

From fiber data to transmitter compliance channel specifications

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CommScope

Objective

- The objective of this contribution is to propose how to use fiber data (like data presented in [parsons 3dj 01b 2403](#)) to generate max and min dispersion values at difference confidence levels
- Will review proposed parameters for Monte Carlo simulation
- Looking for feedback before beginning simulations
- Still gathering additional fiber data

Fiber data overview

- Once data is collected, data set will include
 - ~2 million fibers with zero dispersion wavelength and slope reported
 - Fibers from ~6 manufacturers
 - Fibers manufactured on multiple continents shipped to cable factories on multiple continents
 - Compliant to G.652.D/G.657.A1 and to G.657.A2
 - Shipped 2014-2024

Proposed Number of Segments

800G-FR4

- Campus links are worst case
- One 2 km segment
- One 1.8 km segment with two 100 m segments

800G-LR4

- Limited by available cable lengths
- Three 3.33 km segments
- Four 2.5 km segments
- Five 2 km segments

- For each link look at
 - Homogeneous case: All fibers in link come from same manufacturer
 - Heterogeneous case: Fibers in a link may come from different manufacturers

Proposed confidence levels

- Report dispersion values for these confidence levels:
 - 99.9%
 - 99.99%
 - 99.999%
- Task force can decide which confidence level is used

Weighing each manufacturer

- Number of fibers from each manufacturer in my data set will not reflect the market as a whole
- Manufacturers may be over- or under-represented
- Will run simulations
 - Weighing each manufacturer equally
 - Weighing each manufacturer by market share