November 6, 2017

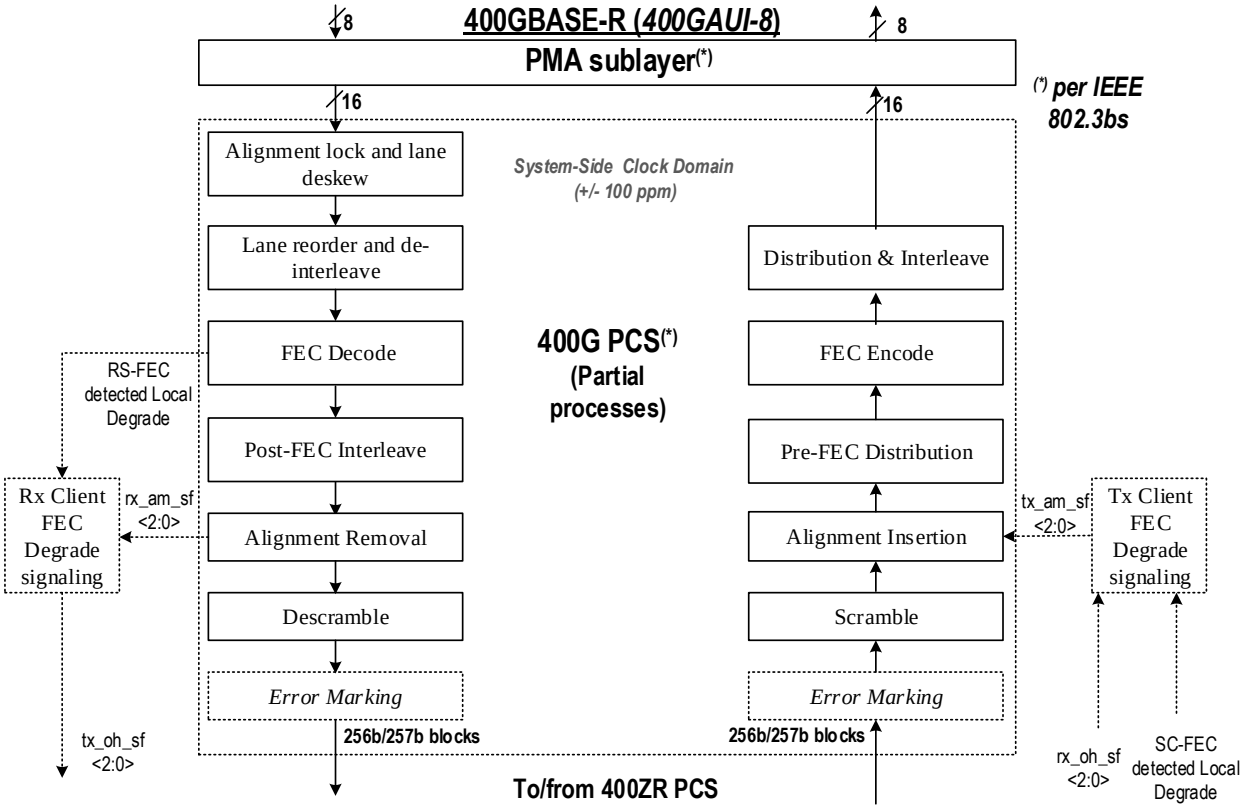
To: David Law and members of the IEEE 802.3 Working Group
cc: Peter Anslow, 802.3 WG Secretary
John D'Ambrosia – Beyond 10km Optical PHYs Study Group Chair

Subject: 400ZR Interop Project

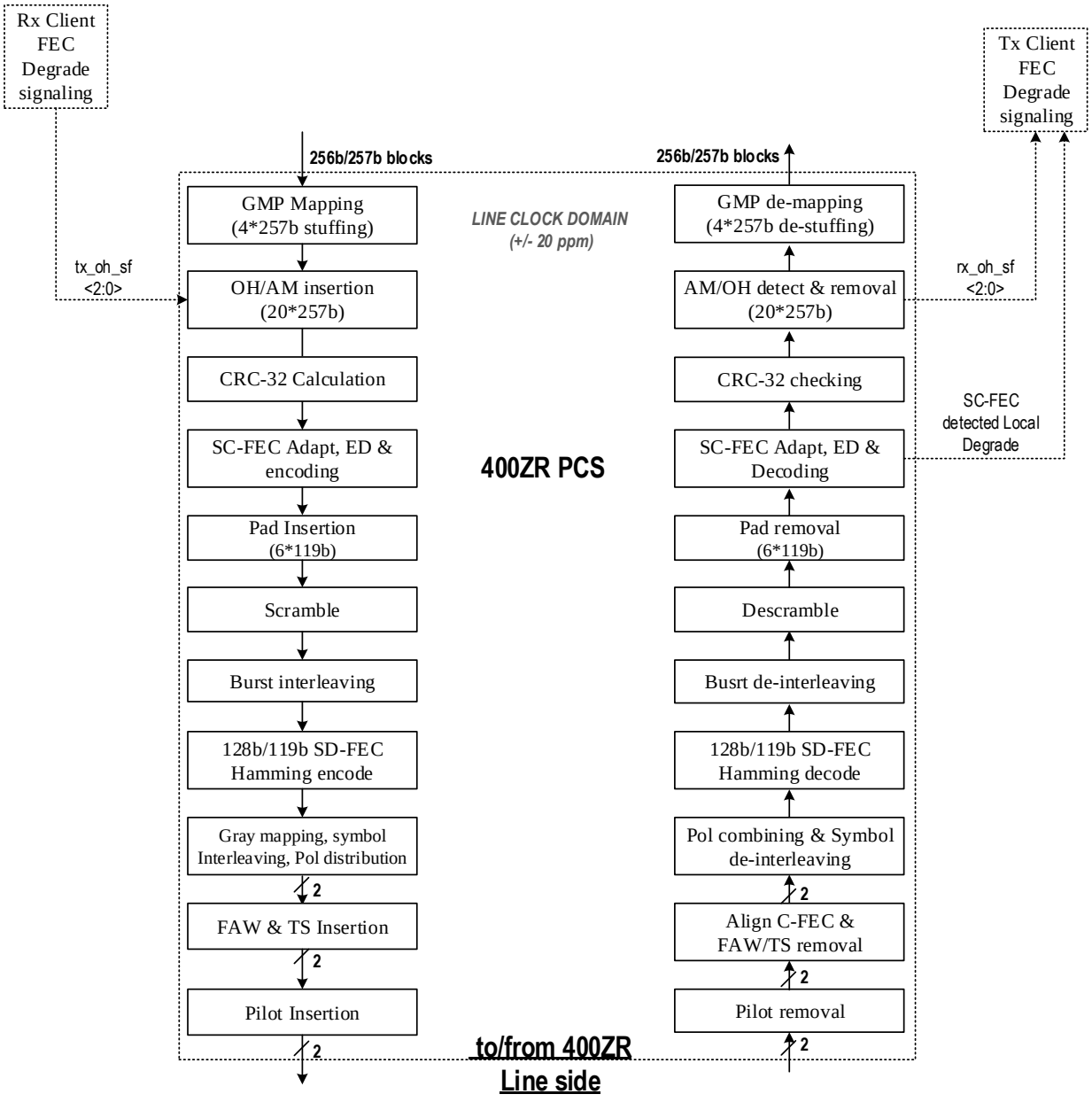
From: Klaus-Holger Otto, OIF Technical Committee Chair (klaus-holger.otto@nokia.com)

Dear Mr. Law and members of IEEE 802.3,

At our meeting in Shanghai, China, held from Oct. 30th -Nov. 2nd, 2017 the Physical and Link Layer (PLL) Working Group confirmed system-side interface support for 802.3bs. The 400ZR PMD will use an IEEE P802.3bs host interface consisting of DTE XS and PMA functionality including 400GAUI-8 C2M. The 400ZR pluggable module will implement the PHY XS and ZR PHY specific functions. A block diagram is provided below for additional detail.



The Physical and Link Layer (PLL) Working Group also agreed on the operation and rate expansion of functional blocks completing the datapath to the 400ZR single carrier coherent channel interface. The complete datapath is shown below.



Key decisions made during this meeting included:

- Asynchronous mapping and rate adaptation of the 256b/257b encoded 400GE PCS signal to 400ZR frame using simplified GMP. Supports both frequency and Data transparency. Line side frequency tolerance is specified at +/-20ppm.
- Line side framing and pilot symbol insertion.
    - A set of 181888 symbols (super-frame) aligned to 5 SC-FEC blocks, polarity interleaved to X-pol, Y-pol.
    - Pilot symbols inserted after every block of 31 data symbols
    - DSP sub-framing consisting of 3712 symbols.

The 400ZR line side interface is DP-16QAM operating at 59.84375 Gbaud.

This project will develop an implementation agreement (IA) targeted at (passive) single channel ZR and (amplified) short-reach DWDM /DCI pluggable modules with distances supported from 80-120 km.

We will continue to update the IEEE 802.3 Working Group on the progress on 400ZR IA. Our next meeting in San Antonio, TX, USA January 15th - 18th, 2018.

Sincerely,

Klaus-Holger Otto,
OIF Technical Committee Chair (klaus-holger.otto@nokia.com)