

Agenda and General Information

IEEE P802.3ca 100G-EPON

Curtis Knittle
CableLabs
San Diego, CA
July 25-27, 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

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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 July 25-27, 2016, in San Diego, CA, located in file:

http://www.ieee802.org/3/ca/public/meeting_archive/2016/07/agenda_3ca_1_0716.pdf

- Moved:
- Seconded:
- Results:

Motion #2

Approve the meeting minutes from Task Force meeting held May 24-25, 2016, in Whistler, BC, in file:

http://www.ieee802.org/3/ca/public/meeting_archive/2016/05/minutes_unapproved_3ca_0516.pdf

- Moved:
- Seconded:
- Results:

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

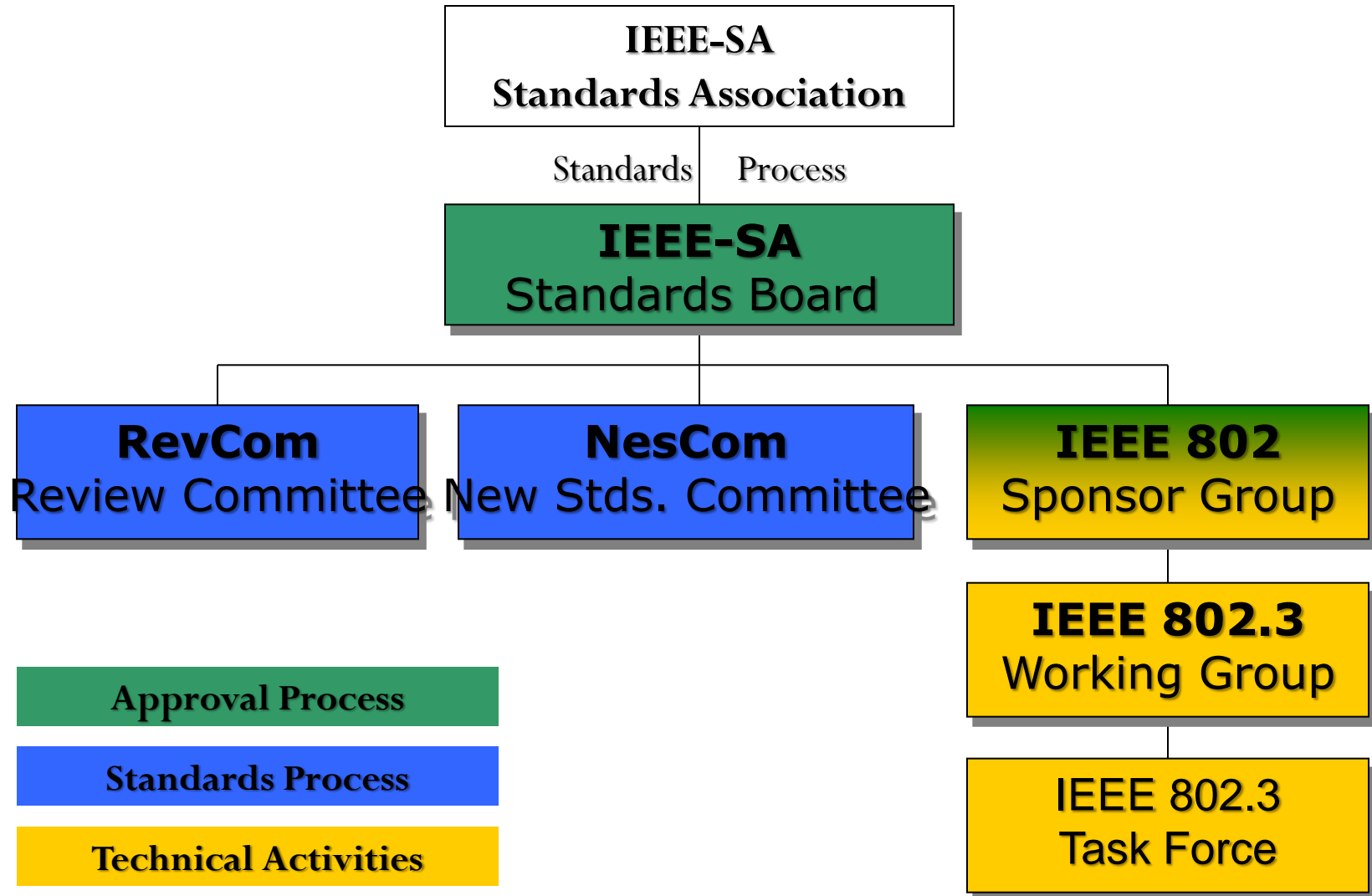
- ❑ Based upon IEEE 802.3 Rules
 - Foundation based upon Robert's Rules of Order
 - Anyone in the room may speak
 - Anyone in the room may vote
- ❑ **RESPECT**... give it, get it
- ❑ NO product pitches
- ❑ NO corporate pitches
- ❑ NO prices!!!
 - This includes costs, ASPs, etc. no matter what the currency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

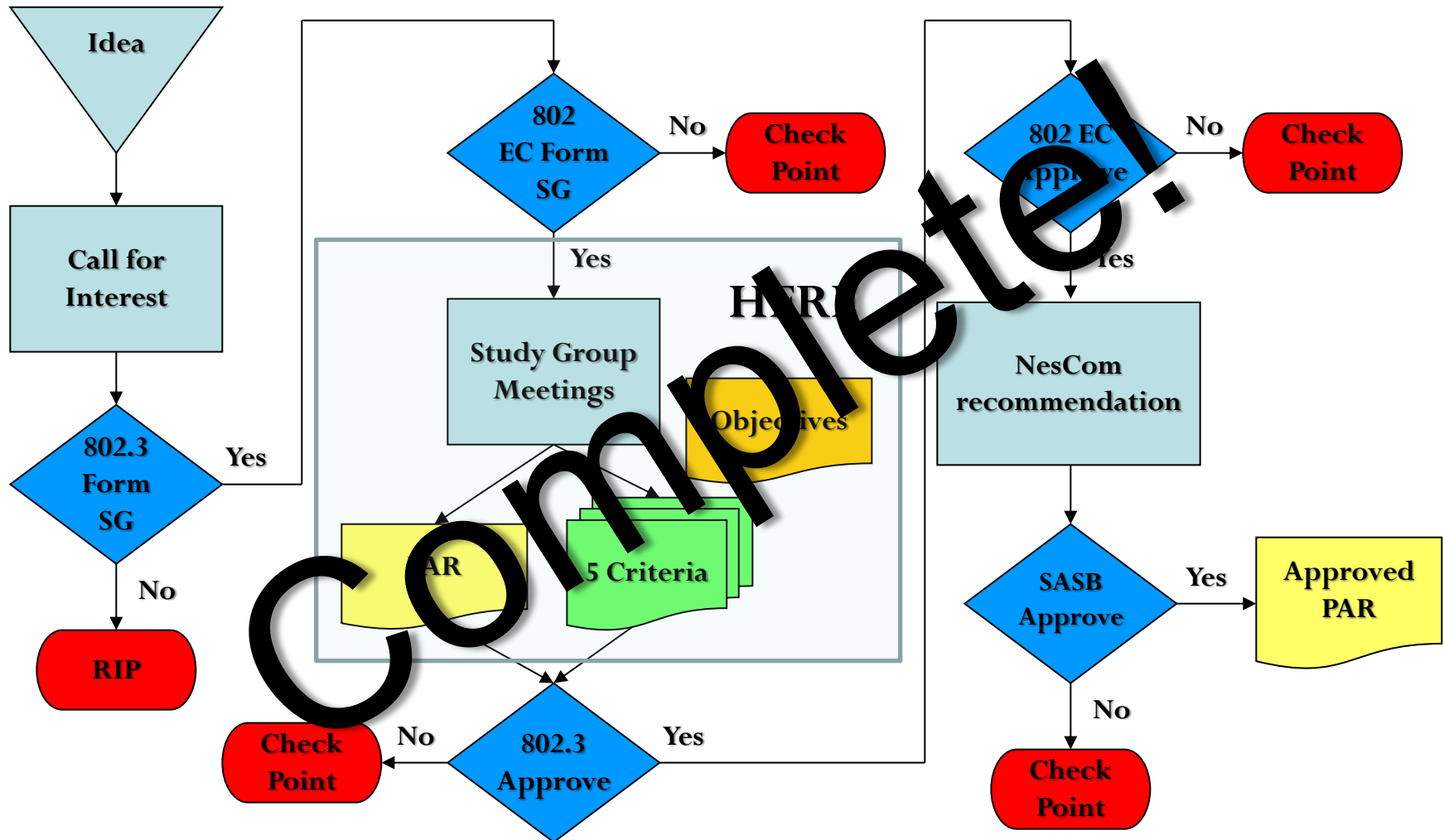
- If anyone in this meeting is personally aware of the holder of any patent claims that are potentially essential to implementation of the proposed standard(s) under consideration by this group and that are not already the subject of an Accepted Letter of Assurance:
 - Either speak up now or
 - Provide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

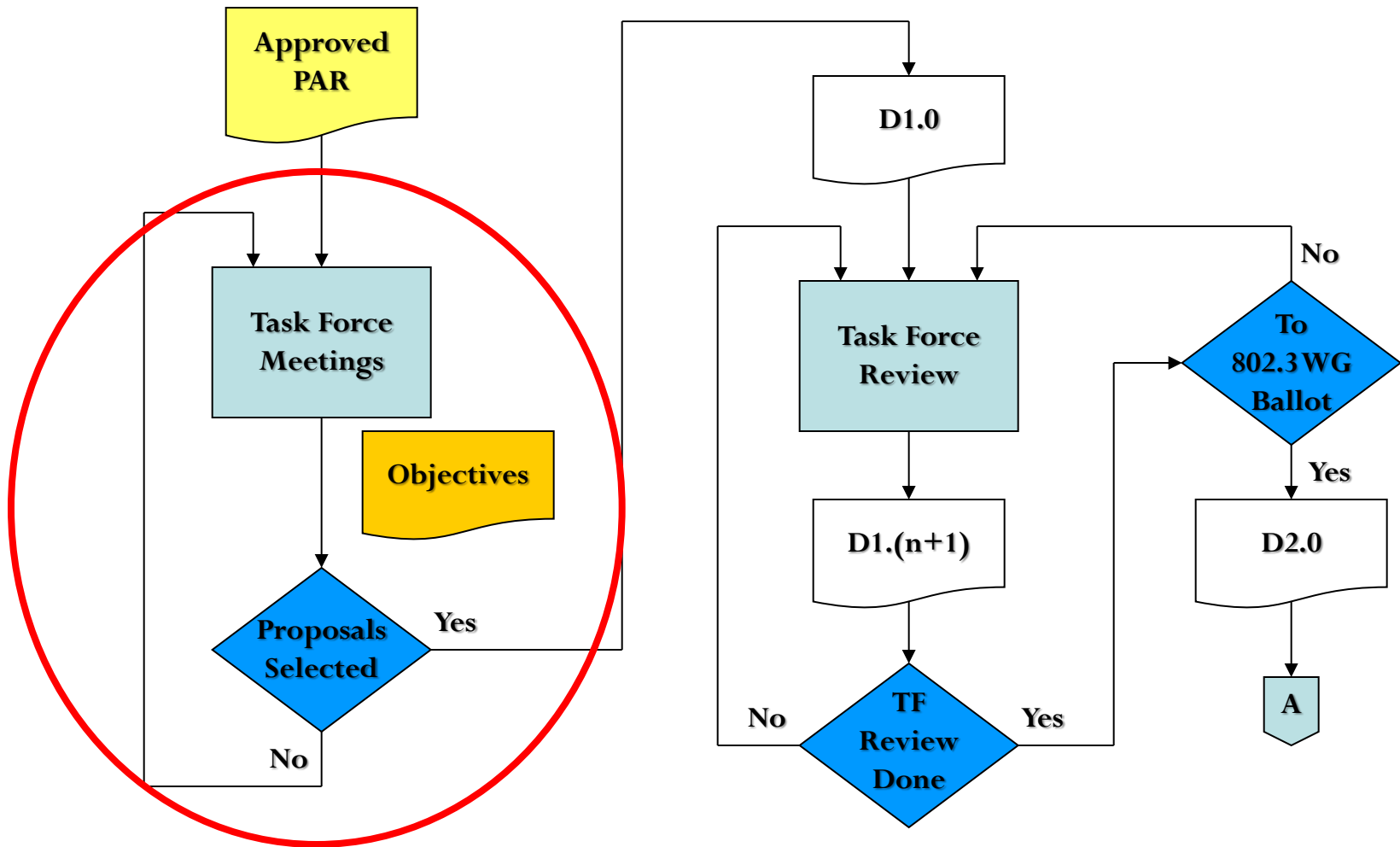
See IEEE-SA Standards Board Operations Manual, clause 5.3.10 and "Promoting Competition and Innovation: What You Need to Know about the IEEE Standards Association's Antitrust and Competition Policy" for more details.

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

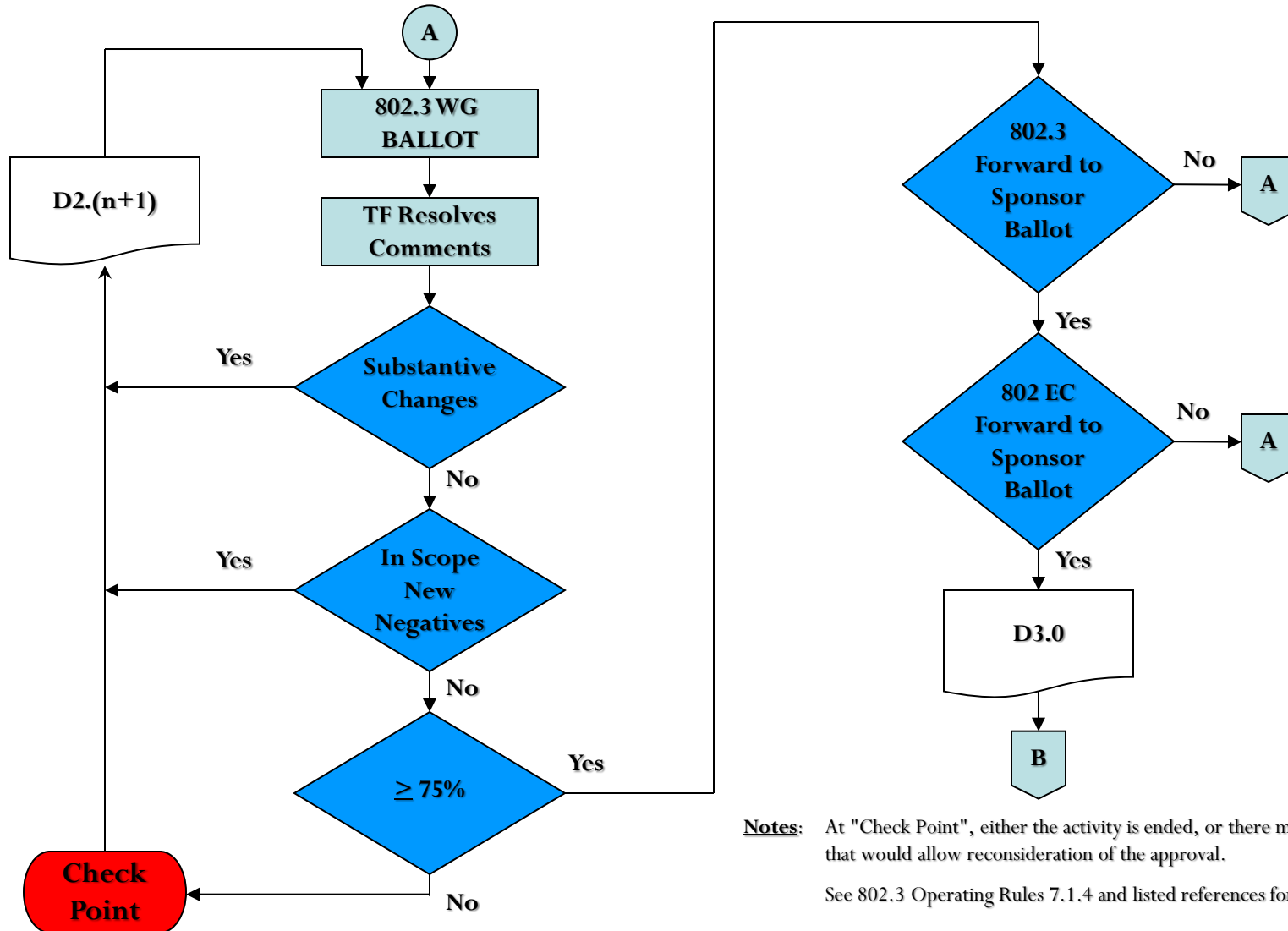


Note: At "Check Point", either the activity is ended, or there may be various options that would allow reconsideration of the approval.

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



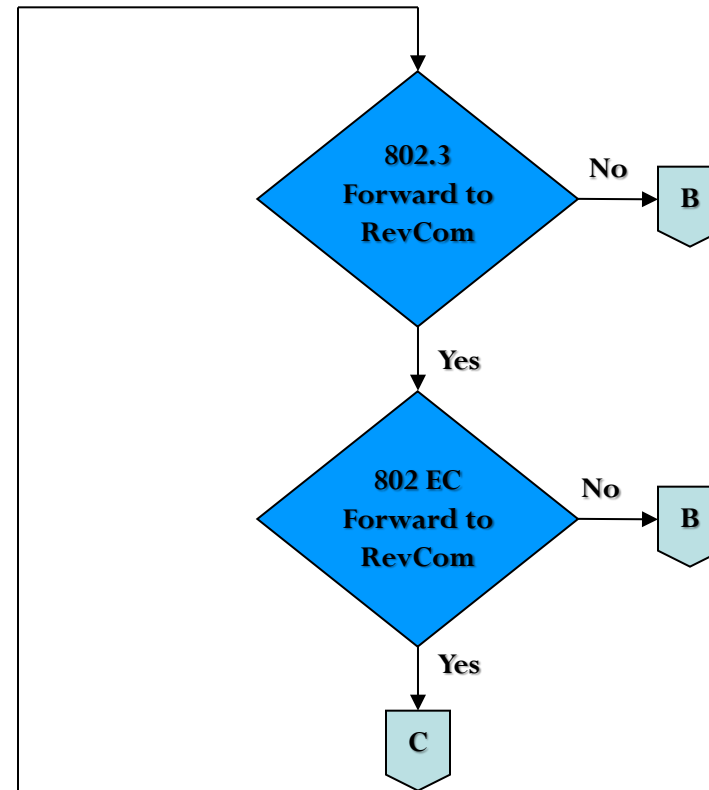
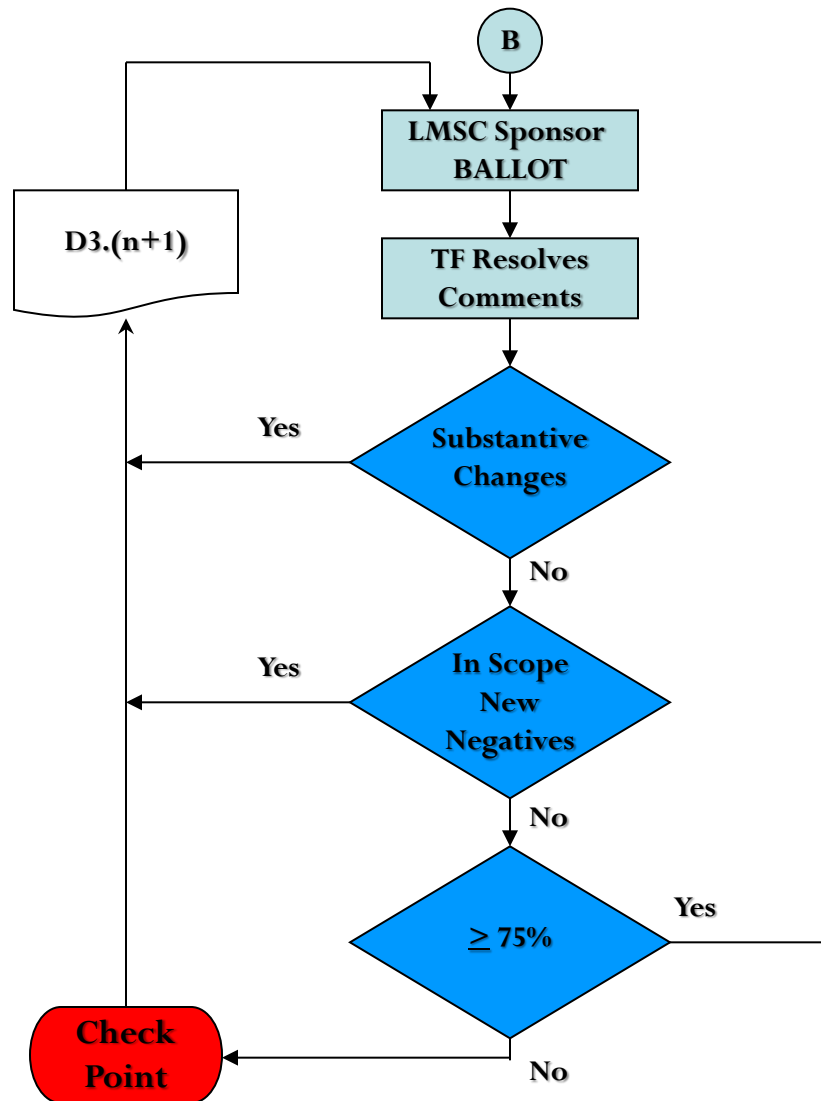
Overview of IEEE 802.3 Standards Process (3/5) – Working Group Ballot Phase



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

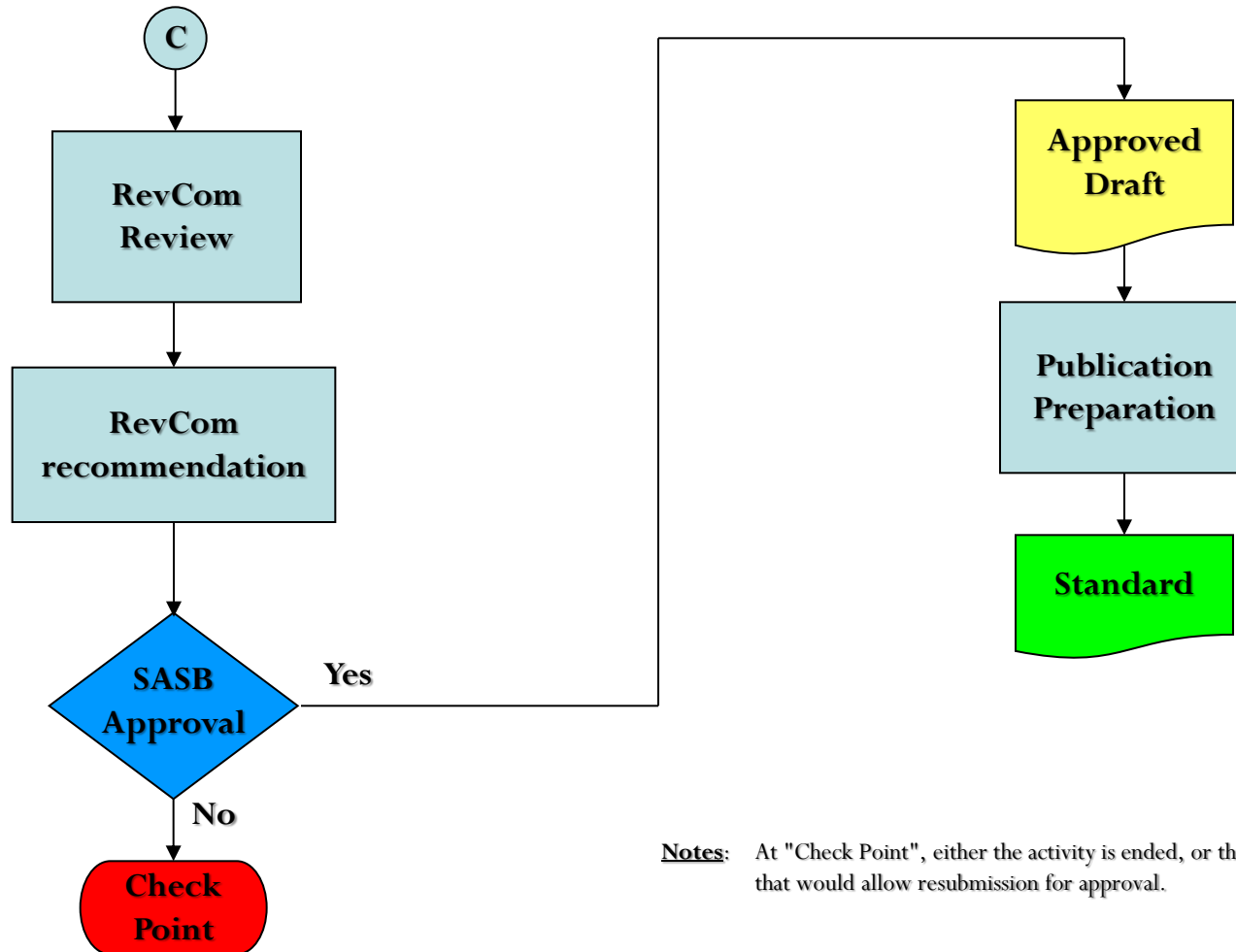
Overview of IEEE 802.3 Standards Process (4/5)- Sponsor Ballot Phase



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

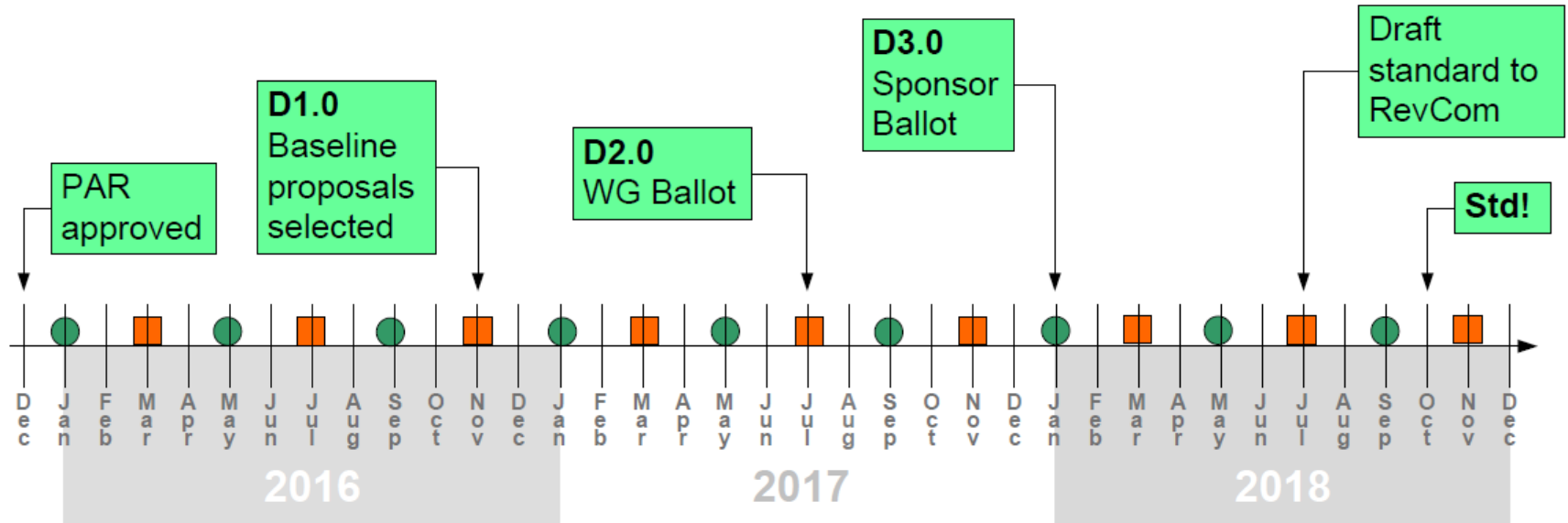
- http://www.ieee802.org/3/ca/documents/P802_3ca_objectives.pdf

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 25 July 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	F. Effenberger	PMD call for contributions (effenberger_3ca_1_0716)	0:20	1:30 PM	1:50 PM
3	E. Harstead	25/50/100G PON optical vendor input (harstead_3ca_1a_0716)	0:40	1:50 PM	2:30 PM
4	E. Harstead	25G power budget: 2nd iteration, downstream (harstead_3ca_2_0716)	0:20	2:30 PM	2:50 PM
5	H. Lee	Unification of 25G receiver sensitivity for 100G EPON (lee_3ca_2_0716)	0:15	2:50 PM	3:05 PM
6		Break	0:25	3:05 PM	3:30 PM
7	J. Johnson	Component Capabilities for NG-EPON (johnson_3ca_2_0716)	0:30	3:30 PM	4:00 PM
8	N. Tanaka	Further consideration of 25G DML transmission (tanaka_3ca_1_0716)	0:20	4:00 PM	4:20 PM
9	V. Houtsma	Dispersion Tolerance Measurements @ 1330 nm 25G NRZ/Duobinary with DML (houtsma_3ca_1_0716)	0:00	4:20 PM	4:20 PM
10	D. Liu	The Impact of Differential Pre-coding on 25-Gb/s EDB, NRZ, and NRZ-NFC (liu_3ca_5_0716)	0:30	4:20 PM	4:50 PM
11	Y. Guo	Proposal for 25Gb NRZ PMD (guo_3ca_1_0716)	0:20	4:50 PM	5:10 PM
12	G. Kramer	100G-EPON Configurations(kramer_3ca_1_0716)	0:30	5:10 PM	5:40 PM
13	G. Kramer	25G- to 50G- to 100G-EPON Upgrade Scenarios (kramer_3ca_2_0716)	0:20	5:40 PM	6:00 PM
14		Recess		6:00 PM	

Note –Times listed are subject to change.

Presentations (2/3)

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DAY 2: Tuesday 26 July 2016 (times listed are subject to change)					
Item	Presenter	Title	Duration	Start time	Stop time
15	C.Knittle	Opening comments	0:05	8:00 AM	8:05 AM
16	J. Zhang	Considerations for 100G EPON Standarization (zhang_3ca_1b_0716)	0:45	8:05 AM	8:50 AM
17	E. Dai	The Needs for Standalone 25G EPON (dai_3ca_3_0716)	0:25	8:50 AM	9:15 AM
18	B. Powell	25G/50G/100G EPON architectures: 1+3 vs. 1+4 (powell_3ca_1_0716.pdf)	0:30	9:15 AM	9:45 AM
19		Break	0:30	9:45 AM	10:15 AM
20	H. Chung	Analytical investigation of FWM for O-band multi-channel transmission (chung_3ca_1_0716.pdf)	0:20	10:15 AM	10:35 AM
21	E. Harstead	25G/50G/100G EPON wavelength plan: if all wavelengths in O-band (harstead_3ca_3_0716)	0:40	10:35 AM	11:15 AM
22	T. Funada	Consideration on optical crosstalk and required wavelength block filter for receiver (funada_3ca_1_0716)	0:20	11:15 AM	11:35 AM
23	H. Lee	Consideration of WDM filter loss for 100G EPON (lee_3ca_1_0716)	0:15	11:35 AM	11:50 AM
24	W. He	LD cost comparison for typical wavelength plans (he_7ca_1_0716)	0:15	11:50 AM	12:05 PM
		lunch	1:25	12:05 PM	1:30 PM
25	D. Liu	Four-wave mixing impact in O-band (liu_3ca_1_0716)	0:20	1:30 PM	1:50 PM
26	D. Liu	100G EPON wavelength plan consideration (liu_3ca_3_0716)	0:20	1:50 PM	2:10 PM
27	D. vanVeen	FWM Simulations in O-band (van_veen_3ca_1_0716)	0:00	2:10 PM	2:10 PM
28	J. Johnson	Four-wave mixing in O-band for 100G EPON (johnson_3ca_1_0716)	0:30	2:10 PM	2:40 PM
29	D. Remein	De-skew Method for 100G EPON Downstream Channels (yin_3ca_1_0716)	0:25	2:40 PM	3:05 PM
30		break	0:25	3:05 PM	3:30 PM
31	D. Remein	Fragmentation one option (remein_3ca_3_0716)	0:40	3:30 PM	4:10 PM
32	F. Effenberger	Bonding with FEC codewords (effenberger_3ca_2_0716)	0:20	4:10 PM	4:30 PM
33	G. Kramer	Channel Bonding in Reconciliation Sublayer (Upstream Direction) (kramer_3ca_3_0716)	0:45	4:30 PM	5:15 PM
34	E. Dai	2D Scheduling for 100G EPON (dai_3ca_01_0716)	0:40	5:15 PM	5:55 PM
35		Recess		5:55 PM	

Note –Times listed are subject to change.

Presentations (3/3)

NG-EPON

DAY 3: Wednesday 27 July 2016 (times listed are subject to change)					
Item	Presenter	Title	Duration	Start time	Stop time
36	C.Knittle	Opening comments	0:05	8:00 AM	8:05 AM
37	E. Dai	Two-color Grants for 100G EPON Channel Bonding (dai_3ca_02_0716)	0:40	8:05 AM	8:45 AM
38	D. Liu	100G EPON downstream solution analysis and comparison (liu_3ca_4b_0716)	0:30	8:45 AM	9:15 AM
39	N. Park	Co-existence with Legacy & NG-EPON (park_3ca_1_0716)	0:15	9:15 AM	9:30 AM
40	D. Liu	100G EPON coexistence discussion (liu_3ca_2_0716)	0:30	9:30 AM	10:00 AM
41		Break	0:30	10:00 AM	10:30 AM
42	D. Remein	Objectives (remein_3ca_1_0716)	0:15	10:30 AM	10:45 AM
43	G. Kramer	802.3ca Terms & Definitions(kramer_3ca_4_0716)	0:20	10:45 AM	11:05 AM
44	D. Remein	Draft Material for RS (remein_3ca_2_0716)	0:15	11:05 AM	11:20 AM
45		Discussion	0:40	11:20 AM	12:00 PM
46		Lunch	1:30	12:00 PM	1:30 PM
47		Discussion/Straw Polls/Motions	1:30	1:30 PM	3:00 PM
48		Break	0:30	3:00 PM	3:30 PM
49		Discussion/Straw Polls/Motions	2:30	3:30 PM	6:00 PM
50		Adjourn		6:00 PM	6:00 PM

Note –Times listed are subject to change.

Future Meetings

NG-EPON

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

- ❑ September Interim
 - Ft. Worth, TX, USA
 - Week of September 12, 2016

- ❑ November Plenary
 - San Antonio, TX, USA
 - Week of November 7, 2016

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

Attendance at Ft. Worth, TX

- I plan to attend IEEE 802 Plenary in Ft. Worth, TX: XX
- I probably will attend the interim in Ft. Worth, TX : XX
- I probably won't attend the interim in Ft. Worth, TX : XX
- I definitely won't attend the interim in Ft. Worth, TX : XX

- Total in the room: XX

Thank you!