

Minutes
Control Protocols Working Group
Thursday, 16 November 2017
The Tropicana
Las Vegas, NV

Presiding co-chair: Michael Lay; Philips Color Kinetics; Philips Lighting; P; MP

Recording secretaries: Karl Ruling and Erin Grabe; ESTA

Members in attendance:

Daniel W. Antonuk; Electronic Theatre Controls, Inc.; P; MP
Paul Beasley; Walt Disney Imagineering; Walt Disney Company; P; U
Robert Bell; Acuity Brands Lighting; Acuity Brands Inc.; A; MP
Scott M. Blair; Full Throttle Films/ VER; P; DR
Javid Butler; Integrated Theatre, Inc.; O; CP
Steve Carlson; High Speed Design, Inc.; O; MP
Fraser Connolly; Obsidian Controls Ltd.; P; DE
Bill Ellis; Candela Controls, Inc.; P; DE
Andrew Frazer; Stellasces.com; P; MP
Robert Goddard; Goddard Design Co.; P; MP
Mitch Hefter; USITT; P; U
Julian Hoare; Tait Towers; Tait Towers Manufacturing LLC; A; MP
Jon Hole; Zero 88; Eaton; P; MP
Wayne David Howell; Artistic Licence Engineering Ltd.; Artistic Licence Holdings; P; DE
John Valus_Jr.; LEX Products; Lex TM3; P; CP
Michael Karlsson; LumenRadio AB; P; MP
Sam Kearney; Electronic Theatre Controls, Inc.; A; MP
Edwin S. Kramer; I.A.T.S.E. Local 1; P; U
Ulrich Kunkel; E3 Engineering & Education for Entertainment GmbH; P; U
Roger Lattin; I.A.T.S.E. Local 728; P; U
Dan Lisowski; Dept. Of Theatre and Drama; University of Wisconsin - Madison; P; DE
Jim Love; Tait Towers; Tait Towers Manufacturing LLC; P; MP
Daniel Murfin; Royal National Theatre; P; U
Maya Nigrosh; I; U
Jason Potterf; Cisco; P; MP
Larry Schoeneman; DesignLab Chicago, Inc.; P; DR
Christopher B. Tilton; About the Stage, LLC; O; DE
Peter Willis; Howard Eaton Lighting Ltd.; P; CP

Visitors:

Steve Lampen; Belden
Finn O'Brien; Griven USA
Andy McMillan; BACnet International
Hans Lau; Film Gear, Inc.

1 Opening remarks

Michael Lay called the meeting to order at 9:02 a.m. PST. He asked those present to not forget that we're on WebEx and apologized on behalf of new co-chair Milton Davis for not being here.

Michael then took the time to mourn the untimely death of member Ted Paget. He read a short eulogy, noting Ted's help with keeping the lights on at ESTA and everything he did to improve our industry. Ted will be sorely missed.

2 Attendance

2.1 Introductions of those physically present and circulation of attendance sheet

A yellow sign-in sheet went around the room while self-introductions took place.

2.2 Introductions of those present via WebEx

2.3 Determination of a quorum

Michael Lay announced a supermajority was present.

2.4 Recognition of alternate voting members

3 Membership

3.1 Requirements for membership

The following statement was read aloud to the assembly by Michael Lay:

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. There is an annual \$100 participation fee for all members. Voting members are required to attend meetings and to vote on letter ballots. Voting members and their alternates may not miss three consecutive meetings without a loss of voting status.

3.2 Changes to observer status due to lack of attendance

Michael Lay noted that, for the second meeting in a row, there are no voters in jeopardy of a change to Observer status due to lack of attendance!

3.3 Processing of new membership requests and changes in membership status:

Michael Lay said that, as of 16 November, the following applications status change requests were received:

Jonathan Kemble; High End; ETC; O; MP (change in representation)

Maya Nigrosh; I; U

Eric Rasmussen; ETC; A; MP

John Valus Jr; LEX; P; CP

Scott Blair moved to approve the applications and status change requests. The motion was seconded and approved by a show of hands.

3.4 Consensus body

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

Name	Representing	Voting status	Int cat
Kevin Loewen	Acuity Brands Inc.	P	MP
Robert Bell	Acuity Brands Inc.	A	MP
Gary Douglas	Acuity Brands Inc.	A	MP
Maurits van der Hoorn	Acuity Brands Inc.	A	MP
Wayne David Howell	Artistic Licence Holdings	P	DE
Bill Ellis	Candela Controls, Inc.	P	DE
Brent Boulnois	Candela Controls, Inc.	A	DE
Jim Ohrberg	Candela Controls, Inc.	A	DE
Jason Potterf	Cisco	P	MP
Paul Kleissler	City Theatrical, Inc.	P	MP

Name	Representing	Voting status	Int cat
Larry Schoeneman	DesignLab Chicago, Inc.	P	DR
Milton Davis	Doug Fleenor Design, Inc.	P	MP
Ian Campbell	Doug Fleenor Design, Inc.	A	MP
Ulrich Kunkel	E3 Engineering & Education for Entertainment GmbH	P	U
Jon Hole	Eaton	P	MP
Daniel W. Antonuk	Electronic Theatre Controls, Inc.	P	MP
Steve Terry	Electronic Theatre Controls, Inc.	A	MP
Sam Kearney	Electronic Theatre Controls, Inc.	A	MP
Eric Rasmussen	Electronic Theatre Controls, Inc.	A	MP
Scott M. Blair	Full Throttle Films/ VER	P	DR
Jeremy Hochman	Full Throttle Films/ VER	A	DR
Claude Ostyn	Full Throttle Films/ VER	A	DR
Andrew Atienza	Full Throttle Films/ VER	A	DR
Robert Goddard	Goddard Design Co.	P	MP
Peter Willis	Howard Eaton Lighting Ltd.	P	CP
Edwin S. Kramer	I.A.T.S.E. Local 1	P	U
John Huntington	I.A.T.S.E. Local 1	A	U
Roger Lattin	I.A.T.S.E. Local 728	P	U
Alan M. Rowe	I.A.T.S.E. Local 728	A	U
Ken Vannice	Ken Vannice LLC	I	G
John Valus_Jr.	Lex TM3	P	CP
Michael Karlsson	LumenRadio AB	P	MP
Maya Nigrosh	Maya Nigrosh	I	U
Fraser Connolly	Obsidian Controls Ltd.	P	DE
Simon Newton	Open Lighting Project	P	G
Michael Lay	Philips Lighting	P	MP
Daniel Murfin	Royal National Theatre	P	U
Andrew Frazer	Stellascapes.com	P	MP
Jim Love	Tait Towers Manufacturing LLC	P	MP
Julian Hoare	Tait Towers Manufacturing LLC	A	MP
Dan Lisowski	University of Wisconsin - Madison	P	DE
Mitch Hefter	USITT	P	U
Paul Beasley	Walt Disney Company	P	U
Total votes possible		28	

Votes by interest categories	2	CP
	4	DE
	2	DR
	2	G
	11	MP
	7	U

Voting status: P=principal; A=alternate; I=individual

Int. cat.: CP=custom-market producer; DE=designer; DR=dealer or rental company; G=general interest; MP=mass-market producer; U=user

4 Approval of the minutes from the previous meeting

See CPmin07-2017r2.pdf

Scott Blair moved to approve the July minutes as distributed. The motion was seconded and approved by a show of hands.

5 Reading of the call for patents

The following statement was read aloud to the assembly by Michael Lay:

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, patent application, 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.

Nothing was disclosed.

6 Reading of the anti-trust statement

The following statement was read aloud to the assembly by Michael Lay:

ESTA and its members take seriously their obligation to comply with all applicable antitrust laws. Therefore, during this meeting and during all ESTA events, all discussions will be limited to those subjects that are permitted by the antitrust laws. All members should refrain from any discussion or mention of competitively sensitive subjects such as the current or future prices charged for any member product or services, current or future marketing plans or strategies, and current or future costs, including employee salaries. There also must be no agreement on the suppliers or customers that members will or will not do business with or the markets in which members will conduct business.

Violations of the antitrust laws can have serious consequences. If you have any questions or concerns about anything that is discussed at a ESTA meeting, please bring your concern to ESTA management. An easy to read pamphlet describing the antitrust laws is available from the ESTA staff.

Karl Ruling and Erin Grabe held up copies of the antitrust guide. No antitrust issues were revealed.

7 Approval of agenda

Michael Lay added 9.4 and 9.5, IEEE and NFPA, as well as 9.6 LDI

Scott Blair moved to approve the agenda as amended. The motion was seconded and approved by a show of hands.

8 Old business

8.1 Standards, Guides & Recommended Practice Maintenance

This is a placeholder in the agenda, so we don't forget to maintain them. Documents prefaced with an asterisk () are on the agenda elsewhere for reports or action.*

ANSI E1.3 – 2001 (R2016), Entertainment Technology - Lighting Control Systems - 0 to 10V Analog Control Specification & Application Guide For ANSI E1.3 – 2004 Lighting Control Systems 0 to 10V Analog Control Specifications. (Revision, reaffirmation or withdrawal by 17 February 2021)

ANSI E1.11 – 2008 (R2013), Entertainment Technology - USITT DMX512-A, Asynchronous Serial Digital Data Transmission Standard for Controlling Lighting Equipment and Accessories. (Revision, reaffirmation, or withdrawal by 13 March 2018)

ANSI E1.17 – 2015 Entertainment Technology - Architecture for Control Networks (ACN) (Revision, reaffirmation, or withdrawal by 21 May 2020)

* ANSI E1.20 - 2010, Remote Device Management over USITT DMX512. (Revision, reaffirmation or withdrawal by 4 January 2016 – PINS filed for revision)

ANSI E1.27-1 – 2006 (R2016), Entertainment Technology - Standard for Portable Control Cables for Use with USITT DMX512/1990 and E1.11 (DMX512-A) Products. (Revision, reaffirmation or withdrawal by 8 April 2021)

ANSI E1.27-2 – 2009 (R2014), Entertainment Technology - Recommended Practice for Permanently Installed Control Cables for Use with ANSI E1.11 (DMX512-A) and USITT DMX512/1990 Products. (Revision, reaffirmation, or withdrawal by 9 June 2019)

ANSI E1.30-1 – 2010 (R2016), EPI 23, Device Identification Subdevice. (Revision, reaffirmation or withdrawal by 17 February 2021)

ANSI E1.30-3 – 2009 (R2014), EPI 25, Time Reference in ACN Systems Using SNTP and NTP. (Revision, reaffirmation, or withdrawal by 9 June 2019)

ANSI E1.30-4 – 2010, EPI 26, Device Description Language (DDL) Extensions for DMX512 and E1.31 Devices. (Revision, reaffirmation, or withdrawal by 25 September 2020)

ANSI E1.30-10 – 2009 (R2014), EPI 32, Identification of Draft Device Description Language Modules. (Revision, reaffirmation, or withdrawal by 9 June 2019)

* ANSI E1.31 - 2016, Lightweight streaming protocol for transport of DMX512 using ACN (Revision, reaffirmation, or withdrawal by 11 October 2021)

ANSI E1.37-1 – 2012 (R2017), Additional Message Sets for ANSI E1.20, Remote Device Management. (Revision, reaffirmation, or withdrawal by 18 May 2022)

ANSI E1.37-2 - 2015, Additional Message Sets for ANSI E1.20 (RDM) – Part 2, IPv4 & DNS Configuration Messages. (Revision, reaffirmation, or withdrawal by 25 September 2020)

Application Guide for ANSI E1.3 - 2001, Lighting Control Systems 0 to 10V Analog Control Specification

Recommended Practice for Ethernet Cabling Systems in Entertainment Lighting Applications

Supplement to the Recommended Practice for Ethernet Cabling in Entertainment Lighting Applications

Withdrawn standards

E1.45 - 2013 (W2015), Unidirectional Transport of IEEE 802 data frames over ANSI E1.11 (DMX512A)

E1.30-7 - 2009 (W2016), EPI 29, Allocation of Internet Protocol Version 4 Addresses to ACN Hosts

8.2 BSR E1.20 - 201x, Remote Device Management over USITT DMX512

Any news or action on a revised draft for consideration? The PINS for revision was filed 2 November 2015.

Scott Blair said they've been working through the list of features and changes. There's not been much progress between meetings, admitted Scott. Scott suggested that Wayne Howell join Simon Newton as co-chair, due to Simon's currently busy schedule. Wayne was so appointed by Michael Lay.

8.3 BSR E1.30-11, EPI 33, Transport of root PDUs over TCP

From the draft October 2016 minutes:

There was some discussion on whether or not there was a problem in waiting to publish this so long after its last public review. Karl Ruling advised that it would need to be offered for another public review before it is submitted for final ANSI approval. The consensus was to offer it for public review with BSR E1.33.

Scott Blair said that this project is still in a holding pattern waiting for RDMnet.

8.4 BSR E1.31 – 20xx, Entertainment Technology—Lightweight streaming protocol for transport of DMX512 using ACN (revise, reaffirm, or withdrawal by 11 October 2021)

See BSR_E1-31-201x_CP2014-1009r6.pdf and BSR_E1-31-201x_2ndRevwDraftResols.pdf.

Jason Potterf addressed the group with regard to the documents distributed. He moved that the resolutions be accepted. The motion was seconded and approved by a show of hands and WebEx chats, with two opposed.

Jason Potterf then moved to accept the draft as an American National Standard. The motion was seconded and will be decided by letter ballot.

Jason noted that the task group is expected to go idle for some time, allowing members a chance to focus on other standards, including E1.33.

Andrew Frazer noted that the group will likely have to revisit the IPv6 issue at a later time, as it becomes more widely adopted.

8.5 BSR E1.33, Transport of ANSI E1.20 (RDM) in an E1.31 environment

The PINS form to announce this project was filed on 31 July 2006. It has been through five public reviews, but never been published.

From the draft March 2017 minutes:

Scott Blair said that 197 comments came in during the last public review. All but about one dozen comment resolutions have been implemented into the current draft. The rest will be added and then an editorial review of the full draft will be done. The intent is to have something for this body to consider in July.

From the draft July 2017 minutes:

Scott Blair said all of the comments were resolved and rolled into the document. The document is in final formatting by Dan Antonuk, and the task group is hopeful that a document will be ready for consideration at LDI. Dan Antonuk said that there will need to be a final task group review after the final editing is done.

Scott Blair said the draft is in fairly good condition, and he has a reasonable expectation that it can be offered for public review in January.

Dan Antonuk gave Maya Nigrosh thanks for her editorial work. Sam Kearney described how the document was restructured to better organize the information and to allow manufacturer-specific information to be transmitted over RDMnet..

Scott Blair asked the working and task group members to cross-check the changes to the document and the comment resolution document to be sure they match.

8.6 BSR E1.37-4, Firmware updates via ANSI E1.20, RDM

From the draft July 2017 minutes:

Peter Willis said that the task group met yesterday. Some editing still needs to be done on the document, reported Peter, but all of the fundamental necessities have been incorporated. There was a relatively small input from the task group on CRC details. He said that he hopes to have the task group review the document by email before LDI, and his expectation, barring feedback about fundamental details, is to motion to offer it for a first public review at LDI.

Peter Willis addressed the group, apologizing for not hitting the target set back in July. They have a meeting this afternoon to address inconsistencies in the document after a radical rewrite almost one year ago.

The table of contents was displayed for the group to show the detail of what the draft covers. Peter Willis mentioned that the standard is very long, mostly because of contingencies about "what to do if things go wrong," and not so much about when things go right. He noted that the document is now in a state for the task group to really sink its teeth into it, paying particular attention to whether or not anything in it breaks existing RDM, which would be unacceptable.

The task group will be meeting after this meeting. Potentially, there could be a document to offer for review in January.

8.7 BSR E1.37-5, General Purpose Messages for ANSI E1.20 RDM

From the draft July minutes:

Simon Newton said that the task group had a five minute meeting, and there will hopefully be a document for this group to consider at LDI.

Scott Blair said the document needs to be updated to reflect the comment resolutions, adding that he or Simon Newton will complete those edits. It is especially important because E1.33 relies on one of the PIDs in this document, so this project should move forward to help E1.33, or the PID reference in E1.33 needs to be removed.

8.8 BSR E1.37-6 - 20xx, Additional Message Sets for ANSI E1.20 (RDM) - Parameter Description Messages

Scott Blair and Peter Willis discussed the priority of the E1.37-x messages. The consensus of the group is that this project is the lowest priority.

8.9 BSR E1.37-7 - 20xx, Additional Message Sets for ANSI E1.20 (RDM) - Gateway and Splitter Configuration

From the draft July minutes:

...Scott Blair said he will send the draft [to the task group], again, and reiterated the task group's intention to offer it for public review when E1.33 is ready for public review.

Scott Blair said he completed the review comments up back in June, but is waiting for E1.33. The two documents have to go to review together as a package deal.

8.10 BSR E1.59 - 201x, Automation Vector Transmission Protocol

See Dan Lisowski's Protocol article, Fall2017_BSRE1-59_DanLisowski.pdf. White-paper expected soon, with the intention of offering it for an unofficial public review.

Dan Lisowski addressed the group regarding the *Protocol* article, which garnered a lot of support and good feedback. The task group is still developing the white paper and will begin writing the document in January.

Scott Blair suggested that articles should be submitted to other publications, such as PLSN, LSI, or LSA.

8.11 IPv6 task group report

Documents in order of priority for IPv6 consideration:

- E1-31 - 2016 -Entertainment Technology –Lightweight streaming protocol for transport of DMX512 using ACN (open for revision as of January 2017)
- E1.37-2 - 2015 Entertainment Technology –Additional Message Sets for ANSI E1.20 (RDM) –Part 2, IPv4 & DNS Configuration Messages
- E1.17 - 2015 -Entertainment Technology -Architecture for Control Networks (ACN)
Elements of E1.17 depended on by E1.31 must be addressed as a high priority

From the draft July minutes:

Jason Potterf said IPv6 implementation in E1.31 is essentially done. As far as E1.37-2 is concerned, Jason said that he would like opinions from the group on adopting IPv6 message sets. There was discussion on opening the project to change the title and expand the scope. Peter Willis said that he is in favor of a new document, instead of a revision of an existing standard. This is a low priority, though, noted Jason, who has no strong opinion either way on a new document versus a revision. Michael Lay asked Jason Potterf to look at E1.37-2 again and come back at LDI with a plan.

Jason Potterf reported that E1.31 and E1.33 have IPv6 added, but that no one has expressed much interest in tackling E1.17. He thinks that E1.37-2 would be a quick add, but it is not critical at this time. There was some discussion about static addressing in IPv6, which Jason says is nearly impossible.

There were some concerns in the room that the task group members have limited bandwidth to complete the open projects. Both Wayne Howell and Andrew Frazer suggested that a future standard needs to replace E1.31, and that it ought not be just a patch.

There was a long discussion, advanced by Andrew Frazer, about how long it will take to finish E1.33. “Does it have a finish date?” he asked. The consensus was “No.” It is high priority, but we cannot control the amount of time that volunteers might have to work on a project, nor do we control the public review comments that might be offered and how they might be resolved.

Michael Lay said that he and Milton Davis will appoint a standards road map committee to layout time-lines for our projects, including a replacement for E1.31.

8.12 European Plugfest

The event will take place 25-27 April 2017, said Peter Willis and Wayne Howell. It will be at a new venue, still near Gatwick Airport. Wayne Howell noted that the event is being re-branded the Lighting Protocols Plugfest, because they are incorporating more protocols, including DALI and other architectural protocols.

8.13 Texas Plugfest

Michael Lay noted that the next Plugfest is scheduled to be held in conjunction with the July 2018 ESTA meetings in Westlake, Texas, but that exact dates are not yet known.

8.14 Task group leader coordination

Scott Blair is the official scheduling liaison between the CPWG task groups and Frances Thompson. Anyone needing a physical task group meeting at an upcoming event should contact Scott.

From the draft July 2017 minutes:

Michael Lay would like each group to have a co-chair. He asked that groups consider their recommendations, and let the group know by LDI.

BSR E1.20 Scott Blair and Wayne Howell
BSR E1.30 No single leader; Generic group
BSR E1.31 Jason Potterf
BSR E1.30-11, EPI 33 Simon Newton
BSR E1.33 Dan Antonuk and Scott Blair
BSR E1.37-2 Simon Newton
BSR E1.37-4 Peter Willis
BSR E1.37-5 Simon Newton
BSR E1.37-6 Simon Newton
BSR E1.37-7 Scott Blair
BSR E1.59 Dan Lisowski and Maya Nigrosh
E1.37-x Video Walls Scott Blair
IPv6 Task Group Jason Potterf
Plugfest Marketing Task Group Michael Lay
Standards Road Map Milton Davis
Compliance Study Group Javid Butler and Wayne Howell
Task Group Liaison Scott Blair

9 New business

9.1 A discussion on compliance testing

Javid Butler requested an agenda item to discuss compliance testing for our protocols.

Javid Butler said that he'd seen use of entertainment protocols in the architectural environment. They are finding a lot of "DMX512 compliant" products, but are in fact not "compliant." He introduced Finn O'Brien of Griven, Andy McMillan of BACnet, and Steve Lampen of Belden.

There was extensive discussion.

Karl Ruling argued that testing is outside our scope as a standards organization. If ESTA wants to take up testing, that can be done, but it is a decision outside the TSP, but the TSP could write standards for the testing.

Steve Carlson reported on how the University of New Hampshire does its interoperability testing. They have people on the standards committees who extract the PICS from the requirements in the standards. Thus, the PICSs are not created by the standards committees, but are derived by the testing lab from the standards. A university is a good testing site because there is some insulation from commercial relationships and because they have a great supply of grad students who provide cheap labor.

Javid Butler recommended we form a task group to research the commercial market to see if there is a market argument for this testing. Michael Lay appointed Javid Butler and Wayne Howell as co-chairs of this research group, and added Mitch Hefter. Peter Willis, Steve Carlson, Jason Potterf, Bob Goddard, Bill Ellis, Ulrich Kunkel, and Scott Blair to it.

It was noted that BACnet International does not write the BACnet standard. ASHRAE does and it does no testing. BACnet International is a trade association that was set up to promote testing

9.2 A discussion on publishing revision notes

John Huntington requested an agenda item to discuss the possibility of publishing revision notes in revised standards. A strike-through/underline format is not necessary, but rather something simple (i.e., "Revised to incorporate IPv6"). Any revision notes would have to be written in such a way as to not mislead a reader into thinking they can skip the rest of the standard.

There was discussion on this topic, with arguments for it being both a good and bad idea. Jason Potterf recommended that a "diff" file be included in the review packets, generated using the original source files. Eddie Kramer suggested that the topic be reconsidered when John Huntington is present to explain his need.

9.3 January task group meeting schedule

Michael Lay said that he'd rather move the working group meeting to WebEx to free up space for task groups, if enough task group slots aren't available. Scott Blair will talk to Frances and see if there are any conflicts that need resolving.

Paul Beasley offered to find space for meetings, if needed.

9.4 IEEE update from Steve Carlson

Carlson reported on IEEE 802.3, 802.1, NFPA-related developments. See *1117_esta_update_cpwg_01.docx*.

9.5 NFPA

Mitch Hefter spoke about the PoE changes and issues. The information he shared is pasted below:

The NFPA Fire Protection Research Foundation held a workshop on the subject of Power Over Ethernet (PoE) on October 3, 2017 at the University of New Hampshire InterOperability Lab (UNH-IOL) in Durham, New Hampshire. This workshop came out of work on the issues with Code changes in 2017 related to PoE and subsequent efforts to address those issues through proposed Temporary Interim Amendments (TIA) and proposed changes for the 2020 edition of the NEC. In addition to users such as our industry as well as the IT community, this topic is of direct interest to multiple organizations and committees responsible for the administration of model codes and standards (e.g., NFPA 70, National Electrical Code®, NFPA 72 Fire Alarm, NFPA 79 Industrial Machinery, NFPA 99 Healthcare, NFPA 730/731 Premises Security, and NFPA 1221 Emergency Services Communication Systems).

The workshop goal was to facilitate a research planning effort for the consideration of concepts involving PoE, to identify and prioritize knowledge gaps, and recommend actions in support of the applicable codes and standards.

The workshop included a review of previous and on-going relevant work, where gaps in knowledge and data exist, and recommendations for sharing information and future research. The workshop confirmed the importance and potential impact of these matters, and highlighted specific areas for further attention.

50 participants attended, representing various companies and organizations including:

- NFPA
- Electrical Training Alliance
- Electrical Inspectors
- Code Consultants
- Cisco
- IEEE 802.3
- Ethernet Alliance
- UNH-IOL
- Subject Matter Experts
- IBEW
- NECA
- UL
- Philips Lighting
- Honeywell
- Johnson Controls
- Schneider Electric
- Siemens

The report on the proceedings is available on line at: <http://www.nfpa.org/News-and-Research/Fire-statistics-and-reports/Research-reports/Proceedings/2017-proceedings/Workshop-Power-Over-the-Ethernet> or <http://www.tinyurl.com/nfpa-poe-workshop2017>.

9.6 LDI meetings 2018

Michael Lay spoke to the issue of having task group meetings in conjunction with three trade shows. The general consensus of the group is that the meetings should continue to take place in conjunction with LDI. There was some interest in moving all of the meetings to either before or after the show, rather than both.

Wayne Howell is not in favor of WebEx meetings, particularly because they are scheduled during U.S. work hours.

One comment that many agreed with was that more frequent, short task group meetings were more effective than infrequent, marathon meetings.

10 Other business & announcements

10.1 ESTA's 2017 Volunteer of the Year Award – Michael Lay!

Michael Lay thanked the group for being chosen as the Volunteer of the Year for 2017! The award will be presented to him at ESTA's Annual General Meeting today, from 3:30 p.m. - 5:00 p.m.

10.2 LLDP

From the draft July 2017 minutes:

Jason Potterf addressed the group. He said that one of the problems our protocols face in the field is that they appear hostile to network infrastructure. In the past, this has been ameliorated by using a closed network, and there is a better way to do it, which is to set our protocols to have a legitimate registry with a unique identifier that is traceable to ESTA. This would allow equipment to operate on a network without looking like a DoS attack on the network. There was further discussion on LLDP. Dan Antonuk said that it does not protect our network from security threats, but that the registration would validate entertainment devices on the network. The consensus of the group is that pursuing this project is a good idea. Michael Lay will communicate our desire to start this project to the TSC, and advise them that, if we proceed, there will be some costs to register an ESTA identifier.

Jason Potterf spoke to the group about LLDP. There will be a fee for registering an OUI, but he is still unsure which fee would be required, the inexpensive or the expensive. Steve Carlson asked why LLDP was chosen, as opposed to standard management objects, pointing out that some small switches do not properly filter LLDP blocks.

The project request will appear on the January agenda for the CPWG and the TSC, after Jason finds out how much the registration fee will be.

10.3 Manufacturer-specific vector types

This project has been rolled into 1.33 revisions, reported Dan Antonuk.

10.4 Above & Beyond Awards

Michael Lay said that the Above and Beyond Award nomination form, as well as a list of past recipients, is available at <http://estalink.us/aboveandbeyond>. He noted that there has been a lot of good work and he expects lots of nominations.

10.5 ESTA DMX512/RDM Educational Kit - "Train the Trainer" Session

The kit went out for the first time to CPWG member John Huntington! Any news or action for its next adventure?

Bill Ellis said that John Huntington used the kit and reported that it all made sense. Bill noted a need for help with foam to go in the cases he got, thanks to Roger Lattin. It should be ready to go somewhere else in the next couple of weeks. Bill added that he will see if it needs to go to Anaheim in January.

10.6 USITT sessions

Program proposals for USITT 2019 are due by USITT 2018. Put your thinking caps on and get some sessions submitted!

Dan Lisowski said that there is a new online submission system. Sessions can be proposed at any time.

10.7 Architectural Market Outreach Study Group

It was noted that this topic was addressed under section 9.

11 Future meetings

The full meeting schedule may always be found at <http://www.esta.org/ESTA/meetings.php>.

11.1 January meetings

Michael Lay noted that the January meetings will take place in conjunction with the NAMM show in Anaheim, CA, which is scheduled for 25-28 January 2018. The CPWG meeting is scheduled for Friday, 26 January 2018, from 7pm-11pm at the Anaheim Hilton in Anaheim, CA.

See ESTA Full List of Education Tracks at NAMM.pdf. ESTA is curating four tracks of educational sessions at The 2018 NAMM Show in Anaheim, CA, January 25-28: Lighting, Lighting Networking, Rigging, and Safety. The USITT Electrical Workshop is also being offered. All sessions are free of charge once you pay the \$25 registration fee for the show, and all sessions offer ETCP renewal credits.

[Visit <http://esta.org/namm> for the schedule and course descriptions, or to register using ESTA's code.]

11.2 March meetings

Michael Lay noted that the March 2018 meetings will be held in conjunction with USITT 2018 in Fort Lauderdale, FL.

11.3 July meetings

Michael Lay said that the July 2018 meetings are scheduled to be held at the D/FW Marriott Solana in Westlake, TX. Dates and times TBD.

12 Adjournment

Scott Blair moved to adjourn. The motion was seconded. Hearing no objections, Michael Lay declared the meeting adjourned at 12:05 p.m.

Name	Company	Representing	Voting status	Int cat
Christian Allabauer	Christian Allabauer	Christian Allabauer	O	G
Daniel W. Antonuk	Electronic Theatre Controls, Inc.	Electronic Theatre Controls, Inc.	P	MP
Matthew Ardine	IATSE Local 728	IATSE Local 728	O	U
Andrew Atienza	Full Throttle Films/ VER	Full Throttle Films/ VER	A	DR
Robert Barbagallo	Solotech Inc.	Solotech Inc.	O	U
Paul Beasley	Walt Disney Imagineering	Walt Disney Company	P	U
Robert Bell	Acuity Brands Lighting	Acuity Brands Inc.	A	MP
Scott M. Blair	Full Throttle Films/ VER	Full Throttle Films/ VER	P	DR
Brent Boulnois	Candela Controls, Inc.	Candela Controls, Inc.	A	DE
Javid Butler	Integrated Theatre, Inc.	Integrated Theatre, Inc.	O	CP
Justyn Butler	JBOTS	JBOTS	O	CP
Ian Campbell	Doug Fleenor Design, Inc.	Doug Fleenor Design, Inc.	A	MP
Jean-Francois Canuel	Spectrum Manufacturing Inc.	A.C. Lighting Ltd.	O	CP
Steve Carlson	High Speed Design, Inc.	High Speed Design, Inc.	O	MP
Anthony Chiappone	Chauvet Lighting	Chauvet Lighting	O	MP
Jon Chuchla	Audio Visual Systems, Inc.	Audio Visual Systems, Inc.	O	G
Edward R. Condit	OSRAM Lighting Solutions	OSRAM Licht AG	O	G
Fraser Connolly	Obsidian Controls Ltd.	Obsidian Controls Ltd.	P	DE
Milton Davis	Doug Fleenor Design, Inc.	Doug Fleenor Design, Inc.	P	MP
Jeremy Day	Lumenpulse Lighting Inc.	Lumenpulse Lighting Inc.	O	MP
Larry Dew	W.A. Benjamin Electric Co.	W.A. Benjamin Electric Co.	O	DE
Rich Dionne	Dept. of Theatre	Purdue University	O	DE

Name	Company	Representing	Voting status	Int cat
Gary Douglas	Pathway Connectivity	Acuity Brands Inc.	A	MP
Tucker Downs	Tucker Downs	Tucker Downs	O	U
Hamish Dumbreck	JESE Ltd.	James Embedded Systems Engineering	O	MP
James Eade	ABTT	ABTT	O	G
Bill Ellis	Candela Controls, Inc.	Candela Controls, Inc.	P	DE
Paul K. Ericson	Sparling	Stantec	O	DE
Trevor Forrest	Helvar Lighting Control	Helvar Lighting Control	O	MP
Andrew Frazer	Stellascapes.com	Stellascapes.com	P	MP
Robert Goddard	Goddard Design Co.	Goddard Design Co.	P	MP
George Gong	Philips Lighting	Philips Lighting	O	MP
Jerry Gorrell	Theatre Safety Programs	Theatre Safety Programs	O	G
Erin Grabe	ESTA	ESTA	exf	G
Sean Harding	Port Lighting Systems	Port Lighting Systems	O	G
Mitch Hefter	Mitch Hefter	USITT	P	U
Bill Hewlett	ImageCue LLC	ImageCue LLC	O	MP
Julian Hoare	Tait Towers	Tait Towers Manufacturing LLC	A	MP
Jeremy Hochman	Full Throttle Films/ VER	Full Throttle Films/ VER	A	DR
Jon Hole	Zero 88	Eaton	P	MP
Jim Holladay	Luxence	Luxence	O	G
Maurits van der Hoorn	Pathway Connectivity	Acuity Brands Inc.	A	MP
Wayne David Howell	Artistic Licence Engineering Ltd.	Artistic Licence Holdings	P	DE
John Huntington	City Tech, Ent Tech Department	I.A.T.S.E. Local 1	A	U
Eric Johnson	Eric Johnson	Eric Johnson	O	G

Name	Company	Representing	Voting status	Int cat
Rob Johnston	Interactive Technologies, Inc.	Interactive Technologies, Inc.	O	MP
John Valus_Jr.	LEX Products	Lex TM3	P	CP
Michael Karlsson	LumenRadio AB	LumenRadio AB	P	MP
Sam Kearney	Electronic Theatre Controls, Inc.	Electronic Theatre Controls, Inc.	A	MP
Jonathan Kemble	High End Systems	ETC	O	MP
Paul Kleissler	City Theatrical, Inc.	City Theatrical, Inc.	P	MP
Edwin S. Kramer	I.A.T.S.E. Local 1	I.A.T.S.E. Local 1	P	U
Ulrich Kunkel	E3 Engineering & Education for Entertainment GmbH	E3 Engineering & Education for Entertainment GmbH	P	U
Jason Kyle	JPK Systems Ltd.	JPK Systems Ltd.	O	MP
Roger Lattin	I.A.T.S.E. Local 728	I.A.T.S.E. Local 728	P	U
Michael Lay	Philips Color Kinetics	Philips Lighting	P	MP
Hans Leiter	ETC GmbH	Electronic Theatre Controls, Inc.	O	MP
Jon Lenard	Applied Electronics	Applied Electronics	O	MP
Dan Lisowski	Dept. Of Theatre and Drama	University of Wisconsin - Madison	P	DE
Kevin Loewen	Pathway Connectivity	Acuity Brands Inc.	P	MP
Jim Love	Tait Towers	Tait Towers Manufacturing LLC	P	MP
Royal Marty	ZFX, Inc.	ZFX, Inc.	O	MP
John Mehlretter	Lehigh Electric Products Co.	Lehigh Electric Products Co.	O	MP
Daniel Murfin	Royal National Theatre	Royal National Theatre	P	U
John Musarra	John Musarra	John Musarra	O	U
Simon Newton	Open Lighting Project	Open Lighting Project	P	G
Maya Nigrosh	Maya Nigrosh	Maya Nigrosh	I	U
Jim Ohrberg	Candela Controls, Inc.	Candela Controls, Inc.	A	DE

Name	Company	Representing	Voting status	Int cat
Danilo Oliveira	Chauvet Lighting	Chauvet Lighting	O	MP
Claude Ostyn	Full Throttle Films/ VER	Full Throttle Films/ VER	A	DR
Jason Potterf	Cisco	Cisco	P	MP
Gary Pritchard	LSC Lighting Systems (Aust) PTY Ltd	LSC Lighting Systems PTY Ltd	O	MP
Eric Rasmussen	Electronic Theatre Controls, Inc.	Electronic Theatre Controls, Inc.	A	MP
Charles Reese	Production Resource Group	Production Resource Group	O	DR
Alan M. Rowe	IATSE Local 728	I.A.T.S.E. Local 728	A	U
Karl G. Ruling	ESTA	ESTA	exf	G
Yngve Sandboe	Sand Network Systems, Inc.	Sand Network Systems, Inc.	O	MP
Nicolai Gubi Schmidt	Gobo & Highlight A/S	Gobo & Highlight A/S	O	DR
Larry Schoeneman	DesignLab Chicago, Inc.	DesignLab Chicago, Inc.	P	DR
Ford Sellers	Chauvet Lighting	Chauvet Lighting	O	MP
Sean Sill	Sean Sill	Sean Sill	O	CP
Ralph Stillinger	Strand Lighting	Philips Lighting	O	MP
Steve Terry	Electronic Theatre Controls	Electronic Theatre Controls, Inc.	A	MP
Christopher B. Tilton	About the Stage, LLC	About the Stage, LLC	O	DE
Robert Timmerman	Philips Color Kinetics	Philips Lighting	O	MP
James Tomlinson	Team Tomlinson	Team Tomlinson	O	G
Tracy Underhill	Triple C Lighting & Controls	Triple C Lighting & Controls	O	G
Ken Vannice	Ken Vannice LLC	Ken Vannice LLC	I	G
Carlo Venturati	Clay Paky S.P.A.	Clay Paky S.P.A.	O	MP
Will Wagner	Carallon Ltd.	Carallon Ltd.	O	MP
Colin Waters	TMB	TMB	O	DR

Name	Company	Representing	Voting status	Int cat
Ralph Weber	ENDL Texas	ENDL Texas	O	G
Peter Willis	Howard Eaton Lighting Ltd.	Howard Eaton Lighting Ltd.	P	CP
Loren Wilton	Showman Systems	Showman Systems	O	CP
David Yellin	Sumolight GmbH	Sumolight GmbH	O	MP
Jeong Sik Yoo	Ghost LX	Ghost LX	O	DE

Voting Status Key: P = Principal voter, A = Alternate voter, I = Individual voter, O = Observer member, exf = Ex Officio member (staff)

Interest Category Key: CP = Custom-market producer, DE = Designer, DR = Dealer or rental company, G = General interest, MP = Mass-market producer, U = User