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

Subject: Liaison Reply to Liaison "800G Coherent Project Status", dated 15 February 2022

Approval: Agreed to at IEEE 802.3 plenary teleconference meeting, 17 March 2022

Dear Mr Otto and members of the OIF,

We would like to thank the OIF for its ongoing communications regarding the status of the 800G Coherent Project.

The IEEE P802.3df Task Force was formed on 11 January 2022 and has begun to meet regularly as it undertakes the process of baseline selection. Material presented in the Task Force may be found at https://www.ieee802.org/3/df/public/index.html.

Given these baseline discussions, the IEEE P802.3df Task Force has reviewed all liaisons previously received regarding the 800G Coherent Project and would like to address multiple issues at this time.

A. 800GbE chip-to-module (C2M) specifications

OIF2021.144.06, shared with IEEE 802.3 on 10 September 2021 indicates in Table 1 support for the following C2M interfaces: 100GAUI-1, 200GAUI-2, 400GAUI-4, and 800G-ETC.

[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.

The IEEE P802.3df project has two relevant objectives:

- Support optional eight-lane 800 Gb/s attachment unit interfaces for chip-to-module and chip-to-chip applications (C2C)
- Support optional four-lane 800 Gb/s attachment unit interfaces for chip-to-module and chip-to-chip applications

At the 15 March 2022 meeting, the IEEE P802.3df Task Force adopted the baseline defined in https://www.ieee802.org/3/df/public/22_03/lusted_3df_01a_220315.pdf that addresses the optional eight-lane 800Gb/s attachment unit C2M and C2C interfaces. Please note that this baseline effectively leverages the work currently underway within the IEEE P802.3ck project.

B. Error Vector Magnitude (EVM)

As expressed in liaisons from IEEE 802.3 related to the IEEE P802.3cw Project, EVM has been adopted as a transmitter quality metric (TQM) for our 400GBASE-ZR PHY. A limited amount of data has been submitted over the past two years, which has slowed its development. Recent communications from ITU-T to IEEE 802.3 also indicated difficulty in getting data, as well as a lack of confidence in when such data would be available in the future. The OIF also appears to be experiencing some difficulty in developing EVM specifications. The recent liaison from OIF on 400ZR (OIF-400ZR-01.1) still indicates in 19 Appendix B that EVM specifications are part of a future maintenance update.

Within IEEE 802.3 it is believed that a lumped TQM (e.g., EVM) is the preferred approach to support scaling to high volume deployments, such as would be anticipated by a future 800GbE solution targeting 10km. Development of such an approach is thought to be key to the standardization of coherent signaling.

As there is no EVM specification to build upon for 800LR, does this mean then that the OIF will specify the transmitter for 800LR in the same fashion as 400ZR, since both use DP-16QAM modulation?

We would appreciate any feedback that the OIF has to the issues raised in this liaison and look forward to the future collaboration between our two groups.

Sincerely,
David Law
Chair, IEEE 802.3 Ethernet Working Group