Telecommunications Industry Association
FO-2 Committee on Optical Communication Systems
FO-6 Committee on Fiber Optics (meeting No. 48)

January 11, 2001
SpaHotel &Casino
100 North Indian Canyon Dr.
Palm Springs, CA 92262

Next Meeting**: Portland, Maine June 28, 2001**

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1 Introductions

The 4th joint meeting of the FO-2/FO-6 Committees was called to order at 1:37 P.M. on Jan. 11, 2001 with Steven Swanson (FO-6 Chair) presiding. A total of 28 attendees, including 8 voting members (or their representatives) and 20 others were present. A quorum for the combined Committees was established. The meeting conducted a round of self-introductions.

	Company	E-Mail	Telephone
Chairs:			
Felix Kapron	Corning Inc.	kapronfp@corning.com	607-974-7156
Steven Swanson	Corning Inc.	swansonse@corning.com	607-974-4252
Voting Members Companies present:			
Kenneth Bow	DOW	kebow@dow.com	517-638-3759
Allen Cherin	Lucent	cherin@lucent.com	770-798-2619
Rex Craig	NIST	rcraig@boulder.nist.gov	303-497-3359
Dan Fletcher	Alcatel	dan.fletcher@cable.alcatel.com	704-459-8544
Andre Girard	EXFO	agirard@exfo.com	418-683-0211
Tom Hanson	Corning Inc.	hansonta@corning.com	607-974-4530
Dennis Horwitz	RIFOCS	dennis.horwitz@rifocs.com	805-389-9868
Arthur Hudson	Defense Supply Center	arthur_hudson@dscc.dla.mil	614-692-0657
Voting Members Companies Not present:			
Ron Bossard	3M	rgbossard@mmm.com	512-984-3782
Gair Brown	NSWC DD	gdbrown@nswc.navy.mil	540-653-1579
Osman Gebizlioglu	Telcordia Technologies	ogebizli@telcordia.com	973-829-4956
Other Participants Present:			
Judith Andersen	TIA	jandersen@tia.eia.org	703-907-7551
Anne Marie Auchu	Corning Inc.	auchuam@corning.com	607-974-7307
Steve Baker	Microtest, Inc.	sbaker@microtest.com	602-952-6687
Arthur Barlow	Perkin Elmer	arthur.barlow@perkinelmer.com	44-118-977-3003
Thomas Ball	Lucent Technologies	teballzz@aol.com	717-939-8537
Eric Bobinsky	Ocean Design, Inc.	ebobinsky@oceandesigninc.com	440-243-2992
Tim Drapela	US Dept. of Commerce	drapela@boulder.nist.gov	303-497-5858
Harold Glick	US Dept. of Defense	glickha@corona.navy.mil	909-273-4755
Rob Johnson	Corning Incorporated	johnsonr@corning.com	607-974-7359
Mike Kinard	Lucent Technologies	mkinard@lucent.com	770-798-2109
David Leight	DSCC-VAT	david_leight@dscc.dla.mil	614-692-0521

David Maack	JDS Uniphase	david.maack@usjdsunph.com	860-769-3952
Stephanie Montgomery	TIA	smontgom@tia.eia.org	703-907-7735
John Ritger	Lucent Technologies	ritger@lucent.com	770-798-2784
Andrew Straw	Corning Cable Systems	andrew.straw@corning.com	820-323-6462
Greg Smith	Corning Inc.	smithge@corning.com	607-974-7134
Pin Su	Chorum	psu@chorumtech.com	214-570-3558
Curt Willis	Corning Cable Systems	curt.willis@corning.com	828-327-5521

F0-2/FO-6 Member/Alternate) attendance history:

Company /Affiliation	Member /Alternate	June 1998	Jan. 1999	June 1999	Jan. 2000	June 2000	Jan. 2001
3M	Ron Bossard	X	X	X	X	X	
Alcatel	Dan Fletcher	X	X	X	X		X
Corning	Thomas Hanson	X	X	X	X	X	X
DOW	Kenneth Bow		X			X	X
DS CC – DoD	Art Hudson	X	X	X	X	X	X
EXFO	Andre Girard	X	X	X	X	X	X
Lucent	Allen Cherin		X	X	X	X	X
NIST	Rex Craig		X	X	X	X	X
NSWC, Navy	Gair Brown	X				X	
RIFOCS	Dennis Horwitz		X	X	X	X	X
Telcordia	Osman Gebizlioglu	X	X	X	X	X	

Note: Companies absent from three consecutive meetings will be removed from the voting member list and placed on the nonvoting member list. Please make sure attendance sheets are signed. The chairman 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 a quorum at our meetings.

2 Chairpersons' Opening Remarks

FO-6 chairperson, Steve Swanson gave a brief overview of the topics covered in the chairs meeting on Monday night. Topics covered included

- Usage of the TIA email reflectors. To help facilitate the usage of reflectors a how-to sheet courtesy of Dennis Horwitz (RIFOCS) is attachment 2. It includes instructions how to subscribe, unsubscribe and send out emails. The limitation to the email reflector is that it will reject documents over 1.5 meg.

  Attachment 2 - E-mail Reflector

- Usage of the TIA FTP sites. For documents over 1.5 meg, the document can be posted to the FTP site. To help facilitate the usage of the FTP sites, a how-to sheet courtesy of Dennis Horwitz (RIFOCS) is attachment 3. It is recommended to use FTP client software to make access easier.

  Attachment 3 - Using FTP Sites

- A recommendation to co-locate meetings with T1X1 beginning with the 6/01 meeting was made and accepted. This would be advantageous to both groups due to the complementary nature of the efforts.

- Future Vision for TIA
  - Schedule Optimization
  - Work optimization
  - Structure Optimization
  - Redefine the TIA FO committee and the operation

- January 2003 Meeting - Fort Myers, Florida (Las Vegas, Nevada - reserve site)

- Note: Tuesday Night Tutorial was cancelled

3 Review / approval of agenda

The proposed agenda was approved with no corrections, changes or comments.

4 Approval of Previous Meeting Report

The previous meeting report was reviewed. Tom Hanson moved to accept the meeting minutes as written, with a second by Allen Cherin. There were no action items from the Quebec City meeting.

5 Correspondence

No new correspondence was received.

6 TIA Update, by Stephanie Montgomery

- Engineering Manual
  - ANSI approval of latest manual changes has been requested
  - New manual anticipated availability late April

- TIA re-organization - effective date January 1, 2001
  - Organized into departments
    - Global Network Marketing Department (Newly created)
    - Global Enterprise Marketing Department (Newly created)
    - External Affairs & Government Relations Department
      - Policy Activities
    - Marketing Services Department
  - Administrative
  - Procedural

7 FO-2 Subcommittee Chairman Reports

FO-2.1 Single-Mode Systems, by Allen Cherin

Report of FO-2.1.1, Optically Amplified Systems, Subsystems, and Devices
A brief meeting was held on October 10 to discuss contributions required for ITU-T draft Recommendation G.dsn, *Optical system design and engineering considerations.*

At the regular meeting on January 8, 2001 there was a review of several company and US contributions for the ITU Q.16 meeting in February. Several proposals by WorldCom, Nortel, and others concerned

- intra-domain interfaces
- beginning optical supervisory channel interface standards
- approaches to very-short range (VSR) solutions up to 600 m and 40 Gb/s.

Lucent had a proposal for course WDM (CWDM) that had been developed by a consortium. Mapping the proposed wavelengths on to the ITU-T frequency grid is to be carried out. There was a contribution to Q.17 from Corning to consider dynamic spectral equalizers.

IEC SC86C WG1 on Fibre Optic Systems – September Stockholm Meeting
The status of work was reviewed, along with comments by the authors of various documents.

- 61280-1-4 Collection and reduction of two-dimensional nearfield data for MMF laser transmitters by Tom Hanson has NP/CD comments due in February.
- 61280-2-8 on accelerated BER measurements by Jack Dupre of Agilent had CD ballot comments discussed
- 61280-2-9 on OSNR by Jack Dupre also had NP/CD comments discussed.
- 61280-2-10 on PMD system measurements will contain the phase-shift method by Arthur Barlow of Perkin Elmer and a single-ended method contributed by the Italian delegation.
- 61282-3 on PMD system guidelines by Tom Hanson has CDV comments due in March.
- 61282-4 on nonlinear effects by Felix Kapron has NP/CD comments due in February.
- 61282-5 on dispersion accommodation by Felix Kapron has CDV comments due later this month.

- 61282-6 on skew design did not have NP/CD comments yet available.
- 61282-7 on multimode Gb/s systems does not yet have any text. Jack Dupre will follow up with experts and Felix Kapron will distribute a related paper.
- 61282-8 on statistical chromatic dispersion is undergoing second draft revision by Tom Hanson.

New Work Areas
These can be related to G.dsn and include statistical design of attenuation, CD, and PMD, including power penalties, dispersion accommodation for other fiber types, measurements in multichannel systems, and optical channel monitoring.

PMD Coordination in TC86
Allen Cherin received updates to a table showing the status of PMD documents in SCs 86A, B, and C.. Arthur Barlow is heading a TG that will produce a table listing PMD test methods, and a matrix showing which methods can be used to measure fiber/cable, passive optical components, optical amplifiers, and optical links.

FO-2.1.1 WG on Optically Amplified Devices, Subsystems, and Systems
The following ITU-T recommendations were agreed to for submission to US Study Group B. All documents are posted on http://www.tiaonline.com under the public documents listing found for Standards –> FO2 –> FO2.1.1

US Contributions

- FO211-2001-01-TD04-R1 Agreed as a US Contribution B01-01-01
  Laszlo Szerenyi / WorldCom
  "Longitudinally Compatible IaDI Recommendation"

- FO211-2001-01-TD06-R1 Agreed as US Contribution* B01-01-03
  Laszlo Szerenyi / Worldcom
  "Parameter Values for 12 dB Serial 10 Gbps VSR Application"
  *Provisionally agreed subject to confirmation by one participant – Otherwise agreed as a company contribution

- FO211-2001-01-TD07-R1 Agreed as a US Contribution B01-01-04
  Rao Tatavarti / Nortel Networks
  "A proposal for Text for scope towards the new recommendation defining Very Short Reach Interfaces"

- FO211-2001-01-TD08-R1 Agreed as a US Contribution B01-01-05
  Rao Tatavarti / Nortel Networks
  "New application code in G.vsr addressing VSR interfaces involving Passive Optical Network Elements (PONE)"

Company Contributions

- FO211-2001-01-TD05-R1 Agreed as a Company Contribution B01-01-02
  Laszlo Szerenyi / WorldCom
  "An approach to the standardization of the Optical Supervisory Channel (OSC) Physical Interface"

- FO211-2001-01-TD10-R1 Agreed as a Company Contribution B01-01-18
  Felix Kapron / Corning Incorporated
  "Addition of dynamic spectral equalizers to G.671"

- FO211-2001-01-TD12 ***Provisionally*** agreed as a Company Contribution** B01-01-16
  Bill Gardner, Lucent Technologies
  "Proposal for a wide wavelength grid spacing for optical communications networks utilizing uncooled laser sources"

- FO211-2001-01-TD13 ***Provisionally*** agreed as a Company Contribution** B01-01-17
  Bill Gardner, Lucent Technologies
  "The need for standardization of a Wide Wavelength Division Multiplexing (WWDM) wavelength grid"

  ** These two contributions were provisionally agreed subject to a revised draft being circulated by e-mail reflector to FO-2.1.1 on Tuesday 16 January. Absent any dissent on the revised drafts, the contributions are agreed as company contributions.

FO-2.2 Digital Multimode Systems by Gair Brown

Short Wavelength 10/100 PMD (SP-4360) (Cindy Montstream) - The comments received on the 10/100 standard (19 total, 7 technical) were discussed. Most of the comments could be handled with editorial changes. FO-2.2 approved moving this document to a 30 day default ballot. If this ballot is approved and all comments can be handled with editorial (non-technical) changes, the committee approved moving the document to TSSC ballot and publication.

High Performance Parallel Interface – 6400 Mbps (Dave Hyer / Gair Brown) - No update was available.

IEEE 802.3 Liaison Report (Paul Kolesar) - Kolesar provided an update on the IEEE 802.3ae activity on 10G Ethernet and the IEC 60825-1 eye safety standard. The 300 meter 850 nm 10 Gb solution over next generation 50 µm fiber, of interest to 2.2.1, is now included. Since June, 802.3ae has moved from approximately 20 PMD (media) options down to 4. Effectively, these include 1550, 1310, and 850 nm serial, and 1300 nm WWDM. These correspond to the 4 requirements, 40 and 10 km over SMF, 300 meters over installed MMF, and 65 meters over MMF.

Also of interest to 2.2.1 is the eye safety standard. The IEC 60825-1 Eye Safety Standard has also passed and is expected to be published this month. This raises the allowed power out of 50 µm fiber at 840 nm by about 2.4 dB (to –1.3 dBm). This was a prerequisite for the 300 meter 850 nm 10 Gb solution over next generation 50 um fiber (i.e. optimized for 850 nm operation / bandwidth).

Document Status

FOTP 203 – Encircled Flux (SP-4669)
- SP ballot closed; Only editorial comments – comment resolution awaited
- TSSC ballot approved by formulating committee (FO 2.3) contingent upon comment resolution as editorial

FOTP 204 – Measurement of Multimode Fiber Bandwidth published Dec. 19, 2000.

TSB 20 TIA/EIA 62-20 (PN-4892)
- Letter ballot issued 12/20, closes 1/22/01; No issues so far.

Activity on track to deliver a recommendation consistent with IEEE 802.3ae timing

- Validation experiment in progress:
- Experiment data collection effectively complete
- Analysis well under way
- Nearing complete explanation of results; Industry support is significant
- 10 Gb transmitter now available and included in study
- Conclusions anticipated before Working Group ballot

IEEE March Plenary

Approach to 10 Gb Multimode Fiber Specification

- Target - 2000 MHz-km effective modal bandwidth (EMB)
  - Input into the IEEE system model
- Two approaches currently under consideration
  - RML Bandwidth Approach
  - DMD Approach
- 10 Gb Demonstration Testing Objectives
  - Demonstrate ability to select fiber and transmitters to reliably deliver 10 Gb performance at 300 meters over 50 µm fiber
  - Determine optimum thresholds and specification methodologies
- 10 Gb Demonstration Testing Approach
  - Collect EMB using characterized fibers and 10 Gb transmitters
  - Utilize modeling and additional testing to assess risk

Approach to 10 Gb Multimode Fiber Validation

TIA 10 Gb 50 µm Demonstration

- Fiber selected, cabled and testing effectively complete
  - Cable contains twelve 50 µm high bandwidth fiber

Fiber selected to explore limits of performance

- Lasers included 20 sources from 5 manufacturers
- Measurements effectively complete
- 6 labs performing testing so far
- Analysis in progress
- 2 fiber manufacturers supporting modeling
  - Modeling will support risk assessment

TIA FO-2.2.1 Summary

- 62.5 µm work wrapping up nicely
- Documents nearing completion
- 50 µm development on track
- Consistent with IEEE timing
- Development continues to require significant work
- 10 Gb 300 meter performance demonstrated

- FO 2.2.1 respectfully requests authorization for two PN numbers
- Modification of FOTP 204 to include RML bandwidth
- New FOTP for Differential Mode Delay (DMD) measurement
- Contingencies required prior to initiating projects
- A reasonable level of consensus within 2.2.1 achieved
- No significant technical objections remain

RML Bandwidth Approach to 10 Gb Multimode Fiber Specification

- Combination of one or two RML bandwidths and / or overfilled launch bandwidth must be greater than 2000 MHz-km
- Same as concept for 62.5 µm
- RML bandwidths under consideration include
- 23.5 mm launch developed for 62.5 µm
- Ensures intermediate modes are properly compensated
- 4 µm offset launch
- Ensures low order modes (centerline) are properly compensated
- Uses fiber designed to be single-moded at 850 nm (4.6 µm mode field diameter)
- Transceiver encircled flux criteria TBD
- Targeting no requirement or minimal requirement to exclude overfilling sources

DMD Approach to 10 Gb Multimode Fiber Specification

- Two ranges for fiber delay profile
- Maximum and minimum DMD output pulse 50% points must fall within
- 0.22 ps/m over 0 to 15 µm radial offset
- 0.5 ps/m over entire radius
- Transceiver encircled flux criteria
- Encircled flux must be greater than 86% at 16 µm

FO-2.3 Opto-Electro-optic Sources, Detectors and Devices, by Bob Gallenberger

FOTP Status:

- Modal Noise FOTP 142 (PN 4102) – Sub-committee recommended to move ahead as TIA FOTP with later revisions to incorporate Gair Browns comments.
- New FOTP for Measurement of Receiver Eye Width – Dick Kirk should be contacted to confirm that he no longer is available to author the document. F.O.-2.1 should be contacted to check status of a similar procedure under development in that group and see if any synergy could be achieved. The chair, Bob Gallenberger, agreed to do so.
- FOTP 203 on Transceiver Encircled Flux – This document has completed the second SP ballot with only comment. FO-2.3 approved moving FOTP 203 to TSSC ballot assuming comments could be resolved through editorial (non-technical) changes.
- FOTP on Modal Noise K Factor – Project place on temporary hold. However, several members made it clear that IEEE sees this as an important issue. If there is still interest in June, then 2.3 will consider taking this up, especially if technical experts to support this will participate in the development effort.
- FOTP for Tunable Laser Sources – Bal Gupta of New Focus will present his proposal at the June meeting.
- FOTP for Measurement of Frequency Response of Digital Receivers – New author confirmed via telecon with the chairman that he is moving forward and will have a draft for review prior to the June meeting.

FO-2.6 Reliability of Fiber Optic Systems and Active Optical Components, by Pin Su

Formerly FO-2.6/6.10 on Reliability of Fiber Optic Systems and Active Optical Components

- FOTP-130 - This document passed SP ballot, but it is waiting for the authors to respond to the people who made comments during the last SP ballot. (Document published 3/13/01 - post meeting)

- Reliability of Integrated Modules - Difficulties defining the topic of integrated "modules has been encountered by FO-2.6 as well as ITU G.671. The definition agreed to in ITU G.671 will be provided.

  Another difficulty is defining “active” and “passive” modules, and types in between. An IEC history of the approach that may include "active passive" types was given. There will be a meeting on Thursday, March 22, from 1:30 p.m. to 5:30 p.m. just after OFC to discuss these items. It was pointed out that IEC 61291-5-2, which deals with optical amplifier modules (as an alternative to GR-1312), might be helpful as guidance for a laser module document. IEC 61751, Laser diodes used for telecommunication - Reliability assessment was passed out. A paper will be distributed that shows significant differences with GR-468. More detail on emitter types, LEDs, EMLs, VCSELs, pump lasers, etc. need to be added. Some of these devices are less mature and less is known about them.

- Changes in Standards Generation
  Problems in the process for GR-1209 on performance of passive components were outlined. Some companies prefer international public standards. If Telcordia is no longer able to serve industry standards needs, FO-2.6 could potentially help.

  It was stated that telephone company contracts require conformance to GRs and to UL-1950 and they prefer requirements that allow the testing of the completed modules. Some companies customize their tests to customer requirements. With the rapid change of designs, some companies ship product even as the required testing is still going on. In this way the customer shares part of the risk.

- Modulator reliability
  Would a modulator standard help the market? The thought stated was there are so many different types and the customers are relatively sophisticated. The supplier generally can “get around” any burdensome requirements in GR-468.

8 FO-6 Subcommittee Chairman Reports

FO-6.1 Fiber Optic Test, Measurement and Inspection Instrumentation, by Dennis Horwitz

In-Process Projects

- (TSB-XXX) Fiber Optic Power Meters: Measurement and Application Issues Author to incorporate prior comments and submit to FO6.1 reflector for add’l round of internal review prior to next meeting. Chair to request TIA PN. Authors: Andre Girard/Marc Breton

- (TSB-XXX) Optical Return Loss Meters: Measurement and Application Issues Author to incorporate prior comments and submit to FO6.1 reflector for add’l round of internal review prior to next meeting. Chair to request TIA PN. Author: Lorenz Cartilleri

- (TSB-XXX) PDL Meters: Measurement and Application Issues Author to incorporate prior comments and submit to FO6.1 reflector for add’l round of internal review prior to next meeting. Chair to request TIA PN. Author: Rex Craig

- (FOTP-XXX) Visual Examination of Connectorized Endfaces Presentation of proposed FOTP (also to FO6.3.3 and FO6.3.10). Draft for review by next meeting. Authors: Andy Devine/Erich Rosenast

- TIA-573 series of Field Portable Tools 2001 Due to lack of use or need by industry, PNs will be requested to withdraw these outdated TIA standards. Author: Dennis Horwitz

New Business

- (TSB-XXX) Fiber Cert Tools: Measurement and Application Issues FO6.1 Develop scope/outline and introduce at March TR42.1/TR42.8 meetings to determine need. Author: Bob Jensen

FO6.1.10 Metrology & Calibration Working Group

- PN-???? (TIA-XXX) IEC 61745: Optical Fiber Geometry Cal FO6.1.10 PN requested. Then submit to SP ballot. Author: Mike Hackert

- PN-???? (TIA-XXX) IEC 61744: Chromatic Dispersion Cal FO6.1.10 PN to be requested. Then submit to SP ballot. Author: Mike Hackert

- PN-???? (TIA-XXX) IEC 61746: OTDR Calibration FO6.1.10 PN to be requested. Then submit to SP ballot. Author: Mike Hackert

- (IEC-XXX) IEC XXXXX: Reference Receiver Calibration IEC TC86 WG4 In development. Outline presented for comments by FO6.1.10. Author: Paul Hale/NIST

Liaison Projects (Outside of FO6.1.X or IEC TC86 WG4)

- Revision of ESM-6: FOTP Author's Guide (plus OFSTP & ITM Author's Guides) 2000 FO6 (FO2)Remind FO6 chair that the previously developed text requiring development of calibration requirements be included. Plus new note requiring all test equipment be calibrated in compliance to ISO 10012-1 or ANSI Z140.

FO-6.3 Fiber Optic Interconnecting Devices and Passive Products, by Tom Ball

- The title and scope for WG 6.3.1 (Reliability of Adhesives in Connector Ferrule Assemblies) was changed to Adhesives Reliability, to develop test methods and informative documents for adhesives used in FO Interconnecting Devices and Passive Components
- A second PN ballot was approved for FOTP 218 Single Fiber Ferrule End Face Geometry for publication as a TIA Standard. A SP Ballot was authorized for FOTP 219, Multi-Fiber Connector End Face Geometry for publication as a TIA and ANSI standard.
- The NTT MU type Connector was approved as a project for an Intermateability Std. The Diamond LSH and MF type Connectors are circulating on a PN Ballots for Intermateablility Standards.
- The following documents were approved for TIA Standard Publication following resolution of PN ballot comments: PN 4162, FOTP 198, PDL By Mueller Stokes Method, PN 4725, FOTP 205 Amplitude Response Measurement of Narrow –band Passive FO Components, PN-4758,Generic for Passive Switches, PN 3135, FOTP 156, Measurement of Optical Transfer Coefficients for Passive Switches

- PN 3587, FOTP 136, Chemical Immersion Test for Enclosures was approved for SP ballot and advancement to publication pending resolution of comments.
- WG6.3.8, Reliability, noted two future projects: (1) Develop informative document on failure modes and failure mode analysis for connectors and (2) Research information on the relation between polishing scratches and reliability of connectors with respect to development of endface cracks during service life.
- There was no support from the 6.0 members for a TIA Registration process for user/Manufacturer proposed Detail Specifications. Therefore, if desired, user/manufacturer prepared detail specifications may be posted on TIA's "getcommstuff". Performance Standards for Interconnecting Devices remain under discussion.
- A Task Group was established to study the development of TIA Standards for Wet Mateable FO Connectors. The Task Group leader is Eric Bobinsky, Ocean Design, Inc.

FO-6.6 Optical Fiber, by Greg Smith

Decisions made at January 2001 meeting:

- A proposal was made to move FO-6.6.1 to FO-6.1; decision was postponed until the chairman and committee can investigate the ramifications of such a move.
- WG FO-6.6.2, Fiber Spec. Documents –

  Permission was given to make working group FO-6.6.2 temporarily inactive. As additional work becomes required, the group will be reactivated and available upon request.

- WG FO-6.6.6, Step-Index Fibers and Plastic Optical Fiber

  Permission was given to make working group FO-6.6.6 temporarily inactive. As additional work becomes required, the group will be reactivated and available upon request.

Decision on Documents made at January 2001 meeting:

Negative Ballot Resolution in Progress

- 455-46A SP 4311 Cherin Spectr. Atten. Long.Length GI OF
- 455-51A SP 4797 Reitz Pulse Distortion MMF
- 455-53A SP 4790 Cherin Attenuation by Substitution
- 455-164A SP 4791 Cherin SMF Mode-Field Diam - Far Field

Request PN for new project

- NEW FOTP- NEW Project - Differential Mode Delay. (DMD) contingent on FO-2.2.1 approval. TIA Standard.

SP (60 day Ballot):

- Revise 455-204 SP 4700RV1 Hackert Measurement of Bandwidth on MM Fiber
  Revise FOTP-204 to include RML bandwidth contingent on FO-2.2.1 approval.
- Revise 455-122 SP 3327 A. Girard PMD measurement by Jones Matrix Eigenanalysis for SMF

Reaffirmation Ballot (30 day):

- 455-74 SP 2818 S. Schastin Fluid Immersion for Optical Properties

- 455-115 SP 3231 Roland Spectral Attenuation of Step-Index MM Fiber
- 455-120 SP 3309 Hanson Modeling Spectral Attenuation on Opt. Fibers
- 455-177A SP 2839 Zhong Numerical Aperture for Graded Index Fibers
- 455-178 SP 3494 Taylor Strip force Measurement
- 455-75A SP 2134 S. Schastin Fluid Immersion for Optical Waveguides
- 455-113 SP 3152 Gardner PMD Measurement for Single-mode Fibers
- 455-72 SP 2817-B Peters Temp./Humid Effects on Optical Char.
- 455-73 SP 1579-D Peters Temp./Humid Effects on Mechanical Char.

Publication Authorization:

- 455-58A SP-2303A Auchu Core Diameter
- 455-3A SP-3409 Kapron Temperature Cycling Contingent on resolution of comments
- 455-132 SP 4835 Hanson Measurement of the Effective Area of Single-Mode Optical Fiber
- 455-191 SP-4833 Hanson Measurement of Mode Field Diameter of Single-Mode Optical Fiber
- 62-12 PN-4730 Urutti Microbend Measurement -Contingent on resolution of comments

Permission to Cancel PN:

- 455-112 PN 3151 Taylor Microbend test Procedure for Long Fibers

Permission to Withdraw document:

- 455-121 SP 3425 K. Long Neutron Induced Attenuation Combined w/FOTP-64
- 455-125 SP 3584 Unknown Numerical Aperture
- 455-182 SP 2209 Plitz Hydrogen Evolution

- **Additional input on FO-6.6.1 Working Group on Round Robin Testing**

Round robin (inter-laboratory comparisons) support includes evaluating need, design, coordination, and reporting/interpreting results for round robins. This non-formulating WG performs the following functions:

- Provide round-robin support for FO-6.6 (and other FO-6 or FO-2 SCs or WGs, as deemed appropriate) and temporarily lead maintenance discussions for FOTPs involved in round-robin testing, for the duration of each given round robin.
- Provide maintenance for FOTPs dealing with fiber (glass) geometry (FOTP-176) and fiber curl (FOTP-111) [FOTPs that are not exclusively single-mode or multimode, that are not included in the scope of another WG, and/or that originated in this WG].

- Stay informed about round robins coordinated within other FO-6 or FO-2 SCs or WGs, as well as related round robins coordinated within other international standards bodies (ITU, IEC, etc.).
- Identify potential calibration issues, from round-robin results, and report, by liaison, to FO-6.1.10.

- **FO-6.6.10**

The name may be changed to align with the scope. FO-6.6.10 used the scope originally written in the scope manual. They revised the last sentence to clarify their role; “Towards these ends the WG is a liaison between LAN standards, FO-2.2, and FO-6 SCs or FO-6.6 WGs, and recommends new work to the appropriate formulating group”.

FO-6.7 Fiber Optic Cable, by Mike Kinard

Decisions

The following Task Groups were dissolved, as their work was over or at such a low level to be folded into the Subcommittee work:
- 6.7.1 (and .11 and .12), Cable Specifications
- 6.7.14, Hydrogen Effects on Cable

New Projects

None.

Ballots Authorized

- FOTP-12, fluid immersion; reaffirmation SP.
- FOTP-33, tensile load and bend; SP, upon clean closure of Letter Ballot.
- TIA-598, Rev. C; Letter Ballot, when –598B passes TSSC and publishes.
- No assignments by the Mandatory Author Draft (MAD) process were necessary.

TSSC Review Authorized

- FOTP-25, cable impact, contingent on clean closure of the SP ballot.
- FOTP-88, cable bend; anticipating clean closure of the reinstatement SP ballot.

Presentations Given

- ITU/IEC PMD & L-band Status, Bill Gardner. ITU has adopted the recommendations on PMD. The statistical cabled fiber value is 0.5 ps/√km, which is good for 10 Gbit. Cablers will have to work with systems people on higher transmission rates. The upper limit of the L-band is 1625 nm.
- Loytty presented the instructions on using the group email reflectors and the ftp site.

Future Presentations

- PMD & L-band International Status, Bill Gardner

Task Group Reports

- FO-6.7.1/11/12, Specifications. There had been discussion of the Memorandum of Understanding between ICEA and TIA, and the Licensing Agreement (LA) which will go along with it. The MOU will allow joint development of cable specifications, and the LA will allow TIA to adopt the three ICEA cable specifications when they are published.

Motion to adopt ICEA S596 (Premises) and S696 (Indoor/Outdoor) as appropriate TIA-472-series members passed. The Chairs of 6.7 are authorized to work out whatever details.

- FO-6.7.10, Color Code Standard. John Peters will chair the TG, replacing Rolf Frantz. This revision of TIA-598 is essentially ready for publication—only minor issues to be fixed. Future issues will be the definition of Gray, the use of Blue for PM/PZ jackets, and inclusion of all color specifications into -598. The ballot of the next revision (C) was authorized.
- FO-6.7.14, Hydrogen test; FOTP-183. The FOTP is done.
- FO-6.7.15, IEC coordination. Jack Rosko presented his report. There was discussion of the relationship between 6.7 and the IEC work.
- FO-6.7.16, Ribbon issues. The ribbon dimensions measurement round robin is moving again. The Ribbon Separation FOTP was abandoned.
- FO-6.7.17, Cable impact test, FOTP-25. The FOTP is out on SP ballot.

Liaison Reports

- IEEE liaison. Standards P1222, ADSS, and P1638, OPGW, are being reviewed. New standards on drop cables and hardware for self-supporting cables are being discussed.
- ICEA update. Specifications on Premises cable and Outdoor/Indoor cable are nearly ready to publish. Work on Plastic Optical Fiber seems to be hibernating. The report of the TWCS-TAC ad hoc group on the cable jacket material weathering test is expected any time.

Other Discussion

- Proposed (likely) coordination of meetings with T1X1 was discussed. The possibility of meeting more than twice a year was extensively discussed, with little support for such a plan.
- Rolf Frantz announced that Telcordia was interested in hearing from anyone that was interested in revision of or had issues on GR-20.
- There was extensive discussion of the relationship of TIA and IEC, and ANSI listing. No decisions were reached.

FO-6.9, Polarization Maintaining Fibers, Connectors and Components by Rex Craig (Formerly Subcommittee on Sensors)

Finished projects

- PN-4252 TSB-PM Fiber in Telecommunications-Apps and Issues (TSB-120) 1998 Published September-2000. Author: Paul Hernday

In-process projects

- SP-4245 FOTP-200: PM Connector Insertion Loss Editorial and technical comments resolved within committee. Authorized to proceed with SP Default Ballot/TSSC before June-2001. Author: Dennis Horwitz

- SP-4246 FOTP-201: PM Connector Return Loss Editorial and technical comments resolved within committee. Authorized to proceed with SP Default Ballot/TSSC before June-2001.
- Author: Dennis Horwitz

- PN-3783 FOTP-199: In-line Polarization Crosstalk Author to reconcile prior PN ballot Comments and authorized to submit directly for SP Ballot before June-2001. Author: Paul Hernday

- PN-tbd TSB-Performance Guidelines for PM Connectorized Assemblies Draft distributed for internal comments and then authorized to submit to PN ballot before June-2001 meeting. Chair to request TIA PN. Author: Greg Ronan

Liaison Activities

- TIA/EIA-598-C(PN-????) Optical Cable Color Coding 1999 FO6.7.10 FO6.9 has submitted request to include PM Jacket Color Code of EIA Blue in Revision C.

- TIA/EIA-604-C FOCIS Generic FO6.3.4 SP ballot closed with non-PM comments to be addressed. Includes PM applications.

- FOCIS-3A SC Connector FO6.3.4 Published December-2000

- FOCIS-4A FC Connector FO6.3.4 Published December-2000

- FOCIS-5 MPO Connector FO6.3.4 PN requested. Will include PM orientation requirements.

- FOCIS-10A LC Connector FO6.3.4 SP ballot closed. Includes PM orientation requirements.

- FOCIS-13 LX.5 Connector FO6.3.4 SP ballot closed. Includes PM orientation requirements.

Future Projects

FOTP-Beat Length Draft presentation at June-2001 meeting. Authors: Paul Hernday/Grieg Olson

PMF "Incubators"Short, informative presentations of PMF-based products and applications for educational benefit of the S/C and for possible consideration of future standards development.

Lithium-Niobate Modulators - David Maack, Author.

PMF Bragg Gratings, Grieg Olson, Author.

9 Liaison Reports

Note: Most liaison reports from other SDOs are given in multiple working groups or subcommittees. To enable easier access to them, the liaison reports have been extracted from individual reports and consolidated

DoD report, by Art Hudson:

Twenty-one draft FOTP TIA Test Methods documents finished being reviewed in August 2000 since the last TIA meeting in June. Comments have been submitted to the authors. Dave Leight can provide a list of these documents.

Changes to MIL-SPEC document status include:

The TIA/EIA-440 Terminology document has terms added from some military standards and needs to be re-circulated for comment.

We are continuing to push the issues about who can write a detail spec and how a TIA registration system would work. We really need the ability for users (DoD and DoD contractors) to write detail specifications, if your subcommittees are not going to write them.

The Naval Sea Systems Command's standardization office is reorganizing. This could effect Gair Browns standardization work.

Fiber Optic Multi-channel circular connector MIL-C-28876 and all associated specification sheets, and Fiber Optic Termini, MIL-T-29504 and associated specification sheets, are ready to go to Navy Ships for dating. TIA/EIA-604 and 604-3A, -4, -5, -10A, and -12 FOCIS documents were reviewed by DoD personnel and comments submitted to the authors. MIL-C-83526 may be cancelled and replaced by a new specification to support connectors use on the Army's TFOCCA II Fiber Optic Cable Assemblies.

MIL-PRF-49291/6C and /7C drafts are still being held by the Navy awaiting dating.

Revision A to MIL-DTL-85045/8 is in process and the Navy is working on new specification sheets /25, /26 and /27. Work is continuing on FOTP-88 for reinstatement.

IEC 86A TAG report by Tom Hanson:

Reports:

- SC86A WG1, Fibres and SC86A WG3, Cable – Tom Hanson
  A combined report was given. Guy Pierrrot is making progress on advancing the documents through the system.
- ITU SG6, Outside Plant - T. Hanson
  The WTSA all documents up for approval got approved. All documents for the next four-year cycle also got approved. Focus on access networks and their application.
  G.650 and its sections approved.
- Sector Board #4 – Manuel Santanna
  Roberta Breden, Jim Matthews and Manuel Santana are the US representatives.
  Dr. Peter Gersing (Corning Cable Systems) has agreed to participate
  "Future Watch" Document on IEC web-site. New work items will get green light if they match Future watch

Strategy formulation for upcoming WG meetings

- Internal Cables – Family specs.
- The majority of the negative ballots concerned color coding issues. Each region has a color code standard. To assist resolution, an informative annex will be proposed that would chart the colorcode scheme used in specific countries. Experience of Japan, etc. in Annex (Eric Loytty will draft a resolution by corrspondence)
- Many countries even use the current proposal, defacto position is that of US.

- The current document has substative changes in actual values. Magnitude of changes may prove to impact the reception of the document.
  Arthur Willis has the action.

ACTIONS:
If someone has a problem with the current set of values in the family specs, they need to email Eric Loytty by end of January with the comments so he can summarize and reflect the comments. This will help bring consensus to the US position.

a. Fiber - Environmental Requirements
An effort will be undertaken to incorporate some of he environmental area requirements currently utilized in the United States into the IEC documents. If necessary, the fatigue requirement will be relaxed to allow the documents to go forward.

b. Multimode Fibre
Issues around Gigabet Ethernet especially RML, and 40 Gigabit. There is a need to complete 10 Gigabet Ethernet. Current philosophy is to incorporate the documents from TIA (FOTP 203 and FOTP-204).

c. Italian proposal on guide to fiber compatibility
G.655 covers many fibers. A document to give markets some guidance in regard to attributes for the fibers is needed. Daniel Cuomo has taken on the action to bring a draft document to the Anaheim meeting. If there is action to tighten up the values, efforts will be made to stop exclusion of any current member manufacturer. (Intracapatibiity document on G.655 fibers.)

Implementation

a) Link PMD - 86C/WG1
New documents to address Installed links, factory links, passive components separate from fiber and cable being worked on in USTAG 86A.

b) Restructure Specifications are progressing through system

c) Test Methods- out for ballot
1) Effective Area -out for ballot
2) Nonlinear Coefficient -out for ballot
3) PMD -out for ballot
Lucent (Jim Refi) pointed out an issue with the PMD document agreed to in Stockholm. The uncabled fiber wording was okay but the cable fiber wording allowas crimping and placing the fiber on the floor. He recommended adoption of the following alternate wording.

Proposal: “PMD measurements on fibers in cables wound on shipping drums may not always reflect the functionally relavent PMD values for fibers in the installed cable deployment configuration. Consequently, to demonstrate compliance with the cabled-fiber PMD specification, alternative deployment configurations or mapping functions relating on-drum PMD value to off-drum PMD values may be used. The exact deployment configuration shall be agreed upon between the supplier and customer.”
Alternative language was agreed to by group.

4) Microbending -out for ballot
5) Add Raman Gain

Ballot Process

(a) To meet IEC legal requirements. A recommendation was given to Tom Hanson, TA for 86A TAG to have his participants to send Ed Kelly with a copy to Tom, a letter agreeing to the current

default agreement that no response to an IEC ballot would be recognized as an affirmative vote. The IEC lawyers are being consulted to insure this would meet legal requirements.
(b) FYI. Under this system No comments / no submitted votes would be considered a positive vote. If there is a negative, then the comments need to be redistributed and if you find the negative erroneous, you must vote negative against the negative. If there is no vote, you agree with the negative votes / comments.

IEC 86B TAG, by Tom Ball

- The TC86 Secretary (E. Kelly), led a discussion on
  (1) National Committee dues changes for 2001
  (2) IEC Policy On the Strategic Plan ,
  (3) National Standards Strategy for the US,(Online at ANSI)
  (4) New IEC TC 86 Coordinating Committee for Module Interfaces, Chaired by Rob Johnson, Corning and the New TC 86 Coordinating Committee on Reliability.

Tom Ball, the current Technical Advisor for the US 86B TAG, was reaffirmed by ANSI for an additional 4 years. His term will expire in September 2005.

Working Group Documents Circulated and Published: (LeFevre, Johnson, & Ball)

- WG 4 Test Procedures (26)

1370/NP, Optical Fibre Cable Flexing
1385/FDIS, Wave Length Dependence of Attenuation
1386/FDIS, Wavelength
1391/NP, Damp Heat Cycle
1414/CD, (MCR) Meas. of the Angular Misalignment between Fibre and Ferrule Axes
1415/CD, (MCR) Return Loss
1418/FDIS, Attenuation
1428/CD, Torsion/Twist test
1429/CD, Vibration (sinusoidal)
1430/MCR, Visual examination
1431/MCR, Mating Durability
1432/MCR, Part 1, General & Guidance
1433/MCR, Accuracy and Repeatability of the Attenuation Settings of a Variable Attenuator
1434/MCR, Cold
1435/MCR, Change of Temperature
1436/MCR, Sectional for Fusion Splices for Optical Fibres and Cables
1440/CD, Cold
1441/CD, Change of Temperature
1442/NP, Thermal Shocks
1448/CD, Endface Geometry Measurement of Multifibre Connectors
1450/CD, Endface Radius of Spherically Polished Ferrules
1457/CDV, Transient Loss
1461/NP, Endface Angle of Angle-Polished Optical Fibres
1462/CD, Impact
1463/CD, Dry Heat- High Temperature Endurance
1464/CD, Damp Heat (Steady Heat)

- WG 5 Reliability-(5)

  1368/NP, Reliability Part 7: Life Stress Modeling
  1396/NP, Reliability Part 9: Qualification Standard
  1437/FDIS, Part 1: Introductory Guide and Definitions
  1438/FDIS, Part 2: Accelerated Ageing tests-Temperature & Humidity Steady State
  1439/FDIS, Part 3: Evaluating Failure Modes and Failure Mechanisms

- WG6 Interconnecting Devices and Hardware (10)

  1381/CDV, Interface Std for the MT-RJ Connector Family
  1397/CDV, Interface Std for the SG Connector
  1402/FDIS, Interface Std for the MU Connector
  1420/CD, Performance Std for MM Connectors, Controlled Environment
  1447/FDIS, Interface Std for the SC Connector, (PC and APC Active Device Receptacles
  1451/PAS, Interface Std for the MT-RJ Connector
  1452/PAS, Interface Std for the SG Connector
  1453/PAS, Interface Std for the LC Connector
  1459/CD, Interface Std for Simplified Receptacle for the SC-PC Connector
  1460/CD, Interface Std for Simplified Receptacle for the MU Connector

- WG7 Passive Components (10)

  1369/CD, FO Passive Component Performance Std., Part 1-1, General & Guidance
  1377/NP, Performance Std, for Non Connectorized SM Pigtailed Circulators for Category O, Outside Plant
  1379/NP, Performance Std, for Non Connectorized SM Pigtailed Isolators for Category O, Outside Plant
  1380/CD, Performance Std, for SM Fibre Pigtailed Continuously Variable Attenuators for Category, U-Uncontrolled Environment
  1388/CD, Generic for WDM Devices
  1390/CD, Performance Std. for SM Non-connectorized, DWDM Devices for Category C-Controlled Environments
  1410/CDV, Generic for FO Filters
  1443/FDIS, Generic for FO Circulators
  1449/CD, Performance Std, General & Guidance for Passive Components
  1454/FDIS, Generic for Wavelength Switches

♦ Published Documents (9)

  61754-4, Edition 1.1, Interface for Type SC Connector Family
  61754-10, First Edition, Interface for type Mini-MPO Connector Family
  61300-3-36, First Edition, Measurement Methods for the Inside and Outside Diameters of FO Connector Ferrules
  61978-1, First Edition, Generic Specification for Passive Dispersion Compensators
  60875-1, Fourth Edition, Generic Specification for Non-Wavelength-Selective Branching Devices
  61300-3-7, First edition, Wavelength Dependence of Attenuation and Return Loss
  61300-3-5, First edition, Wavelength Dependence of Attenuation
  61753-1-1, First edition, General & Guidance for Interconnecting Devices
  61754-7, Interface Std. for the Type MPO Connector Family

IEC SC86C by Felix Kapron

WG1 on Fibre optic communications systems and subsystems

The overall classification is:

- 61280, Fibre optic communication subsystem basic test procedures
  - 61280-1 series, Test procedures for general communication subsystems
  - 61280-2 series, Test procedures for digital systems
  - 61280-3 series, Test procedures for analogue systems
  - 61289-4 series, Test procedures for fibre optic cable plant
- 61281, Fibre optic communication subsystems
  - 61281-1, Generic specification
- 61282 series, Fibre optic communication system design guides
- 61757, Fibre optic sensors
  - Generic specification

The latest details on specific documents are contained in the FO-2.1 report.

WG3 on Optical amplifiers

The overall classification is:

- 61290, Basic specification for optical amplifier test methods
  - 61290-1 series, Test methods for gain parameters (OFAs only)
  - 61290-2 series, Test methods for optical power parameters
  - 61290-3 series, Test methods for noise figure parameters
  - 61290-4 series, Test methods for analogue parameters
  - 61290-5 series, Test methods for reflectance parameters
  - 61290-6 series, Test methods for pump leakage parameters
  - 61290-7 series, Test methods for out-of-band insertion losses
  - 61290-10 series, Test methods for multichannel parameters
  - 61290-11 series, Test methods for polarization mode dispersion
- 61291 series, Specifications for optical amplifiers
- 61292 series, Optical amplifier technical reports

A reliability standard (from Italy) for OAs has moved to CDV. It contains reliability requirements on the attached fiber, internal active and passive components, and on the complete module.
A performance standard for OAs is under study.
A report on optical amplifier types is out for NP/CD.
Agilent reviewed an internal round-robin on multichannel gain and noise figures.
Corning introduced an ASE fitting technique for noise measurements.
There is conflict with a TC100 multimedia document.

WG4 on Active optoelectronic devices

The overall classification is

- 61751, Laser modules used for telecommunication - reliability assessment
- 62007 series, Semiconductor optoelectronic devices for fibre optic systems applications
- 62148 series, Package interface standards
- 62149 series, Performance standards
- 62150 series, Basic test and measurement procedures

ITU SG15 Plenary by Felix Kapron

- Study Group 15: *Transport Networks, Systems and Equipment*
  - Working Party 4: *Transmission*
    - Question 16/15: *Characteristics of optical systems for terrestrial transport networks*

G-Series Recommendations on *Transmission Systems and Media, Digital Systems, and Networks*.

Accomplishments

- Proposed a definition of spectral bands

Band	Descriptor	Range (nm)
O-band	Original	1260 to 1360
E-band	Extended	1360 to 1460
S-band	Short wavelength	1460 to 1530
C-band	Conventional	1530 to 1565
L-band	Long wavelength	1565 to 1625
U-band	Ultralong wavelength	1625 to 1675

The definition of spectral bands is for classification purposes only and not for specification. The classification for multimode fibers is for further study; the region 770 nm to 910 nm has been proposed.
It was agreed to provide this information by liaison to WP2/6, and to discuss it further at the Plenary meeting.

- Started work on Recommendation G.dsn,
  Optical system design and engineering considerations.

- Made further modifications to G.959.1,
  Optical transport network physical layer interfaces

  - removal of inconsistencies with G.709
  - changes to application code nomenclature
  - decided that the OSC was not required across the pre-OTN or the OTN IrDI
  - to be finalized in February

Overview of ITU-T Question 17/15 by James Matthews III

January 2001

ITU-T Question 17 met in Viarregio Italy in September 2000 to editorially improve the determined revised draft G.671 for approval in Feb. 2001. 22 people from 9 countries attended the meeting.

Proposals from Corning and Lucent for different values of PMD for dispersion compensators were found to be based on different assumptions. It was not possible to integrate the two proposals in the time available, so the value in the text of Rec. g.671 was left for further study. The proponents will work to provide future guidance going forward on a coherent and comprehensive proposal.

It was agreed to establish a correspondence group with the title “Parameter values for Narrow-band WDM Device”. It was felt important for the correspondence activities to discuss the methodology on

how to identify the component specifications that are closely related to the systems. The classes of systems such as short haul systems and long haul systems were felt also important for consideration. In addition, it was stated that the technology limit should be also considered when specifying values. Mr. Kapron, Mr. Anslow, Mr. Fussgaenger and Mr. Burgmeier joined the correspondence activities. Mr. Kapron volunteered to be the leader. It was stated that the results of this correspondence activities, including the methodology, could be a powerful tool for the future discussions on the parameter values of G. 671.

Mr. Fussgaenger (Alcatel SEL – Germany) presented a text for appendix I of G.671 on two-dimensional logarithmic transfer matrices of WDM devices. Although the feeling of the Q17/15 delegates was not generally supportive and, a clear opposition was once again stated against inclusion of the text into an Appendix, it was finally allowed to try to develop the simpler and clearer text within a break-out group. On the second day of the meeting, a break-out group came up with a revised text for Appendix I of G.671 in which sub-clauses I.2, I.4 and I.5 were struck out from TD17-3. After some other editorial modifications, the final text was agreed.

A white contribution of Rec. G.671 has been submitted to ITU-T incorporating the agreed changes for approval in February 2001

Question 17/15 will meet in the week of 5 February 2001 to organize its work on optical amplifiers, passive components, active components, and dynamic or networking components for the next 4 year ITU-T study period.

10 New Business

The next meetings will be held:

June 25 - 28, 2001 : Sheraton South Portland

363 Maine Hall Road, South
Portland, ME 04106
Phone: 207/775-6161 Fax: 807/772-6684
Rate: $149.00 Cut-off Date: May 24, 2001

http://www.sheraton.com/property.taf?prop=870&lc=en

January 2002: Kauai, Hawaii

June 2002: Bermuda (Lake Tahoe – secondary choice)

January 2003 : Fort Myers (Las Vegas – secondary choice)

11 Adjournment

The meeting was adjourned at 5:03 P.M. on January 11, 2001. The meeting was conducted in accordance with the legal guidelines as stated in the TIA Engineering Manual.

Respectfully submitted,

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Attachment 1: Action List

1. Attendance Roster sheets need to be updated. Several chairs were not listed on their meeting attendance sheet. Continuing Action
2. Continue assigning meeting rooms according to attendance. - Larger group - Bigger Room; Smaller group - smaller room. FO-6.1 and 6.1.10 need bigger. Continuing Action
3. Remove FO-2.4 and FO-2.5 from various lists as both sub-committees have been disbanded.
4. Gair Brown should have further communication with TIA regarding registration feasibility and legality.

Attachment 2 - E-mail Reflector

Using the TIA FO2/FO6 Email Reflector(s)

The TIA reflector can be subscribed to and unsubscribed to using your e-mail address. The reflector uses "***listname***", as part of the address, to identify the reflector list. For example, ***listname*** can equal:

- fo61 for FO6.1 (Test Equipment)
- fo63 for FO6.3 (Passive Components), fo634 for FO6.3.4, fo6310 for FO6.3.10, etc.
- fo66 for FO6.6 (Fiber)
- fo67 for FO6.7 (Cable)
- fo69 for FO6.9 (Polarization Maintaining Fiber, Connectors and Components)
- fo21 for FO2.1 (Singlemode Systems), fo211 for FO2.1.1
- fo22 for FO2.2 (Multimode Systems)
- fo23 for FO2.3 (Active Components)

NOTE: "o" is the lower case "O", "0" is the number zero

1. Subscribing (to join a reflector e-mail list)

   Send an e-mail from the address that you want on the reflector to join-*listname*@tiacomm.org.

   Where:
   listname = the name of the reflector list. (e.g., join-fo61@tiacomm.org)

2. Unsubscribing (to leave a reflector e-mail list)

   a) If you are subscribed to the reflector with your present e-mail address, you can send an e-mail to lyris@tiacomm.org with "unsubscribe ***listname***" in the text of the e-mail (e.g., unsubscribe fo61). The List Manager will look at your e-mail address, determine if you are a member of the reflector mail list, and remove you from the reflector mailing list.

   b) If you are subscribed to a reflector e-mail list with a different e-mail address than your current e-mail account., you can specify the e-mail address to unsubscribe with the appropriate command line sent to the List Manager address (lyris@tiacomm.org). The command line must be in the text of the e-mail message with the syntax: **unsubscribe *listname* e-mail address (e.g., unsubscribe fo61 john@address.com)**

   When you specify an e-mail address to unsubscribe, Lyris List Manager will generate an unsubscribe confirmation message, and send it to the address that is being unsubscribed. You will need to reply to that confirmation message (from any e-mail address) in order to be unsubscribed. This is a security precaution to ensure that people do not maliciously unsubscribe other people.

3. Sending e-mail to the reflector e-mail list

Send an e-mail to the reflector e-mail list, use the address of ***listname***@tiacomm.org (e.g., fo61@tiacomm.org). Note that attachments over 1.5 meg will be rejected by the system. Remember that all contributions are to be submitted though the appropriate channels (e.g., the electronic document coordinator).

Attachment 3 - Using FTP Sites

Instructions for Accessing TIA FO2/FO6 FTP Sites
Access to FO2.X and FO6.X Contributions

There are two ways to download files from the FTP sites
1. Using an FTP client software such as WSFTP or cuteFTP; and,
2. Using your Web browser

Note: By using an FTP client software, you will be able to download files from all of the FO6 committees without having to change ID and password (FO2 has its own ID and password). Using the WEB browser method still requires using the ID and Passwords for each of the committees.

1. When using FTP client software, use the following to login (use all lower case)
   a) the host name or address: **ftp.tiaonline.org**
   b) User ID: **fo61**
   c) Password: **1fo61**

2. Using your WEB browser:
   a) Start your web browser
   b) Enter URL **http://ftp.tiaonline.org** (This will take you directly to the TIA FTP site)
   c) Choose the FO2 or FO6 committee (this is the main directory for contributions) and enter the user name and password (all lower case).

For	Username	Password
FO2 (Systems)	tiafo2	1fo2
FO2.1 (Singlemode Systems)	tiafo21	1fo21
FO2.2 (Multimode Systems)	tiafo22	1fo22
FO6 (Components)	tiafo6	1fo6
FO6.1 (FO Test Equipment)	tiafo61	1fo61
FO6.3 (Passive Components)	tiafo63	1fo63
FO6.6 (Optical Fiber)	tiafo66	1fo66
FO6.7 (Optical Cable)	tiafo67	1fo67
FO6.3 (PMF Components)	tiafo69	1fo69

   d) Click “Download Files”
   e) Click on the directory you want:
   f) Select the document you want to download
   g) Click the “OK” button at the bottom of the browser window. This will bring up another window that lists the file you selected.

      Note: I find the easiest method to download from here is to **right** click the file and then use the “Save Target As” option and follow instructions from there.

The documents will be in Adobe PDF or Microsoft Word, PowerPoint, or Excel formats. If you do not have these software packages then viewers can be downloaded from the following websites:

- Adobe PDF viewer: http://www.adobe.com/acrobat/
- Microsoft Word and PowerPoint Viewers: http://support.microsoft.com/support/downloads/

Note: Anybody trying to access the FTP Site through a company firewall may have difficulty. If this is the case, talk to your Information Systems department to allow access.

Approved by General Counsel

FO-2 & FO-6 Meeting Report
Date: 01/11/01
Location: Palm Springs, CA

Approved: 04/06/01
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