 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.
- 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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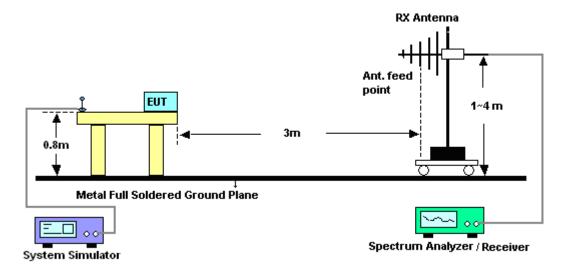
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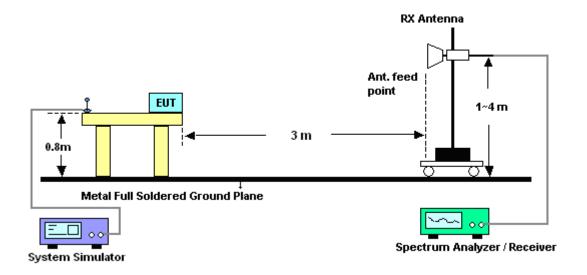
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### 3.2.4. Test Setup of Radiated Emission

For radiated emissions from 30MHz to 1GHz



#### For radiated emissions above 1GHz



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### 3.2.5. Test Result of Radiated Emission

Test Mode : Mode 3				1	Temperature :				23~25°C				
Test Engineer : Kaer Huang				Relative Humidity :			: 48~	48~52%					
est Distance :	3m					Polarization :			Hor	rizonta	ıl		
unction Type :	GSM	1850 Id	lle + B	luetoo	th Idle	+ US	B Cab	le (Dat	a Link	with N	Notebo	ok) + SIN	И 1
Remark :	#6 is	syste	m sim	ulator	signal	which	can b	e ignor	ed.				
117 Leve	l (dBuV/	m)									Date	: 2014-04-17	,
110													
90													
											FC	CC CLASS-B	
70												-6dB	
											FCC CLA	ASS-B (AVG)	
50	- 8									-	0	6dB 13	
[2]	-6				9	10			11	1.	2	ĭ	
30	5 7												
30													
10					$\perp$								
030	1000.		3000.		5000.	_	7000.		9000.		11000.	1300	00
						Frequen	icy (MHz)	)					
Site Condition		03CH01-		mIF AM	JT 1310	26 HORI	7ΩΝΤΔΙ						
Project		(FC)431		LI _AI	*1_1310	ZUTIORI	ZUNIAL						
Mode		Mode 3											
			0ver	Limit	Read	Antenna	Cable	Preamp	A/Pos	T/Pos			
	Freq	Level				Factor		Factor			Remark		
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg			
1	84.27	30.69	-9.31	40.00	52.09	7.38	1.16	29.94			Peak		
2	210.90	37.47	-6.03	43.50	56.28	9.40	1.72	29.93	100	256	QP		
						12.35 14.20		29.93 29.93	179 100	288 64			
5 (	525.50	31.35			39.87	18.60	2.81	29.93			Peak		
6 P &		38.12 32.51	-13.49	46.00		20.56 21.04		29.94 29.94			Peak Peak		
			-30.65	74.00	69.45	27.35	4.05	57.50			Peak		
7 9 8 1			27 00			34 16	8.51	56.99			Peak		
7 9 8 13 9 49	980.00	36.01				34.00		56.35			Peak		
7 9 8 13 9 49 10 63 11 83	980.00 310.00 710.00	36.01 36.73 38.14	-37.27 -35.86	74.00 74.00	49.48 46.47		9.60 11.07	56.35					

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23~25°C Test Mode: Mode 3 Temperature: **Relative Humidity:** 48~52% Test Engineer: Kaer Huang Test Distance: 3m Polarization: Vertical Function Type: GSM850 Idle + Bluetooth Idle + USB Cable (Data Link with Notebook) + SIM 1 #6 is system simulator signal which can be ignored. Remark: Date: 2014-04-17 Level (dBuV/m) 117 110 90 FCC CLASS-B 70 FCC CLASS-B (AVG) 50 13 12 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\_131026 VERTICAL Project : (FC)431702 Mode : Mode 3 Over Limit ReadAntenna Cable Preamp A/Pos T/Pos Freq Level Limit Line Level Factor Remark Loss Factor dB dBuV/m MHz dBuV/m dBuV dB/m dB dB cm deg 84.27 24.77 -15.23 40.00 46.17 7.38 1.16 29.94 --- Peak 210.90 35.15 -8.35 43.50 53.96 9.40 1.72 Peak 3 295.14 42.70 -3.30 46.00 58.28 12.35 2.00 29.93 100 133 QP 337.10 --- Peak 41.87 -4.13 46.00 55.48 14.20 2.12 29.93 ------ Peak 758.50 40.84 19.95 33.94 -12.06 46.00 3.08 29.93

38.22

40.53

72.99

64.98

49.28

46.09

48.06

45.94

46.00

74.00

74.00

74.00

74.00

74.00

74.00

20.58

21.06

27.29

33.10

34.00

36.38

36.80

37.90

3.28

3.39

4.37

7.38

9.75

11.12

12.84

14.21

29.94

57.24

58.46

56.55

55.14

56.12

100

---

10

11

13

881.00

927.20

1518.00

3832.00

6430.00

8990.00

10334.00

12490.00

32.14

35.04 -10.96

47.41 -26.59

47.00 -27.00

36.48 -37.52

38.45 -35.55

40.78 -33.22

41.93 -32.07

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--- Peak

--- Peak

35 Peak

--- Peak

--- Peak

--- Peak --- Peak

Peak



4. List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
ESCIO Test Receiver	R&S	ESCI	100724	9kHz~3GHz	Feb. 21, 2014	Mar. 30, 2014	Feb. 20, 2015	Conduction (CO01-SZ)
AC LISN	EMCO	3816/2SH	00103912	9kHz~30MHz	Mar. 04, 2014	Mar. 30, 2014	Mar. 03, 2015	Conduction (CO01-SZ)
AC LISN (for auxiliary equipment)	EMCO	3816/2SH	00103892	9kHz~30MHz	Mar. 04, 2014	Mar. 30, 2014	Mar. 03, 2015	Conduction (CO01-SZ)
AC Power Source	Chroma	61602	61602000089 1	100Vac~250Vac	Dec. 17, 2013	Mar. 30, 2014	Dec. 16, 2014	Conduction (CO01-SZ)
Spectrum Analyzer	Agilent Technologies	N9038A	MY52260185	20Hz~26.5GHz	Apr. 04, 2014	Apr. 17, 2014	Apr. 03, 2015	Radiation (03CH01-SZ)
Double Ridge Horn Antenna	ETS Lindgren	3117	00119436	1GHz~18GHz	Oct. 26, 2013	Apr. 17, 2014	Oct. 25, 2014	Radiation (03CH01-SZ)
Bilog Antenna	SCHAFFNER	CBL6112B	2614	30MHz~2GHz	Dec. 23, 2013	Apr. 17, 2014	Dec. 22, 2014	Radiation (03CH01-SZ)
Amplifier	ADVANTEST	BB525C	E9007003	9kHz~3000MHz	Feb. 21, 2014	Apr. 17, 2014	Feb. 20, 2015	Radiation (03CH01-SZ)
Amplifier	Agilent	83017A	MY39501302	3Hz~26.5GHz	Mar. 03, 2014	Apr. 17, 2014	Mar. 02, 2015	Radiation (03CH01-SZ)
Turn Table	EM Electronics	EM 1000	N/A	0~360 degree	NCR	Apr. 17, 2014	NCR	Radiation (03CH01-SZ)
Antenna Mast	EM Electronics	EM 1000	N/A	1 m~4 m	NCR	Apr. 17, 2014	NCR	Radiation (03CH01-SZ)

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### FCC Test Report

# 5. Uncertainty of Evaluation

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

Measuring Uncertainty for a Level of	2 24
Confidence of 95% (U = 2Uc(y))	2.31

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

Measuring Uncertainty for a Level of	3.90
Confidence of 95% (U = 2Uc(y))	3.90

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