

IEEE p1394.b Connector Task Group
“Copperheads”
April 30, 1998 Newport Beach, CA

Max Bassler - Chairman, mbassler@molex.com
Bill Northey -Secretary, northewa@bergelect.com

Agenda:

- Review and approval of last meeting's (March) minutes
 - Review and vote on Bulk Cable Methodology
 - Review of past presentations
 - New Items
 - Presentations
 - Develop Ongoing Action Items
-

Summary of March Minutes:

- On-going proposal for bulk cable testing methodology
 - Posted for review and vote at April meeting
- Cable detect pin in 6 ckt I/O added to scope
 - Call for proposals
- On-going proposal to change shape/geometry of existing contacts in the socket
 - Follow-up presentation required
- Chuck Brill to propose an EMI/RFI test for review
 - Proposed for June Meeting

>> A hard copy of the detailed minutes was handed out. It was moved by Max and seconded by Don Chambers to approve the minutes. Approval was unanimous.

Review and vote on Bulk Cable Methodology:

A copy of the proposal written by Al Kelly and Bob Gannon was distributed and briefly reviewed.

Comment by Don Chambers: In the interest of standardization, one dimension system should be chosen; mixed dimensioning is in the document. Metric recommended.

Of seven eligible voters present all voted and agreed that the proposals presented should form the basis for cable material testing, with suitable editing for dimensioning and normative wording.

Review of past presentations:

Past presentations included:

- Bob Gannon and Al Kelly in previous meetings had described their efforts to develop a test methodology for 1394 bulk cable. The resulting procedures were voted upon today See “**Review and vote on Bulk Cable Methodology**” above .

-Mike Fogg had given a presentation about EMI performance exploring various shield termination methods, and how they stack up to FCC class B requirements. He is scheduled to follow up at this meeting, but it was reported by Chuck Brill that he will defer until the June meeting.

- Bill Northey had given a presentation on revised connector geometry and testing to improve connector speeds. A follow up presentation will be given today.

New Items - Presentations:

Bill Northey presented Electrical data for a modified, but still plug-compatible connector geometry with cable assembly.

Data through the connector is now in the 110 ohm range. Reflects changes made to the contact geometry.

Charts presented were:

- Characteristic Impedance TDR positions 3,4 and 5,6
- Step response output pulse
- Near End Crosstalk
- Far End Cross talk
- Eye Pattern results at 800 MHZ and 1.6GHZ

Some feedback and comments from those present follows:

S800 needs to be driven at 1 Gig/sec instead of 800 MHZ. Pulse should be 1 nanosec.

Cable used for testing, as reported by Bill, was standard of the shelf cable for 1394 plugged into a slightly modified connector.

PRBS was the bit stream but a question arose as to what the PRBS bit pattern used for this test. A run length of e-10 or e-12 for the PRBS was recommended.

If this configuration is to be considered full mechanical (qualification) testing must be presented.

Goal is to use the low cost cable or standard cable for assemblies up to 4.5 meters.?????

It appears the current cable may be able to meet the requirements of the 1394.b requirements, up to 1.6GGb/s. Preliminary data indicates this looks likely.

Cable ends are exactly the same. Increase in bandwidth was a result of just slight modification to the receptacle only.

What pattern generator was used for the test? (TBD)

Need to define a test pattern that gives the worst case ISI condition.

How do we define worse case ISI?

Proposed test pattern by Amp apparently was never followed up on. Will be discussed later.

Test pattern for EMI probably is not best to use for Eye pattern testing.

New mechanical and durability testing will have to be shown for this contact style.

Bill Northey to provide electronic copy for posting.

Kyozo Saito of Alps gave a presentation on a cable detect system proposal. Generally, key slots are added to the mating face of the cable plugs. Pins in the bulkhead receptacle are used to actuate a switch system at the rear of the bulkhead connector. Potentially 4 rods could protrude through the bulkhead connector and actuate off of the keys on the cable end connector. There was some discussion about how many keys would actually be needed, what they indicate, and active electronics and equalization as an option to be indicated. Some concerns were expressed by the attendees that if the push rods stick or if the cable end keys are plugged, false signals could register to the PHY. Mr. Saito showed how the system might indicate 1394-19995 mode if the keys were filled by debris. It was disclosed that intellectual property was shown and that ALPS would license at a reasonable fee. A letter to that effect was requested by the chairman. The proposal will be posted at the 1394b website.

New Items - Develop Ongoing Action Items:

EMI/RFI Baseline test method

Cable detect pin in copper connector - Review Alps concept; More consideration required

Bulk cable specification methodology - **CLOSED**

Matrix of Physical interfaces - Max

Contact design modifications - Ongoing

Max moved to close the meeting, Seconded and approved.