

**Minutes
 Technical Standards Committee
 Friday, July 14, 2000
 Dallas/Ft. Worth Airport Marriott
 Irving, Texas**

Chair: Bill Groener; Production Arts (PRG); principal

Recording secretary: Karl G. Ruling, ESTA

Members attending: Frank Stewart; Specialty Tech Services; principal
 Larry Schoeneman; Interesting Products, Inc.; principal
 Mike Garl; James Thomas Engineering, Inc.; principal
 Edward Paget; Jones & Phillips Associates, Inc.; principal
 Mike Wood; High End Systems; principal
 Mitch Hefter; Rosco/Entertainment Technology; principal
 Rodney F. Kaiser; J.R. Clancy (USITT); Alternate
 Ken Vannice; NSI Corporation; principal
 Tim Cox; PLASA; principal
 Edwin S. Kramer; IATSE, Local 1; principal
 Lori Rubinstein, ESTA, ex officio

Visitors: Bob Luther; Lex Products
 William Masten; SMS Inc. / PGS LLC
 Richard A Prey; SMS Inc. / PGS LLC
 Wolfgang Hofheinz; Bender GmbH
 Bill Kanne; Hollywood Rental Co.
 Roger L. Lattin; IATSE Local 728
 W. G. Krokaugger; Mole-Richardson
 Louis Bradfield; Bally's Las Vegas
 Warren Mays; TMB Associates

Voting body for this meeting:

Name	Company	Parent Co./Org Represented	Vot. Stat.
Tera Johnson	Electronic Theatre Controls, Inc.	Electronic Theatre Controls	P (absent)
Mike Wood	High End Systems Inc.	High End Systems Inc.	P
Edwin S. Kramer	IATSE, Local 1	I.A.T.S.E. Local 1	P
Larry Schoeneman	Interesting Products, Inc.	Interesting Products, Inc.	P
Mike Garl	James Thomas Engineering, Inc.	James Thomas Engineering, Inc.	P
Edward Paget	Jones & Phillips Associates, Inc.	Jones & Phillips Associates, Inc.	P
Ken Vannice	NSI Corporation	Leviton Manufacturing Co., Inc.	P
Tim Cox	PLASA	PLASA	P
Tony Douglas-Beveridge	PLASA Standards Office	PLASA	A (absent)
Bill Groener	Production Arts (NJ)	PRG	P
Mitch Hefter	Rosco/Entertainment Technology	Rosco Laboratories	P
Frank Stewart	Specialty Tech Services	Specialty Tech Services	P
Colin Waters	TMB Associates	TMB Associates	P (absent)
Rodney F. Kaiser	J.R. Clancy Inc.	USITT	P
Jay O. Glerum	Jay O. Glerum & Associates, Inc.	USITT	A (absent)
Florian Von Hofen	VPLT	VPLT	P (absent)
Eckart Steffens	SOUNDLIGHT	VPLT	A (absent)

1 Opening remarks

Bill Groener called the meeting to order at 1:06 p.m. Groener invited the visitors sitting in the back of the room to come forward

2 Attendance and membership (Five required for quorum.)

Groener noted that we have a quorum. Groener asked people to introduce themselves.

2.1 Attendance

An antique rose attendance sheet was passed around for people to mark to indicate their attendance. Ruling asked the visitors to sign in on the subsequent lavender pages.

2.2 Welcome to visitors

Groener again welcomed the visitors and suggested they to move forward to join the people at the table. Groener explained that the TSC is not a working group that writes standards. The TSC is the group that oversees the work of the standards-writing working groups.

3 Approval of minutes from the previous meeting

Mitch Hefter moved that the draft minutes be accepted as written. The motion was seconded. There was no discussion. The motion was accepted unanimously with a show of hands.

4 Call for patents and anti-trust statement

The call for patents was read by Groener.

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

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

Vannice identified US patent # 6,020,825, Theatre Lighting Control Network, as possibly having an impact on the control protocol working group's activities.

Groener then read the anti-trust policy statement:

"The ESTA Board of Directors and the leadership of this Technical Standards Committee will reject or nullify any actions that restrain trade. Anyone who feels that an action restraining trade is being or has been taken is requested to bring the matter to the attention of the chair immediately. Anyone who feels that actions in restraint of trade have been taken and not properly annulled is requested to notify the TSC chair or ESTA president immediately.

"ESTA legal counsel has informed us that any member of this committee may be found individually liable for any action that restrains trade taken by this committee. An individual convicted of a violation of the Sherman Act may be fined as much as \$100,000 and be imprisoned for up to three years. An easy to read pamphlet describing restraint of trade is available from the Technical Standards Committee."

No issues were identified.

5 Approval of agenda

Mike Wood moved that the agenda be accepted. The motion was seconded. The motion was accepted unanimously with a show of hands.

6 Old business

6.1 Financial reports

6.1.1 Treasurer's report

Frank Stewart offered his treasurer's report (Jultsc.xls), which had been sent to all via e-mail before the meeting. There was a discussion of whether the e-mail had been received.

There was a discussion of whether we should add a budget line for TAGs. By consensus it was decided that such a budget line item would be good, and that \$1,000 for TAGs should be added for the 2001 budget.

Stewart asked if the committee chairs present see reductions that could be made in their budget lines. The year 2001 budget is \$20,000 out of balance. Groener identified a \$5,000 discrepancy between page one and page two. Frank said it was an arithmetical error and would have to sort it out. Ruling figured out that the \$5,000 difference was the committed funds for the ANSI audit.

6.1.2 Status of contributions and pledges

Bill Groener and Lori Rubinstein gave their report. The donations this year are, for the most part, on track.

6.1.3 Accounting of TSP documents sold and on-hand

Lori Rubinstein offered a spreadsheet detailing what's been sold. Cox noted that more has been sold so far this year than all of last year.

6.1.4 Swag report

Rubinstein reported that we've been selling some, but not a lot. We expect bigger sales at LDI. Sales to ESTA members have been disappointing so far.

6.2 Working group reports

6.2.1 Camera Cranes

6.2.1.1 E1.12, American National Standard for camera cranes task group

Ruling reported that at the June 24 CCWG meeting Kent Jorgensen had reported that the task group had hoped to have a first draft finished for this meeting, but that a third is done. Jorgensen had reported that the task group would get a rough version finished in the next few weeks. The draft document is based on the A92.6 standard.

6.2.1.2 Operators handbook task group

Ruling reported that a draft of the camera crane operator's handbook document was distributed at the meeting and discussed. Topics discussed include curved tracks, track stops, replacement parts (including bolt grades), and whether gloves should be worn when handling uncoated lead weights, coated lead weights, or all weights. There was also a discussion of the advisability of pushing cranes over cables, and the practice of adding or removing weight from the weight bucket to make it nose or tail heavy. It was decided that comments on the distributed draft document should be sent to Jorgensen via email or fax by 28 July. The working group voted to accept the document by letter ballot with an abbreviated schedule so it could be forwarded to the TSC, if it passes.

6.2.1.3 meeting on working group/PERA/E1/ESTA relationship

Groener described the meeting he had had with Ed Clare, Rubinstein, and Ruling via telephone. Groener said the working group understands that they need to set a pace. The pace does not have to be fast, but there has to be a pace. They have stepped up the meeting schedule for the task group, Groener reported.

Groener also reported that Leonard/Chapman has now gotten involved in the working group. They will not spearhead writing the standard, but they have gotten involved.

Groener also reported that the CCWG had voted to have Jimmy Fisher replace Andy Romanoff and become the working group co-chair with Ed Clare. Since the working group chairs are appointed by

the TSC, the TSC needs to ratify or deny this motion. Ted Paget moved that Jimmy Fisher become the co-chair of the CCWG instead of Andy Romanoff. The motion was seconded. The motion was accepted unanimously by a show of hands.

6.2.2 Control Protocols

6.2.2.1 E1.3

Mitch Hefter reported that it is in public review. The review closes Sept. 12.

6.2.2.2 E1.11

Hefter reported that a new version was sent to task group and CPWG. Task group has been working on it, and will. He said he hoped to have it to a vote at LDI for public review.

The working group will act on the original Report on Proposals and Executive Summary at the next meeting, said Hefter.

Hefter reported there has been no action on the IEC front because our public review document is supposed to be their input document.

6.2.2.3 Report of ACN Task Group

Mitch Hefter reported that the ACN Task Group will do a presentation tomorrow. They may present it to the Internet Engineering Task Force so ports can be assigned.

Hefter reported that Steve Carlson had come from an IEEE meeting dealing with power over Ethernet. The project is progressing.

6.2.3 Fog and Smoke

6.2.3.1 Working group co-chair appointment

Larry Schoeneman reported that Gary Fails was asked, but after initial enthusiasm had backed out because he doesn't have the time. No likely co-chair is available.

6.2.3.2 E1.5, glycol/glycerin fog

6.2.3.2.1 ACGIH request

They haven't met yet to consider our request, reported Mike Wood.

6.2.3.2.2 Sampling project

Not much progress. We need a new person to spearhead it, said Schoeneman. Wood said it's set up, but someone other than he needs to administer it.

6.2.3.3 E1.14, Standard for fog machine manuals

Ruling reported that a version that incorporates changes from the public review will be considered at the upcoming F&S Working Group meeting.

6.2.3.4 Product stewardship

Larry Schoeneman moved that the TSC accept the product stewardship document for publication. The motion was seconded.

There was a discussion of how the product stewardship program could be applied to other working groups and to various industry sectors.

The motion was accepted unanimously by a show of hands.

Rubinstein said the program will launch in the next couple of months.

6.2.4 Photometrics

6.2.4.1 E1.9, nutrition label

Ruling reported that there was no working group meeting during this meeting cycle because the document is still in public review.

6.2.4.2 Revamp/renew IES procedures

Ruling reported that the IES is working on a testing practice, called LM-73, so progress is being made.

6.2.4.3 Public information project

Ruling reported that there will be a session on photometry in general, headed by Tom Pincu, at LDI in Las Vegas. Another session about the draft standard (or perhaps the American National Standard E1.9) will be held at USITT.

6.2.5 Rigging

6.2.5.1 E1.2 – Aluminum Truss Standard

Ruling reported that he was still waiting to hear from ANSI. There had been some confusion about whether public review comments that were not accepted were resolved if no complaint is heard from the commentor.

6.2.5.2 E1.4 – Manual Rigging Systems Standard

Mike Garl reported that there are still comments from the last review that need to be resolved.

6.2.5.3 E1.6 – Powered Rigging Systems

Garl reported that it's in public review until Oct. 10

6.2.5.4 E1.7 – Recommended Practice for Flying Performers

Mike Garl reported that it's in public review until Sept. 12.

6.2.5.5 E1.8 – Speaker Enclosures Rigging Standard

No action was taken on it at the last meeting, so the task group, Andrew Martin, is upset, reported Garl. The working group will vote on it tonight.

6.2.5.6 E1.10 – Building Structural Requirements Standard

Garl reported that this too is in public review. The review closes September 12.

Garl addressed the comments from theatre consultants regarding this draft standard. He described two camps: those who are not involved in the project, and who don't want it; and those who are involved in the project, and who do want it.

6.2.5.7 E1.13 – Arena Scoreboards and Speakers

The document is back from review, and the task group needs to resolve the comments, reported Mike Garl.

6.2.5.8 E1.15 – Manufacture, Assembly, and Use of Theatrical Boom & Base Assemblies

We have a document, reported Garl.

6.2.5.9 British Standards – update

Tim Cox reported that there are two new British standards for aluminum towers and trusses: BSI 7905 part 2, and BSI 7906 part 2.

6.2.6 Power

6.2.6.1 Task group on a recommended practice for selection, installation, and use of portable feeder cable.

Vannice reported on the survey development time table.

6.2.6.2 Task group for a recommended practice for use of GFCI (Residual Current Devices) in entertainment applications.

Vannice reported we have a new set of leaders for this task group.

6.2.6.3 Task group to write a configuration standard for HMI power cables and/or head to ballast cables.

We have a draft document that is one page long, reported Vannice.

6.2.6.4 EMC task group

Vannice gave an abbreviated oral version of his written report (which is included as part of these minutes).

6.2.6.5 Power quality task group

Andy Topinka is working on a document called Introduction to Power Quality Problems and Solutions. He has about 70 pages written so far, reported Vannice.

6.2.7 Floors

Tin Hansen reported that over the last couple of months he has contacted a number of people, including architects, ballet companies, manufacturers. The reluctance he has found is with portable flooring/platform people. The requirements for the different types of performances seem to vary, so he thinks we should work on standardizing the methods of testing floors.

Ken Vannice moved that a Floors Working Group be formed. Ted Paget seconded the motion. The motion was accepted unanimously by a show of hands.

6.3 Report on Liaisons to Other Industry Groups

6.3.1 NFPA

Schoeneman reported that Technical Committee on Special Effects had finished voting on proposals to change 160 and 1126. These had been voted down.

The NEC Report on Proposals is due out on the 28th, reported Mitch Hefter.

Ruling reported that he had written the letter to the NFPA in support of their building code project, as directed at the last TSC meeting. The schedule for the NFPA's public comment periods will work well with our meeting schedule.

6.3.2 ASTC

Ted Paget will be our link to this group.

6.3.3 IAAM

Lori Rubinstein reported that Tom Young has been helping us make contact with IAAM. Lori sent a packet of info to the president of IAAM.

6.4 Performance review task force report

Ted Paget presented the draft documents. He suggested that if we go forward with this, that we should perhaps pick a group with fewer projects as a first time application, rather than the Rigging Working Group, as determined at the last meeting.

There was a discussion of whether the performance review document is the way to help improve the standards drafting process. Without a motion on the floor, the consensus emerged that the document

does not. However, it could be an adjunct to the working group chair guide. Ruling agreed to edit the document for this purpose and to submit it to the TSC at the next meeting.

6.5 Non-profit foundation project report

Lori Rubinstein reported that work is being done to setup a foundation. This has tax advantages for soliciting donations to support the TSP.

6.6 Revenue issues with standards task force report

Tera Johnson was not present, so there was no report.

6.7 Review of action items from last meeting not covered above

None.

7 New Business

7.1 Revisions to the P&P to address balance issues

Ruling said that the requirements for balance outlined in ANSI's N364.pdf are virtually impossible to meet with our current three interest categories. According to ANSI, we cannot have any interest category equal a third or more of our voting membership. If a category does, it is possible for the group to dominate any vote. Our three categories means that one or more will always equal 1/3rd of the voting body. We need more categories, at least four and perhaps five or more. The producers category, which is usually our most popular, in particular needs to be split. It seemed to Ruling that large and small manufacturers would have different economic interests. Ruling asked for help in coming up with other interest categories.

A brainstorming session was held in which the following possible categories were offered:

- Custom manufacturers
- commodity manufacturers
- Distributor or reseller
- Commercial users (production and rental houses)
- Organized labor
- Specifiers
- End-users
- Governmental

Ruling said this list was a good start, and thanked the TSC

7.2 Negligence lawsuits against standards developers

Ruling advised the TSC that he was going to an all-day meeting given by ANSI in Washington on July 22nd that would cover this topic, and would report back.

8 Other business

8.1 Riding personnel lifts

Eddie Kramer said IATSE Local 1 wanted to draft a standard for the operation of Genie lifts in entertainment applications (a standard that would allow a worker to stay aloft while the lift is moved). This raised the issue that this would open Local 1 to liability if Local 1 then says this is THE way to do it and someone is injured.

Roger Lattin pointed out that the grips in LA had the same need. According to Lattin, Genie has rewritten the manual to allow riding the lift, but only if the crew takes the Grips safety class.

8.2 Voting

Bill Groener urged people to vote abstain on any ballot that they do not feel qualified to offer another vote and to then send it in.

9 Schedule for future meetings

Lori read the list of meeting times for LDI:

Day	Event	Time	Day	Event	Time
Tue. October 17th	ACN Task Group Meeting	9am - 5pm	Fri. October 20th	Photometrics WG Meeting	9:00am - 12:00pm
Wed. October 18th	Floor WG Meeting	8am - 12pm		Electrical Power WG Meeting	7pm - 11pm
	ACN Task Group Meeting	9am - 5pm	Sat. October 21st	Fog & Smoke WG Meeting	6:30pm - 11:00pm
	TSC Meeting	1pm - 5pm			
	Rigging WG Meeting	7pm - 11pm			
	Board of Directors Meeting	7pm - 11pm			
Thurs. October 19th	Control Protocols WG Meeting	9am - 6pm			
	Cocktails	6:30pm - 7:30pm			
	Annual Dinner	7:30pm - 10:00pm			

The weekend of January 19 and 20th will be used for the Texas meetings.

10 Adjournment

Ted Paget moved the meeting adjourn. The motion was Seconded. The motion was approved unanimously by a voice vote. Groener declared the meeting adjourned at 5:04 p.m.

The State of IEC 61000-3-2 and –3-3
 As of May 2000
 By
 Ken Vannice

IEC 61000-3-2, EMC, Limits for Harmonic Current Emissions (equipment input current \leq 16A per phase), and 61000-3-3, EMC, Limits, Limitation of Voltage Fluctuations and Flicker in Low-Voltage Supply Systems for Equipment with Rated Current \leq 16A are scheduled to go into effect in the European Community (EC) on January 1, 2001. Currently these standards cover only those systems operating at 220V and above line-to-neutral.

Most of the action evolves around the –3-2 standard. Based on the lack of documented technical rationale, un-repeatable test requirements, failure to consider all mitigation options, conflicting requirements between standards and an approved plan to extensively revise the standard, the US has been pushing hard to have the effectivity date moved out three years. The IEC Technical Committee (TC77) was under pressure to band-aid the standard, and therefore, created a proposed amendment known as the Woodgate amendment. CENELEC, the EC's standard-making body, has apparently given up on the timely adoption of the IEC amendment and are processing that same amendment as their own but with changes. Consequently the IEC amendment has been stalled. The US will probably file a complaint as this stalling tactic precludes the amendment from applying to several non-EC countries that have adopted –3-2.

A comparison of the existing –3-2 standard and the proposed CENELEC amendment is as follows:

EN 61000-3-2 (1998)	PrA14 to EN 61000-3-2
Class C status of dimmers and lamps used for secondary functions (e.g. photocopiers) unclear	Dimmers for incandescent lamps and lamps used for secondary functions (e.g. photocopiers) are Class A
Class D membership based on current waveform	Waveform test eliminated – Class D membership restricted to PC's, PC monitors, and TV's
Possibility for dynamic Class D membership & limits – limits track power & waveform in 320ms windows	Fixed Class D limits based on measured power – average emissions vs. maximum power
Basis for power-proportional limits unclear	Measured and specified power (within +/- 10% band)
75W lower boundary for Class D limits transitions to 50W – When?	75W lower boundary fixed until an amendment is written, circulated to NC's, and approved (2004?)

Sliding 2.5 minute window for fluctuating emissions – 10% of samples may be 150% of applicable limits – no sample may be > 150% of applicable limits	Sliding window eliminated – average of all samples must be < applicable limits – no sample may be > 150% of applicable limits
Failures of individual higher order harmonics result in equipment failure (i.e. nuisance failures)	R.M.S. of higher order odd harmonics must be < R.M.S. of applicable limits (n = 21, 23,39)
Most electronic products subjected to proportional limits according to “equal rights” principle	Beachhead established for imposing emission limits according to USCCEMC-9901 “impact” principle
Limits for professional equipment > 1kW “under consideration”	Limits for professional products > 1kW “...may be defined in a future amendment...”
“C.1 – General Test Conditions” includes requirement to conduct 39 separate tests	“C.1 – General Test Conditions” amended to eliminate requirements to conduct 39 separate tests

The amendment redefines the test procedures to promote repeatability as follows:

6.2.3.1 Repeatability

The repeatability of the measurements shall be better than +/- 5%, when the following conditions are met:

- a) the same equipment under test (EUT) (not another of the same type, however similar),
- b) identical test conditions,
- c) same test system,
- d) identical climate conditions, if relevant.

Furthermore, the amendment modifies the test duration as follows:

Type of equipment behavior	Observation period
Quasi-stationary	T _{obs} of sufficient duration to meet the requirements for repeatability in 6.2.3.1.
Short cyclic (T _{cycle} ≤ 2.5 min)	T _{obs} ≥ 10 cycles (reference method) or T _{obs} of sufficient duration or synchronization to meet the requirements for repeatability in 6.2.3.1 (see Note).
Random	T _{obs} of sufficient duration to meet the requirements of repeatability in 6.2.3.1.
Long cyclic (T _{cycle} > 2.5 min)	Full equipment program cycle (reference method) or a representative 2.5-min period considered by the manufacturer as the operating period with the highest THC.

Note: By “synchronization” is meant that the total observation period is sufficiently close to including an exact integral number of equipment cycles such that the requirements for repeatability in 6.2.3.1 are met.

There is also an amendment to –3-3 circulating at the IEC level for a vote. The USNC will probably vote against the amendment. It is expected to pass anyway. Don’t be deceived by the –3-3 title. The standard actually seeks to control current inrush. A comparison of the existing –3-3 standard and the proposed IEC amendment is as follows:

EN 61000-3-3 (1995)	77A/303/CDV and 77A/303A/CDV
Implied limits on inrush current from manual switching	Explicit limits on inrush current from manual switching
Z_{ref} is IEC725 value of $0.4 + j0.25$ ohms	Reference to IEC 61000-3-11 permits use of lower Z_{ref} values in commercial/industrial environments
D_{max} limit for automatic switching is 4% D_{max} limit for manual switching is 5.32%	D_{max} limit for automatic switching is 4% D_{max} limit for manual switching is 6% D_{max} limit for automatic switching more than twice per day with delayed restart (> “...few tens of seconds...”) is 6% D_{max} limit for equipment which is “attended” or has delayed or manual restart and manual or automatic switching no more than twice per day is 7%
Measurement of r.m.s. voltage drop across Z_{ref} in 10ms windows synchronized for frequency	Measurement of r.m.s. voltage drops across Z_{ref} in 10ms windows synchronized for frequency and zero-crossings
Unworkable and unrepeatable test method for inrush measurements	New unworkable and unrepeatable test method for inrush measurements
D_c limit is 3.0%	D_c limit is 3.3%
$P_{st} \leq 1.0$; $P_{lt} \leq 0.65$	$P_{st} \leq 1.0$; $P_{lt} \leq 0.65$ (no change)

The US is increasing its pressure to move the effectivity dates of these standards out 3 years. It has moved the issue from the Cabinet and Congress level up to the US Presidential level. Legal action is also being considered. The US protest has had a large effect on the process, but whether that protest will have enough effect before the 1/1/01 deadline, is yet to be seen.

TSC Membership at the End of the Meeting

(Note: Glerum and Kaiser swapped principal/alternate roles after the meeting, and this list shows that.)

Name	Company	Parent Co./Org Represented	Vot. Stat.
Tera Johnson	Electronic Theatre Controls, Inc.	Electronic Theatre Controls	P
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Tim Cox	PLASA	PLASA	P
Tony Douglas-Beveridge	PLASA Standards Office	PLASA	A
Bill Groener	Production Arts (NJ)	PRG	P
Mitch Hefter	Rosco/Entertainment Technology	Rosco Laboratories	P
Frank Stewart	Specialty Tech Services	Specialty Tech Services	P
Colin Waters	TMB Associates	TMB Associates	P
Rodney F. Kaiser	J.R. Clancy Inc.	USITT	P
Jay O. Glerum	Jay O. Glerum & Associates, Inc.	USITT	A
Florian Von Hofen	VPLT	VPLT	P
Eckart Steffens	SOUNDLIGHT	VPLT	A