RF Exposure Evaluation

FCC ID: 2AW72-K1PLUS

1. Client Information

Applicant	:	GUANGDONG AP TENON SCI.&TECH. CO., LTD.
Address	:	No.3, Zexi Street, Hanxi Business Center, Panyu, GuangZhou, China
Manufacturer	:	GUANGDONG AP TENON SCI.&TECH. CO., LTD.
Address	:	No.3, Zexi Street, Hanxi Business Center, Panyu, GuangZhou, China

2. General Description of EUT

EUT Name	:	SMART LOCK	
Model(s) No.	:	K1 Plus, K Series	
Model Difference	:	All PCB boards and circuit diagrams are the same, the only difference is that appearance and name.	
Product Description	:	Operation Frequency:	Bluetooth 5.1(BLE): 2402MHz~2480MHz
		Number of Channel:	BLE:40 channels
		Antenna Gain:	2dBi Ceramic Antenna
		Modulation Type:	GFSK
		Bit Rate of Transmitter:	1/2Mbps
Power Supply	:	Input: DC 6V/1A	
Li-ion Polymer Battery	:	DC 1.5V by AAA battery*4	
Software Version	:	V102	
Hardware Version	:	V1.0.1	
Remark: The antenna gain provided by the applicant, the adapter 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.

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SAR Test Exclusion Calculations

1. **FCC: According to KDB 447498 D01 Mobile and Portable Devices RF Exposure Procedures and Equipment Authorization Policies v06.**
   (1) Clause 4.3: General SAR test reduction and exclusion guidance
   Sub clause 4.31: Standalone SAR test exclusion considerations
   1) The 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6GHz at test separation distance≤5 mm are determined by:
   [(max. power of channel, including tune-up tolerance, mW)/(min. test separation, mm)]*[$\sqrt{f_{(GHz)}}$] ≤3.0 for 1-g SAR
   [(max. power of channel, including tune-up tolerance, mW)/(min. test separation, mm)]*[$\sqrt{f_{(GHz)}}$] ≤7.5.0 for 10-g SAR

2. Calculation:

Test separation: 5mm						
Bluetooth LE Mode(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)	Calculation Value	Threshold Value
2.402	7.043	7±1	8	6.310	1.956	3.0
2.440	7.071	7±1	8	6.310	1.971	3.0
2.480	7.174	7±1	8	6.310	1.987	3.0
Bluetooth LE Mode(2Mbps)						
Frequency (GHz)	Conducted Power (dBm)	Turn-up Power Tolerance (dB)	Max power of tune up tolerance (dBm)	Max power of tune up tolerance (mw)	Calculation Value	Threshold Value
2.402	6.113	6±1	7	5.012	1.554	3.0
2.440	6.322	6±1	7	5.012	1.566	3.0
2.480	6.429	6±1	7	5.012	1.579	3.0

Conclusion:

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 v06.

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