



RF Exposure Evaluation

FCC ID: 2A2XQ-YL58A

1. Client Information

Applicant	:	Wenzhou Jinbao Electronic Lock Co., Ltd.
Address	:	Room 302, 2 Bldg., Wenchang Road 159, Puzhou Street, Longwan District, Wenzhou, Zhejiang Province, China
Manufacturer	:	Wenzhou Jinbao Electronic Lock Co., Ltd.
Address	:	Room 302, 2 Bldg., Wenchang Road 159, Puzhou Street, Longwan District, Wenzhou, Zhejiang Province, China

2. General Description of EUT

EUT Name	:	Electronic Lock
Model No.	:	YL-58A, YL-58JA, YL-58BA, YL-56A, YL-56JA, YL-56BA, YL-57A, YL-57JA, YL-57BA, YL-58MA, YL-58JMA, YL-58BMA, YL-57MA, YL-57JMA, YL-57BMA
Model Difference	:	All models are identical in the same PCB layout, interior structure and electrical circuits, The only difference is model name.
Sample ID	:	202306-0156-16-1# & 202306-0156-16-2#
Product Description	Operation Frequency:	Bluetooth 5.0(BLE): 2402MHz~2480MHz
	Number of Channel:	Bluetooth 5.0(BLE): 40 channels
	Antenna Gain:	1.2dBi PCB Antenna
Power Supply	:	Input: DC 6V, 1A DC 1.5V by AAA battery*4
Software Version	:	V1.0.1
Hardware Version	:	V1.0
Remark: The antenna gain provided by the applicant, and verified for the RF conduction test and adapter provided by TOBY test lab.		

Note: More test information about the EUT please refer the RF Test Report.

The RF Exposure Evaluation for FCC:

SAR Test Exclusion Calculations

FCC: According to 447498 D04 Interim General RF Exposure Guidance v01.

The SAR-based exemption formula of § 1.1307(b)(3)(i)(B), repeated here as Formula (B.2), applies for single fixed, mobile, and portable RF sources with available maximum time-averaged power or effective radiated power (ERP), whichever is greater, of less than or equal to the threshold P_{th} (mW).

This method shall only be used at separation distances from 0.5 cm to 40 cm and at frequencies from 0.3 GHz to 6 GHz (inclusive). P_{th} is given by Formula (B.2).

$$P_{th} \text{ (mW)} = \begin{cases} ERP_{20 \text{ cm}} (d/20 \text{ cm})^x & d \leq 20 \text{ cm} \\ ERP_{20 \text{ cm}} & 20 \text{ cm} < d \leq 40 \text{ cm} \end{cases}$$

where

$$x = -\log_{10} \left(\frac{60}{ERP_{20 \text{ cm}} \sqrt{f}} \right)$$

and f is in GHz, d is the separation distance (cm), and $ERP_{20 \text{ cm}}$ is per Formula (B.1). The example values shown in Table B.2 are for illustration only.

Table B.2—Example Power Thresholds (mW)

Frequency (MHz)	Distance (mm)									
	5	10	15	20	25	30	35	40	45	50
300	39	65	88	110	129	148	166	184	201	217
450	22	44	67	89	112	135	158	180	203	226
835	9	25	44	66	90	116	145	175	207	240
1900	3	12	26	44	66	92	122	157	195	236
2450	3	10	22	38	59	83	111	143	179	219
3600	2	8	18	32	49	71	96	125	158	195
5800	1	6	14	25	40	58	80	106	136	169



Calculation:

Test separation: 5mm					
BLE (1Mbps)					
Frequency (GHz)	Conducted Power (dBm)	Turn-up Power Tolerance (dB)	Max power of tune up tolerance (dBm)	Max power of tune up tolerance (mW)	Limit P _{th} (mW)
2.402	-0.044	0±1	1	1.259	3
2.440	0.626	0±1	1	1.259	3
2.480	0.899	0±1	1	1.259	3
The measurement results comply with the FCC Limit per 47 CFR 2.1093 for the uncontrolled RF Exposure and SAR Exclusion Threshold per KDB 447498 D04, No SAR is required.					

-----END OF THE REPORT-----

