

RF Exposure Evaluation Report

Product : P20 PRO Oscillating-Vibrating Electric
Toothbrush
Trade mark : usmile
Model/Type reference : usmile P20 PRO
Serial Number : N/A
Report Number : EED32Q80822802
FCC ID : 2A5YZ-P20PRO
Date of Issue : Jun. 26, 2024
Test Standards : 47 CFR Part 1.1307
47 CFR Part 1.1310
47 CFR Part 2.1091
47 CFR Part 2.1093
KDB 447498 D04 Interim General RF
Exposure Guidance v01
Test result : PASS

Prepared for:

Guangzhou Stars Pulse Co., Ltd.

**Room 2001, 2002, 2003, 2004, 2005, No.239 Tianhe North Road, Tianhe
District, Guangzhou City, Guangdong Province, China**

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Jul. 26, 2024

Check No.: 7818170624

2 Version

Version No.	Date	Description
00	Jun. 06, 2024	Original
01	Jul. 26, 2024	Updated the position of TYPE-C on the PCB, the fuse and VS layout on the back of the PCB, the horizontal layout of the lithium protection chip, and the internal wiring to modify the power supply part

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4 General Information

4.1 Client Information

Applicant:	Guangzhou Stars Pulse Co., Ltd.
Address of Applicant:	Room 2001, 2002, 2003, 2004, 2005, No.239 Tianhe North Road, Tianhe District, Guangzhou City, Guangdong Province, China
Manufacturer:	Guangzhou Stars Pulse Co., Ltd.
Address of Manufacturer:	Room 2001, 2002, 2003, 2004, 2005, No.239 Tianhe North Road, Tianhe District, Guangzhou City, Guangdong Province, China
Factory:	Dongguan Huabel Electronic Technology Co., Ltd.
Address of Factory:	No.9, Industrial Northern Road, Songshan Lake Park, Dongguan City, Guangdong Province, P.R. China

4.2 General Description of EUT

Product Name:	P20 PRO Oscillating-Vibrating Electric Toothbrush
Model No.(EUT):	usmile P20 PRO
Trade Mark:	usmile

4.3 Product Specification subjective to this standard

Frequency Range:	2402MHz~2480MHz	
Modulation Type:	BLE: GFSK	
Test Power Grade:	Default	
Test Software of EUT:	DTM.exe	
Antenna Type:	Multilayer chip Antenna	
Antenna Gain:	2.67 dBi	
Power Supply:	Battery:	DC 3.7V
Sample Received Date:	Jun. 17, 2024	
Sample tested Date:	Jun. 20, 2024 to Jul. 03, 2024	
Remark: Company Name and Address shown on Report, the sample(s) and sample Information was/ were provided by the applicant who should be responsible for the authenticity which CTI hasn't verified.		

4.4 Test Location

All tests were performed at:

Centre Testing International Group Co., Ltd

Building C, Hongwei Industrial Park Block 70, Bao'an District, Shenzhen, China

Telephone: +86 (0) 755 33683668 Fax: +86 (0) 755 33683385

No tests were sub-contracted.

FCC Designation No.: CN1164

4.5 Deviation from Standards

None.

4.6 Abnormalities from Standard Conditions

None.

4.7 Other Information Requested by the Customer

None.

5 SAR Evaluation

5.1 RF Exposure Compliance Requirement

5.1.1 Limits

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

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

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).

$$P_{th} \text{ (mW)} = ERP_{20 \text{ cm}} \text{ (mW)} = \begin{cases} 2040f & 0.3 \text{ GHz} \leq f < 1.5 \text{ GHz} \\ 3060 & 1.5 \text{ GHz} \leq f \leq 6 \text{ GHz} \end{cases} \quad (\text{B.1})$$

The 1 mW Blanket Exemption of § 1.1307(b)(3)(i)(A) applies for single fixed, mobile, and portable RF sources with available maximum time-averaged power of no more than 1 mW, regardless of separation distance.

5.1.2 Test Procedure

Software provided by client enabled the EUT to transmit and receive data at lowest, middle and highest channel individually.

5.1.3 EUT RF Exposure Evaluation

For Stand alone:

For Bluetooth LE:

Frequency (MHz)	Available maximum time- averaged power (dBm)	Antenna gain (dBi)	ERP (dBm)	Available maximum time- averaged power (mW)	Limit (mW)	Result
2480	-0.65	2.67	-0.13	0.971	≤2.717	PASS

Note:

①EIRP=Available maximum time-averaged power+Antenna gain;

②ERP=EIRP-2.15;

③According to §1.1307(b)(3)(i)(B), RF sources with available maximum time-averaged power or effective radiated power (ERP), whichever is greater, of less than or equal to the threshold Pth (mW).

④The test data refer to the report of No. EED32Q80822801. Only the worst case data was recorded in the report.

The test report is effective only with both signature and specialized stamp, The result(s) shown in this report refer only to the sample(s) tested. Without written approval of CTI, this report can't be reproduced except in full.

*** End of Report ***