

# Baseline Proposal – Electrical, RS, PCS, PMA, FEC

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IEEE 802.3cc / 25GE over SMF

# Baseline Proposal

- This proposal is intended to mirror the electrical interface characteristics of 25GBASE-SR.
  - Assumption: One interface, multiple plug types. Can't be a formal objective, Amendment 802.3cc must be able to stand on its own.
- References are to IEEE 802.3by Draft 3.2.
  - It is likely these do not change when 802.3by amendment is published, but changes could theoretically happen.
- A separate proposal should cover optical interfaces.

# Use Many Existing Clauses

- 802.3cc only specifies a new PMD, not a new PHY.
  - Thus RS, PCS, PMA, FEC layer changes are considered outside the scope.
  - Use the same MAC, RS, 25GMII as defined in clause 106.
  - Use the same PCS (64/66b) defined in clause 107.
    - NOTE: The Maximum T+R Delay at one end of the link (Clause 107.4) is 143.46 nsec.
  - Use 25GBASE-R PMA as defined in clause 109.
- Require use of KR4 FEC as defined in clause 108.
  - (Transcoding to 257b, rapid Code word markers and alignment, etc.)
  - Not allowed for 802.3cc : Different FEC, No FEC.

# Electrical Interface

- Use 25GAUI Chip-to-chip as defined in Annex 109A.
- Use 25GAUI Chip-to-module as defined in Annex 109B.
- 25.7815 GBd NRZ single lane interface.
  - Same as clause 112.2
- { Electrical + Optical } : BER / Frame loss ratio objectives as adopted by 25GE SMF study group (as objectives for 802.3cc task force).

# Similar To

- 25GBASE-LR, 25GBASE-ER adopt similar table as clause 112-1

Table 112-1—Physical Layer clauses associated with the 25GBASE-SR PMD

Associated clause	25GBASE-SR
106—RS	Required
106—25GMII <sup>a</sup>	Optional
107—PCS for 25GBASE-R	Required
108—RS-FEC <sup>b</sup>	Required
109—PMA for 25GBASE-R	Required
109A—25GAUI C2C	Optional
109B—25GAUI C2M	Optional
78—Energy Efficient Ethernet	Optional

<sup>a</sup>The 25GMII is an optional interface. However, if the 25GMII is not implemented, a conforming implementation must behave functionally as though the RS and 25GMII were present.

<sup>b</sup>The option to bypass the Clause 108 RS-FEC correction function is not supported.

# New PMD Clause Needed

- Need a new clause for 25GBASE-LR and 25BASE-ER PMD patterned after clause 112.
  - Defines PMD and fiber medium.
  - Soliciting a separate optical parameters baseline proposal.

# Open Issues

- EEE support is required by objectives.
  - Adopt Clause 78, however
  - Different levels of EEE are possible.
  - TBD: optional support for EEE deep sleep?
- OTN support is assumed to be unaffected by new 802.3cc PMD specification.