IEEE 802.3ca 100G-EPON Task Force Closing Report

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Orlando, Florida

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IEEE 802.3 100G-EPON Task Force Project Information

Task Force Organization:

Chair: Curtis Knittle, CableLabs

Vice Chair: Glen Kramer, Broadcom

Chief Editor: Marek Hajduczenia, Charter

Task Force web and reflector information

Reflector information: http://www.ieee802.org/3/ca/3ca_reflector.shtml

Home page: http://www.ieee802.org/3/ca/index.shtml

PAR: http://www.ieee802.org/3/ca/documents/P802_3ca_par_approved.pdf

CSD: https://mentor.ieee.org/802-ec/dcn/15/ec-15-0100-00-ACSD-802-3ca.pdf

Objectives: http://www.ieee802.org/3/ca/documents/P802_3ca_objectives.pdf

Activities This Week

- ~32 people met for 2 days, covering 26 presentations

-Major items discussed:

-- FEC, Channel Control Protocol, power budgets, 2x25Gbps versus 1x50Gbps,

-Passed seven (7) technical motions

Technical Motions

Replace the contents of Clause 143 in the draft with that shown in remein_3ca_3_1117.pdf (include the definition of MPRS channel in Clause 1.4 Definitions)

Move to adopt MLID value assignment mechanism and MPCPDU format proposed in remein_3ca_1_1117.pdf slide 4 & 5

Move to adopt LDPC FEC in the downstream direction with PON-wide precoding (differential encoding). Precoding is mandatory for implementation but optional for use. The ONU shall autodetect precoding.

Adopt for the LDPC FEC for the downstream channels:

--- LDPC(18493,15677) 0.848 rate parity code matrix presented in laubach_3ca_1a_1117.pdf page 3, and

--- the Omega256 structured interleaver presented in laubach_3ca_1_0517.pdf pages 10 and 11 with seed code as in laubach_3ca_2_0517.txt

Technical Motions (continued)

1. Channel Control Protocol (CCP) shall use MAC Control messages.
2. Two CCPDU shall be defined:
   -- CC_REQUEST sent by the OLT to query and configure channels in an ONU
   -- CC_RESPONSE sent by an ONU in response to CC_REQUEST to inform the OLT of the state of each channel and the result of the last configuration action

2x25G -EPON shall WDM coexist with 10G-EPON, i.e., the second upstream channel (US1) in any 2x25G EPON shall not re-use one of the two options for 25G US0 (US0-B and US0-A)

Modification of Task Force Objectives

- Support subscriber access networks using point to multipoint topologies on optical fiber
- Provide specifications for physical layers operating over a single SMF strand and supporting symmetric and/or asymmetric the MAC data rates of:
  - 25 Gb/s in downstream and less than or equal to 25 Gb/s in upstream
  - 50 Gb/s in downstream and less than or equal to 50 Gb/s in upstream
  - ~~100 Gb/s in downstream and less than or equal to 100 Gb/s in upstream~~
- PHY(s) to have a BER better than or equal to 10-12 at the MAC/PLS service interface (or the frame loss ratio equivalent)
- Support coexistence with 10G-EPON
  - Optical power budgets to accommodate channel insertion losses equivalent to those supported by the 10G-EPON standard
  - Wavelength allocation allowing concurrent operation with 10G-EPON PHYs
- Wavelength allocation allowing concurrent operation of 25G-EPON and G-PON reduced wavelength set (1290nm-1330nm) PHYs

No working group motion at this time…

Liaison to ITU

Dear Dr. Effenberger and Dr. Kani,

To support PON Convergence efforts and maintain an open communication channel between ITU-T SG15 Q2 and on-going IEEE P802.3ca Task Force efforts we are providing a status of progress from the November, 2017 Orlando, Florida meeting.

The IEEE P802.3ca Task Force has approved the following elements associated with the standards effort:

1. Updated specification with additional detail around MPRS –Multi-Point Reconciliation Sublayer: This is the adaptation layer between MAC and PHY (TC and PHY).
2. Adopted MLID – Management Logical Link ID (similar to ONU ID) assignment mechanism. (Performed during ranging/discovery).
3. Adopted LDPC FEC with precoding (differential encoding) for the downstream direction that include LDPC(18493, 15677) 0.848 rate parity code matrix with the Omega256 structured Interleaver. Upstream FEC has not been determined yet.
4. Adopted a Channel Control Protocol (CCP) based on MAC Control messages used to query and configure channels (wavelengths).
5. Removed the objective to support 100G PON.
6. Agreed to support WDM coexistence between 50G (2x25G) and 10G PON.

Once again, thank you for your interest. We look forward to continued collaboration with the ITU-T Q2/15 team.

Sincerely,

David Law

Chair, IEEE 802.3 Ethernet Working Group

WG Motion – Liaison Response

Move that the IEEE 802.3 Working Group approve IEEE_802d3_to_ITU_SG15_Q2_1117_draft with editorial license granted to the Chair (or his appointed agent) as liaison communications from the IEEE 802.3 Working Group to ITU-T Study Group 15.

Moved: Curtis Knittle

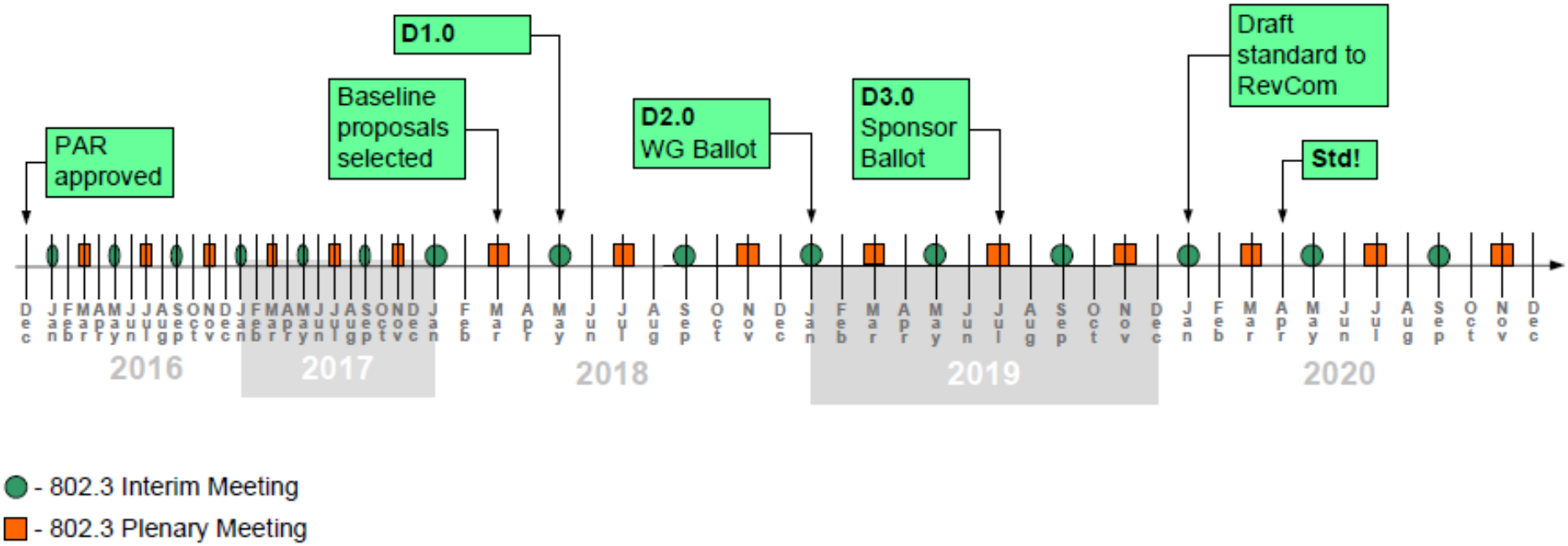
Second:

Technical (>75%)

Results:

IEEE 802.3ca 100G-EPON Task Force Timeline

IEEE P802.3ca Timeline



Questions?

Thank you!