

RF Exposure Evaluation Report

Product : Bicycle Headlight
Trade mark : mentech
Model/Type reference : Spark 1200
Serial Number : N/A
Report Number : EED32Q81965002
FCC ID : 2A95D-SPARK1200
Date of Issue : Jan. 10, 2025
Test Standards : 47 CFR Part 1.1307
47 CFR Part 1.1310
47 CFR Part 2.1091(mobile devices)
47 CFR Part 2.1093(portable devices)
KDB 447498 D04 Interim General RF
Exposure Guidance v01
Test result : PASS

Prepared for:

Guangdong Mentech Technology Co., Ltd
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Shuguang Community, Xili Street, Nanshan District, Shenzhen,
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1 Version

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3 General Information

3.1 Client Information

Applicant:	Guangdong Mentech Technology Co., Ltd
Address of Applicant:	504, Building D1, TCL Science Park, No.1001 Zhongshan Garden Road, Shuguang Community, Xili Street, Nanshan District, Shenzhen, Guangdong, China
Manufacturer:	Guangdong Mentech Technology Co., Ltd
Address of Manufacturer:	504, Building D1, TCL Science Park, No.1001 Zhongshan Garden Road, Shuguang Community, Xili Street, Nanshan District, Shenzhen, Guangdong, China
Factory:	Dongguan Light Up Your Way Technology Co., Ltd.
Address of Factory:	201, 2nd Floor, Building 1, Glorious Intelligent Valley, No. 136, Yongjun Road, Dalingshan, Dongguan, Guangdong, China

3.2 General Description of EUT

Product Name:	Bicycle Headlight		
Model No.:	Spark 1200		
Trade mark:	mentech		
Product Type:	☐ Mobile ☒ Portable ☐ Fix Location		
Operation Frequency:	2402MHz~2480MHz		
Modulation Type:	GFSK		
Transfer Rate:	☒ 1Mbps ☒ 2Mbps		
Number of Channel:	40		
Antenna Type:	Chip Antenna		
Antenna Gain:	0.9 dBi		
Power Supply:	Battery:	DC 3.6V	
Test Voltage:	DC 3.6V		
Sample Received Date:	Nov. 28, 2024		
Sample tested Date:	Dec. 11, 2024 to Dec. 20, 2024		
Remark:	Company Name and Address shown on Report, the sample(s) and sample Information were provided by the applicant who should be responsible for the authenticity which CTI hasn’ t verified.		

3.3 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

3.4 Deviation from Standards

None.

3.5 Abnormalities from Standard Conditions

None.

3.6 Other Information Requested by the Customer

None.

4 SAR Evaluation

4.1 RF Exposure Compliance Requirement

4.1.1 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.

4.1.2 Test Procedure

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

4.1.3 EUT RF Exposure Evaluation

For Stand alone:

Frequency (MHz)	Estimation distance (cm)	Max. Conducted Output power (dBm)	Antenna Gain (dBi)	ERP (dBm)	ERP (mW)	Limit (mW)	MPE ratio	Result
2402	0.5	-1.97	0.9000	-3.22	0.4764	2.7877	0.1709	Pass

Note:

- ① EIRP=conducted power+antenna gain;
- ② ERP=EIRP-2.15;
- ③ $EIRP(dBm) = \text{Field strength of the fundamental signal}(dBuV/m@3m) - 95.23$;
- ④ $ERP(mW) = 10^{(ERP(dBm)/10)}$;
- ⑤ The estimation distance is 0.5cm;
- ⑥ The test data please refer to the report of EED32Q81965001 and only the worst case data was recorded in the report.

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*** 报告结束 ***

*** End of Report ***