

**Minutes**  
**Control Protocols Working Group**  
Saturday, 26 July 2003  
Dallas/Ft. Worth Airport Marriott South  
Ft. Worth, TX

**Chairmen:** Steve Terry; Electronic Theatre Controls; A; MP  
Steve Carlson; High Speed Design, Inc.; P; MP

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

**Members attending:** Arnold Tang; Arnold Tang Productions; P; U  
Wayne David Howell; Artistic Licence (UK) Ltd.; P; MP  
Tobin Neis; Barbizon Companies; P; DR  
George Kindler; Pelton Marsh Kinsella (Carter & Burgess, Inc.); P; G  
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  
Tracy Underhill; Electronics Diversified Inc.; P; MP  
Alfred Langguth; Embedded Controls by Design, LLC; P; MP  
Philip Nye; Engineering Arts; P; G  
Robert Goddard; Goddard Design Co.; P; MP  
Tom Grimes; High End Systems, Inc.; P; MP  
Robert Bell; Shock Lighting Ltd. (Horizon Control Inc.); O; MP  
Peter Willis; Howard Eaton Lighting Ltd.; P; CP  
Scott M. Blair; Scott M. Blair (Hubbell Inc.); P; G  
Edwin S. Kramer; I.A.T.S.E, Local 1; P; U  
Roger Lattin; I.A.T.S.E. Local 728; P; U  
Rick Leinen; Colortran (Leviton Manufacturing Co., Inc.); P; MP  
John (Javid) D. Butler; Mainstage Theatrical Supply; P; DR  
Kevin Loewen; Pathway Connectivity Inc.; A; MP  
Hans Lau; Sand Network Systems (joined with new company affiliation at this meeting); P; MP  
Michael A. (Sandy) Twose; Sand Network Systems (joined with new company affiliation at this meeting); A; MP  
Yngve Sandboe; Sand Network Systems (joined with new company affiliation at this meeting); A; MP  
Michael Gonzales; Spectrum Lighting Inc. (joined with new company affiliation at this meeting); P; DR  
Richard Lawrence; Strand Lighting Ltd.; P; MP  
Michael Lay; Strand Lighting (Strand Lighting Ltd.); A; MP  
Brian Dowd; TMB; P; U  
Mitch Hefter; Entertainment Technology (Genlyte Thomas Group), representing USITT; P; U  
Charles Reese; VLPS; P; MP  
Mark Jensen; Wybron, Inc.; P; 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

**Visitor:** Alan Martello; Horizon Control, Inc.

**1 Opening remarks**

The meeting was called to order at 09:02 by Steve Terry

**2 Attendance and membership**

**2.1 Introductions of those present and taking attendance**

The chairmen started the self-introductions, which proceeded in a counterclockwise direction around the table, and concluded with Karl Ruling. Ruling explained the attendance sign-in sheet and started the circulation of the chartreuse sheet.

**2.2 Determination of quorum**

Steve Terry asked voting members to raise their hands and counted the raised hands. He announced that a quorum was present.

**2.3 Recognition of alternate voting members**

Terry reminded alternates can't vote if the principal is voting. There is only one vote allowed per voting entity.

**2.4 Requirements for membership**

Steve Terry reminded the assembly that membership in the working group is open to all who are affected by the work of the group. 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.

**2.5 Processing of new membership requests**

Steve Terry read the applications received:

Raymond Wynn; AVL Systems Pty Ltd.; observer; mass-market producer  
Woody Smith; Coemar USA; principal; mass-market producer  
Fabiano Pina; Clay Paky; observer; mass-market producer  
Michael Gonzales; Spectrum Lighting Inc. (formerly with Wrightson, Johnson, Haddon & Williams, Inc.); principal; dealer or rental business  
Simon Albert; Lighttech Event Technologies; observer; custom-market producer  
Farnik Robe; Robe Show Lighting s.r.o.; observer; mass-market producer  
Liao Wei Min (family name is Liao); Guangzhoe Hedon Electronics Co., Ltd.; observer; general interest

Terry noted that Woody Smith was not present and that, since attendance is one of the requirements of being a voting member, observer status might be appropriate until Smith attends and reapplies for voting status.

Scott Blair moved that the applications be accepted, with Woody Smith being accepted as an observer member. The motion was seconded. The motion was accepted with a unanimous show of hands.

The representatives of AVAB America had formed a new company, Sand Network Systems Inc. and reapplied under that banner with the same voting statuses and interest categories as their previous memberships representing AVAB America. Dan Antonuk moved that their applications be accepted. The motion was seconded. The motion was accepted with a unanimous show of hands. Hans Lau became the principal representative for Sand Network Systems Inc., with Michael A. (Sandy) Twose, and Yngve Sandboe as alternates.

After these additions and changes, the voting body during the meeting was:

Name	Company	Representing	Voting status	Interest categories				
				G	U	MP	CP	DR
Arnold Tang	Arnold Tang Productions	Arnold Tang Productions	P		1			
Wayne David Howell	Artistic Licence (UK) Ltd.	Artistic Licence (UK) Ltd.	P			1		
Tobin Neis	Barbizon Companies	Barbizon Companies	P					1
George Kindler	Pelton Marsh Kinsella	Carter & Burgess, Inc.	P	1				
Rick Szijarto	Cast Software	Cast Group of Companies, Inc.	P				1	
Doug Fleenor	Doug Fleenor Design, Inc.	Doug Fleenor Design, Inc.	P			1		
Milton Davis	Doug Fleenor Design, Inc.	Doug Fleenor Design, Inc.	A					
Ken Wagner	Doug Fleenor Design, Inc.	Doug Fleenor Design, Inc.	A					
Daniel W. Antonuk	Electronic Theatre Controls, Inc.	Electronic Theatre Controls, Inc.	P			1		
Steve Terry	Electronic Theatre Controls	Electronic Theatre Controls, Inc.	A					
Tracy Underhill	Electronics Diversified Inc. (Colorado)	Electronics Diversified Inc.	P			1		
James Johnson	Electronics Diversified Inc.	Electronics Diversified Inc.	A					
Alfred Langguth	Embedded Controls by Design, LLC	Embedded Controls by Design, LLC	P			1		
Phillip Nye	Engineering Arts	Engineering Arts	P	1				
Robert Goddard	Goddard Design Co.	Goddard Design Co.	P			1		
William Wagner	Flying Pig Systems	High End Systems Inc.	A					
Tom Grimes	High End Systems, Inc.	High End Systems, Inc.	P			1		
Steve Carlson	High Speed Design, Inc.	High Speed Design, Inc.	P			1		
Peter Willis	Howard Eaton Lighting Ltd.	Howard Eaton Lighting Ltd.	P				1	
Scott M. Blair	Scott M. Blair	Hubbell Inc.	P	1				
Richard Thornton Brown	Zero 88 Ltd.	i Light Group PLC	P			1		
Edwin S. Kramer	I.A.T.S.E. Local 1	I.A.T.S.E. Local 1	P		1			
John Huntington	I.A.T.S.E. Local 1	I.A.T.S.E. Local 1	A					
Roger Lattin	I.A.T.S.E. Local 728	I.A.T.S.E. Local 728	P		1			
Dennis Grow	I.A.T.S.E. Local 728	I.A.T.S.E. Local 728	A					
Alan M. Rowe	I.A.T.S.E. Local 728	I.A.T.S.E. Local 728	A					
Edward Paget	Jones & Phillips Associates, Inc.	Jones & Phillips Associates, Inc.	P	1				
Christopher Purpura	Jones & Phillips Associates, Inc.	Jones & Phillips Associates, Inc.	A					
Rick Leinen	Colortran	Leviton Manufacturing Co., Inc.	P			1		
Ken Vannice	Colortran	Leviton Manufacturing Co., Inc.	A					
Tim Bachman	Leviton/Colortran	Leviton Manufacturing Co., Inc.	A					
John (Javid) D. Butler	Mainstage Theatrical Supply - South	Mainstage Theatrical Supply	P					1
Ole Bystrup	Martin Professional A/S	Martin Professional A/S	P			1		
Gary Douglas	Pathway Connectivity Inc.	Pathway Connectivity Inc.	P			1		
Dave Higgins	Pathway Connectivity Inc.	Pathway Connectivity Inc.	A					
Kevin Loewen	Pathway Connectivity Inc.	Pathway Connectivity Inc.	A					
James Eade	PLASA	PLASA	P	1				
Tony Douglas-Beveridge	PLASA	PLASA	A					
Paul F. Mardon	Pulsar Ltd.	Pulsar Ltd.	P			1		
Steve Unwin	Pulsar Ltd.	Pulsar Ltd.	A					
Hans Lau	Sand Network Systems Inc.	Sand Network Systems Inc.	P			1		
Yngve Sandboe	Sand Network Systems Inc.	Sand Network Systems Inc.	A					
Michael A. (Sandy) Twose	Sand Network Systems Inc.	Sand Network Systems Inc.	A					
Michael Gonzales	Spectrum Lighting Inc.	Spectrum Lighting Inc.	P					1
Richard Lawrence	Strand Lighting Ltd.	Strand Lighting Ltd.	P			1		
Michael Lay	Strand Lighting	Strand Lighting Ltd.	A					
Brian Dowd	TMB (NJ)	TMB	P		1			
Mitch Heffer	Entertainment Technology (Genlyte Thomas Group)	USITT	P		1			
Charles Reese	VLPS	VLPS	P			1		
Mark Jensen	Wybron, Inc.	Wybron, Inc.	P			1		
			Total	G	U	MP	CP	DR
			31	5	5	17	2	2

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

Eddie Kramer moved that the minutes of the previous meeting be accepted as written. The motion was seconded. All voted in favor by a show of hands, except for three who abstained. Steve Terry announced that the motion had been accepted.

#### **4 Reading of the call for patents**

The following was read aloud by Steve Carlson:

"ESTA intends to publish no standard that contains protected intellectual property, unless that property can be licensed by anyone for a reasonable fee. ESTA uses a process of open patent disclosure to implement this intent. ESTA does not conduct patent searches and does not warrant that its standards contain no protected intellectual property.

"In keeping with the open disclosure policy, I ask if anyone present wishes to notify the working group of the existence of a patent or copyright that might protect material in a standard being developed by the working group. You need not be the holder of the patent or copyright in order to notify the working group of its existence."

Steve Carlson asked for a response and noted that no one came forward.

#### **5 The reading of the anti-trust statement**

The following was read aloud by Steve Carlson:

"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 \$100,000 and imprisoned for up to three years. An easy to read pamphlet describing restraint of trade issues is available from the Technical Standards Manager."

Karl Ruling held up some of the pamphlets to show their immediate availability.

No restraint of trade issues were brought to the attention of the assembly.

#### **6 Presentation by Paul Vincent**

Steve Terry introduced Paul Vincent, TSC Chairman, who offered a special presentation about the ESTA Interconnectivity Pavilion.

Paul Vincent said he was at this meeting for three reasons:

(1) to thank the CPWG members and their companies

(2) to bring recognition to three projects: ACN, RDM, and DMX. He emphasized the importance of all three of these protocols to the industry.

(3) to request that people work on the technical details to successfully realize the ESTA Interconnectivity Pavilion and to support the perception of the importance of all these projects. He noted that there are three sessions at LDI to promote these three protocols. He said that ETS-LDI is a great opportunity but great effort is needed to take advantage of this opportunity.

Vincent finished by asking the group to pitch in to furnish the booth and to provide the manpower to make the Interconnectivity Pavilion a success. ESTA's budget is limited. Primedia has donated the booth, but not the rest.

The working group applauded Paul Vincent for his presentation.

#### **6 Approval of agenda**

Steve Terry suggested that we discuss the Interconnectivity Pavilion under new business and that the IEEE report from Steve Carlson be moved up to follow the discussion of the E1.11 related matters.

Scott Blair move that the revised agenda be accepted. The motion was seconded. The motion was accepted with a unanimous show of hands.

## **7 Old business**

### **7.1 E1.11**

#### **7.1.1 Status of document**

Karl Ruling reported that BSR E1.11 is in public review. The review is scheduled to end at the end of the business day in New York City on September 30.

#### **7.1.2 Cabling**

There was a discussion of the document submitted from the task group that restates the scope of the cabling task group and that recommends a separate task group be formed to address non-wired connection methods. There was also a discussion of whether the three types of cabling being considered could be different standards but share a common alpha-numeric designation or a designation that shows that the standards are related.

Peter Willis moved that the DMX cabling task group scope shall be:

"The task group will only develop standards relating to the interconnection of DMX512 systems and DMX512-A (E1.11) systems by means of metallic conductors."

The motion was seconded. The motion was approved with a unanimous show of hands, except for one abstention.

The Chairmen directed Karl Ruling to investigate the possibility of having a shared alpha-numeric designation for the three projects the task group is considering. Javid Butler was directed to have the cabling task group continue work on the three projects.

## **7.2 IEEE report**

Steve Carlson reminded the group that the 802 standards that have been published for more than 6 months are available for free on the IEEE website. Recently published standards must be purchased. See <http://standards.ieee.org/getieee802/>. 802.3-2002 now available

Carlson said that he was happy to report that 802.3af-2003 DTE Power via MDI was approved on June 18. It is now published and available for sale. He said it is important that people get the final version because it is different from the previous review versions.

Short-haul 10gig copper is doing well, Carlson reported. 802.3ak (10GBASE-CX4) is going to Sponsor Ballot in September. This is for 10GBPS communications for distances of less than 15m over copper wire. The goal is approval on 8 December 2003.

The first mile group (P802.3ah Ethernet First Mile) is now making progress. The document was voted to go to working group ballot two days ago. It has been demonstrated to be able to send data at 10megabits/second over 750m of poor quality twisted pair in spools. It will send data over 2km at 2 megabits/second.

The 10G-baseT study group is working but not making clear progress. More info is available at <http://grouper.ieee.org/groups/802/3/10GBT/index.html>.

Carlson noted that 802.11g: Higher Rate PHY (54Mbps) for 802.11b (20Mbps) was approved by the IEEE STB on 12 June 2003. He cautioned people to watch out for nominally 802.11g products that are now on the shelf. Those products are probably built to an earlier draft. They may not be compatible with products meeting the requirements of the approved 802.11g or compatible with other brands.

Carlson again drew the working group's attention to the ISO/IEC 11801 and TR-42 projects dealing with cabling for industrial and building automation. The Industrial Premises Task Group is IEC/ISO/JTC1\SC25\WG3 IPTG. The Technical Advisory Group contacts are Alan Flatman for

Europe (a\_flatman@compuserve.com) and Dave Hess for North America (Dave.Hess@Berktek.com). ESTA (the members of this working group) is considered an expert resource for this project.

The next meeting of the 802.3 Working Group will be in Albuquerque, NM, 10-14 November 2003. More information is available at <http://grouper.ieee.org/groups/802/3/index.html>. the officers of the working group are:

Chair: Bob Grow, bob.grow@intel.com  
Vice-Chair: David Law, David\_Law@3com.com  
Secretary: Steve Carlson, scarlson@esta.org

### **7.3 E1.20 Remote Device Management with DMX512**

Draft version 1.0 was considered for public review and discussed.

Scott Blair noted that he had found prior art for bi-directional communications over a DMX-type link in proposals Brad Rodriguez had made at the USITT Conference in 1989. Members of the group also pointed out that Strand's SMX from that same period also used bi-directional communications and was promoted as a possible successor for DMX512 to be used by all manufacturers.

Blair reported that work is progressing on a reference platform. Potterf et al is working on coding a reference platform as a class project. This project is due at the end of the fall semester in December.

Scott Blair moved that BSR E1.20 (CP/2003-1003r1) be sent to a first public review. The motion was seconded. Per our policies and procedures, the motion for a first public review must be decided by letter ballot.

Dan Antonuk said for the record that ETC is very excited and supportive of this project and the ACN. He encouraged all to vote yes.

Steve Carlson also spoke in favor of the motion, stating that this is an important step forward.

Doug Fleenor spoke in favor of the motion.

Steve Terry spoke in favor of the motion and also said that this public review is an important step forward.

Doug Fleenor urged Karl Ruling to remind voters that the motion is for the public review and is not for accepting the standard.

The consensus of the group was that the cover note ("Explanatory Information About . . . ") shall be included with both this letter ballot and the public review materials when they are made available.

Wayne Howell described an installation he is doing with 600 RDM devices controlled by a custom PC-based controller. The devices are in-ground so they have moisture sensors that can be queried by the controller.

### **7.4 E1.17**

Dan Antonuk reported on the progress of the project. He stated that they plan to have sample code available at LDI.

Dan Antonuk moved that BSR E1.17 suite (CP/2003-1009, CP/2003-1008, CP/2003-1010, CP/2003-1011, CP/2003-1007r1, and CP/2003-1012) be sent to a first public review. The motion was seconded. This motion will be decided by letter ballot.

Scott Blair spoke in favor of the motion.

Dan Antonuk noted that there is one open item in the draft protocol suite: the port assignment. A port assignment will be requested when the details of the standard have been confirmed.

**8 New business — Interconnectivity Pavilion discussion**

There was a long discussion in which the possible equipment to be shown and the possible perception of the public, which included who is going to do what with what, what is needed to accomplish this, and who is going to be in charge.

Finally the group agreed that the booth should have carpeting, two outlets, three tables, and the EDI pop-up stand. Ken Wagner of Doug Fleenor Design will coordinate the two task groups, with the ACN and RDM task groups deciding the equipment.

Steve Terry committed ETC to making \$1,000 available for the project.

All agreed not to abuse Ken Wagner if he cannot accommodate their every wish.

Steve Terry directed people to tell Ken Wagner via email when they would be available to staff the Pavilion.

Richard Lawrence moved that Karl Ruling shall coordinate the public review announcements so that the public reviews of BSR E1.20 and BSR E1.17 do not close sooner than two weeks after LDI. The motion was seconded. By a show of hands, the motion was accepted, with one opposed, three abstentions, and the rest yes.

Terry asked for the wording for signage by August 15. He will have ETC staff make the needed signs.

**9 Other business**

There was a discussion of the problems with wireless DMX data transmission.

Terry reminded the assembly that the old email reflectors will be shut down in favor of the archived email reflectors.

**10 Changes to observer status due to lack of attendance**

Steve Terry announced that the following are now observers because the principal voting members and alternates have missed three meetings in a row:

Rick Szijarto, Cast Software  
Paul Mardon and Steve Unwin, Pulsar Ltd.

**11 Schedule for future meetings**

It was announced that the next meeting will be on Thursday, 20 November 2003 at the Sheraton World Resort, Orlando. (The full meeting schedule is at <http://www.esta.org/tsp/tscmeetings.html>.)

**12 Adjournment**

Scott Blair moved that the meeting adjourn. The motion was seconded. The motion was approved by acclamation.

Steve Terry declared the meeting adjourned at 12:18.





**Working Group Membership at the End of the Meeting,  
with Contact Information Current as of 2003-09-24**

Name	Company	Representing (this is the sort field)	Voter status	Int. cat.
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	MP
Steve Friedlander	Auerbach Pollock Friedlander	Auerbach Pollock Friedlander	O	U
Raymond Wynn	AVL Systems Pty Ltd.	AVL Systems Pty Ltd.	O	MP
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
Bernardo Benito Rico	Ben-Ri Electronica S.A.	Ben-Ri Electronica S.A.	O	MP
Lee J. Bloch	Blue Sky Design, Ltd.	Blue Sky Design, Ltd.	O	G
Soo-Myong Chung	Blue Sky Design, Ltd.	Blue Sky Design, Ltd.	O	G
Bradley Klinkradt	Bradley Klinkradt	Bradley Klinkradt	O	G
Ted Fregon	Bytecraft Pty. Ltd.	Bytecraft Pty. Ltd.	O	MP
Bill Ellis	Candela Controls, Inc.	Candela Controls, Inc.	O	U
George Kindler	Pelton Marsh Kinsella	Carter & Burgess, Inc.	P	G
Rick Szijarto	Cast Software	Cast Group of Companies, Inc.	O	CP
Marty Lazarus	Chicago Spotlight, Inc.	Chicago Spotlight, Inc.	O	G
Fabiano Pina	Clay Paky S.P.A.	Clay Paky S.P.A.	O	MP
Woody Smith	Coemar USA Inc.	Coemar USA Inc.	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
Jason Friedman	Creative Realities, Inc.	Creative Realities, Inc.	O	G
David Bertenshaw	David Bertenshaw	David Bertenshaw	O	G
Bob Toms	Design Advantage LLC	Design Advantage LLC	O	G
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
Jussi Kallioinen	Eastway Sound & Lighting	Eastway Sound & Lighting	O	U
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
Anders Ekvall	Transtechnik Lichtsysteme GmbH	Electronic Theatre Controls, Inc.	O	MP
Hans Leiter	Transtechnik Lichtsysteme GmbH & Co. KG	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
James Johnson	Electronics Diversified Inc.	Electronics Diversified Inc.	A	MP
Alfred Langguth	Embedded Controls by Design, LLC	Embedded Controls by Design, LLC	P	MP
Philip Nye	Engineering Arts	Engineering Arts	P	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
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
William Wagner	Flying Pig Systems	High End Systems Inc.	A	MP
Tom Grimes	High End Systems, Inc.	High End Systems, Inc.	P	MP
Steve Carlson	High Speed Design, Inc.	High Speed Design, Inc.	P	MP
Robert Bell	Shock Lighting Ltd.	Horizon Control Inc.	O	MP
Peter Willis	Howard Eaton Lighting Ltd.	Howard Eaton Lighting Ltd.	P	CP
Scott M. Blair	Scott M. Blair	Hubbell Inc.	P	G
Richard Thornton Brown	Zero 88 Ltd.	i Light Group PLC	P	MP
Edwin S. Kramer	I.A.T.S.E. Local 1	I.A.T.S.E. Local 1	P	U
John Huntington	I.A.T.S.E. Local 1	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	I.A.T.S.E. 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
Rob Johnston	Interactive Technologies, Inc.	Interactive Technologies, Inc.	O	MP
Larry Schoeneman	Interesting Products, Inc.	Interesting Products, Inc.	O	G
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.	P	G
Christopher Purpura	Jones & Phillips Associates, Inc.	Jones & Phillips Associates, Inc.	A	G
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
Tim Bachman	Leviton/Colortran	Leviton Manufacturing Co., Inc.	A	MP
Klaus Amling	Licht-Technik	Licht-Technik	O	P
Andrew Sherar	Lightmoves PLC	Lightmoves PLC	O	MP
Simon Alpert	Lighttech Event Technologies	Lighttech Event Technologies	O	CP
Gary Pritchard	LSC Lighting Systems PTY Ltd	LSC Lighting Systems PTY Ltd	O	MP
J. P. Steiner	Lutron Electronics	Lutron Electronics	O	MP
Jim Holladay	Luxence	Luxence	O	G
John (Javid) D. Butler	Mainstage Theatrical Supply - South	Mainstage Theatrical Supply	P	DR
Ole Bystrup	Martin Professional A/S	Martin Professional A/S	P	MP
Hiroshi Kita	Marumo Electric Co., Ltd.	Marumo Electric Co., Ltd.	O	MP
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
Dave Higgins	Pathway Connectivity Inc.	Pathway Connectivity Inc.	A	MP
Kevin Loewen	Pathway Connectivity Inc.	Pathway Connectivity Inc.	A	MP
James Eade	PLASA	PLASA	P	G
Tony Douglas-Beveridge	PLASA	PLASA	A	G
Mac Perkins	PNTA Inc.	PNTA Inc.	O	G
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
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
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.	P	DR
Ujjal Kar	Standard Robotics & Lighting	Standard Robotics & Lighting	O	G
John Mitchell	Sterling Technical Services	Sterling Technical Services	O	U
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
Jerry Gorrell	Theatre Safety Programs	Theatre Safety Programs	O	G
Brian Dowd	TMB (NJ)	TMB	P	U
Colin Waters	TMB	TMB	O	U
Matt Stroud	University of Texas at Austin	University of Texas at Austin	O	G
Jason Potterf	University of Texas at Austin	University of Texas at Austin	O	G
Mitch Hefter	Entertainment Technology (Genlyte Thomas Group)	USITT	P	U
Torrey Bievenour	Vision Quest Lighting	Vision Quest Lighting	O	G
Charles Reese	VLPS	VLPS	P	MP
Eckart Steffens	SOUNDLIGHT	VPLT	O	G

Eric Cornwell	West Side Systems	West Side Systems	O	U
Mark Jensen	Wybron, Inc.	Wybron, Inc.	P	MP
John Sondericker III	Wybron, Inc.	Wybron, Inc.	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