

# Minutes Control Protocols Working Group

Thursday, 23 October 2008  
Harrah's Las Vegas  
Las Vegas, NV

**Chairmen:** Michael Lay; Strand Lighting (Royal Philips Electronics); P; MP  
Tracy Underhill; Electronics Diversified LLC; P; MP

**Recording secretary:** Karl G. Ruling; ESTA

## Members attending:

Jean-Francois Canuel; Spectrum Manufacturing Inc. (A.C. Lighting Ltd.); P; CP  
Arnold Tang; Arnold Tang Productions; P; U  
Simon Hobday; Artistic Licence (UK) Ltd.; P; CP  
Scott M. Blair; High End Systems Inc. (Barco); P; MP  
Bill Ellis; Candela Controls, Inc.; O; U  
Edward A. (Ted) Paget; Vortek Rigging Division (Daktronics Inc.); P; G  
Ulrich Kunkel; E3 Engineering & Education for Entertainment, representing DIN, NVBF Committee;  
P; U  
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  
Philip Nye; Engineering Arts; P; G  
Robert Goddard; Goddard Design Co.; P; MP  
Alan Martello; Horizon Control Inc.; P; MP  
Peter Willis; Howard Eaton Lighting Ltd.; P; CP  
Roger Lattin; I.A.T.S.E .Local 728; P; U  
Tyrone Mellon Jr.; Lex Products Corp.; P; CP  
Stuart Cotts; Oregon Shakespeare Festival; P; U  
Kevin Loewen; Pathway Connectivity Inc.; P; MP  
Ron Bonner; PLASA; P; G  
Charles Reese; Production Resource Group; P; DR  
Robert Tooker; Production Resource Group; A; DR  
Hans Lau; Sand Network Systems, Inc.; P; MP  
Lars F. Paape; Scientific Algorithms and Embedded Systems; O; U  
Mitch Hefter; Entertainment Technology (Royal Philips Electronics), representing USITT; P; U

**Visitors:** None.

## 1 Opening remarks

The meeting was called to order at 9:10 by Tracy Underhill. He had delayed the start of the meeting to allow people time to find the room, which was at the end of a long hall and not marked with signs.

## 2 Attendance

### 2.1 Introductions of those present and circulation of attendance sheet

An attendance sign-in sheet was circulated while those present introduced themselves.

### 2.2 Determination of a quorum

Underhill asked the voters present to each raise a hand. They did, and he counted them. Underhill then announced that a quorum was present and business could be conducted.

### 2.3 Recognition of alternate voting members

Milton Davis was recognized as being present to represent Doug Fleenor Design. Robert Tooker, the PRG alternate was reminded not to vote if his principal, Charles Reese, was voting on a question.

### 3 Membership

#### 3.1 Requirements for membership

The following statement was read aloud to the assembly by Tracy Underhill:

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

Lars F. Paape of Scientific Algorithms and Embedded Systems had applied as an observer in the user interest category.

John Warwick and Mike Blackwell of Color Kinetics had applied as observers in the mass market producer interest category.

Simon Hobday of Artistic Licence asked to be reinstated as voting member.

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

#### 3.3 Consensus body

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

Name	Company	Representing (Sort field)	Voting status	Int. cat.
Jean-Francois Canuel	Spectrum Manufacturing Inc.	A.C. Lighting Ltd.	P	CP
Arnold Tang	Arnold Tang Productions	Arnold Tang Productions	P	U
Simon Hobday	Artistic Licence (UK) Ltd.	Artistic Licence (UK) Ltd.	P	CP
Scott M. Blair	High End Systems Inc.	Barco	P	MP
Tom Grimes	High End Systems, Inc.	Barco	A	MP
Edward A. (Ted) Paget	Vortek Rigging Division	Daktronics Inc.	P	G
Ulrich Kunkel	E3 Engineering & Education for Entertainment	DIN, NVBF Committee	P	U
Doug Fleenor	Doug Fleenor Design, Inc.	Doug Fleenor Design, Inc.	P	MP
Milton Davis	Doug Fleenor Design, Inc.	Doug Fleenor Design, Inc.	A	MP
Daniel W. Antonuk	Electronic Theatre Controls, Inc.	Electronic Theatre Controls, Inc.	P	MP
Steve Terry	Electronic Theatre Controls	Electronic Theatre Controls, Inc.	A	MP
Tracy Underhill	Electronics Diversified LLC	Electronics Diversified LLC	P	MP
Philip Nye	Engineering Arts	Engineering Arts	P	G
Robert Goddard	Goddard Design Co.	Goddard Design Co.	P	MP
Alan Martello	Horizon Control Inc.	Horizon Control Inc.	P	MP
Robert Bell	Horizon Control Inc.	Horizon Control Inc.	A	MP
Gary Douglas	Horizon Control Inc.	Horizon Control Inc.	A	MP
Peter Willis	Howard Eaton Lighting Ltd.	Howard Eaton Lighting Ltd.	P	CP
Edwin S. Kramer	I.A.T.S.E. Local 1	I.A.T.S.E. Local 1	P	U
John Huntington	City Tech, Ent Tech Department	I.A.T.S.E. Local 1	A	U
Roger Lattin	I.A.T.S.E. Local 728	I.A.T.S.E. Local 728	P	U
Dennis Grow	I.A.T.S.E. Local 728	I.A.T.S.E. Local 728	A	U
Alan M. Rowe	IATSE Local 728	I.A.T.S.E. Local 728	A	U
John (Javid) D. Butler	Integrated Theatre, Inc.	Integrated Theatre, Inc.	P	CP

Name	Company	Representing (Sort field)	Voting status	Int. cat.
Michael (Mike) Whetstone	Integrated Theatre, Inc.	Integrated Theatre, Inc.	A	CP
Rick Leinen	Colortran	Leviton Manufacturing Co., Inc.	P	MP
Ken Vannice	Colortran	Leviton Manufacturing Co., Inc.	A	MP
Tyrone Mellon Jr.	Lex Products Corp.	Lex Products Corp.	P	CP
Stuart Cotts	Oregon Shakespeare Festival	Oregon Shakespeare Festival	P	U
Kevin Loewen	Pathway Connectivity Inc.	Pathway Connectivity Inc.	P	MP
Dave Higgins	Pathway Connectivity Inc.	Pathway Connectivity Inc.	A	MP
Robert Armstrong	Pathway Connectivity Inc.	Pathway Connectivity Inc.	A	MP
Ron Bonner	PLASA	PLASA	P	G
Charles Reese	Production Resource Group	Production Resource Group	P	DR
Robert Tooker	Production Resource Group	Production Resource Group	A	DR
Michael Lay	Strand Lighting	Royal Philips Electronics	P	MP
Hans Lau	Sand Network Systems, Inc.	Sand Network Systems, Inc.	P	MP
Yngve Sandboe	Sand Network Systems, Inc.	Sand Network Systems, Inc.	A	MP
Kimberly Corbett	Schuler Shook	Schuler Shook	P	G
Mark Manthei	Shure Inc.	Shure Inc.	P	G
Kehang Wu	Shure Inc.	Shure Inc.	A	G
Mitch Hefter	Entertainment Technology (Royal Philips Electronics)	USITT	P	U
		Total	27	
		Totals by interest categories	5	CP
			10	MP
			1	DR
			6	U
			5	G

#### 4 Approval of the minutes from the previous meeting

See CP/2008-1037, CPmin07-2008.pdf. Mitch Hefter moved that the minutes be approved. The motion was seconded and then accepted with a show of hands.

#### 5 Reading of the call for patents

The following statement was read aloud to the assembly by Tracy Underhill:

"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 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."

Philip Nye cited City Theatrical patent 7,432,803. Karl Ruling said that he would write to Gary Fails to ask for an assurance that 7,432,803 may be licensed by anyone on a non-discriminatory basis for a reasonable fee, if the use of the protected intellectual property is necessary for the implementation of one of our standards.

#### 6 The reading of the anti-trust statement

The following statement was read aloud to the assembly by Tracy Underhill:

"The ESTA Board of Directors, the Technical Standards Committee, 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 ESTA president immediately.

"ESTA 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."

Karl Ruling, the Technical Standards Manager, held up one of the easy-to-read pamphlets to show that it was available.

No restraint of trade issues were reported.

## **7 Approval of agenda**

Mike Lay asked Mitch Hefter to report on TSC actions under "Other business."

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

## **8 Old business**

### **8.1 ANSI E1.3-2001 (R2006)**

No news or action.

### **8.2 BSR E1.11 - 20xx (revision of ANSI E1.11 - 2004)**

Steve Terry arrived at 10:33 and reported that the ESTA Board had approved the acceptance of BSR E1.11-20xx as an American National Standard.

### **8.3 BSR E1.20-20xx, Remote Device Management (revision of ANSI E1.20 - 2006)**

Scott Blair said that there had been some discussion on the RDM Forum and some additional problems with the document have been found. Peter Willis said that there are some timing problems that have surfaced, and these will require substantive changes to the standard.

There was a discussion of the timing for progress on the revision.

### **8.4 E1.17 Architecture for Control Networks**

Mike Lay pressed Dan Antonuk for a time-line for the revisions. Dan Antonuk agreed to having the revisions done by January 2009.

### **8.5 E1.27-X, cabling**

#### **8.5.1 ANSI E1.27-1-2006 (portable DMX512/E1.11 cabling)**

No news or action.

#### **8.5.2 BSR E1.27-2 (permanent DMX512/E1.11 cabling)**

Mike Lay noted that the document is in public review through November 24. The review is over when November 25 starts.

### **8.6 BSR E1.30, Application level equipment interoperability for control of commonly encountered entertainment technology devices using E1.17**

#### **8.6.1 Consideration of the public review results for BSR E1.30-1 through BSR E1.30-10**

Please see the following public review summary reports:

SmmryFrstRvwE1-30-1.pdf

SmmryFrstRvwE1-30-2.pdf

SmmryFrstRvwE1-30-3.pdf

SmmryFrstRvwE1-30-4.pdf  
SmmryFrstRvwE1-30-5.pdf  
SmmryFrstRvwE1-30-6.pdf  
SmmryFrstRvwE1-30-7.pdf  
SmmryFrstRvwE1-30-8.pdf  
SmmryFrstRvwE1-30-9.pdf  
SmmryFrstRvwE1-30-10.pdf

### **8.6.2 Next steps with BSR E1.30-1 through BSR E1.30-10**

Dan Antonuk moved that those comments that received no substantive comments be accepted as American National Standards. (Those are BSR E1.30-3, -4, -7, and -10.) The motion was seconded. The motion will be decided by letter ballot to allow all voters an opportunity to vote on the final approval of the draft proposed standards.

Antonuk mentioned some possible future EPIs: what information should be stored in equipment, a model for how to control dimmers, a model for how to control moving lights, and what gels are in a scrolling color changer.

Philip Nye urged people to attend the DDL Demystified session at 9:00 on Sunday morning, 26 October, at LDI.

## **8.7 BSR E1.31, Lightweight streaming protocol for transport of DMX512 using ACN**

### **8.7.1 Consideration of the public review comments**

See E1-31Revw2ndCmmnts.pdf for a summary of the public review comments.

Charles Reese reported that there were only six comments, and that probably no substantive changes will be required to resolve them.

### **8.7.2 Next step with BSR E1.31**

Does it need further work to resolve the comments or to improve it? Is it ready for adoption as an ANS? There was discussion.

Dan Antonuk moved that the resolutions, when they are drafted, be approved and that the revised standard be accepted as an American National Standard. The motion was seconded. The motion will be decided by letter ballot.

The presumption is that the resolutions will not make substantive changes to the document. If they do, another public review will be required.

## **8.8 BSR E1.33-200x, Extensions to E1.31 for Transport of ANSI E1.20 (RDM)**

Scott Blair reported that he'd worked on the document while on the plane to this meeting. He's sent an expanded version out to the task group, which will be meeting this afternoon to work on it.

Mike Lay asked when there might be a deliverable. Scott Blair said he didn't know. He is too busy and needs to shift the writing to someone else. A goal was set for having a solid document available to be considered for public review by July 2009.

## **8.9 BSR E1.37-200x—Additional Message Sets for ANSI E1.20, Remote Device Management**

Scott Blair reported that there has been little work done on BSR E1.37. He identified Peter Willis as the editor of the document. Peter Willis reported that the document has not been moving forward, but that he has talked to dimmer manufacturers and has found some who are willing to help review the documents. Dan Antonuk agreed to help the project by offering advise.

Philip Nye suggested that the lack of interest from dimmer manufacturers and the lack of progress suggests that the project should be put on hold. Willis argued that the take-up of RDM has been at a

slower rate than expected, but that it has taken hold with many RDM products coming on the market, so there will be greater interest in the future.

Willis said that the group is not working to define dimmer operating modes, but to set how a dimmer can tell a controller what modes it has. Dan Antonuk suggested that this was like the dimmer EPIs being worked on for ACN. He suggested that RDM and ACN should do it in similar ways. There was discussion of sharing information between the groups.

## **9 New business**

## **10 Other business**

### **10.1 TSC actions**

#### **10.1.1 Wiki**

Mitch Hefter reported that the TSC has gotten a legal opinion from ESTA's lawyer that will allow us to develop documents in a wiki environment. Some software has been found, and it only needs a little work to satisfy our lawyer's requirements. Task groups will not be required to use the wiki environment, but may if it helps them.

#### **10.1.2 Revisions to the P&P**

Mitch Hefter reported that the TSC is considering making changes to the Policies & Procedures to clarify the process and to speed the development of standards.

#### **10.1.3 New appointments to the TSC, looking at changing its composition.**

Mitch Hefter reported that the ESTA President is considering changing the composition of the TSC to help the TSP address the needs of the larger entertainment industry.

#### **10.1.4 Training for working group chairs**

Steve Terry reported that there will be a training session for working group chairs on Friday afternoon, 23 January 2009, at the Dallas/Ft. Worth Marriott Solana.

## **10.2 Interconnectivity Pavilion**

Peter Willis announced that the Interconnectivity Pavilion is booth 2509 near the ESTA booth on the LDI show floor. He encouraged people to visit to see the large amount of equipment that is using a variety of standardized protocols to pass control and status data.

Mike Lay thanked Peter Willis for his hard work on the Pavilion, both at LDI and at PLASA.

## **11 Schedule for future meetings**

Mike Lay announced that the next meeting is scheduled for Saturday, 24 January 2009, from 14:00 to 18:00 at Dallas/Ft. Worth Marriott Solana in Westlake, TX.

## **12 Changes to observer status due to lack of attendance**

Voting members who have missed the previous two meetings and will be moved to observer status if this meeting also is missed:

Peter Willis; Howard Eaton Lighting Ltd.

Peter Willis was present, so there will be no status change, said Tracy Underhill. Willis continues to be a voting member.

## **13 Adjournment**

Ted Paget moved that the meeting adjourn. The motion was seconded, and then approved with a unanimous show of hands. Tracy Underhill declared the meeting adjourned at 10:46.

### Working Group Membership and Contact Information as of 6 November 2008

Name	Company	Representing (This is the sort field.)	Int. cat.	Voting status
Jean-Francois Canuel	Spectrum Manufacturing Inc.	A.C. Lighting Ltd.	CP	P
Tim Bachman	A.C.T Lighting, Inc.	A.C.T Lighting, Inc.	DR	O
Andre Broucke	ADB - TTV Technologies	ADB-TTV Group	MP	O
John Sellers	AIM Northwest	AIM Northwest	G	O
Arnold Tang	Arnold Tang Productions	Arnold Tang Productions	U	P
Simon Hobday	Artistic Licence (UK) Ltd.	Artistic Licence (UK) Ltd.	CP	P
Wayne David Howell	Artistic Licence (UK) Ltd.	Artistic Licence (UK) Ltd.	CP	O
Steve Friedlander	Auerbach Pollock Friedlander	Auerbach Pollock Friedlander	U	O
J. B. Toby	Avolites Ltd.	Avolites Ltd.	MP	O
Shahid Anwar	Avolites Ltd.	Avolites Ltd.	MP	O
Richard Salzedo	Avolites Ltd.	Avolites Ltd.	MP	O
Barbara Wohlsen	Barbara Wohlsen	Barbara Wohlsen	U	O
Tobin Neis	Barbizon Companies	Barbizon Companies	DR	O
Scott M. Blair	High End Systems Inc.	Barco	MP	P
Tom Grimes	High End Systems, Inc.	Barco	MP	A
Jiantong Wu	Beijing Special Engineering Design & Research Institute	Beijing Special Engineering Design & Research Institute	G	O
Bernardo Benito Rico	Ben-Ri Electronica S.A.	Ben-Ri Electronica S.A.	MP	O
Lee J. Bloch	Bloch Design Group, Inc.	Bloch Design Group, Inc.	G	O
Soo-Myong Chung	Bloch Design Group, Inc.	Bloch Design Group, Inc.	G	O
Bill Ellis	Candela Controls, Inc.	Candela Controls, Inc.	U	O
Will Wagner	Carallon Ltd.	Carallon Ltd.	MP	O
Steve Roberts	Carr & Angier	Carr & Angier	G	O
Bob Toms	Catalyst Microsystems LLC	Catalyst Microsystems LLC	G	O
Marty Lazarus	Chicago Spotlight, Inc.	Chicago Spotlight, Inc.	G	O
Chuck Seifried	Phoenix Civic Plaza	City of Phoenix	U	O
Larry Dunn	City Theatrical, Inc.	City Theatrical, Inc.	CP	O
Fabiano Pina	Clay Paky S.P.A.	Clay Paky S.P.A.	MP	O
Yehuda Shukram	Compulite Systems	Compulite Systems	MP	O
Dietmar Rottinghaus	Connex GmbH	Connex GmbH	G	O
Edward A. (Ted) Paget	Vortek Rigging Division	Daktronics Inc.	G	P
David Bertenshaw	David Bertenshaw	David Bertenshaw	G	O
Larry Schoeneman	Designlab Chicago, Inc.	Designlab Chicago, Inc.	DR	O
Ulrich Kunkel	E3 Engineering & Education for Entertainment	DIN, NVBF Committee	U	P
Doug Fleenor	Doug Fleenor Design, Inc.	Doug Fleenor Design, Inc.	MP	P
Milton Davis	Doug Fleenor Design, Inc.	Doug Fleenor Design, Inc.	MP	A
Gary Dove	Dove Systems	Dove Systems	MP	O
Jerry Durand	Durand Interstellar, Inc.	Durand Interstellar, Inc.	CP	O
Jussi Kallioinen	Eastway Sound & Lighting	Eastway Sound & Lighting	U	O
Edward R. Condit	Edward R. Condit	Edward R. Condit	G	O
Ed Jones	Edwin Jones Co., Inc.	Edwin Jones Co., Inc.	CP	O
Joost van Eenbergen	ELC Lighting	ELC Lighting	MP	O
Bill Fehrmann	Electrol Engineering, Inc.	Electrol Engineering, Inc.	MP	O
Daniel W. Antonuk	Electronic Theatre Controls, Inc.	Electronic Theatre Controls, Inc.	MP	P
Adam Bennette	Electronic Theatre Controls Ltd.	Electronic Theatre Controls, Inc.	MP	O
Hans Leiter	ETC GmbH	Electronic Theatre Controls, Inc.	MP	O
Anders Ekvall	Transtechnik Lichtsysteme GmbH	Electronic Theatre Controls, Inc.	MP	O
Steve Terry	Electronic Theatre Controls	Electronic Theatre Controls, Inc.	MP	A

Name	Company	Representing (This is the sort field.)	Int. cat.	Voting status
Tracy Underhill	Electronics Diversified LLC	Electronics Diversified LLC	MP	P
Ralph Weber	ENDL Texas	ENDL Texas	G	O
Philip Nye	Engineering Arts	Engineering Arts	G	P
Eric Johnson	Eric Johnson	Eric Johnson	MP	O
Eric Proce	Eric Proce	Eric Proce	U	O
Erwin Rol	Erwin Rol Software Engineering	Erwin Rol	G	O
Robert Goddard	Goddard Design Co.	Goddard Design Co.	MP	P
Sierk Janszen	Kiss Box	Ground Zero	U	O
Trevor Forrest	Helvar Lighting Control	Helvar Lighting Control	MP	O
Bill Hewlett	Hewlett Electronics	Hewlett Electronics	CP	O
Steve Carlson	High Speed Design, Inc.	High Speed Design, Inc.	MP	O
Alan Martello	Horizon Control Inc.	Horizon Control Inc.	MP	P
Robert Bell	Horizon Control Inc.	Horizon Control Inc.	MP	A
Gary Douglas	Horizon Control Inc.	Horizon Control Inc.	MP	A
Peter Willis	Howard Eaton Lighting Ltd.	Howard Eaton Lighting Ltd.	CP	P
Paul J. Clark	HxDx	HxDx	CP	O
Edwin S. Kramer	I.A.T.S.E. Local 1	I.A.T.S.E. Local 1	U	P
John Huntington	City Tech, Ent Tech Department	I.A.T.S.E. Local 1	U	A
Roger Lattin	I.A.T.S.E. Local 728	I.A.T.S.E. Local 728	U	P
Dennis Grow	I.A.T.S.E. Local 728	I.A.T.S.E. Local 728	U	A
Alan M. Rowe	IATSE Local 728	I.A.T.S.E. Local 728	U	A
Geoffrey O. Thompson	Nortel Networks, Inc.	IEEE 802.3/Nortel Networks	G	O
John (Javid) D. Butler	Integrated Theatre, Inc.	Integrated Theatre, Inc.	CP	P
Michael (Mike) Whetstone	Integrated Theatre, Inc.	Integrated Theatre, Inc.	CP	A
Rob Johnston	Interactive Technologies, Inc.	Interactive Technologies, Inc.	MP	O
David Timmins	Jands Electronics	Jands Electronics	MP	O
Helge Hoffmann	JB Lighting	JB Lighting	MP	O
Christopher Purpura	Jones & Phillips Associates, Inc.	Jones & Phillips Associates, Inc.	G	O
Josh Gubler	Josh Gubler	Josh Gubler	CP	O
John Mehlretter	Lehigh Electric Products Co.	Lehigh Electric Products Co.	MP	O
Mark T. Kraft	Lehigh Electric Products Co.	Lehigh Electric Products Co.	MP	O
Rick Leinen	Colortran	Leviton Manufacturing Co., Inc.	MP	P
Ken Vannice	Colortran	Leviton Manufacturing Co., Inc.	MP	A
Lars Wernlund	Lewlight	Lewlight	MP	O
Tyrone Mellon Jr.	Lex Products Corp.	Lex Products Corp.	CP	P
Klaus Amling	Licht-Technik	Licht-Technik	P	O
Andrew Sherar	Lightmoves PLC	Lightmoves PLC	MP	O
Avraham Mendall Mor "Avi"	Lightswitch	Lightswitch	U	O
Simon Alpert	Lighttech Event Technologies	Lighttech Event Technologies	CP	O
Gary Pritchard	LSC Lighting Systems (Aust) PTY Ltd	LSC Lighting Systems PTY Ltd	MP	O
Bart Swinnen	Luminex LCE	Luminex LCE	MP	O
Jim Holladay	Luxence	Luxence	G	O
Daniel Weiermann	Mainstage Theatrical Supply - Milwaukee	Mainstage Theatrical Supply	DR	O
Torben Kaas Rasmussen	Martin Professional A/S	Martin Professional A/S	G	O
Flemming Jensen	Martin Professional A/S	Martin Professional A/S	G	O
Hiroshi Kita	Marumo Electric Co., Ltd.	Marumo Electric Co., Ltd.	MP	O
Stuart Cotts	Oregon Shakespeare Festival	Oregon Shakespeare Festival	U	P



Name	Company	Representing (This is the sort field.)	Int. cat.	Voting status
David A. Boller	Organic Machines LLC	Organic Machines LLC	CP	O
William Benner	Pangolin Laser Systems	Pangolin Laser Systems	MP	O
Kevin Loewen	Pathway Connectivity Inc.	Pathway Connectivity Inc.	MP	P
Dave Higgins	Pathway Connectivity Inc.	Pathway Connectivity Inc.	MP	A
Robert Armstrong	Pathway Connectivity Inc.	Pathway Connectivity Inc.	MP	A
Ron Bonner	PLASA	PLASA	G	P
James Eade	PLASA	PLASA	G	O
Charles Reese	Production Resource Group	Production Resource Group	DR	P
Robert Tooker	Production Resource Group	Production Resource Group	DR	A
Paul F. Mardon	Pulsar Ltd.	Pulsar Ltd.	MP	O
Steve Unwin	Pulsar Ltd.	Pulsar Ltd.	MP	O
Stephen J. Tyrrell	Quantum Logic	Quantum Logic	MP	O
Douglas Franz	QVC Network	QVC Network	U	O
Sean Harding	Rhode Island College	Rhode Island College	U	O
Charlie Richmond	Richmond Sound Design Ltd.	Richmond Sound Design Ltd.	CP	O
Martin Farnik	Robe Show Lighting s.r.o.	Robe Show Lighting s.r.o.	MP	O
Michael Lay	Strand Lighting	Royal Philips Electronics	MP	P
Mike Blackwell	Philips/Color Kinetics	Royal Philips Electronics	MP	O
John Warwick	Philips/Color Kinetics	Royal Philips Electronics	MP	O
Hans Lau	Sand Network Systems, Inc.	Sand Network Systems, Inc.	MP	P
Yngve Sandboe	Sand Network Systems, Inc.	Sand Network Systems, Inc.	MP	A
Kimberly Corbett	Schuler Shook	Schuler Shook	G	P
Lars F. Paape	Scientific Algorithms and Embedded Systems	Scientific Algorithms and Embedded Systems	U	O
Mick Martin	ShowCAD Control Systems	ShowCAD Control Systems	MP	O
Loren Wilton	Showman Systems	Showman Systems	CP	O
Mark Manthei	Shure Inc.	Shure Inc.	G	P
Kehang Wu	Shure Inc.	Shure Inc.	G	A
Jon R. Farley	Sixteenth Avenue Systems	Sixteenth Avenue Systems	CP	O
Robert Barbagallo	Solotech Inc.	Solotech Inc.	U	O
Michael Gonzales	Spectrum Lighting Inc.	Spectrum Lighting Inc.	DR	O
Ujjal Kar	Standard Robotics & Lighting	Standard Robotics & Lighting	G	O
Paul K. Ericson	Syska Hennessy Group Lighting Design	Syska Hennessy Group Lighting Design	U	O
Stephen Bickford	T. Kondos Associates	T. Kondos Associates	U	O
Tad Trylski	Tad Trylski	Tad Trylski	U	O
Klas Dalbjorn	Labgruppen AB	TC Group	MP	O
Dominic Vincenty	TPS	Television Production Service	DR	O
Jerry Gorrell	Theatre Safety Programs	Theatre Safety Programs	G	O
Colin Waters	TMB	TMB	U	O
Mitch Hefter	Entertainment Technology (Royal Philips Electronics)	USITT	U	P
Torrey Bievenour	Vision Quest Lighting	Vision Quest Lighting	G	O
Eric Cornwell	West Side Systems	West Side Systems	U	O
John Sondericker III	Wybron, Inc.	Wybron, Inc.	MP	O
Paul Kenneth McEwan	Zero 88 Lighting Limited	Zero 88 Lighting Ltd.	MP	O

**Key to codes:**

P principal voting member  
A alternate voting member  
I individual voting member  
O observer, non-voting

MP mass-market producer interest category  
CP custom-market producer interest category  
DR dealer or rental company interest category  
U user interest category  
G general-interest interest category