

# **Agenda and General Information**

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

Curtis Knittle  
CableLabs  
Vancouver, BC, USA  
March 14-16, 2017

# 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

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- 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

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Approve the agenda for Task Force meeting to be held March 14-16, 2017, in Vancouver, BC located in file

[http://www.ieee802.org/3/ca/public/meeting\\_archive/2017/03/agenda\\_3ca\\_1\\_0317.pdf](http://www.ieee802.org/3/ca/public/meeting_archive/2017/03/agenda_3ca_1_0317.pdf)

Moved:

Seconded:

For:

Against:

Abstain:

Procedural (> 50%)

Motion: Passed by voice without opposition

# Motion #2

Approve the Minutes for Task Force meeting held January 2017, in Huntington Beach, CA located in file

[http://www.ieee802.org/3/ca/public/meeting\\_archive/2017/01/minutes\\_unapproved\\_3ca\\_0117.pdf](http://www.ieee802.org/3/ca/public/meeting_archive/2017/01/minutes_unapproved_3ca_0117.pdf)

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Moved: Duane Remein

Seconded: Glen Kramer

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>**

# Task Force Private Area

- ❑ Access from 802.3ca home page:

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

- ❑ [Draft D0.1](#)

[http://www.ieee802.org/3/ca/private/drafts/D0\\_1/802.3ca\\_D0p1.pdf](http://www.ieee802.org/3/ca/private/drafts/D0_1/802.3ca_D0p1.pdf)

- Username:
- Password:

- ❑ 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.



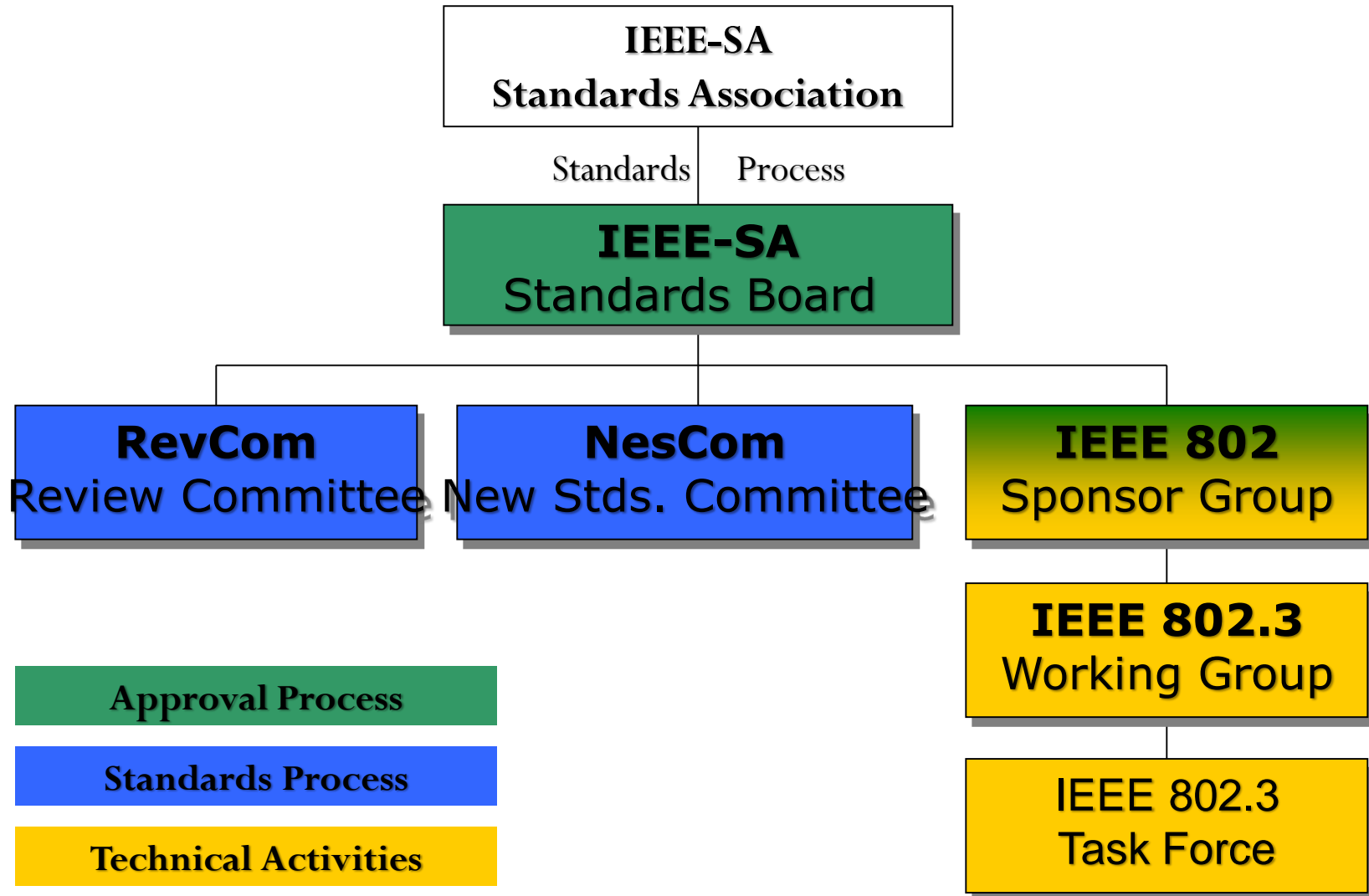
# Ground Rules

- ❑ 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)

# 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.



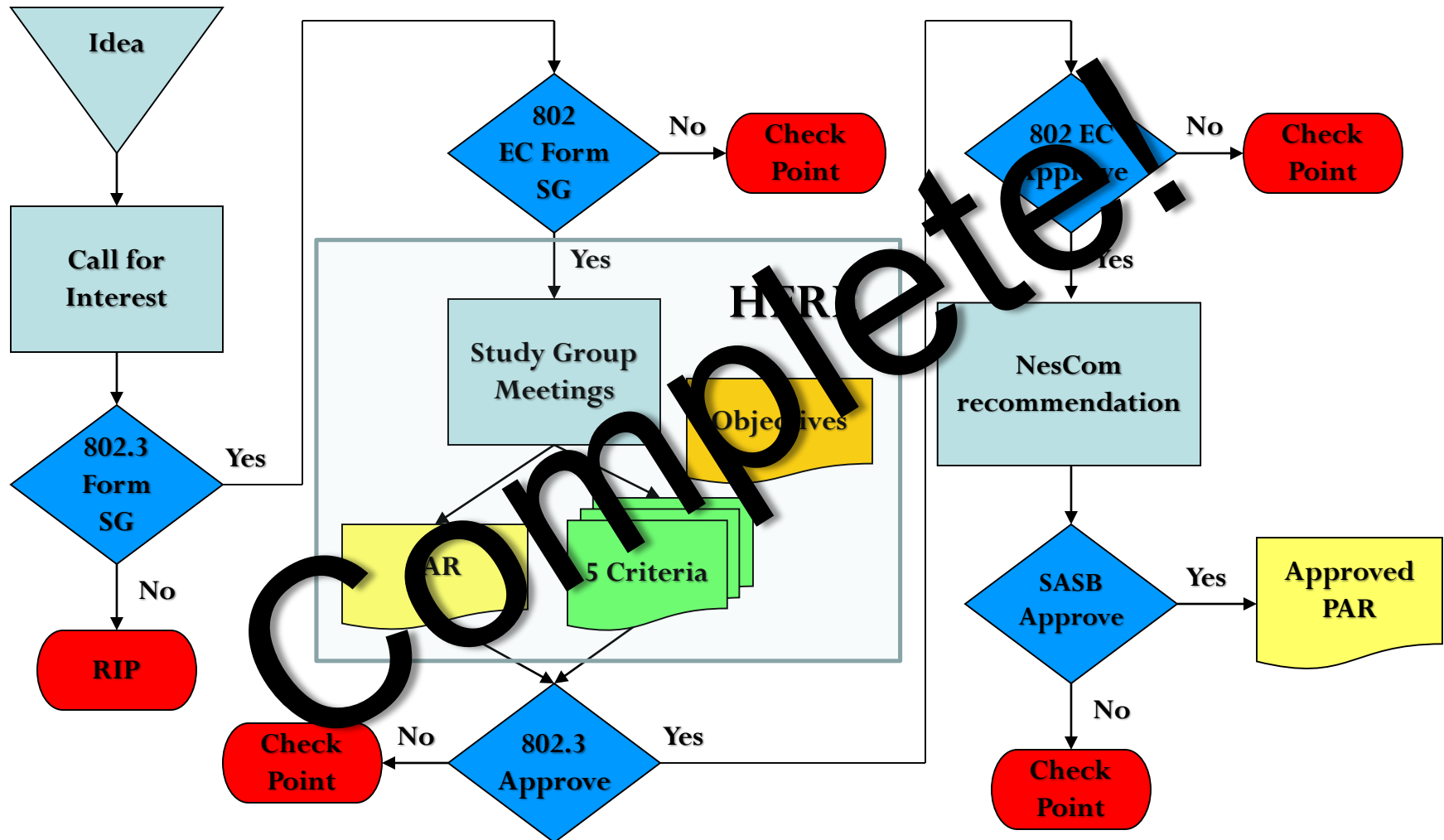
# Participation in IEEE 802 Meetings

All participation in IEEE 802 Working Group meetings is on an individual basis

- ❑ *Participants in the IEEE standards development individual process shall act based on their qualifications and experience. ([https://standards.ieee.org/develop/policies/bylaws/sb\\_bylaws.pdf](https://standards.ieee.org/develop/policies/bylaws/sb_bylaws.pdf) section 5.2.1)*
- ❑ *IEEE 802 Working Group membership is by individual; “Working Group members shall participate in the consensus process in a manner consistent with their professional expert opinion as individuals, and not as organizational representatives”. ([http://ieee802.org/PNP/approved/IEEE 802 WG PandP v19.pdf](http://ieee802.org/PNP/approved/IEEE_802_WG_PandP_v19.pdf) section 4.2.1)*
- ❑ **You have an obligation to act and vote as an individual and not under the direction of any other individual or group. Your obligation to act and vote as an individual applies in all cases, regardless of any external commitments, agreements, contracts, or orders.**
- ❑ **You shall not direct the actions or votes of any other member of an IEEE 802 Working Group or retaliate against any other member for their actions or votes within IEEE 802 Working Group meetings, see [https://standards.ieee.org/develop/policies/bylaws/sb\\_bylaws.pdf](https://standards.ieee.org/develop/policies/bylaws/sb_bylaws.pdf) section 5.2.1.3 and [http://ieee802.org/PNP/approved/IEEE 802 WG PandP v19.pdf](http://ieee802.org/PNP/approved/IEEE_802_WG_PandP_v19.pdf) section 3.4.1, list item x**

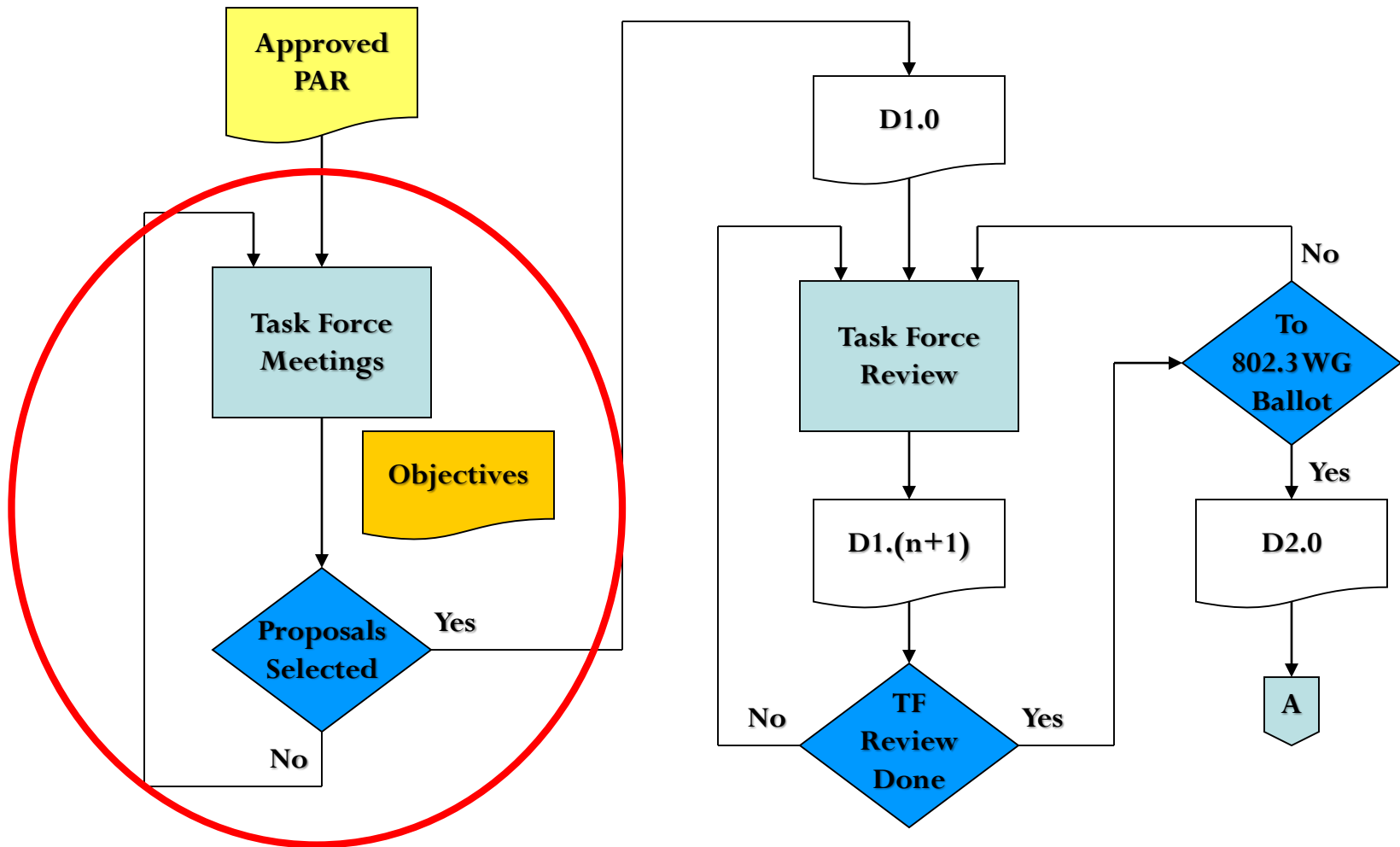
**By participating in IEEE 802 meetings, you accept these requirements. If you do not agree to these policies then you shall not participate.**

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

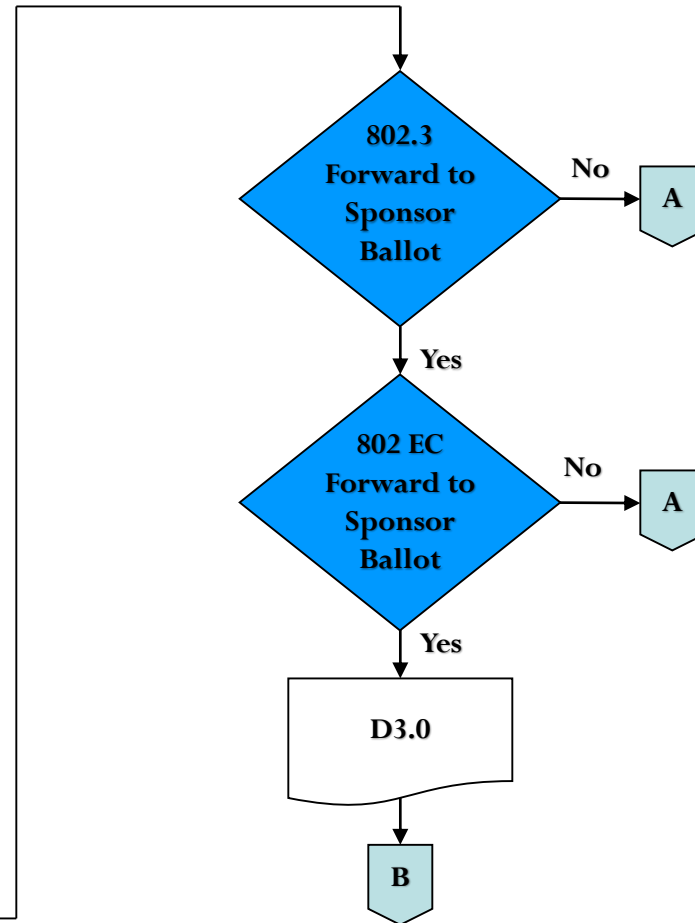
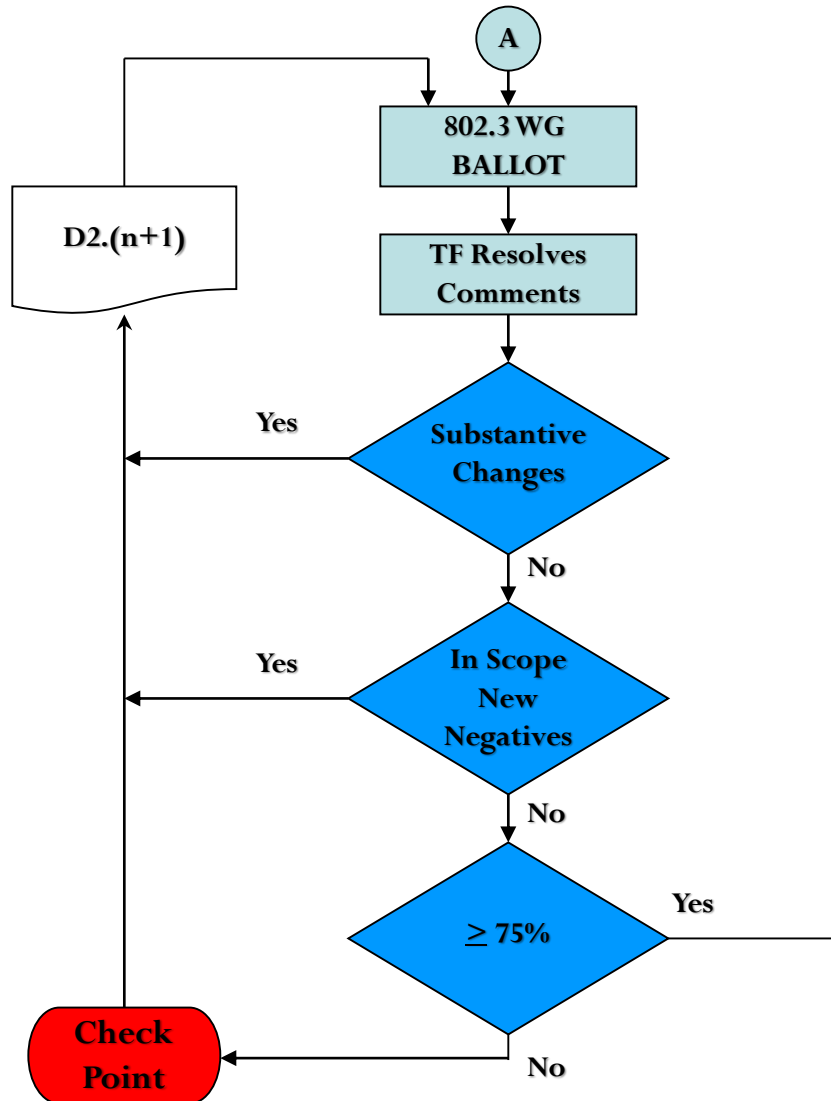


Note: At "Check Point", either the activity is ended, or there may be various options that would allow reconsideration of the approval.

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



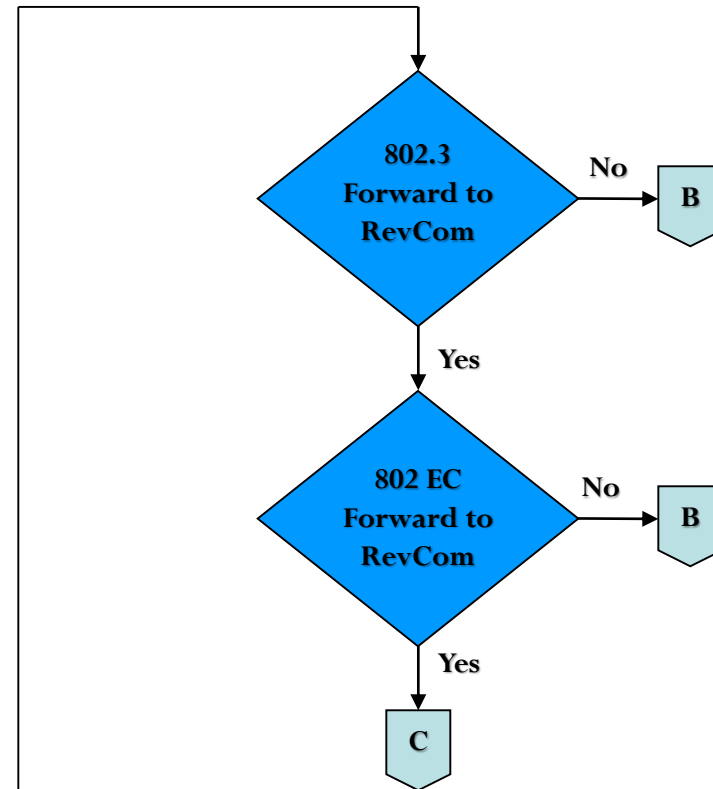
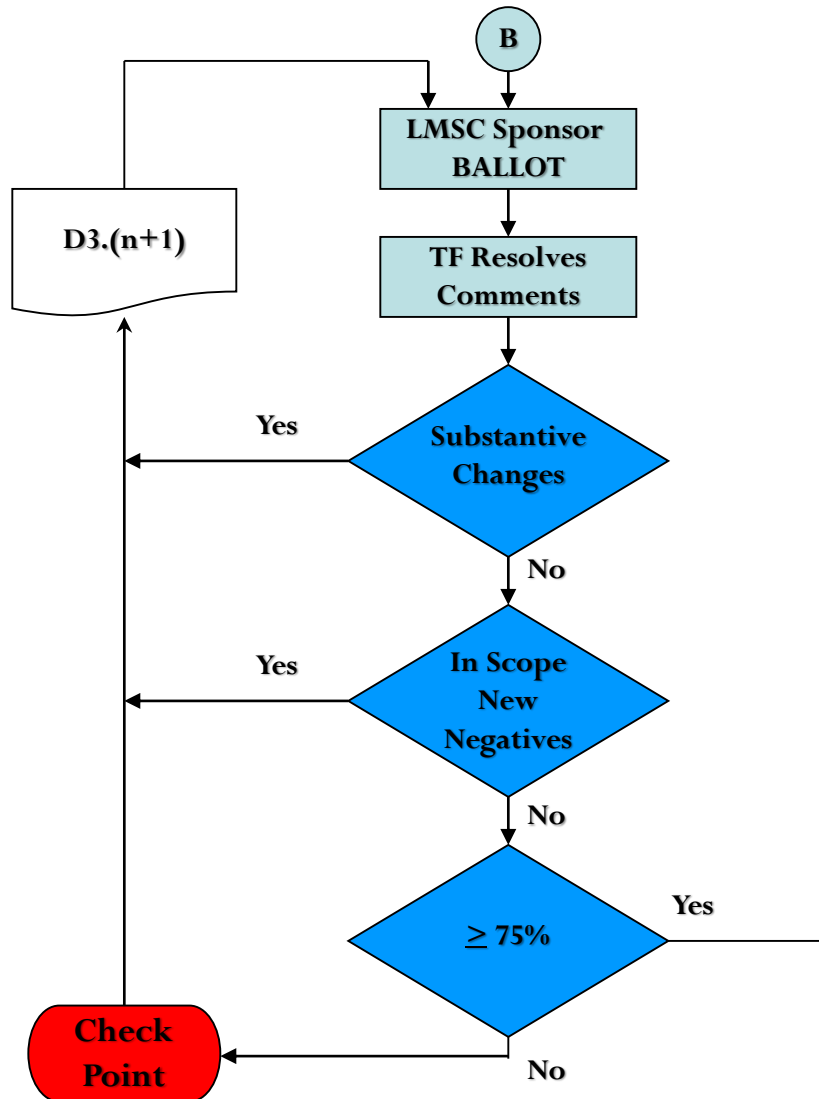
# Overview of IEEE 802.3 Standards Process (3/5) – Working Group Ballot Phase



**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

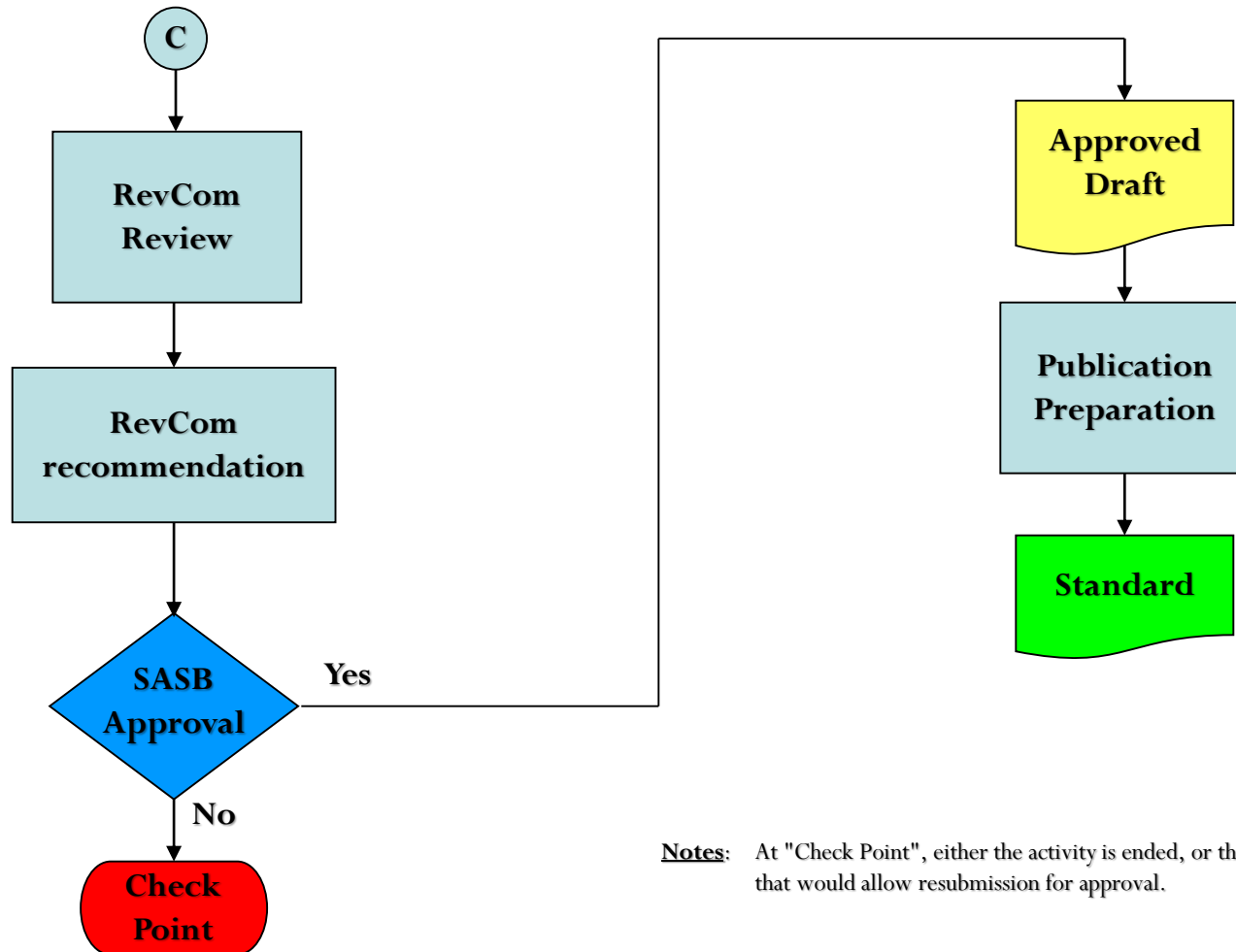
# Overview of IEEE 802.3 Standards Process (4/5)- Sponsor Ballot Phase



**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

## □ ITU-T Study Group 15

### – Response on wavelength plans and coexistence requirements

The members of Q2/15 would like to thank IEEE 802.3 for their liaison statement of January. The group considers the development of common optical specifications for optical access networks very important and useful for the industry.

Q2 has only now begun its considerations of future wavelength plans. This is being done as part of a project to develop a supplement text that reviews possible technologies for higher than 10 Gb/s per wavelength. At this stage, the supplement has developed only the modulation techniques section, and a consensus view on wavelength choices has not developed. Q2 is not in a position to comment on particular wavelength plan options at this time. In our next face to face meeting in Kobe, April 26-27, we expect more contributions and discussion on this topic. However, the coexistence capability of future PON systems with existing PON systems (e.g., G-PON, XG(S)-PON, and NGPON2) is a highly prized feature.

The membership of Q2 will continue to work on these issues. We will share any new findings with the 802.3ca group via liaisons and/or company contributions when available.

# Goals for this Meeting

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- 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

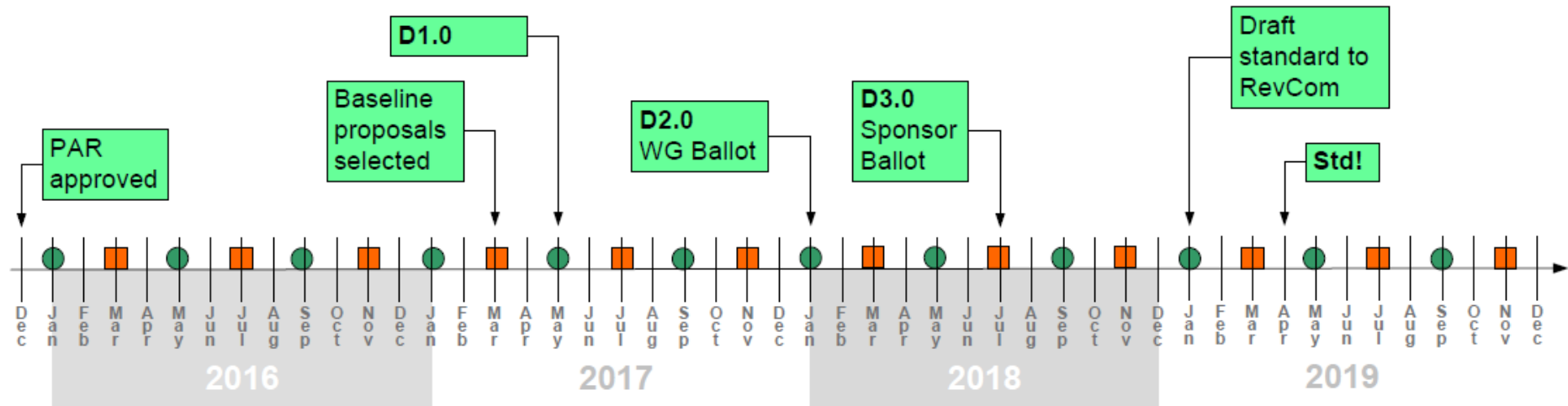
- [http://www.ieee802.org/3/ca/documents/P802\\_3ca\\_objectives.pdf](http://www.ieee802.org/3/ca/documents/P802_3ca_objectives.pdf)

# 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)

NGLEPON

DAY 1: Tuesday 14 March 2017 (times listed are subject to change)					
Item	Presenter	Title	Duration	Start time	Stop time
1	C. Knittle	Opening, General Information, Liason	0:25	8:30 AM	8:55 AM
2	D. Liu	Required Guard band for 100G EPON coexistence (liudekun_3ca_2_0317)	0:30	8:55 AM	9:25 AM
3	D. Zhang	Multi-rate receiver Survey and analysis (zhangdehzi_3ca_1_0317)	0:40	9:25 AM	10:05 AM
4	H. Lee	100G EPON Wavelength plan proposal in plan A (lee_3ca_1_0317)	0:25	10:05 AM	10:30 AM
5		Break	0:25	10:30 AM	10:55 AM
6	Y. Guo	Common 100G-EPON wavelength plan (guo_3ca_1_0317)	0:20	10:55 AM	11:15 AM
7	D. Liu	100G EPON wavelength plan analysis (liudekun_3ca_3_0317)	0:30	11:15 AM	11:45 AM
8	M. Emmendorfer	The Great TDM and WDM Coexistence Compromise (emmendorfer_3ca_1_0317) (PDS)	0:45	11:45 AM	12:30 PM
9		Lunch	1:15	12:30 PM	1:45 PM
10	E. Harstead	Compromise TDM / WDM co-existence plan (harstead_3ca_1_0317)	0:30	1:45 PM	2:15 PM
11	E. Harstead	Upstream wavelength plan comparison (harstead_3ca_2_0317)	0:20	2:15 PM	2:35 PM
12	E. Dai	Wavelength Plan for PON Convergence Description (Dai_3ca_2_0317)	0:35	2:35 PM	3:10 PM
13		Break	0:20	3:10 PM	3:30 PM
14	X. Liu	Unified Wavelength Grid in 100G-EPON (liuxiang_3ca_2_0317)	0:25	3:30 PM	3:55 PM
15	X. Huang	Experimental results of SOA pre-amplification for 25G-EPON (yang_3ca_1_0317)	0:20	3:55 PM	4:15 PM
16	D. Liu	SOA as Pre-amplifier for DML transmitter in 100G EPON (liudekun_3ca_1_0317)	0:30	4:15 PM	4:45 PM
17	D. Zhang	PHY Parameters Model Analysis (zhangdehzi_3ca_2_0317)	0:25	4:45 PM	5:10 PM
18	Y. Guo	100G-EPON power budget proposal (guo_3ca_2_0317)	0:20	5:10 PM	5:30 PM
19	J. Johnson	Straw-man power budget proposals for PMD tables (johnson_3ca_1_0317)	0:30	5:30 PM	6:00 PM
20		Recess		6:00 PM	6:00 PM

Note –Times listed are subject to change.

# Presentations (2/2)

DAY 2: Wednesday 15 March 2017 (times listed are subject to change)					
Item	Presenter	Title	Duration	Start time	Stop time
21	C. Knittle	Opening comments	0:05	9:00 AM	9:05 AM
22	D. Liu	100G EPON Power Budget Analysis (liudekun_3ca_4_0317)	0:40	9:05 AM	9:45 AM
23	D. Pan	APD based 25/100G PON module solution (Pan_3ca_1_0317)	0:30	9:45 AM	10:15 AM
24		Break	0:30	10:15 AM	10:45 AM
25	M. Laubach	20 Gb/s Aggregate Throughput (laubach_3ca_1_0317)	0:20	10:45 AM	11:05 AM
26	D. van Veen	FEC code for 25-50-100G EPON (vanveen_3ca_1_0317)	0:30	11:05 AM	11:35 AM
27	M. Laubach	More information on Folded BCH forward error correction (laubach_3ca_2_0317)	0:30	11:35 AM	12:05 PM
28		Lunch	1:20	12:05 PM	1:25 PM
29	D. Remein	GLID as Envelope ID (remein_3ca_3_0317)	0:40	1:25 PM	2:05 PM
30	G. Kramer	Dimensioning of Reassembly Buffers (kramer_3ca_1_0317)	0:25	2:05 PM	2:30 PM
31		Break	0:30	2:30 PM	3:00 PM
32	S. Wey	Reassembly Buffer and Working Mechanism (zhangweiliang_3ca_1a_0317)	0:20	3:00 PM	3:20 PM
33	G. Kramer	Channel (Wavelength) Control Protocol (kramer_3ca_2_0317)	0:35	3:20 PM	3:55 PM
34	E. Dai	PON for Network Aggregation & Transport (dai_3ca_1_0317)	0:35	3:55 PM	4:30 PM
35	S. Wey	Low Latency Services and Requirements for 100G EPON (wey_3ca_1_0317)	0:20	4:30 PM	4:50 PM
36	X. Liu	Accurate Synchronization in 100G-EPON (liuxiang_3ca_1_0317)	0:20	4:50 PM	5:10 PM
37	D. Remein	Draft text for CI 143 Summary (remein_3ca_2_0317)	0:15	5:10 PM	5:25 PM
38	D. Remein	Draft text for CI 143 (remein_3ca_1_0317)	0:00	5:25 PM	5:25 PM
39	M. Laubach	100G NGEPON PCS and PMA (laubach_3ca_3_0317)	0:20	5:25 PM	5:45 PM
40		Recess		5:45 PM	

DAY 3: Thursday 16 March 2017 (times listed are subject to change)					
Item	Presenter	Title	Duration	Start time	Stop time
41	C. Knittle	Opening comments	0:05	9:00 AM	9:05 AM
42	M. Hajduczenia	802.3 draft overview and commenting guidelines (hajduczenia_3ca_1_0317)	1:00	9:05 AM	10:05 AM
43	C. Knittle	Discussion/Motions	0:25	10:05 AM	10:30 AM
44		Break	0:20	10:30 AM	10:50 AM
45	C. Knittle	Discussion/Motions	1:00	10:50 AM	11:50 AM
46	C. Knittle	Closing Report	0:10	11:50 AM	12:00 PM
47		Adjourn		12:00 PM	

Note –Times listed are subject to change.

# Future Meetings

NG-EPON

- ❑ See: <http://www.ieee802.org/3/interims/index.html>
  
- ❑ May Interim
  - New Orleans, LA, USA
  - Week of May 22, 2017
  
- ❑ July Plenary
  - Berlin, Germany
  - Week of July 10, 2017
  
- ❑ Anyone interested in hosting a interim meeting contact me or the IEEE 802.3 Executive Secretary [Steve Carlson](#).

# Attendance at New Orleans TF Meeting

- I plan to attend IEEE 802.3 interim in New Orleans, LA: 27
- I probably will attend the interim in New Orleans, LA: 4
- I probably won't attend the interim in New Orleans, LA: 2
- I definitely won't attend the interim in New Orleans, LA: 0
  
- Total in the room: 36

## Reconsider Motion #2

Moved: Glen Kramer

Seconded: Duane Remein

For:

Against:

Abstain:

Procedural (> 50%)

Motion: Passed by voice without opposition



# Motion #4

NGEAPON

Approve the Minutes for Task Force meeting held January 2017, in Huntington Beach, CA located in file [http://www.ieee802.org/3/ca/public/meeting\\_archive/2017/01/minutes\\_unapproved\\_3ca\\_0117.pdf](http://www.ieee802.org/3/ca/public/meeting_archive/2017/01/minutes_unapproved_3ca_0117.pdf), with the following changes:

Replace "10E-3" with "1E-3" in Motion #3 of those minutes.

Moved: Glen Kramer

Seconded: Duane Remein

For: 32

Against: 0

Abstain: 0

Technical ( $\geq 75\%$ )

Motion: Passes

**Thank you!**