IEEE 802.3 Ethernet Working Group
DRAFT Liaison Communication

Source: IEEE 802.3 Working Group[1]

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From: David Law — Chair, IEEE 802.3 Ethernet Working Group
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Subject: IEEE 802.3 Remarks on Extended Reach BASE-T and PoE and comments on draft TIA TSB-5073

Approval: [To be] Agreed to at IEEE 802.3 [plenary] meeting, Bangkok, Thailand, [date]

Dear Colleagues,

The IEEE 802.3 Ethernet Working Group would like to thank TIA TR42 for its open communications on new projects received through our liaison officer, Bob Voss, and for the liaised draft of proposed TIA TSB-5073. The draft has generated discussions on issues related to extended reach operation, beyond the currently specified link segment parameters for BASE-T PHYs specified in IEEE Std 802.3-2022. Ad hoc meetings were held to consider a response as well as comments on the draft. You will find specific comments attached to this liaison letter, and we appreciate the opportunity to comment on the draft. We hope you will find the comments helpful.

[1] This document solely represents the views of the IEEE 802.3 Working Group and does not necessarily represent a position of the IEEE, the IEEE Standards Association, or IEEE 802.

We would like to consider a few general remarks on the approach to such specifications, and we believe other organizations may also be interested in the subject, so we have shared these guiding thoughts in this letter.

While it is commonly thought that IEEE Std 802.3 specifies only support to 100m, there is no normative requirement in IEEE Std 802.3 specifically limiting the length of the link segment to 100 meters. IEEE Std 802.3 has never precluded the specific engineering of link segments to achieve greater than 100 meters of length.

Currently there is no IEEE 802.3 project for extended reach BASE-T PHYs, nor is there any activity initiating such a project. The association of a simple 100-meter length with Ethernet performance has been a success factor for Ethernet adoption. The IEEE 802.3 Working Group is concerned with weakening that association, whether or not it is normative in the IEEE Std 802.3 text.

The text of 802.3 clauses specifying 10BASE-T (and 10BASE-Te), 100BASE-TX, 1000BASE-T, and 2.5G, 5G, and 10GBASE-T PHYs specifies link segment electrical parameters and indicates that 100m of cabling, according to specifications of TIA 568.2 and ISO/IEC 11801-1, will meet those specifications.

It would seem appropriate for a TIA TSB (or similar ISO TR) to advise reaches and guidelines for how length may relate to meeting IEEE 802.3 link segment parameters, and how cabling channels might be constructed to meet the IEEE 802.3 link segment requirements at other than 100m of length.

While devices built to IEEE Std 802.3 generally perform beyond these link segment parameters, this extra margin in the devices has been a major aspect of the success of Ethernet as a plug-and-play network. We are concerned if this margin is eroded in cabling standards or TSBs.

Again, we appreciate the open communication with you, including opportunity to review the draft and to offer comments on this area which spans both of our areas of specification. We look forward to continued cooperation.

Sincerely,

David Law

Chair, IEEE 802.3 Ethernet Working Group

Att: Draft Comments_802d3_TSB5073.doc

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