

Minutes
Control Protocols Working Group
Thursday, 9 March 2017
St. Louis Marriott Grand
800 Washington Ave., St. Louis, MO 63101

Presiding co-chairpersons:

Maya Nigrosh; Electronic Theatre Controls, Inc.; A; MP
Michael Lay; Philips Color Kinetics; Philips Lighting; P; MP

Recording secretaries: Karl Ruling and Erin Grabe; ESTA

Members in attendance:

Daniel W. Antonuk; Electronic Theatre Controls, Inc.; P; MP
Paul Beasley; Walt Disney Imagineering; Walt Disney Company; O; U
Scott M. Blair; Full Throttle Films/ VER; P; DR
Javid D. Butler; Integrated Theatre, Inc.; O; CP
Fraser Connolly; Obsidian Controls Ltd.; P; DE
Milton Davis; Doug Fleenor Design, Inc.; P; MP
Bill Ellis; Candela Controls, Inc.; P; DE
Andrew Frazer; Stellascapes.com; P; MP
George Gong; Philips Lighting; O; MP
Mitch Hefter; USITT; P; U
Julian Hoare; Tait Towers; Tait Towers Manufacturing LLC; A; MP
Jon Hole; Zero 88; Eaton; P; MP
Wayne David Howell; Artistic Licence Engineering Ltd.; Artistic Licence Holdings; P; DE
Sam Kearney; Electronic Theatre Controls, Inc.; A; MP
Paul Kleissler; City Theatrical, Inc.; P; MP
Edwin S. Kramer; I.A.T.S.E. Local 1; P; U
Roger Lattin; I.A.T.S.E. Local 728; P; U
Kevin Loewen; Pathway Connectivity; Acuity Brands Inc.; P; MP
Jim Love; Tait Towers; Tait Towers Manufacturing LLC; P; MP
Tyrone Mellon, Jr.; Lex Products; Lex TM3; P; CP
Daniel Murfin; Royal National Theatre; P; U
Jason Potterf; Cisco; Cisco; P; MP
Karl G. Ruling; ESTA; ESTA; exf; G
Larry Schoeneman; DesignLab Chicago, Inc.; DesignLab Chicago, Inc.; P; DR
Christopher B. Tilton; About the Stage, LLC; About the Stage, LLC; O; DE

Visitors:

Scott McKay; Pathway Connectivity

1 Opening remarks

At 1:05 p.m. CT, Maya Nigrosh welcome those present to St. Louis, which is about 8:00 a.m. Chatham Islands time. She instructed those present and online of some conferencing etiquette, including not tapping on the tables, ensuring that the microphones are not behind laptops, and keeping computer fans away from them.

2 Attendance

2.1 Introductions of those physically present and circulation of attendance sheet

Maya Nigrosh passed around a pink sign-in sheet while self-introductions took place.

2.2 Introductions of those present via WebEx

Michael Lay read the list of attendees on WebEx. The remote attendees then introduced themselves.

2.3 Determination of a quorum

By a count of voters present, Maya Nigrosh announced a supermajority present.

2.4 Recognition of alternate voting members

Maya Nigrosh, Sam Kearney, and Julian Hoare were recognized as an Alternates not voting today.

3 Membership

3.1 Requirements for membership

The following statement was read aloud to the assembly by Maya Nigrosh:

Membership is open to all who are affected by the work of the group. People and companies that would be in any interest category other than a manufacturer interest category are, at this time, particularly encouraged to apply for membership. There is an annual \$100 participation fee for all members. Voting members are required to attend meetings and to vote on letter ballots. Voting members and their alternates may not miss three consecutive meetings without a loss of voting status.

3.2 Changes to observer status due to lack of attendance

Maya Nigrosh said that the following voter has missed the last three meetings and is being changed to an Observer member:

Kimberly Corbett Oates; Schuler Shook; P; DE

3.3 Processing of new membership requests and changes in membership status:

As of 9 March 2017, the following new applications or requests for status change were received:

Fraser Connolly; Obsidian Controls Ltd; P; DE (change in representation)

George Gong; Philips Lighting; O; MP

Nathaniel Wesley Filardo; O; G

Royal Marty; ZFX, Inc.; P; MP (Not present)

Chris Tilton; About the Stage, LLC; O; DE (change in representation)

Wayne Howell; Artistic Licence Holdings; O to P; DE (change to voter)

Paul Beasley; O to P (change to voter)

Milton Davis moved to accept the applications. Scott Blair seconded the motion amending it to accept Royal Marty as an Observer due to lack of attendance, which was amenable to Milton. The motion carried with unanimous approval.

3.4 Consensus body

The full consensus body of this group at the time of this meeting, including those not present, was:

Name	Representing	Voting status	Int cat
Kevin Loewen	Acuity Brands Inc.	P	MP
Robert Bell	Acuity Brands Inc.	A	MP
Gary Douglas	Acuity Brands Inc.	A	MP
Maurits van der Hoorn	Acuity Brands Inc.	A	MP

Name	Representing	Voting status	Int cat
Adam De Witt	Adept Anomaly	I	U
Wayne Howell	Artistic Licence Holdings	P	DE
Bill Ellis	Candela Controls, Inc.	P	DE
Brent Boulnois	Candela Controls, Inc.	A	DE
Jim Ohrberg	Candela Controls, Inc.	A	DE
Jason Potterf	Cisco	P	MP
Paul Kleissler	City Theatrical, Inc.	P	MP
Larry Schoeneman	DesignLab Chicago, Inc.	P	DR
Milton Davis	Doug Fleenor Design, Inc.	P	MP
Ian Campbell	Doug Fleenor Design, Inc.	A	MP
Ulrich Kunkel	E3 Engineering & Education for Entertainment GmbH	P	U
Jon Hole	Eaton	P	MP
Daniel W. Antonuk	Electronic Theatre Controls, Inc.	P	MP
Steve Terry	Electronic Theatre Controls, Inc.	A	MP
Maya Nigrosh	Electronic Theatre Controls, Inc.	A	MP
Edward A. (Ted) Paget	Electronic Theatre Controls, Inc.	A	MP
Sam Kearney	Electronic Theatre Controls, Inc.	A	MP
Scott M. Blair	Full Throttle Films/ VER	P	DR
Jeremy Hochman	Full Throttle Films/ VER	A	DR
Claude Ostyn	Full Throttle Films/ VER	A	DR
Robert Goddard	Goddard Design Co.	P	MP
Peter Willis	Howard Eaton Lighting Ltd.	P	CP
Edwin S. Kramer	I.A.T.S.E. Local 1	P	U
John Huntington	I.A.T.S.E. Local 1	A	U
Roger Lattin	I.A.T.S.E. Local 728	P	U
Alan M. Rowe	I.A.T.S.E. Local 728	A	U
Ken Vannice	Ken Vannice LLC	I	G
Tyrone Mellon_Jr.	Lex TM3	P	CP
Michael Karlsson	LumenRadio AB	P	MP
Fraser Connolly	Obsidian Controls Ltd.	P	DE
Simon Newton	Open Lighting Project	P	G
Michael Lay	Philips Lighting	P	MP

Name	Representing	Voting status	Int cat
Daniel Murfin	Royal National Theatre	P	U
Andrew Frazer	Stellascapes.com	P	MP
Jim Love	Tait Towers Manufacturing LLC	P	MP
Julian Hoare	Tait Towers Manufacturing LLC	A	MP
Dan Lisowski	University of Wisconsin - Madison	P	DE
Mitch Hefter	USITT	P	U
Paul Beasley	Walt Disney Company	P	U
Voting Status Key: P = Principal voter, A = Alternate voter, I = Individual voter			
Votes by Interest Category:			
Custom-market producer		CP	2
Designer		DE	4
Dealer or rental company		DR	2
General interest		G	2
Mass-market producer		MP	11
User		U	7
Total votes possible:			28

4 Approval of the minutes from the previous meeting

See *CPmin01-2017.pdf*

Scott Blair moved to approve the minutes as drafted. The motion was seconded and approved unanimously by a show of hands and WebEx chat.

5 Reading of the call for patents

The following statement was read aloud to the assembly by Maya Nigrosh:

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

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

Nothing was revealed.

6 Reading of the anti-trust statement

The following statement was read aloud to the assembly by Maya Nigrosh:

ESTA and its members take seriously their obligation to comply with all applicable antitrust laws. Therefore, during this meeting and during all ESTA events, all discussions will be limited to those

subjects that are permitted by the antitrust laws. All members should refrain from any discussion or mention of competitively sensitive subjects such as the current or future prices charged for any member product or services, current or future marketing plans or strategies, and current or future costs, including employee salaries. There also must be no agreement on the suppliers or customers that members will do business with or the markets in which members will conduct business.

Violations of the antitrust laws can have serious consequences. If you have any questions or concerns about anything that is discussed at a ESTA meeting, please bring your concern to ESTA management. An easy to read pamphlet describing the antitrust laws is available from the ESTA staff.

Erin Grabe and Karl Ruling held up copies of the pamphlets. Nothing was reported.

7 Approval of agenda

Maya Nigrosh asked if anyone had any additions to the agenda. Andrew Frazer asked if there could be a rule to the acceptance of membership applicants who are not present. Karl Ruling explained that having no rule in place allows the consensus bodies to evaluate and accept all applicants individually. Though there are common procedures for applicants who are not present, there are instances where the working group would like to deviate from this procedure for good reason.

Kevin Loewen moved to accept the agenda as drafted. The motion was seconded and unanimously approved by a show of hands and WebEx chat.

8 Old business

8.1 Standards, Guides & Recommended Practice Maintenance

This is a placeholder in the agenda, so we don't forget to maintain them. Documents prefaced with an asterisk () are on the agenda elsewhere for reports or action.*

ANSI E1.3 – 2001 (R2016), Entertainment Technology - Lighting Control Systems - 0 to 10V Analog Control Specification & Application Guide For ANSI E1.3 – 2004 Lighting Control Systems 0 to 10V Analog Control Specifications. (Revision, reaffirmation or withdrawal by 17 February 2021)

ANSI E1.11 – 2008 (R2013), Entertainment Technology - USITT DMX512-A, Asynchronous Serial Digital Data Transmission Standard for Controlling Lighting Equipment and Accessories. (Revision, reaffirmation, or withdrawal by 13 March 2018)

ANSI E1.17 – 2015 Entertainment Technology - Architecture for Control Networks (ACN) (Revision, reaffirmation, or withdrawal by 21 May 2020)

* ANSI E1.20 - 2010, Remote Device Management over USITT DMX512. (Revision, reaffirmation or withdrawal by 4 January 2016 – PINS filed for revision)

ANSI E1.27-1 – 2006 (R2016), Entertainment Technology - Standard for Portable Control Cables for Use with USITT DMX512/1990 and E1.11 (DMX512-A) Products. (Revision, reaffirmation or withdrawal by 8 April 2021)

ANSI E1.27-2 – 2009 (R2014), Entertainment Technology - Recommended Practice for Permanently Installed Control Cables for Use with ANSI E1.11 (DMX512-A) and USITT DMX512/1990 Products. (Revision, reaffirmation, or withdrawal by 9 June 2019)

ANSI E1.30-1 – 2010 (R2016), EPI 23, Device Identification Subdevice. (Revision, reaffirmation or withdrawal by 17 February 2021)

ANSI E1.30-3 – 2009 (R2014), EPI 25, Time Reference in ACN Systems Using SNTP and NTP. (Revision, reaffirmation, or withdrawal by 9 June 2019)

ANSI E1.30-4 – 2010, EPI 26, Device Description Language (DDL) Extensions for DMX512 and E1.31 Devices. (Revision, reaffirmation, or withdrawal by 25 September 2020)

ANSI E1.30-10 – 2009 (R2014), EPI 32, Identification of Draft Device Description Language Modules. (Revision, reaffirmation, or withdrawal by 9 June 2019)

* ANSI E1.31 - 2016, Lightweight streaming protocol for transport of DMX512 using ACN (Revision, reaffirmation, or withdrawal by 11 October 2021)

* ANSI E1.37-1 - 2012, Additional Message Sets for ANSI E1.20, Remote Device Management. (Revision, reaffirmation, or withdrawal by 13 January 2017)

ANSI E1.37-2 - 2015, Additional Message Sets for ANSI E1.20 (RDM) – Part 2, IPv4 & DNS Configuration Messages. (Revision, reaffirmation, or withdrawal by 25 September 2020)

Application Guide for ANSI E1.3 - 2001, Lighting Control Systems 0 to 10V Analog Control Specification

Recommended Practice for Ethernet Cabling Systems in Entertainment Lighting Applications

Supplement to the Recommended Practice for Ethernet Cabling in Entertainment Lighting Applications

Withdrawn standards

E1.45 - 2013 (W2015), Unidirectional Transport of IEEE 802 data frames over ANSI E1.11 (DMX512A)

E1.30-7 - 2009 (W2016), EPI 29, Allocation of Internet Protocol Version 4 Addresses to ACN Hosts

8.2 BSR E1.20 - 201x, Remote Device Management over USITT DMX512

From the draft January minutes:

Simon Newton said that 51 of 90 comments were already resolved and that the task group is meeting today [21 January 2017].

Maya Nigrosh noted that Simon Newton was not present and asked if anyone present could give an update. Scott Blair said that a number of comments were dealt with in January, but there are still more. Lengthy discussions at the task group meeting were about interoperability and backward compatibility between different versions. There was discussion of the need to require backward compatibility with a version 2, and how version 2 devices might be able to detect and adapt their behavior to match the more primitive devices.

8.3 BSR E1.30-11, EPI 33, Transport of root PDUs over TCP

From the draft October minutes:

There was some discussion on whether or not there was a problem in waiting to publish this so long after its last public review. Karl Ruling advised that it would need to be offered for another public

review before it is submitted for final ANSI approval. The consensus was to offer it for public review with BSR E1.33.

Maya Nigrosh said that the intent is to offer this again for public review at the same time as E1.33.

8.4 BSR E1.31 – 20xx, Entertainment Technology—Lightweight streaming protocol for transport of DMX512 using ACN (revise, reaffirm, or withdrawal by 11 October 2021)
Last published in 2016. A PINS for revision has been filed with ANSI.

Jason Potterf said that the task group has kept their schedule and have a document ready for public review. He noted a clerical typo that was corrected.

Maya Nigrosh noted a few suggestions for change that came in last-minute from Wayne Howell. The group looked at the proposed text regarding 6.3.3.1. There was discussion of the proposed text, and modifications were made to it to the consensus of the group.

Wayne Howell made a motion to accept this proposed text. The motion was seconded. The motion carried with a unanimous show of hands and WebEx chat.

Wayne Howell then brought up another issue, this time with clause 6.2.5 and 6.3.2. The existing and proposed text was shown to the group. There was discussion of the issue and the intent of the standard regarding sequence numbers. The group modified the text to the consensus of the group and Wayne Howell moved that it be accepted. The motion was seconded and unanimously approved by a show of hands and WebEx votes.

Mitch Hefter moved to offer the document for public review. The motion was seconded and unanimously approved by a show of hands and WebEx votes.

Maya Nigrosh noted that the task group will be meeting tonight at 7p.m. to discuss the wish list for the next iteration.

8.5 BSR E1.33, Transport of ANSI E1.20 (RDM) in an E1.31 environment

From the draft January minutes:

Dan Antonuk said that the straight-forward comments will be resolved by the end of this meeting cycle. Following that, the diffuse comments will be dealt with. The group will do a full re-read and hopefully have a document for task group review by March.

Scott Blair said that 197 comments came in during the last public review. All but about one dozen comment resolutions have been implemented into the current draft. The rest will be added and then an editorial review of the full draft will be done. The intent is to have something for this body to consider in July. The task group has a meeting scheduled for tomorrow (10 March), agenda forthcoming.

8.6 BSR E1.37-1 – 2012 (R201x), Additional Message Sets for ANSI E1.20, Remote Device Management.

Maya Nigrosh noted that this standard is being considered for reaffirmation. It is in letter ballot and public review through 3 April 2017.

8.7 BSR E1.37-4, Firmware updates via ANSI E1.20, RDM

From the draft January minutes:

Peter Willis said that there is a task group meeting this afternoon. The draft is coming along, and the intent is to have a document for consideration in July.

Maya Nigrosh said that the task group made some progress during the last meeting cycle.

8.8 BSR E1.37-5, General Purpose Messages for ANSI E1.20 RDM

From the draft January minutes:

Simon Newton reported that the task group made it through all the comments. Draft resolutions and a revised draft are next. The consensus of the group is to make E1.37-5 a higher priority than E1.37-6.

Scott Blair said that most of the changes were agreed upon, but that the draft still needed to be updated before a public review can be done. The revised draft is yet to be circulated.

8.9 BSR E1.37-6 - 20xx, Additional Message Sets for ANSI E1.20 (RDM) - Parameter Description Messages

No news or action.

8.10 BSR E1.37-7 - 20xx, Additional Message Sets for ANSI E1.20 (RDM) - Gateway and Splitter Configuration

Comments were received during the first public review. The task group is collating them for distribution to the working group.

The public review ended a short while ago, said Scott Blair. Most of the 100+ comments were grammatical or minor, but about one dozen of the comments will require discussion at the task group meeting. Scott Blair said that they should be able to get through all of the comments during this meeting cycle with the intent of sending this out for public review in July with E1.33.

8.11 E1.37-x, Additional Message Sets for ANSI E1.20, LED walls and video displays

The draft project is of no value without RDMnet, says Scott Blair.

8.12 BSR E1.59 - 201x, Automation Vector Transmission Protocol

From the draft January minutes:

Maya Nigrosh said that the task group met last night. The recommendation is to create a very short document that can be distributed to folks with interest, expressing the scope, to see if what the group is planning to do addresses their needs. The goal of the protocol is simply reporting, not control or configuration.

Maya Nigrosh noted the progress of the task group meeting today and their intent to write a two-page white paper within the next month, in an effort to recruit video/media server participants.

8.13 IPv6 task group report

Documents in order of priority for IPv6 consideration:

- E1-31 - 2016 -Entertainment Technology –Lightweight streaming protocol for transport of DMX512 using ACN (open for revision as of January 2017)
- E1.37-2 - 2015 Entertainment Technology –Additional Message Sets for ANSI E1.20 (RDM) –Part 2, IPv4 & DNS Configuration Messages
- E1.17 - 2015 -Entertainment Technology -Architecture for Control Networks (ACN)
Elements of E1.17 depended on by E1.31 must be addressed as a high priority

Jason Potterf reported. Getting E1.31 done is still the focus, but the priority for E1.17 and E1.37-2 has changed. The priority for IPv6 integration of those two documents has switched.

8.14 European Plugfest

The European Plugfest will run 26-28 April 2017 with the same format and location as the 2016 event. See <http://www.plasa.org/rdm/> for more information. An introduction to RDM is planned for Day One.

Wayne Howell said that the EU Plugfest is happening as intended, and he would like to have the E1.59 white-paper available for the event. Maya Nigrosh said that that deadline should work for the task group.

8.15 Texas Plugfest

The next Plugfest will take place in conjunction with the July meetings, see estalink.us/plugfest.

Scott Blair noted that the schedule is approximately the same, but with the addition of a full day.

8.16 AUS Plugfest

The AS/NZ Plugfest will not happen this year, but maybe next, said Andrew Frazer. He noted that there is only a small population that would be interested in the Australia/New Zealand region.

8.17 Task group leader coordination

Maya Nigrosh reminded the group that Scott Blair is the official scheduling liaison between the CPWG task groups and Frances Thompson. Anyone needing a physical task group meeting at an upcoming event should contact Scott.

*BSR E1.30 No single leader; Generic group
BSR E1.31 Jason Potterf and Maya Nigrosh
BSR E1.37-4 Peter Willis
BSR E1.20 Simon Newton
BSR E1.33 Dan Antonuk and Scott Blair
BSR E1.30-11, EPI 33 Simon Newton
BSR E1.37-2 Simon Newton
BSR E1.37-5 Simon Newton
BSR E1.37-6 Simon Newton
BSR E1.37-7 Scott Blair
BSR E1.59 Dan Lisowski and Maya Nigrosh
E1.37-x Video Walls Scott Blair
IPv6 Task Group Jason Potterf
Plugfest Task Group Michael Lay
Task Group Liaison Scott Blair*

Scott Blair said that he hopes to have the July schedule done by next week.

9 New business

10 Other business & announcements

10.1 Manufacturer-specific vector types

Dan Antonuk spoke to the desire to have manufacturer-specific vector types for use over ACN networks. There was some discussion.

10.2 Market research

Andrew Frazer suggested that research or polling be done to find out what end-users are doing with our protocols. Michael Lay suggested that Andrew make a more formal proposal to bring to this group for further consideration.

10.3 TSP funding

There was some discussion on the fundraising campaign, noting some success but that more is still needed. There was also some discussion on the participation fees, but no one present was unpaid.

10.4 Above & Beyond Awards

Michael Lay noted that the Above and Beyond Award nomination form, as well as a list of past recipients, is available at <http://estalink.us/aboveandbeyond>. He also noted that ESTA is creating a new ESTA Lifetime Technical Achievement Award.

10.5 ESTA DMX512/RDM Educational Kit - "Train the Trainer" Session

From the draft January meeting:

Bill Ellis reported that six pages of comments came out of the meeting yesterday. It will be incorporated into the PowerPoint and the packaging for the kit will be dealt with. A one page synopsis will be done describing the purpose of the kit, what's included, how it will get back and forth, etc. That document can be posted online and referenced in tweets and a campaign to get this kit out on the road.

Bill Ellis said that the paperwork is mostly together and then he needs to get together with Roger Lattin for cases. Roger Lattin said he would send them when Bill was ready.

10.6 USITT sessions

Mitch Hefter noted that program proposals for USITT 2018 are due at this conference. He was hoping for topic suggestions and support from this group.

10.7 Architectural Market Outreach Study Group

From the draft January minutes:

Michael Lay appointed Bob Goddard, Mitch Hefter, Bill Ellis, and Javid Butler to a study group. The study group was instructed to get together and bring back ideas on tapping the architectural market for involvement in developing and implementing ESTA standards.

Mitch Hefter and Javid Butler have exchanged some emails, but it was noted that no real work has begun. They intend to get work going in a timely fashion.

11 Future meetings

Maya Nigrosh said that the full meeting schedule may always be found at <http://www.esta.org/ESTA/meetings.php>.

11.1 July meetings

Maya Nigrosh noted that the July 2017 meeting is scheduled for 9:00 a.m. - 1:00 p.m. on Monday, 24 July 2017 at the D/FW Marriott Solana in Westlake, Texas.

11.2 Fall meetings

Maya Nigrosh said that the fall meetings will take place around LDI, as usual. Date, time and location TBD.

12 Adjournment

Eddie Kramer moved to adjourn. The motion was seconded. Hearing no objections Maya Nigrosh declared the meeting adjourned at 2:52 p.m. CT.

Name	Company	Representing	Voting status	Int cat
Christian Allabauer	Christian Allabauer	Christian Allabauer	O	G
Daniel W. Antonuk	Electronic Theatre Controls, Inc.	Electronic Theatre Controls, Inc.	P	MP
Matthew Ardine	IATSE Local 728	IATSE Local 728	O	U
Robert Barbagallo	Solotech Inc.	Solotech Inc.	O	U
Paul Beasley	Walt Disney Imagineering	Walt Disney Company	P	U
Robert Bell	Acuity Brands Lighting	Acuity Brands Inc.	A	MP
Scott M. Blair	Full Throttle Films/ VER	Full Throttle Films/ VER	P	DR
Lee J. Bloch	Bloch Design Group, Inc.	Bloch Design Group, Inc.	O	G
Brent Boulnois	Candela Controls, Inc.	Candela Controls, Inc.	A	DE
Javid D. Butler	Integrated Theatre, Inc.	Integrated Theatre, Inc.	O	CP
Justyn Butler	JBOTS	JBOTS	O	CP
Ian Campbell	Doug Fleenor Design, Inc.	Doug Fleenor Design, Inc.	A	MP
Jean-Francois Canuel	Spectrum Manufacturing Inc.	A.C. Lighting Ltd.	O	CP
Steve Carlson	High Speed Design, Inc.	High Speed Design, Inc.	O	MP
Jon Chuchla	Audio Visual Systems, Inc.	Audio Visual Systems, Inc.	O	G
Edward R. Condit	OSRAM Lighting Solutions	OSRAM Licht AG	O	G
Fraser Connolly	Obsidian Controls Ltd.	Obsidian Controls Ltd.	P	DE
Milton Davis	Doug Fleenor Design, Inc.	Doug Fleenor Design, Inc.	P	MP
Jeremy Day	Lumenpulse Lighting Inc.	Lumenpulse Lighting Inc.	O	MP
Larry Dew	W.A. Benjamin Electric Co.	W.A. Benjamin Electric Co.	O	DE
Rich Dionne	Dept. of Theatre	Purdue University	O	DE
Gary Douglas	Pathway Connectivity	Acuity Brands Inc.	A	MP
Tucker Downs	Tucker Downs	Tucker Downs	O	U

Name	Company	Representing	Voting status	Int cat
Hamish Dumbreck	JESE Ltd.	James Embedded Systems Engineering	O	MP
James Eade	ABTT	ABTT	O	G
Bill Ellis	Candela Controls, Inc.	Candela Controls, Inc.	P	DE
Paul K. Ericson	Sparling	Stantec	O	DE
Nathaniel Wesley Filardo	Nathaniel Wesley Filardo	Nathaniel Wesley Filardo	O	G
Trevor Forrest	Helvar Lighting Control	Helvar Lighting Control	O	MP
Andrew Frazer	Stellascapes.com	Stellascapes.com	P	MP
Philip Gartner	AusChristmasLighting	AusChristmasLighting	O	U
Robert Goddard	Goddard Design Co.	Goddard Design Co.	P	MP
George Gong	Philips Lighting	Philips Lighting	O	MP
Jerry Gorrell	Theatre Safety Programs	Theatre Safety Programs	O	G
Erin Grabe	ESTA	ESTA	exf	G
Sean Harding	Port Lighting Systems	Port Lighting Systems	O	G
Mitch Hefter	Mitch Hefter	USITT	P	U
Bill Hewlett	ImageCue LLC	ImageCue LLC	O	MP
Julian Hoare	Tait Towers	Tait Towers Manufacturing LLC	A	MP
Jeremy Hochman	Full Throttle Films/ VER	Full Throttle Films/ VER	A	DR
Jon Hole	Zero 88	Eaton	P	MP
Jim Holladay	Luxence	Luxence	O	G
Maurits van der Hoorn	Pathway Connectivity	Acuity Brands Inc.	A	MP
Wayne David Howell	Artistic Licence Engineering Ltd.	Artistic Licence Holdings	P	DE
John Huntington	City Tech, Ent Tech Department	I.A.T.S.E. Local 1	A	U
Eric Johnson	Eric Johnson	Eric Johnson	O	G

Name	Company	Representing	Voting status	Int cat
Rob Johnston	Interactive Technologies, Inc.	Interactive Technologies, Inc.	O	MP
Tyrone Mellon_Jr.	Lex Products	Lex TM3	P	CP
Michael Karlsson	LumenRadio AB	LumenRadio AB	P	MP
Sam Kearney	Electronic Theatre Controls, Inc.	Electronic Theatre Controls, Inc.	A	MP
Jonathan Kemble	High End Systems	Barco	O	MP
Paul Kleissler	City Theatrical, Inc.	City Theatrical, Inc.	P	MP
Edwin S. Kramer	I.A.T.S.E. Local 1	I.A.T.S.E. Local 1	P	U
Ulrich Kunkel	E3 Engineering & Education for Entertainment GmbH	E3 Engineering & Education for Entertainment GmbH	P	U
Jason Kyle	JPK Systems Ltd.	JPK Systems Ltd.	O	MP
Roger Lattin	I.A.T.S.E. Local 728	I.A.T.S.E. Local 728	P	U
Michael Lay	Philips Color Kinetics	Philips Lighting	P	MP
Hans Leiter	ETC GmbH	Electronic Theatre Controls, Inc.	O	MP
Jon Lenard	Applied Electronics	Applied Electronics	O	MP
Sang-Kyu Lim	ETRI	Electronics and Telecommunications Research Institute	O	G
Dan Lisowski	Dept. Of Theatre and Drama	University of Wisconsin - Madison	P	DE
Kevin Loewen	Pathway Connectivity	Acuity Brands Inc.	P	MP
Jim Love	Tait Towers	Tait Towers Manufacturing LLC	P	MP
Royal Marty	ZFX, Inc.	ZFX, Inc.	O	MP
John Mehlretter	Lehigh Electric Products Co.	Lehigh Electric Products Co.	O	MP
Daniel Murfin	Royal National Theatre	Royal National Theatre	P	U
John Musarra	John Musarra	John Musarra	O	U
Simon Newton	Open Lighting Project	Open Lighting Project	P	G

Name	Company	Representing	Voting status	Int cat
Maya Nigrosh	Electronic Theatre Controls, Inc.	Electronic Theatre Controls, Inc.	A	MP
Kimberly Corbett Oates	Schuler Shook	Schuler Shook	O	DE
Jim Ohrberg	Candela Controls, Inc.	Candela Controls, Inc.	A	DE
Danilo Oliveira	Chauvet Lighting	Chauvet Lighting	O	MP
Claude Ostyn	Full Throttle Films/ VER	Full Throttle Films/ VER	A	DR
Edward A. (Ted) Paget	Electronic Theatre Controls, Inc.	Electronic Theatre Controls, Inc.	A	MP
Jason Potterf	Cisco	Cisco	P	MP
Gary Pritchard	LSC Lighting Systems (Aust) PTY Ltd	LSC Lighting Systems PTY Ltd	O	MP
Charles Reese	Production Resource Group	Production Resource Group	O	DR
Alan M. Rowe	IATSE Local 728	I.A.T.S.E. Local 728	A	U
Karl G. Ruling	ESTA	ESTA	exf	G
Yngve Sandboe	Sand Network Systems, Inc.	Sand Network Systems, Inc.	O	MP
Nicolai Gubi Schmidt	Gobo & Highlight A/S	Gobo & Highlight A/S	O	DR
Larry Schoeneman	DesignLab Chicago, Inc.	DesignLab Chicago, Inc.	P	DR
Ford Sellers	Chauvet Lighting	Chauvet Lighting	O	MP
Sean Sill	Sean Sill	Sean Sill	O	CP
Ralph Stillinger	Strand Lighting	Philips Lighting	O	MP
Steve Terry	Electronic Theatre Controls	Electronic Theatre Controls, Inc.	A	MP
Christopher B. Tilton	About the Stage, LLC	About the Stage, LLC	O	DE
Robert Timmerman	Philips Color Kinetics	Philips Lighting	O	MP
James Tomlinson	Team Tomlinson	Team Tomlinson	O	G
Tracy Underhill	Triple C Lighting & Controls	Triple C Lighting & Controls	O	G
Steve Unwin	Pulsar Ltd.	Pulsar Ltd.	O	MP

Name	Company	Representing	Voting status	Int cat
Ken Vannice	Ken Vannice LLC	Ken Vannice LLC	I	G
Carlo Venturati	Clay Paky S.P.A.	Clay Paky S.P.A.	O	MP
Will Wagner	Carallon Ltd.	Carallon Ltd.	O	MP
Oliver Waits	Avolites Ltd.	Avolites Ltd.	O	MP
Colin Waters	TMB	TMB	O	DR
Ralph Weber	ENDL Texas	ENDL Texas	O	G
Peter Willis	Howard Eaton Lighting Ltd.	Howard Eaton Lighting Ltd.	P	CP
Loren Wilton	Showman Systems	Showman Systems	O	CP
Adam De Witt	Adept Anomaly	Adept Anomaly	I	U
David Yellin	Sumolight GmbH	Sumolight GmbH	O	MP
Jeong Sik Yoo	Korea Testing Laboratory	Korea Testing Laboratory / Theatre Safety Center	O	DE

Voting Status Key: P = Principal voter, A = Alternate voter, I = Individual voter, O = Observer member, exf = Ex Officio member (staff)

Interest Category Key: CP = Custom-market producer, DE = Designer, DR = Dealer or rental company, G = General interest, MP = Mass-market producer, U = User