Minutes
Control Protocols Working Group
Saturday, January 24, 1998

Chairs: Steve Carlson, Rosco/ET
            Steve Terry, Production Arts

Recording secretary: Karl G. Ruling, ESTA

Members in attendance: Peter Willis; Andera Ltd.; Observer
                              Tim Bachman; Barbizon Light; Principal
                              Geoff Shiell; Bytecraft Pty. Ltd.; Principal (status change at this meeting)
                              Doug Fleenor; Doug Fleenor Design; Principal
                              Ed Jones; Edwin Jones Co.; Principal
                              Greg Heinzle; Electronic Theatre Controls, Inc.; Alternate (joined at this
                                  meeting)
                              Robert Goddard; Goddard Design Co.; Principal
                              Dexter McNeil; Goddard Design Co.; Alternate
                              Dave Higgins; Gray Interfaces; Principal
                              Lary Cotten; High End Systems; Principal
                              Geoffrey O. Thompson; IEEE 802.3/Bay Networks, Inc.; Principal
                              Sierk Janszen; N.V. Avenger S.A.; Observer (joined at this meeting)
                              Rick Leinen; NSI Corporation; Principal
                              Tony Douglas-Beveridge; PLASA; Principal
                              George Sabbi; PRG Lighting Division; Alternate (status and representation
                                  change at this meeting)
                              Steve Terry; Production Arts; Principal
                              Paul F. Mardon; Pulsar Ltd.; Observer
                              Steve Carlson; Rosco/Entertainment Technology; Principal
                              Mitch Hefter; USITT; Principal (representation status change at this meeting)
                              Robert Barbagallo; Scéno Plus; Principal
                              Milton Davis; Strand Lighting; Alternate
                              Richard Lawrence; Strand Lighting Ltd.; Principal
                              Jerry Gorrell; Theatre Safety Programs; Principal
                              John Huntington; Thoughtful Designs (PRG); Principal (joined at this
                                  meeting)
                              Achim Russ; Transtechnik GmbH; Principal
                              Eckart Steffens; VPLT; Principal (joined at this meeting)

Visitors: Ralph Weber, Symbios Logic
                 Eric Charles, N.V. Avenger S.A.

1   Opening Remarks

    Steve Terry called the meeting to order at 9:02 a.m.

2   Attendance and membership

2.1   Introductions of those present

    The attendees introduced themselves.

2.2   Determination of quorum (10 needed)

There were 15 principal members present (excluding George Sabbi, who had to re-apply because of a company affiliation change) before there was any processing of membership applications. Steve Terry announced that we had a quorum.

2.3   Recognition of alternate voting members

Alternate members were reminded that they were not to vote if their principal member was present. Companies were represented by principals at this meeting, except for ETC, which was represented by its alternate, Greg Heinzle, after his application was processed.

2.4   Requirements for membership

2.5   Processing of new membership requests

The following membership applications and changes were processed.

Joining: Sierk Janszen, Avenger Systems, Observer
              Thom Weaver, Thom Weaver (Carnegie-Mellon student), Observer
              John Huntington, Thoughtful Designs (PRG), Principal
              Wayne David Howell, Artistic Licence Ltd., Observer
              Brian Dowd, TMB Associates, Principal
              Greg Heinzle, Electronic Theatre Controls, Alternate
              Eckart Steffens, principal VPLT

Changes in status or representation:
     Mitch Hefter, changed to represent USITT as a principal, rather than Rosco/ET
     George Sabbi, now works for PRG. He would become PRG's alternate to John Huntington.
     Geoff Shiell of Bytecraft changed from observer to principal.

The new membership applications and changes were approved unanimously, except for the vote on George Sabbi's change of status. There was one negative vote from a member who did not like George Sabbi becoming an alternate rather than a principal.

Steve Carlson and Steve Terry explained to the working group how documents are drafted, and the relationship of the task group to working group. The task group is a group of limited size that does at least the initial drafts of documents. The work of the task group must be vetted by the working group and has no standing until the working group approves it. Members of task groups are drawn from the larger working group.

3   Approval of the minutes from the previous meeting

Mitch Hefter called attention to item 12 of the draft minutes and noted that the task group was to investigate the possibility of alternate connector schemes for inclusion in an appendix to the DMX512 standard. He recommended that the wording be changed to: "Paget moved we form a task group to examine the issue of simultaneous transmission of data and power on a single cable, including the possibility of using alternate connectors."

The amended minutes were approved unanimously by show of hands.

4   Call for patents

The chairs read the following statements:

     "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

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patent disclosure 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 working group of the existence of a patent or copyright that might protect material in a standard being developed by the working group. You need not be the holder of the patent or copyright in order to notify the working group of its existence."

and Anti-Trust Statement

"The ESTA Board of Directors, the Technical Standards Committee, and the leadership of this Working Group 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 working group may be found individually liable for any action that restrains trade taken by this working group. 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."

5   Approval of agenda

Steve Carlson asked to add a discussion of carrying DMX on cat 5 wire under "7 New business." Carlson also asked that item 6.1, the E1.3 comment resolution, be dealt with after lunch, and that 6.2.3, the More Power to DMX report be dealt with just before lunch.

Peter Willis asked that "Labeling of DMX cable" be added under "7 New business."

John Huntington asked to address the group about the AES 24 project under "7 New business."

Tim Bachman moved we accept the agenda. Mitch Hefter seconded. The amended agenda was accepted unanimously by show of hands.

6   Old Business

6.1 E1.3 comment resolution (Fleenor et alia)

Steve Carlson recommended that the task group of Paul Mardon, Doug Fleenor, Bob Goddard, and Dave Higgins meet during the afternoon to develop suggested responses to the comments received during the public review of E1.3.

Later, after the task group had met, Doug Fleenor reported to the working group that the task group had resolved 24 out of the 36 comments. One of the big unresolved issues was whether the control electronics in the dimmer should be grounded or isolated. The practice of some the UK manufacturers is to ground the electronics, while US manufacturers generally do not. The majority preferred not grounding the electronics, but the minority held strong opinions on the matter.

It was resolved that Doug Fleenor would mail the suggested resolutions to the comments to the TSM by February 14 for distribution to the working group.

6.2   DMX matters:

6.2.1   Report of DMX start code project (Goddard)

Bob Goddard reported that he has developed a document that is being processed by USITT.

6.2.2   DIN and DMX (Hefter)

Mitch Hefter read a brief report. The amended report is document CP/98-1003, and is appended to these minutes.

Eckart Steffens reported that representatives from VPLT will join the DIN working group FNTh2a. He gave a summary of a statement (CP/98-1004) from the German working group that gives the group's position on additions and improvements to the DMX512 standard, the recommended practice for 10MBit Ethernet cabling, the forthcoming recommended practice for 100Mbit Ethernet cabling, ACN, and ISO standards.

The following is a translation of the German statement rendered by Karl G. Ruling, the recording secretary:

> **Start Code Amendment**
> A start code amendment to the DMX512 standard would be welcomed.
> A start code amendment would not be a component of the existing DIN standard.
> We recommend it be a separate document in the form of a "Recommended Practice."
>
> **Changes to the standard regarding power and sockets**
> - No changes to the existing standard, so further harmonization is not endangered.
> - No introduction of alternate or additional sockets, so the clarity of the requirements of the standard is not endangered.
> - Documentation of alternative implementations corresponding to the proposals of Adam Bennette could be carried out as a "Recommended Practice."
> - A proposal for protection circuits to deal with safety and EMC would be welcome as an amendment to the standard.
>
> **Recommended Practice for 10 Mbit/sec Ethernet Cabling**
> We intend to work closely with ESTA to adopt ESTA's "Recommended Practice for Ethernet Cabling" in the form of a normative document.
>
> **Recommended Practice for 100 Mbit/sec Ethernet Cabling**
> We await the draft document, so this also can be adopted as a normative document.
>
> **ACN/ACP**
> We intend to work actively with the ACN Task Group, and will send a representative to particular meetings to represent the views of our industry group. The completed ACN will be adopted in a DIN standard.
>
> **ISO Standard**
> We welcome working for an ISO-standard.
>
> January 1998
> FNTh2a Working Group

Eckart Steffens explained why VPLT had not been involved with DIN initially, but is now involved. Eckart says DIN will not violate ESTA's copyright.

Ralph Weber pointed out that internationalization of the standards is expensive and involves paying a lot to ANSI. Steve Terry explained our reluctance to go for internationalization of our standards because the process is even more involved than the process we are already using.

Tony Douglas-Beveridge remarked that our resistance to internationalization may stand in the way of our efforts to develop standards that will be widely used.

George Sabbi asked the Chair if there is an action item in this discussion. Steve Terry said there was not.

6.2.3   More Power to DMX (Mardon)

Steve Carlson and Steve Terry asked that Karl Ruling chair this section of the meeting (6.2.3 only).

Paul Mardon presented the report of the task group proposals (CP/98-1006). Mardon also presented the proposed Neutrik connector (CP/98-1007) which is relevant to proposal number 8.

Steve Terry moved that we accept in principle proposal number 1 in that we develop a recommended practice for protection of the data lines. This project would be assigned to a task group. Mitch Hefter seconded. The motion carried unanimously by show of hands.

Later in the meeting Steve Carlson appointed the following people to be the DMX Protection Task Group:
    Paul Mardon
    Peter Willis -- chair
    Bob Goddard
    Doug Fleenor
    Steve Carlson
The group was directed to have a report by the March meeting.

Steve Terry moved we reject the specific text of proposal number 2, but that the development and presentation of any examples of protection circuits shall be deferred to the DMX Protection Task Group established by the previous motion. Seconded by Bob Goddard. In discussion Terry argued that a proper engineering study may need to be done to determine possible protection circuits that do not violate the requirements of EIA-485. The motion carried unanimously by show of hands.

Steve Terry moved that we reject the specific text of proposal number 3, and defer to the DMX Protection Task Group any specifics of electrical protection of pins 4 and 5. Jerry Gorrell seconded. The motion carried unanimously by show of hands.

Steve Terry moved we reject proposal number 4 in its entirety. Steve Carlson seconded. Peter Willis pointed out that there was precedent other than Clay Paky/Pulsar's for using pins 4 & 5 for other than data. Specifically, Strand uses pin 4 for return and pin 5 for + power on scrolling color changers. The motion carried unanimously by show of hands.

Steve Terry moved we reject proposal number 5 in its entirety. Steve Carlson seconded. Eckart Steffens presented the results of an internet survey (CP/98-1009) done by the VPLT AK Lighting Working Group, which indicates the number of respondents saying they use three-pin connectors. Ninety-one percent of the respondents reported they prefer five-pin XLR connectors over three-pin, but 73% said that they had to use three-pin to five-pin adapters. It was noted in the discussion that because of the way the VPLT Internet survey was conducted, it may not be representative of the population of DMX users. Terry argued that the use of three-pin connectors by moving light manufacturers increases substantially the cost of using the equipment for the end-user by requiring the use of adapters and dual inventories of cables. The use of different connectors should not be encouraged, argued Terry. The motion carried unanimously by show of hands.

Mitch Hefter moved we reject proposal number 6 in its entirety. Jerry Gorrell seconded. The motion carried unanimously by show of hands.

Steve Terry moved that we accept proposal number 7 in principle. The DMX Protection Task Group shall draft a recommendation to USITT regarding the labeling of DMX ports. The labeling shall

indicate the level of protection on the data lines, the uses of pins 4 and 5, and the connections of pins 4 and 5 (i.e., whether they are connected to active devices, have passive pass-through connections, or are not connected to anything at all). Steve Carlson seconded. Unanimous by show of hands.

Steve Carlson moved that we accept proposal number 8 in principle, that we undertake a survey to see if manufacturers and <u>end users</u> [added group to poll] would like to use the DMX cable for other purposes as well as RS-485 data. Geoff Thompson seconded. The motion failed on a show of hands, with only one vote in support.

Mitch Hefter moved we reject the notion of investigating the use of a special 6-pin connector. Geoff Shiell seconded. Hefter argued that another connector is not likely to be adopted by the industry. Unanimous by show of hands.

6.2.4   DMX PICS Project (Douglas-Beveridge and Ruling)

Tony Douglas-Beveridge and Karl Ruling presented their DMX Performance Interface Compliance Statement (CP/98-1008). There was a discussion of what we might do with it. The consensus was that it would be a useful document for something, but that the first task was to make sure it was an adequate PICS.

The working group was directed by Steve Terry to send comments on the PICS to Karl Ruling by March 2.

6.3   Report of 100MBPS Task Group (Terry)

Milton Davis and Tim Bachman reported on the progress of the task group. Their document is now planned to be a supplement to the original Ethernet wiring recommended practice document. The draft document (CP/98-1005) was distributed to working group for comment. The WG chairs directed the members of the working group to respond by March 2 to Karl Ruling, who will forward the comments to the task group. The task group will then come back to March meeting with resolutions. Ruling was directed to circulate the comments to the working group too, so the working group can see to what the resolutions refer.

6.4   Report of ACN Task Group

Steve Carlson reported on the progress of the ACN Task group. The group is working on a reference design kit, a suite of hardware and software (Win 95-based) that will allow equipment developers to experiment with ACN. Greg Heinzle has reformatted the draft document, and Philip Nye has drafted the object model.

The task group is composed of:
   Achim Russ
   Amit Resh
   Dexter McNeil
   Greg Heinzle
   Philip Nye
   Philippe Jean
   Richard Lawrence
   Rick Leinen
   Steve Carlson

7   New business

7.1 Cat 5 wire for DMX

Steve Carlson explained that some installers of DMX equipment were being asked by clients to use Cat 5 UTP for DMX data lines. Steve Carlson, Steve Terry, and Geoff Thompson discussed the matter, and identified the major issues as EMC immunity and radiation. Terry proposed that we should do some testing of sending 250kbits DMX data over 10 MHz cable. Lary Cotten offered the High End test facilities for the EMC portion of this testing. Sierk Janszen said Flashlight has done testing of running Ethernet on DMX cable and vice versa. Peter Willis pointed out that there are installations in the UK that use STP cable for DMX.

Tim Bachman moved we form a task group to study the matter, and that we approve the expenditure of up to $3,000 for laboratory testing. Gary Higgins seconded the motion. The chairs appointed the following people to be on this "DMX on Category 5 Task Group":
    Peter Willis
    Steve Terry
    Dave Higgins -- chair
    Doug Fleenor
    Milton Davis.
    Tim Bachman
The motion carried unanimously by show of hands.

7.2 AES-24

John Huntington apprised the CPWG of the work of the AES on AES2, the AES Standard For Sound System Control — Application Protocol For Controlling And Monitoring Audio Systems. Expressed some concern that we do not develop a redundant or incompatible protocol with ACN.

Steve Carlson points out that TCP/IP will run on anything. As long as AES doesn't create anything that is incompatible with TCP/IP, ACN and AES24 can run on the same physical network. Carlson also pointed out that we have informal links with the AES group and more formal links with the IESNA control protocol group. Carlson is on the IES committee.

There was no motion and no action items on this topic.

7.3 Labeling DMX cables

Peter Willis moved we draft a short (half-page) document describing a standardized way of labeling DMX cables to indicate whether the cable has three or five conductors wired through, and whether any of those conductors are heavy gauge to handle power. Dexter McNeil pointed out the lack of a standard for identifying lengths. There was no second.

The chairs asked for a show of hands for a straw poll measure of support. There were two votes (one from an observer) for the proposal.

The motion failed for lack of a second.

8   Other business

None.

9   Schedule for future meetings

March 19 in Long Beach. 9:00 to 6:00 p.m.

The summer meeting will be the second or third week in July in Irving, TX

10   Adjournment

Mitch Hefter moved, Bob Barbagallo seconded. The meeting was adjourned at 5:28 p.m.