



# Agenda and General Information

IEEE P802.3bj 100 Gb/s Backplane and  
Copper Cable Task Force

John D'Ambrosia  
Dell

Chicago, IL, USA, Sept 13 -14

# Agenda

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- Appointment of Recording Secretary
- Confirmation of Chair
- Welcome and Introductions
- Approve Agenda
- Approve July 2011 Minutes
- Goals for this meeting
- Reflector and Web
- Ground Rules
- IEEE
  - Structure
  - Bylaws and Rules
  - Call for Patents
  - IEEE Standards Process
- Liaisons and Communications
- Review of Action Items
- 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

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- Task Force Formation
- Hear Technical Presentations
- Adopt Project Schedule
  
- Lay the ground work for the next meeting

# Reflector and Web

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- To subscribe to the 100GCU 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-802-3-100GCU <yourfirstname> <yourlastname>](#)***  
***[end](#)***

- Send 100GCU reflector messages to:

**[STDS-802-3-100GCU@listserv.ieee.org](mailto:STDS-802-3-100GCU@listserv.ieee.org)**

- Study Group web page URL:

**<http://www.ieee802.org/3/100GCU/index.html>**

# Task Force Private Area

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- URL: <http://www.ieee802.org/3/100GCU/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.

# 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

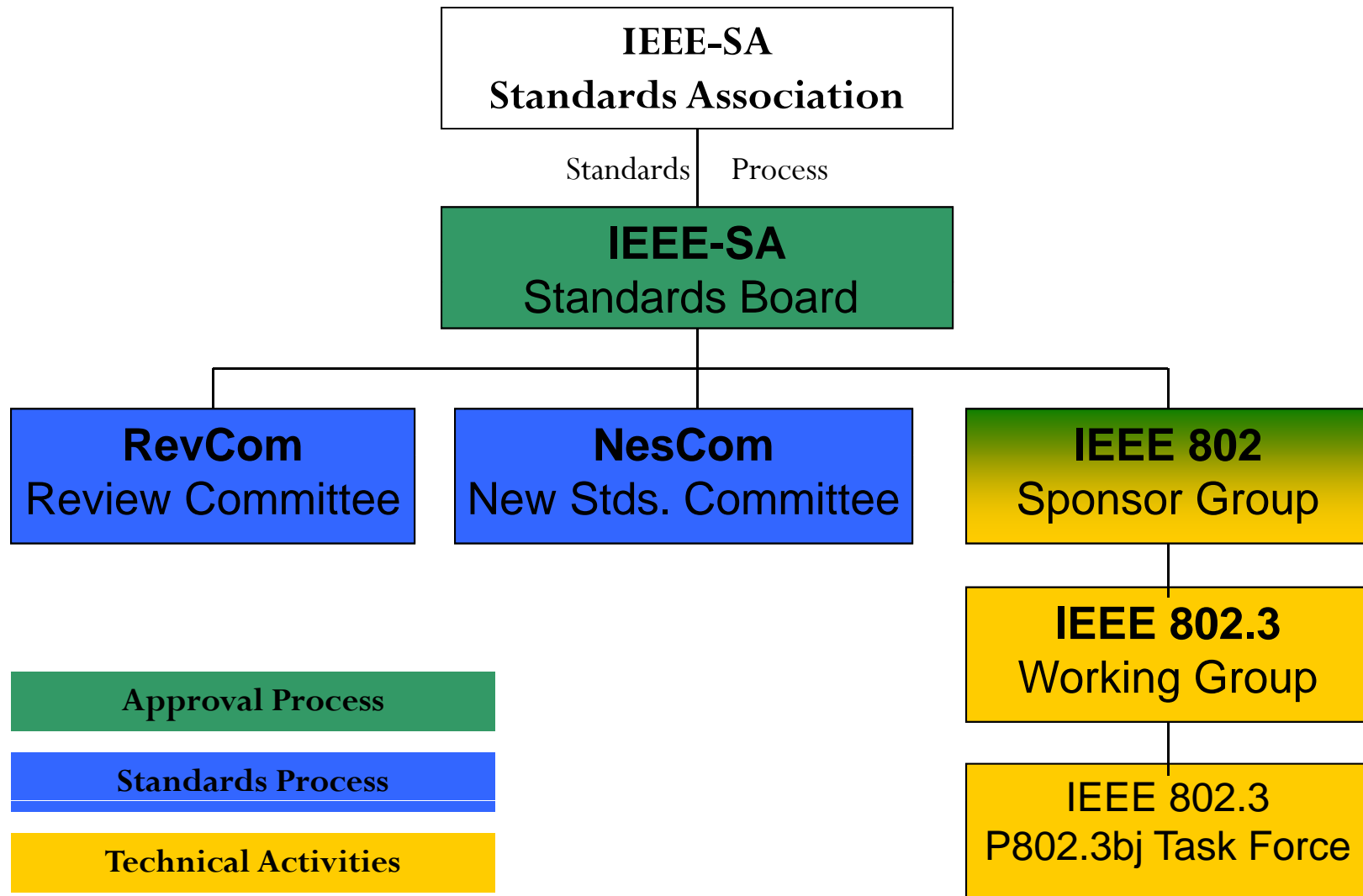
# Attendance

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- Tutorial Material on attendance tool
  - [http://ieee802.org/3/minutes/jul11/0711\\_imat.pdf](http://ieee802.org/3/minutes/jul11/0711_imat.pdf)
- URL (Valid for this meeting only)
  - URL: <http://seabass.ieee.org/imat>
  - Password will be provided



# IEEE Structure



# Important Bylaws and Rules

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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)

# 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 consistent with the ANSI patent policy and 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.



25 March 2008 (updated 29 March 2011)

(Optional to be shown)

# 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](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

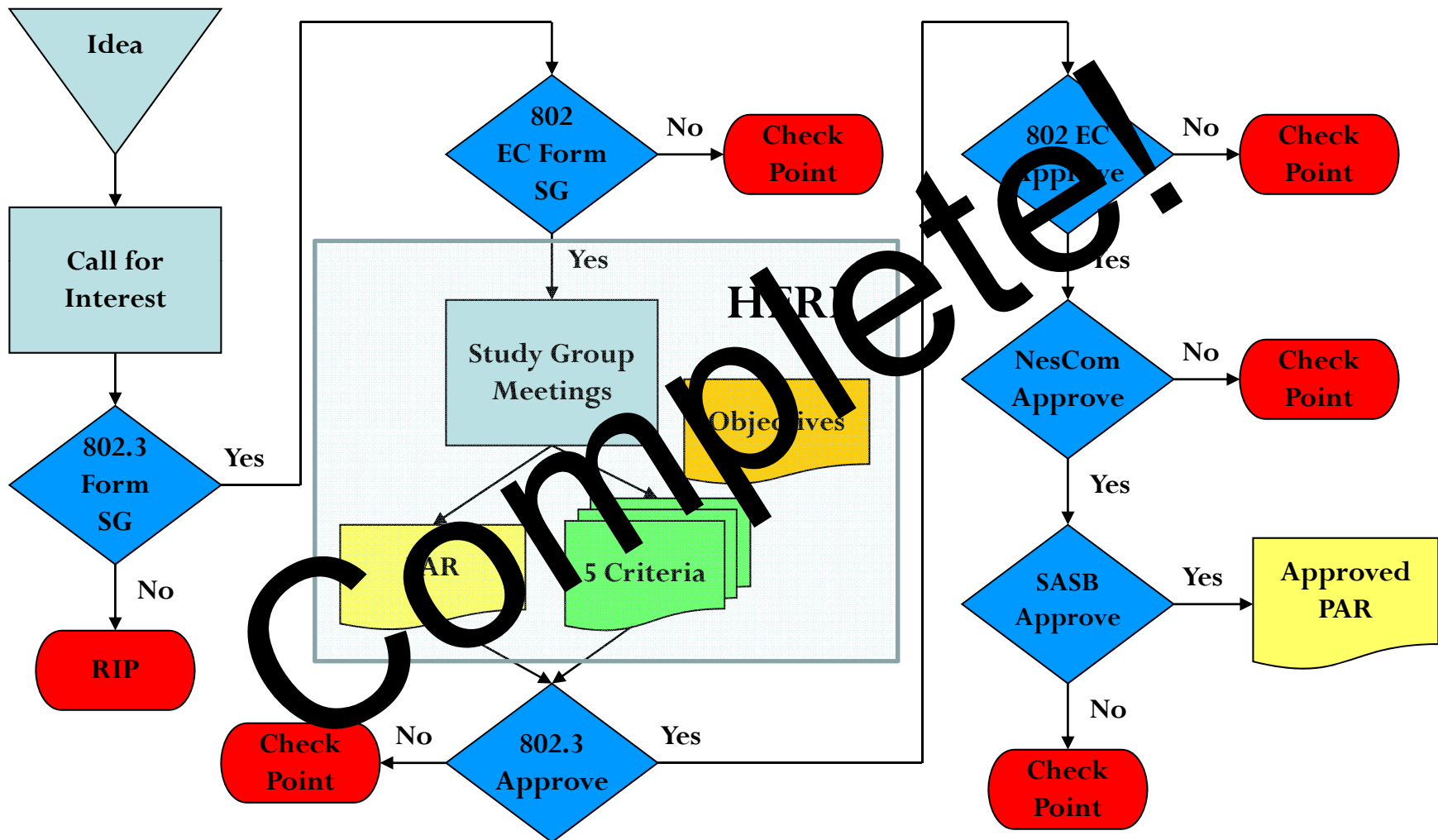
- If anyone in this meeting is personally aware of the holder of any patent claims that are potentially essential to implementation of the proposed standard(s) under consideration by this group and that are not already the subject of an Accepted Letter of Assurance:
  - Either speak up now or
  - Provide 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.

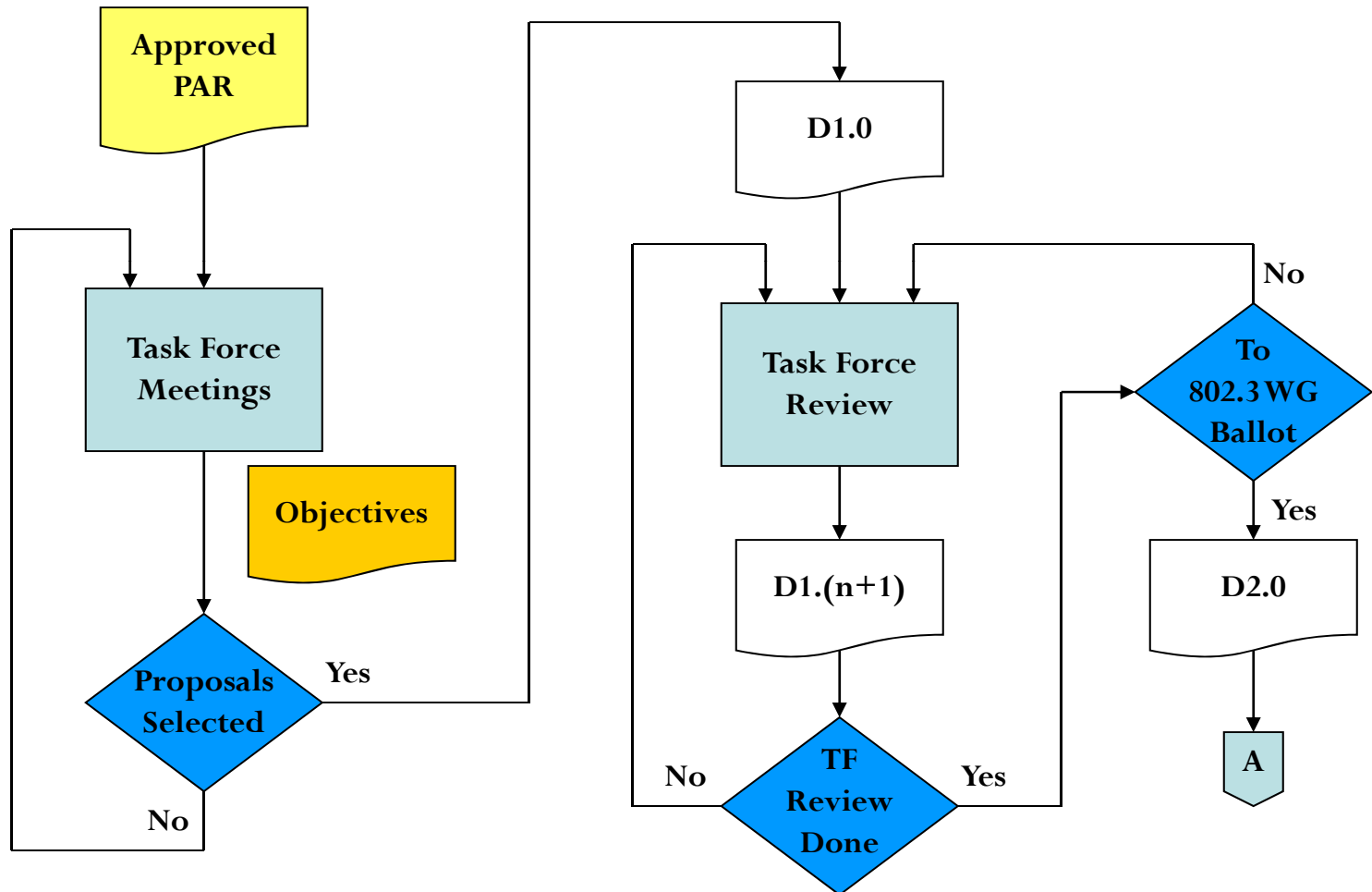
# Overview of IEEE 802.3 Standards Process (1/5)- Study Group Phase



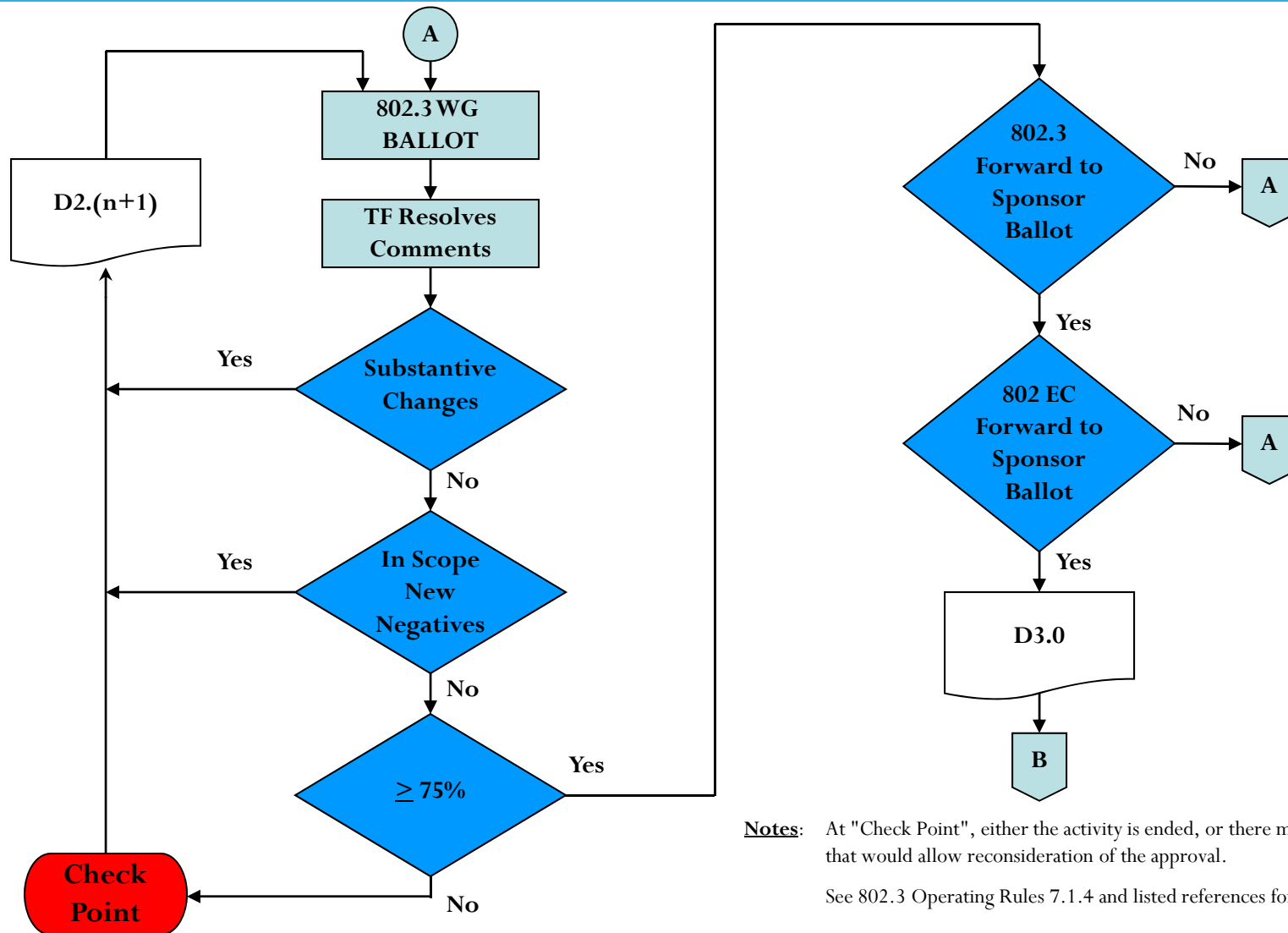
Note: At "Check Point", either the activity is ended, or there may be various options that would allow reconsideration of the approval.



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



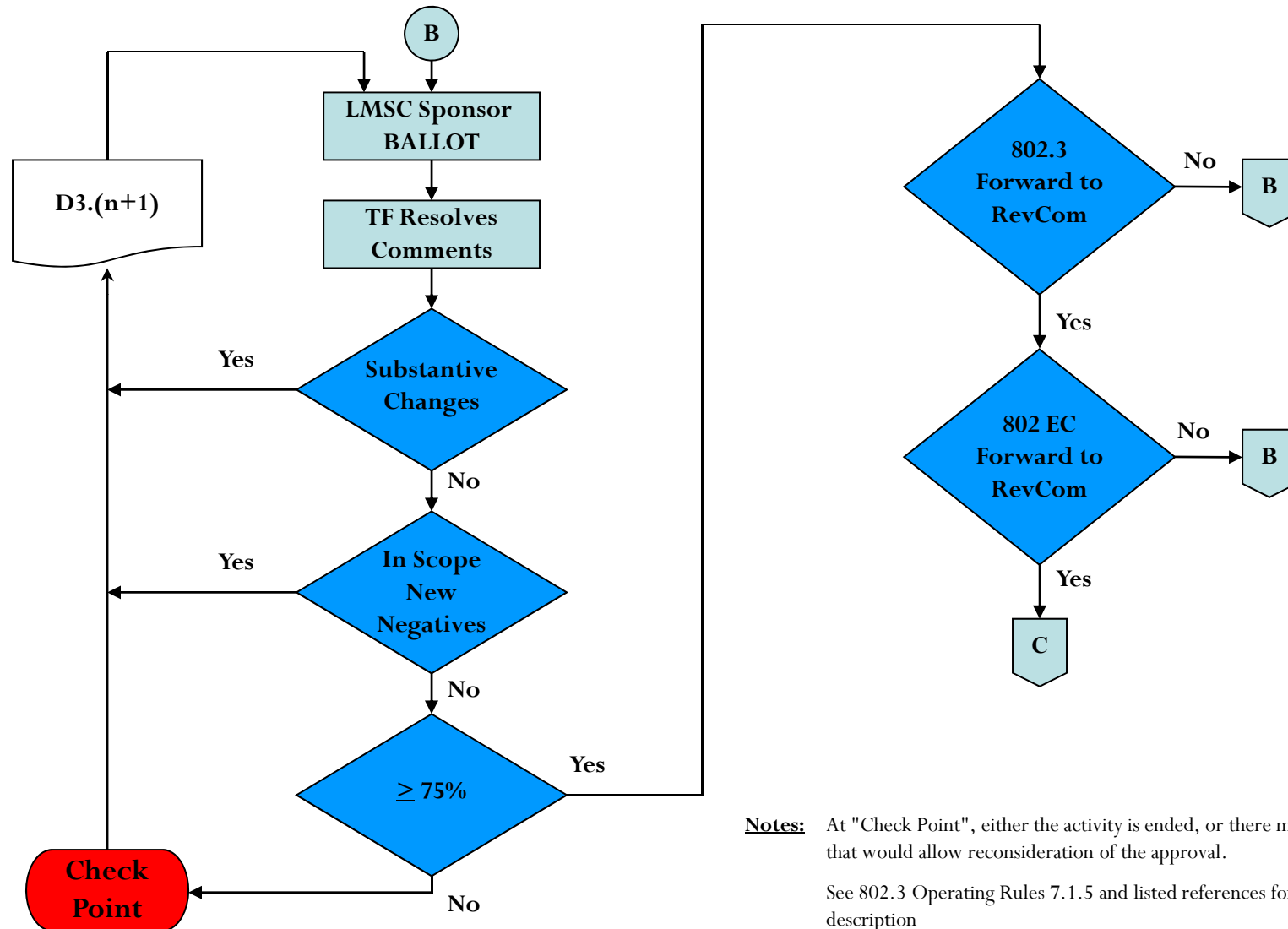
# Overview of IEEE 802.3 Standards Process (3/5) – Working Group Ballot Phase



**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

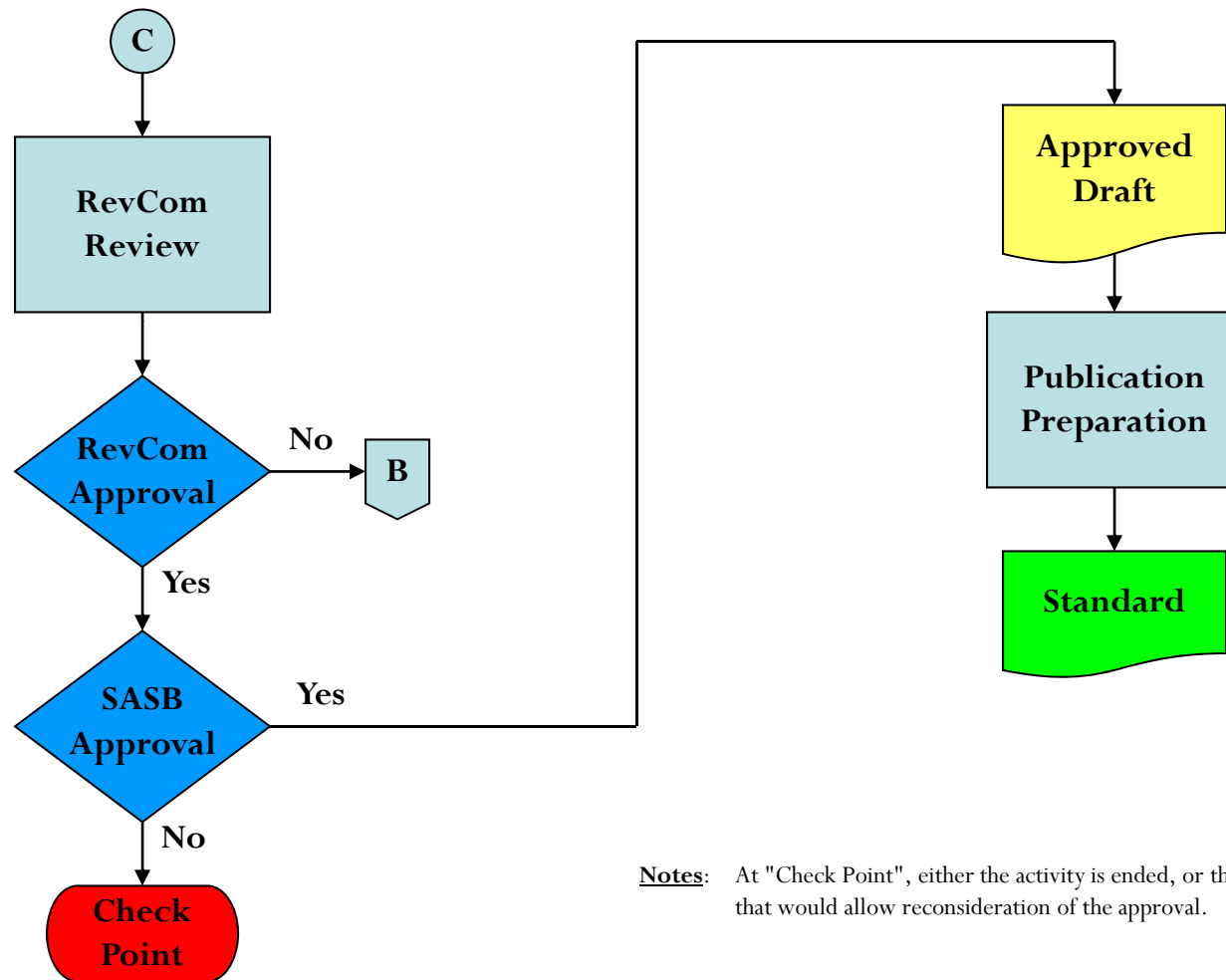
# Overview of IEEE 802.3 Standards Process (4/5)- Sponsor Ballot Phase



**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.

# Liaisons and Communications

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- OIF
  - See [http://www.ieee802.org/3/minutes/jul11/incoming/OIF\\_liaison\\_IEEE\\_MLG\\_14July11.pdf](http://www.ieee802.org/3/minutes/jul11/incoming/OIF_liaison_IEEE_MLG_14July11.pdf)
  - Inform OIF of creation of Task Force
  - See proposed response  
dambrosia\_02\_0911.pdf

# Action Items

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<b>Volunteer</b>	<b>Action</b>	<b>Date Assigned</b>	<b>Status As of 9/8</b>
Adam Healey	Create spreadsheet related to simulation details	Mar-15-11	Completed 9/7

# IEEE P802.3bj 100 Gb/s Backplane and Copper Cable Task Force Project Documents

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- PAR
  - [http://www.ieee802.org/3/100GCU/par\\_a\\_0511.pdf](http://www.ieee802.org/3/100GCU/par_a_0511.pdf)
- 5 Criteria
  - [http://www.ieee802.org/3/100GCU/5C\\_0511.pdf](http://www.ieee802.org/3/100GCU/5C_0511.pdf)
- Objectives
  - [http://www.ieee802.org/3/100GCU/objectives\\_0711.pdf](http://www.ieee802.org/3/100GCU/objectives_0711.pdf)
  - Approved by IEEE 802.3 WG 7/11

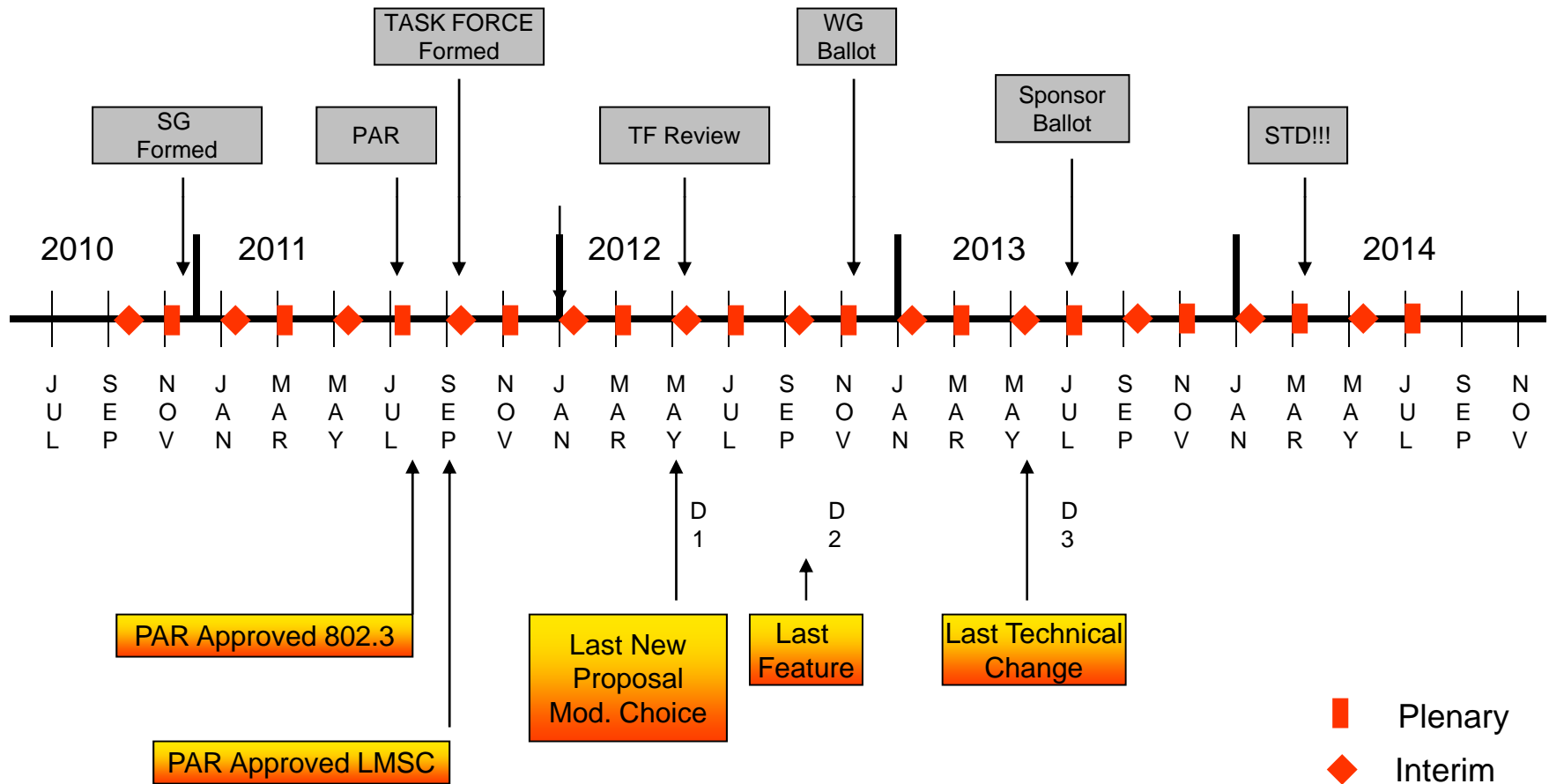
# IEEE P802.3bj Task Force Objectives

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- Support full-duplex operation only
- Preserve the 802.3 / Ethernet frame format utilizing the 802.3 MAC
- Preserve minimum and maximum FrameSize of current 802.3 standard
- Support a BER of better than or equal to  $10^{-12}$  at the MAC/PLS service interface
- Define a 4-lane 100 Gb/s backplane PHY for operation over links consistent with copper traces on “improved FR-4” (as defined by IEEE P802.3ap or better materials to be defined by the Task Force) with lengths up to at least 1m.
- Define a 4-lane 100 Gb/s PHY for operation over links consistent with copper twin-axial cables with lengths up to at least 5m.



# Proposed Timeline



# Presentations

Time	Presenter	Affiliation	Title	File Name
9:05 AM	John D'Ambrosia	Dell	Agenda and General Information	agenda_01_0911.pdf
9:35 AM	John D'Ambrosia	Dell	Proposed Response to OIF	dambrosia_02_0911
9:45 AM	Adam Healey	LSI	Simulation parameters and results template with example	healey_01_0911.xls
9:55 AM	Roy Cideciyan	IBM	512B/513B Transcoding and FEC for 100 Gb/s Backplane and Copper Links	cideciyan_01_0911.pdf
10:25 AM			Break	
10:45 AM	Jitendra Mohan	National Semi	Measurements and Simulation Results in Support of IEEE 100GCU Objective	mohan_01_0911
11:15 AM	Pravin Patel	IBM	PAM-2 on a 1 Meter Backplane Channel	patel_01a_0911.pdf
11:40 AM	Mike Dudek	Qlogic	PAM-2 on a simulated 1 Meter Backplane Channel including manufacturing tolerance	dudek_01_0911.pdf
12:00 PM			Lunch	
1:15 PM	Howard Frazier	Broadcom	Characteristics of Installed Backplane Channels	frazier_01_0911.pdf
1:45 PM	Mounir Meghelli	IBM	Line Signaling and FEC Performance Comparison for 25Gb/s 100GbE	beukema_01_0911.pdf
2:15 PM	Mounir Meghelli	IBM	SI Analysis of 25Gb/s Transmission over Backplane and Copper Cables Links	meghelli_01_0911.pdf
2:40 PM	Matt Brown	Applied Micro	100G backplane PHY: NRZ and PAM4	brown_01_0911.pdf
3:10 PM			Break	
3:30 PM	Will Bliss	Broadcom	A Preliminary Proposal for PAM-4 TX Specification	bliss_01_0911.pdf
4:00 PM	Vasu Parthasarathy	Broadcom	Precoding proposal for PAM-4 Modulation	parthasarathy_01_0911.pdf
4:30 PM	Dariush Dabiri	Applied Micro	Enabling Improved DSP Based Receivers for 100G Backplane	dabiri_01_0911.pdf
5:00 PM			Discussion & Strawpolls	
6:00 PM			Break for the Day	

Note –Times listed are subject to change.

# Presentations

Wed 14-Sep-11

Time	Presenter	Affiliation	Title	File Name	Duration
9:00 AM	John D'Ambrosia	Dell	Opening Comments		0:05
9:05 AM	Mike Bennett	LBNL	EEE for 100 Gb/s copper interfaces	bennett_01_0911.pdf	0:30
9:35 AM	Mark Gustlin	Cisco	100 Gb/s Ethernet and EEE	gustlin_01_0911.pdf	0:20
9:55 AM	Mark Gustlin	Cisco	FEC striping options for 100 Gb/s Backplane and Copper Task Force	gustlin_02_0911.pdf	0:20
10:15 AM			Break		0:20
10:35 AM	Sudeep Bhoja	Broadcom	FEC proposal for 100G-KR	bhoja_01_0911.pdf	0:30
11:05 AM	Charles Moore	Avago	100G-Cu FEC and PCS Encoding Thoughts	slavick_01_0911.pdf	0:20
11:25 AM	Charles Moore	Avago	Evaluation of more channels using method from moore_01_0311	moore_01_0911.pdf	0:25
12:00 PM			Lunch		1:30
1:30 PM	Mark Bugg	Molex	Method of Modeling a Full Channel	bugg_01_0911.pdf	0:20
1:50 PM	Tom Palkert	Molex	MDI option for 4x25G copper	palkert_01_0911.pdf	0:30
2:20 PM	Ali Ghiasi	Broadcom	cPPI-4 Channel and Compliance Boards	ghiasi_01_0911.pdf	0:30
3:00 PM			Break		0:20
3:20 PM			Discussion, Strawpolls, Action Items		
			Motions, Closing Business		
5:00 PM			Adjourn		

Note –Times listed are subject to change.

# Meeting Map

	Mon	Tues	Wed	Thur	Fri	
8:00						
8:30						
9:00		All	All			
9:30						
10:00						
10:30						
11:00						
11:30						
12:00		Lunch	Lunch			
12:30						
13:00		All	All			
13:30						
14:00						
14:30						
15:00						
15:30						
16:00						
16:30						
17:00			Common Time			
17:30						
18:00		Break				
18:30						
19:00						
19:30						
20:00						
20:30						
21:00						
21:30						

# Future Meetings

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- See: <http://www.ieee802.org/3/interims/index.html>
- Nov 2011 Plenary
  - Date: Week of Nov 7, 2011
  - Location: Hyatt Regency Atlanta, Atlanta, GA, USA
- Jan 2012 Interim
  - Date: week of Jan 23, 2012
  - Location TBD
- March 2012 Plenary
  - Date: week of March 11
  - Location: Hilton Waikoloa Village, Waikoloa, HI USA
- Anyone interested in hosting a meeting contact me.



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# Thank You!