Propagation Delay and Delay Skew

Addendum 1 to '568-A describes propagation delay and delay skew requirements for all '568-A compliant 4-pair 100 cables. Propagation delay and delay skew requirements of multi-pair cables are subject to additional study.

Propagation delay is equivalent to the amount of time that passes between when a signal is transmitted and when it is received at the other end of a cabling channel. Delay skew is the difference between the pair with the least delay and the pair with the most delay. Transmission errors that are associated with excessive delay and delay skew include increased jitter and bit error rates.

The maximum propagation delay skew requirement for 4-pair 100 cables is frequency dependent and is specified by the following equation:

$$\text{delay(ns/100m)} \quad 534 + \frac{36}{f_{MHz}}$$

Cable delay skew shall not exceed 45 ns/100m between 1 MHz and the highest referenced frequency for a given category.