

Agenda and General Information

IEEE P802.3ca 100G-EPON

Curtis Knittle
CableLabs
Orlando, Florida
November 6-8, 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

NGEAPON

Approve the agenda for 802.3ca November 2017 Task Force meeting as shown in file
http://www.ieee802.org/3/ca/public/meeting_archive/2017/11/agenda_3ca_1_1117.pdf

Moved: Eugene Dai

Seconded: Bill Powell

Procedural (> 50%)

Motion: passes by voice vote without opposition

Motion #2

NGLEPON

Approve the Minutes of 802.3ca Task Force meeting held September 2017, in Charlotte, NC as shown in minutes_unapproved_3ca_0917.pdf and post the approved minutes as minutes_approved_3ca_0917.pdf

Moved: Marek Hajduczenia

Seconded: Alan Brown

Procedural (> 50%)

Motion: passes by voice vote 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 D0.5

http://www.ieee802.org/3/ca/private/drafts/draft_ver.shtml?D0_5

- 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

NG-EPON

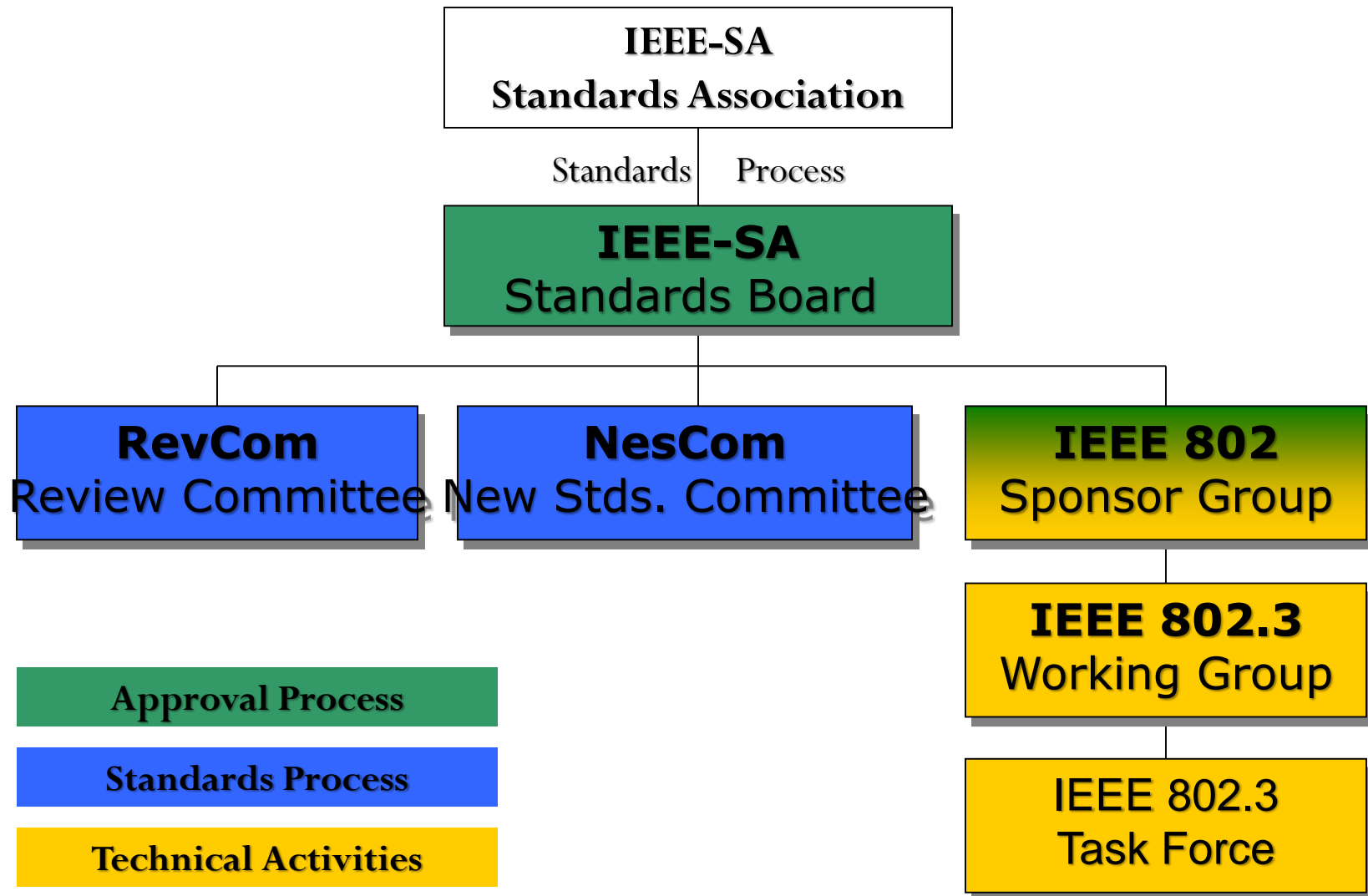
- ❑ Based upon IEEE 802.3 Rules
 - Foundation based upon Robert's Rules of Order
 - Anyone in the room may speak
 - Anyone in the room may vote
- ❑ **RESPECT**... give it, get it
- ❑ NO product pitches
- ❑ NO corporate pitches
- ❑ NO prices!!!
 - This includes costs, ASPs, etc. no matter what the currency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

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



- ❑ 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.

Participation in IEEE 802 Meetings

March 2017

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 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”. (subclause 4.2.1 “Establishment”, of the IEEE 802 LMSC Working Group Policies and Procedures)**
- **Participants have an obligation to act and vote as an individual and not under the direction of any other individual or group. A Participant’s obligation to act and vote as an individual applies in all cases, regardless of any external commitments, agreements, contracts, or orders.**
- **Participants 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 section 5.2.1.3 and the IEEE 802 LMSC Working Group Policies and Procedures, subclause 3.4.1 “Chair”, 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.

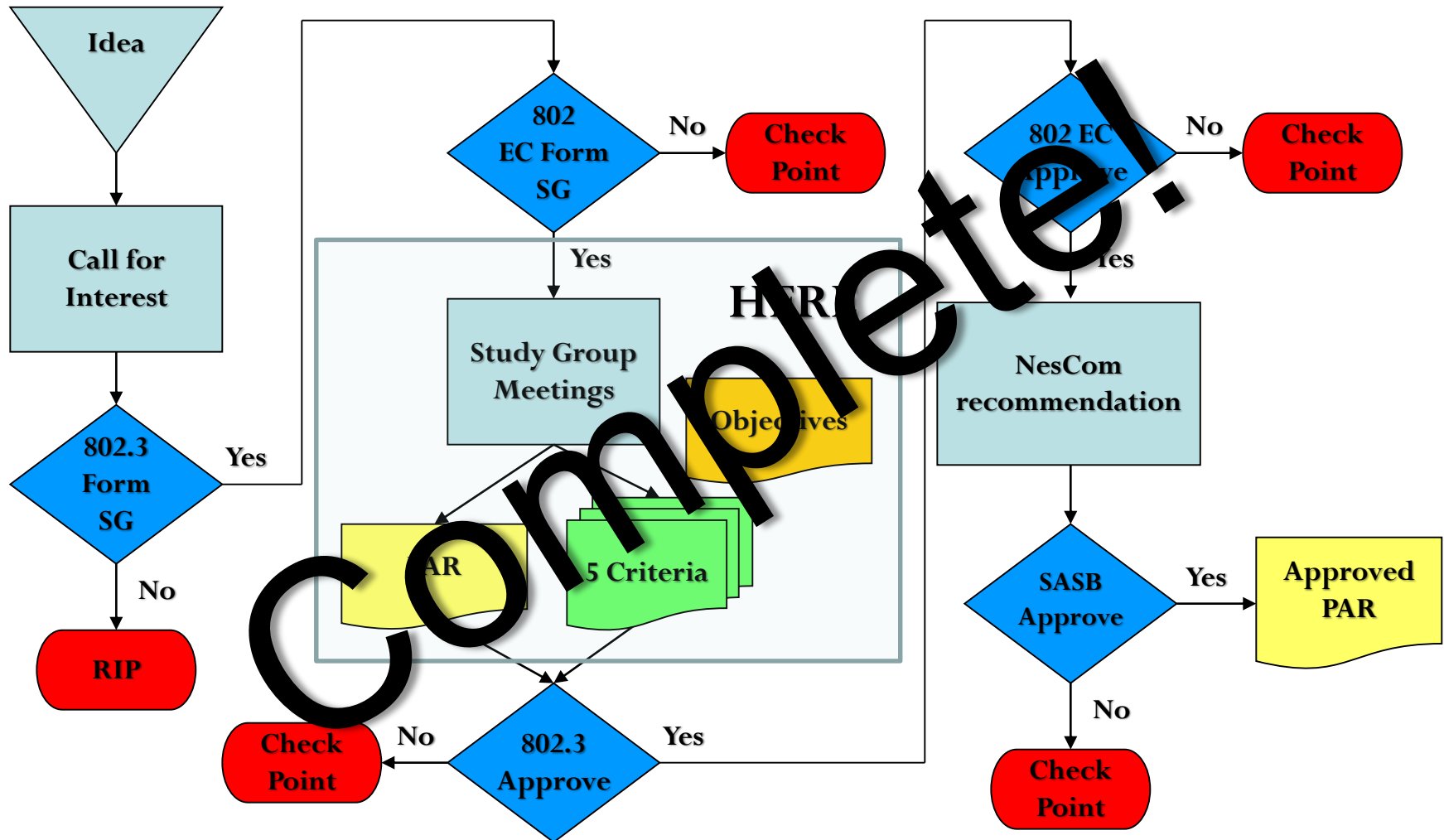
(Latest revision of IEEE 802 LMSC Working Group Policies and Procedures: <http://www.ieee802.org/devdocs.shtml>)

Role of the Chair

- ❑ Per the IEEE 802.3 Ethernet WG Operations Manual (http://www.ieee802.org/3/rules/P802_3_rules.pdf)
 - The operation of the TF has to be balanced between democratic procedures that reflect the desires of the TF members and the TF Chair's responsibility to produce a draft standard, recommended practice, or guideline in a reasonable amount of time for review and approval by the WG. Robert's Rules of Order shall be used in combination with these operating rules to achieve this balance.
 - The full responsibilities of the chair are specified in 3.4.3 Task Force Chair's Responsibilities.

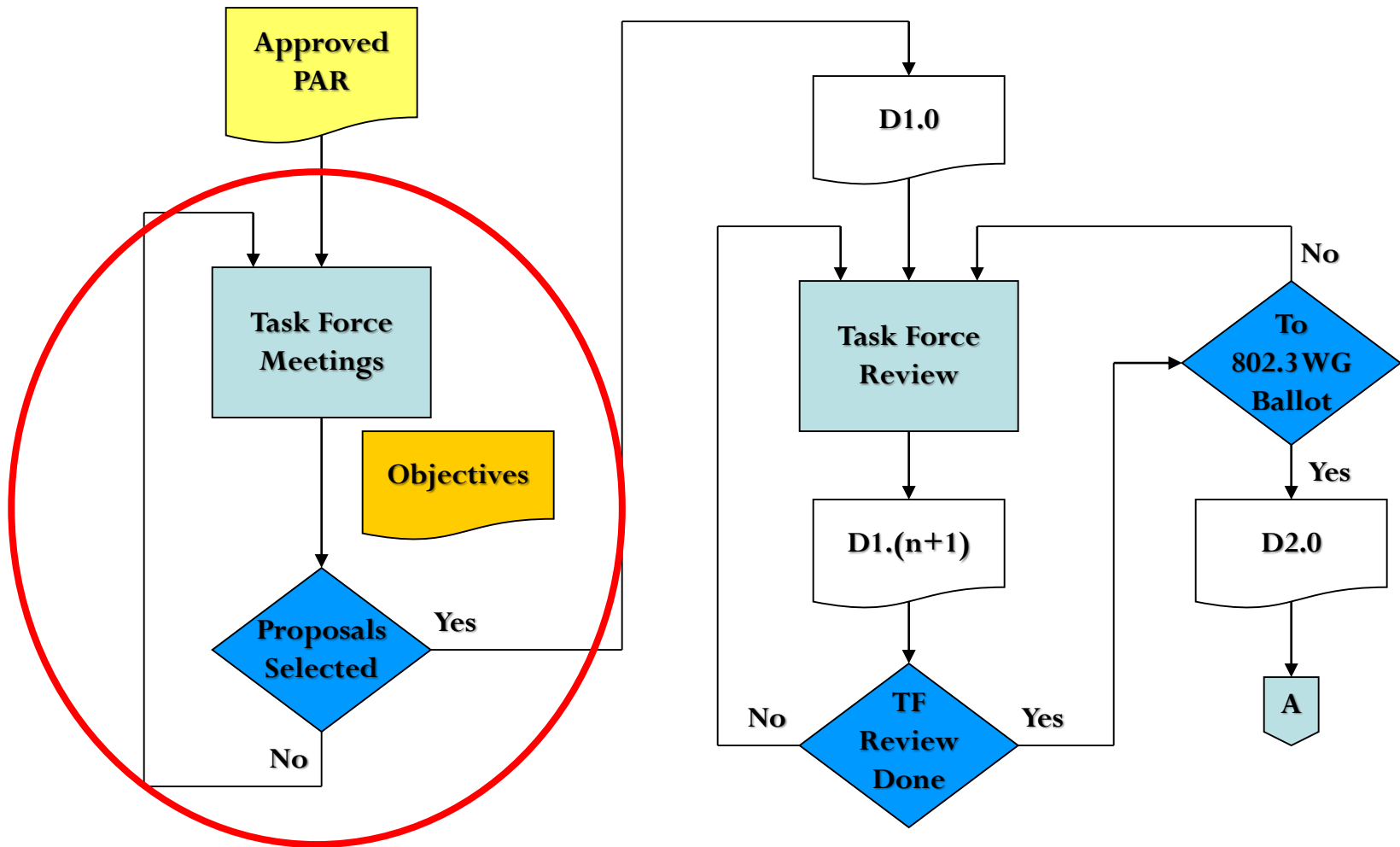
- ❑ Reminder - individual standards activities within the WG are, at the discretion of the WG, carried out by Task Forces (TF) operating under, and reporting to, the WG.

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

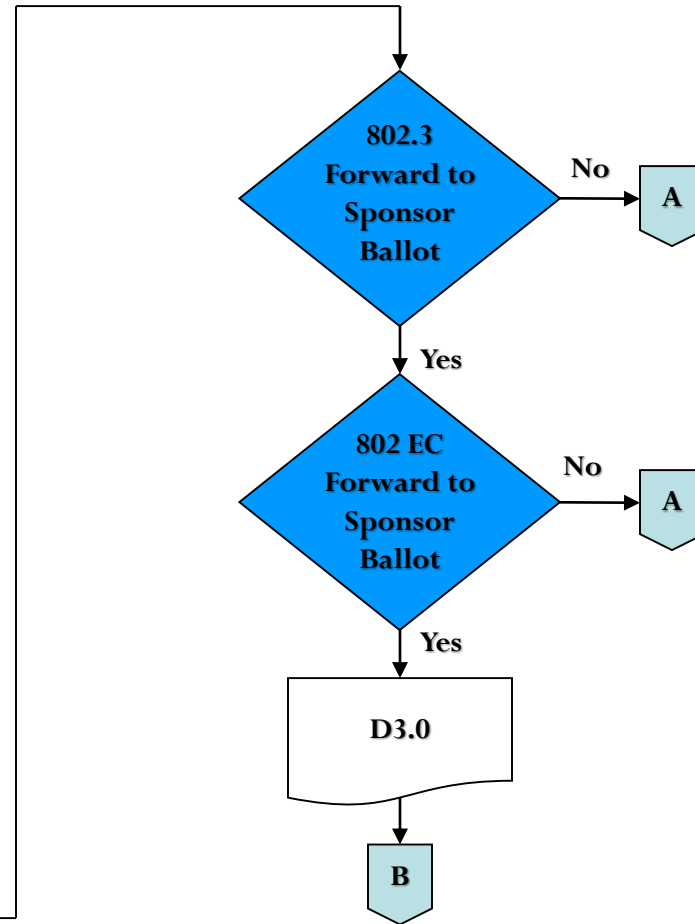
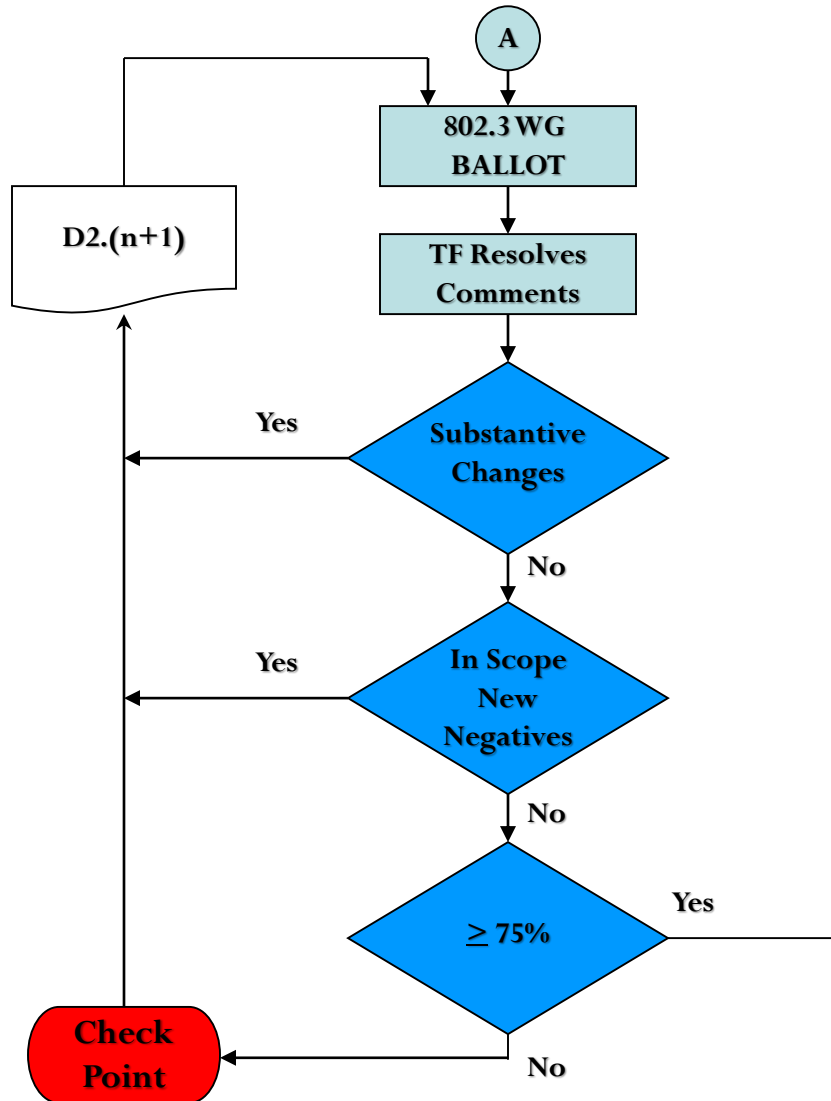


Note: At "Check Point", either the activity is ended, or there may be various options that would allow reconsideration of the approval.

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



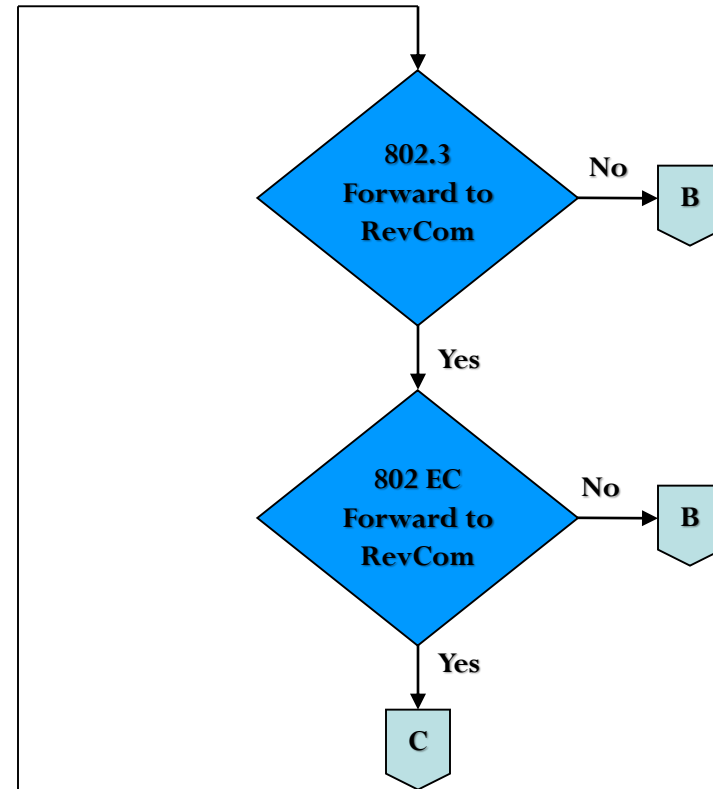
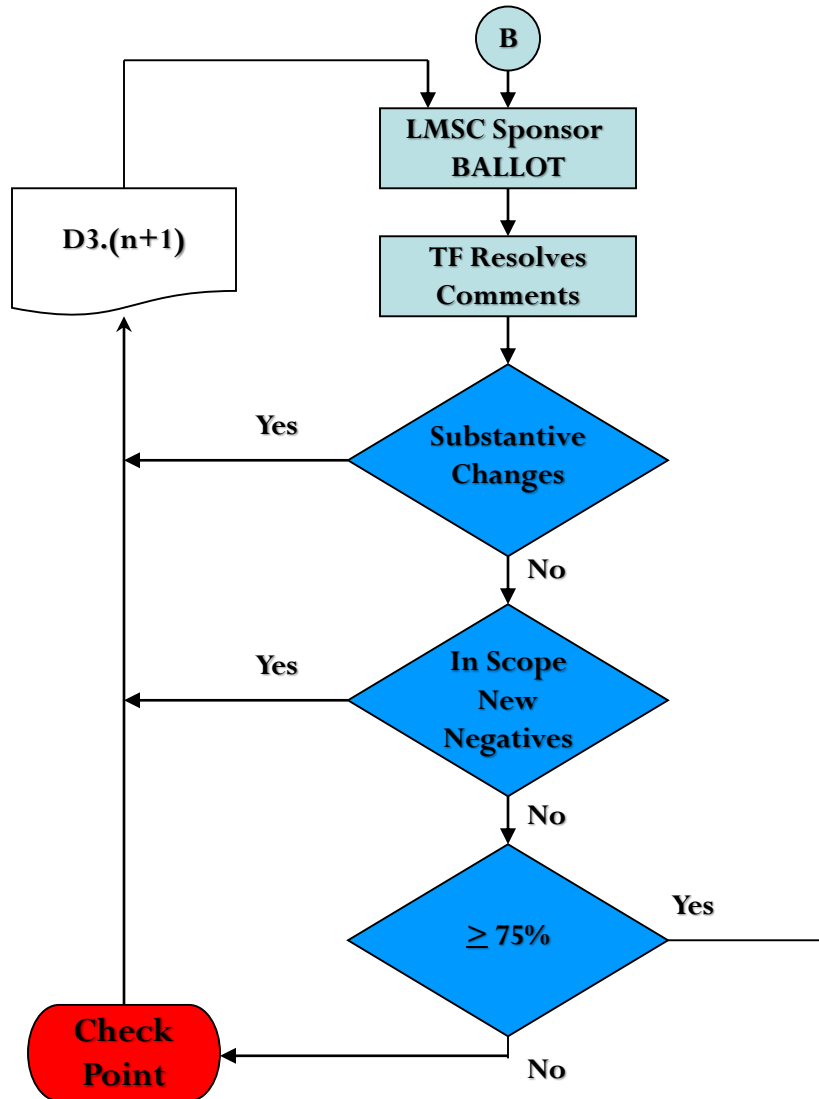
Overview of IEEE 802.3 Standards Process (3/5) – Working Group Ballot Phase



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

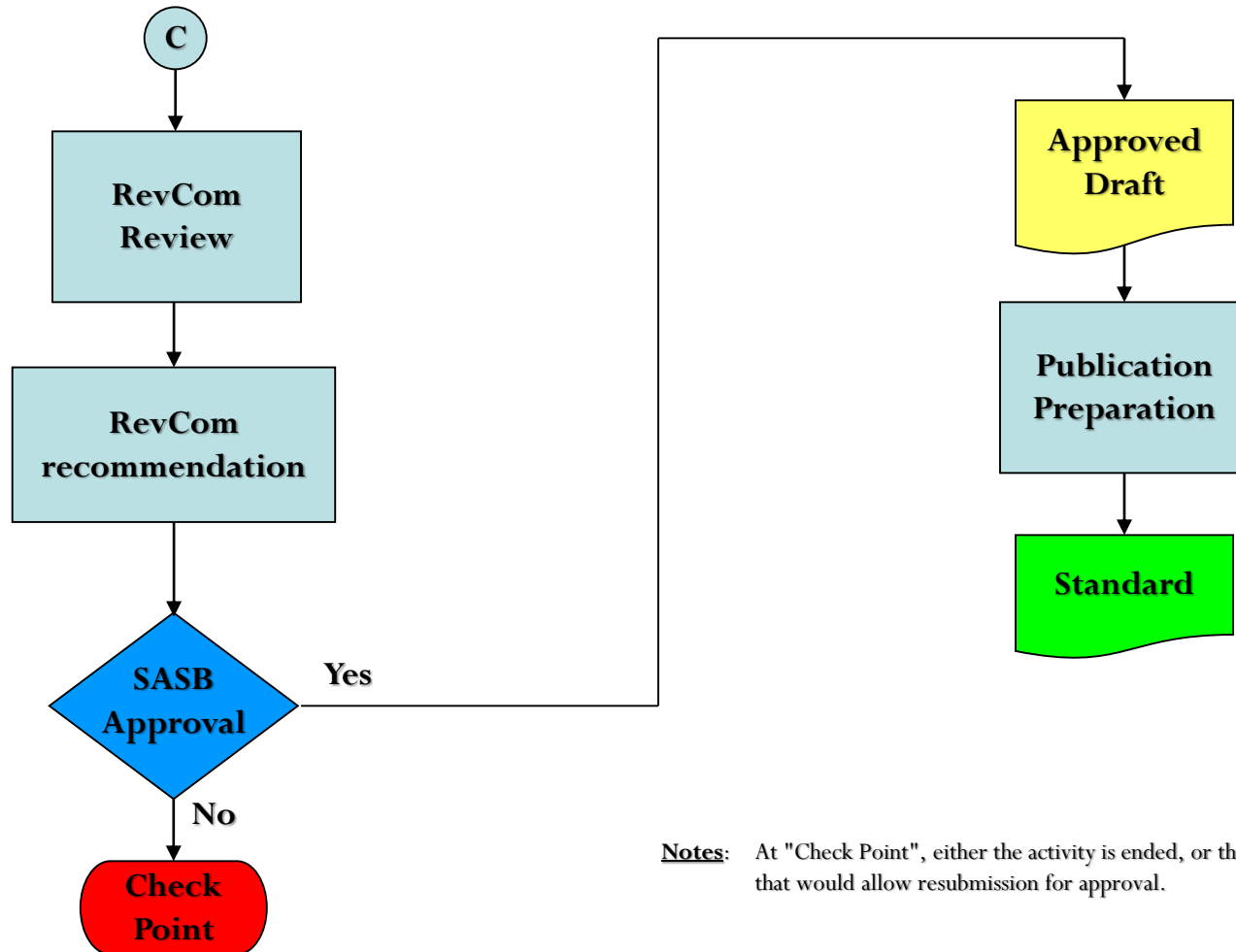
Overview of IEEE 802.3 Standards Process (4/5)- Sponsor Ballot Phase



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

- ❑ Hear technical contributions
- ❑ Adopt baseline proposals for wavelength plan, MPCP, FEC, ...
- ❑ Identify steps moving forward

- ❑ Wednesday: Discuss IEEE/ITU joint meeting

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

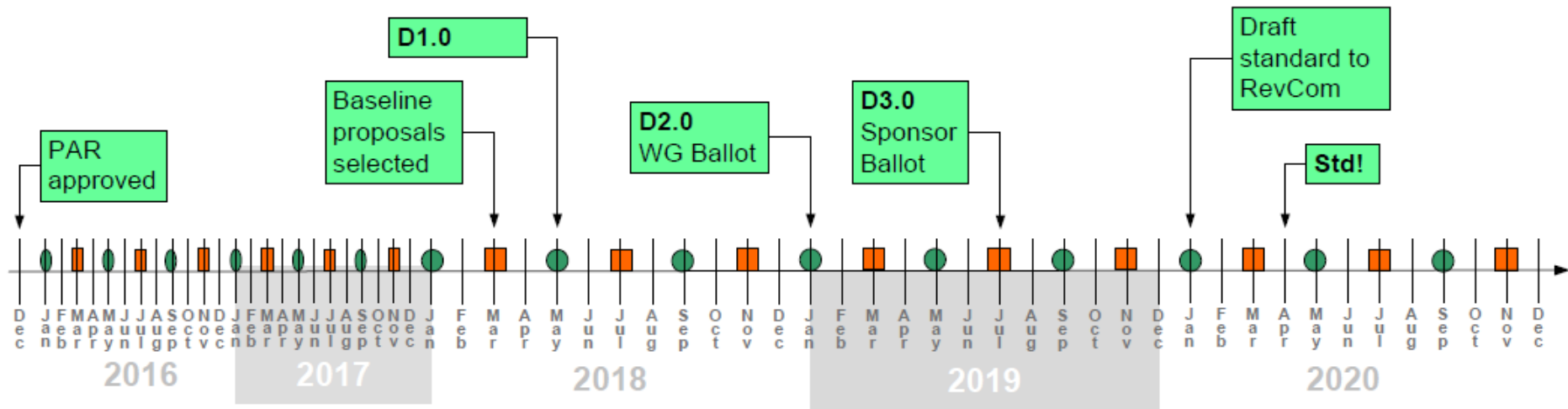
- http://www.ieee802.org/3/ca/documents/P802_3ca_objectives.pdf

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
- ❑ Wavelength allocation allowing concurrent operation of 25G-EPON and G-PON reduced wavelength set (1290nm-1330nm) PHYs

IEEE P802.3ca 100G-EPON Timeline

IEEE P802.3ca Timeline



- - 802.3 Interim Meeting
- - 802.3 Plenary Meeting

Future Meetings

NG-EPON

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

- ❑ January 2018 Interim
 - Geneva, CH
 - Week of January 22, 2018

- ❑ March 2018 Plenary
 - Rosemont, IL
 - Week of March 5, 2018

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

Attendance at Geneva TF Meeting

- I plan to attend IEEE 802.3 interim in Geneva : 15
- I probably will attend the interim in Geneva : 4
- I probably won't attend the interim in Geneva : 10
- I definitely won't attend the interim in Geneva : 0

- Total in the room: 32

- *We have a draft standard (v0.5)....*

IEEE P802.3ca™/D0.5, 14 September 2017
(Amendment of IEEE Std 802.3™-2015)

IEEE P802.3ca™/D0.5

Draft Standard for Ethernet

Amendment:

Physical Layer Specifications and

Management Parameters for 25 Gb/s,

50 Gb/s, and 100 Gb/s Passive Optical

Networks

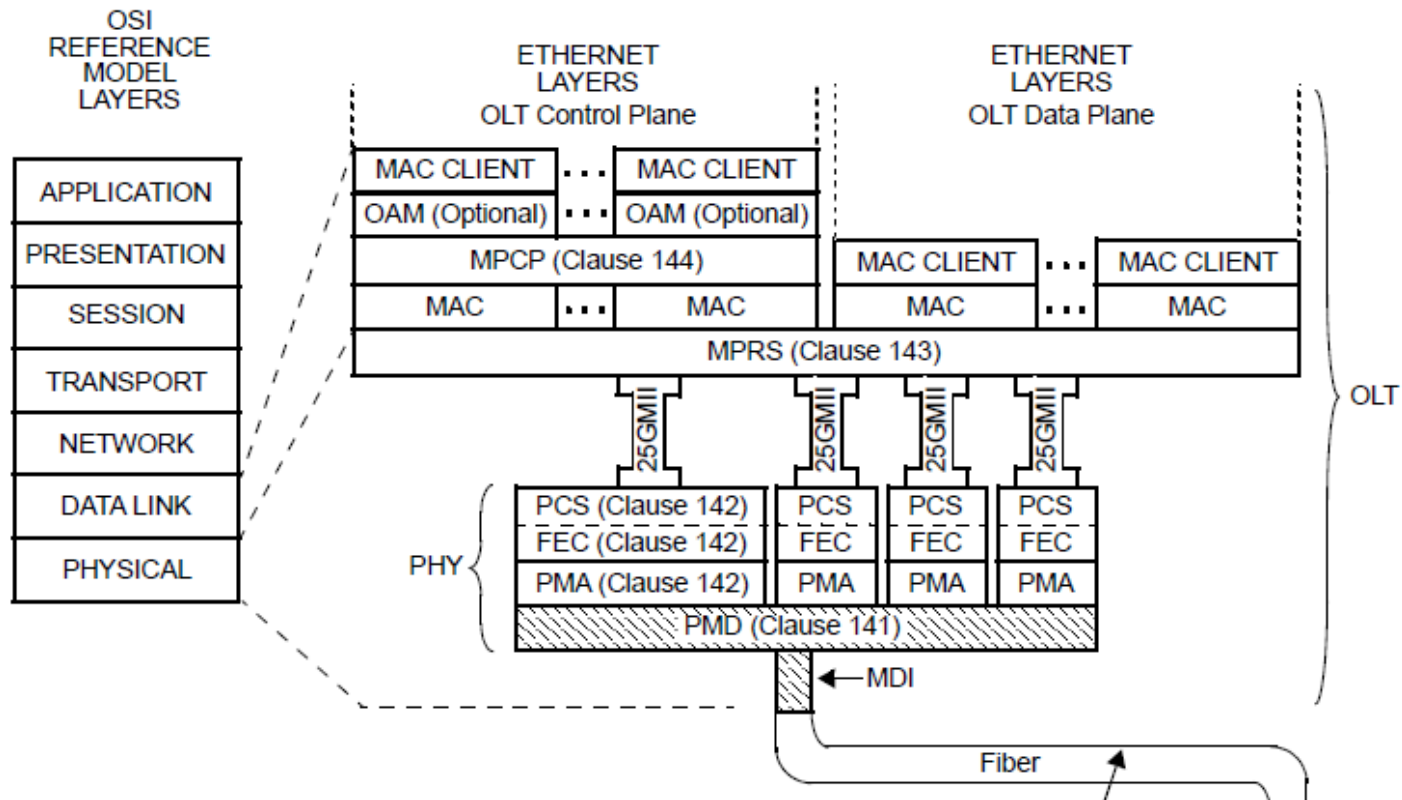
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State of 802.3ca

- ❑ *The architecture approved by the task force, and written into the draft, is 1, 2, and 4 lanes of 25 Gbps*

Draft Amendment to IEEE Std 802.3-2015
IEEE P802.3ca 100G-EPON PHY Task Force

IEEE Draft P802.3ca/D0.5
14 September 2017



- *We have adopted a 1x25Gbps, 2x25Gbps, and 4x25Gbps architecture*

1.4.16a

Table 2-1—Power budgets

Description	Downstream Lanes	Upstream Lanes
25/10GBASE-PR	1	1 (10 Gb/s)
25GBASE-PR	2	1
50/25GBASE-PR	2	2
100/25GBASE-PR	4	1
100/50GBASE-PR	4	2
100GBASE-PR	4	4

State of 802.3ca

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□ *We have motions passed by the task force with no opposition*

March 2016, Macao, China — [Approved Minutes](#)

Motion #3

All 25G ONUs and 25G OLTs shall use the same wavelength pair.

Moved: Jorge Salinger Seconded: Marek Hajduczenia

For: 17 Against: 0 Abstain: 4

Technical ≥ 75% Passed

Motion #4

All 50G ONUs and 50G OLTs shall use the same two wavelength pairs.

Moved: Frank Effenberger Seconded: Glen Kramer

For: 22 Against: 0 Abstain: 3

Technical ≥ 75% Passed

Motion #5

All 100G ONUs and 100G OLTs shall use the same four wavelength pairs , two of which are the same wavelength pairs as used by 50G ONUs and 50G OLTs.

Moved: Jorge Salinger Seconded: Duane Remein

For: 23 Against: 0 Abstain: 3

Technical ≥ 75% Passed

July 2016, San Diego, CA, USA — [Approved Minutes](#)

Motion #10

Accept names for the PHYs as shown in kramer_3ca_4a_0716.pdf, slide #7.

Moved: Glen Kramer Seconded: Duane Remein

For: 24 Against: 0 Abstain: 0

Technical ≥ 75% Passed

- ❑ *Anyone is free to analyze and compare...*
- ❑ *...and bring contributions showing technical and economic feasibility for alternative solutions...*
- ❑ *...but until that happens, we must continue to advance the current draft.*

Thank you!