



Approved Method: **Photometric Testing of
Indoor Fluorescent
Luminaires**

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of
Indoor Fluorescent Luminaires**

Publication of this report
has been approved by the IES.
Suggestions for revision
should be directed to the IES.

**Prepared by the Subcommittee on
Photometry of Indoor Luminaires
of the IES Testing Procedures Committee**

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Approved by the IES Board of Directors April 23, 2014, as a Transaction of the Illuminating Engineering Society of North America.

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Published by the Illuminating Engineering Society of North America, 120 Wall Street, New York, New York 10005.

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ISBN # 978-0-87995-292-1

Printed in the United States of America.

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Contents

Foreword	1
Introduction	1
1.0 Scope	1
2.0 Normative References	1
3.0 Definitions	1
4.0 Ambient and Physical Conditions	1
4.1 General	1
4.2 Temperature	1
4.3 Air Movement	1
5.0 Electrical Conditions and Instrumentation	2
5.1 Wave Shape	2
5.2 Voltage Regulation	2
5.3 Power Source Impedance	2
5.4 Instrumentation for Electrical Measurements	2
5.4.1 Uncertainties	2
6.0 Test Requirements	2
6.1 Selection and Preparation of Luminaire	2
6.2 Luminaire Luminance Characteristics	2
6.3 Test Lamps	2
6.3.1 Special Considerations for Luminaires with Compact Fluorescent Lamps (CFLs)	3
6.3.2 Lamp/Circuit Transfer	3
6.3.3 Lamp Seasoning	3
6.4 Photometric Equipment	3
6.4.1 The Photometry System	3
6.4.2 Photometer	3
6.4.3 Automated Photometer	3
6.4.4 Photometer Head (Photodetector)	3
6.5 Luminaire Mounting	4
6.6 Lamp Circuit Connections	4
6.7 Stray Light	4
6.8 Luminaire / Lamp – Pre-burning - Stabilization	4
7.0 Photometric Test Procedures	4
7.1 Test Distance	4
7.2 Position Sensitivity	5

7.3 Calibration of Photometer - Relative and Absolute Photometry	5
7.3.1 Relative Photometry - Calibration Factor	5
7.3.2 Relative Photometry - The Calibration Process	6
7.3.3 Relative Photometry – Special considerations when testing lamps that produce maximum light output in an ambient temperature other than 25°C	7
7.3.4 Absolute Photometry.	7
7.4 Ballast Factor	8
7.4.1 Ballast Factor Defined.	8
7.4.2 Determination of Ballast Factor.	8
7.4.3 Effect of Ballast Factors on Photometric Test Results	8
7.4.4 Application of Ballast Factors	8
7.5 Luminaire Photometry	8
7.5.1 Mounting	8
7.5.2 Position of Luminaire During Test	9
7.5.3 Angles for Measurement	9
7.5.4 Planes for Measurement	9
7.5.5 Polarization Measurements.	9
7.6 Luminance Measurements.	9
7.6.1 Angles of Measurements.	9
7.7 Computation of Luminous Intensity Distribution Test Results.	9
7.8 Computing Zonal Lumens	9
7.9 Overall Luminaire Efficiency	10
7.10 Coefficients of Utilization	10
8.0 Test Reports	10
Informative Reference List	11
Annex A - Zonal Lumen Constants	12
Annex B – Special Considerations for Stabilizing and Testing Various Fluorescent Lamp Types . . .	13

FOREWORD

This document is a revision of LM-41-98, IESNA Approved Method for Photometric Testing of Indoor Fluorescent Luminaires. The rapid pace with which new lamps and control equipment are being introduced today, as well as the many variations of these components, make it necessary that any document such as this one, concerned with the technical utilization of these products, be reviewed and updated periodically. However, it should be recognized that because of limited experience with new products, this guide may not cover all of the eccentricities exhibited by a particular product. It also should be recognized that even with frequent revisions to the guide, recently introduced components with new characteristics may not be included.

INTRODUCTION

This guide is intended to provide uniform data useful for evaluating the performance of fluorescent luminaires for general lighting. The luminaire characteristics are reported in terms of intensity distribution, flux distribution and efficiency. These performance data may be developed into factors and/or tables that allow the predetermination of illuminance and luminance for any conventional plane or boundary surface.

1.0 SCOPE

This guide provides adequate and uniform methods for determining and reporting the photometric characteristics of indoor fluorescent luminaires. It describes characteristics of luminaires and some components, as well as the requirements for the thermal environment and proper control of the electrical and mechanical systems involved. This document is also concerned with general test conditions and the testing procedure best suited for achieving accurate and consistent photometric results.

2.0 NORMATIVE REFERENCES

Nominal versions of:

- ANSI/IES RP-16-10, *Nomenclature and Definitions for Illuminating Engineering*. New York: Illuminating Engineering Society of North America.

- IES LM-9-09 *Electrical and Photometric Measurements of Fluorescent Lamps*. New York: Illuminating Engineering Society of North America.
- C78.375, *American National Standards Institute Standard Guide for Electrical Measurements of Fluorescent lamps*.
- IES LM-54-12, *Guide to Lamp Seasoning*. New York: Illuminating Engineering Society of North America.

3.0 DEFINITIONS

The units of electrical measurement used in this approved method are the volt, the ampere, and the watt (see the IES Lighting Handbook, 10th Edition). The units of photometric measurement are the lumen and the candela (see *ANSI/IES RP-16-10* or the *IES Lighting Handbook, 10th Edition*³). Color is specified in terms of CIE recommended systems. The industry accepted point for making an initial rating of a discharge lamp occurs after the lamp's first 100 hours of operation (ANSI C78.81).

Cold chamber or cold spot is the location inside a fluorescent lamp with the lowest operating temperature. Both the location and temperature of the cold spot are critical for optimizing lamp performance.

4.0 AMBIENT AND PHYSICAL CONDITIONS

4.1 General

Photometric values and electrical characteristics of fluorescent lamps and luminaires are sensitive to ambient temperature and air movement.

4.2 Temperature

The ambient temperature shall be measured at a point not more than 1 m from the luminaire and at the same height as the luminaire. Under standard conditions this temperature shall be maintained at 25°C±1°C. Also, the temperature sensor shall be shielded from the luminaire and radiation from any other source. Measurements at temperatures other than 25°C are considered non-standard and shall be so noted in the test report.

4.3 Air Movement

Air movement at the surface of a fluorescent lamp or luminaire under test may substantially alter electrical