An Overview Of Category Cables

4 pair 100 ohm UTP Category 3 cabling is the recommended minimum requirement for residential and light commercial installations. This standard provides excellent flexibility. Category 2 and 4 cables have been replaced in the mind of the industry by Category 3 and 5 cables respectively. Pair counts have also been consolidated with 4 pair for "desktop" and 25 pair for "backbone" cabling leading the way.

Category 1 – meets the minimum requirements for analog voice or Plain Old Telephone Service (POTS).

Category 2 - defined as the IBM Type 3 cabling system. IBM Type 3 components were designed as a higher grade 100 ohm UTP system capable of operating 1 Mbps Token Ring, 5250 and 3270 applications over shortened distances.

Category 3 - characterized to 16 MHz and supports applications up to 10 Mbps. Applications may range from voice to 10BASE-T.

Category 4 - characterized to 20 MHz and supports applications up to 16 Mbps. Applications may range from voice to 16 Mbps Token Ring.

Category 5 - characterized to 100 MHz and supports applications up to 100 Mbps. Applications may range from voice to 100BASET.

Category 5e - characterized to 100 MHz and supports Gigabit applications up to 100 Mbps. Applications may range from voice to 1000BASET.

Category 6 - characterized to 200/250 MHz (still under discussion) and supports future applications (no LAN applications have yet emerged which require cabling performance beyond Category 5e) and is backward compatible with Category 5 cabling systems.

Proposed Category 7 - Possible shield system still under discussion. Application have yet to emerge which require cabling performance beyond Category 5e.

UTP Category Cabling Evolution
With the publication of EIA/TIA 568 standards in 1991 the term "Category" made its way into the vocabulary of LAN managers and cable installers to describe the performance of UTP cabling systems. Category 3 was initially the biggest seller for use in cabling systems running voice traffic and 10BaseT LAN traffic. Shortly after Category 4 was introduced to provide a higher grade of cable capable of running 16 Mbps Token Ring networks. When 100BaseTX (100 Mbps) was introduced, Category 4 soon gave way to Category 5, which now constitutes the majority of data cable runs.

Similar to 100BaseTX the recent introduction of Gigabit Ethernet (1000BaseT) has forced some changes in UTP cabling standards. Even though existing category 4 cabling systems may support the robust Gigabit ethernet channels they will definitely be stretched to their limits. Due to these concerns, a new cabling Category (5e) has been defined to ensure Gigabit performance.

What is Category 5e?
A new specification (Category 5e) has been developed to handle the challenges of Gigabit traffic (1000BaseT). The category 5e specification for cabling and testing procedures are covered under TIA documents SP4194 and SP4196. The category 5e specification addresses the minimum equal level far end crosstalk (ELFEXT) and return loss requirements necessary to support 1000CBAseT.