Testing Laboratory
3787

# RADIO EXPOSURE TEST REPORT

| | | |
|---|---|---|
| FCC ID | : | 2AHXD-5313794 |
| Equipment | : | CarBack Radar |
| Brand Name | : | TREK |
| Model Name | : | 5313794 |
| Applicant | : | Trek Bicycle Corporation<br>801 W Madison St, Waterloo, WI 53594 |
| Manufacturer | : | Universal Microelectronics co.,LTD<br>3,27TH RD.,Taichung Industrial Park.Taichung, Taiwan |
| Standard | : | 47 CFR Part 2.1093 |

**The product was received on Jun. 19, 2023, and testing was started from Aug. 11, 2023 and completed on Nov. 06, 2023. We, Sporton International Inc. Hsinchu Laboratory, would like to declare that the tested sample has been evaluated in accordance with the procedures given in 47 CFR Part 2.1093 and shown compliance with the applicable technical standards.**

**The test results in this report apply exclusively to the tested model / sample. Without written approval of Sporton International Inc. Hsinchu Laboratory, the test report shall not be reproduced except in full.**

**Approved by: Sam Chen**

***Sporton International Inc. Hsinchu Laboratory***
*No.8, Ln. 724, Bo'ai St., Zhubei City, Hsinchu County 302010, Taiwan (R.O.C.)*

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# History of this test report

| Report No. | Version | Description | Issued Date |
|---|---|---|---|
| FA360116-03 | 01 | Initial issue of report | Mar. 08, 2024 |
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# Summary of Test Result

| Report Clause | Ref Std. Clause | Test Items | Result (PASS/FAIL) | Remark |
|---|---|---|---|---|
| 2 | - | Exposure evaluation | PASS | - |
| Note: Reference to Sporton Project No.: 360116 | | | | |

| **Conformity Assessment Condition:** |
|---|
| 1. The test results (PASS/FAIL) with all measurement uncertainty excluded are presented against the regulation limits or in accordance with the requirements stipulated by the applicant/manufacturer who shall bear all the risks of non-compliance that may potentially occur if measurement uncertainty is taken into account.<br>2. The measurement uncertainty please refer to each test result in the chapter "Measurement Uncertainty". |
| **Disclaimer:** |
| The product specifications of the EUT presented in the test report that may affect the test assessments are declared by the manufacturer who shall take full responsibility for the authenticity. |

**Reviewed by: Sam Chen**

**Report Producer: Sandy Chuang**

# 1. General Description

## 1.1. EUT General Information

| RF General Information | | | |
|---|---|---|---|
| **Evaluation Mode** | **Frequency Range (MHz)** | **Operating Frequency (MHz)** | **Modulation Type** |
| 76-81GHz | 76000-81000 | 76150-76310 | FMCW |
| Bluetooth | 2400-2483.5 | 2402-2480 | LE: DSSS (GFSK) |
| ANT plus | 2400-2483.5 | 2457 | DSSS (GFSK) |

## 1.2. Antenna Information

| Ant. | Port | | | Brand | Model Name | Antenna Type | Connector | Gain (dBi) |
|---|---|---|---|---|---|---|---|---|
| | Bluetooth / ANT plus | 76~81GHz | | | | | | |
| | | TX | RX | | | | | |
| 1 | - | 1~3 | 1~6 | UMEC | S78* | Patch | N/A | 11.2 |
| 2 | 1 | - | - | JOHANSON | 2450AT18D0100E | Chip | N/A | 1.5 |

Note 1: The above information was declared by manufacturer.

Note 2: The Bluetooth and ANT plus cannot function at the same time.

Note 3: **For Bluetooth function (1TX/1RX):**

Only Port 1 can be used as transmitting/receiving antenna.

**For ANT plus function (1TX/1RX):**

Only Port 1 can be used as transmitting/receiving antenna.

**For 76~81GHz function (3TX/6RX):**

Port 1~3 can be used as transmitting antenna.

Port 1~3 could transmit simultaneously.

Port 1~6 can be used as receiving antenna.

Port 1~6 could receive simultaneously.

## 1.3. Accessories

| Accessories |
|---|
| USB cable*1: Shielded, 1.5m |
| Lithium-ion battery*1 |

## 1.4. Applicable Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- 47 CFR Part 2.1093
- KDB 447498 D04 Interim General RF Exposure Guidance v01

The following reference test guidance is not within the scope of accreditation of TAF.

- 47 CFR Part 1.1307

## 1.5. Testing Location

| Testing Location Information | |
|---|---|
| Test Lab.：Sporton International Inc. Hsinchu Laboratory | |
| Hsinchu | ADD: No.8, Ln. 724, Bo'ai St., Zhubei City, Hsinchu County 302010, Taiwan (R.O.C.) |
| (TAF: 3787) | TEL: 886-3-656-9065 FAX: 886-3-656-9085 |
| | Test site Designation No. TW3787 with FCC. |
| | Conformity Assessment Body Identifier (CABID) TW3787 with ISED. |

# 2. SAR-based and MPE-based exclusions

## 2.1. Applicable Standards

In accordance with FCC 47 CFR part 2 (2.1093) this device has been defined as a portable device which is defined as a transmitting device designed to be used so that the radiating structure(s) of the device is/are within 20 centimeters of the body of the user.

Portable devices must be evaluated using the specified in FCC 47 CFR part 2 (2.1093) and ANSI/IEEE C95.1-1992, and had been tested in accordance with the measurement methods and procedures specified in IEEE 1528-2003.

## 2.2. Determination of exemption.

1. In accordance with FCC 47 CFR part 1 (1.1307(b)(3)(i)(A)) for single RF sources exemption:
   The available maximum time-averaged power is no more than 1 mW, regardless of separation distance.

2. In accordance with FCC 47 CFR part 1 (1.1307(b)(3)(ii)(A)) for multiple RF sources exemption:
   The available maximum time-averaged power of each source is no more than 1 mW and there is a separation distance of two centimeters between any portion of a radiating structure operating and the nearest portion of any other radiating structure in the same device, except if the sum of multiple sources is less than 1 mW during the time-averaging period, in which case they may be treated as a single source (separation is not required).

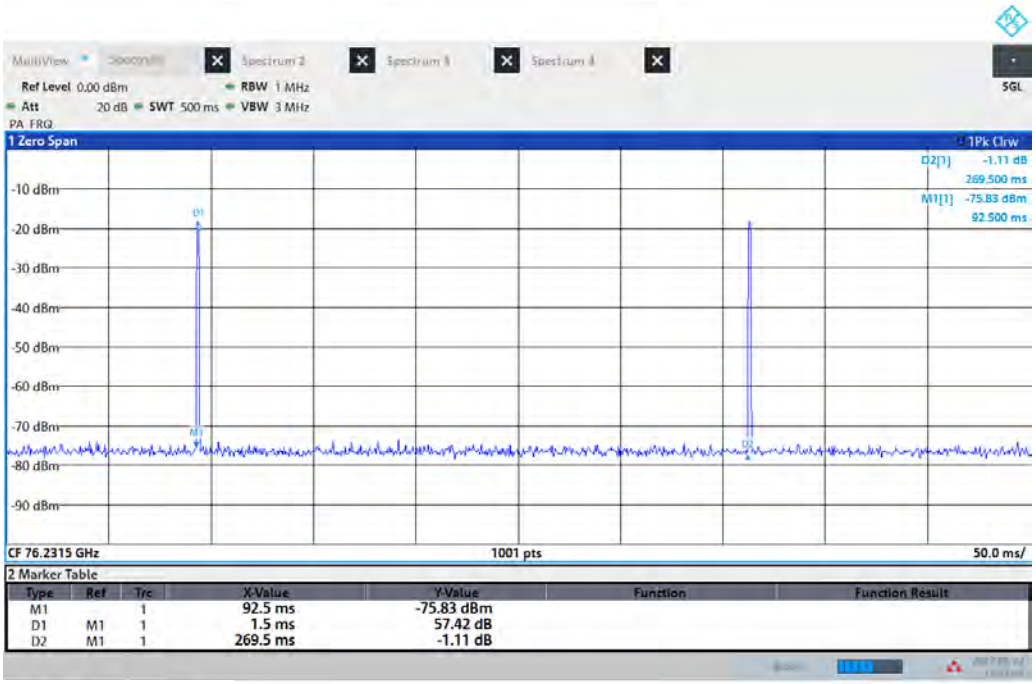
**Test mode 1: 76~81GHz + Bluetooth**

| Max. Power | | Duty Cycle (%) | Tune-up Max. Power | | Test Distance (mm) | Frequency (GHz) | Exclusion thresholds (mW) | RF Exposure Evaluation Limit (mW) | Result |
|---|---|---|---|---|---|---|---|---|---|
| (dBm) | (mW) | | (dBm) | (mW) | | | | | |
| -9.89 | 0.1 | 0.6 | -31.7 | 0.0007 | 2.6 | 76.2315 | 0.00227 | 1 | PASS |
| 1.96 | 1.6 | 62.8 | 0.5 | 1.1220 | 2.6 | 2.402 | 0.66883 | 1 | PASS |
| Sum Exclusion Thresholds | | | | | | | 0.67110 | 1 | PASS |

**Test mode 2: 76~81GHz + ANT plus**

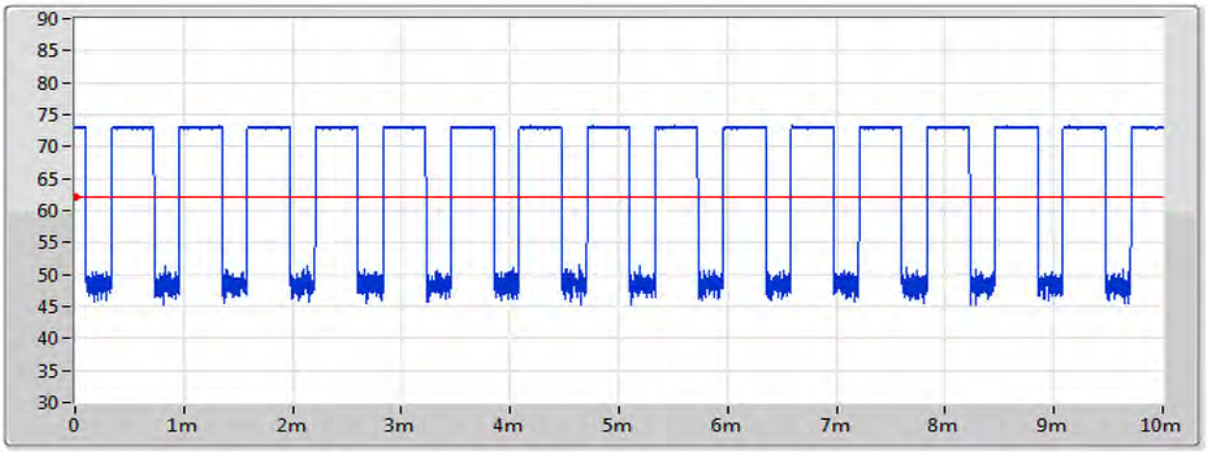
| Max. Power | | Duty Cycle (%) | Tune-up Max. Power | | Test Distance (mm) | Frequency (GHz) | Exclusion thresholds (mW) | RF Exposure Evaluation Limit (mW) | Result |
|---|---|---|---|---|---|---|---|---|---|
| (dBm) | (mW) | | (dBm) | (mW) | | | | | |
| -9.89 | 0.1 | 0.6 | -31.7 | 0.0007 | 2.6 | 76.2315 | 0.00227 | 1 | PASS |
| -12.39 | 0.1 | 81.9 | -12.8 | 0.0525 | 2.6 | 2.457 | 0.03164 | 1 | PASS |
| Sum Exclusion Thresholds | | | | | | | 0.03391 | 1 | PASS |

| Duty Cycle |
|---|
| 76~81GHz |



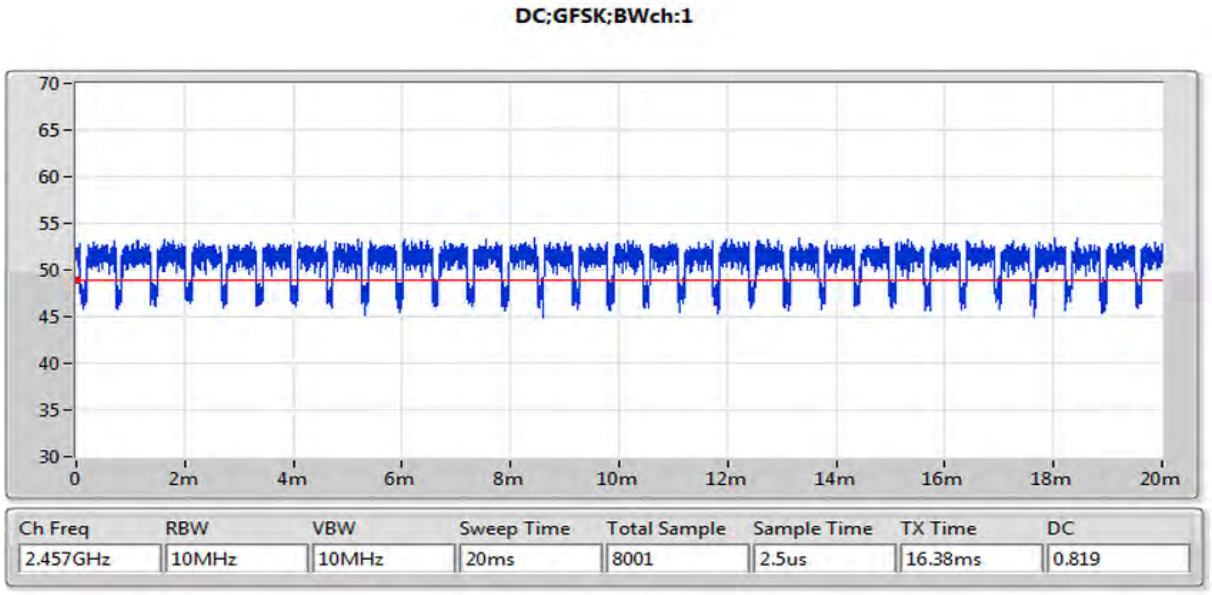

| Bluetooth |
|---|

DC;BT-LE;BWch:1.0




| Ch Freq | RBW | VBW | Sweep Time | Total Sample | Sample Time | TX Time | DC |
|---|---|---|---|---|---|---|---|
| 2.402GHz | 10MHz | 10MHz | 10ms | 8001 | 1.25us | 6.28125ms | 0.628 |

**ANT plus**




| Ch Freq | RBW | VBW | Sweep Time | Total Sample | Sample Time | TX Time | DC |
|---|---|---|---|---|---|---|---|
| 2.457GHz | 10MHz | 10MHz | 20ms | 8001 | 2.5us | 16.38ms | 0.819 |

———THE END———