Overview of (editing) work required to create physical layer specifications for n*50G PAM4 over 40 km.

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Introduction

- **This presentation provides considerations on the work necessary to create specifications for the following P802.3cn objectives:**
  - *Provide a physical layer specification which supports 50 Gb/s operation over at least 40 km of SMF*
  - *Provide a physical layer specification supporting 200 Gb/s operation over four wavelengths capable of at least 40 km of SMF*
  - *Provide a physical layer specification supporting 400 Gb/s operation over eight wavelengths capable of at least 40 km of SMF*
- **The PAR also contains the following task:**
  - *Make TDECQ (Transmitter and dispersion eye closure for PAM4) related changes to existing 200 Gb/s and 400 Gb/s physical medium dependent sublayers over single-mode fiber*

cn project work

- **The objectives adopted for 802.3cn can be grouped in 2 categories:**
  1. PAM4 amplitude modulation, along the lines of 802.3bs and 802.3cd
  2. Coherent modulation (phase and amplitude)

- **The additional task contained in the PAR fits with category 1.**

- **This presentation identifies the work necessary for category 1 and which Clauses probably will need to be modified**

Provide a physical layer specification which supports 50 Gb/s operation over at least 40 km of SMF

- **The physical layer specification for this objective will probably be named 50GBASE-ER.**
- **It will be quite similar to the specification for 50GBASE-LR, developed within P802.3cd, contained in Clause 139.**
- **The difference is that the parameter values will need to be optimized for40 km.**
- **No work on specification methodology is necessary.**
- **Some exceptions to the TDECQ method in Clause 121 will need to be removed.**
- **So the only work is to develop and adopt a baseline for this objective and add new columns to relevant tables in Clause 139.**

Provide a physical layer specification supporting 200 Gb/s operation over four wavelengths capable of at least 40 km of SMF

- **The physical layer specification for this objective will probably be named 200GBASE-ER4.**
- **It will be quite similar to the specification for 200GBASE-LR4, developed within 802.3bs, contained in Clause 122.**
- **The difference is that the parameter values will need to beoptimized for 40 km.**
- **No work on specification methodology is necessary.**
- **The parts in Clause 122 related to TDECQ will need to be aligned with 802.3cd.**
- **The only work is to develop and adopt a baseline for this objective and to modify relevant parts in Clause 122.**

Provide a physical layer specification supporting 400 Gb/s operation over eight wavelengths capable of at least 40 km of SMF

- **The physical layer specification for this objective will probably be named 400GBASE-ER8.**
- **It will be quite similar to the specification for 400GBASE-LR8, developed within 802.3bs, contained in Clause 122.**
- **The difference is that the parameter values will need to be optimized for40 km.**
- **No work on specification methodology is necessary.**
- **The parts in Clause 122 related to TDECQ will need to be aligned with 802.3cd.**
- **The only work is to develop and adopt a baseline for this objective and to modify relevant parts in Clause 122.**

Further editing work related to PAM4

- **Modify parts of Clauses 121 and 124 related to TDECQ to align with 802.3cd.**
- **Remove some TDECQ related exceptions from Clauses 138 and 140**
- **Modifications to the following Clauses:**
  - **Clause 1 – Introduction**
  - **Clause 30 – Management**
  - **Clause 45 – Management Data Input/Output (MDIO) Interface**
  - **Clause 78 – Energy-Efficient Ethernet (EEE)**
  - **Clause 116 – Introduction to 200 Gb/s and 400 Gb/s networks**
  - **Clause 131 – Introduction to 50 Gb/s networks**

Q & A?

Thanks