



EC Cabling News

Newsletter on International Standardisation

By Erik Bech – December 2008

Since our last newsletter on International standardization, the work has been continued with the main goal of finalizing the standards for the new classes, E_A and F_A. In the American standards these classes refer to Category 6A (Class F_A is not recognized in the American standard).

The American standard was issued early this year. The Standard is : ANSI/TIA/EIA-568-B.2-10, Transmission Performance Specifications for 4-pair 100 Ω Augmented Category 6 Cabling.

The International standardisation committees (ISO/IEC, IEC, and CENELEC) are still working to finalize their work. The aim is to harmonize the technical requirements of the standards, but this goal is not achieved totally. There will be some subtle differences, which one has to be aware of when cabling is specified and tested.

In ISO/IEC, the 1. Amendment to ISO/IEC 11801 was approved after the meeting in Barcelona in February this year. The standard was issued in April 2008. This document specifies the channel requirements for all classes including Class E_A and F_A. Also requirements for optical cabling are listed. As mentioned there is not total harmonization between this standard and the American standard. The main issues are 1: A difference in allowed excess attenuation for cords. In the International standard the excess attenuation is 50% (compared with the attenuation of horizontal cable). In the American standard this is 20 %. 2: A difference in NEXT for connecting hardware, Category 6A, above 250 MHz. In the International standard a slope of the curve above 250 MHz of 30 dB/decade is required, while this figure is 40 dB/decade in the American standard. These differences give slightly different limits. The information in our technical note: Transmission characteristics for the new Class E_A, March 2007, is still valid.

The proposed amendment 2 to ISO/IEC 11801 is still not finalized. In the meeting in Lyon, October 2008 a lot of work was done to resolve comments to the last draft 25N1513. Now a new draft is issued as a FPDAM (Final Proposed Draft Amendment) to ISO/IEC 11801, document no.: 25N1599. This document is for vote by 20 March 2009. The result will then be known in the next meeting of SC 25/WG 3, which is planned for late March 2009. The content of the document is performance parameters of components and links for categories and classes from Category 5, Class D and up to Category 6A, 7A, and Classes E_A and F_A. There is also information on performance parameters for optical connecting hardware and cords. The main new issue in this draft is a relaxation allowed in the requirements for NEXT of a link with three connectors. In the last draft this requirement was based on a calculation, which took into account one connector in each end of the link. Now there is a special equation above 300 MHz for a link with three connectors. The equations are:

NEXT for link above 300 MHz:

For a two connector link: $NEXT > 87.04 - 21.41 \log(f)$

For a three connector link: $NEXT > 102.22 - 27.54 \log(f)$

In IEC developments of standards for cables and connecting hardware are continued.

Cable standards are drafted in SC 48C/WG 7. The last meeting was in Xian, October 2008. The important standards for LAN cables IEC 61156-5 (solid cables) and IEC 61156-6 (flexible cables) have had a turbulent life lately. The reason was an error in requirements for impedance, which in some way was caused by misinterpretations in definitions between the editor and some experts in the standardisation work group. Due to this a requirement of $100 \Omega \pm 5 \Omega$ was found for the mean impedance in the whole frequency range of one MegaHertz to the limit of the category. This is not possible for twisted cables. The error has now been corrected and the status of the document is now that IEC 61156-5:2002 and 61156-6:2002 are withdrawn. The new issue of IEC 61156-5 is on the draft stage (46C/844 CDV) and IEC 61156-6 was issued in 2007.

The sub-committee SC 48C/WG 7 has changed convener. The new convenor is John Kincaid from Systimax who has replaced James S. Tyler from Superior Essex.

Connecting hardware standards are drafted in SC 48B/WG 3. For Category 6 and higher LAN connectors there is a special project team, which is convened by Guy Perrot from NEXANS. The last meeting in this group was in July in Paris. Development of standards for the new Category 6A connecting hardware is continued. The standards are IEC 60603-7-41 for unshielded and IEC 60603-7-51 for shielded connecting hardware. The status for these standards is now that they still are under development. The associated test standard for Category 6A connecting hardware is IEC 60512-27-100, and this standard is also under development. The test standard for Category 6 connecting hardware is IEC 60512-26-100, and it is close to finalisation. In this standard the method for NEXT measurements using the de-embedded technique comprising 12 test cases with 12 different test plugs is specified. For Category 6A testing a new technique is developed, where only one test plug is used and the NEXT performance for now 14 test cases is calculated, based on virtual (calculated) test plugs. It is proposed to replace the old method with the new also for Category 6 connecting hardware. If this is adopted, the standard IEC 60512-26-100 will be redundant.

For Category 7 and 7A, the product standards are IEC 60603-7-7 and IEC 60603-7-71. The test standard for transmission testing up to 1000 MHz will be 60512-28-100 (proposal).

Because all these new IEC standards are at premature states, our recommendation is to use the ANI/TIA/EIA-568-B.2-10 for requirement and test standard for Category 6A connecting hardware. Just remember the difference in slope for NEXT above 250 MHz between the American and the International standard.

The standardisation work continues and DELTA EC Cabling will also continue to keep you informed in our Newsletters, which will be issued whenever important developments are done.

