



October 28, 2014

To: John D'Ambrosia and members of the IEEE P802.3bs 400 Gb/s Ethernet Task Force

Tom Palkert and members of the INCITS T11.2 (Fibre Channel) Committee  
Alan Benner and members of the IBTA Electromechanical Working Group  
CC: David Law (IEEE 802.3 WG Chair), Pete Anslow (IEEE 802.3 WG Secretary)  
and members of IEEE 802.3

Subject: Progress on OIF CEI-56G projects

From: Nathan Tracy, OIF Technical Committee Chair (ntracy@te.com)

Dear Messrs D'Ambrosia, Palkert, and Benner,

We are pleased to inform you that at our 4Q2014 meeting in Osaka, we considered comments and contributions, making updates to the baseline texts for the following CEI-56G projects:

- A clause for CEI-56G-USR: A low power, Ultra Short Reach ( $\leq 1\text{cm}$ ) electrical, chip-to-optical engine interface operating @ 39-56 Gb/s signalling for MCM use cases (within a single package). This project will facilitate optical engine integration within ASIC packaging. The updated text is available in oif2014.267.02 (attached), and is based on NRZ signalling.
- Two clauses for CEI-56G-XSR: A low power, Extra Short Reach ( $\leq 50\text{mm}$ ) electrical, chip-to-discrete optical engine interface supporting data rates from 39-56 Gb/s for PCB use cases. This project will facilitate an efficient interface to a board mounted optical engine. The two updated draft baseline clauses define NRZ modulation (oif2014.268.02, attached), and PAM4 modulation (oif2014.286.04, attached) as the most appropriate modulation may depend on the channel and the application
- Two clauses for CEI-56G-VSR: The IA will define electrical I/O lane(s) that support data rates from 39 to 56 Gb/s for chip-to-module interfaces. Reach 0 to  $\sim 100\text{mm}$  (exact max reach TBD). The two updated draft baseline clauses define NRZ modulation (oif2014.277.02, attached) and

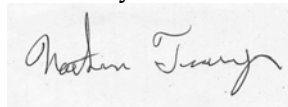
- PAM4 modulation (oif2014.230.01, attached) as the most appropriate modulation may depend on the channel and the application.
- A clause for CEI-56G-MR: The IA will define electrical I/O lane(s) that support data rates from 39 to 56 Gb/s for reach of ~500mm for a chip-to-chip application with max loss in the range of 15 to 25dB (possibly higher) at 14GHz, which is in the range of 20 to 50dB at 28GHz (dependent on material). The updated text is available in oif2014.245.01 (attached) and is based on PAM4 modulation.

Note that these drafts reflect efforts that are at an early stage, with more work remaining to be done. These drafts will be issued for straw ballots shortly, with comment resolution planned during the 1Q2015 meeting which will be held the week of January 19, 2015 in Palm Springs, CA, USA. As you review the baseline drafts, please consider that the solutions have begun the process of iterative review, but as is always the case with a baseline draft, there are known issues that will be addressed. One way that the IEEE, INCITS T11.2, and IBTA can enhance this process is with any contributions addressing channel requirements.

In addition, we heard several contributions related to CEI-56G-LR for backplane applications based on different modulation approaches. We are anticipating selecting a baseline proposal for this project in our 2Q2015 meeting to be held the week of April 20, 2015 in Lisbon, Portugal.

We request that you acknowledge the OIF in any derivative work.

Sincerely,



Nathan Tracy,  
OIF Technical Committee Chair ([ntracy@te.com](mailto:ntracy@te.com))

Attach:

oif2014.267.02	oif2014.277.02
oif2014.268.02	oif2014.230.01
oif2014.286.04	oif2014.245.01