

# SPECTRUM REPORT<sup>(BLE)</sup>

**Applicant:** SHENZHEN CHUANGXINQI COMMUNICATION CO., LTD

**Address of Applicant:** Rm 501B, Block A1, kexing Science Park, Keyuan North Rd., Science and Technology Park, Nanshan, Shenzhen, Guangdong, China

## Equipment Under Test (EUT)

**Product Name:** Smart Phone

**Model No.:** U1, U1A, U1B, G401, G401A, G401B, G401C, G401Y, G401W

**Trademark:** iNew

**Applicable standards:** ETSI EN 300 328 V1.8.1 (2012-06)

**Date of sample receipt:** 18 Sep., 2014

**Date of Test:** 19 Sep., to 30 Oct., 2014

**Date of report issue:** 30 Oct., 2014

**Test Result:** PASS\*

\* In the configuration tested, the EUT detailed in this report complied with the standards specified above.

The CE mark as shown below can be used, under the responsibility of the manufacturer, after completion of an EC Declaration of Conformity and compliance with all relevant EC Directives. The protection requirements with respect to electromagnetic compatibility contained in Directive 1999/5/EC are considered.



Bruce Zhang  
Laboratory Manager



This report details the results of the testing carried out on one sample. The results contained in this test report do not relate to other samples of the same product and does not permit the use of the CCIS product certification mark. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.

This report may only be reproduced and distributed in full. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards.

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## 2 Version

Version No.	Date	Description
00	30 Oct., 2014	Original

**Prepared by:** Luna Gao **Date:** 30 Oct., 2014  
**Report Clerk**

**Reviewed by:** Wimer Zhang **Date:** 30 Oct., 2014  
**Project Engineer**

## 3 Contents

	Page
1 COVER PAGE .....	1
2 VERSION .....	2
3 CONTENTS.....	3
4 TEST SUMMARY.....	4
5 GENERAL INFORMATION .....	5
5.1 CLIENT INFORMATION.....	5
5.2 GENERAL DESCRIPTION OF E.U.T. ....	5
5.3 LABORATORY FACILITY .....	6
5.4 LABORATORY LOCATION.....	6
5.5 DESCRIPTION OF SUPPORT UNITS .....	6
5.6 TEST INSTRUMENTS LIST .....	7
6 RADIO TECHNICAL SPECIFICATION IN ETSI EN 300 328.....	8
6.1 TEST ENVIRONMENT AND MODE .....	8
6.2 TRANSMITTER REQUIREMENT .....	9
6.2.1 RF Output Power.....	9
6.2.2 Power Spectral Density .....	16
6.2.3 Duty Cycle, Tx-sequence, Tx-gap .....	19
6.2.4 Medium Utilisation (MU) factor .....	20
6.2.5 Adaptivity (Adaptive equipment using modulations other than FHSS).....	21
6.2.6 Occupied Channel Bandwidth .....	22
6.2.7 Transmitter unwanted emissions in the out-of-band domain .....	24
6.2.8 Spurious emissions .....	30
6.3 RECEIVER REQUIREMENT .....	34
6.3.1 Spurious emissions .....	34
6.3.2 Receiver Blocking.....	38
7 TEST SETUP PHOTO .....	39
8 EUT CONSTRUCTIONAL DETAILS.....	40

## 4 Test Summary

Radio Spectrum Matter (RSM) Part of Tx					
Test	Test Requirement	Test method	Limit/Severity	Uncertainty	Result
RF Output Power	Clause 4.3.2.1	Clause 5.3.2	Clause 4.3.2.1.2	±1.5dB	PASS
Power Spectral Density	Clause 4.3.2.2	Clause 5.3.3	Clause 4.3.2.2.2	±1.5dB	PASS
Duty Cycle, Tx-sequence, Tx-gap	Clause 4.3.2.3	Clause 5.3.2	Clause 4.3.2.3.2	±5%	N/A
Medium Utilisation (MU) factor	Clause 4.3.2.4	Clause 5.3.2	Clause 4.3.4.4.2	±5%	N/A
Adaptivity (Adaptive Equipment using Modulations Other Than FHSS)	Clause 4.3.2.5	Clause 5.3.7	Clause 4.3.2.5	±5%	N/A
Occupied Channel Bandwidth	Clause 4.3.2.6	Clause 5.3.8	Clause 4.3.2.6.2	±5%	PASS
Transmitter unwanted emissions in the out-of-band domain	Clause 4.3.2.7	Clause 5.3.9	Clause 4.3.2.7.2	±1.5dB	PASS
Transmitter unwanted emissions in the spurious domain	Clause 4.3.2.8	Clause 5.3.10	Clause 4.3.2.8.2	±4.88dB	PASS
Radio Spectrum Matter (RSM) Part of Rx					
Receiver spurious emissions	Clause 4.3.2.9	Clause 5.3.11	Clause 4.3.2.9.2	±4.88dB	PASS
Receiver Blocking	Clause 4.3.2.10	Clause 5.3.7	Clause 4.3.2.10.2	±3.0dB	N/A

Remark:

Tx: In this whole report Tx (or tx) means Transmitter.

Rx: In this whole report Rx (or rx) means Receiver.

Pass: Meet the requirement

N/A: Not Applicable for Non-adaptive equipment.

Nominal Voltage: 3.7 Vdc, Extreme Voltage: Low 3.2 Vdc, High 4.3 Vdc

Nominal Temperature: 25°C, Extreme Temperature: Low -20°C, High +60°C

Temperature (Uncertainty): ±1°C Humidity(Uncertainty): ±5%

## 5 General Information

### 5.1 Client Information

Applicant:	SHENZHEN CHUANGXINQI COMMUNICATION CO., LTD
Address of Applicant:	Rm 501B, Block A1, kexing Science Park, Keyuan North Rd., Science and Technology Park, Nanshan, Shenzhen, Guangdong, China
Manufacturer:	SHENZHEN CHUANGXINQI COMMUNICATION CO., LTD
Address of Manufacturer:	Rm 501B, Block A1, kexing Science Park, Keyuan North Rd., Science and Technology Park, Nanshan, Shenzhen, Guangdong, China
Factory:	Hongjiada Electronics Co., Limited
Address of Factory:	4 <sup>th</sup> Floor, C16 Building, Jiuwei Fuyuan Industrial Zone, Xi Xiang, Bao'an District, Shenzhen China 518000

### 5.2 General Description of E.U.T.

Product Name:	Smart Phone
Model No.:	U1, U1A, U1B, G401, G401A, G401B, G401C, G401Y, G401W
Hardware version:	TMB1c
Software version:	G401-7402A-B18-
Operation Frequency:	2402MHz ~ 2480MHz
Channel number:	40
Channel separation:	2MHz
Modulation type:	other forms of modulation
Equipment Type:	Adaptive equipment
Modulation Technology:	GFSK
Antenna Type:	Internal
Antenna gain:	2 dBi (declare by Applicant)
Power supply:	Rechargeable Li-ion Battery DC3.7V/1400mAh
AC adapter:	Manufacturer: AQUIL STAR PRECISION INDUSTRIAL (SHENZHEN) CO., LTD Model: ASUC31e-055070 Input: 100-240V 50/60Hz 0.3 A Output: DC 5.5V, 700mA
Remark:	Model No.: U1, U1A, U1B, G401, G401A, G401B, G401C, G401Y, G401W were identical inside, the electrical circuit design, layout, components used and internal wiring, with only difference being the appearance of different colors, the battery cover different mark.

Operation Frequency each of channel							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
0	2402MHz	10	2422MHz	20	2442MHz	30	2462MHz
1	2404MHz	11	2424MHz	21	2444MHz	31	2464MHz
2	2406MHz	12	2426MHz	22	2446MHz	32	2466MHz
3	2408MHz	13	2428MHz	23	2448MHz	33	2468MHz
4	2410MHz	14	2430MHz	24	2450MHz	34	2470MHz
5	2412MHz	15	2432MHz	25	2452MHz	35	2472MHz
6	2414MHz	16	2434MHz	26	2454MHz	36	2474MHz
7	2416MHz	17	2436MHz	27	2456MHz	37	2476MHz
8	2418MHz	18	2438MHz	28	2458MHz	38	2478MHz
9	2420MHz	19	2440MHz	29	2460MHz	39	2480MHz

**Remark:**

The EUT operation in above frequency list, and used test software to control the EUT for staying in continuous transmitting and receiving mode. Channel 0, 19 and 39 of BLE were chosen for testing.

### 5.3 Laboratory Facility

The test facility is recognized, certified, or accredited by the following organizations:

● **FCC - Registration No.: 817957**

Shenzhen Zhongjian Nanfang Testing Co., Ltd. EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in out files. Registration 817957, February 27, 2012.

● **IC - Registration No.: 10106A-1**

The 3m Semi-anechoic chamber of Shenzhen Zhongjian Nanfang Testing Co., Ltd. has been Registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 10106A-1.

● **CNAS - Registration No.: CNAS L6048**

Shenzhen Zhongjian Nanfang Testing Co., Ltd. is accredited to ISO/IEC 17025:2005 General Requirements for the Competence of Testing and Calibration laboratories for the competence of testing. The Registration No. is CNAS L6048.

### 5.4 Laboratory Location

Shenzhen Zhongjian Nanfang Testing Co., Ltd.  
 Address: No.B-C, 1/F., Building 2, Laodong No.2 Industrial Park, Xixiang Road,  
 Bao'an District, Shenzhen, Guangdong, China  
 Tel:  
 Fax:

### 5.5 Description of Support Units

The EUT has been tested as an independent unit.

## 5.6 Test Instruments list

Radiated Emission:						
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal. Date (mm-dd-yy)	Cal. Due date (mm-dd-yy)
1	BiConiLog Antenna	SCHWARZBECK	VULB9163	CCIS0005	04-19-2014	04-19-2015
2	Horn Antenna	SCHWARZBECK	BBHA9120D	CCIS0006	04-19-2014	04-19-2015
3	EMI Test Software	AUDIX	E3	N/A	N.C.R	N.C.R
4	Pre-amplifier	HP	8447D	CCIS0003	03-31-2014	03-30-2015
5	Pre-amplifier	Compliance Directon Systems Inc.	PAP-1G18	CCIS0011	03-31-2014	03-30-2015
6	Spectrum Analyzer	Rohde & Schwarz	FSP30	CCIS0023	04-19-2014	04-19-2015
7	EMI Test Receiver	Rohde & Schwarz	ESCI	CCIS0002	04-10-2014	04-10-2015

Conducted method:						
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Cal. Date (mm-dd-yy)	Cal. Due date (mm-dd-yy)
1	Spectrum Analyzer	Agilent	N9030A	MY	12-02-2013	12-02-2014
2	Power Sensor	Aiglent	U2021XA	MY	09-27-2014	09-27-2015
3	Power Sensor	Aiglent	U2021XA	MY	09-27-2014	09-27-2015
4	Power Sensor	Aiglent	U2021XA	MY	09-27-2014	09-27-2015
5	Power Sensor	Aiglent	U2021XA	MY	09-27-2014	09-27-2015
6	USB Modular Simultaneous Data Acquisition	Agilent	U2531A	TW	N.C.R	N.C.R
7	USB Modular Simultaneous Data Acquisition	Agilent	U2531A	TW	N.C.R	N.C.R
8	Temperature & Humidity Chamber	TAICHY	MHU-225LA	980729	08-07-2014	08-07-2015
9	Signal Generator	Agilent	N5182A	MY	05-14-2014	05-14-2015
10	Signal Generator	Agilent	N5182B	MY	10-12-2014	10-12-2015

**Note: N.C.R = No Calibration Requirement**

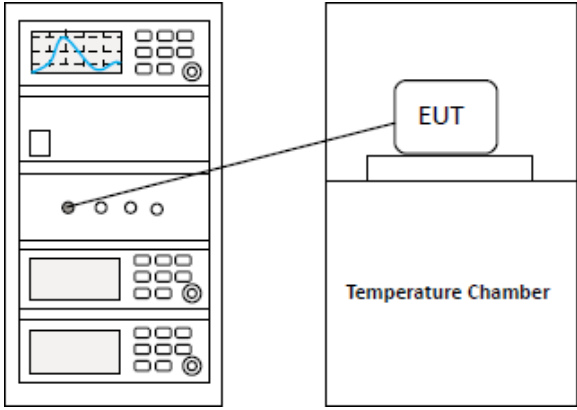
## 6 Radio Technical Specification in ETSI EN 300 328

### 6.1 Test environment and mode

Operating Environment:	
Temperature:	24.0 °C
Humidity:	52 % RH
Atmospheric Pressure:	1008 mbar
Test mode:	
Transmitting mode:	Keep the EUT in continuously transmitting mode with modulation.
We have verified the construction and function in typical operation. All the test modes were carried out with the EUT in transmitting operation.	

## 6.2 Transmitter Requirement

### 6.2.1 RF Output Power

Test Requirement:	ETSI EN 300 328 clause 4.3.2.1
Test Method:	ETSI EN 300 328 clause 5.3.2
Limit:	20dBm
Test mode:	Transmitting mode
Test Instruments:	See section 5.6
Test setup:	 <p>The diagram illustrates the test setup. On the left is a power sensor unit with a display showing a signal waveform and several control buttons. A line connects the sensor to the transmitter port of a device labeled 'EUT' (Equipment Under Test). The EUT is placed inside a 'Temperature Chamber'.</p>
Test procedure:	<ol style="list-style-type: none"> <li>1. Use a fast power sensor suitable for 2,4 GHz and capable of 1 MS/s.</li> <li>2. Connect the power sensor to the transmit port, sample the transmit signal and store the raw data. Use these stored samples in all following steps.</li> <li>3. Find the start and stop times of each burst in the stored measurement samples.</li> <li>4. Between the start and stop times of each individual burst calculate the RMS power over the burst. Save these P<sub>burst</sub> values, as well as the start and stop times for each burst.</li> <li>5. The highest of all P<sub>burst</sub> values (value "A" in dBm) will be used for maximum e.i.r.p. calculations.</li> <li>6. Add the (stated) antenna assembly gain "G" in dBi of the individual antenna. The RF Output Power (P) shall be calculated using the formula below: <math>P = A + G</math></li> </ol>
Measurement Record:	Uncertainty: ±1.5 dB

**Measurement Data**

Test conditions	EUT Config.	Read Level (dBm)	Antenna Gain(dBi)	EIRP (dBm)	Limit (dBm)	Result
NTNV	CH0	-9.12	2	-7.12	20	Pass
	CH19	-9.93	2	-7.93		
	CH39	-9.72	2	-7.72		
LTLV	CH0	-9.11	2	-7.11		
	CH19	-9.96	2	-7.96		
	CH39	-9.75	2	-7.75		
LTHV	CH0	-9.08	2	-7.08		
	CH19	-9.95	2	-7.95		
	CH39	-9.73	2	-7.73		
HTLV	CH0	-9.09	2	-7.09		
	CH19	-9.97	2	-7.97		
	CH39	-9.73	2	-7.73		
HTHV	CH0	-9.09	2	-7.09		
	CH19	-9.95	2	-7.95		
	CH39	-9.72	2	-7.72		
<p>Remark:</p> <ol style="list-style-type: none"> <li>1. NTVN: Normal Temperature Normal Voltage, LTLV: Low Temperature Low Voltage, LTHV: Low Temperature High Voltage, HTLV: High Temperature Low Voltage, HTHV: High Temperature High Voltage</li> <li>2. Antenna Gain=2 dBi , which declared by applicant.</li> </ol>						

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