



FAQ's for 10G Ethernet

1. What are the most critical needs for 10G Ethernet ?

The IEEE 802.3an Ethernet group has identified the following issues as two of the most critical elements needed for the support of 10GBASE-T

- Reduction of Alien Crosstalk, Near End (ANEXT) and Far End (AFEXT)
- Shannon throughput-capacity of at least 18 Gbs

2. Why use a shielded solution to support 10G?

Berk-Tek exceeds the IEEE 802.3an 10GBASE-T alien crosstalk and channel capacity requirements. In the absence of an Augmented Category 6 standard, using shielded cable and hardware is the most effective way to deal with the two primary alien crosstalk sources: Alien Near End Crosstalk (ANEXT) and Alien Far End Crosstalk (AFEXT).

3. Is Berk-Tek developing a UTP solution?

BerkTek is working on a UTP 10 Gigabit solution and is evaluating designs against the test methods and limits being considered by the TIA. The IEEE 802.3an working group enlisted the help of the TIA to develop a UTP cabling specification to support 10Gbase-T. TIA 42.7 has two working groups exploring this issue. One group is working on TSB-155, which will characterize what channel length Category 6 will support. The other group is working on Addendum 10, which will characterize a new cabling spec to support 10GBase T for a full 100 meters. Once the first draft of Addendum 10 is issued by the TIA working group, enough information should be available to the industry to confirm designs and validate compliance claims. Berk-Tek is working towards a late first quarter/early second quarter 2005 launch of a 10G UTP Cabling system that will support the performance criteria for Addendum 10.

4. The cable and hardware components are Cat. 6 products. I thought the components needed to be "augmented" or enhanced Cat. 6 according to TIA to effectively support 10GBASE-T?

The two most critical elements of the proposed Addendum 10, augmented Category 6 specification will be for ANEXT and AFEXT testing. Because UTP systems are unshielded, ANEXT and AFEXT are two disturbing noise sources that must be dealt with to ensure adequate support of 10GBASE-T. With Berk-Tek ANEXT and AFEXT are virtually eliminated, thus significantly increasing network Signal-to-Noise Ratio (SNR), a critical variable for calculating Shannon throughput. With

more than 22 Gbs of throughput vs. the 18 Gbs needed, Berk-Tek will provide the application support needed for the IEEE 802.3an 10GBASE-T draft standard despite the fact that the individual components meet the current TIA Category 6 requirements.

5. Shielded cables have been historically large in size and stiff. How do the GUARDmark-6 FTP cables compare with the 10G UTP cables being released?

Compared to Category 6 and 6e cables, GUARDmark-6 cables are larger and stiffer. However, compared to the supposed ANEXT compliant 10G UTP cables now available, GUARDmark-6 is smaller and more flexible. Cable size will be critical in high density cabling environments such as data centers. Cable management is a growing concern for hardware vendors as they deal with the size of these 10G UTP cables. GUARDmark-6 provides the benefits of superior performance and smaller size vs. 10G UTP competitors.

6. How do I properly ground a shielded cabling system?

Berk-Tek recommends that shielded cabling systems utilize a single point ground method. For these shielded installations it is recommended that the point of administration (the patch panel), should be bonded (with an 8 AWG Bonding conductor (BC)) following a direct minimum length patch from the panels ground lug to the nearest approved ground (which should reside on the rack or cabinet and be connected to the closest point of the building's electrical service grounding electrode system). BCs should be routed with minimum bends or changes in direction. BCs should be made directly to the points being grounded.

7. Is Berk-Tek system independently tested to meet the claims shown in the product literature?

Berk-Tek is independently tested to meet the Alien Crosstalk cabling channel requirements as currently defined by TIA in the most demanding "six around one", 100 meter, four-connector channel configuration. Berk-Tek is the first 10G solution to be independently tested. Berk-Tek has also been independently tested for AFEXT, a property currently under study within the TIA. Although there have been no limits established as of yet for AFEXT, Berk-Tek performs very well because of the effectiveness of the shielding techniques employed.

8. Why else would I want to select a shielded cabling solution?

Shielded cabling solutions offer the added benefit of more security against "intrusion and eavesdropping" than UTP cabling solutions. This benefit is important for those users who need to protect sensitive information or for government or military agencies where protection of information for high security clearance users is an issue.