# Editor’s Report

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# P802.3da Editorial Team

- Clause split is still mostly TBD, depends on detail
- Valerie Maguire, Managing Editor
  - Front matter, Clause 1, Definitions
  - Minor changes to existing clauses
  - Clause coordination (assemble book, etc.)
- George Zimmerman, Senior Editor
  - Powering clause
- Jon Lewis, Figures and IEEE 802.3 Chief Editor
  - State diagrams, figures, editorial Advice

# P802.3da Draft Structure

- Typical legacy clause content:
  - Clause 1 with definitions and normative references
  - Clause 30 with Management Objects
  - Clause 45 with MDIO registers
- Edits for existing clauses:
  - Clause 22 Reconciliation Sublayer and MII ; Clause 78 EEE
  - Clause 79 LLDP and TLV elements ; Clause 90 TSSI
  - Clause 147 10BASE-T1S (possible – if not new PHY clause)
  - Clause 148 PLCA
- New clauses:
  - Clause xxx, Powering on Multidrop Balanced Pair Mixing Segments
  - Clause yyy, New PHY (if not mods to clause 147)
  - Possible Clause zzz, Architecture for Multidrop Balanced Pair Mixing Segments

# Pre-draft Editor's Notes

- Frame book is ready to go
- Specific proposals to satisfy objectives are needed
  - We are close on:
    - TSSI - Just need a motion for text on slides 5 and 6 of .../102120/spmd_ptp_01a_102120.pdf
  - We have detailed discussion on PLCA node ID
    - Need to build consensus
  - We have conceptual discussion on powering
    - Need details
  - We have little discussion on PHY (see draft proposal slide 8)

# Progress on objectives – in process

- Objective 5: Support optional TSSI – Need motion
  - Proposed text structure – edits to existing clause
- Objective 3: Specify optional PLCA node allocation
  - In discussion, need to refine, get to consensus
    - .../102120/dalmia_3da_01_102120.pdf
    - .../110420/beruto_3da_01_110420.pdf
  - Proposed text structure: modifications to clause 148 and new PHY as needed

# Big Ticket Item: Powering

- Separate clause – see clause 104 for sections
- Objectives 9, 10, 11: Specify optional plug-and-play powering (and specific features)
  - .../092320/cjones_01_092320.pdf
    - Slide 5 proposes “voltage withstand” text – is this sufficient?
      - If so, motion...
  - Do we have consensus on approach in .../jul20/stewart_01_0720%20Classification.pdf ?
  - Need discussion of details to adopt

# Text Structure for Power

- PSE/PD Descriptions
  - Overview (write this LAST)
  - PSE characteristics
    - Types: voltages, power classes, will there be midspans?
    - Output classification power levels
    - Power supply electrical parameters (inrush, etc.)
  - Startup/detection protocols & state diagrams
    - (See Chad's preso)
  - Shutdown/adjustment protocols & state diagrams
  - Communicated parameters (LLDP, SCCP, messages)
  - Reported parameters (Registers, Management)
- Link Segment/Section Electrical Parameters
  - Resistance, capacitance, terminations
- Connector questions
  - QUESTION: is there a connector identified with POWER, or is it identified with DATA?
  - Anything special to support connecting a string of connectors?

# Big Ticket Item: PHY & Mixing Segment

- Objectives 1, 2, 4, 7, 8: Define performance characteristics for..., BER, Interoperable w/Cl 147, EEE, Environments
  - New PHY definition with new mixing segment, MDI loading
    - See .../102120/diminico_SPMD_01_1020.pdf
  - EEE definition
  - Failure modes
- **Proposal to consider: (Discussion now, possible motion next meeting)** Adopt a new PHY clause with text from multidrop-relevant sections of clause 147, with MDI electricals and mixing segment characteristics blank placeholders only (because we know they don't match our objectives)
  - Focus discussion on proposals to add or modify

# Related to PHY: MDI connector

- Objective 6: Select a single MDI connector
  - Dependent on progress on above – but need to hear strawmen so that analysis can take it into account
  - See 147.9.2 (at right)
  - Propose modifications to accommodate multidrop powering

When in multidrop mode, the MDI shall present a minimum parallel impedance across the MDI attachment points per Equation (147–8) and the limits for R, L, $C_{tot}$, and $C_{node}$ given in Table 147–4 over the stated frequency range. $C_{tot}$ is the maximum total capacitance across all MDI attachment points, while R, L, and $C_{node}$ are the resistance, inductance, and capacitance for each MDI attachment point.

Inductive elements are often used when power is applied across the data lines, and may be absent in non-powered implementations. Removing the parallel inductance is equivalent to setting L to infinity in Equation (147–8). The parasitic capacitance of inductive elements forms a portion of $C_{node}$.

$$|Z| = \frac{1}{\sqrt{\frac{1}{R^2} + \left(\frac{1}{2\pi \cdot f \cdot L} - 2\pi \cdot f \cdot C_{node}\right)^2}} \qquad (147\text{–}8)$$

where

$f$ is the frequency in MHz; $0.3 \le f \le 40$

Table 147–4—MDI impedance limit parameters

| Parameter name | Unit of measure | Minimum value | Maximum value |
|---|---|---|---|
| $R$ | kW | 10 | — |
| $L$ | µH | 80 | — |
| $C_{tot}$ | pF | — | 180 |
| $C_{node}$ | pF | — | 15 |

NOTE—The implementer is cautioned that loading the mixing segment with multiple nodes with worst case capacitance at the same location on the mixing segment may cause the mixing segment to exceed its return loss specification.

Excerpt from IEEE Std 802.3cg-2019 147.9.2

# Text Structure for PHY (based on cl 147)

- X.1 Overview (editor to draft when framework is there)
- X.2 Service primitives and interfaces
- X.3 Physical Coding Sublayer (PCS) functions
  - X.3.1, .2, .3, .4 PCS Reset, Transmit, Receive, Loopback
  - X.3.5, .6 Collision detection, Carrier sense
  - Question: X.3.7 – DO WE HAVE A “LINK STATUS” (Cl 147 ‘heartbeat’ is pt-to-pt only)
- X.4 PMA functions (Reset, Transmit, Receive)
  - Question: X.4.4, PMA Link Monitor? – tied to “LINK STATUS” and PCS above
  - Question: Any new “PHY Control?” – EEE, standby states, etc.  Would be new section here
- X.5 PMA electrical sinterfacepecifications (EMC, Test modes, TX, RX)
- X.6 Management (but not 147.6.1 – Auto Neg)
- X.8 Mixing segment characteristics
- X.9 MDI specification
- X.10 Environmental specifications
- X.11 Delay constraints
- X.12 PICS

# DISCUSSION