GTS Global United Technology Services Co., Ltd.

TEST REPORT

Applicant:	SHENZHEN WLINK TECHNOLOGY CO., LIMITED
Address of Applicant:	319,YiBen Electronic Business Building, NO.1063 ChaGuang Road, XiLi, NanShan District, ShenZhen, China
Manufacturer:	SHENZHEN WLINK TECHNOLOGY CO., LIMITED
Address of Manufacturer:	319,YiBen Electronic Business Building, NO.1063 ChaGuang Road, XiLi, NanShan District, ShenZhen, China

Equipment Under Test (EUT)

Product Name:	Industrial Cellular Modem
Model No.:	WL-D80
Applicable standards:	EN 62311:2008
Date of sample receipt:	June 27, 2017
Date of Test:	June 28-July 04, 2017
Date of report issue:	July 05, 2017
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 2014/53/EU are considered.

Robinson Lo
Laboratory Manager

CE

This 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.

2 Version

Version No.	Date	Description
00	*July 05, 2017*	*Original*

Prepared By: *Zdward.Pan*   *Date:*   *July 05, 2017*

Project Engineer

Check By: *Andy.wu*   *Date:*   *July 05, 2017*

Reviewer

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4 General Information

4.1 General Description of EUT

Product Name:	Industrial Cellular Modem
Model No.:	WL-D80
Power Supply:	Adapter Model No.: TS-A018-120015EJ Input: AC 100-240V, 50/60Hz, 0.5A Output: DC 12V, 1.5A
GSM	
Operation Frequency: (E-GSM900)	TX: 880---915MHz Rx: 925---960MHz
Operation Frequency: (DCS1800)	TX: 1710---1785MHz RX: 1805---1880MHz
Modulation Type:	GMSK
Antenna Type:	Integral Antenna
Antenna Gain:	1.0dBi(GSM900), 1.0dBi(DCS1800)
WCDMA	
Operation Frequency:	Band I:1920MHz~1980MHz
	Band VIII:880MHz~915MHz
Modulation Type:	WCDMA:QPSK
	HSDPA:QPSK, 16QAM
	HSUPA:QPSK, 16QAM
Antenna Type:	Integral Antenna
Antenna Gain:	1.0dBi(WCDMA I), 1.0dBi(WCDMA VIII)
LTE	
Operation Frequency:	Band 1:1920MHz ~ 1980MHz
	Band 3:1710MHz ~ 1785MHz
	Band 7:2500MHz ~ 2570MHz
	Band 8: 880MHz ~ 915MHz
	Band 20:832MHz ~ 862MHz
Modulation Type:	QPSK, 16QAM, 64QAM
Antenna Type:	Integral Antenna
Antenna Gain:	1.0dBi(Band 1), 1.0dBi(Band 3), 1.0dBi(Band 7), 1.0dBi(Band 8), 1.0dBi(Band 20).

4.2 Test Facility

● **FCC —Registration No.: 600491**
Global United Technology Services Co., Ltd., Shenzhen EMC Laboratory has been registered and fuly described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in files. Registration 600491, June 22, 2016.
● **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, August 15, 2016.

4.3 Test Location

All tests were performed at:
Global United Technology Services Co., Ltd. Address: No. 301-309, 3/F., Jinyuan Business Building, No.2, Laodong Industrial Zone, Xixiang Road, Baoan District, Shenzhen, Guangdong, China 518102 Tel: 0755-27798480 Fax: 0755-27798960

4.4 Description of Support Units

The EUT has been tested as an independent unit.

4.5 Deviation from Standards

None.

4.6 Abnormalities from Standard Conditions

None.

4.7 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:	According to EN 62311, the criteria listed in the below table shall be used to evalouate the environmental inpact of human exposure to radio-frequency (RF) radiation as specified table 2 of Council Recommendation 1999/519/EC.

Reference levels for electric, magnetic and electromagnetic fields
(0 Hz to 300 GHz, unperturbed rms values)

Frequency range	E-field strength (V/m)	H-field strength (A/m)	B-field (µT)	Equivalent plane wave power density S_{eq} (W/m²)
0-1 Hz	—	$3,2 \times 10^4$	4×10^4	—
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	$1,375\ f^{1/2}$	$0,0037\ f^{1/2}$	$0,0046\ f^{1/2}$	$f/200$
2-300 GHz	61	0,16	0,20	10

Notes:

1. f as indicated in the frequency range column.

Test method:	According to the Far field calculation formula:

Far Field Calculation Formula

$$E = \frac{\sqrt{30PG(\theta,\phi)}}{r}$$

G = antenna gain relative to an isotropic antenna

θ, ϕ = elevation and azimuth angles to point of investigation

r = distance from observation point to the antenna

The antenna of the product, under normal use condition is at least 20cm away from the body of the user. Warning statement ot 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.

Result:	Pass

Measurement Data:

Mode	Frequency Band(MHz)	Maximum Output Power (dBm)	Output Power (mW)	E Field Strength (V/m)	E Field Strength Limit (V/m)	Result
GSM 900	880~915	32.29	1694.338	40.014	40.26	Pass
DCS 1800	1710~1785	29.43	877.001	28.788	56.12	Pass
WCDMA Band 1	1920~1980	21.91	155.239	12.112	59.46	Pass
WCDMA Band 8	880~915	21.74	149.279	11.877	40.26	Pass
LTE Band 1	1920~1980	22.77	189.234	13.373	59.46	Pass
LTE Band 3	1710~1785	22.99	199.067	13.716	56.12	Pass
LTE Band 7	2500~2570	22.97	198.153	13.684	61.00	Pass
LTE Band 8	880~915	22.96	197.697	13.668	40.26	Pass
LTE Band 20	832~862	22.97	198.153	13.684	39.14	Pass

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