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
- Help appreciated – best if text is provided in word

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 (currently 200), 10BASE-T1M PHY (new PHY, based on clause 147)
  - Clause yyy (currently 201), Power for Multidrop Balanced Pair Mixing Segments
  - Possible Clause zzz, Architecture for Multidrop Balanced Pair Mixing Segments

Draft 0p2 Editor's Notes

- Specific motions from 11/18/2021 included text for:
  - TSSI: from slides 2 and 3 of jones_spmd_01_11182020.pdf
  - PHY: from clause 147 as modified in slides 3 through 7 of zimmerman_3da_01_111820a.pdf with editorial license to align to removal of point-to-point, auto-negotiation, and full-duplex text.
  - Related definitional work
  - This presentation highlights some issues identified in the draft preparation

Progress on objectives – in process

- Objective 5: Support optional TSSI – seems complete
- Objective 3: Specify optional PLCA node allocation
  - In discussion, need to refine, get to consensus, latest versions:
    - .../111820/dalmia_3da_111820.pdf , .../110420/beruto_3da_01_110420.pdf
  - Proposed text structure: modifications to clause 148 and new PHY as needed
  - Need consensus proposals
  - If using LLDP, also need to define TLVs and Clause 79 changes

Big Ticket Items: Powering

- Separate clause (currently 201)
- Objectives 9, 10, 11: Specify optional plug-and-play powering
  Need discussion of details or strawman text to adopt…
- Is clause 104 the right framework?
  - .../092320/cjones_01_092320.pdf Slide 5 proposes “voltage withstand” text – is this sufficient?
  - Do we have consensus on approach .../jul20/stewart_01_0720%20Classification.pdf ?
- Propose text/motion for consideration… don’t need all details

Big Ticket Items: PHY

- Definitely Need:
  - Mixing segment and connector specifications
  - Justification or Changes to increase reach/node count capabilities
- To consider (are changes needed):
  - Changes to 4B/5B encoding/PCS
  - Changes related to fault-healing/topology discovery, etc.
    - Would a PMD be needed?
      - Separate (non-editor's report) presentation forthcoming…

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 interface specifications (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

Editorial Review Issues (1/2)

- All: What do we call the new PHY? (assuming it remains)
  - Tentatively called 10BASE-T1M
    - M could stand for medium-reach or it could stand for multidrop, either way worked.
    - Anyone feels strongly or has a better idea, please speak up – it's easy to change now, but will get harder when we do registers
  - Please consider how we describe it – specifically, do we include mention of reach?
- Clauses 45 & 200: what register bits do we need?
  - We clearly don't need all the clause 147-related bits
  - Two ways to consider – build into 10BASE-T1S registers vs. create new registers based on 10BASE-T1S registers
  - Recommend reuse – see subsequent slides, build consensus, motion for next meeting.

Register bits – Test Mode Control

- Easy reuse, room for expansion

Table 45–150f—10BASE-T1S test mode control register bit definitions

Bit(s)	Name	Description	R/W[a]
1.2299.15:13	Test mode control	15 14 13 1 1 x = Reserved 1 0 1 = Reserved 1 0 0 = Test mode 4 0 1 1 = Test mode 3 0 1 0 = Test mode 2 0 0 1 = Test mode 1 0 0 0 = Normal (non-test) operation	R/W
1.2299.12:0	Reserved	Value always 0	RO

[a]RO = Read only, R/W = Read/Write

13 reserved bits (single block) available for use

Register bits – PMA Control Register

- Reuse or largely duplicate 10BASE-T1S PMA Control:

Table 45–150d—10BASE-T1S PMA control register bit definitions

Bit(s)	Name	Description	R/W[a]
1.2297.15	PMA reset	1 = PMA reset 0 = Normal operation	R/W, SC
1.2297.14	Transmit disable	1 = Transmit disable 0 = Normal operation	R/W
1.2297.13:12	Reserved	Value always 0	RO
1.2297.11	Low-power	1 = Low-power mode 0 = Normal operation	R/W
1.2297.10	Multidrop mode	1 = Enable operation over mixing segment network 0 = Disable operation over mixing segment network	R/W
1.2297.9:1	Reserved	Value always 0	RO
1.2297.0	Loopback	1 = Enable loopback mode 0 = Disable loopback mode	R/W

[a]RO = Read only, R/W = Read/Write, SC = Self-clearing

11 reserved bits (2 and 9 bit blocks) for additional functionality

Multidrop mode bit is not useful for 802.3da phy – could either be repurposed for additional capability, or could be always read as ‘1’ for new PHY

Register bits – PMA Status Register

- Reuse or largely duplicate 10BASE-T1S PMA Status:

Table 45–150e—10BASE-T1S PMA status register bit definitions

Bit(s)	Name	Description	R/W[a]
1.2298.15:14	Reserved	Value always 0	RO
1.2298.13	Loopback ability	1 = PHY has loopback ability 0 = PHY has no loopback ability	RO
1.2298.12	Reserved	Value always 0	RO
1.2298.11	Low-power ability	1 = PMA has low-power ability 0 = PMA does not have low-power ability	RO
1.2298.10	Multidrop mode ability	1 = PMA has the ability to operate over a mixing segment network 0 = PMA does not have the ability to operate over a mixing segment network	RO
1.2298.9	Receive fault ability	1 = PMA has the ability to detect a fault condition on the receive path 0 = PMA does not have the ability to detect a fault condition on the receive path	RO
1.2298.8:2	Reserved	Value always 0	RO
1.2298.1	Receive fault	1 = Fault condition detected 0 = Fault condition not detected	RO/LH
1.2298.0	Reserved	Value always 0	RO

11 reserved bits (2, 1, 7, and 1 bit blocks) for additional functionality

Multidrop ability bit is not useful for 802.3da phy – could either be repurposed as an additional capability, or could be always read as ‘1’ for new PHY

Editorial Review Issues (2/2)

- Clause 78 EEE – need proposals
  - Possibly impacting clauses 22 and 200 as well
- Clause 200 (PHY specification):
  - Pages 31, 45, 48: PCS_STATUS.indication (pcs_status), LINK MONITOR, and HEARTBEAT
    - Issue: We chose not to eliminate HEARTBEAT and Auto-Negotiation which are the functions which set and use pcs_status but chose to keep pcs_status.
    - Need: Either to eliminate pcs_status primitive, redefine, and, if kept, adopt baseline for alternate way of setting and descriptions of alternate use.
  - (minor) Page 52: high impedance mode specification:
    - ISSUE: The wording says, “presents the minimum parallel impedance specified”, which can be read as presenting an exact value.
    - This may also be needed maintenance on Clause 147.
  - Other PHY issues (known):
    - Need mixing segment and connector specifications
    - Need changes to increase reach/node count capabilities, or justification
    - Need any changes to 4B/5B encoding
- Any annexes envisioned? (none currently)

DISCUSSION