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**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 34667-2023

General specifications of electrical self-balancing vehicles

电动平衡车通用技术条件

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Foreword

This document was issued on 7 September 2023 by the State Administration for Market Regulation; Standardization Administration of the PRC and takes effect on 1 April 2024.

It is a GB/T standard: recommended rather than compulsory, but it is the text a Chinese reviewer applies when assessing a submission.

1 Scope

GB/T 34667-2023 covers electrical self-balancing vehicles - wheeled manned platforms that stay upright by actively controlling an inverted pendulum rather than by the rider's own balance. It defines the terms, classifies the vehicles by wheel count in clause 4, beginning with the one-wheeled machine, and then sets the technical requirements together with the test methods that verify them, the inspection rules, and the requirements for packaging, transportation and storage. An informative appendix deals with the power a vehicle has to keep available for safe driving. Such a document exists because stability here is a property of the machine and not of the person on it: control, drive and braking form one loop, and when battery, motor or controller runs out of margin the platform pitches under a rider who has no independent way to stay up. Speed, load, braking and endurance behaviour therefore have to be declared the same way from one maker to the next and demonstrated by a defined test rather than asserted in a catalogue. Useful to manufacturers and their component suppliers, to testing laboratories, to importers and retail buyers comparing

models, and to authorities deciding where these vehicles may be ridden.

This document defines the terms and definitions of electrical self-balancing vehicles, specifies

the classification, technical requirements, inspection rules, packaging, transportation and storage requirements of electrical self-balancing vehicles, and describes the test methods.

This document is applicable to the design, production and sales of electrical self-balancing vehicles that use batteries as the power source, except for military, police and other special purposes.

2 Normative References

The contents of the following documents constitute indispensable clauses of this document through the normative references in the text. In terms of references with a specified date, only

versions with a specified date are applicable to this document. In terms of references without a

specified date, the latest version (including all the modifications) is applicable to this document.

GB/T 191 Packaging - Pictorial Marking for Handling of Goods

GB/T 2423.1 Environmental Testing for Electric and Electronic Products - Part 2: Test Methods

- Tests A: Cold

GB/T 2423.3 Environmental Testing - Part 2: Testing Method - Test Cab: Damp Heat, Steady State

GB/T 2423.22-2012 Environmental Testing - Part 2: Test Methods - Test N: Change of Temperature

GB 17799.3 Electromagnetic Compatibility (EMC) - Generic Standards - Emission Standard for Industrial Environments

GB/T 34668 Safety Requirements and Test Methods for Electrical Self-balancing Vehicles

GB/T 40309 Electrical Self-balancing Vehicle - Electromagnetic Compatibility - Emission and

Immunity Requirements

SJ/T 11685 Specifications of Lithium-ion Batteries and Battery Packs for Self-balancing Vehicles

3 Terms and Definitions

The following terms and definitions are applicable to this document.

3.1 electrical self-balancing vehicle

A wheeled manned mobile platform that is based on the inverted pendulum model and the principle of static instability, and is equipped with a rechargeable electric drive system, thus maintaining dynamic balance in an autonomous or manual mode of operation.

NOTE: the electrical self-balancing vehicle is referred to as the self-balancing vehicle for short.

3.2 steering column

A component used to control the steering of an electrical self-balancing vehicle, which may be

equipped with other electronic displays or lighting equipment.

3.3 remote control software

An application software installed on an intelligent mobile terminal to set up, control or monitor

an electrical self-balancing vehicle via a wireless connection.

3.4 safety alarm

An alarm (such as: sound, light and vibration, etc.) that may be clearly noticed by the user after

being sent to the user, when an electrical self-balancing vehicle detects internal faults (such as:

abnormal battery voltage and balance control unit failure) or dangerous driving actions or abnormal working conditions of the vehicle.

3.5 brake

An action of an electrical self-balancing vehicle to stop or decelerate its wheels by self-induction.

3.6 rated mileage

The mileage accumulated during the period when a fully charged electrical self-balancing

vehicle runs at a constant speed of 60% of the maximum speed prescribed by the manufacturer

on a flat hardened surface at a total load of 75 kg at room temperature, then travels at the maximum speed that it can reach in the case of failing to run at the speed above due to low power, until the self-balancing vehicle is unable to continue running due to low battery power.

NOTE: rated mileage is in unit of kilometer (km).

4 Classification of Electrical Self-balancing Vehicles

4.1 In accordance with the number of wheels, it may be classified as:

- a) electrical one-wheeled self-balancing vehicle -- an electrical self-balancing vehicle with only one wheel, including two tires on one wheel;
- b) electrical two-wheeled self-balancing vehicle -- an electrical self-balancing vehicle with two wheels;
- c) electrical multi-wheeled self-balancing vehicle -- an electrical self-balancing vehicle with three or more wheels.

4.2 In accordance with the steering mode, it may be classified as:

- a) electrical self-balancing vehicle with a steering column;
- b) electrical self-balancing vehicle with no steering column.

4.3 In accordance with whether the seat is equipped, it may be classified as:

- a) electrical self-balancing vehicle with a seat;
- b) electrical self-balancing vehicle with no seat.

4.4 In accordance with the charging mode, it may be classified as:

- a) rechargeable electrical self-balancing vehicle with external power supply -- this type of electrical self-balancing vehicle is not directly connected to the AC grid during charging, but connected to AC grid via a charger or external power supply for charging;
- b) rechargeable electrical self-balancing vehicle with built-in power supply -- this type of electrical self-balancing vehicle is directly connected to the AC grid during charging.