ANSI E1.55 - 2016
Standard for Theatrical Makeup Mirror Lighting

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The ESTA Technical Standards Program

The ESTA Technical Standards Program was created to serve the ESTA membership and the entertainment industry in technical standards related matters. The goal of the Program is to take a leading role regarding technology within the entertainment industry by creating recommended practices and standards, monitoring standards issues around the world on behalf of our members, and improving communications and safety within the industry. ESTA works closely with the technical standards efforts of other organizations within our industry, as well as representing the interests of ESTA members to ANSI, UL, and the NFPA. The Technical Standards Program is accredited by the American National Standards Institute.

The Technical Standards Council (TSC) was established to oversee and to coordinate the Technical Standards Program. Made up of individuals experienced in standards-making work from throughout our industry, the Council approves all projects undertaken and assigns them to the appropriate working group. The Technical Standards Council employs a Technical Standards Manager to coordinate the work of the Council and its working groups as well as maintain a “Standards Watch” on behalf of members. Working groups include: Control Protocols, Electrical Power, Floors, Fog and Smoke, Followspot Position, Photometrics, Rigging, and Stage Lifts.

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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.

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Acknowledgments

The Photometrics Working Group was the consensus body for the development of this standard. The working group's members with company affiliations and interest categories at the time the working group approved this standard on 26 July 2016 are listed below:

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Interest category codes:

CP = custom-market producer DE = designer DR = dealer rental company G = general interest MP = mass-market producer U = user

Table of Contents

1 Introduction (informative)

For many decades, the illumination for makeup mirrors in theatres and other performance venue dressing rooms has been provided by a vertical row of lamps on each side of the mirror, with an additional horizontal row along the top. It is a simple system of illumination, difficult to get wrong, and when there are errors (e.g., no lamps on one side, lamps too dim, lamps too bright), the errors are usually obvious and easy to correct. However, the development of non-incandescent sources has increased the number of possible variables in a makeup mirror lighting system. It is now possible to have a makeup mirror lighting system that seems to be like any other with rows of lamps, but that, in fact, does not provide light sufficient to allow a performer or makeup artist to apply makeup quickly and accurately.

The many subtle ways modern makeup mirror lighting can fail to meet the needs of a performer has prompted representatives from Actors' Equity Association to ask ESTA for a guidance document on makeup mirror lighting systems. This standard is that document. It is intended to describe the illumination levels produced on the performer's face, the distribution of light sources and the light from those sources, apparent source size, maximum luminance, color rendering, and correlated color temperature of lighting for makeup mirrors with the goal of helping performers and makeup artists apply makeup quickly and accurately.

This standard does not make recommendations for the efficacy of the light sources used for makeup mirror lighting. However, it defines the minimally acceptable properties for the light to be produced. With that information, a person can select sources that have good efficacy and that will provide adequate lighting.

2 Scope (normative)

This standard applies to lighting systems for makeup mirrors and makeup stations used by performers and makeup artists for applying makeup to performers in theatres and other performance venues. It describes the topology of the makeup mirror lighting system, the quantity of light, the distribution of light from those sources, apparent source size, brightness, color rendering, and correlated color temperature.

This standard does not prohibit the development and use of other makeup mirror lighting systems, but makeup mirror lighting systems not meeting the minimum requirements of this standard shall not be said to comply with this standard. This is not intended to be used as a regulatory document.

This standard does not address the electrical or mechanical safety of makeup mirror lighting systems. Those matters are addressed in standards published by other organizations.

3 Definitions

CCT: Correlated Color Temperature. The temperature expressed in Kelvin (K) of a Planckian black body radiator at which the hue of it and a target illumination source appear to match. The calculation of CCT from the spectral power distribution of a source is defined in CIE 15:2004, Colorimetry.

Continuous Spectrum: For the purposes of this standard, a Continuous Spectrum is a lamp output in which visible light is produced at all wavelengths from 400 to 700 nm, and no wavelength in the range from 450 to 700 nm is less than 10% of the lumen output of the highest lumen wavelength.

CRI R_a: General Color Rendering Index. CRI R_a is a method of expressing in a single number the ability of a light source to reveal the colors of various objects faithfully, using a set of eight test color samples designated TCS01 – TCS08. It is defined in CIE 13.3-1995, Method of measuring and specifying colour rendering properties of light sources.