

Does CAT 6 Support 10GBASE-T?

With the introduction of IEEE 802.3an 10GBASE-T (10GbE), it was determined that a new category of twisted-pair cabling was required to guarantee performance of the 10GbE system at the traditional maximum channel length of 100 meters. As a result, Augmented Category 6 (CAT 6A) was developed and has quickly become the product of choice for many high-speed data applications. While CAT 6A is the twisted-pair solution of choice for 10GbE performance up to 100 meters, this does not mean that the installed base of Category 6 (CAT 6) cable will not support 10GbE, particularly at shorter lengths. To address the question of 10GbE support on installed CAT 6 cabling, TIA publishes TSB-155-A, *Guidelines for the Assessment and Mitigation of Installed Category 6 Cabling to Support 10GBASE-T*. Note that the title references “installed Category 6.” It is highly recommended that new installations intended to support 10GbE meet CAT 6A, regardless of length.

TSB-155-A states that “10GBASE-T should operate over channel lengths of up to 37 meters of Category 6 cabling, and should operate over channel lengths between 37 and 55 meters of Category 6 cabling depending on the alien crosstalk environment. Channel lengths over 55 meters may require mitigation.” “Category 6 cabling” is further defined by TSB-155-A as “installed...Category 6 cabling meeting the requirements of ANSI/TIA-568-C.2.” All CAT 6 cables manufactured by Superior Essex are guaranteed to meet or exceed the requirements of TIA-568-C.2. Best results will be obtained with Superior Essex NextGain® CAT 6eX and DataGain® CAT 6+ where key performance criteria are guaranteed to exceed the requirements of TIA-568-C.2.”Accordingly:

1. Superior Essex CAT 6 cables will support 10GBASE-T per the parameters of TSB-155-A up to 37 meters.
2. Lengths greater than 37 meters may support 10GBASE-T based on the results of TSB-155-A assessment and, if necessary, the implementation of mitigation techniques described in the TSB. For convenience, some of the common mitigation techniques are listed below. For complete guidelines on assessing installed CAT 6 and implementing mitigation, refer to the full text of TSB-155-A.
 - a. If possible, provide separation between cables and between connections (such as using non-adjacent jacks at the patch panel).
 - b. Reconfigure the cross-connect as an interconnect.
 - c. Replace patch cords with CAT 6A cords or shielded CAT 6 cords.
 - d. Replace connectors with CAT 6A connectors.

Superior Essex offers a complete line of communications and energy products to meet the current and evolving needs of our customers. We strive to help our customers select the right product for the job to ensure successful installation and long term performance.