

# Agenda and General Information

IEEE P802.3bn EPoC PHY Task Force

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Hangzhou, China

October 28th - 29th, 2012

# Agenda

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- Welcome and Introductions
- Approve Agenda
- Approve September 27/28 Minutes
- Goals for this meeting
- Reflector and Web, Task Force Private Area
- Ground Rules
- IEEE
  - Structure, Bylaws and Rules
  - Call for Patents
  - Affiliation
- Liaisons and Communications -> (None)
- Review Task Force Progress
- Presentations
- 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

# Goals for the meeting

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- Introduce/review IEEE standards process
- Review Task Force Progress
  - Objectives
  - Timeline introduction
  - Approved motions from last meeting
  - ad hoc committees and reports
- Information exchange on cable environment and requirements for EPoC by individuals from Chinese cable and North American cable
  - EPoC Requirements
  - RF Spectrum Consideration
  - Channel Model and conditions

# Reflector and Web

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- To subscribe to the EPoC reflector, send an email to:

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

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

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subscribe stds-802-3-epoc <yourfirstname> <yourlastname>  
end
```

- Send EPoC reflector messages to:

[stds-802-3-epoc@listserv.ieee.org](mailto:stds-802-3-epoc@listserv.ieee.org)

- Task Force web page URL:

<http://www.ieee802.org/3/bn>

# Task Force Private Area

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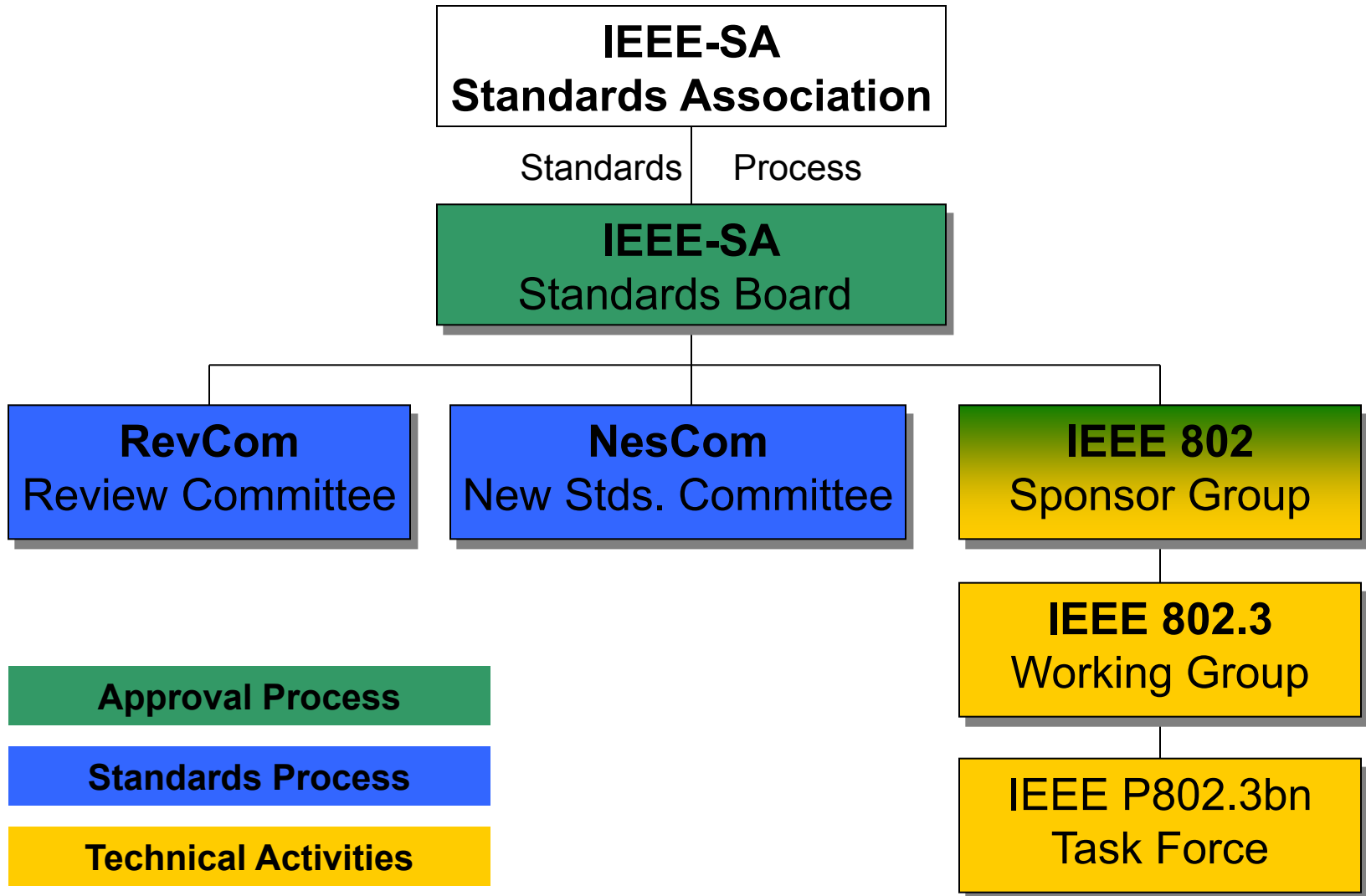
- URL: <http://www.ieee802.org/3/bn/private>
  - Username: 802.3bn
  - Password: xxxx
- There are no private documents at this time
- Expected use: Task Force drafts

# 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 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)

# 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.



# Affiliation

- IEEE-SA Standards Board By-Laws, Section 5.2.1.5  
–(<http://standards.ieee.org/guides/bylaws/sect5.html>)
- Disclosure of Affiliation  
–“Every member and participant in a working group, Sponsor ballot, or other standards development activity shall disclose his or her affiliation.”
- What is “Affiliation”  
–“An individual is deemed "affiliated" with any individual or entity that has been, or will be, financially or materially supporting that individual's participation in a particular IEEE standards activity. This includes, but is not limited to, his or her employer and any individual or entity that has or will have, either directly or indirectly, requested, paid for, or otherwise sponsored his or her participation.”
- Affiliation and participation  
–“Failure to disclose every such affiliation may result in complete or partial loss of rights to participate in IEEE-SA activities. An individual is not excused from compliance with this policy by reason of any claim of a conflicting obligation (whether contractual or otherwise) that prohibits disclosure of affiliation.”

# Attendance

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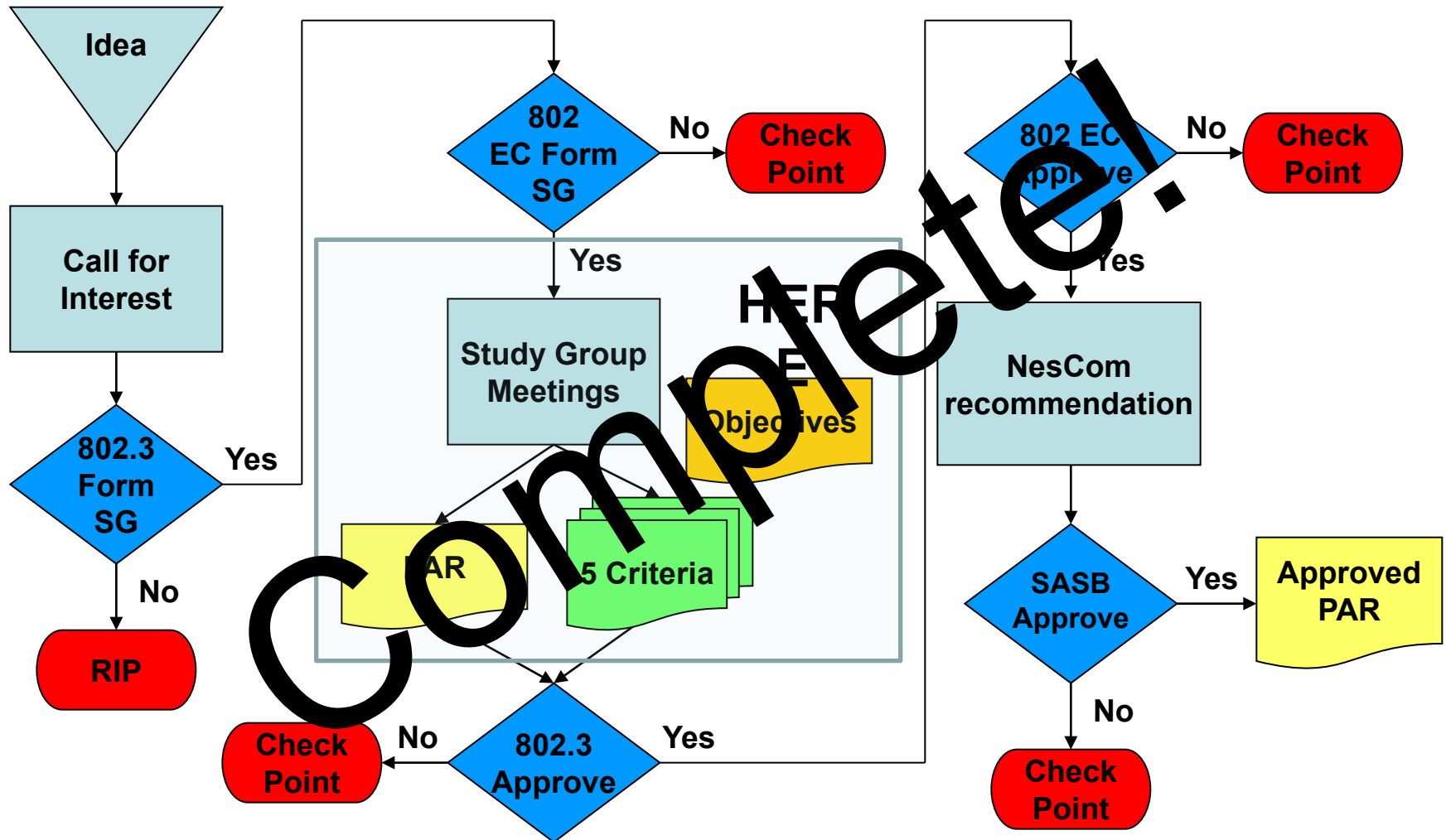
- Tutorial Material on attendance tool
  - [http://ieee802.org/3/minutes/mar11/0311\\_imat.pdf](http://ieee802.org/3/minutes/mar11/0311_imat.pdf)
- URL: <https://imat.ieee.org>
  - IEEE account login and password required
  - Sign in to “Attendance Tool”
  - Session password: xxxxxxxxx

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# **TASK FORCE REVIEW**



# 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.

# IEEE P802.3bn EPoC PHY Approved Project Documents

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- PAR
  - [http://www.ieee802.org/3/bn/P802\\_3bn\\_PAR\\_300812\\_approved.pdf](http://www.ieee802.org/3/bn/P802_3bn_PAR_300812_approved.pdf)
- 5 Criteria
  - [http://www.ieee802.org/3/bn/EPoC\\_5Criteria\\_200712\\_approved.pdf](http://www.ieee802.org/3/bn/EPoC_5Criteria_200712_approved.pdf)
- Objectives
  - [http://www.ieee802.org/3/bn/EPoC\\_objectives\\_190712\\_approved.pdf](http://www.ieee802.org/3/bn/EPoC_objectives_190712_approved.pdf)

# IEEE P802.3bn EPoC Objectives

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- Specify a PHY to support subscriber access networks capable of supporting burst mode and continuous mode operation using the EPON protocol and operating on point-to-multipoint RF distribution plants comprised of either amplified or passive coaxial media.
- Maintain compatibility with 1G-EPON and 10G-EPON, as currently defined in IEEE Std. 802.3 with minimal augmentation to MPCP and/or OAM if needed to support the new PHY.
- Define required plant configurations and conditions within an overall coaxial network operating model.

# IEEE P802.3bn EPoC Objectives

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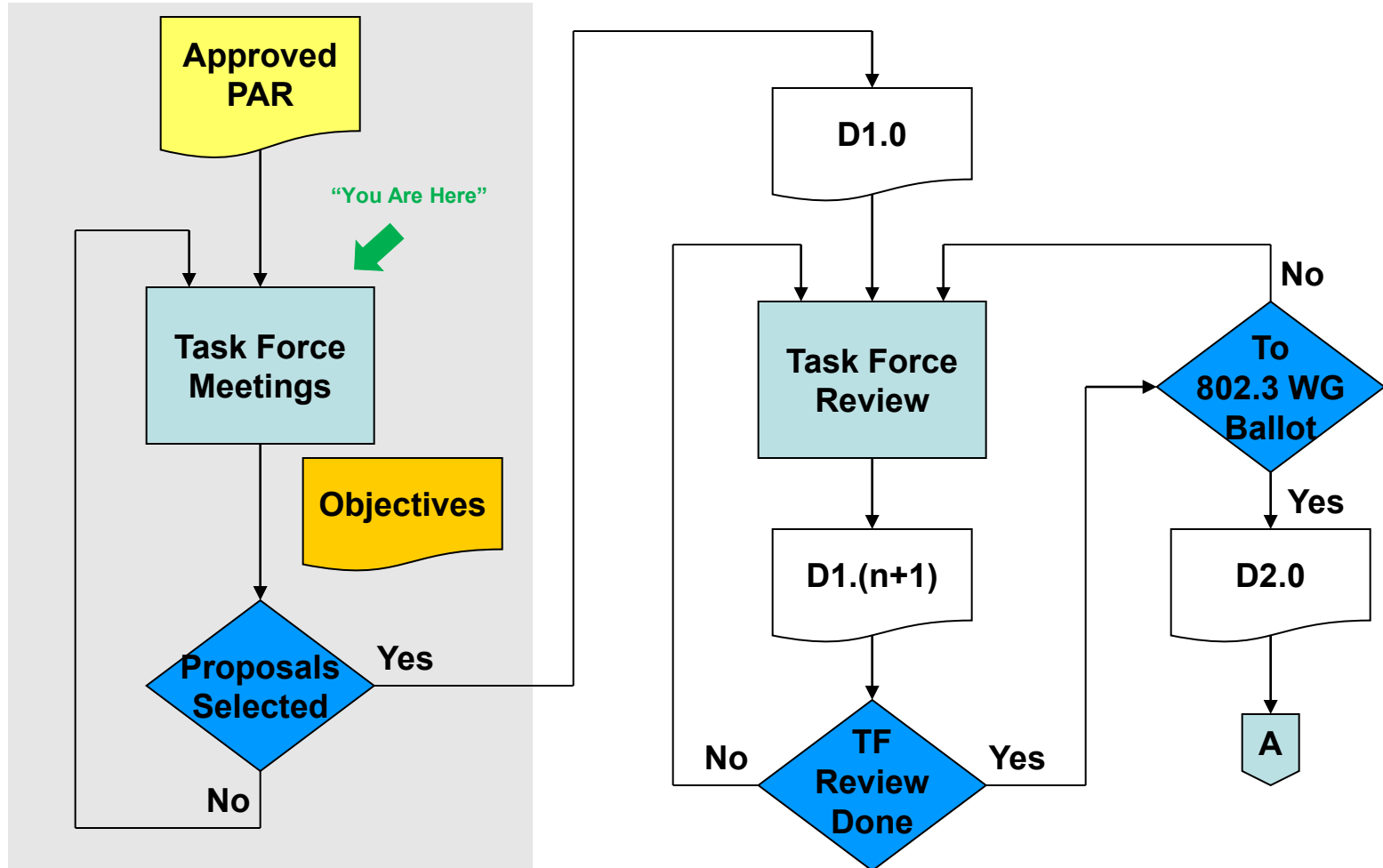
- Provide a physical layer specification that is capable of:
  - A baseline data rate of 1 Gb/s at the MAC/PLS service interface when transmitting in 120 MHz, or less, of assigned spectrum under defined baseline plant conditions;
  - A data rate lower than the baseline data rate when transmitting in less than 120 MHz of assigned spectrum or under poorer than defined plant conditions;
  - A data rate higher than the 1Gb/s baseline data rate and up to 10 Gb/s when transmitting in assigned spectrum and in channel conditions that permit.
- PHY to support symmetric and asymmetric data rate operation.

# IEEE P802.3bn EPoC Objectives

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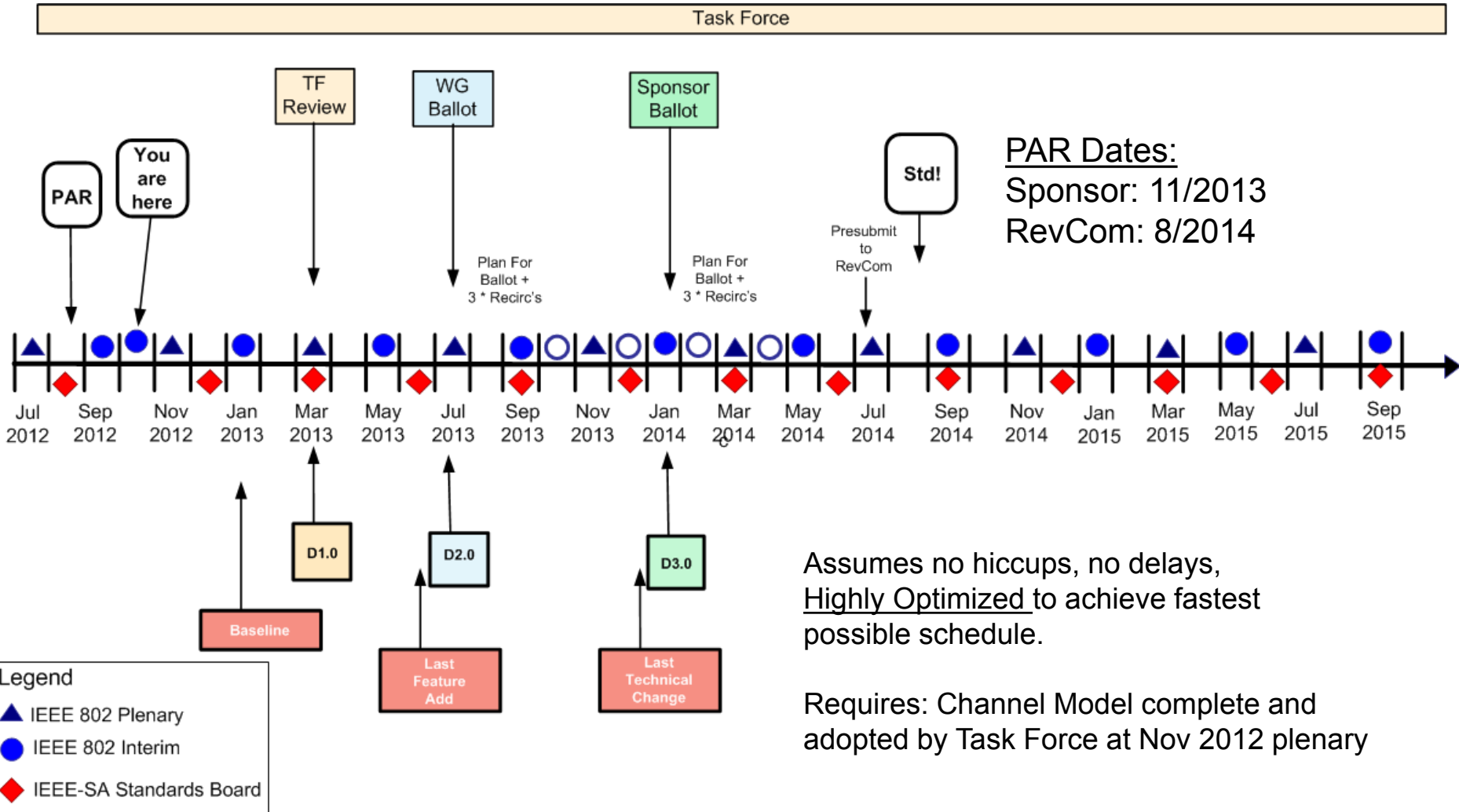
- PHY to support symmetric and asymmetric spectrum assignment for bidirectional transmission.
- PHY to support independent configuration of upstream and downstream transmission operating parameters.
- PHY to operate in the cable spectrum assigned for its operation without causing harmful interference to any signals or services carried in the remainder of the cable spectrum.
- PHY to have:
  - a downstream frame error ratio better than  $10^{-6}$  at the MAC/PLS service interface;
  - an upstream frame error ratio better than  $5 \times 10^{-5}$  at the MAC/PLS service interface.

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



# IEEE P802.3bn Timeline (“aggressive”)

Presented in Geneva, review and adoption during November Plenary, 2012



Assumes no hiccups, no delays,  
Highly Optimized to achieve fastest possible schedule.

Requires: Channel Model complete and adopted by Task Force at Nov 2012 plenary

# Technical Motions Approved, 27-28 Geneva

#	Motion Text	Motion #
1	Study support for configurable power saving mechanism for EPoC interface(s), technical details for further study.	5
2	Adopt OFDM for downstream EPoC PHY.	6
3	Adopt OFDMA for upstream EPoC PHY.	7
4	Adopt LDPC for downstream inner code, no decision for outer code at this time.	8
5	Support exclusion of one or more OFDM subcarriers.	10
6	Support multiple downstream modulations orders up to 4096QAM, support multiple upstream modulation orders up to 1024QAM.	11
7	In the downstream use OFDM channels of 192 MHz with OFDM sampling frequency of integer multiples of 10.24 MHz.	12
8	The standard shall support the ability for higher capacity by combining multiple 192 MHz OFDM channels.	14

**Decision history at: <http://www.ieee802.org/3/bn/public/decisions/decisions.html>**



# ad hoc Committees

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- RF Spectrum
  - Chair: Steve Shellhammer, Qualcomm
- Evaluation Criteria and Requirements
  - Chair: Steve Shellhammer, Qualcomm
- PHY Link
  - Chair: Ed Boyd, Broadcom
- Channel Model
  - Chair: Duane Remein, Huawei
- ad hoc committee areas:
  - <http://www.ieee802.org/3/bn/public/>

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# **PRESENTATIONS**

# Presentations - Sunday

Sunday, October 28			Length	Time
Mark Laubach	Broadcom	Agenda and General Information	1:00	<b>9:00 AM</b>
Steve Shellhammer	Qualcomm	ad hoc report: Evaluation Criteria and Requirements	0:20	10:00 AM
Ed Boyd	Broadcom	ad hoc report: PHY Link	0:20	10:20 AM
Duane Remein	Huawei	ad hoc report: Channel Model	0:20	10:40 AM
<b>Break</b>			0:10	11:00 AM
Steve Shellhammer	Qualcomm	ad hoc report: RF Spectrum	0:20	11:10 AM
David Law	HP	Potential IEEE P802.3bn architecture	0:30	11:30 AM
Eugene Dai	Cox Communications	Multiple Modulation Profiles for EPOC	1:00	12:00 PM
<b>Lunch</b>			1:00	1:00 PM
Gao Xiaojun	Jiangsu Province Cable Network Company	EPoC Requirement from JSCN	0:30	2:00 PM
Xu Qiheng	Shanxi Province Broadcast Cable TV Network Company	Cable network introduction, EPOC requirements and expectation from SXBCTV	0:30	2:30 PM
Rujian Lin	Luster Teraband Photonics Co., Ltd.	Discussion on EPoC PHY Functions	1:00	3:00 PM
<b>Break</b>			0:15	4:00 PM
Zhang Bo	GuiZhou Province Cable TV Network Company	Spectrum planning and access network architecture from GZCTV	0:25	4:15 PM
Juan Montojo, Masoud Zargari, Alex Liu	Qualcomm	EPoC Frequency Bands and Center Frequencies	0:45	4:40 PM
Bill Powell, Randy Sharpe	Alcatel-Lucent	EPoC Deployment Scenarios	1:00	5:25 PM
<b>Break for Day</b>				<b>6:25 PM</b>

# Presentations - Monday

Monday, October 29			Length	Time
Wu Guangsheng	Huawei	Cable channel modeling based on Chinese MSO's cable network	1:00	<b>9:00 AM</b>
Hu Xiaoping	Xiangyang Cable Network, Hubei Province	Cable channel test report by XYBN	0:40	10:00 AM
Zhang Dongqing	Zhongshan Cable Network, Guangdong Province	HFC network introduction and EPOC requirements from ZSCN	0:30	10:40 AM
<b>Break</b>			0:15	11:10 AM
Gao Xiaojun	Jiangsu Province Cable Network Company	MDU cable network channel S parameter measurements...	0:40	11:25 AM
Ed Mallette	Brighthouse Networks	Bright House Networks Downstream SNR Characterization (DOCSIS Carriers)	0:30	12:05 PM
<b>Lunch</b>			1:00	12:35 PM
Yao Yong	China Radio & TV Association Technical Committee	Brief introduction on China Cable network and requirements	0:40	1:35 PM
Mark Laubach	Broadcom	Closing Session	0:30	2:15 PM
<b>Adjourn</b>				<b>2:45 PM</b>

# Presentations – Best Effort

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Best Effort			Estimated Time with Translation
David Barr	Entropic	Bonding at PHY-Layer	1:15
Marek Hajduczenia	ZTE	Changes to MAC and MACC in EPoC Project	0:30
Juan Montojo, Christian Pietsch	Qualcomm	OFDM Numerology	1:00

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# **CLOSING SESSION**

# Future IEEE P802.3bn Meetings

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- See: <http://www.ieee802.org/3/interims/index.html>
- November 11<sup>th</sup> -16<sup>th</sup>, 2012 - 802 Plenary
  - San Antonio, Texas
- January week of 21<sup>st</sup>, 2013 - 802.3 Interim
  - T. B. D.
- March 18<sup>th</sup> – 21<sup>st</sup>, 2012 – 802 Plenary
  - Orlando, Florida
- Anyone interested in hosting a interim meeting contact the Chair or the IEEE 802.3 Executive Secretary [Steve Carlson](#).

# Future Meetings

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- I will attend the November plenary \_\_\_\_\_
- I probably will attend the November plenary \_\_\_\_\_
- I probably will not attend the November plenary \_\_\_\_\_
- I will not attend an November plenary \_\_\_\_\_
  
- I will attend the January interim \_\_\_\_\_
- I probably will attend the January interim \_\_\_\_\_
- I probably will not attend the January interim \_\_\_\_\_
- I will not attend an January interim \_\_\_\_\_



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# Thank You!