

RF EXPOSURE Test Report

Product: Smart door lock

Trade Mark: N/A

Model Number: D1

FCC ID: 2AYPQ-D1

Prepared for

ZHUHAI MITALY INNOVATIONS TECHNOLOGY CO.,LTD
BLOCK 2 No.321 PINGBEI YI ROAD, NANPING TECHNOLOGY PARK,
ZHUHAI, China

Prepared by

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TEST RESULT CERTIFICATION

Applicant's Name..... : ZHUHAI MITALY INNOVATIONS TECHNOLOGY CO.,LTD

Address : BLOCK 2 No.321 PINGBEI YI ROAD, NANPING
TECHNOLOGY PARK, ZHUHAI, China

Manufacturer's Name : ZHUHAI MITALY INNOVATIONS TECHNOLOGY CO.,LTD

Address : BLOCK 2 No.321 PINGBEI YI ROAD, NANPING
TECHNOLOGY PARK, ZHUHAI, China

Product description

Product name : Smart door lock

Model Number : D1

Standards : FCC CFR 47 PART 1 , 1.1310

Test procedure..... : KDB 447498 D01 General RF Exposure Guidance v06
KDB 680106 D01 Wireless Power Transfer v04

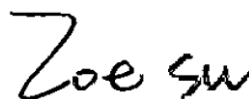
This device described above has been tested by Shenzhen HongBiao Certification& Testing Co., Ltd and the test results show that the equipment under test (EUT) is in compliance with the EMC requirements. And it is applicable only to the tested sample identified in the report.

Date of Test..... :

Date (s) of performance of tests..... : June 22, 2026~June 29, 2026

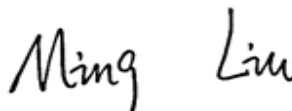
Test Result..... : **Pass**

Testing Engineer :



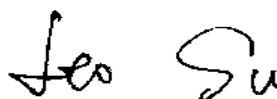
(Z o e S u)

Technical Manager :



(M i n g L i u)

Authorized Signatory :



(L e o S u)

[illegible]

1 General Description

1.1 Description of EUT

Product name:	Smart door lock
Model name:	D1
Series Model:	D1K, DL1, DL1K, D Series
Different of series model:	All the models are the same circuit and module, except the colour and model No..
Operation frequency:	BLE: 2402-2480MHz NFC: 13.56MHz
Modulation type:	BLE: GFSK NFC: ASK
Bit Rate of transmitter:	BLE: 1 Mbps NFC: N/A
Antenna type:	BLE: PCB Antenna NFC: Built-in Antenna
Antenna gain:	BLE: 0.87dBi NFC: 0dBi
Max. output power:	BLE: 2.96dBm NFC: N/A
Hardware version:	V1.0
Software version:	V1.0
Battery:	N/A
Power supply:	Input: DC 6V, 1.5A
Adapter information:	N/A

1.2 Test Mode

Pretest Test Mode	Description of Mode
1	BLE TX
2	NFC TX

1.3 Test Setup

See photographs of the test setup in the report for the actual setup and connections between EUT and support equipment.

1.4 Ancillary Equipment

Equipment	Model	S/N	Manufacturer
Battery	/	/	/

2 Test Facilities and Accreditations

2.1 Test Laboratory

Test Site	Shenzhen HongBiao Certification& Testing Co., Ltd
Test Site Location	Room 102, 201, Building 2, Yuanwanggu RFID Industrial Park, Tongguan Road, Tianliao Community, Yutang Street, Guangming District, Shenzhen, China
Telephone:	(86-755) 2998 9321
Fax:	(86-755) 2998 5110
Designation Number:	848916
FCC Registration No.:	CN1341
A2LA Certificate No.:	6765.01

2.2 Environmental Conditions

During the measurement the environmental conditions were within the listed ranges:

Temperature:	15°C~35°C
Relative Humidity:	20%~75%
Air Pressure:	98kPa~101kPa

2.3 Measurement Uncertainty

The reported uncertainty of measurement $y \pm U$, where expended uncertainty U is based on a standard uncertainty multiplied by a coverage factor of $k=2$, providing a level of confidence of approximately 95 %.

The data and results quoted in this document are true and accurate values, and uncertainties are not involved in the calculations.

In addition, components and mass production processes that are similar to testing equipment may introduce additional deviations, and the manufacturer is solely responsible for the continued compliance of the equipment.

Measurement Frequency Range	U, (dB)	Note
RF frequency	2×10^{-5}	
RF power, conducted	± 0.57 dB	
E-field	± 2.5 dB	
H-field	± 4.2 dB	
Temperature	± 1 degree	
Humidity	± 5 %	

2.4 Test Software

Software name	Manufacturer	Model	Version
RF Test System	MWRF	MTS 8310	V2.0.0.0

EHP200-TS	Narda	EHP-200A	Rel 1.95
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3 List of Test Equipment

RF							
Item	Equipment No.	Equipment name	Manufacturer	Model	Serial No.	Calibration date	Due date
1	HB-E041	MXG Anaio Signal Generator	Agilent	N5181A	MY47070421	2026-04-27	2027-04-26
2	HB-E042	WIDEBAND RADIO COMMUNICATION TESTER	R&S	CMW500	132108	2026-04-27	2027-04-26
3	HB-E043	MXG Anaio Signal Generator	Agilent	N5182A	US46240335	2026-04-28	2027-04-27
4	HB-E044	Signal & spectrum Analyzer	R&S	FSV3044	101264	2026-04-28	2027-04-27
5	HB-E045	RF Control Box	Noyetec	NY100-R FCB	N/A	2026-04-28	2027-04-27
6	HB-E058	Thermometer Clock Humidity Monitor	N/A	HTC-1S	N/A	2026-04-30	2027-04-29
7	HB-E073	Electric and Magnetic Field Analyzer	Narda	EHP-200 A	180ZX11013	2026-04-30	2027-04-29

Note: the calibration interval of the above test instruments is 12 months and the calibrations are traceable to international system unit (SI).

4 RF Exposure

4.1 Standalone SAR test exclusion considerations

4.1.1. Limit

According to FCC 1.1310: The criteria listed in the following table shall be used to evaluate the environment impact of human exposure to radio frequency (RF) Radiation as specified in §1.1307(b).

Maximum Permissible Exposure (MPE)

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm ²)	Averaging time (minutes)
(A) Limits for Occupational/Controlled Exposure				
0.3-3.0	614	1.63	*100	6
3.0-30	1842/f	4.89/f	*900/f ²	6
30-300	61.4	0.163	1.0	6
300-1,500			f/300	6
1,500-100,000			5	6
(B) Limits for General Population/Uncontrolled Exposure				
0.3-1.34	614	1.63	*100	30
1.34-30	824/f	2.19/f	*180/f ²	30
30-300	27.5	0.073	0.2	30
300-1,500			f/1500	30
1,500-100,000			1.0	30

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

MPE Calculation Method

Friis transmission formula: $P_d = (P_{out} \cdot G) / (4 \cdot \pi \cdot R^2)$

Where

P_d = Power density in mW/cm²

P_{out} = output power to antenna in mW

G = Numeric gain of the antenna relative to isotropic antenna

π = 3.1415926

R = distance between observation point and center of the radiator in cm(20cm)

P_d the limit of MPE, 1mW/cm².

If we know the maximum gain of the antenna and total power input to the antenna, through the calculation, we will know the distance where the MPE limit is reached.

Frequency range(MHz)	Electric field strength(V/m)	Magnetic field strength(A/m)	Power density(mW/cm ²)	Averaging time(minutes)
(A) Limits for Occupational/Controlled Exposure				
0.3-3.0	614	1.63	*100	6
3.0-30	1842/f	4.89/f	*900/f ²	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				
0.3-1.34	614	1.63	*100	30
1.34-30	824/f	2.19/f	*180/f ²	30

30-300	27.5	0.073	0.2	30
300-1500			f/1500	30
1500-100000			1	30
f = frequency in MHz * = Plane-wave equivalent power density				

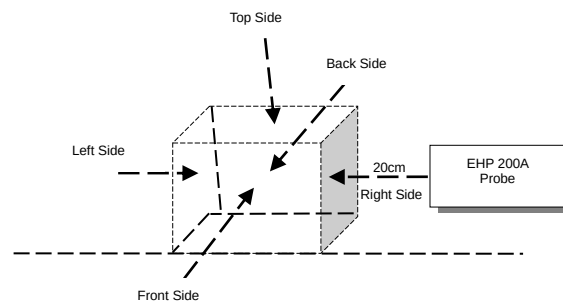
4.1.2. Test Procedures

(wireless charging) E and H-field measurements should be made with the center of the probe at a distance of 20 cm surrounding the device and 20 cm above the top surface of the primary/client pair.

These measurements should be repeated for three different client battery levels, 1%, 50%, and 99%.

Record the test results.

4.1.3. Test Setup



4.1.4. Test Result

BLE:

Operation Frequency: 2402-2480MHz,

Power density limited: 1mW/ cm²

Antenna gain: 0.87dBi

R=20cm

mW=10^(dBm/10)

antenna gain Numeric=10^(dBi/10)=10^(0.87/10)=1.2

BLE TX:

SEE FIG. 1

Chann el Freq. (MHz)	modulati on	conduct ed power	Tune- up power (dBm)	Max		Antenna		Evaluati on result	Power density Limits
		(dBm)		tune-up power		Gain			
				(dBm)	(dBm)	(mW)	(dBi)	Num eric	(mW/cm ²)
2402	GFSK 1M	2.54	2±1	3	1.995	0.87	1.22	0.0005	1
2440		2.59	2±1	3	1.995	0.87	1.22	0.0005	1
2480		2.96	2±1	3	1.995	0.87	1.22	0.0005	1

NFC:

Test condition: Mode 2 operating mode with client device (1 %, 50%, 99% battery status of client device)

Maximum permissible Exposure(13.56MHz)				
Battery levels	Test sides	Test distance(cm)	E -field(V/m)	H-field(A/m)
<1%	Top	20	0.4066	0.0054
<1%	Left	20	0.4077	0.0053
<1%	Right	20	0.4002	0.0053
<1%	Front	20	0.4163	0.0053
<1%	Back	20	0.4066	0.0053
Limit			135.84	0.36
Margin Limit (%)			0.31%	1.50%

Maximum permissible Exposure(13.56MHz)				
Battery levels	Test sides	Test distance(cm)	E -field(V/m)	H-field(A/m)
<50%	Top	20	0.4062	0.0052
<50%	Left	20	0.4071	0.0048
<50%	Right	20	0.3997	0.0049
<50%	Front	20	0.4161	0.0051
<50%	Back	20	0.4063	0.0047
Limit			135.84	0.36
Margin Limit (%)			0.31%	1.44%

Maximum permissible Exposure(13.56MHz)				
Battery levels	Test sides	Test distance(cm)	E -field(V/m)	H-field(A/m)
<99%	Top	20	0.4057	0.0041
<99%	Left	20	0.4063	0.0042
<99%	Right	20	0.3992	0.0044
<99%	Front	20	0.4152	0.0043
<99%	Back	20	0.4056	0.0046
Limit			135.84	0.36
Margin Limit (%)			0.31%	1.28%

Results for transmit simultaneously

No.	Configurations	Maximum MPE Value			Limits
		NFC($\sum (H_m / H_{RL})$ ^{Note1})	BLE	Transmit simultaneously	
1	NFC + BLE	0.0150	0.0005	0.0155	1

Note:

H_m = Measured magnetic field at a specific frequency.

H_{RL} = Reference level limit for the magnetic field at the measurement frequency.

According to KDB 447498 D01 General RF Exposure Guidance v06, At the transmit simultaneously calculation method is as follows:

Transmit simultaneously MPE = Σ of MPE ratios

MPE ratios = Field strengths or power density / MPE limit at the test frequency

5 Photographs of the Test Setup

MPE



******* END OF REPORT *******