

Extended Reach over Copper Cable Guide

Introduction

There is a desire in the market for enterprise customers to stretch the reach of twisted-pair copper cabling past the 100 meter limit set by the standards. Several cabling vendors have published length guides as to how their system could work. In response, Panduit has put together this document to give our limits and to urge caution about what some vendors are advertising.

Application Extended Reach vs. Cabling Extended Reach

Application Extended Reach

Several cabling vendors are offering reach far beyond the standard for certain types of applications. These vendors are telling customers that the cable will work even if the field tester says the channel fails the channel specification. Panduit does not recommend this course of action. The primary reason why this is not a good course of action is that the only guarantee that is offered by equipment vendors is that their equipment will run on channels that meet the appropriate cabling standard for their application. Even if the cabling vendor states they did testing, there is nothing to guarantee a future software upgrade or hardware change may cause the link to no longer work. For example, equipment running 10GBASE-T transmission is based on the IEEE 802.3an specification, which in turn requires a compliant Category 6A or Class E_A channel.

- To know whether equipment can run on a failing channel is a question for the equipment vendor, not the cabling vendor.
- Panduit does not control the equipment, and hence we cannot guarantee our channel will work if it does not meet the appropriate cabling specification for that application.
- We caution our customers against using any cabling that does not meet the standard at extended lengths as they are not guaranteed the application will always support this failing channel.

Cabling Extended Reach

Panduit does allow for our cabling to be used past 100 meters if the field tester states that it meets the applicable cabling specification at that length. In other words, if the channel is 103 meters long and the field tester states it passes the specification, Panduit can guarantee that the link will support the appropriate application. The difference is that even though the channel is longer than 100 meters, the cabling and connectors have sufficient margin to the standard that they can be run slightly beyond the standard and still meets the requirements for a 100 meter channel. The critical cabling parameters that tend to limit the channel length are insertion loss (signal degradation as it travels down the cable), propagation delay (time it takes for the signal to travel down the cable), and interpair skew (difference in time it takes for the signal to travel down the cable for each pair).

- Panduit does control the cable, and can guarantee that our channel will work if it meets the appropriate cabling specification for an application at lengths beyond 100 meters.

Please contact Panduit for guidance on how far any of our cables can be extended past 100 meters.