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Question(s):	3, 6, 9, 11, 12, 13/15
Source:	ITU-T SG15
Title:	Higher Speed Transmission Interface Evolution

LIAISON STATEMENT

To:	**IEEE 802.3 HSSG**
Approval:	**Agreed to at SG15 meeting (Geneva, 30 October-10 November 2006)**
For:	**Information**
Deadline:	

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ITU-T SG15 applauds the IEEE effort to investigate higher speed interfaces. It is a timely effort, given 40 Gbit/s transport interfaces are coming to commercial availability and serial interfaces with a higher bit rate are not yet defined or under investigation in the ITU-T.

ITU-T SG15 is interested in assisting in any way that the HSSG might find useful. In an effort to facilitate good communications between SG15 and the HSSG, Mr. Pete Anslow (Nortel Networks) has been appointed as the liaison representative from SG15 to the HSSG. Those interested in this activity who attend SG15 have been encouraged to participate in the HSSG directly as well.

As IEEE is aware, the ITU-T has developed technologies that may be applied for transport of high speed signals. Virtual Concatenation (VCAT) is a widely used ITU-T technology enabling bonding of lower rate lanes to carry higher rates signals. A table of payload rates that are integer multipliers of the Optical Channel Payload Unit (OPU) is included as Annex A to this liaison statement for your information, since higher rate signals that are multiples of wide area payload units provide maximum efficiency for transport. ITU-T SG15 has also defined a DWDM and CWDM frequency grid for standardized systems. There is a recent agreement to work on defining 10 Gbit/s lanes in CWDM. Annex B lists ITU-T Recommendations that may be relevant to your work.

There have been some informal discussions among SG15 participants concerning a common high speed rate between the ITU-T and the IEEE. A rate such as 120 Gbit/s might offer a good opportunity for alignment.

ANNEX A

A range of client signal rates which map into OPU2-Xv and OPU3-Xv virtually concatenated payloads is listed below.

Mapping Into OPUk-Xv

A non-specific client can be bit synchronously mapped into a virtually concatenated OPUk-Xv, where X={1, 2…, 256}.

Reference G.709 section 18.2.6

The payload rates for k=2, 3 and several values of X of interest are provided in the table below.

Signal Structure	**Nominal Payload Rate (±20 ppm)**
OPU2-8v (~80Gbit/s)	79,962,215.696 kbit/s
OPU2-10v (~100Gbit/s)	99,952,769.620 kbit/s
OPU2-12v (~120Gbit/s)	119,943,323.544 kbit/s
OPU3-2v (~80Gbit/s)	80,301,038.644 kbit/s
OPU3-3v (~120Gbit/s)	120,451,557.966 kbit/s
OPU3-4v (~160Gbit/s)	160,602,077.288 kbit/s

ANNEX B

ITU-T Recommendations that may be relevant to higher speed interface development.

G.872 Architecture of optical transport networks

G.709 Interfaces for the Optical Transport Network (OTN)

G.870 Terms and definitions for Optical Transport Networks (OTN)

G.7041/Y.1303 Generic framing procedure (GFP)

G.7042/Y.1305 Link capacity adjustment scheme (LCAS) for virtual concatenated signals

G.798 Characteristics of optical transport network hierarchy equipment functional blocks

G.8201 Error performance parameters and objectives for multi-operator international paths within the Optical Transport Network (OTN)

G.8251 The control of jitter and wander within the optical transport network (OTN)

Physical Layer Recommendations

G.652 Characteristics of a single-mode optical fibre and cable

G.653 Characteristics of a dispersion-shifted single-mode optical fibre and cable

G.655 Characteristics of a non-zero dispersion-shifted single-mode optical fibre and cable

G.695 Optical interfaces for coarse wavelength division multiplexing applications

G.694.1 Spectral grids for WDM applications: DWDM frequency grid

G.694.2 Spectral grids for WDM applications: CWDM wavelength grid

G.959.1 Optical transport network physical layer interfaces