

## MPE Calculation

Project No: C6980-1  
Report No: C14777TR1  
Date: 11<sup>th</sup> August 2022

### Product details:

<b>Product name</b>	Zwift Hub Z004
<b>Company name</b>	Zwift Inc
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	Long Beach
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	USA
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**Registered Address:**

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Registered in England and Wales  
Company Reg. No. 6048589  
VAT Reg. No. GB 887 1276 83

## MPE Calculation for Zwift Inc

### FCC requirement:

This report contains calculation of maximum Possible Exposure for the Zwift Hub Z004.

Required distance to the user is assumed to be 20 cm

Mobile devices are defined by the FCC as transmitters designed to be used in other than fixed locations and generally to be used in such a way that a separation distance of 20cm is normally maintained between radiating structures and the body of the user or nearby persons.

These devices are normally evaluated for exposure potential with relation to the MPE limit.

As the 20cm separation may not be achievable under normal operating conditions, an RF exposure calculation is used to demonstrate the minimum distance required to be less than the power density limit, as required under FCC rules.

FCC rule part:47CFR2.1091(3)

Power density (S) relates to Equivalent Isotropic Radiated power (EIRP) according to the following:

$$S = \frac{EIRP}{4\pi R^2}$$

Where,

R is the distance to the centre of radiation of the antenna (cm)

### BLE Power Density

The worst case conducted output power of the BLE module was = 3.25 dBm  
(Value obtained from test report C14776TR1)

The Power density (S) is calculated as:

Frequency (MHz)	Conducted output power (dBm)	Antenna Gain (dBi)	Maximum EIRP (mW)	Power density (S) (mW/cm <sup>2</sup> )	Power density limit (S) (mW/cm <sup>2</sup> ) 47CFR1.1310 Table 1
2480.0	3.25	2.0	3.3	0.0007	1.0

## MPE Calculation for Zwift Inc

### ANT+ Power Density

The worst case output power of the ANT+ module was = 1.73 dBm  
(Value obtained from test report C14775TR1)

The Power density (S) is calculated as:

Frequency (MHz)	Conducted output power (dBm)	Antenna Gain (dBi)	Maximum EIRP (mW)	Power density (S) (mW/cm <sup>2</sup> )	Power density limit (S) (mW/cm <sup>2</sup> ) 47CFR1.1310 Table 1
2457.0	1.73	2.0	2.4	0.0005	1.0

### Conclusion:

The product was shown to be compliant with the 20cm power density limit.

## MPE Calculation for Zwift Inc

### ISED Requirement

RSS Standard:

RSS-102 Issue 5 Posted on Industry Canada website: March 19, 2015

### Clause:2.5.2 Exemption Limits for Routine Evaluation — RF Exposure Evaluation

At or above 300 MHz and below 6 GHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than, in Watts,

$$1.31 \times 10^{-2} f^{0.6834}$$

adjusted for tune-up tolerance, where  $f$  is in MHz

### BLE Evaluation

Calculation of e.i.r.p.:

Peak conducted power was measured, see Test Report C14776TR1.

The declared antenna gain was 2.0 dBi.

frequency (MHz)	Maximum EIRP (W)	Limit (W)
2480.0	0.0033	2.73

### ANT+ Evaluation

Calculation of e.i.r.p.:

Peak conducted power was measured, see Test Report C14775TR1.

The declared antenna gain was 2.0 dBi.

frequency (MHz)	Maximum EIRP (W)	Limit (W)
2457.0	0.0024	2.71

**MPE Calculation for Zwift Inc**

**Conclusion**

The apparatus meets the exclusion requirements for RF exposure Evaluation.

**Prepared by:**

A handwritten signature in black ink, appearing to read 'J Beevers', is positioned above the printed name.

**J Beevers MPhys(Hons),PhD  
Radio Testing Team Lead**