INTERNATIONAL STANDARD

ISO 6742-1

Redline version
compares Third edition to
Second edition

Cycles — Lighting and retro-reflective devices —

Part 1: Lighting and light signalling devices

Cycles — Éclairage et dispositifs rétro-réfléchissants —

Partie 1: Équipements de signalisation et d'éclairage

Reference number
ISO 6742-1:redline:2015(E)

IMPORTANT — PLEASE NOTE

This is a mark-up copy and uses the following colour coding:

Text example 1	— indicates added text (in green)
~~Text example 2~~	— indicates removed text (in red)
	— indicates added graphic figure
	— indicates removed graphic figure
1.x ...	— Heading numbers containg modifications are highlighted in yellow in the Table of Contents

All changes in this document have yet to reach concensus by vote and as such should only be used internally for review purposes.

DISCLAIMER

This Redline version provides you with a quick and easy way to compare the main changes between this edition of the standard and its previous edition. It doesn't capture all single changes such as punctuation but highlights the modifications providing customers with the most valuable information. Therefore it is important to note that this Redline version is not the official ISO standard and that the users must consult with the clean version of the standard, which is the official standard, for implementation purposes.

Contents

Page

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

~~Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council. They are approved~~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 ~~ISO procedures requiring at least 75 % approval by the member bodies voting~~the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

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.

~~International Standard~~The committee ~~ISO 6742-1 was prepared by Technical Committee~~responsible for this document is ISO/TC 149, *Cycles*, SC 1, *Cycles and major sub-assemblies*.

This ~~second~~third edition cancels and replaces the ~~first~~second edition (ISO 6742-1:~~1985~~1987), ~~of which it constitutes a technical revision incorporating draft Amendment~~ which has been technically revised~~ISO 6742-1/DAM 1 : 1986 which, in addition to a revision of clauses 8.1.2 and 8.1.3, includes new definition 4.12 and new clauses 8.2.2, 8.2.3, 11.3 and 12~~.

~~Users~~ISO 6742 ~~should note that all International Standards undergo revision from~~consists of the following parts, under the general title ~~*time to time and that any*~~*Cycles — Lighting and retro-reflective devices*~~reference made herein to any other International Standard implies its latest edition, unless otherwise stated.~~:

— *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 1:
Lighting and light signalling devices

0 Introduction

This part of ISO 6742 has been prepared in order to specify photometric and physical requirements for lighting and retroreflective devices for cycles intended for use on public roads.

The provision of such equipment is intended to make other road users aware of the presence of cyclists, especially under conditions of poor visibility or at night. In addition, headlamps made in conformity with the requirements of this part of ISO 6742 will provide sufficient lighting to enable cyclists at night to detect road conditions immediately ahead and, if necessary, to take action to avoid potential hazards.

ISO 6742-2 gives requirements for retro-reflective devices.

Annex A is included to give characteristics of typical filament lamps that are suitable for headlamps and rear lamps (for production and test purposes). However, cycle filament lamps will form the subject of a future IEC Standard, on publication of which annex A will be withdrawn and reference made to that standard.

Annex B describes a suitable vibration test machine.

1 Scope

This part of ISO 6742 specifies photometric and physical requirements, test methods, and marking requirements for lighting equipment for cycles.

21 Field of applicationScope

This part of the ISO 6742 applies to lighting equipment for useis applicable to lighting devices used on cycles intended to be used on public roads and, in particular, for use onespecially, bicycles complying with ISO 4210 and ISO 8098.

This part of ISO 6742 specifies the functions, safety requirements, photometric performance and test methods of lighting and signalling devices that can be used on cycles.

32 ReferencesNormative 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 3768 6742-4:2015, *Metallic coatings — Neutral salt spray test (NSS test).Cycles — Lighting and retro-reflective devices — Part 4: Lighting systems powered by the cycle's movement*

ISO 4210 6742-5:2015, *Cycles — Safety requirements of bicycles. — Lighting and retro-reflective devices — Part 5: Lighting systems not powered by the cycle's movement*

CIE Publication No. 15 1931, *Colorimetry, Official CIE (XYZ colour space of the International Commission on Illumination) recommendations.*

IEC Publication 61, *Lamp caps and holders together with gauges for the control of interchangeability and safety.*

IEC Publication 86, *Primary batteries.*

IEC Publication 285, *Sealed nickel-cadmium cylindrical rechargeable single cells.*

43 DefinitionsTerms and definitions

For the purposes of this part ofdocumentISO 6742, the following terms and definitions apply.

3.1
front position lamp
lamp emitting a white or an amber light to the front of the cycle, so as to indicate its presence on the road

3.2
headlamp
lamp to light the road to the front of the cycle that has either low beam, high beam or both

3.3
rear lamp
lamp emitting a red light to the rear of the cycle and used to indicate its presence on the road

3.4
stop-lamp
lamp used to indicate to other road users that the cycle brakes or significantly decelerates

3.5
low beam
light that illuminates the road in front of the cycle without dazzling other road users from the opposite direction

3.6
high beam
light that illuminates the road for a long distance ahead of the vehicle

3.7
direction indicators
lamps used to indicate to other road users that the cyclist intends to change direction to the right or left

3.8
stand-light
light emitted by a lamp for a time after the cycle has stopped

3.9
lamp equipped with replaceable light source
lamp whose light source(s) can be replaced by the user with an equivalent light source(s) of the same type

3.10
lamp equipped with non-replaceable light source
lamp whose light source(s) is permanently fitted, and not designed to be replaced by the user

4.13.11
cyclecycles
any vehicle that has at least two wheels and is propelled solely or mainly by the muscular energy of the person on that vehicle, in particular by means of pedals.

4.2
bicycle
Two-wheeled cycle.

~~4.3~~
~~**headlamp**~~
~~Lamp that shows a white or selective yellow light to the front of the cycle to indicate its presence on the road and also to provide additional illumination of the road ahead.~~

~~4.4~~
~~**rear lamp**~~
~~Lamp that shows a red light to the rear of a cycle and serves to indicate its presence.~~

~~4.5~~
~~**filament lamp**~~
~~Lamp in which light is produced by means of an element heated to incandescence by the passage of an electric current.~~

~~4.6~~3.12
~~**axis of reference**~~**reference axis**
characteristic horizontal axis of the lamp, as determined by the manufacturer or by the direction light is emitted with greatest intensity, to serve as a direction of reference during use in service and during test measurements. ~~(See figure 1.)~~

~~4.7~~
~~**centre of reference**~~
~~Intersection of the axis of reference with the light output surface of the lamp. (See figure 1.)~~

~~4.8~~3.13
~~**beam centre**~~**plane HH**
~~As viewed on the test screen, that area at the centre of the light pattern the intensity of which is not less than 80 % of the maximum intensity,~~ horizontal plane parallel to the ground passing through the reference axis~~, I_{max}, of the beam.~~

~~4.9~~3.14
~~**rated voltage**~~**plane VV**
~~Voltage marked on the filament lamp.~~vertical plane through the reference axis

~~4.10~~
~~**unit for test**~~
~~Complete unit, including the requisite electrical supply.~~

~~4.11~~3.15
~~**reference luminous flux**~~ **public road**
~~Specified luminous flux of a filament lamp to which the photometric characteristics of a headlamp or rear lamp shall be referred.~~any designed and adopted road pavement, path or track on which a bicycle permitted to travel and on most through not all such public roads, bicycles will share use with other forms of transport including motorised traffic

~~4.12~~3.16
~~**system**~~ **short pulse**
~~Group comprising a headlamp, rear lamp, battery pack and/or generator and interconnecting cable.~~light flash shorter than 0,2 s

~~5~~4 ~~Photometric requirements for headlamps~~Photometrical requirements

4.1 General

If the reference axis is not mentioned by manufacturer, this direction shall be determined by that in which light is emitted with greatest intensity.

Within the field of light distribution, schematically shown as a grid, the light intensity in each direction of a part of the fielded formed by the grid lines meets at least the lowest minimum percentage value being shown on the grid lines surrounding the questioned direction.

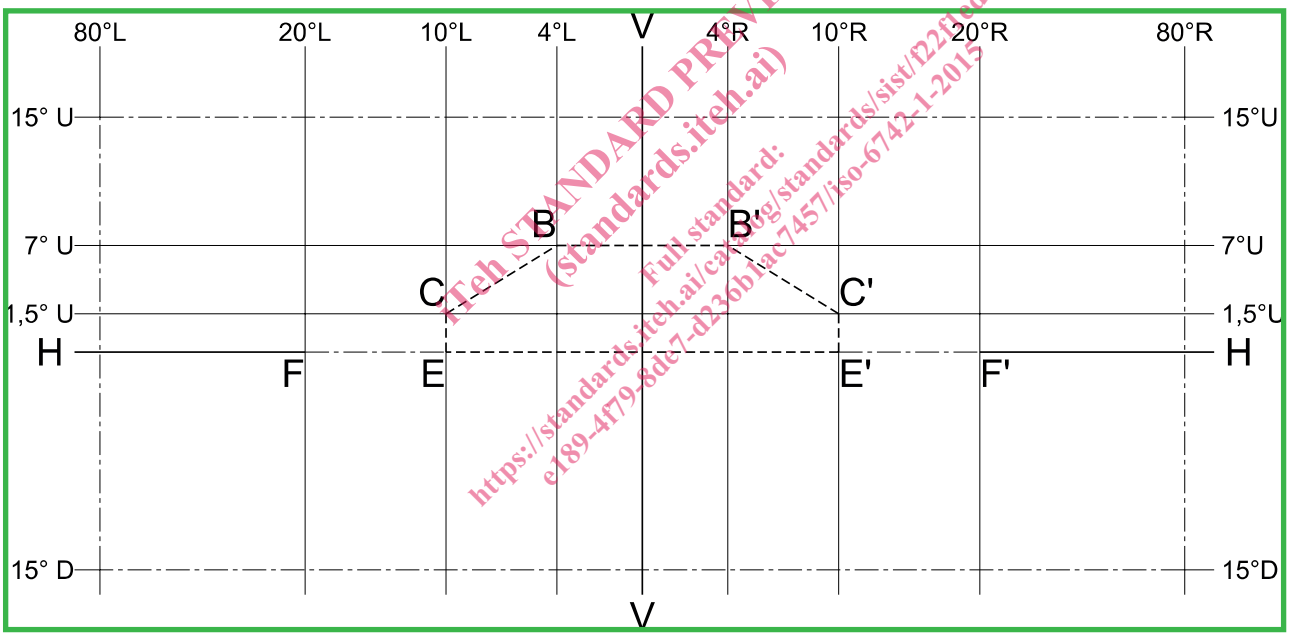
4.2 Front position lamp

4.2.1 Photometric requirements

The requirements of the front position lamp contained below in Table 1 shall correspond to the illustrative dimensions as shown further below in Figure 1.

Table 1 — Light distribution for front position lamp

Position	Value in cd
In area bound by straight lines connecting dots E, C, B, B', C', E' and E	≥4
From E to F and E' to F'	≥2
In rectangular area bounded by lines 15°U, 15°D, 80°L and 80°R	≥0,05
Upper limit on the H-H line and above H-H line	140 max



Key

H	represents the horizontal plane to the ground through the reference axis
V	represents the vertical plane through the reference axis
U and D	represent the degrees of arc, respectively, above and below the horizontal plane
L and R	represent the degrees of arc, respectively, to the left and right of the vertical plane

Figure 1 — Measuring and aiming screen for front position lamp

4.2.2 Mode of illumination

A front position lamp could either emit a continuous light or flash at a frequency from 1 Hz to 4 Hz. Such a lamp may be capable of only one mode or be switched between modes.

NOTE Some national or regional regulations do not permit the use of flashing lights on pedal cycles, apart from direction indicators.

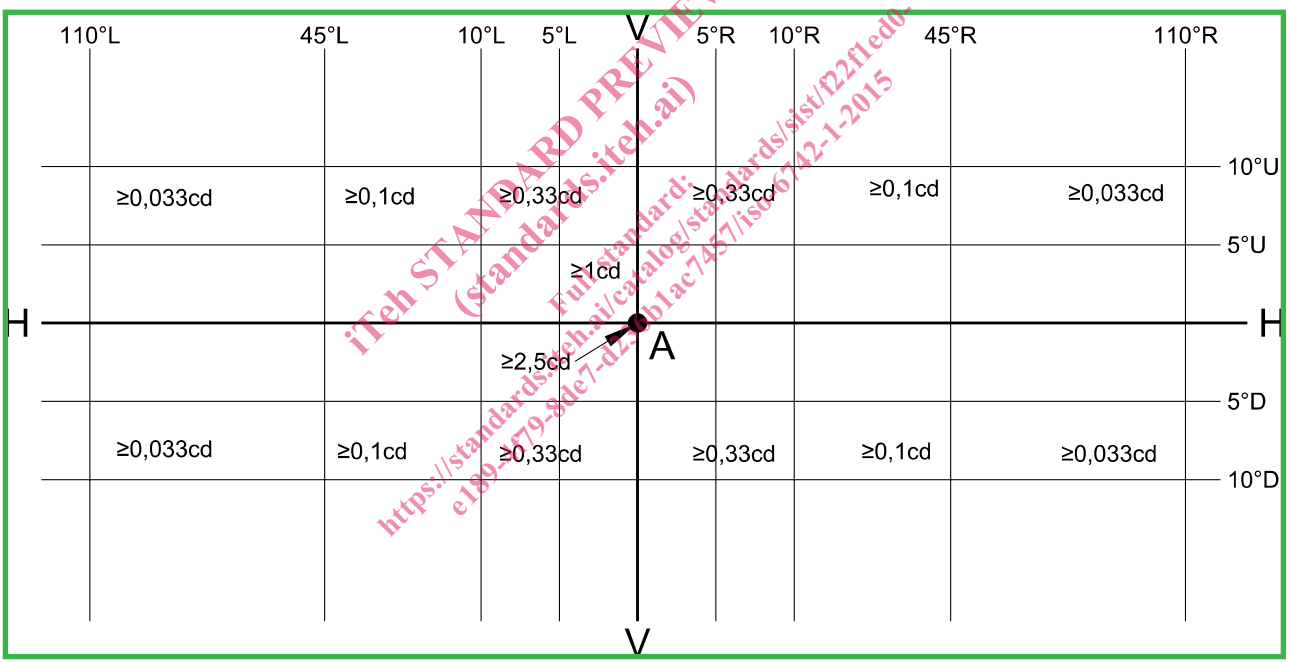
4.3 Rear lamp

4.3.1 Photometric requirements

The requirements of the rear lamp contained in Table 2 shall correspond to the illustrative dimensions as shown further below in Figure 2. Rear lamps with a function of the stand light shall correspond with the requirement of 4.8.

Table 2 — Light distribution for rear lamp

Position	Value in cd
A on intersection of horizontal plane and vertical plane	≥ 2,5
In rectangular area bounded by lines 5°U, 5°D, 5°L and 5°R	≥ 1
In rectangular area bounded by lines 10°U, 10°D, 10°L and 10°R	≥ 0,33
In rectangular area bounded by lines 10°U, 10°D, 45°L and 45°R	≥ 0,1
In rectangular area bounded by lines 10°U, 10°D, 110°L and 110°R	≥ 0,033
Upper limit on the H-H line and above H-H line	12 max



Key

H	represents the horizontal plane to the ground through the reference axis
V	represents the vertical plane through the reference axis
U and D	represent the degrees of arc, respectively, above and below the horizontal plane
L and R	represent the degrees of arc, respectively, to the left and right of the vertical plane

Figure 2 — Measuring and aiming screen for rear lamp

4.3.2 Mode of illumination

A rear lamp could either emit a continuous light or flash at a frequency from 1 Hz to 4 Hz. Such a lamp may be capable of only one mode or be switched between modes.

NOTE Some national or regional regulations do not permit the use of flashing lights on pedal cycles, apart from direction indicators.

4.4 Stop lamp

4.4.1 Photometric requirements

The minimum intensity measured on the reference axis at point H = V = 0 ° of a stop lamp shall be the highest of the following two values, as appropriate:

— 40 cd min;

— where a stop lamp function is provided by a rear lamp, at least five times the greatest measurable intensity of the rear lamp.

The greatest measurable intensity of the stop lamp shall not exceed 185 cd.

Light shall be emitted from a stop lamp throughout a zone defined as follows with respect to direction point H = V = 0 °: ± 45 ° horizontally and ±15 ° vertically. Throughout the field of emission the intensity shall not be less than 0,3 cd.

The intensity in specified directions within the grid according to Figure 3 shall be not less than specified percentages of the minimum point H = V = 0 ° intensity. The angles and percentages relative to the point H = V = 0 ° direction and value (100 %) are specified in Figure 3.

