

Agenda and General Information

IEEE P802.3bs 400GbE Task Force

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Kanata, Canada

IEEE 802.3 September Interim

Agenda

- Appointment of Recording Secretary
- Welcome and Introductions
- Approve Agenda
- Approve July 2014 Plenary Minutes
- Goals for this meeting
- Reflector and Web
- Patent Policy
- Ground Rules
- IEEE
 - Structure
 - Bylaws and Rules
 - Guidelines for IEEE-SA Meetings
 - IEEE Standards Process
- Project Documentation
- Liaisons & Communications
- Ad Hoc Reports
- Technical Presentations
- Motions and Closing Business
- Future Meetings

Task Force Decorum



- Photography or recording by permission only (2010 SASB Op Manual 5.3.3.4)
- Cell phone ringers off
- Press (i.e., anyone reporting publicly on this meeting) are to announce their presence (5.3.3.5)
- Wear your badges at all times in meeting areas
 - Help the hotel security staff improve the general security of the meeting rooms
 - **PCs HAVE BEEN STOLEN** at previous meetings
 - **DO NOT** assume that meeting areas are secure
- Please observe proper decorum in meetings

Goals for the meeting week

- Hear Technical Presentations / Proposals
- Identify Steps Moving Forward
- Address Multiple Technical Key Issues
 - Architecture
 - FEC
 - Electrical Interfaces: 16x25 vs 8x50 vs both
 - MMF PMDs
 - SMF PMDs
 - # of wavelengths and effective rate per lambda
 - Modulation schemes
 - Commonality between PMDs?

Attendance

- Tutorial Material on attendance tool
 - http://ieee802.org/3/minutes/attendance_procedures.pdf
- Access details
 - URL: <http://imat.ieee.org/>
 - (For plenary) Password will be provided

Reflector and Web

- To subscribe to the 400G reflector, send an email to:

ListServ@ieee.org

with the following in the body of the message (do not include “<>”):

*subscribe stds-802-3-400G <yourfirstname> <yourlastname>
end*

- Send 400G reflector messages to:

STDS-802-3-400G@listserv.ieee.org

- Task Force web page URL:

<http://www.ieee802.org/3/bs/index.html>

- Ad hoc area URL:

<http://www.ieee802.org/3/bs/public/adhoc/index.shtml>

-
- URL: <http://www.ieee802.org/3/bs/private/index.html>
 - Username: xxxxxx
 - Password: xxxxxxxx
 - Write it down...
 - Note - The draft, and any other content, is posted for your review only, and neither the content nor access information should be copied or redistributed to others in violation of document copyrights.

Instructions for the WG Chair

The IEEE-SA strongly recommends that at each WG meeting the chair or a designee:

- Show slides #1 through #4 of this presentation
- Advise the WG attendees that:
 - The IEEE's patent policy is described in Clause 6 of the *IEEE-SA Standards Board Bylaws*;
 - Early identification of patent claims which may be essential for the use of standards under development is strongly encouraged;
 - There may be Essential Patent Claims of which the IEEE is not aware. Additionally, neither the IEEE, the WG, nor the WG chair can ensure the accuracy or completeness of any assurance or whether any such assurance is, in fact, of a Patent Claim that is essential for the use of the standard under development.
- Instruct the WG Secretary to record in the minutes of the relevant WG meeting:
 - That the foregoing information was provided and that slides 1 through 4 (and this slide 0, if applicable) were shown;
 - That the chair or designee provided an opportunity for participants to identify patent claim(s)/patent application claim(s) and/or the holder of patent claim(s)/patent application claim(s) of which the participant is personally aware and that may be essential for the use of that standard
 - Any responses that were given, specifically the patent claim(s)/patent application claim(s) and/or the holder of the patent claim(s)/patent application claim(s) that were identified (if any) and by whom.
- The WG Chair shall ensure that a request is made to any identified holders of potential essential patent claim(s) to complete and submit a Letter of Assurance.
- It is recommended that the WG chair review the guidance in *IEEE-SA Standards Board Operations Manual* 6.3.5 and in FAQs 12 and 12a on inclusion of potential Essential Patent Claims by incorporation or by reference.

Note: **WG** includes Working Groups, Task Groups, and other standards-developing committees with a PAR approved by the IEEE-SA Standards Board.



Participants, Patents, and Duty to Inform

All participants in this meeting have certain obligations under the IEEE-SA Patent Policy.

- **Participants [Note: Quoted text excerpted from IEEE-SA Standards Board Bylaws subclause 6.2]:**
 - **“Shall inform the IEEE (or cause the IEEE to be informed)” of the identity of each “holder of any potential Essential Patent Claims of which they are personally aware” if the claims are owned or controlled by the participant or the entity the participant is from, employed by, or otherwise represents**
 - **“Personal awareness” means that the participant “is personally aware that the holder may have a potential Essential Patent Claim,” even if the participant is not personally aware of the specific patents or patent claims**
 - **“Should inform the IEEE (or cause the IEEE to be informed)” of the identity of “any other holders of such potential Essential Patent Claims” (that is, third parties that are not affiliated with the participant, with the participant’s employer, or with anyone else that the participant is from or otherwise represents)**
- **The above does not apply if the patent claim is already the subject of an Accepted Letter of Assurance that applies to the proposed standard(s) under consideration by this group**
- **Early identification of holders of potential Essential Patent Claims is strongly encouraged**
- **No duty to perform a patent search**

Patent Related Links

All participants should be familiar with their obligations under the IEEE-SA Policies & Procedures for standards development.

Patent Policy is stated in these sources:

IEEE-SA Standards Boards Bylaws

<http://standards.ieee.org/develop/policies/bylaws/sect6-7.html#6>

IEEE-SA Standards Board Operations Manual

<http://standards.ieee.org/develop/policies/opman/sect6.html#6.3>

Material about the patent policy is available at

<http://standards.ieee.org/about/sasb/patcom/materials.html>

If you have questions, contact the IEEE-SA Standards Board Patent Committee Administrator at patcom@ieee.org or visit <http://standards.ieee.org/about/sasb/patcom/index.html>

This slide set is available at
<https://development.standards.ieee.org/myproject/Public/mytools/mob/slideset.ppt>



Call for Potentially Essential Patents

- If anyone in this meeting is personally aware of the holder of any patent claims that are potentially essential to implementation of the proposed standard(s) under consideration by this group and that are not already the subject of an Accepted Letter of Assurance:
 - Either speak up now or
 - Provide the chair of this group with the identity of the holder(s) of any and all such claims as soon as possible or
 - Cause an LOA to be submitted

Other Guidelines for IEEE WG Meetings

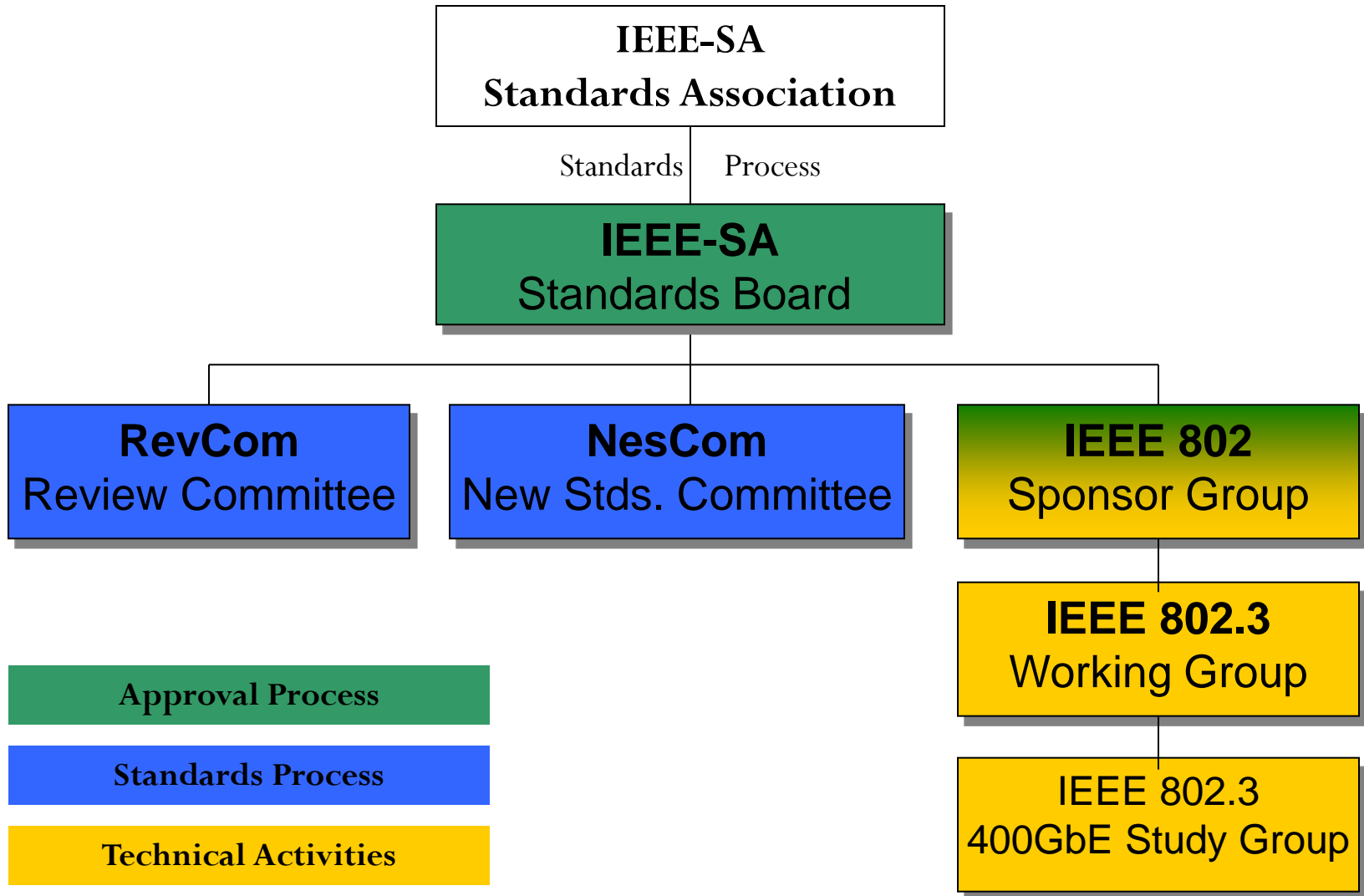
- **All IEEE-SA standards meetings shall be conducted in compliance with all applicable laws, including antitrust and competition laws.**
 - **Don't discuss the interpretation, validity, or essentiality of patents/patent claims.**
 - **Don't discuss specific license rates, terms, or conditions.**
 - Relative costs, including licensing costs of essential patent claims, of different technical approaches may be discussed in standards development meetings.
 - Technical considerations remain primary focus
 - **Don't discuss or engage in the fixing of product prices, allocation of customers, or division of sales markets.**
 - **Don't discuss the status or substance of ongoing or threatened litigation.**
 - **Don't be silent if inappropriate topics are discussed ... do formally object.**

See *IEEE-SA Standards Board Operations Manual*, clause 5.3.10 and “Promoting Competition and Innovation: What You Need to Know about the IEEE Standards Association's Antitrust and Competition Policy” for more details.

Ground Rules

- Based upon IEEE 802.3 Rules
 - Foundation based upon Robert's Rules of Order
 - Anyone in the room may speak
 - Anyone in the room may vote
- **RESPECT**... give it, get it
- NO product pitches
- NO corporate pitches
- NO prices!!!
 - This includes costs, ASPs, etc. no matter what the currency
- NO restrictive notices

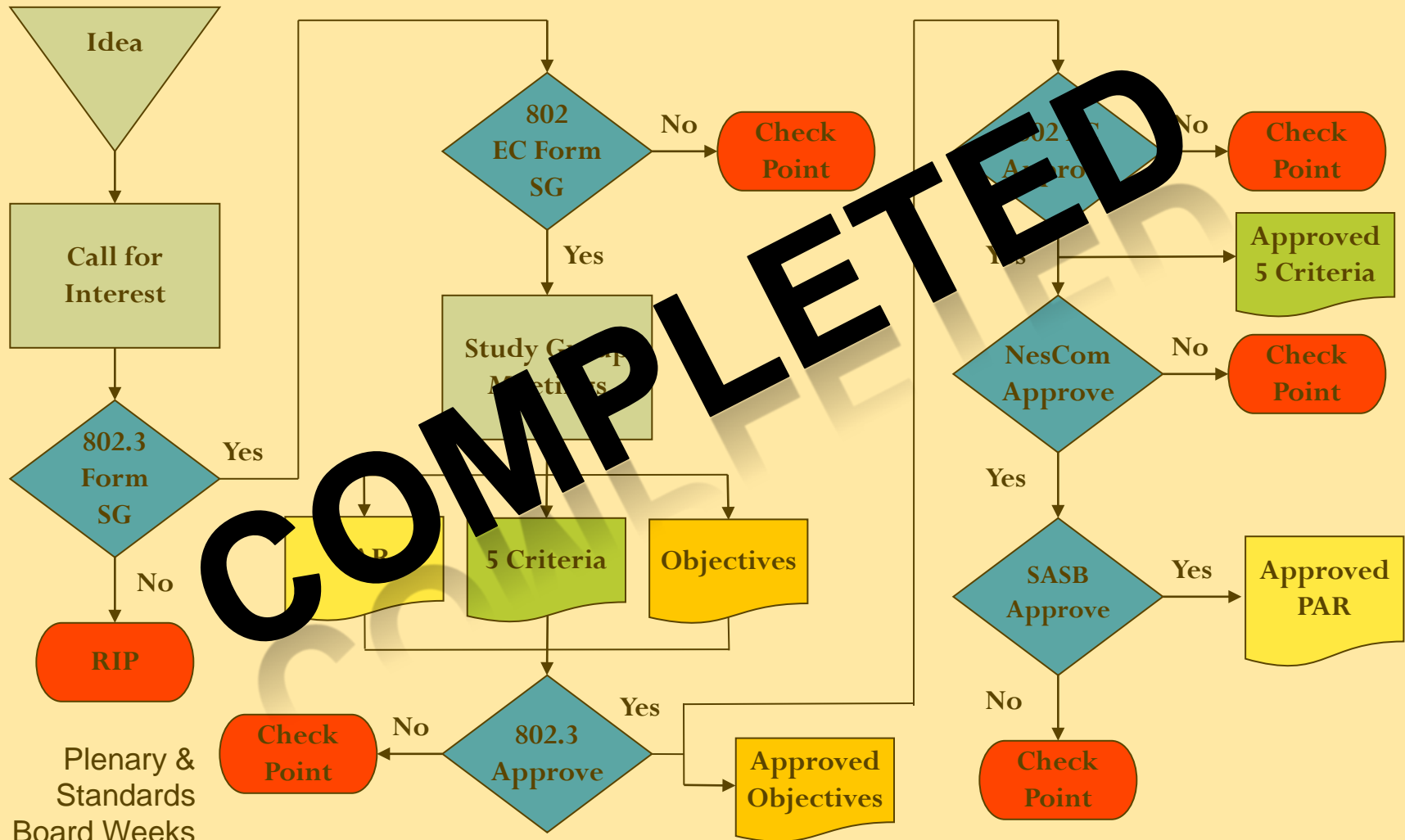
IEEE Structure



Important Bylaws, Rules, & References

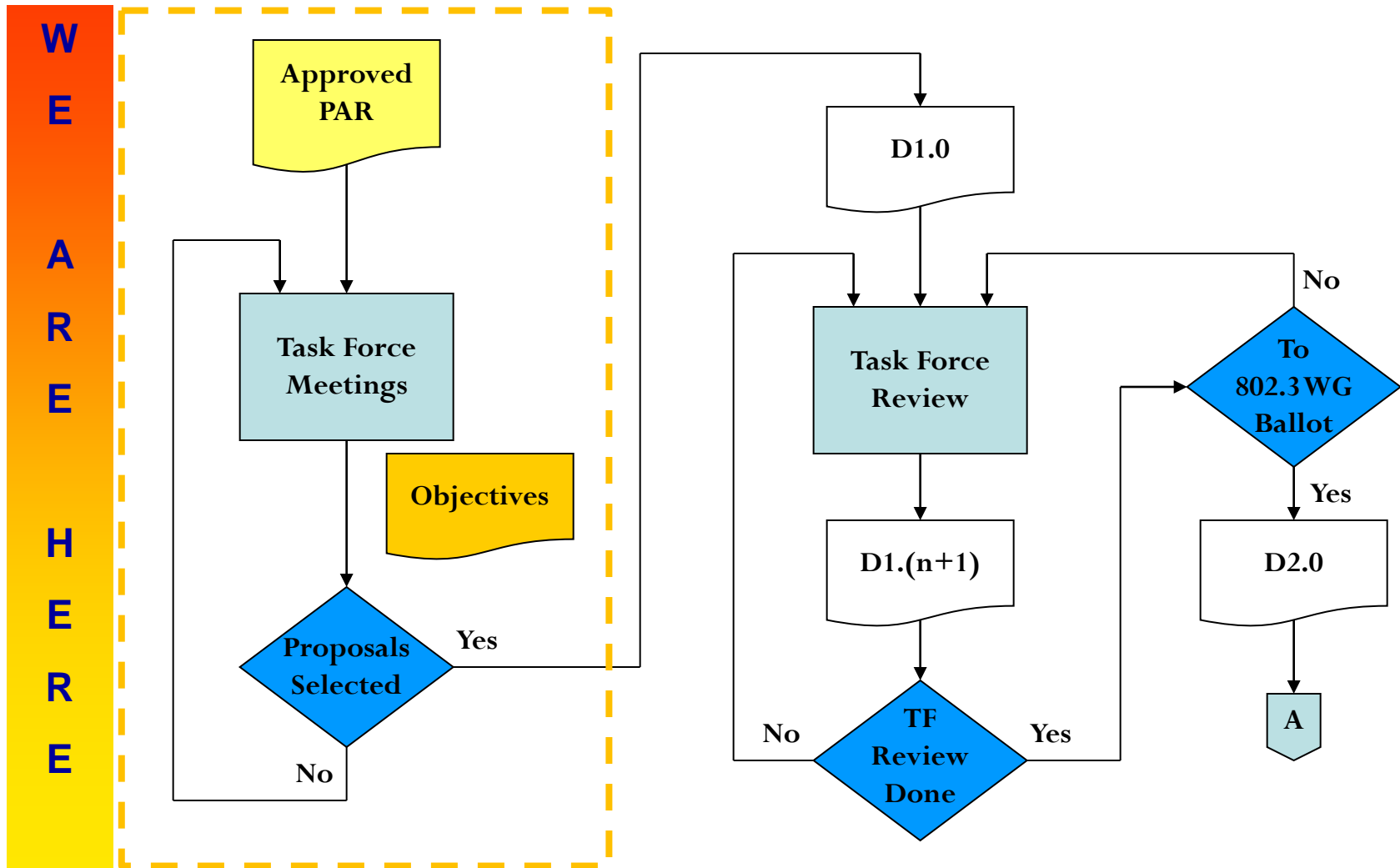
- **IEEE-SA Operations Manual**
<http://standards.ieee.org/sa/sa-om.pdf>
- **IEEE-SA Standards Board Bylaws**
<http://standards.ieee.org/guides/bylaws/sb-bylaws.pdf>
- **IEEE-SA Standards Board Operations Manual**
<http://standards.ieee.org/guides/opman/sb-om.pdf>
- **IEEE 802 LAN/MAN Standards Committee (LMSC) Policies and Procedures**
<http://standards.ieee.org/about/sasb/audcom/pnp/LMSC.pdf>
- **IEEE 802 LAN/MAN Standards Committee (LMSC) Operations Manual**
http://www.ieee802.org/PNP/2010-07/IEEE_802_LMSC_OM_approved_100716.pdf
- **IEEE 802 LAN/MAN Standards Committee (LMSC) Working Group (WG) Policies and Procedures**
http://www.ieee802.org/PNP/2010-07/IEEE_802_LMSC_WG_PandP_approved_100716.pdf
- **IEEE 802.3 Working Group Operating Rules**
http://ieee802.org/3/rules/P802_3_rules.pdf
- **“Promoting Competition and Innovation: What You Need to Know about the IEEE Standards Association's Antitrust and Competition Policy”**
<http://standards.ieee.org/develop/policies/antitrust.pdf>

Overview of IEEE 802.3 Standards Process (1/5)- Study Group Phase

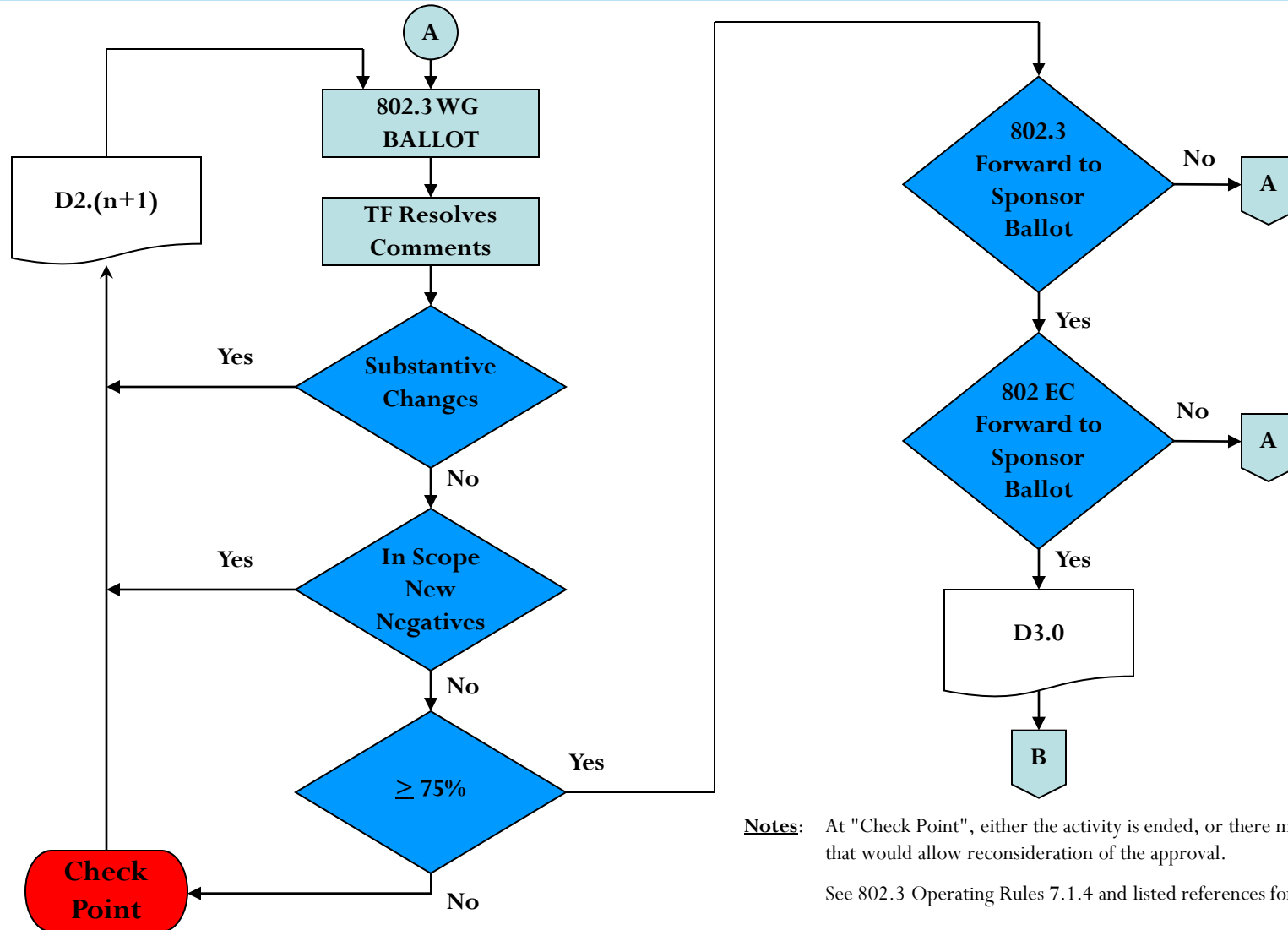


Note: At "Check Point", either the activity is ended, or there may be various options that would allow reconsideration of the approval.

Overview of IEEE 802.3 Standards Process (2/5) – Task Force Comment Phase



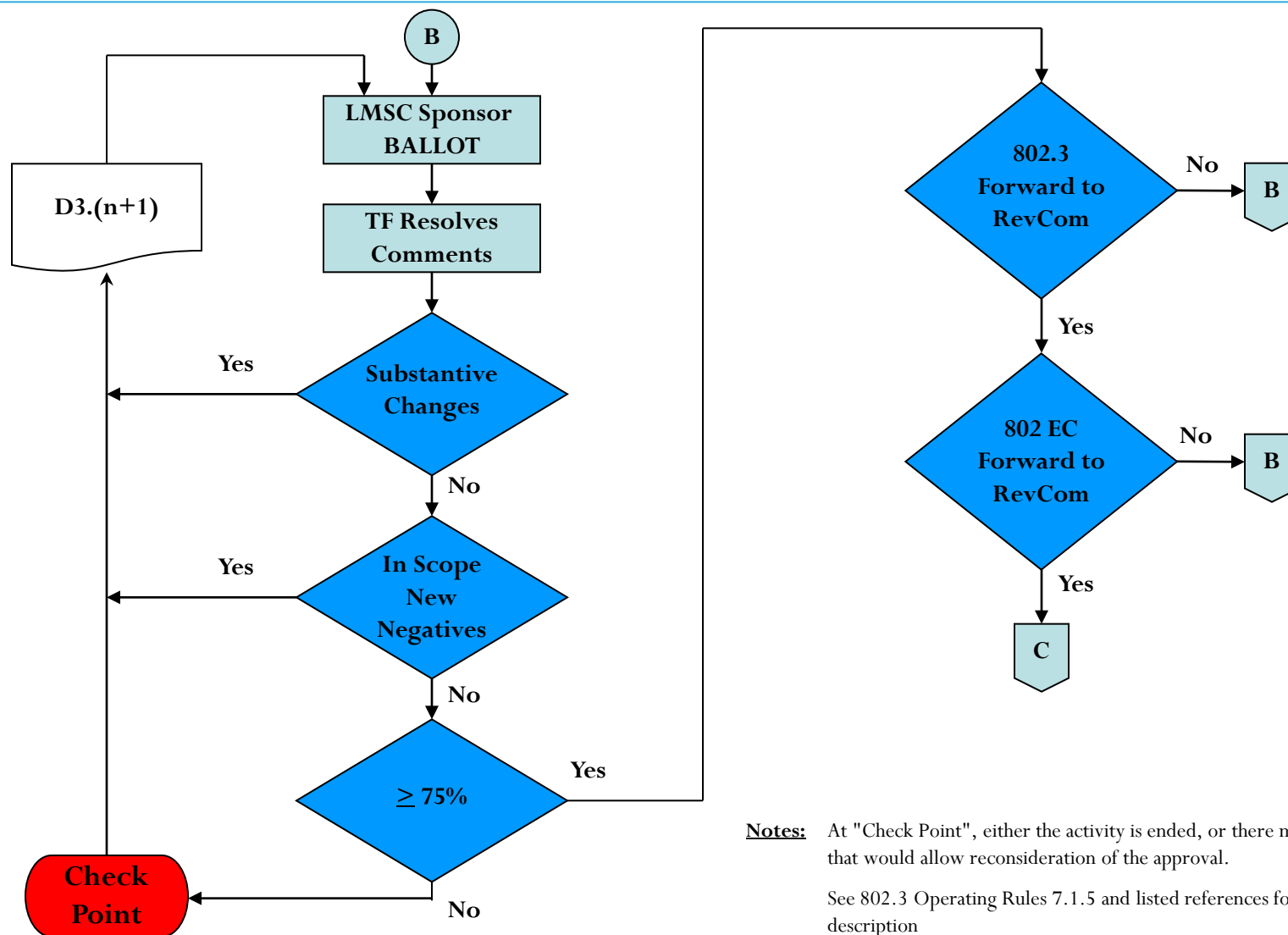
Overview of IEEE 802.3 Standards Process (3/5) – Working Group Ballot Phase



Notes: At "Check Point", either the activity is ended, or there may be various options that would allow reconsideration of the approval.

See 802.3 Operating Rules 7.1.4 and listed references for complete description

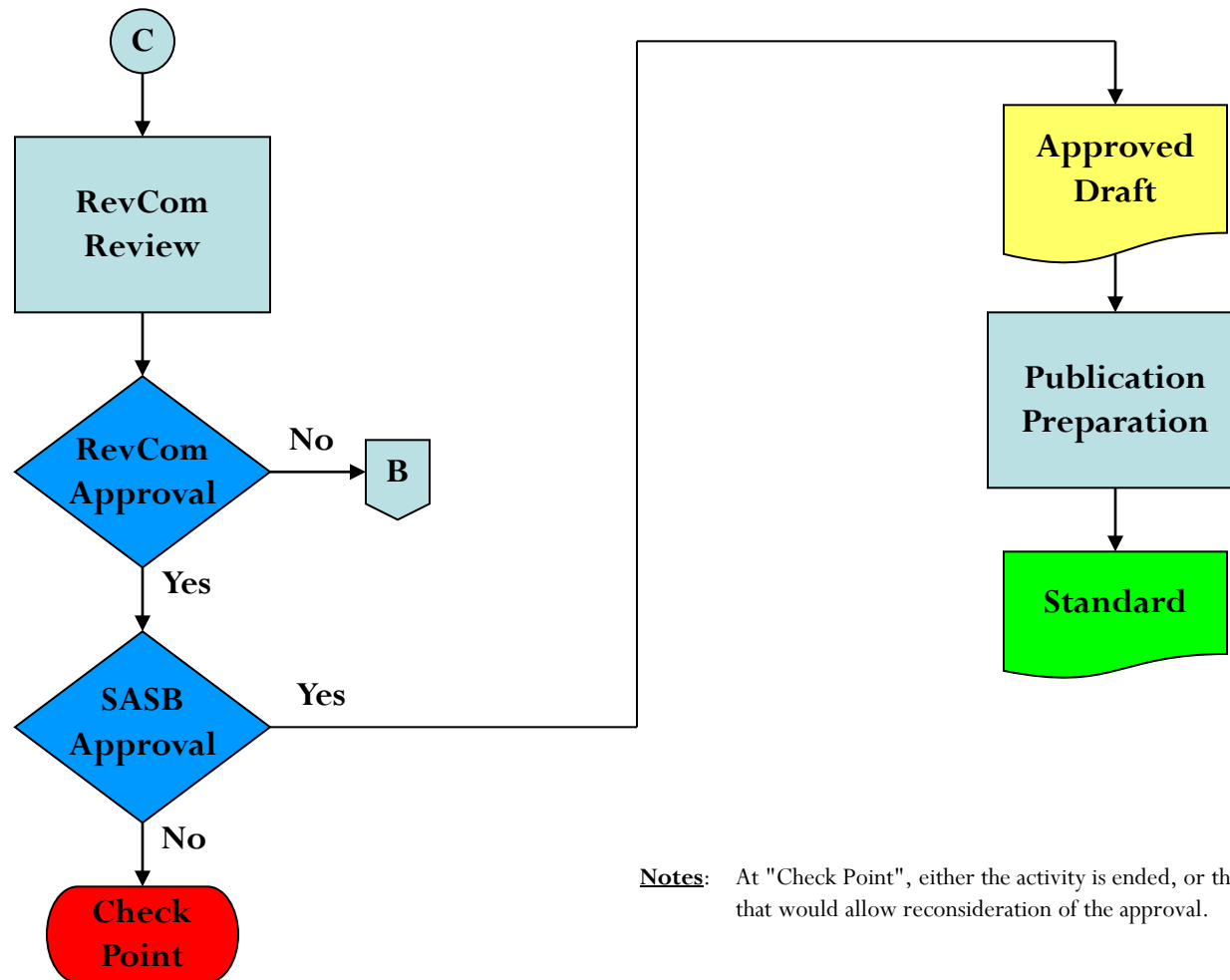
Overview of IEEE 802.3 Standards Process (4/5)- Sponsor Ballot Phase



Notes: At "Check Point", either the activity is ended, or there may be various options that would allow reconsideration of the approval.

See 802.3 Operating Rules 7.1.5 and listed references for complete description

Overview of IEEE 802.3 Standards Process (5/5) – Final Approvals / Standard Release



Notes: At "Check Point", either the activity is ended, or there may be various options that would allow reconsideration of the approval.

Project Documentation

- **PAR -**

http://www.ieee802.org/3/bs/PAR_P802.3bs_14_0612.pdf

- **CSD -**

http://www.ieee802.org/3/bs/CSD_400_14_0121.pdf

- **Objectives -**

http://www.ieee802.org/3/bs/Objectives_14_0320.pdf

- **Timeline -**

http://www.ieee802.org/3/bs/timeline_3bs_0514.pdf

Project Objectives

- Support a MAC data rate of 400 Gb/s
- Support a BER of better than or equal to 10^{-13} at the MAC/PLS service interface (or the frame loss ratio equivalent)
- Support full-duplex operation only
- Preserve the Ethernet frame format utilizing the Ethernet MAC
- Preserve minimum and maximum FrameSize of current Ethernet standard
- Provide appropriate support for OTN
- Specify optional Energy Efficient Ethernet (EEE) capability for 400 Gb/s PHYs
- Support optional 400 Gb/s Attachment Unit Interfaces for chip-to-chip and chip-to-module applications
- Provide physical layer specifications which support link distances of:
 - At least 100 m over MMF
 - At least 500 m over SMF
 - At least 2 km over SMF
 - At least 10 km over SMF

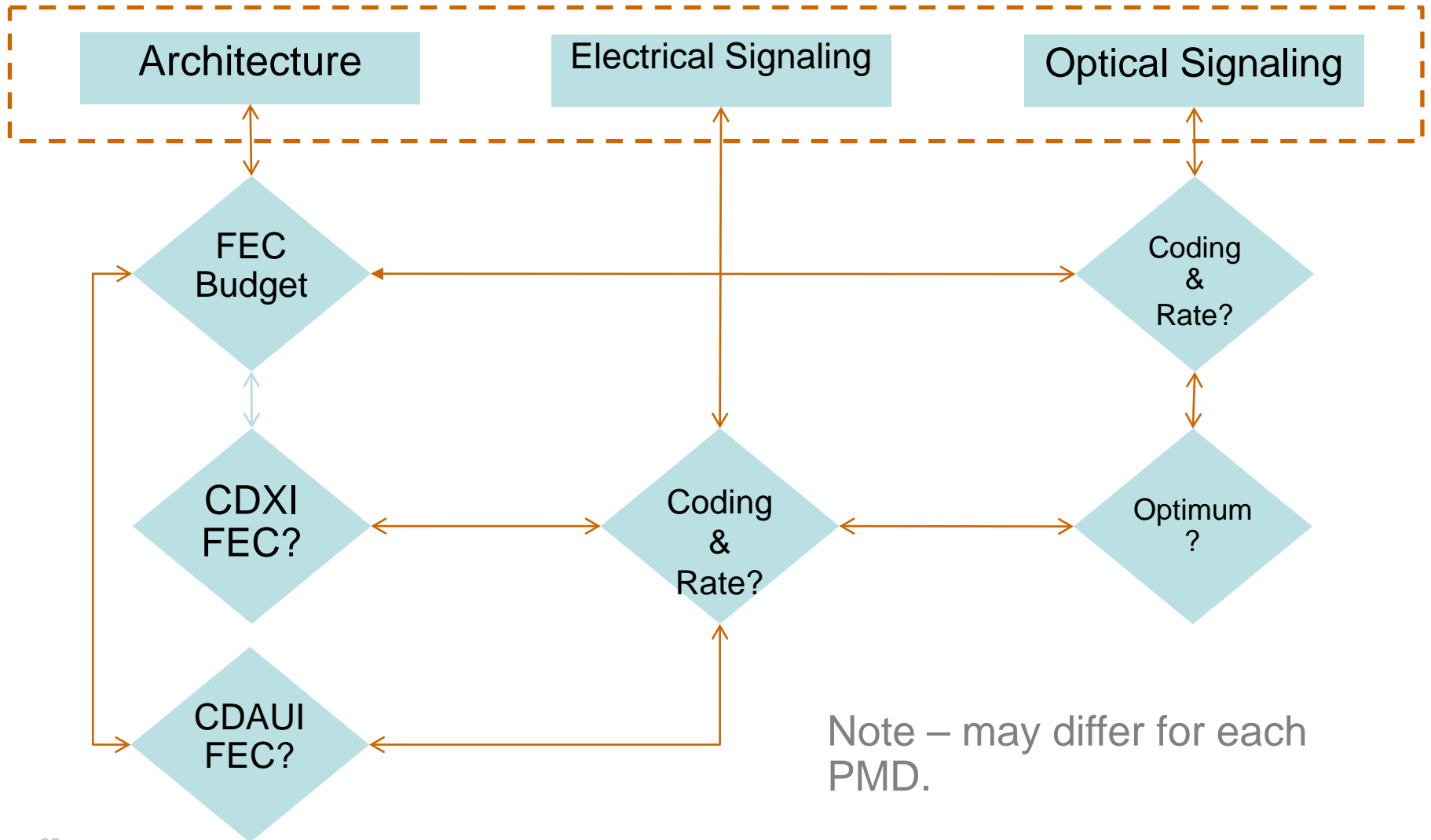
Liaisons and Communications

- Consider response from OIF on CEI-56G projects
 - http://www.ieee802.org/3/minutes/nov14/incoming/OIF_to_IEEE_P802.3bs_Aug_2014.pdf

Ad Hoc Report

- Webpage: Ad Hoc
 - <http://www.ieee802.org/3/bs/public/adhoc/index.shtml>
- Ad Hoc
 - Logic, Chair – Mark Gustlin
 - Use Case, Chair – Gary Nicholl
 - SMF, Chair – Pete Anslow
 - MMF, Chair – Jonathan King

Interrelations Between Technical Decisions



Monday

Notes – Tues Start time pending completion of 802.3bm. All times listed are subject to change.

Time	Presenter	Affiliation	Title	File Name
9:00 AM	John D'Ambrosia	Dell	Agenda and General Information	agenda_3bs_01_0914.pdf
9:30 AM	Nathan Tracy	TE Connectivity	Liaison from OIF to 802.3bs, CEI-56G Projects	OIF_to_IEEE_P802.3bs_Aug_2014.pdf
9:35 AM	Mark Gustlin	Xilinx	Logic Ad hoc Updates	gustlin_3bs_01_0914.pdf
9:45 AM	Pete Anslow	Ciena	SMF Ad Hoc Updates	anslow_3bs_01_0914.pdf
9:55 AM	Jonathan King	Finisar	MMF Ad Hoc Updates	king_3bs_01_0914.pdf
10:05 AM	Break			
10:25 AM	John D'Ambrosia	Dell	Addressing 2km SMF Objective	dambrosia_3bs_01_0914.pdf
10:40 AM	Joel Goergen	Cisco	25Gb/s and 50Gb/s Electrical Interface Consensus Building	goergen_3bs_01_0914.pdf
11:10 AM	Steve Trowbridge	Alcatel-Lucent	OTN Support Update	trowbridge_3bs_01_0914.pdf
11:30 AM	Pete Anslow	Ciena	FEC performance on multi-part links	anslow_3bs_02_0914
12:00 PM	Lunch			
1:15 PM	Zhongfent Wang	Broadcom	FEC Considerations for 400GbE	wang_z_3bs_01_0914.pdf
1:35 PM	Tongtong Wang	Huawei	FEC performance analysis for 400GbE with FOM Bitmux	wang_t_3bs_01_0914.pdf
1:50 PM	Paul Kolesar	Commscope	400GBASE-SR16 cabling	kolesar_3bs_01_0914.pdf
2:10 PM	Ali Ghiasi	Ghiasi Quantum LLC	Path to Consensus on the 400 GbE PMDs	ghiasi_3bs_01_0914.pdf
2:30 PM	Yoshiaki Sone	NTT	Technology comparison matrix for duplex SMF PMDs	sone_3bs_01_0914.pdf
2:50 PM	Chris Cole	Finisar	Ideal SNR Penalties	cole_3bs_01_0914.pdf
3:10 PM	Break			
3:30 PM	Chris Cole	Finisar	Optical Specifications of SMF PMDs Study	cole_3bs_02_0914.pdf
3:50 PM	Discussion & Strawpolls			
5:30 PM	Break			

Tuesday

Note –Times listed are subject to change.

9:00 AM	John D'Ambrosia	Dell	Opening comments	
9:10 AM	Peter Stassar	Huawei	SMF PMD Decision Tree Status	stassar_3bs_01_0914.pdf
9:40 AM	Yangjing Wen	Huawei	Experimental Verification of 56Gbps NRZ Performance for 400GbE 2km and 10km PMD	wen_3bs_01_0914.pdf
10:00 AM	Mizuki Shirao	Mitsubishi	Consideration of 50G NRZ optical components for 400GbE PMD	shirao_3bs_01_0914.pdf
10:20 AM	Break			
10:35 AM	Gary Nicholl	Cisco	The case for a 4 Lane 400Gb/s SMF PMD	nicholl_3bs_01_0914.pdf
10:55 AM	Greg LeCheminant	Keysight Technologies	DMT measurement considerations part 2: Receivers	lecheminant_3bs_01_0914.pdf
11:15 AM	Tomoo Takahara	Fujitsu Optical Components	Discussion of 400GbE DMT level diagram for realistic implementation	takahara_3bs_01_0914.pdf
11:35 AM	Toshiki Tanaka	Fujitsu	400GbE DMT Tolerance to MPI	tanaka_3bs_01_0914.pdf
11:45 AM	David Lewis	JDSU	Practical Demonstration of live-traffic Optical DMT Link using	lewis_3bs_01_0914.pdf
12:05 PM	Lunch			
1:20 PM	Mizuki Shirao	Mitsubishi	Consideration of 50G NRZ optical components for 400GbE PMD	shirao_3bs_01_0914.pdf
1:30 PM	Brian Welch	Luxtera	400G-PSM4: Design and Specification Exercises	welch_3bs_01_0914.pdf
1:50 PM	Ram Rao	Oclaro	400GbE using Nyquist PAM4 for 2km and 10km PMD	rao_3bs_01_0914.pdf
2:10 PM	Keith Conroy	Multi-Phy	PAM-4 Four Wavelength 400G solution on Duplex SMF	conroy_3bs_01_0914.pdf
2:30 PM	Alan Tipper	Semtech	100Gb/s/lambda PAM4: Component Perspective	tipper_3bs_01_0914.pdf
2:50 PM	Winston Way	Neophotonics	Single wavelength 112Gb/s PAM4 over 10km experiment using a 1.3um EML	way_3bs_01_0914.pdf
3:10 PM	Break			
3:30 PM	Riu Hirai	Hitachi	Feasibility study of 100G/lambda Nyquist-PAM4 with commercially available 1.3um/1.5um EML	hirai_3bs_01_0914.pdf
3:50 PM	Gary Nicholl	Cisco	Experimental measurements showing technical feasibility for a 56Gbaud PAM4 optical link budget.	mazzini_3bs_01_0914.pdf
4:10 PM	Discussion & Strawpolls			
6:00 PM	Break for day			

Wednesday

Note –Times listed are subject to change.

9:00 AM	John D'Ambrosia	Dell	Opening Comments	
9:30 AM	Discussion, Strawpolls, Motions			
10:00 AM	Break			
10:20 AM	Discussion, Strawpolls, Motions			
11:30 AM	Closing Business			
12:00 PM	Adjourn			

Future Meetings

- See: <http://www.ieee802.org/3/interims/index.html>
- **Nov 2014 Plenary**
 - Week of November 2
 - Grand Hyatt San Antonio, San Antonio, TX, USA
- **Jan 2015 Interim**
 - Week of Jan 12
 - Hyatt Regency, Atlanta, GA, USA
- **Mar 2015 Plenary**
 - Week of Mar 8
 - Estrel Hotel and Convention Center, Berlin, Germany
- **May 2015 Interim**
 - Week of May 18, 2015
 - Omni William Penn Hotel, Pittsburgh, PA, USA
- **July 2015 Plenary**
 - Week of July 12
 - Hilton Waikoloa Village

- Anyone interested in hosting a meeting or webex contact me.

Thank You!