

# **IEEE P802.3bn EPoC PHY Task Force Closing Report**

**Mark Laubach**

**IEEE 802.3 Working Group  
12 November 2012  
San Antonio, Texas, USA**

# Reflector and Web

---

- **Email**
  - [stds-802-3-epoc@listserv.ieee.org](mailto:stds-802-3-epoc@listserv.ieee.org)
  - 304 subscribers
- **Web Page**
  - <http://www.ieee802.org/3/bn>
  - Note: includes ad hoc committee areas
- **Private Area (for draft documents)**
  - <http://www.ieee802.org/3/bn/private>
  - Liaisons, early pre-draft
  - User: 802.3bn
  - Pass: XXXXXX

# Activities This Week

---

- Met:
  - Tuesday 8AM to 7:30PM
  - Wednesday 8AM to 6PM
  - Thursday 9AM to 12noon
- 54 attendees
- 41 presentations
  - Count includes sub-group opening/closing reports
- 28 technical motions approved (17 previous, total 45)
- 1 baseline proposal approved
- Updated Task Force timeline
- Drafted liaison response to SG 9

# Technical Motions Passed

Motion #	Motion	1st	2nd	T/P	Aff	Neg	Abst	P / F
3	Adopt the Channel model parameter lists and topology illustrations shown in remain_3bn_07_0313.pdf as baseline channel conditions.	Duane Remein	Saifur Rahman	T	35	0	4	Pass
4	The EPoC standard shall support multiple modulation profiles for the bursting DS and US PHY and a single modulation profile for the continuous DS PHY.	Saifur Rahman	Edwin Mallette	T	32	2	7	Pass
5	EPoC PHY shall use the 64b/66b line coding (as defined in IEEE Standard 802.302012, Clause 49), with shortened Sync header (1 bit as in 10G-EPON).	Marek Hajduczenia	Ed Boyd	T	31	4	5	Pass
7	The PLC shall be transparent to the MAC. It shall not add jitter or latency to the data.	Ed Boyd	Christian Pietsch	T	37	0	3	Pass
8	Approve garavaglia_3bn_02a_0313 as a baseline for EPoC TDD MPCP, Clause 103	Andrea Garavaglia	Duane Remein	T	19	0	20	Pass
9	A raised cosine windowing function is to be applied (for details see slide 4 and slide 6 in "montreuil_01a_0113.pdf"). The amount of overlap $T_p$ shall be configurable. In terms of samples, possible values for $T_p$ are 0, 32, 64, 128, 192, and 256.	Ed Boyd	Saifur Rahman	T	29	0	10	Pass
10	The supported RF bandwidth of an upstream channel shall be 192 MHz. The definition of exclusion bands shall allow for smaller channels when there is not 192 MHz of spectrum available.	Ed Boyd	Saifur Rahman	T	32	1	6	Pass

# Technical Motions Passed

Motion #	Motion	1st	2nd	T/P	Aff	Neg	Abst	P / F
11	The beginning of an upstream burst is indicated by a start marker The end of an upstream burst is indicated by an end marker	Ed Boyd	Saifur Rahman	T	39	0	3	Pass
12	The start marker identifies when a profiles starts in TDD downstream. The start marker is placed at the beginning of each profile burst.	Ed Boyd	Saifur Rahman	T	31	0	10	Pass
13	The start marker indicates the profile that is used.	Ed Boyd	Saifur Rahman	T	33	1	7	Pass
14	A Marker * contains one of a predefined set of pre-defined set of sequences of modulated symbols (in frequency domain) * shares the same resources as regular data symbols - No dedicated control channel - Markers and pilots do not overlap	Ed Boyd	Saifur Rahman	T	40	0	3	Pass
15	Presentation "pietsch_3bn_01_0313.pdf" shall be adopted as a starting point towards a baseline proposal for the downstream pilot structure. Presentation "kliger_3bn_01_0313.pdf" shall be adopted as a starting point towards a baseline proposal for the upstream pilot structure.	Ed Boyd	Saifur Rahman	T	32	0	14	Pass
16	The granularity for setting the Center Frequency (fc) of the 192 MHz OFDM Channel, in both US and DS, shall be 1 MHz.	Steve Shellhammer	Duane Remein	T	38	0	6	Pass
17	The EPoC PHY shall be capable of communicating an upper bound of the RF spectrum of at least 5 GHz.	Steve Shellhammer	Duane Remein	T	30	0	11	Pass
18	Downstream and upstream exclusion sub-bands within an OFDM channel can be configured in both the CLT and CNU by MDIO.	Steve Shellhammer	Duane Remein	T	39	0	3	Pass

# Technical Motions Passed

Motion #	Motion	1st	2nd	T/P	Aff	Neg	Abst	P / F
19	Downstream and upstream exclusion sub-band configuration in an OFDM channel can be communicated from the CLT to the CNU over the PHY Link Channel.	Steve Shellhammer	Duane Remein	T	41	0	3	Pass
20	The PHY will have a number of MDIO registers to report on subcarrier or subcarrier group, signal parameters including quality.	Steve Shellhammer	Duane Remein	T	37	0	3	Pass
21	The minimum contiguous downstream spectrum with no internal exclusion sub-bands shall be 24 MHz. This does not preclude nulled subcarriers which do not carry information.	Steve Shellhammer	Duane Remein	T	24	4	14	Pass
23	The downstream PHY Link shall include an error correcting code.	Juan Montojo	Kevin Noll	T	37	1	4	Pass
24	The PLC is transparent to the MAC. No additional Jitter and latency No additional buffering	Sanjay Kasturia	Avi Kliger	T	39	0	2	Pass
25	The Downstream PHY Link Channel shall be composed of a preamble (with start of frame delimiter) and PLC frame. It will not include MAC Data. Note: Guard time or dead-time may also be included.	Juan Montojo	Ed Boyd	T	40	0	1	Pass
26	The downstream PLC will be 400KHz wide without continuous pilots. 8 subcarriers at 50KHz spacing or 16 subcarriers at 25KHz spacing.	Nicola Varanese	Avi Kliger	T	31	1	10	Pass
27	The standard will target a downstream data rate of 1.6 Gb/s at the MAC/PLS service interface, in a 192-MHz OFDM channel, in baseline channel conditions (remein_3bn_07_0313.pdf).	John Ulm	Duane Remein	T	39	1	4	Pass

# Technical Motions Passed

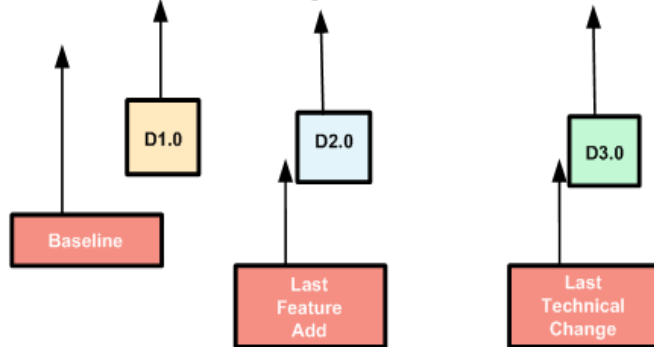
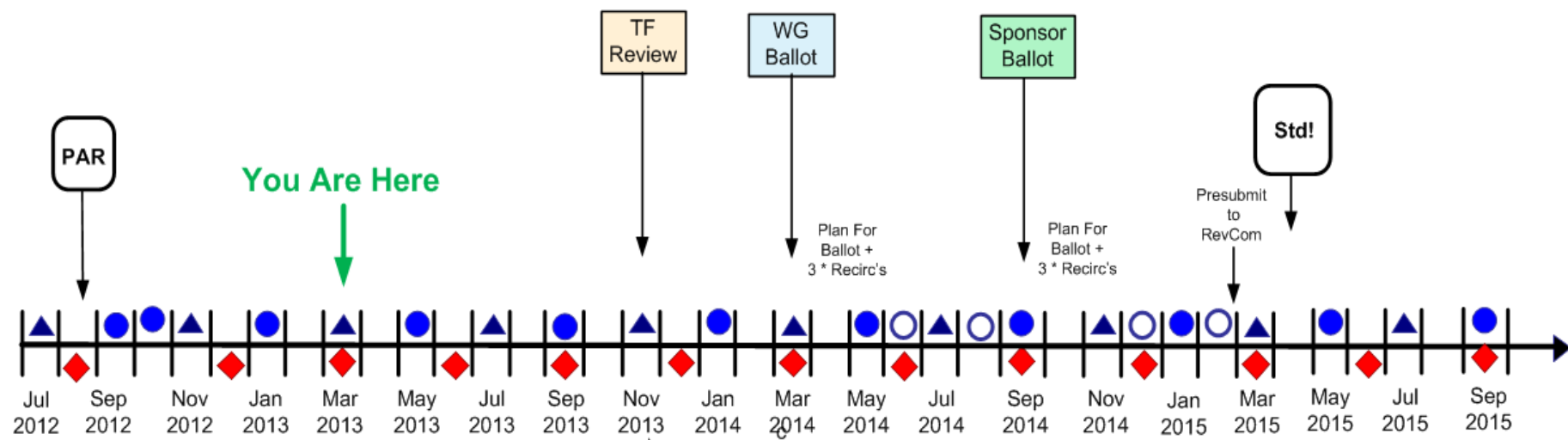
Motion #	Motion	1st	2nd	T/P	Aff	Neg	Abst	P / F
28	EPoC Delay as calculated using the methodology described in garavaglis_02_0912.pdf (or a future update), should be used as an evaluation criteria in evaluating proposals.	Andrea Garavaglia	Duane Remein	T	31	1	10	Pass
31	In the receive direction, EPoC CNU and CLT shall support Idle Deletion process used by 10G-EPON.	Marek Hajduczenia	Andrea Garavaglia	T	31	0	7	Pass
32	In the receive direction, EPoC CNU and CLT shall support Idle Insertion process used by 10G-EPON, as defined in IEEE Std 802.3-2012, 76.3.3.7, with the following changes: - The value of FIUFO_II_SIZE is TBD at this time and shall be set once FEC and PMD details are defined.	Marek Hajduczenia	Alan Brown	T	28	0	12	Pass
33	In the transmit direction, EPoC CNU and CLT shall support Idle Insertion process used by 10G-EPON, as defined in IEEE Std 802.3-2012, 77.2.2 (Figures 77-13 for CLT and 77-14 for CNU), with the following changes: Function FEC_Overhead shall be replaced with the function accounting for FEC and PHY overhead (tentative name: PMD_Overhead) once FEC and PMD details are defined.	Marek Hajduczenia	Andrea Garavaglia	T	28	0	10	Pass

# Technical Motions Passed

Meeting	Motion #	Motion	1st	2nd	T/P	Aff	Neg	Abst	P / F
1303 ORL	34	<p>In the transmit direction, EPoC CNU and CLT shall support Idle Deletion process used by 10G-EPON, as defined in IEEE Std 802.3-2012, 76.3.2.1, with the following changes:</p> <p>Figure 76–9 (CLT operation) shall be modified to account for EPoC-specific FEC and PMD overhead, once these details are settled.</p> <p>Figure 76–10 (CNU operation) shall be modified to account for EPoC-specific FEC and PMD overhead, once these details are settled.</p>	Marek Hajduczenia	Andrea Garavaglia	T	25	0	10	Pass



# Task Force Timeline (updated 3/21/13)



- Legend**
- ▲ IEEE 802 Plenary
  - IEEE 802 Interim
  - ◆ IEEE-SA Standards Board

# Next Meeting

---

- May 802.3 Interim
- Meet for 2.5 days (Wed, Thu, Fri)
- Expecting more consensus on key technical items
  - i.e., Downstream FEC, and more
- Detailed “program management” and dependencies

---

# Thank You!