



802.3cz PHY naming

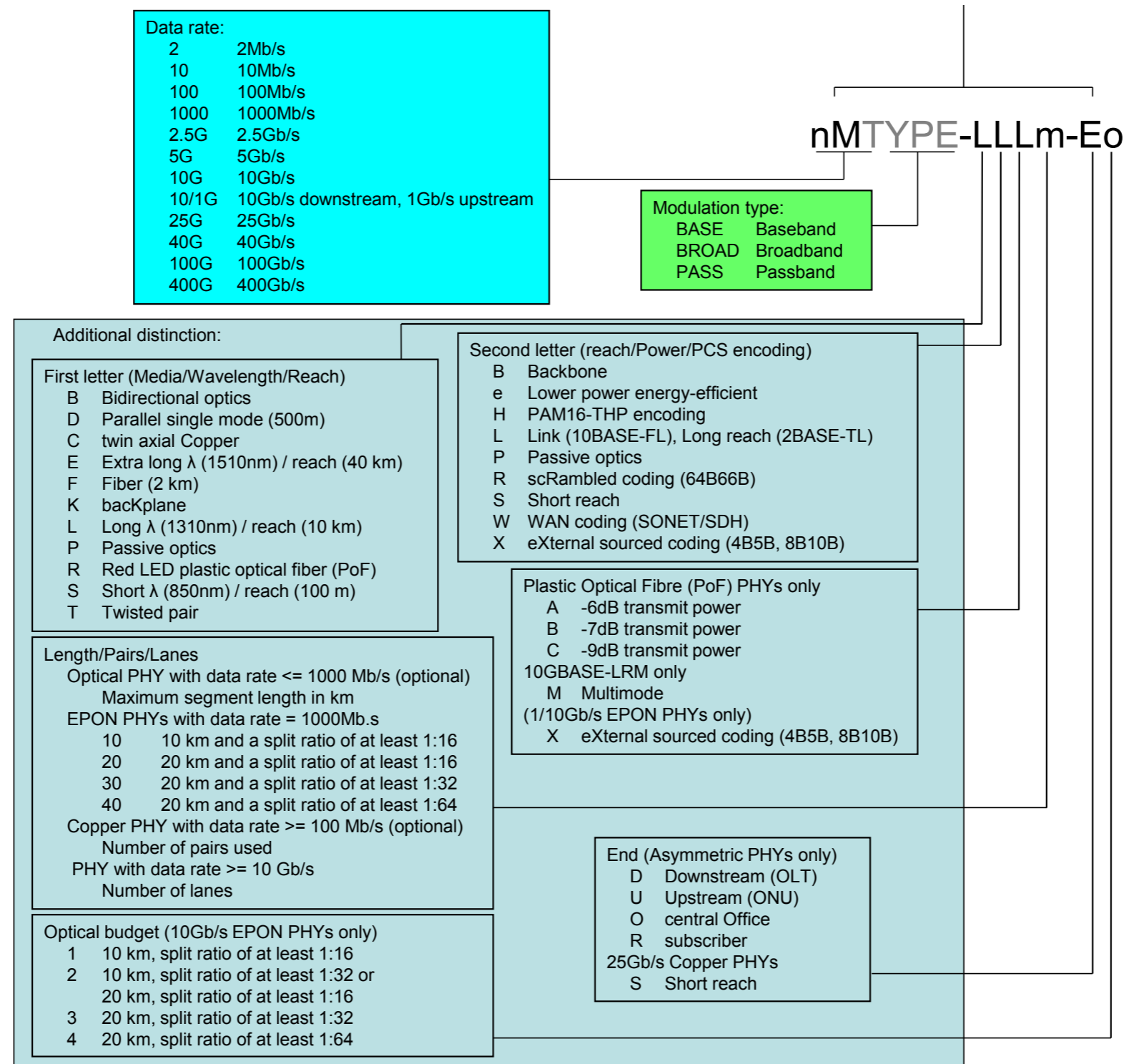
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About PHY naming



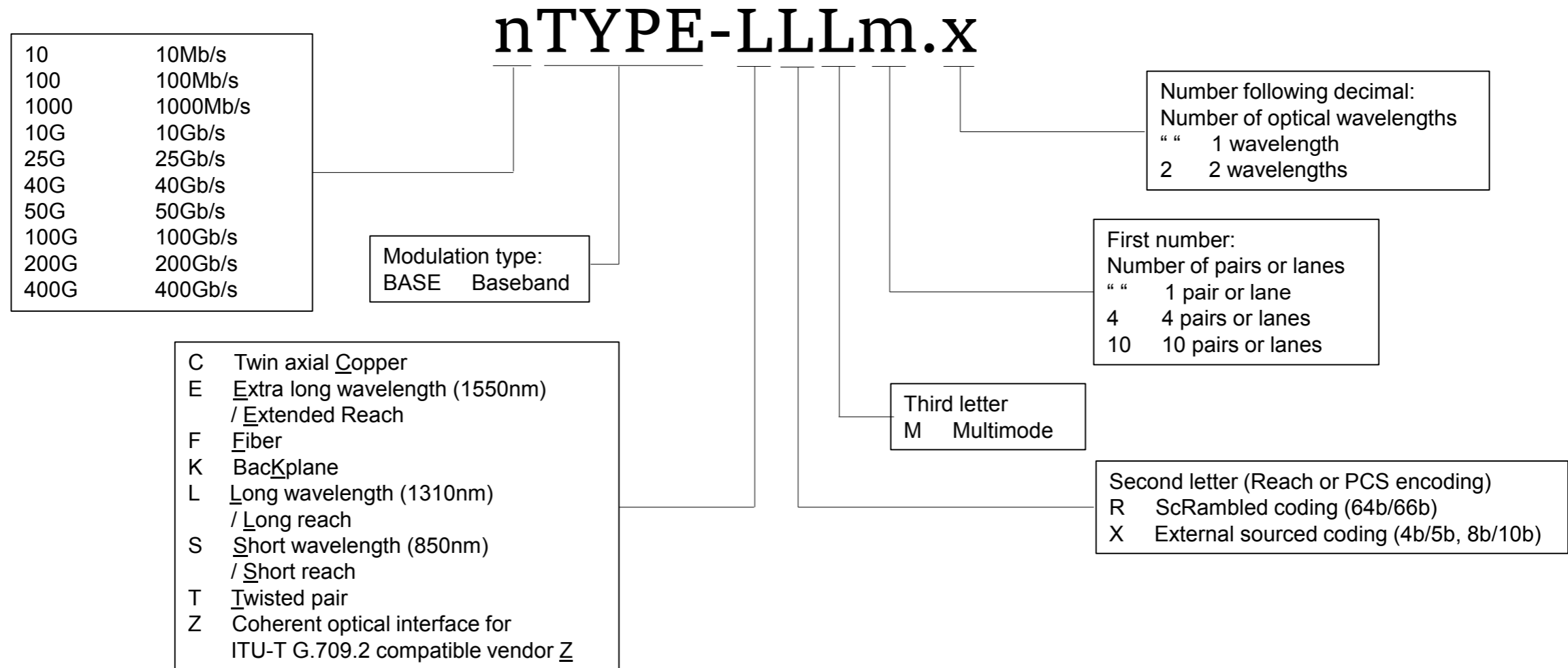
- Naming for 802.3cz PHYs should be considered to start writing the draft
- According to [1], the PHY naming in 802.3:
 - Evolved where required
 - Avoided **conflicting** definition
 - Not had same letter in the same position meaning something different
 - Provided limited description of naming in standard
- In [2] nGBASE-AR for 802.3cz PHYs was proposed, assuming scrambled coding 64b/66b is used as in other short wavelength multimode PHYs, e.g. 10GBASE-SR.
- 802.3cz PHYs naming should be consistent with the adopted baseline
 - i.e. if no scrambled coding 64b/66b is used, R should be avoided in the corresponding position
- The TF is facing the development of multi-gigabit optical PHYs specification for a completely new application, i.e. Automotive, which demands very different requirements compared to data-centers PHYs
- Proposed PCS/PMA baseline for 802.3cz is different (see [3]) wrt. BASE-R
 - Baseline is close to 802.3bv (BASE-H) in the transmit frame structure and PMA
 - However, very different in the PCS: PAM2 vs. PAM16, RS-FEC vs. MLCC, no THP
- PMD baseline will have to be consistent with automotive reliability levels, with an MDI supporting automotive mechanical and environmental requirements, as well as a much wider temperature range of operation
- Definitively, we have a very distinct PHY that should use different letters to designate the PHY type name

PHY naming scheme (extracted from [1])



Note - The PCS and PMD family names are based on use of either the first or second letter. Examples are 10GBASE-L for 10Gb/s long wavelength PMD family and 10GBASE-R for 10Gb/s scrambled encoding PCS family.

PHY naming scheme (extracted from [2])



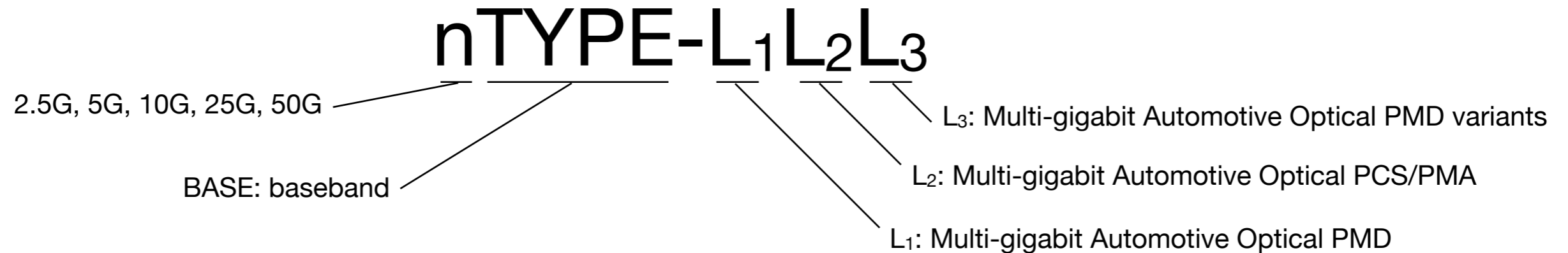
PHY types list



PHY types

Clause	PHY type	Clause	PHY type	Clause	PHY type	Clause	PHY type	Clause	PHY type	Clause	PHY type	Clause	PHY type
12	1BASE5	38	1000BASE-LX	71	10GBASE-KX4	149	10GBASE-T1	141	25/10GBASE-PQX-U3	112	25GBASE-SR	140	100GBASE-LR1
61, 63	2BASE-TL	59	1000BASE-LX10	52	10GBASE-LR	100	10GPASS-XR	141	25/10GBASE-PQX-U2	113	25GBASE-T	88	100GBASE-LR4
8	10BASE5	60	1000BASE-PX10-D	68	10GBASE-LRM	75	10/1GBASE-PRX-D1	141	25/10GBASE-PQX-D3	85	40GBASE-CR4	138	100GBASE-SR2
9.9	FOIRL	60	1000BASE-PX10-U	52	10GBASE-LW	75	10/1GBASE-PRX-U1	141	25/10GBASE-PQX-D2	87	40GBASE-ER4	86	100GBASE-SR4
10	10BASE2	60	1000BASE-PX20-D	53	10GBASE-LX4	75	10/1GBASE-PRX-D2	141	25/10GBASE-PQG-D3	89	40GBASE-FR	86	100GBASE-SR10
11	10BROAD36	60	1000BASE-PX20-U	158	10GBASE-BR10-D	75	10/1GBASE-PRX-U2	141	25/10GBASE-PQG-D2	84	40GBASE-KR4	154	100GBASE-ZR
14	10BASE-T	60	1000BASE-PX30-D	158	10GBASE-BR10-U	75	10/1GBASE-PRX-D3	141	25/10GBASE-PQG-U3	87	40GBASE-LR4	136	200GBASE-CR4
14	10BASE-Te	60	1000BASE-PX30-U	158	10GBASE-BR20-D	75	10/1GBASE-PRX-U3	141	25/10GBASE-PQG-U2	86	40GBASE-SR4	121	200GBASE-DR4
146	10BASE-T1L	60	1000BASE-PX40-D	158	10GBASE-BR20-U	75	10/1GBASE-PRX-D4	141	50/25GBASE-PQX-U3	113	40GBASE-T	122	200GBASE-ER4
147	10BASE-T1S	60	1000BASE-PX40-U	158	10GBASE-BR40-D	75	10/1GBASE-PRX-U4	141	50/25GBASE-PQX-U2	136	50GBASE-CR	122	200GBASE-FR4
16	10BASE-FP	115	1000BASE-RHA	158	10GBASE-BR40-U	75	10GBASE-PR-D1	141	50/25GBASE-PQG-D3	139	50GBASE-ER	137	200GBASE-KR4
17	10BASE-FB	115	1000BASE-RHB	159	25GBASE-BR10-D	75	10GBASE-PR-U1	141	50/25GBASE-PQG-D2	139	50GBASE-FR	122	200GBASE-LR4
18	10BASE-FL	115	1000BASE-RHC	159	25GBASE-BR10-U	75	10GBASE-PR-D2	141	50/10GBASE-PQX-U3	137	50GBASE-KR	138	200GBASE-SR4
61,62	10PASS-TS	38	1000BASE-SX	159	25GBASE-BR20-D	75	10GBASE-PR-U2	141	50/10GBASE-PQX-U2	139	50GBASE-LR	122	400GBASE-DR4
58	100BASE-BX10-D	40	1000BASE-T	159	25GBASE-BR20-U	75	10GBASE-PR-D3	141	50/10GBASE-PQG-U3	138	50GBASE-SR	122	400GBASE-ER8
58	100BASE-BX10-U	98	1000BASE-T1	159	25GBASE-BR40-D	75	10GBASE-PR-U3	141	50/10GBASE-PQG-U2	162	100GBASE-CR1	151	400GBASE-LR4-6
26	100BASE-FX	126	2.5GBASE-T	159	25GBASE-BR40-U	75	10GBASE-PR-D4	141	50/10GBASE-PQX-D3	136	100GBASE-CR2	123	400GBASE-FR8
58	100BASE-LX10	149	2.5GBASE-T1	160	50GBASE-BR10-D	75	10GBASE-PR-U4	141	50/10GBASE-PQX-D2	92	100GBASE-CR4	151	400GBASE-FR4
96	100BASE-T1	128	2.5GBASE-KX	160	50GBASE-BR10-U	141	25GBASE-PQX-U3	141	50/10GBASE-PQG-D3	85	100GBASE-CR10	123	400GBASE-LR8
32	100BASE-T2	130	5GBASE-KR	160	50GBASE-BR20-D	141	25GBASE-PQX-U2	141	50/10GBASE-PQG-D2	140	100GBASE-DR	150	400GBASE-SR4.2
23	100BASE-T4	126	5GBASE-T	160	50GBASE-BR20-U	141	25GBASE-PQX-D3	110	25GBASE-CR	88	100GBASE-ER4	150	400GBASE-SR8
25	100BASE-TX	149	5GBASE-T1	160	50GBASE-BR40-D	141	25GBASE-PQX-D2	110	25GBASE-CR-S	140	100GBASE-FR1	121	400GBASE-SR16
59	1000BASE-BX10-D	54	10GBASE-CX4	160	50GBASE-BR40-U	141	25GBASE-PQG-D3	114	25GBASE-ER	163	100GBASE-KR1	156	400GBASE-ZR
59	1000BASE-BX10-U	52	10GBASE-ER	52	10GBASE-SR	141	25GBASE-PQG-D2	111	25GBASE-KR	137	100GBASE-KR2		
39	1000BASE-CX	52	10GBASE-EW	52	10GBASE-SW	141	25GBASE-PQG-U3	111	25GBASE-KR-S	93	100GBASE-KR4		
70	1000BASE-KX	72	10GBASE-KR	55	10GBASE-T	141	25GBASE-PQG-U2	114	25GBASE-LR	94	100GBASE-KP4		

802.3cz PHYs naming discussion



• L₁: PMD

- To indicate wavelength and/or application, as it is usual in other optical PHYs
 - S: Short wavelength, typically used for 850nm. If we finally move to ~980 nm, it may produce confusion
 - M: Middle wavelength may be an option, neither short (S) nor long (L)
 - A: “from Automotive”
 - V: “from Vehicle”

• L₂: PCS/PMA

- A, G, I, J, M, N, O, U, V, Y: not used neither in L₁ nor in L₂
 - A: “from Automotive”, V: “from Vehicles”,
 - Discard G, M, because used for rate indications?
 - Discard O, because it can be confused with zero?

- Discard I, because it can be confused with one?
- Discard N, because it is usually to indicate multiple.
- J, U, Y: no direct meaning, however, it might be chosen. Why not?

• L₃: PMD variant:

- It was used in C/115, to differentiate among different PMD specs targeted to different applications (home, industrial, automotive) with different channel lengths, # inline connections, temperature range, etc
- ... however, 802.3cz is only targeted to automotive
- PMD parameters will differ as function of the data-rate, ... but it is not reason to use of PMD variants
- We do not need to decide yet

802.3cz PHYs naming proposal



nBASE-AU

2.5G, 5G, 10G, 25G, 50G

Automotive

To indicate specific PCS/PMA

References



- [1] D. Law, “Past PHY naming,” Nov 2015, [Online], Available: https://www.ieee802.org/3/cb/public/jan16/PHY_names_1115.pdf
- [2] R. Pimpinella, “PMD Considerations”, Sept 2020, [Online], Available: https://www.ieee802.org/3/cz/public/29_sep_2020/pimpinella_3cz_01a_0920.pdf
- [3] R. Pérez-Aranda, “802.3cz baseline proposal”, Nov 2020, [Online], Available: https://www.ieee802.org/3/cz/public/nov_2020/perezaranda_3cz_01a_1120_baseline.pdf



Thank you!