

# Chromatic Dispersion Data Update

27 Jun 2024

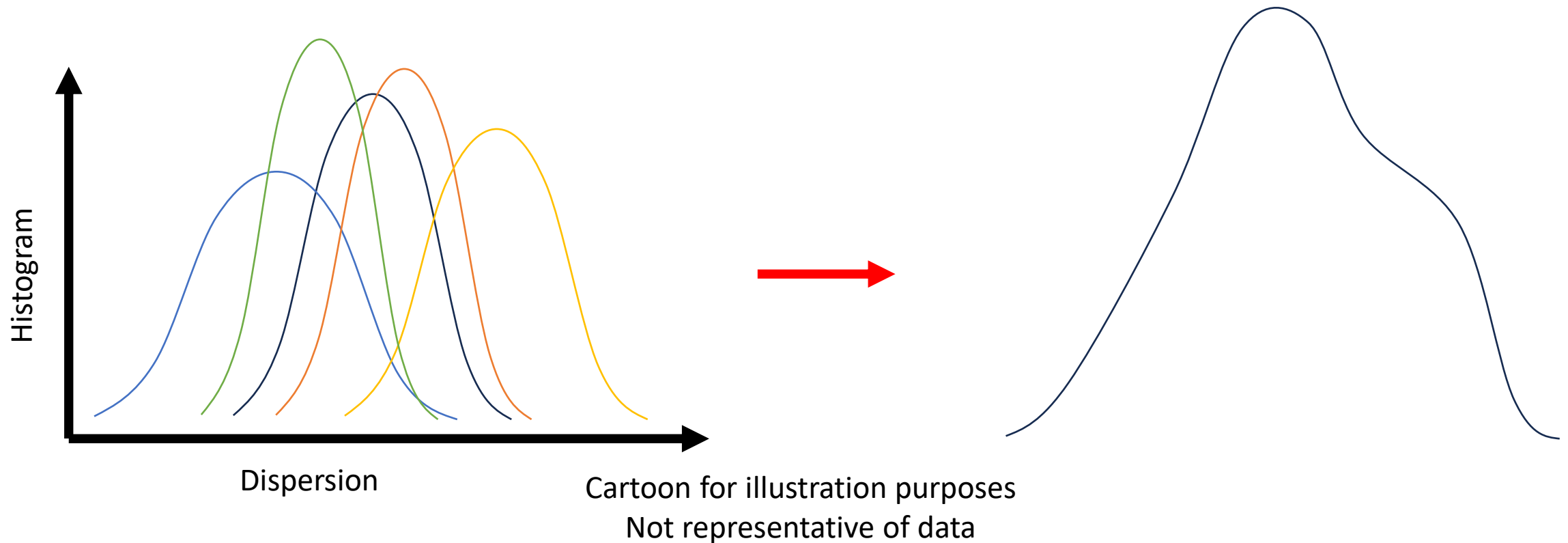
Earl Parsons, CommScope

802.3dj Joint Optics/Logic ad hoc

# Updates since May Interim

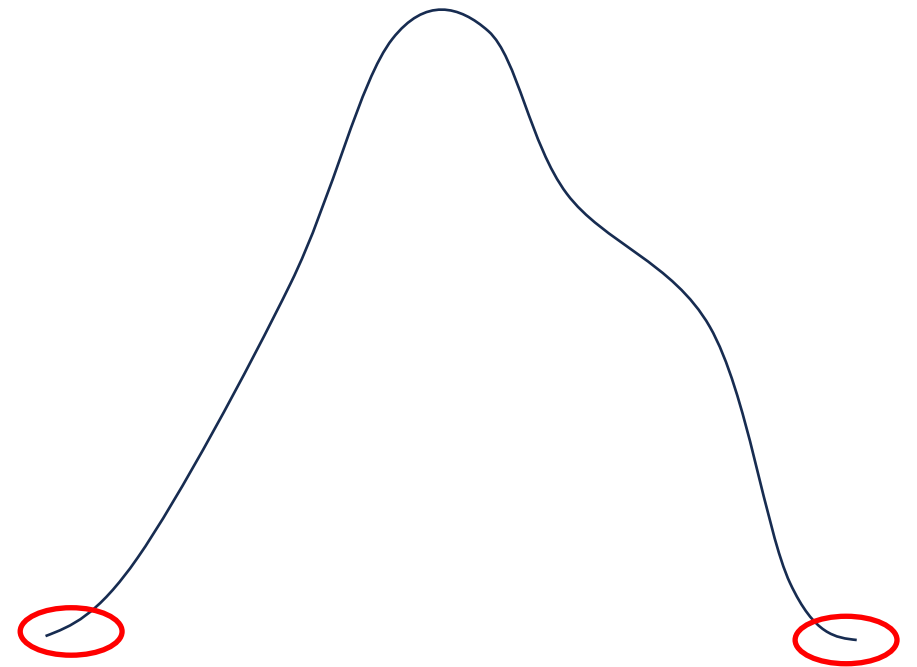
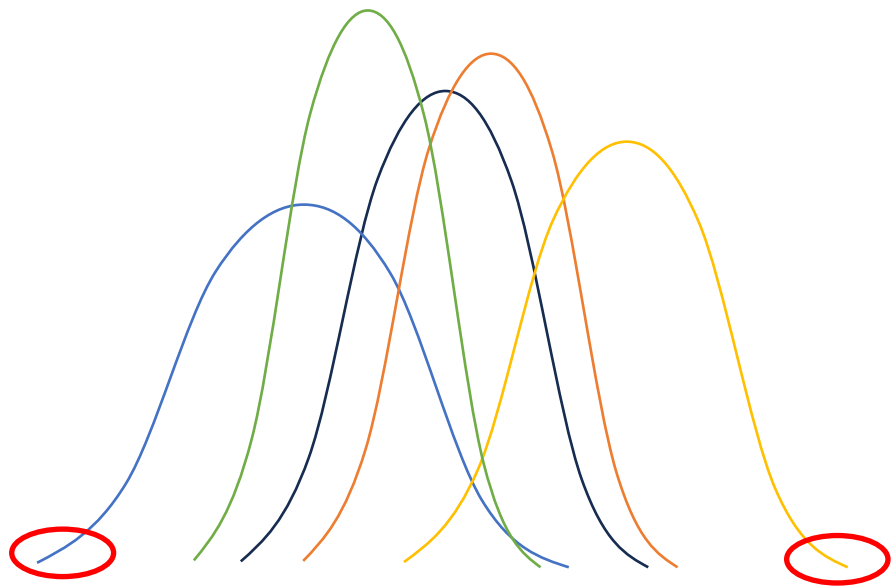
- Earlier this month, ITU-T contribution “Summary for 2nd examination results of the statistical chromatic dispersion property” was circulated with additional chromatic dispersion data
- Included table with dispersion values for different wavelengths, confidence levels, and number of segments
- ITU data and data previous shared into IEEE show good correlation for multi-segment reaches ( $M=4$ ) but not for single-segment reaches ( $M=1$ ). A contribution was made into ITU to propose possible reasons for this discrepancy and will be summarized here.
- Today I will show dispersion values for  $M=1$  for FR and  $M=4$  for LR for single distributions and mixed distributions

# Use distributions from each manufacturer to create a mixed distribution

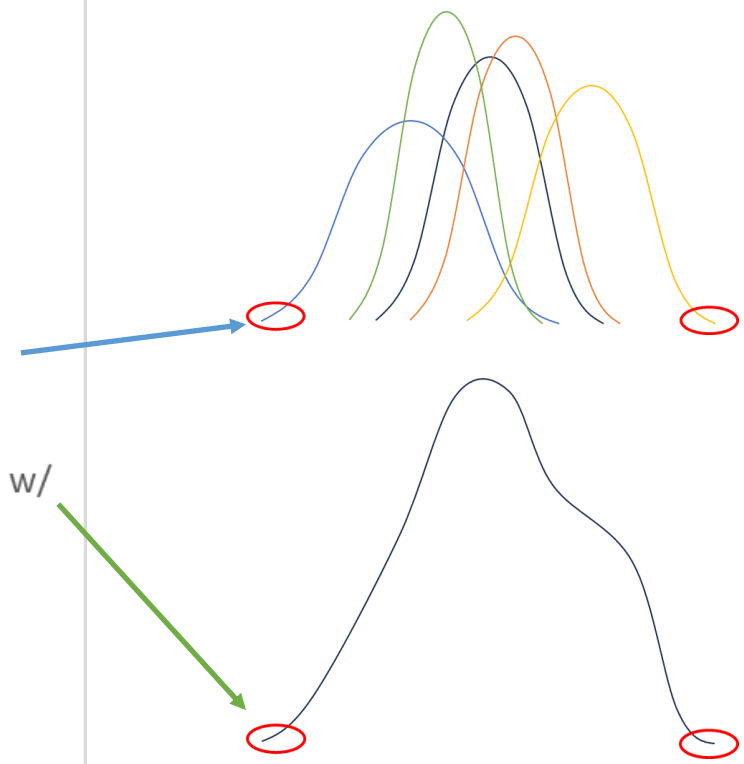
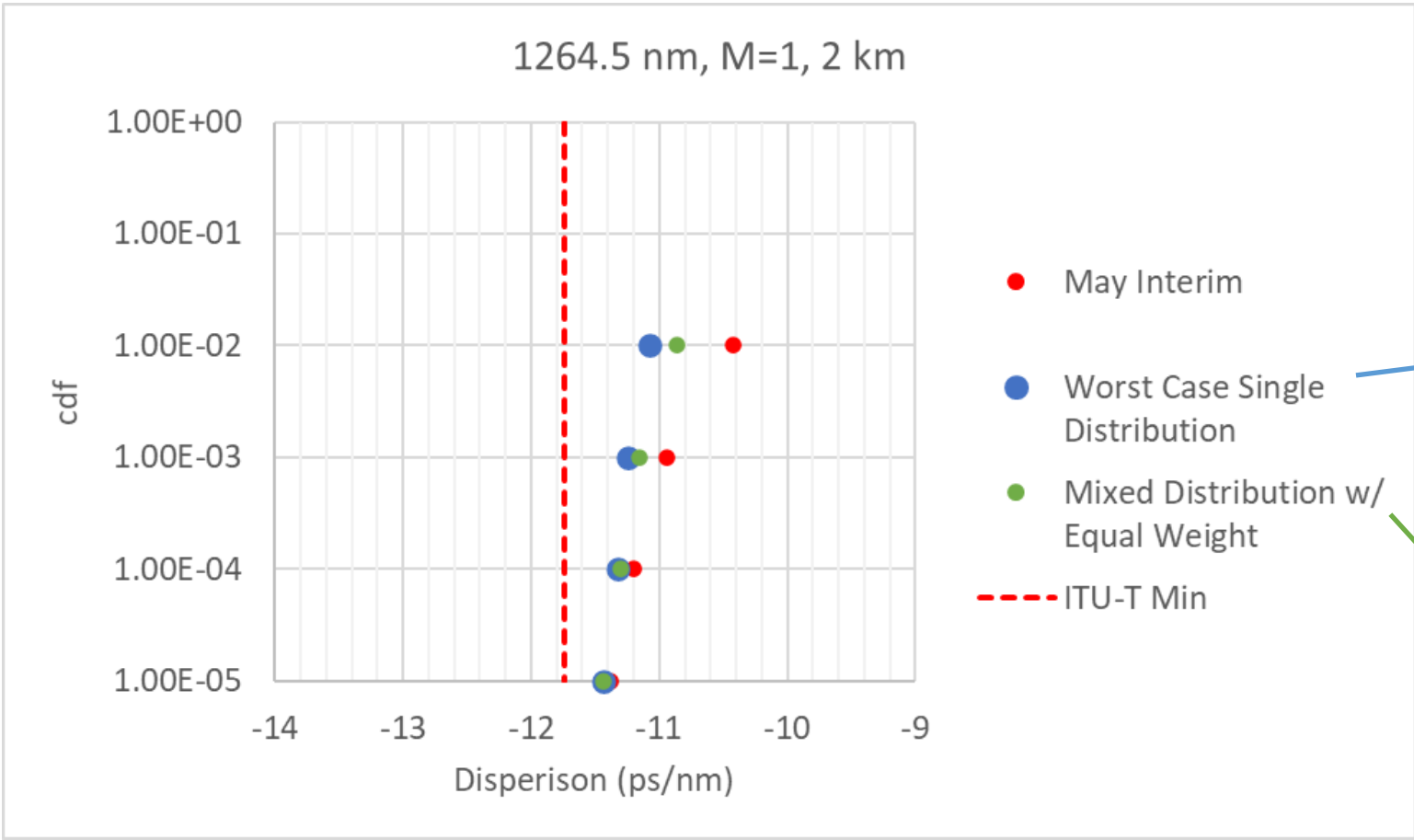


# Look at tails for two scenarios (no curve fitting)

- Single worst-case distribution: Left tail of leftmost distribution and right tail of rightmost distribution
- Mixed distribution with equal weight: Combine all manufacturers with equal weight and look at left and right tail



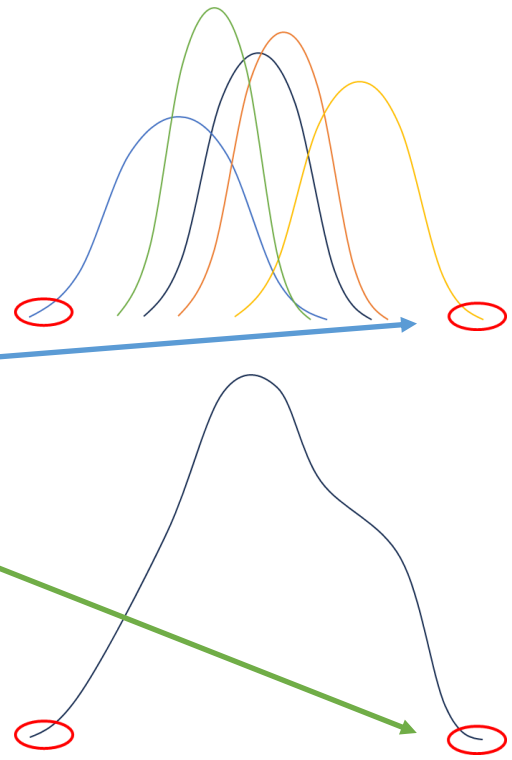
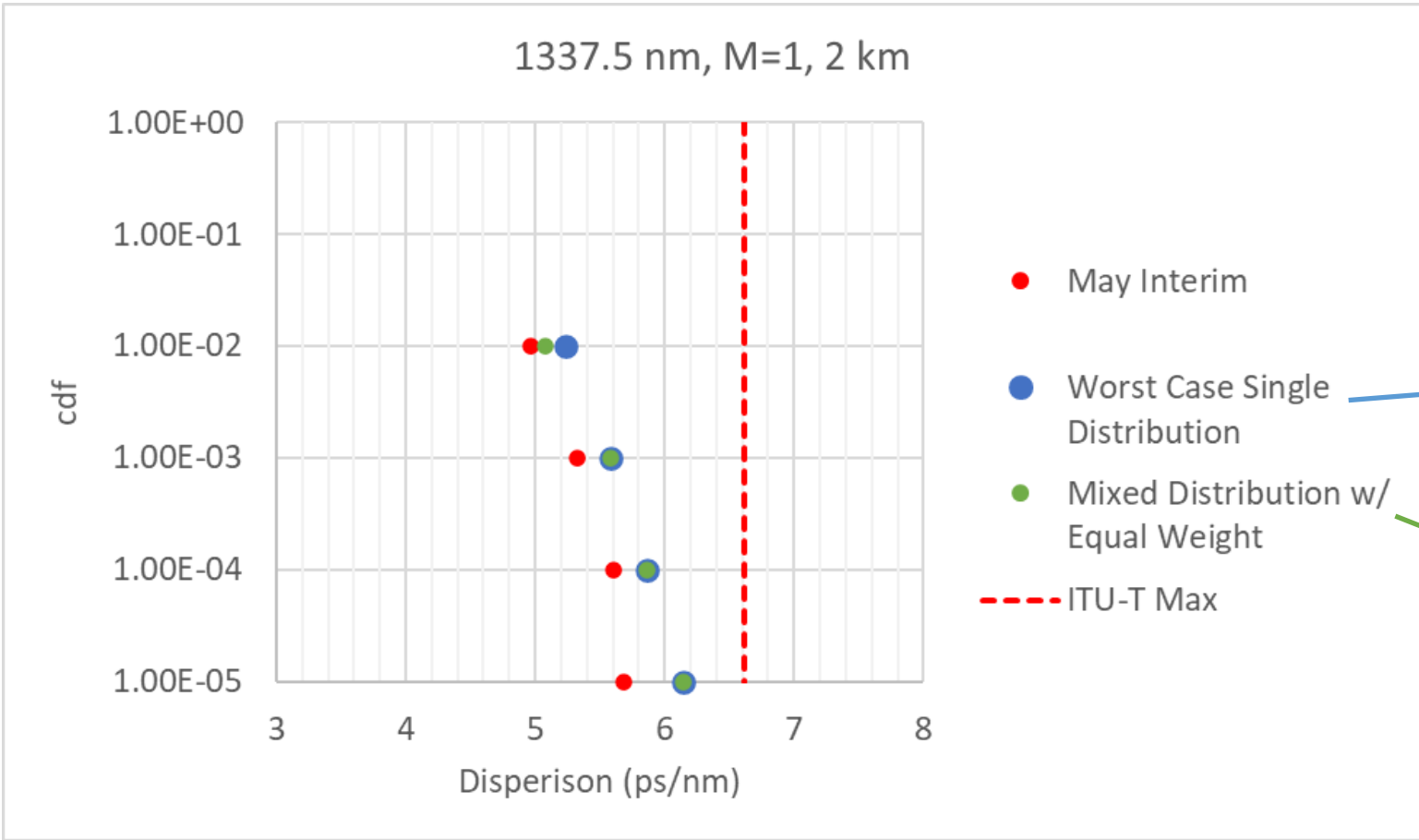
Cartoon for illustration purposes  
Not representative of data



800G-FR4

Data from left tail of leftmost distribution and from left tail of mixed distribution

No curve fitting used

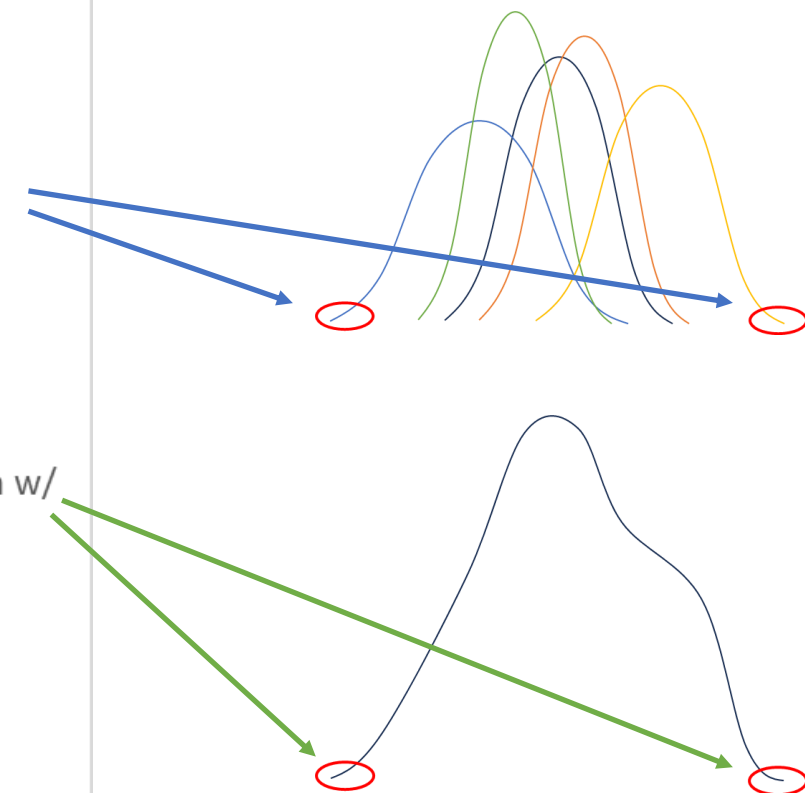
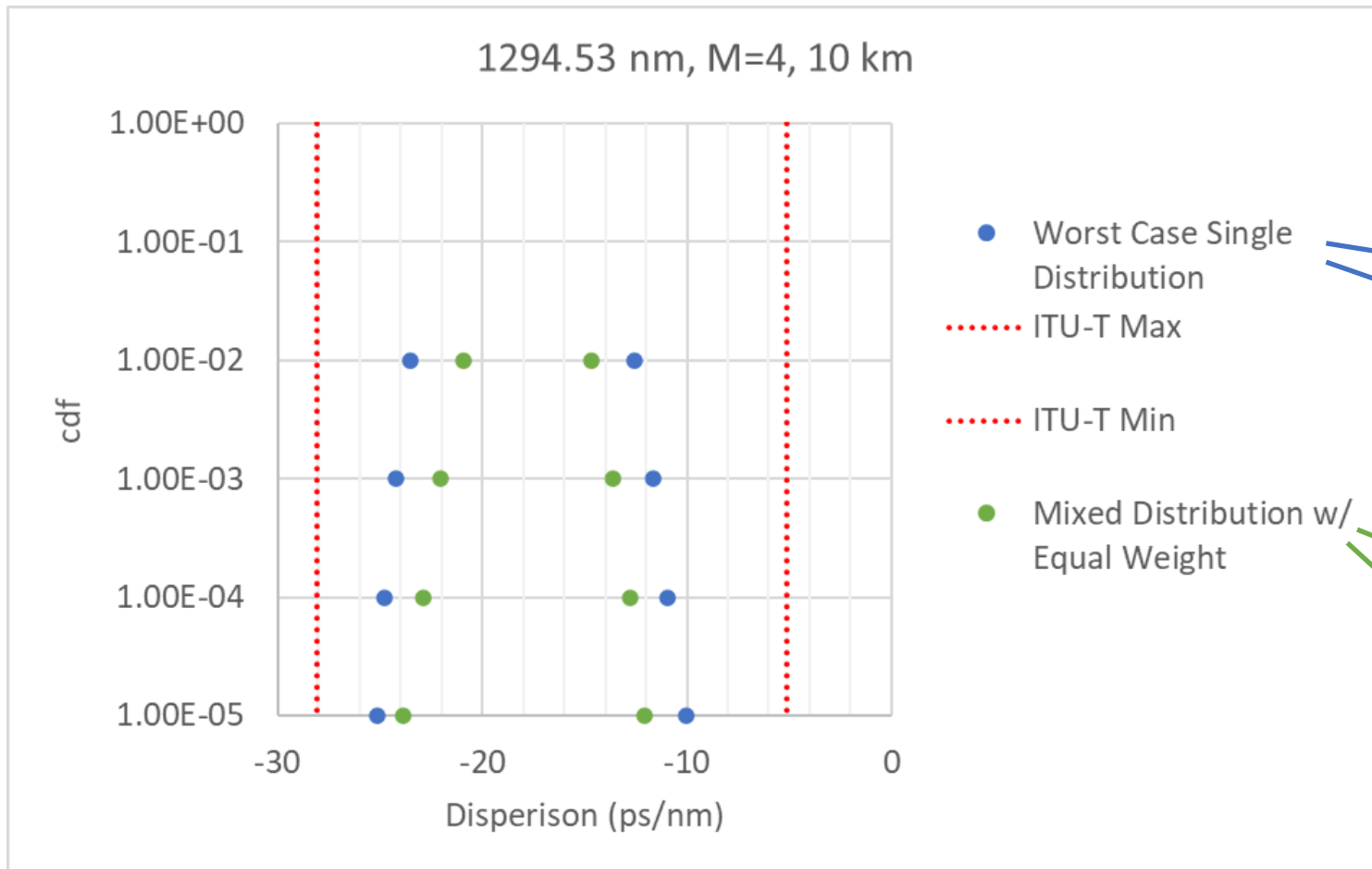


Cartoon for illustration purposes  
Not representative of data

800G-FR4

Data from right tail of rightmost distribution and from right tail of mixed distribution

No curve fitting used



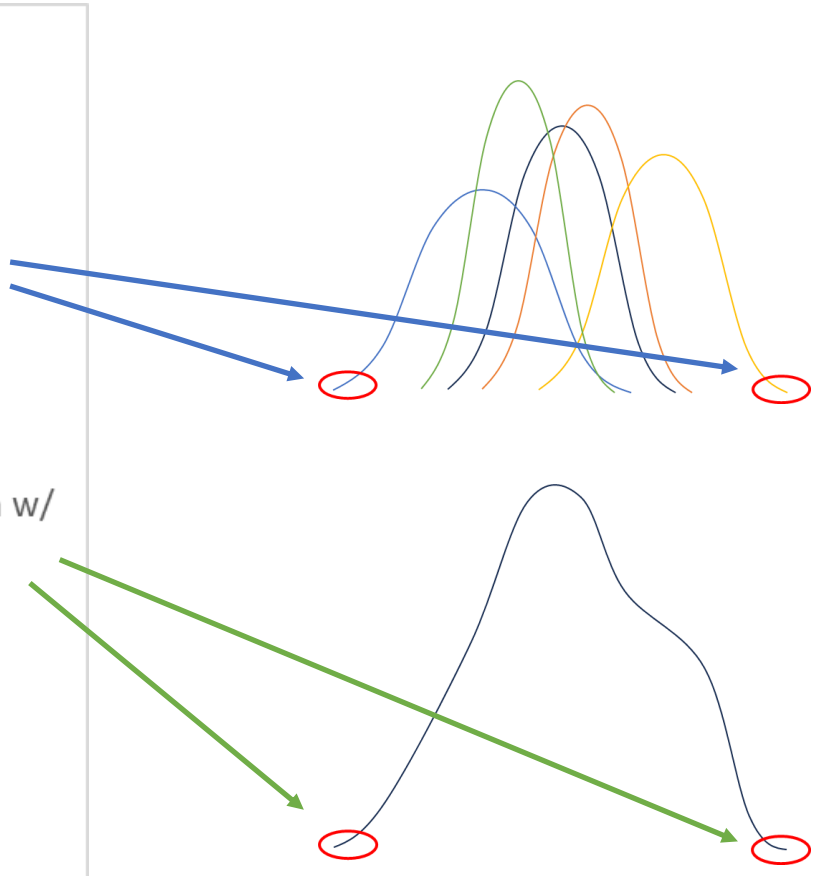
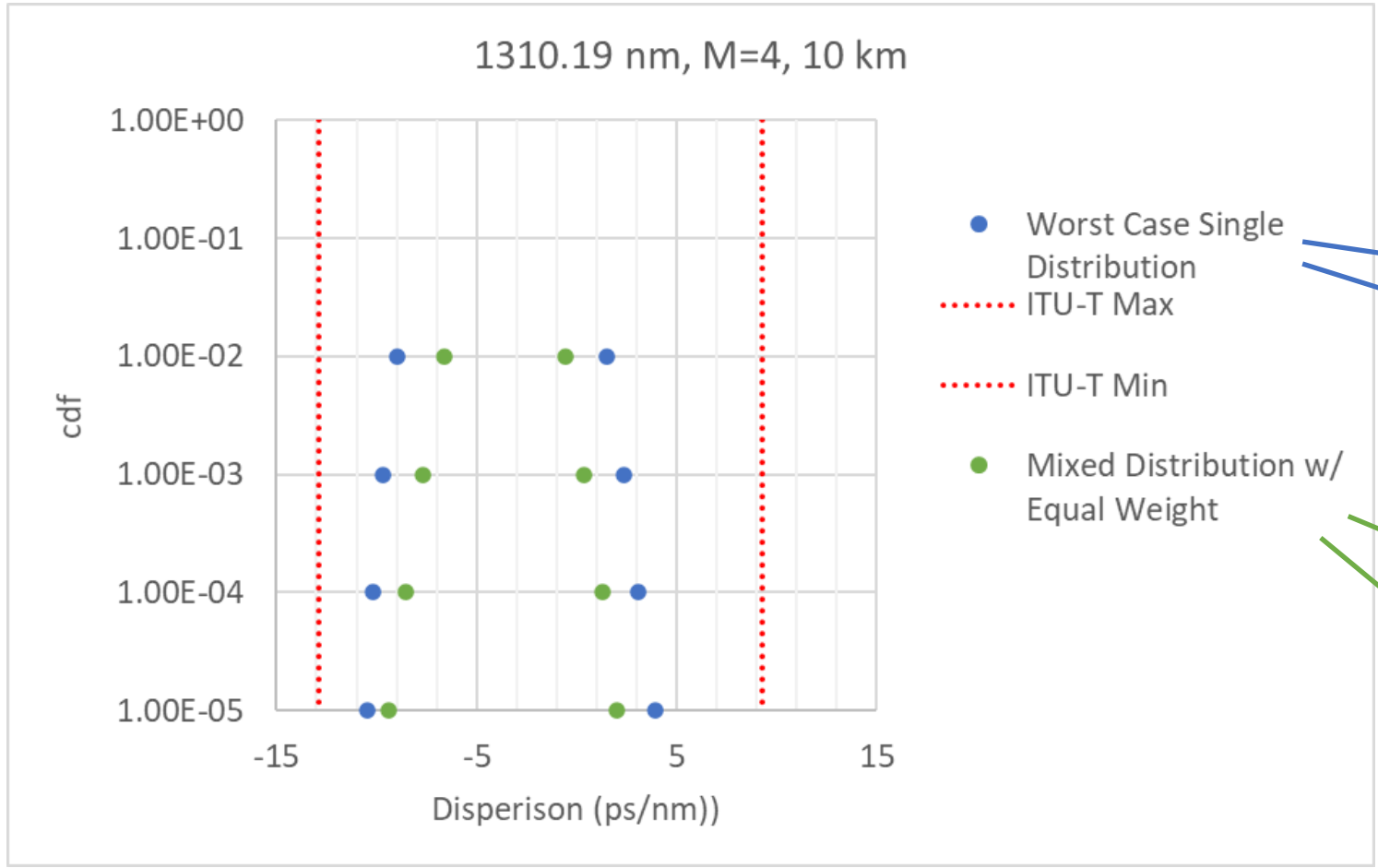
Cartoon for illustration purposes  
Not representative of data

800G-LR4

Data from right tail of rightmost distribution and from left tail of leftmost distribution

Look at right and left tails of mixed distribution

No curve fitting used



Cartoon for illustration purposes  
Not representative of data

800G-LR4

Data from right tail of rightmost distribution and from left tail of leftmost distribution

Look at right and left tails of mixed distribution

No curve fitting used



# Conclusion

- Dispersion results for FR wavelengths with  $M=1$  and (2 km) and for LR wavelengths with  $M=4$  and (10km) presented with different probability ( $Q$ ) values.