

TEST REPORT

Reference No..... : WTS20S3011290W002 V1
FCC ID : 2AL7Q-EU1254
Applicant..... : ShenZhen EBELONG Technology Co.,Ltd
Address..... : ShenZhen Wisdom Innovation Center Suite A.607, QianJin 2nd Road, Baoan District, ShenZhen, China
Manufacturer : The same as above
Address..... : The same as above
Product..... : Switch
Model(s). : EU1254
Brand Name..... : EBELONG
Standards..... : FCC 1.1307
Date of Receipt sample : 2020-03-13
Date of Test : 2020-04-22 to 2020-06-21
Date of Issue..... : 2020-11-17
Test Result..... : Pass

Remarks:

The results shown in this test report refer only to the sample(s) tested, this test report cannot be reproduced, except in full, without prior written permission of the company. The report would be invalid without specific stamp of test institute and the signatures of compiler and approver.

Prepared By:

Waltek Testing Group Co., Ltd.

Address: No. 77, Houjie Section, Guantai Road, Houjie Town, Dongguan City,
Guangdong, China

Tel :+86-755-83551033

Fax:+86-755-83552400

Compiled by:

Approved by:

Ford Wang

Ford Wang / Project Engineer



Philip Zhong

Philip Zhong / Manager

2 Contents

	Page
1 COVER PAGE.....	1
2 CONTENTS	2
3 REVISION HISTORY	3
4 GENERAL INFORMATION.....	4
4.1 GENERAL DESCRIPTION OF E.U.T.	4
4.2 DETAILS OF E.U.T.	4
5 TEST SUMMARY	5
6 RF EXPOSURE.....	6
6.1 REQUIREMENTS.....	6
6.2 THE PROCEDURES / LIMIT.....	6
6.3 MPE CALCULATION METHOD	7

3 Revision History

Test report No.	Date of Receipt sample	Date of Test	Date of Issue	Purpose	Comment	Approved
WTS20S30112 90W002	2020-03-13	2020-04-22 to 2020-06-21	2020-06-22	original	-	Replaced
WTS20S30112 90W002 V1	2020-03-13	2020-04-22 to 2020-06-21	2020-11-17	Version 1	Updated	Valid

4 General Information

4.1 General Description of E.U.T.

Product:	Switch
Model(s):	EU1254
Model Description:	N/A
Operation Frequency:	902.8MHz
Antenna installation:	internal permanent antenna
Antenna Gain:	2.0dBi
Type of Modulation:	FSK
Hardware Version:	V0.6
Software Version:	V1.0

4.2 Details of E.U.T.

Ratings:	DC 3.3V 10mA
----------	--------------

5 Test Summary

Test Items	Test Requirement	Result
Maximum Permissible Exposure (Exposure of Humans to RF Fields)	1.1307(b)(1)	PASS

6 RF Exposure

Test Requirement: FCC Part 1.1307

Test Mode: The EUT work in test mode(Tx).

6.1 Requirements

Systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy levels in excess limit for maximum permissible exposure. In accordance with 47 CFR FCC Part 2 Subpart J, section 2.1091 this device has been defined as a mobile device whereby a distance of 0.2 m normally can be maintained between the user and the device.

6.2 The procedures / limit

FCC Part 1.1307:

(A) Limits for Occupational / Controlled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/ cm ²)	Averaging Time E ² , H ² or S (minutes)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842 / f	4.89 / f	(900 / f)*	6
30-300	61.4	0.163	1.0	6
300-1500			F/300	6
1500-100,000			5	6

(B) Limits for General Population / Uncontrolled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/ cm ²)	Averaging Time E ² , H ² or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	(180/f)*	30
30-300	27.5	0.073	0.2	30
300-1500			F/1500	30
1500-100,000			1.0	30

Note: f = frequency in MHz ; *Plane-wave equivalent power density

6.3 MPE Calculation Method

$$E \text{ (V/m)} = \frac{\sqrt{30 \times P \times G}}{d} \quad \text{Power Density: } Pd \text{ (W/m}^2\text{)} = \frac{E^2}{377}$$

E = Electric field (V/m)

P = Peak RF output power (W)

G = EUT Antenna numeric gain (numeric)

d = Separation distance between radiator and human body (m)

The formula can be changed to

$$Pd = \frac{30 \times P \times G}{377 \times d^2}$$

From the peak EUT RF output power, the minimum mobile separation distance, $d=0.2\text{m}$, as well as the gain of the used antenna, the RF power density can be obtained

According to ANSI C63.10-2013 (9.5 Equations to calculate EIRP),

Calculate the EIRP from the radiated field strength in the far field using Equation (22):

$$\text{EIRP} = E_{\text{Meas}} + 20 \log(d_{\text{Meas}}) - 104.7 \quad (22)$$

where

EIRP is the equivalent isotropically radiated power, in dBm

E_{Meas} is the field strength of the emission at the measurement distance, in dBμV/m

d_{Meas} is the measurement distance, in m

NOTE—Because this equation yields the identical result whether the field strength is extrapolated using the default 20 dB/decade of distance extrapolation factor, or the field strength is not extrapolated for distance, this equation can generally be applied directly (with no further correction) to determine EIRP. In some cases, a different distance correction factor may be required; see 9.1.

$$\text{EIRP} = E_{\text{Meas}} + 20 \log(d_{\text{Meas}}) - 104.7$$

E_{Meas} is the field strength of the emission at the measurement distance, in dBμV/m.

d_{Meas} is the measurement distance, in m.

$$E_{\text{Meas}} = 90.88 \text{ dBμV/m}$$

$$d_{\text{Meas}} = 3 \text{ m}$$

$$\text{EIRP} = 0.373 \text{ mW} = -4.278 \text{ dBm}$$

$$\text{Max peak output power} = \text{EIRP} - \text{Antenna Gain} = -6.278 \text{ dBm}$$

Antenna Gain (dBi)	Antenna Gain (numeric)	Max. Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (mW/cm ²)	Limit of Power Density (mW/cm ²)
2.00	1.585	-6.278	0.24	0.000074	0.602

=====End of Report=====