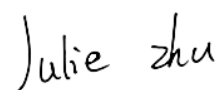


# TEST REPORT

**Applicant:** Shanghai Lebai Robot Co., Ltd  
**Address:** No.700 Yishan Rd. Xuhui District , Shanghai, China  
**Equipment Type:** Control CabinetUseful  
**Model Name:** LM3 (refer section 2.4)  
**Brand Name:** N/A  
**FCC ID:** 2A962-LM3  
**Test Standard:** 47 CFR Part 2.1091  
KDB 447498 D04 v01  
**Sample Arrival Date:** Dec. 21, 2022  
**Test Date:** Jan. 10, 2023 - Jan. 16, 2023  
**Date of Issue:** Feb. 23, 2023

**ISSUED BY:**

Shenzhen BALUN Technology Co., Ltd.

**Tested by:** Julie Zhu**Checked by:** Xu Rui**Approved by:** Tu Lang  
(Testing Director)

### Revision History

Version	Issue Date	Revisions Content
<u>Rev. 01</u>	<u>Feb. 16, 2023</u>	<u>Initial Issue</u>
<u>Rev. 02</u>	<u>Feb. 20, 2023</u>	<u>Change the address of applicant and manufacturer</u>
<u>Rev. 03</u>	<u>Feb. 23, 2023</u>	<u>Modify the EUT Name. Section 2.6, Section 5.1, Section 5.2</u>

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# 1 GENERAL INFORMATION

## 1.1 Test Laboratory

Name	Shenzhen BALUN Technology Co., Ltd.
Address	Block B, 1/F, Baisha Science and Technology Park, Shahe Xi Road, Nanshan District, Shenzhen, Guangdong Province, P. R. China
Phone Number	+86 755 6685 0100

## 1.2 Test Location

Name	Shenzhen BALUN Technology Co., Ltd.
Location	<input checked="" type="checkbox"/> Block B, 1/F, Baisha Science and Technology Park, Shahe Xi Road, Nanshan District, Shenzhen, Guangdong Province, P. R. China
	<input type="checkbox"/> 1/F, Building B, Ganghongji High-tech Intelligent Industrial Park, No. 1008, Songbai Road, Yangguang Community, Xili Sub-district, Nanshan District, Shenzhen, Guangdong Province, P. R. China
Accreditation Certificate	The laboratory is a testing organization accredited by FCC as a accredited testing laboratory. The designation number is CN1196.

## 2 PRODUCT INFORMATION

### 2.1 Applicant Information

Applicant	Shanghai Lebai Robot Co., Ltd
Address	No.700 Yishan Rd. Xuhui District , Shanghai, China

### 2.2 Manufacturer Information

Manufacturer	Shanghai Lebai Robot Co., Ltd
Address	No.700 Yishan Rd. Xuhui District , Shanghai, China

### 2.3 Factory Information

Factory	N/A
Address	N/A

### 2.4 General Description for Equipment under Test (EUT)

EUT Name	Control CabinetUseful
Model Name Under Test	LM3
Series Model Name	LM3-L1
Description of Model name differentiation	Robots vary in length, size and weight (this information provided by the customer).
Hardware Version	N/A
Software Version	N/A
Dimensions (Approx.)	N/A
Weight (Approx.)	N/A

### 2.5 Ancillary Equipment

Note: Not applicable.

## 2.6 Technical Information

Network and Wireless connectivity	2.4G WIFI 802.11b, 802.11g, 802.11n(HT20), 802.11n(HT40)
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The requirement for the following technical information of the EUT was tested in this report:

Operating Mode	2.4G WIFI	
Frequency Range	2.4G WIFI	2412 ~ 2462 MHz
Antenna Type	2.4G WIFI	Folding rod Antenna
Exposure Category	General Population/Uncontrolled Exposure	
EUT Stage	Mobile Device	

### 3 SUMMARY OF TEST RESULT

#### 3.1 Test Standards

No.	Identity	Document Title
1	47 CFR Part 2.1091	Radiofrequency radiation exposure evaluation: mobile devices
2	KDB 447498 D04 v01	447498 D04 Interim General RF Exposure Guidance v01

## 4 DEVICE CATEGORY AND LEVELS LIMITS

### Mobile Device:

CFR Title 47 §2.1091(b)

(b) For purposes of this section, a mobile device is defined as a transmitting device designed to be used in other than fixed locations and to generally be used in such a way that a separation distance of at least 20 centimeters is normally maintained between the transmitter's radiating structure(s) and the body of the user or nearby persons.

### FCC KDB 447498 D04 General RF Exposure Guidance v01 Limit

Evaluation of compliance with the exposure limits in § 1.1310 is necessary if the ERP of the device is greater than ERP<sub>20cm</sub> in Formula (B.1) [repeated from § 2.1091(c)(1) and § 1.1307(b)(1)(i)(B)].

$$P_{th} \text{ (mW)} = ERP_{20 \text{ cm}} \text{ (mW)} = \begin{cases} 2040f & 0.3 \text{ GHz} \leq f < 1.5 \text{ GHz} \\ 3060 & 1.5 \text{ GHz} \leq f \leq 6 \text{ GHz} \end{cases} \quad (\text{B.1})$$

If the ERP is not easily obtained, then the available maximum time-averaged power may be used (i. e., without consideration of ERP only if the physical dimensions of the radiating structure(s) do not exceed the electrical length of  $\lambda/4$  or if the antenna gain is less than that of a half-wave dipole.

SAR-based exemptions are constant at separation distances between 20 cm and 40 cm to avoid discontinuities in the threshold when transitioning between SAR-based and MPE-based exemption criteria at 40 cm, considering the importance of reflections.

The SAR-based exemption formula of § 1.1307(b)(3)(i)(B), repeated here as Formula (B.2), applies for single fixed, mobile, and portable RF sources with available maximum time-averaged power or effective radiated power (ERP), whichever is greater, of less than or equal to the threshold  $P_{th}$  (mW).

This method shall only be used at separation distances from 0.5 cm to 40 cm and at frequencies from 0.3 GHz to 6 GHz (inclusive).  $P_{th}$  is given by Formula (B.2).

$$P_{th} \text{ (mW)} = \begin{cases} ERP_{20 \text{ cm}} (d/20 \text{ cm})^x & d \leq 20 \text{ cm} \\ ERP_{20 \text{ cm}} & 20 \text{ cm} < d \leq 40 \text{ cm} \end{cases} \quad (\text{B. 2})$$

where

$$x = -\log_{10} \left( \frac{60}{ERP_{20 \text{ cm}} \sqrt{f}} \right)$$

and  $f$  is in GHz,  $d$  is the separation distance (cm), and  $ERP_{20 \text{ cm}}$  is per Formula (B.1).  
The example values shown in Table B.2 are for illustration only.

Table B.2—Example Power Thresholds (mW)

Frequency (MHz)	Distance (mm)										
		5	10	15	20	25	30	35	40	45	50
300		39	65	88	110	129	148	166	184	201	217
450		22	44	67	89	112	135	158	180	203	226
835		9	25	44	66	90	116	145	175	207	240
1900		3	12	26	44	66	92	122	157	195	236
2450		3	10	22	38	59	83	111	143	179	219
3600		2	8	18	32	49	71	96	125	158	195
5800		1	6	14	25	40	58	80	106	136	169



## 5 ASSESSMENT RESULT

### 5.1 Output Power

Mode	2.4G WIFI			
	802.11b	802.11g	802.11n20	802.11n40
Conducted Power (dBm)	12.62	12.63	12.79	12.62
Antenna Gain (dBi)	1.54	1.54	1.54	1.54
EIRP	14.16	14.17	14.33	14.16

Note: This table listed the worst case power value, please refer to BL-EC22C0422-601 report for more details.

### 5.2 Tune-up power

Mode	Conducted Power Range (dBm)	EIRP Range (dBm)	ERP Range (dBm)
WLAN 2.4G	[11.00, 13.00]	[12.54, 14.54]	[10.39, 12.39]

Note1: ERP= EIRP -2.15dB  
 Note2: According KDB 447498 D04, used the greater of maximum conducted power and ERP to compare with the threshold value Pth.

### 5.3 RF Exposure Evaluation Result

Evolution mode	Maximum power (dBm)	Maximum power (mw)	Distance (cm)	Threshold Power (mW)	Verdict
2.4G WIFI	13.00	19.95	20	3060.00	Pass

### 5.4 Conclusion

This EUT is deemed to comply with the reference level limits, therefore the basic restrictions are compliant with human exposure limits.

## Statement

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--END OF REPORT--