

Minutes
Photometrics Working Group

27 July 2002

Dallas/Ft. Worth Marriott South Hotel in Ft. Worth, Texas

Chairman: Thomas Tyler; Lighting & Electronics, Inc.; principal; producer

Recording secretary: Karl G. Ruling, ESTA

Members attending: Ken Vannice; Colortran (Leviton Manufacturing Co., Inc.); principal; producer
Tim Cox; PLASA; principal; general interest
Michael Lay; Strand Lighting (Strand Lighting Ltd.); principal; producer
Mitch Hefter; Entertainment Technology (Genlyte Thomas Group LLC); observer;
general interest

Visitors: None

1 Opening Remarks

Tom Tyler called the meeting to order at 13:07. Tom Tyler welcomed all to Texas in July.

2 Attendance and membership

A yellow attendance sheet was circulated. Attendees were instructed to sign in.

2.1 Introductions of those present

Introductions were omitted because everyone knew each other.

2.2 Determination of quorum

Tom Tyler noted that we have a quorum present.

2.3 Recognition of alternate voting members

There were none to recognize.

2.4 Requirements for membership

Tom Tyler noted that the group is open to all who are affected by the work of the group, but that there is an attendance requirement. If a voting member misses three meetings in a row, they are moved to observer status. This will be done at the end of the third meeting missed.

2.5 Processing of new membership requests

There were none.

The complete voting body, including those not present, during the meeting was:

Name	Company	Representing	Voting status	Interest category
Rick Loudenburg	Barbizon Rockies	Barbizon Companies	P	G
Ed Hyatt	Boston Illumination Group, Inc.	Boston Illumination Group	P	P
Jim McHugh	Humboldt State University/IES	Humboldt State University	P	U
Ken Vannice	Colortran	Leviton Manufacturing Co., Inc.	P	P
Thomas Tyler	Lighting & Electronics, Inc.	Lighting & Electronics, Inc.	P	P
Bill Klages	New Klages Inc.	New Klages Inc.	P	U
Tim Hansen	Oasis Stage Werks	Oasis Stage Werks	P	U
Tim Cox	PLASA	PLASA	P	G
Tony Douglas-Beveridge	PLASA	PLASA	A	G

David Jenkins	Radiant Imaging, Inc.	Radiant Imaging, Inc.	P	G
Ron Rykowski	Radiant Imaging, Inc.	Radiant Imaging, Inc.	A	G
Joseph M. Good, III	Spectrum Professional Services	Spectrum Professional Services	P	G
Michael Lay	Strand Lighting	Strand Lighting Ltd.	P	P
Jerry Gorrell	Theatre Safety Programs	Theatre Safety Programs	P	U
		Interest category totals	4	G
			4	P
			4	U

3 Approval of the minutes from the previous meeting

Ken Vannice moved that the minutes of the previous meeting be approved. The motion was seconded. The motion was approved unanimously.

4 Call for patents

Tom Tyler read the following aloud:

"ESTA intends to publish no standard that contains protected intellectual property, unless that property can be licensed by anyone for a reasonable fee. ESTA uses a process of open patent disclosure to implement this intent. ESTA does not conduct patent searches and does not warrant that its standards contain no protected intellectual property.

"In keeping with the open disclosure policy, I ask if anyone present wishes to notify the working group of the existence of a patent or copyright that might protect material in a standard being developed by the working group. You need not be the holder of the patent or copyright in order to notify the working group of its existence."

No issues were brought to the attention of the group.

and Anti-Trust Statement

Tom Tyler read the following aloud:

"The ESTA Board of Directors, the Technical Standards Committee, and the leadership of this Working Group will reject or nullify any actions that restrain trade. Anyone who feels that an action restraining trade is being or has been taken is requested to bring the matter to the attention of the chair immediately. Anyone who feels that actions in restraint of trade have been taken and not properly annulled is requested to notify the TSC chair or ESTA president immediately.

"ESTA legal counsel has informed us that any member of this working group may be found individually liable for any action that restrains trade taken by this working group. An individual convicted of a violation of the Sherman Act may be fined as much as \$100,000 and be imprisoned for up to three years. An easy to read pamphlet describing restraint of trade is available from the Technical Standards Committee."

No issues were brought to the attention of the group.

5 Approval of agenda

Michael Lay moved that the agenda be approved. The motion was seconded. The motion was accepted with a unanimous show of hands.

6 Old Business

6.1 Discuss whether IESNA's LM73 will meet our needs for photometric testing.

There was a discussion of BSR/IESNA LM-73, and the following statement was drafted:

We thank the IESNA for paying so much attention to the requirements of ESTA's ANSI E1.9-2001, Reporting Photometric Performance Data for Luminaires Used in Entertainment Lighting. This standard goes a long way toward providing a way of

collecting the data that is to be presented in our standard. However, we have some comments.

1. Almost every stage and studio luminaire manufacturer uses CCD camera photometry systems, but in section 5.0 the reader is told that this is not an approved method. Since this document is meant to be used only with an approved method of measurement, it is not useful for most of the manufacturers in the stage and studio lighting industry.
2. Fluorescent lamps are eliminated in the title. We question why this was done, since fluorescent lamps are used in entertainment lighting, particularly in television and film lighting.
3. The foreword specifically mentions the use of entertainment lighting luminaires on stage and in television studios. Why are film studios and on-location shoots omitted?
4. Please note that ESTA's photometric data reporting standard is now an approved standard and has a different name than is shown in BSR/IESNA LM-73. Our standard is designated ANSI E1.9-2001, Reporting Photometric Performance Data for Luminaires Used in Entertainment Lighting, and should be referred to as such in the LM-73 standard.
5. In 2.6.2 the draft standard states that a DC power supply is preferred for operating incandescent lamps. Please note that with tungsten-halogen lamps, DC operation results in a gradual thinning of the negative end of the filament and a thickening of the positive end. This produces a lamp filament that is not like that found in the field, where AC power supplies are the norm. We suggest that this note be struck.
6. We question why the maximum harmonic component of the AC power supply is specified in 2.6.2. The only requirement should be that the lamp power can be measured accurately. If that can be done with whatever harmonic component is present, it is not necessary to limit the harmonic component.
7. Are the reference annexes normative or informative? This needs to be made clear.
8. We have serious concerns about the selection of angles for photometric measurements in section 4.6 and Table 1, to which it refers.
 - a) The data points get further apart as they approach 90 degrees from the principal axis. This results in little detail in the definition of the edge of the field of a luminaire. With stage and studio luminaires, this area is very important, and largely describes the differences between different brands of spotlights and different types of spotlights. The data collection points should not be spaced further apart as the edge of the field is approached.
 - b) In general, the angles specified in Table 1 will result in coarser resolution than is desired for the data that is to be presented in ANSI E1.9-2001.
 - c) Section 4.6 and Table 1 use angular displacement as the independent variable and the light measured as the dependent variable. The isolux diagrams in E1.9 show the levels of illumination as the independent variables and the positions of the illumination levels as the dependent variables. These two different approaches are incompatible. That is, LM-73 may very well tell us that the light level is 87% of the maximum at one spot and 95% of the maximum at the next data collection spot. What we need for ANSI E1.9 is to know where the 90% level is.
9. Section 6.2 seems to be an attempt to measure pattern projection quality, but we find the first paragraph baffling. We have difficulty in understanding exactly what is being measured in paragraph one, and note that there is no requirement that pattern projection

quality be reported in ANSI E1.9. Please clarify the paragraph and explain to us what is being measured and how this is useful. If it is useful, we may add it to a new version of E1.9.

10. Section 6.3 leaves out luminaires using fluorescent lamps. Asymmetrical luminaires that use fluorescent light sources are not common in the entertainment industry, but they exist.

11. What is the "recommended practice" referred to in the second paragraph of 7.2? Is it E1.9, or is it LM-73? Please clarify. Please note that while E1.9 could be called a "recommended practice," nowhere in the standard or its title is it referred to as a recommended practice.

Ken Vannice moved that Karl Ruling send the above comments to Jody Good in an email and to Rita Harrold on ESTA letterhead as statements of the consensus of the group. The motion was seconded. The motion was accepted unanimously with a show of hands.

6.2 Photometric data sheet examples

Jim McHugh was not present. There was no report.

7 New business

There was a discussion of the photometrics session that is scheduled for LDI. Jerry Gorrell is the moderator. It was decided that Tom Tyler, Karl Ruling, and Jerry Gorrell shall do the presentation of ANSI E1.9. Michael Lay offered a leko from Strand, Ken Vannice offered a fresnel from Colortran, and Tom Tyler offered an asymmetric cyclight from L&E.

8 Other business

There was a brief discussion of pin connectors.

The agenda for the next meeting was discussed. By consensus it was resolved that the main agenda item for the next meeting will be the data sheet examples. Karl Ruling shall contact Jim McHugh in mid-August to remind him that examples will be needed by the end of September for distribution. If at that time it is determined that examples will not be available, the next meeting will be postponed until January.

9 Voting status changes due to lack of attendance

The following voting members had missed the last two meetings, which were in November 2001 and February 2002 meetings, and with this meeting had missed a third:

Tim Hansen; Oasis Stage Werks
Joseph M. Good, III; Spectrum Professional Services

Tom Tyler announced that the above people were now observers because of their lack of attendance.

10 Schedule for future meetings

Karl Ruling read the schedule for future meetings.

- The next meeting is scheduled for Friday, 18 October 2002, 09:00 to 12:00 at the Las Vegas Hilton.
- The next set of TSP meetings will be the weekend 17 through 19 January 2003, but no Photometrics Working Group meeting is scheduled for that weekend at this time.

The above meeting schedule is subject to change based on the availability of the data sheet examples.

The action items were reviewed:

- 1) Karl Ruling shall contact Jim McHugh in mid-August to ask about the progress on the data sheet examples.
- 2) Karl Ruling shall send the working group's comments on BSR/IESNA LM-73 to Rita Harrold at the IESNA and to Jody Good, the latter by email.
- 3) Jim McHugh shall finish doing the data collection so the data sheet examples can be prepared.
- 4) Michael Lay shall supply a leko from Strand for the photometrics session at LDI.
- 5) Ken Vannice shall supply a fresnel from Colortran for the photometrics session at LDI.
- 7) Tom Tyler shall supply an asymmetric cyclight from L&E for the photometrics session at LDI.

11 Adjournment

Ken Vannice moved that the meeting adjourn. The motion was seconded. The motion was approved unanimously. Tom Tyler declared the meeting adjourned at 15:37.

Membership and Contact Information as of 8 August 2002

Name	Company	Representing	Voting status	Int. cat.
John Luk	Altman Stage Lighting	Altman Stage Lighting	O	P
Rick Loudenburg	Barbizon Rockies	Barbizon Companies	P	G
Lee J. Bloch	Bloch Design Group Inc.	Bloch Design Group Inc.	O	U
Ed Hyatt	Boston Illumination Group, Inc.	Boston Illumination Group	P	P
Bill Ellis	Candela Controls, Inc.	Candela Controls, Inc.	O	U
Francesco Romagnoli	Clay Paky S.P.A.	Clay Paky S.P.A.	O	P
Angelo Cavenati	Clay Paky S.P.A.	Clay Paky S.P.A.	O	P
David Bertenshaw	David Bertenshaw	David Bertenshaw	O	P
A C Hickox	Domingo Gonzalez Associates	Domingo Gonzalez Associates	O	U
Gregg Esakoff	ETC West	Electronic Theatre Controls, Inc.	O	P
Mitch Hefter	Entertainment Technology	Genlyte Thomas Group LLC	O	G
Mike Wood	High End Systems Inc.	High End Systems Inc.	O	P
Jim McHugh	Humboldt State University/IES	Humboldt State University	P	U
Edwin S. Kramer	I.A.T.S.E, Local 1	I.A.T.S.E. Local 1	O	U
Jim Grosh	Jim Grosh Associates	Jim Grosh Associates	O	G
Ken Vannice	Colortran	Leviton Manufacturing Co., Inc.	P	P
Thomas Tyler	Lighting & Electronics, Inc.	Lighting & Electronics, Inc.	P	P
Hiroshi Kita	Marumo Electric Co., Ltd.	Marumo Electric Co., Ltd.	O	P
Tom Pincu	Moodie, Pincu & Associates, Inc.	Moodie, Pincu & Associates, Inc.	O	P
Bill Klages	New Klages Inc.	New Klages Inc.	P	U
Tim Hansen	Oasis Stage Werks	Oasis Stage Werks	O	U
Tony Douglas-Beveridge	PLASA	PLASA	A	G
Tim Cox	PLASA	PLASA	P	G
Robert Barbagallo	Proximo Inc.	Proximo Inc.	O	U
Ron Rykowski	Radiant Imaging, Inc.	Radiant Imaging, Inc.	A	G
David Jenkins	Radiant Imaging, Inc.	Radiant Imaging, Inc.	P	G
Robert Mumm	Robert Mumm	Robert Mumm	O	G
Andre Broucke	ADB - TTV Technologies	Siemens	O	P
Joseph M. Good, III	Spectrum Professional Services	Spectrum Professional Services	O	G
Michael Lay	Strand Lighting	Strand Lighting Ltd.	P	P
Jerry Gorrell	Theatre Safety Programs	Theatre Safety Programs	P	U
Thomas A. Hough	Vari-Lite, Inc.	Vari-Lite, Inc.	O	G
Larry Lieberman	Vision Quest Lighting	Vision Quest Lighting	O	G
Eckart Steffens	SOUNDLIGHT	VPLT	O	G
			3	G
		Voters	4	P
			3	U
			7	G
		Observers	8	P
			6	U

Voting Status

- P Principal voting representative for a company or organization
- A Alternate voting representative for a company or organization
- I Individual representing no organization other than himself or herself
- O Observer; non-voting

Interest Categories

- P Producer (manufacturer) of luminaires
- U User of luminaires
- G General Interest in luminaires