

Agenda and General Information

IEEE P802.3ca 100G-EPON

Curtis Knittle
CableLabs

Macau, March 14-16, 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, Bright House Networks

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

Approve the agenda for Task Force meeting to be held Mar 14-16, 2016, in Macau, China, located in file:

http://www.ieee802.org/3/ca/public/meeting_archive/2016/03/agenda_3ca_1_0316.pdf

- Moved: Jorge Salinger
- Seconded: Marek Hajduczenia
- Results: Passes by voice vote

Motion #2

Approve the meeting minutes from Task Force meeting held January 20-21, 2016, in Atlanta, GA, in file:

http://www.ieee802.org/3/ca/public/meeting_archive/2016/01/minutes_unapproved_3ca_0116.pdf

- Moved: Duane Remein
- Seconded: Glen Kramer
- Results: Passes by voice vote

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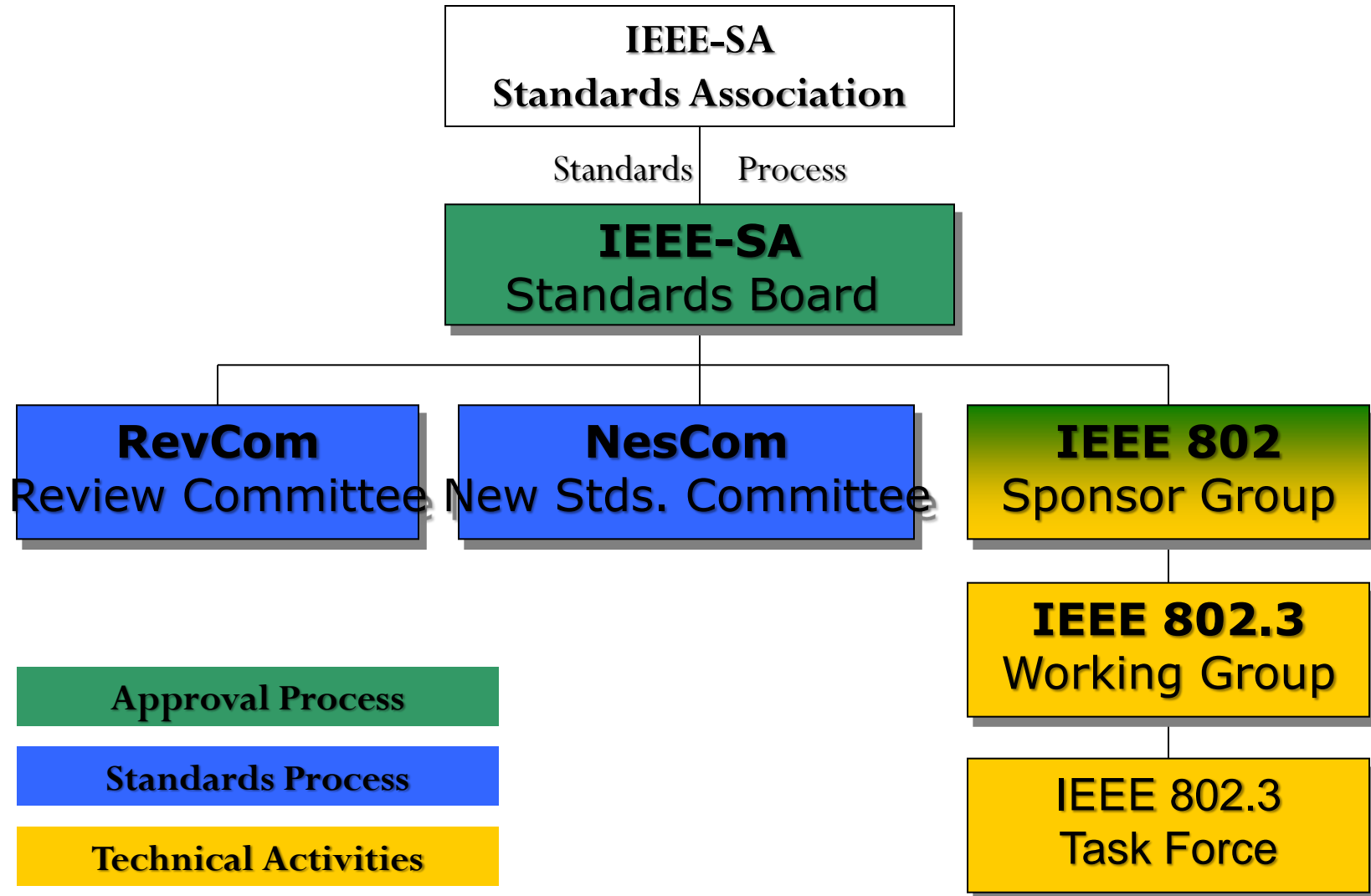
- ❑ Based upon IEEE 802.3 Rules
 - Foundation based upon Robert's Rules of Order
 - Anyone in the room may speak
 - Anyone in the room may vote
- ❑ **RESPECT**... give it, get it
- ❑ NO product pitches
- ❑ NO corporate pitches
- ❑ NO prices!!!
 - This includes costs, ASPs, etc. no matter what the currency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

- ❑ Tutorial Material on attendance tool
 - http://ieee802.org/3/minutes/attendance_procedures.pdf

- ❑ 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/
- ❑ **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

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

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- ❑ 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 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

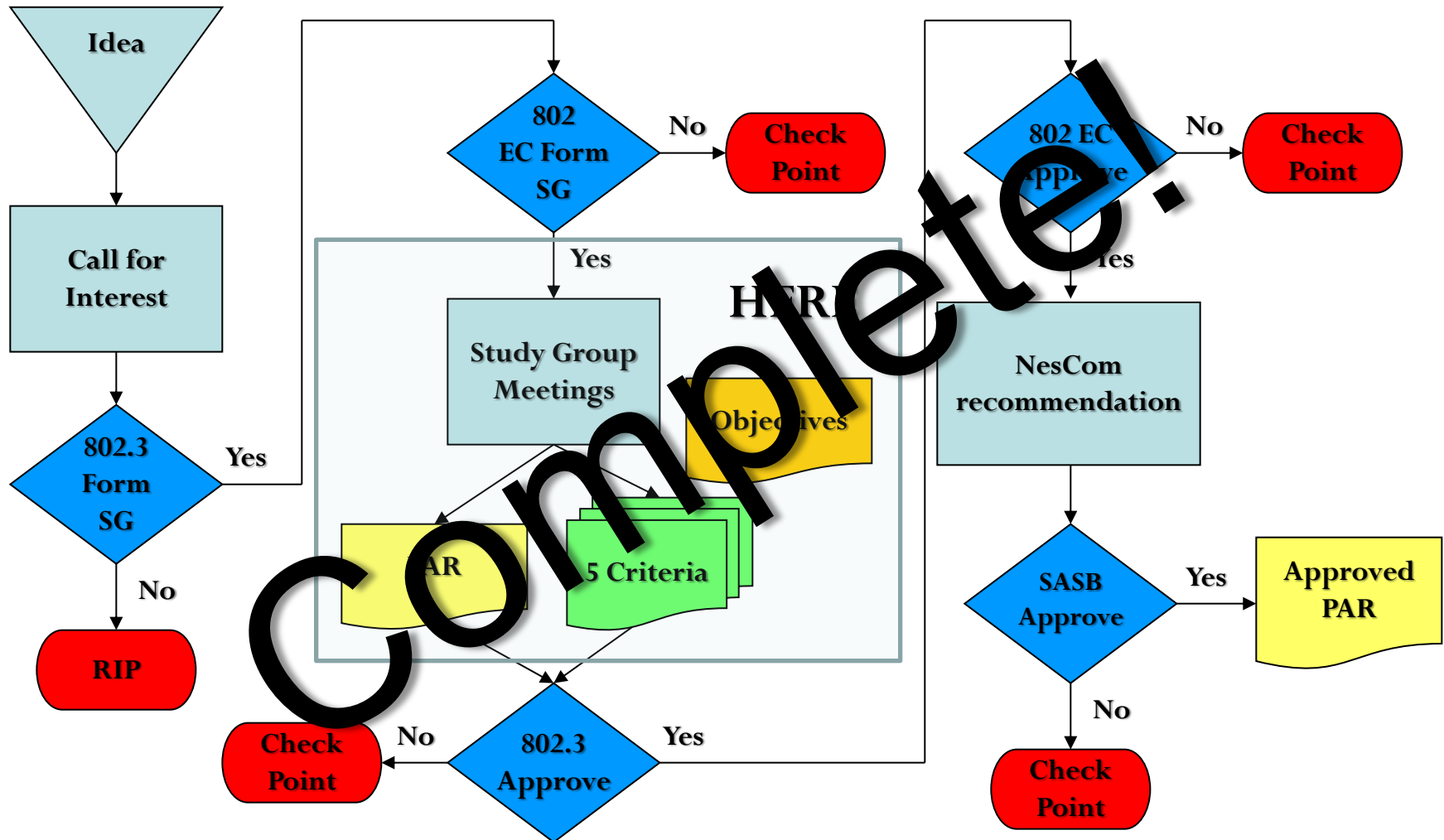
- If anyone in this meeting is personally aware of the holder of any patent claims that are potentially essential to implementation of the proposed standard(s) under consideration by this group and that are not already the subject of an Accepted Letter of Assurance:
 - Either speak up now or
 - Provide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

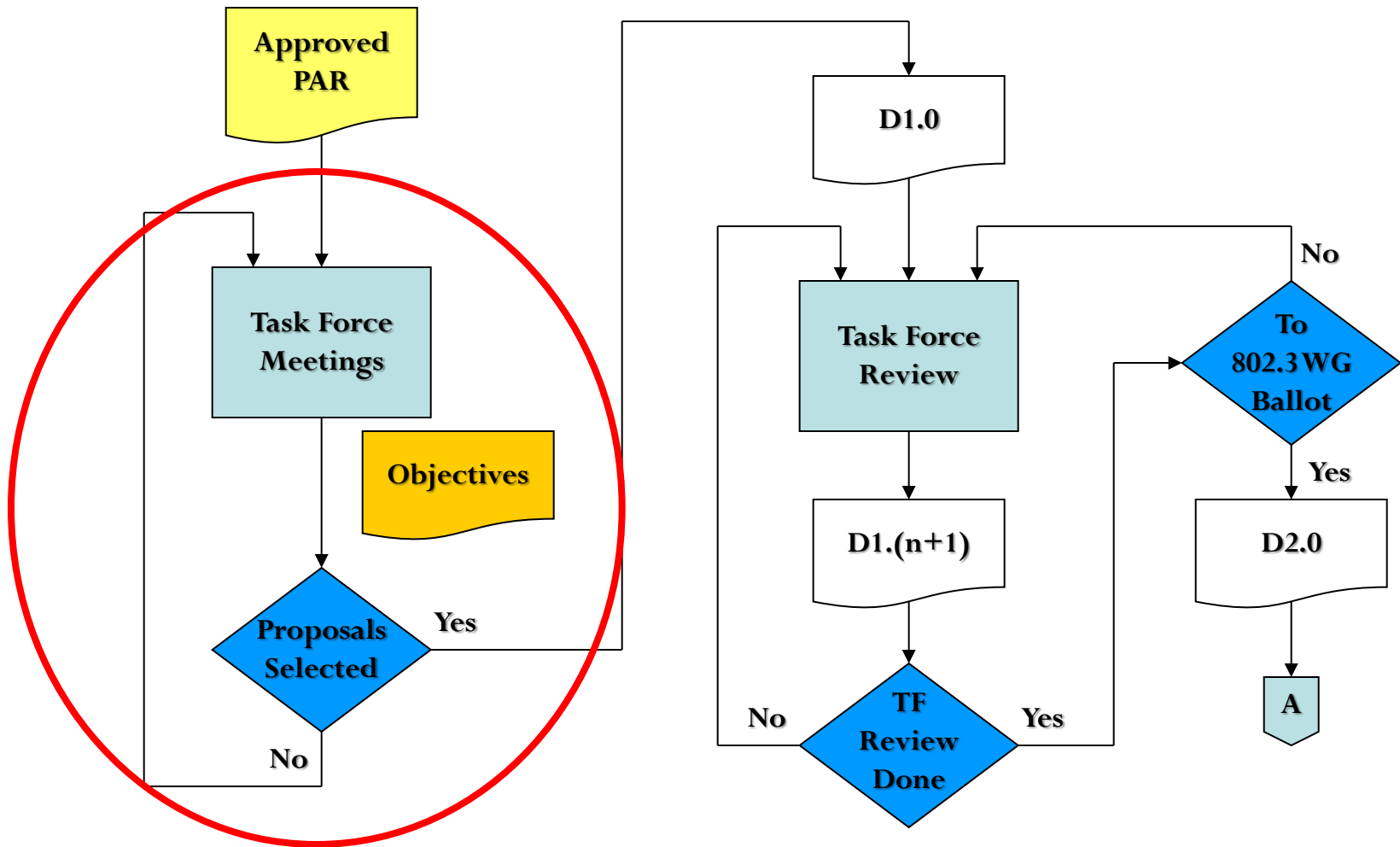
See IEEE-SA Standards Board Operations Manual, clause 5.3.10 and "Promoting Competition and Innovation: What You Need to Know about the IEEE Standards Association's Antitrust and Competition Policy" for more details.

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

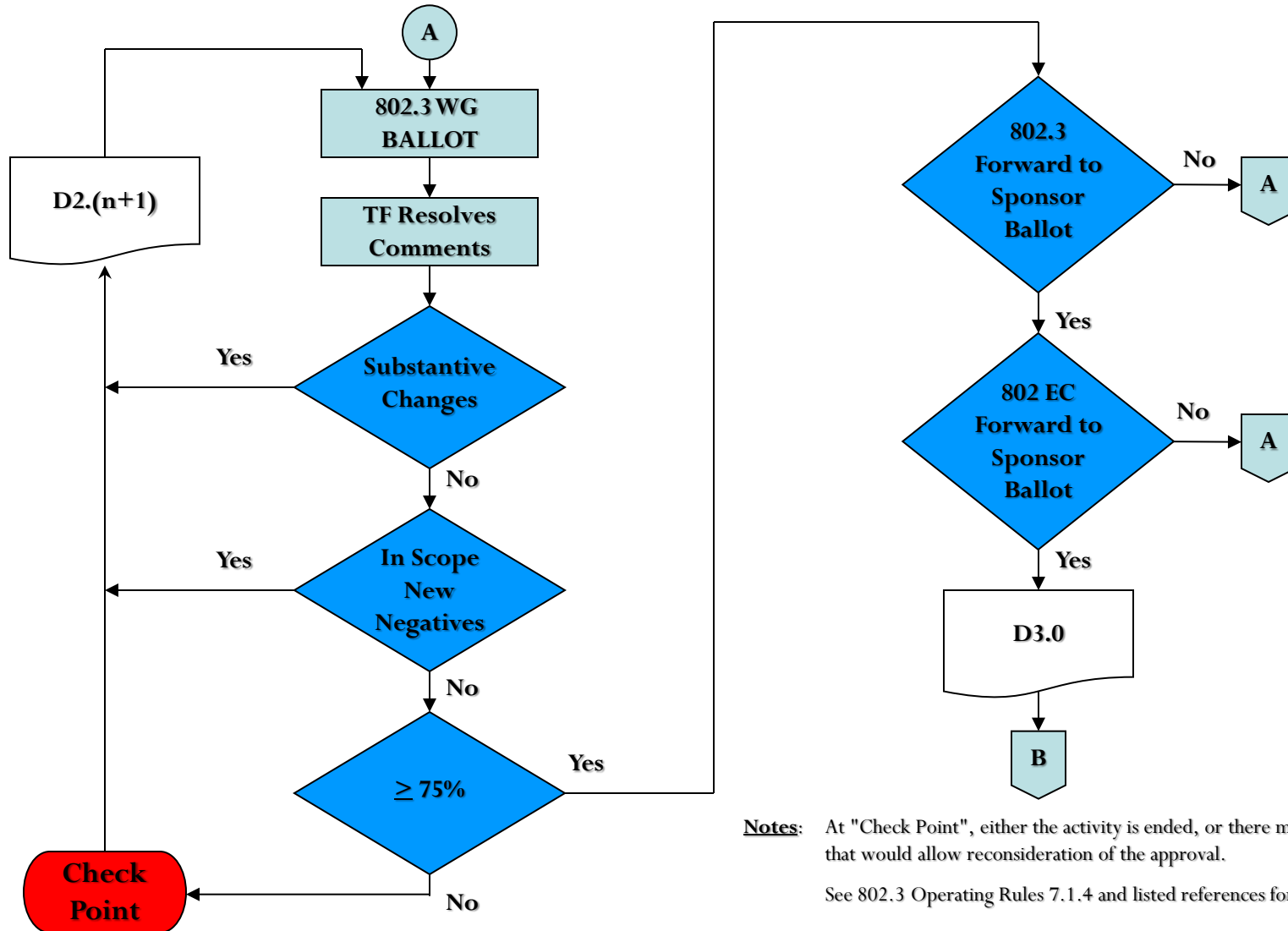


Note: At "Check Point", either the activity is ended, or there may be various options that would allow reconsideration of the approval.

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



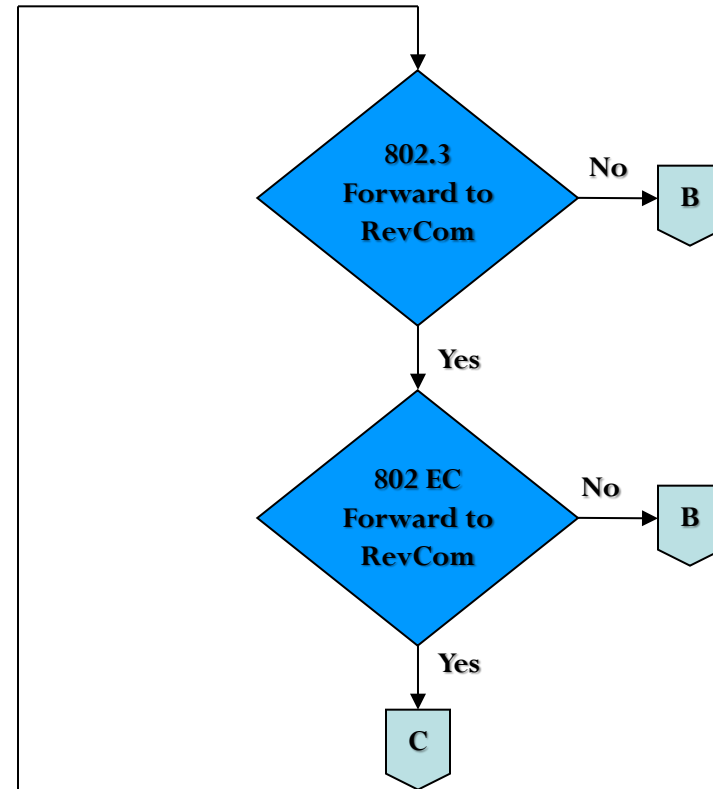
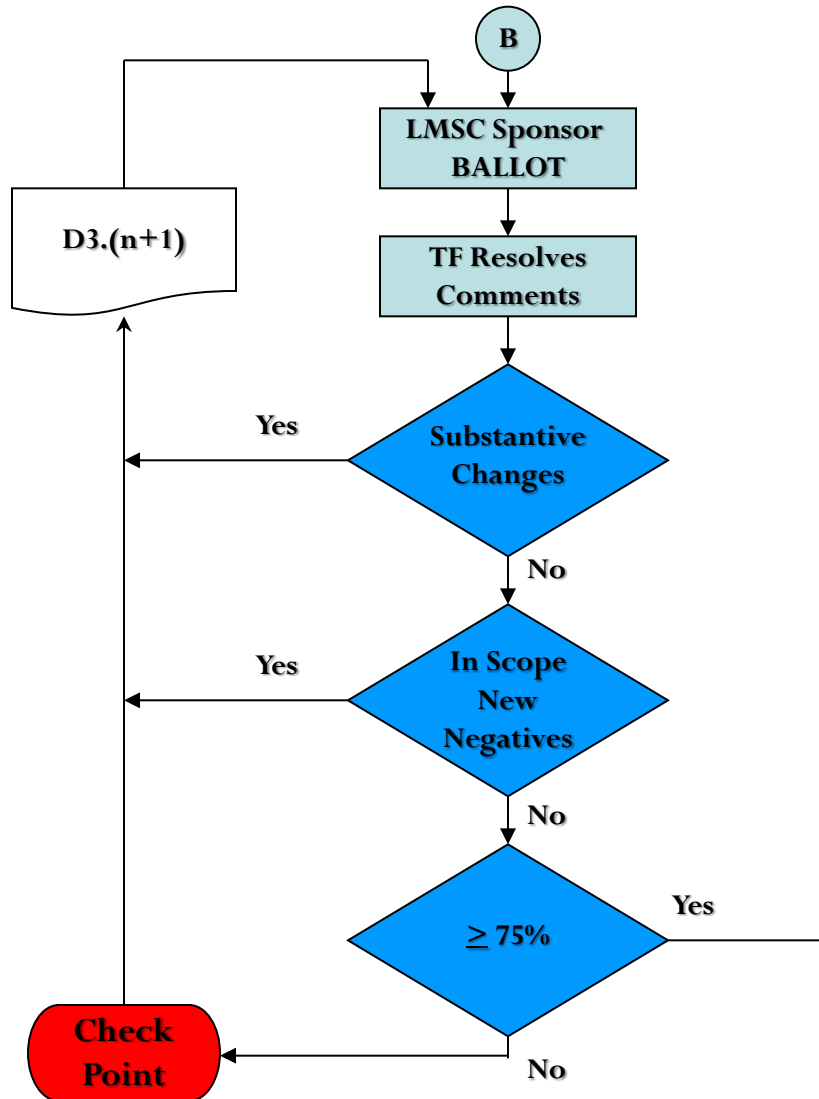
Overview of IEEE 802.3 Standards Process (3/5) – Working Group Ballot Phase



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

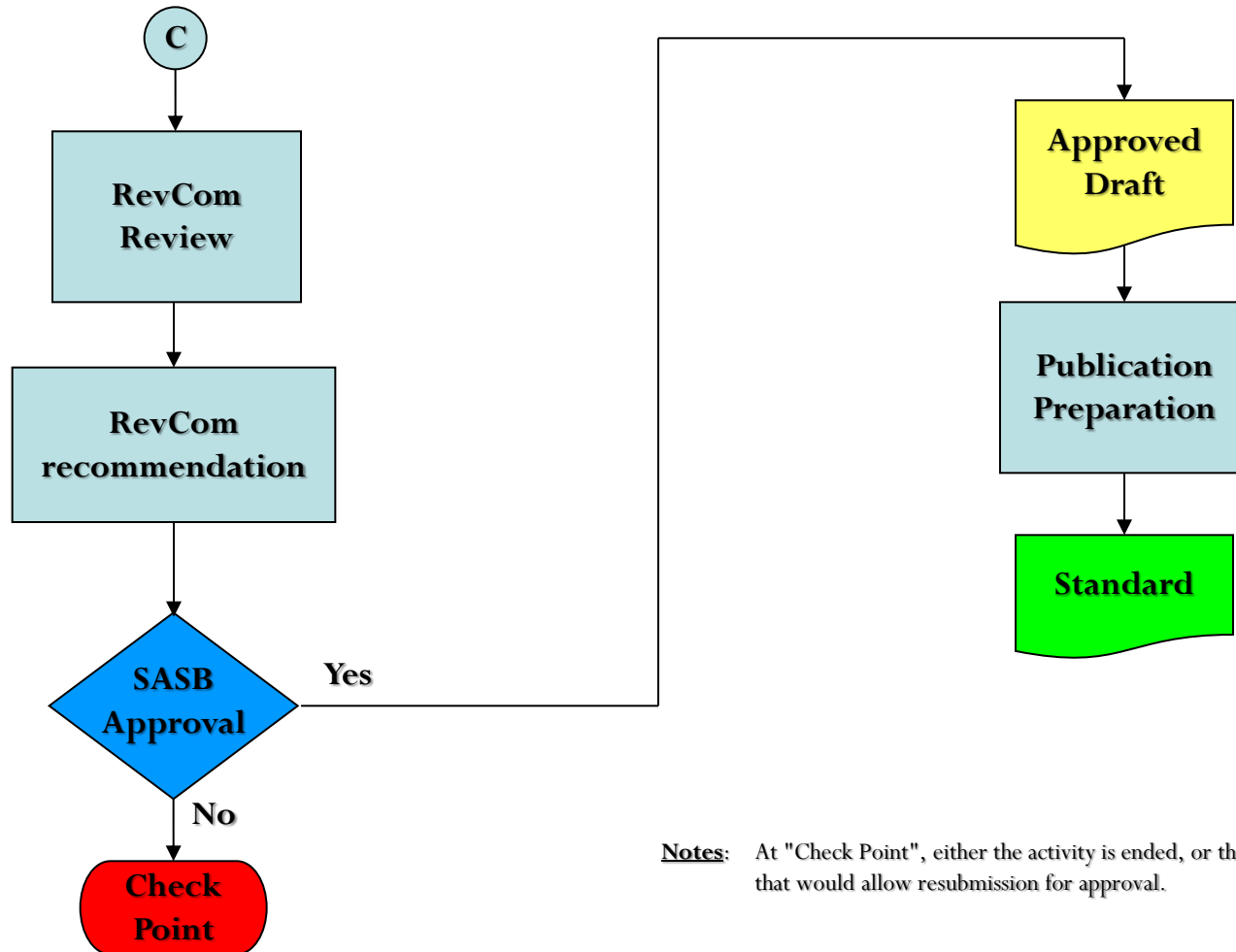
Overview of IEEE 802.3 Standards Process (4/5)- Sponsor Ballot Phase



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

None

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

□ CSD

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

□ Objectives

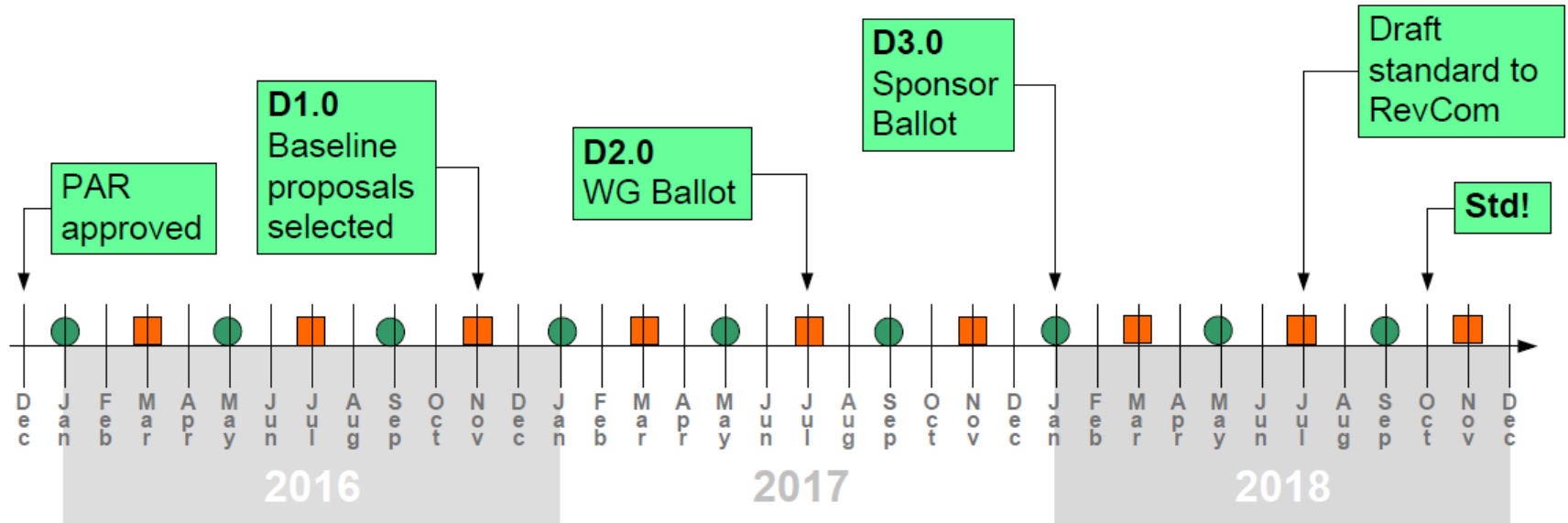
- http://www.ieee802.org/3/ca/documents/P802_3ca_objectives.pdf

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 (1/3)

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DAY 1: Monday, 14 March 2016 (times listed are subject to change)					
Item	Presenter	Title	Duration	Start time	Stop time
1	C. Knittle	General Information	0:30	1:00 PM	1:30 PM
2	G. Kramer	Flexible and Extensible Architecture for Multiple Generations of NG-EPON(kramer_3ca_1_0316)	0:30	1:30 PM	2:00 PM
3	D. Liu	100G EPON ONU solution discussion and cost comparison (liu_3ca_1_0316)	0:20	2:00 PM	2:20 PM
4	E. Dai	Utilize the 100G EPON Capacities with Low Cost 4X25 Gb/s Architecture (dai_3ca_1_0316)	0:35	2:20 PM	2:55 PM
5		Break	0:30	2:55 PM	3:25 PM
6	E. Dai	Fixed and Tunable options for 100Gb/s EPON from Architecture Point of View (dai_3ca_2_0316)	0:35	3:25 PM	4:00 PM
7	Y. Guo	Comments on NG-EPON architecture (guo_3ca_1_0316)	0:25	4:00 PM	4:25 PM
8	Wilson He	Proposal of NG-EPON to Support PtP WDM (wilson_3ca_1_0316)	0:20	4:25 PM	4:45 PM
9	Y. Guo	Considerations on dual rate support for asymmetrical 25G/10G-EPON (geng_3ca_1_0316)	0:20	4:45 PM	5:05 PM
10		Recess		5:05 PM	

Note –Times listed are subject to change.

Presentations (2/3)

NG-EPON

DAY 2: Tuesday 15 March 2016 (times listed are subject to change)					
Item	Presenter	Title	Duration	Start time	Stop time
11	C.Knittle	Opening comments	0:05	9:00 AM	9:05 AM
12	F. Effenberger	Bonding requirements (effenberger_3ca_1_0316)	0:25	9:05 AM	9:30 AM
13	G. Kramer	A proposal for Channel Bonding at MAC Control Sublayer (kramer_3ca_2_0316)	0:45	9:30 AM	10:15 AM
14		Break	0:30	10:15 AM	10:45 AM
15	E. Dai	Multi-Channel Control Protocol for 100Gb/s EPON (dai_3ca_3_0316)	0:30	10:45 AM	11:15 AM
16	C. Cole	100G 40km 4x25G NRZ LWDM APD RX measurement results (cole_3ca_1_0316)	0:20	11:15 AM	11:35 AM
17	E. Harstead	Leveraging the 25G ecosystem for low cost optical components (harstead_3ca_1_0316)	0:25	11:35 AM	12:00 PM
18		Lunch	1:30	12:00 PM	1:30 PM
19	D. Umeda	25G NRZ transmission (umeda_3ca_1_0316)	0:25	1:30 PM	1:55 PM
20	H. Lee	Technical feasibility of 25G/10G asymmetric transmission (lee_3ca_1_0316)	0:25	1:55 PM	2:20 PM
21	F. Effenberger	Enhanced FEC consideration for NG-EPON (effenberger_3ca_2_0316)	0:20	2:20 PM	2:40 PM
22	Wilson He	Wavelength plan for PtP WDM (wilson_3ca_2_0316)	0:20	2:40 PM	3:00 PM
23		Break	0:30	3:00 PM	3:30 PM
24	E. Harstead	25G base PHY wavelength plan (harstead_3ca_2_0316)	0:45	3:30 PM	4:15 PM
25	D. Liu	100G EPON wavelength plan discussion (liu_3ca_2_0316)	0:20	4:15 PM	4:35 PM
26	X. Huang	NG-EPON wavelength plan (huang_3ca_1_0316)	0:25	4:35 PM	5:00 PM
27	T. Funada	Brief consideration about Loss budget and wavelength allocation (funada_3ca_1_0316)	0:20	5:00 PM	5:20 PM
28		Recess		5:20 PM	

Note –Times listed are subject to change.

Presentations (3/3)

NG-EPON

DAY 3: Wednesday, 16 March 2016 (times listed are subject to change)					
Item	Presenter	Title	Duration	Start time	Stop time
29	C.Knittle	Opening comments	0:05	9:00 AM	9:05 AM
30	L. Yi	Symmetric 100Gb/s PON solutions based on 10G-class optical devices (yi_3ca_1_0316)	0:40	9:05 AM	9:45 AM
31				9:45 AM	9:45 AM
32				9:45 AM	9:45 AM
33				9:45 AM	9:45 AM
34		Recess		9:45 AM	

Note –Times listed are subject to change.

Future Meetings

NG-EPON

- ❑ See: <http://www.ieee802.org/3/interims/index.html>

- ❑ May Interim
 - Whistler, BC, Canada
 - Week of May 23, 2016

- ❑ July Plenary
 - San Diego, CA
 - Week of July 25, 2016

- ❑ Anyone interested in hosting a interim meeting contact me or the IEEE 802.3 Executive Secretary [Steve Carlson](#).

Attendance at Whistler, BC

- I plan to attend IEEE 802 interim in Whistler, BC: 10
 - I probably will attend the interim in Whistler, BC : 1
 - I probably won't attend the interim in Whistler, BC : 6
 - I definitely won't attend the interim in Whistler, BC : 2
-
- Total in the room: 21

Thank you!