



FCC TEST REPORT

FCC ID: 2BTTG-K221

Product	:	Smart Lock
Model Name	:	K221
Brand	:	Desloc
Report No.	:	PTC25121907808E-FC03
Prepared for		
Hangzhou Key to the Future Technology Co., Ltd.		
Room 102-2, Building 1, No. 7 Jianghui South Road, Changhe Subdistrict, Binjiang District, Hangzhou City, Zhejiang Province, China, 310051		
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TEST RESULT CERTIFICATION

Applicant's name : Hangzhou Key to the Future Technology Co., Ltd.
Address : Room 102-2, Building 1, No. 7 Jianghui South Road, Changhe Subdistrict, Binjiang District, Hangzhou City, Zhejiang Province, China, 310051
Manufacture's name : Zhejiang Desman Intelligent Technology Co., LTD
Address : Floor 1-3, Building 1, No.7 Jianghui South Road, Binjiang District, Hangzhou City, Zhejiang Province, China, 310051
Product name : Smart Lock
Model name : K221
Test procedure : FCC CFR47 Part 1.1307(b)(1)
Test Date : Apr. 15, 2026 to Apr. 26 2026
Date of Issue : Apr. 26 2026
Test Result : PASS

This device described above has been tested by PTC, and the test results show that the equipment under test (EUT) is in compliance with the FCC requirements. And it is applicable only to the tested sample identified in the report.

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Test Engineer:

A handwritten signature in black ink, appearing to read 'Jack Zhou'.

Jack Zhou / Engineer

Technical Manager:

A handwritten signature in black ink, appearing to read 'Simon Pu'.

Simon Pu / Manager



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2 Test Summary

Test Items	Test Requirement	Result
Maximum Permissible Exposure (Exposure of Humans to RF Fields)	FCC CFR47 Part 1.1307(b)(1) FCC CFR47 Part 2.1091	PASS
Remark:		
N/A: Not Applicable		



3 General Information

3.1 General Description of E.U.T.

Product Name	:	Smart Lock
Model Name	:	K221
Models Difference	:	N/A
Specification	:	WiFi 2.4G: 2412-2462MHz BLE: 2402-2480MHz
Power supply	:	Input Voltage: DC 5V Voltage range: 3.2V-4.2V 200mA Li-ion Battery : ZNS-MN-28B Rated Voltage: 3.7V
Hardware Version	:	N/A
Software Version	:	N/A



4 RF Exposure

Test Requirement : FCC Part 1.1307(b)(1)

Evaluation Method : KDB 447498 D01 General RF Exposure Guidance v06

4.1 Requirements

Systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy levels in excess limit for maximum permissible exposure. In accordance with 47 CFR FCC Part 2 Subpart J, section 2.1091 this device has been defined as a mobile device whereby a distance of 0.2 m normally can be maintained between the user and the device.

4.2 The procedures / limit

(A) Limits for Occupational / Controlled Exposure

Frequency Range	Electric Field	Magnetic Field	Power Density (S)	Averaging Time
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	Electric Field	Magnetic Field	Power Density (S)	Averaging Time
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



4.3 MPE Calculation Method

$$E \text{ (V/m)} = \frac{\sqrt{30 \times P \times G}}{d} \quad \text{Power Density: } P_d \text{ (W/m}^2\text{)} = \frac{E^2}{377}$$

E = Electric field (V/m)

P = Peak RF output power (W)

G = EUT Antenna numeric gain (numeric)

d = Separation distance between radiator and human body (m)

The formula can be changed to

$$P_d = \frac{30 \times P \times G}{377 \times d^2}$$

From the peak EUT RF output power, the minimum mobile separation distance, d=0.2m, as well as the gain of the used antenna, the RF power density can be obtained

4.4 Test Result

Antenna gain for BLE: -0.13dBi

Antenna gain for WiFi2.4G: -0.95dBi

Item	Antenna Gain (numeric)	Max. Peak Output Power (dBm)	Tune up tolerance (dBm)	Max Tune Up Power (mW)	Power Density (mW/cm ²)	Limit of Power Density (mW/cm ²)	Result
BLE_2M_2440 MHz	0.9705	0.89	0.89±1	1.55	0.00030	1	Pass
11B_2412	0.8035	14.14	14.14±1	32.66	0.00522	1	Pass

4.5 simultaneous MPE Result

2.4G WIFI MPE ratio	BLE MPE ratio	Simultaneous MPE ratio	MPE Limits ratio	Test result
0.00522	0.00030	0.00552	1	PASS

Conclusion:

Both of the 2.4G WIFI and BLE can transmit simultaneously, the formula of calculated the exposure is: (CPD1/LPD1)+(CPD2/LPD2)+.....etc.<1

CPD=Calculation Power Density; LPD= Limit of Power Density

Therefore, the calculation of this situation is (0.00522/1) +(0.00030/1) =0.00552.

which is less than the "1" limit.



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*******THE END REPORT*******