

## RF Exposure REPORT

**Applicant:** Shenzhen Bilian Electronic Co., Ltd.

**Address of Applicant:** Building B1, Zhongxing Industrial Zone, Juling, Jutang  
Community, Guanlan street, Bao'an, Shenzhen, Guangdong,  
P.R.China/P.C.:518110

**Equipment Under Test (EUT)**

Product Name: LB-LINK

Model No.: BL-R8188EU1

**Applicable standards:** EN 62311:2008

**Date of sample receipt:** May 08, 2015

**Date of Test:** May 11-13, 2015

**Date of report issue:** May 14, 2015

**Test Result :** PASS \*

\* In the configuration tested, the EUT 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.



**Robinson Lo**  
**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 GTS 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. Any mention of GTS or testing done by GTS in connection with, distribution or use of the product described in this report must be approved by GTS in writing.

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## 2 Version

Version No.	Date	Description
00	May 14, 2015	Original

Prepared By:

*Edward. Pan*

Date:

May 14, 2015

Project Engineer

Check By:

*Hank. Yan*

Date:

May 14, 2015

Reviewer

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## 4 General Information

### 4.1 Client Information

Applicant:	Shenzhen Bilian Electronic Co., Ltd.
Address of Applicant:	Building B1, Zhongxing Industrial Zone, Juling, Jutang Community, Guanl an street, Bao'an, Shenzhen, Guangdong, P.R.China/P.C.:518110
Manufacturer/Factory:	Shenzhen Bilian Electronic Co., Ltd.
Address of Manufacturer/Factory:	Building B1, Zhongxing Industrial Zone, Juling, Jutang Community, Guanl an street, Bao'an, Shenzhen, Guangdong, P.R.China/P.C.:518110

### 4.2 General Description of EUT

Product Name:	LB-LINK
Model No.:	BL-R8188EU1
Operation Frequency:	2412MHz~2472MHz(802.11b/802.11g/802.11n(H20)) 2422MHz~2462MHz(802.11n(H40))
Channel Numbers:	13 for 802.11b/802.11g/802.11n(HT20) 9 for 802.11n(HT40)
Channel Separation:	5MHz
Modulation Technology: (IEEE 802.11b)	Direct Sequence Spread Spectrum(DSSS)
Modulation Technology: (IEEE 802.11g/802.11n)	Orthogonal Frequency Division Multiplexing(OFDM)
Antenna Type:	Integral antenna
Antenna Gain:	2.0dBi (By testlab GTS)
Adaptor Information:	DC 3.3V

## 4.3 Test Facility

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

- **CNAS —Registration No.: CNAS L5775**

CNAS has accredited Global United Technology Services Co., Ltd. To ISO/IEC 17025 General Requirements for the competence of testing and calibration laboratories (CNAS-CL01 Accreditation Criteria for the Competence of Testing and Calibration Laboratories) for the competence in the field of testing.

- **FCC —Registration No.: 600491**

Global United Technology Services Co., Ltd., Shenzhen 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 files. Registration 600491, June 28, 2013.

- **Industry Canada (IC) —Registration No.: 9079A-2**

The 3m Semi-anechoic chamber of Global United Technology Services Co., Ltd. Has been Registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 9079A-2, June 26, 2013.

## 4.4 Test Location

All tests were performed at:

Global United Technology Services Co., Ltd.

Room 301-309, 3th Floor, Block A, Huafeng Jinyuan Business Building, No. 300 Laodong Industrial Zone, Xixiang Road, Baoan District, Shenzhen, China

Tel: 0755-27798480

Fax: 0755-27798960

## 4.5 Description of Support Units

The EUT has been tested as an independent unit.

## 4.6 Deviation from Standards

None.

## 4.7 Abnormalities from Standard Conditions

None.

## 4.8 Other Information Requested by the Customer

None.

## 5 Technical Requirements Specification in EN 62311

Test Requirement:	EN 62311																																																												
Test Method:	EN 62311																																																												
General Description of Applied Standards	EN 62311 Generic standard to demonstrate the compliance of electronic and electrical apparatus with the basic restrictions related to human exposure to electromagnetic fields (0 Hz–300 GHz) is to demonstrate the compliance of apparatus with the basic restrictions or reference levels on exposure of the general public related to electric, magnetic, electromagnetic fields as well as induced and contact current.																																																												
Limit:	<p>According to EN 62311, the criteria listed in the below table shall be used to evaluate the environmental impact of human exposure to radio-frequency (RF) radiation as specified table 2 of Council Recommendation 1999/519/EC.</p> <p style="text-align: center;">Reference levels for electric, magnetic and electromagnetic fields (0 Hz to 300 GHz, unperturbed rms values)</p> <table><tr><th>Frequency range</th><th>E-field strength (V/m)</th><th>H-field strength (A/m)</th><th>B-field (μT)</th><th>Equivalent plane wave power density <math>S_{eq}</math> (W/m<sup>2</sup>)</th></tr><tr><td>0-1 Hz</td><td>—</td><td><math>3,2 \times 10^4</math></td><td><math>4 \times 10^4</math></td><td>—</td></tr><tr><td>1-8 Hz</td><td>10 000</td><td><math>3,2 \times 10^4/f^2</math></td><td><math>4 \times 10^4/f^2</math></td><td>—</td></tr><tr><td>8-25 Hz</td><td>10 000</td><td><math>4\,000/f</math></td><td><math>5\,000/f</math></td><td>—</td></tr><tr><td>0,025-0,8 kHz</td><td><math>250/f</math></td><td><math>4/f</math></td><td><math>5/f</math></td><td>—</td></tr><tr><td>0,8-3 kHz</td><td><math>250/f</math></td><td>5</td><td>6,25</td><td>—</td></tr><tr><td>3-150 kHz</td><td>87</td><td>5</td><td>6,25</td><td>—</td></tr><tr><td>0,15-1 MHz</td><td>87</td><td><math>0,73/f</math></td><td><math>0,92/f</math></td><td>—</td></tr><tr><td>1-10 MHz</td><td><math>87/f^{1/2}</math></td><td><math>0,73/f</math></td><td><math>0,92/f</math></td><td>—</td></tr><tr><td>10-400 MHz</td><td>28</td><td>0,073</td><td>0,092</td><td>2</td></tr><tr><td>400-2 000 MHz</td><td><math>1,375 \cdot f^{1/2}</math></td><td><math>0,0037 \cdot f^{1/2}</math></td><td><math>0,0046 \cdot f^{1/2}</math></td><td><math>f/200</math></td></tr><tr><td>2-300 GHz</td><td>61</td><td>0,16</td><td>0,20</td><td>10</td></tr></table> <p>Notes:</p> <p>1. <math>f</math> as indicated in the frequency range column.</p>	Frequency range	E-field strength (V/m)	H-field strength (A/m)	B-field (μT)	Equivalent plane wave power density $S_{eq}$ (W/m <sup>2</sup> )	0-1 Hz	—	$3,2 \times 10^4$	$4 \times 10^4$	—	1-8 Hz	10 000	$3,2 \times 10^4/f^2$	$4 \times 10^4/f^2$	—	8-25 Hz	10 000	$4\,000/f$	$5\,000/f$	—	0,025-0,8 kHz	$250/f$	$4/f$	$5/f$	—	0,8-3 kHz	$250/f$	5	6,25	—	3-150 kHz	87	5	6,25	—	0,15-1 MHz	87	$0,73/f$	$0,92/f$	—	1-10 MHz	$87/f^{1/2}$	$0,73/f$	$0,92/f$	—	10-400 MHz	28	0,073	0,092	2	400-2 000 MHz	$1,375 \cdot f^{1/2}$	$0,0037 \cdot f^{1/2}$	$0,0046 \cdot f^{1/2}$	$f/200$	2-300 GHz	61	0,16	0,20	10
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Test method:	<p>According to the Far field calculation formula:</p> <p style="text-align: center;"><b>Far Field Calculation Formula</b></p> <div><div><math display="block">E = \frac{\sqrt{30PG(\theta, \phi)}}{r}</math></div><div><p><math>G</math> = antenna gain relative to an isotropic antenna</p><p><math>\theta, \phi</math> = elevation and azimuth angles to point of investigation</p><p><math>r</math> = distance from observation point to the antenna</p></div></div> <p>The antenna of the product, under normal use condition is at least 20cm away from the body of the user. Warning statement of the user for keeing 20cm separation distance and the prohibition of operating to a person has been printed on the user manual. So, this product under normal use is located on electromagnetic far field between the human body.</p>																																																												
Result:	Pass																																																												

**Measurement Data:**

802.11b mode					
Frequency (MHz)	Output Power (dBm)	Output Power (mW)	E Field Strength (V/m)	Limit (V/m)	Result
2412	17.25	53.09	6.31	61.00	Pass
2442	17.55	56.89	6.53		
2472	17.49	56.10	6.49		
802.11g mode					
Frequency (MHz)	Output Power (dBm)	Output Power (mW)	E Field Strength (V/m)	Limit (V/m)	Result
2412	13.55	22.65	4.12	61.00	Pass
2442	13.13	20.56	3.93		
2472	13.21	20.94	3.96		
802.11n(H20) mode					
Frequency (MHz)	Output Power (dBm)	Output Power (mW)	E Field Strength (V/m)	Limit (V/m)	Result
2412	12.44	17.54	3.63	61.00	Pass
2442	12.67	18.49	3.72		
2472	12.86	19.32	3.80		
802.11n(H40) mode					
Frequency (MHz)	Output Power (dBm)	Output Power (mW)	E Field Strength (V/m)	Limit (V/m)	Result
2422	12.38	17.30	3.60	61.00	Pass
2442	12.33	17.10	3.58		
2462	12.81	19.10	3.78		

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