

Agenda and General Information

IEEE P802.3ck 100 Gb/s, 200 Gb/s, and 400 Gb/s
Electrical Interfaces Task Force

Kent Lusted, Vice-Chair

Employed by and Affiliated with Intel Corporation
November 11-13, 2019 Waikoloa Village, HI, USA

Agenda

- Appointment of Recording Secretary
- Welcome and Introductions
- Approve Agenda
- Approve September 2019 Minutes
- Ground Rules
- IEEE
 - Structure, Bylaws and Rules
 - Call for Patents
 - IEEE Standards Process
- Reflector and Web
- Goals for this meeting
- Liaisons and Communications
- Presentations
- Motions and Closing Business
- Future Meetings

Task Force Decorum

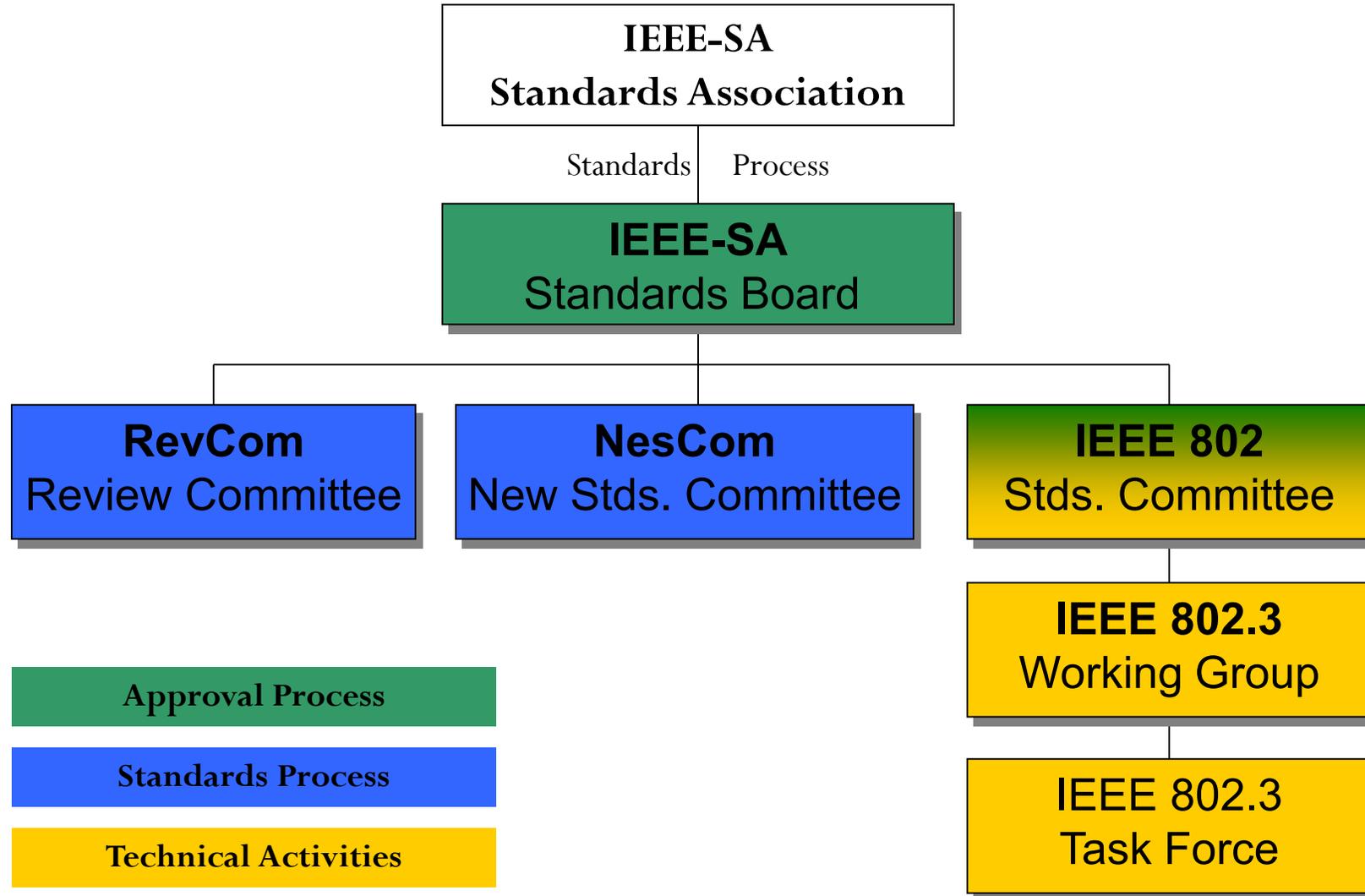


- An officer is permitted to make an audio or slideshow recording of this meeting exclusively for the purpose of generating minutes which shall not be copied or distributed. **IEEE 802.3 meetings do not use this option.** Recording of the proceedings by any other participant or observer, in part or in whole, via any means, is prohibited. (January 2019 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 2019 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

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

IEEE Structure



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**
<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

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 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 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 ... do formally object.

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**

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
- Distribution of Draft Standards (see 6.1.3 of the SASB Operations Manual)
 - <https://standards.ieee.org/about/policies/opman/sect6.html>

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>

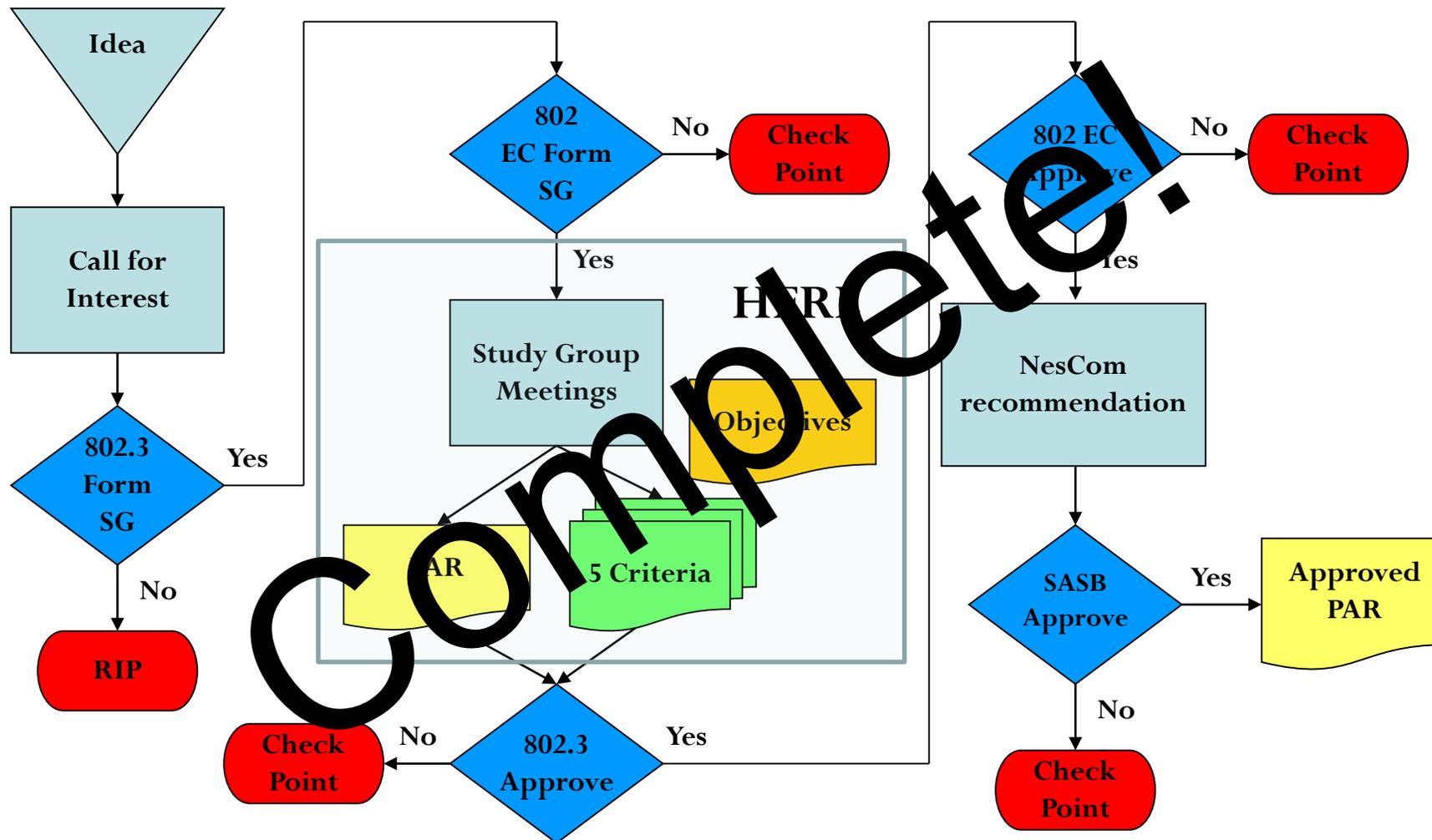
Participants in the IEEE-SA “*individual process*” shall act independently of others, including employers

- 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

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

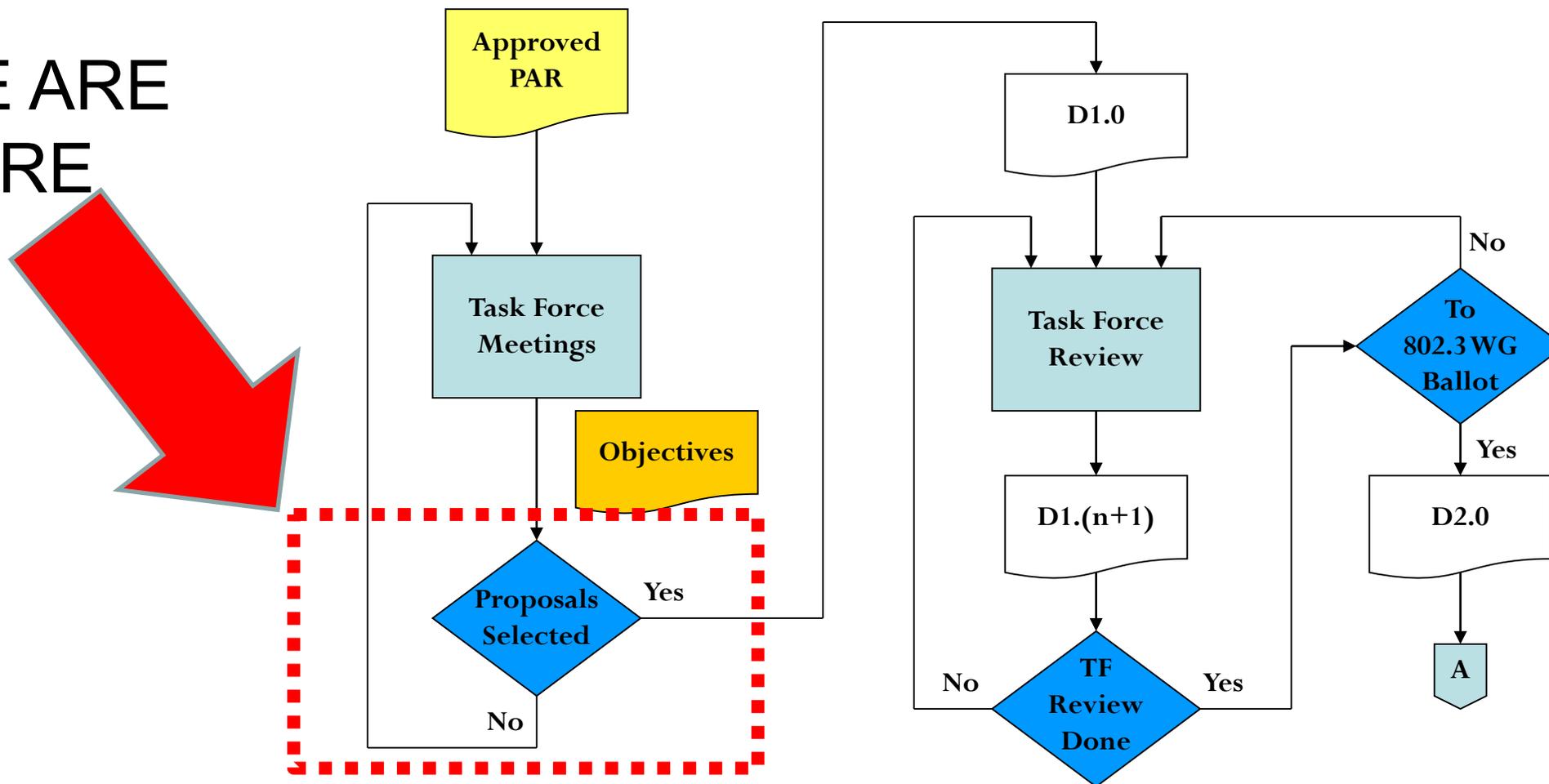
Overview of IEEE 802.3 Standards Process (1/5)- Study Group Phase



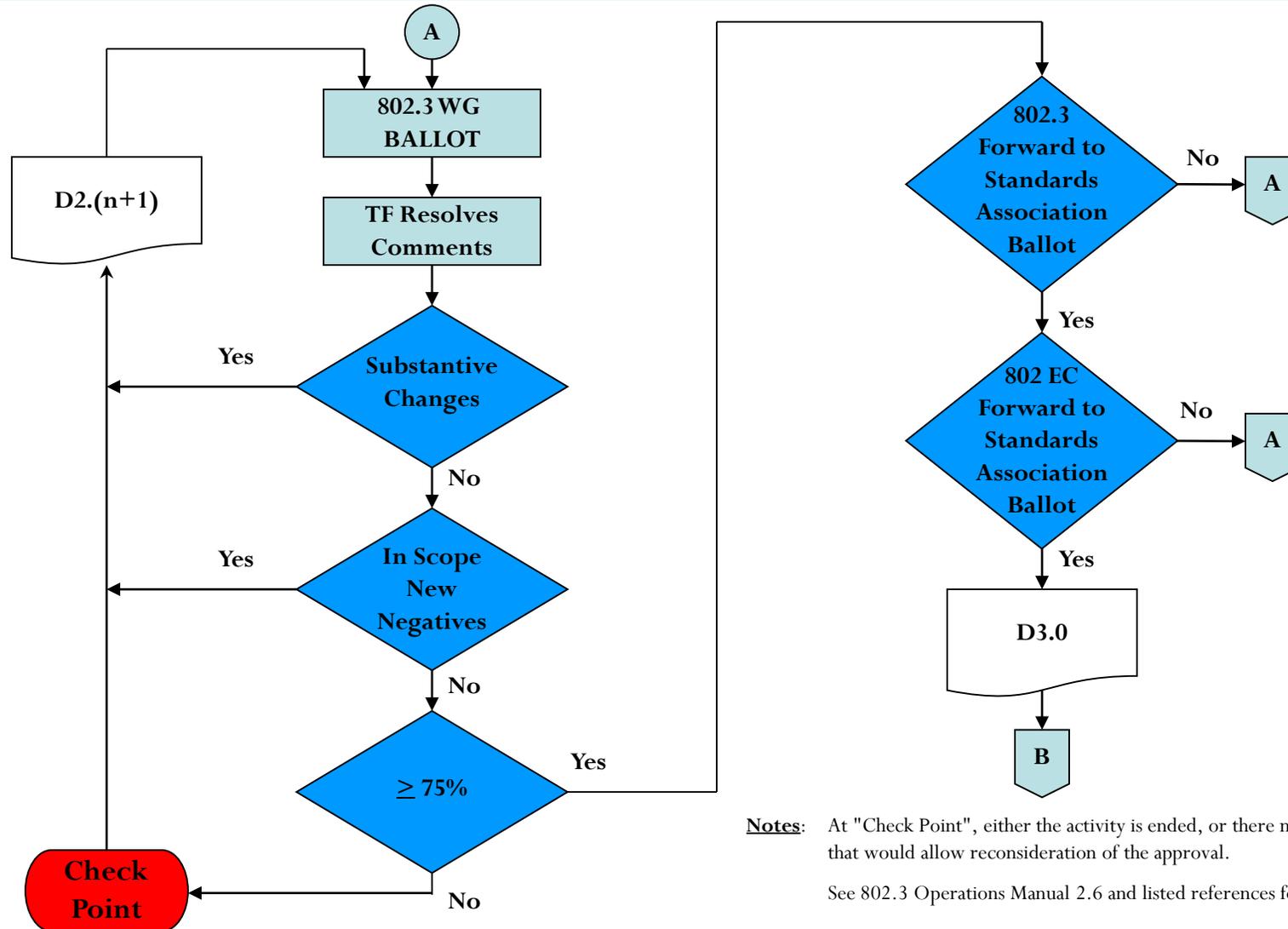
Note: At "Check Point", either the activity is ended, or there may be various options that would allow reconsideration of the approval.

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

WE ARE
HERE



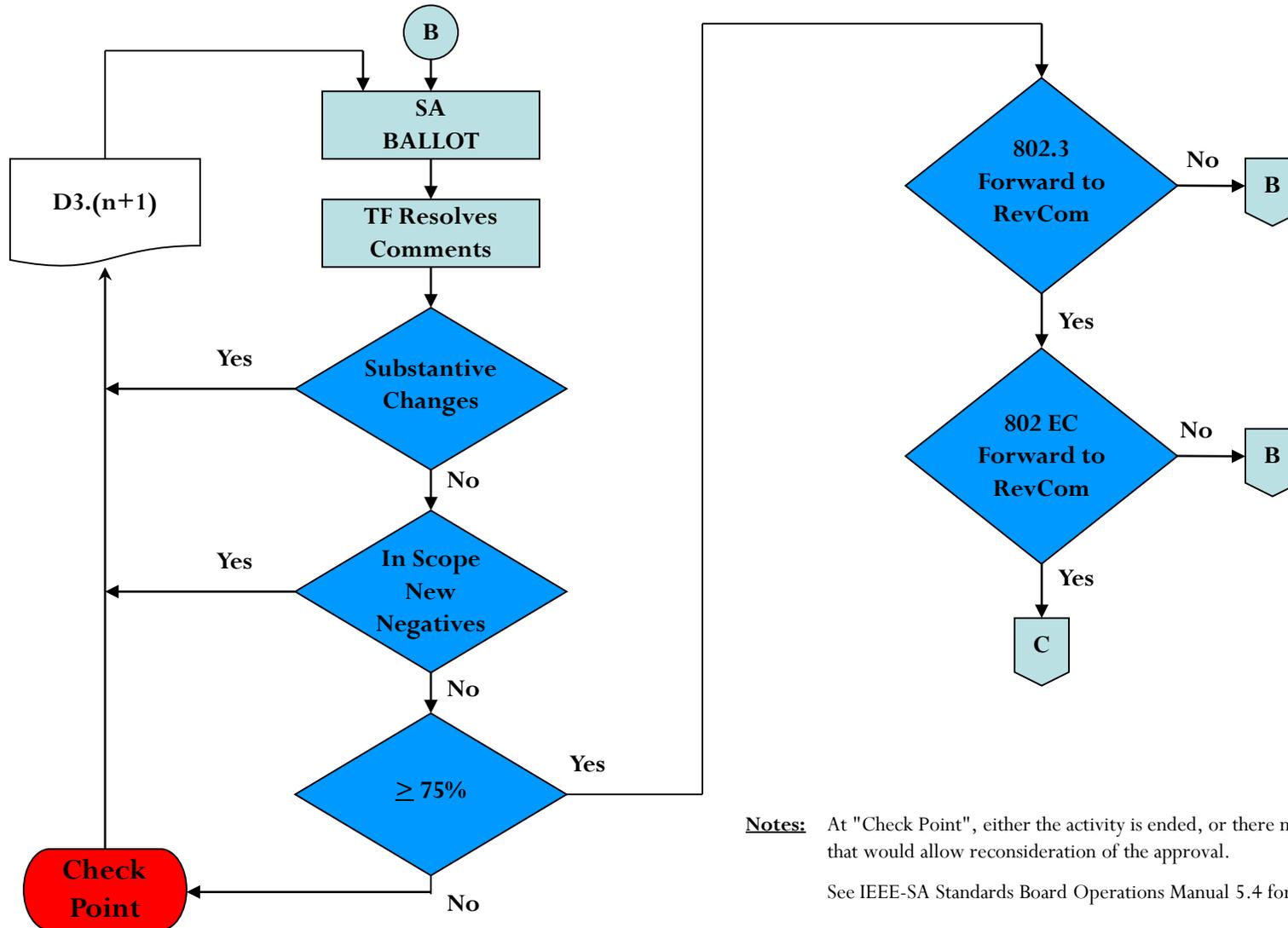
Overview of IEEE 802.3 Standards Process (3/5) – Working Group Ballot Phase



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

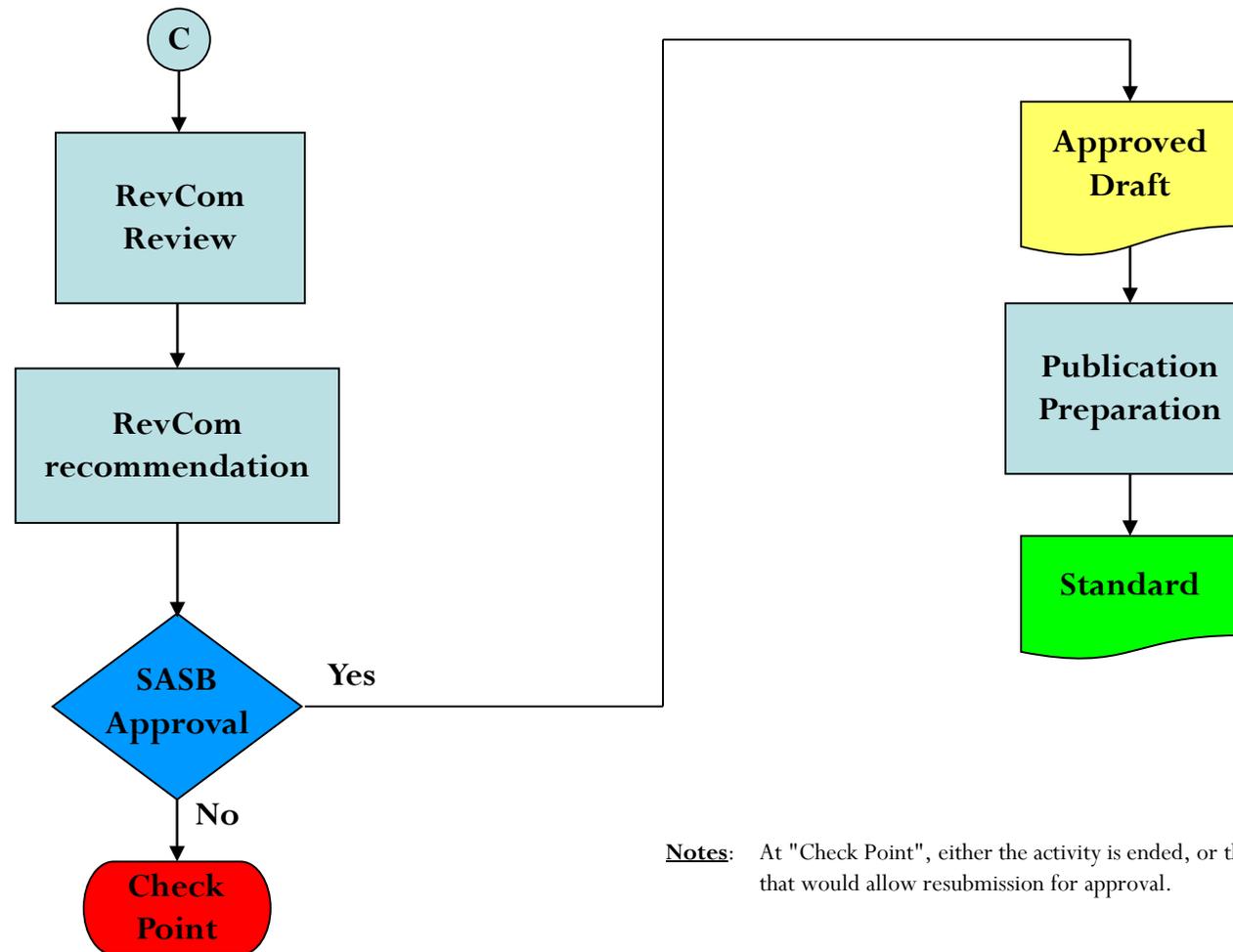
See 802.3 Operations Manual 2.6 and listed references for complete description

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.

Task Force Leadership Team

- TF Chair: Beth Kochuparambil (Cisco)
- TF Vice-Chair: Kent Lusted (Intel)
- TF Chief Editor: Matt Brown (Huawei)

Editor	Duties
Matt Brown	Chief Editor, C2M/C2C AUI annexes, legacy clauses
Arthur Marris	Clauses 30/45/73 and other legacy clauses
Howard Heck	CR Clause
Chris Diminico	CR Clause cable assembly subclauses/annexes
Phil Sun	KR Clause
Mark Gustlin	New 100G FEC (if adopted)
Jeff Slavick	Advisor and reviewer for logic clauses
Mike Dudek	Advisor and reviewer for CR/KR/AUI clauses
Adee Ran	Advisor and reviewer for CR/KR/AUI clauses

Reflector and Web

- To subscribe to the 100GEL reflector, send an email to:

ListServ@ieee.org

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

subscribe STDS-802-3-100GEL <yourfirstname> <yourlastname>
end

- Send 100GEL reflector messages to:

STDS-802-30100GEL@listserv.ieee.org

- Task Force web page URL:

<http://www.ieee802.org/3/ck/index.html>

Task Force Private Area

- URL: <http://www.ieee802.org/3/ck/private/index.html>
 - Username: 802.3ck
 - 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.

Attendance

- Tutorial Material on attendance tool
 - http://ieee802.org/3/minutes/attendance_procedures.pdf
- Access details
 - URL: <http://imat.ieee.org/>

Goals for the meeting

- Adopt baselines to close out C2M, Copper, and 100G FEC
- Generate Draft 1.0

Liaisons and Communications

- OIF – Progress on 112G-VSR and 112G-LR Projects

IEEE P802.3ck 100 Gb/s, 200 Gb/s, and 400 Gb/s Electrical Interfaces -- Approved Project Documents

- PAR

- http://www.ieee802.org/3/ck/P802_3ck_PAR_14may18.pdf

- CSD

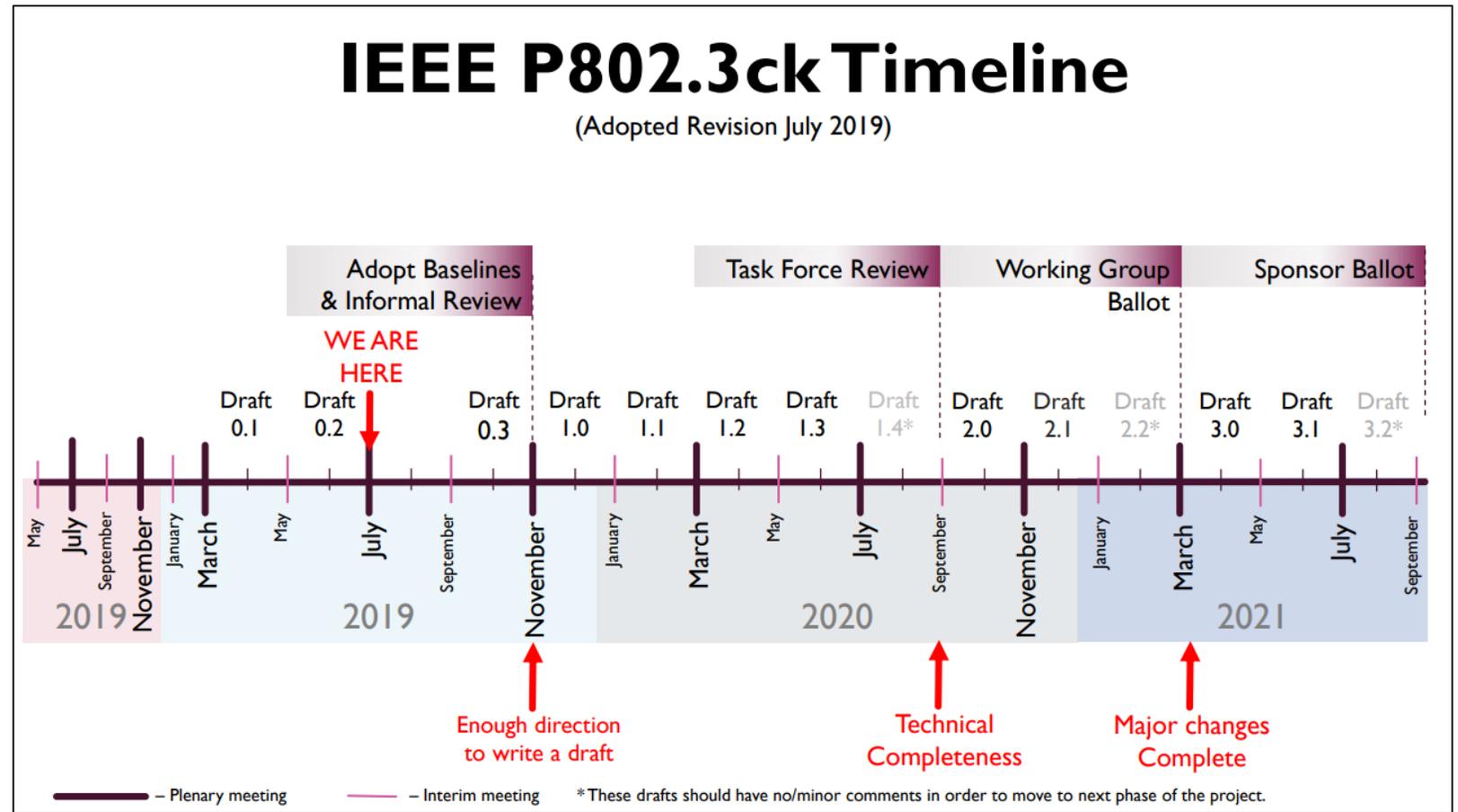
- http://www.ieee802.org/3/ck/P802_3ck_CSD_06apr18.pdf

- Objectives

- http://www.ieee802.org/3/ck/P802_3ck_Objectives_2018mar.pdf

IEEE P802.3ck Timeline

- Updated in July 2019
- Need to create Draft 1.0 out of this meeting



http://www.ieee802.org/3/ck/P802_3ck_Timeline_18july19.pdf

Presentations – Monday

Topic	Time	Author(s)	Affiliation(s)	Title	Duration
	1:00:00 PM	Kent Lusted	Intel	Agenda	0:45
	1:45:00 PM	Matt Brown	Huawei	Editors report	0:15:00
FEC	2:00:00 PM	Mark Gustlin	Cisco	Performance Improvements due to FEC Interleaving on a 100G Link	0:30:00
FEC	2:30:00 PM	Mark Gustlin	Cisco	100GBASE-KR1/CR1 FEC Thoughts	0:20:00
FEC	2:50:00 PM	Mark Gustlin	Cisco	**LATE** Performance Improvements due to FEC Interleaving	0:20:00
	3:10:00 PM	Break			0:20:00
	3:30:00 PM	Discussions & Straw Polls			0:30:00
CR	4:00:00 PM	Rich Mellitz	Samtec	Synthesized 2 m QSFP CR Channels: End to End IL 28.5 dB and Cable Assembly and IL	0:20:00
CR	4:20:00 PM	Jane Lim	Cisco	100G CR End-to-End Channel Analysis Update (III)	0:15:00
CR	4:35:00 PM	Tom Palkert	Molex	QSFP-DD TP1-TP4 Channel Simulations	0:15:00
CR	4:50:00 PM	Ali Ghiasi	Ghiasi Quantum/II	Choosing an optimum CR Equalizer	0:25:00
CR	5:15:00 PM	Rich Mellitz	Samtec	CR ERLmin Proposal	0:15:00
CR	5:30:00 PM	Sam Kocsis	Amphenol	**LATE** 100G CR Analysis Cu Cable Channels, OSFP	0:15:00
	5:45:00 PM	Break for the Day			0:0

Note –Times listed are subject to change.

Presentations – Tuesday

Topic	Time	Author(s)	Affiliation(s)	Title	Duration	
	8:00:00 AM	Kent Lusted	Intel	Opening remarks	0:05	
CR	8:05:00 AM	Chris Diminico	MC Communicatic	**LATE** Baseline Proposal Cable assembly, Host, MTF, and Channel Insertion Loss	0:30:00	
	8:35:00 AM	Discussions and straw polls			0:45:00	
C2M	9:20:00 AM	Phil Sun	Credo	Baseline Proposal for 100GAUI-1/200GAUI-2/400GAUI-4 C2M Reference Receiver	0:20:00	20
C2M	9:40:00 AM	Ali Ghiasi	Ghiasi Quantum/I	Completing C2M Baseline Proposal TBDs	0:30:00	30
	10:10:00 AM	Break			0:20:00	
C2M	10:30:00 AM	Mike Li	Intel	Comparison of CTLE+DFE vs TDECQ/FFE Reference Receivers for 802.3ck TP1a/TP4 Cc	0:15:00	15
C2M	10:45:00 AM	Phil Sun	Credo	C2M simulation with proposed reference receivers	0:30:00	30
C2M	11:15:00 AM	Tom Palkert	MACOM	RX Reference Receiver Power requirements	0:20:00	20
C2M	11:35:00 AM	Tom Palkert	MACOM	RX Reference Receiver	0:20:00	20
	11:55:00 AM	Lunch			1:00:00	
C2M	12:55:00 PM	Ali Ghiasi	Ghiasi Quantum/I	C2M Link Analysis at Host and Module Output	0:25:00	25
C2M	1:20:00 PM	Mike Dudek	Marvell	Comparison of C2M performance at TP1a with whole channel performance	0:25:00	25
C2M	1:45:00 PM	Mau-Lin Wu	MediaTek	C2M TP1a VEC and ERL Test Specs	0:30:00	30
C2M	2:15:00 PM	Mike Li	Intel	802.3ck Chip-to-Module TP1a/TP4 Compliance Test Measurement Methodology	0:25:00	25
C2M	2:40:00 PM	Rich Mellitz	Samtec	C2M ERLmin Proposal	0:20:00	20
	3:00:00 PM	Break			0:30:00	
C2M	3:30:00 PM	Nathan Tracy	TE	**LATE** New chip to module channel simulation and analysis	0:15:00	15
C2M	3:45:00 PM	Mark Kimber	Semtech	**LATE** Further analysis of synthesized 100G C2M short channels	0:20:00	20
	4:05:00 PM	Discussions and straw polls			1:45:00	
	5:50:00 PM	Break for the Day				

Note –Times listed are subject to change.

Presentations - Wednesday

Topic	Time	Author(s)	Affiliation(s)	Title	Duration
	8:00:00 AM	Kent Lusted	Intel	Agenda	0:05
KR	8:05:00 AM	Athos Kasapi	Cadence	A tap weight refinement to the KR (receive) Reference Equalizer Model	0:30:00
KR	8:35:00 AM	Rich Mellitz	Samtec	KR ERLmin Proposal	0:25:00
KR	9:00:00 AM	Mau-Lin Wu	MediaTek	Study of KR ERL test specs	0:20:00
KR	9:20:00 AM	Tom Palkert	Molex	**LATE** BP OD channel analysis	0:20:00
	9:40:00 AM	Discussions and Straw Polls			0:45:00
	10:25:00 AM	Break			0:20:00
	10:45:00 AM	Motions and closing business			1:15:00
	12:00:00 PM	Meeting Adjourn			

Note –Times listed are subject to change.

Meeting Map

- Meeting 3 days this week – times are subject to change (see online schedule for latest!):
 - Monday – Kona 4/5
 - Tuesday – Kona 4
 - Wednesday (stop @ noon) – Kona 4

Future Meetings

- See: <http://www.ieee802.org/3/interims/index.html>
- January 2020 Interim
 - Week of January 20, 2020
 - Geneva, Switzerland
- March 2020 Plenary
 - Week of March 16, 2020
 - Atlanta, GA, USA
- Anyone interested in hosting a interim meeting contact me or the IEEE 802.3 Executive Secretary [Steve Carlson](#).

Ad Hocs

- Will continue 2 hour ad hocs
 - Wednesdays at 7am Pacific (to be announced over email reflector)
 - Assume start on December 4
 - Weekly or every other week recurrence
 - Will cancel or shorten on Tuesday prior, as needed.

Thank You!