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From: John A. Gibson

Subject: Proposed Working Group Meeting - Possible Agenda Topics  
Relative to Cable Testing and Cable Performance Requirements

Reference: X3T9.2 Meeting Minutes August 21-22, 1989, Section 9.1

Berk-Tek, Inc., will be participating in the proposed special working group, as referenced in the meeting minutes. I had informed Mr. Bellino of my intentions to attend, immediately after the committee agreed to form a special working group.

There are several cable related issues that need to be discussed. The current revision of the SCSI-2 draft proposal, does not adequately address the required cable performance characteristics or a common method of testing, in particular, the characteristic impedance. Below is a list of topics which should be covered, especially since there will be representatives of the connector vendors and user OEMs present, in addition to the cable vendor representatives.

Proposed Topics for Discussion:

1) Characteristic Impedance Requirements

- Differential vs Single End Mode
- Fixed relationship of DM vs SEM impedance for any given cable type. ( The SCSI-2 draft implies that there is a variable relationship)
- Uniform Test methods
  - \* Time Domain Reflectometer vs Network Analyzer
  - \* Interpretation of results on either a TDR or a Network Analyzer
  - \* Standardized connection of cable under test to test fixture

2) Cable Design Parameters

The current SCSI-2 draft defines the minimum AWG, and the recommended minimum impedance. Current connector offerings limit the physical size of the individually insulated conductors, as well as the overall cable diameters. Regardless of connector vendor offerings, it is always desirable to minimize the size of a given cable, providing the electrical and physical requirements can still be attained. The following options should be considered:

- Composite constructions employing 30 AWG conductors for all signal conductors other than TERMPWR pair, which could be a 24 AWG - 28 AWG conductor.
- Cellular dielectrics which provide the minimum insulation diameter for a given AWG and impedance requirement. Concerns about moldability are being addressed by various connector assembly vendors. Also, these dielectric systems can be provided with the same process consistency and cost as the solid dielectrics. The cable test results published by Kurt Chan of HP, indicate that system performance may be improved with a higher velocity of propagation ( faster rise-times ).

### 3) Connector Limitations

It is important that the connector vendors define the true limitations of their current products, as well as establishing what their future product offering and time frame will be. As mentioned above, smaller is better, however the current connector offering does not allow the use of cables that can provide the impedance levels requested by the various computer OEMs.

Thank you for your consideration of these issues. I look forward to working with the other committee members on these issues. Such industry cooperation should expedite the implementation of this specification.