Report No.: GTS201709000079E03

RF Exposure

Applicant:	Dragino Technology Co., Limited
Address of Applicant:	Room 1101, City Invest Commercial Center, No.546 QingLinRoad LongCheng Street, LongGang District , Shenzhen 518116,China
Manufacturer/ Factory:	Dragino Technology Co., Limited
Address of Manufacturer/ Factory:	Room 1101, City Invest Commercial Center, No.546 QingLinRoad LongCheng Street, LongGang District , Shenzhen 518116,China

Equipment Under Test (EUT)

Product Name:	Wireless IoT Module
Model No.:	DUO-1G-32, DUO-2G-32
Applicable standards:	EN 62311:2008
Date of sample receipt:	September 13, 2017
Date of Test:	September 14-30, 2017
Date of report issue:	September 30, 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

2 Version

Version No.	Date	Description
00	*September 30, 2017*	*Original*

Prepared By: Bill. Yuan ***Date:*** *September 30, 2017*

Project Engineer

Check By: Andy. Wu ***Date:*** *September 30, 2017*

Reviewer

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4 General Information

4.1 General Description of EUT

Product Name:	Wireless IoT Module
Model No.:	DUO-1G-32, DUO-2G-32
Test Model:	DUO-2G-32
Remark:	All above models are identical in the same PCB layout, interior structure and electrical circuits. The differences are the capacity of the DDR.
Operation Frequency:	2412MHz~2472MHz(802.11b/802.11g/802.11n(H20))
Channel Numbers:	13 for 802.11b/802.11g/802.11n(HT20)
Channel Separation:	5MHz
Modulation Type: (IEEE 802.11b)	Direct Sequence Spread Spectrum(DSSS)
Modulation Type: (IEEE 802.11g/802.11n)	Orthogonal Frequency Division Multiplexing(OFDM)
Antenna Type:	Integral antenna
Antenna Gain:	Ant 1:2.0dBi Ant 2:2.0dBi
Power Supply:	DC 12V 1A(Supplied by the AC adapter)

4.2 Test Facility

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

● **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:

802.11b mode					
Frequency (MHz)	Output Power (dBm)	Output Power (mW)	E Field Strength (V/m)	Limit (V/m)	Result
2412	13.40	21.88	4.05	61.00	Pass
2442	13.00	19.95	3.87		
2472	13.40	21.88	4.05		

------End------