

RF Exposure Requirements

1.1 Product Description for Equipment Under Test (EUT)

Client Information

Applicant: Shenzhen FUKA Technology Co., Ltd
Address of applicant: No. 49-2 g1 203, Zhuangcun Road, Xiner community, Xinqiao street, Bao'an District, Shenzhen

Manufacturer: Shenzhen FUKA Technology Co., Ltd
Address of manufacturer: No. 49-2 g1 203, Zhuangcun Road, Xiner community, Xinqiao street, Bao'an District, Shenzhen

General Description of EUT	
Product Name:	Intelligent electric toothbrush
Brand Name:	/
Model No.:	F1
Adding Model(s):	/
Rated Voltage:	DC 3.7V from battery
Power Adapter:	/
Software Version:	/
Hardware Version:	/
Serial Number:	2309JJPP003
FCC ID:	2A8B9-F1

Technical Characteristics of EUT	
Bluetooth Version:	V5.0 BLE
Frequency Range:	2402-2480MHz
RF Output Power:	-6.50dBm
Data Rate:	1Mbps
Modulation:	GFSK
Quantity of Channels:	40
Channel Separation:	2MHz
Type of Antenna:	PCB
Antenna Gain:	1.2 dBi

1.2 Standard Applicable

According to §1.1307(b)(1) and KDB 447498 D01 General RF Exposure Guidance v06, the following RF exposure evaluation shall to demonstrate RF exposure compliance.

$$[(\text{max. power of channel, including tune-up tolerance, mW}) / (\text{min. test separation distance, mm})] \cdot [\sqrt{f(\text{GHz})}] \leq 3.0$$

Where

-f(GHz) is the RF channel transmit frequency in GHz

-Power and distance are rounded to the nearest mW and mm before calculation

-The test exclusions are applicable only when the minimum test separation distance is ≤ 50 mm, and for transmission frequencies between 100 MHz and 6 GHz. When the minimum test separation distance is < 5 mm, a distance of 5 mm according to 4.1 f) is applied to determine SAR test exclusion.

1.3 Calculation Method

Bluetooth

Tx frequency range: 2402~2480MHz

Min. test separation distance: 5mm

Maximum Conducted Output Power: -6.5dBm

Maximum Tune-up Conducted Output Power: -6dBm

RF channel transmit frequency: 2440MHz

Result: 0.0785

Limit: 3.0

So the transmitter complies with the RF exposure requirements and the SAR is not required.