

# 恭喜發財! Congratulations and be prosperous! Celebrating extraordinarily productive meetings



HAPPY NEW YEARS! THAT'S PLURAL; I have written this story through two of them. I started writing on the eve of the Asian Lunar New Year, after our Technical Standards Program meetings in Anaheim during the NAMM Show. Then we had more meetings in Ft. Lauderdale during the USITT Conference and Stage Expo, which wrapped up just before the Vernal Equinox, which marks the Persian New Year, Nowruz. By the time you read this, the celebratory chūnjuǎn (Chinese spring rolls) and kuku sabzi (Persian herb and leek frittata) will be gone, but we still can celebrate the accomplishments of the volunteers in ESTA's Technical Standards Program. They've started 2018 with an extraordinarily productive series of meetings, with new projects started, many standards moving forward, and a few finished. Below is a sampling of what TSP members have been doing.

## ESTA standards in public review

Over the months I have been working on this story, 13 documents have been posted for public review on the ESTA website at <http://estalink.us/pr>. Probably none of the documents listed here will be in review by the time you read this. Never the less, this listing will give you an idea of what the TSP members have been working on—and maybe inspire you to visit the site.

**BSR E1.1, Construction and Use of Wire Rope Ladders**, is the first standard ESTA published; it is being revised to update and incorporate material from its referenced standards. The document describes the construction and use of wire rope ladders in the entertainment industry in order to promote worker safety.

**BSR E1.6-1, Powered Hoist Systems**, is a revision of the 2012 edition. It's for the design, manufacture, installation, inspection, and maintenance of powered hoist systems used in theatres. It does not include chain hoists, which are covered by ESTA standards *E1.6-2* through *E1.6-4*. The standard is being revised to clarify some of the language and refine some requirements. For example, the draft in review says that hoist system motors “shall be sized appropriately for hoist capacity, design criteria, and duty cycle.” Duty cycle is a sometimes overlooked parameter. It's a problem if a long lift must be done in steps to allow the motor to cool.

**BSR E1.8, Loudspeaker Enclosures Intended for Overhead Suspension—Classification, Manufacture, and Structural Testing**, addresses the requirements for flown speaker enclosures to help ensure that they don't break and rain parts on concertgoers. It addresses only the structural characteristics relating to the suspension of the enclosure, and not how the speakers sound. The standard has been opened for revision to clarify the requirements of the

standard and to revisit them in light of current manufacturing technology.

**BSR E1.11, USITT DMX512-A—Asynchronous Serial Digital Data Transmission Standard for Controlling Lighting Equipment and Accessories**, is the American National Standard version of USITT's DMX512, first published almost 30 years ago. It's a protocol for transmitting digital data over an EIA-485-A datalink (that's a wired link) for the purpose of controlling entertainment lighting equipment and accessories, such as dimmers, robotic luminaires, color changers, and motion effects wheels. The protocol has no error detection or correction, and is not intended to be used where injury to people or damage to property could result from a malformed or misinterpreted message. The existing *E1.11* standard is being considered for reaffirmation without any substantive changes.

**BSR ES1.19, Safety Requirements for Special Event Structures**, is one part of a larger suite of ES1 standards relating to special event safety being developed—which is essentially a project to make a suite of American National Standards derived from the Event Safety Alliance's *Event Safety Guide*. This draft standard covers any temporary structure used for special events (e.g., concerts, award shows, dramatic plays) not otherwise addressed by existing standards, codes, or legislation. The purpose of this document is to identify design, fab-

rication, operation and use, inspection and maintenance requirements for the structures included in its scope.

**BSR E1.30-11, EPI 33—ACN Root Layer Protocol Operation on TCP**, is part of the *E1.30* suite of standards documents that specify how conforming implementations are to operate in a particular environment or situation in order to guarantee interoperability. This part of E1.30, EPI 33, is an interoperability profile that specifies the operation and formats for the ACN Root Layer Protocol operating on TCP.

**BSR E1.33—(RDMnet)—Message Transport and Device Management of ANSI E1.20 (RDM) over IP Networks**, describes a method of implementing *ANSI E1.20 Remote Device Management* messaging over an IP-based network. BSR E1.37-7 is closely tied to this document—so closely tied that the Control Protocols Working Group asked that the two draft standards be offered for public review together.

**BSR E1.37-4, Remote Device Management over DMX512 Networks—File Transfer Control with Firmware Upload Capabilities**, is part of the E1.37 project. It provides developers of RDM responder hardware with a standard means of implementing firmware upload using the basic communication structure provided by the *ANSI E1.20 RDM* standard. The design approach is intended to facilitate data transfers to responders that may be built using processors with very limited memory resources as well as devices that can support the largest possible RDM packet.

**BSR E1.37-7, Additional Message Sets for ANSI E1.20 (RDM)—Gateway and Splitter Messages**, provides additional Get/Set Parameter Messages for use with the *ANSI E1.20 Remote Device Management* protocol. This document contains messages relating to configuring managed splitters, proxy devices, and RDMnet Devices. It is closely tied to E1.33, so closely tied that the CPWG wanted them offered for public review together.

**BSR E1.42, Design, Installation, and Use of Orchestra Pit Lifts**, covers the design, construction, operation, inspection, test-

## TSP Volunteers Recognized for Service with Above & Beyond Awards

ESTA's Technical Standards Council is pleased to announce the 2017 recipients of the annual Above & Beyond Awards designed to recognize outstanding Technical Standards Program volunteers. The awards celebrate those volunteers that have made a significant contribution or effort that advances the Technical Standards Program. The TSP exists because hundreds of individuals from across the industry volunteer their expertise and significant amounts of time throughout the year to write standards that increase safety, provide interoperability between different manufacturers, solve problems, and make life easier. These awards are particularly meaningful to the recipients because the nominations are made by their peers within the Technical Standards Program.

The 2017 Above & Beyond Awards were presented to:

Scott Blair (Control Protocols Working Group) was cited as spending "countless hours and personal resources supporting the standards making process. He has authored and led the efforts on significant portions of several already-published standards and



Scott Blair (middle) was presented his award by Michael Lay and Milton Davis.

he continues to contribute to those currently in progress. Scott has always provided leadership, technical expertise, and materials in support of standards development."



Eddie Kramer (right) receives his award from Mitch Hefter.

Eddie Kramer (Electrical Power Working Group) was cited as having been a "tireless contributor to the Technical Standards Program serving on many different committees and Working Groups, including the Technical Standards Council. Eddie is not only involved with ESTA but also serves as a representative for the entertainment industry to the NFPA (NFPA 70E) and the IEEE."



Steve Walker award was presented by Chris Kaiser.

Steve Walker (Rigging Working Group) was cited as being "soft-spoken in meetings, but we all quiet down when he speaks because we all want to hear what he has to say. His contributions are immense and vital to our work. Steve graciously contributes in ways that help more of us to understand."

## A call for members

ESTA's TSP works to maintain a balance of interest on the working groups to help ensure that the standards developed are for the benefit of everyone: the people who make equipment, the people who sell or rent it, the people who specify it, and the people who use it. To do this, periodically the TSP issues a call for new members in particular interest categories. At this time, the following working groups are looking for voting members in the noted interest categories to help balance the interests in the working group.

- **Control Protocols:** General interest, dealer-rental companies
- **Electrical Power:** Designers, custom-market producers
- **Event Safety:** Performing artists, event equipment manufacturers, insurance companies
- **Floors:** Custom-market producers, dealer-rental companies
- **Fog and Smoke:** Custom-market and mass-market producers, dealer-rental companies, designers, general interest—all categories except users
- **Followspot Position:** Custom-market producers, dealer-rental companies
- **Photometrics:** Dealer-rental companies, designers, general interest, users
- **Rigging:** Designers
- **Stage Machinery** (previously called Stage Lifts): Users, mass-market producers

Voters in the Technical Standards Program are required to attend meetings and to vote on letter ballots. Membership in ESTA or any other organization is not a requirement for participation in ESTA's Technical Standards Program, but there is a \$100 a year per person participation fee—a flat rate, regardless of voting status or the number of working groups a person joins. The fee is levied to help defray the costs of running the TSP, which has always run a deficit. There is a scholarship fund, with an initial endowment from Chris Kaiser, to help those who would like to participate for whom the participation fee would be a hardship. More information about becoming involved in the Technical Standards Program and links to application forms are available at <http://estalink.us/wg>.

ing, maintenance, alteration, and repair of permanently installed orchestra pit lifts and their associated parts, rooms, spaces, enclosures, and hoistways, where located in a theatre or a similar place of public entertainment. This is a revision of the standard that was published in 2016. The revision is being done “to see what lessons learned over the last year could be used to improve the standard.” Working group discussions have been interesting debates about the reliability of mechanical switches versus solid state devices and designing control systems to meet particular Safety Integrity Levels.

**BSR E1.46, Standard for the Prevention of Falls from Theatrical Stages and Raised Performance Platforms**, is a revision of the 2016 standard, prompted by OSHA revising its standards so an inspector cannot cite an employer simply for not having a guardrail across the front of a stage. OSHA's revision doesn't make it okay for people to fall into the orchestra pit, but it does make an unprotected stage edge an item for discussion rather than automatically an item for a fine.

ESTA's E1.46 will continue to offer guidance appropriate for theatrical venues on preventing falls from stages into orchestra pits, open stage lifts, and similar openings in stage floors, but it now must take a more nuanced approach to citing OSHA regulations.

**BSR E1.56, Rigging Support Points**, provides guidance for the design, fabrication, installation, and testing of permanent and temporary rigging points and rigging lugs and their connection to existing building and venue structures. This is a project dear to riggers who are bothered by undocumented rigging points. “I don't know what it will hold, but it hasn't broken yet,” isn't entirely what a rigger wants to hear.

**BSR E1.60, Guidelines for the Use of Raked Stages in Live Performance Environments**, is intended to provide guidance for the use of raked stages in live performance environments. The standard lays out a risk management procedure so that the risks associated with a sloped stage can be assessed and appropriate steps taken to mitigate the risk.

## Approved, to be published soon

On February 27, ANSI's Board of Standards Review approved two of standards: one a revision, the other a reaffirmation.

**ANSI E1.14-2018, Recommendations for Fog Equipment Manuals**, is a revision of the 2013 edition. The previous version was entitled “Recommendations for Inclusions in Fog Equipment Manuals” because it was assumed that a manual would be a physical booklet with a front, a back, and an inside. That's no longer the case, but the revised standard makes it clear what must be in hardcopy, so safety is not compromised if there is no Wi-Fi, the smart-phone's dead, or any number of other things that might make online information be offline.

**ANSI E1.35-2013 (R2018), Lens Quality Measurements for Pattern Projecting Luminaires Intended for Entertainment Use**, is a reaffirmation of the 2013 edition. The 2018 edition, when it is published, will have updated front-matter, but no other changes.

## Not yet approved, but soon

These documents are in their final stages of approval within the TSP. They should be forwarded to ANSI's Board of Standards Review, soon.

**BSR E1.6-2, Entertainment Technology—Design, Inspection, and Maintenance of Electric Chain Hoists for the Entertainment Industry**, is in the final stages of approval. Chain hoists: motor, transmission, brake, chain, a few limit switches. How difficult can a standard for chain hoists be? However, this is a revision of *ANSI E1.6-2*, which was published in 2013 as the culmination of part of a standards-drafting project started in 1997. It's an important standard for the entertainment industry because it says chain hoists in our industry shall follow different rules than those for chain hoists in factories and warehouses. In those places, there is no good reason to

stand under a suspended load, so the ASME B30 standards say people shall not, but standing under loads is what we do on stage and in trade shows regularly.

**BSR E1.31, Entertainment Technology Lightweight Streaming Protocol for Transport of DMX512 Using ACN**, is a revision of what a lot of people call “sACN,” and it is in the last stages of approval. The revision adds a requirement for IPv6 as well as IPv4 support for both controllers and controlled devices. IPv6 is clearly the addressing scheme of the future, but IPv4 devices dominate the installed base in theatrical venues now, so this revision requires support for both.

### Three new projects

Three new projects! If any of these materially affect your health or finances, you are welcome to join the appropriate working group. In alphanumeric order they are:

**BSR E1.63, Network Advertisement of Entertainment Protocols**, is a project within the Control Protocols Working Group. It would provide a registry for parameters that network-based entertainment devices can report to network infrastructure via Link Layer Discovery Protocol (LLDP) to facilitate network management tasks. Every standard addresses a problem, and the problem here is that IP-based ESTA protocols often look like hostile network traffic to network security devices, software, and IT administrators. This standard would provide a simple way for devices supporting ESTA protocols to identify themselves to IT equipment.

**BSR E1.64, Stage Machinery Motion Control**, is a project that has led to renaming the Stage Lifts Working Group as the Stage Machinery Working Group. BSR E1.64 is intended to provide a common standard of design, operation, maintenance, and practices for the control of all stage machinery. The document will explore the requirements of the operator interface, wiring along the path to the controller, through to the controller output, and along a second

path of wiring (machine power, data, analog signals, discrete I/O) to the machine. This topic could bridge several working groups (Rigging or Fog and Smoke, for example) but most of the people interested in this project were already in the Stage Lifts Working Group, which had only one standard in its portfolio: *E1.42* for orchestra pit lifts. Now the working group is renamed and it has two standards to worry about—which is still a light load compared to the other working groups in the TSP.

**BSR ES2, Use of Unmanned Aerial Vehicles during Live Events in Indoor Venues**, is a new project within the Event Safety Working Group. The standard will cover the use of remote-controlled and autonomous, tethered and untethered UAVs (i.e., drones) flying above stages and audiences indoors. It will provide technical requirements, risk assessment methods, operational procedures, and will cover other aspects related to the use of UAVs at live events such as maintenance, training, radio-frequency considerations, and automated system checks.

When I started this story, the Chinese New Year was marking the end of the Year of the Rooster. We are now over a month into the Year of the Dog. A reflection on the qualities attributed to the Dog in the Chinese Zodiac seems appropriate. Dog’s defining characteristic is loyalty. The dog doesn’t abandon friends, family, or work. Looking up “dogged” in an online dictionary I find “stubbornly persevering, steadfast” with synonyms “committed, determined, persistent, steadfast, tenacious.” That’s a good list of adjectives for the volunteers that work in ESTA’s Technical Standards Program. They are steadfastly work at writing standards to help people in our industry conduct business safely, efficiently, and profitably. ■



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