

ITU-T SG15 liaison to IEEE 802.3 (HSSG)

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ITU-T Study Group 15



ITU-T SG15 Liaison

Title - Higher Speed Transmission Interface Evolution

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.

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ITU-T SG15 Liaison II

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.

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ITU-T SG15 Liaison III

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.

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ITU-T SG15 Liaison – 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 $X=\{1, 2, \dots, 256\}$. 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

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ITU-T SG15 Liaison – 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 \(OTN\)](#)

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ITU-T SG15 Liaison – Annex B

ITU-T 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](#)

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