IEEE 802.3 Ethernet Working Group
<mark>DRAFT</mark> Liaison Communication

Source: IEEE 802.3 Working Group[1]

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Subject: Liaison to OIF from IEEE 802.3 on 400ZR Interop Project

Approval: Agreed to at IEEE 802.3 Sept 2017 Interim Meeting, Charlotte, NC, USA

Dear Mr. Otto and members of the OIF,

We would like to inform the OIF that the IEEE 802.3 "Beyond 10 km Optical PHYs" Study Group held its formative meeting at our September 2017 Interim Meeting, in Charlotte, NC, USA.

At this meeting the group adopted the following objectives –

- <mark>Text for any objectives adopted by the Study Group at the Sept Interim to be added by WG Chair prior to sending.</mark>

Further details of the meeting may be found at http://www.ieee802.org/3/B10K/public/17_09/index.html. Please note that this effort is still in the early stages and is not an approved standards project at this time.

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[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, also, like to thank the OIF for its update on the 400ZR Interop Project. We have some comments, based on the following statement from your communication –

> "…confirmed system-side interface support for 802.3bs, including PMD 400G AUI, running over compliant 8-lane 56G PAM-4 electrical interface, with KP4 FEC Encoding/Decode per 802.3bj, CL91.5.3.3, aka Mode A."

This statement appears to indicate that the 400ZR Interop Project will support a 400GAUI Interface. It is unclear from this statement if the OIF is indicating support for the 400GAUI-8 C2C or 400GAUI-8 C2M interface. It is believed that the C2M variant was intended.

Please note that the 400GAUI is an electrical interface, not a PMD, as noted. Additionally, for the 400GAUI-8 interfaces, the FEC encoding / decoding is part of the 400GBASE-R PCS, which is fully defined in Clause 119.

The functionality in the PCS is important to note, in order to properly appreciate the OIF's selection of a concatenated Staircase Hard Decision (SC-HD) + Soft Decision (SD) Hamming Code FEC for the 400ZR single carrier coherent channel implementation. It is unclear what the OIF will do between the 400GAUI-8 interface and the selected FEC encapsulation.

For this type of application, the IEEE P802.3bs Task Force defined the optional 400GMII Extender, which is specified in Clause 118. Through the use of the 400GMII extender, the FEC specified by the 400GBASE-R PCS is terminated via the PHY 400GXS sublayer back to the 400GMII. The PHY 400GXS is identical in function to the 400GBASE-R PCS in Clause 119 with the addition of the functions defined in Clause 118.2. Please refer to Figure 119-2 for a functional diagram of the 400GBASE-R PCS. From this new 400GMII instance, a new PCS, potentially including a new FEC, can then be applied. Conversely, one might just encapsulate the data stream with the new FEC scheme.

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It is appreciated that this is an area that may be under development by the OIF, and we would look forward to any future communications detailing the project, so that we can understand it in relation to 400 Gb/s Ethernet.

Sincerely,

David Law

Chair, IEEE 802.3 Ethernet Working Group