Editor’s Report: P802.3cg Draft D0.1

Valerie Maguire
IEEE P802.3cg, Chief Editor
George Zimmerman
IEEE P802.3cg, Chair

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P802.3cg Editorial Team (2017) - TBD

- Valerie Maguire, Chief Editor
  - Front matter, Clause 1, Definitions
  - Clause 30 Management
  - Clause 45 Management Data Input/Output (MDIO) Interface
  - Clause 78 EEE (TBD)
- George Zimmerman, Editor
  - PHY specification(s), excluding link segments
    - (e.g., Clause 146.x, excluding 146.7)
    - Permanent PHY editor sought – George will continue to assist
- Chris DiMinico, Editor
  - Clause 146.7, Link Segment Characteristics
- Jon Lewis, Editor
  - At large

P802.3cg Draft D0.1 Status

- Initial strawman (unofficial) draft version D0.1 was generated prior to meeting, containing typical legacy clauses projects update:
  - Clause 1 with definitions and normative references
  - Clause 30 with management objects
  - Clause 45 with MDIO registers
- Placeholder for existing clauses included:
  - Clause 78 with Energy Efficient Ethernet functionality
  - Clause 98 with single-pair autoneg
- Additional Clause(s) included:
  - Clause 146, which is where P802.3cg PHY will be defined in detail, subject to TF decision

P802.3cg Draft D0.1 Outline (1)

P802.3cg Draft D0.1 Outline (2)

P802.3cg Draft D0.1 Outline (3)

Clause Status: 1, 30, 45, 78, and 98

- Clauses 1, 30, 45, 78, and 98 are placeholders at this time and do not contain any technical material
- Clause 1 will be updated over time to include definitions, abbreviations, and normative references added by P802.3cg
- Clauses 30 and 45 will be updated when more information about P802.3cg PHY is available, to decide how it needs to be managed remotely (via SNMP – Clause 30 objects) and locally (via MDIO - Clause 45 registers)
- TBD – after 802.3bw, Clause 30 objects were rolled into 802.3.1 to form a machine readable MIB structure

Changes

- Typical changes include modifications of existing material (currently shown) with inserts and strikethroughs, as needed, or insertion of brand new material with underlines (new subclauses) as needed
- Examples of modifications in P802.3bq are shown on next slides

Editing example (1)

- In this example, title was modified
- Text in underline is being added by the project
- Text in strikethrough is being removed by the project

Change the second paragraph of 55.3.4 as shown:

55.3.4 PMA training side-stream scrambler polynomials

~~Moreover d~~NOTE—During Auto-Negotiation a device may request its link partner to use periodic training sequence initialization. This function is deprecated; devices may ignore this request if it is received, and it is recommended not to send it. A device that receives this request and does not ignore it generates a periodically repeating pattern by reinitializing its scrambler state after every 16384 symbol periods to the 33-bit value ~~each transceiver may request the remote transceiver to reinitialize the values of its scrambler state after every 16384 symbol periods, to generate a periodically repeating pattern with repetition period 16384. The initial 33 bit values of the scrambler state shall be~~ generated by combining 0x39A422 for the 22 MSBs and random value SB10-SB0 from Table 55–15 generated by the local device for the 11 LSBs as shown in Figure 55–13.

Editing example (2)

- Changes can also affect tables
- New material was added (underlined) and some text was removed (strikethrough)

Change the name and description for bit 1.13.6 in Table 45–16 as follows (unchanged rows not shown):

Table 45–16—40G/100G PMA/PMD Extended Ability register bit definitions

Bit(s)	Name	Description	R/W[a]
1.13.6	~~Reserved~~40GBASE-T ability	~~Value always 0~~1 = PMA/PMD is able to perform 40GBASE-T 0 = PMA/PMD is not able to perform 40GBASE-T	RO

[a]RO = Read only

Clause Status: 146 Status (1)

- Clause 146 covers the definition of the P802.3cg PHY, including:
  - Functional specifications for Tx, Rx and signal detect
  - PMD to MDI electrical specifications (e.g., how P802.3cg PHY connects to selected media, electrical specifications for Tx and Rx, eye diagrams, and link segment definition for electrical tests
  - Definition of the P802.3cg link segment, including insertion loss, media type, delay, coupling parameters, NEXT, FEXT, etc.

Clause Status: 115 Status (2)

- Clause 146 covers the definition of the P802.3cg PHY, including:
  - MDI (connector) specifications, through definition of the connector performance characteristics, including allowances to allow manufacturers freedom to use their own connector designs as long as performance characteristics are met (TBD)
  - Requirements for Tx, Rx, and link segment measurements, including necessary reference models
  - Environmental specifications (if any)
  - Protocol implementation conformance statement (PICS) for implementers, collecting specific requirements in a simple format of a table

Suggested Development Order (1)

- First, focus on Clause 146, to cover as much of P802.3bp PHY definition as possible
  - Agree on the target link segment model (what kind of cabling, what specifications must be met, what reach is needed, etc.)
  - Once the link segment is defined, specify Tx and Rx parameters to make sure the given link segment can be supported
  - The process of defining link segment model and PHY electrical parameters is iterative, to make sure that resulting spec is technically and economically feasible

Suggested Development Order (2)

- Text in Clauses 30, 45, 78, and 98 should be added only when we have a good idea on how the P802.3cg PHY works and how it needs to be managed
- Text in Clause 1 can be added along the way, as new definitions, references and abbreviations become necessary

How does this scale - If/as we develop multiple PHYs?

- Several options:
  1. Add options and text to clause 146
     - This works when there is mandatory basic functionality with optional modes on top, particularly when the differences are small and negotiable
  2. replicate Clause 146 structure as a new PHY
     - Useful when the differences are substantial and global (both PCS and PMA/PMD)
     - Also useful with a common (or mostly common) PCS – in this case, reference the Clause 115 PCS text rather than repeat it
  3. Make Clause 146 PCS-only, and create multiple PMA/PMD clauses
     - Useful for multiple PHYs with a common (or mostly common) PCS

What to do with draft 0.1?

- Draft D0.1 is offered as a starting point for development of the P802.3cg draft, showing possible document structure based on the 802.3bw amendment
- It is far from complete, and may contain placeholders for material that is technically incorrect for this project, but helps focus the development on specific areas of interest
- Direct contributions to the draft (in the form of baseline proposals) are welcome (containing specific proposed text, parameters, tables, definitions, etc.) and once agreed to by the P802.3cg TF, they will find their way into next version of the draft

Summary

- Current version of the draft (D0.1) is posted in the private area for preview to help focus development efforts for the next meeting
- Contributions to Clause 146 are welcome
- Format draft review will be started in the future, when the draft is more technical complete and all major technical decisions are taken.

Questions?

Thank you!