

FCC MPE calculation Report

Product name : Classified Thru axle
Applicant : Classified Cycling BV
FCC ID : 2AZ7ACCLASSIBV1

Test report No. : 201001129 005 MPE calculation report v2.00

Laboratory information

Accreditation

Telefication complies with the accreditation criteria for test laboratories as laid down in ISO/IEC 17025:2017. The accreditation covers the quality system of the laboratory as well as the specific activities as described in the authorized annex bearing the accreditation number L021 and is granted on 30 November 1990 by the Dutch Council For Accreditation (RvA: Raad voor Accreditatie).

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Documentation

The test report must always be reproduced in full; reproduction of an excerpt only is subject to written approval of the testing laboratory. The documentation of the testing performed on the tested devices is archived for 10 years at Telefication Netherlands.

Testing Location

Test Site	Kiwa Telefication BV
Test Site location	Wilmersdorf 50 7327 AC Apeldoorn The Netherlands Tel. +31 88998 3393
Test Site FCC	NL0001
CABID	NL0001

Revision History

Version	Date	Remarks	By
v1.00	22-09-2021	Release version	RvB
v2.00	07-02-2022	Changed to different template	RvB

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1 General Description

1.1 Applicant

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E-mail: Kristof.verpoorten@classified-cycling.cc
Contact name: Kristof Verpoorten

1.2 Manufacturer

Manufacturer name: Classified Cycling BV
Address: Slachthuisstraat 120 B10,
2300, Turnhout, Belgium
Telephone: +32494843464
E-mail: Kristof.verpoorten@classified-cycling.cc
Contact name: Kristof Verpoorten

1.3 Tested Equipment Under Test (EUT)

Product name: Classified Thru axle
Description: Thru axle
Brand name: Classified Cycling
FCC ID: 2AZ7AClassIBV1
Model(s): See chapter 1.4 "Observations and Remarks"
Software version: Module B V3.75
Hardware version: 029_002_01

1.4 Observation and remarks

Model overview:

Product name:	Variant/OEM	Hardware version	Note
Classified Thru axle	OEM	029_002_01	Tested model
Classified Thru axle	OEM	029_002_02	Standard configuration certain OEM
Classified Thru axle	Varian	029_037_00	Length A
Classified Thru axle	Varian	029_038_00	Length B
Classified Thru axle	Varian	029_039_00	Length C
Classified Thru axle	Varian	029_047_00	Length D

1.5 SAR Measurement Evaluation

1.5.1 Maximum Output Power

The maximum radiated power including antenna gain is shown as below.

Technology	Output power (dBm)
BLE	*-8.04
ANT+	*-10.48

* from Telefication test report no: 201001129 002

1.5.2 MPE Limits

Limits for occupational/controlled exposure

Frequency Range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm ²)	Averaging time (minutes)
0.3 – 3.0	614	1.63	100 (see note 1)	≤6
3.0 – 30	1842/f	4.89/f	900/f ² (see note 1)	≤6
30 – 300	61.4	0.163	1.0	≤6
300 – 1500	--	--	f/300	≤6
1500 – 100000	--	--	5	≤6

Limits for general population/uncontrolled exposure

Frequency Range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm ²)	Averaging time (minutes)
0.3 – 1.34	614	1.63	100 (see note 1)	≤30
1.34 – 30	824/f	2.19/f	180/f ² (see note 1)	≤30
30 – 300	27.5	0.073	0.2	≤30
300 – 1500	--	--	f/1500	≤30
1500 – 100000	--	--	1.0	≤30

Notes :

f = frequency in MHz

1: plane wave equivalent power density

1.5.3 MPE calculation

As declared by the Applicant, the EUT is a wireless device used in a fixed application, at least 20 cm from any body part of the user or nearby persons.

Calculation method of RF Safety Distance:

$$PD = \frac{P_{out} * G}{4\pi r^2} = \frac{P(eirp)}{4\pi r^2}$$

Where:

PD = Power Density in mW/cm^2

Pout = Output power in mW

G = Gain of antenna

R = Distance between observation point and centre of the radiator in cm

Antenna

Technology	BLE, ANT+
Antenna type	CHIP
Antenna gain	3.6 dBi

Calculation results

Technology	Frequency (MHz)	Max power (mW)	Antenna gain (numeric)	Distance (cm)	Power density (W/m^2)	Limit (W/m^2)	MPE ratio	MPE ratio limit
BLE	2480	0.16	2.291	20	0.0073	10	0.00073	≤ 1.0
ANT+	2457	0.086	2.291	20	0.0039	10	0.00039	≤ 1.0

1.6 Summary

The MPE calculation shows the EUT is well below the MPE limits.