



Thoughts on Naming the New PMD

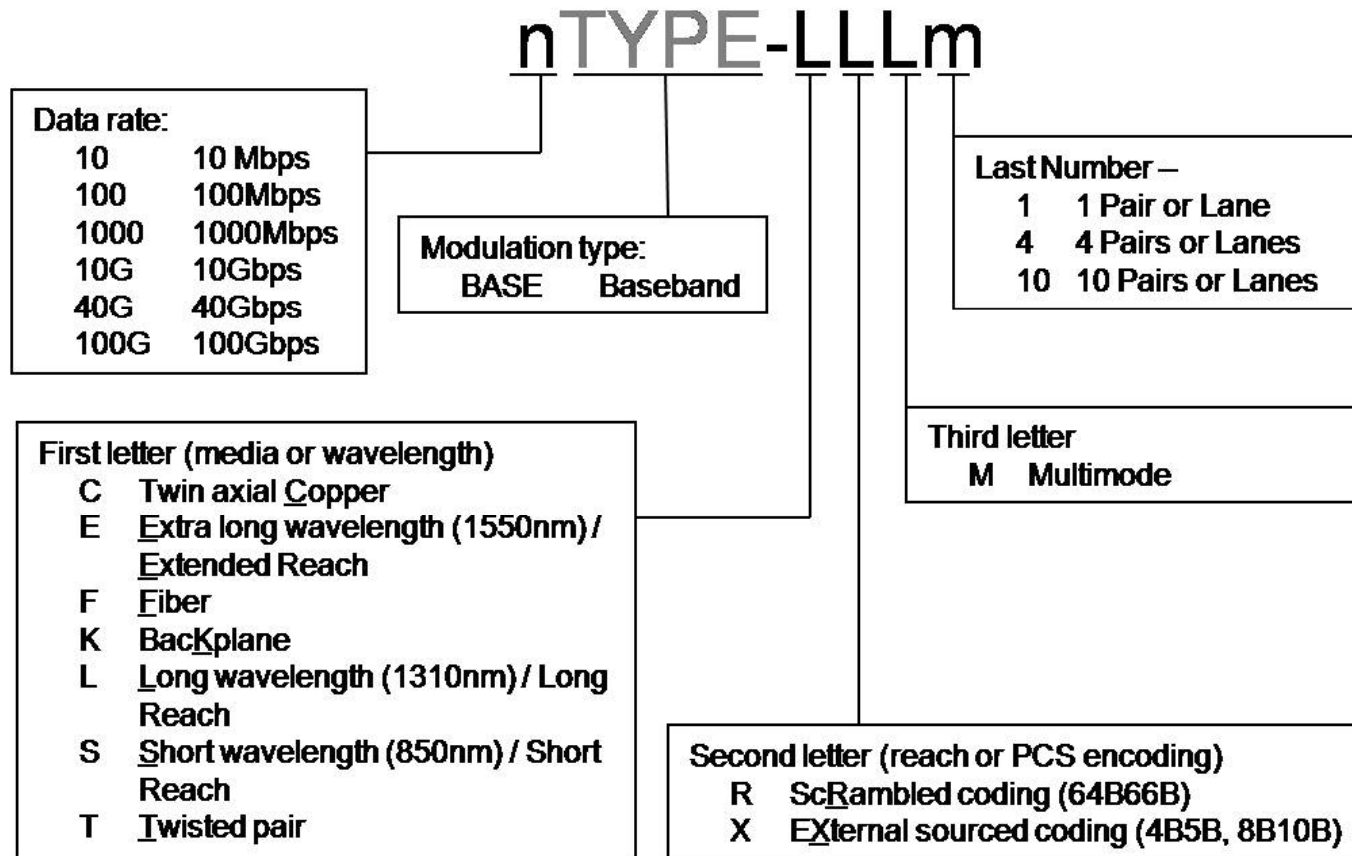
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Introduction

- PMD naming is always fun.... NOT
- Observations
 - Per IEEE 802.3 –
 - The PMD strings have meaning
 - Individual letters don't have meaning
 - Efforts have been made in development of IEEE 802.3 to try and be consistent
 - But.. Naming has evolved
 - IEEE P802.3ba recognized market perceptions

Historical Perspective



- Based on Law - http://www.ieee802.org/3/ba/public/jul09/law_01_0709.pdf, as modified by D'Ambrosia, Kipp, Law

IEEE P802.3ba Nomenclature (Table 80-1)

Name	Description
40GBASE-KR4	40 Gb/s PHY using 40GBASE-R encoding over four lanes of an electrical backplane, with reach up to at least 1 m (See Clause 84)
40GBASE-CR4	40 Gb/s PHY using 40GBASE-R encoding over four lanes of shielded balanced copper cabling, with reach up to at least 7 m (See Clause 85)
40GBASE-SR4	40 Gb/s PHY using 40GBASE-R encoding over four lanes of multimode fiber, with reach up to at least 100 m (See Clause 86)
40GBASE-LR4	40 Gb/s PHY using 40GBASE-R encoding over four WDM lanes on single-mode fiber, with reach up to at least 10 km (See Clause 87)
100GBASE-CR10	100 Gb/s PHY using 100GBASE-R encoding over ten lanes of shielded balanced copper cabling, with reach up to at least 7 m (See Clause 85)
100GBASE-SR10	100 Gb/s PHY using 100GBASE-R encoding over ten lanes of multimode fiber, with reach up to at least 100 m (See Clause 86)
100GBASE-LR4	100 Gb/s PHY using 100GBASE-R encoding over four WDM lanes on single-mode fiber, with reach up to at least 10 km (See Clause 88)
100GBASE-ER4	100 Gb/s PHY using 100GBASE-R encoding over four WDM lanes on single-mode fiber, with reach up to at least 40 km (See Clause 88)

For IEEE P802.3bg

- Most of the PHY names are straight forward:
- 40GBASE-“?”R (serial operation is 1, implied)
- The big question is what do we use for “?”

Relevant Issues

- Technical Issues –
 - What is the wavelength?
 - What is the reach?
- Market Issues –
 - 40GbE / 100GbE nomenclature chose “reach” not wavelength to determine “S”, “L”, or “E”
 - “L” is for reaches up to at least 10km
 - “E” is for reaches up to at least 40km
 - Potential Problems
 - Use of “L” for 2km
 - Use of “E” to represent 1550 nm

Moving Forward

- PHY name related to decisions yet to be made by IEEE P802.3bg Task Force
 - If a 2km solution is chosen –
 - Assumption of 1550nm solution
 - Do not use “L” – different reach
 - Do not use “E” – wavelength not part of 40GbE / 100GbE nomenclature
 - Possible candidates –
 - “F” – Fiber
 - “M” – Medium Reach
 - If a 10km solution is chosen –
 - Propose – 40GBASE-LR