

Proposal to adopt ITU-T Chromatic Dispersion Link Design equations as baseline for 800GBASE-FR4 and 800GBASE-LR4

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Supporters

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Introduction

- In 2023, IEEE802.3 reached out to ITU-T SG15 and asked for help to solve potential challenges with worst case chromatic dispersion with new high-speed applications being developed in 802.3dj and 802.3dk task forces
- It is important to consider that there has been significant progress on this issue with ITU-T SG15 Q5 responding to IEEE 802.3 and providing a method and equations to more realistically represent accumulated chromatic dispersion in deployed links
- At this meeting, Stassar_3dj_01_2401, *Analysis of statistical data on SMF chromatic dispersion parameters in Liaison Statement from ITU-T SG15*, analyzes and compares ITU-T statistical analysis of fiber vendors' chromatic dispersion data to other IEEE 802.3 presented data
- Stassar_3dj_01_2401 also discusses why G.652 and G.657 fiber data must all be considered to adequately represent deployed links

Justification

- The ITU-T data represents real world deployed fibers and the link design method takes advantage of concatenated lengths to provide more realistic link dispersion values than worst case
- ITU-T models take into account process, design and material differences between the fiber vendors
- ITU-T models attempt to take into account shifts in the above differences to enable fibers to perform in today's deployed conditions
- Other models do not
- If other models presented are chosen, these links will effectively be engineered links as they will not be able to point to any in-force fiber standards

Proposal

- Adopt the ITU-T method/equations as design parameters for IEEE 802.dj base lines

Link	Distance	Wavelength Range	Accumlated Dispersion ^a
800GBASE-FR4	2 km	1264.5 nm to 1337.5 nm	-11.03 / +6.21 ps/nm ± 0.4 ps/nm
800GBASE-LR4	10 km	1294.53 nm to 1310.19 nm	-26.1 / +4.57 ps/nm ± 0.8 ps/nm

Note a: These values were calculated from equations derived by statistical analysis of real world data using the link design method called out in ITU-T G.652 Appendix I

Thanks!