

# **Agenda and General Information**

**IEEE P802.3ca 100G-EPON**

Curtis Knittle  
CableLabs  
San Antonio, TX  
November 7-10, 2016

# Agenda

NG-EPON

- Appoint Recording Secretary
- Welcome and Introductions
- Decorum
- Approve Agenda
- Approve Minutes
- Reflector and Web
- Ground Rules
- IEEE
  - Structure, Bylaws and Rules
  - Call for Patents
  - IEEE Standards Process
- Liaisons and Communications
- Goals for this meeting
- Presentations
- Motions and Closing Business
- Future Meetings

# P802.3ca Task Force Organization

- ❑ Chair: Curtis Knittle, CableLabs
- ❑ Vice Chair: Glen Kramer, Broadcom
- ❑ Chief Editor: Marek Hajduczenia, Charter

# Task Force Decorum

NGEAPON



- Photography or recording by permission only (December 2014 IEEE-SA Standards Board Ops Manual 5.3.3.2)
- Press (i.e., anyone reporting publicly on this meeting) are to announce their presence (December 2014 IEEE-SA Standards Board Ops Manual 5.3.3.3)
- Cell phone ringers off
- 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

# Motion #1

NGEAPON

Approve the agenda for Task Force meeting to be held Nov 7-10 2016, in San Antonio TX located in file

[http://www.ieee802.org/3/ca/public/meeting\\_archive/2016/11/agenda\\_3ca\\_1a\\_1116.pdf](http://www.ieee802.org/3/ca/public/meeting_archive/2016/11/agenda_3ca_1a_1116.pdf)

Moved: Kevin Noll

Seconded: Alan Brown

For:

Against:

Abstain:

Procedural (> 50%)

Motion: Passed by voice without opposition

# Motion #2

NG-EPON

Approve the Minutes for Task Force meeting held September 2016, in Fort Worth TX located in file [http://www.ieee802.org/3/ca/public/meeting\\_archive/2016/09/minutes\\_unapproved\\_3ca\\_1a\\_0916.pdf](http://www.ieee802.org/3/ca/public/meeting_archive/2016/09/minutes_unapproved_3ca_1a_0916.pdf)

Moved: Duane Remein

Seconded: Dekun Liu

For:

Against:

Abstain:

Procedural (> 50%)

Motion: Passed by voice without opposition

# Reflector and Web

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- ❑ To subscribe to the 100G-EPON Task Force reflector, send an email to:

**ListServ@ieee.org**

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

**subscribe STDS-802-3-NGEPON** <yourfirstname> <yourlastname>  
**end**

- ❑ Send 100G-EPON reflector messages to:

**STDS-802-3-NGEPON@listserv.ieee.org**

- ❑ Task Force web page URL:

**<http://www.ieee802.org/3/ca/index.shtml>**

# Ground Rules

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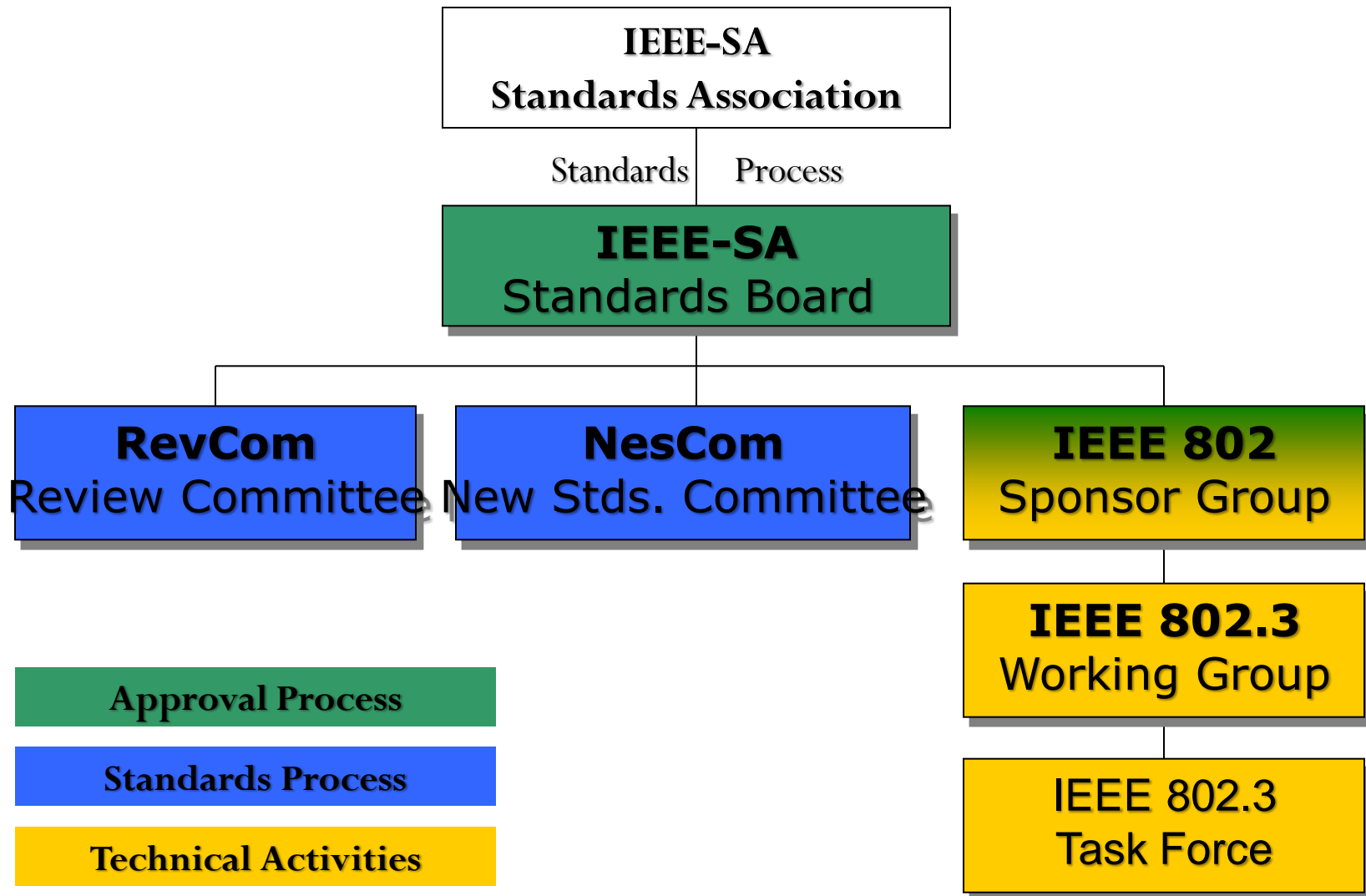
- ❑ Based upon IEEE 802.3 Rules
  - Foundation based upon Robert's Rules of Order
  - Anyone in the room may speak
  - Anyone in the room may vote
- ❑ **RESPECT**... give it, get it
- ❑ NO product pitches
- ❑ NO corporate pitches
- ❑ NO prices!!!
  - This includes costs, ASPs, etc. no matter what the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



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

# IEEE Structure

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# Important Bylaws and Rules

- ❑ **IEEE-SA Operations Manual**  
[http://standards.ieee.org/develop/policies/sa\\_opman/](http://standards.ieee.org/develop/policies/sa_opman/)
- ❑ **IEEE-SA Standards Board Bylaws**  
<http://standards.ieee.org/develop/policies/bylaws/>
- ❑ **IEEE-SA Standards Board Operations Manual**  
<http://standards.ieee.org/develop/policies/opman/>
- ❑ **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/devdocs.shtml>
- ❑ **IEEE 802 LAN/MAN Standards Committee (LMSC) Working Group (WG) Policies and Procedures**  
<http://www.ieee802.org/devdocs.shtml>
- ❑ **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 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.

**(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
  - “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

NG-EAPON

- ❑ 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

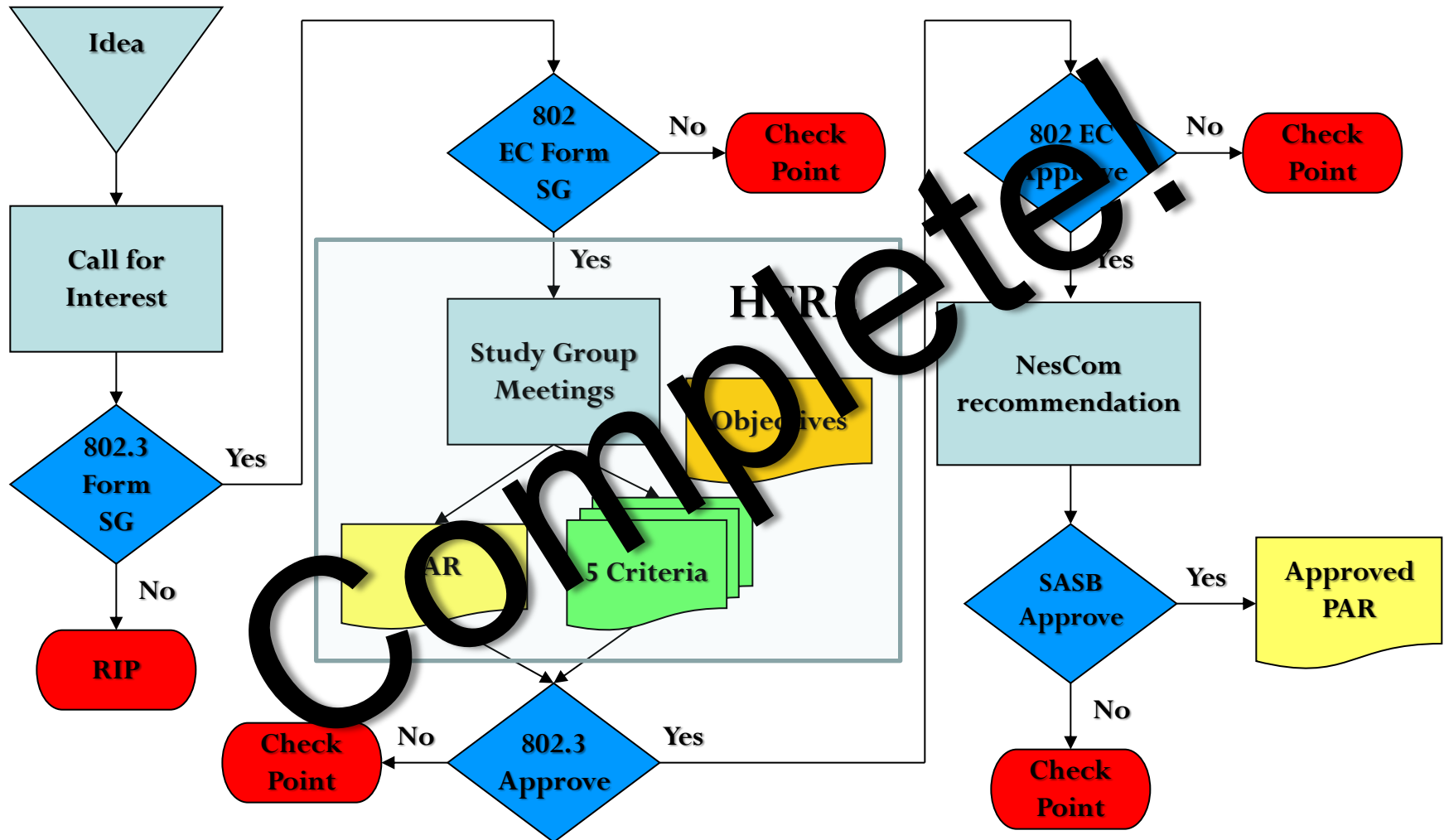
- ❑ All IEEE-SA standards meetings shall be conducted in compliance with all applicable laws, including antitrust and competition laws.
  - Don't discuss the interpretation, validity, or essentiality of patents/patent claims.
  - Don't discuss specific license rates, terms, or conditions.
    - Relative 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.

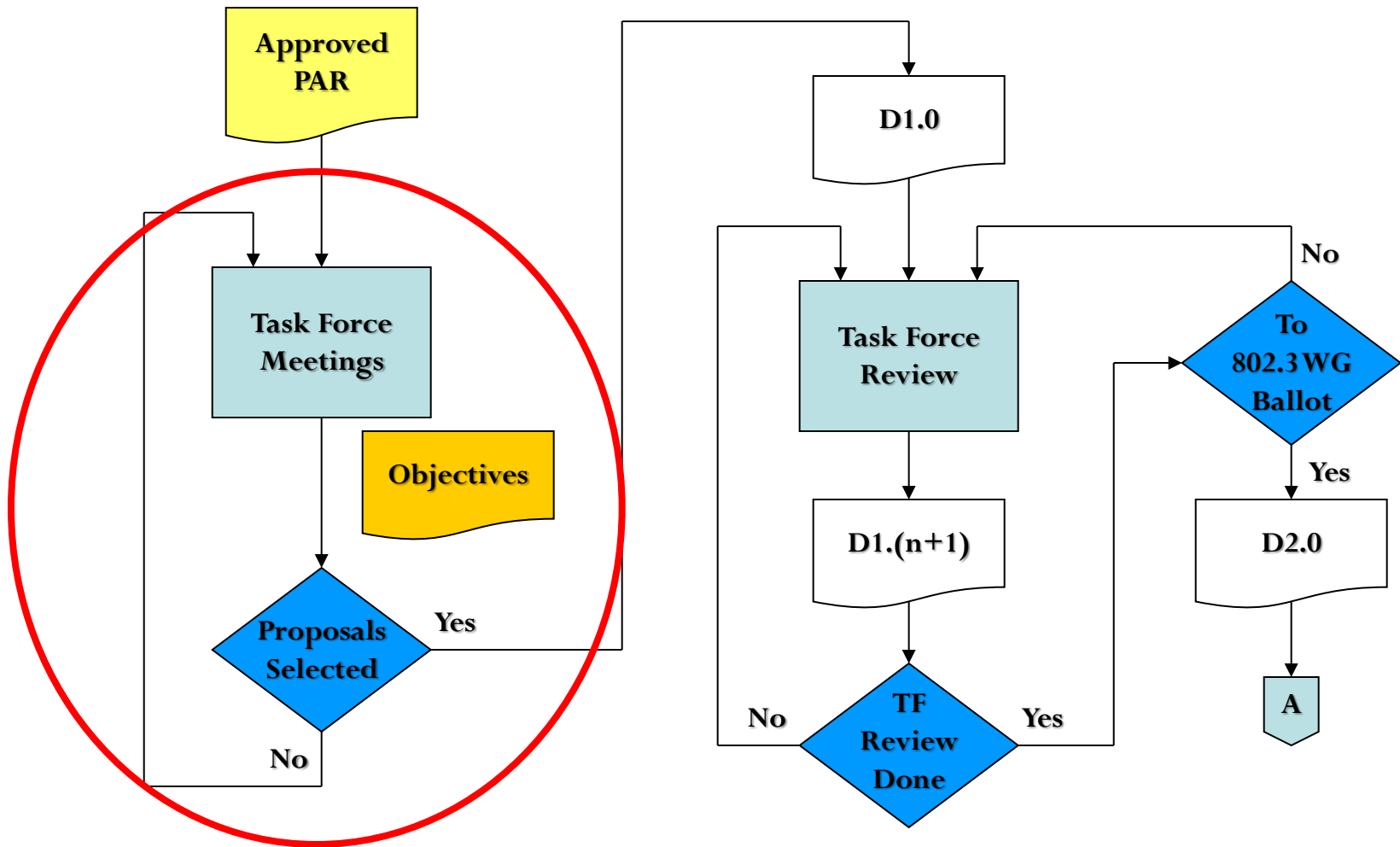


# Overview of IEEE 802.3 Standards Process (1/5)- Study Group Phase

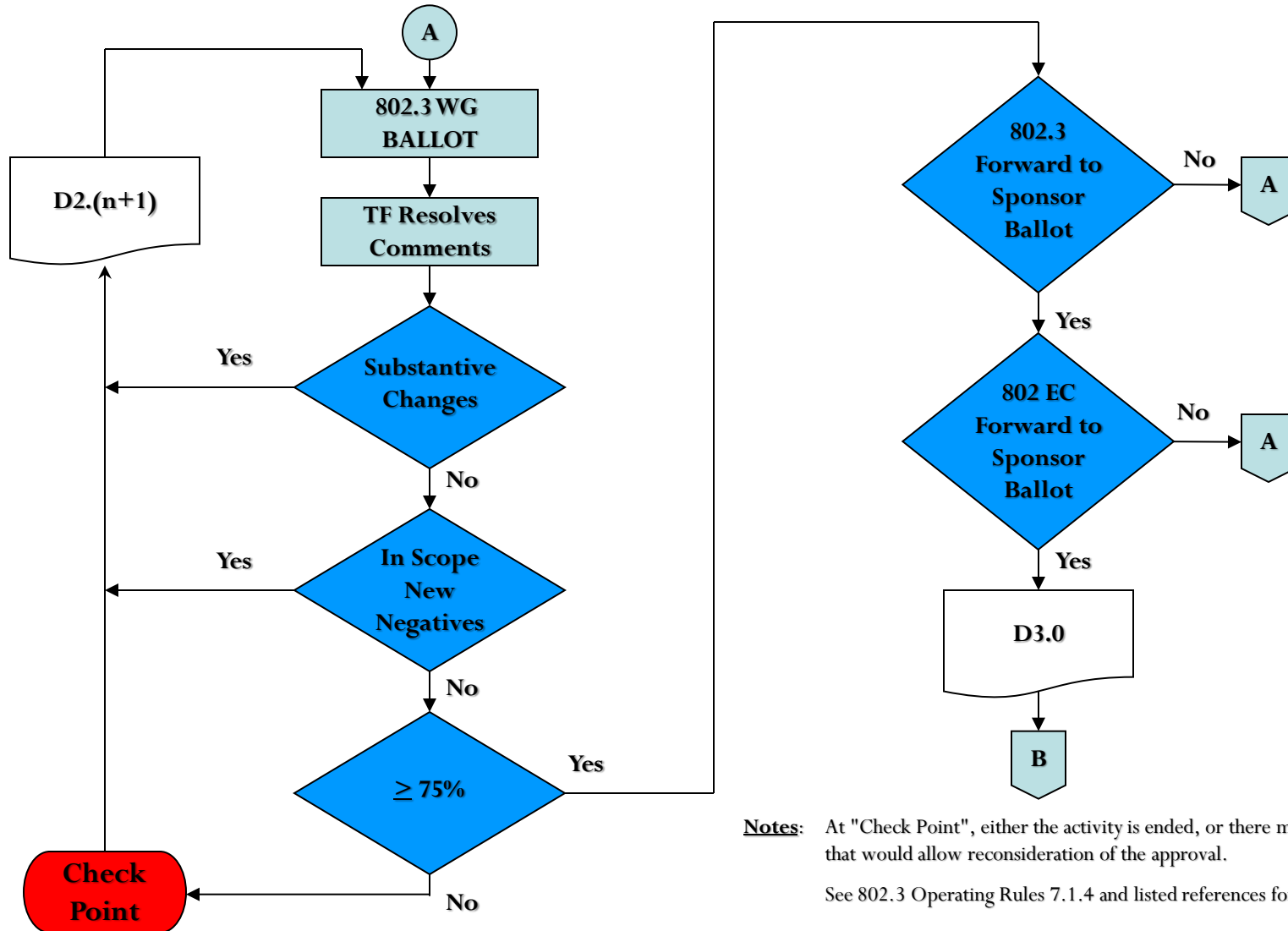


Note: At "Check Point", either the activity is ended, or there may be various options that would allow reconsideration of the approval.

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



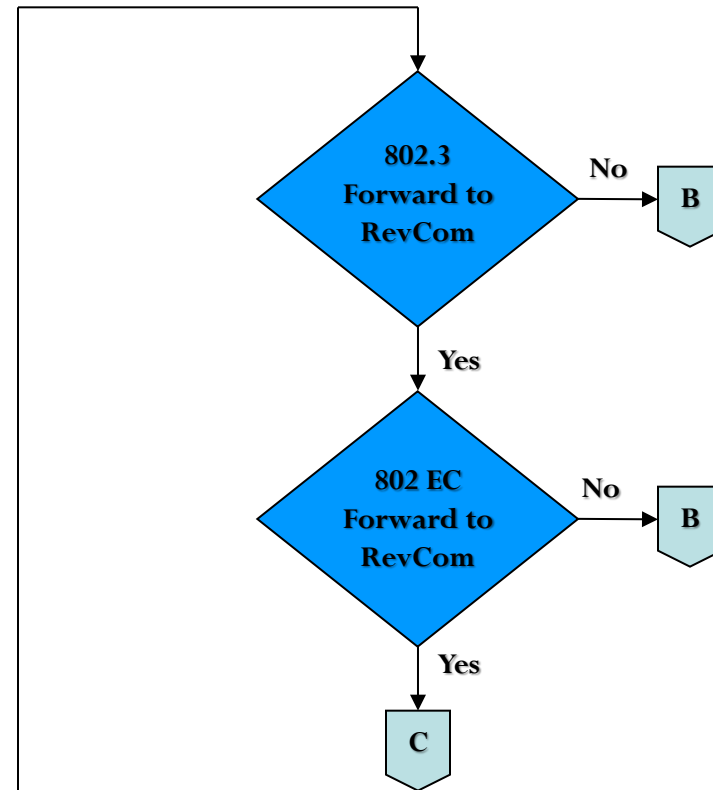
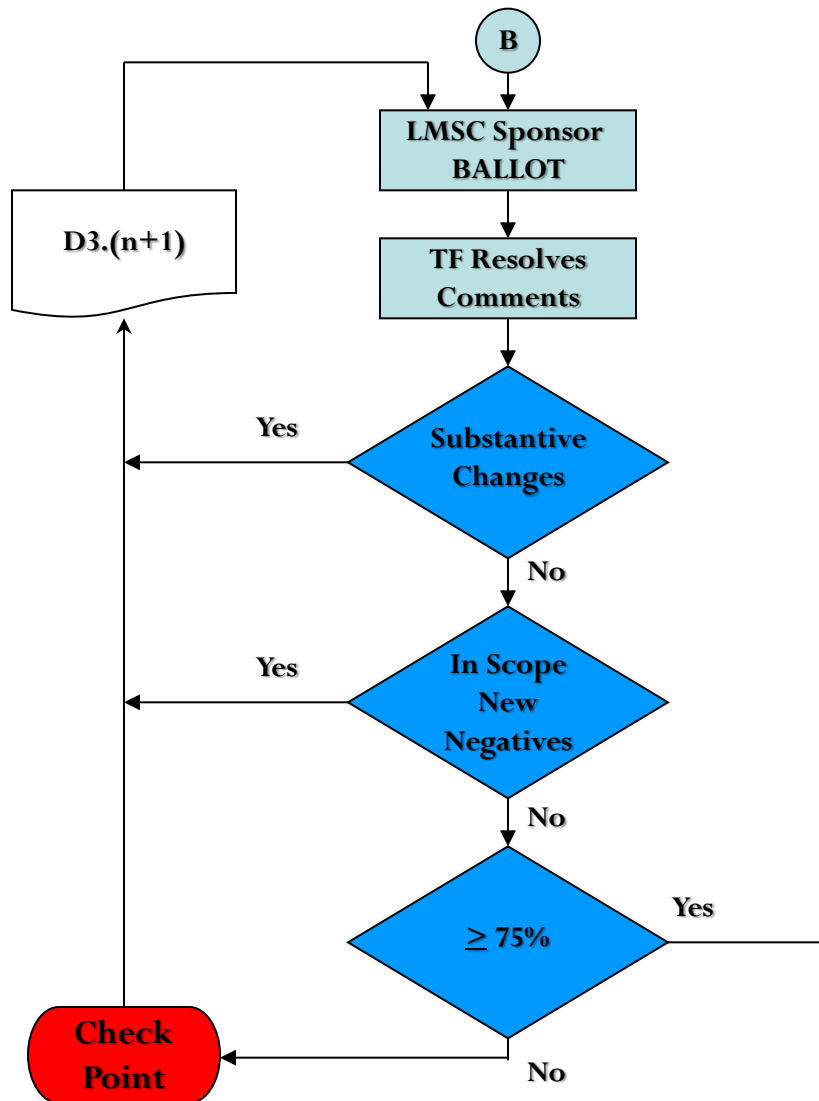
# Overview of IEEE 802.3 Standards Process (3/5) – Working Group Ballot Phase



**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

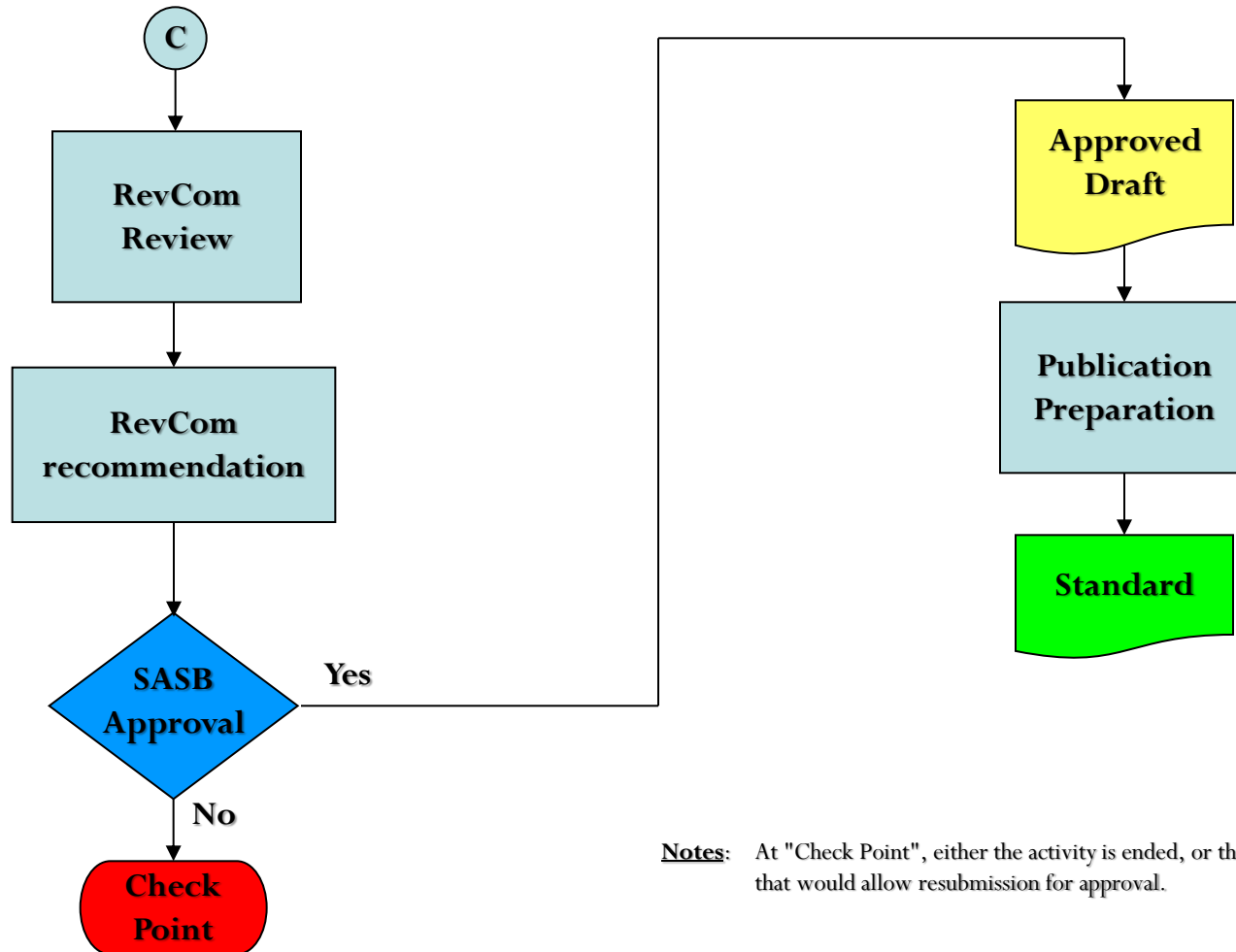
# Overview of IEEE 802.3 Standards Process (4/5)- Sponsor Ballot Phase



**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 resubmission for approval.

# Liaisons and Communications

- ❑ Broadband Forum Low power modes for fibre backhaul for FTTdp  
<[http://ieee802.org/3/minutes/nov16/incoming/BBF\\_2016.904.02\\_to\\_IEEE\\_802d3.pdf](http://ieee802.org/3/minutes/nov16/incoming/BBF_2016.904.02_to_IEEE_802d3.pdf)>

# Goals for this Meeting

NG-EPON

- Hear technical contributions
- Adopt baseline proposals
- Identify steps moving forward

# IEEE P802.3ca 100G-EPON Approved Project Documents

## □ PAR

- [http://www.ieee802.org/3/ca/documents/P802\\_3ca\\_par\\_approved.pdf](http://www.ieee802.org/3/ca/documents/P802_3ca_par_approved.pdf)

## □ CSD

- <https://mentor.ieee.org/802-ec/dcn/15/ec-15-0100-00-ACSD-802-3ca.pdf>

## □ Objectives

- [http://www.ieee802.org/3/ca/documents/P802\\_3ca\\_objectives.pdf](http://www.ieee802.org/3/ca/documents/P802_3ca_objectives.pdf)

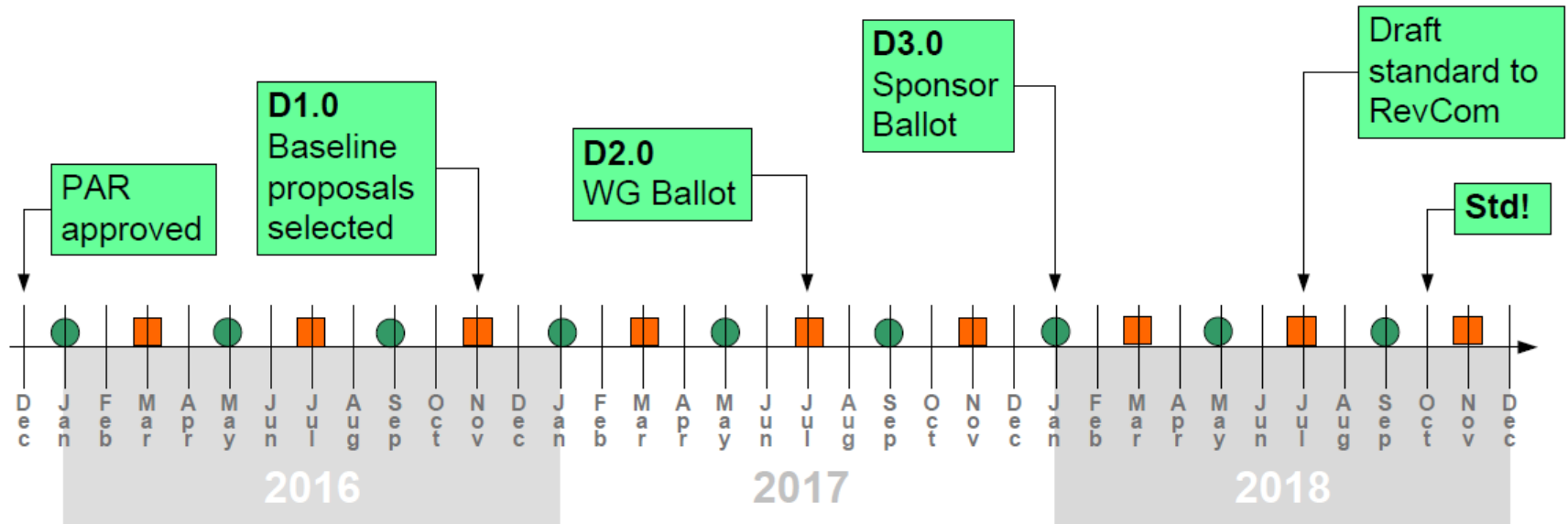


# IEEE P802.3ca 100G-EPON Objectives

- ❑ Support subscriber access networks using point to multipoint topologies on optical fiber
- ❑ Provide specifications for physical layers operating over a single SMF strand and supporting symmetric and/or asymmetric the MAC data rates of:
  - 25 Gb/s in downstream and less than or equal to 25 Gb/s in upstream
  - 50 Gb/s in downstream and less than or equal to 50 Gb/s in upstream
  - 100 Gb/s in downstream and less than or equal to 100 Gb/s in upstream
- ❑ PHY(s) to have a BER better than or equal to  $10^{-12}$  at the MAC/PLS service interface (or the frame loss ratio equivalent)
- ❑ Support coexistence with 10G-EPON
  - Optical power budgets to accommodate channel insertion losses equivalent to those supported by the 10G-EPON standard
  - Wavelength allocation allowing concurrent operation with 10G-EPON PHYs

# IEEE P802.3ca 100G-EPON Timeline

## IEEE P802.3ca Timeline



- - 802.3 Interim Meeting
- - 802.3 Plenary Meeting

# Presentations (1/2)

DAY 1: Monday 7 November 2016 (times listed are subject to change)					
Item	Presenter	Title	Duration	Start time	Stop time
1	C. Knittle	General Information, Liaisons	0:30	1:00 PM	1:30 PM
2	A. Umnov	Passive Optical Technologies to Extend PON Reach (umnov_3ca_1_1116)	0:15	1:30 PM	1:45 PM
3	D. Liu	100G EPON coexistence issue discussion (liu_3ca_3_1116)	0:20	1:45 PM	2:05 PM
4	D. Zhang	Coexistence and Upgrade (zhang_3ca_2a_1116)	0:20	2:05 PM	2:25 PM
5	E. Harstead	TDM vs. WDM co-existence (harstead_3ca_2_1116)	0:45	2:25 PM	3:10 PM
6		Break	0:30	3:10 PM	3:40 PM
7	M. Huang	100G APD ROSA sensitivity update (huang_3ca_1_1116)	0:15	3:40 PM	3:55 PM
8	H. Lee	Proposal of 25GBASE-PR30 downstream PMD parameter values (lee_3ca_2a_1116)	0:20	3:55 PM	4:15 PM
9	D. Liu	Feasibility and economy analysis on 25G in C-band assisted with DSP (liu_3ca_4_1116)	0:40	4:15 PM	4:55 PM
10	V. Houtsma	Measurement Results of 25G NRZ & EDB in C and O-band (houtsma_3ca_1_1116)	0:15	4:55 PM	5:10 PM
11	N. Tanaka	25G Receiver performance (tanaka_3ca_1_1116)	0:15	5:10 PM	5:25 PM
12	E. Harstead	PR20 (24 dB) loss budget (harstead_3ca_1_1116)	0:15	5:25 PM	5:40 PM
13		Recess		5:40 PM	

DAY 2: Tuesday 8 November 2016 (times listed are subject to change)					
Item	Presenter	Title	Duration	Start time	Stop time
14	C. Knittle	Opening comments	0:05	9:00 AM	9:05 AM
15	F. Effenberger	Enhanced FEC enables low-cost 25G EPON (effenberger_3ca_1_1116)	0:30	9:05 AM	9:35 AM
16	D. Liu	Four wavelength mixing Analysis in 100G-EPON wavelength plan (liu_3ca_1_1116)	0:30	9:35 AM	10:05 AM
17	E. Dai	Four Wave Mixing in Near Zero Dispersion Regions (dai_3ca_2_1116)	0:40	10:05 AM	10:45 AM
18		Break	0:30	10:45 AM	11:15 AM
19	J. Johnson	Analysis of NG-EPON Diplexer Filtering (johnson_3ca_1_1116)	0:20	11:15 AM	11:35 AM
20	H. Lee	Proposal of 100G EPON wavelength plan in O-band (lee_3ca_1a_1107)	0:20	11:35 AM	11:55 AM
21	D. Liu	100G-EPON wavelength plan comparison Model Discussion and Optimization (liu_3ca_2_1116)	0:30	11:55 AM	12:25 PM
22		Lunch	1:20	12:25 PM	1:45 PM
23	E. Harstead	Wavelength plan comparison update (harstead_3ca_3_1116)	1:00	1:45 PM	2:45 PM
24	E. Dai	Simulation Study on 100G EPON Wavelength Plan A (dai_3ca_1_1116)	0:25	2:45 PM	3:10 PM
25		Break	0:20	3:10 PM	3:30 PM
26	E. Dai	All O band Uneven Spacing Wavelength Plan for 100G EPON (dai_3ca_3_1116)	0:50	3:30 PM	4:20 PM
27	D. Zhang	Revision Suggestion for plan A (zhang_3ca_1_1116)	0:40	4:20 PM	5:00 PM
28		Wavelength discussions/motions	1:00	5:00 PM	6:00 PM
29		Recess		6:00 PM	

Note – Times listed are subject to change.

# Presentations (2/2)

NGLEPON

DAY 3: Wednesday 9 November 2016 (times listed are subject to change)					
Item	Presenter	Title	Duration	Start time	Stop time
30	C.Knittle	Opening comments	0:05	9:00 AM	9:05 AM
31	G. Kramer	Updates to ONU MPRS state diagrams (kramer_3ca_1_1116)	0:30	9:05 AM	9:35 AM
32	G. Kramer	GATE Processing at the ONU (kramer_3ca_2_1116)	0:20	9:35 AM	9:55 AM
33	G. Kramer	Multi-Point Reconciliation Sublayer (MPRS) -- OLT receive path (kramer_3ca_3a_1116)	0:35	9:55 AM	10:30 AM
34		Break	0:30	10:30 AM	11:00 AM
35	D. Remein	Downstream MPRS (remein_3ca_1_1116)	0:40	11:00 AM	11:40 AM
36		Discussion / motions	0:20	11:40 AM	12:00 PM
37		Lunch	1:30	12:00 PM	1:30 PM
38		Discussion / motions (continued)	1:30	1:30 PM	3:00 PM
39		Break	0:30	3:00 PM	3:30 PM
40		Timeline discussion	1:00	3:30 PM	4:30 PM
41		Liaison letter discussion / motion	1:00	4:30 PM	5:30 PM
42		Recess / Adjourn		5:30 PM	

DAY 4: Wednesday 9 November 2016 (times listed are subject to change)					
Item	Presenter	Title	Duration	Start time	Stop time
43	C.Knittle	Opening comments	0:05	9:00 AM	9:05 AM
44		New business	2:00	9:05 AM	11:05 AM
45		Recess / Adjourn		11:05 AM	

Note –Times listed are subject to change.

# Future Meetings

NG-EPON

- ❑ See: <http://www.ieee802.org/3/interims/index.html>
  
- ❑ January Interim
  - Huntington Beach, CA, USA
  - Week of January 9, 2017
  
- ❑ March Plenary
  - Vancouver, BC, Canada
  - Week of March 13
  
- ❑ Anyone interested in hosting a interim meeting contact me or the IEEE 802.3 Executive Secretary [Steve Carlson](#).

# Attendance at Huntington Beach, CA

- I plan to attend IEEE 802.3 interim in Huntington Beach, CA: 16
- I probably will attend the interim in Huntington Beach, CA: 8
- I probably won't attend the interim in Huntington Beach, CA: 1
- I definitely won't attend the interim in Huntington Beach, CA: 1
  
- Total in the room: 32

**Thank you!**