

Minutes

Control Protocols Working Group

Thursday, 10 March 2011
The Westin Charlotte

Chairpersons: Michael Lay; Philips Color Kinetics (Royal Philips Electronics); P; MP
Kimberly Corbett; Schuler Shook; P; DE

Recording secretary: Kimberly Corbett

Members attending:

Peter Kirkup; Zero 88 (Cooper Controls Ltd.); P; MP
Edward A. (Ted) Paget; Daktronics Inc. ; P; G
Ulrich Kunkel; E3 Engineering & Education for Entertainment GmbH, representing the DIN, NVBF
Committee; P; U
Doug Fleenor; Doug Fleenor Design, Inc.; P; MP
Edwin S. Kramer; I.A.T.S.E. Local 1; P; U
John Huntington; City Tech, Ent Tech Department, representing I.A.T.S.E. Local 1; A; U
Roger Lattin; I.A.T.S.E. Local 728; P; U
Ken Vannice; Leviton Manufacturing Co., Inc.; P; MP
Tyrone Mellon_Jr.; Lex Products Corp.; P; CP
Hans Lau; LumenRadio AB; A; MP
Robert Tooker; O; U
Mitch Hefter; Philips Controls (Royal Philips Electronics), representing USITT; P; U

1 Opening remarks

Michael Lay called the meeting to order at 9:09 a.m. He welcomed everyone to Charlotte and asked that everyone silence their electronic devices.

2 Attendance

2.1 Introductions of those present and circulation of attendance sheet

A Candlewood Suites notepad was circulated as a sign-in sheet. Those present introduced themselves.

2.2 Determination of a quorum

The voting members present were counted. Twelve discrete votes were present, enough to establish a quorum but too few to pass a motion requiring a super-majority vote.

2.3 Recognition of alternate voting members

John Huntington and Eddie Kramer were recognized as representing Local 1. They were reminded that only one may vote on any particular motion.

3 Membership

3.1 Requirements for membership

Michael Lay read the following statement aloud to the assembly:

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

Michael Lay announced no one was in danger of being moved to observer status at this time.

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

As of 21 February 2011, the following applications had been received and logged:

Paul Martin; State Automation Pty. Ltd.; Observer; MP

Daniel Ayers; Ford Audio-Video Systems, Inc.; Observer; DR
 Gilray Densham; CAST Software (CAST Group Inc.); Observer; MP

Ted Paget moved that the applications be accepted. The motion was seconded and then approved with a show of hands.

3.4 Consensus body

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

Name	Representation	Voting status	Int. cat.
Jean-Francois Canuel	A.C. Lighting Ltd.	P	CP
Scott M. Blair	Barco	P	MP
Tom Grimes	Barco	A	MP
Paul Kleissler	City Theatrical, Inc.	P	MP
Larry Dunn	City Theatrical, Inc.	A	MP
Peter Kirkup	Cooper Controls Ltd.	P	MP
Edward A. (Ted) Paget	Daktronics Inc.	P	G
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
Robert Goddard	Goddard Design Co.	P	MP
Ed Garstkiewicz	Harting KGAA	P	G
Howard Forryan	Harting KGAA	A	G
Alan Martello	Horizon Control Inc.	P	MP
Robert Bell	Horizon Control Inc.	A	MP
Gary Douglas	Horizon Control Inc.	A	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
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	Leviton Manufacturing Co., Inc.	P	MP
Tyrone Mellon_Jr.	Lex Products Corp.	P	CP
Michael Karlsson	LumenRadio AB	P	MP
Marcus Bengtsson	LumenRadio AB	A	MP
Hans Lau	LumenRadio AB	A	MP
Stuart Cotts	Oregon Shakespeare Festival	P	U
Kevin Loewen	Pathway Connectivity Inc.	P	MP

Name	Representation	Voting status	Int. cat.
Dave Higgins	Pathway Connectivity Inc.	A	MP
Robert Armstrong	Pathway Connectivity Inc.	A	MP
Ron Bonner	PLASA	P	G
Charles Reese	Production Resource Group	P	DR
Michael Lay	Royal Philips Electronics	P	MP
Kimberly Corbett	Schuler Shook	P	DE
Simon Newton	Simon Newton	I	G
Mitch Heffer	USITT	P	U
	Total votes	25	
	Votes by interest categories	3	CP
		11	MP
		1	DR
		5	U
		4	G
		1	DE

4 Approval of the minutes from the January 2011 meeting

See *CPmin01-2011.pdf*.

Ted Paget moved that the minutes be accepted as written. The motion was seconded and then approved with a show of hands.

5 Reading of the call for patents

Mike Lay read the following statement aloud to the assembly:

"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."

No patents or other intellectual property were reported at this meeting.

6 Reading of the anti-trust statement

Mike Lay read the following statement aloud to the assembly:

"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 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 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."

No restraint of trade issues were reported.

7 Approval of agenda

The following items were proposed to be added to the agenda:

Michael Lay: Add discussion of IEEE AVB presentation and do a clerical correction of dates on the 2010 documents listed under item 8.1 from 2015 to 2016.

Mitch Hefter asked to offer a report on USITT programming as item 10.2.

Ulich Kunkel said he had a surprise presentation to be added as 10.3.

Ted Paget moved that the modified agenda be accepted. The motion was seconded and then approved with a show of hands.

8 Old business

8.1 Standards Maintenance.

Any news or action needed on any of these standards. *This is a placeholder in the agenda, so we don't forget to maintain them.*

ANSI E1.11 – 2008, Entertainment Technology - USITT DMX512-A, Asynchronous Serial Digital Data Transmission Standard for Controlling Lighting Equipment and Accessories. Revision, reaffirmation, or withdrawal in 2013.

ANSI E1.17 - 2010, Architecture for Control Networks. Revision, reaffirmation or withdrawal in ~~2015~~ 2016

ANSI E1.20 - 2010, Remote Device Management over USITT DMX512. Revision, reaffirmation or withdrawal in ~~2015~~ 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 in 2014.

ANSI E1.30-1 - 2010, EPI 23, Device Identification Subdevice. Revision, reaffirmation or withdrawal in ~~2015~~ 2016.

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

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

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

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

ANSI E1.31 – 2009, Entertainment Technology – Lightweight streaming protocol for transport of DMX512 using ACN. Revision, reaffirmation or withdrawal in 2014.

There were no comments on any of the maintenance items

8.2 BSR E1.37-1, Additional Message Sets for ANSI E1.20, Remote Device Management

2nd Public review closed 8 February 2011. Comment resolution. See E1-37-1DimMssgs_Rev5.pdf and E1-37-1ScndRevwCmmnts-Rsls.pdf.

Peter Willis had submitted objections to the comment resolutions the previous evening, less than 24 hours before the meeting. Members felt that they did not have enough time to review these comments, so they were set aside. Comments such as Peter's can be submitted as part of any letter ballot in this circulation.

Ted Paget moved that the proposed comment resolutions presented in E1-37-1ScndRevwCmmnts-Rsls.pdf be accepted. The motion was seconded. The question will be decided by letter ballot. The letter ballot will serve as a mechanism for Peter Willis to offer any objections he might have in a timely manner that will allow other voters to consider them.

The consensus of the group was that any consideration of adopting the standard should be held until the July meeting, after the comment resolution ballot is over.

8.3 BSR E1.30-12, EPI 34, E1.31 Universe Synchronization.

Progress report from the Task Group. At the Mar 2010 session, the Task Group reported no progress on this document. At the Jul 2010 meeting, the task group reported no forward progress on this document. This project is on hold while other EPI's are being worked on. At the Jan 2011 meeting it was noted that Ulrich Kunkel is working on it and that the task group is interested in completing this EPI.

Ulrich Kunkel reported that he has a draft with three possible solutions:

- 1) Change the sACN standard itself, no EPI
- 2) Issue EPI to a standard
- 3) Issue a second START code in an EPI

Ulrich indicated that this EPI is a request from users. Many companies have already addressed this in a proprietary fashion. He does not have enough people at this USITT meeting to review the draft document. He hopes to have a draft document in July for review and a task group meeting.

8.4 BSR E1.33, Extensions to E1.31 for Transport of ANSI E1.20 (RDM)

Task Group was optimistic in Nov 2009 that we would have a draft document for the Jul 2010 meeting, however a first public review vote would not probably occur until the Oct 2010 session. At the July 2010 meeting the task group reported excellent forward progress and that they were re-calibrated towards having a first draft for the Jan 2011 CPWG meeting. At the Oct 2010 meeting, the task group reported that they were still on track to have a first draft for the Jan 2011 CPWG meeting. At the Jan 2011 meeting it was noted that some forward progress had been made and that a draft document suitable for consideration for public review would be ready for the July 2011 meeting.

Michael Lay reported on behalf of Scott Blair, who was not present. Blair hopes to have a document ready in time for July CPWG meeting.

8.5 ANSI E1.3 – 2001 (R2006), 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

Letter ballot for public review for reaffirmation closed 2 Dec 2010, with 26 votes in favor. There was one "yes with comments" vote but agreement from the commenter to not re-circulate the ballot. Currently in public review period, 30 Dec 2010 through 1 Mar 2011.

Michael Lay reported that no comments were received during the comment period.

Mitch Hefter moved that the standard be reaffirmed. The motion was seconded. The motion will be decided by letter ballot.

8.6 ANSI E1.27-1 – 2006, Entertainment Technology - Standard for Portable Control Cables for Use with USITT DMX512/1990 and E1.11 (DMX512-A) Products.

At the Oct 2010 meeting, the CPWG voted to hold a letter ballot to offer the existing standard for Letter ballot for public review for reaffirmation yielded 24 "yes" and 1 "yes with comments" vote. Commenter agreed to move forward with public review rather than re-circulate the ballot. Currently in public review, 30 Dec 2010 through 1 Mar 2011.

Michael Lay reported that no comments were received during the comment period.

Mitch Hefter moved that the standard be reaffirmed. The motion was seconded. The motion will be decided by letter ballot.

9 CPWG marketing efforts

9.1 Protocol Articles

Bob Goddard noted that he was close to proposing a Protocol Article. Dan Antonuk will also write an article for an issue in 2011. Simon Newton volunteered an article for an issue in 2011.

Goddard and Newton were not present. No meeting attendees had anything to report.

9.2 July Plugfest Planning

Michael Lay reported on behalf of Scott Blair that a plugfest is planned for July. It will be extended to Sunday evening.

9.3 PLASA Connectivity Pavilion

No report. Michael Lay agreed to check with Peter Willis and Scott Blair on progress with this.

9.4 LDI Connectivity Pavilion

No report. Michael Lay agreed to check with Bill Ellis and Peter Willis on any progress with this.

9.5 LDI CPWG Session

Michael Lay said that topics will need to be suggested for July meeting or Michael and Karl will volunteer CPWG members.

9.6 PLASA CPWG PowerPoint For Presentation At Trade Shows

There was discussion of developing a generic presentation for various trade shows. Michael Lay agreed to start an outline for a presentation about our standards with particular emphasis on RDM and ACN.

It was noted that Peter Kirkup has prepared an introduction to RDM presentation for PLASA conferences.

Roger Lattin said he prepares presentations for Cine Gear. He previously presented on lamp inspection and GFCIs in entertainment industry. Planning is underway for another show in mid-June, and he would like a presentation such as this that he can use. He reported that his Local members are interested in getting more involved in trade shows—they are becoming an educational tool.

Ted Paget said he is willing to assist in the development. Kimberly Corbett agreed to assist with presentational elements. She noted that this presentation is not likely to be ready for July.

Mitch Hefter described previous sessions he has run. He suggested that a template may be a starting point that can be expanded.

Michael Lay appointed a task group with himself as the chairman and with Kimberly Corbett, Roger Lattin, and Ted Paget as members.

10 New business

10.1 IEEE Presentation

Michael Lay reported that Steve Carlson is willing to give a presentation at LDI. The response from the WG to this idea was positive. This presentation might be part of the LDI technical track.

Eddie Kramer discussed the voting process for IEEE's documents.

10.2 Mitch Hefter on USITT programming

Hefter said that the Engineering Commission has discussed learning about protocols that "aren't just for lighting." They are interested in having a session on such protocols at the 2012 USITT Conference. Hefter is looking for volunteers.

Hans Lau mentioned that protocols used to manage wireless microphone systems are a non-lighting application.

Hefter reported that the hands-on networking session that was supposed to be at this USITT 2011 was canceled. The session will be offered at next year's USITT Conference in Long Beach, California. (March 28-31, 2012)

Roger Lattin offered the resources of his IATSE Local, since the Long Beach Conference Center is in his Local's jurisdiction. He mentioned that there is some confusion of moving from DMX512, which everyone understands, to other networking protocols.

10.3 Ulrich Kunkel presentation

There is an issue with power plugs used in Europe and the plethora of adapters necessary for various countries. The same problem exists in the entertainment industry, so he and a group are working with manufacturers to design a new plug for use in entertainment industry as a "standard entertainment plug" for power in Germany. He showed an example. The connector is rated for 12 kW (50 A at 240 V), and is rated for 400V. It can be connected or removed with one hand operation, and it's a locking connection. There will be a DIN standard issued for the connector next year, a standard for a "German stage connector," which would be abbreviated as "DSB" in German. There will be three versions: 3 kW, 6 kW, and 12 kW. It will be color-coded for various power sources.

Roger Lattin expressed interest in a 24 kW version for film lighting.

11 Other business and announcements

None.

12 Schedule for future meetings

Michael Lay announced that the next meeting is scheduled for Saturday, July 23 from 14:00 to 18:00 at the Marriott Solana in bucolic Westlake, Texas.

13 Adjournment

Eddie Kramer moved that the meeting adjourn. The motion was seconded and then approved with a unanimous show of hands. Michael Lay declared the meeting adjourned at 10:01.

Working Group Membership as of 6 May 2011

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
Shahid Anwar	Avolites Ltd.	Avolites Ltd.	O	MP
Robert Armstrong	Pathway Connectivity Inc.	Pathway Connectivity Inc.	A	MP
Avraham Mendall Mor "Avi"	Lightswitch	Lightswitch	O	U
Daniel Ayers	Ford Audio-Video Systems, Inc.	Ford Audio-Video Systems, Inc.	O	DR
Tim Bachman	A.C.T Lighting, Inc.	A.C.T Lighting, Inc.	O	DR
Robert Barbagallo	Solotech Inc.	Solotech Inc.	O	U
Robert Bell	Horizon Control Inc.	Horizon Control Inc.	A	MP
Marcus Bengtsson	LumenRadio AB	LumenRadio AB	A	MP
William Benner	Pangolin Laser Systems	Pangolin Laser Systems	O	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	LiteSpeed Design	LiteSpeed Design	wtg	G
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	P	G
André Broucke	André Broucke	André Broucke	O	G
Larry Busch	ADB Lighting Technologies	ADB Lighting Technologies	O	MP
John (Javid) D. Butler	Integrated Theatre, Inc.	Integrated Theatre, Inc.	O	CP
Jean-Francois Canuel	Spectrum Manufacturing Inc.	A.C. Lighting Ltd.	P	CP

Name	Company	Representing	Voting status	Int. cat.
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
Kimberly Corbett	Schuler Shook	Schuler Shook	P	DE
Eric Cornwell	West Side Systems	West Side Systems	O	U
Stuart Cotts	Oregon Shakespeare Festival	Oregon Shakespeare Festival	P	U
Klas Dalbjorn	Labgruppen AB	TC Group	O	MP
Ben Darrington	Wireless Solutions Sweden AB	Wireless Solutions Sweden AB	O	MP
Milton Davis	Doug Fleenor Design, Inc.	Doug Fleenor Design, Inc.	A	MP
Gilray Densham	CAST Software	CAST Group Inc	O	MP
Gary Douglas	Horizon Control Inc.	Horizon Control Inc.	A	MP
Gary Dove	Dove Systems	Dove Systems	O	MP
Hamish Dumbreck	JESE Ltd.	James Embedded Systems Engineering	O	MP
Larry Dunn	City Theatrical, Inc.	City Theatrical, Inc.	A	MP
Jerry Durand	Durand Interstellar, Inc.	Durand Interstellar, Inc.	O	CP
James Eade	PLASA	PLASA	O	G
Andrew Eales	Wellington Institute of Technology	Rhodes University	O	U
Joost van Eenbergen	ELC Lighting	ELC Lighting	O	MP
Bill Ellis	Candela Controls, Inc.	Candela Controls, Inc.	O	U
Paul K. Ericson	Syska Hennessy Group Lighting Design	Syska Hennessy Group Lighting Design	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

Name	Company	Representing	Voting status	Int. cat.
Howard Forryan	Harting Ltd.	Harting KGAA	A	G
Douglas Franz	QVC Network	QVC Network	O	U
Steve Friedlander	Auerbach Pollock Friedlander	Auerbach Pollock Friedlander	O	U
Phillip M. Gallo	TMB	TMB	O	DR
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
Tom Grimes	High End Systems, Inc.	Barco	P	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	Trinity Repertory Company	Trinity Repertory Company	O	U
Mitch Heffer	Philips Controls (Royal Philips Electronics)	USITT	P	U
Bill Hewlett	Hewlett Electronics	Hewlett Electronics	O	CP
Dave Higgins	Pathway Connectivity Inc.	Pathway Connectivity Inc.	A	MP
Simon Hobday	Artistic Licence (UK) Ltd.	Artistic Licence (UK) Ltd.	O	CP
Helge Hoffmann	JB Lighting	JB Lighting	O	MP
Jim Holladay	Luxence	Luxence	O	G
Wayne David Howell	Artistic Licence (UK) Ltd.	Artistic Licence (UK) Ltd.	O	CP
John Huntington	City Tech, Ent Tech Department	I.A.T.S.E. Local 1	A	U
Osedum P. Igumbor	Dept. of Computer Science	Rhodes University	O	U
John Sondericker_III	Wybron, Inc.	Wybron, Inc.	O	MP
Sierk Janszen	Kiss Box	Ground Zero	O	U
Eric Johnson	Eric Johnson	Eric Johnson	O	MP
Rob Johnston	Interactive Technologies, Inc.	Interactive Technologies, Inc.	O	MP
Ed Jones	Edwin Jones Co., Inc.	Edwin Jones Co., Inc.	O	CP

Name	Company	Representing	Voting status	Int. cat.
Tyrone Mellon_Jr.	Lex Products Corp.	Lex Products Corp.	P	CP
Jussi Kallioinen	Eastway Sound & Lighting	Eastway Sound & Lighting	O	U
Ujjal Kar	Standard Robotics & Lighting	Standard Robotics & Lighting	O	G
Michael Karlsson	LumenRadio AB	LumenRadio AB	P	MP
Kirk D. Keen	Hollywood Lighting Services, Inc.	Hollywood Lighting, Inc.	O	DR
Insu Kim	ETRI	ETRI	O	G
Peter Kirkup	Zero 88	Cooper Controls Ltd.	P	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
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
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 Electronics	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
Kevin Loewen	Pathway Connectivity Inc.	Pathway Connectivity Inc.	P	MP
Mark Manthei	Shure Inc.	Shure Inc.	O	G
Paul F. Mardon	Pulsar Ltd.	Pulsar Ltd.	O	MP
Alan Martello	Horizon Control Inc.	Horizon Control Inc.	P	MP
Mick Martin	ShowCAD Control Systems	ShowCAD Control Systems	O	MP
Paul Martin	State Automation Pty. Ltd.	State Automation Pty. Ltd.	O	MP
Paul Kenneth McEwan	Zero 88	Cooper Controls Ltd.	O	MP

Name	Company	Representing	Voting status	Int. cat.
John Mehlretter	Lehigh Electric Products Co.	Lehigh Electric Products Co.	O	MP
Tobin Neis	Barbizon Companies	Barbizon Companies	O	DR
Simon Newton	Simon Newton	Simon Newton	I	G
Maya Nigrosh	Electronic Theatre Controls, Inc.	Electronic Theatre Controls, Inc.	A	MP
Philip Nye	Engineering Arts	Engineering Arts	O	G
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
Fabiano Pina	Clay Paky S.P.A.	Clay Paky S.P.A.	O	MP
Gary Pritchard	LSC Lighting Systems (Aust) PTY Ltd	LSC Lighting Systems PTY Ltd	O	MP
Eric Proces	Eric Proces	Eric Proces	O	U
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	G
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.	O	DR
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
Storm K. Staley	Stormwerx	Stormwerx	O	U

Name	Company	Representing	Voting status	Int. cat.
Bart Swinnen	Luminex LCE	Luminex LCE	O	MP
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
David Timmins	Jands Electronics	Jands Electronics	O	MP
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
Ken Vannice	Leviton Manufacturing Co., Inc.	Leviton Manufacturing Co., Inc.	P	MP
Dominic Vincenty	TPS	Television Production Service	O	DR
Will Wagner	Carallon Ltd.	Carallon Ltd.	O	MP
John Warwick	Philips/Color Kinetics	Royal Philips Electronics	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
Jiantong Wu	Beijing Special Engineering Design & Research Institute	Beijing Special Engineering Design & Research Institute	O	G
Kehang Wu	Shure Inc.	Shure Inc.	O	G

Name	Company	Representing	Voting status	Int. cat.
David Yellin	LightMinded Industries, Inc.	LightMinded Industries, Inc.	O	MP
Larry Zoll	Zoll Design & Consulting, LLC	Zoll Design & Consulting, LLC	O	U

Key to codes:

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