



# CAT. 6A cabling

## *Rapid 6a*

Current trends in computer network systems require migration from 100Mb/s (100BASE-TX) for systems 1000 Mb/s (1000BASE-T). Taking into consideration today's demand for network equipment (servers, switches, routers, mass storage memory) located in data centers and a global increase in traffic, forcing the need to increase data transmission speeds. Those facts forced creation of a solution 10Gb/s using twisted pair cable as a transmission medium.

### WHAT IS CATEGORY 6A

The interest of 10GBase-T transmission (as the beginning we may assume a Congress in October 2002, where the idea of IEEE 802.3an standard was formed) expressed 34 companies that wanted to be involved in preparation of the arrangements relating to the capacity of

10Gb/s.

Works has also been noticed by other standardization committee and at the moment standardization of applications 10GBase-T, were developed studies on a class of dedicated cabling. Though started works on the category 6A.

### STANDARDS

Within EMEA countries one has to distinguish norms belonging to the following standardization committees: ISO/IEC, CENELEC, ANSI/TIA/EIA. Note however that although all the standards relate to the same components, theoretically concerning the same parameters for a given frequency, the requirements imposed on them differ greatly from each other.

In the case of Category 6A standardization committees have decided to differentiate their solutions by using different description ways:

	ANSI/TIA/EIA	CENELEC	ISO/IEC
Components	Category 6A	Category 6 <sub>A</sub>	Category 6 <sub>A</sub>
Channel	Category 6A	Class E <sub>A</sub>	Class E <sub>A</sub>
Permanent link	Category 6A	Class E <sub>A</sub>	Class E <sub>A</sub>

There are also substantial differences in case of given parameters (for instance: from 1 to 3 dB in case of NEXT parameter for given frequency and measurement type channel or permanent link).

Regarding above therefore both the installer's and the investor's the best solution is system meeting the requirements of ISO / IEC (refers to ISO / IEC 11801 2nd Ed. Am. 1 or 2). They will be certain of meeting either the worldwide standards (ISO / IEC) or regional standards (ANSI / TIA / EIA or CENELEC).

#### OPPORTUNITIES

Initially the intention of 10GBase-T usage was found only in the horizontal connections in large data center. Although meantime growing market forced the continuous bandwidth increase within horizontal connections between the point of distribution and the user's terminal.

One put thesis that theoretically 3 times more expensive Category 6A cabling provides 10 times higher transmission possibilities than category 6 cabling. Even before the emergence of Class E<sub>A</sub> one started to put thesis that it is better to use cabling based on components of the cat. 7 than the cat. 6.

#### EFFICIENCY ANALYSIS

Class E<sub>A</sub> fully ensures the possibility of transmission of 10Gb/s at the full 100 meter transmission channel, in comparison to the category 6 (here 10GBASE-T is assured for a distance of about 55 meters).

Though why not to invest immediately in the full system of category 7 or 7A perhaps, after all you can to immediately install the system intended by the excess of the standards to ensure transmission of 10GBASE-T. Here there are many very important aspects, even what kind of connector - the topic mentioned in the article "Is it worth investing in the 7, 7A?" - ie. can not find RJ45 applications at frequencies exceeding 500 MHz - the cat. A 7.7 introduced new types of connectors, unfortunately, not compatible

with the active equipment (need to use temporary patch cords).

Another important issue emerging opportunities for active transmission equipment, which in the case of applications exceeding the 10GBASE-T - copper-based systems - at this moment is possible only in laboratory conditions using solutions specifically dedicated only the bandwidth.

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*„At the turn of 2011/2012 according to the latest negotiations cabling facilitating Category 6A components should take **33%** of the market. It is a permanent rule changes cabling class at 6-7 years (in 2004, Category 6, 1998 - cat. 5e).“*

## FINANCIAL ANALYSIS

Before investments are becoming an important aspect of finance, but often the same structured cabling and low cost are the total cost per mille. But keep in mind that this type of system has to serve us not only today but also for at least 10 years (according to standards) or 20-25 years (by producers). Given the increasing demands of each system for ever greater bandwidth, the introduction of new applications, greater usage of network.

For new systems, resulting in modern buildings, where an investor assumes that his current band can continually grow often wonders about the introduction of the latest developments. The same applies to both computers and cabling system which is given a "network" has a handle. Both self-taught, but also experienced installers we offer solutions to ensure that large stocks of transmission (currently works with most devices using the transmission 1000BASE-T), but also allows the transition to the next standard (the possibility to implement 10GBASE-T applications.) For economic reasons, as well as current market trends, the most reasonable class wiring seems to be a Class EA in shielded version. Often encounter the problem of installers who have been among the instigation of categories 7, 7A - only because the manufacturer of the economic system. Fibrain tries, in consultation with the investor to reach the most universal solu-

tion that provides the best possible transmission, while maintaining the best possible economic aspect.

## 6A UTP SOLUTIONS

Already in the implementation of category 6, many factories had problems with maintaining all required parameters to the frequency of 250 MHz. In the case of Category 6A invariably an important aspect of transmission has become between pairs crosstalk originating from the adjacent transmission paths (ANEXT AFEXT and others). Unfortunately, as shown by studies conducted by both manufacturers and independent laboratories are not unscreened systems keep alien crosstalk

parameters. Unfortunately, some manufacturers of cabling would like to bring to market unshielded systems - which is true pass measurements of dynamic (with the recommendations of the manufacturers of measuring equipment such as Fluke - shows that the measurements must be made on the network in idle state) is at work but most of the transmission paths, problems may arise of the above interference. There have been a number of analysis (carried out by, among others DELTA, GHMT, 3P), which shows that a dedicated system for Class EA - is the system will be screened.

## FIBRAIN DATA - MODERN STRUCTURAL CABLING SYSTEMS



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