

## **Minutes Control Protocols Working Group**

Thursday, 30 March 2006  
Louisville Marriott Downtown  
Louisville, Kentucky

**Chairmen:** Steve Terry; Electronic Theatre Controls; A; MP  
Tracy Underhill; Electronics Diversified Inc.; P; MP

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

**Members attending:** Jean-Francois Canuel; Spectrum Manufacturing Inc. (A.C. Lighting Ltd.); O; CP  
Arnold Tang; Arnold Tang Productions; P; U  
Wayne David Howell; Artistic Licence (UK) Ltd.; P; CP  
Tobin Neis; Barbizon Companies; P; DR  
Doug Fleenor; Doug Fleenor Design, Inc.; P; MP  
Edward R. Condit; O; G  
Daniel W. Antonuk; Electronic Theatre Controls, Inc.; P; MP  
Philip Nye; Engineering Arts; P; G  
Robert Goddard; Goddard Design Co.; P; MP  
Alan Martello; Horizon Control 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  
John (Javid) D. Butler; Integrated Theatre, Inc.; P; CP  
Stuart Cotts; Oregon Shakespeare Festival; O; U  
Dave Higgins; Pathway Connectivity Inc.; A; MP  
Nic Bowker; PLASA; P; G  
Charles Reese; Production Resource Group; P; DR  
Hans Lau; Sand Network Systems; P; MP  
Michael Lay; Strand Lighting (Strand Lighting Ltd.); A; MP

**Visitors:** Aaron Bollinger; Yale School of Drama  
John Chenault

### **1 Opening remarks**

The meeting was called to order by Steve Terry at 09:01.

### **2 Attendance**

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

Karl Ruling explained the sign-in sheet. The sheet was circulated while those present introduced themselves.

#### **2.2 Determination of a quorum**

Steve Terry asked for a show of hands of voters. Terry announced that a quorum was present.

#### **2.3 Recognition of alternate voting members**

There were three alternates present: Steve Terry, Michael Lay, and Dave Higgins. Lay and Higgins would vote for their respective companies. Terry's principal, Dan Antonuk, was present, so Antonuk would vote for ETC.

### **3 Membership**

#### **3.1 Requirements for membership**

Terry reminded the assembly that membership is open to all who are affected by the work of the group. People and companies that would be in the general interest, users, and dealer/rental

companies interest categories 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

There was one new application. Paul McEwan of Zero 88 applied as an observer in the mass-market producer category. Eddie Kramer moved that his application be accepted. The motion was seconded and then approved by a unanimous show of hands.

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

Name	Company	Representing (This is the sort field.)	Voting status	Int. cat.
Arnold Tang	Arnold Tang Productions	Arnold Tang Productions	P	U
Wayne David Howell	Artistic Licence (UK) Ltd.	Artistic Licence (UK) Ltd.	P	CP
Simon Hobday	Artistic Licence (UK) Ltd.	Artistic Licence (UK) Ltd.	A	CP
Tobin Neis	Barbizon Companies	Barbizon Companies	P	DR
Doug Fleenor	Doug Fleenor Design, Inc.	Doug Fleenor Design, Inc.	P	MP
Milton Davis	Doug Fleenor Design, Inc.	Doug Fleenor Design, Inc.	A	MP
Ken Wagner	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 Inc.	Electronics Diversified Inc.	P	MP
Ralph Weber	ENDL Texas	ENDL Texas	P	G
Philip Nye	Engineering Arts	Engineering Arts	P	G
Robert Goddard	Goddard Design Co.	Goddard Design Co.	P	MP
Scott M. Blair	High End Systems Inc.	High End Systems Inc.	P	MP
Jason Potterf	High End Systems Inc.	High End Systems Inc.	A	MP
Tom Grimes	High End Systems, Inc.	High End Systems, Inc.	A	MP
Alan Martello	Horizon Control Inc.	Horizon Control Inc.	P	MP
Robert Bell	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
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
Torben Kaas Rasmussen	Martin Professional A/S	Martin Professional A/S	P	G
Flemming Jensen	Martin Professional A/S	Martin Professional A/S	A	G
George Kindler	Kelley Technologies	Network Installation Corporation	P	DR
Gary Douglas	Pathway Connectivity Inc.	Pathway Connectivity Inc.	P	MP
Dave Higgins	Pathway Connectivity Inc.	Pathway Connectivity Inc.	A	MP
Kevin Loewen	Pathway Connectivity Inc.	Pathway Connectivity Inc.	A	MP
Nic Bowker	PLASA	PLASA	P	G
Charles Reese	Production Resource Group	Production Resource Group	P	DR
Hans Lau	Sand Network Systems	Sand Network Systems	P	MP
Michael A. (Sandy) Twose	Sand Network Systems	Sand Network Systems	A	MP
Yngve Sandboe	Sand Network Systems	Sand Network Systems	A	MP

Name	Company	Representing (This is the sort field.)	Voting status	Int. cat.
Richard Lawrence	Strand Lighting Ltd.	Strand Lighting Ltd.	P	MP
Michael Lay	Strand Lighting	Strand Lighting Ltd.	A	MP
Mitch Hefter	Entertainment Technology (Genlyte Group)	USITT	P	U
John Sondericker III	Wybron, Inc.	Wybron, Inc.	P	MP
		Total votes possible	25	
		Votes by interest category	11	MP
			3	CP
			3	DR
			4	U
			4	G

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

Eddie Kramer moved that the minutes of the previous meeting (document number CP/2006-1004) be accepted as written. The motion was seconded and then approved with an unanimous show of hands.

#### 5 Reading of the call for patents

Tracy Underhill read the following statement aloud to the assembly:

"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."

No protected intellectual property issues were raised.

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

Tracy Underhill read the following statement aloud to the assembly:

"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 its availability.

No restraint of trade issues were raised.

#### 7 Approval of agenda

Javid Butler moved that the agenda be approved. The motion was seconded and then approved by a unanimous show of hands.

## **8 Old business**

### **8.1 Cabling**

#### **8.1.1 E1.27-1 Portable cabling**

Ruling reported that the document had been accepted by the TSC and had been forwarded to the ESTA Board for approval.

#### **8.1.2 Other E1.27 projects**

Javid Butler reported that the task group had agreed on a first draft of a BSR E1.27-2, permanent cabling document. The draft document was not distributed to the working group.

Butler moved that the draft BSR E1.27-2 permanent cabling standard be offered for public review. The motion was seconded. The motion will be decided by letter ballot, and the draft document will be circulated with the letter ballot.

Butler asked if we should continue the work and develop a temporary cabling standard? This temporary cabling would be cabling used on shows that are in a venue for many months (e.g., a Broadway show). Butler thought the project is somewhat moot. UTP outside of conduit works fine, and we hardly need to write a standard for that.

Bob Goddard spoke against project. Any document giving advice on wiring for these long-term but not permanent installations would have to deal with fire codes, which vary from locality to locality, and are beyond our competence.

No motion was made, but the consensus as shown by an informal straw poll was that no additional work should be done on this project until there is a burning desire for it.

### **8.2 BSR E1.20 Remote Device Management**

#### **8.2.1 Progress on accepting as an ANS**

Ruling reported that he'd filed the necessary paperwork with ANSI but had not received a response yet.

#### **8.2.2 Bulk data transfer**

Wayne Howell reported that progress is being made, and that a document probably will be ready to be considered for a public review after the July meeting.

### **8.3 E1.17 Multipurpose Control Network Protocol Suite**

#### **8.3.1 Third public review report**

Ruling reported that no comments had been received. The comment summary noting that there were no comments is document CP/2006-1005.

#### **8.3.2 Next step**

Dan Antonuk explained that there is a need for modifying standard to allow Open SLP to be used. He proposed a number of changes:

SDT changes:

1. New reason code added to allow a device to specify that it is refusing to join a nonunicast channel. This allows a controller to intelligently retry a join on a device using a supported communication mode.
2. A should has been changed to a shall requiring a channel owner to allow a device to set the channel destination address.
3. Extraneous field definitions have been removed from the ACK message section. The ACK message has not changed, only the text describing it.

4. A standard port is now used for all multicast channels. Unicast channels are not affected.
5. A few minor non-substantive edits have been made, for example, the explanation of the flag bits now lists them as LVHD rather than VHDL to avoid confusing a user about the order that the bits occur in packets. The order that they appear has not been changed.

DDL changes:

1. Propid attribute used by some behaviors has been added.
2. DMP related virtual address attribute has been added.
3. Behavior BeamShape was updated to refine streamModifier and not streamFilter.
4. In behavior "DMPunit", asterisk is now used for multiplication rather than period.

EPI10 changes:

1. Algorithm was updated to provide SDT related standard multicast port.

EPI18 changes:

1. Multicast support for devices is now made mandatory in this EPI rather than in SDT.
2. There is an exception for high bandwidth components.
3. IPv4 vs IPv6 requirements are better defined.
4. Unicast vs multicast port selection requirements clarified.
5. The use of ADDR\_NULL for unicast channels is now mandatory.
6. SDT registered port is simply assigned as a symbol at present.

EPI19 Discovery Template changes

1. SLP templates have been reworked to be fully compatible with OpenSLP source code. Note: previous templates were valid SLP, however the new templates will allow implementers to use OpenSLP rather than develop their own code--a substantial savings for the industry.

The above changes are substantive. Therefore, Dan Antonuk moved that the fourth version of the protocol suite be offered for public review. The motion was seconded. The motion was accepted by a supermajority on a roll call ballot, with three absentee ballots added in:

Name	Company	Representing (This is the sort field.)	Voting status	Int. cat.	Yes	No	Abstain
Arnold Tang	Arnold Tang Productions	Arnold Tang Productions	P	U	1		
Wayne David Howell	Artistic Licence (UK) Ltd.	Artistic Licence (UK) Ltd.	P	CP	1		
Simon Hobday	Artistic Licence (UK) Ltd.	Artistic Licence (UK) Ltd.	A	CP			
Tobin Neis	Barbizon Companies	Barbizon Companies	P	DR	1		
Doug Fleenor	Doug Fleenor Design, Inc.	Doug Fleenor Design, Inc.	P	MP	1		
Milton Davis	Doug Fleenor Design, Inc.	Doug Fleenor Design, Inc.	A	MP			
Ken Wagner	Doug Fleenor Design, Inc.	Doug Fleenor Design, Inc.	A	MP			
Daniel W. Antonuk	Electronic Theatre Controls, Inc.	Electronic Theatre Controls, Inc.	P	MP	1		
Steve Terry	Electronic Theatre Controls	Electronic Theatre Controls, Inc.	A	MP			
Tracy Underhill	Electronics Diversified Inc.	Electronics Diversified Inc.	P	MP	1		
Ralph Weber*	ENDL Texas	ENDL Texas	P	G	1		
Philip Nye	Engineering Arts	Engineering Arts	P	G	1		
Robert Goddard	Goddard Design Co.	Goddard Design Co.	P	MP	1		
Scott M. Blair*	High End Systems Inc.	High End Systems Inc.	P	MP	1		
Jason Potterf	High End Systems Inc.	High End Systems Inc.	A	MP			
Tom Grimes	High End Systems, Inc.	High End Systems, Inc.	A	MP			
Alan Martello	Horizon Control Inc.	Horizon Control Inc.	P	MP	1		
Robert Bell	Horizon Control Inc.	Horizon Control Inc.	A	MP			
Peter Willis*	Howard Eaton Lighting Ltd.	Howard Eaton Lighting Ltd.	P	CP	1		
Edwin S. Kramer	I.A.T.S.E. Local 1	I.A.T.S.E. Local 1	P	U	1		
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	1		
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	1		

Name	Company	Representing (This is the sort field.)	Voting status	Int. cat.	Yes	No	Abstain
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			
Torben Kaas Rasmussen	Martin Professional A/S	Martin Professional A/S	P	G			
Flemming Jensen	Martin Professional A/S	Martin Professional A/S	A	G			
George Kindler	Kelley Technologies	Network Installation Corporation	P	DR			
Gary Douglas	Pathway Connectivity Inc.	Pathway Connectivity Inc.	P	MP			
Dave Higgins	Pathway Connectivity Inc.	Pathway Connectivity Inc.	A	MP	1		
Kevin Loewen	Pathway Connectivity Inc.	Pathway Connectivity Inc.	A	MP			
Nic Bowker	PLASA	PLASA	P	G	1		
Charles Reese	Production Resource Group	Production Resource Group	P	DR	1		
Hans Lau	Sand Network Systems	Sand Network Systems	P	MP	1		
Michael A. (Sandy) Twose	Sand Network Systems	Sand Network Systems	A	MP			
Yngve Sandboe	Sand Network Systems	Sand Network Systems	A	MP			
Richard Lawrence	Strand Lighting Ltd.	Strand Lighting Ltd.	P	MP			
Michael Lay	Strand Lighting	Strand Lighting Ltd.	A	MP	1		
Mitch Hefter	Entertainment Technology (Genlyte Group)	USITT	P	U			
John Sondericker III	Wybron, Inc.	Wybron, Inc.	P	MP			
		Total votes possible	25		20	0	0
		Votes by interest category	11	MP	9	0	0
			3	CP	3	0	0
			3	DR	2	0	0
			4	U	3	0	0
			4	G	3	0	0

\* Absentee ballot

There was a discussion of the quality of the public reviews. People questioned whether the affected public was critically reviewing the standard, but there were no suggestions on how to ensure the diligence of the public.

#### 8.4 E1.11/DMX512-A Recommended Practice

Peter Willis, the task group leader, was not present. He had submitted a short report via email to Karl Ruling, and that report is:

"I have received NO comments (good or bad)/objections or heckling regarding the outline we presented at the Jan meeting, so I guess we can formally continue as planned.

"Nic Bowker will attempt to keep things moving at USITT, and should there be any dissent on the status-quo or comments raised in the CPWG he will be able to report back to me."

#### 8.5 ANSI E1.11 auf Deutsch

Ruling reported that his last communications with Florian von Hofen indicated that VPLT was still planning to go forward with this project this year.

#### 8.6 Reaffirmation of ANSI E1.3-2001, 0 to 10V Analog Control Specification

Ruling reported that it was still in public review. The review closes EOD 11 April 2006.

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

Antonuk reported that the bulk of the task group's work has been in adding new behaviors into the core suite and arguing about how to get functionality into small subdevices and the number of subdevices that are needed. There is not a full list yet of all the proposed subdevices.

Antonuk proposed that the task group put out a list of the things that need to be defined, and to ask the CPWG for help in writing them.

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

Wayne Howell reported that the task group has a starting document. The target is to have a public review document ready by the end of this week. Key issues are multi-casting RDM start code transport, overall document style, and the extent to which we reference the main ACN document or copy and paste the requirements of the ACN standard into the E1.31 document.

Antonuk disagreed with the characterization that the question is how much ACN text would be duplicated in E1.31. He said that a better characterization would be to say that the issue is how much of a stand-alone document E1.31 needs to be.

#### **9 New business**

Philip Nye moved that we abandon the idea of making ANSI E1.11 an IEC standard. The motion was seconded. The motion was approved by a unanimous show of hands.

#### **10 Other business**

Possible LDI sessions were discussed.

#### **11 Schedule for future meetings**

Steve Terry announced that the next meeting is scheduled for Saturday, 15 July 2006, from 09:00 to 18:00 at the Dallas/Ft. Worth Airport Marriott South in Ft. Worth, Texas.

#### **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:

None

#### **13 Adjournment**

Javid Butler moved that the meeting adjourn. The motion was seconded. The motion was approved with a voice vote. Steve Terry declared the meeting adjourned at 10:18.

### Control Protocols Working Group Membership and Contact Information as of 17 May 2006

Name	Company	Representing (This is the primary sort field.)	Vote status	Int. cat.
Jean-Francois Canuel	Spectrum Manufacturing Inc.	A.C. Lighting Ltd.	O	CP
Tim Bachman	A.C.T Lighting, Inc.	A.C.T Lighting, Inc.	O	DR
Andre Broucke	ADB - TTV Technologies	ADB-TTV Group	O	MP
John Sellers	AIM Northwest	AIM Northwest	O	G
Arnold Tang	Arnold Tang Productions	Arnold Tang Productions	P	U
Wayne David Howell	Artistic Licence (UK) Ltd.	Artistic Licence (UK) Ltd.	P	CP
Simon Hobday	Artistic Licence (UK) Ltd.	Artistic Licence (UK) Ltd.	A	CP
Steve Friedlander	Auerbach Pollock Friedlander	Auerbach Pollock Friedlander	O	U
J. B. Toby	Avolites Ltd.	Avolites Ltd.	O	MP
Shahid Anwar	Avolites Ltd.	Avolites Ltd.	O	MP
Richard Salzedo	Avolites Ltd.	Avolites Ltd.	O	MP
Barbara Wohlsen	Barbara Wohlsen	Barbara Wohlsen	O	U
Tobin Neis	Barbizon Companies	Barbizon Companies	P	DR
Jiantong Wu	Beijing Special Engineering Design & Research Institute	Beijing Special Engineering Design & Research Institute	O	G
Bernardo Benito Rico	Ben-Ri Electronica S.A.	Ben-Ri Electronica S.A.	O	MP
Lee J. Bloch	Bloch Design Group, Inc.	Bloch Design Group, Inc.	O	G
Soo-Myong Chung	Blue Sky Design, Ltd.	Blue Sky Design, Ltd.	O	G
Bradley Klinkradt	Bradley Klinkradt	Bradley Klinkradt	O	G
Bill Ellis	Candela Controls, Inc.	Candela Controls, Inc.	O	U
Will Wagner	Carallon Ltd.	Carallon Ltd.	O	MP
Steve Roberts	Carr & Angier	Carr & Angier	O	G
Marty Lazarus	Chicago Spotlight, Inc.	Chicago Spotlight, Inc.	O	G
Chuck Seifried	Phoenix Civic Plaza	City of Phoenix	O	U
Larry Dunn	City Theatrical, Inc.	City Theatrical, Inc.	O	CP
Fabiano Pina	Clay Paky S.P.A.	Clay Paky S.P.A.	O	MP
Ohad Ashery	Compulite Systems	Compulite Systems	O	MP
Simeon Aladjem	Compulite Systems	Compulite Systems	O	MP
Yehuda Shukram	Compulite Systems	Compulite Systems	O	MP
Dietmar Rottinghaus	Connex GmbH	Connex GmbH	O	G
David Bertenshaw	David Bertenshaw	David Bertenshaw	O	G
Larry Schoeneman	Designlab Chicago, Inc.	Designlab Chicago, Inc.	O	DR
Doug Fleenor	Doug Fleenor Design, Inc.	Doug Fleenor Design, Inc.	P	MP
Milton Davis	Doug Fleenor Design, Inc.	Doug Fleenor Design, Inc.	A	MP
Ken Wagner	Doug Fleenor Design, Inc.	Doug Fleenor Design, Inc.	A	MP
Gary Dove	Dove Systems	Dove Systems	O	MP
Jerry Durand	Durand Interstellar, Inc.	Durand Interstellar, Inc.	O	CP
Jussi Kallioinen	Eastway Sound & Lighting	Eastway Sound & Lighting	O	U
Edward R. Condit	Edward R. Condit	Edward R. Condit	O	G
Ed Jones	Edwin Jones Co., Inc.	Edwin Jones Co., Inc.	O	CP
Joost van Eenbergen	ELC Lighting	ELC Lighting	O	MP
Bill Fehrmann	Electrol Engineering, Inc.	Electrol Engineering, Inc.	O	MP
Daniel W. Antonuk	Electronic Theatre Controls, Inc.	Electronic Theatre Controls, Inc.	P	MP
Hans Leiter	ETC GmbH	Electronic Theatre Controls, Inc.	O	MP
Anders Ekvall	Transtechnik Lichtsysteme GmbH	Electronic Theatre Controls, Inc.	O	MP
Adam Bennette	Electronic Theatre Controls Ltd.	Electronic Theatre Controls, Inc.	O	MP
Steve Terry	Electronic Theatre Controls	Electronic Theatre Controls, Inc.	A	MP
Tracy Underhill	Electronics Diversified Inc.	Electronics Diversified Inc.	P	MP
Ralph Weber	ENDL Texas	ENDL Texas	P	G



Name	Company	Representing (This is the primary sort field.)	Vote status	Int. cat.
Philip Nye	Engineering Arts	Engineering Arts	P	G
Erwin Rol	Erwin Rol	Erwin Rol	O	G
Robert Goddard	Goddard Design Co.	Goddard Design Co.	P	MP
Sierk Janszen	Ground Zero	Ground Zero	O	U
Liao Wei Min	GuangZhou HeDong Electronic Co., Ltd.	GuangZhou HeDong Electronic Co., Ltd.	O	G
Paul J. Clark	Hacek Design Ltd.	Hacek Design Ltd.	O	CP
Alan P. Symonds	Harvard College	Harvard University	O	U
Trevor Forrest	Helvar Lighting Control	Helvar Lighting Control	O	MP
Bill Hewlett	Hewlett Electronics	Hewlett Electronics	O	CP
Scott M. Blair	High End Systems Inc.	High End Systems Inc.	P	MP
Jason Potterf	High End Systems Inc.	High End Systems Inc.	A	MP
Tom Grimes	High End Systems, Inc.	High End Systems, Inc.	A	MP
Steve Carlson	High Speed Design, Inc.	High Speed Design, Inc.	O	MP
Alan Martello	Horizon Control Inc.	Horizon Control Inc.	P	MP
Robert Bell	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
Gian Carlo C. Bartolotti	Ibeam SP / Banco de Eventos	Ibeam SP / Banco de Eventos	O	U
Geoffrey O. Thompson	Nortel Networks, Inc.	IEEE 802.3/Nortel Networks	O	G
John (Javid) D. Butler	Integrated Theatre, Inc.	Integrated Theatre, Inc.	P	CP
Michael (Mike) Whetstone	Integrated Theatre, Inc.	Integrated Theatre, Inc.	A	CP
Mark Jensen	Intelligent Control Devices	Intelligent Control Devices	O	CP
Rob Johnston	Interactive Technologies, Inc.	Interactive Technologies, Inc.	O	MP
David Timmins	Jands Electronics	Jands Electronics	O	MP
Helge Hoffmann	JB Lighting	JB Lighting	O	MP
Edward Paget	Jones & Phillips Associates, Inc.	Jones & Phillips Associates, Inc.	O	G
Christopher Purpura	Jones & Phillips Associates, Inc.	Jones & Phillips Associates, Inc.	O	G
Lawrence Neal	Lawrence Neal	Lawrence Neal	O	CP
John Mehtretter	Lehigh Electric Products Co.	Lehigh Electric Products Co.	O	MP
Mark T. Kraft	Lehigh Electric Products Co.	Lehigh Electric Products Co.	O	MP
Rick Leinen	Colortran	Leviton Manufacturing Co., Inc.	P	MP
Ken Vannice	Colortran	Leviton Manufacturing Co., Inc.	A	MP
Lars Wernlund	Lewlight	Lewlight	O	MP
Klaus Amling	Licht-Technik	Licht-Technik	O	P
Andrew Sherar	Lightmoves PLC	Lightmoves PLC	O	MP
Avraham Mendall Mor "Avi"	Lightswitch	Lightswitch	O	U
Simon Alpert	Lighttech Event Technologies	Lighttech Event Technologies	O	CP
Gary Pritchard	LSC Lighting Systems PTY Ltd	LSC Lighting Systems PTY Ltd	O	MP
Bart Swinnen	Luminex LCE	Luminex LCE	O	MP
J. P. Steiner	Lutron Electronics	Lutron Electronics	O	MP
Jim Holladay	Luxence	Luxence	O	G
Daniel Weiermann	Mainstage Theatrical Supply - Milwaukee	Mainstage Theatrical Supply	O	DR
Torben Kaas Rasmussen	Martin Professional A/S	Martin Professional A/S	P	G

Name	Company	Representing (This is the primary sort field.)	Vote status	Int. cat.
Flemming Jensen	Martin Professional A/S	Martin Professional A/S	A	G
Hiroshi Kita	Marumo Electric Co., Ltd.	Marumo Electric Co., Ltd.	O	MP
George Kindler	Kelley Technologies	Network Installation Corporation	P	DR
Petri Laine	Obelux Oy	Obelux Oy	O	CP
Stuart Cotts	Oregon Shakespeare Festival	Oregon Shakespeare Festival	O	U
David A. Boller	Organic Machines LLC	Organic Machines LLC	O	CP
William Benner	Pangolin Laser Systems	Pangolin Laser Systems	O	MP
Gary Douglas	Pathway Connectivity Inc.	Pathway Connectivity Inc.	P	MP
Greg Reimer	Pathway Connectivity Inc.	Pathway Connectivity Inc.	O	MP
Dave Higgins	Pathway Connectivity Inc.	Pathway Connectivity Inc.	A	MP
Kevin Loewen	Pathway Connectivity Inc.	Pathway Connectivity Inc.	A	MP
Nic Bowker	PLASA	PLASA	P	G
James Eade	PLASA	PLASA	O	G
Mac Perkins	PNTA Inc.	PNTA Inc.	O	G
Charles Reese	Production Resource Group	Production Resource Group	P	DR
Paul F. Mardon	Pulsar Ltd.	Pulsar Ltd.	O	MP
Steve Unwin	Pulsar Ltd.	Pulsar Ltd.	O	MP
Stephen J. Tyrrell	Quantum Logic	Quantum Logic	O	MP
Douglas Franz	QVC Network	QVC Network	O	U
Sean Harding	Rhode Island College	Rhode Island College	O	U
Charlie Richmond	Richmond Sound Design Ltd.	Richmond Sound Design Ltd.	O	CP
Martin Farnik	Robe Show Lighting s.r.o.	Robe Show Lighting s.r.o.	O	MP
Hans Lau	Sand Network Systems	Sand Network Systems	P	MP
Michael A. (Sandy) Twose	Sand Network Systems	Sand Network Systems	A	MP
Yngve Sandboe	Sand Network Systems	Sand Network Systems	A	MP
Kenneth Mockler	Sceno Plus	Sceno Plus	O	U
Mick Martin	ShowCAD Control Systems	ShowCAD Control Systems	O	MP
Loren Wilton	Showman Systems	Showman Systems	O	CP
Jon R. Farley	Sixteenth Avenue Systems	Sixteenth Avenue Systems	O	CP
Robert Barbagallo	Solotech Inc.	Solotech Inc.	O	U
Michael Gonzales	Spectrum Lighting Inc.	Spectrum Lighting Inc.	O	DR
Ujjal Kar	Standard Robotics & Lighting	Standard Robotics & Lighting	O	G
Richard Lawrence	Strand Lighting Ltd.	Strand Lighting Ltd.	P	MP
Michael Lay	Strand Lighting	Strand Lighting Ltd.	A	MP
Paul K. Ericson	Syska Hennessy Group Lighting Design	Syska Hennessy Group Lighting Design	O	U
Stephen Bickford	T. Kondos Associates	T. Kondos Associates	O	U
Tad Trylski	Tad Trylski	Tad Trylski	O	U
Klas Dalbjorn	Labgruppen AB	TC Group	O	MP
Pete Baselici	The Watt Stopper	The Watt Stopper	O	MP
Jerry Gorrell	Theatre Safety Programs	Theatre Safety Programs	O	G
Stéphane Jacob	TIR Systems Ltd.	TIR Systems Ltd.	O	MP
Colin Waters	TMB	TMB	O	U
Mitch Hefter	Entertainment Technology (Genlyte Group)	USITT	P	U
Torrey Bievenour	Vision Quest Lighting	Vision Quest Lighting	O	G
Eckart Steffens	SOUNDLIGHT	VPLT	O	G
Eric Cornwell	West Side Systems	West Side Systems	O	U
John Sondericker III	Wybron, Inc.	Wybron, Inc.	P	MP
Paul Kenneth McEwan	Zero 88 Lighting Limited	Zero 88 Lighting Ltd.	O	MP

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