



**Illuminating**  
ENGINEERING SOCIETY



**ANSI/IES/AVIXA RP-38-17**

# **Recommended Practice for Lighting Performance for Small to Medium Sized Videoconferencing Rooms**



**Recommended Practice  
for Lighting Performance for  
Small to Medium Sized  
Videoconferencing Rooms**

Publication of this Recommended Practice  
has been approved by IES and AVIXA.  
Suggestions for revisions  
should be directed to IES.

Prepared by:  
The Lighting for Videoconference and Presentation Committee of the Illuminating Engineering Society  
and the AVIXA Videoconferencing Lighting Task Group and Standards Steering Committee

Copyright 2017 by the Illuminating Engineering Society.

*Approved by the IES Standards Committee, November 20, 2017, as a Transaction of the Illuminating Engineering Society.*

*Approved by the American National Standards Institute as an American National Standard, December 21, 2017.*

*All rights reserved.* No part of this publication may be reproduced in any form, in any electronic retrieval system or otherwise, without prior written permission of the IES.

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

IES Standards and Guides are developed through committee consensus and produced by the IES Office in New York. Careful attention is given to style and accuracy. If any errors are noted in this document, please forward them to Brian Liebel, IES Director of Standards and Research, at the above address for verification and correction. The IES welcomes and urges feedback and comments.

ISBN# 978-0-87995-356-0

Printed in the United States of America.

#### **DISCLAIMER**

IES publications are developed through the consensus standards development process approved by the American National Standards Institute. This process brings together volunteers representing varied viewpoints and interests to achieve consensus on lighting recommendations. While the IES administers the process and establishes policies and procedures to promote fairness in the development of consensus, it makes no guaranty or warranty as to the accuracy or completeness of any information published herein.

The IES disclaims liability for any injury to persons or property or other damages of any nature whatsoever, whether special, indirect, consequential or compensatory, directly or indirectly resulting from the publication, use of, or reliance on this document

In issuing and making this document available, the IES is not undertaking to render professional or other services for or on behalf of any person or entity. Nor is the IES undertaking to perform any duty owed by any person or entity to someone else. Anyone using this document should rely on his or her own independent judgment or, as appropriate, seek the advice of a competent professional in determining the exercise of reasonable care in any given circumstances.

The IES has no power, nor does it undertake, to police or enforce compliance with the contents of this document. Nor does the IES list, certify, test or inspect products, designs, or installations for compliance with this document. Any certification or statement of compliance with the requirements of this document shall not be attributable to the IES and is solely the responsibility of the certifier or maker of the statement.

## **DISCLAIMER**

The application of this Standard is strictly voluntary. AVIXA recommends its use but does not assume responsibility for misinterpretation or misapplication. AVIXA and the Illuminating Engineering Society do not assume liability for disputes resulting from non-conformance to this Standard. Conformance does not imply certification of a system. This American National Standard may be revised or withdrawn at any time. The procedures of the American National Standards Institute require that action be taken periodically to reaffirm, revise, or withdraw this Standard.

## **COPYRIGHT**

©2017 by IES and AVIXA®. This Standard may not be reproduced in whole or in part in any form for sale, promotion, or any commercial purpose, or any purpose not falling within the provisions of the U.S. Copyright Act of 1976, without prior written permission of the publisher. For permission, address a request to the Director of Standards, AVIXA and IES.

## **AMERICAN NATIONAL STANDARD**

Approval of an American National Standard requires verification by ANSI that the requirements for due process, consensus, and other criteria have been met by the standards developer.

Consensus is established when, in the judgment of the ANSI Board of Standards Review, substantial agreement has been reached by directly and materially affected interests. Substantial agreement means much more than a simple majority, but not necessarily unanimity. Consensus requires that all views and objections be considered, and that a concerted effort be made toward their resolution.

The use of American National Standards is completely voluntary; their existence does not in any respect preclude anyone, whether that person has approved the standards or not, from manufacturing, marketing, purchasing, or using products, processes, or procedures not conforming to the standards.

The American National Standards Institute does not develop standards and will in no circumstances give an interpretation to any American National Standard. Moreover, no person shall have the right or authority to issue and interpretation of an American National Standard in the name of the American National Standards Institute. Requests for interpretations should be addressed to the secretariat or sponsor whose name appears on the title page of this standard.

**CAUTION NOTICE:** This American National Standard may be revised at any time. The procedures of the American National Standards Institute require that action be taken to reaffirm, revise, or withdraw this standard no later than five years from the date of approval. Purchasers of American National Standards may receive current information on all standards by calling or writing the American National Standards Institute.

**Prepared by the IES Lighting for Videoconference and Presentation Committee:**

**IES Consensus Body Members**

**Jim Yorgey, *Chair***

**C. Brooke Carter-Silber, *Co-Chair***

J. Benya\*

T. Cape

S. Cercone\*

R. Dagostino\*

D. Danto\*

F. Hasler

L. Hedberg

P. Lambert\*

J. Lipp

P. Mahaney\*

C. Maione

W. Mettner\*

R. Mintz\*

P. Ngai\*

N. Russell

D. Shaw

J. Smith

A. Treitman

J. Whitcomb\*

\* Advisory

**InfoComm (AVIXA) Standards Steering Committee:**

**Jason Brameld, *Chair***

J. Antinori

J. Bailey

D. Barnett

G. Bronson

J. Meehan

R. Morrison

D. Palmer

R. Wineland

**AVIXA Staff**

A. Brigida

M. Truong

Please refer to the IES Bookstore after you purchase this IES Standard, for possible  
Errata, Addenda, and Clarifications, [www.ies.org/bookstore](http://www.ies.org/bookstore)

Please refer to ANSI/IES RP-16-17 Nomenclature and Definitions,  
[www.ies.org/standards/ansi-ies-rp-16/](http://www.ies.org/standards/ansi-ies-rp-16/)

---

## Contents

<b>1.0</b>	<b>INTRODUCTION</b> .....	<b>1</b>
1.1	Keywords .....	1
<b>2.0</b>	<b>FOREWORD</b> .....	<b>1</b>
<b>3.0</b>	<b>SCOPE, PURPOSE, APPLICATION, AND EXCLUSIONS</b> .....	<b>1</b>
3.1	Scope .....	1
3.2	Purpose .....	2
3.3	Application .....	2
3.4	Exclusions .....	3
<b>4.0</b>	<b>REFERENCED PUBLICATIONS</b> .....	<b>3</b>
4.1	Normative References .....	3
4.2	Informative References .....	3
<b>5.0</b>	<b>DEFINITIONS</b> .....	<b>3</b>
<b>6.0</b>	<b>REQUIREMENTS</b> .....	<b>7</b>
6.1	Requirements Overview .....	7
6.2	Lighting Performance .....	7
6.3	Required Instrumentation and Equipment .....	9
6.4	Measurement and Calculation Procedures .....	10
6.4.1	Project Information .....	10
6.4.2	Room Setup .....	10
6.4.3	Physical Room Measurements .....	10
6.4.4	Seating Locations to be Measured .....	10
6.4.5	Rear and Side Wall Luminance .....	16
6.4.6	Front Wall Luminance .....	17
6.4.7	Lamps .....	19
6.4.8	Windows .....	19
6.4.9	Criteria Conformance Calculation .....	20
6.5	Mandatory Reporting .....	20
6.6	Optional Reporting .....	22
6.6.1	Scaled Room Drawings .....	22
6.6.2	High Dynamic Range (HDR) Photographs .....	22
6.7	General Conformance Requirements .....	23
	<b>ANNEX A – LIGHTING METRICS AND QUALITY</b> .....	<b>23</b>
	<b>ANNEX B - SAMPLE CONFORMANCE FORM</b> .....	<b>27</b>

---

## 1.0 INTRODUCTION

---

This Standard provides lighting parameters and performance criteria for small-to-medium-sized single-axis videoconferencing spaces (with 3 to 25 primary seating locations), defined as one set of video displays and cameras oriented toward a group of seated participants.

The Standard provides guidance to professionals involved in the design, construction, assessment, and support of videoconferencing environments by establishing performance criteria for the design and testing of room lighting and finishes that will provide appropriate picture quality.

### 1.1 Keywords

Audiovisual, AV, camera, conferencing, distance learning, fill light, illuminance, key light, light meter, lighting, luminaire, luminance, meetings, teleconferencing, telepresence, video, videoconferencing, video teleconference (VTC).

---

## 2.0 FOREWORD

---

The human face, as we see it with our eyes, has a three-dimensional appearance. This helps us to read the nonverbal cues that are so important in communication. The primary goal of a videoconference space is to facilitate both verbal and nonverbal two-way communication. Therefore, the lighting provided in the space should balance the visual needs of the participants and the videoconference camera.

Lighting requirements for the participants and the camera are similar but not identical. The primary considerations for participants include:

- Visual comfort (control of direct light source or glare)
- Glare-free view of video displays and visual tasks (control of veiling reflections)
- Video image contrast
- Ability to see and interact with both local and remote participants
- Ability to read and send gestures and both verbal and nonverbal cues
- Ability to read and write (i.e., take notes), both on horizontal surfaces (tables) and vertical surfaces (e.g., white boards, interactive digital displays, computer displays)

The primary considerations for the camera include:

- Illumination
  - On the faces of participants, with appropriate contrast ratios for rendering of facial features
  - For image capture and transmission of visual aids, including marker boards, display boards, and documents
- Appropriate contrast between participants and surrounding room surfaces
- View of participants
- Luminaires out of camera view
- Daylight eliminated from view
- Video displays placed out of camera view
- Lighting and finishes that reduce image degradation

This Standard defines measurable luminance-based performance criteria for optimizing the participants' experience. These criteria should be used in designing, commissioning, and evaluating applicable videoconference rooms. While this performance standard is not a design guide, some design resources are referenced that support the creation of videoconferencing environments.

This Standard addresses performance criteria and is written with lighting and audiovisual (AV) design professionals in mind. However, due to the unique nature of these spaces, the full input of a lighting professional as part of a multidisciplinary design team is strongly recommended when this Standard is applied to design projects.

Nothing in this Standard suggests or implies that any national, state, or local codes pertaining to lighting and electrical energy may be disregarded in pursuit of compliance.

---

## 3.0 SCOPE, PURPOSE, APPLICATION, AND EXCLUSIONS

---

### 3.1 Scope

This lighting performance Standard for small-to-medium-sized videoconferencing rooms defines lighting requirements for videoconferencing that enhance the comfort of participants and the picture quality delivered. Specifically, this Standard addresses small-to-medium-sized single-axis videoconferencing rooms. A single-axis room is defined as having one set of video displays and cameras oriented toward a group of 3 to 25 seating locations (see **Figure 1**).