



Agenda and General Information

IEEE 802.3cd

**50 Gb/s, 100 Gb/s and 200 Gb/s Ethernet Task
Force**

Mark Nowell, Cisco

Rosemont, IL

Week of March 4th , 2018

Agenda

- Welcome and Introductions
- Approve Agenda
- Approve Minutes
- Reflector and Web
- Ground Rules
- IEEE
 - Structure, Bylaws and Rules
 - Call for Patents
 - IEEE Standards Process
- Liaisons and Communications
- Ad hocs
- Task Force documentation
- Schedule
- Goals for this meeting
- Meeting Schedule
- Motions and Closing Business
- Future Meetings

P802.3cd Task Force organization

- Chair: Mark Nowell, Cisco
- Recording Secretary: Kent Lusted, Intel
- Chief Editor: Matt Brown, Macom
- Ad hoc chair: Kent Lusted, Intel

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. (December 2017 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 2017 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

Reflector and Web

- To subscribe to the Task Force's reflector, send an email to:
ListServ@ieee.org
with the following in the body of the message (do not include "<>"):
subscribe stds-802-3-50G <yourfirstname> <yourlastname>
end
- Send Task Force reflector messages to:
stds-802-3-50G@listserv.ieee.org
- Task Force's web page URL:
<http://www.ieee802.org/3/cd/index.html>

Task Force Private Area

- <http://www.ieee802.org/3/cd/private/index.html>
- U: 802.3cd
- P: ***

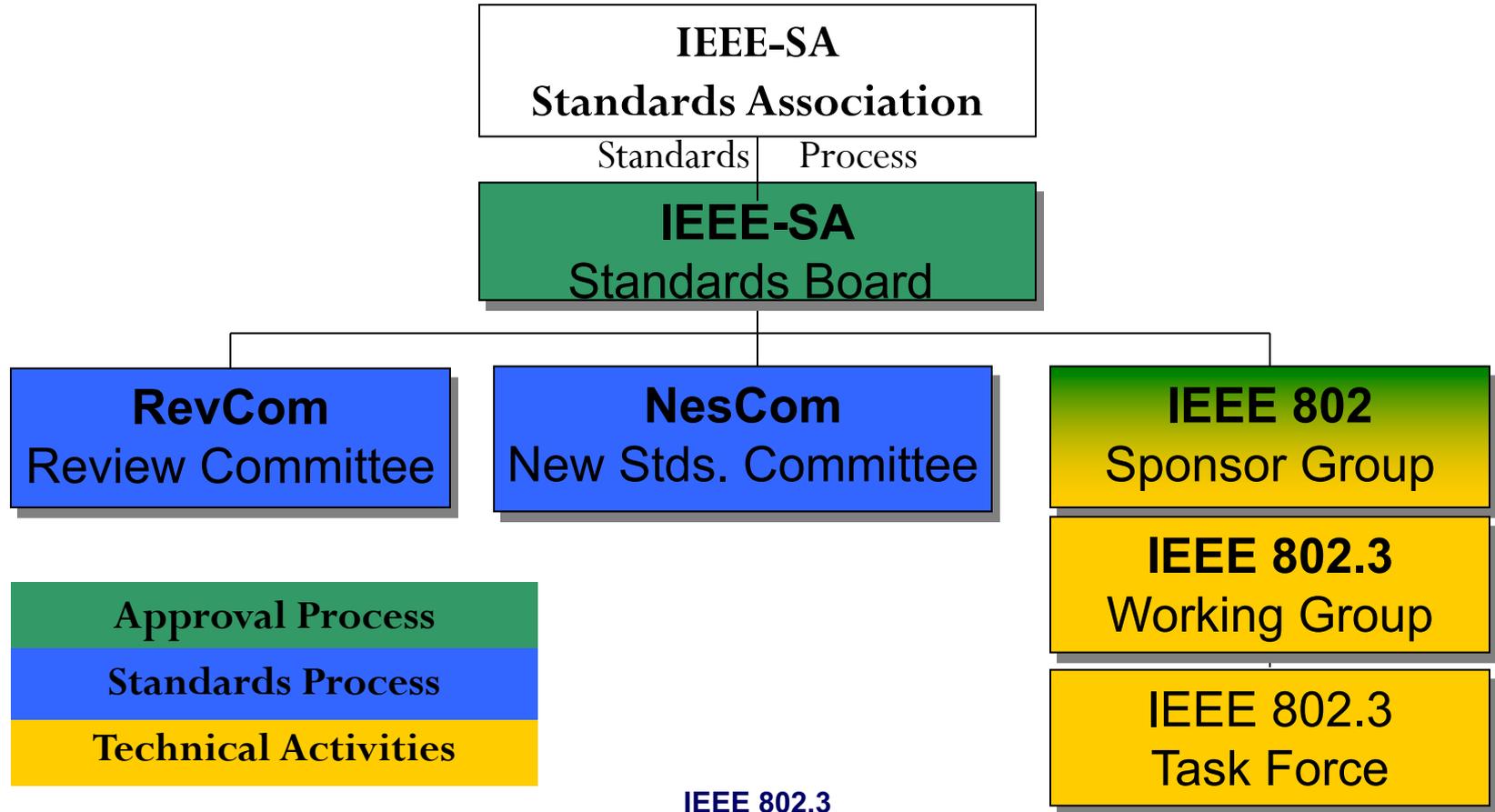
Ground Rules

- 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

Attendance

- Tutorial Material on attendance tool
 - http://ieee802.org/3/minutes/attendance_procedures.pdf
- Access details
 - URL: <http://imat.ieee.org/>
 - Use your imat login
 - (must be on meeting SSID – no VPN)

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**
<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

Participation in IEEE 802 Meetings

Participation in any IEEE 802 meeting (Sponsor, Sponsor subgroup, Working Group, Working Group subgroup, etc.) 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>)

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

Note: 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.

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

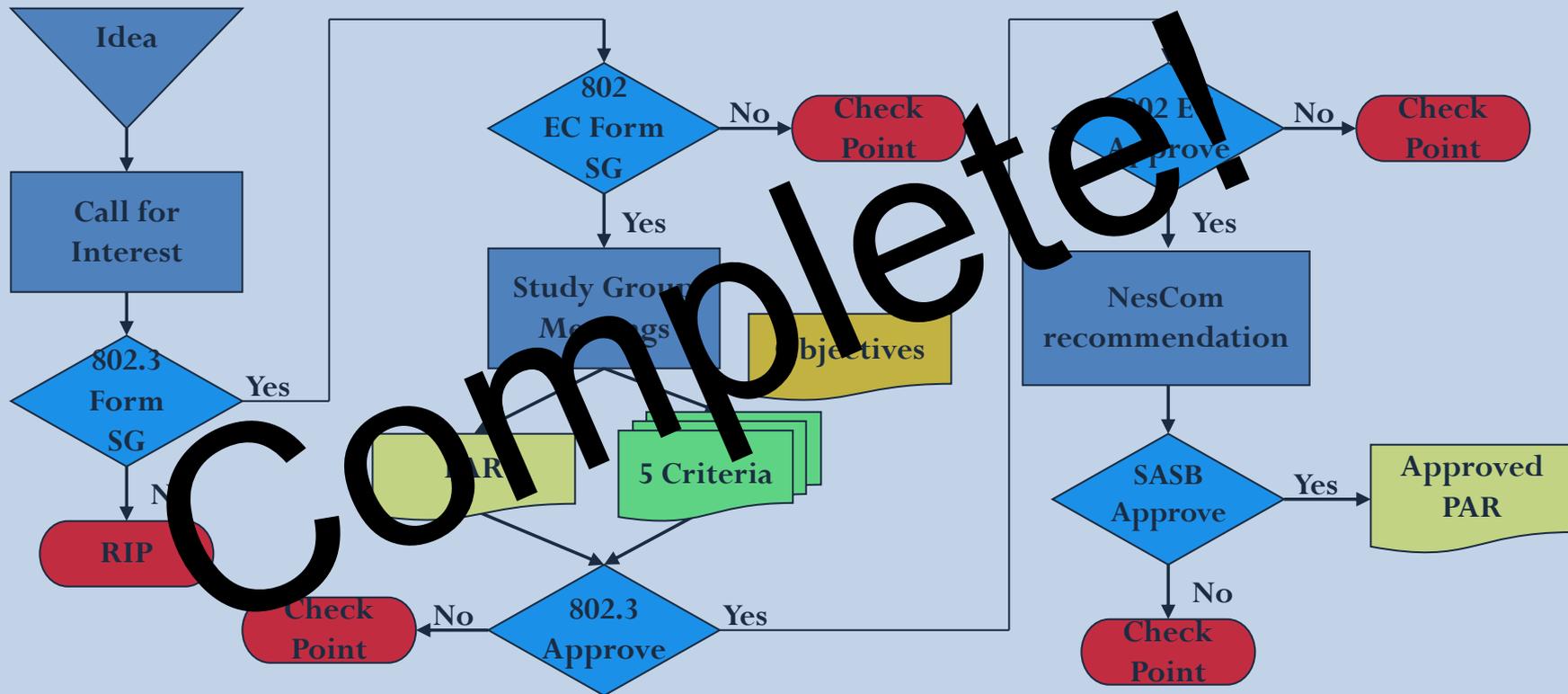
The patent policy and the procedures used to execute that policy are documented in the:

- *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>

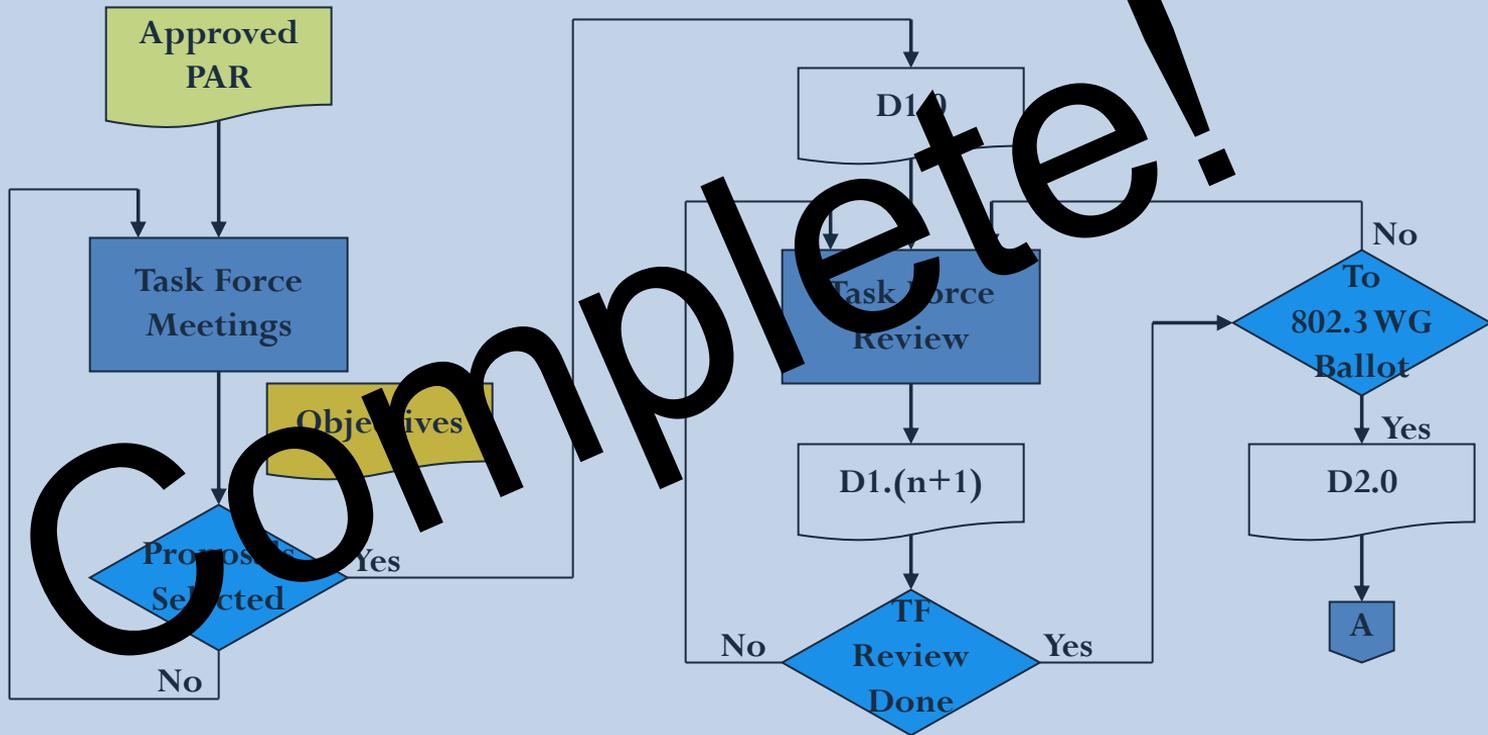
**If you have questions, contact the IEEE-SA
Standards Board Patent Committee
Administrator at patcom@ieee.org**

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

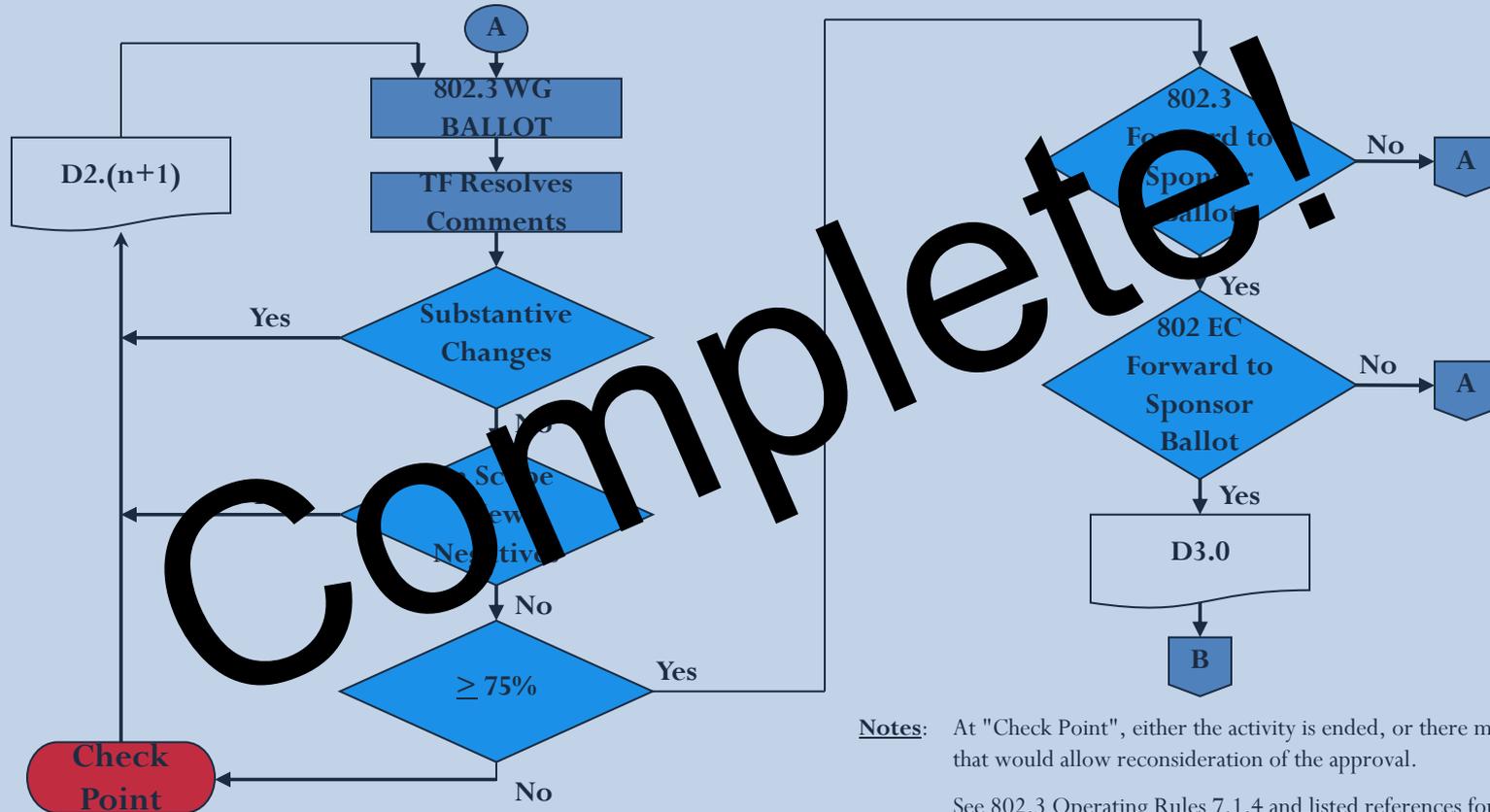


Note: At "Check Point", either the activity is ended, or there may be various options that would allow reconsideration of the approval.

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



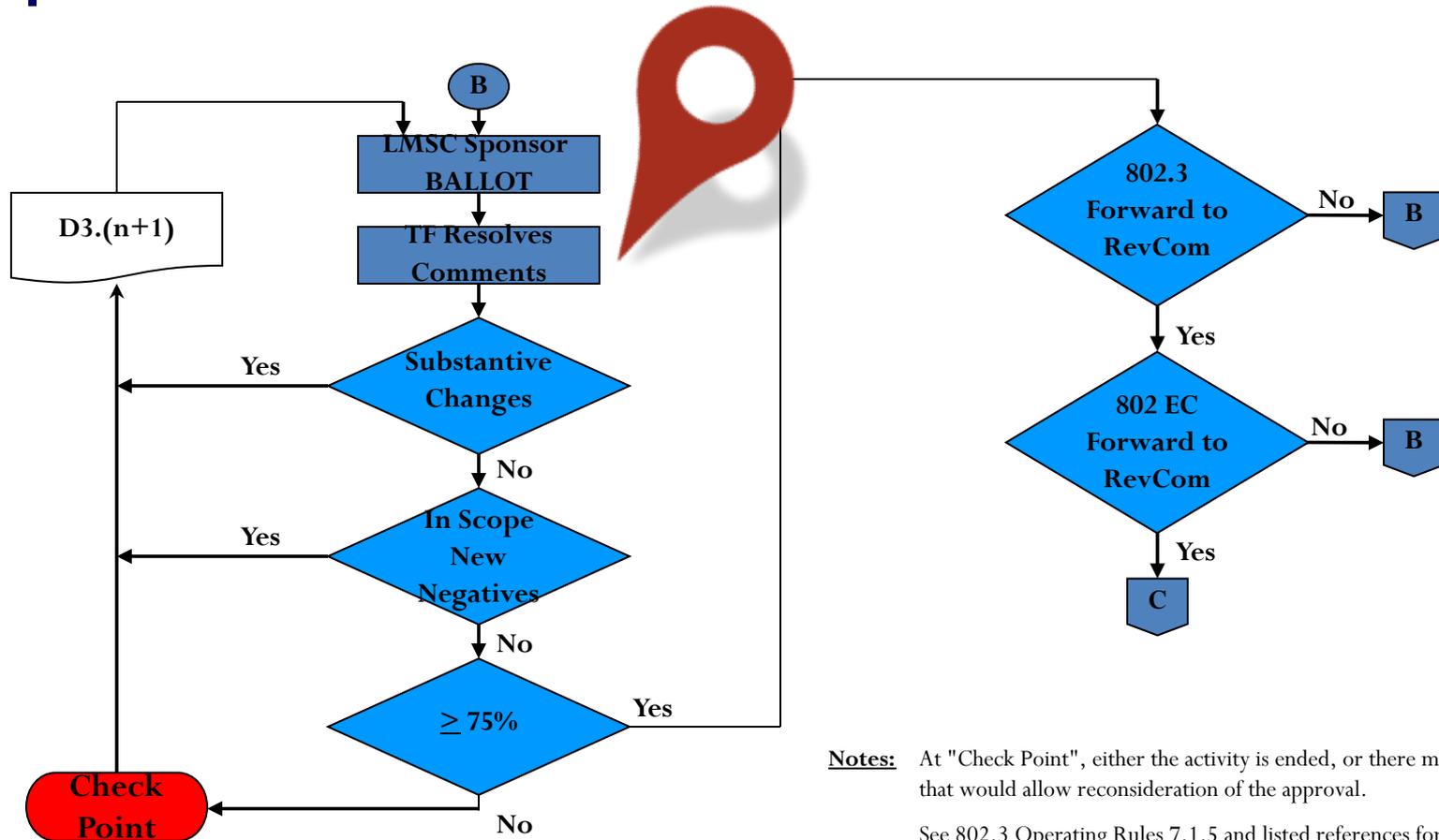
Overview of IEEE 802.3 Standards Process (3/5) – Working Group Ballot Phase



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

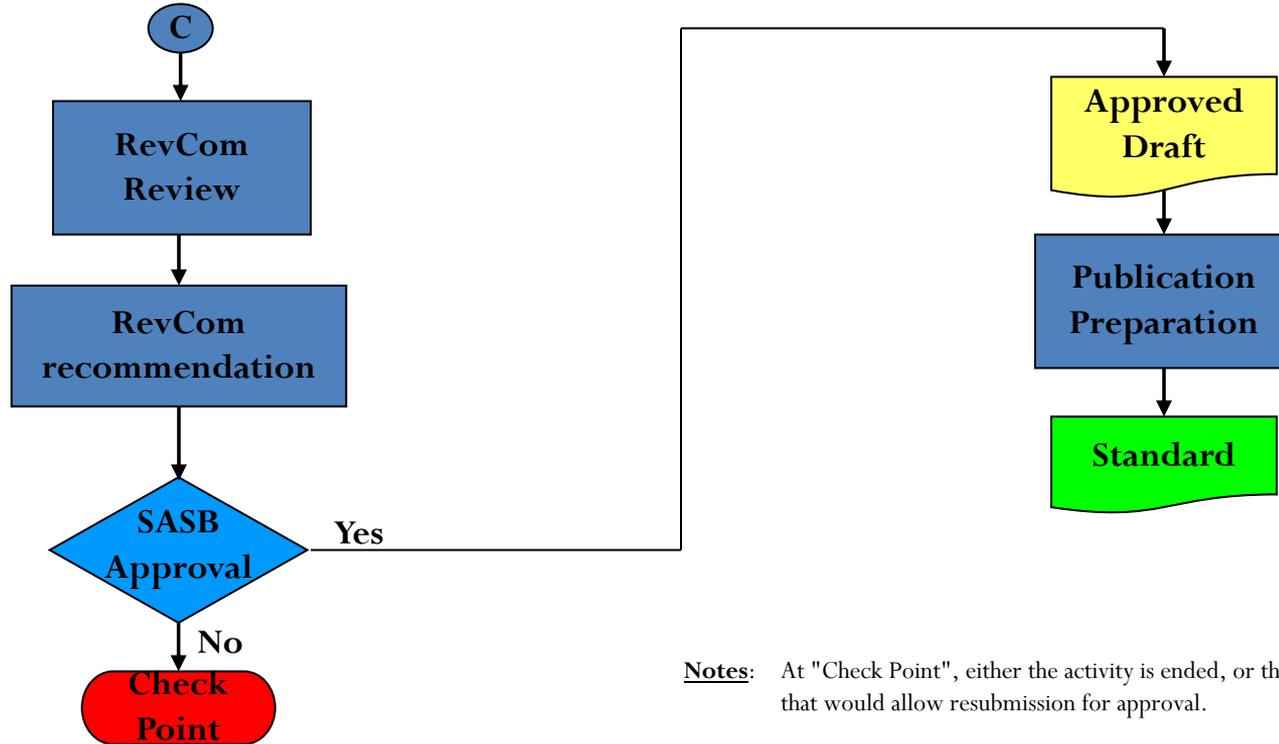
Overview of IEEE 802.3 Standards Process (4/5)- Sponsor Ballot Phase



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

Ad hocs

Charter: to discuss topics towards supporting the developed objectives, PAR and CSD or for providing the Task Force with contributions to help it prepare for future decisions.

Chair: Kent Lusted, Intel

<http://www.ieee802.org/3/cd/public/adhoc/index.html>

- Expected to continue the regular cadence.
- Wednesdays @ 8am PT

IEEE P802.3cd Task Force Approved Project Documents

- PAR
 - <http://www.ieee802.org/3/cd/P802.3cd.pdf>
- CSD
 - <https://mentor.ieee.org/802-ec/dcn/16/ec-16-0060-02-ACSD-802-3cd.pdf>
- Objectives
 - http://www.ieee802.org/3/cd/P802d3cd_objectives_v4.pdf
- Timeline
 - http://www.ieee802.org/3/cd/P802d3cd_timeline.pdf

Objectives 1 of 2

- Support full-duplex operation only
- Preserve the Ethernet frame format utilizing the Ethernet MAC
- Preserve minimum and maximum FrameSize of current IEEE 802.3 standard
- Support optional Energy-Efficient Ethernet operation
- Provide appropriate support for OTN
- Support a MAC data rate of 50 Gb/s and 100 Gb/s
- Support a BER of better than or equal to 10^{-12} at the MAC/PLS service interface (or the frame loss ratio equivalent) for 50 Gb/s and 100 Gb/s operation
- Support a MAC data rate of 200 Gb/s
- Support a BER of better than or equal to 10^{-13} at the MAC/PLS service interface (or the frame loss ratio equivalent) for 200 Gb/s operation

Objectives 2 of 2

50 Gb/s Ethernet PHYs

- Define single-lane 50 Gb/s PHYs for operation over
 - copper twin-axial cables with lengths up to at least 3m.
 - printed circuit board backplane with a total channel insertion loss of $\leq 30\text{dB}$ at 13.28125 GHz.
 - MMF with lengths up to at least 100m
 - SMF with lengths up to at least 2km
 - SMF with lengths up to at least 10km

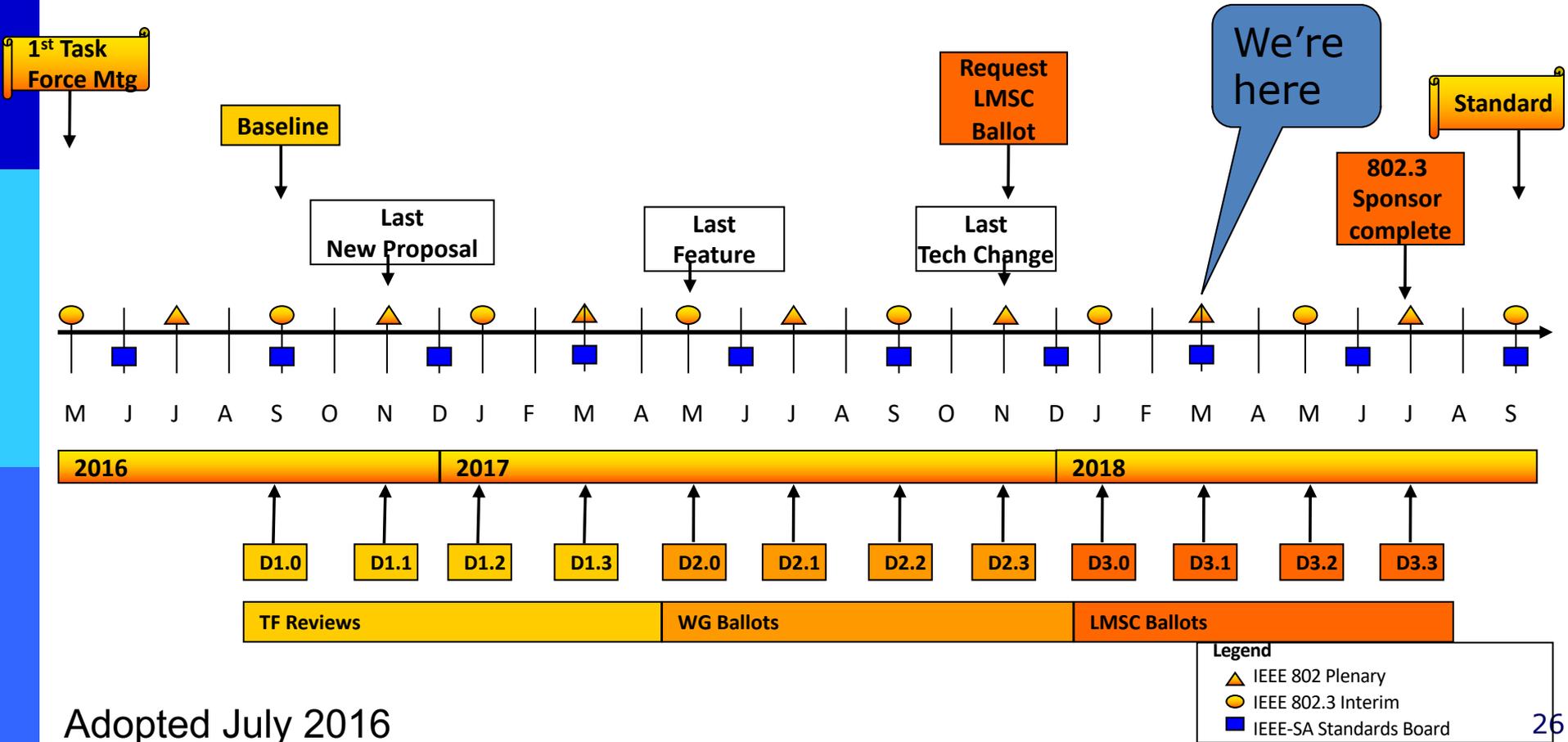
100 Gb/s Ethernet PHYs

- Define a two-lane 100 Gb/s PHY for operation over
 - copper twin-axial cables with lengths up to at least 3m.
 - printed circuit board backplane with a total channel insertion loss of $\leq 30\text{dB}$ at 13.28125 GHz.
 - MMF with lengths up to at least 100m
- Define a single lane 100 Gb/s PHY for operation over duplex SMF with lengths up to at least 500 m, consistent with IEEE P802.3bs Clause 124

200 Gb/s Ethernet PHYs

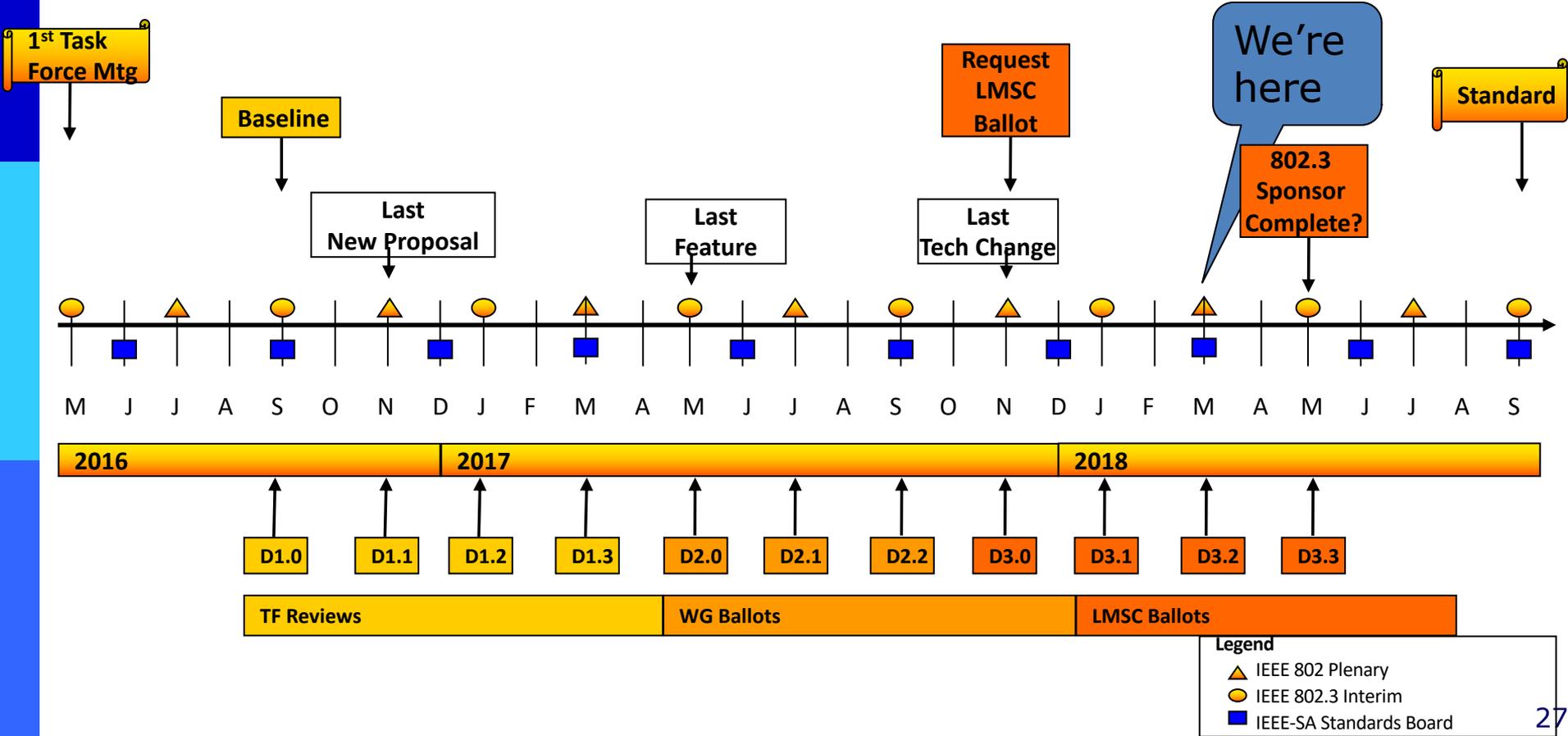
- Define four-lane 200 Gb/s PHYs for operation over
 - copper twin-axial cables with lengths up to at least 3m.
 - printed circuit board backplane with a total channel insertion loss of $\leq 30\text{dB}$ at 13.28125 GHz.
- Define 200 Gb/s PHYs for operation over MMF with lengths up to at least 100m

IEEE P802.3cd Task Force Adopted Timeline



Adopted July 2016

IEEE P802.3cd Task Force Current Timeline

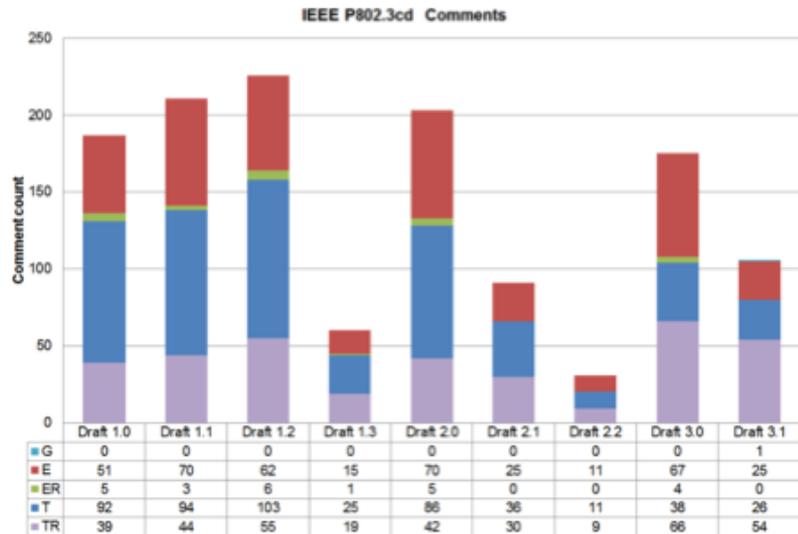


D3.1 Sponsor Ballot recirculation

Draft 3.1 generated and sent out for Working Group Ballot Recirculation:

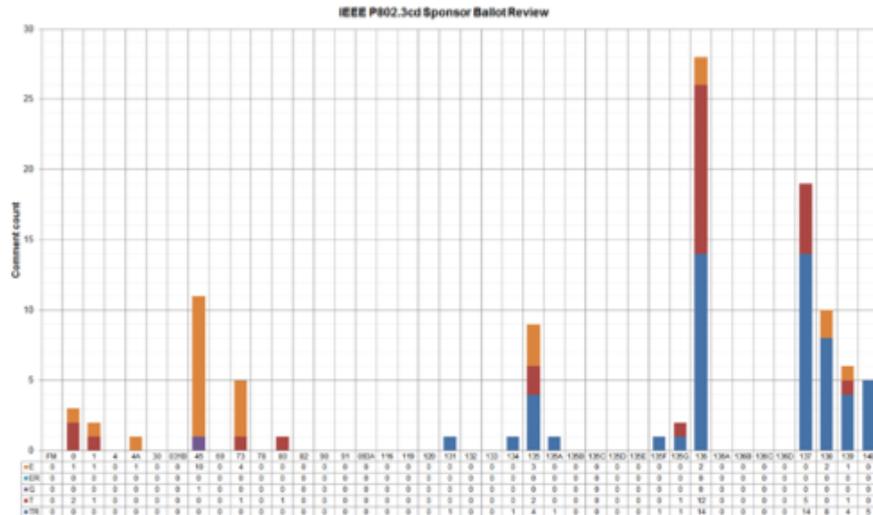
- Review Period: Feb 7th- Feb 22nd 2018
- 106 comment received (G:1 E:25 ER:0 T:26 TR:54) incl. 2 late comments
- Comments and proposed responses: <http://www.ieee802.org/3/cd/public/comments>

Comment Summary by Draft



E/ER = editorial, T/TR = technical, G = general

Comment Summary by Clause for D3.1



E/ER = editorial, T/TR = technical, G = general

Goals for the meeting

- Comment Resolution on D3.1 comments
- Review technical presentations
- Generate D3.2 for Sponsor Ballot recirculation

Meeting Logistics

- Main Meeting room is Grand Ballroom GH
 - 2nd track room in O'Hare BC
- Evenings possible if we need them
- 8am start on Monday

	Mon	Tues
AM	Grand Ballroom GH	Electrical Track Grand Ballroom GH
	802.3 WG Plenary 10am-12pm	
	Lunch	Lunch
PM	Electrical Track Grand Ballroom GH	Electrical Track Grand Ballroom GH
	Optical Track O'Hare BC	

Merge Back at some point

Meeting Schedule – Mon/Tues

Note –Times listed are subject to change.
Updated versions will be captured with new filename versions

5-Mar-18	8:00 AM	Mark Nowell	Cisco	Agenda and General Information	agenda_3cd_01_0118.pdf	0:45	
	8:45 AM	Kent Lusted	Intel	802.3cd Task Force Ad-hoc report	lusted_3cd_01_0118.pdf	0:10	
	8:55 AM	Matt Brown	Macom	802.3cd Chief Editor's Report	brown_3cd_01_0118.pdf	0:15	
	9:10 AM	Matt Brown	Macom	Comment agenda	brown_3cd_02_0118.pdf	0:20	
	9:30 AM	Comment Resolution (presentations as needed)					0:30
	10:00 AM	Break for 802.3 WG Opening Plenary					3:00
		Track 1 (Grand Ballroom GH) - Electrical Track			Track 2 (O'Hare BC) - Optical Track		
	1:00 PM	Comment Resolution in each track (presentations as needed)					2:30
	3:30 PM	Break					0:20
	3:50 PM	Comment Resolution in each track (presentations as needed)					2:10
	6:00 PM	Break					

Tuesday 6-Mar-18	Time	Presenter	Affiliation	Title	File Name	Dur.	
		Track 1 (Grand Ballroom GH) - Electrical Track			Track 2 (O'Hare BC) - Optical Track		
	8:00 AM	Comment Resolution in each track (presentations as needed)					2:30
	10:30 AM	Break					0:20
	10:50 AM	Comment Resolution in each track (presentations as needed)					1:10
	12:00 PM	Lunch					1:00
	1:00 PM	Comment Resolution in each track (presentations as needed)					2:00
	3:00 PM	Break					0:20
	3:20 PM	Comment Resolution in each track (presentations as needed) Return to single group In Grand Ballroom GH for final business					2:40
	6:00 PM	Adjourn					

Contributed Presentations

Contributed Presentations			
Summary of ERL, SNR, ISI, and RL comment recommendations	1-Mar-2018	Rich Mellitz	Samtec
Can ERL replace SNR_{ISI} for 50GBASE-CR(updated)?	1-Mar-2018	Mike Dudek Tao Hu	Cavium Cavium
COM revision update which support ERL comments (see Channel Area for associated COM model and files)	1-Mar-2018	Rich Mellitz	Samtec
Transmitter Specifications for C1137	1-Mar-2018	Alexander Rysin Piers Dawe	Mellanox Mellanox
ERL Results for 50GBASE-KR	1-Mar-2018	Alexander Rysin Piers Dawe	Mellanox Mellanox
ERL Measured Results for 50G-KR Device	1-Mar-2018	Futoshi Terasawa Toshiaki Sakai	Socionext Socionext
Observations and inputs with regard to ERL in 802.3cd	1-Mar-2018	Nathan Tracy	TE
TDECO updates	1-Mar-2018	Jonathan King	Finisar
Refining TDECO	1-Mar-2018	Piers Dawe	Mellanox
In Response to TDECO/SECO Questions for Threshold Adjustments and Proposed Changes (comments r01-98, r01-104, r01-99, r01-103, r01-102, r01-97)	1-Mar-2018	Frank Chang Pavel Zivny David Leyba Hai-Feng Liu Marco Mazzini Kohichi Tamura Mingshan Li Mark Heimbuch Winston Way Mark Kimber Phil Sun	Inphi Tektronix Keysight Intel Cisco Oclaro AOI Source Photonics Neophotonics Semtech Credo
Late Contributions			
SRS/SECO Gaps, Implications, and Proposed Improvements	1-Mar-2018	Matt Sysak Scott Schube	Intel Intel

Future Meetings & Ad hocs

- Ad-hoc meeting plans
 - On-going quasi-weekly meetings, all topics (will cycle) – agendas will be published. 2hr duration.
 - Wed 8-10 Pacific
- See: <http://www.ieee802.org/meeting/index.html>
- May 2018 Interim
 - Week of May 21st, 2018, Pittsburgh, PA
- July 2018 Plenary
 - Week of July 18-23rd, 2018, San Diego, CA
- Sept 2018 Interim
 - Week of Sept 10th, 2018 Location: TBD

- Anyone interested in hosting an interim meeting contact me or the IEEE 802.3 Executive Secretary Steve Carlson.



Thank You!