Nomenclature of 200Gbps optical PMDs over MMF link
Update since March Plenary

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Introduction

- This contribution brings updates on the nomenclature of 802.3ds objectives/PMDs since March Plenary.

- Goal of this contribution is to continue building consensus on the nomenclature choices

- Nomenclature is almost always an “opinionated” topic; usually a matter of preference

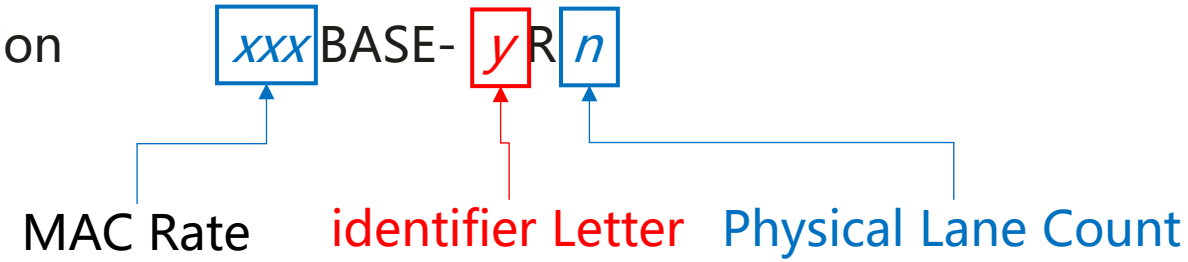
Background

- Adopted Objectives: optical PHYs that can operate with
  - > Series A: *n* pairs of MMF with lengths up to at least 30m
  - > Series B: *n* pairs of MMF with lengths up to at least 50m
  - > Where *n* can be 1, 2,4,8 to support 200GE, 400GE, 800GE and 1.6TE MAC rate

- Adopted a set of baseline specs for PMDs using 850nm wavelength supporting both Series A and Series B objectives.
- There are interest in the TF to develop a second set of PMDs using a different wavelength, i.e. 1060nm, also supporting both series of objectives.
- Conversation in the ad hoc meeting suggested consensus on names but that did not materialize in the Plenary meeting. ☹
- Adopted Timeline means <u>we need to decide on names for the PMDs quickly</u>

Historical PMD Naming Conventions

- BASE-R naming convention



- Previously used identifier letter *y*? for MMF optical PMDs
  - S for many generation of MAC rates. S meant for short wavelength or short reach (850nm)
    Impression: S = 850nm + MMF
  - V introduced in P802.3db for 100Gb/s signaling, a new letter for MMF
- Other legacy cases
  - L was only used for MMF PMDs in 1000BASE-LX, L for long wavelength(1300nm). Now L is more frequently recognized as the identifier for 10km BASE-R optical PMDs
  - A unique case: 10GBASE-LRM

Nomenclature Key Assumptions

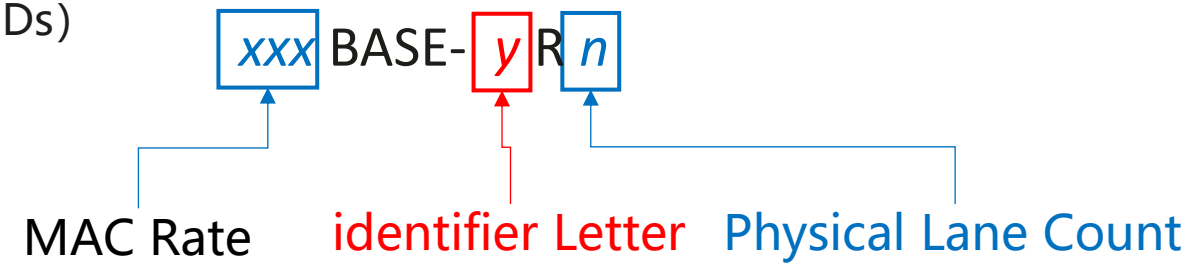
- #1: It is assumed that the TF wants to preserve the BASE-R PCS names and the naming conventions from the 1/2/4-lane versions of the PHYs in IEEE Std. 802.3-202x, P802.3ck, P802.3db, etc.
- #2: It is assumed that names should avoid other industry interface names to minimize confusion
  > For example, avoid “XSR”
- #3: It is assumed that names should not be overly complicated or prescriptive
  > For example, avoid “200GBASE-SR-MMF-850nm-50m”

We Have a Decision to Make

- We are on track to have 4 PHYs total: two different reaches using two different wavelengths
- How do we want to distinguish between them?

	30m	50m
850nm		
1060nm		

- **First Decision:**
  - > **Horizontal:** Use the same first "y" letter for each row (wavelength)
  - > **Vertical:** Use the same first "y" letter for each column (reach)
  - > **All:** use the same first "y" letter for all (all MMF PMDs)



Straw Poll #1 (March 25 Interim)

- I prefer the nomenclature direction of using the same first “y” letter for:
- A> Horizontal (wavelength)
- B> Vertical (reach)
- C> All (same for all 4)

- Results: A: 10 B: 4 C: 1

	30m	50m
850nm		
1060nm		

Next Step – Narrow the Choices

- Now that we have a preferred direction…
- Lets start with the options for the two PMD groups.

IF A:

Horizontal

Use the same first “y” letter for each row (wavelength)

IF A: Same first identifier for each row (wavelength)

The next decision to make: *y* for 850nm

- start with V&S the MMF tagged letter
- Use "-30" and "-50" for now to see how the names look like

	850nm		Straw Poll #1 from March 11 plenary
Option	30m MMF	50m MMF	
850-A	xxx BASE-VR*n*-30	xxx BASE-VR*n*(*-50*)	12
850-B	xxx BASE-SR*n*-30	xxx BASE-SR*n*-50	14

	30m	50m
850nm	→	→
1060nm	→	→

What about: *y* for 1060nm

- Still got one letter left that is tagged with MMF.
- OR, a new identifier
  - Other free letters : J and M
  - MR has been continuously use in OIF as CEI-xxxG-MOD-MR for indicating mid reach electrical interconnect. probably want to avoid that possibility.
  - J can be a possible identifier letter. But need to build new connection between "JR" and MMF optics
  - For our Japanese audience, JR is the high speed train!

Straw Poll #2, (March 25 Interim)

- I prefer the nomenclature direction of using ___ as the first “y” letter for 850nm:
- A> use V
- B> use S

- Results: A: 4 B: 12

	30m	50m
850nm	→	→
1060nm	→	→

- Possible: use “-30” and “-50” for the two reaches

Straw Poll #3, (March 25 Interim)

- I prefer the nomenclature direction of using ___ to distinguish 1060nm:
- A> use the other identifier y = V
- B> use a different identifier y = a new letter (TBD)
- C> use a second identifier e.g.: xxx BASE- S*z* Rn

- Results: A: 2 B: 12 C: 0

	30m	50m
850nm	→	→
1060nm	→	→

J-M --- H-I-N-O-Q-W-Y-P?

Straw Poll #4, (March 25 Interim)

I prefer to use ___ as the identifier letter y for 1060nm PMDs.

e.g. xxxBASE-yRn-30 & xxxBASE-yRn-50

A> J

B> M

C> P

D> Another letter

Results:

Chicago Rules: A: 7 B: 11 C: 4 D: 2

Pick one: A: 3 B: 10 C: 0 D: 1

Motion #1 (March 25 Interim) 850nm

For the 850nm wavelength MMF PMDs nomenclature, I support to use the nomenclatures shown in the following table in P15 of mi_3ds_01a_260325.pdf.
Mover: Guangcan Mi
Second: Mike Dudek
> Yes
> No
> Abstain
> Result: Motion passed by unanimous consent

	850nm PMDS	
	30m MMF reach	50m MMF reach
PMDs	200GBASE-SR1-30 400GBASE-SR2-30 800GBASE-SR4-30 1.6TBASE-SR8-30	200GBASE-SR1-50 400GBASE-SR2-50 800GBASE-SR4-50 1.6TBASE-SR8-50

Motion #2 （March 25 Interim）1060nm

For the 1060nm wavelength MMF PMDs nomenclature, I support to use the nomenclatures shown in the following table in P16 of mi_3ds_01a_260325.pdf
Mover: David Lewis
Second: Ali Ghiasi
> Yes
> No
> Abstain
> Result: Motion passed by unanimous consent.

	1060nm PMDS	
	30m MMF reach	50m MMF reach
PMDs	200GBASE-MR1-30 400GBASE-MR2-30 800GBASE-MR4-30 1.6TBASE-MR8-30	200GBASE-MR1-50 400GBASE-MR2-50 800GBASE-MR4-50 1.6TBASE-MR8-50

IF B:

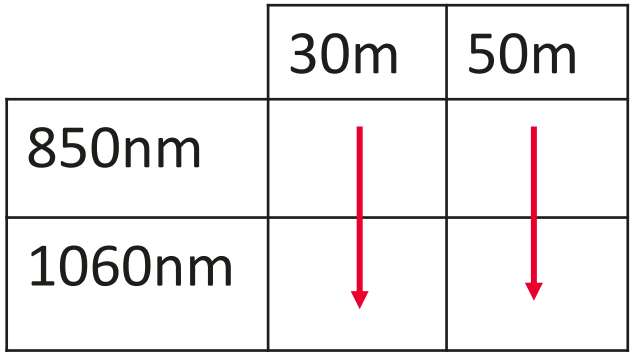
Vertical

Use the same first “y” letter for each column (reach)

Note: Due to “Vertical” was not selected as indicated by straw poll #1 in P8 of this contribution, slides 17~20 and associated straw polls were not used.

IF B: Same identifier for each column （reach)

A second decision to make: *how to distinguish the two wavelengths*



Use a second identifier letter *xxx* BASE-*yz*R*n*

Use an appendix identifier letter *xxx* BASE-*y*R*n-z*

A third decision to make: *the identifier y for the two reaches*

V for 30m & S for 50m
Other letters

Straw Poll distinguishing the wavelength

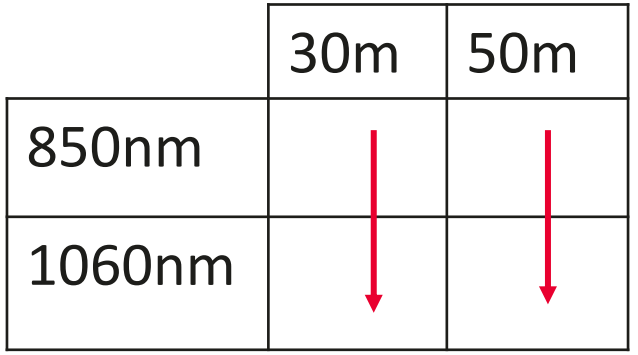
- I prefer the style of using ___ to distinguish the two wavelengths PMDs
- A> a second identifier letter , *xxx* BASE-*yz*R*n*
- B> an appendix identifier letter, *xxx* BASE-*y*R*n-z*

- Results: A: B:

	30m	50m
850nm	↓	↓
1060nm	↓	↓

Straw Poll identifiers for the reaches

- I prefer using letter __ for 30m reach, and ___ for 50m reach
- A> V, S
- B> S, V
- C> other letters
- Results: A: B: C:



IF C:

All

use the same first “y” letter for all (all MMF PMDs)

Note: Due to “All” was not selected as indicated by straw poll #1 in P8 of this contribution, slides 17~20 and associated straw polls were not used.

IF C: Same first identifier for all (wavelength)

One identifier for all 4 types of MMF PMDs.
Need:

- Way to distinguish the wavelengths
- Way to distinguish the reaches

Back to square one.

	30m	50m
850nm		
1060nm		

Backup

Status on nomenclature of the 850nm PMD family

- A straw poll was conducted in March plenary, with three Strawmen for 850nm PMDs

Option	30m MMF	50m MMF	Votes
A	xxx BASE-VRn-30	xxx BASE-VRn	12
B	xxx BASE-SRn-30	xxx BASE-SRn-50	14
C	xxx BASE-VRn	xxx BASE-SRn	3

} Propose a second straw poll between A & B In later straw poll section

Readout from the Straw Poll

- It seems 802.3ds TF is not in favor of using V and S for 30m and 50m respectively. (option C)
- It seems 802.3ds TF prefers using a unified identifier letter with appendix to indicate the different fiber link lengths. (option A & B)
- It seems 802.3ds TF doesnot have strong preference between the two identifier letter, V and S, but slightly leaning towards *S*

P802.3ds Straw Poll #1 - Nomenclature 850nm

For the nomenclature proposals for the 30m and 50m MMF PMD using 850nm wavelength, that I would prefer to adopt is

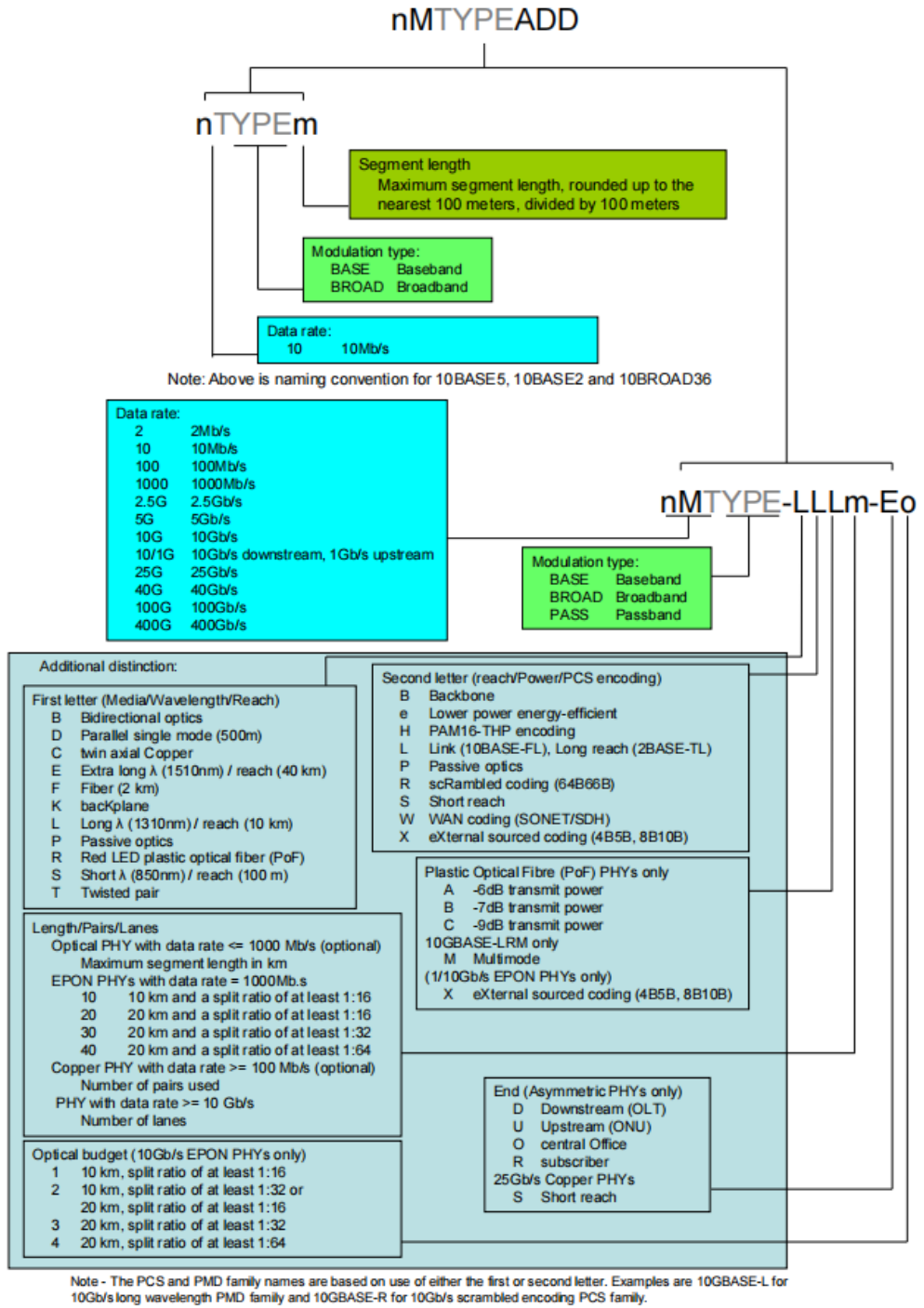
a) option in slide 5 of mi_3ds_01_2603.pdf, x00GBASE-VR*n* for 30m reach and x00GBASE-SR*n* for 50m reach

b) option in slide 9 of mi_3ds_01_2603.pdf, x00GBASE-VR*n*-30 for 30m reach and x00GBASE-VR*n* for 50m reach

c) x00GBASE-SR*n*-30 for 30m reach, and x00GBASE-SR*n*-50 for 50m reach

All (a/b/c)	A: 3, B: 12, C: 14

PHY Names in IEEE 802.3



Existing and under development IEEE 802.3 PHYs (Page 1 of 7)

Name	Media (TX wavelength)	Reach	Clause	Notes
2BASE-TL	Voice grade subscriber UTP		61, 63	
10BASE5	Coax	500 m	8	Deprecated
FOIRL	Duplex multimode (850nm)	1 km	9.9	Superseded
10BASE2	Coax MAU	185 m	10	Deprecated
10BROAD36	CATV coax		11	Deprecated
10BASE-T	Balanced twisted-pair (2 pairs)	100 m	14	
10BASE-Te	Balanced twisted-pair (2 pairs)	100 m	14	Lower power
10PASS-TS	Voice grade subscriber UTP		61, 62	
10BASE-FP	Duplex multimode (850 nm)	1 km	16	Deprecated
10BASE-FB	Duplex multimode (850 nm)	2 km	17	Deprecated
10BASE-FL	Duplex multimode (850 nm)	2 km	18	
100BASE-BX10-D	Single singlemode (1550 nm)	10 km	58	
100BASE-BX10-U	Single singlemode (1310 nm)	10 km	58	
100BASE-FX	Duplex multimode (1310 nm)	2 km	26	
100BASE-LX10	Duplex singlemode (1310 nm)	10 km	58	
100BASE-T1	Single Twisted-pair	15 m	96	
100BASE-T2	Balanced twisted-pair (2 pairs)	100 m	32	Deprecated