Rationale for shorter reach link

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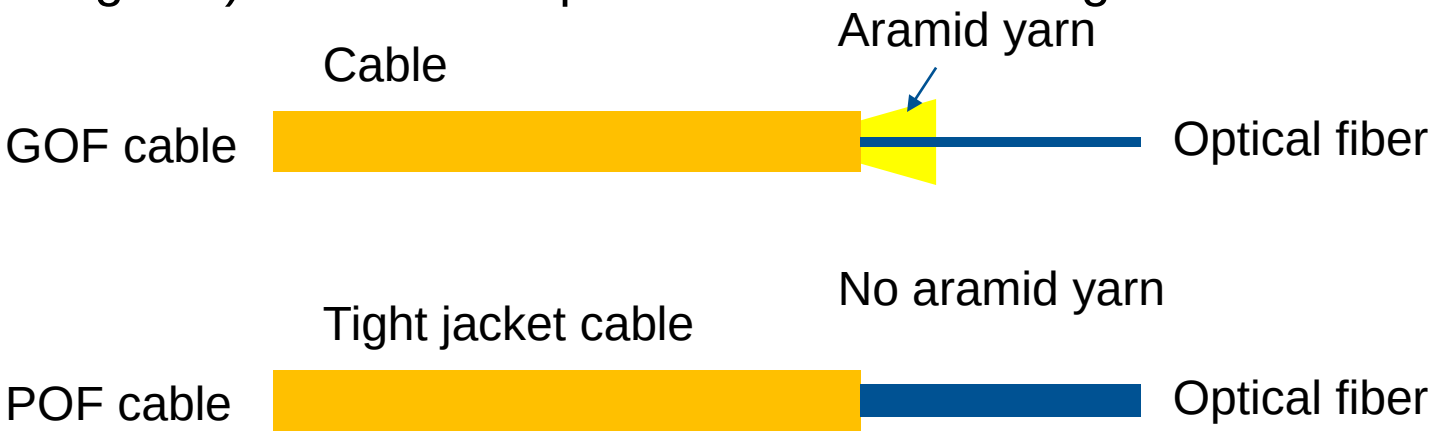
Rationale for shorter reach link

- For passenger vehicle, 15m is sufficient to cover
- Feasibility of GI-POF was presented (watanabe_3cz_01_090221_gipof.pdf)
- Due to different mechanical characteristics between GOF and POF, aramid yarn may not be required for POF cable

  (Acceptable elongation: GOF ≤ 1%, POF ≥ 4%)
- Eliminating aramid yarn can make cable termination easier and easier design connector and MDI can be applicable. (Mechanical fixation, laser welding etc.) All these help to reduce assembling cost.



Different cable and connector design for GOF and POF may be applicable
It is reasonable to have a shorter link category in 802.3cz

Overview of proposal

- This contribution is a friendly amendment of the PMD/MDI/Media baseline text provided by Steve Swanson (swanson_3cz_02c_0803_AUTO_MDI_Baseline.pdf)
- This contribution is a baseline proposal for the **PMD and MDI** for **2.5, 5, 10, 25 and 50 Gb/s** consistent with the already presented link budget analysis in “perezaranda_3cz_01a_030821_link_budget_proposal.pdf ” (**BASE-AU**)
- In addition, this contribution provide a baseline proposal for the short reach PMD and MDI, up to 15 m, for **2.5, 5, 10 and 25 Gb/s** with A4i GI-POF based on “perezaranda_3cz_01_310821_gipof_link_budget.pdf”. **(BASE-AUS: Short)**

	BASE-AU	BASE-AUS
Fiber media	OM3	GI-POF (A4i)
Wavelength (nm)	980	850
Reach (m)	40	15
No. of connections (assuming 2dB/conn.)	4 (2.5G, 5G, 10G, 25G) 2 (50G)	4 (2.5G, 5G) 3 (4, if 1.7dB/conn.) (10G) 2 (3, if 1.7dB/conn.) (25G)

Reference: IEC60793-2-40 A4i

The automobile grade GI-POF is not identical with A4i in terms of mechanical properties, but the optical fiber dimensions and optical transmission parameters are identical with A4i
IEC 60793-2-40 will be revised in order to align to 802.3cz.

Attribute	Unit	Limit
Cladding diameter	µm	490 ± 5
Cladding non-circularity	%	≤ 4
Core-cladding concentricity error	µm	≤ 6
Core diameter	µm	55 ± 5
Core non-circularity	%	≤ 6
Length	km	(see 4.1)

Attribute	Unit	Limit
Attenuation at 850 nm	dB/100 m	≤ 10
Minimum modal bandwidth at 850 nm	MHz over 100 m	≥ 3 500
Numerical aperture	Unitless	0,24 ± 0,025
Macrobending loss at 850 nm (10 turns around a 25 mm radius quarter circle)e	dB	≤ 0,1
Zero dispersion wavelength, λ0	nm	1 200 ≤ λ0 ≤ 1 650
Zero dispersion slope, S0	ps/(nm2 · km)	≤ 0,06

Adopted physical layer specification objectives

- Define the performance characteristics of an automotive link segment and an optical PHY to **support 2.5 Gb/s** point-to-point operation over this link segment supporting up to **4 inline connectors for at least 40 m** on at least one type of automotive optical cabling
- Define the performance characteristics of an automotive link segment and an optical PHY to **support 5 Gb/s** point-to-point operation over this link segment supporting up **to 4 inline connectors for at least 40 m** on at least one type of automotive optical cabling
- Define the performance characteristics of an automotive link segment and an optical PHY to **support 10 Gb/s** point-to-point operation over this link segment supporting up to **4 inline connectors for at least 40 m** on at least one type of automotive optical cabling
- Define the performance characteristics of an automotive link segment and an optical PHY to **support 25 Gb/s** point-to-point operation over this link segment supporting up to **4 inline connectors for at least 40 m** on at least one type of automotive optical cabling
- Define the performance characteristics of an automotive link segment and an optical PHY to **support 50 Gb/s** point-to-point operation over this link segment supporting up to **2 inline connectors for at least 15 m** on at least one type of automotive optical cabling

Objectives can be satisfied with BASE-AU

End of File