



EN 62479:2010

MEASUREMENT AND TEST REPORT

For

Shenzhen Wulian Electronic Co., Limited

Floor 2, Building 3, Masha Industrial Zone, No. 49, Jiaoyu Road North, Pingdi, Longgang, Shenzhen, China

Model:	CW1 , CW2 , CW6 , CW7 , CW8 , CW9 , CW10 , CW12 , EW1 , EW2 , CQ1 , CQ3 , CQ5 , CQ6 , CQ7 , CQ8 , CQ9 , CQ10, CR22 , CR22A , CR23 , CR23A , CR28 , CR29 , CR30 , CT05 , CT06 , CT07 , CT08 , CT09 , CT10 , CT18 , CT19 , CT20 , CT21 , CT29 , RE01 , CK02 , CK05 , CK06 , DB8 , DB9 , DB10 , DB11 , DB12 , DB15 , DT1 , DT2 , RC1 , RC3 , RC11 , SA1 , SA5 , WW1 , WW2
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May 13, 2019

This Report Concerns: <input checked="" type="checkbox"/> Original Report		Equipment Type: Calling System	
Test By:	Angell Liu/ <i>Angell Liu</i>		
Report Number:	CTE19ER-514E-3		
Test Date:	May 06-13, 2019		
Reviewed By:	Jason Chen / <i>Jason Chen</i>		
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1 General Information

1.1. Client Information

Applicant : **Shenzhen Wulian Electronic Co., Limited**
Address : Floor 2, Building 3, Masha Industrial Zone, No. 49,
Jiaoyu Road North, Pingdi, Longgang, Shenzhen, China
Manufacturer : **Shenzhen Wulian Electronic Co., Limited**
Address : Floor 2, Building 3, Masha Industrial Zone, No. 49,
Jiaoyu Road North, Pingdi, Longgang, Shenzhen, China

1.2. General Description of EUT (Equipment Under Test)

EUT : **Calling System**
Model Number : CQ5
Series No. : /

Operating Frequency Product Description

Operating Frequency : 315~433MHz
Modulation Type : ASK
Communication rate : 200Kbps
Antenna : Integral Antenna, 0dBi(Max.)
Power Supply : DC 3.7V

Note:

- (1) For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.

2 Conformity Assessment Methods

2.1. General Considerations

Compliance of electromagnetic emissions from electronic and electrical equipment with the basic restrictions usually is determined by measurements and, in some cases, calculation of the exposure level. If the electrical power used by or radiated by the equipment is sufficiently low, the electromagnetic fields emitted will be incapable of producing exposures that exceed the basic restrictions. This standard provides simple EMF assessment procedures for this low power equipment.

For transmitter intended for use with more than one antenna configuration option, the combination of transmitter and antenna(s) which generates the highest available antenna power and/or average total radiated power shall be assessed.

2.2. Low-power exclusion level (Pmax) based on considerations of SAR

Low-power electronic and electrical equipment is deemed to comply with the provisions of this standard if it can be demonstrated using routes B, C or D that the available antenna power and/or the average total radiated power is less than or equal to the applicable low-power exclusion level Pmax.

When SAR is the basic restriction, a conservative minimum value for Pmax can be derived, equal to the localized SAR limit (SARmax) multiplied by the average mass (m):

$$P_{max} = SAR_{max} \times m$$

Example values of Pmax according to Equation are provided in follows for cases described by the ICNIRP Guidelines, IEEE Std C95.1-1999 and IEEE Std C95.1-2005 where SAR limits are defined. Other exposure guidelines or standards may be applicable depending on national regulations.

Note: Unless otherwise mentioned in other applicable regulations or standards, the most recent edition IEEE C95.1-2005 takes precedence over the previous edition IEEE C95.1-1999.

Example values of SAR-based Pmax

Guideline/Standard	SAR limit, SARmax W/kg	Averaging mass, mg	Pmax mW	Exposure tier	Region of body
ICNIRP	2	10	20	General public	Head and trunk
	4	10	40	General public	Limbs
	10	10	100	Occupational	Head and trunk
	20	10	200	Occupational	Limbs
IEEE Std C95.1-1999	1.6	1	1.6	Uncontrolled environment	Head, trunk, arms, legs
	4	10	40	Uncontrolled environment	Hands, wrists, feet and ankles
	8	1	8	Controlled environment	Head, trunk, arms, legs
	20	10	200	Controlled environment	Hands, wrists, feet and ankles
IEEE Std C95.1-2005	2	10	20	Action level	Body except extremities and pinnae



	4	10	40	Action level	Exremities and pinnae
	10	10	100	Controlled environment	Body except extremities and pinnae
	20	10	200	Controlled environment	Exremities and pinnae

When power density is the basic restriction, a conservative minimum value for Pmax can be derived, equal to the power density limit (s) multiplied by the averaging area (a);

$$P_{max} = Sa$$

Therefore, equation yields conservative values for Pmax of 20 mW and 100 mW for general public and occupational exposures, respectively.

2.3. RF Exposure Evaluation

According to EN 62479 Clause 4.2 Low-power exclusion level (Pmax), low-power electronic and electrical equipment can be demonstrated using routes B, C or D that the available antenna power and/or the average total radiated power is less than or equal to the applicable low-power exclusion level Pmax.

P max= 20 mW(13 dBm) according to ICNIRP Guidelines, since the EUT is General public used.

Remark:

- B: The input power level to electrical or electronic components that are capable of radiating electromagnetic energy in relevant frequency range is so low that the available antenna power and/or the average total radiated power can not exceed the low-power exclusion level defined in 4.2.
- C: The available antenna power and/or the average total radiated power are limited by product standards for transmitters to levels below the low-power exclusion level defined in 4.2.
- D: Measurements or calculations show that the available antenna power and/or the average total radiated power are below the low-power exclusion level defined in 4.2.



3 Result

3.1 Transmit Power

Since Max output power at 433MHz Band is 4.40mW less than 20mW specified in EN 62479. This unit will not generate the harmful EM emission above the reference level as specified in EC Council Recommendation (1999/519/EC).

3.2 Test Result

The result: PASS

*EN 62479:2010 Annex A: Derivation of low-power exclusion level from ICNIRP and IEEE exposure limits.

The ICNIRP guidelines provide SAR limits of 2W/kg, and averaging mass 10g, over the 10GHz to 300 GHz frequency range for general public and occupational exposures, respectively, and a conservative minimum value for $P_{max}=20mW$. So when the equipment radiated power is less than 20mW, it complies with EMF basic restrictions.