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RF Exposure Evaluation Report

Report No. :	CQASZ20210600882E
Applicant:	Donggan Changan Bestfull Metal Ltd.
Address of Applicant:	No.5, HuaQiangRoad, Shangsha, Changan Town Donggan City, Guangdong Province, China
Equipment Under Test (EUT):	
Product:	SMART DIGITAL LOCK FOR CABINET
Model No.:	SDWC-507K-FELICA, SDWC-207K-FELICA, SDWS-BK001-FELICA, SDWC-001-FELICA, SDWC-004-FELICA, SDWC-006-FELICA, SDWC-5100-FELICA, SDWC-506-FELICA, SDDS-001-FELICA, SDGS-002-FELICA, SDWS-501-FELICA, SDWS-001-FELICA, SDWS-101-FELICA, SDWC-201-FELICA, SDWC-204-FELICA, SDWC-205-FELICA, SDWC-206-FELICA, SDWC-005-FELICA
Brand Name:	ARMSTRONG® LOCKS, HARDWARE Always Innovating
FCC ID:	2A2DG-SDWC
Standards:	47 CFR Part 15, Subpart C
Date of Receipt:	2021-06-21
Date of Test:	2021-06-21 to 2021-6-30
Date of Issue:	2021-7-8
Test Result :	**PASS***

Tested By: lewis zhou
(Lewis Zhou)

Reviewed By: Timo Lei
(Timo Lei)

Approved By: Jack
(Jack ai)

SHENZHEN HUAXIA TESTING TECHNOLOGY CO.,LTD 华夏准测 APPROVED

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

Version

Revision History Of Report

Report No.	Version	Description	Issue Date
CQASZ20210600882E	Rev.01	Initial report	2021-7-8

1 Contents

2 General Information

2.1 Client Information

Applicant:	Donggan Changan Bestfull Metal Ltd.
Address of Applicant:	No.5, HuaQiangRoad, Shangsha, Changan Town Donggan City, Guangdong Province, China
Manufacturer:	Donggan Changan Bestfull Metal Ltd.
Address of Manufacturer:	No.5, HuaQiangRoad, Shangsha, Changan Town Donggan City, Guangdong Province, China

2.2 General Description of EUT

Product:	SMART DIGITAL LOCK FOR CABINET
Model No.:	SDWC-507K-FELICA, SDWC-207K-FELICA, SDWS-BK001-FELICA, SDWC-001-FELICA, SDWC-004-FELICA, SDWC-006-FELICA, SDWC-5100-FELICA, SDWC-506-FELICA, SDDS-001-FELICA, SDGS-002-FELICA, SDWS-501-FELICA, SDWS-001-FELICA, SDWS-101-FELICA, SDWC-201-FELICA, SDWC-204-FELICA, SDWC-205-FELICA, SDWC-206-FELICA, SDWC-005-FELICA
Test Model No:	SDWC-507K-FELICA
Brand Name:	ARMSTRONG® LOCKS, HARDWARE Always Innovating
Hardware Version:	A/0
Software Version:	A/0
Power Supply:	4.5V\300mA

2.3 General Description of NFC

Operation Frequency:	13.56MHz
Modulation Type:	ASK
Product Type:	☐ Mobile ☐ Portable ☒ Fix Location
Antenna Type:	PCB antenna
Antenna Gain:	0dBi

3 RF Exposure Evaluation

3.1 RF Exposure Compliance Requirement

3.1.1 Standard Requirement

According to KDB447498D01 General RF Exposure Guidance v06

4.3.1. Standalone SAR test exclusion considerations

Unless specifically required by the published RF exposure KDB procedures, standalone 1-g head or body and 10-g extremity SAR evaluation for general population exposure conditions, by measurement or numerical simulation, is not required when the corresponding SAR Exclusion Threshold condition, listed below, is satisfied.

3.1.2 Limits

The 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at test separation distances ≤ 50 mm are determined by:

[(max. power of channel, including tune-up tolerance, mW)/(min. test separation distance, mm)] · [√f(GHz)] ≤ 3.0 for 1-g SAR and ≤ 7.5 for 10-g extremity SAR, where

f(GHz) is the RF channel transmit frequency in GHz
Power and distance are rounded to the nearest mW and mm before calculation[17]
The result is rounded to one decimal place for comparison

The test exclusions are applicable only when the minimum test separation distance is ≤ 50 mm and for transmission frequencies between 100 MHz and 6 GHz. When the minimum test separation distance is < 5 mm, a distance of 5 mm is applied to determine SAR test exclusion

3.2 EUT RF Exposure Evaluation

1) For NFC

eirp = pt x gt = $(E \times d)^2/30$

where:

pt = transmitter output power in watts,

gt = numeric gain of the transmitting antenna (unitless),

E = electric field strength in V/m, ---$10^{((dB\mu V/m)/20)}/10^6$,

d = measurement distance in meters (m)---3m,

So pt = $(E \times d)^2/30$ / gt

The worst case (refer to report CQASZ20210600882E) is below:

Frequency (MHz)	Level (dBuV/m)	Polarization
13.56	53.84	Peak

For 13.56MHz wireless:

Field strength = 52.4dBμV/m @3m

Ant. gain 0dBi; so Ant numeric gain=1.0

So pt={[$10^{(53.84/20)}/10^6$x3]^2/30 /1.0}x1000mW =0.0001mW

So (0.0001mW/5mm)x √0.01356GHz = 0.0000012,

0.0000012<3.0 for 1-g SAR

So the SAR report is not required.