Doc No.: LITD 04 (26263)
Draft IS 7146 (Part 2): 2024
Identical with IEC 60306-2: 1969
July 2024

BUREAU OF INDIAN STANDARDS

DRAFT FOR COMMENTS ONLY

मसौदा भारतीय मानक
प्रकाश संवेदनशील उपकरणों का मापन
भाग 2: फोटोट्यूब के मापन के तरीके
(पहला परिशोधन)

Draft Indian Standard

Measurement of Photosensitive Devices – Part 2: Methods of Measurement of Phototubes
(First Revision)

ICS.No. 31.260

LITD 04 Electronic Display Devices and Systems Sectional Committee	**Last Date for Comments:** 28 Sept 2024.

NATIONAL FOREWORD
(Formal clauses will be added later)

This Draft Indian Standard (Part 2) (First Revision) which is identical with IEC 60306-2:1969 'Measurement of photosensitive devices - Part 2: Methods of measurement of phototubes' issued by the International Electrotechnical Commission (IEC) *will be* adopted by the Bureau of Indian Standards on the recommendation of Electronic Display Devices and Systems Sectional Committee and approval of the Electronics and Information Technology Division Council.

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This standard was originally published in 1975 and assistance has been derived from the IEC Pub 306-2: 1969. The first revision aligns this Indian Standard with existing version of IEC 60306-2:1969, there is a need to align the formatting and appearance of the standard as per the current practice.

The following changes has been required in the standards under this revision:
a) Adding Front cover page.
b) Addition of Hindi Title.
c) National foreword to be written as current practice.
d) UDC Number to be changed to ICS code.

This standard (Part 2) is one of the parts of a series of standards on 'Measurement of Photosensitive Devices'. The other parts in this series are:

Part 1: Basic Recommendations
Part 3: Methods of measurement of photoconductive cells for use in the visible spectrum
Part 4: Methods of measurement for photo-multipliers

The text of IEC Standard *may be* approved as suitable for publication as an Indian Standard without deviations. Certain conventions are however not identical to those used in Indian Standards. Attention is particularly drawn to the following:

a) Wherever the words 'International Standard' appears referring to this standard, they should be read as 'Indian Standard'.

b) Comma (,) has been used as a decimal marker while in Indian Standards, the current practice is to use a point (.) as the decimal marker.

In this adopted standard, reference appears to certain International Standards for which Indian Standards also exist. The corresponding Indian Standards, which are to be substituted in their respective places, are listed below along with their degree of equivalence for the editions indicated. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies:

International standards	Corresponding Indian standards	Degree of Equivalence
IEC 60050-531: 1974 International Electrotechnical Vocabulary (IEV) - Part 531: Electronic tubes	IS 18123: 2023 Electro technical Vocabulary: Electronic tubes	Identical
IEC 60306-1:1969 Measurement of photosensitive devices - Part 1: Basic recommendations	IS 7146 (Part 1) Measurement of photosensitive devices - Part 1: Basic recommendations (Under Development)	Identical

IEC 60306-4:1971 Measurement of photosensitive devices. Part 4: Methods of measurement for photo-multipliers	IS 7146 (Part 4) Measurement of photosensitive devices. Part 4: Methods of measurement for photo-multipliers (Under Development)	Identical
IEC 60151-0:1966 Measurements of the electrical properties of electronic tubes and valves - Part 0: Precautions relating to methods of measurement of electronic tubes and valves	IS: 4147: 1967 Methods of measurements for electron tubes - Rece4ing and transmitting tubes (First Revision)	Technically Equivalent

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS 2:2022 'Rules for rounding off numerical values *(Second Revision)*'. The number of significant places retained in the rounded off value should be same as that of the specified value in this standard.

SCOPE OF IEC 60306-2:1969

IEC 60306-2 is a standard developed by the International Electrotechnical Commission (IEC) that outlines the procedures for measuring the performance characteristics of phototubes. Phototubes are photosensitive devices that convert light into an electrical signal and are commonly used in various applications including light detection, optical measurements, and imaging systems.

Purpose: To provide standardized methods for the measurement of key performance parameters of phototubes.

To ensure consistency and accuracy in the assessment of phototube characteristics, facilitating reliable comparisons and evaluations.

Measurement Methods:

Responsivity: Methods for determining the phototube's sensitivity to light, typically expressed as the ratio of the output current to the incident light power.

Spectral Sensitivity: Procedures for measuring how the phototube's response varies with different wavelengths of light.

Dark Current: Techniques for measuring the electrical current produced by the phototube in the absence of light, which can impact the accuracy of light measurements.

Linearity: Methods for assessing how well the phototube's output current responds proportionally to varying light intensities.

Rise and Fall Times: Procedures for evaluating the speed at which the phototube can respond to changes in light intensity, affecting its performance in dynamic conditions.

Test Conditions: Specifies the conditions under which measurements should be conducted to ensure accuracy, including the environment, equipment setup, and calibration procedures.

Reporting: Guidelines for documenting the results of measurements, ensuring that all relevant data is recorded and presented in a consistent manner for clarity and comparability.

Applicability: The standard applies to phototubes of various types, including both single-phototube and multi-phototube configurations, covering a wide range of applications in scientific, industrial, and commercial settings.

By standardizing the measurement methods for phototubes, IEC 60306-2 helps to improve the reliability of performance evaluations and ensures that phototube devices meet the required specifications for their intended applications.

Note: - The Technical content of this document has not been enclosed as these are identical with the corresponding IEC Standard. For details, please refer to IEC 60306-2:1969 or kindly contact.

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