August 14, 2023

To: David Law and participants of the IEEE 802.3 Ethernet Working Group
cc: John D'Ambrosia – IEEE P802.3cw Task Force Chair

Subject: Response to request for data related to EVM and OIF 400ZR IA maintenance update.

From: Klaus-Holger Otto, OIF Technical Committee Chair ([redacted])

Dear Mr. Law and participants of IEEE 802.3 Working Group,

The OIF Q3'23 Technical and MA&E Committees hybrid meetings were held from August 7th through August 10th in Vancouver BC, Canada. In the Q2'23 meetings the results of the OFC 2023 400ZR Plugfest were reviewed. It was noted that the data is somewhat inconsistent with previous data contributed by OIF members and prior plugfest data gathered during ECOC 2022. We are still in the process of reconciling these anomalies to better understand how EVM, as a TX quality metric, best fits in the IA.

In the Q3'23 meeting we received recomputed results of the data captured during these prior events. Although this data is closer aligned to the 400ZR IA test methodology there still appears to be gaps in the results that aren't fully explained. As a result, it seems pre-mature to draw any conclusions or share the results until we can be sure of the integrity of the data.

We are planning an additional plugfest during ECOC 2023 preparation activities. This event is targeted for OpenZR+ modules, however, we expect direct correlation with 400ZR. The test criteria and analysis methodology for this event is being locked down. With this new information we should feel more comfortable sharing the results and any conclusions that can be drawn from the data.

At present we still consider strict adherence to the 400ZR IA specifications the best and most reliable approach to ensuring interoperability. EVM, or more specifically EVM_{MAX}, as defined by the OIF 400ZR-02.0 IA should not be relied upon as a single metric to guarantee interoperability.

For 800G we are also leaning towards EVM_{RMS} instead of EVM_{MAX} as a TX quality metric. This is due to the nature of the modulation schemes planned for 400G and beyond. The definitions for both EVM_{RMS} and EVM_{MAX} can be found in the OIF 400ZR-02.0 IA. Our IA methodology will remain the same. Full parameterized TX, RX, and channel specifications.

Regarding the math represented in OIF400ZR-02.0 clause 20.4 compared to OIF400ZR-01.0 clause 20.4, it was determined that an equation in OIF400ZR-01.0 was in error. This in conjunction with our decision to normalize EVM for EVM_{MAX} resulted in adjustments to the subsequent equations in the same clause.

We will share additional information on EVM once we have taken and reviewed it. Thank you for your continued interest and support of our efforts to gather this information.

Sincerely,
Klaus-Holger Otto
OIF Technical Committee Chair
[redacted]