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Cycles — Lighting and retro-reflective devices —

Part 5: Lighting systems not powered by the cycle's movement

Cycles — Dispositifs d'éclairage et dispositifs rétroréfléchissants —
Partie 5: Systèmes d'éclairage non alimentés par dynamo

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Foreword

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The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT), see the following URL: Foreword — Supplementary information.

The committee responsible for this document is ISO/TC 149, *Cycles*, Subcommittee SC 1, *Cycles and major sub-assemblies*.

ISO 6742 consists of the following parts, under the general title *Cycles — Lighting and retro-reflective devices*:

— *Part 1: Lighting and light signalling devices*

— *Part 2: Retro reflective devices*

— *Part 3: Installation and use of lighting and retro-reflective devices*

— *Part 4: Lighting systems powered by the cycle's movement*

— *Part 5: Lighting systems not powered by the cycle's movement*

Cycles — Lighting and retro-reflective devices —

Part 5:
Lighting systems not powered by the cycle's movement

1 Scope

This part of ISO 6742 is applicable to lighting systems used on cycles intended to be used on public roads and, especially, bicycles complying with ISO 4210 and ISO 8098.

This part of ISO 6742 specifies requirements and test methods for the performance of lighting systems not powered by the cycle's movement. It applies to light devices complying with ISO 6742-1. Lighting systems include lighting devices and power not supplied by cycle's movement such as battery.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 6742-1:2015, *Cycles — Lighting and retro-reflective devices — Part 1: Lighting and light signalling devices*

ISO 9227, *Corrosion tests in artificial atmospheres — Salt spray tests*

IEC 60086, *Primary batteries*

IEC 60529, *Degrees of protection provided by enclosures (IP Code)*

IEC 61960, *Secondary cells and batteries containing alkaline or other non-acid electrolytes — Secondary lithium cells and batteries for portable applications*

IEC 62133, *Secondary cells and batteries containing alkaline or other non-acid electrolytes — Safety requirements for portable sealed secondary cells, and for batteries made from them, for use in portable applications*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 6742-1 and the following apply.

3.1
integrated lamp and power source
system including power source and at least one type of light designed to be used together

3.2
lamps and interchangeable power source
open system
system working with a power source corresponding to the properties specified by the light manufacturer

3.3
lamps and dedicated power source
closed system
system including the power source specified by the light manufacturer

3.4
battery pack
cell assembly, battery management system and casing designed or specified by light manufacturer

4 Lamps and interchangeable power source

4.1 General

The complete system shall be designed as closed system which does not have compatibility between lamps and power source.

4.2 Requirement

When tested by the method described in 7.1 and 7.3, lamps with interchangeable power source shall correspond with the requirements of Clause 6 and ISO 6742-1:2015, Clause 4.

5 Lamps and dedicated power source

5.1 General

The complete system shall be designed as open system which requires compatibility between lamps and power source.

5.2 Requirements

When tested by the method described in 7.2 and 7.3, lamps with dedicated power source shall correspond with the requirements of Clause 6 and ISO 6742-1:2015, Clause 4.

6 Common requirements for lighting systems

6.1 Corrosion resistance

The lighting equipment shall still be functional after testing has taken place.

6.2 Water resistance

The lighting equipment shall still be functional after testing has taken place.

6.3 Low battery indicator

The lighting system shall include a low battery indicator or state of charge indicator. This indicator shall be located on the lamp, on the battery case or on display, clearly and easily visible.

The indicator shall be activated at the latest when the photometrical requirements of ISO 6742-1 are not fulfilled anymore. The lamp shall emit light for at least 30 min after activation of the indicator.

6.4 Power source

Battery or any kind of power source shall comply with the requirement of IEC 60086, IEC 61960, and IEC 62133 if applicable.

7 Test method

7.1 Lamps and interchangeable power source

7.1.1 Lamps emitting light to the front

Lamps have to be tested corresponding with the test methods of ISO 6742-1:2015, 4.2 (Front position lamp), 4.5 (Low beam), 4.6 (High beam) and 4.7 (Direction indicators). The test voltage shall be the rated voltage of power source.

7.1.2 Lamps emitting light to the rear

Rear lights have to be tested corresponding with the test methods of ISO 6742-1:2015, 4.3 (Rear lamp), 4.4 (Stop lamp), 4.7 (Direction indicators) and 4.8 (Stand light). The test voltage shall be the rated voltage of power source.

7.2 Lamps and dedicated power source

7.2.1 Lamps emitting light to the front

Lamps have to be tested corresponding with the test methods of ISO 6742-1:2015, 4.2 (Front position lamp), 4.5 (Low beam), 4.6 (High beam) and 4.7 (Direction indicators). The test voltage shall be the rated voltage of power source or dedicated power source.

7.2.2 Lamps emitting light to the rear

Rear lights have to be tested corresponding with the test methods of ISO 6742-1:2015, 4.3 (Rear lamp), 4.4 (Stop lamp), 4.7 (Direction indicators) and 4.8 (Stand light). The test voltage shall be the rated voltage of power source or dedicated power source.

7.3 Common test methods for lighting systems

7.3.1 Corrosion testing

The entire lighting system (front lights, rear lights in functional assembly conditions) shall undergo corrosion testing according to ISO 9227. A total of 96 h shall be run with a salt concentration of 5 %.

7.3.2 Water resistance

Battery rear lights in functional assembly conditions shall undergo water spray testing according to IEC 60529, regarding class IPX4: protection against water sprays.

Battery front lights shall fulfil the class IPX4.

At the end of the test allow the unit to drain for 1 h.

8 Instructions

The instructions shall be provided with lighting devices. These instructions can be provided in all type of format (paper, CD, website…) according to national regulations and shall be written in the language of the country where the lighting device is to be marketed or by visual tools, such as pictograms and illustrations shall feature prominently in the product safety information. When an electronic format is provided, a paper version shall be available upon request. The customer shall be made aware of this information either by the manufacturer or the retailer. Instructions for use shall contain the following information on:

a) type of lamp;

b) method for fitting the equipment to the bicycle;

c) compatibility (output, input, connection) for open system;

d) operation and adjustment.

Additional information may be provided at the discretion of the manufacturer.

For closed system, the incompatibility of lamps and power sources shall be stated in the instructions.

9 Marking

9.1 Requirement

The lamp and/or power source shall be durably marked with:

a) the manufacturer's name, abbreviation or trade-mark;

b) the model name, production number, symbol or other identification;

c) the rated input, output power, battery type, or anything to describe compatibility for open system.

Marking a) shall appear on the surfaces which is visible after assembled on the bicycle, in characters not less than 1 mm in height.

9.2 Durability test

9.2.1 Requirement

When tested by the method described in 9.2.2, the marking shall remain easily legible. It shall not be easily possible to remove any label nor shall any label show any sign of curling.

9.2.2 Test method

Rub the marking by hand for 15 s with a piece of cloth soaked in water and again for 15 s with a piece of cloth soaked in petroleum spirit.

Bibliography

[1] ISO 4210 (all parts), *Cycles — Safety requirements for bicycles*

[2] ISO 8098, *Cycles — Safety requirements for bicycles for young children*

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