SAR Exclusion Evaluation Report

FCC 47 CFR § 2.1093

for

Bicycle Light

Model Name: 5298295

Prepared for:

Trek Bicycle Corporation
801 West Madison Street, Waterloo, WI 53594, USA

Prepared by

Compliance Certification Services Inc.
Wugu Lab.
No.11, Wugong 6th Rd., Wugu Dist.,
New Taipei City, Taiwan.
Issue Date: June 12, 2023

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Revision History

Rev.	Issue Date	Revisions	Revised By
00	June 12, 2023	Initial Issue	Doris Chu

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Table of Contents

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1 Attestation of Test Results

Applicant Name	Trek Bicycle Corporation
Model Name	5298295
Applicable Standards	FCC 47 CFR § 2.1093 Published RF exposure KDB procedures
Receive EUT Date:	July 28, 2022

Compliance Certification Services Inc. , tested the above equipment in accordance with the requirements set forth in the above standards. Determination of compliance is based on the results of the compliance measurement,not taking into account measurement instrumentation uncertainy.All indications of Pass/Fail in this report are opinions expressed by Compliance Certification Services Inc, based on interpretations and/or observations of test results. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

Approved & Released By: 	
Sky Zhou Asst. Section Manager Compliance Certification Services Inc.	

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2 Test Specification, Methods and Procedures

The tests documented in this report were performed in accordance with FCC 47 CFR § 2.1093, the following FCC Published RF exposure KDB procedures:

- 447498 D04 Interim General RF Exposure Guidance v01

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3 Device Under Test (DUT) Information

3.1 DUT Description

Applicant Name	Trek Bicycle Corporation
Applicant Address	801 West Madison Street, Waterloo, WI 53594, USA
Manufacturer Name	Trek Bicycle Corporation
Manufacturer Address	801 West Madison Street, Waterloo, WI 53594, USA
Product	Bicycle Light
Trade Name	TREK
Model No.	5298295
Back Cover	☐ Normal Battery Cover ☐ Normal Battery Cover with NFC ☐ Wireless Charger Battery Cover ☐ Wireless Charger Battery Cover with NFC ☒ The Back Cover is not removable.
Battery Options	☒ Standard – Lithium-ion battery, Rating 3.63Vdc, 17.787Wh ☐ Extended (large capacity) ☐ The rechargeable battery is not user accessible.
Hardware Version	557393-4, 557394-2A
Software Version	1.0.2.0
Sample Stage	PVT

3.2 Wireless Technologies

Wireless technologies	Frequency bands	Peak Antenna Gain (dBi)	Operating mode	Duty Cycle
Bluetooth	2.4 GHz	-0.01	LE	63.2%
Antenna Specification	Brand Name	TREK		
	Type	Embedded Antenna		
	Parts Number	5298295		

Notes:

1. Duty cycle for BLE is referenced from BLE reports.

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4 Conducted Output Power Measurements

4.1 Bluetooth.

Average Power Measured Results

Mode	Ch #	Freq. (MHz)	Meas. Avg Pwr (dBm)	Meas. Avg Pwr (mW)	Tune-up Limit
LE, GFSK	0	2402	-2.43	0.57	-2.00
	19	2440	-2.33	0.58	
	39	2480	-2.17	0.61	

Note:
1.The power referred test report TMWK2207003133KR.

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5 RF Exposure Conditions (Test Configurations)

Refer to Appendixes 1 for the specific details of the antenna-to-antenna and antenna-to-edge(s) distances.

5.1 Standalone SAR Test Exclusion Considerations

Since the Dedicated Host Approach is applied, the SAR-based exemption in Appendix B of KDB 447498 is applied together with KDB 616217 § 4.3 to determine the minimum test separation distance:

- When the separation distance from the antenna to an adjacent edge is ≤ 5 mm, a distance of 5 mm is applied to determine SAR test exclusion.
- When the separation distance from the antenna to an adjacent edge is > 5 mm, the actual antenna-to-edge separation distance is applied to determine SAR test exclusion.
- The available maximum time-averaged power or effective radiated power (ERP), whichever is greater, is less than or equal to the threshold *Pth* (mW) described in the following formula. This method shall only be used at separation distances (cm) from 0.5 centimeters to 40 centimeters and at frequencies from 0.3 GHz to 6 GHz (inclusive). *Pth* is given by:

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

Where

$$x = -\log_{10}\left(\frac{60}{ERP_{20\,cm}\sqrt{f}}\right) \text{ and } f \text{ is in GHz;}$$

and

$$ERP_{20\,cm}\ (\text{mW}) = \begin{cases} 2040f & 0.3\ \text{GHz} \le f < 1.5\ \text{GHz} \\ 3060 & 1.5\ \text{GHz} \le f \le 6\ \text{GHz} \end{cases}$$

d = the separation distance (cm);

SAR Test Exclusion Calculations for 1.5 GHz ≤ *f* ≤ 6 GHz

Tx Interface	Frequency (GHz)	Output Power		Antenna Gain (dBi)	ERP (dBm)	ERP Threshold (mW)	Separation Distances (cm)	P_{th}(mW)	Exemption result
		dBm	mW						
Bluetooth	2.48	-2.00	1	-0.01	-4.16	0.38	0.5	3	-EXEMPT-

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5.2 Required Test Configurations

The table below identifies the standalone test configurations required for this device according to the findings in Section 6.1:

Test Configurations	All edges and surfaces
Bluetooth	No

Note(s):

Yes = Testing is required.

No = Testing is not required.

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6 Facilities

All measurement facilities used to collect the measurement data are located at

☒ No.11, Wugong 6th Rd., Wugu Dist., New Taipei City 24891, Taiwan.

--End of Test Report--

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