

# **POF Standards Workshop:** Discussion & Strategy on the Development of POF Standards



March 23, 2009  
Room 30A, San Diego Convention Center



**Plastic Optical Fiber  
Trade Organization**

Visit us at the  
POF Pavillion (Booth 2134)  
[www.pofto.com](http://www.pofto.com)

# Workshop Agenda

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## **Present State of POF Standards: Activities, Conclusions, and Recommendations**

Dr. Paul Polishuk, POFTO Board of Directors  
President, IGI Consulting, Inc.

## **Recent Open DeviceNet Association (ODVA) Standard**

Paul Mulligan, POFTO Standards Chair  
President, FiberFin, Inc.

## **Recent Sercos Standards Activity**

Randy Dahl, POFTO Board of Directors  
President, Industrial Fiber Optics, Inc.

## **POF Home Networking Standards Activity**

Lawrence Thorne, VP Sales & Marketing, Americas  
Firecomms Ltd.

## **POF Standards Activities Worldwide**

- United States - ATIS, TIA
- Japan
- Europe
- Taiwan
- Other

## **Group Discussion: POF Standards Needs & How To Develop Them**

## **Global Plastic Optical Fiber Infrastructure Guide (GPOFIG) Proposal**

Paul Mulligan, POFTO Standards Chair  
President, FiberFin, Inc.

## **Concluding Questions, Comments and Conclusions**

**POF Standards Workshop:**  
Discussion & Strategy on the  
Development of POF Standards

POFTO Secretariat:

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**Present State of POF Standards:**  
Activities, Conclusions, and Recommendations

March 23, 2009

Paul Polishuk, Co-Chair  
Plastic Optical Fiber Trade Organization (POFTO)

*The ideas presented here represent the views of Paul Polishuk only.  
It is hoped that the POF Standards Workshop will provide further information  
on worldwide POF standards activities.*



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# Introduction

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- There is no organization promoting POF standards in all organizations, i.e., TIA, CEO, ATIS, ODVA, SERCOS, VESA, WDM-LAN, IEC
- POF standards exist, but how do you get them accepted in other standards?
- What new standards need to be developed?
- How do existing POF products meet existing standards? –

**Global Plastic Optical Fiber Infrastructure Guide (GPOFIG)**

# Presentation Outline

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- Recent POF standards
  - ODVA
- Existing POF standards
- What standards are of opportunity for POF?

# Recent POF Standards Progress

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- POF standards have been developed at the IEC (POFAC, Chromis, Nexans,)
- European Standards Activity (POFAC)
- ODVA (Rockwell)
- TIA Beginning

# Existing POF Standards

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- JIS
- Industrial controls
  - INTERBUS
  - SERCOS
  - Profibus
  - ODVA
- ATM Forum
- IEEE-1394b
- IEC
- MOST
- CEA-2012 (MOST aftermarket)

# POF Fiber Standards

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IEC 60793-2-40 "Product specifications General Section 40, Sectional Specification for Category A4 Multimode Fibres"

Ed. 2.0 Optical Fibers Part 2  
Published March 2006

Since 2006, there have been revisions to multimode enhanced A4a fiber named A4a.2, and the previous A4a fiber has been renamed A4A.1

The new A4a.2 fiber has

- Tighter Attenuation at 650 nm when using EMD launch
- Minimum modal bandwidth at 650nm when using a restricted mode launch
- Slightly lower theoretical numerical aperture. The revised document is designated Ed. 3 and is awaiting publication.



# IEC Standards for POF Cables

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<b>Standard</b>	<b>Description</b>
60794-2-40 Ed. 2	"Optical Fibre Cables – Part 2 – 40: Indoor Optical Fibre Cables – Family Specification for A4 Fibre Cables," published March 2008
60794-2-41 Ed. 1	Optical Fibre Cables – Part 2 – 41: Indoor Cables – Product Specification for Simplex and Duplex Buffered A4 Fibres," published June 2008
60794-2-42	Ed. 1 " Optical Fibre Cables – Part 2 – 42: Indoor Fibre Optic Cables – Product Specification for for Simplex and Duplex Cables with A4 Fibres," published April 2008

# PMMA-based POF Connector Standards

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Type	Standard
FO5	IEC 60874-17
DN	IEC 61754-16
SMI	IEC 61754-21
SC connector	IEC 61754-4
SC—RJ	IEC 61754-24
LC – 1.25mm ferrule	IEC 61754-20
Versatile Link	Avago

# IEC Transceiver Standards

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Type	Standard
PN 1X9	IEC 62148-4
650nm, 50Mbps	IEC 62149-6
	IEEE-1394b

# System Standards

Type	Standard
Digital Audio Interface	IEC 60958-3
Consumer A/V Equipment	IEC 62300
ATM Forum	155Mbps
Universal Digital Data Network	IEEE 1394b
Automotive	MOST
Aftermarket for MOST	CEA-2012
Industrial Controls	ODVA

# MOST Standards

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<b>Standard</b>	<b>Description</b>
GS-95006-6-1 January 2008	Wire Harnesses in Motor Vehicles – Requirements and Processing
GS-95006-6-2	Test Guidelines for Bulk Stock
GS-95006-6-3 January 2008	Optical Vehicles Contacting

# Home Network Standards

<b>Standard</b>	<b>Description</b>
ISO/IEC 15018	IT – Generic Cabling for Homes
WG1-HE5	
ATIS	Home Networking (HNET) Assessment and Work Plan, January 2009 (Identified 34SDOS)
ITU-T	ITU has several working groups working on different components for the home (ITU-T SG9, ITU-T SG15, ITU-t SG16)

# Industrial Control Standards

<b>Standard</b>	<b>Description</b>
SERCOS	(Step backwards with SERCOS 3.0)
INTERBUS	
PROFIBUS	
ISO/IEC 24702	"Generic Cabling for Industrial Premises"
ODVA (Ethernet/IP)	
TIA	TR 42.9 :Industrial Telecommunications Infrastructure"

# Top Actual & Potential POF Markets

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- Active Optical Cables (AOC)
- Audio/Visual
- Auto Aftermarket, Other Transportation Applications
- COTS and Environmental Hardening
- Data Centers
- Digital Signage
- DisplayPort
- Ethernet SAN
- Fibre Channel
- Flex Circuits/Flat Cables
- Gambling Casinos
- Gaming
- Green
- HDMI and DVI
- HyperTransport
- IEEE 1394 FireWire
- Industrial Ethernet
- InfiniBand
- IPTV and Home Networking
- Machine Vision
- Media Converters, Transceivers & Connectionless Links
- Medical Applications
- Military and commercial aircraft
- Mobile Handset Devices
- POF Sensors
- RF over POF and Femtocells and Picocells
- SATA
- SCSI, SAS, and iSCSI
- Ships and Boat Manufacturing
- Smart Fabrics and Textiles
- Storage Area Networks
- Supercomputers (HPCs)
- Surveillance
- Universal Serial Bus (USB)

Source:

**Top 40 Actual & Potential  
Plastic Optical Fiber Markets for 2008**  
IGI Consulting, Inc. , 2008





# Conclusions

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- A concerted worldwide focus on POF Standards needs to be developed
- Needs analysis need ed for POF Standards i.e what are the Market opportunities where there are no POF Standards
- Roadmap Activity needed for “POF Technology”
- Design guide is necessary (What will POF Technology do for which applications? What products are available from multiple suppliers?)
  - The GPOFIG program will satisfy this need
- A funded organization is needed to coordinate standards activity. It is difficult to do on a volunteer basis. POFTO does not have the resources to do the job!
- Benefits to suppliers  
(Standards will expand existing markets and open new markets.)
- There needs to be World Wide coordination of POF standards activities by individual companies and organizations