Introducing recently consented revised Recommendation ITU-T G.698.2

Peter Stassar (Huawei), Pete Anslow (Ciena)

IEEE 802.3cn, 50 Gb/s, 100 Gb/s, 200 Gb/s, and 400 Gb/s over Single-Mode Fiber and DWDM Task Force
IEEE 802.3 Plenary Meeting, Bangkok, 12 – 15 November 2018

Introduction

- **The Liaison Statement received from ITU-T SG15 contained the recently consented revised Recommendation G.698.2**
- **This presentation provides a list of and pointers to (sub)clauses of G.698.2 of potential relevance to P802.3cn with respect to the objective:**
  - *Provide a physical layer specification supporting 100 Gb/s operation on a single wavelength capable of at least 80 km over a DWDM system.*

Black link methodology

- **The optical interface specifications in G.698.2 are based upon the black link methodology.**
- **The black link methodology has been clarified before in:**
  - **http://www.ieee802.org/3/B10K/public/17_11/stassar_b10k_01a_1117.pdf**
  - **http://www.ieee802.org/3/B10K/public/18_03/stassar_b10k_01_0318.pdf**
- **Especially in the latter presentation: "*The black link is intentionally "black", no details are provided on constraints to operate a link or how to construct a link towards meeting overall performance objectives.*"**

Impact of black link methodology

- As a result of the black link methodology the parameter tables do not contain any references to distance and link losses are not specified (mainly because the link may contain optical amplifiers)
- Relevant link parameters (see Table 8-8):
  - Maximum ripple (and indirectly maximum spectral excursion), clause 7.3.1.
  - Min/max (residual) chromatic dispersion, clause 7.3.2
  - Maximum differential group delay, clause 7.3.5
  - Maximum polarization dependent loss, clause 7.3.6
  - Maximum polarization rotation speed, clause 7.3.7
  - Maximum inter-channel crosstalk, clause 7.3.8
  - Maximum interferometric crosstalk, clause 7.3.9
  - Maximum optical path OSNR penalty, clause 7.3.10

Relevant application codes

- **The new 100 Gb/s application codes in Table 8-8 are appropriate for 80 km distances, not excluding 120 km, and zero OADMs.**
- **DW50U-8Ax(y)F is for 50 GHz spaced channels with the following combinations for x, y:**
  - x = 2 referring to G.652 fibers and y = C, referring to C-band
  - x = 3 referring to G.653 fibers and y = L, referring to L-band
  - x = 5 referring to G.655 fibers and y = C, referring to C-band
- **DW100U-8Ax(y)F is for 100 GHz spaced channels with the following combinations for x, y:**
  - x = 2 referring to G.652 fibers and y = C, referring to C-band
  - x = 3 referring to G.653 fibers and y = L, referring to L-band
  - x = 5 referring to G.655 fibers and y = C, referring to C-band
- **All codes are assuming usage of SC-FEC as in G.709.2 and G.709.3**

Relevant Transmitter Metrics

- **Maximum spectral excursion, Clause 7.2.3**
- **Maximum laser linewidth, 7.2.8**
- **Maximum offset between the carrier and the nominal central frequency, 7.2.9**
- **Maximum power difference between polarizations, 7.2.10**
- **Maximum skew between the two polarizations, 7.2.11**
- **Maximum error vector magnitude, 7.2.12**
- **Maximum I-Q offset, 7.2.13**

Relevant Receiver Metrics

- **Minimum optical signal-to-noise ratio (OSNR) and OSNR(193.6): Clause 7.4.2**
- **Receiver OSNR tolerance and OSNR tolerance(193.6), 7.4.3**

Q & A?

Thanks