



BUILDING GLOBAL COMMUNICATIONS

## Approved by General Counsel

FO-4 Meeting Report

Date: 06/21-24/04

Location: Arlington, VA

Approved: 08/24/04

**T# 8270**

2500 Wilson Boulevard  
Suite 300  
Arlington, VA 22201-3834  
USA

+1.703.907.7700  
FAX +1.703.907.7727

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# Telecommunications Industries Association Standards and Technology Department

## Engineering Committee FO-4, Committee on Fiber Optics

### Meeting Report

FO-4 Chair: Steve Swanson  
Secretary and EDC: Bob Jensen

June 21-23, 2004  
TIA Headquarters  
Arlington, VA

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## **1 ADMINISTRATIVE**

### **1.1 Call, to order**

FO-4 Chair, Steve Swanson, called the opening plenary meeting to order on June 21, 2004 at 8:00 AM. The Chair noted that the opening plenary session is intended to update members of committee meeting expectations, and to inform them of administrative essentials. He also noted that no quorum is needed for the opening plenary and that attendance at the closing plenary constitutes the FO-4 membership and quorum

FO-4 Chair, Steve Swanson, called the closing plenary meeting to order at 2:00 PM June 23, 2004. The closing plenary session is intended to summarize Subcommittee meeting activities and resolve any issues arising throughout the week of meetings. The Chair again reminded those attending that attendance at the closing plenary constitutes the FO-4 membership and quorum. He also noted that continuity of membership is important so that a quorum can be established. Several participants requested membership in the FO-4 Engineering Committee. The Chair used the FO-4 company attendance history in 1.2 to determine membership eligibility (attendance at 2 consecutive meetings).

### **1.2 Attendance (quorum, introductions and roster)**

Attendance at the closing plenary constitutes the FO-4 membership and quorum. A total of 32 attendees were present at the closing plenary including 20 of 23 members. A quorum for the Engineering Committee was established. The attendees introduced themselves and an attendance roster was distributed for participants to sign.

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				Plenary	
				Opening	Closing
<b>Chair:</b>					
Steven Swanson	Corning, Incorporated	<a href="mailto:swansonse@corning.com">swansonse@corning.com</a>	607-974-4252	✓	✓

**Voting members companies present:**

Dave Roland	Alcatel USA	<a href="mailto:dave.roland@cable.alcatel.com">dave.roland@cable.alcatel.com</a>	828-459-8775		✓
Tom Hanson	Corning Incorporated.	<a href="mailto:hansonta@corning.com">hansonta@corning.com</a>	607-974-4530	✓	✓
Alan Whitebook	Diamond USA, Inc.	<a href="mailto:awhitebook@mindspring.com">awhitebook@mindspring.com</a>	661-702-9740	✓	✓
Pin Su	DiCon Fiberoptics Inc.	<a href="mailto:psu_std@yahoo.com">psu_std@yahoo.com</a>	510-620-5315		✓
Dave Leight	DSCC-VAT	<a href="mailto:david.leight@dla.mil">david.leight@dla.mil</a>	614-692-0657	✓	✓
Andre Girard	EXFO	<a href="mailto:andre.girard@exfo.com">andre.girard@exfo.com</a>	418-683-0211	✓	✓
Michael Itano	Leviton Voice & Data	<a href="mailto:mitano@levitonvoicedata.com">mitano@levitonvoicedata.com</a>	425-415-7239	✓	✓
Jack Rosko	Nexans dba Berk-Tek,	<a href="mailto:jack.rosko@nexans.com">jack.rosko@nexans.com</a>	919-552-4451		✓
Iwano Shin'ichi	NTT Advanced Tech.	<a href="mailto:s.iwano@neo.ntt-at.co.jp">s.iwano@neo.ntt-at.co.jp</a>	650-617-0320	✓	✓
Mike Kinard	OFS	<a href="mailto:mkinard@ofsoptics.com">mkinard@ofsoptics.com</a>	770-838-5307		✓
Adam Murano	Ortronics	<a href="mailto:amurano@ortronics.com">amurano@ortronics.com</a>	860-450-2804	✓	✓
Robert Fitzpatrick	Panduit Corp.	<a href="mailto:rfti@panduit.com">rfti@panduit.com</a>	708-460-1800	✓	✓
Dave Kritler	Photon Kinetics Inc.	<a href="mailto:dave.kritler@pkinetics.com">dave.kritler@pkinetics.com</a>	503-526-4655		✓
Scott Chastain	Sumitomo Electric	<a href="mailto:schastain@sumitomoelectric.com">schastain@sumitomoelectric.com</a>	919-541-8175	✓	✓
Paul Kolesar	SYSTIMAX Solutions	<a href="mailto:pkolesar@systimax.com">pkolesar@systimax.com</a>	972-792-3155	✓	✓
Osman Gebizlioglu	Telcordia Technologies	<a href="mailto:ogebizli@telcordia.com">ogebizli@telcordia.com</a>	732-699-3378	✓	✓
Dave Fisher	Tyco Electronics	<a href="mailto:David.fisher@tycoelectronics.com">David.fisher@tycoelectronics.com</a>	717-986-5501	✓	✓
Matt Brown	US Conec	<a href="mailto:mattbrown@usconec.com">mattbrown@usconec.com</a>	828-267-6327	✓	✓
Gair Brown	US Navy	<a href="mailto:browngd@nswc.navy.mil">browngd@nswc.navy.mil</a>	540-653-1579		✓
Norm Lampert	Yazaki NA Inc.	<a href="mailto:nlampert@comcast.net">nlampert@comcast.net</a>	770-449-1134	✓	✓

**Voting members companies absent:**

Jack Dupre	Agilent Technologies	<a href="mailto:jack_dupre@Agilent.com">jack_dupre@Agilent.com</a>	707-636-9001		
Bob Jensen	Fluke Networks	<a href="mailto:robert.jensen@flukenetworks.com">robert.jensen@flukenetworks.com</a>	512-514-7760		
Terry Tricher	Tempo	<a href="mailto:ttricher@tempo.com">ttricher@tempo.com</a>	905-827-6214	✓	

**Other participants**

Andy Devine	Coastal Connections	<a href="mailto:andy@coastalcon.com">andy@coastalcon.com</a>	805-644-5051	✓	✓
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John Abbott	Corning, Inc.	<a href="mailto:abbottjs@corning.com">abbottjs@corning.com</a>	607-974-6182	✓	
Ken Chauvin	Corning, Inc.	<a href="mailto:ken.chauvin@corning.com">ken.chauvin@corning.com</a>	828-901-5569	✓	
James Matthews III	Corning, Inc.	<a href="mailto:matthewsie@corning.com">matthewsie@corning.com</a>	607-974-7608	✓	✓
Frank Achten	Draka Fibre Technology	<a href="mailto:f.achten@drakafibre.com">f.achten@drakafibre.com</a>	31402958653	✓	✓
Lorenz Cartellieri	Experior Photonics, Inc.	<a href="mailto:lcartellieri@experiophotonics.com">lcartellieri@experiophotonics.com</a>	805-499-3000	✓	✓
Halina Kosiorska Bodine	FiberSource Inc.	<a href="mailto:Halina@fibersource.net">Halina@fibersource.net</a>	864-277-7200		✓
George Bodell	Georgia Inst of Tech.	<a href="mailto:gbodell@gatech.edu">gbodell@gatech.edu</a>	404-894-9000		✓
Phil Nguyen	Greenlee, a Textron Co.	<a href="mailto:pnguyen@tempo.textron.com">pnguyen@tempo.textron.com</a>	805-384-1833	✓	
Erich Rosenast	Greenlee, a Textron Co.	<a href="mailto:erosenast@tempo.textron.com">erosenast@tempo.textron.com</a>	760-598-8900	✓	
Dan Morris	KITCO Fiber Optics	<a href="mailto:dmorris@kitcofo.com">dmorris@kitcofo.com</a>	757-518-8100		✓
Dennis Horwitz	Miconor Inc.	<a href="mailto:dennis.horwitz@micronorinc.com">dennis.horwitz@micronorinc.com</a>	805-499-0114	✓	✓
Wayne Jones	NTS	<a href="mailto:wayne.jones@ntscorp.com">wayne.jones@ntscorp.com</a>	714-879-6110	✓	
Harvey Stone	Noyes Fiber Systems	<a href="mailto:harvey.stone@alcoa.com">harvey.stone@alcoa.com</a>	603-528-7750	✓	
James Refi	OFS	<a href="mailto:jrefi@ofsoptics.com">jrefi@ofsoptics.com</a>	404-377-6821	✓	
Ronnie Smith	OFS	<a href="mailto:rsmith@ofsoptics.com">rsmith@ofsoptics.com</a>	770-798-3824	✓	✓
Greg Kuffel	Panduit Corporation	<a href="mailto:glk@panduit.com">glk@panduit.com</a>	708-460-1800	✓	✓
Susan Hoyler	TIA	<a href="mailto:shoyler@tiaonline.org">shoyler@tiaonline.org</a>	703-907-7704	✓	
Stephanie Montgomery	TIA	<a href="mailto:smontgomery@tiaonline.org">smontgomery@tiaonline.org</a>	703-907-7735	✓	✓
Randy Manning	Tyco Electronics	<a href="mailto:randy.manning@tycoelectronics.com">randy.manning@tycoelectronics.com</a>	717-986-5003	✓	✓

**FO-4 company attendance history at Closing Plenary**

<b>Company</b>	<b>Last 3 meetings</b>	<b>June 2004</b>	<b>January 2004</b>	<b>June 2003</b>
Agilent Technologies	1			1
Alcatel	2	1	1	
Coastal Com.	1	1		
Corning, Inc.	3	1	1	1
Diamond USA	2	1	1	
DiCon Fiberoptics Inc.	2	1	1	
Draka Fibre Tech.	1	1		
DSCC-VAT	3	1	1	1
EXFO	3	1	1	1
Experior Photonics	1	1		
FiberSource	1	1		
Fluke Networks	2		1	1
KITCO Fiber Optics	1	1		
Leviton	2	1	1	
Nexans	3	1	1	1
NIST	2		1	1
NTT	3	1	1	1
OFS	3	1	1	1
Ortronics	2	1	1	
Panduit	3	1	1	1
Sumitomo	2	1	1	
SYSTIMAX Solutions	2	1	1	
Telcordia Technologies	3	1	1	1
Tempo	2		1	1
Tyco Electronics	2	1	1	
US CONEC	3	1	1	1
US Navy	2	1	1	

Note: Member companies absent from three consecutive meetings will be removed from the voting member list and placed on the non-voting member list. The attendance roster is the sole basis for deriving meeting attendance, so it is important that you sign-in at the meeting. The Chair will notify a company of their failure to meet minimum participation requirements and request their attendance at future meetings; enforcement of the membership continuation rules is necessary in order to maintain our ability to raise quorum at meetings.

### **1.3 Agenda review and approval**

Steve Swanson reviewed the Opening Plenary agenda topics which was approved by the attendees.

The Closing Plenary agenda was reviewed and approved.

### **1.4 Intellectual Property Rights statement**

The chair brought to the attention of the membership the TIA policy regarding patents, the use of which may be essential to standards being considered. The full statement is contained in the third edition of the TIA Engineering Manual.

### **1.5 Chair's report; general items; recognition**

At the Opening Plenary, Steve Swanson noted that the opening plenary session is intended to update members of committee meeting expectations, and to inform them of administrative essentials. The opening session will not include an oral presentation of liaison reports but all liaisons received will be posted to the ftp site.

Steve Swanson also noted that the closing plenary session is the formulating group and is intended to summarize Subcommittee meeting activities and resolve issues arising throughout the week of meetings. Attendance at the closing plenary constitutes the FO-4 membership and quorum.

Steve reviewed the structure and leadership of the committee, having five Subcommittees. He reminded the FO-4 leadership to cover the IPR statement at their meetings and remind participants of the need for the boilerplate cover sheet on all contributions. He also reviewed the electronic tools that are available and encouraged all members to utilize those tools to facilitate the progress of work between meetings.

Tom Hanson recognized Jim Refi with a plaque thanking him for his support of the FO Committees over the years. FO-4 thanked Jim and wished him the best in all his future endeavors.

### **1.6 TIA staff report**

Susan Hoyler and Stephanie Montgomery reported on several items:

**Digital Rights Management** - Since the beginning of 2002, TIA has been asked by its publisher to implement "document locking" also known as digital rights management (DRM). Digital Rights Management (DRM) is the term used to encompass various technologies or other protections to assist in minimizing infringement of intellectual property rights of IP owners. This is a concern of TIA since revenue is generated from the sales of standards. In 2003, two major standards developers (non-telecom) implemented document locking, and shared their experience in implementing this new technology. A digital rights management ad hoc was implemented by American National Standards Institute (ANSI) in 2003.

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Susan noted that the following process will be implemented:

- In 2004, TIA declared its intent to implement DRM on its published documents. In consultation with its publisher, TIA has decided to implement DRM on all published documents effective August 1, 2004.
- A notice will be sent out in late June alerting TIA standards participants of the change in TIA policy regarding the distribution of soft copies of its standards, and detailing what rights and permissions will be embedded in the soft copy.
- Implementation of DRM will be applied to all soft copy distributed (that is, those sold by the publisher, and that distributed by the Standards Secretariat)
- The current TIA process is that TIA sends a complimentary pdf copy of the published standard to all who voted on the ballot. This process will still be honored; however, the soft copy (pdf version) will have DRM implemented. What this means that certain rights will be embedded. Examples of such rights include how many print outs can be made, whether you can cut and paste, whether it can be forwarded as an email attachment, whether it can be posted on an internal corporate LAN etc.
- For those companies that have been violating copyright permission, they will be referred to TIA's publisher in order to seek necessary arrangements to have access to the documentation.

**Leadership Training** - A one-day session for all Engineering Committee leadership (chairs, vice chairs, secretariat, working group chairs, and editors) is being planned for Tuesday, August 31, 2004. More details will be provided to those interested.

**TIA Staff** - Billie Zidek-Conner, TIA Standards Secretariat, left TIA to pursue other career opportunities. In particular, she is commended for shepherding the TIA standards program from paper to all electronic system, thus, speeding up the availability of standards to the industry worldwide. Her extensive knowledge of procedures has steered TIA through two major audits by the American National Standards Institute (ANSI) and assisted in maintaining TIA's compliance with ANSI procedures. She was instrumental in preparing the update of the 2001 TIA Engineering Manual, and offered her insight into improving the TIA processes. Her last day was May 14, 2004.

TIA is in process of filling the position, and is very fortunate to have Billie available for consultation. During the transition, Billie is offering her services to TIA to assist during this period.

**\*\*IMPORTANT:** Billie's email address is still functioning, and you should continue to send normal correspondence (meeting notices, meeting reports) and forms (documents for publication, etc.) to this email address. During this period, Susan Hoyler and Stephanie Montgomery are covering the work of the Standards Secretariat, and will screen this box throughout the day, and work in conjunction with Billie Zidek Conner in her capacity as a contractor to TIA.

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However, if you wish to speak with a TIA staff member, please direct your phone calls to:  
Susan Hoyler, 703.907.7704, Cell: 703.395-7513 ([shoyler@tiaonline.org](mailto:shoyler@tiaonline.org))  
Stephanie Montgomery, 703.907.7735 ([smontgomemry@tiaonline.org](mailto:smontgomemry@tiaonline.org))

In addition, the other members of the TIA domestic standards staff are:

Ronda Coulter, 703.907.7974 ([rcoulter@tiaonline.org](mailto:rcoulter@tiaonline.org)); database matters, invoice matters, attendance rosters, other standards issues

Carolyn Bowens, 703.907.7961 ([cbowens@tiaonline.org](mailto:cbowens@tiaonline.org)); meeting notices and agendas, meeting reports, ballot status reports, other standards processing issues

David Thompson, 703.907.7749 ([dthompson@tiaonline.org](mailto:dthompson@tiaonline.org)); ITU matters; Project MESA; other special projects of standards department

Dan Bart, 703.907.7703 ([dbart@tiaonline.org](mailto:dbart@tiaonline.org)); Senior VP, Standards and Special Projects

**Other meetings** - The TIA Technical Standards Subcommittee (TSSC) and the TIA Technical Committee (TC) have each met one time via teleconference. In addition, the TIA Intellectual Property Rights Working Group (IPR WG) met one time to attempt to reach consensus on ballot resolution of the proposed text for the TIA IPR policy.

- Technical Committee, March 8, 2004
    - A special teleconference was held on March 8, 2004 to address an issue that arose from the IPR Standing Committee meeting.
    - “The main issue of the special TC meeting was to address the recommendation of the IPR Standing Committee regarding ballot resolution.
    - “Non-quorum” meetings; should those who attend a meeting be given credit for attendance-even if the meeting is not a quorum meeting? Secondly, what are the criteria for holding a non-quorum meeting? How is the informal discussion documented, and what approval process should the output of a non-quorum meeting go through? This issue is pending, and TR-45 Chair, Cheryl Blum is working in conjunction with TR-41 Chair, Steve Whitesell, to propose text for the TIA Engineering Manual.
  - IPR Standing Committees
    - The IPR Working Group met on by teleconference on February 26, 2004 and face-to-face on April 27, 2004. The issue regarding the language required in the patent holder statement is still not resolved.
    - An update of the TIA IPR Working Group activities was given at the GSC-9. The two contributions made are attached to this report. (23a and 23b)
  - Technical Standards Subcommittee, April 16, 2004
-

- The TSSC is a subordinate group of the TC chaired by the TC Chair, Anil Kripalani. The TSSC is composed of the 8 Engineering Committee (EC) chairs and 4 Division Chairs.
- Next Generation Network (NGN) was one of the topics that generated the most interest at the TIA Board meeting, and was relevant to the upcoming GSC meeting. TIA asked to coordinate across all engineering committees via the Technical Committee.
- Industry Playbook released; can be found on TIA website. ([www.tiaonline.org](http://www.tiaonline.org))
- Standards and Technology Annual Report (STAR) prepared in pdf version. This report includes a summary of each Engineering Committee's activities in 2004. It can be found on the TIA website.

### **GSC/RAST**

The Global Standards Collaboration (GSC)-9 was held in Seoul, Korea from May 9 to May 13, 2004. Next Generation Network (NGN) was a topic that generated great discussion. Fifteen Resolutions were generated. For access to contributions, resolutions, or other information regarding GSC-9, please go to [www.tta.or.kr/gsc](http://www.tta.or.kr/gsc).

The next GSC meeting (GSC-10) will be hosted by ETSI and is scheduled to be held from 28 August to 1 September 2005. Those companies that wish to be part of the TIA delegation need to contact either Susan Hoyler or Dan Bart. The size of delegation is limited, and there are certain criteria that must be met.

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### 1.7 Numbering of contributions

Document #	Contributor	Company	Title
FO-4/04-06-029	Bob Jensen	Fluke Networks.	January 2004 FO-4 meeting report
FO-4/04-06-030	Steve Swanson	Corning Inc.	Opening plenary presentation
FO-4/04-06-031	Steve Swanson	Corning Inc.	Closing plenary presentation
FO-4/04-06-032	Bob Jensen	Fluke Networks.	Opening plenary agenda
FO-4/04-06-033	Bob Jensen	Fluke Networks.	Closing plenary agenda
FO-4/04-06-034	Steve Swanson	Corning Inc.	June 2004 FO-4 schedule
FO-4/04-06-035	David Leight	DSCC-VAT	DoD liaison report
FO-4/04-06-036	Jim Matthews	Corning Inc.	6/04 FO-4.1 meeting agenda
FO-4/04-06-037	Paul Kolesar	SYSTIMAX	6/04 FO-4.1.2 meeting agenda
FO-4/04-06-038	Paul Kolesar	SYSTIMAX	2/04 FO-4.1.2 meeting report
FO-4/04-06-039	Paul Kolesar	SYSTIMAX	2/04 FO-4.1.2 meeting report
FO-4/04-06-040	Paul Kolesar	SYSTIMAX	4/04 FO-4.1.2 meeting report
FO-4/04-06-041	Paul Kolesar	SYSTIMAX	6/04 FO-4.1.2 meeting report
FO-4/04-06-042	Tom Hanson	Corning, Inc.	1/04 FO-4.2 meeting report
FO-4/04-06-043	Tom Hanson	Corning, Inc.	6/04 FO-4.2 meeting agenda
FO-4/04-06-044	Jim Refi	OFS	1/04 FO-4.2.3 meeting report
FO-4/04-06-045	Jim Refi	OFS	6/04 FO-4.2.3 meeting agenda
FO-4/04-06-046	Andre Girard	EXFO	1/04 FO-4.3 meeting report
FO-4/04-06-047	Andre Girard	EXFO	6/04 FO-4.3 meeting agenda
FO-4/04-06-048	Bruce LeFevre	OFS	1/04 FO-4.3.3 meeting report
FO-4/04-06-049	Bruce LeFevre	OFS	6/04 FO-4.3.3 meeting Agenda
FO-4/04-06-050	Pin Su	DiCon	1/04 FO-4.4 meeting Report
FO-4/04-06-051	Pin Su	DiCon	6/04 FO-4.2 meeting Agenda
FO-4/04-06-052	Steve Swanson	Corning Inc.	105v1 FO-4 schedule
FO-4/04-06-053	Jim Matthews	Corning Inc.	6/04 FO-4.1 summary report to FO-4
FO-4/04-06-054	Tom Hanson	Corning Inc.	6/04 FO-4.2 summary report to FO-4
FO-4/04-06-055	Andre Girard	EXFO	6/04 FO-4.3 summary report to FO-4
FO-4/04-06-056	Pin Su	DiCon	6/04 FO-4.4 summary report to FO-4
FO-4/04-06-057	Dennis Horwitz	Micronor	6/04 FO-4.5 summary report to FO-4
FO-4/04-06-058	Dennis Horwitz	Micronor	SAE AS3A-3 WDM Comp. TG Summary
FO-4/04-06-059	Dennis Horwitz	Micronor	SAE AS3A-3 JELLI TG Summary
FO-4/04-06-060	Dennis Horwitz	Micronor	SAE AS3A-3 Reliability Tutorial material

### 1.8 Meeting report review and approval

The January 2004 meeting report was reviewed at the closing plenary and unanimously approved with recommended changes to correct the attendance list.

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## 2 OLD BUSINESS

### 2.1 Action item review

Two action items were carried over from the last meeting:

Action item review	Action:	Resp:	Status:
2002-06-009	Place document database on the WEB for all projects so that it can be updated and maintained.	S Hoyler	On-going.
2003-06-012	Develop national adaptation procedure.	S Hoyler	On-going

## 3 PLENARY REPORTS

### 3.1 Opening plenary reports

Liaison reports will not be covered in the opening plenary meeting. Steve noted that any reports received will be posted to the ftp site for review.

The Chair reviewed his Vision for the FO-4 Engineering Committee and asked the Subcommittee Chairs to support that Vision in their future work. The key aspects of the Vision include:

- Position FO-4 as **the leader** in fiber optic component standards
- Provide **value** to the industry (and our employers)
- Promote **worldwide harmonization** of standards
- Improve efficiency through **improved processes**
- Support **membership growth**

### 3.2 Closing plenary reports

#### 3.2.3 FO-4.1, Optical Fiber Systems, Jim Matthews

FO-4.1 met in January 2004, June 2004 and held a teleconference in February 2004 to review ITU contributions. The next physical meeting will be January 2005 with FO-4.

Key topics in FO-4.1 include updates of ITU-T and IEC SC86C activity in the following areas:

- Black Link and Black Span
- Raman Amplifiers
- PMD Compensators
- Chromatic Dispersion and Mux/Demux Parameters

A teleconference will be held September 1<sup>st</sup> from 10:30 to 1:30 eastern time to review contributions to ITU-T WP4

- Normal Contributions for 2005 Meeting
    - Q15,16, 17,18, and 20
  - Experts Contributions for Sept 2004 Q16 and Q17
-

FO-4.1 also started discussions on standards needs for FTTP / PON and reviewed a proposal for a draft TSB on FTTP Drop / Distribution Systems Requirements

- Top down, first effort
- Will include interactions of cable, connectors, and other closure / housings
- System / subsystem perspective

WG FO-4.1.2 on Multimode Transmission Systems reported the following progress at their meeting earlier in the week:

- Developed a liaison to TR-42.8 Requesting Data for Launch Condition Specification
- Developed a liaison to IEEE 802.3 (and 802.3aq) to call attention to differences in fiber delay sets in Cambridge and FO 4.1.2 models.
- Requests submitted to FO 4.2 to allow FO 4.1.2 to update Chromatic Dispersion spec in TIA 492AAAC.
- Started a project to analyze IFR and PIE techniques vs. FO 4.1.2 fiber set
- Developing scalability info for sharing with SC86A TAG for 60793-2-10 A1spec after advancement of DMD IEC Document

Actions taken on FO-4.1 documents:

Doc #	Title of Document	Decision
526-2	Effective Transmitter Output Power Coupled into Single-Mode Fiber Optic Cable	Nationally Adopt IEC 61280-1-1
526-3	Fiber Optic Terminal Equipment Receiver Sensitivity and Maximum Receiver Input	Nationally Adopt IEC 61280-2-1
526	Standard Test Procedures for Fiber Optic Systems	Reaffirm as an ANS
626	Multimode Fiber-Optic Link Transmission Design	Confirm earlier decision to reaffirm as TIA document - Assume cancel earlier paperwork or reaffirmation ballots or PN /SP in process
526-4A	Optical Eye Pattern Measurement Procedure	Nationally adopt 61280-2-2 Ed 2.0 when published
526-16	Jitter Transfer Function Measurement	Nationally adopt 61280-2-5
455-204	Measurement of Bandwidth on Multimode Fiber	Refer to FO 4.1.2 and consider adoption of 60793-1-41 at Jan 2005 meeting
526-19	Optical Signal-to-Noise Ratio Measurement Procedures for Dense Wavelength-Division Multiplexed Systems	Nationally Adopt 61280-2-9
Draft 526-5	Data Analysis of Bit Error Ratio Versus Received Power for Digital Fiber Optic Systems	Provisional Decision to Cancel this project as redundant with OFSTP-3, after confirmation by Chair.
Draft 526-8	Accelerated Measurement of Low BERs in Digital Fiber Optic Systems	Combine OFSTP 8 and OFSTP 9 in a new version which is national Adoption of IEC 61280-2-8

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Doc #	Title of Document	Decision
Draft 526-9	Accelerated Measurement Procedure for Determining BER and Q-Factor in Optical Transmission Systems Using the Variable Threshold Method	Withdraw and combine into new version of OFSTP 8
Draft TR-1027	IEC 61282-6: Fibre Optic Communication System Design Guides - Part 6: Skew Design in Parallel Optical Interconnection Systems	Authorization for Chair to move forward as required – approved for publication pending successful resolution of comments, if any
Draft TR-1028	IEC 61282-7: Fibre Optic Communication System Design Guides - Part 7: Statistical Calculation of Chromatic Dispersion	Authorization for Chair to move forward as required – approved for publication pending successful resolution of comments, if any
Draft TR-1029	IEC 61282-3: Fibre Optic Communication System Design Guides - Part 3: Calculation of Polarization Mode Dispersion	Authorization for Chair to move forward as required – approved for publication pending successful resolution of comments, if any

FO-4.1 noted that the above actions were taken using the Swanson database file but requested TIA staff to provide a single database with all the needed information on projects and documents.

FO-4.1 also asked if a process can be developed retiring OFSTP numbers, possibly by using a dual number that includes the old OFSTP number and the new FOTP number for some period of time. TIA staff will make a recommendation.

### 3.2.4 FO-4.2, Optical Fibers and Cables, Tom Hanson

The subcommittee met on 23-Jun-04. Nine of thirteen members were present and a quorum was declared. Two new members were welcomed. We noted that Jim Refi had announced that he would no longer be able to chair 4.2.3. Participants were invited to considering volunteering for this service.

Working groups summaries:

#### FO-4.2.3 (Single-mode measurements and international harmonization, Jim Refi)

FOTP-124 (PMD measurement by interferometry) has been published with the improvements that had been proposed by EXFO. After extended discussions in the ITU and IEC, these bodies have agreed to similar revisions, which will now proceed.

The ballot for the measurement of SBS threshold came back with eight positive and one negative vote. The primary basis of the negative was with respect to a new definition of threshold. A presentation intended to explain the benefits was given, followed by a presentation that further explained the reasons for the reservations. The final conclusions were left for discussion in FO-4.2.

#### FO-4.2.4 (Color coding, Ray Lovie)

The group met briefly to confirm that the revision ballot of TIA 598 had no negatives or

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comments needing resolution. The WG recommends that the document be published. The group number will be retained for possible future activities but the group will not meet in January 2005.

#### FO-4.2.5 (Blown products, Ken Chauvin)

There were ten attendees at the first meeting – including some that are considered customers or end-users. The objective of the group is to provide good input to the documents that are in development in the IEC. In particular the Sectional Specification that is out for ballot will need comments before the end of the summer. A teleconference will be arranged in August. Comments will be directed to the US TAG by one or more of the TAG members.

The IEC Family Specifications which are expected to enter a ballot process after September, 2004, will be the focus of continued discussion in the January 2005 meeting.

Other discussion items:

#### Fire performance

As an action from the January meeting of FO-4, this topic was placed on the FO-4.2 agenda and the presentation given by Ken Chauvin was placed on the ftp site. At this meeting, we got an update on three aspects. NFPA-90 (air ducts), NFPA-70 (National fire code), and NFPA-13 (building materials). The ballot on “70” has closed and will not be reopened until 2008. The action on “90” could result in excluding some currently accepted optical fiber cables from “air handling spaces” – if adopted into a revised “70.” The impact in the transition period is uncertain.

If this were to occur, some new products could emerge with different materials. Copper based products could be advantaged over fiber based products, depending on fiber counts. Wireless solutions could be advantaged over either cabling solution.

As a result of the discussion, the group concluded that a TIA position could not be proposed because of the different views and level of expertise represented in the FO-4.2 meeting. Everyone agreed that this topic is very important. As a result it will be retained as a standard agenda item. In addition, participants are invited to bring in the specialists.

#### ICEA adoptions

The ballots for 717 (drop cable), 596 (indoor cable) and 696 (indoor/outdoor cable) were closed with one negative (procedural) on 596. It is believed that the negative will be withdrawn as it seems to have been the result of the TIA balloting web page options (which have been fixed). Following this, the documents will be published as “sectionals” in the TIA 472 series. Comments made in the ballot process will be addressed in future revisions, which may start in 2005.

FO-4.2 would like to bring the following to the attention of FO-4.0 and the other subcommittees: “717” which will appear as TIA 472F000, is a drop cable specification. It is the most suitable base document for FTTP applications. As the other FTTP documents and needs are identified, FO-4.2/ICEA will welcome additional input for any modifications to “717.”

The existing Generic cable Specification, 4720000, will be revised to make it a simple umbrella

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document for the ICEA (or other) adoptions.

#### Revision of Cable FOTPs

The revision ballot of FOTP-33 (tensile test) closed without comment. The revision will be advanced for publication.

The discussion on revising FOTP-3 (temperature cycling) has matured. A revision ballot that incorporates many improvements will be issued this summer.

#### IEC adoptions

The fiber test method adoptions are essentially complete.

The Subcommittee agreed to consider adaptation of the IEC fiber specifications. The first step is to obtain permission to distribute the 60793-2-10 and 60793-2-50 to FO-4.2 members.

#### Measurement of SBS threshold

Interested participants will work together over the next six months to try to gain better mutual understanding. This could include exchange of data or limited round robins. At the same time, contributions to the ITU could expand the number of interested parties and resolve one concern of OFS: The new threshold definition is different than the one in the ITU.

#### Multimode fiber specification (492AAAC)

FO-4.2 approved the request from FO-4.1 to authorize the revision of this specification. The driver for this is an enhancement of the chromatic dispersion specification that could allow an additional 0.5 dB margin for 10 Gig Ethernet applications.

#### Document maintenance

The proposal to reaffirm several test procedures as TIA Standards was questioned. Some members expressed the position that the ANSI status had real value in the current market. As a result, ANSI ballots to reaffirm 30 documents were authorized. FO-4.2 will work with TIA to try to ballot these in "batches" to avoid presenting too much of an email "blizzard".

Actions to approve reaffirmation of four current TIA Standards and to clean up several old projects were agreed.

#### Actions requested of FO-4.0 or TIA

Enable the distribution of IEC 60793-2-10 and 60793-2-50 to the FO-4.2 participants.

Confirm the FO-4.2 reflector lists with Scott Chastain.

Work with T. Hanson to issue "batch" reaffirmation ANSI ballots.

590-A, Standard for Physical Location and Protection of Below-Ground Fiber Optic Cable Plant was assigned to FO-4.2. We concluded that this, as an outdoor plant document that came from a systems group (2.5?), should be referred to FO-4.1. This document should be reaffirmed in any case.

455-B, Standard Test Procedure for Fiber Optic Fibers, Cables, Transducers, Sensors, Connecting & Terminating Devices, and Other Fiber Optic Components

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This umbrella document was on the FO-4.2 list, but should appear on the FO-4.5 list. If the revision is to be completed, it should be done soon to avoid losing the ANSI designation for the umbrella document for all FOTPs.

455-71A, Procedure to Measure Temperature-Shock Effects on Fiber Optic Components  
This was on the FO-4.2 list but should be assigned to the FO-4.3 list.

### **3.2.5 FO-4.3, Interconnecting Devices and Passive Components, Andre Girard**

The following documents were advanced for SP Ballot:

- FOTP-171, to remove bidirectional testing requirement for multimode patchcord using Method B
- IEC 62005-2 (PN-3-0169) to withdraw PN and cancel the project

The following document was advanced for TIA Publication:

- TSB 149 Connector End face Workmanship

The following documents were advanced for TIA/ANSI Publication:

- FOCIS 2A BFOC Type Connector
- FOCIS 3A SC Type Connector
- FOCIS 4A FC Type Connector
- FOCIS 5C MPO Type Connector
- FOCIS 6A FJ Connector
- FOCIS 10A LC Connector
- FOCIS 12A MT-RJ Type Connector
- FOCIS 13A LX.5 Type Connector
- FOCIS 16A LSH Type Connector

FO 4.3 is discussing several FO-4.8 documents that should be transferred to FO 4.3; no progress was made on this matter at the FO-4.3.1 meeting. This will be addressed at the next meeting

FO-4.3 approved the following new projects for balloting:

- IEC 62005-2 to request a PN for adaptation as TSB with exception of the normative requirements
- IEC 62005-2-1 to request a PN for adaptation as TR

Other Business:

- Dr. Andre Girard, EXFO, gave a presentation on "FTTP PON - The Critical Components and Their Impact on the Development of International Standards" to stimulate the members' and TIA's interest in the development of standards for this new market/industry
  - Mr. Gair Brown, Navy, gave a presentation on "Next Generation Heavy Duty Fiber Optic Connector (NG Con)" to inform the members of the development of a new heavy duty multi-fiber connector.
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### 3.2.6 FO-4.4, Fiber Optic Amplified Systems, Active Components, and Reliability, Pin Su

Key decisions taken by FO-4.4:

- Withdrew the proposal of new work on the frequency response of digital receivers
- Will not start the new work proposed on the lasers for datacom applications.
- Will adopt the standards published by SC86C WG3 on optical amplifiers and WG4 on active components
- Will consider adopting the standards published by SC86C WG5 on dynamic modules

A reliability task force has been formed to:

- Develop a guideline on the use of IEC reliability standards.
- Develop guidelines on the translation of system reliability requirements into discrete system elements.
- Develop reliability guidelines (assessment procedures, parameters, and their associated definitions) and requirements.
- Reviewing and coordinating reliability needs, activities, and requirements.

In other business, FO-4.4 revised FOTP-127 "Spectral characterization for laser diodes" and submitted the document for ballot.

### 3.2.7 FO-4.5, Fiber Optic Metrology, Dennis Horwitz

The FO-4.5 Subcommittee on Fiber Optic Metrology addresses fiber optic test, measurement and inspection instrumentation functionality and related calibration issues in support of other fiber optic standards groups, test procedures and test methods. This includes, but is not limited to:

- Determine instrument parameters or attributes that require specification.
- Propose and approve standards and specifications.
- Propose, review and approve test methods and procedures relevant to calibration, usage and maintenance.
- Coordinate with other industry standard bodies, and form joint task groups to resolve test & measurement issues of mutual interest.

FINISHED PROJECTS:

SP-3-1384-RV2	TIA-440-B; Fiber Optic Terminology	Published February-2004Ballot completed, comments resolved, and authorized for publication. Editor: David Leight, DSSC
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"NEAR" FINISHED PROJECTS:

PN-3-0064A	TSB-141; PDL Meters: Measurement and Application Issues	Editorial comments being integrated into document and authorized for publication. . Editor: Dennis Horwitz(for former editor Rex Craig)
PN-3-0066	TSB-143; Fiber Optic Power Meters: Measurement and Application Issues	Comments from previous PN ballot are being integrated and authorized for publication pending reversal of Tom Hanson's Disapproved vote (due

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		to bad PDF). Editor: Dennis Horwitz (for authors Andre Girard/Marc Breton)
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IN-PROCESS PROJECTS:

PN-3-0065	TSB-142; Optical Return Loss Meters: Measurement and Application Issues	A revised version will be put to second PN ballot. Editors: Lorenz Cartellieri and Michael Carlson
PN tbd	TIA/EIA-455; Standard test procedure for FO fibers, cables, transducers, sensors, connecting and terminating devices, and other FO components	Project number was requested. Per FO4 Closing Plenary, FO4.5 is directed to go directly to ballot with the "calibration" text previously developed by FO6.1.10. Launch Condition issues are not mature enough at this time to include in the revision. Editor: Dennis Horwitz
PN tbd	TSB-XXX, Connector Endface Inspection Instrumentation: Measurement and Application Issues	No progress since outline. Expect to develop a draft by next meeting and submit for PN ballot. Editor: Harvey Stone
Future TSB (FO4.5.1)	TSB-XXX, Guidelines for Round Robins	No progress but active development item. Editor: Tim Drapela, NIST
Round Robin (FO4.5.1)	Return Loss Round Robin	Instructions are finalized and Test Articles are being fabricated. Expect to start RR within 3 months (Sept-2004). Coordinator: Tim Drapela-NIST

NEW BUSINESS

- Proposed TSB on "PON Testing" by Andre Girard/EXFO.

NEXT MEETINGS

- Next IEC TC86 WG4 meeting has been scheduled for 9/27/2004 at NIST in conjunction with SOFM 2004 (9/28-9/30).
- Next FO4.5.1 meeting scheduled for Wednesday afternoon (1-4pm), 1/26/2005 in Phoenix, AZ
- Next FO4.5 meeting proposed for Wednesday afternoon (4-6pm), 1/26/2005 in Phoenix-AZ
- NEW CHAIR TO BE SELECTED IN JANUARY-2005

**4 NEW BUSINESS**

**4.1 Recognition**

Steve Swanson thanked Dennis Horwitz for his leadership of FO-4.5 and wished him well at his new position at Micronor Incorporated. Steve noted the fantastic job Dennis has done to revitalize the FO-4.5 Subcommittee.

**4.2 Report on the Chairs meeting**

Steve Swanson reported on the topics discussed at the Chair's meeting on Monday night:

- Ballots
  - Some concern expressed over large number of “maintenance” ballots
    - FO-4 will be looking into options to simplify the reaffirmation process
  - Some concern expressed over downgrading ANS to TIA
    - FO-4 will be looking into options to simplify the ANSI process
  - Adoption/Adaptation ballots
    - Adoption requires up/down vote
    - Comments can be forwarded to other SDO for consideration
    - Adaptation can provide modifiers
    - FO needs formal process
- Leadership training scheduled for August 31, 2004 in Arlington
  - All SC/WG Chair should plan to attend
- TIA to adopt Digital Rights Management procedures August 1
  - Electronic copies will be protected
- Agreed to manage reflector through the SC Chairs
- More debate on the schedule

#### **4.3 Schedule review**

As a result of discussions during the week regarding the schedule, Steve Swanson reviewed three options for the FO-4 meeting schedule going forward:

- Option A would revert back to the schedule used in January 2004 with a longer opening plenary and presentation of liaison reports
- Option B would accept the schedule used in June 2004 with a shorter opening plenary and no presentation of liaison reports
- Option C explored a modified “3-day” schedule with a shortened opening

After some discussion, support was expressed for Option C which was modified real time to the satisfaction of most of the FO-4 participants. It was agreed to accept this schedule for January 2005 but remain flexible pending our experience in January 2005. The January 2005 schedule is shown below:

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FO-4 MEETING SCHEDULE, Phoenix, Arizona January 24-27, 2005				
		Conference Rm A	Conference Rm B	Conference Rm C
Monday January 24, 2005	4pm-6pm	Chairs Meeting - Conference Room A		
Tuesday January 25, 2005	8 am - 9 am	FO-4 Opening		
	9 am - 1 pm	FO-4.3.1	FO-4.1.2	FO-4.2.3
	2 pm - 6 pm	FO-4.3.2	FO-4.1	FO-4.2.5
Wednesday January 26, 2005	8 am - 12 pm	FO-4.3.3	FO-4.4	FO-4.2
	1 pm - 4 pm	FO-4.3	FO-4.5.1	
	4pm-6pm		FO-4.5	
Thursday January 27, 2005	8 am -11 am	FO-4 Closing		
	11 am - 1 pm	USTAG SC 86C		
	2 pm - 5 pm	USTAG SC 86A	USTAG SC 86B	
	5 pm - 6:30 pm	USTAG TC 86		

#### 4.4 Future meetings

FO-4: January 24 - 27, 2005

TR-42: January 31 - February 4, 2005

Hilton Phoenix East/Mesa

1011 West Holmes Avenue

Mesa, AZ 85210

480.833.5555

480.649.1886 - Fax

[www.phoenixeastmesa.hilton.com](http://www.phoenixeastmesa.hilton.com)

Rate: \$129.00

**Cut-off Date for FO-4: December 20, 2004**

Cut-off Date for TR-42: December 30, 2004

FO-4: June 20-23, 2005 in Boulder, Colorado hosted by NIST

Details to follow.

## 5 ADJOURNMENT

The Chair thanked all the participants for their contributions during the week and the TIA Staff for their support and great hospitality during a week when the Staff was thin due to the Supercomm show in Chicago.

The opening plenary meeting adjourned at 9 AM on June 21, 2004. The closing plenary meeting adjourned at 6 PM on June 23, 2004.

This meeting was conducted in accordance with the TIA Legal Guide and the TIA Engineering Manual.

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Steve Swanson, FO-4 Chair

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Bob Jensen, FO-4 Secretary

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