

802.3 SMF PMD Nomenclature Proposal with Application to 400GBASE-LR4

P802.3cu 100 Gb/s and 400 Gb/s over SMF at
100 Gb/s per Wavelength Task Force

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Introduction

- 802.3cu adopted 6km 400GBASE-LR4 PMD baseline
- 802.3cn considered a 30km 400GBASE-ER4 PMD spec.
- Creating a new letter for every new reach is unmanageable
- Single letter has never meant a single reach in any standard
http://www.ieee802.org/3/cu/public/Sept19/cole_3cu_01b_0919.pdf#page=6
- Industry uses ad-hoc suffixes for non-standard reaches:
 - lite
 - extended
 - +
- There is a need for a nomenclature convention to differentiate between reaches within a PMD type
- Fortunately, this problem is solved in ITU-T and MSAs

ITU-T and MSA Reach Suffix Nomenclature

- ITU-T G.693 application code:
 - VSR600: 0.6km Serial
 - VSR1000: 1.0km Serial
 - VSR2000: 2.0km Serial (basis for 40GBASE-FR)
 - Separately, there are 4, 6, 12, 16dB loss categories
- 4WDM MSA 100G specifications:
 - 4WDM-10: 10km CWDM4
(vs. CWDM4 MSA 2km default)
 - 4WDM-20: 20km LWDM4
 - 4WDM-40: 40km LWDM4
 - Logo:



Nomenclature Proposal

Description	DR	FR	LR	ER	ZR
unit	m	km	km	km	km
reach (max) range	100 - 2000	1 - 3	4 - 20	20 - 40	any
default reach	500	2	10	40	80
default name	DRn	FRn	LRn	ERn	ZR
optional alt. default name	DRn-500	FRn-2	LRn-10	ERn-40	ZR-80
non-default ex.1 reach	300	1	6	30	120
ex.1 name	DRn-300	FRn-1	LRn-6	ERn-30	ZR-120
non-default ex.2 reach	1500	1.5	15	25	40
ex.2 name	DRn-1500	FRn-1.5	LRn-15	ERn-25	ZR-40

Nomenclature Proposal Examples

- 802.3cu:
 - 400GBASE-LR4-6: 6km CWDM4
http://www.ieee802.org/3/cu/public/Sept19/cole_3cu_01b_0919.pdf#page=5
 - 400GBASE-LR4-15: 15km LWDM4 (if feasible)
- 802.3bs follow-on possible future PMD:
 - 400GBASE-LR8-20: 20km LWDM8
http://www.ieee802.org/3/B10K/public/18_07/cole_b10k_01_0718.pdf
- 802.3cn follow-on possible future PMD:
 - 400GBASE-ER8-30: 30km LWDM8
http://www.ieee802.org/3/cn/public/tf_interim/19_0924/cole_3cn_01a_190924.pdf#page=14
http://www.ieee802.org/3/cn/public/19_05/chang_3cn_02_0519.pdf#page=7

Complete Nomenclature Proposal Example

- 400GBASE-PSM4.2 introduced in 802.3bs
http://www.ieee802.org/3/bs/public/14_05/cole_3bs_01a_0514.pdf#page=4
- 400GBASE-DR4 (PSM4) adopted in 802.3bs
http://www.ieee802.org/3/bs/public/14_05/cole_3bs_01a_0514.pdf#page=5
- 400GBASE-SR4.2: 1st no. of fibers. λ s suffix use (802.3cm)
- Possible future 802.3 TF may specify 800G PSM4 PMD(s)
Ex. 2x 100G λ /fiber-pair (i.e. PSM4.2 as in 802.3bs)
 - 800GBASE-DR4.2: 500m default reach name
 - 800GBASE-DR4.2-300: 300m reduced reach name

802.3 Actions

- Consistent with the Nomenclature Proposal, the following comment was submitted against P802.3cu D1.0:
Replace every instance of 400GBASE-LR4 throughout the document with 400GBASE-LR4-6
- Also consistent with the Nomenclature Proposal, no change was submitted against the following P802.3 D1.0 names:
 - 100GBASE-FR1
 - 100GBASE-LR1
 - 400GBASE-FR4
- No other action is recommended now in 802.3 with respect to the Nomenclature Proposal. Existing or future TF(s) can consider the Proposal, based on their project needs.

802.3 SMF PMD Nomenclature Proposal

Thank You