

RF EVALUATION TEST REPORT

Applicant..... : ShenZhen Landshr Electric Technology Co., Ltd.
Address..... : 1201-1202, Building 3, Nantaiyun Chuanggu, Tangwei Community, Guangming District, Shenzhen
Manufacturer..... : ShenZhen Landshr Electric Technology Co., Ltd.
Address..... : 1201-1202, Building 3, Nantaiyun Chuanggu, Tangwei Community, Guangming District, Shenzhen
Factory : ShenZhen Landshr Electric Technology Co., Ltd.
Address : 1201-1202, Building 3, Nantaiyun Chuanggu, Tangwei Community, Guangming District, Shenzhen
Product Name..... : Contactless IC card read and write module
Brand Name..... : **LANDSHR**
Model No. : LSD1U-4R5x, LSD1U-6Rx (For model difference refer to section 2)
FCC ID..... : 2BFGT-LSD1U
Measurement Standard..... : 47 CFR PART 2, Section 2.1093
Receipt Date of Samples.... : January 22, 2025
Date of Tested..... : January 22, 2025 to February 26, 2025
Date of Report..... : March 07, 2025

This report shows that above equipment is technically compliant with the requirements of the standards above. All test results in this report apply only to the tested sample(s). Without prior written approval of Dongguan Nore Testing Center Co., Ltd, this report shall not be reproduced except in full.



Prepared by

Jenny Liu / Project Engineer



Approved by

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Revision History

Report Number	Description	Issued Date
NTC2501402F01	Initial Issue	2025-03-07

1. General Description of EUT

Product Information	
Product Name:	Contactless IC card read and write module
Main Model Name:	LSD1U-4R5C
Additional Model Name:	LSD1U-4R5x, LSD1U-6Rx (x can be 1, 2, 4, 6, C)
Model Difference:	These models have the same circuitry, electrical mechanical, PCB Layout and construction. The differences are model name, series, pins, communication mode, power and baud rate due to marketing purpose. Details refer to page 5.
S/N:	2501-1009
Brand Name:	LANDSHR
Hardware version:	LSD1Useries
Software version:	03
Rating:	DC 5V
Typical Arrangement:	Table-top
I/O Port:	N/A
Accessories Information	
Adapter:	N/A
Cable:	N/A
Other:	N/A
Additional Information	
Note:	According to model differences, all the test were performed on the model LSD1U-4R5C
Remark:	All the information above are provided by the manufacturer. More detailed feature of the EUT please refers to the user manual.

Model differences

LSD1U-4R5x (x can be 1, 2, 4, 6, C)						
LS	D	1U	4	R	5	x
Manufacturer	Product code	Series	Pins	Communication code	Power	Baud rate
Landshr	Contactless IC card read and write module	1U series	4 pins	R: RS232 T: TTL	5: DC 5V	1: 9600 2: 19200 4: 38400 6: 57600 C: 115200
LSD1U-6Rx (x can be 1, 2, 4, 6, C)						
LS	D	5U	6	R	x	
Manufacturer	Product code	Series	Pins	Communication code	Baud rate	
Landshr	Contactless IC card read and write module	5U series	6 pins	R: RS232 T: TTL		1: 9600 2: 19200 4: 38400 6: 57600 C: 115200

Technical Specification

Declaring the Frequency:	13.5612MHz
Modulation Type:	ASK
Antenna Type:	PCB antenna
Antenna Gain:	0 dBi (Declared by manufacturer)
Number of Channels:	1

2. Test Facility and Location

Test Site	:	Dongguan Nore Testing Center Co., Ltd. (Dongguan NTC Co., Ltd.)
Accreditations and Authorizations	:	The Laboratory has been assessed and proved to be in compliance with CNAS/CL01 Listed by CNAS, August 13, 2018 The Certificate Registration Number is L5795. The Certificate is valid until August 13, 2030 The Laboratory has been assessed and proved to be in compliance with ISO17025 Listed by A2LA, November 01, 2017 The Certificate Registration Number is 4429.01 The Certificate is valid until December 31, 2025 Listed by FCC, November 06, 2017 Test Firm Registration Number: 907417 Listed by Industry Canada, June 08, 2017 The Certificate Registration Number. Is 46405-9743A
Test Site Location	:	Building D, Gaosheng Science and Technology Park, Hongtu Road, Nancheng District, Dongguan City, Guangdong Province, China

3. Applicable Standards and References

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

Test Standards:

47 CFR Part 1, 1.1307

47 CFR Part 2, 2.1093

KDB 447498 D04 v01

4. Maximum Permissible Exposure Limit

According to 47 CFR Part 1, 1.1307, for single RF sources (i.e., any single fixed RF source, mobile device, or portable device, as defined in paragraph (b)(2) of this section): A single RF source is exempt if: 47 CFR Part 1, 1.1307

(A) The available maximum time- averaged power is no more than 1 mW, regardless of separation distance. This exemption may not be used in conjunction with other exemption criteria other than those in paragraph (b)(3)(ii)(A) of this section. Medical implant devices may only use this exemption and that in paragraph (b)(3)(ii)(A);

(B) Or the available maximum time- averaged power or effective radiated power (ERP), whichever is greater, is less than or equal to the threshold P_{th} (mW) described in the following formula. This method shall only be used at separation distances (cm) from 0.5 centimeters to 40 centimeters and at frequencies from 0.3 GHz to 6 GHz (inclusive). P_{th} is given by:

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

Where,

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

And,

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

d = the minimum separation distance (cm) in any direction from any part of the device antenna(s) or radiating structure(s) to the body of the device user.

For multiple RF sources: Multiple RF sources are exempt if:

(A) The available maximum time- averaged power of each source is no more than 1 mW and there is a separation distance of two centimeters between any portion of a radiating structure operating and the nearest portion of any other radiating structure in the same device, except if the sum of multiple sources is less than 1 mW during the time-averaging period, in which case they may be treated as a single source (separation is not required). This exemption may not be used in conjunction with other exemption criteria other than those in paragraph (b)(3)(i)(A) of this section. Medical implant devices may only use this exemption and that in paragraph (b)(3)(i)(A).

(B) in the case of fixed RF sources operating in the same time-averaging period, or of multiple mobile or portable RF sources within a device operating in the same time averaging period, if the sum of the fractional contributions to the applicable thresholds is less than or equal to 1 as indicated in the following equation.

$$\sum_{i=1}^a \frac{P_i}{P_{th,i}} + \sum_{j=1}^b \frac{ERP_j}{ERP_{th,j}} + \sum_{k=1}^c \frac{Evaluated_k}{Exposure Limit_k} \leq 1$$

Where,

a = number of fixed, mobile, or portable RF sources claiming exemption using paragraph (b)(3)(i)(B) of this section for P_{th} , including existing exempt transmitters and those being added.

b = number of fixed, mobile, or portable RF sources claiming exemption using paragraph (b)(3)(i)(C) of this section for Threshold ERP, including existing exempt transmitters and those being added.

c = number of existing fixed, mobile, or portable RF sources with known evaluation for the specified minimum distance including existing evaluated transmitters.

P_i = the available maximum time-averaged power or the ERP, whichever is greater, for fixed, mobile, or portable RF source i at a distance between 0.5 cm and 40 cm (inclusive).

$P_{th,i}$ = the exemption threshold power (P_{th}) according to paragraph (b)(3)(i)(B) of this section for fixed, mobile, or portable RF source i .

ERP_j = the ERP of fixed, mobile, or portable RF source j .

$ERP_{th,j}$ = exemption threshold ERP for fixed, mobile, or portable RF source j , at a distance of at least $\lambda/2\pi$ according to the applicable formula of paragraph (b)(3)(i)(C) of this section.

Evaluated_k= the maximum reported SAR or MPE of fixed, mobile, or portable RF source k either in the device or at the transmitter site from an existing evaluation at the location of exposure.

Exposure Limit_k= either the general population/uncontrolled maximum permissible exposure (MPE) or specific absorption rate (SAR) limit for each fixed, mobile, or portable RF source k, as applicable from §1.1310 of this chapter.

5. RF Exposure Evaluation Results

Single RF Source					
Mode	Frequency (MHz)	Max. Power E (dBuV/m)	Max. Power EIRP (dBm)	Max. Power (mW)	Part 1.1307 Option (A) P (mW)
ASK	13.5612	35.02	-60.24	9.47e-7	1

$$\text{EIRP} = E + 20 \log d - 104.8$$

where d is the measurement distance = 3m

Conclusion:

According to 47 CFR §1.1307 option A and 47 CFR §2.1093, the RF exposure analysis concludes that the product is compliant with the FCC RF exposure requirements in portable environment without distance restrictions.

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