

## Author

### Mike Gilmore

Senior Partner of The Cabling Partnership ([www.it-cabling.com](http://www.it-cabling.com))  
Managing Director of e-Ready Building Limited  
P.O.Box MT65, Leeds, United Kingdom. LS17 8YD.  
e-mail: [mike.gilmore@btinternet.com](mailto:mike.gilmore@btinternet.com)  
Telephone: +44 (0) 113 232 3721, Fax: +44 (0) 113 293 2632

See last page for biographical details



The IT cabling infrastructure  
division of  
e-Ready Building Limited

The IT cabling consultants

e-Ready Building Limited  
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## CLASS E<sub>A</sub> AND F<sub>A</sub> CABLING IS APPROVED – BUT IS IT A FALSE DAWN?

by

Mike Gilmore, Technical Director of the FIA  
for Networking+ (February 2008)

February 2008 heralds the ratification of two important advances in the standardisation of generic cabling. The United States anticipates the publication of ANSI/TIA/EIA-568-B.2 Addendum 10 (also known as B.2-10). This contains Augmented Category 6 specifications for cables, connecting hardware and installed cabling. TIA/EIA-TSB155 showed how existing balanced cabling could be characterised/assessed to determine its ability to support 10 Gigabit Ethernet, whereas B.2-10 defines component and cabling performance that guarantees that support. Internationally, the national bodies of ISO/IEC JTC1 SC25 WG3 have approved Amendment 1 to ISO/IEC 11801 Ed.2 which contains channel specifications for Class E<sub>A</sub> and F<sub>A</sub>. Class F<sub>A</sub> channels go way beyond the existing Class F channels - specified for performance up to 1000 MHz.

Class E<sub>A</sub> channels are essentially equivalent to Augmented Category 6 channels. However, they do differ in one specific characteristic. This renders the ISO/IEC specification more onerous and the guarantor of better performance. Unfortunately, this is confused by the fact that as yet ISO/IEC are unhappy to ratify the specification of both the components required to produce Class E<sub>A</sub> and F<sub>A</sub> channels i.e. Class 6<sub>A</sub> and 7<sub>A</sub> components and the installed permanent links. This will be addressed with the publication of Amendment 2 to ISO/IEC 11801 Ed.2 which is hoped to be completed early next year.

So, what does the customer who wishes to specify one of these high performance cabling systems today actually write in his tender? The most stringent demand for 500 MHz cabling would be to require components and installed links to at least meet Augmented Category 6 requirements but with a suppliers guarantee that resulting channels (using the correct cords) will meet Class E<sub>A</sub>. Of course. Central European countries would scoff at this and say one should simply specify Class F, specified up to 600 MHz, a superset of Class E<sub>A</sub>, standardised since 2002.

But what will Classes E<sub>A</sub>, F and F<sub>A</sub> be used for and do we need them? All three will support 10GBASE-T, so if you want 10 Gigabit Ethernet to the desk or in your data centre then you may take your pick. But beyond 10GBASE-T the situation is less clear. Class F<sub>A</sub> certainly delivers substantially better performance than either E<sub>A</sub> or F - but is it necessary? There are some that suggest that "broadcast" applications are the target audience for such cabling but others see the long-term solution for the delivery of broadcast services to be implemented using existing applications such as 1000BASE-T (supported over Class D channels). In the world of LAN strategies, IEEE are already working on 40 Gb/s and 100 Gb/s Ethernet standards which are not expected to be implemented at "useable" lengths over any type of balanced cabling.

It is difficult at this stage to see the "killer app" that justifies the cost, installation complexity together with the cabling volumes and weights (as most of these cables are of much larger than their predecessors) of these high-end products. Many large corporate users are opting for Class E<sub>A</sub> cabling (or at least Augmented Category 6) using the principle of "you never get fired for buying better than you currently need". However, there are many others who have shunned anything beyond Class D. This latter group feel justified since Class E never delivered the above-mentioned "killer app" and that 10 Gb/s Ethernet is better delivered using optical fibre. On the basis of current application development it will be at least five years before we find out who was right - and five years is along time in cabling.

Further information is available via the FIA web-site at [www.fia-online.co.uk](http://www.fia-online.co.uk) or directly via the TIA-B section at [www.fia-online.co.uk/TIA-B](http://www.fia-online.co.uk/TIA-B). Enquiries can be e-mailed to [jane@fiasec.demon.co.uk](mailto:jane@fiasec.demon.co.uk) or, alternatively, you can contact the FIA Secretariat in 01763 273039.

The Cabling Partnership  
P. O. Box MT 65, LEEDS, West Yorkshire, LS17 8YD, England  
Telephone: +44 (0) 113 232 3721 Fax: +44 (0) 113 293 2632

The Cabling Partnership is a division of e-Ready Building Limited  
Company Registration No. 4432595 Registered Office - Emery House, 192 Heaton Moor Road, Stockport, Cheshire, SK4 4DU.

## Biography

As the Technical and Standards Director of the UK Fibreoptic Industry Association, Mike is heavily involved in the development of training and competence standards for the fibre installation industry and sets down policy in this area. In addition he chairs the audit and arbitration committees for the FIA. His book "Fibre optic cabling; theory design and installation practice" published in 1991 remains a reference for both experts and entrants into this field.

Mike also initiated the establishment of the Telecommunications Infrastructure Advisory Board (TIA-B) along with the relevant directors of its other host organisations CMA and ECA-ITEC.

In the UK, Mike is Chairman of TCT/7, the BSI technical committee responsible for the three panels on telecommunication cabling. He also chairs two of these panels (TCT7/-/1 and TCT7/-/3). TCT7/-/1 acts to assist development of European and international standards for telecommunications cabling. TCT7/-/3 manages the implementation of European standards and others in the UK.

At the European level Mike is Convenor of CENELEC TC215 Working Group 1 and is Secretary of TC215 Working Group 2, the groups that control the development of European standards for the design and installation of telecommunications cabling.

At international level, Mike is Convenor of the Cabling Implementation Task Group (CITG) within ISO/IEC JTC1 SC25 WG3. This group is responsible for the strategic management of the international standards covering the specification, QA, installation, administration, operation, maintenance and repair of generic cabling. This work supports all the cabling design standards produced by ISO/IEC JTC1 SC25 WG3 including ISO/IEC 11801 and ISO/IEC 24702 for industrial premises produced by ISO/IEC JTC1 SC25 WG3 IPTG (also convened by Mike Gilmore).

Mike is a regular speaker at seminars and conferences in all five continents. He has provided the keynote address and opening presentation in many conferences in the UK, Germany and the Netherlands. His seminars, providing regular updates on the progression of cabling standards are particularly well attended and are operating in the UK and continental Europe.



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