ANSI/IES TM-27-20

Illuminating Engineering Society

TECHNICAL MEMORANDUM:
IES STANDARD FORMAT FOR THE ELECTRONIC TRANSFER OF SPECTRAL DATA

AN AMERICAN NATIONAL STANDARD

Approved American National Standard

ANSI

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has been approved by IES.
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The IES Computer Committee

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1.1 Introduction

The architectural lighting community has long relied on standardized file formats for the electronic transfer of photometric data and related information. These file formats include ANSI/IES LM-63-19,[1] CIBSE TM-14,[2] and EULUMDAT.[3]

Recognizing the need to distribute non-photometric data related to luminaires, the IES Computer Committee developed *IES LM-74-05/R2009, IES Standard File Format for the Electronic Transfer of Luminaire Component Data*.[4]

There is, however, also a need to distribute spectral data. Such data are pertinent, but not limited to, the spectral radiant flux of lamps and other light sources, the spectral transmittance of color filters, and the spectral reflectance of paint and other finishes. These data may be obtained when testing a light source, luminaire, or material and may then be used in lighting application software, rendering software, analysis software, or optical design software.

Generally, the document will contain a single spectral power distribution. Future formats that contain multiple spectra, including spectra as a function of angle, are planned, with this document being a stepping stone in that direction, while also creating a format that still has widespread usability across industries.

The data are formatted in accordance with W3C Extensible Markup Language (XML) 1.1 Recommendation and the W3C XML Schema Definition Language (XSD) (see **Section 2**). This allows end users to utilize and view the data directly without the need for proprietary software.

In the event of any ambiguity or discrepancy with respect to the description of XML or XML Schema in this document, the W3C Recommendations take precedence.

1.2 Scope

This document specifies an electronic (XML based) data format for the transfer of spectral data. This document may be used for the transfer of spectral data of optical radiation including light sources, lamps, and luminaires, as well as reflectance and transmittance spectra of materials. The document is limited to containing a single spectral data set.

Details about the XML document format, XML Schema, XSLT transforms and more can be found at the W3C's website, the authority for the XML document format. This document is intended as a description of a specific implementation of an XML document and not as a tutorial on the XML document format itself.

2.0 Normative References

2.1 ANSI/IES LS-1-20

Illuminating Engineering Society Nomenclature and Definitions for Illuminating Engineering. New York: IES; 2020.

2.2 CIE 15:2004

International Commission on Illumination (CIE). Colorimetry. Vienna: CIE; 2004.