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**Draka**

# OM4 Standardization Update

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IEEE 802.3ba, July 2008, Denver USA

# Recent Events and Meetings

- **Fibre Channel responded to ISO in February**
- **ISO met later in February**
- **IEC 86A met in April**
- **TIA TR42, now including former FO4, met in February and June**

# ISO Proposal and Letters

- **BW specs for next generation 50µm proposed to WG3 in September 2007**
  - Similar to higher peak bandwidth specs of TSB-172
  - Referring to it as OM4
- **Agreement of WG3 to send liaison letter, 3n856A, to applications standards committees to request feedback on proposed specs**
  - IEEE 802.3 (Ethernet)
  - INCITS T11.2 (Fibre Channel)
- **Feedback incorporated into 3n869 to IEC 86A**

# IEEE 802.3ba Response to ISO 3n856A

See ISO 3n861

- **Ad hoc formed to respond**
- **Response approved by 802.3ba on Jan. 25**
- **Expressed interest in OM4**
  - extending link length
  - supporting higher line rates (e.g. 25G)
- **Some uncertainty on required BW values**
- **Explained that Ad Hoc had differing opinions on how OM4 should be specified**

# T11 Fibre Channel Response to ISO 3n856A

See ISO 3n863

- **T11 approved response Feb. 8**
- **Indicated value in significantly better 850 nm modal bandwidth to benefit reach and margin**
- **Next gen FC-PI-5 to include 17 Gbaud rate**
  - **Higher BW fibre a better solution for this and higher speeds that follow**
  - **Expects to include new fibre, if standardized, for 17G and lower rates**
- **850 nm OFL BW used by 1G and 2G FC**
  - **850 OFL BW missing from ISO's 3n856A letter**

FCIA roadmap targets 150 – 300m on OM4 for 16GFC

# ISO 3n869 Letter to IEC 86A

## See IEC 86A BE-17

- ISO considered 802.3 and T11 feedback at February meeting
- Produced liaison, 3n869, to IEC 86A requesting standardization of OM4
- Target bandwidths (MHz-km, minimum):
  - 4700 @ 850 nm EMB
  - 1500 @ 850 nm OFL
  - 500 @ 1300 nm OFL
- Intended to
  - Ensure compliance with existing applications by including OFL BW at least equal to OM3 at 850 nm & 1300 nm
  - Provide advantage in reach
  - Provide a path for future applications, including CWDM

# IEC 86A April Meeting Activities

- **Received and considered ISO liaison, 3n869, requesting standardization of OM4**
- **Received six contributions on OM4 from three fiber manufacturers and one cable manufacturer**
  - **BE-20\_IEC SC86A OM4 Proposal\_S.Swanson**
  - **BE-21\_OM4 proposal OFS (IEC)\_D.Mazzarese**
  - **BE-22\_OM4 Standardization Activity\_P.Kolesar**
  - **BE-23\_Fibre Channel Overview and Future Needs\_T.Cobb**
  - **BE-26\_Comments to ISO request OM4 fibre standardization\_G.Kuyt**
  - **BE-29\_60793-2-10-ed4 preCDdraft\_TC\_PK\_DM\_GK**

# IEC 86A OM4 Spec Proposal Tabulation

<b>Parameter</b>	<b>BE-20</b>	<b>BE-21</b>	<b>BE-22</b>	<b>BE-26</b>	<b>BE-29</b>
<b>850nm EMB</b>	<b>~3500</b>	<b>4700</b>	<b>4700</b>	<b>4700</b>	<b>4700</b>
<b>850nm OFL BW</b>	<b>delete spec</b>	<b>3500</b>	<b>3500</b>	<b>3500</b>	<b>3500</b>
<b>1300nm OFL BW</b>	<b>delete spec</b>	<b>500</b>	<b>500</b>	<b>500</b>	<b>500</b>



# IEC 86A WG1 OM4 Polls at April Meeting

- **Straw poll 1:**  
**Are we (WG1 members) in favour of a higher grade MM fiber?**  
**Response shows unanimous support.**
- **Straw poll 2:**  
**Do we agree on a significantly higher number of 4700 MHz.km 850nm EMB?**  
**Response is 10 in favour, 2 against, 11 abstain.**

The favorable responses include those of three fiber manufacturers. The opposed responses were from one fiber manufacturer.

# IEC 86A WG1 Actions

(excerpted from unconfirmed minutes)

- **Based on both straw poll results the following is decided by the group:**
  - **1. WG1 supports to start a MCR for revision of the A1 MMF standard 60793-2-10, including a higher grade A1a.3 (OM4) fibre.**
  - **2. A correspondence group will start to deliver a proposal at the next Kyoto meeting (see also item 16). The correspondence leader will be Paul Kolesar.**
- **Action item 5: Revision of IEC 60793-2-10 Ed 3: Sectional spec. for category A1 MMFs.**
  - **Correspondence group with Paul Kolesar (c. leader), Steve Swanson, Tom Hanson, Hiroki Ishikawa, Harald Hein, Dave Mazzaresse, Gerard Kuyt, Terry Cobb, Tuvia Liberman.**

**Others later added:**

**Ros Neat; also from ISO: Ton Bolhaar, Allan Nielsen**

# TR42.8 February & June Meeting Activities

- **Received three contributions on OM4**
  - TR428-08-02-002\_OM4 Standardization Activity
  - TR428-08-06-007\_OM4 Standardization Activity
  - TR428\_08\_06\_008\_Fiber\_Proposal-Revised
- **Passed motion requesting TR42.12 to create a detailed specification for OM4 with minimum bandwidths of:**
  - 4700 MHz-km EMB @ 850 nm
  - 3500 MHz-km OFL @ 850 nm
  - 500 MHz-km OFL @ 1300 nm
- **Chair of TR42.12 engaged and willing to support work**
  - Draft TIA-492AAAD in preparation

# Summary

- **IEC 86A is adding OM4 to MMF spec**
  - **Clear preference for 4700 MHz-km EMB @ 850nm**
  - **Expected to produce CD ballot of IEC 60793-2-10 ed. 4 out of October meeting**
- **TR42.12 also developing detailed spec**
  - **4700 MHz-km EMB @ 850 nm**
  - **3500 MHz-km OFL @ 850 nm**
  - **500 MHz-km OFL @ 1300 nm**
  - **First ballot of TIA-492AAAD anticipated out of October meeting**
- **Dual track approach maximizes completion probability for P802.3ba**