Editor’s Report: P802.3dg draft 0.3

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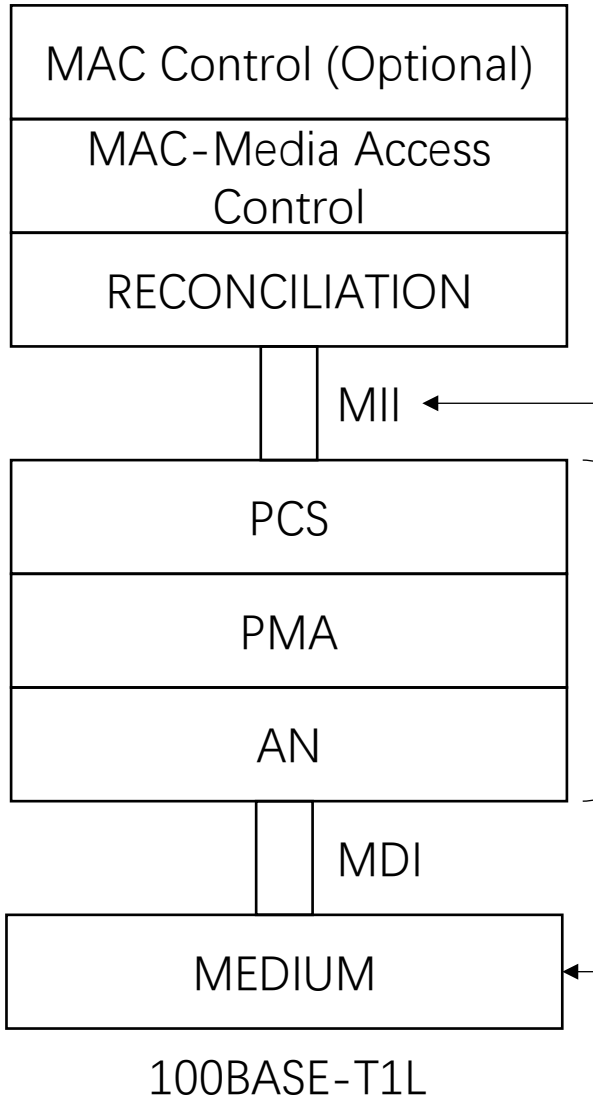
IEEE P802.3dg Task Force March 2025

Introduction

- Review of the adopted baselines
- Updates in D0.3
- Known errata to be filled in the next version
- Expectations for this meeting
- Next step

Adopted baselines



MII:

- New Sequence Ordered Set to be added on MII per slide 3 of Lo_3dg_01a_0724.pdf (not implemented in d0p3)

PCS&PMA:

- Rules of nibble combing at input/output of the 8N/(8N+1) according to p3, p9, p10-12, p15 of Lo_3dg_01a_0724.pdf
- PAM3 with 8B6T according to Murray_3dg_01a_07152024.
- Modification on 8N/(8N+1) according to p13,14 of Lo_3dg_01a_0724.pdf.
- PCS Tx Scrambler according to Murray_3dg_02_09172024.pdf.
- set the auxiliary bit in the PHY frame to zero.
- Control code and Mode encoding/decoding & pseudo code for 8N/(8N+1) in p3~p8&p10 of Murray_3dg_01a_11132024.pdf.
- EEE adopted in p4 to7 of Murray_3dg_03a_11132024.pdf.
- Auto-Negotiation adopted in p3 to p7 of Fitzgerald_3dg_01_11132024.pdf.
- Training and PHY Control State Diagram adopted in Curran_3dg_01a_01202025.pdf.

Link Segment

- Link segment parameters (RL, IL, PSANEXT & PSAACR-F and TCL) as in link_segment_090723.pdf.

Updates in d0.3 (1)

Clause 45. Management Data Input/Output (MDIO) Interface		Notes
45.2.3.1	100BASE-T1 PCS control register (Register 3.2400)	Contents added
45.2.3.1.1	PCS reset (3.2400.15)	
45.2.3.2	100BASE-T1L capabilités register (Register 3.2403)	
45.2.3.2.1	100BASE-T1L SEQ capability (3.2403.2)	
45.2.3.2.2	100BASE-T1L EEE capability (3.2403.1)	
45.2.3.2.3	100BASE-T1L RS-FEC capability (3.2403.0)	
45.2.3.3	100BASE-T1L advertisement register (Register 3.2404)	
45.2.3.3.1	100BASE-T1L SEQ advertisement (3.2404.2)	
45.2.3.3.2	100BASE-T1L EEE advertisement (3.2404.1)	
45.2.3.3.3	100BASE-T1L RS-FEC advertisement (3.2404.0)	
45.2.3.4	100BASE-T1L link partner advertisement register (Register 3.2405)	
45.2.3.4.1	100BASE-T1L link partner SEQ advertisement (3.2405.2)	
45.2.3.4.2	100BASE-T1L link partner EEE advertisement (3.2405.1)	
45.2.3.4.3	100BASE-T1L link partner RS-FEC advertisement (3.2405.0)	

Updates in d0.3 (2)

Clause 199 Physical Coding Sublayer (PCS), Physical Medium Attachment (PMA) sublayer and baseband medium, type 100BASE-T1L		**Notes**
199.1.1	Overview	Contents updated
199.1.2	Relationship of 100BASE-T1L to other standards	
199.1.3	Operation of 100BASE-T1L	
199.1.4	Signaling	
199.1.5	Interfaces	
199.2	100BASE-T1L Service primitives and interfaces	Contents added
199.3	Physical Coding Sublayer (PCS)	Contents updated as per discussions in Electronic Interim on February 5, 2025
199.3.3	PCS Transmit function	
199.3.3.1	Use of blocks -	
199.3.3.2	(8N)B/(8N+1)B transmission code	
199.3.3.3	Notation conventions	
199.3.3.4	Block structure	
199.3.3.5	Control codes	
199.3.3.6	Transmit process	
199.3.3.7	RS-FEC encoder	
199.3.3.9	Generation of bits Sxn[3:0], Syn[3:0], and Sgn[3:0]	
199.3.3.11	Generation of code-groups8B6T encoding	
199.3.4	PCS Receive function	Contents added accordingly

Updates in d0.3 (3)

Clause 199 Physical Coding Sublayer (PCS), Physical Medium Attachment (PMA) sublayer and baseband medium, type 100BASE-T1L		**Notes**
199.3.5	Training	Adopted baselines in Jan. Interim and texts are incorporated
199.3.5.1	PMA training	
199.3.5.2	PCS frame alignment and advertisement of PHY capabilities	
199.3.5.3	4B6B encoding	
199.4	Physical Medium Attachment (PMA) sublayer	
199.4.1	PMA Reset function	
199.4.2	PMA Transmit function	
199.4.3	PMA Receive function	
199.4.4	PHY Control function	
199.4.5	Link Monitor function	
199.4.6	Refresh Monitor function	
199.4.7	Clock Recovery function	
199.4.8	MDI	
199.4.9	State variables	
199.4.10	State diagrams	

Known errata to be fixed in d0.4 (1)

- Noting on P19 L39, the highlighted text refers to code groups as three ternary symbols. However, we use 8B6T. “three” should be “six” here, and the “TBD” is a cross-reference to 199.3.
- Need to add definitions for leader and follower and link them to master & slave PHYs (1.4.411 and 1.4.557). That requires text, and Chair will consult with the WG Chair for guidance.
- P20 L22 – Delete “ABBR expanded version” which is the placeholder from the template, as there is at least one abbreviation there.
- P21 L10-36 – there appears to be no need to change Figure 22-1. It already has 100 Mb/s in it… (delete editing instruction and figure). Leave the clause, but remove the editor’s note and figure.
- P31L1 – editing instruction should only insert the one clause. Delete “to Clause 199x in numeric order …” and replace with “following Clause xxx” (to be filled in when the clause number is assigned)
- P33 L 20-50 – unless we know something about the edit (or that one is definitely needed), delete notes that edits may be needed (in the next draft). For Figure 199-1, edit to align NOTE 1 with the similar figure in 802.3da d2p1: “NOTE —Physical implementation of MII is optional”
- P34 L2 – do we know what to draw for 199-2? If not, change the note to “Proposal for Figure 199-2 Functional block diagram is needed” – that will remind people for contributions.
- P38 L10 – There was an editorial suggestion to remove note 1 as there were no optional interfaces, but that isn’t what note 1 is about – it is about optional interface PRIMITIVES. The EEE primitives shown in dashed lines in the figure are optional. Keep the note, delete the Editor’s note instruction to Remove NOTE 1.
- P57 L3 – Clarify what editor’s note is supposed to mean – is this text depending on some decision that is to be made? The subclause number in it is also out of order too. Needs clarification.
- P72 L42 – These values were set by Murray_3dg_03a_11132024 adoption. Delete note that the values may need to change (entire note may be deleted – only cross reference to check)

Known errata to be fixed in d0.4 (2)

- P72 L42 – These values were set by Murray_3dg_03a_11132024 adoption. Delete note that the values may need to change (entire note may be deleted – only cross reference to check)
- P72 L53, and P73 L2 & L4 – Highlighted numbers have been decided, see above, remove highlights.
- . Some of the editor's notes may be able to be removed as they have been acted on: For example, the one about "may optionally support" (page 35) which is fixed.
- P74 L8 - ?'s in tables are <= (less than or equal to) signs. Reference should be, "The synchronization for the alert signaling is described in Table 199-9 and Table 199–10." (taken from 165.3.6.1). Editor's note can be deleted.
- P74 L42 – (8N/8N+1) should be (8N)B/(8N+1)B like it is everywhere else.
- P90 L14 – "PAM local loopback" should be "PMA local loopback"
- P97, L33 - missing parts on PSANEXT and PSAACRF specification which was adopted in link_segment_090723.pdf.

Delete Editor's notes at:

- P19 L14 (the clause number needs to be assigned, and I think it is time to get one. However, once you get one, Frame will auto-populate the cross references.)
- P32 L2 we can delete the "placeholder text" notes when text is approved.
- P36 L16 can be deleted.
- P58L23 – this is really for the editor/ anyhow, I checked clause 113 and 165 – they are identical in format and style… delete note.
- P61 L21 – delete editor's note.

Ask for Technical contents (1)

Registers - PMA/PMD types	
45.2.1	Table 45-3
45.2.1.7	Tables 45-9 & 45-10 Transmit & Receive fault locations
45.2.1.16	Table 45-19 (BASE-T1 PMA/PMD extended ability)
45.2.1.214	Table 45-178 (BASE-T1 PMA/PMD control register Type selection)
45.2.1.236a	Table 45-198a 100BASE-T1L PMA control register bit definitions
45.2.1.236b	Table 45-198b 100BASE-T1L PMA status register bit definitions
45.2.1.236c	Table 45-198c 100BASE-T1L test mode control register bit definitions
45.2.3	Table 45-233 PCS registers (consider relocating PCS registers at either 3.2280 or 3.2295)
45.2.3.88a	100BASE-T1L PCS status register (location fits within what is in dg draft 0p3)
45.2.7	Table 45-378 Auto-Negotiation MMD registers
45.2.7.27a	Table 45-402a 100BASE-T1L AN status register (7.528)
45.5.3.3	PMA register PICS – should wait until mostly complete
45.5.3.4	PCS register PICS – should wait until mostly complete

Ask for Technical contents (2)

Clause 78 EEE	
78.1.4	Table 78-1 clause
78.2	Table 78-2 summary of T_s, T_q, T_r
78.5	Table 78-4 Summary of Tw_sys_tx, phy, shrink, and sys timing parameters

Clause 98 Auto-Negotiation	
98.2.1	add 100BASE-T1L
98.5.1	add 100BASE-T1L to power on
98.5.2	add 100BASE-T1L to link_fail_inhibit_timer
98.6.2a	add 100BASE-T1L to option type (or add it to 10BASE-T1L option type existing.
98.6.8	change condition on SD11, SD12 to include 100BASE-T1L
98B.3	Technology Ability Field bit assignments

Clause 104 Power	
104.1.3	add 100BASE-T1L to PoDL system types

Ask for Technical contents (3)

Clause 199 100BASE-T1L	
199.1.3	Figure 199-2: Needs content. 10BASE-T1L did not have a functional block diagram, others do
199.5	PMA electrical specifications
199.5.1	EMC Tests
199.5.2	Test modes
199.5.3	Test fixture
199.5.4	Transmitter electrical specification
199.5.5	Receiver electrical specifications
199.5.6	PMA local loopback
199.6.2	LEADER-FOLLOWER configuration
199.8	MDI specification
199.9	Environmental specifications
199.1	Delay constraints

Expectations for this meeting

- Ask for review on d0.3 and accept the texts as the basis for the next draft.
  - Need to resolve at least:
    - Bulk of Clause 45 registers
    - 199.3.3.4 Block Structure & handling of sequence ordered sets
    - 199.3.4 Any requirements for PCS Receive
- Discuss on presentations and adopt baselines texts.
  - Review path to d1.0.

Summary

- Draft (D0.3) is provide in private area and ask for colleagues to review and anticipate a vote on d0.3 to adopt texts to move forward.
- Known errata will be incorporated into next version.
- We highly encourage colleagues to check clauses asks for technical contents and bring your contributions along with similar sections in 802.3 (preferably with baseline texts) to facilitate the baseline work.
- Again, if you see anything missing in the draft (which the group has already made decisions), please contact editors to incorporate it.
- Next Step:
  - Incorporate known errata as listed and adopted baselines in this meeting to generate the next version.
  - In particular, editors will be busy converting tables and figures during this turn(☺).

Thank you!