

INTERNATIONAL ELECTROTECHNICAL COMMISSION

IEC 62471-7
Edition 1.0 2023-02

**Photobiological safety of lamps and lamp systems -
Part 7: Light sources and luminaires primarily emitting visible radiation**

INTERPRETATION SHEET 1

This interpretation sheet has been prepared by IEC technical committee 34: Lighting.

The text of this interpretation sheet is based on the following documents:

DISH	Report on voting
34/1322/DISH	34/1329/RVDISH

Full information on the voting for the approval of this interpretation sheet can be found in the report on voting indicated in the above table.

Document Preview

[IEC 62471-7:2023/ISH1:2025](https://standards.iteh.ai/catalog/standards/iec/7d15ef5a-8a03-4a03-ad4c-cd8c9b435a36/iec-62471-7-2023-ish1-2025)

<https://standards.iteh.ai/catalog/standards/iec/7d15ef5a-8a03-4a03-ad4c-cd8c9b435a36/iec-62471-7-2023-ish1-2025>

Introduction

When applying IEC 62471-7:2023, it has been found that in relation to the retinal thermal hazard assessment of high brightness luminaires, an ambiguous interpretation could possibly occur. This interpretation sheet provides information to facilitate correct interpretation. The publication of this interpretation sheet has been chosen in order to quickly inform interested parties before Amendment 1 of IEC 62471-7:2023 is developed and published.

1 Subclause 7.3, Table 2

For BLH-D, the column “luminaire groups of application” states that the application group BLH-D is “not acceptable”. This wording is clarified as follows.

Interpretation

The wording “not acceptable for any luminaire” does not mean that the luminaire using a BLH-D light source cannot be in compliance with IEC 62471-7 without further investigation. For a fixed luminaire it is required to provide the appropriate information for the safe use and installation, including the hazard distance according to the relevant product standard.

The requirement for the determination of the “thermal limit assessment distance” is clarified as the hazard distance associated with the retinal thermal limit. This hazard distance is always larger than the hazard distance based on the BLH-C limit.

2 Subclause 8.3

- a) In 8.3, second paragraph, it is unclear what the relevant emission limits are.

Interpretation

For the assessment of the luminaire at 1 000 mm distance (see also Table 2, footnote d), the retinal thermal limit of $28\,000/\alpha \text{ W}\cdot\text{m}^{-2}\cdot\text{sr}^{-1}$ of IEC 62471-5:2015, Table 3 is used, as given in NOTE 1 of 8.2 of IEC 62471-7:2023. The parameter α is given in units of radian. The retinal thermal hazard weighting function $R(\lambda)$ of IEC 62471-5:2015 applies (see IEC 62471-7:2023, Table 1, footnote a, and 8.1). An averaging FOV of 11 mrad applies for the determination of L_R as is stated in the last paragraph of 8.3. The minimum value of α to determine the limit equals 0,011 rad.

- b) Subclause 8.3 requires consulting the relevant product standard to determine requirements on user and installer information. At the time of writing, IEC 60598-1:2024 does not have this requirement, leading to ambiguity on how to fulfil this requirement.

Interpretation

When the retinal thermal limit is exceeded at a distance of 1 000 mm, Subclause 8.3 requires compliance with the requirements of the relevant product safety standard. This pertains particularly to warning labels on the product, and requirements for user information and installer information to avoid intra-beam viewing at distances shorter than the hazard distance. Although the scope of IEC 62471-5 is image projectors, due to the similarity of the products, pending an update of IEC 60598-1:2024 (the luminaire standard), IEC 62471-5 can be considered as an applicable product standard for luminaires for stage lighting and searchlights that exceed the retinal thermal limit at 1 000 mm distance.