RF Exposure Report

Report No.:	SA181204D17
FCC ID:	2AK5B-M2
Test Model:	M2
Received Date:	Nov. 19, 2018
Test Date:	Nov. 19 ~ Dec. 26, 2018
Issued Date:	Dec. 27, 2018
Applicant:	Latchable, Inc.
Address:	450 W 33rd St., 12th floor, New York, NY, 10001, USA
Issued By:	Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch
Lab Address:	No. 47-2, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan (R.O.C.)
FCC Registration / Designation Number:	198487 / TW2021

Testing Laboratory
2021

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Release Control Record

Issue No.	Description	Date Issued
SA181204D17	Original release.	Dec. 27, 2018

1 Certificate of Conformity

Product:	Smart access control product with WiFi, Zigbee, and BLE
Brand:	LATCH
Test Model:	M2
Sample Status:	Engineering sample
Applicant:	Latchable, Inc.
Test Date:	Nov. 19 ~ Dec. 26, 2018
Standards:	FCC Part 2 (Section 2.1091) KDB 447498 D01 General RF Exposure Guidance v06 IEEE C95.1-1992

The above equipment has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's RF characteristics under the conditions specified in this report.

Prepared by : Jessica Cheng , **Date:** Dec. 27, 2018

Jessica Cheng / Senior Specialist

Approved by : Rex. Lai , **Date:** Dec. 27, 2018

Rex Lai / Associate Technical Manager

2 RF Exposure

2.1 Limits For Maximum Permissible Exposure (MPE)

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm^2)	Average Time (minutes)
Limits For General Population / Uncontrolled Exposure				
300-1500	…	…	F/1500	30
1500-100,000	…	…	1.0	30

F = Frequency in MHz

2.2 MPE Calculation Formula

$Pd = (Pout*G) / (4*pi*r^2)$

where

Pd = power density in mW/cm^2

Pout = output power to antenna in mW

G = gain of antenna in linear scale

Pi = 3.1416

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

2.3 Classification

The antenna of this product, under normal use condition, is at least 20cm away from the body of the user. So, this device is classified as **Mobile Device**.

2.4 Calculation Result Of Maximum Conducted Power

Function	Max Power (dBm)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm^2)	Limit (mW/cm^2)
WLAN (Home System)	18.42	-2.39	20	0.0080	1
Bluetooth LE (Home System)	-0.51	-2.39	20	0.0001	1
Bluetooth LE (Lens)	-1.05	-2.71	20	0.0001	1
Zigbee (Home System)	8.82	-0.53	20	0.0013	1

Function	Max Power (dBm)	Distance (cm)	Power Density (mW/cm^2)	Limit (mW/cm^2)
NFC(Lens)	-40.20	20	0.000000019	1

Max Power of NFC Module: 55.03 (dBuV/m) = -40.20dBm

Conclusion:

The formula of calculated the MPE is:

CPD1 / LPD1 + CPD2 / LPD2 + ……etc. < 1

CPD = Calculation power density

LPD = Limit of power density

WLAN + Bluetooth LE (Lens) + Bluetooth LE (Home System) + Zigbee+ NFC (Lens)
=0.0080+0.0001+0.0001+0.0013 +0.000000019=**0.009500019**

Therefore the maximum calculations of above situations are less than the "1" limit.

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