

# Agenda and General Information

IEEE P802.3bs 400GbE Task Force

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Pittsburgh, PA, USA

IEEE 802.3 May 2015 Interim

# Agenda

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- Welcome and Introductions
- Approve Agenda
- Approve Mar 2015 Interim 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
- Review of BTI Activities
- Liaisons & Communications
- Chief Editor's Report
- Ad Hoc Reports
- Technical Presentations
- Motions and Closing Business
- Future Meetings

# Task Force Decorum

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- 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

# Attendance

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- Tutorial Material on attendance tool
  - [http://www.ieee802.org/3/minutes/mar15/0315\\_imat.pdf](http://www.ieee802.org/3/minutes/mar15/0315_imat.pdf)
- Attendance books
  - Keeps track of attendance in room
  - Used to support requests to verify attendance by chair if IMAT not used.

# Goals for the meeting week

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- Technical Presentations
- Assess Resolution of Big Ticket Items (BTIs)
- Make Decisions
- Re-evaluate timeline

# Reflector and Web

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

[ListServ@ieee.org](mailto: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](mailto: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>

# Private Area

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- URL: <http://www.ieee802.org/3/bs/private/index.html>
  - Username: xxxxxx
  - Password: xxxxxx
- 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 14 and 15 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
  - “Should inform the IEEE (or cause the IEEE to be informed)” of the identity of “any other holders of 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](mailto: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.**

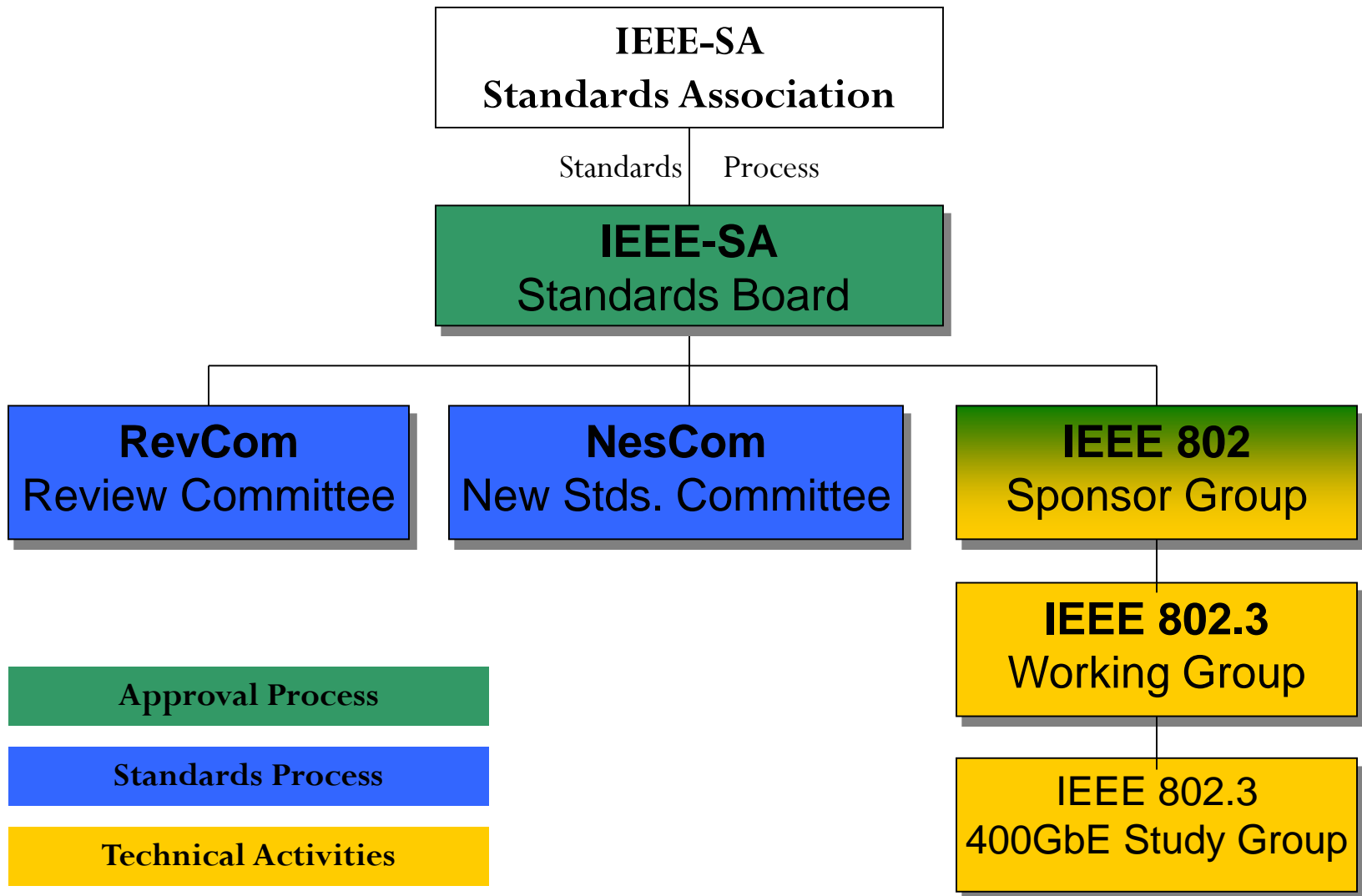
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See *IEEE-SA Standards Board Operations Manual*, clause 5.3.10 and “Promoting Competition and Innovation: What You Need to Know about the IEEE Standards Association’s Antitrust and Competition Policy” for more details.

# Ground Rules

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- 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

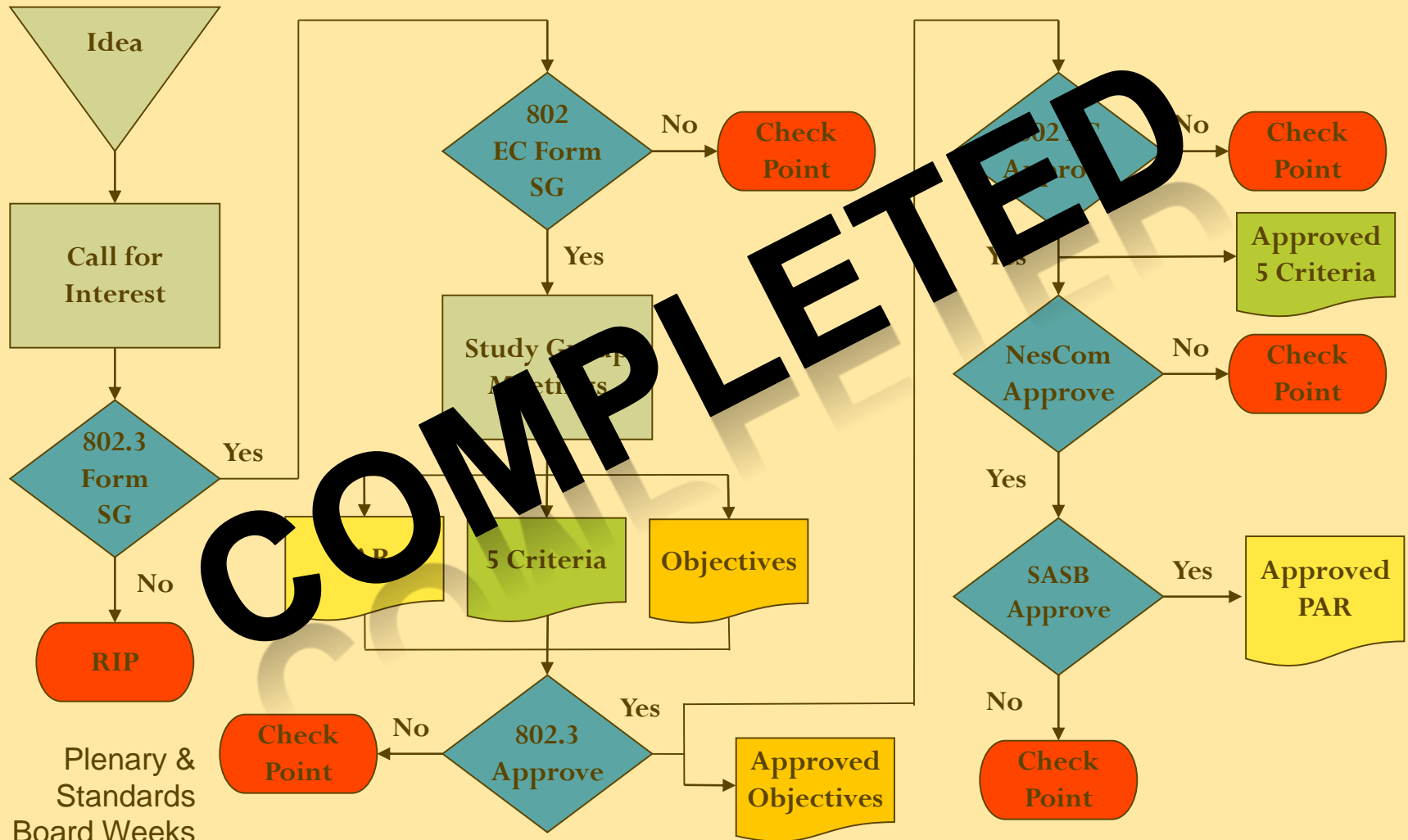


# Important Bylaws, Rules, & References

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- **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](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](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](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>

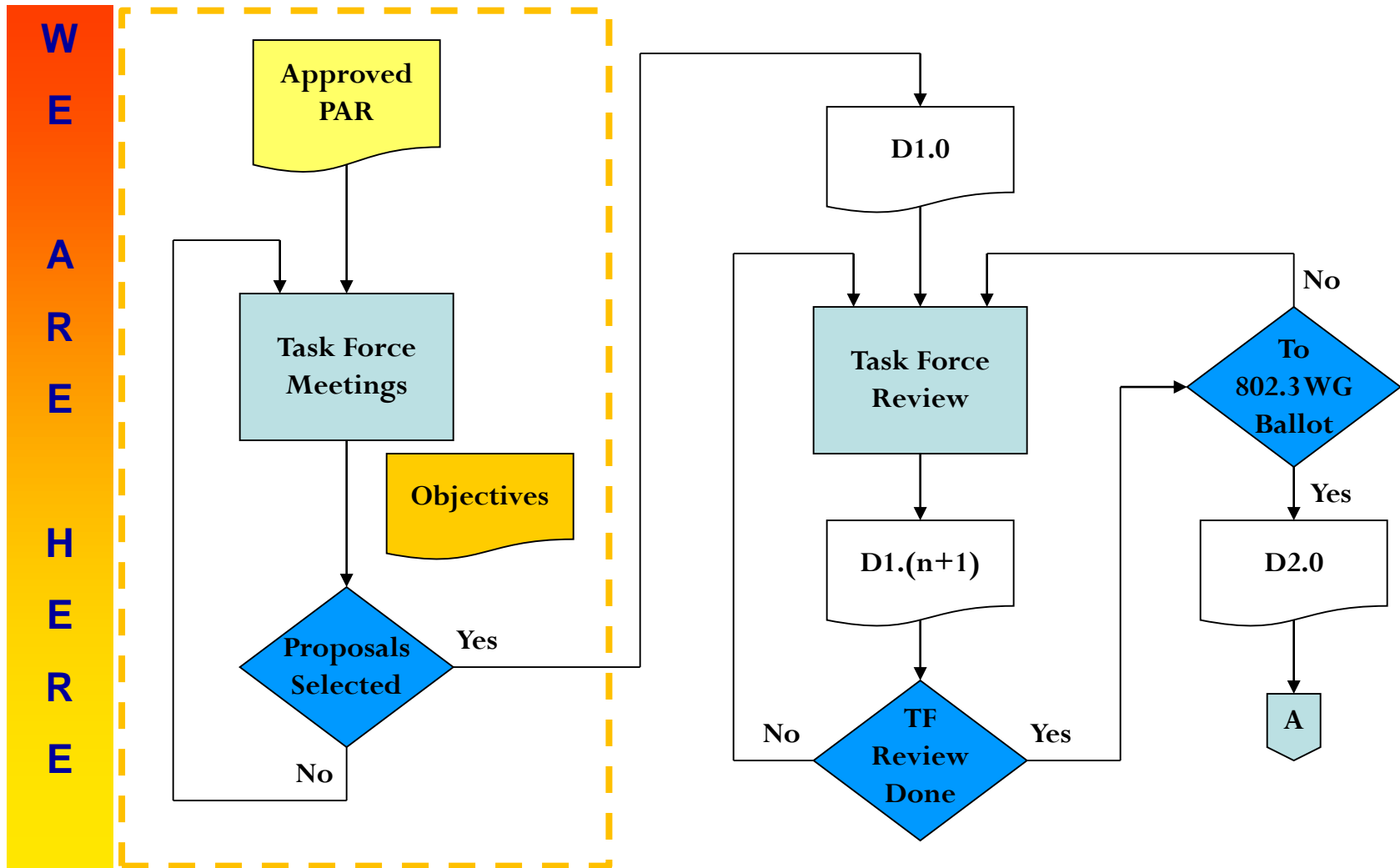
# Overview of IEEE 802.3 Standards Process (1/5)- Study Group Phase



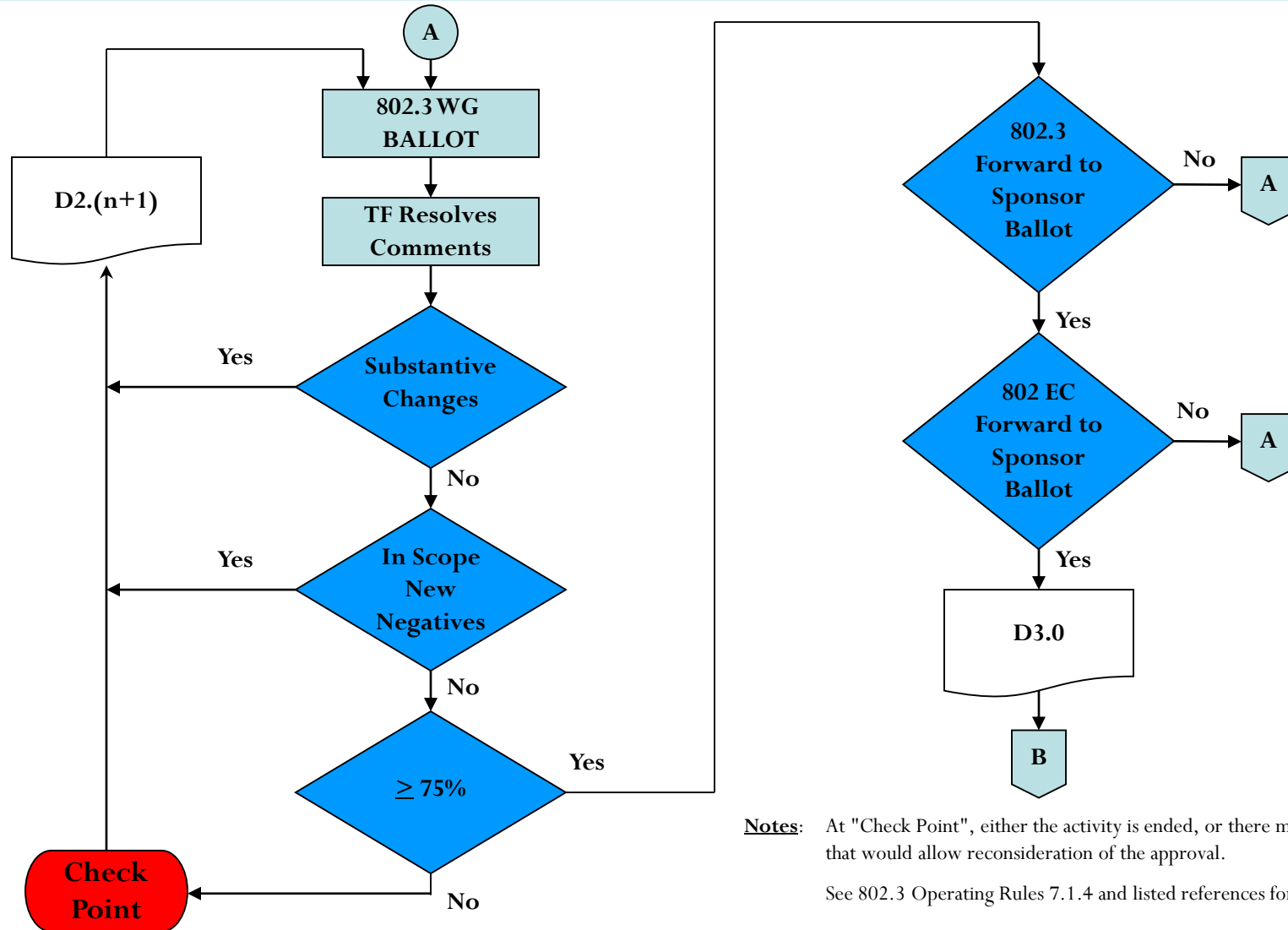
Note: At "Check Point", either the activity is ended, or there may be various options that would allow reconsideration of the approval.



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



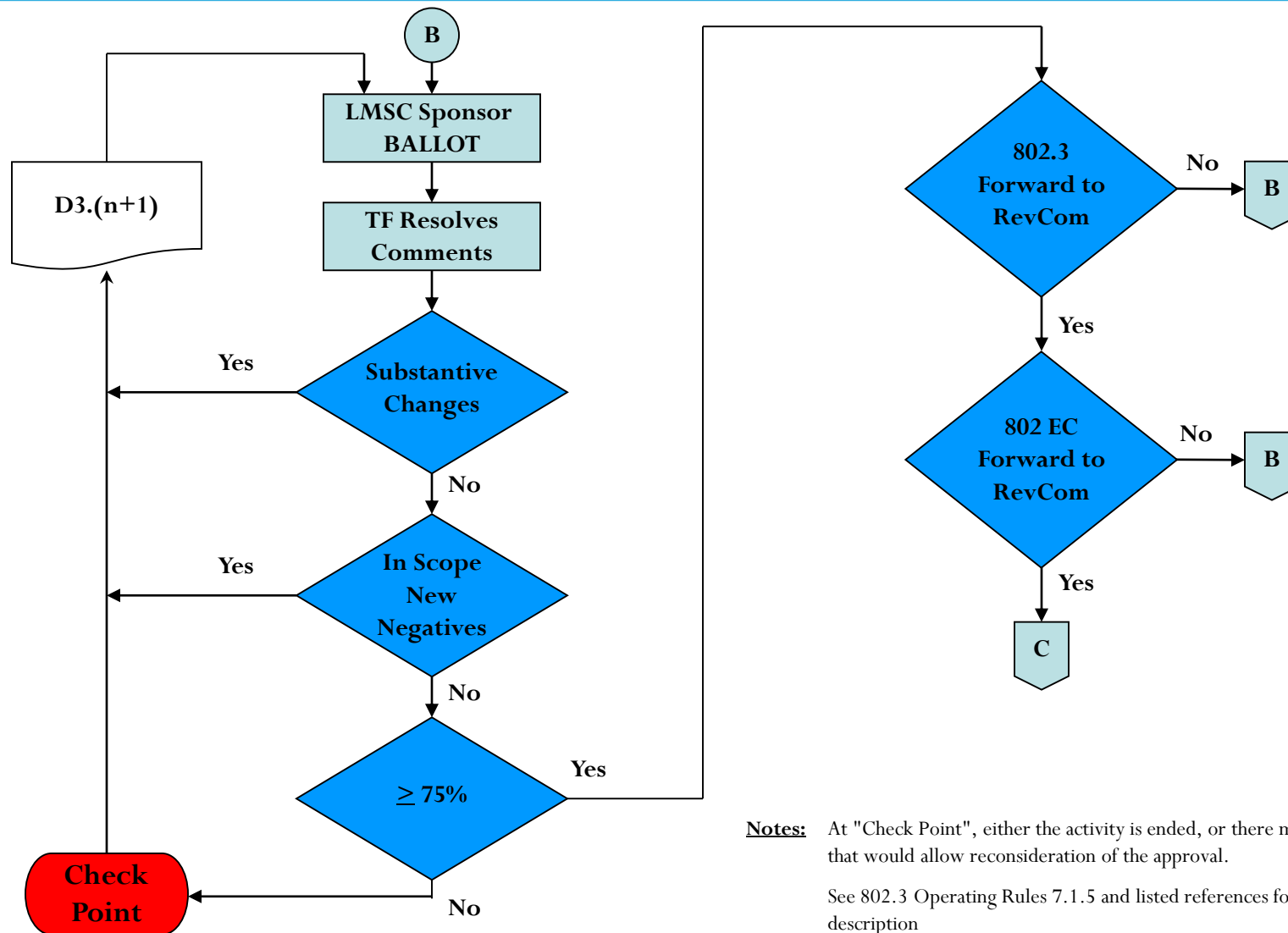
# Overview of IEEE 802.3 Standards Process (3/5) – Working Group Ballot Phase



**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

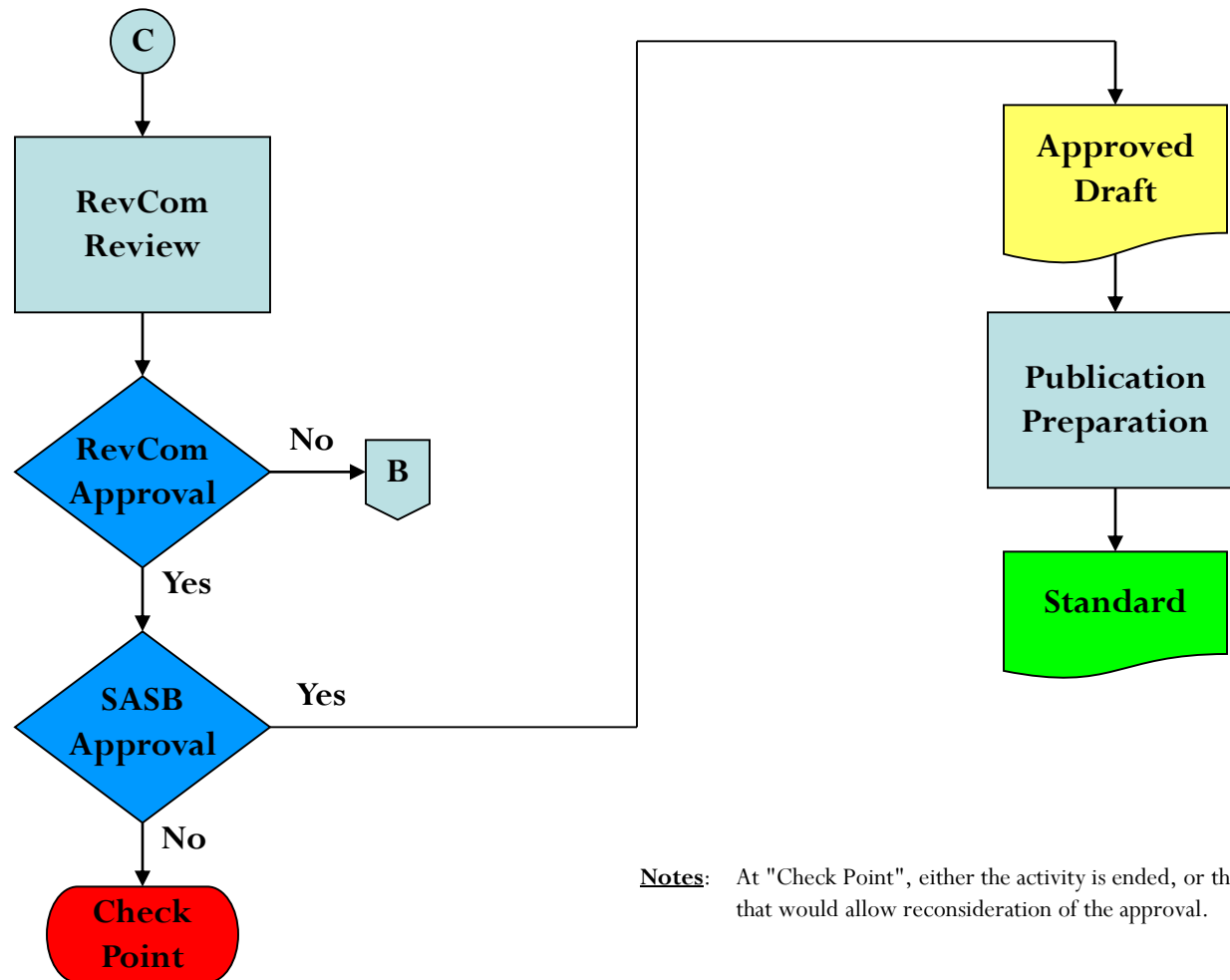
# Overview of IEEE 802.3 Standards Process (4/5)- Sponsor Ballot Phase



**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

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- **PAR -**

[http://www.ieee802.org/3/bs/PAR\\_P802.3bs\\_14\\_0612.pdf](http://www.ieee802.org/3/bs/PAR_P802.3bs_14_0612.pdf)

- **CSD -**

[http://www.ieee802.org/3/bs/CSD\\_400\\_14\\_0121.pdf](http://www.ieee802.org/3/bs/CSD_400_14_0121.pdf)

- **Objectives -**

[http://www.ieee802.org/3/bs/Objectives\\_14\\_0320.pdf](http://www.ieee802.org/3/bs/Objectives_14_0320.pdf)

- **Timeline -**

[http://www.ieee802.org/3/bs/timeline\\_3bs\\_0514.pdf](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

# BTI Progress

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- Progress from March meeting summarized in [http://www.ieee802.org/3/bs/public/15\\_03/bti\\_3bs\\_01\\_0315.pdf](http://www.ieee802.org/3/bs/public/15_03/bti_3bs_01_0315.pdf)
- Will be reviewed again this meeting.

# Liaisons and Communications

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- OIF Liaison –
  - Progress on OIF CEI-56 Projects



# Ad Hoc

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- 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
  - Electrical Interface, Co-chair – Joel Goergen,  
Co-chair – Vasu Parthasarathy

# Monday

All times listed are subject to change.

Time	Presenter	Affiliation	Title	File Name
8:30 AM	John D'Ambrosia	Dell	Agenda and General Information	agenda_3bs_01_0515.pdf
9:00 AM	Pete Anslow	Ciena	Chief Editor's Report	anslow_3bs_01_0515.pdf
9:20 AM	Pete Anslow	Ciena	SMF Ad Hoc Updates	anslow_3bs_02_0515.pdf
9:25 AM	Mark Gustlin	Xilinx	Logic Ad hoc Updates	gustlin_3bs_01_0515.pdf
9:30 AM	Jonathan King	Finisar	MMF Ad Hoc Updates	king_3bs_01_0515.pdf
9:35 AM	Tomoo Takahara	Fujitsu Optical	Experimental validation of compatibility for heterogeneous DMT transmitters	takahara_3bs_01_0515.pdf
10:05 AM	Break			
10:25 AM	Mizuki Shirao	Mitsubishi	8x50G NRZ Baseline Update	shirao_3bs_03_0515.pdf
10:55 AM	Atsushi Takai	Oclaro	BTI Supporting Data for 8x50G NRZ	takai_3bs_01_0515.pdf
11:25 AM	Brian Welch	Luxtera	400G-PSM4: A Proposal for the 500m Objective using 100 Gb/s per Lane Signaling	welch_3bs_01_0515.pdf
12:00 PM	Lunch			
1:00 PM	David Lewis	JDSU	Proposal for 400GE Optical PMD for 2km SMF Objective based on 4 x 100G PAM4	lewis_3bs_01_0515.pdf
1:30 PM	Alan Tipper	Semtech	100Gb/s/Lambda PAM4 - Status of BTIs	tipper_3bs_01_0515.pdf
2:00 PM	Winston Way	NeoPhotonics	4x100G PAM4 Big Ticket Item: Dispersion Penalty Worst Case	way_3bs_01_0515.pdf
2:30 PM	Keith Conroy	MultiPhy	120Gb/s/Lambda PAM4 2km MZM Experimental Results	conroy_3bs_01_0515.pdf
3:00 PM	Break			
3:20 PM	Ali Ghiasi	Ghiasi Quantum	400GBase-LR8: A Proposal for 10 km Objective Using 50 Gb/s PAM4 Signaling	ghiasi_3bs_01_0515.pdf
3:50 PM	Chris Cole	Finisar	400Gb/s 2km & 10km duplex SMF PAM-4 PMD Baseline Specifications	cole_3bs_01_0515.pdf
4:20 PM	Chris Cole	Finisar	400Gb/s 2km & 10km duplex SMF PAM-4 PMD Analysis & Measurements	cole_3bs_02_0515.pdf
4:40 PM	Peter Stassar	Huawei	Updated considerations and test results on 8x50G PAM4	stassar_3bs_01_0515.pdf
5:10 PM	Atul Srivastava	NTT Electronics	Receiver technical feasibility and cost trends on 10-km 8x50G proposals	srivastava_3bs_01_0515.pdf
5:30 PM	Break			
5:45 PM	Discussion & Strawpolls			
7:00 PM	Break			

# Tuesday

All times listed are subject to change.

Tuesday	Presenter	Affiliation	Title	File Name
9:00 AM	John D'Ambrosia	Dell	Day's Opening Comments	
9:15 AM	Mark Gustlin	Xilinx	400GbE PCS and PMA Baseline Proposals	gustlin_3bs_02_0515.pdf
9:45 AM	Juan-Carlos Calderon	Inphi	OTN Reference Point Clarifications	calderon_3bs_01_0515.pdf
10:15 AM	Break			
10:35 AM	Mark Gustlin	Xilinx	Thoughts on the FEC Architecture	gustlin_3bs_03_0515.pdf
11:05 AM	Xinyuan Wang	Huawei	Investigation on Technical Feasibility of FEC Architecture with 1X400Gbps or 4X100Gbps	wang_x_3bs_01_0515.pdf
11:35 AM	Zhongfeng Wang	Broadcom	Configurations and Analyses of FEC and Alignment Markers for 400GE	wang_z_3bs_01_0515.pdf
12:00 PM	Lunch			
1:15 PM	Tongtong Wang	Huawei	FEC Performance over PAM4 links with Bit-multiplexing	wang_t_3bs_01_0515.pdf
1:45 PM	Pete Anslow	Ciena	FEC performance with PAM4 on multi-part links	anslow_3bs_03_0515.pdf
2:15 PM	Raj Hegde	Broadcom	CDAUI-8 Simulation Results and Transmitter Specification Proposal	hegde_3bs_01_0515.pdf
2:45 PM	Andre Szczepanek	Inphi	CDAUI-8 PAM4 Reference Receiver CDR	szczepanek_3bs_01_0515.pdf
3:15 PM	Break			
3:35 PM	John D'Ambrosia	Dell	Timeline Considerations	dambrosia_3bs_01_0515.pdf
3:55 PM	Discussion & Strawpolls			
5:00 PM	Break for day			

# Wednesday

Note –Times listed are  
subject to change.

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9:00 AM	John D'Ambrosia	Dell	Opening Comments	
9:10 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

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- See: <http://www.ieee802.org/3/interims/index.html>
- July 2015 Plenary
  - Week of July 12
  - Hilton Waikoloa Village, Waikoloa, Hawaii USA
- Sept 2015 Interim
  - Week of Sept 14
  - Hyatt Regency Coconut Point, Bonita Springs, FL, USA
  - Hosted by NEC
- Nov 2015 Plenary
  - Week of Nov 8
  - Hyatt Regency Dallas, Dallas, TX, USA
- Jan 2016 Interim
  - Week of Jan 18
  - TBD
- Mar 2016 Interim
  - Week of Mar 18
  - Macau China
- Anyone interested in hosting a meeting or webex contact me.

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# Thank You!