IEEE 802.3WG
Opening Plenary Report

IEEE P802.3bj

100 Gb/s Backplane and Copper Cable Task Force

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San Diego, CA, USA, July 2012

IEEE P802.3bj Task Force Organization

John D'Ambrosia	Task Force Chair
Adam Healey	Chief Editor, Editor, Clauses 91 & 93, Miscellaneous
Hugh Barrass	Editor, Clauses 30, 45, 80-83, 85
Matt Brown	Editor, Clause 94
Chris DiMinico	Editor, Clause 92, Annex 92A
Dave Chalupsky	Secretary

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- Task Force web page URL:

  http://www.ieee802.org/3/bj/index.html

Project Documentation

- PAR
  - http://www.ieee802.org/3/bj/PAR_approved_0911.pdf
- 5 Criteria
  - http://www.ieee802.org/3/bj/5C_0911.pdf
- Objectives
  - http://www.ieee802.org/3/bj/objectives_0711.pdf
- Adopted Timeline
  - http://www.ieee802.org/3/bj/timeline_0911.pdf

Task Force Private Area

- URL: http://www.ieee802.org/3/bj/private/index.html
  - Username: XXXXXX
  - Password: XXXXXXXX
- Write it down…
- Note - The drafts within are posted for your review only, and neither the drafts nor access information should be copied or redistributed to others in violation of document copyrights.

IEEE P802.3bj Task Force Objectives

- Support full-duplex operation only
- Preserve the 802.3 / Ethernet frame format utilizing the 802.3 MAC
- Preserve minimum and maximum FrameSize of current 802.3 standard
- Support a BER of better than or equal to 10^{-12} at the MAC/PLS service interface
- Define a 4-lane 100 Gb/s backplane PHY for operation over links consistent with copper traces on “improved FR-4” (as defined by IEEE P802.3ap or better materials to be defined by the Task Force) with lengths up to at least 1m.
- Define a 4-lane 100 Gb/s PHY for operation over links consistent with copper twin-axial cables with lengths up to at least 5m.
- To define optional Energy-Efficient Ethernet operation for 100G Backplane and Twinaxial cable PHYs specified in P802.3bj

Activities Since Mar 2012 Plenary

- May 2012 Interim
  - Thanks Beth Kochuparambil / Joel Goergen of Cisco
  - 101 Attendees
  - 19 Technical Presentations
  - Major Highlights (See following pages for details)
    - Generation of D1.0 Approved
    - Nomenclature Adopted!
      - Motion #3: Adopt the following nomenclature:
        - 100GBASE-KR4 for 100Gb/s 4 lane NRZ Backplane PHY
        - 100GBASE-KP4 for 100Gb/s 4 lane PAM-4 Backplane PHY
        - 100GBASE-CR4 for 100Gb/s 4 lane Copper Cable PHY
      - Results all (y/n/a): 58/ 0 / 7
    - EEE Support 100GBASE-CR10 not in scope
      - 40GBASE-CR4, and 40GBASE-KR4 not in scope
      - Chair agreed to submit comment against D1.0 to resolve
    - Proposal for 2nd MDI Failed

May 12 Interim – Generation of D1.0

- **Motion #4** - Move to adopt P802d3bj_D0p1.pdf as modified by the comments contained in healey_02_0512.pdf as the basis for Draft 1.0. Results: Pass All (y/n/a): 59/1/5
- **Motion #5** - Move to adopt changes noted in Slide 19 of anslow_01a_0512.pdf for implementation into Draft 1.0. Results: Pass All (y/n/a): 56/0/13
- **Motion #6** - Move to adopt polynomial description noted in Slide 3 of langhammer_01_0512.pdf for implementation into Draft 1.0. Results : Pass All (y/n/a): 56/0/8
- **Motion #7** - Change Draft 1.0 as required to implement the following changes as presented in brown_01a_0512:
  - In Clause 91:
    - The 100GBASE-KR4p FEC codeword is RS(544,514).
    - For 100GBASE-KR4p, the mapping of 256B/257B blocks to the FEC codeword information field is identical to that for 100GBASE-KR4n.
  - In Clause 94:
    - The termination block is 46 bits in length.
    - The overhead frame is composed of 40 overhead bits and bits from 23 consecutive FEC codewords.
    - The PMD symbol rate is 13.59375 Gbaud.
  - (Note: “KR4p” refers to 100GBASE-KP4. Nomenclature had not been adopted when motion was written.)
  - Results: Pass: All (y/n/a): 35/0/17
- **Motion #9** - Move to adopt transmitter and receiver differential printed circuit board trace loss equation described on slide 15 diminico_01a_0512.pdf for implementation in Draft 1.0. Results: Pass all (y/n/a): 35/0/19
- **Motion #10** - Move to adopt the cable assembly total integrated crosstalk RMS noise voltage equation described on slide 10 of diminico_01a_0512.pdf for implementation in Draft 1.0. Results: Fail all (y/n/a): 8/15/29

May 12 Interim – EEE Straw Polls

- **Straw Poll #7:** I support adding EEE functionality for 100GBASE-CR10
  - Yes 25
  - No 2
  - Abstain 23
- **Straw Poll #8:** I support adding EEE functionality for 40GBASE-CR4
  - Yes 25
  - No 0
  - Abstain 25
- **Straw Poll #9:** I support adding EEE functionality for 40GBASE-KR4
  - Yes 26
  - No 1
  - Abstain 22

May 12 Interim

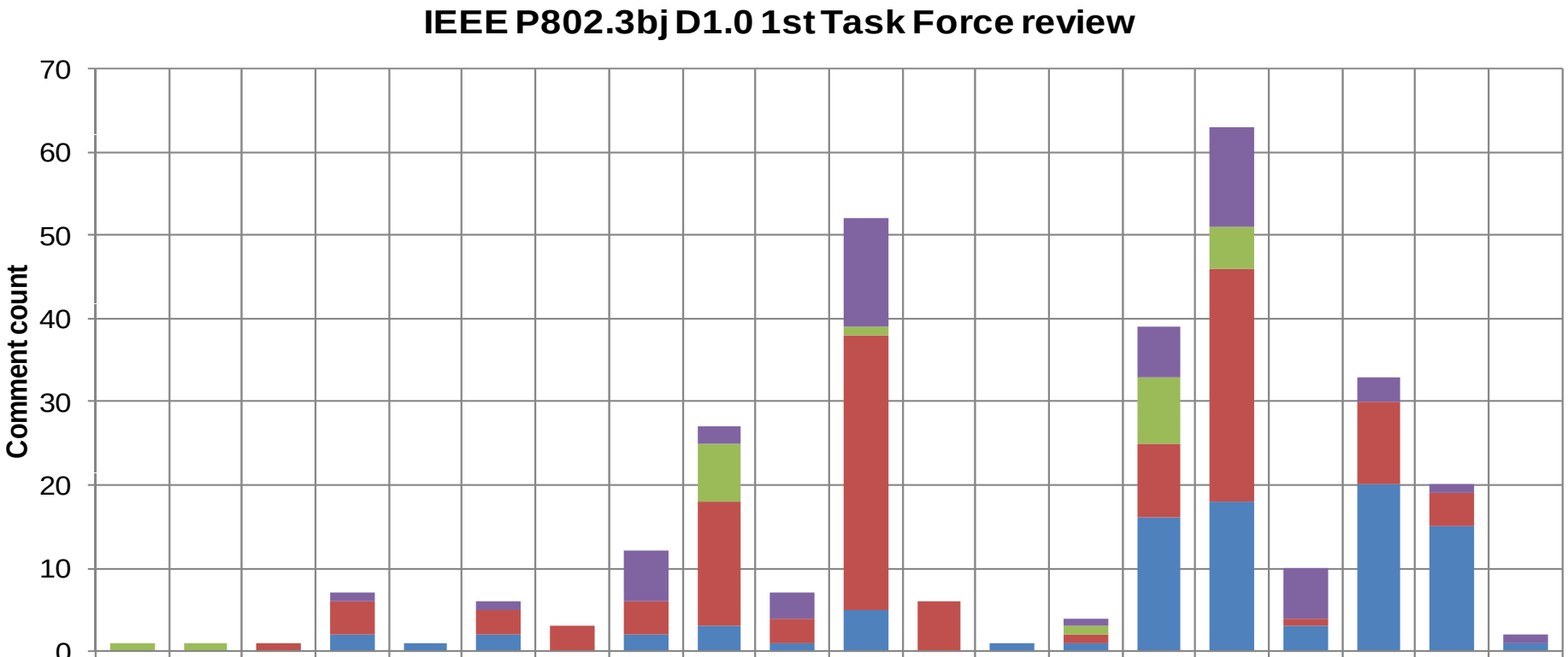
- Motion #8: Move that
  - CFP4, per cole_01a_0512.pdf, be adopted as a second type of MDI for 100GBASE-CR4.
  - Adopt text in cole_02a_0512.pdf for implementation into Draft 1.0.
- Results: Fails All (y/n/a): 22/11/25

- Observation: During discussion additional data requested regarding cable assemblies with proposed 2nd MDI.

Task Force Review

- Draft 1.0
  - All Objectives Met
  - Task Force Review
  - Released: May 30, 2012
  - Closed: 29 June 2012 (A.O.E.)
  - Results:
    - 296 comments from 19 participants:
    - 216 T(R),
    - 80 E(R)
- Thanks to Editorial team, volunteers and contributors for their efforts in releasing and commenting on Draft 1.0.

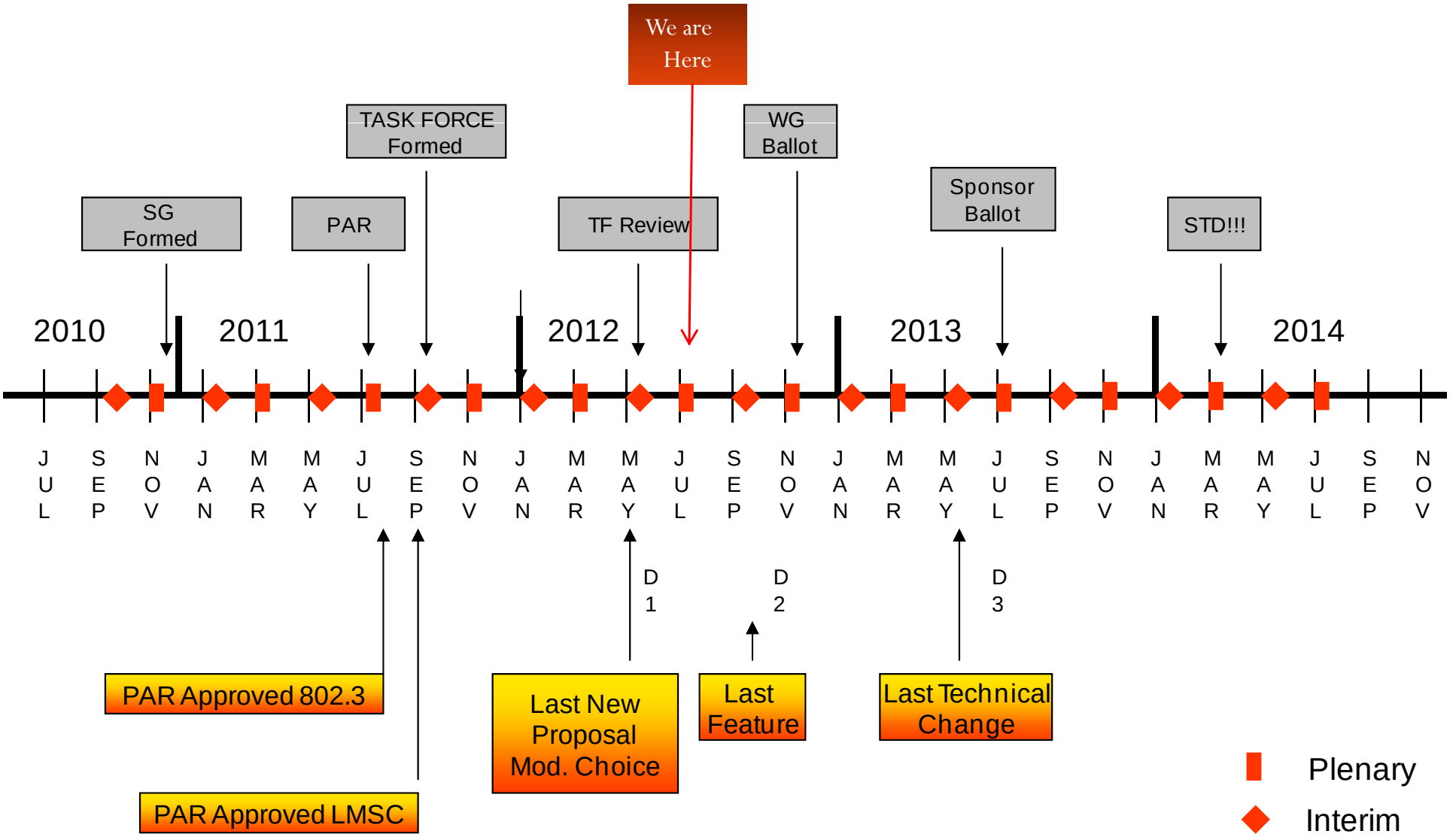
Comment summary: 216 T(R), 80 E(R)



	00	01	30	45	69	73	74	78	80	81	82	83	83C	85	91	92	92A	93	94	99
E	0	0	0	1	0	1	0	6	2	3	13	0	0	1	6	12	6	3	1	1
ER	1	1	0	0	0	0	0	0	7	0	1	0	0	1	8	5	0	0	0	0
T	0	0	1	4	0	3	3	4	15	3	33	6	0	1	9	28	1	10	4	0
TR	0	0	0	2	1	2	0	2	3	1	5	0	1	1	16	18	3	20	15	1

"R" (required) denotes that the commenter indicated the comment must be satisfied in order to change a "do not approve" vote to an "approve" vote. Since Task Force review is not a ballot, these comments will be processed as though they were technical (T) or editorial(E) as appropriate.

Adopted Timeline



http://www.ieee802.org/3/bj/timeline_0911.pdf

Goals for the meeting week

- Draft 1.0 Comment Resolution
  - Hear related technical presentations
- “Big Ticket” Items (see Chief Editor’s Report)
- Discussion with Next Gen 40G/100G Optics SG (Tuesday Morning)
- Lay the ground work for Draft 1.1 and the next meeting

Thank You!