

A glowing yellow fiber optic cable is shown against a dark blue background, with a bright light emanating from its end, creating a lens flare effect.

# OM4 multimode fiber standardization

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**IEEE 802.3ba, Portland, January 2008**

- **ISO/IEC JTC1 SC25 WG3 liaison to IEEE802.3 on possible new multimode fiber class (OM4)**
- **Background OM4 fiber**
- **Advantage OM4 fiber**
- **Standardization OM4 fiber**
- **Proposal for bandwidth spec OM4 fiber**
- **Conclusions**

**To: Applications standards committees**  
**- IEEE802.3 (Ethernet)**  
**- INCITS T11.2 (Fibre Channel)**

**From: ISO/IEC JTC 1/SC 25/WG 3**

**CC: IEC 86A**

**Liaison report: 3n856mod (draft) + 3n856A**

**Subject: Possible new multimode fiber class for 3<sup>rd</sup>  
edition of 11801 with higher bandwidth  
(e.g. OM4)**

**Suggested bandwidth in the range of:**

	<b>3n856mod (draft) (2007-12-01)</b>	<b>3n856A (2008-01-10)</b>
<b>850nm EMB</b>	<b><math>\geq 4500</math> MHz.km (1)</b>	<b><math>\geq 4500</math> MHz.km (2)</b>
<b>850nm OFL BW</b>	<b><math>\geq 3500</math> MHz.km</b>	<b>-</b>
<b>1300nm OFL BW</b>	<b><math>\geq 500</math> MHz.km</b>	<b><math>\geq 500</math> MHz.km</b>

**(1) for sources meeting OM3-compatible launch conditions**

**(2) for sources meeting launch condition spec. of IEC 60793-2-10 Annex D.1, such as VCSELs used for 10GBASE-SR**

**Request: Feedback to this initiative, vis-à-vis its relevance, desirability or justification as per existing or planned applications before next ISO/IEC meeting (February 18-22, 2008)**

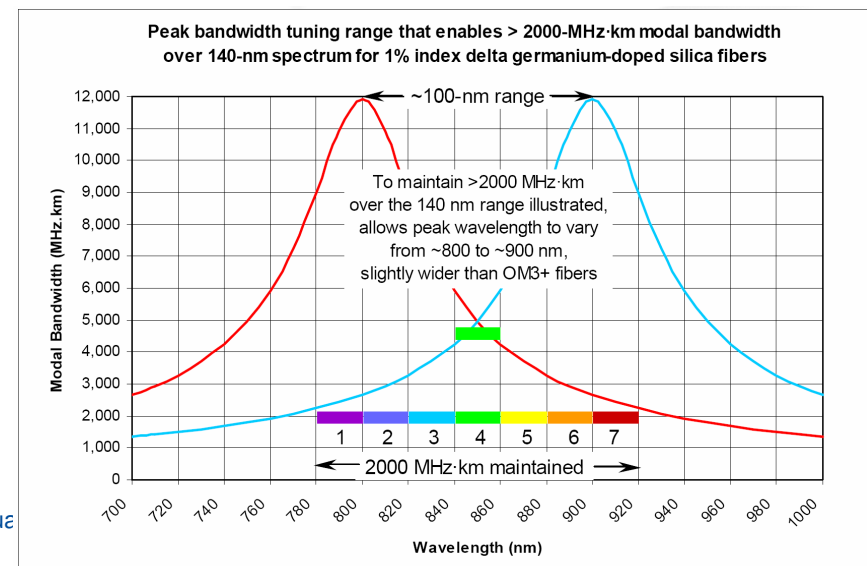
**Note: Decision to undertake this specification (*in ISO/IEC & IEC 86A*) is influenced by interest from relevant application standards bodies**



- **OM3 fiber was developed supporting 10 GbE up to 300 meter and standardized from 2002 (TIA / IEC) with EMB  $\geq 2000$  MHz.km @850 nm**
- **Major multimode fibre manufacturers started OM3 fiber production**
- **Superior class showed to be available (subset of OM3), offered as higher grade with min. EMB of 4700 MHz.km**
- **Major multimode manufacturers secured related tight DMD specs by improved High Resolution DMD measurement accuracy ( $\sim 0.004$  ps/m)**
- **Several premises cabling incorporated this product in their portfolio**

High bandwidth offers additional margin, which can be used to:

- extend 10 GbE link distances
- support more complex topologies
- support future WDM solutions near 850 nm
  - kolesar\_01\_1107
  - TIA TSB-172 (High Data Rate Multimode Fiber Transmission Techniques)
- support relaxation of transceiver specs
  - sun\_01\_1107



### Advantage OM4 fiber in IEEE 802.3ba:

- **Extend link distances and margin**
- **Enhance the 40G and 100G MMF specs**

### What Can These Fibers Do for 802.3 HSSG?

- Using specs proposed in aronson\_01\_0907

Supportable Distance at 0 dB Margin		
Fiber Type	BW (MHz.km)	Distance (m)
OM3	2000	230
ISO	4500	280
TSB-172	4700	280

### Kolesar\_01\_1107 :

- Link becomes constrained by chromatic dispersion impairments (i.e. MPN) due to spectral width relaxation and by increased jitter allowance (i.e. Pcross)



**Foreseen activity in component standardization on positive feedback from application standards bodies:**

**Revision of optical fibre standards:**

- **TIA/EIA-492AAAC (850-nm laser-optimized, 50 µm MMF)**  
→ e.g. add new specification

*Note: a draft 492AAAD exists from the work on TSB-172*

**Committee: TIA FO-4.2 → TIA TR42.12 in 02/08**

- **IEC 60793-2-10, A1a.2 (850-nm laser-optimized, 50 µm MMF)**  
→ e.g. add new type A1a.3

**Committee: IEC 86A WG1**

**Draka Comteq view on bandwidth requirement OM4:**

	<b>TIA TSB-172</b>
<b>850nm EMB</b>	<b><math>\geq 4700</math> MHz.km (1)</b>
<b>850nm OFL BW</b>	<b><math>\geq 3500</math> MHz.km</b>
<b>1300nm OFL BW</b>	<b><math>\geq 500</math> MHz.km</b>

- (1) For sources meeting launch condition spec. of IEC 60793-2-10 Annex D.1, such as VCSELs used for 10GBASE-SR**

**Support conclusions in kolesar\_01\_1107:**

- **Create a more forward looking OM4 fiber specification, based on years of production experience**
- **Recommend to consider the impact of this fiber on transceiver relaxations to provide useful solutions to the customer**
- **Support migration from data center to LAN**



# Thank you Questions?