1. MAXIMUM PERMISSIBLE EXPOSURE (MPE)

1.1 General Information

Client Information			
Applicant:	PIN GENIE, INC. DBA LOCKLY		
Address of applicant:	555 California Street, Suite 4925, San Francisco, California,		
	United States		
Manufacturer:	Smart Electronic Industrial (Dong Guan) Co., Ltd.		
Address of manufacturer:	Qing Long Road, Long Jian Tian Village, Huang Jiang Town,		
	Dong Guan, Guang Dong, China		
General Description of EUT:			
Product Name:	Electronic lock with BLE & fingerprint		
Brand Name:	1		
Model No.:	PGD688F		
Adding Model(s):	/		
FCC ID:	2ASIVPGD688F		
Rated Voltage:	Input:6Vdc,"AA"X4		
Technical Characteristics of EUT:			
Bluetooth Version:	V5.0(BLE mode)		

Diactoolii (cibiolii	(BLL mode)	
Frequency Range:	2402-2480MHz	
RF Output Power:	-0.14dBm (Conducted)	
Data Rate:	1Mbps	
Modulation:	GFSK	
Quantity of Channels:	40	
Channel Separation:	2MHz	
Type of Antenna:	Integral Antenna	
Antenna Gain:	-0.1dBi	

1.2 Standard Applicable

According to § 1.1307(b)(1) and KDB 447498 D01 General RF Exposure Guidance v06, system operating under the provisions of this section shall be operating in a manner that the public is not exposed to radio frequency energy level in excess limit for maximum permissible exposure.

(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 Times $ 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
1500-100000	/	/	5	6

(b) Limits for General Population / Uncontrolled Exposure

Frequency range (MHz)	Electric Field Strength (E)	Magnetic Field Strength (H)	Power Density (S) (mW/cm ²)	Averaging Times $ E ^2$, $ H ^2$ or S (minutes)
0.2.1.24	(V/III) 614	(A/III)	(100)*	
1.24.20	014	1.03	(100).	30
1.34-30	824/1	2.19/f	(180/1)*	30
30-300	27.5	0.073	0.2	30
300-1500	/	/	F/1500	30
1500-100000	/	/	1	30

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

1.3 MPE Calculation Method

 $S = (30*P*G) / (377*R^2)$

- S = power density (in appropriate units, e.g., mw/cm²)
- P = power input to the antenna (in appropriate units, e.g., mw)
- G = power gain of the antenna in the direction of interest relative to an isotropic radiator,

the power gain factor is normally numeric gain.

R = distance to the center of radiation of the antenna (in appropriate units, e.g., cm)

1.4 MPE Calculation Result

Maximum Tune-Up output power: 0(dBm)

Maximum peak output power at antenna input terminal: 1.0(mW)

Prediction distance: >20(cm)

Prediction frequency: 2480 (MHz)

Antenna gain:-0.1(dBi)

Directional gain (numeric gain): 0.98

The worst case is power density at prediction frequency at 20cm: $0.0002(\text{mw/cm}^2)$

MPE limit for general population exposure at prediction frequency: 1 (mw/cm²)

Result: Pass