

Minutes
Control Protocols Working Group
2 April 2020
via WebEx

Chairpersons: Michael Lay (Candela Controls) and Milton Davis (Doug Fleenor Design)

Recording secretaries: Richard Nix & Karl Ruling, ESTA

Members attending:

Bart Swinnen; Luminex Lighting Control Equipment; O; MP
Bill Ellis; Candela Controls, Inc.; P; DR
Bill Kirby; Crescit Software, Inc.; O; G
Bill McIntyre; Show Distribution Group, Inc.; P; CP
Christian Allabauer; Christian Allabauer; O; G
Christopher Kennedy; Chauvet Lighting; O; MP
Daniel Murfin; Royal National Theatre; P; U
David Kane; I.A.T.S.E. Local 728; A; U
Edwin S. Kramer; I.A.T.S.E. Local 1; P; U
Eric Bloom; Westview Productions; P; DR
Hans Lau; I.A.T.S.E. Local 728; P; U
Jason Potterf; Cisco; P; MP
Jim Love; Tait Towers Manufacturing LLC; P; MP
John David (Javid) Butler; Moda Light; P; MP
John Huntington; I.A.T.S.E. Local 1; A; U
John Valus Jr.; Lex TM3; P; CP
Jon Hole; Signify; P; MP
Julian Hoare; Tait Towers Manufacturing LLC; A; MP
Kevin Loewen; Acuity Brands Inc.; P; MP
Larry Schoeneman; Larry Schoeneman; I; DE
Leroy "Tripp" Oliver, III; Mainstage Theatrical Supply, Inc.; P; DR
Marcus Bengtsson; disguise; P; MP
Mark Primrose; Kino Flo, Inc.; P; MP
Matt Didon; ON LX Limited; P; CP
Matthew Ardine; I.A.T.S.E. Local 728; A; U
Maya Nigrosh; Sonos; P; MP
Michael Karlsson; LumenRadio AB; P; MP
Michael Lay; Candela Controls, Inc; A; DR
Milton Davis; Doug Fleenor Design, Inc.; P; MP
Mitch Hefter; USITT; P; U
Paul Beasley; Walt Disney Company; P; U
Paul Kleissler; City Theatrical, Inc.; P; MP
Rene Berhorst; MA Lighting; P; MP
Rob Love; Insight Lighting; O; MP
Robert Bell; Acuity Brands Inc.; A; MP
Robert Goddard; Goddard Design Co.; P; MP
Sam Kearney; Electronic Theatre Controls, Inc.; P; MP
Scott M. Blair; Megapixel; P; CP
Shawn Silverman; Lighting Infusion LLC; P; DE
Tucker Downs; Tucker Downs; O; G
Ulrich Kunkel; E3 Engineering & Education for Entertainment GmbH; P; U
Vangelis Manolis; AtlaBase Ltd.; O; CP
Wayne David Howell; Artistic Licence Holdings; P; DE

Visitor: Stijn Geysen; Luminex

1 Opening remarks

Michael Lay called the meeting to order at 9:02 CDT. He said that although WebEx is not new to us, doing a meeting this way is a challenge. He also noted that our industry is taking a big hit due to the COVID-19 pandemic, but he has hopes that the industry will bounce back, once we return to whatever will be the new normal. He thanked ESTA staff and all the people who organized this meeting, and gave a special thanks to Jason Potterf for sharing his WebEx account for the task group meetings.

2 Anti-trust and patent statements

2.1 Reading of the anti-trust statement

Michael Lay read the following statement aloud to the assembly:

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 an 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 held up the pamphlet in front of his camera for everyone with video to see.

No restraint of trade problems were reported.

2.2 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 protected 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 revealed.

3 Attendance and Membership

3.1 Requirements for membership

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

Membership is open to all parties who are affected by the work of the group; membership in ESTA is not a requirement, but there is a \$100/person/year participation fee to help fund the costs of running the Technical Standards Program. Voting members are required to attend meetings and vote on letter ballots. Any principal member and alternate that both miss three consecutive meetings or that miss three consecutive letter ballots will have their membership status changed to observer. This action will be taken at the beginning of the first meeting after such inaction and will be recorded in the minutes of that meeting.

3.2 Introduction of attendees

3.3 Determination of a quorum

(Membership as of 17 March is 33 voters, which sets a quorum at 11, and the minimum number needed for a supermajority vote at 17.)

Michael Lay asked for raised hands of voters. Richard Nix counted them and announced that we have enough voters present to pass a motion needing a supermajority vote.

3.4 Processing of new membership and status change requests

Jon Hole; Cooper Lighting Solutions (representing Signify); P; MP (company ownership change)
Jeremy Powell; Vectorworks, Inc.; P; CP present
Andy Zepp; Duck Lights; P; DR

Scott Blair moved that the applications be accepted, but those not present be accepted as observers. The motion was seconded. The motion was approved. Andy Zepp was not present, so he was accepted as an observer member.

3.5 Changes to observer status

3.5.1 Changes due to attendance

The following voters have missed the last two meetings and are in jeopardy of being moved to Observer status if this meeting is also missed:

Christian Krueger; Blizzard Lighting LLC; P; DE

Krueger was not present. He was moved to observer status.

3.5.2 Changes due to missed letter ballots

None at this time.

3.5.3 Automatic status changes

None at this time.

3.6 Consensus body

Delegate	Representing	Voting status	Int. cat.
Kevin Loewen	Acuity Brands Inc.	P	MP
Robert Bell	Acuity Brands Inc.	A	MP
Maurits van der Hoorn	Acuity Brands Inc.	A	MP
Pete Borchetta	Altman Lighting	P	MP
Wayne David Howell	Artistic Licence Holdings	P	DE
Bill Ellis	Candela Controls, Inc.	P	DR
Brent Boulnois	Candela Controls, Inc.	A	DR
Jim Ohrberg	Candela Controls, Inc.	A	DR
Michael Lay	Candela Controls, Inc	A	DR
Jason Potterf	Cisco	P	MP
Paul Kleissler	City Theatrical, Inc.	P	MP
Marcus Bengtsson	disguise	P	MP
Milton Davis	Doug Fleenor Design, Inc.	P	MP
Ian Campbell	Doug Fleenor Design, Inc.	A	MP

Delegate	Representing	Voting status	Int. cat.
Ulrich Kunkel	E3 Engineering & Education for Entertainment GmbH	P	U
Sam Kearney	Electronic Theatre Controls, Inc.	P	MP
Steve Terry	Electronic Theatre Controls, Inc.	A	MP
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
Hans Lau	I.A.T.S.E. Local 728	P	U
Alan M. Rowe	I.A.T.S.E. Local 728	A	U
Matthew Ardine	I.A.T.S.E. Local 728	A	U
David Kane	I.A.T.S.E. Local 728	A	U
Mark Primrose	Kino Flo, Inc.	P	MP
Jim Bogdanowicz	Kino Flo, Inc.	A	MP
Larry Schoeneman	Larry Schoeneman	I	DE
John Valus Jr.	Lex TM3	P	CP
Shawn Silverman	Lighting Infusion LLC	P	DE
Michael Karlsson	LumenRadio AB	P	MP
Rene Berhorst	MA Lighting	P	MP
Leroy "Tripp" Oliver, III	Mainstage Theatrical Supply, Inc.	P	DR
Scott M. Blair	Megapixel	P	CP
John David (Javid) Butler	Moda Light	P	MP
Matt Didon	ON LX Limited	P	CP
Simon Newton	Open Lighting Project	P	G
Daniel Murfin	Royal National Theatre	P	U
Bill McIntyre	Show Distribution Group, Inc.	P	CP
Jon Hole	Signify	P	MP
Maya Nigrosh	Sonos	P	MP
Jim Love	Tait Towers Manufacturing LLC	P	MP
Julian Hoare	Tait Towers Manufacturing LLC	A	MP
Mitch Hefter	USITT	P	U
Paul Beasley	Walt Disney Company	P	U
Eric Bloom	Westview Productions	P	DR
	Total votes possible	33	

Interest categories subtotals	5	CP
	3	DE
	3	DR
	1	G
	15	MP
	6	U

Voting Status key: P = Principal voter, A = Alternate voter, I = Individual voter

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

4 Approval of the minutes from the last meeting

See CPmin01-2020_DRAFT.pdf

Ulrich Kunkel moved to approve the minutes as written. The motion was seconded, and carried without objections or abstentions.

5 Approval of agenda

Kevin Loewen of Pathway asked for a discussion of adding security to the sACN standard. Scott Blair asked for a discussion of formatting issues with the E1.20 pdf available on ESTA's website.

Bob Goddard moved that the modified agenda be accepted. The motion was seconded. The motion was accepted.

6 Old Business

6.1 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 (R2018), Entertainment Technology - USITT DMX512-A, Asynchronous Serial Digital Data Transmission Standard for Controlling Lighting Equipment and Accessories. (Revision, reaffirmation, or withdrawal by 31 May 2023)

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

*ANSI E1.20 - 20xx, Remote Device Management over USITT DMX512. (In public review cycle)

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 (R2019), 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 21 July 2024)

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

ANSI E1.30-3 – 2009 (R2019), EPI 25, Time Reference in ACN Systems Using SNTP and NTP. (Revision, reaffirmation or withdrawal by 21 July 2024)

ANSI E1.30-4 – 2010 (R2015), 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 (R2019), EPI 32, Identification of Draft Device Description Language Modules. (Revision, reaffirmation or withdrawal by 21 July 2024)

ANSI E1.30-11 - 2019, EPI 33, Transport of root PDUs over TCP (Published on 25 June 2019. Revision, reaffirmation or withdrawal by 22 March 2024)

ANSI E1.31 - 2018, Lightweight streaming protocol for transport of DMX512 using ACN (Revision, reaffirmation, or withdrawal by 31 August 2023)

*ANSI E1.33 – 2019, Transport of ANSI E1.20 (RDM) in an E1.31 environment (Revision, reaffirmation or withdrawal by 28 May 2024)

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)

*BSR E1.37-4 – 201x, Remote Device Management over DMX512 Networks – File Transfer Control with Firmware Upload capabilities.(currently in public review cycle)

*BSR E1.37-5 – 20xx, General Purpose Messages for ANSI E1.20 RDM (currently in public review cycle)

*ANSI E1.37-7 - 2019, Additional Message Sets for ANSI E1.20 (RDM) - Gateway and Splitter Configuration (Published on 05 July 2019. Revision, reaffirmation or approval by 04 May 2024)

*BSR E1.59 – 20xx, Object Transform Protocol (currently in public review comment resolution)

*BSR E1.61 Network Advertisement of Entertainment Protocols

*BSR E1.68 Recommended Practice to address DMX512 compliance and interoperability

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

6.2 BSR E1.20 – 201x, Remote Device Management over USITT DMX512.

Wayne Howell: comment resolutions progress report. [The person named is who reported at the last meeting. Anyone in the task group could report.]

Wayne Howell reported that they are making good progress on public review comment resolutions, and expect to have something back to the working group in time for the next meeting.

There was discussion about the development timeline; this document is 10 years old, and could be at risk of an

ANSI administrative withdrawal. However, since the document is currently in a review cycle, and this action should prevent a withdrawal. It's an active project, not an abandoned document.

6.3 ANSI E1.33 – 2019, Transport of ANSI E1.20 (RDM) in an E1.31 environment

Scott Blair said that he is still collecting errata. Sam Kearney said that he has not found any errors that interfere with the successful implementation of the protocol, so he thinks it's in pretty good shape. There was discussion of various projects being done using E1.33. Chris Kennedy said that Chamsys had implemented it.

6.4 BSR E1.37-4 – 201x, Remote Device Management over DMX512 Networks – File Transfer Control with Firmware Upload capabilities

The last public review ended 9 April 2018. Peter Willis: comment resolution progress report.

Peter Willis was not present. Scott Blair reported that the task group met in January, and worked through comments, but they are not all done. Others in the task group echoed the assessment: progress, but not done.

6.5 BSR E1.37-5 – 201x, General Purpose Messages for ANSI E1.20 RDM

Scott Blair: comment resolutions progress report.

Blair said that it had received only a few comments, but are working on them. Shawn Silverman said he is working on draft 25 of the standard. He is trying to implement all the messages. If he can do that, the messages will be demonstrated to work. A thorny issue is Java Script Object Notation (JSON); Silverman said he'd welcome assistance from anyone willing to help review the JSON messages.

6.6 BSR E1.59 - 201x, Object Transform Protocol

In public review until 7 April. Nix or Ruling: update on comments received.

Dan Murfin said that at the Anaheim task group meeting they found a small mistake in the draft standard and fixed it. He feels that the task group is ready to deal with any possible public review comments that come in.

Karl Ruling reported that no comments had been received in the current public review by the time of this meeting.

6.7 BSR E1.63 Network Advertisement of Entertainment Protocols

Jason Potterf: progress report. Is there a document for the working group to consider for public review?

Jason Potterf reported that most of the effort is going to other projects.

Michael Lay said this is such low-hanging fruit, he'd like to see it done.

6.8 BSR E1.68 Recommended Practice to address DMX512 compliance and interoperability

Javid Butler: progress report.

Javid Butler reported that they had a very productive task group meeting on the previous Monday, and are getting down into the details of some of the sections. They are making progress.

6.9 ANSI E1.17 – 2015 (R2020) Entertainment Technology - Architecture for Control Networks (ACN)

Nix or Ruling: progress report on submitting it to ANSI for reaffirmation. It has passed all the ESTA committees.

ESTA staff reported that it was approved by ANSI on 23 March 2020 and published on Monday, 30 March 2020.

6.10 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)

At the last meeting Scott Blair suggested that there be no action at this time, but to work on a scope statement for a new draft standard. News?

Scott Blair reported that the task group will be ready by the July meeting to make a recommendation on whether to revise or to reaffirm the document.

6.11 Next Gen Study Group

Jason Potterf said that the exciting stuff is happening in the luminaire library group. They have identified some dependencies between the work of the different study groups.

6.12 Next Gen Color study group

Mark Primrose reported that BSR E1.54 was submitted to the Photometrics Working Group for review, and is on the agenda for their next meeting, this coming Saturday. Robert Bell asked about the changes made so far. Karl Ruling gave a brief summary of primary changes. Several people asked for copies of the current draft.

6.13 Next Gen Transport study group

Jason Potterf reported that this task group has not made much progress because the focus of work has been on the library effort.

6.14 Next Gen Luminaire Libraries study group

Dan Murfin reported that Jim Love has been doing a lot of the work. They have a requirements document and they are now working on a specifications document. Sam Kearney concurred. Kearney said that they have bi-weekly meetings scheduled through July.

6.15 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 Blair.

BSR E1.20 Scott Blair and Wayne Howell
BSR E1.37-2 Simon Newton
BSR E1.37-4 Peter Willis
BSR E1.37-5 Scott Blair and Simon Newton
BSR E1.37-6 Simon Newton
BSR E1.59 Dan Murfin and Maya Nigrosh
E1.37-x Video Walls Scott Blair
E1.61 NAEP Jason Potterf and Kevin Loewen
E1.68 Javid Butler and Wayne Howell
IPv6 Task Group Jason Potterf
Next Gen Study Group Jason Potterf and Maya Nigrosh
Plugfest Marketing Task Group Michael Lay
NAMM Education Task Group Milton Davis
Next Gen Color study group Mark Primrose and Tucker Downs
Next Gen Transport study group: Maya Nigrosh and Jason Potterf
Next Gen luminaire library study group: Sam Kearney and Dan Murfin.

No changes. It looks up to date, said Michael Lay.

6.16 ANSI E1.37-7 - 2019, Additional Message Sets for ANSI E1.20 (RDM) - Gateway and Splitter Configuration

At the last meeting Peter Willis reported problems implementing the standard. Scott Blair asked for the problems to be summarized. Any news or action now?

Peter Willis was not present. Scott Blair said that he'd emailed Peter Willis about the errata he had reported at the last meeting, but has not yet heard back from Willis. Sam Kearney said he has already implemented most of the standard, without any problems. Paul Kleissler concurred, saying he'd had no problems, as did Shawn Silverstein.

7 New business

7.1 Security

Kevin Loewen reported that California law requires that connected devices have reasonable security features to protect data from access, malicious changes, and so on. Any device running a TCP/IP stack could be considered a "connected device." Pathway have done a secured version of sACN. It's a footer that can be added to the messages to allow authentication and authorization. It uses a pre-show key. Loewen offered a link to Pathway's security implementation: <https://pathwayconnect.com/index.php/products/software/228-secure-streaming-acn-ssacn>

Loewen said that most authentication methods now used for TCP/IP products require accessing a server on the Internet, but many, if not most, of our networks are not set up to be Internet connected, but they could be—intentionally or unintentionally—so they are “connected devices.”

There was more discussion about security methodology, and which ones might or might not work for our needs. There was also more discussion about what we might need to do with our current standards if compliance becomes an issue. There are several standards that may not work, if these requirements must be met. Wayne Howell suggested that we need to prioritize which standards will require the most changes, and how quickly those changes might need to be made.

The consensus was that a task group/study group is needed on this. Michael Lay appointed a task group consisting of Kevin Loewen (Co-leader), Paul Beasley (Co-leader), Daniel Murfin, Jason Potterf, Javid Butler, Jim Love, Marcus Bengtsson, Mark Primrose, Maya Nigrosh, Michael Karlsson, Michael Lay, Robert Bell, Sam Kearney, Shawn Silverman, Wayne Howell, Matt Didon, and Tucker Downs. The task group is to evaluate our existing standards and current projects and make recommendations to the CPWG on how to meet these new legislative requirements.

Relevant links to the legislation were shared:

<https://casetext.com/statute/california-codes/california-civil-code/division-3-obligations/part-4-obligations-arising-from-particular-transactions/title-18126-security-of-connected-devices>

https://leginfo.legislature.ca.gov/faces/billTextClient.xhtml?bill_id=201720180SB327

7.2 published E1.20 formatting problems

Scott Blair reported that the E1.20 document published on the ESTA website has mangled formatting in the PDF. He asked for the word-processing source documents, and said he will fix it. ESTA staff agreed to send him the source documents.

8 Other business and announcements

8.1 National Electrical Code (NEC) update

Mitch Hefter reported that the NFPA is accepting input for changes for a 2023 edition. The Electrical Power Working Group is working on Article 530 issues. There is a task group working on POE issues.

8.2 Illuminating Engineering Society of North America (IESNA) update

Mitch Hefter reported that RP-42-202x, Recommended Practice: Dimming and Control Method Designations, is in public review. It's just about identifying protocols and control methods. Unambiguous descriptions make it easier for people to work out system control schedules. Also in public review is LP-6-202x, Lighting Practice: Lighting Control Systems - Properties, Equipment and Specification.

8.3 Plugfests

8.3.1 Europe

Wayne Howell reported that the plugfest in Lille was a success, and was done just before the travel bans and social isolation requirements made such an event impossible. The plan is that next year it will be in the UK near Gatwick, and then the plugfest will alternate between Lille and Gatwick.

Jon Hole thanked the organizers for the successful event.

8.3.2 USA

Michael Lay said we hope to have a plugfest in October.

8.4 Above & Beyond Awards

Attendees were reminded that information on the Above & Beyond Awards may be found at http://tsp.esta.org/tsp/news/award_recipients.html.

8.5 ESTA Curated Education during the North American Theatre Engineering and Architecture Conference (NATEAC)

We hope for the event to be held, but we're waiting to know if it will go on, reported Michael Lay. [NATEAC 2020 has been postponed to 2021.]

8.6 ESTA Curated Education during the National Association of Music Merchants (NAMM)

Michael Lay said our session attendance was way up. He asked meeting attendees, that if they have an idea for a session for 2021, let him know. We need to start filling schedule slots in the summer.

9 Schedule for future meetings

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

9.1 Summer 2020 meetings (NATEAC, NYC)

Michael Lay announced that the Summer 2020 meetings are planned to be held in conjunction with the North American Theatre Engineering and Architecture Conference in New York City, 19-20 July 2020. The organizers of that event are watching the COVID-19 situation and will be deciding in mid-April if the conference can proceed as scheduled. [NATEAC 2020 has been postponed to 2021.]

9.2 Autumn meetings

The Autumn meetings are scheduled for the first week of October at the Marriott Solana in Westlake, TX. A detailed schedule does not exist yet.

10 Final notes from Michael Lay

Michael Lay noted there is good COVID-19 advice for our industry on the ESTA home page. He also praised the mental health outreach by Behind the Scenes, saying it is a useful service in these troubling times.

11 Adjournment

Having reached the end of the agenda and no more business to be conducted, Michael Lay declared the meeting adjourned at 10:54 CDT.

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Control Protocols Working Group members and contact information as of 20 April 2020

Delegate	Representing	Voting status	Int. cat.
Cameron Affleck	Cameron Affleck	O	U
Christian Allabauer	Christian Allabauer	O	G
Matthew Ardine	I.A.T.S.E. Local 728	A	U
Tim Bachman	Altman Lighting	O	MP
Nick Ballhorn-Wagner	Electronic Theatre Controls, Inc.	O	MP
Robert Barbagallo	Solotech Inc.	O	U
Tom Barthel-Steer	Electronic Theatre Controls, Inc	O	MP
Paul Beasley	Walt Disney Company	P	U
Robert Bell	Acuity Brands Inc.	A	MP
Marcus Bengtsson	disguise	P	MP
Justin Bennett	University of the Incarnate Word	O	U
Rene Berhorst	MA Lighting	P	MP
Andrew Berry	X-Laser	O	MP
Scott M. Blair	Megapixel	P	CP
Eric Bloom	Westview Productions	P	DR
Jim Bogdanowicz	Kino Flo, Inc.	A	MP
Pete Borchetta	Altman Lighting	P	MP
Brent Boulnois	Candela Controls, Inc.	A	DR
Justyn Butler	JBOTS	O	CP
John David (Javid) Butler	Moda Light	P	MP
Ian Campbell	Doug Fleenor Design, Inc.	A	MP
Jean-Francois Canuel	A.C. Lighting Ltd.	O	CP
Steve Carlson	High Speed Design, Inc.	O	MP

Control Protocols Working Group members and contact information as of 20 April 2020

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Yongzhi Chen	Guangzhou Haoyang Electronic Co., Ltd.	O	CP
Anthony Chiappone	Chauvet Lighting	O	MP
Martin Chisnall	Martin Chisnall	O	U
Jon Chuchla	Audio Visual Systems, Inc.	O	G
Gareth Conner	Creative Conners, Inc.	O	MP
Fraser Connolly	Obsidian Controls	O	DE
Chris Conti	PRG	O	DR
Milton Davis	Doug Fleenor Design, Inc.	P	MP
Jeremy Day	Lumenpulse Group	O	MP
Steve Denim	Electronic Theatre Controls, Inc.	O	MP
Larry Dew	W.A. Benjamin Electric Co.	O	DE
Matthew Dews	Electronic Theatre Controls, Inc	O	MP
Matt Didon	ON LX Limited	P	CP
Rich Dionne	Purdue University	O	DE
Tucker Downs	Tucker Downs	O	G
Hamish Dumbreck	James Embedded Systems Engineering	O	MP
James Eade	ABTT	O	G
Bill Ellis	Candela Controls, Inc.	P	DR
Paul K. Ericson	Stantec	O	DE
Trevor Forrest	Helvar Lighting Control	O	MP
Mike Garl	Mike Garl Consulting LLC	exf	
Robert Goddard	Goddard Design Co.	P	MP
Nicolas Goerg	Rosco Laboratories	O	CP

Control Protocols Working Group members and contact information as of 20 April 2020

Delegate	Representing	Voting status	Int. cat.
Sean Goossen	LiteGear, Inc.	O	MP
Jerry Gorrell	Theatre Safety Programs	O	G
Erin Grabe	ESTA	exf	G
Matt Halberstadt	Electronic Theatre Controls, Inc	O	MP
Sean Harding	Port Lighting Systems	O	G
Nick Harper	Nick Harper	O	G
Robert Haycock	UC Berkeley	O	U
Mitch Hefter	USITT	P	U
Bill Hewlett	ImageCue LLC	O	MP
Julian Hoare	Tait Towers Manufacturing LLC	A	MP
Jon Hole	Signify	P	MP
Maurits van der Hoorn	Acuity Brands Inc.	A	MP
Wayne David Howell	Artistic Licence Holdings	P	DE
John Huntington	I.A.T.S.E. Local 1	A	U
Leroy "Tripp" Oliver, III	Mainstage Theatrical Supply, Inc.	P	DR
Rob Johnston	Interactive Technologies, Inc.	O	MP
John Valus Jr.	Lex TM3	P	CP
David Kane	I.A.T.S.E. Local 728	A	U
Michael Karlsson	LumenRadio AB	P	MP
Sam Kearney	Electronic Theatre Controls, Inc.	P	MP
Jonathan Kemble	Electronic Theatre Controls, Inc.	O	MP
Christopher Kennedy	Chauvet Lighting	O	MP
Bill Kirby	Crescit Software, Inc.	O	G

Control Protocols Working Group members and contact information as of 20 April 2020

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Paul Kleissler	City Theatrical, Inc.	P	MP
Lucas Korytkowski	Insight Lighting	O	MP
Edwin S. Kramer	I.A.T.S.E. Local 1	P	U
Christian Krueger	Blizzard Lighting LLC	O	MP
Ulrich Kunkel	E3 Engineering & Education for Entertainment GmbH	P	U
Jason Kyle	JPK Systems Ltd.	O	MP
Hans Lau	I.A.T.S.E. Local 728	P	U
Michael Lay	Candela Controls, Inc	A	DR
Hans Leiter	Electronic Theatre Controls, Inc.	O	MP
Jon Lenard	Applied Electronics	O	MP
Kevin Loewen	Acuity Brands Inc.	P	MP
Jim Love	Tait Towers Manufacturing LLC	P	MP
Rob Love	Insight Lighting	O	MP
Vangelis Manolis	AtlaBase Ltd.	O	CP
David McCulloch	David McCulloch	O	U
Bill McIntyre	Show Distribution Group, Inc.	P	CP
John Mehlretter	Lehigh Electric Products Co.	O	MP
David G. Meschisen	Lumenpulse Group	O	MP
Daniel Murfin	Royal National Theatre	P	U
John Musarra	John Musarra	O	U
Simon Newton	Open Lighting Project	P	G
Maya Nigrosh	Sonos	P	MP
Richard J. Nix	ESTA	exf	G

Control Protocols Working Group members and contact information as of 20 April 2020

Delegate	Representing	Voting status	Int. cat.
Jim Ohrberg	Candela Controls, Inc.	A	DR
Jaxon Patterson	Insight Lighting	O	MP
Soren Sterdorff Peglau	Brother, Brother and Sons	O	MP
Jason Potterf	Cisco	P	MP
Jeremy Powell	Vectorworks, Inc	O	CP
Mark Primrose	Kino Flo, Inc.	P	MP
Gary Pritchard	LSC Lighting Systems PTY Ltd	O	MP
Charles Reese	Production Resource Group	O	DR
Alan M. Rowe	I.A.T.S.E. Local 728	A	U
Karl G. Ruling	ESTA	exf	G
Yngve Sandboe	Sand Network Systems, Inc.	O	MP
Nicolai Gubi Schmidt	Nicolai Gubi Schmidt	O	U
Larry Schoeneman	Larry Schoeneman	I	DE
Ford Sellers	Chauvet Lighting	O	MP
Shawn Silverman	Lighting Infusion LLC	P	DE
Bart Swinnen	Luminex Lighting Control Equipment	O	MP
Steve Terry	Electronic Theatre Controls, Inc.	A	MP
Richard Thompson	Electronic Theatre Controls, Inc	O	MP
Christopher B. Tilton	About the Stage, LLC	O	DE
Robert Timmerman	Signify	O	MP
Tracy Underhill	Triple C Lighting & Controls	O	G
Carlo Venturati	Clay Paky S.P.A.	O	MP
Will Wagner	Carallon Ltd.	O	MP

Control Protocols Working Group members and contact information as of 20 April 2020

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Colin Waters	TMB	O	DR
Ralph Weber	ENDL Texas	O	G
Peter Willis	Howard Eaton Lighting Ltd.	P	CP
Loren Wilton	Showman Systems	O	CP
David Yellin	Sumolight GmbH	O	MP
Jeong Sik Yoo	Ghost LX	O	DE
Andy Zepp	Duck Lights	O	DR

Voting Status key: P = Principal voter, A = Alternate voter, I = Individual voter, O = Observer, exf = ex officio

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