

# Agenda and General Information

IEEE P802.3dk  
Greater than 50 Gb/s Bidirectional Optical Access PHYs Task Force

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Futurewei Technologies  
13 March 2023

# Meeting Coordinates

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- Task force has two scheduled sessions
  - Registration fee is required
  - March 13, 13:00 – 16:00 EDT
  - March 14, 9:00 – 12:00 EDT
  - Meeting room: 208 in Hilton Atlanta
  - Meeting link is: <https://futurewei.zoom.us/j/6135444997>

# Task Force Decorum



- An officer is permitted to make an audio or slideshow recording of this meeting exclusively for the purpose of generating minutes which shall not be copied or distributed. **IEEE 802.3 meetings do not use this option.** Recording of the proceedings by any other participant or observer, in part or in whole, via any means, is prohibited. (January 2020 IEEE-SA Standards Board Ops Manual 5.3.3.2)
- Press (i.e., anyone reporting publicly on this meeting) are to announce their presence (January 2020 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

# Agenda

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- Welcome and Introductions
- Approve Agenda
- Approve Feb 2023 meeting minutes
- Goals for this meeting
- Big Ticket Items
- Reflector and Web
- Ground Rules
- IEEE
  - Structure, Bylaws and Rules
  - Call for Patents
  - IEEE Standards Process
- Presentations
- Future Meetings
- Motions and Closing Business

# Motion

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- Move to approve this agenda
  - M: Vince Ferretti      S: Peter Stassar
  - Yes:      No:      Abs:
  - Motion result: Approved by voice vote without opposition
- Move to approve the minutes from Feb 2023, located at:  
[https://www.ieee802.org/3/dk/public/2302/2302\\_8023dk\\_unapproved\\_minutes.pdf](https://www.ieee802.org/3/dk/public/2302/2302_8023dk_unapproved_minutes.pdf)
  - M: Ray Nering      S: John Johnson
  - Yes:      No:      Abs:
  - Motion result: Approved by voice vote without opposition

# Goals for the Meeting

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- Consider presentations
- Discuss baseline proposals

# Big Ticket Items

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- Wavelength plans
- Baseline proposals for power budgets

# Reflector and Web

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- To subscribe to the IEEE P802.3dk reflector, send an email to:

[ListServ@ieee.org](mailto:ListServ@ieee.org)

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

*subscribe stds-802-3-GT50GBIDI <yourfirstname> <yourlastname>  
end*

- Send reflector messages to:

[stds-802-3-GT50GBIDI@listserv.ieee.org](mailto:stds-802-3-GT50GBIDI@listserv.ieee.org)

- Task Force web page URL:

<https://www.ieee802.org/3/dk>



# Ground Rules

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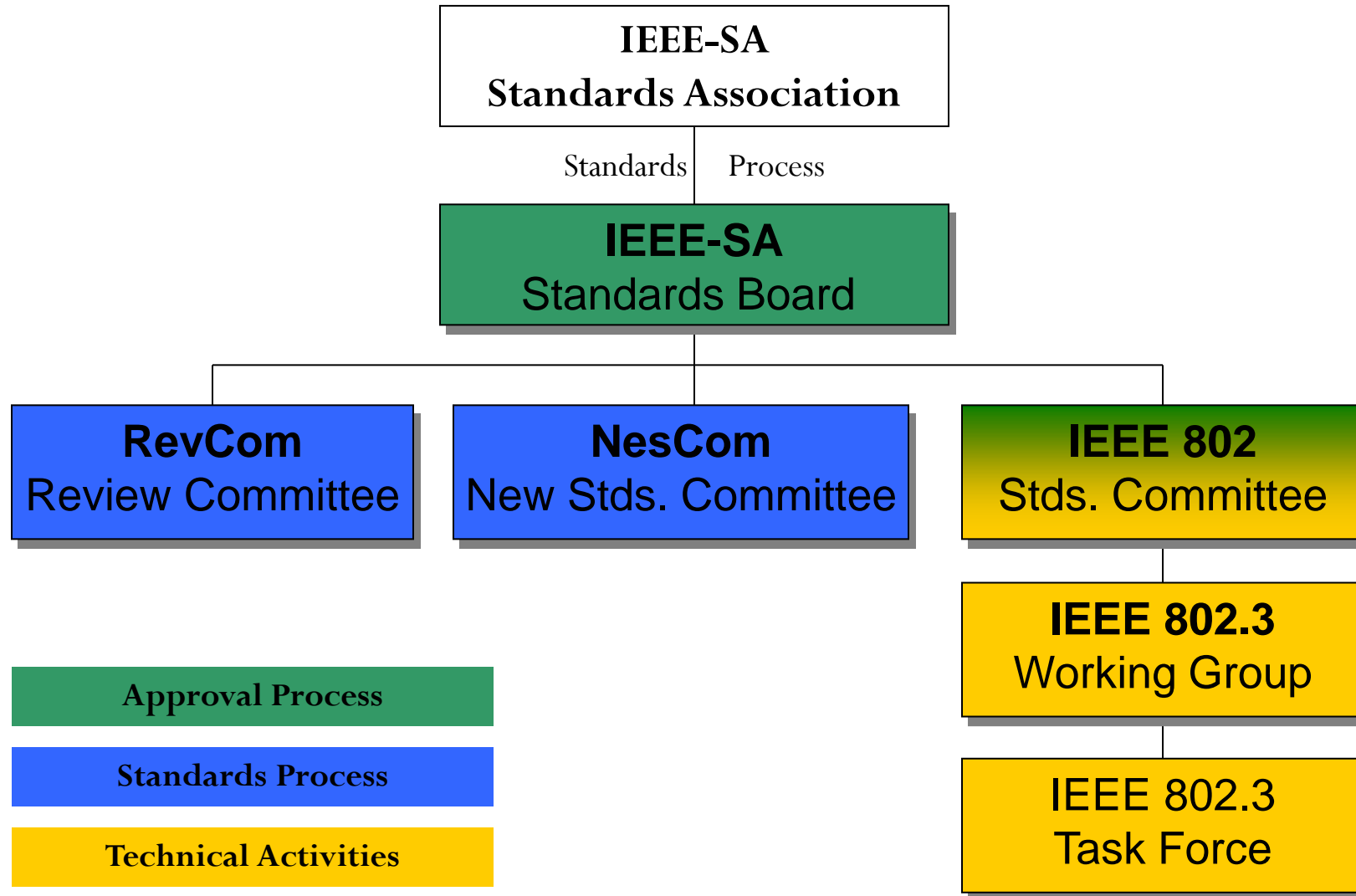
- Based upon IEEE 802.3 Rules
  - Foundation based upon Robert's Rules of Order
  - Anyone in the room may speak
  - Anyone in the room may vote
- **RESPECT**... give it, get it
- NO product pitches
- NO corporate pitches
- NO prices!!!
  - This includes costs, ASPs, etc. no matter what the currency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

# Attendance

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- 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/>
  - Password will be provided

# IEEE Structure



# Important Bylaws and Rules

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- **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**  
<https://ieee.app.box.com/v/PandP-LMSC>
- **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:
  - 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 IEEE is not aware. Additionally, neither 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.

# **PARTICIPANTS HAVE A DUTY TO INFORM THE IEEE**

- Participants 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
- Participants should inform the IEEE (or cause the IEEE to be informed) of the identity of any other holders of potential Essential Patent Claims

**Early identification of holders of potential  
Essential Patent Claims is encouraged**

# **WAYS TO INFORM IEEE**

- **Cause an LOA to be submitted to the IEEE SA (patcom@ieee.org); 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**
- **Speak up now and respond to this 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, please respond at this time by providing relevant information to the WG Chair

# OTHER GUIDELINES FOR IEEE WORKING GROUP 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 of different technical approaches that include relative costs of patent licensing terms may be discussed in standards development meetings.
    - Technical considerations remain the 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. Formally object to the discussion immediately.

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For more details, see *IEEE SA Standards Board Operations Manual*, clause 5.3.10 and *Antitrust and Competition Policy: What You Need to Know* at <http://standards.ieee.org/develop/policies/antitrust.pdf>



# **PATENT-RELATED INFORMATION**

The patent policy and the procedures used to execute that policy are documented in the:

- *IEEE SA Standards Board 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)**

# **INSTRUCTIONS FOR CHAIRS OF STANDARDS DEVELOPMENT ACTIVITIES**

**At the beginning of each standards development meeting the chair or a designee is to:**

- Show the following slides (or provide them beforehand)
- Advise the standards development group participants that:
  - IEEE SA's copyright policy is described in Clause 7 of the IEEE SA Standards Board Bylaws and Clause 6.1 of the IEEE SA Standards Board Operations Manual;
  - Any material submitted during standards development, whether verbal, recorded, or in written form, is a Contribution and shall comply with the IEEE SA Copyright Policy;
- Instruct the Secretary to record in the minutes of the relevant meeting:
  - That the foregoing information was provided and that the copyright slides were shown (or provided beforehand).

# **IEEE SA COPYRIGHT POLICY**

**By participating in this activity, you agree to comply with the IEEE Code of Ethics, all applicable laws, and all IEEE policies and procedures including, but not limited to, the IEEE SA Copyright Policy.**

- Previously Published material (copyright assertion indicated) shall not be presented/submitted to the Working Group nor incorporated into a Working Group draft unless permission is granted.
- Prior to presentation or submission, you shall notify the Working Group Chair of previously Published material and should assist the Chair in obtaining copyright permission acceptable to IEEE SA.
- For material that is not previously Published, IEEE is automatically granted a license to use any material that is presented or submitted.

# **IEEE SA COPYRIGHT POLICY**

- The IEEE SA Copyright Policy is described in the IEEE SA Standards Board Bylaws and IEEE SA Standards Board Operations Manual
  - IEEE SA Copyright Policy, see
    - Clause 7 of the IEEE SA Standards Board Bylaws  
<https://standards.ieee.org/about/policies/bylaws/sect6-7.html#7>
    - Clause 6.1 of the IEEE SA Standards Board Operations Manual  
<https://standards.ieee.org/about/policies/opman/sect6.html>
  
- IEEE SA Copyright Permission
  - <https://standards.ieee.org/content/dam/ieee-standards/standards/web/documents/other/permissionltrs.zip>
  
- IEEE SA Copyright FAQs
  - <http://standards.ieee.org/faqs/copyrights.html/>
  
- IEEE SA Best Practices for IEEE Standards Development
  - [http://standards.ieee.org/develop/policies/best\\_practices\\_for\\_ieee\\_standards\\_development\\_051215.pdf](http://standards.ieee.org/develop/policies/best_practices_for_ieee_standards_development_051215.pdf)
  
- Distribution of Draft Standards (see 6.1.3 of the SASB Operations Manual)
  - <https://standards.ieee.org/about/policies/opman/sect6.html>

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## Participant behavior in IEEE-SA activities is guided by the IEEE Codes of Ethics & Conduct

- All participants in IEEE-SA activities are expected to adhere to the core principles underlying the:
  - [IEEE Code of Ethics](#)
  - [IEEE Code of Conduct](#)
- The core principles of the IEEE Codes of Ethics & Conduct are to:
  - *Uphold the highest standards of integrity, responsible behavior, and ethical and professional conduct*
  - *Treat people fairly and with respect, to not engage in harassment, discrimination, or retaliation, and to protect people's privacy.*
  - *Avoid injuring others, their property, reputation, or employment by false or malicious action*
- The most recent versions of these Codes are available at <http://www.ieee.org/about/corporate/governance>

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## Participants in the IEEE-SA “*individual process*” shall act independently of others, including employers

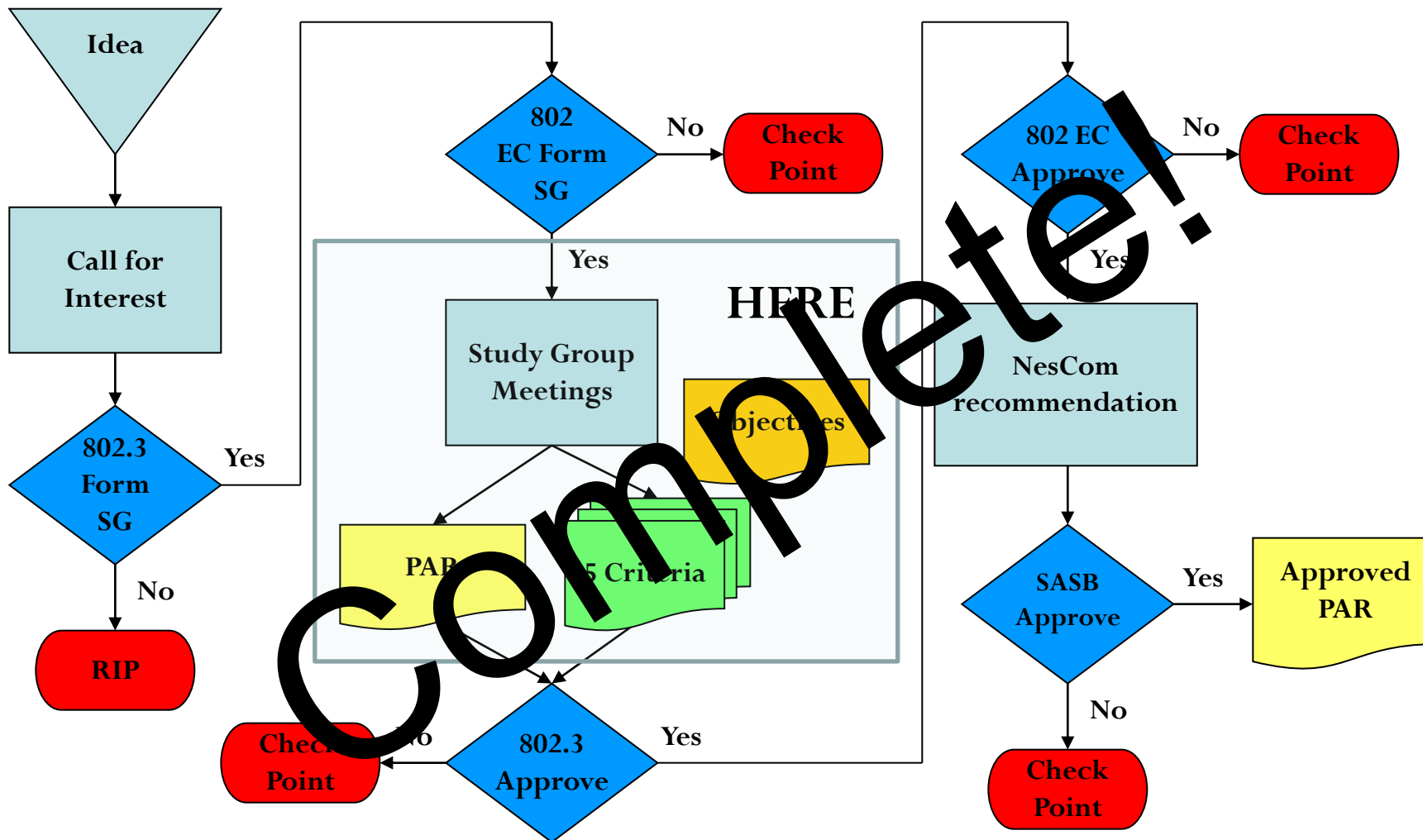
- The [IEEE-SA Standards Board Bylaws](#) require that “*participants in the IEEE standards development individual process shall act based on their qualifications and experience*”
- This means participants:
  - **Shall act & vote** based on their personal & independent opinions derived from their expertise, knowledge, and qualifications
  - **Shall not act or vote** based on any obligation to or any direction from any other person or organization, including an employer or client, regardless of any external commitments, agreements, contracts, or orders
  - **Shall not direct** the actions or votes of other participants or retaliate against other participants for fulfilling their responsibility to act & vote based on their personal & independently developed opinions
- By participating in standards activities using the “*individual process*”, you are deemed to accept these requirements; if you are unable to satisfy these requirements then you shall immediately cease any participation

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## IEEE-SA standards activities shall allow the fair & equitable consideration of all viewpoints

- The [IEEE-SA Standards Board Bylaws](#) (clause 5.2.1.3) specifies that “*the standards development process shall not be dominated by any single interest category, individual, or organization*”
  - This means no participant may exercise “*authority, leadership, or influence by reason of superior leverage, strength, or representation to the exclusion of fair and equitable consideration of other viewpoints*” or “*to hinder the progress of the standards development activity*”
- This rule applies equally to those participating in a standards development project and to that project’s leadership group
- Any person who reasonably suspects that dominance is occurring in a standards development project is encouraged to bring the issue to the attention of the Standards Committee or the project’s IEEE-SA Program Manager

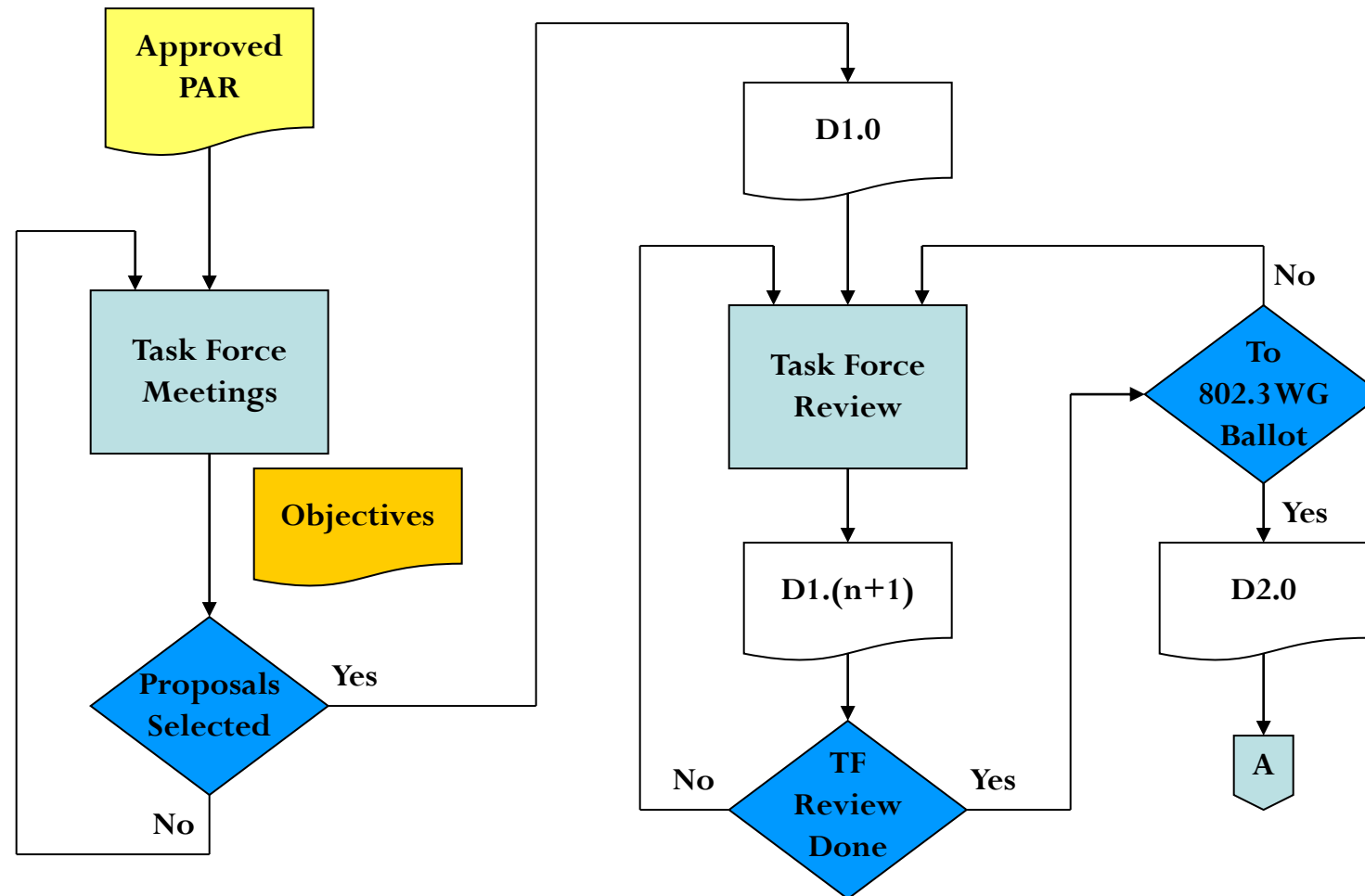
# Overview of IEEE 802.3 Standards Process (1/5)- Study Group Phase



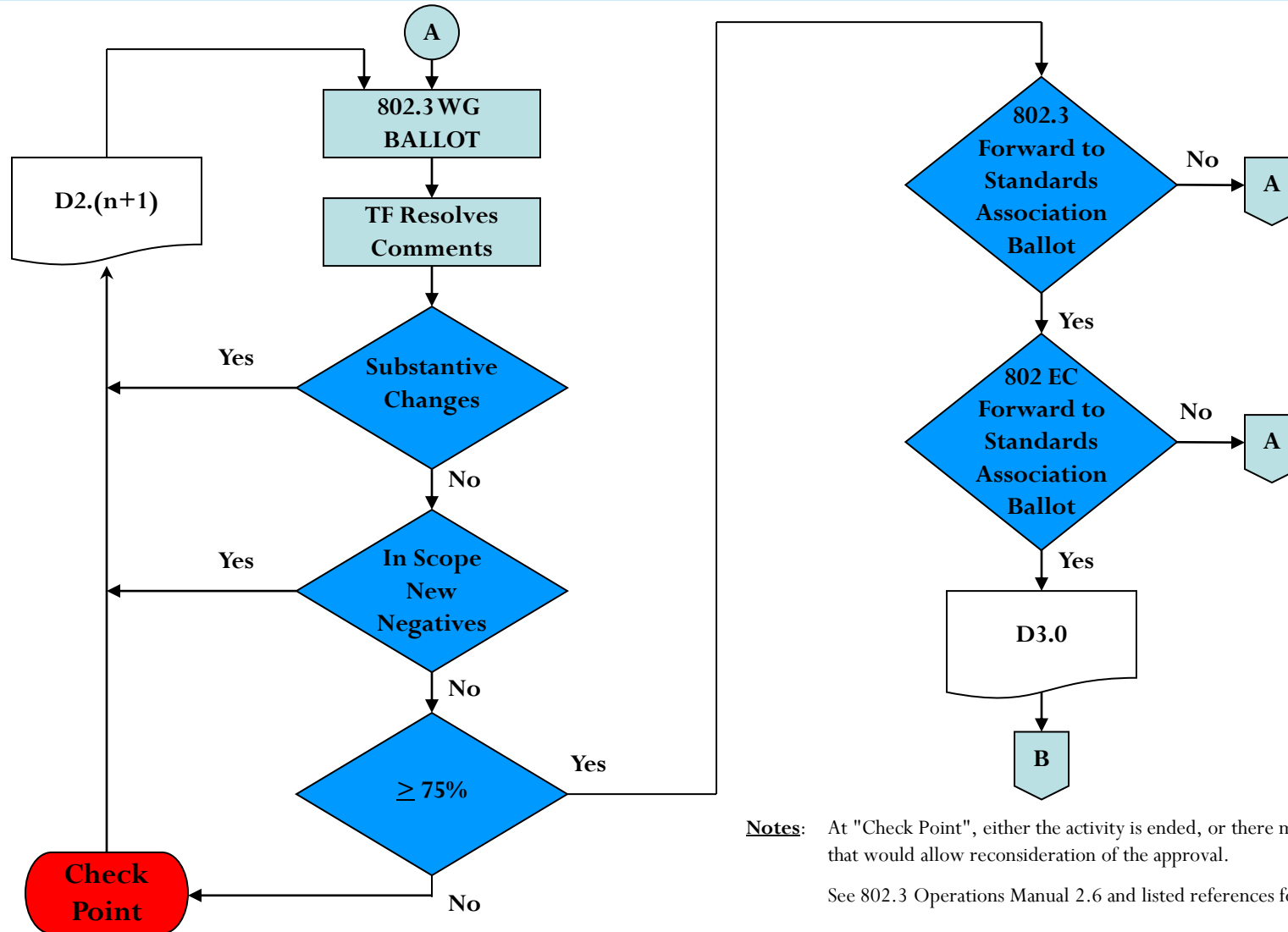
Note: At "Check Point", either the activity is ended, or there may be various options that would allow reconsideration of the approval.



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



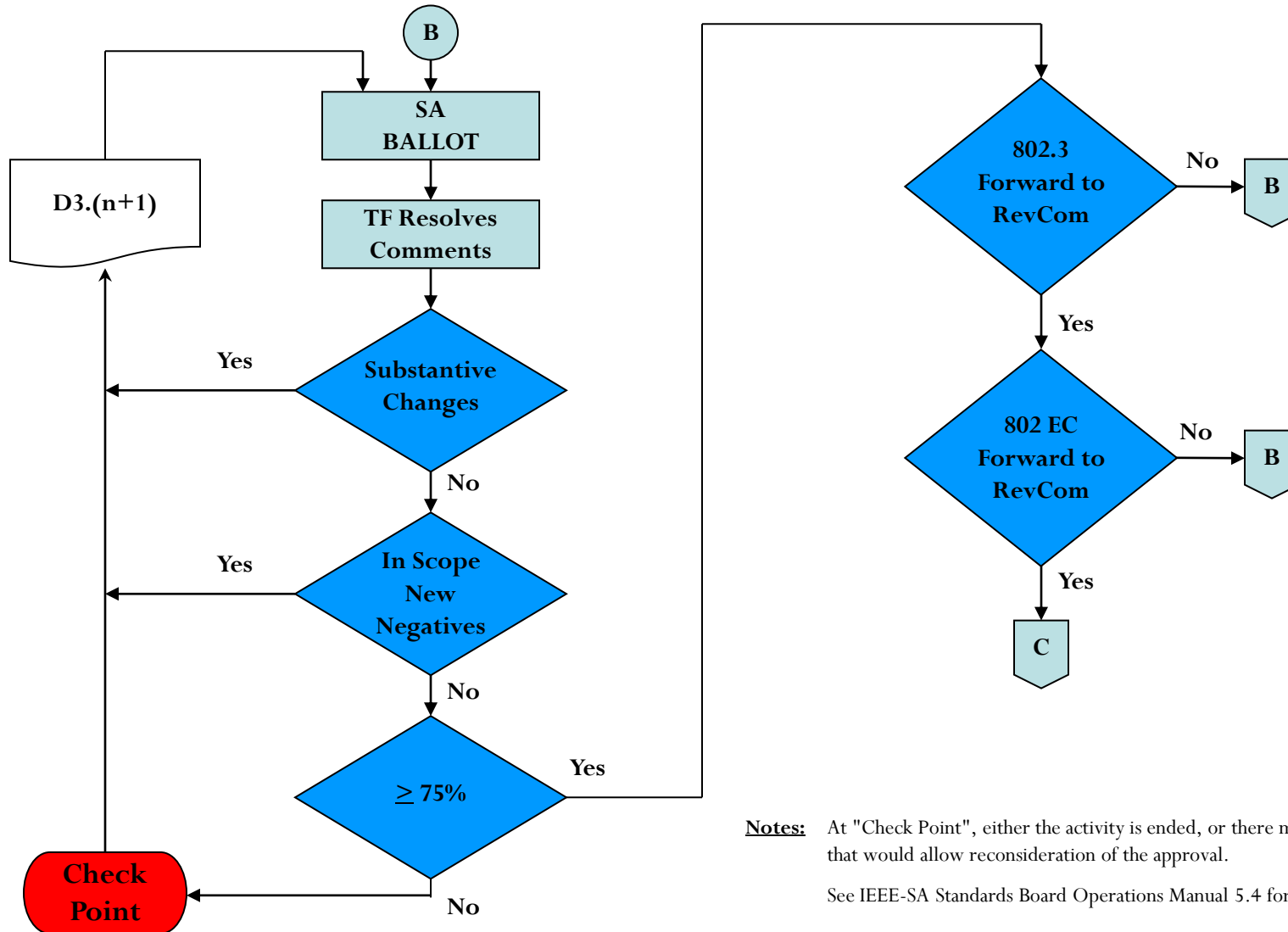
# Overview of IEEE 802.3 Standards Process (3/5) – Working Group Ballot Phase



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

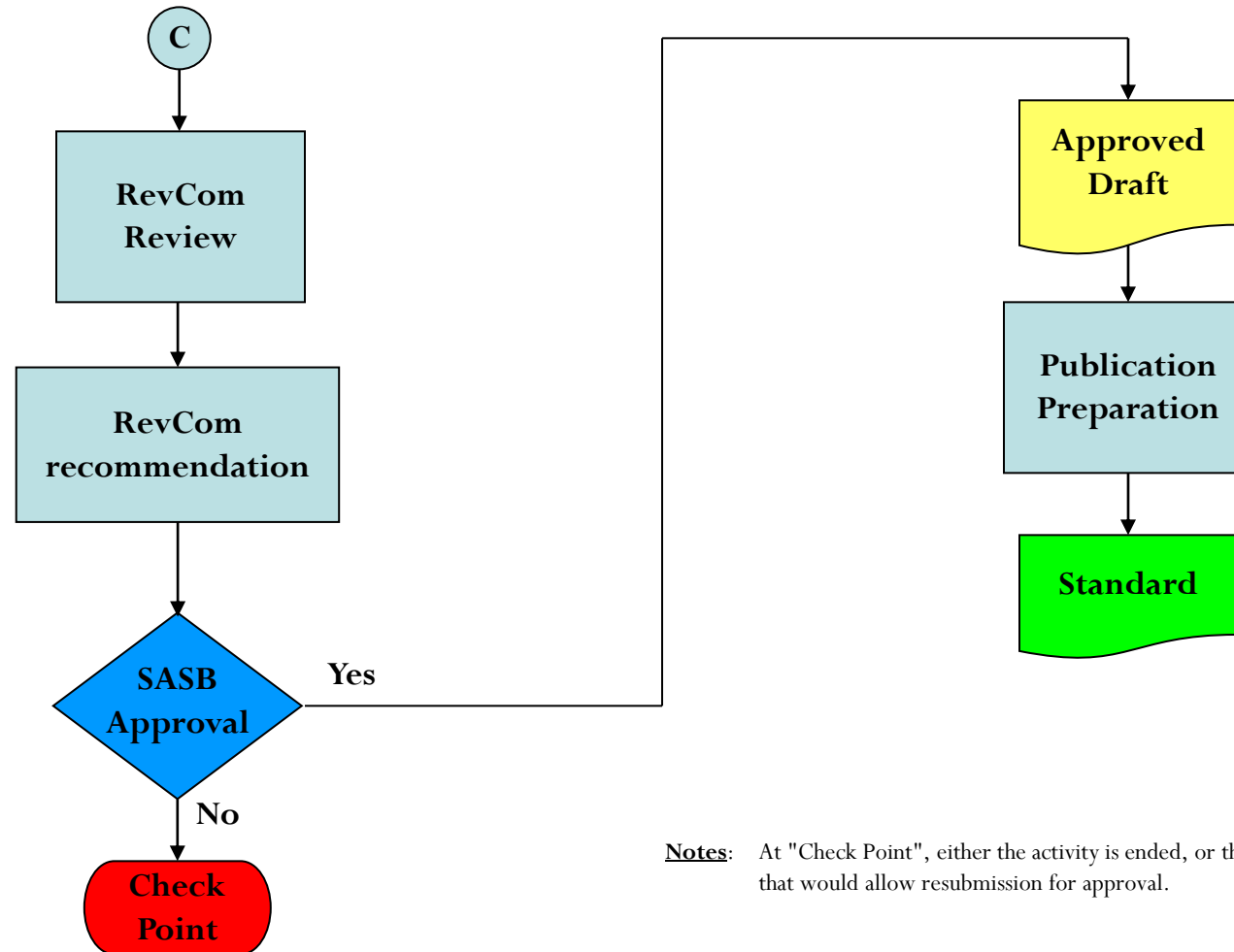
See 802.3 Operations Manual 2.6 and listed references for complete description

# Overview of IEEE 802.3 Standards Process (4/5)- IEEE Standards Association (SA) 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 IEEE-SA Standards Board Operations Manual 5.4 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.

# IEEE P802.3dk Greater than 50 Gb/s BiDi Optical Access PHYs Task Force Approved Project Documents

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- PAR
  - [https://www.ieee802.org/3/dk/P802d3dk\\_PAR.pdf](https://www.ieee802.org/3/dk/P802d3dk_PAR.pdf)
- 5 Criteria
  - <https://mentor.ieee.org/802-ec/dcn/22/ec-22-0268-00-ACSD-ieee-p802-3dk.pdf>
- Objectives
  - [https://www.ieee802.org/3/dk/P802.3dk\\_OBJ.pdf](https://www.ieee802.org/3/dk/P802.3dk_OBJ.pdf)

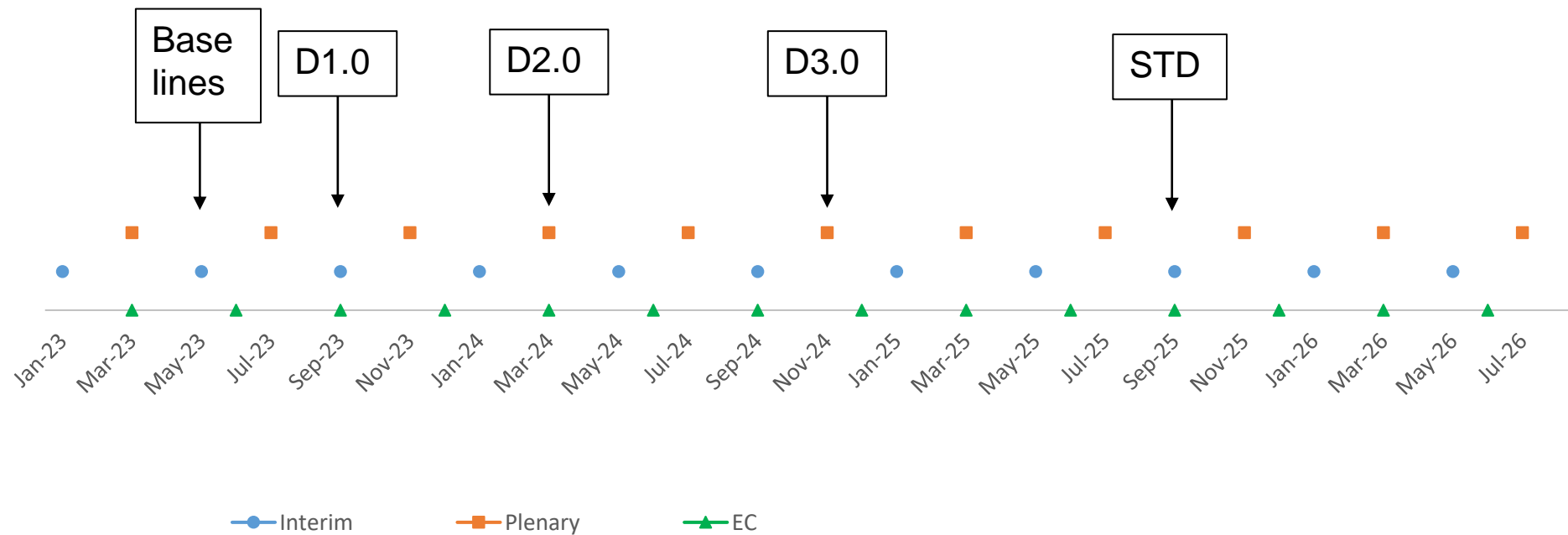
# IEEE P802.3dk Greater than 50 Gb/s BiDi Optical Access PHYs Task Force Objectives

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- Support full-duplex operation only
- Support bidirectional transmission over a single strand of single mode fiber
- Support MAC data rates of 100 Gb/s and 200 Gb/s
- For each data rate define PHYs for operation up to at least 10 km
- For each data rate define PHYs for operation up to at least 20 km
- For each data rate define PHYs for operation up to at least 40 km
- Preserve the Ethernet frame format utilizing the Ethernet MAC
- For 100 Gb/s operation, support a BER of better than or equal to  $10^{-12}$  at the MAC/PLS service interface (or the frame loss ratio equivalent)
- For 200 Gb/s operation, support a BER of better than or equal to  $10^{-13}$  at the MAC/PLS service interface (or the frame loss ratio equivalent)
- Support optional Energy-Efficient Ethernet operation
- Support silent start\* operation to prevent bidirectional PHYs interfering with P2MP networks

\* Silent start means that the upstream-facing PHY does not transmit unless a valid downstream signal is received. This prevents the bidirectional PHY from jamming transmission on the P2MP network in cases of unintentional connection

# IEEE P802.3dk Greater than 50G BiDi Optical Access PHYs Draft Timeline



# Presentations

<b>Title</b>	<b>Author</b>	<b>Affiliation</b>
Update to Modern SMF Parameters for Calculating PMD Penalties	Chris Cole	Coherent/II-VI
Update on Dispersion Limits for 100 Gb/s PAM4	Frank Effenberger	Futurewei
Considerations for 100Gb/s BiDi 10 & 20km Reach Objectives	Kenneth Jackson	Sumitomo Electric
ITU-T G.9806Am3 Update	Jun Shan Wey, Hirotaka Nakamura, Derek Nettet, John Johnson, Takuya Kanai, Fabrice Bourgart	Verizon, NTT, Huawei, Broadcom, Orange
Baseline Proposal of 10/20km 100G Bidi Objectives	Guangcan Mi	Huawei

Note –Times listed are subject to change.



# Straw Poll #

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- I support the specification of 100G PAM4 modulation format using wavelengths  $1304.6 \pm 1\text{nm}$  and  $1309.1 \pm 1\text{nm}$  for the 100G BiDi 10km and 20km PMD objectives.
  - Yes: 7
  - No: 3
  - Need more information: 4

# Future Meetings

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- See: <http://www.ieee802.org/3/interims/index.html>
- Conference calls
  - April 4, 9-11am EDT, wavelength plans
  - May 2, 9-11am EDT
- May 2023 IEEE 802.3 Interim
  - San Antonio, TX
  - May 15-18
  - P802.3dk meeting sessions: May 15 (9am-12pm, 1-4pm)
- July 2023 IEEE 802 Plenary
  - Berlin, Germany
  - July 10-13
- September 2023 IEEE 802.3 interim
  - TBD
  - September 11 – 14
- Anyone interested in hosting interim meetings contact me or the IEEE 802.3 Executive Secretary [Steve Carlson](#).

# Motion

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- Move to adjourn the meeting.
- Procedural (>50%)
- M: Peter Stassar S: John Johnson
- Results Y: N: A:
- Approved by voice vote without opposition

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# Thank You!