

Proposal for 10km over Duplex SMF Objectives

IEEE P802.3dj

Optics Ad Hoc

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Chris Cole, Quintessent

Feb. 13, 2023, 802.3dj Reflector Email

- During last week's meeting, there were a number of excellent presentations which gave us a clearer picture of the 10km over duplex SMF objective.
- Williams showed that the [IMDD LR4 solution can result in the lowest cost if it leverages high volume DR4 and FR4.](#) (Spoiler alert: DR4 and FR4 PHYs [*ed. SerDes*] will support LR4.) He further showed that the [Coherent LR1 solution can have an unallocated link budget which can be used to support greater reach.](#) We know that LR1 can easily have an even greater unallocated link budget which can be used for high-loss short-reach intra-datacenter applications like optical switching. This suggests that in the Task Force there are multiple important constituencies which will not be well served by one solution.
- Other presentations showed that there is important technical work that needs to be done and decisions that need to be made. An IMDD example is the FWM penalty. A Coherent example is O-band vs. C-band. The IMDD and Coherent technical issues and decisions are distinct, and their investigations are decoupled.

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- After discussing this and process issues with our distinguished Chair, John D'Ambrosia, we would like to propose to the Task Force that we replace the following objective:
Define a physical layer specification that supports 800 Gb/s operation:
 - over a single SMF in each direction with lengths up to at least 10 km,
with the following:
Define a physical layer specification that supports 800 Gb/s operation:
 - over 1 wavelength over a single SMF in each direction with lengths up to at least 10 km,
 - over 4 wavelengths over a single SMF in each direction with lengths up to at least 10 km.
- These two objectives are distinctly different, and examples can be found in prior projects, as well in 802.3dj itself, which has objectives targeting 800 GbE 2km operation over either 4 parallel fibers or 4 wavelengths.

Supporters of Feb. 13, 2023, 802.3dj Reflector Email

- Jeff Maki, Juniper
- Rangchen Yu, Sifotonics
- Vipul Bhat, Coherent
- Mark Kimber, Semtech
- Andy Moorwood, Keysight
- Liming Wang, Google
- Tom Williams, Cisco
- Weiqiang Cheng, China Mobile
- Ernest Muhigana, Lumentum
- Jianwei Mu, Hisense
- Eric Maniloff, Ciena
- Cedric Lam, Google

The support on this page should be assumed only for the proposal on page 3. Many of the listed supporters described a variety of reasons for supporting the proposal. Others that did not state their own reasons, may also had a variety of reasons for their support.

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Thank you