

Minutes
Control Protocols Working Group
Thursday, 21 November 2013 (09:00 - 13:00 PST)
The Las Vegas Hotel
Las Vegas, NV

Working group leaders:

Michael Lay; Philips Color Kinetics; Royal Philips; P; MP

Recording secretaries:

Erin Grabe; PLASA North America
Karl G. Ruling; PLASA North America

Members attending:

Kevin Loewen; Acuity Brands Inc.; P; MP
Philip Nye; Acuity Brands Inc.; A; MP
Oliver Waits; Avolites Ltd.; O; MP
Bill Ellis; Candela Controls, Inc.; O; U
Edward A. (Ted) Paget; Daktronics Inc. ; P; G
Larry Schoeneman; DesignLab Chicago, Inc.; P; DR
Ulrich Kunkel; DIN, NVBF Committee; P; U
Milton Davis; Doug Fleenor Design, Inc.; A; MP
Maya Nigrosh; Electronic Theatre Controls, Inc.; A; MP
Sang-Kyu Lim; Electronics and Telecommunications Research Institute; P; G
Scott M. Blair; Full Throttle Films/ VER; P; DR
Robert Goddard; Goddard Design Co.; P; MP
Ed Garstkiewicz; Harting KGAA; P; G
Steve Carlson; High Speed Design, Inc.; O; MP
Peter Willis; Howard Eaton Lighting Ltd.; P; CP
Roger Lattin; I.A.T.S.E. Local 728; P; U
John Musarra; John Musarra; O; U
Jason Kyle; JPK Systems Ltd.; O; MP
Tyrone Mellon_Jr.; Lex Products Corp.; P; CP
Peter Kirkup; LumenRadio AB; A; MP
Simon Newton; Open Lighting Project; P; G
Ben Peoples; Pittsburgh Hoist & Sandbag Company; O; CP
Erin Grabe; PLASA NA; exf; G
Michael Lay; Royal Philips; P; MP
Eckart Steffens; Soundlight, the DMX Company; P; CP
Mitch Hefter; USITT; P; U
Paul Beasley; Walt Disney Company; O; U

Visitors:

Julian Wedemeyer; Soundlight, the DMX Company

1 Opening remarks

Michael Lay called the meeting to order at 9:03 and asked the group to silence all their devices.

2 Attendance

2.1 Introductions of those present and circulation of attendance sheet

Karl Ruling passed around a hot-pink sign-in sheet, while self-introductions took place counterclockwise.

2.2 Determination of a quorum

Voting members were asked to raise a hand to be counted. Michael Lay announced that a quorum was present.

2.3 Recognition of alternate voting members

Three alternate voters were acknowledged. One was not voting due to the principal voter also being present.

3 Membership

3.1 Requirements for membership

The following statement was read aloud to the assembly by Michael Lay:

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. 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

The following voting members have missed the previous three meetings, including this one, and have been moved to observer status by the working group according to the Policies and Procedures:

Jean-Francois Canuel & Reza Khanmalek; A.C. Lighting Ltd.

Wayne David Howell & Fraser Connolly; Artistic Licence Holdings

Hamish Dumbreck; James Embedded Systems Engineering

3.3 Processing of new membership requests and reaffirmation of members with new companies

As of 21 November 2013, the following applications have been received and logged:

Larry Dunn; Lauren E. Dunn (Larry); O; DE

Jeremy Hochman; Full Throttle Films/ VER; A; DR

Eckart Steffens, Soundlight, the DMX Company; O; U

Paul Beasley; Walt Disney Company; O; U

Ted Paget moved that the requests be accepted. The motion was seconded and approved by a show of hands.

3.4 Consensus Body

The full consensus body during this meeting, including those not present, was:

Name	Representing (Sort field)	Voting Status	Interest Cat.
Kevin Loewen	Acuity Brands Inc.	P	MP
Robert Bell	Acuity Brands Inc.	A	MP
Gary Douglas	Acuity Brands Inc.	A	MP
Philip Nye	Acuity Brands Inc.	A	MP
Garrett Gallant	Acuity Brands Inc.	A	MP
Paul Kleissler	City Theatrical, Inc.	P	MP
Edward A. (Ted) Paget	Daktronics Inc.	P	G
Larry Schoeneman	DesignLab Chicago, Inc.	P	DR
Ulrich Kunkel	DIN, NVBF Committee	P	U
Doug Fleenor	Doug Fleenor Design, Inc.	P	MP
Milton Davis	Doug Fleenor Design, Inc.	A	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
Sang-Kyu Lim	Electronics and Telecommunications Research Institute	P	G
Insu Kim	Electronics and Telecommunications Research Institute	A	G

Name	Representing (Sort field)	Voting Status	Interest Cat.
Scott M. Blair	Full Throttle Films/ VER	P	DR
Jeremy Hochman	Full Throttle Films/ VER	A	DR
Robert Goddard	Goddard Design Co.	P	MP
Ed Garstkiewicz	Harting KGAA	P	G
Howard Forryan	Harting KGAA	A	G
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
Dennis Grow	I.A.T.S.E. Local 728	A	U
Alan M. Rowe	I.A.T.S.E. Local 728	A	U
Ken Vannice	Ken Vannice LLC	I	G
Tyrone Mellon_Jr.	Lex Products Corp.	P	CP
Joshua Liposky	Lex Products Corp.	A	CP
Michael Karlsson	LumenRadio AB	P	MP
Marcus Bengtsson	LumenRadio AB	A	MP
Hans Lau	LumenRadio AB	A	MP
Peter Kirkup	LumenRadio AB	A	MP
Simon Newton	Open Lighting Project	P	G
Gordan Rancic	Phoenix Service srl	P	MP
Charles Reese	Production Resource Group	P	DR
Michael Lay	Royal Philips	P	MP
Kimberly Corbett Oates	Schuler Shook	P	DE
Eckart Steffens	Soundlight, the DMX Company	P	CP
Mitch Hefter	USITT	P	U
Jeff T. Miller	Walt Disney Company	P	U
Christopher Tilton	Westlake Reed Leskosky	P	DE

	Total
CP (Custom-market Producer)	3
DE (Designer)	2
DR (Dealer or Rental company)	3
G (General interest)	5
MP (Mass-market Producer)	9
U (User)	4
Total votes possible	26

4 Approval of the minutes from the August meeting

See *CPmin08-2013.pdf*

Michael Lay asked the group members to double-check their contact information on the draft minutes before approval.

Ted Paget moved to approve the minutes of the August meeting as written. The motion was seconded, and then approved by a show of hands, with one abstention.

5 Reading of the call for patents

The following statement was read aloud to the assembly by Michael Lay:

PLASA intends not to publish any standard that contains protected intellectual property, unless that information can be licensed by anyone for a reasonable fee. PLASA uses a process of open patent and copyright disclosures to implement its intent. PLASA 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 or 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 reported.

6 Reading of the anti-trust statement

The following statement was read aloud to the assembly by Michael Lay:

The PLASA Board of Directors, the Technical Standards Council, and the leadership of this working group will reject or nullify any actions that unlawfully restrain trade. Anyone who feels that such an action is being or has been taken is requested to bring that matter to the attention of the chairs 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 PLASA chair immediately.

PLASA legal counsel has informed us that violations of the anti-trust laws can have serious consequences. Individuals engaged in certain unlawful conduct can be found criminally liable. An individual convicted of a criminal violation of the Sherman Act may be fined as much as \$1,000,000 and imprisoned for up to ten years. An easy to read pamphlet describing restraint of trade issues is available from the Technical Standards Manager.

Nothing was reported.

7 Approval of agenda

Michael Lay asked to add items 9.5 and 9.6 about ProSight and TSP marketing, respectively. Peter Willis asked to add Item 9.7, re: firmware uploads by RDM, bulk data transport.

Scott Blair moved that the modified agenda be accepted. The motion was seconded and approved by a show of hands.

8 Old business

8.1 Standards Maintenance

Besides items 8.2 and 9.1-9.4, no news or action was needed on any of the following standards. This is a placeholder in the agenda, so we don't forget to maintain them.

ANSI E1.3 – 2001 (R2011), 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 2016)

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 2018)

ANSI E1.17 - 2010, Architecture for Control Networks. (Revision, reaffirmation or withdrawal by 2016)

ANSI E1.20 - 2010, Remote Device Management over USITT DMX512. (Revision, reaffirmation or withdrawal by 2016)

ANSI E1.27-1 – 2006 (R2011), Entertainment Technology - Standard for Portable Control Cables for Use with USITT DMX512/1990 and E1.11 (DMX512-A) Products. (Revision, reaffirmation or withdrawal by 2016)

ANSI E1.27-2 – 2009, 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 2014)

ANSI E1.30-1 - 2010, EPI 23, Device Identification Subdevice. (Revision, reaffirmation or withdrawal by 2016)

ANSI E1.30-3 – 2009, EPI 25, Time Reference in ACN Systems Using SNTP and NTP. (Revision, reaffirmation, or withdrawal by 2014)

ANSI E1.30-4 – 2010, EPI 26, Device Description Language (DDL) Extensions for DMX512 and E1.31 Devices. (Revision, reaffirmation, or withdrawal by 2015)

ANSI E1.30-7 – 2009, EPI 29, Allocation of Internet Protocol Version 4 Addresses to ACN Hosts. (Revision, reaffirmation, or withdrawal by 2014)

ANSI E1.30-10 – 2009, EPI 32, Identification of Draft Device Description Language Modules. (Revision, reaffirmation, or withdrawal by 2014)

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

ANSI E1.45-2013, Unidirectional Transport of IEEE 802 data frames over ANSI E1.11 (DMX512-A) (Revision, reaffirmation, or withdrawal by 2018)

8.2 ANSI E1.17 - 2010, Architecture for Control Networks

From the draft August minutes:

Maya Nigrosh said that work issues kept her from finishing the draft. She will be drafting the EPI and will have it out to the group within the required two weeks before the November meeting.

Maya Nigrosh made a motion to offer the draft for public review. The motion was seconded, and then discussed. The motion carried by a show of hands with one abstention from Bob Goddard.

8.3 BSR E1.31 with Universe Synchronization

From the draft August minutes:

Scott Blair asked Maya Nigrosh to have a draft document for the LDI meeting that incorporates the changes from the January meeting. Group consensus was to do this and Maya agreed to attempt to have a document ready for a conference call in one month's time.

Maya Nigrosh informed the group that the document is coming along and that the task group meets after this meeting. The task group's objective is to have a draft for the January meeting.

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

From the draft August minutes:

Blair said that perhaps another draft document will be ready for the working group by January, but more likely by the USITT Conference.

Scott Blair reported that the group had a desire to look at alternatives to SLP, a usable discovery standard that is scalable, widely supported, and possible to implement in small devices. Simon Newton did research and identified about half-a-dozen potential discovery standards. The stand-out: the "Bonjour Protocol."

It was noted that the group still has a lot of discussion and work to do at the next task group meeting. Scott Blair asked the working group if the document should be separated out of 1.17. Discussion ensued about the compatibility of 1.31 and 1.33. Peter Willis advised that a different approach is needed to solve the problem, and urged the group to help with getting drafts out, especially with discovery processes.

There is a need to send some RDMnet messages using TCP for reliable transmission. There was consideration of making it an ACN EPI or have it be unrelated to ACN. There is not a lot of commonality. This led into a discussion of architecture compatibility between E1.17, E1.31, and E1.33.

Peter Willis offered his concern that if E1.33 is not done soon, there will be no market need for it. Simon Newton said that this protocol is not that far off, and its potential competitors in the market have significant technical problems that this protocol will not have.

Peter Willis suggested that we abandon the Texas Plugfest to allow more time to work on E1.33. Simon Newton said the problem was not the time spent at the Plugfests; the problem is the lack of work achieved between meetings.

Scott Blair issued a call for more help on researching discovery and more timely review of the draft documents that are sent out to the task group.

It was noted by Michael Lay that the E1.33 RDM task group had the tacit approval of the working group to proceed with an alternative to SLP, and that further testing and evaluation of Bon Jour should proceed.

8.5 BSR E1.37-2, Additional Message Sets for ANSI E1.20 (RDM) – Part 2, IPv4 & DNS Configuration Messages

See Summary_BSR_E1-37-2_2013Cmmnts.pdf from the third public review.

No comments came back during the public review. Simon Newton recommended that some things be changed, including: rename a PID; change the interface index to 32 bit; put in a disclaimer that the actual codes will be assigned later. This will be done by the January meeting, with the hope of sending the draft out for another public review.

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

From the draft August minutes:

Scott Blair reported that he has been working on it. He mentioned that when BSR E1.33 is completed it will be easier to complete BSR E1.37. Blair has consulted with Carallon in the UK on the project and is making progress, but probably will really start making progress by next summer.

No progress on BSR E1.37 due to effort being focused on BSR E1.33, reported Blair.

8.7 European Plugfest

Michael Lay asked Peter Willis to report. Willis reported that plans are underway to have another Plugfest. They are now considering having it in April, but needs to fit around the European trade show schedule. Then he described the usual format of the European Plugfest with an opening day for the public, followed by the plugfest testing for designers and technicians. Peter Willis urged the North American members to participate.

8.8 Texas Plugfest

The next Texas Plugfest is scheduled for 17, 18, 19, and 20 January 2014.

Scott Blair said the turnout for last summer's Plugfest was a little lower than for most of the summer Plugfests. Some people missed the date, assuming that the Plugfest would be the weekend it always is, except when it isn't. The changed date did not help Europeans come. It's still summer travel. There was also a lack of new products to test this past summer; there are more new products now, so he is hopeful for a good turnout in January. Travel costs are lower then, too.

8.9 German Plugfest

Eckart Steffens reported that his company had sponsored a plugfest in Germany for the last two years, in conjunction with Prolight und Sound. Eckart Steffens also reported that he had created a responder that could be tweaked to behave well, badly, or marginally. He is planning another plugfest before the Frankfurt Prolight + Sound.

9 New business

9.1 ANSI E1.27-2 – 2009, 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 2014

9.2 ANSI E1.30-3 – 2009, EPI 25, Time Reference in ACN Systems Using SNTP and NTP

Revision, reaffirmation, or withdrawal by 2014

9.3 ANSI E1.30-7 – 2009, EPI 29, Allocation of Internet Protocol Version 4 Addresses to ACN Hosts

Revision, reaffirmation, or withdrawal by 2014

9.4 ANSI E1.30-10 – 2009, EPI 32, Identification of Draft Device Description Language Modules

Revision, reaffirmation, or withdrawal by 2014

Milton Davis moved that all four be reaffirmed and sent out for public review. The motion was seconded and approved with 15 yes votes by show of hands (supermajority).

9.5 ProSight

Michael Lay encouraged people to show support to ProSight Specialty Insurance by attending their LDI sessions. He reminded the group that ProSight is a major sponsor of the TSP.

9.6 TSP Marketing

Michael Lay reported on the RDM ads that have been run, but urged the group to submit more CPWG-related project content to promote PLASA's standards.

9.7 RDM uploads

Peter Willis said that he will put something forward at the January meeting for doing firmware updates via RDM. He requested that people to communicate with him before January if they have interest in the project.

10 Other business

10.1 LDI PLASA Booth Report

Bill Ellis reported on the redesign of the booth.

10.2 LDI Sessions – CPWG Related

The following sessions of note were mentioned.

- ACN/RDM: Latest Developments Friday, November 22 11:00am - 12:30pm
- 21st-Century DMX Friday, November 22 3:30pm - 5:00pm

10.3 OpenDMX Alliance

Michael Lay reported on the note received rescinding of the right of the group to use the OpenDMX standard. The consensus of the working group was that it has no intention of incorporating material from OpenDMX into any of its standards.

10.4 "Above & Beyond" Volunteer Award Nominations

Michael Lay gave a pitch for submitting nominations. They are due by the end of November.

10.5 Steve Carlson reported on 802.3 projects

P802.3br, to prioritize traffic.

P802.3bp, to offer one-gigabit Ethernet over a single-pair wire within 15 meters distance, 40 meters on other media in lower EMI environments. The final standard may exceed the reach objectives stated in the project.

P802.3bu, power over datalines, to work with the above. The power requirements are not defined. He suspects 100 watts will be the maximum.

P802.3bt, 4-pair power over Ethernet. Carlson said this will deliver 60 watts for sure, and maybe 100 watts will be possible.

Steve Carlson informed the group that they may go to the 802.3 home page at <http://ieee802.org/3/index.html> and follow the links for more information.

11 Next meeting

Michael Lay announced that the next CPWG meeting is scheduled for Sunday, 19 January 2014 at the Marriott Solana in Westlake, TX.

12 Adjournment

Scott Blair moved that the meeting adjourn. The motion was seconded. Hearing no objections, Michael Lay declared the meeting adjourned at 10:57am.

Name	Company	Representing	Voting Status	Int. Cat.
Simon Alpert	Lighttech Event Technologies	Lighttech Event Technologies	O	CP
Klaus Amling	Licht-Technik	Licht-Technik	O	MP
Daniel W. Antonuk	Electronic Theatre Controls, Inc.	Electronic Theatre Controls, Inc.	P	MP
Matthew Ardine	IATSE Local 728	IATSE Local 728	O	U
Avraham Mendall Mor "Avi"	Lightswitch	Lightswitch	O	U
Robert Barbagallo	Solotech Inc.	Solotech Inc.	O	U
Paul Beasley	Walt Disney Imagineering	Walt Disney Company	O	U
Robert Bell	Acuity Brands Lighting	Acuity Brands Inc.	A	MP
BenDarrington	Wireless Solutions Sweden AB	Wireless Solutions Sweden AB	O	MP
Marcus Bengtsson	LumenRadio AB	LumenRadio AB	A	MP
Adam Bennette	Electronic Theatre Controls Ltd.	Electronic Theatre Controls, Inc.	O	MP
David Bertenshaw	David Bertenshaw	David Bertenshaw	O	G
Stephen Bickford	T. Kondos Associates	T. Kondos Associates	O	U
Torrey Bievenour	Vision Quest Lighting	Vision Quest Lighting	O	G
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
David A. Boller	Organic Machines LLC	Organic Machines LLC	O	CP
Ron Bonner	PLASA Technical Resources Office	PLASA EU	O	G
André Broucke	André Broucke	André Broucke	O	G
Ken Bruns	Lumenpulse Lighting Inc.	Lumenpulse Lighting Inc.	O	MP
John (Javid) D. Butler	Integrated Theatre, Inc.	Integrated Theatre, Inc.	O	CP
Jean-Francois Canuel	Spectrum Manufacturing Inc.	A.C. Lighting Ltd.	O	CP
Steve Carlson	High Speed Design, Inc.	High Speed Design, Inc.	O	MP
Nyasha Chigwamba	Dept. of Computer Science	Rhodes University	O	U
Soo-Myong Chung	Bloch Design Group, Inc.	Bloch Design Group, Inc.	O	G
Paul J. Clark	HxDx	HxDx	O	CP
Edward R. Condit	Edward R. Condit	Edward R. Condit	O	G

Name	Company	Representing	Voting Status	Int. Cat.
Fraser Connolly	Artistic Licence Engineering Ltd.	Artistic Licence Holdings	O	DE
Eric Cornwell	West Side Systems	West Side Systems	O	U
Stuart Cotts	Oregon Shakespeare Festival	Oregon Shakespeare Festival	O	U
Klas Dalbjorn	Labgruppen AB	TC Group	O	MP
Milton Davis	Doug Fleenor Design, Inc.	Doug Fleenor Design, Inc.	A	MP
Jeremy Day	Philips Color Kinetics	Royal Philips	O	MP
Gilray Densham	CAST Software	CAST Group Inc	O	MP
Gary Douglas	Acuity Brands Lighting	Acuity Brands Inc.	A	MP
Gary Dove	Dove Systems	Dove Systems	O	MP
Yongshun Duan	Macostar Physics Application Technology Development (Wuhan) Ltd.	Macostar International Ltd.	O	CP
Hamish Dumbreck	JESE Ltd.	James Embedded Systems Engineering	O	MP
Lauren E. Dunn	Lauren E. Dunn (Larry)	Lauren E. Dunn (Larry)	O	DE
Jerry Durand	Durand Interstellar, Inc.	Durand Interstellar, Inc.	O	CP
James Eade	PLASA	PLASA EU	O	G
Andrew Eales	Wellington Institute of Technology	Rhodes University	O	U
Bill Ellis	Candela Controls, Inc.	Candela Controls, Inc.	O	U
Jon R. Farley	Sixteenth Avenue Systems	Sixteenth Avenue Systems	O	CP
Martin Farnik	Robe Show Lighting s.r.o.	Robe Show Lighting s.r.o.	O	MP
Doug Fleenor	Doug Fleenor Design, Inc.	Doug Fleenor Design, Inc.	P	MP
Trevor Forrest	Helvar Lighting Control	Helvar Lighting Control	O	MP
Howard Forryan	Harting Ltd.	Harting KGAA	A	G
Steve Friedlander	Auerbach Pollock Friedlander	Auerbach Pollock Friedlander	O	U
Garrett Gallant	Pathway Connectivity Inc.	Acuity Brands Inc.	A	MP
Ed Garstkiewicz	Harting Inc., North America	Harting KGAA	P	G
Robert Goddard	Goddard Design Co.	Goddard Design Co.	P	MP
Jerry Gorrell	Theatre Safety Programs	Theatre Safety Programs	O	G
Erin Grabe	PLASA NA	PLASA NA	exf	G

Name	Company	Representing	Voting Status	Int. Cat.
Tom Grimes	High End Systems, Inc.	Barco	O	MP
Dennis Grow	I.A.T.S.E. Local 728	I.A.T.S.E. Local 728	A	U
Josh Gubler	Josh Gubler	Josh Gubler	O	CP
Rob Halliday	Rob Halliday	Rob Halliday	O	U
Sean Harding	High Output, Inc.	High Output, Inc.	O	G
Mitch Hefter	Mitch Hefter	USITT	P	U
Douglas Heriot	Douglas Heriot	Douglas Heriot	O	MP
Bill Hewlett	Hewlett Electronics	Hewlett Electronics	O	CP
Jeremy Hochman	Full Throttle Films/ VER	Full Throttle Films/ VER	A	DR
Helge Hoffmann	JB Lighting	JB Lighting	O	MP
Jim Holladay	Luxence	Luxence	O	G
Wayne David Howell	Artistic Licence Engineering Ltd.	Artistic Licence Holdings	O	DE
John Huntington	City Tech, Ent Tech Department	I.A.T.S.E. Local 1	A	U
Sierk Janszen	Kiss Box	Ground Zero	O	U
Eric Johnson	Eric Johnson	Eric Johnson	O	G
Rob Johnston	Interactive Technologies, Inc.	Interactive Technologies, Inc.	O	MP
Ed Jones	Edwin Jones Co., Inc.	Edwin Jones Co., Inc.	O	CP
Tyrone Mellon_Jr.	Lex Products Corp.	Lex Products Corp.	P	CP
Jussi Kallioinen	Eastway Sound & Lighting	Eastway Sound & Lighting	O	U
Tae Gyu Kang	ETRI	Electronics and Telecommunications Research Institute	O	G
Michael Karlsson	LumenRadio AB	LumenRadio AB	P	MP
Reza Khanmalek	Spectrum Manufacturing Inc.	A.C. Lighting Ltd.	O	CP
Insu Kim	ETRI	Electronics and Telecommunications Research Institute	A	G
Peter Kirkup	LumenRadio AB	LumenRadio AB	A	MP
Hiroshi Kita	Marumo Electric Co., Ltd.	Marumo Electric Co., Ltd.	O	MP
Phil Klapwyk	IATSE Local 891	IATSE Local 891	O	U
Paul Kleissler	City Theatrical, Inc.	City Theatrical, Inc.	P	MP

Name	Company	Representing	Voting Status	Int. Cat.
Mark T. Kraft	Lehigh Electric Products Co.	Lehigh Electric Products Co.	O	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	DIN, NVBF Committee	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
Hans Lau	LumenRadio AB	LumenRadio AB	A	MP
Michael Lay	Philips Color Kinetics	Royal Philips	P	MP
Rick Leinen	Leviton Manufacturing Co., Inc.	Leviton Manufacturing Co., Inc.	O	MP
Hans Leiter	ETC GmbH	Electronic Theatre Controls, Inc.	O	MP
Jon Lenard	Applied Electronics	Applied Electronics	O	MP
Maarten Lepelaars	eldoLED	eldoLED	O	MP
Sang-Kyu Lim	ETRI	Electronics and Telecommunications Research Institute	P	G
Joshua Liposky	Lex Products Corp.	Lex Products Corp.	A	CP
Kevin Loewen	Pathway Connectivity Inc.	Acuity Brands Inc.	P	MP
Mark Manthei	Shure Inc.	Shure Inc.	O	G
Paul F. Mardon	Pulsar Ltd.	Pulsar Ltd.	O	MP
Mick Martin	ShowCAD Control Systems	ShowCAD Control Systems	O	MP
Paul Kenneth McEwan	Zero 88	Cooper Controls Ltd.	O	MP
John Mehlretter	Lehigh Electric Products Co.	Lehigh Electric Products Co.	O	MP
Jeff T. Miller	Worldwide Standards and Auditing	Walt Disney Company	P	U
John Musarra	John Musarra	John Musarra	O	U
Tobin Neis	Barbizon Companies	Barbizon Companies	O	DR
Simon Newton	Open Lighting Project	Open Lighting Project	P	G
Dan T. Nguyen	LynTec	LynTec	O	MP
Maya Nigrosh	Electronic Theatre Controls, Inc.	Electronic Theatre Controls, Inc.	A	MP
Philip Nye	Acuity Brands Lighting	Acuity Brands Inc.	A	MP
Kimberly Corbett Oates	Schuler Shook	Schuler Shook	P	DE

Name	Company	Representing	Voting Status	Int. Cat.
Lars F. Paape	Scientific Algorithms and Embedded Systems	Scientific Algorithms and Embedded Systems	O	U
Edward A. (Ted) Paget	Daktronics Automated Rigging Solutions	Daktronics Inc.	P	G
Ben Peoples	Pittsburgh Hoist & Sandbag Company	Pittsburgh Hoist & Sandbag Company	O	CP
Jason Potterf	Cisco	Cisco	O	MP
Gary Pritchard	LSC Lighting Systems (Aust) PTY Ltd	LSC Lighting Systems PTY Ltd	O	MP
Gordan Rancic	Phoenix Service srl	Phoenix Service srl	P	MP
Torben Kaas Rasmussen	Martin Professional A/S	Martin Professional A/S	O	G
Charles Reese	Production Resource Group	Production Resource Group	P	DR
Charlie Richmond	Richmond Sound Design Ltd.	Richmond Sound Design Ltd.	O	CP
Bernardo Benito Rico	Ben-Ri Electronica S.A.	Ben-Ri Electronica S.A.	O	MP
Steve Roberts	Carr & Angier	Carr & Angier	O	G
Erwin Rol	Erwin Rol Software Engineering	Erwin Rol	O	G
Dietmar Rottinghaus	Connex GmbH	Connex GmbH	O	MP
Alan M. Rowe	IATSE Local 728	I.A.T.S.E. Local 728	A	U
Richard Salzedo	Avolites Ltd.	Avolites Ltd.	O	MP
Yngve Sandboe	Sand Network Systems, Inc.	Sand Network Systems, Inc.	O	MP
Larry Schoeneman	DesignLab Chicago, Inc.	DesignLab Chicago, Inc.	P	DR
Martin Searancke	Dream Solutions Ltd.	Dream Solutions Ltd.	O	MP
Chuck Seifried	Phoenix Civic Plaza	City of Phoenix	O	U
John Sellers	AIM Northwest	AIM Northwest	O	G
Andrew Sherar	Lightmoves PLC	Lightmoves PLC	O	MP
Yehuda Shukram	Compulite Systems	Compulite Systems	O	MP
Sean Sill	Open Lighting Project	Open Lighting Project	O	DE
Storm K. Staley	Stormwerx	Stormwerx	O	U
Eckart Steffens	Soundlight, the DMX Company	Soundlight, the DMX Company	P	CP
Ralph Stillinger	Strand Lighting	Royal Philips	O	MP
Bart Swinnen	Luminex LCE	Luminex LCE	O	MP

Name	Company	Representing	Voting Status	Int. Cat.
Arnold Tang	Arnold Tang Productions	Arnold Tang Productions	O	U
Steve Terry	Electronic Theatre Controls	Electronic Theatre Controls, Inc.	A	MP
Geoffrey O. Thompson	Nortel Networks, Inc.	IEEE 802.3/Nortel Networks	O	G
Christopher Tilton	Westlake Reed Leskosky	Westlake Reed Leskosky	P	DE
Robert Timmerman	Philips Color Kinetics	Royal Philips	O	MP
David Timmins	Jands Electronics	Jands Electronics	O	MP
Victoria Tisdale	Colby College	Google Summer of Code 2013	O	G
J. B. Toby	Avolites Ltd.	Avolites Ltd.	O	MP
Bob Toms	Catalyst Microsystems LLC	Catalyst Microsystems LLC	O	G
Robert Tooker	Robert Tooker	Robert Tooker	O	U
Tad Trylski	Tad Trylski	Tad Trylski	O	U
Stephen J. Tyrrell	Quantum Logic	Quantum Logic	O	MP
Tracy Underhill	4U Consulting	4U Consulting	O	G
Steve Unwin	Pulsar Ltd.	Pulsar Ltd.	O	MP
Samuli Valo	Picturall Ltd.	Picturall Ltd.	O	MP
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
John Warwick	Philips Color Kinetics	Royal Philips	O	MP
Colin Waters	TMB	TMB	O	DR
Ralph Weber	ENDL Texas	ENDL Texas	O	G
Lars Wernlund	Lewlight	Lewlight	O	MP
Michael (Mike) Whetstone	Integrated Theatre, Inc.	Integrated Theatre, Inc.	O	CP
Peter Willis	Howard Eaton Lighting Ltd.	Howard Eaton Lighting Ltd.	P	CP
Loren Wilton	Showman Systems	Showman Systems	O	CP
Barbara Wohlsen	Barbara Wohlsen	Barbara Wohlsen	O	U

Name	Company	Representing	Voting Status	Int. Cat.
C. S. Wong	Macostar International Ltd.	Macostar International Ltd.	O	CP
Jiantong Wu	Beijing Special Engineering Design & Research Institute	Beijing Special Engineering Design & Research Institute	O	G
Kehang Wu	Shure Inc.	Shure Inc.	O	G
David Yellin	LightMinded Industries, Inc.	LightMinded Industries, Inc.	O	MP
Larry Zoll	Zoll Design & Consulting, LLC	Zoll Design & Consulting, LLC	O	U

Voting Status and Interest Category Legend

P principal voting member	CP custom-market producer
A alternate voting member	MP mass-market producer
I individual voting member	DE designer
O observer non-voting member	DR dealer/rental company
	U user
	G general interest