



ANSI E1.35 – 2013

**Lens Quality Measurements for Pattern
Projecting Luminaires Intended for
Entertainment Use**

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This document was approved as an American National Standard by the ANSI Board of Standards Review on 6 May 2013.

This standard was originally published when the Entertainment Services and Technology Association was operating under the name of PLASA North America.

ESTA has reverted to its original name, and this document has been rebranded with the current corporate name and logo. No changes have been made to the contents of the standard.

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The Photometrics Working Group, which authored this standard, consists of a cross section of entertainment industry professionals representing a diversity of interests. ESTA is committed to developing consensus-based standards and recommended practices in an open setting. Future Photometrics Working Group projects will include updating this publication as changes in technology and experience warrant, as well as developing new standards and recommended practices for the benefit of the entertainment industry.

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DE DEsigner
DR Dealer or Rental company
MP Mass-market Producer
G General interesst
U User

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1.0 Scope

This standard is intended to be used for the measurement and presentation of data reporting the contrast, perceived image quality (sharpness), and distortion of lenses used in pattern projecting luminaires for the entertainment and performance industries. This standard defines a methodology for measuring and a format for presenting this data to be presented on documents purporting to accurately describe the performance of these lenses. It does not prohibit the presentation of information in addition to that required by this standard.

2.0 Definitions

For the purposes of this standard, the following terms shall be defined as:

2.1 focusing range: The range of throw distances in which a hard focus can be projected by the luminaire.

2.2 far-field luminaire: A luminaire whose intended operating distance from the subject is greater or equal to the distance at which the inverse-square law can be used to predict an illumination level.

2.3 gate size: The diameter of the aperture at the object plane such that the output field angle equals the rated field angle of the luminaire/lens combination.

2.4 hard focus: A focus position that achieves the most clearly defined edge to the illuminated area. Because of field curvature, this typically requires a best compromise between the beam center and edge.

2.5 illuminance: The areal density of the luminous flux incident at a point on a surface.

2.6 light beam: The light emitted from the exit aperture of a luminaire.

2.7 luminaire: A complete lighting unit, consisting of a lamp or lamps, together with all the parts that are needed to position and protect the lamp or lamps, distribute the light, and connect the lamp or lamps to the power supply.

2.8 near-field luminaire: A luminaire whose intended operating distance from the subject is shorter than the minimum distance at which the inverse-square law can be used to predict an illumination level.

2.9 throw distance: The distance between the exit aperture of the luminaire and the surface being illuminated.

2.10 variable angle luminaire: A luminaire that has optical elements designed to be adjusted to vary the total area illuminated at a given throw distance.

3.0 Requirements

Lens quality data reports for all types of luminaires shall include the following information.

Numerical values shall be expressed with sufficient numbers of significant digits to accurately represent the information without implying a greater precision than was present in the original lens quality data.

3.1 Organization responsible for the product

The manufacturer's name, trademark, or other descriptive marking identifying the name of the organization that is responsible for the product shall be provided.