

## Proposed TIA Liaison Response

The 802.3 Working Group is pleased to announce that the Project Approval Request (PAR), 5 Criteria and Objectives of the 10GBASE-T Study Group have been approved, and the Study Group is on the path to becoming the 802.3al Task Force.

802.3 greatly appreciates the thorough response to our request to investigate 10 Gbit/s operation over 100 ohm horizontal cabling and is grateful for the initiation of the projects outlined in the TR42 liaison response (dated October 10, 2003). The commitment and timely response has contributed to 802.3's approval of the 10GBASE-T PAR.

Based on investigation to date, we have adopted the following cabling objectives as the basis for the Project Authorization Approval (PAR):

- Support operation over 4-connector structured 4-pair, twisted-pair copper cabling for all supported distances and classes
- Define a single 10 Gbit/s PHY that would supports links of:
  - at least 100m on four-pair Class F balanced copper cabling
  - at least 55m to 100m on four-pair Class E balanced copper cabling
- Support star-wired local area networks using point-to-point links and structured cabling topologies
- Select copper media from ISO/IEC 11801:2002, with any appropriate augmentation to be developed through work of 802.3 in conjunction with ISO/IEC SC25 WG3

For a detailed overview of the 10GBASE-T project to date please refer to the tutorial ([http://www.ieee802.org/3/10GBT/public/nov03/10GBASE-T\\_tutorial.pdf](http://www.ieee802.org/3/10GBT/public/nov03/10GBASE-T_tutorial.pdf)).

10GBASE-T technical feasibility has been demonstrated based on the following assumptions of the cabling channel. The basic approach has been to extrapolate the cabling performance limits to an upper frequency of 625 MHz and to utilize alien crosstalk measurements contributed to the 10GBASE-T Study Group cabling ad hoc (<http://www.ieee082.org/3/10GBT/public/material/index.html>).

We request that you review our project objectives and cabling models towards the development of the 10GBASE-T cabling requirements.

Alien crosstalk to insertion loss ratio is a critical relationship to the achievable capacity. For operation over 100m, 4-connector channels we are currently requesting an improvement in insertion loss and a significant improvement in alien crosstalk specifications. DSP techniques have been presented which may relax the alien crosstalk performance requirements, and we will provide additional guidance as it becomes available.

Based on presentations received by the Study Group it is anticipated that some level of alien crosstalk mitigation is achievable for installed cabling with the utilization of patch cords. We would be grateful for guidance on patch cord mitigation techniques.

10GBASE-T cabling will require channel field testing up to 625 MHz. It would also be desirable to include power-sum alien crosstalk as a field test parameter. We would be grateful for your view on the feasibility of field testing equipment that meets these requirements and also the practicality of alien crosstalk (both near and far end) field testing. We look forward to continued cooperation between our respective organizations.

Sincerely,