RF Exposure Evaluation

FCC ID: 2AYNF-SLEEPUP

1. Client Information

Applicant	:	Beijing Naolu Technology Co. LTD
Address	:	Suite 106, Building E5, Xidianjiyi, Chaoyang District, Beijing, China
Manufacturer	:	Yidefa (Gu'an) Electronic Technology Co., Ltd
Address		No. 8, Peacock Avenue, Gu'an County, Langfang City, Hebei Province

2. General Description of EUT

EUT Name	:	SleepUp	
Model(s) No.	:	SleepUp	
Model Different	:	----	
Product Description	:	Operation Frequency:	Bluetooth V5.0(BT): 2402~2480 MHz Bluetooth V5.0(BLE): 2402~2480 MHz
		Number of Channel:	Bluetooth: 79 Channels BLE:40 Channels
		Max Peak Output Power:	Bluetooth: -0.904 dBm(8-DQPSK)
		Antenna Gain:	3.8 dBi Ceramics Antenna
		Modulation Type:	GFSK π/4-DQPSK 8-DPSK BLE 1/2Mbps
Power Rating	:	Input: DC5 V DC 3.7V by 600mAh Li-ion battery DC 3.7V by 1200mAh Li-ion battery	
Software Version	:	V1.0.2	
Hardware Version	:	V1.0.2	
Remark: The antenna gain and adapter provided by the applicant, the adapter and verified for the RF conduction test provided by TOBY test lab.			

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

1 A/F., Building.6, Rundongsheng Industrial Zone, Longzhu, Xixiang, Bao'an, Shenzhen, Guangdong, 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:

Test separation: 5mm

Bluetooth 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	-7.024	-7±1	-6	0.251	0.078	**3.0**
2.441	-5.504	-5±1	-4	0.398	0.124	**3.0**
2.480	-3.322	-3±1	-2	0.631	0.199	**3.0**

Bluetooth Mode (π /4-DQPSK)

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	-3.517	-3±1	-2	0.631	0.196	**3.0**
2.441	-3.329	-3±1	-2	0.631	0.197	**3.0**
2.480	-1.146	-1±1	0	1.000	0.315	**3.0**

Bluetooth Mode (8-DPSK)

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	-4.561	-4±1	-3	1.995	0.618	**3.0**
2.441	-2.982	-2±1	-1	0.794	0.248	**3.0**
2.480	-0.904	0±1	1	1.259	0.397	**3.0**

BLE 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	-4.081	-4±1	-3	0.501	0.155	**3.0**
2.442	-5.968	-5±1	-4	0.398	0.124	**3.0**
2.480	-8.776	-8±1	-7	0.200	0.063	**3.0**

BLE Mode (2Mbps)

2.402	-4.085	-4±1	-3	0.501	0.155	**3.0**
2.442	-6.082	-6±1	-5	0.316	0.099	**3.0**
2.480	-8.561	-8±1	-7	0.200	0.063	**3.0**

Simultaneous Transmission for SAR Exclusion			
Simultaneous Transmission for SAR Exclusion		Total Calculation Value	Limit
Bluetooth Mode	BLE Mode		
0.0421	**0.0211**	**0.0395**	**1.0**
Note: The sample support one BT modular and BLE modular, they supports difference antenna, need consider simultaneous transmission;			

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.

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