



EMF TEST REPORT

Product Name: Fixed RFID Reader

Model Name: FR901

FCC ID: SS4FR901

Issued For : Bluebird Inc.

3F, 115, Irwon-ro, Gangnam-gu, Seoul, Republic of Korea

Issued By : Shenzhen LGT Test Service Co., Ltd.

Room 205, Building 13, Zone B, Zhenxiong Industrial Park,
No.177, Renmin West Road, Jinsha, Kengzi Street, Pingshan
District, Shenzhen, Guangdong, China

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TEST REPORT CERTIFICATION

Applicant: Bluebird Inc.
Address: 3F, 115, Irwon-ro, Gangnam-gu, Seoul, Republic of Korea
Manufacturer: Bluebird Inc.
Address: 3F, 115, Irwon-ro, Gangnam-gu, Seoul, Republic of Korea
Factory 1: Bluebird Inc.
Address: SSang-young IT Twin tower-B 7~8F), 531, Dunchon-daero, Jungwon-gu, Seongnam-si, Gyeonggi-do, Korea
Factory 2: DSGLOBAL VINA CO.,LTD
Address: Lot XN3-1E, Dai An expansion Industrial Zone, Lai Cach town Cam Giang district, HaiDuong province, Vietnam
Product Name: Fixed RFID Reader
Trademark: 
Model Name: FR901
Sample Status: Normal

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
FCC 47 CFR §2.1091 KDB 447498 D01 General RF Exposure Guidance v06	PASS

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Revision History

Rev.	Issue Date	Revisions
00	Jan. 16, 2026	Initial Issue



1. GENERAL INFORMATION

1.1 GENERAL DESCRIPTION OF THE EUT

Product Name:	Fixed RFID Reader	
Test Model Name:	FR901	
Series Name:	N/A	
Model Difference:	N/A	
Frequency Bands:	2.4G WLAN	802.11b/g/n/ax(20MHz): 2412~2462MHz 802.11n/ax(40MHz):2422~2452MHz
	5G WLAN	IEEE 802.11a/n(HT20)/ ac(VHT20)/ax(HE20): 5.180GHz-5.240GHz IEEE 802.11n(HT40)/ ac(VHT40)/ax(HE40): 5.190GHz-5.230GHz IEEE 802.11 ac(VHT80)/ax(HE80): 5.210GHz IEEE 802.11 ac(VHT160)/ax(HE160): 5.250GHz IEEE 802.11a/n(HT20)/ ac(VHT20)/ax(HE20): 5.260GHz-5.320GHz IEEE 802.11 n(HT40)/ ac(VHT40)/ax(HE40): 5.270GHz-5.310GHz IEEE 802.11 ac(VHT80)/ax(HE80): 5.290GHz IEEE 802.11a/n(HT20)/ ac(VHT20)/ax(HE20): 5.500GHz-5.700GHz IEEE 802.11 n(HT40)/ ac(VHT40)/ax(HE40): 5.510GHz-5.670GHz IEEE 802.11 ac(VHT80)/ax(HE80): 5.530GHz-5.610GHz IEEE 802.11 ac(VHT160)/ax(HE160): 5.570GHz IEEE 802.11a/n(HT20)/ ac(VHT20)/ax(HE20): 5.745GHz-5.825GHz IEEE 802.11a/n(HT40)/ac(VHT40)/ax(HE40): 5.755GHz-5.795GHz IEEE 802.11 ac(VHT80)/ax(HE80): 5.775GHz
	6G WIFI	IEEE 802.11 a/n(HT20)/ ac(VHT20)/ax(HE20): 5.935GHz-7.115GHz IEEE 802.11 n(HT40)/ ac(VHT40)/ax(HE40): 5.969GHz-7.085GHz IEEE 802.11 ac(VHT80)/ax(HE80): 5.985GHz-7.025GHz IEEE 802.11 ac(VHT160)/ax(HE160): 6.025GHz-6.985GHz
	RF ID	902.75-927.25 MHz
Adapter:	Input: 100-240V 50/60Hz 2.5A Output: 24V 4.0A	
Rating:	POE+(30W): 56V 0.53A	
Hardware Version:	Rev 0V2	
Software Version:	N/A	



1.2 TEST LABORATORY

Company Name:	Shenzhen LGT Test Service Co., Ltd.
Address:	Room 205, Building 13, Zone B, Zhenxiong Industrial Park, No.177, Renmin West Road, Jinsha, Kengzi Street, Pingshan District, Shenzhen, Guangdong, China
Accreditation Certificate:	FCC Registration No.: 746540
	CAB ID: CN0136



2. FCC 47CFR §2.1091 REQUIREMENT

2.1 TEST STANDARDS

The limit for Maximum Permissible Exposure (MPE) specified in FCC 1.1310 is followed. The gain of the antennas used in the product is extracted from the Antenna data sheets provided and also the maximum total power input to the antenna is measured. Through the Friis transmission formula and the maximum gain of the antenna, we can calculate the distance, away from the product, where the limit of MPE is reached.

Although the Friis Transmission formula is far field assumption, the calculated result of that is an over-prediction for near field power density. It is taken as worst case to specify the safety range.

2.2 LIMIT

According to FCC 1.1310: The criteria listed in the following table shall be used to evaluate the environmental impact of the human exposure to radio-frequency (RF) radiation as specified in 1.1307 (b)

Limits for Maximum Permissible Exposure (MPE)

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm ²)
Limits for Occupational / controlled Exposures			
0.3-3.0	614	1.63	*(100)
3.0-30	1842/f	4.89/f	*(900/f ²)
30-300	61.4	0.163	1.0
300 - 1500	--	--	F/300
1500 – 100000	--	--	5.0
Limits for General population / Uncontrolled Exposure			
0.3-1.34	614	1.63	*(100)
1.34-30	824/f	2.19/f	*(180/f ²)
30-300	27.5	0.073	0.2
300 - 1500	--	--	F/1500
1500 – 100000	--	--	1.0

F= Frequency in MHz

* = Plane-wave equivalent power density.

Friss Formula

Friss Transmission Formula: $P_d = (P_{out} * G) / (4 * \pi * r^2)$

Where

P_d = power density in mW/cm²

P_{out} = output power to antenna in mW

G = gain of antenna in linear scale

π = 3.1416

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

If we know the maximum gain of the antenna and the total output power to the antenna, through calculation, we will know MPE value at distance 20cm.



2.3 EUT OPERATION CONDITION

EUT was enabled to transmit and receive at lowest, middle and highest channels.

2.4 CLASSIFICATION

The antenna of this product, under normal use condition, is at least 20cm away from the body of the user. Warning statement to the user for keeping at least 20cm or more separation distance from the antenna should be included in the User manual. So, this device is classified as Mobile device.



2.5 TEST RESULT

Turn up Result

Mode	Turn up Power
RF ID_900MHz	29±1dBm
2.4G WIFI-802.11b	15±1dBm
2.4G WIFI-802.11g	15±1dBm
2.4G WIFI-802.11n(HT20)	18±1dBm
2.4G WIFI-802.11n(HT40)	18±1dBm
2.4G WIFI-802.11ax(HE20)	18±1dBm
2.4G WIFI-802.11ax(HE40)	18±1dBm
5G WIFI-802.11a	12.5±1dBm
5G WIFI-802.11n(HT20)	14.5±1dBm
5G WIFI-802.11n(HT40)	14.5±1dBm
5G WIFI-802.11ac(VHT20)	14.5±1dBm
5G WIFI-802.11ac(VHT40)	14.5±1dBm
5G WIFI-802.11ac(VHT80)	14.5±1dBm
5G WIFI-802.11ac(VHT160)	14.5±1dBm
5G WIFI-802.11ax(HE20)	14.5±1dBm
5G WIFI-802.11ax(HE40)	15±1dBm
5G WIFI-802.11ax(HE80)	14.5±1dBm
5G WIFI-802.11ax(HE160)	14±1dBm
WIFI 6E-802.11a	9.5±1dBm
WIFI 6E-802.11n(HT20)	9.5±1dBm
WIFI 6E-802.11n(HT40)	12±1dBm
WIFI 6E-802.11ac(VHT20)	9.5±1dBm
WIFI 6E-802.11ac(VHT40)	12±1dBm
WIFI 6E-802.11ac(VHT80)	13±1dBm
WIFI 6E-802.11ac(VHT160)	13±1dBm
WIFI 6E-802.11ax(HE20)	9.5±1dBm
WIFI 6E-802.11ax(HE40)	9.5±1dBm
WIFI 6E-802.11ax(HE80)	11±1dBm
WIFI 6E-802.11ax(HE160)	9±1dBm



The MPE result of worst mode:

RF Function	Frequency (MHz)	Max Turn up Power (dBm)	Max Turn up Power (mW)	ANT Gain (dBi)	ANT Gain (gain of antenna in linear scale)	Power Density (mW/cm ²)	Limit (mW/cm ²)	Ratio	Result
RF ID	927.25	30.00	1000.00	6	3.98	0.352	0.6013	0.585	Pass
2.4G WIFI	2412	19.00	79.43	2.31	1.70	0.012	1	0.012	Pass
5G WIFI	5190	16.00	39.81	1.81	1.52	0.005	1	0.005	Pass
WIFI 6E	6865	14.00	25.12	-0.98	1.32	0.007	1	0.007	Pass

Multiple transmission: $0.585+0.012=0.597 < 1$

Note:

1. The RF Exposure is less than the limit, complies with the exemption requirements.
2. The minimum separation distance of the device is greater than 30 cm.

*****END OF THE REPORT*****