IEEE P802.3ct Task Force:
100 Gb/s and 400 Gb/s over DWDM Systems

Closing Report

John D'Ambrosia
Futurewei, U.S. Subsidiary of Huawei
Vienna, Austria
July 18, 2019

IEEE P802.3ct Task Force Project information

Task Force Organization

- John D'Ambrosia, Chair, IEEE P802.3cn Task Force
- Editorial Team
  - Tom Issenhuth – Chief Editor, 400 GbE Optical PHY Clause
  - Pete Anslow – Supporting Clauses
  - Peter Stassar – 100 GbE Optical PHY Clause
  - Steve Trowbridge - 100 GbE PCS/FEC/PMA Extender Clauses
  - John DeAndrea - 400 GbE PCS/PMA Clauses
- Task force web and reflector information
  - Reflector: http://www.ieee802.org/3/ct/reflector.html
  - Home page: http://www.ieee802.org/3/ct/index.html
- Project Documentation –
  - PAR : http://www.ieee802.org/3/ct/P802_3ct_PAR.pdf
  - *CSD*: https://mentor.ieee.org/802-ec/dcn/18/ec-18-0249-00-ACSD-p802-3ct.pdf
  - Objectives: http://www.ieee802.org/3/ct/3ct_Objectives_190212.pdf
  - Timeline: http://www.ieee802.org/3/ct/timeline_3ct_190119.pdf
- Ad Hoc page: http://www.ieee802.org/3/ct/public/adhoc/index.html

This Week's Accomplishments (1 of 2)

Motion #3 – passed 25 / 0 / 2

Move to update the 100G FEC and Frame Format baseline (Motion #8, Long Beach, trowbridge_3cn_01a_0119 slides 9-16) by adding error marking of uncorrectable SC FEC codewords:

All 66B blocks fully or partially contained within an uncorrectable SC FEC codeword are replaced with error control blocks (block type 0x1E and eight /E/ control characters)

The probability that the SC FEC decoder fails to replace 66 -bit blocks in an uncorrectable codeword is expected to be less than 10^{-TBD}

Motion #4 – passed 24 / 0 / 3

Move to adopt the parameter list and corresponding values in the proposed strawman column on slides 8, 9 and 11 of stassar_3ct_02_0719 for the 100GBASE-ZR PMD specification.

Motion #5 – passed 25 / 0 / 3

Move to adopt the parameter list on slides 4 to 6 of stassar_3ct_02_0719 for the 400GBASE-ZR PMD specification.

Motion #6 – approved single liaison to ITU-T SG15 and OIF

This Week's Accomplishments (2 of 2)

- General support for concept of "Configured DWDM Links"
- Discussed interest in adding 75GHz spacing for 400GbE for grid
- Discussed potential impact on overall project schedule
- Discussed potential schedule issues if splitting P802.3ct (by rate) were pursued

DWDM Link Types and Terminology

DWDM PHY:

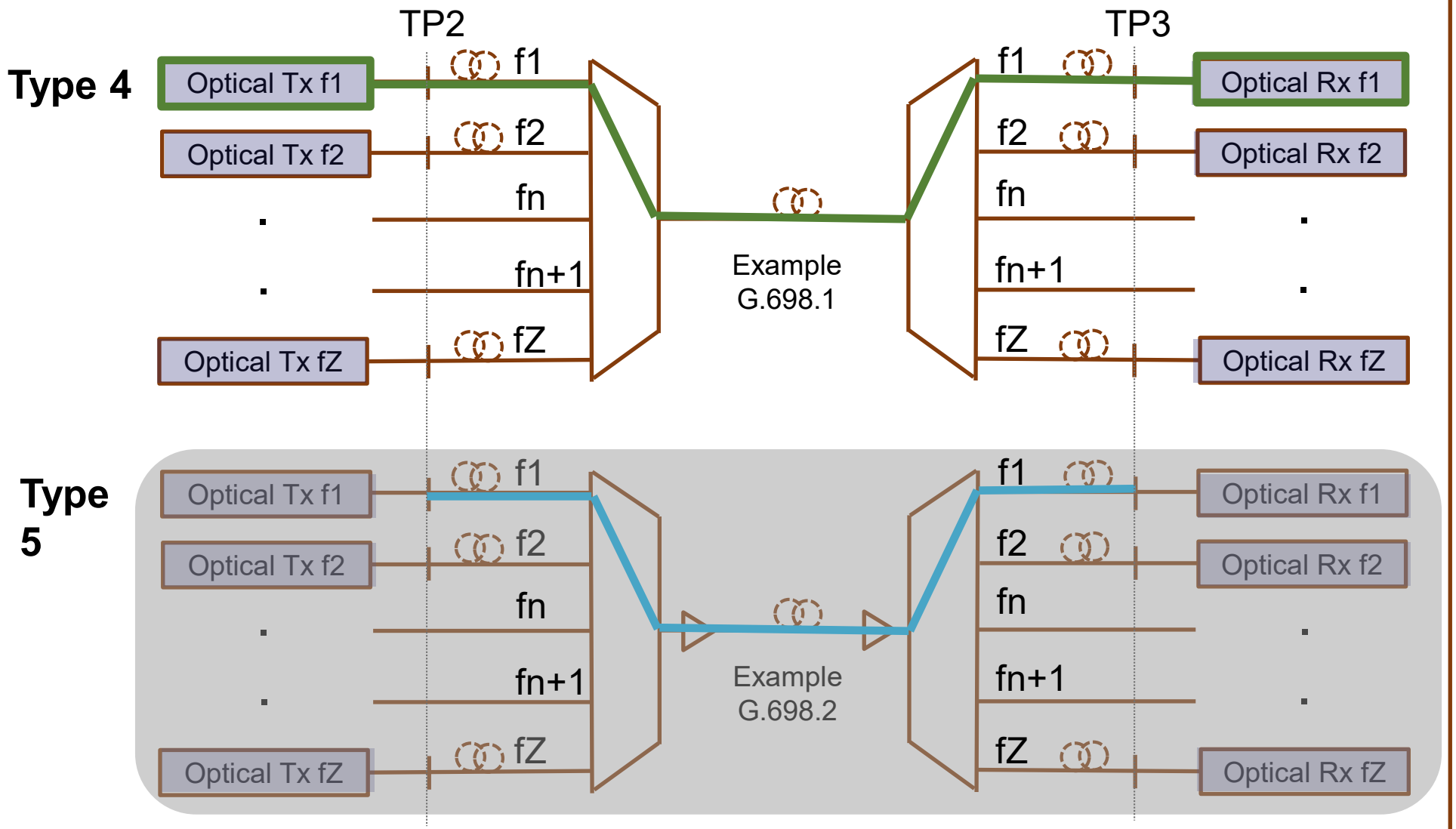
DWDM Channel:

DWDM Link:

DWDM System:

Note: “f” is the optical frequency inversely related to each optical wavelength

Optical Links Type 4 & 5



Configured DWDM Links

For DWDM links these are the three key characteristics that need to match:

- Transmit Frequency (wavelength, channel)
- Rx Oscillator Frequency (wavelength, channel)
- Ports on Mux (i.e. link wavelength)

DWDM PHY (per rate) may:

- Support a tunable solution covering the entire channel frequency (wavelength) range and spacing
- Support a tunable solution covering only a portion of the specified channel frequency (wavelength) range and spacing
- Support a solution providing a single channel frequency (wavelength)

So – IEEE P802.3ct would develop a single PHY per rate requiring noted configuration

Status - High Level Decisions

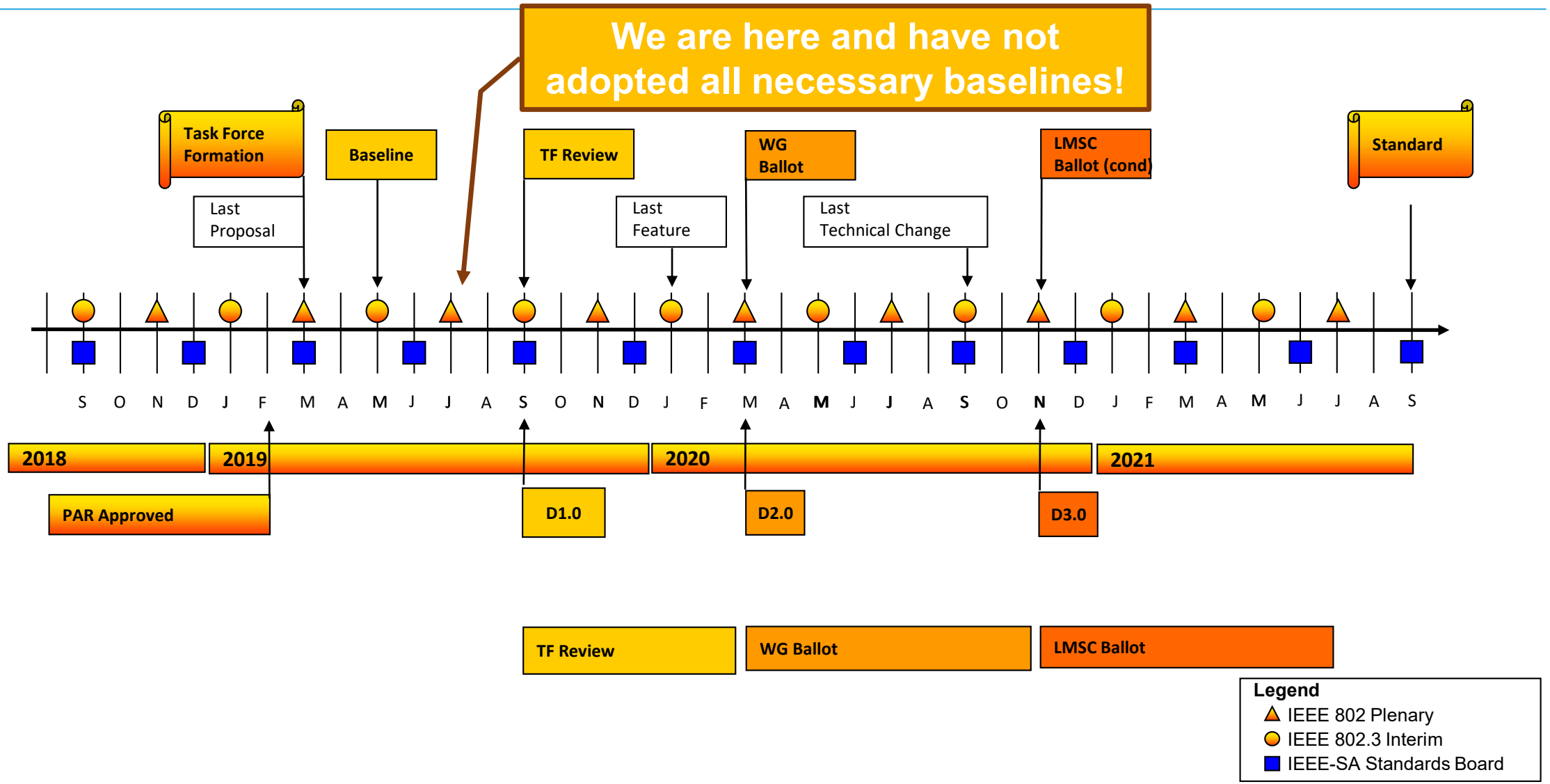
	100GbE	400 GbE
Channel Model	stassar_3ct_02_0719	stassar_3ct_02_0719 *
# of Channels	?	?
Channel Spacing	100 GHz	100 GHz **
Modulation Format	DP-DQPSK	DP-16QAM
Frame Assumption	Same as OTN uses for 100G-DP-DQPSK	400GBASE-ZR PCS/PMA
FEC	Staircase (ITU-T G.709.2)	CFEC
Tx Metric	stassar_3ct_02_0719	stassar_3ct_02_0719 *
AUI Attachment	Inverse RS-FEC Sublayer	400G XS

* - only parameters adopted – no values adopted

** - debate regarding 75 GHz

IEEE P802.3ct Adopted Timeline

Adopted – Jan 2019
Reaffirmed – Mar 2019



WG Motion

Move that the IEEE 802.3 Working Group approve IEEE_802d3_to_ITU_OIF_3ct_0719_draft with editorial license granted to the Chair (or his appointed agent) as a liaison communication from the IEEE 802.3 Working Group to ITU-T SG15 and OIF.

Technical (>=75%)

M: D'Ambrosia

S: Anslow

Results Y: 103 N:0 A: 0

Moving Forward

- F2F Meeting
  - IEEE 802.3 Sept 2019 Interim, Week of Sept 9th (Sept 2019)
- Joint Task Force Interim Teleconference
  - See schedule - http://www.ieee802.org/3/ct/public/tf_interim/index.html

Questions?

Thank you!