TEST REPORT

Product Name	:	Electronic Cabinet Lock
Model Number	:	AA-00-264, GN-JOA1-0082, PZ-CUPR-DJAP, GN-JOA1-0081, GN-JOA1-0085, JO-ECL, JOHNN001, RFID-CL
FCC ID	:	2BAO2-LOCK

Prepared for	:	CHANG ZHOU SHI LIAN JI DIAN ZI CO LTD
Address	:	89 Hao, Huang He Dong Lu, Xin Bei Qu, Changzhou, Jiangsu, China
Prepared by	:	EMTEK (DONGGUAN) CO., LTD.
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TEST REPORT DESCRIPTION

Applicant	:	CHANG ZHOU SHI LIAN JI DIAN ZI CO LTD
Address	:	89 Hao, Huang He Dong Lu, Xin Bei Qu, Changzhou, Jiangsu, China
Manufacturer	:	CHANG ZHOU SHI LIAN JI DIAN ZI CO LTD
Address	:	89 Hao, Huang He Dong Lu, Xin Bei Qu, Changzhou, Jiangsu, China
EUT	:	Electronic Cabinet Lock
Model Name	:	AA-00-264, GN-JOA1-0082, PZ-CUPR-DJAP, GN-JOA1-0081, GN-JOA1-0085, JO-ECL, JOHNN001, RFID-CL
Trademark	:	N/A

Measurement Procedure Used:

FCC Part 1(1.1310) and Part 2(2.1091)
KDB 447498 D01 General RF Exposure Guidance v07

The device described above is tested by EMTEK (DONGGUAN) CO., LTD. to determine the maximum emission levels emanating from the device and the severe levels of the device can endure and its performance criterion. The measurement results are contained in this test report and EMTEK (DONGGUAN) CO., LTD. is assumed full of responsibility for the accuracy and completeness of these measurements. Also, this report shows that the EUT (Equipment Under Test) is technically compliant with the FCC requirements.

This report applies to above tested sample only and shall not be reproduced in part without written approval of EMTEK (DONGGUAN) CO., LTD.

Date of Test	:	December 12, 2022 to March 28, 2023
Prepared by	:	Warren Deng Warren deng /Engineer
Reviewer	:	Tim Dong Tim Dong /Supervisor
Approved & Authorized Signer	:	Sam Lv /Manager

EMTEK (DONGGUAN) CO., LTD. TESTING

1. SUMMARY OF TEST RESULT

EMISSION		
Description of Test Item	Standard & Limits	Results
MPE	FCC Part 1(1.1310) and Part 2(2.1091) KDB 447498 D01 General RF Exposure Guidance v07	Pass
Note: N/A is an abbreviation for Not Applicable.		

2. GENERAL INFORMATION

2.1. Description of Device (EUT)

Characteristics	Description
Product Name:	Electronic Cabinet Lock
Model number:	AA-00-264, GN-JOA1-0082, PZ-CUPR-DJAP, GN-JOA1-0081, GN-JOA1-0085, Jo-ECL, Johnn001, RFID-CL (Note: The PCB schematic diagram and PCB Layout etc. of all models are the same. The only difference is that the product names are named differently. We prepared model Jo-ECL for EMC test.)
Sample number:	1#
Modulation:	ASK modulation
Operating Frequency Range(s):	13.553-13.567MHz
Channel Frequency:	13.56MHz
Max Transmit Power:	70.57 dBμV/m
Number of Channels:	1 channel
Antenna Type :	Coil Antenna
Antenna Gain:	0.0 dBi
Power supply:	☒: DC6V for Battery
Temperature Range:	-10°C ~ +60°C
Date of Received:	December 12, 022

2.2. Description of Test Facility

Site Description

EMC Lab.	:	Accredited by CNAS, 2020.08.27 The certificate is valid until 2024.07.05 The Laboratory has been assessed and proved to be in compliance with CNAS-CL01:2018 The Certificate Registration Number is L3150 Accredited by FCC Designation Number: CN1300 Test Firm Registration Number: 945551 Accredited by A2LA, April 05, 2021 The Certificate Registration Number is 4321.02 Accredited by Industry Canada The Certificate Registration Number is CN0113
Name of Firm	:	EMTEK (DONGGUAN) CO., LTD.
Site Location	:	-1&2/F.,Building 2, Zone A, Zhongda Marine Biotechnology Research and Development Base, No.9, Xincheng Avenue, Songshanhu High-technology Industrial Development Zone, Dongguan, Guangdong, China

2.3. Measurement Uncertainty

MPE	:	±2 %

3. MEASURING DEVICE AND TEST EQUIPMENT

3.1. For MPE Measurement

Used	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
☑	E-Field Probe(100kHz-3GHz)	Narda	EF0391	2304/03	July 08, 2022	1 Year
☑	Broadband Field Meter	Narda	NBM-550	232421	July 08, 2022	1 Year
☑	Exposure Level Tester(1Hz-400KHz)	Narda	ELT-400	C-0012	July 08, 2022	1 Year

4. RF EXPOSURE

4.1. Measuring Standard

FCC Part 1(1.1310) and Part 2(2.1091)

4.2. Requiments

Three different categories of transmitters are defined by the FCC in OET Bulletin 65. These categories are fixed installation, mobile, and portable and are defined as follows:

Fixed Installations: fixed location means that the device, including its antenna, is physically secured at a permanent location and is not able to be easily moved to another location. Additionally, distance to humans from the antenna is maintained to at least 2 meters.

Mobile Devices: a mobile device is defined as a transmitting device designed to be used in other than fixed locations and to be generally used in such a way that a separation distance of at least 20 centimeters is normally maintained between the transmitter's radiating structures and the body of the user or nearby persons. Transmitters designed to be used by consumers or workers that can be easily re-located, such as a wireless modem operating in a laptop computer, are considered mobile devices if they meet the 20 centimeter separation requirement.

The FCC rules for evaluating mobile devices for RF compliance are found in 47 CFR §2.1091. o Portable Devices: a portable device is defined as a transmitting device designed to be used so that the radiating structure(s) of the device is/are within 20 centimeters of the body of the user. Portable device requirements are found in Section 2.1093 of the FCC's Rules (47 CFR§2.1093).

The FCC also categorizes the use of the device as based upon the user’s awareness and ability to exercise control over his or her exposure. The two categories defined are Occupational/ Controlled Exposure and General Population/Uncontrolled Exposure. These two categories are defined as follows: Occupational/Controlled Exposure: In general, occupational/controlled exposure limits are applicable to situations in which persons are exposed as a consequence of their employment, who have been made fully aware of the potential for exposure and can exercise control over their exposure. This exposure category is also applicable when the exposure is of a transient nature due to incidental passage through a location where the exposure levels may be higher than the general population/uncontrolled limits, but the exposed person is fully aware of the potential for exposure and can exercise control over his or her exposure by leaving the area or by some other appropriate means.

Awareness of the potential for RF exposure in a workplace or similar environment can be provided through specific training as part of a RF safety program. If appropriate, warning signs and labels can also be used to establish such awareness by providing prominent information on the risk of potential exposure and instructions on methods to minimize such exposure risks. General Population/Uncontrolled Exposure: The general population / uncontrolled exposure limits are applicable to situations in which the general public may be exposed or in which persons who are exposed as a consequence of their employment may not be made fully aware of the potential for exposure or cannot exercise control over their exposure. Members of the general public would come under this category when exposure is not employment-related; for example, in the case of a wireless transmitter that exposes persons in its vicinity. Warning labels placed on low-power consumer devices such as cellular telephones are not considered sufficient to allow the device to be considered under the occupational/controlled category, and the general population/uncontrolled exposure limits apply to these devices.

4.3. Test configuration

1, The field strength of both E-field and H-field was measured at 15cm(the 15 cm measured from the center of the probe(s) to the edge of the device) using the equipment list above for determining compliance with the MPE requirements of FCC Part 1.1310.
2, Maximum E-field and H-field measurements were made at 20cm from the top and 15cm from the edge of EUT. Along the side of the EUT and still 15cm away from the edge of the EUT, the field probes were positioned at the location where there is maximum field strength. The maximum E-field and H-field is reported below.
3, This device frequency of 13.56 MHz. Thus, the 13.56 MHz limits were used: E-field Limit = 60.77 (V/m); H-field limit = 0.16 (A/m).

4.4. Limits

(A) Limits for Occupational / Controlled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/ cm^2)	Averaging Time $\|E\|^2$,$\|H\|^2$or S (minutes)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842 / f	4.89 / f	(900 / f)*	6
30-300	61.4	0.163	1.0	6
300-1500			F/300	6
1500-100,000			5	6

(B) Limits for General Population / Uncontrolled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/ cm^2)	Averaging Time $\|E\|^2$,$\|H\|^2$ or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	(180/f)*	30
30-300	27.5	0.073	0.2	30
300-1500			F/1500	30
1500-100,000			1.0	30

Note: f = frequency in MHz ; *Plane-wave equivalent power density

4.5. Measuring Results

Test Mode: TX

Electric Field Emissions		
Test Position	Measure Value (V/m)	Limit(V/m)
Top	3.67	60.77
Left	2.89	60.77
Right	2.77	60.77
Rear	2.87	60.77
Front	2.91	60.77
Bottom	2.68	60.77
Magnetic Field Emissions		
Test Position	Measure Value (A/m)	Limit(A/m)
Top	0.064	0.16
Left	0.045	0.16
Right	0.046	0.16
Rear	0.042	0.16
Front	0.045	0.16
Bottom	0.043	0.16

*** End of Report ***

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