



BUILDING GLOBAL COMMUNICATIONS

Approved by General Counsel

FO-4 Meeting Report

Date: 06/26/03

Location: Vancouver, BC

Approved: 12/04/03

T# 7637

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

+1.703.907.7700
FAX +1.703.907.7727

www.tiaonline.org

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 26, 2003
Delta Pinnacle Hotel
Vancouver, BC

Table of Contents

1	Administrative	2
1.1	Call, to order	2
1.2	Attendance (quorum, introductions and roster)	2
1.3	Agenda review and approval (FO-4/03-06-028; FO-4/03-06-029).....	4
1.4	Intellectual Property Rights statement	4
1.5	Chair's report; general items; elections	4
1.6	TIA's report	5
1.7	Distribution and numbering of documents	5
1.8	Meeting report review and approval (FO-4/03-01-027)	6
2	Old Business.....	6
2.1	Action item review.....	6
2.2	Opening Plenary Reports	7
2.2.1	T1X1 – Ken Biholar	7
2.2.2	DoD, Steve Swanson reported for Dave Leight (FO-4/03-06-039).....	7
2.2.3	ICEA, Steve Swanson reported for Mike Kinard (FO-4/03-06-045).....	7
2.2.4	IEC 86, Tom Ball (FO-4/03-06-032)	8
2.2.5	IEC 86A, Tom Hanson (FO-4/03-06-036).....	10
2.2.6	IEC 86B, Tom Ball (FO-4/03-06-033).....	10
2.2.7	IEC 86C, Jim Matthews (FO-4/03-06-044)	11
2.2.8	IEEE 802.3, Steve Swanson (FO-4/03-06-030).....	12
2.2.9	ISO/IEC JTC1 SC25/WG3, Steve Swanson (FO-4/03-06-031)	13
2.2.10	NIST, Tim Drapela (FO-4/03-06-034).....	14
2.2.11	ITU Q.15/WP4 (FO-4/03-06-037)	14
2.2.12	ITU SG6 (FO-4/03-06-038)	14
2.2.13	ITU Q.15/15 (FO-4/03-06-041)	15
2.2.14	ARINC, Dennis Horwitz (FO-4/03-06-042)	15
2.3	Liaison letters received	16
2.4	Reports on pending projects, Subcommittees.....	16
2.4.1	FO-4.1, Single-Mode Systems, Allen Cherin	16
2.4.2	FO-4.2, Digital Multimode Systems, Steve Swanson for Gair Brown	17
2.4.3	FO-4.3, Interconnecting Devices, Tom Ball	18
2.4.4	FO-4.4, Reliability and Characteristics Active Optical Components, Pin Su	18
2.4.5	FO-4.5, Optically Amplified Devices, Subsystems and Systems, Jim Matthews	19
2.4.6	FO-4.6, Optical Fibers, Tom Hanson for Greg Smith	19
2.4.7	FO-4.7, Optical Cables, Mike Kinard.....	22
2.4.8	FO-4.8, Passive Fiber Optic Devices, Jim Matthews	23

2.4.9 FO-4.9, Fiber Optic Metrology, Dennis Horwitz, Chair..... 23

3 New Business 24

3.1 Future meeting venues 24

3.2 Proposed new structure for FO-4..... 25

3.3 Action items derived from this meeting..... 25

4 Next Meeting, Interim Meetings, Future Meetings 25

4.1 Next meeting..... 25

5 Adjournment 26

1 ADMINISTRATIVE

1.1 Call, to order

FO-4 Chair, Steve Swanson, called the opening plenary meeting to order on June 23, 2003 at 9:00 AM. This opening plenary session is intended for high-level liaison reports, to update members of committee meeting expectations, and to inform them of administrative essentials.

FO-4 Chair, Steve Swanson, called the closing plenary meeting to order at 2:00 PM January 25, 2003. This closing plenary session is intended to summarize Subcommittee meeting activities and resolve issues arising throughout the week of meetings.

1.2 Attendance (quorum, introductions and roster)

Attendance at the closing plenary constitutes the FO-4 membership and quorum. A total of 34 attendees, including 10 voting companies and 24 others companies were present at the closing plenary. A quorum for the combined Engineering Committees was established. The attendees introduced themselves and an attendance roster was distributed for participants to sign.

				Plenary	
				Opening	Closing
Chair:					
Steven Swanson	Corning, Inc.	swansonse@corning.com	607-974-4252	✓	✓

Voting members companies present:

Jack Dupre	Agilent Technologies	jack_dupre@Agilent.com	707-636-9001		✓
Tom Hanson	Corning Inc.	hansonta@corning.com	607-974-4530	✓	✓
Andre Girard	EXFO	andre.girard@exfo.com	418-683-0211	✓	✓
Bob Jensen	Fluke Networks	robert.jensen@flukenetworks.com	512-514-7760	✓	✓
Rex Craig	NIST	rccraig@boulder.nist.gov	303-497-3359	✓	
Allen Cherin	OFS	cherin@lucent.com	770-798-2619	✓	✓
Dennis Horwitz	Tempo Research Corp.	dennis.horwitz@rifocs.com	805-384-1842	✓	✓
Matt Brown	US Conec	mattbrown@vsconec.com	828-267-6327	✓	

Voting members companies absent:

Dave Roland	Alcatel USA	dave.roland@cable.alcatel.com	828-459-8775		
Ray Lovie	Alcatel USA	ray.lovie@alcatel.com	828-459-8389		
Arthur Hudson	Defense Electronics Supply	Arthur.hudson@dsec.dla.mil	614-692-0657		
Kenneth Bow	DOW Chemical	kebow@dow.com	989-638-3759		
Barry Cambeilh	Delphi Comm.	barry.cambeilh@delphiauto.com	949-660-5764		
Gair Brown	NSWCDD	browngd@nswc.navy.mil	540-653-1579		
Ken Marchman	Stratos Lightwave	kmarchman@stratoslightwave.com	708-867-9600		
Osman Gebizlioglu	Telcordia Technologies	ogebizli@telcordia.com	973-829-4956		

Other participants

Joseph Coffey	ADC	joseph.coffey@adc.com	952-403-8020	✓	
Andrei Vanron	AI, Inc.	avanron@aifocs.com	508-541-3400	✓	✓
Paul Kolesar	Avaya	pkolesar@avaya.com	972-792-3155	✓	✓
Jack Rosko	Berk-Tek, NEXANS	jack.rosko@berktek.com	919-552-4451	✓	✓
Edward Fewkes	Corning, Inc.	fewkese3@corning.com	607-974-3579	✓	
James Matthews III	Corning, Inc.	matthewsje@corning.com	607-974-7608	✓	✓
Pin Su	DiCon	psu_std@yahoo.com	510-620-5315		✓
Roland Muller	Diamond	rmuller@diausa.com	978-256-6566	✓	
Alan Whitebook	Diamond	awhitebook@diausa.com	661-702-9740	✓	
Tim Drapela	NIST	drapela@boulder.nist.gov	303-497-5858	✓	
Iwano Shin'ichi	NTT Advanced Technology	s.iwano@ntt-at.com	650-794-2722	✓	✓
Harvey Stone	Noyes Fiber Systems	harvey.stone@alcoa.com	603-528-7750	✓	
William Gardner	OFS	wbgardner@ofsoptics.com	770-978-3218	✓	
James Refi	OFS	jrefi@ofsoptics.com	404-377-6821	✓	✓
Adam Murano	Ortronics	amurano@Ortronics.com	607-974-3579	✓	
Gary Cawley	Optek Technology	gcawley@optekinc.com	972-323-2338	✓	
Patrick Drexel	Prior Scientific, Inc.	pdrexel@prior.com	781-878-8442	✓	
Jerry Zubke	Qwest Communications	jzubke@qwest.com	952-996-1546	✓	
Susan Hoyler	TIA	shoyler@tiaonline.org	703-907-7704	✓	✓
Robert Busse	Transition Networks	robertb@transition.com	952-996-1546	✓	✓
Lance Doddridge	US Navy	doddridgels@corona.navy.mil	909-273-5741	✓	
Harold Glick	US Navy	glickha@corona.navy.mil	909-273-4755	✓	✓

FO-4 Company attendance history: This does not constitute the quorum list, as companies need to be members of TIA and meet quorum requirements of the TIA Engineering Manual.

Company	3 meetings	Jan-04	Jun-03	Jan-03	Jun-02	Jan-02	Jun-01
Agilent Technologies	2		1		1	1	
Alcatel	1			1	1	0	1
Corning, Inc.	3		1	1	1	1	1
Defense Supply Center	2			1	1	0	1
Delphi	?		?	?	?	?	?
Dow Chemical	1				1	1	0
EXFO	3		1	1	1	0	1
Fluke Networks	2		1		1	1	
NIST	3		1	1	1	1	0
NSWCDD	2			1	1	1	1
OFS	3		1	1	1	1	1
Stratos	?			?	?	?	?
Telcordia Technologies	2			1	1	1	1
Tempo	3		1	1	1	1	1
US CONEC	3		1	1	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 (FO-4/03-06-028; FO-4/03-06-029)

The opening agenda was modified to include a report on ARINC and unanimously approved. The closing 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; elections

At the opening plenary, Steve Swanson welcomed everyone to the meeting with a presentation containing the agenda and various topics for discussion. These included:

- Steve reviewed the methods for members to join the reflectors and also how to access the FO-4 FTP sites.
- Contributions received to date had been uploaded to the FO-4 FTP site and those being distributed at this session will be posted later today.

- It was noted that there was some difficulty uploading and downloading documents to the FTP site. New instructions will be placed on the FTP site to explain the procedure.
- The MOU between TIA and ICEA has been finalized. This will allow joint standard ballots yet keeping the TIA Series designation. Each organization will market and sell their own standards.
- A proposed national adoption procedure and a downgrade procedure is currently under review. Drafts were distributed at the meeting as well as posted to the FTP site.
- Several Subcommittee and Working Group meetings had been cancelled this week. Discussions will be held during this week to help alleviate this from happening in the future. Noted also was that the Formulating Group Chairs must have their agendas out and posted at least two weeks in advance of a meeting.
- Steve presented a plaque to recognize Tom Hanson for his outstanding contributions to the FO-4 Committee as well as for his work in coordinating with the IEC.
- Steve asked that all attending members discuss the impact of holding teleconferences vs. face-to-face meetings. Additionally, he asked that discussions be held on meeting venues. Resulting from these discussions will be an advancement of a roadmap for FO-4 that will be considered at the FO-4 closing plenary.

1.6 TIA's report

Susan Hoyler reported on several items:

- TIA is investigating the cause of multiple messages being transmitted from the FO-4.9 reflector.
- ANSI completed their audit of TIA. Several corrective items were found during the review including documentation of ballot resolution within meeting reports. ANSI is also asking for ballots to be returned to show that there is support for the document.
- The IPR Working Group is continuing their work. Susan provided seven contributions regarding their progress, which are on the FO-4main FTP site.
- TIA has just announced a reduction in force (RIF). Staff reductions will cause others to take on a greater load. Susan asked FO-4 for their patience.
- SuperCom 2003 had a less than desirable turnout.
- The use of an "enhanced addendum" will be forthcoming. This will allow the full document to be released and sold with change marks included. This will still require the addendum to be issued as well.

1.7 Distribution and numbering of documents

Document #	Contributor	Company	Title
FO-4/03-01-027	Steve Swanson	Corning	January 2003 Meeting report
FO-4/03-06-028	Steve Swanson	Corning	June 2003 FO-4 Opening Agenda
FO-4/03-06-029	Steve Swanson	Corning	June 2003 FO-4 Closing Agenda
FO-4/03-06-030	Steve Swanson	Corning, Inc.	IEEE 803.3 Liaison Report
FO-4/03-06-031	Steve Swanson	Corning, Inc.	ISO SC25 WG3 Liaison Report
FO-4/03-06-032	Tom Ball	OFS	TC86 Liaison Report
FO-4/03-06-033	Tom Ball	OFS	SC86B Liaison Report
FO-4/03-06-034	Tim Drapela	NIST	NIST Liaison Report
FO-4/03-06-035	Bob Jensen	Fluke Networks	FO-4 by Zip Code
FO-4/03-06-036	Tom Hanson	Corning	SC86A Liaison Report

FO-4/03-06-037	Tom Hanson	Corning	ITU SG15 Liaison Report
FO-4/03-06-038	Tom Hanson	Corning	ITU SG6 Liaison Report
FO-4/03-06-039	David Leight	DoD	DoD Liaison Report
FO-4/03-06-040	Alen Cherin	OFS	FO-4.1 Tentative agenda
FO-4/03-06-041	Bill Gardner	OFS	ITU SG15 Liaison Report
FO-4/03-06-042	Dennis Horwitz	Tempo	ARINC Liaison
FO-4/03-06-043	Susan Hoyler	TIA	TIA Standards report
FO-4/03-06-043a	Susan Hoyler	TIA	Draft software policy v4
FO-4/03-06-043b	Susan Hoyler	TIA	Draft Annex I software copyright holder
FO-4/03-06-043c	Susan Hoyler	TIA	Draft Annex J software evaluation license
FO-4/03-06-043d	Susan Hoyler	TIA	Highlights of TIA IPR WG – Word
FO-4/03-06-043e	Susan Hoyler	TIA	Highlights of TIA IPR WG (ppt)
FO-4/03-06-043f	Susan Hoyler	TIA	ANSI IPR overview
FO-4/03-06-044	Jim Matthews	Corning	IEC 86C Liaison Report
FO-4/03-06-045	Mike Kinard	OFS	ICEA Liaison Report
FO-4/03-06-046	Steve Swanson	Corning	Opening Plenary
FO-4/03-06-047	Steve Swanson	Corning	June 2003 Schedule
FO-4/03-06-048	Steve Swanson	Corning	FO-4 Closing Plenary
FO-4/03-06-049	Dennis Horwitz	Tempo	FO-4.9 Highlights
FO-4/03-06-050	Alan Cherin	OFS	FO-4.1 Highlights
FO-4/03-06-051	Steve Swanson	Corning	FO-4.2 Highlights
FO-4/03-06-052	Pin Su	Chorum	FO-4.4 Highlights
FO-4/03-06-053	Jim Matthews	Corning	FO-4.5 Highlights
FO-4/03-06-054	Tom Hanson	Corning	FO-4.6 Highlights
FO-4/03-06-055	Mike Kinard	OFS	FO-4.7 Highlights
FO-4/03-06-056	Jim Matthews	Corning	FO-4.8 Highlights

1.8 Meeting report review and approval (FO-4/03-01-027)

The January 2003 meeting report was reviewed at the closing plenary. The Engineering Committee unanimously approved meeting report.

2 OLD BUSINESS

2.1 Action item review

Action items were reviewed, which included:

Action item review	Action:	Resp:	Status:
2002-01-003	Benchmark other SDOs like OIF and IEEE	TIA	On-going
2002-06-006	Send information to all FO Committees of what wireless adapter cards are best suited for LAN	TIA	Ongoing

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.	TIA	In progress
2003-01-001	Develop a recommendation for FO-2/6 on reliability	P. Su	Open
2003-01-002	Provide updated roster lists consistent with FO-4 records	S. Montgomery	On-going
2003-01-003	Approve and distribute Advisory Note on Supercession of FO-4 standards	S. Montgomery	On-going
2003-01-005	Develop national adoption procedure, accounting for comments provided in Tampa	S. Montgomery	On-going

2.2 Opening Plenary Reports

2.2.1 T1X1 – Ken Biholar

There was no T1X1 report given.

2.2.2 DoD, Steve Swanson reported for Dave Leight (FO-4/03-06-039)

MIL-C-28876 and all specification sheets are still in the final draft stage. Documents should be finalized in June 2003 and forwarded to NAVSEA for approval.

MIL-T-29504/4C and /5C. Coordination on these documents appear to be nearing their end. Comment dispositions on these are being prepared.

MIL-PRF-85045/8A, regarding cable using 50/125 or 62.5/125 fiber in two and four buffered fiber configurations, has been dated 28 January 2003.

MIL-C-83526B, was never posted to Defense Printing or the DSCC web site. This document is now available for downloading at www.dsc.dla.mil. DSCC is initiating projects for revision C and adding new specification sheets covering hermaphroditic connectors for the next generation tactical fiber optic cable assemblies (TFOCA).

The negative comments to TIA-440 will be reviewed at the FO-4.2.1 meetings this week.

2.2.3 ICEA, Steve Swanson reported for Mike Kinard (FO-4/03-06-045)

ICEA now has four optical fiber cable standards (all the “short” version of the number)

- ICEA S-596, Indoor Cable (Revision, 2001)
- ICEA S-640, OSP Cable (Revision, 1999)
- ICEA S-696, Indoor/Outdoor Cable (New, 2001)
- ICEA S-717, Drop Cable (New, 2003)

S-596 and S-696 remain published by ICEA, but on hold in ANSI due to scope issues in the ANSI C8 committee. ICEA has released the standards without ANSI approval. S-717 is new and has not been submitted to any standards body for ANSI approval.

The Memorandum of Understanding between ICEA and TIA to affect the co-numbering of ICEA

standards is reported to be complete (The final signing occurred after the June ICEA meeting). Copyright ownership and revenue sharing between the two organizations have been agreed. This paves the way for TIA to adopt the ICEA optical fiber cable standards and co-number them in the TIA system, as well. It also facilitates ICEA using the TIA standards formulating system to achieve ANSI approval of these documents as US National Standards.

Currently active projects include: 716 – low temperature cable performance; 718 – sewer cable; 719 – 1625 nm performance

Project 716, low temperature cable performance for OSP cable, is agreed on the following issues (as reported last time):

- the parameters will be applied to OSP cables;
- the low temperature is a special requirement;
- the low temperature value is -50° C; and
- the parameters and the low temperature rating apply to storage and operation, not to installation.

The issue is out on an ICEA limited-subject ballot of ICEA S-640. Publication of the S-640 revision is expected by the end of 2003.

Project 718, sewer cable, is also moving. A first draft has been circulated in the ICEA Working Group. There are many issues to be settled between ICEA and ASTM committee F36, who is working the systems issues, before the document can move to completion.

Project 719, 1625 nm cable performance, is moving very slowly. Working Group members are in a data accumulation mode. This has slowed down because of the slowdown in our industry. It is not clear when this may result in changes to cable requirements.

The TWCS-TAC (Telephone Wire and Cable Systems Technical Advisory Committee), now a Working Group of the ICEA Communications Division, has two projects of interest to FO-4 – gopher testing and jacket material weatherability testing.

The gopher-testing project is moving forward. A test protocol has been developed to perform live animal tests to serve as a current database to “calibrate” the “mechanical gopher” being developed. Contributors for the test program have been secured, and the testing will begin when the final details are concluded.

The jacket weatherability project seems to be continuing in a long-term test mode. No details have been reported recently.

ICEA also has a host of copper telecommunications cable standards and a host of power cable standards that may be of interest.

2.2.4 IEC 86, Tom Ball (FO-4/03-06-032)

New:

- a. Dr. U. Rossi, reaffirmed to another term as Chair of TC86
 - b. TC86 expressed its wishes to be invited to the IEC 2004 General Meeting in Seoul, Korea
 - c. Dr. Pin Su, Chorum Technologies approved as Convenor of WG8.
-

Document Activity last 6 months: (1)

WG4: CDV, Calibration of Time Domain Reflectometer

Standardization Management Board Conclusion: IEC New Work Item Proposals-

Acceptance requires: A commitment to participate actively in the development of the project by nominating technical experts and by commenting on the working draft, by;

- a. In IEC at least 4 P-members in the case of committees with 16 or fewer P-members, or at least 5 p-members in the case of committees having more than 16 P-members ; only p-members having also approved the inclusion of the work item in the programme of work (see b) will be taken into account when making this tally; Individual committees may increase this minimum requirement and
- b. approval of the work item by a simple majority of the P-members of the technical committee or subcommittee voting.

Sector Board 4 (SB4) Recommendation:

- a. Possible parallel development of standards in IEC & Recommendations in ITU-T Documents: SB4 recommends strongly that both the IEC TCs/SCs and ITU-T SGs concerned should voluntarily adopt, for the relevant projects, a mode of coordination and synchronization of their documents which has been discussed and described in SB4 (details available). For this purpose, it invites the SMB to make the corresponding communication to IEC TCs, and its liaison representative from ITU-T to consider the relevant steps to communicate the information to ITU-T SGs. The first example identified by members is optical fibre outdoor cable systems for the local loop.
- b. Review of Pre-standards process and results:
SB4 noted that the concept of “pre-standard”, a high quality-internally generated, technically consensual document close to becoming a full International Standard, remains essential for the market. At the same time, they note that the last 3 years experience with pre-standards and PASs shows that SB4’s original and still valid goals for satisfying the market need for pre-standards have not been met. Thus, SB4 has invited the SMB to introduce pre-standards as an independent deliverable satisfying the concept stated above, and thus to remove all possible confusion between pre-standards and Publicly Available Specifications (PAS).

SB4 went on to say, that if the SMB decides after all that no new deliverable may be permitted and that pre-standards must therefore continue to form part of the family of PASs, SB4 strongly recommends that all internal PASs should be required to fulfill a number of conditions designed to ensure that they are technically ready to be converted into full International Standards and therefore that internal PASs should automatically be pre-standards. They should then be clearly designated as “pre-standard” in all contexts, and be shown as a category of publications in close proximity to International Standards (IS).

It was also SB4’s opinion that its constituency and market have been confused not only by the lack of a clear difference between PASs and Pre-Standards, but also by the lack of clear rules and procedures for implementing and publishing pre-standards. Final rules and procedures for pre-standards and their relationship to the normal IS process should be quickly established and widely disseminated. The acceptance criteria for pre-standards should be the same as for CDV,

and the vote should be clearly distinguished from a New Work Item Proposal (NP) vote in order to allow all National Committees the choice of accepting the NP while rejecting the current draft as a pre-standard for publication.

Next meeting of the IEC TC86 Working Groups and Plenary is 11 October to 17, 2003 in Montreal, Canada

2.2.5 IEC 86A, Tom Hanson (FO-4/03-06-036)

Within WG1, Fiber, items being discussed include:

- Revise multimode specification a la TIA agreements and add macrobending
- Revise SM macrobending to 30 mm radius (maybe)
- Plastic optical fiber - a new type
- Technical report on EDFA fiber
- Single-mode fiber compatibility guideline
- Polarization cross-talk on PM fiber
- Possible improvements to interferometric PMD measurement

Within WG3, Cables, items being discussed include:

- Blown products
- Cable for use in patchcords
- Detail spec for outdoor cable
- Details specs to support premises cabling

2.2.6 IEC 86B, Tom Ball (FO-4/03-06-033)

Tom Ball reported that Japan has replaced Italy as Secretariat. Additional leadership changes included:

- US Technical Experts WG6: Dr. Erin Sahinci, Ciena Corp; WG7: Mike Ransford, Iphotonics, and Dr. Pin Su Chorum Technologies
- US Secretary to WG7: Dr. Pin Su Chorum Technologies

Document activity was very low with only 8 documents being addressed. WG4: Circulated 5 documents for vote & comment in the past 6 months. The key measurement documents circulated included:

- New NP's from the US: 1841, Connector Proof Test, 1842, FO Connector Test for Transmission with Applied Load and 1840, FO Connector Installation. These are in support of an IEC Performance Standard for Telcordia, GR326 requirements.

WG5: Did not circulate any documents during the last 6 months

Key Reliability document underdevelopment include:

- Reliability Part 10, High Optical Power Reliability Qualification

WG6: Circulated 2 documents for vote & comment in the past 6 months. Key interconnection documents circulated included:

- 1827NP, Optical Interface for SM Angled Endface Rectangular Ferrule
- 1828NP, Optical Interface for SM Flat Endface Rectangular ferrule

WG7 circulated 1 document for vote & comment during the last 6 months:

Key WDM device documents circulated included:

- Generic for WDM Devices

WG6: Circulated 20 documents for vote & comment in the past 6 months. Key document types under development include:

- Development of Performance Standards for connectors and harmonization of environmental categories and definitions with those of WG7 (Passive Components).
- Development of Optical Interface Standards. Three of these documents have progressed to the CD stage.
- New working drafts for Interface Standards and Performance Standards for Fibre Management Systems for Closures are being prepared. For the closures it is proposed to have four parts; (1) Closure to Pit, (2) Cable Entry to Closure Base, (3) Organizer to Closure and (4) Fibre to Organizer

WG7 circulated 5 documents for vote & comment during the last 6 months. Their focus has been on Performance Standards aligned with Industry needs. To this end they have been working in conjunction with WG6 to have a common General & Guidance document for Passive components and Connectors. They are working on drafts of performance standards covering passive dispersion compensators, filters and WDM devices.

2.2.7 IEC 86C, Jim Matthews (FO-4/03-06-044)

Jim Matthews provided an overview of the activities in IEC SC86C.

A meeting of WG1 will be held late this week here in Vancouver. WG3 and WG 4 will be holding meetings in October to be held in Montreal.

Activities in WG1 include:

- Polarization Mode Dispersion Measurement for Installed Links
- PMD Umbrella Document
- 61280-2-2: Optical Eye Pattern, Waveform and Extinction Ratio Measurement
- 61280-2-11: Measurement of Average Q-factor
- 61280-2-10: Measurement of Time Resolved Chirp
- 61282-8: Calculating Dispersion Penalty from Time Resolved Chirp Measurements
- Measurement of Jitter Parameters
- MCR Decisions

Activities in WG3 include:

- Laser Safety Document – Going to CDV
 - Optical Amplifier Command Set
 - Power / Gain Measurements Combining
 - Reflectance By OSA and By ESA
 - Update of Generic Spec and Combine With Multichannel Definitions
 - PMD Test Methods
 - NF Test Methods
 - Pulse
-

- RIN
- ASE Subtraction

Activities in WG4 include:

- IEC62149-1, Performance standard part 5: ATM-PON transceivers
- IEC621480-6, Interface standard part 6: ATM-PON transceivers
- IEC62149-1, Performance standard: General and guideline
- IEC62148-11, Interface standard part 11: 14-pin modulator integrated laser diode transmitter
- IEC62149-3, Performance standard part 3: 2.5 Gb/s modulator integrated laser diode transmitter
- IEC62149-6, Performance standard part 6: 250 Mb/s plastic optical fibre transceivers

2.2.8 IEEE 802.3, Steve Swanson (FO-4/03-06-030)

Steve reported that there are four main projects in 802.3 including:

- 802.3af, DTE Power (power provisioning over the data cable)
- 802.3ah, EFM (Ethernet in the First Mile)
- 802.3ak, 10GBASE-CX4 (short reach copper @ 10G)
- 802.3, 10GBASE-T SG (100m copper @ 10G on UTP cable)

For DTE Power, the objectives include:

- Providing power over a UTP link to an Ethernet device
- Interoperate with compliant Ethernet devices
- Not cause any damage

The status of the project is that the PAR had been approved 1/30/2000, and the standard approved 4/28/2003 and submitted for publication.

Ethernet in the first mile:

- Objectives include supporting subscriber access network topologies
 - p2mp on optical fiber (PON)
 - p2p on optical fiber
 - p2p on copper
 - Physical layer specifications
 - 100 Mbps over single-mode fiber to 10km
 - 1000 Mbps over single-mode fiber to 10km
 - 1000 Mbps 1x16 PON over single-mode fiber to 10km
 - 1000 Mbps 1x16 PON over single-mode fiber to 20km
 - 10 Mbps full-duplex single pair voice grade copper to 750m
 - Mbps full-duplex single pair voice grade copper to 2700m
 - Status
 - TG approved 4th ballot of the draft standard
 - Good progress at last plenary
 - Chose G.SHDSL over ADSL for long reach copper
 - Adopted a copper encapsulation method
 - Rejected EPON FEC bursting
 - Adopted EPON timing parameters (600ns vs. 16ns)
-

- Adopted extended temperature requirement for 10km optics
 - One outstanding issue
- Copper line code is being decided in T1E1 in June
- Timeline shows published standard in June 2004

10G over copper:

CX-4

- Using dual 4-twinax Infiniband cable
- Supporting 10G to 15m
- Technical development complete
- Standard could publish in 2003
- Targeted to be 1/10 the cost of 10GBASE-SX

UTP cabling

- Supporting 10G to 100m
- Complicated technical development
- May require higher performance cable
- Standard could publish in 2006

2.2.9 ISO/IEC JTC1 SC25/WG3, Steve Swanson (FO-4/03-06-031)

Steve reported that a meeting was held in Wellington, NZ during February 2003. The work items included:

- Development of an industrial cabling standard
This effort is utilizing work developed in TIA TR-42, CENELEC and ODVA as a starting point. Two new single-mode channels are proposed including OF-5000 and OF-10000 to support 5 and 10 km channels. A new single-mode fiber category is also being proposed as OS-2, specified with 0.4 db/km attenuation. Channels for POF and HCS are under discussion, which will be shorter than currently specified. Both POF and HCS will require development of test methods.
 - Revision of ISO/IEC 14763-3 on fiber optic testing
Modifications are being proposed by the UK including testing with duplex connecting hardware, testing with asymmetrical connecting hardware, testing with different connecting hardware, and simultaneous measurement of two fibers in opposite directions. The revision will require testing at 850 and 1300 nm for multi-mode as well as defined launch conditions. Discussions are being held on use of 18 mm vs. 25 mm mandrels.
 - Development of a standard on wireless access points and power provisioning
This effort will likely result in a technical report supporting IEEE 802.11a, b, and g, DECT and Bluetooth II. Currently it specifies a honeycomb ceiling grid of 12 m (IEEE specifies 30 m). Each access point may be supported by either fiber or copper cabling. Power may be provisioned by balanced copper cabling (DTE powering) or separate power access.
 - Recommendations on cabling to support 10GBASE-T
IEEE 802.3 is looking to extend current category 5/5e specifications to 500 MHz. However, WG3 cannot justify further work on category 5 cabling. WG3 has recommended that IEEE focus on supporting 10GBASE-T over channels of category 6 cabling.
-

2.2.10 NIST, Tim Drapela (FO-4/03-06-034)

Tim reported on activities on round-robin testing and measurement verification. He noted that FO-4.9.1 will be meeting on Monday afternoon at 2PM. Current activities include:

- Raman Gain Efficiency RR (for FO-4.6.1) – progressing slowly
- Return Loss RR (for FO-4.9 and IEC TC86 WG4) – under development???
- Monitoring FO-4.6.1 study of long-term effects of 1999 A_{eff}/MFD RR
- Monitoring ITU Nonlinear Coefficient RR – awaiting final report
- ?Monitoring IEC (SC86B WG4) WDM Component Characterization RR – need liaison
- Round-Robin Guide (TSB?) – under consideration

2.2.11 ITU Q.15/WP4, Tom Hanson (FO-4/03-06-037)

A summary of active topics were given for Q15, which included:

- Revised G.652 and G.655
 - PMD_Q: both 0.5 and 0.20
 - macrobending radius to 30 mm
 - Cable cut-off max on G.655: 1460
- Revised G.650.1
 - Moved spectral model to normative text
 - Will clarify dispersion fitting
- Revised G.650.2
 - Move tutorial on PMD statistics out of the spec Recs
- Continued discussion on G.656 (ex G.scl)
 - Impasse on dispersion and MFD vs applications?

A summary of active topics were given for Q16, which included:

- IrDI, Rec 959.1 (40 Gbit/s)
 - PMD tolerance vs modulation format
 - Choice of center frequency vs nonlinear and dispersion
- Design guide: sup.dsn
- CWDM applications: G.695
 - Eye safety
 - Bidirectional
 - Blank link an variable power
 - Link attenuation and power levels

2.2.12 ITU SG6, Tom Hanson (FO-4/03-06-038)

A brief update was given on approved Recommendations including:

- L.13 Outside plant cable closures
 - L.51 Passive network elements general principles
 - L.53 Optical fibre maintenance criteria for access
 - L.42 Extending optical fibre solutions into the access networks
 - L.52 Deployment of passive optical networks (PON)
-

- L.50 Performance requirements for distribution frames
- L.19 Multi-pair copper network cable for multiple services
- L.56 Installation along railways
- L.57 Air-assisted installation of optical fibre cable
- L.55 Digital data base for underwater cables

2.2.13 ITU Q.15/15, Bill Gardner (FO-4/03-06-041)

The activities of ITU Q.15/15 were reviewed. The following updates were provided:

I. REC. G.656 FOR THE S-C-L BAND NZD FIBER

Lack of market interest, and controversy over MFD and dispersion limits will probably prevent any agreement by the targeted Consent date of Oct. 2003

II. REDUCTION OF PMD LINK DESIGN VALUE (PMD_Q)

The previous max PMD_Q of 0.5 ps/km^{1/2} has been lowered to 0.20 for several fiber categories; agreement could not be reached on category(s) having 0.10 ps/km^{1/2}

III. PMD TEST METHODS

Andre Girard (EXFO Canada) proposed significant improvements in the interferometric PMD test method which remove previous limitations on mode coupling, source spectrum, etc. IEC's new PMD test method 61280-4-4 for installed links will probably be referenced in ITU-T Rec. G.650.3

IV. 60 mm DIA. LOOPS IN CLOSURES

60 mm is the minimum loop diameter in closures set by Rec. L.13. The loops used in measuring macrobending loss were reduced to 60 mm, but further study is needed before changing the loop diameter used in measuring λ_{cc}

2.2.14 ARINC, Dennis Horwitz (FO-4/03-06-042)

Dennis Horwitz gave an overview of ARINC.

Aeronautical Radio Inc., known in the industry as ARINC, manages the VHF/HF radio spectrum used by more than 5,000 ground stations to provide aeronautical operational control communications in the United States. ARINC also sponsors industry committees (including the AEEC) and participates in related industry activities that contribute to flight safety and efficiency.

The Airlines Electronic Engineering Committee (AEEC) is an international body of airline representatives that leads the development of technical standards for airborne electronic equipment-including avionics and in-flight entertainment equipment-used in commercial, military, and business aviation. The use of ARINC standards results in substantial benefits to airlines by allowing avionics interchangeability and commonality and reducing avionics cost by promoting competition.

The needs of these groups are for cabin systems, enhanced flight recording, airborne file servers, cockpit displays, avionic backbones, and remote sensors, just to name a few. The ARINC Working Groups include:

- ARINC New Installation Concepts (NIC) W/G
 - ARINC 404 and ARINC 600 Physical Standards
- ARINC Cabin Equipment Interfaces(CEI) W/G
 - ARINC 628 Part 6 (FO Cable Assembly Requirements)
- ARINC Advanced Data Networking (ADN) W/G
 - ARINC 664 Aircraft-based Ethernet Network
- ARINC Systems Architecture Interfaces (SAI) W/G
- ARINC Fiber Optic Working Group (FOWG)
 - All Physical & Optical Layer Requirements Consolidated in One Group
 - FO-specific physical interfaces in New ARINC 6XX
 - New ARINC YYY series to address FO passive/active components, reliability and installation/testing issues

2.3 Liaison letters received

There were no liaison letters received by FO-4.

2.4 Reports on pending projects, Subcommittees

2.4.1 FO-4.1, Single-Mode Systems, Allen Cherin

The FO-4.1 meeting was held on Tuesday, June 24, 2003. Fourteen attendees, from ten different organizations, were present at the meeting.

At a joint meeting of FO-4.1 and FO-4.2, Joe Coffey gave a presentation on the 10/100/1000 Tri-speed project that is currently being developed in FO-4.2.2. Single mode and multimode system expertise will be needed if this project is developed in the future.

Technical discussions in FO-4.1 centered on common issues related to the work in IEC SC86C WG1.

The following topics were discussed:

- PMD Umbrella document; IEC 61282-9
- PMD Measurement for Installed Links; IEC 61280-4-4

These documents are currently being developed in the IEC Working Group. It is the intention of FO-4.1 to adopt the published versions of these IEC documents as TIA documents. In addition FO-4.1 agreed to adopt the following published IEC documents:

- IEC 61280-2-8, Determination of low BER using Q-factor measurements
- IEC 61280-2-9, Optical signal-to-noise ratio measurement for dense wavelength-division multiplexed systems

FO-4.1 needs guidance from FO-4 and the TIA on how to adopt IEC Technical Reports (informative documents) into the TIA document structure. FO-4.1 is interested in adopting the following published IEC TRs:

- IEC 61282-3, Calculation of polarization mode dispersion
 - IEC 61282-5, Accommodation and compensation of dispersion
 - IEC 61282-6, Skew design in parallel optical interconnection systems
 - IEC 61282-7, Statistical calculation of chromatic dispersion
-

Liaison Reports related to work in the IEC and ITU were given by Allen Cherin, Tom Hanson and Jim Matthews. The reports addressed activities in the groups listed below:

- IEC SC 86C WG1 on Fiber Optic Subsystems
- IEC SC86C WG3 on Optical Amplifiers
- ITU-T Question 16/15 on Terrestrial Systems
- ITU-T Question 17/15 on Components and subsystems

Tom Hanson described the “black link” being proposed for CWDM systems in the ITU. He described the black link as an opportunity for an alternative link infrastructure business model. In this approach, the combined attenuation loss and isolation characteristics of both the Mux/Demux and optical fiber cable are combined and specified as the end-to-end link attributes. This allows specification of power requirements and pulse shape at the points S and R only, for the requirements on the sources and receivers. Thus, a link that fulfills the stated requirements should be compatible with any sources and receivers that also meet the stated requirements. Tom indicated that a contribution from either TIA or IEC to this development that would be of value could be the provision of a consolidated document which could be used to confirm that a black link, once installed, meets the requirements of the system interface Recommendation.

Action items – Document maintenance of OFSTPs.

The FO-4.1 Subcommittee unanimously agreed to reaffirm the following OFSTPs.

- ANS - TIA/EIA-526-07 - published 07/98 - OFSTP-7 - Measurement of Optical Power Loss of Installed Single-Mode Fiber Cable Plant (ANSI/TIA/EIA-526-7-98) - (Reaffirm with SP ballot)
- ANS - TIA/EIA-526-10 - published 11/98 - OFSTP-10 - Measurement of Dispersion Power Penalty in Digital Single-Mode Systems (ANSI/TIA/EIA-526-10-93) (R98) (Reaffirm with SP ballot)
- ANS - TIA/EIA-526-11 - published 11/98 - OFSTP-11 - Measurement of Single-Reflection Power Penalty for Fiber Optic Terminal Equipment (ANSI/EIA/TIA-526-11-91) (R98): (Reaffirm with SP ballot)

2.4.2 FO-4.2, Digital Multimode Systems, Steve Swanson for Gair Brown

Steve Swanson chaired the FO-4.2 meeting in the absence of Gair Brown.

The highlights of FO-4.2 and its Working Group meetings included:

- A meeting with FO-4.1 for the first hour to review a presentation on Tri-Speed Ethernet. FO-4.2.2 furthered their discussions and have encountered several challenges including: optical physical media dependent issues at 850nm, complications with auto-negotiation, and support from chip suppliers. FO-4.2.2 expects to reach a decision by August 1st on how to proceed.
 - Providing an opinion to FO-4.6.1 regarding the new fibre that is proposed to CENELEC for standardization. Currently, it was found that there is insufficient information regarding connector and splice loss, modal noise evaluation, worse-case testing, DMD profile and bandwidth limitations, and power coupling between the fiber and a VCSEL. It was suggested that a round robin would be helpful.
 - Reviewed comments that were received on the ballot of TIA-440-B regarding multimode fiber definitions.
-

- Closed a request from TR-42 on multimode splicing
- Reviewed a new proposal for an FOTP on skew. Several comments were made, mostly relating to SM launch used for MM fiber. A decision was made to continue development of a document as an FOTP rather than a TSB. All described methods will be able to be used for single-mode fiber. For multimode fiber, the use of FOTP-220 (DMD) will be referenced in the document as part of the final skew calculation. This will be combined with the primary method – time-of-flight. Both phase-shift and OTDR need to be considered with caution for multimode fiber. Comments are welcome until June 30th.
- Reviewed several documents under FO-4.2, including a decision that OFSTP-14 will undergo a revision ballot. Interest was also shown in reviewing IEC 61280-2-10 (86C/549/CD), time resolved chirp measurement – this may be applicable in resolving mode partition noise in MMF.
- Scalability 10 GbE was discussed with objectives of investigating different data rates (e.g., 2.5 Gb/s), length, and wavelength. More input is needed from transceiver manufacturers. From this point further, we plan to specify sources into future standards from this work effort. More discussion of an enhanced spreadsheet model will take place at the next FO-4.2.1 teleconference.

2.4.3 FO-4.3, Interconnecting Devices, Tom Ball

FO-4.3 did not meet during this week.

2.4.4 FO-4.4, Reliability and Characteristics Active Optical Components, Pin Su

There were a total of seven attendees at this meeting of which two were call-in participants.

The Subcommittee decided to submit the current version of FOTP-127 for ANSI standard.

Documents re-affirmed as TIA standards included:

- OFSTP-27, Procedure for System-Level Temperature Cycle Endurance Test (ANSI/TIA/EIA-526-27-98)
- OFSTP-15, Jitter Tolerance Measurement (ANSI/TIA/EIA-526-15-93) (R98)
- OFSTP-16, Jitter Transfer Function Measurement (ANSI/TIA/EIA-526-16-93) (R98)
- OFSTP-17, Output Jitter Measurement (ANSI/TIA/EIA-526-17-93) (R98)
- OFSTP-18, Systematic Jitter Generation Measurement (ANSI/TIA/EIA-526-18-93) (R98)

Jim Matthews provided a list of IEC Active Component documents. The list will be provided within the FO-4.4 meeting minutes. Members were urged to review these documents so that FO-4.4 can decide whether to accept them as TIA documents.

The FO-4.4 Work Plan was discussed including:

- Generating a TIA connector reliability document to replace GR-326.
 - Generating an active components reliability document for datacom applications.
 - Proactively reviewing IEC documents/standards.
 - Investigating how to adopt IEC documents (TRs).
 - MSA role and the lack of reliability consideration.
-

2.4.5 FO-4.5, Optically Amplified Devices, Subsystems and Systems, Jim Matthews

FO-4.5 met with members attending physically and through teleconference. Jim Matthews was re-elected Chair of FO-4.5.

Key items during the meeting included:

- A Review of anticipated ITU-T related activity: Q16/15 & Q17/15
- Metrology Support
 - NIST long standing participants: RIN Reference, Round Robin...
 - Anticipated cuts will extinguish this effort
- New Documents (Decision to Authorize Ballot)
 - Informative TSB on Optical Amplifier Command Set (Also launched as IEC proposal, National Adopt When Done)
 - ITM On Interferometric PMD Measurement for Amplifiers (Amplifier in Pumped and Non-Pumped State)
- Decision to Launch Ballot to Nationally Adopt the Following:
 - IEC 61290-3-1, Noise by OSA
 - IEC 61290-3-2, Noise by ESA
 - IEC 61290-5-2, Reflectance By ESA
 - IEC 61290-5-3, Reflectance Tolerance by ESA
 - IEC 61290-6-1, Pump Leakage by Optical DeMux
 - IEC 61290-7-1, Out of Band Insertion Loss
 - IEC 61290-10-1, Gain, Power & Noise – Pulse (Switch)
 - IEC 61290-10-2, Gain Power & Noise – Pulse (Gated OSA)
 - IEC 61290-10-3, Gain, Power & Noise – Probe Methods
 - IEC 61290-11-1, Amplifier PMD by JME
 - IEC 61291-5-2, Reliability Qualification For OA's
- Decision to Nationally Adopt Informative TR's
 - IEC 61292-1, Parameters of Amplifier Components
 - IEC 61292-2, ESA Noise Figure Theoretical Background
 - IEC 61292-3, OA Classification and Characteristics

2.4.6 FO-4.6, Optical Fibers, Tom Hanson for Greg Smith

There were 13 participants at the meeting, two by teleconference. Three of five official members were present or had called in by teleconference. Quorum was achieved. In the absence of Chairman Greg Smith, the meeting was conducted by Tom Hanson, Secretary.

Attendees are urged to submit official membership applications to either TIA or to Tom Hanson.

Notices

Neither Eric Urruti (Corning) nor Harish Chandan (OFS) will be able to continue the chairmanship of FO-4.6.2. FO-4.6 thanked them for their many contributions. Ed Fewkes (Corning) has volunteered to continue as Chair of this Working Group. It is unlikely that Greg Smith will pursue candidacy as FO-4.6 Chair in January.

The committee was briefed on a reorganization proposal which could result in combining 4.6 and 4.7. This proposal could be in place for the January meeting. The restructuring of the working groups will be considered at that time.

At the January, 2003 meeting FO-4.6 requested clarification from FO-4 on the ownership of some documents. The conclusion:

- Skew: FO-4.2
- Polarization cross-talk (FOTPs-198 & 199): FO-4.6

FO-4.6.1 Summary of agreements

Agreed to request the following: Withdraw the ANSI status for FOTP-124, Measurement of PMD using the interferometric method, and, in parallel, advance a revision as a TIA Standard. The revision would be to add the improvements proposed by EXFO. Similar action is occurring in parallel in the international standards bodies.

Resolved comments to the ballot TIA-440 regarding various PMD related definitions.

Discussed various actions in the international arena:

- Update ITU-T Recommendation G.650.1 with MFD improvements
- A re-do of the initial Aeff round robin using the improved calculations and the original raw data will be attempted.
- Consider the outcome of the Nice meeting of IEC SC86A/WG1 and future actions
- Consider the outcome of the June meeting of the ITU-T SG15/Q15 and future actions

FO-4.6.2 Summary of agreements

In the context of the possibility of adopting the IEC fiber Specifications, 60793-2-xx, issues surrounding the proof test method and the strength and fatigue methods were raised. The IEC methods may not be sufficiently stringent. The group requested to have several of these documents circulated to FO-4.6 members for review.

FO-4.6 discussion

Regarding the adoption of the IEC fiber Specifications, the group concluded that if the strength and fatigue methods of the IEC were not sufficiently stringent, that an adaptation of the Specification, in which exceptions are noted, would be the preferred course of action.

In addition to the above issues, there is no temperature and humidity cycling test in the IEC. To maintain a consistency of US requirements, this test requirement should also be included in an adaptation process.

In the event of bringing the IEC fiber specs into our documentation set, a question remains: What should be done with the TIA-492 series? There was no closure on this question.

FOTP-3, Temperature cycling, has known problems. While it was originally intended for fiber, cable, and components, its scope could be changed because in the event of a successful adoption of the IEC temperature cycling test for fiber. This revision in the scope could facilitate progress on improving the document.

Actions authorized by FO-4.6

- Submit paperwork to withdraw FOTP-124 as an ANSI Standard.
- Initiate paperwork to revise FOTP-124 as a TIA Standard and issue ballot.
- In the event that the FO-4.6.1 group resolves comments by correspondence, the publication of a revised FOTP-124 is authorized before the January meeting.
- The following withdrawals were authorized due to the adoption of some IEC Standards:
 - With the adoption of the IEC document, 60793-1-20, as FOTP-176, on glass geometry measurement, withdraw the following:
 - FOTP-29: Refractive index profile, transverse interference method
 - FOTP-43: Output near-field radiation pattern measurement of optical waveguide fibers
 - FOTP-44: Refractive index profile, refracted ray method
 - FOTP-45: Method for measuring optical fiber geometry using a laboratory microscope
 - FOTP-58: Core diameter measurement of graded-index optical fibers
 - FOTP-92: Optical fiber cladding diameter and noncircularity by noncontacting Michelson interferometry
 - With the adoption of the IEC document, 60793-1-42, as FOTP-175, chromatic dispersion, withdraw the following:
 - FOTP-168: Chromatic dispersion measurement of multimode graded-index and single-mode optical fibers by group delay measurement in the time domain
 - FOTP-169: Chromatic dispersion measurement of single-mode optical fibers by the phase-shift method
 - With the adoption of the IEC document, 60793-1-22, length, as FOTP-133, withdraw the following:
 - FOTP-60: Measurement of fiber or cable length using an OTDR.
 - Since FOTP-177, Measurement methods and test procedures – Numerical aperture, is being processed as an adoption, TIA would like conditional authorization for withdrawal of the following, which will not be done until the adoption is complete.
 - FOTP-7: Numerical aperture of step-index multimode optical fibers by output far-field radiation pattern measurement
 - FOTP-47: Output far-field radiation pattern measurement
 - The withdrawal of FOTP-47 was approved. The withdrawal of FOTP-7 was NOT approved. As a result, the “TIA foreword” to this adoption should be modified to remove FOTP-7 from the list of obsoleted documents.
 - The following FOTPs can be withdrawn by ballot or administratively:
 - 60A, 43A, 58B, 168A, 169A

Questions FO-4.6 has for FO-4.0

- Request information on how to complete an adaptation of IEC Standards.
 - Is FOTP-3 needed by the component community. If not, its scope could be narrowed to optical fiber cable only, thereby facilitating improvements.
 - Request permission of TIA to circulate the following documents to the FO-4.6 participants:
 - FOTP-28, FOTP-31
 - IEC 60793-1-30, 60793-1-31, and 60793-1-33
 - FO-4.6 plans to either adapt or adopt the IEC fiber Specifications. FO-4 is invited to provide input on the disposition of the 492 series in that event. One possibility is to maintain the 492
-

series in parallel until it is clear that these documents are not of use.

2.4.7 FO-4.7, Optical Cables, Mike Kinard

The Subcommittee on Optical Fiber Cables met via teleconference on Thursday, 12 June 2003. Mike Kinard, OFS, Subcommittee Chair, presided. There were eleven people on line, representing seven of the eleven member companies. Quorum was achieved. Two of the conferees were usual guests. As there had been no quorum in January, this is the first official meeting of FO-4.7 since June 2002.

The teleconference had been called because it was known that the majority of Subcommittee members would not be able to attend the regular Vancouver FO-4 meetings. As quorum had not been achieved in January, an interim teleconference had been planned. However, this did not take place.

Similarly, the usual meetings of FO-4.7.10, color code, and FO-4.7.15, IEC liaison, were cancelled. Necessary business was to be conducted as part of the FO-4.7 meeting.

It must be noted that due to current economic difficulties and turnover in personnel, some member companies have been absent for several meetings. The Chair has determined to take no actions to suspend any companies because of these extenuating circumstances.

FO-4.7 was due for election of officers in January, but that could not be accomplished due to lack of a quorum. Therefore, the election took place in the FO-4 closing plenary, with Mike Kinard elected to the Chair and Scott Chastain elected as Secretary. This was reported to the Subcommittee.

A number of documents listed in the June 2002 and January 2003 reports and the Secretariat's "hot list" were to be included in the June agenda for committee action. While these were in the June agenda, the Secretariat advised that they had not been published far enough in advance to be officially addressed in the meeting. Therefore, the Subcommittee directed that they be balloted for reaffirmation or withdrawal (there is a list) in the usual manner. No small part of the rationale for this is that things are so confused at this time that a series of ballots might achieve a fairer airing of the issues than listing as agenda items in the Subcommittee meeting.

Several FOTPs were noted as needing action, and all of these will have a reaffirmation ballot. TIA-590, underground plant physical location and protection, will also be sent for reaffirmation. FOTP-33, tensile load and bend, has been revised based on the January discussions and will go out for SP ballot. The whole range of TIA-472-series cable standards will be withdrawn. The Chair will work with the Secretariat to determine exactly which documents and projects are at issue.

The usual reports of specific details from Liaison reports were made.

FO-4.7.15, IEC coordination: The Subcommittee continues to closely follow the work of the IEC Working Groups (WG3 and the joint WG1/WG3). Plastic optical fiber and blown products (cable and units) were discussed. Because of the level of activity in blown products (IEC 60794-3-50), an ad hoc teleconference to develop a position to forward to the USNC TAG was called for Thursday, 19 June. It did convene. See the TAG report for pertinent details.

FO-4.7.10, Task Group on Color Coding: Finally having a quorum, Ray Lovie was officially elected to

the Chair, replacing John Peters. We thank John for his years of leadership and work as author. We thank Ray for taking up the reins. Details of completing the publication of TIA-598B and beginning the ballot process on –598C were discussed and appropriate actions taken. Look for ballots coming to your e-mail boxes, soon.

FO-4.7.17, Task Group on the Cable Impact Test (FOTP-25), was officially dissolved since their job was done. This leaves two active Task Groups: color coding and IEC coordination.

The Subcommittee discussed actions needed to adopt the ICEA optical fiber cable standards, now that the agreement between TIA and ICEA has been completed. Adoption ballots were authorized on the following ICEA Standards (informal titles included):

- ICEA S-83-596-2001, premises cables
- ICEA S-87-640-1999, OSP cables
- ICEA S-104-696-2001, indoor/outdoor cables
- ICEA S-*-717-2003, drop cables

*The project number of S-717 was not available while writing this report.

The Chair is to work with the Secretariat to establish which TIA-472-series numbers are to be attached to these four Standards and the exact ballot method to be used.

2.4.8 FO-4.8, Passive Fiber Optic Devices, Jim Matthews

FO-4.8 had sufficient attendance to meet quorum. A review of the IEC work had been held in FO-4.5. A teleconference is planned for September 3 at which time topic will be discussed including:

- Review Document Status
- Candidate National Adoptions
- ITU Needs for CWDM
- Characteristics of Dispersion Compensators
- Characteristics of PMD Compensators

2.4.9 FO-4.9, Fiber Optic Metrology, Dennis Horwitz, Chair

Quorum was reached with 8 of 10 voting members in attendance (including one via WebEx). There were no finished project to report at this meeting. Projects in process included:

PN-3-0064	TSB-141; PDL Meters: Measurement and Application Issues	A second PN ballot is open and approved for publication pending resolution of votes/comments. Author: Rex Craig-NIST
PN-3-0065	TSB-142; Optical Return Loss Meters: Measurement and Application Issues	PN ballot closed but votes/comments need disposition. Author: Dennis Horwitz-TEMPO (Takes over from Lorenz Cartillieri who left TEMPO)
PN-3-0066	TSB-143; Fiber Optic Power Meters: Measurement and Application Issues	PN ballot closed but votes/comments need disposition. Author: Andre Girard-EXFO
SP-3-0082	TIA-455-231; FOTP-231, IEC 61315 – Calibration of Fibre Optic Power Meters	SP Adoption ballot closed but votes/comments need disposition. Author: Dennis Horwitz-TEMPO

Various SP-XXXX-WD	Withdraw TIA-573XXXX series for Field Portable Tools	10x SP-WD ballots closed but votes/comments need disposition. Author: Dennis Horwitz-TEMPO
PN tbd	TIA/EIA-455; Standard test procedure for fiber optic fibers, cables, transducers, sensors, connecting and terminating devices, and other fiber optic components Q: Should title be amended to include "systems" as OFSTPs are going away and also given the nature of some IEC procedures being adopted by TIA.	As authorized at last FO-4 Closing Plenary, FO-4.9 needs to request PN, then submit to SP ballot with the "calibration" text previously developed by FO-6.1.10. Author: Dennis Horwitz-TEMPO
PN tbd	TSB-XXX, Connector Endface Inspection Instrumentation: Measurement and Application Issues (Tentative Title)	A Joint FO-4.3.2/FO-4.9 meeting and WebEx (representing 8 additional attendees-4 of final 5 would have attended face-to-face meeting if located in US - with Arlington-VA very desirable) was held to discuss development of an FOTP/Calibration document under FO-4.3.2 and this TSB under FO-4.9. TSB will be circulated one more time for internal comments before proceeding to PN ballot. Author: Harvey Stone/NOYES FIBER SYSTEMS
Future TSB	TSB-XXX, Guidelines for Round Robins	Draft to be developed as part of planning Return Loss RR. Author: Tim Drapela, NIST
Round Robin under FO4.9.1	Return Loss Round Robin	Draft RR plan was reviewed and approved. Tim Drapela and Dennis Horwitz will work together to develop the detailed procedures and a WebEx will be scheduled for final review before RR actually starts. RR results will then drive development of TIA/IEC calibration doc. Co-Authors: Tim Drapela-NIST and Dennis Horwitz-TEMPO

3 NEW BUSINESS

3.1 Future meeting venues

Discussions were held on future meeting venues. Bob Jensen provided a contribution on where FO-4 members reside. This information was helpful in determining appropriate locations to help in gaining more attendance at meetings. It was decided that the next two meetings of FO-4 would be held at the TIA headquarters in Arlington, VA.

3.2 Proposed new structure for FO-4

A restructuring plan had been discussed throughout the week. Steve Swanson proposed that the Subcommittees be reduced to 5 rather than the current 9. The new structure would include:

- Combine FO-4.1 and 4.2 on Optical Systems
- Combine FO-4.3 and FO-4.8 on Passive Components
- Combine FO-4.4 and FO-4.5 on Active Components
- Combine FO-4.6 and FO-4.7 Fiber and Cable
- Maintain FO-4.9 on Metrology

The new Subcommittees, with input from the Working Groups, will be tasked with making a decision on the future structure of their Subcommittee.

Steve Swanson made a motion to hold an interim meeting of FO-4 via conference call on September 4, 2003 to discuss this proposal and approve moving forward with the recommendation. FO-4 unanimously approved the motion.

3.3 Action items derived from this meeting

Item #	Action:	Resp:	Status:
2003-06-006	Ensure Andre Girard is noted as Vice-chair in FO-4.3.	S. Swanson	
2003-06-007	Investigate process for sharing IEC draft and published documents with members of FO-4 and still honor IEC copyright rules	S. Hoyler/J Matthews	
2003-06-008	Need to update selection list on TIA WEB site menus. Need to update WEB browser FTP instructions.	S. Hoyler	
2003-06-009	Investigate allowing NEMI access to FTP site for document review.	S. Swanson	
2003-06-010	Investigate feasibility of using wireless LAN	S Hoyler	
2003-06-011	Participants to send comments to TIA on adoption process and TIA will update the process at the January 2004 meeting.	S Hoyler	
2003-06-012	Develop national adaptation procedure.	S Hoyler	
2003-06-013	When printing roster, place actual meeting date rather than entire dates of week.	S Hoyler	

4 NEXT MEETING, INTERIM MEETINGS, FUTURE MEETINGS

4.1 Next meeting

September 4, 2003 via teleconference

January 26-29, 2003

TIA Headquarters
2500 Wilson Blvd.
Arlington, VA 22201

5 ADJOURNMENT

The opening plenary meeting adjourned at 12 noon on June 23, 2003. The closing plenary meeting adjourned at 5:00 PM on January 26, 2002.

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

Steve Swanson, FO-4 Chair

Bob Jensen, FO-4 Secretary
