IEEE 802.3 Ethernet Working Group
Liaison Communication

Source:	IEEE 802.3 Working Group[1]	
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From:	David Law	Chair, IEEE 802.3 Ethernet Working Group dlaw@hpe.com
Subject:	Liaison letter to TIA TR-42.13 informing of the need for minimum return loss performance for array plugs and corresponding active device receptacles for single-mode applications	
Approval:	Agreed to at IEEE 802.3 Interim meeting, Whistler, BC, Canada, 26th May 2016	

Dear Mr. Emplit and Mr. Sandels,

As lane rates are increasing from approximately 25 Gb/s to 50 Gb/s and 100 Gb/s, the IEEE P802.3bs Task Force adopted the use of 4-level pulse amplitude modulation (PAM4)

[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.

instead of non-return to zero (NRZ) modulation. The IEEE P802.3cd Task Force is also expected to employ PAM4 modulation. While PAM4 delivers twice the number of bits per symbol as NRZ, it also increases sensitivity to multipath interference (MPI) effects. Ensuring a minimum return loss of connection interfaces reduces MPI and its attendant power penalty.

We request TR-42 standardize array plugs and any associated device receptacles that can deliver minimum return loss of at least 45 dB at end of life in cable plant deployments. For example, the use of angled polish connectors (APC) has proven to be a robust way of delivering this return loss performance.

Thank you for your consideration.

Sincerely,

David Law

Chair, IEEE 802.3 Ethernet Working Group