RF Exposure Evaluation

FCC ID: 2AFRJ-ESSV5

1. Client Information

Applicant	:	Noke Inc
Address	:	2000 Ashton Blvd. Suite 375, Lehi, UT 84043 USA
Manufacturer	:	Noke Inc
Address	:	2000 Ashton Blvd. Suite 375, Lehi, UT 84043 USA

2. General Description of EUT

EUT Name	:	Electric door controller	
Models No.	:	V5	
Model Difference	:	N/A	
Product Description	:	Operation Frequency:	Bluetooth 5.0(BT): 2402MHz~2480MHz
		RF Conducted Power:	ANT1 Module1(nRF52832): -0.154dBm ANT2 Module2(nRF52840): -0.115dBm
		Antenna Gain:	ANT1:2dBi Internal Wire Antenna ANT2:2dBi Internal Wire Antenna
Power Supply	:	DC Voltage supplied by battery or DC Voltage supplied	
Power Rating	:	DC 3.6V by battery DC 12V power supply	
Software Version		N/A	
Hardware Version		N/A	
Connecting I/O Port(S)	:	Please refer to the User's Manual	

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

1A/F., Bldg.6, Yusheng Industrial Zone, The National Road No.107 Xixiang Section 467, Xixiang, Bao'an, Shenzhen, China
Tel: +86 75526509301 Fax: +86 75526509195

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:

ANT1+ANT2

Test separation: 5mm						
BLE Mode (GFSK)						
Frequency (GHz)	Conducted Total 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	2.577	2±1	3	1.9953	0.618	**3.0**
2.442	2.876	2±1	3	1.9953	0.624	**3.0**
2.480	2.861	2±1	3	1.9953	0.628	**3.0**

Note: Two Bluetooth modules (Module1& Module2) can be operated simultaneously.

ANT1 Module1:

Test separation: 5mm						
BLE Mode (GFSK)						
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	-0.448	0±1	1	1.259	0.390	**3.0**
2.442	-0.154	0±1	1	1.259	0.393	**3.0**
2.480	-0.164	0±1	1	1.259	0.397	**3.0**

ANT2 Module2:

Test separation: 5mm						
BLE Mode (GFSK)						
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	-0.419	0±1	1	1.259	0.390	**3.0**
2.442	-0.115	0±1	1	1.259	0.393	**3.0**
2.480	-0.135	0±1	1	1.259	0.397	**3.0**

Test separation: 5mm	
The worst RF Exposure Evaluation	
Total Calculation Value	Threshold Value
0.628	**3.0**

Two Bluetooth modules can be operated simultaneously. So the worst RF Exposure Evaluation is calculated as *0.624< limit 3.0*.

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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