

Minutes
Control Protocols Working Group

Saturday, 19 July 2008
Pace University
New York, NY

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

Recording secretary: Karl G. Ruling; ESTA

Members attending:

Scott M. Blair; High End Systems Inc. (Barco); P; MP
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
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; P; U
John (Javid) D. Butler; Integrated Theatre, Inc.; P; CP
Rick Leinen; Colortran (Leviton Manufacturing Co., Inc.); P; MP
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
Mitch Hefter; Entertainment Technology (Royal Philips Electronics); USITT; P; U

Visitors: None

1 Opening remarks

The coffee and refreshments arrived at the posted starting time for the meeting, so Tracy Underhill and Mike Lay announced that they would delay the start to allow people additional time to get a cup of coffee. Mike Lay called the meeting to order at 09:15.

2 Attendance

2.1 Introductions of those present and circulation of attendance sheet

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

2.2 Determination of a quorum

Underhill asked voters to raise a hand. He counted the upraised hands and announced that a quorum was present.

2.3 Recognition of alternate voting members

The presence of voters Rob Tooker and Charles Reese for PRG and John Huntington and Eddie Kramer for IATSE Local 1 was recognized. Underhill reminded them that only one person could vote for the company or union on a question.

3 Membership

3.1 Requirements for membership

Tracy Underhill 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 Processing of new membership requests and reaffirmation of members with new companies

Eric Proce had submitted an application for membership representing himself as an observer in the user interest category.

Scott Blair of High End Systems reapplied as employee of Barco, since High End had been purchased by Barco. The sale affects Tom Grimes's status too, since he is Blair's alternate and also is an employee of High End Systems. There are no existing Barco representatives on the working group.

Javid Butler moved that the applications be accepted. The motion was seconded and then approved with a unanimous show of hands.

The full voting body during the period of this meeting, including voters not present and those who lost voting status at the end of the meeting, was:

Name	Company	Representing (This is the primary sort field.)	Voting status	Interest category
Jean-Francois Canuel	Spectrum Manufacturing Inc.	A.C. Lighting Ltd.	P	CP
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
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
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

Name	Company	Representing (This is the primary sort field.)	Voting status	Interest category
Mark Manthei	Shure Inc.	Shure Inc.	P	G
Kehang Wu	Shure Inc.	Shure Inc.	A	G
Mitch Heffer	Entertainment Technology (Royal Philips Electronics)	USITT	P	U
Total			27	
Total possible votes by interest category			5	CP
			10	MP
			1	DR
			6	U
			5	G

4 Approval of the minutes from the previous meeting

See CP/2008-1015, file name CPmin03-2008.pdf

Roger Lattin moved that the draft minutes be approved as written. The motion was seconded and than accepted with a 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 was brought to the attention of the assembly

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."

The Technical Standards Manager, Karl Ruling, held up one of the easy-to-read pamphlets.

No restraint of trade issues were reported.

7 Approval of agenda

Javid Butler moved that the draft agenda be accepted. The motion was seconded. The motion was approved with a unanimous show of hands.

8 Old business

8.1 ANSI E1.3-2001 (R2006)

No news was reported. No action was recommended.

8.2 E1.11/DMX512-A Recommended Practice

Ron Bonner and Mitch Hefter held up copies of the published joint PLASA/USITT document. There was discussion of the slightly different paper finishes, page sizes, and binding choices.

8.3 BSR E1.11 - 20xx (revision of ANSI E1.11 - 2004)

Mitch Hefter reported that the review had ended at the end of July 7, and netted one comment from Jerry Durand of Durand Interstellar, Inc.:

"Tables 6 & 7 are misleading. "Maximum Refresh Rate for 513 Slots" is 44 updates/second. This makes it sound like under no circumstance can the update rate be faster than 44/second while "DMX512 Packet" clearly shows with less than 513 slots up to 830 updates/second are possible. This has led many dimmer manufacturers (mainly inexpensive "DJ" type) to design/build dimmers that malfunction at rates over 44/second. This makes the DMX controller manufacturer look bad as the dimmers appear to work fine with other controllers. We have had to add a special option to our controllers to allow the user to restrict our maximum update rate (most of our customers use a small number of channels and a wide variety of DMX controlled equipment from DJ dimmers to moving lights for TV and movie productions).

"I propose you do one of the following in both tables:

"1) Delete the lines regarding update and refresh times. These can easily be calculated from the other numbers there.

"2) Change the maximum update rate line to be for minimum packet size. This rate would be about 830/second."

Hefter read a possible resolution, which had been drafted by Milton Davis. He said that it had been shared with Durand and seemed to be acceptable to him:

"Note: Given the range of timing parameters shown in tables 6 and 7, a transmitter may produce a signal with a refresh rate in the range of 1Hz to approximately 830Hz. A receiver must be capable of accepting a signal with a refresh rate of 0.8Hz to approximately 836Hz."

This note would be inserted after the tables.

There was discussion of the use of "must" in a note, and a suggestion that "should" would be the correct word. Ruling said that "must" was appropriate because it is a restatement of an existing requirement, which is given by the timing parameters in the tables. It neither adds nor removes any requirement. If "should" were used, it would contradict the timing requirements in Table 7 by seeming to suggest that it is desirable but not necessary for a receiver to be able to process the full range of BREAK to BREAK times stated in the table. Philip Nye concurred, saying this use of "must" was within the understood meaning of the word in standards.

Hefter moved that the comment resolution be accepted. The motion was seconded and then approved by a supermajority of the voting body with a show of hands. Fifteen voted in favor, none against, and no one abstained.

Hefter moved that the revised E1.11 be accepted as an American National Standard. The motion was seconded. The motion will be decided by letter ballot so that all voting members of the working group will have an opportunity to vote on this final acceptance of the draft standard.

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

Karl Ruling read Ulrich Kunkel's comment aloud to the group. His was the only comment submitted so far on the letter ballot to offer the corrections to ANSI E1.20 for public review.

"I agree on issuing a RDM Errata List (document CP/2008-1033) for public review as this could be clearly understood and judged by any user of the current RDM standard as of ANSI E1.20 - 2006.

"Therefore giving a second document for review showing the same (corrected) errata being put in place in only extracts from the original standard can lead to major misunderstandings for those who are not aware of the complete 2006 document. So either issue the whole reworked E1.20 for review with mark-ups of the changed paragraphs and ask for comments on this sections only (which I would prefer) or do not issue a reworked version of E1.20 for public review at all. The current review procedure on E1.11 worked fine the same way – and not only in extracts."

Ruling reminded the assembly that the vote closes at the end of the day July 30, and that he had sent out a reminder on Wednesday, 16 July 2008. He offered some blank ballots.

Mike Lay reported that the TSC had approved sending the corrected version of ANSI E1.20 to those who had bought the original document.

8.5 E1.17 Architecture for Control Networks

It's published, but parts of the document are impossible to search and there are errors. A project to correct the errors has been announced to ANSI. Some revisions have been compiled, but as yet we have no definitive set to consider for a public review, or do we?.

Dan Antonuk said that there is a searchable version, and that he will send it to Karl Ruling so it will be the copy sold in the future.

Antonuk said he has a set of errata documents, but there are a few more things that need fixing.

8.6 E1.27-X, cabling

8.6.1 ANSI E1.27-1-2006 (portable DMX512/E1.11 cabling)

No news or action.

8.6.2 BSR E1.27-2 (permanent DMX512/E1.11 cabling)

Consideration of the comment resolution document (see E1-27-2_ScndCmmntResols.pdf, document number CP/2008-1031) and the revised draft standard (see BSR_E1-27-2_r4.pdf, document number CP/2006-1011r4). Next step?

There was discussion of the resolution document and the revised draft standard. Both were revised to address a concern of Dan Antonuk's related to comment 50 that there should be a note about planning for the future if the cabling installation is intended to be reused for another networking technology. An r2 version of the comment resolution document was created, and an r5 version of the draft standard.

Javid Butler moved that the revised comment resolutions be approved. The motion was seconded. The motion was approved with a unanimous show of hands, which was a supermajority of the voting body.

Butler then moved that the r5 version be offered for public review. The motion was seconded and then approved on a roll call ballot with all voting in favor, none against, and no abstentions. The 15 Yes votes out of a possible 27, with no opposing votes, constituted a supermajority.

Name	Company	Representing (This is the sort field.)	Voting status	Int. cat.	Yes	Yes with comments	No with reasons	Abstain
Jean-Francois Canuel	Spectrum Manufacturing Inc.	A.C. Lighting Ltd.	P	CP				

Name	Company	Representing (This is the sort field.)	Voting status	Int. cat.	Yes	Yes with comments	No with reasons	Abstain
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				
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	X			
Steve Terry	Electronic Theatre Controls	Electronic Theatre Controls, Inc.	A	MP				
Tracy Underhill	Electronics Diversified LLC	Electronics Diversified LLC	P	MP	X			
Philip Nye	Engineering Arts	Engineering Arts	P	G	X			
Robert Goddard	Goddard Design Co.	Goddard Design Co.	P	MP	X			
Scott M. Blair	High End Systems Inc.	High End Systems Inc.	P	MP	X			
Tom Grimes	High End Systems, Inc.	High End Systems, Inc.	A	MP				
Alan Martello	Horizon Control Inc.	Horizon Control Inc.	P	MP	X			
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	X			
Roger Lattin	I.A.T.S.E. Local 728	I.A.T.S.E. Local 728	P	U	X			
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 D. Butler	Integrated Theatre, Inc.	Integrated Theatre, Inc.	P	CP	X			
Michael Whetstone	Integrated Theatre, Inc.	Integrated Theatre, Inc.	A	CP				
Rick Leinen	Colortran	Leviton Manufacturing Co.	P	MP	X			
Ken Vannice	Colortran	Leviton Manufacturing Co.	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	X			
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	X			
Charles Reese	Production Resource Group	Production Resource Group	P	DR	X			
Robert Tooker	Production Resource Group	Production Resource Group	A	DR				
Michael Lay	Strand Lighting	Royal Philips Electronics	P	MP	X			
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	X			
			Total	27	15	0	0	0

Votes by interest category:

Int. cat.	Total possible	Yes	Yes with comments	No with reasons	Abstain	Not present
CP	5	1	0	0	0	4
MP	10	8	0	0	0	2
DR	1	1	0	0	0	0
U	6	3	0	0	0	3
G	5	2	0	0	0	3
Total	27	15	0	0	0	12

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

BSR E1.30-1 through BSR E1.30-10 are available for public review through 25 August 2008, said Ruling. No other news.

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

Ruling reported that the TSC had voted to approve the second public review.

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

Charles Reese reported that the task group's meeting went well. It was the first time they had been together in a while, and they are getting back in sync. They are working on a draft text for possible submission to the CPWG soon. They are trying to achieve a balance between ease of implementation and scalability.

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

No news, reported Scott Blair.

9 New business

Nominations for working group co-chair. Tracy Underhill's two-year term is at an end; Michael Lay continues.

Working group members submitted nominations for the next two-year co-chair term. The working group members nominated were:

Tracy Underhill
Mitch Hefter
Dan Antonuk
Philip Nye
Charles Reese
Rick Leinen
Doug Fleenor

All were present, except Doug Fleenor, and those present consented to run. Ruling was directed to contact Doug Fleenor to see if he was willing. [Fleenor declined to run, so he will not be on the ballot.]

10 Other business

10.1 Free standards

TSC response to the working group's recommendation to distribute our standards for free.

Karl Ruling reported that the proposal had been discussed at the TSC meeting, and that the consensus of the TSC was that they would like to offer the standards for free, but that ESTA can't afford to do this at this time. However, the TSC will continue to explore the issue and funding options that would make the income from standards unnecessary.

Bob Goddard related Alan Martello's idea of standards being made available for free to ESTA members as a membership benefit, perhaps at certain membership tiers. It might be seen as a reason for joining ESTA.

10.2 Bennette Recommended Practice

Mitch Hefter asked for advice about USITT continuing to sell the old Bennette RP, AMX192, and USITT DMX512/1990. There was discussion, and he received advice, which was to continue to make the AMX and DMX documents available, but with the latter being sold and marked as superseded. He received no particular advice as to selling the old edition of the Bennette

recommended practice, with people stating that the decision should be up to USITT. However, it was noted that the value of an obsolete recommended practice is small.

10.3 Peter Willis regrets and request

Ruling read from Peter Willis's email in which he expresses his regrets for not being able to attend the meeting (he is in Australia), and wishes to remind CPWG members of the interconnectivity booth at LDI, which he is helping to organize. All manufacturers with equipment that takes advantage of the latest protocols from the CPWG are invited to contact Peter Willis to get their equipment included.

Ron Bonner said that a similar stand was being organized for the PLASA trade show, and the same invitation is extended to all for that stand.

11 Schedule for future meetings

Tracy Underhill announced that the next working group meeting is scheduled for Thursday, 23 October 2008, from 09:00 to 13:00 at Harrah's Las Vegas. The January meeting will be Saturday, 24 January 2009 at the Dallas/Ft. Worth Marriott Solana in Westlake, Texas. It's further from the airport than the Dallas/Ft. Worth Marriott South, but it offers a free shuttle.

There was a short discussion of other possible meeting places. Roger Lattin said that his IATSE local is trying to see if they can work out a package to have the meetings in Southern California.

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:

Wayne Howell and Simon Hobday; Artistic Licence

Howell and Hobday were not present. Tracy Underhill announced that they are moved to observer status.

13 Adjournment

Javid Butler moved that the meeting adjourn. The motion was seconded. Underhill declared the meeting adjourned at 11:19.

Working Group Membership and Contact Information as of 6 August 2008

Name	Company	Representing (This is the sort field.)	Voting status	Int. Cat.
Jean-Francois Canuel	Spectrum Manufacturing Inc.	A.C. Lighting Ltd.	P	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.	O	CP
Simon Hobday	Artistic Licence (UK) Ltd.	Artistic Licence (UK) Ltd.	O	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	O	DR
Scott M. Blair	High End Systems Inc.	Barco	P	MP
Tom Grimes	High End Systems, Inc.	Barco	A	MP
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	Bloch Design Group, Inc.	Bloch Design Group, Inc.	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
Bob Toms	Catalyst Microsystems LLC	Catalyst Microsystems LLC	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
Yehuda Shukram	Compulite Systems	Compulite Systems	O	MP
Dietmar Rottinghaus	Connex GmbH	Connex GmbH	O	G
Edward A. (Ted) Paget	Vortek Rigging Division	Daktronics Inc.	P	G
David Bertenshaw	David Bertenshaw	David Bertenshaw	O	G
Larry Schoeneman	Designlab Chicago, Inc.	Designlab Chicago, Inc.	O	DR
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
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
Adam Bennette	Electronic Theatre Controls Ltd.	Electronic Theatre Controls, Inc.	O	MP
Hans Leiter	ETC GmbH	Electronic Theatre Controls, Inc.	O	MP
Anders Ekvall	Transtechnik Lichtsysteme GmbH	Electronic Theatre Controls, Inc.	O	MP
Steve Terry	Electronic Theatre Controls	Electronic Theatre Controls, Inc.	A	MP
Tracy Underhill	Electronics Diversified LLC	Electronics Diversified LLC	P	MP
Ralph Weber	ENDL Texas	ENDL Texas	O	G
Phillip Nye	Engineering Arts	Engineering Arts	P	G
Eric Johnson	Eric Johnson	Eric Johnson	O	MP
Eric Proce	Eric Proce	Eric Proce	O	U
Erwin Rol	Erwin Rol Software Engineering	Erwin Rol	O	G
Robert Goddard	Goddard Design Co.	Goddard Design Co.	P	MP
Sierk Janszen	Kiss Box	Ground Zero	O	U
Trevor Forrest	Helvar Lighting Control	Helvar Lighting Control	O	MP
Bill Hewlett	Hewlett Electronics	Hewlett Electronics	O	CP
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

Name	Company	Representing (This is the sort field.)	Voting status	Int. Cat.
Gary Douglas	Horizon Control Inc.	Horizon Control Inc.	A	MP
Peter Willis	Howard Eaton Lighting Ltd.	Howard Eaton Lighting Ltd.	P	CP
Paul J. Clark	HxDx	HxDx	O	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
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
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
Christopher Purpura	Jones & Phillips Associates, Inc.	Jones & Phillips Associates, Inc.	O	G
Josh Gubler	Josh Gubler	Josh Gubler	O	CP
John Mehlretter	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
Tyrone Mellon Jr.	Lex Products Corp.	Lex Products Corp.	P	CP
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 (Aust) PTY Ltd	LSC Lighting Systems PTY Ltd	O	MP
Bart Swinnen	Luminex LCE	Luminex LCE	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	O	G
Flemming Jensen	Martin Professional A/S	Martin Professional A/S	O	G
Hiroshi Kita	Marumo Electric Co., Ltd.	Marumo Electric Co., Ltd.	O	MP
Stuart Cotts	Oregon Shakespeare Festival	Oregon Shakespeare Festival	P	U
David A. Boller	Organic Machines LLC	Organic Machines LLC	O	CP
William Benner	Pangolin Laser Systems	Pangolin Laser Systems	O	MP
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
James Eade	PLASA	PLASA	O	G
Mac Perkins	PNTA Inc.	PNTA Inc.	O	G
Charles Reese	Production Resource Group	Production Resource Group	P	DR
Robert Tooker	Production Resource Group	Production Resource Group	A	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
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
Mick Martin	ShowCAD Control Systems	ShowCAD Control Systems	O	MP
Loren Wilton	Showman Systems	Showman Systems	O	CP
Mark Manthei	Shure Inc.	Shure Inc.	P	G
Kehang Wu	Shure Inc.	Shure Inc.	A	G
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

Name	Company	Representing (This is the sort field.)	Voting status	Int. Cat.
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
Dominic Vincenty	TPS	Television Production Service	O	DR
Jerry Gorrell	Theatre Safety Programs	Theatre Safety Programs	O	G
Colin Waters	TMB	TMB	O	U
Mitch Hefter	Entertainment Technology (Royal Philips Electronics)	USITT	P	U
Torrey Bievenour	Vision Quest Lighting	Vision Quest Lighting	O	G
Eric Cornwell	West Side Systems	West Side Systems	O	U
John Sondericker III	Wybron, Inc.	Wybron, Inc.	O	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