

**Control Protocols Working Group
Minutes**

Thursday, 3 March 2022
Hyatt Regency Baltimore Inner Harbor and via WebEx

Chairpersons:

Milton Davis; Doug Fleenor Design, Inc; P; MP
Michael Lay; Candela Controls, Inc; A; DR (presiding)

Recording secretaries:

Karl Ruling and Richard Nix (ESTA)

Attendees:

Anthony Chiappone; Chauvet Lighting; O; MP
Bill Ellis; Candela Controls, Inc.; P; DR
Bill McIntyre; Show Distribution Group, Inc.; P; CP
Chris Kennedy; Chauvet Lighting; O; MP
Daniel Murfin; Royal National Theatre; P; U
Edwin S. Kramer; I.A.T.S.E. Local 1; P; U
Eric Bloom; Westview Productions; P; DR
Gary Douglas; Phospec Industries, Inc.; P; MP
Hans Lau; I.A.T.S.E. Local 728; P; U
Jason Potter; Cisco; P; MP
Jeremy Powell; Vectorworks, Inc; P; CP
Jim Love; Tait Towers Manufacturing LLC; P; MP
John Valus Jr.; Lex TM3; P; CP
John David (Javid) Butler; HDR Consulting LLC; P; DE
Jon Hole; Signify; P; MP
Jonathan Kemble; Jonathan Kemble ; O; G
Larry Dew; W.A. Benjamin Electric Co.; P; DE
Leroy "Tripp" Oliver, III; Mainstage Theatrical Supply, Inc.; P; DR
Matt Didon; ON LX Limited; P; CP
Maya Nigrosh; Sonos; P; MP
Michael Lichter; Electronic Theatre Controls, Inc.; A; MP
Michael Karlsson; LumenRadio AB; P; MP
Mitch Hefter; USITT; P; U
Paul Kleissler; City Theatrical, Inc.; P; MP
Paul Beasley; Walt Disney Company; P; U
Peter Willis; Howard Eaton Lighting Ltd.; P; CP
Rene Berhorst; MA Lighting; P; MP
Richard Thompson; Electronic Theatre Controls, Inc; O; MP
Robert Goddard; Goddard Design Co.; P; MP
Sam Kearney; Electronic Theatre Controls, Inc.; P; MP
Shawn Silverman; Lighting Infusion LLC; P; DE
Stijn Geysen; Luminex Lighting Control Equipment; P; MP
Ulrich Kunkel; E3 Engineering & Education for Entertainment GmbH; P; U
Vangelis Manolis; AtlaBase Ltd.; O; CP
Wayne David Howell; Artistic Licence Holdings; P; DE

Visitors:

Jeff Glass; Museum of Science & Industry Chicago
Brendan Warner; City Theatrical

1 Opening remarks

Michael Lay called the meeting to order at 09:05. He thanked people for attending and urged people to attend the Fall meeting in person.

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 displayed a copy of the pamphlet to his camera, so those in the room or with video could see it.

No concerns were raised.

2.2 Reading of the call for patents

Michael Lay read the following statement aloud to the assembly:

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

In keeping with the open disclosures policy, I ask if anyone present wishes to notify this working group of the existence of a patent, 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

Michael Lay read the following statement aloud to the assembly:

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.

He asked that task group leaders make sure that regular attendees be CPWG members.

3.2 Introduction of attendees

Those in the room introduced themselves. Milton Davis read the names of those on-line and they introduced themselves.

3.3 Determination of a quorum

Richard Nix confirmed that we have a majority of the voting body present, enough to pass a vote needing a supermajority.

3.4 Processing of new membership and status change requests

3.4.1 Changes to observer status due to lack of attendance

The following voting members have missed the last two meetings and will be moved to observer status if this meeting is also missed:

*Peter Willis; Howard Eaton Lighting; CP Present
Michael Karlsson; Lumen Radio AB; MP Late, but present.*

Both attended this meeting, so no status changes were made.

3.4.2 New applications and changes

As of 14 December 2022 the following applications had been received:

*Larry Dew of W. A. Benjamin Electric is requesting a change from Observer to Principal voting status.
Harrison Freni; Infinitus Lux, LLC; User; Observer*

Eddie Kramer made the motion to accept the applications. Seconded. Bob Goddard spoke in favor of Larry Dew noting his contributions to RDM testing. The motion carried.

3.5 Consensus body

This is the consensus body after all changes effected by today's meeting:

Name	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
Jake Rhodes	Altman Lighting	A	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
Andrew Mulkey	Candela Controls, Inc	A	DR
Ali Alnajjar	Carallon Ltd.	P	MP
Mark Primrose	Chauvet & Sons Inc.	P	MP
Jim Bogdanowicz	Chauvet & Sons Inc.	A	MP
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

Name	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
Michael Lichter	Electronic Theatre Controls, Inc.	A	MP
Robert Goddard	Goddard Design Co.	P	MP
Liang Zhiguang	Guangzhou Haoyang Electronic Co., Ltd.	P	CP
John David (Javid) Butler	HDR Consulting LLC	P	DE
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
John Valus Jr.	Lex TM3	P	CP
Al DeMayo	LiteGear, Inc.	P	MP
Shawn Silverman	Lighting Infusion LLC	P	DE
Michael Karlsson	LumenRadio AB	P	MP
Stijn Geysen	Luminex Lighting Control Equipment	P	MP
Rene Berhorst	MA Lighting	P	MP
Leroy "Tripp" Oliver, III	Mainstage Theatrical Supply, Inc.	P	DR
Scott M. Blair	Megapixel	P	CP
Matt Didon	ON LX Limited	P	CP
Gary Douglas	Phospec Industries, Inc.	P	MP
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
Jeremy Powell	Vectorworks, Inc	P	CP
Larry Dew	W.A. Benjamin Electric Co	P	DE
Paul Beasley	Walt Disney Company	P	U
Eric Bloom	Westview Productions	P	DR

Total votes possible	38	
Interest categories subtotals	7	CP
	4	DE
	3	DR
	0	G
	18	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, DE = Designer

4 Approval of the minutes from the last meeting

See CPmin01-2022_DRAFT.pdf

Javid Butler moved to approve the minutes. The motion was seconded, and carried without objection or abstentions.

5 Approval of agenda

Eddie Kramer moved to approve the agenda. The motion was seconded. Mitch Hefter asked to add an agenda item to discuss USITT. It was added. Eddie Kramer amended his motion accordingly, to include the amendment. The motion carried without objection or abstention.

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 (R2021), 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 20 May 2026)

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 (R2020) Entertainment Technology - Architecture for Control Networks (ACN) (Revision, reaffirmation, or withdrawal by 23 March 2025)

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

ANSI E1.27-1 – 2006 (R20121), Entertainment Technology - Standard for Portable Control Cables for Use with USITT DMX512/1990 and E1.11 (DMX512-A) Products. (Revision, reaffirmation or withdrawal by 20 May 2026)

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 20 May 2026)

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 (R2021), EPI 26, Device Description Language (DDL) Extensions for DMX512 and E1.31 Devices. (Revision, reaffirmation, or withdrawal by 27 May 2026)

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 (R2021), Additional Message Sets for ANSI E1.20 (RDM) – Part 2, IPv4 & DNS Configuration Messages. (Revision, reaffirmation, or withdrawal by 24 June 2026)

*BSR E1.37-4 – 201x, Remote Device Management over DMX512 Networks – File Transfer Control with Firmware Upload capabilities.(currently in comment resolution cycle from first public review in 2018)

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

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 withdrawal by 04 May 2024)

*BSR E1.59, Object Transform Protocol (Published 28 January 2021. Now in revision.)

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/Scott Blair. Reflectors: e1.20@esta.org, rdmtg_standards@esta.org

Progress report.

Wayne Howell reported great progress since last report. They are very near completion. He thinks they will have a draft returned to the working group in time for the June meeting.

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

Reflector: e137@esta.org, a general E1.37-x reflector.

Progress report, Paul Beasley or Larry Dew.

Paul Beasley reported, no meetings or progress since the last CPWG meeting.

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

Scott Blair/Simon Newton. Reflector: e137@esta.org, a general E1.37-x reflector.

See [Summary_E1-37-5_5thPublicReviewComments.pdf](#)

Progress report.

Maya Nigrosh reported. She's been asked to assist, and has only just received paperwork to begin her work.

6.5 BSR E1.37-8, Additional Message Sets for ANSI E1.20 (RDM) – IPv6 & Improved IPv4 Configuration Messages.

Scott Blair/Dan Murfin. e137-8@esta.org

Progress report.

Dan Murfin reported, they are waiting on comments from Scott Blair.

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

Javid Butler/Wayne Howell. Reflector: ProtocolsCompliance@esta.org.

Progress report, draft to consider. See [BSRE1-68_CP2021-1003r0.pdf](#).

Javid Butler reported. A copy of the draft was distributed to the working group. The draft is complete, but there are a few issues that have had some questions, such as voltages required for certain tests, which have practical limitations. He said that this can't be addressed without reopening E1.11, and that the respective task group leaders have agreed to let this draft go to public review, and see what relevant comments are returned. Mitch Hefter suggested we might consider opening E1.11 earlier than its required 5-year cycle. Bob Goddard said there are a few more issues in E1.11 that have been present, but not forgotten.

Javid extended thanks to all of the task group members, and to Rosemary Goddard for her editorial assistance.

Mitch Hefter said he found the latest draft to be very refreshing and easy to read. It's much more user friendly. Javid extended his thanks to Richard Nix for helping to make the draft more user friendly.

Javid moved to send the draft to public review. The motion was seconded. There was discussion. Maya Nigrosh asked for consistency in the symbols (Micro, milli, Greek letters, "S" for seconds, etc). ESTA staff will make those changes. Peter Willis asked for the revised draft to be redistributed to the CPWG.

After discussion, the motion carried without objection or abstention. It will forward to the TSC for consideration.

6.7 BSR E1.63 Network Advertisement of Entertainment Protocols

Jason Potterf/Kevin Loewen. Reflector: NAEP@esta.org

Progress report.

Jason Potterf reported, no progress.

6.8 BSR E1.73, Next Generation Entertainment Control Model: Uniform Device Representation (UDR)

Dan Murfin/Sam Kearney: progress report. Reflector: NextGenLibrary@esta.org

Progress report.

Dan Murfin reported, they have been making good progress. The document is currently at about 55 pages in length. There is still work to do, and he thinks they will return to regular meetings sometime after July. Sam Kearney agreed, also saying that there are teams working on implementing code based on the draft text. Dan

Murfin said he is planning a presentation on how it works for the CPWG and the wider public when it goes to public review.

6.9 & 6.10 Next Gen Study Group (Overall) and Next Gen Transport study group

*Jason Potterf/Maya Nigrosh: progress report. Reflectors: nextgencontrolprotocol@esta.org and NextGenTransport@esta.org
Progress report.*

Jason Potterf said they are attempting to defibrillate the group, now that the other related task groups are making progress.

6.11 BSR E1.77, Secure Authentication for ESTA Streaming Protocols

*Kevin Loewen/Paul Beasley: progress report. Reflector: CPWG_Secure@esta.org
Progress report.*

Paul Beasley reported, no progress. Kevin Loewen has been very busy and would appreciate some help.

6.12 GitHub study group

*Jason Potterf. Reflector: CPWG_github_study@esta.org.
Any news?*

No news. The consensus was to remove it from the agenda.

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

*Scott Blair/Sam Kearney. Reflector: e133@esta.org
Progress report.*

Sam Kearney reported no progress. He said they have had inquires about the protocol, and some informal testing had brought up some of the issues that need to be addressed in the errata, but this has taken a back-seat to other more pressing projects.

Peter Willis suggested that plugfests will help promote E1.33.

Mike suggested the CPWG look at it at the next meeting. Sam agreed, and said he would take responsibility for coordinating with Scott Blair.

6.14 BSR E1.59 - 2021, Object Transform Protocol

*Dan Murfin and Maya Nigrosh. Reflector: e159@esta.org
Progress report.*

Dan Murfin reported confidence that there will be a document for the summer meetings. It will be useful for the motion picture and XR industry. Maya Nigrosh thanked Tucker Downs for helping with color specifications

6.15 Task group leader coordination

*Scott Blair is the official scheduling liaison for meetings between the CPWG task groups and meeting schedulers. Laura Hoepker (laura.hoepker@esta.org) handles face-to-face meetings when we meet at an ESTA event. Richard Nix handles meetings scheduled using ESTA's WebEx account—**only** ESTA's WebEx account. Task groups are free to use their own WebEx accounts, Zoom, Teams, Meet, or something else.*

BSR E1.20: Scott Blair and Wayne Howell

E1.37-x: Video Walls Scott Blair

BSR E1.37-2: Simon Newton (No work being done, said Scott.)

BSR E1.37-4: Paul Beasley and Larry Dew

BSR E1.37-5: Scott Blair and Simon Newton

BSR E1.37-6: Simon Newton (pretty much abandoned, said Scott.)

BSR E1.37-8 Scott Blair and Dan Murfin

BSR E1.59: Dan Murfin and Maya Nigrosh
E1.61 NAEP: Jason Potterf and Kevin Loewen
E1.68: Javid Butler and Wayne Howell
E1.73: Dan Murfin and Sam Kearney
Next Gen Study Group: Jason Potterf and Maya Nigrosh
Plugfest Marketing Task Group: Michael Lay
NAMM Education Task Group: Milton Davis
Next Gen Transport study group: Maya Nigrosh and Jason Potterf
Protocol Security study group: Kevin Loewen and Paul Beasley
GitHub study group: Jason Potterf

7 New business

7.1 ANSI E1.37-1 – 2012 (R2017), Additional Message Sets for ANSI E1.20, Remote Device Management.

Revision, reaffirmation, or withdrawal by 18 May 2022. What to do?

Mitch Hefter moved to reaffirm the standard. The motion was seconded. The document will go to public review, along with a concurrent letter ballot.

7.2 NAMM 2022 June seminars

Milton Davis progress report.

Milton Davis reported, he has received a number of good suggestions so far, but has heard nothing from or about NAMM in terms of how to submit the ideas. Mike Lay suggested waiting a week or two, before sending a check-in inquiry to Laura Hoepker.

7.3 Other new business

8 Other business and announcements

8.1 USITT report

Mitch Hefter reported that We're here – together - In person! He said there is a lot of excitement on the show floor, with about 3,400 attendees as of yesterday's attendance report. There have been some organizational changes with USITT to bring bylaws into conformance with New York Not-for-profit regulations, effective July 1, 2022. They have changed to a governance board, instead of an operational board. The board size has been reduced from 30 members to 15 members. Sitting directors complete their terms, so the 15 voting member size will not be fully in place until 2025-2026. Vice-President positions were removed last August (sitting VPs complete their terms).

8.2 National Electrical Code (NEC) update

Mitch Hefter reported, the Correlating Committee met in February to review 2nd draft revisions from the panels and issue any correlating actions. Steve Terry has identified at least one issue to resolve regarding outdoor use & ESTA Standards references, NITMAMs are due April 11, 2022.

Mitch Hefter is now Steve Terry's Alternate to Panel 13 representing USITT. (Both still serve on Panel 15). Bill Ellis has applied as ESTA's alternate to Jason Potterf on Panel 18. Mitch Hefter received a 25-Year "Club" Pin for service on Panel 15.

Jason Potterf concurred on Mitch Hefter's report. Eddie Kramer congratulated Hefter on his receipt of the 25-year club pin.

8.2 Illuminating Engineering Society (IES) update

Bill Ellis and Mitch Hefter.

Mitch Hefter reported, the IES Controls Committee has resolved Committee comments on new BSR/IES LP-16

Lighting Practice – Documenting Control Intent Narratives and Sequence of Operation. It will be in Public Review March 11 thru April 25, 2022.

Bill Ellis reported that the theater, film, and television committee is reforming. Volunteers are needed!

8.3 Institute of Electrical and Electronics Engineers (IEEE) update on single-pair Ethernet

Jason Potterf.

Jason described the work of trying to balance the needs for multi-drop data, multi-drop power, and making it all work. The goal is to make this as much plug-and-play as possible. There are still practical issues, and they are looking forward to more presentations on the subject.

8.4 Plugfests

8.4.1 Europe

Wayne Howell reported it's been postponed until next year.

Peter Willis reported that the post-Covid situation in Europe is not stable.

8.4.2 USA

Michael Lay said that there are discussions to have meetings in Texas around September/October.

8.4.3 David Boggs passing

David Boggs was a co-founder of ethernet. He recently passed away in New York City.

8.4.4 NEMA

Paul Beasley said he has seen numerous emails about a recently published NEMA standard ANSI C137.6 – does anyone know about this. Mitch Hefter said he would investigate.

Hans Lau sent a link to everyone through the WebEx chat: https://www.nema.org/docs/default-source/standards-document-library/ansi-c137.6-contents-and-scope31084957-7bc6-439b-85b0-0c546d9171e9.pdf?sfvrsn=f911b2e6_3.

8.5 Above & Beyond Awards

Information on the Above & Beyond Awards is available at http://tsp.esta.org/tsp/news/award_recipients.html.

9 Schedule for future meetings

The full meeting schedule may be found at <http://www.esta.org/ESTA/meetings.php>. (It's also available at <https://www.esta.org/ESTA/meetings2.php>, and that version adjusts for your time zone.)

TSP meetings will be planned around the NAMM Show, which is scheduled for June 3 through 5 at the Anaheim Convention Center. The meetings will be face-to-face and on-line via WebEx.

10 Adjournment

Having reached the end of the agenda Michael Lay declared the meeting adjourned at 10:17.

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Control Protocols Working Group members and contact information as of 03 March 2022

Delegate	Representation	Voting Status	Int. Cat
Cameron Affleck	Cameron Affleck	O	U
Christian Allabauer	Christian Allabauer	O	G
Ali Alnajjar	Carallon Ltd.	P	MP
Matthew Ardine	I.A.T.S.E. Local 728	A	U
Benjamin Eagen Arrigo	Benjamin Eagen Arrigo	O	U
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	CHAUVET & Sons 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	HDR Consulting LLC	P	DE
Ian Campbell	Doug Fleenor Design, Inc.	A	MP
Jean-Francois Canuel	A.C. Lighting Ltd.	O	CP

Control Protocols Working Group members and contact information as of 03 March 2022

Delegate	Representation	Voting Status	Int. Cat
Steve Carlson	High Speed Design, Inc.	O	MP
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
Al DeMayo	LiteGear, Inc.	P	MP
Steve Denim	Electronic Theatre Controls, Inc.	O	MP
Larry Dew	W.A. Benjamin Electric Co.	P	DE
Matthew Dews	Matthew Dews	O	MP
Matt Didon	ON LX Limited	P	CP
Rich Dionne	Purdue University	O	DE
Gary Douglas	Phospec Industries, Inc.	P	MP
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

Control Protocols Working Group members and contact information as of 03 March 2022

Delegate	Representation	Voting Status	Int. Cat
Harrison Freni	Infinitus Lux, LLC	O	U
Mike Garl	Mike Garl Consulting LLC	exf	
Stijn Geysen	Luminex Lighting Control Equipment	P	MP
Robert Goddard	Goddard Design Co.	P	MP
Nicolas Goerg	Rosco Laboratories	P	MP
Sean Goossen	LiteGear, Inc.	O	MP
Jerry Gorrell	Theatre Safety Programs	O	G
Erin Grabe	ESTA	exf	
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
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
Quinten James	QtoCue Lighting Design	O	U
Eric Johnson	Eric Johnson	O	G
Rob Johnston	Interactive Technologies, Inc.	O	MP
John Valus Jr.	Lex TM3	P	CP

Control Protocols Working Group members and contact information as of 03 March 2022

Delegate	Representation	Voting Status	Int. Cat
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	Jonathan Kemble	O	G
Chris Kennedy	Chauvet Lighting	O	MP
Bill Kirby	Crescit Software, Inc.	O	G
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
Michael Lichter	Electronic Theatre Controls, Inc.	A	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
Kevin Matz	Company 235, LLC	O	U
David McCulloch	David McCulloch	O	U

Control Protocols Working Group members and contact information as of 03 March 2022

Delegate	Representation	Voting Status	Int. Cat
Bill McIntyre	Show Distribution Group, Inc.	P	CP
John Mehlretter	Lehigh Electric Products Co.	O	MP
Andrew Mulkey	Candela Controls, Inc.	A	DR
Daniel Murfin	Royal National Theatre	P	U
John Musarra	John Musarra	O	U
Maya Nigrosh	Sonos	P	MP
Richard J. Nix	ESTA	exf	
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	P	CP
Mark Primrose	CHAUVET & Sons Inc.	P	MP
Gary Pritchard	LSC Control Systems Pty Ltd	O	MP
Charles Reese	Production Resource Group	O	DR
Jake Rhodes	Altman Lighting	A	MP
Alan M. Rowe	I.A.T.S.E. Local 728	A	U
Karl G. Ruling	ESTA	exf	
Yngve Sandboe	Sand Network Systems, Inc.	O	MP
Nicolai Gubi Schmidt	Nicolai Gubi Schmidt	O	U
Ford Sellers	Chauvet Lighting	O	MP
Shawn Silverman	Lighting Infusion LLC	P	DE
Sam Smallman	Artificers	O	CP

Control Protocols Working Group members and contact information as of 03 March 2022

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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
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
Sebastian Wissmann	Inoage GmbH	O	MP
David Yellin	Sumolight GmbH	O	MP
Jeong Sik Yoo	Ghost LX	O	DE
Liang Zhiguang	Guangzhou Haoyang Electronic Co., Ltd.	P	CP

Voting Status key: P = Principal voter, A = Alternate voter, I = Individual voter; O = Observer (non-voter); exf = ex officio, non-voting

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