IEEE P802.3dj Task Force Formation

**Joint Session -
IEEE P802.3df Task Force
IEEE P802.3dj Task Force**

**Jan 2023 Session
16 Jan 2023**

**John D'Ambrosia,
Acting Chair, IEEE P802.3dj Task Force
Futurewei, U.S. Subsidiary of Huawei**

Mark Gustlin, Cisco

Kent Lusted, Intel

Mark Nowell, Cisco

Agenda

- **John D'Ambrosia**
  - **Task Force Appointments**
  - **Task Force Ad hocs**
  - **Reaffirmation of Relevant IEEE P802.3df Motions**
  - **Proposed IEEE P802.3dj Timeline**
  - **Future Joint Task Force Meetings**
  - **Reminder: Relative Cost Analysis**
- **Mark Gustlin**
- **Kent Lusted**
- **Mark Nowell**

JOHN D'AMBROSIA
ACTING CHAIR, IEEE P802.3dj

Appointments

- **IEEE P802.3dj Secretary – Kent Lusted**
- **IEEE P802.3dj Chief Editor – Matt Brown**
- **IEEE P802.3dj Tracks**
  - **Architecture and Logic Track Chair - Mark Gustlin**
  - **Electrical Track Chair - Kent Lusted**
  - **Optics Track Chair - Mark Nowell**

IEEE P802.3dj Ad Hocs

The following ad hocs are appointed. They meet with respective IEEE P802.3df ad hocs when announced.

1. **Architecture and Logic Ad hoc – Mark Gustlin, Ad Hoc Chair**
    Charter: The Architecture and Logic Ad Hoc is chartered to address the following:
    1) Develop terminology and definitions for terms related to architecture, including but not limited to FEC Architecture, FEC Scheme, End-to-end FEC, Segmented FEC, Concatenated FEC. .
    2) Act as forum to discuss architectural requirements and consider proposals related to PCS, FEC, and PMA logic sublayers.

2. **Electrical Ad Hoc – Kent Lusted, Ad Hoc Chair**
    Charter: The Electrical Ad Hoc is chartered to address the following:
    1) Act as forum to discuss and consider technical proposals and contributions:
        a. Related to electrical interfaces and electrical PMD sublayers
        b. Related to logic PCS, FEC, and PMA sublayers that may impact electrical interfaces and electrical PMD sublayers
        c. Electrical interfaces and electrical PMD nomenclature
    2) Provide inputs based on electrical interfaces and electrical PMD sublayers into any relevant ad hocs

3. **Optics Ad Hoc – Mark Nowell, Ad Hoc Chair**
    Charter: The Optical Ad Hoc is chartered to address the following:
    1) Act as forum to discuss and consider technical proposals and contributions:
        a. Related to optical PMD sublayers
        b. Related to logic PCS, FEC, and PMA sublayers that may impact optical PMD sublayers
        c. Optical PMD nomenclature
   2) Provide inputs based on optical PMDs into any relevant ad hocs

IEEE P802.3dj Ad hoc Meetings

- **Optics Ad hoc – Wed, 22 Feb, 10am to 12pm ET**
  - **Meeting information to be announced**

- **Electrical Ad hoc – Thurs, 23 Feb, 10am to 12pm ET**
  - **Meeting information to be announced**

P802.3df Motions Requiring Reaffirmation

Session	Motion #	Motion	Referenced File
01-2022	4	Move to adopt the nomenclature in the AUI, BP, Cu cable, MMF 50m and MMF 100m columns of lusted_3df_01_220111.pdf, slide 25	https://www.ieee802.org/3/df/public/22_01/lusted_3df_01_220111.pdf
03-2022	4	Move to adopt PAM4 optical modulation as the basis for all the 200 Gb/s per lane 500m and 2km SMF reach objectives	
05-2022	1	Move to adopt the architecture described in gustlin_3df_01a_220517 as the basis for the logic architecture for IEEE P802.3df	https://www.ieee802.org/3/df/public/22_05/22_0517/gustlin_3df_01a_220517.pdf
05-2022	5	Move to: • Adopt the nomenclature for the 500m and 2km SMF solutions listed on lusted_3df_02_220602, slide 3	https://www.ieee802.org/3/df/public/22_05/22_0602/lusted_3df_02_220602.pdf
11-2022	3	Move to adopt RS(544,514,10) as the FEC encoding for the 200G/lane AUIs (C2M and C2C)	
11-2-2022	4	Move to adopt differential PAM4 signaling as the basis for all the 200 Gb/s per lane AUIs (C2M and C2C)	

Potential IEEE P802.3dj Timeline
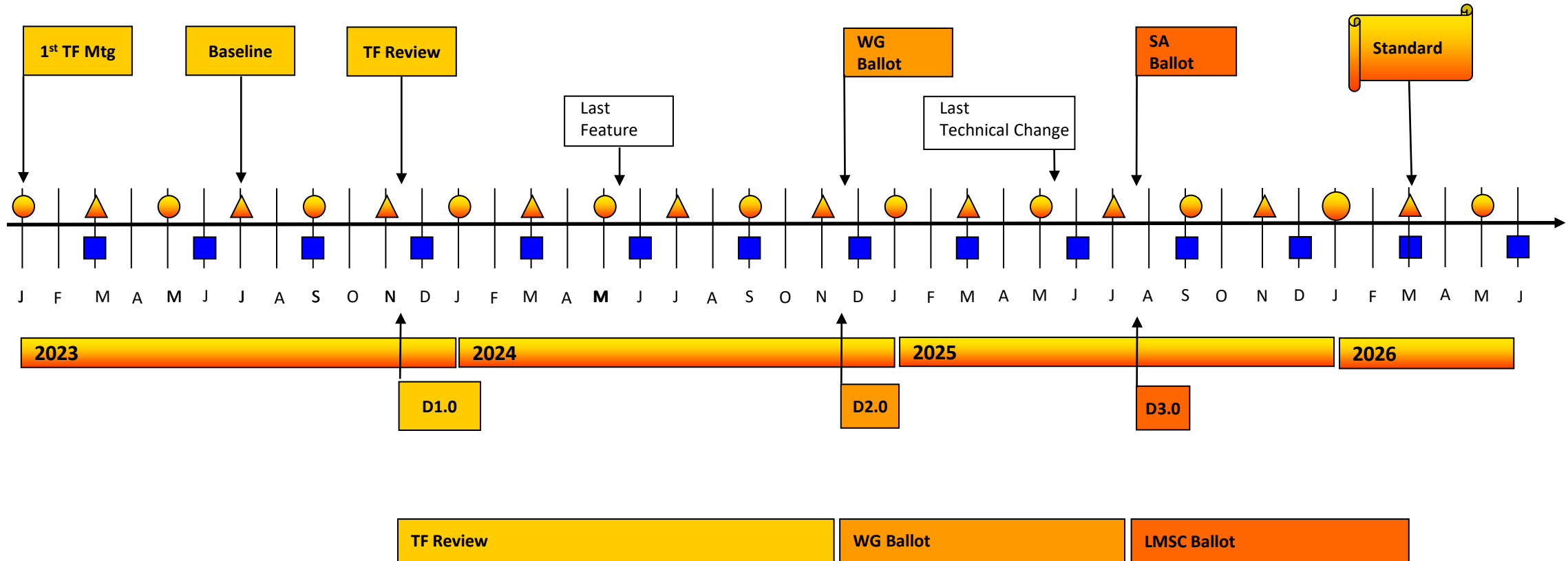
Joint Task Force Meetings

- **Per Motion #11 approved @ IEEE 802.3 Closing, Nov 2022 (**see minutes @ https://www.ieee802.org/3/minutes/nov22/index.html**)**
  - **Move that the IEEE 802.3 Working Group grant approval for the P802.3df and P802.3dj Task Forces to take motions during any joint meeting between these task forces only**

- **Joint Task Force meetings will be announced**

Reminder: Relative Cost Analysis

- Relative Cost analysis is a potential consideration in the 10km PHY debate, but be aware such presentations may require IEEE Risk management review if individuals do not follow guidelines provided in IEEE SA Anti-trust policy available at <http://standards.ieee.org/wp-content/uploads/2022/02/antitrust.pdf>.

- Further information about IEEE 802.3 cost discussion can be found in 'Presentation on Cost Discussions to IEEE 802.3 Working Group' <https://www.ieee802.org/3/100GNGOPTX/public/may12/lindsay_01_0512_optx.pdf>.

- Please note that such IEEE Risk management review can take up to ~30 days. Individuals not budgeting sufficient time for review may have presentations scheduled for later meetings to allow these reviews.

MARK GUSTLIN

Key <u>Logic</u> Issues Going Forward

- **Baselines needed!**
  - **Baselines should address all speeds as applicable (200G – 1.6T)**
  - **PCS definition for 1.6T**
    - **Must support 100G/lane AUI and 200G/lane PMDs/AUIs**
    - **Expecting a baseline proposal in this meeting**
  - **FEC definition for 200G/lane AUIs**
    - **FEC code choice (RS544) – Adopted**
    - **FEC distribution on 200G lanes (bit muxing or symbol muxing etc.) – Expecting proposals in this session**
  - **FEC definition for 200G/lane PMDs**
    - **500m/2km**
    - **Segmented or concatenated FEC scheme?**
  - **PCS/FEC definition for 10km PMDs**
    - **Depends on IMDD vs. coherent decision**
    - **Need proposals with logic definition**
  - **PCS/FEC definition for 40km PMDs**
    - **Assuming Segmented FEC scheme?**
  - **Where does CR fit into the above?**
    - **What FEC is needed?**

KENT LUSTED

Key <u>Electrical</u> Issues Going Forward

- **Baseline proposals needed – target is July!**
  - Some progress on 200G/lane AUI C2M
- **More channel contributions are needed**
  - Channels with OTB architectures and NPO approaches
- **Technical considerations to address**
  - AUIs
    - interaction with optical PMDs development
    - link training
  - Reference transmitter and receiver models
    - COM parameters and values
    - Error effects on FEC scheme (segmented and/or concatenated)
    - MSLE
  - Test methodologies
    - How to define the test points and where they are located?
    - Bandwidth considerations and test equipment
  - Package loss
  - CR PHYs
    - Host loss considerations: same or different from AUI?
    - Passive and/or Active cables specifications?
    - Where is the MDI for OTB (NPC, CPC)?
  - Backplane PHY objectives interest

- **Complete:**
  - 200G/lane AUI signaling type = differential PAM4

MARK NOWELL

Key Optical Issues Going Forward

▣ **All baseline proposals needed for P802.3dj Task Force!**
- 200G DR1, FR1
- 400G DR2
- 800G DR4, DR4-2, FR4, (LR4/LR1), ER1
- 1.6T DR8, DR8-2

▣ **Technical considerations to address**
- BER / Error Models per PMD; FEC requirements
- Interaction with AUI development
- Interop: Optical PMD specs must be independent of host AUI speed
- 10 km SMF PMD -
  - Observed options:
    - Option #1 - pick a path, refine a baseline
    - Option #2 – Re-evaluate 10km objective
  - Leadership concern: Relative Cost analysis (see next page)
- Potential future topics post-baseline but baseline adoption may need confidence around approach
  - Test methodologies for coherent based PMDs
  - Optical Link Budget Methodologies optimizations
  - SMF Fiber parameter investigation

MOTIONS

Task Force Motion

- **Move to approve motions related to "IEEE P802.3dj 200 Gb/s, 400 Gb/s, 800 Gb/s, and 1.6 Tb/s Ethernet" previously approved by IEEE P802.3df Task Force noted on Slide #5 of https://www.ieee802.org/3/dj/public/23_01/23_0116/dambrosia_3dj_01_230116.pdf**

- **M:**
- **S:**
- **Technical (>=75%)**

Task Force Motion

▪ **Move to adopt timeline for IEEE P802.3dj noted on slide #6 of https://www.ieee802.org/3/dj/public/23_01/23_0116/dambrosia_3dj_01_230116.pdf**

▪ **M:**

▪ **S:**

▪ **Technical (>=75%)**