

# TEST REPORT

of

FCC CFR 47 part 1, 1.1307(b), 1.1310

FCC ID: 2ALHLFAD10000

Equipment Under Test : Air Drop Equipment  
Model Name : FAD-1000  
Applicant : IO Factory Inc  
Manufacturer : IO Factory Inc  
Date of Receipt : 2017.02.02  
Date of Test(s) : 2017.02.17 ~ 2017.04.13  
Date of Issue : 2017.04.17

In the configuration tested, the EUT complied with the standards specified above.

Tested By:



Harim Lee

Date:

2017.04.17

Technical  
Manager:



Logan Lee

Date:

2017.04.17

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SGS Korea Co., Ltd. (Gunpo Laboratory) 4, LS-ro 182beon-gil, Gunpo-si, Gyeonggi-do, Korea, 15807 <http://www.sgsgroup.kr>

RTT5041-20(2015.10.01)(3)

Tel. +82 31 428 5700 / Fax. +82 31 427 2370

A4(210 mm x 297 mm)

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## 1. General Information

### 1.1. Testing Laboratory

SGS Korea Co., Ltd. (Gunpo Laboratory)

-Wireless Div. 2FL, 10-2, LS-ro 182beon-gil, Gunpo-si, Gyeonggi-do, Korea, 15807

All SGS services are rendered in accordance with the applicable SGS conditions of service available on request and accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx>.

Phone No. : +82 31 688 0901

Fax No. : +82 31 688 0921

### 1.2. Details of Applicant

Applicant : IO Factory Inc

Address : 31st Floor S Building, Songdo Techno Park IT Center, 32, Songdogwahak-ro, Yeonsu-gu, Incheon 21984, Republic of Korea

Contact Person : Park, Myong-Su

Phone No. : +82 270 7542 3737

### 1.3. Description of EUT

Kind of Product	Air Drop Equipment
Model Name	FAD-1000
Power Supply	DC 3.7 V
Frequency Range	905 MHz, 915 MHz
Modulation Technique	LoRa
Number of Channels	2 channels
Antenna Type	Coil Antenna
Antenna Gain	-16.53 dBi

### 1.4. Test report revision

Revision	Report number	Date of Issue	Description
0	F690501/RF-RTL011020	2017.04.17	Initial

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## 2. RF Exposure Evaluation

### 2.1. Environmental evaluation and exposure limit according to FCC CFR 47 part 1, 1.1307(b), 1.1310

#### LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Frequency Range (MHz)	Electric Field Strength(V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm <sup>2</sup> )	Average Time
(A) Limits for Occupational/Controlled Exposure				
0.3 – 3.0	614	1.63	*100	6
3.0 – 30	1842/f	4.89/f	*900/f <sup>2</sup>	6
30 – 300	61.4	0.163	1.0	6
300 – 1 500	-	-	f/300	6
1 500 – 100 000	-	-	5	6
(B) Limits for General Population/Uncontrolled Exposure				
0.3 – 1.34	614	1.63	*100	30
1.34 – 30	824/f	2.19/f	*180/f <sup>2</sup>	30
30 – 300	27.5	0.073	0.2	30
<b><u>300 – 1 500</u></b>	<b><u>-</u></b>	<b><u>-</u></b>	<b><u>f/1500</u></b>	<b><u>30</u></b>
1 500 – 100 000	-	-	1.0	30

#### 2.1.1. Friis transmission formula: $P_d = (P_{out} \cdot G) / (4 \cdot \pi \cdot R^2)$

Where  $P_d$  = power density in mW/cm<sup>2</sup>

$P_{out}$  = output power to antenna in mW

$G$  = gain of antenna in linear scale

$\pi$  = 3.1416

$R$  = distance between observation point and center of the radiator in cm

If we know the maximum gain of the antenna and the total power input to the antenna, through the calculation, we will know the distance where the MPE limit is reached.

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## 2.1.2. Test Result of RF Exposure Evaluation

Test Item : RF Exposure Evaluation Data  
Test Mode : Normal Operation

## 2.1.3. Output Power into Antenna & RF Exposure Evaluation Distance

### - Maximum tune up tolerance

Operating Frequency (MHz)	Output Average Power to Antenna (dB m)	Antenna Gain (dB i)	Power Density at 20 cm (mW/cm <sup>2</sup> )	Limits (mW/cm <sup>2</sup> )
905	17	-16.53	0.000 222	0.60
915	17	-16.53	0.000 222	0.61

Note :

- The power density Pd at a distance of 20 cm calculated from the friis transmission formula is far below the limit of 0.60 mW/cm<sup>2</sup>.
- This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment.
- This equipment should be installed and operated with minimum 20 cm between the radiator and your body.
- The antenna gain of this transmitter is less than 6 dB i and must not be collocated or operating in conjunction with any other antenna or transmitter unless authorized to do so by the FCC.

**- End of the Test Report -**

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