IEEE 802.3

Geoff Thompson, Chair

To: ISO/IEC JTC-1/SC 25/WG 3
From: IEEE 802.3, Liaison to SC 25/WG 3
Subject: 50/125 μm cabled optical fiber attenuation value
Date: April 23, 1999

The IEEE published IEEE Standard 802.3z, 1000BASE-SX and –LX, Gigabit Ethernet, in September of 1998. The Physical Layer specification defines among other parameters the characteristics of the 50/125 μm; 62.5/125 μm and single-mode cabled optical fiber. Compliance with ISO/IEC 11801 optical fiber cable plant is recommended.

The critical optical fiber characteristics are reflected in referencing the IEC-793-2:1992 standard. While optical fiber cable attenuation values represent cabling industry consensus, there were no known references available at the time of publishing.

The maximum attenuation values specified by the standard for the 50/125 μm cabled optical fiber are 3.5/1.5 dB/km in the 850 and 1300 nm operating windows respectively. These maximum values reflect current product availability regardless of differences associated with various cable designs structures.

Working Group 3 of IEC 86A is chartered with the development of the specifications for the optical fiber cables and is currently in process of implementing changes to the document IEC 60794-1-1 titled “Optical Fiber Cables”. The approved changes will include the addition of cabled optical fiber attenuation values. The maximum attenuation for both 62.5 and 50/125 μm cabled optical fiber is 3.5/1.5 dB/km at the 850/1300 nm operating wavelengths respectively. Expected completion date of the standard is fourth quarter of 1999.

We would like to draw to your attention to the ISO 11801:1995 specification. In that standard the long, (1300 nm) wavelength has an attenuation value of 1.0 dB/km for both 62.5 and 50/125 μm cabled fiber. The specified value reflects current industry capability for cabling of the 62.5/125 μm fiber, loose and tight buffer construction, as well as loose buffer construction for 50/125 μm cabled fiber. Attaining the 1.0 dB/km specification for the 50/125 μm cabled tight buffer construction, commonly used within buildings, represents a significant challenge for the cabling industry. This is due to well-documented higher sensitivity to microbending for 50/125 μm cabled fiber relative to 62.5/125 μm fiber.

In view of the above and in the spirit of harmonization of all the above specified standards we request that WG 3 change the attenuation value for the 50/125 μm cabled optical fiber in the second window from 1.0 to 1.5 dB/km.

Thank you for your kind consideration in this matter.

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