
AGENDA AND GENERAL INFORMATION

IEEE P802.3CK - 100 GB/S, 200 GB/S, AND 400 GB/S

ELECTRICAL INTERFACES TASK FORCE

BETH KOCHUPARAMBIL, EMPLOYED BY AND AFFILIATED WITH CISCO SYSTEMS
KENT LUSTED, EMPLOYED BY AND AFFILIATED WITH INTEL CORPORATION

VIENNA, AUSTRIA – JULY 16-18TH, 2019

AGENDA

- Welcome and Introductions
- Approve Agenda
- Approve May Interim Minutes
- Ground Rules
- IEEE Structure, Bylaws and Rules / Call for Patents / IEEE Standards Process
- Reflector and Web
- Goals for this meeting
- Timeline and leadership
- 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. (June 2018 IEEE-SA Standards Board Ops Manual 5.3.3.2)
- Press (i.e., anyone reporting publicly on this meeting) are to announce their presence (June 2018 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

IEEE-SA
Standards Association

Standards | Process

IEEE-SA
Standards Board

RevCom
Review Committee

NesCom
New Stds. Committee

IEEE 802
Sponsor Group

IEEE 802.3
Working Group

IEEE 802.3
Task Force

Approval Process

Standards Process

Technical Activities

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**

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>)

PARTICIPATION OF BIS ENTITY

IEEE Standards Association Statement on Participation of BIS Entity List Entity or Individual

The IEEE Standards Association (“IEEE-SA”) provides a global forum for open and cooperative international standards development. By their very nature, IEEE-SA standards or draft standards are documents that are intended for open publication and wide public dissemination. Moreover, IEEE-SA standards development meetings are conducted in public sessions that are open to all interested participants who pay the meeting attendance fees. Interested individuals and companies may also make presentations at such IEEE-SA standards development meetings.

IEEE-SA has prepared this statement of ground rules for the conduct of its standards development meetings where a participating entity (or an individual employed by or otherwise affiliated with such an entity) has been included on the Entity List maintained by the U.S. Commerce Department’s Bureau of Industry and Security (“BIS”) under the U.S. Export Administration Regulations (“EAR”), 15 CFR Part 730 et seq. In general, under the EAR, U.S. persons may not export or reexport any item (including “technology” or “software” as such terms are defined in the EAR) that is “subject to the EAR” to any entity or individual named to the Entity List (collectively, “Designated Persons”). IEEE-SA notes that the EAR itself defines what is and is not considered “subject to the EAR.” In particular, EAR Section 734.7(a)(3) contains an express exclusion for the “unlimited distribution” of information at a “conference, meeting, [or] seminar ... generally accessible to the interested public,” and EAR Section 734.7(a)(5) contains a similar exclusion for a wide range of written materials or “representations of knowledge” that may be submitted to “organizers of open conferences or other open gatherings” (collectively, the “EAR Exclusions”).

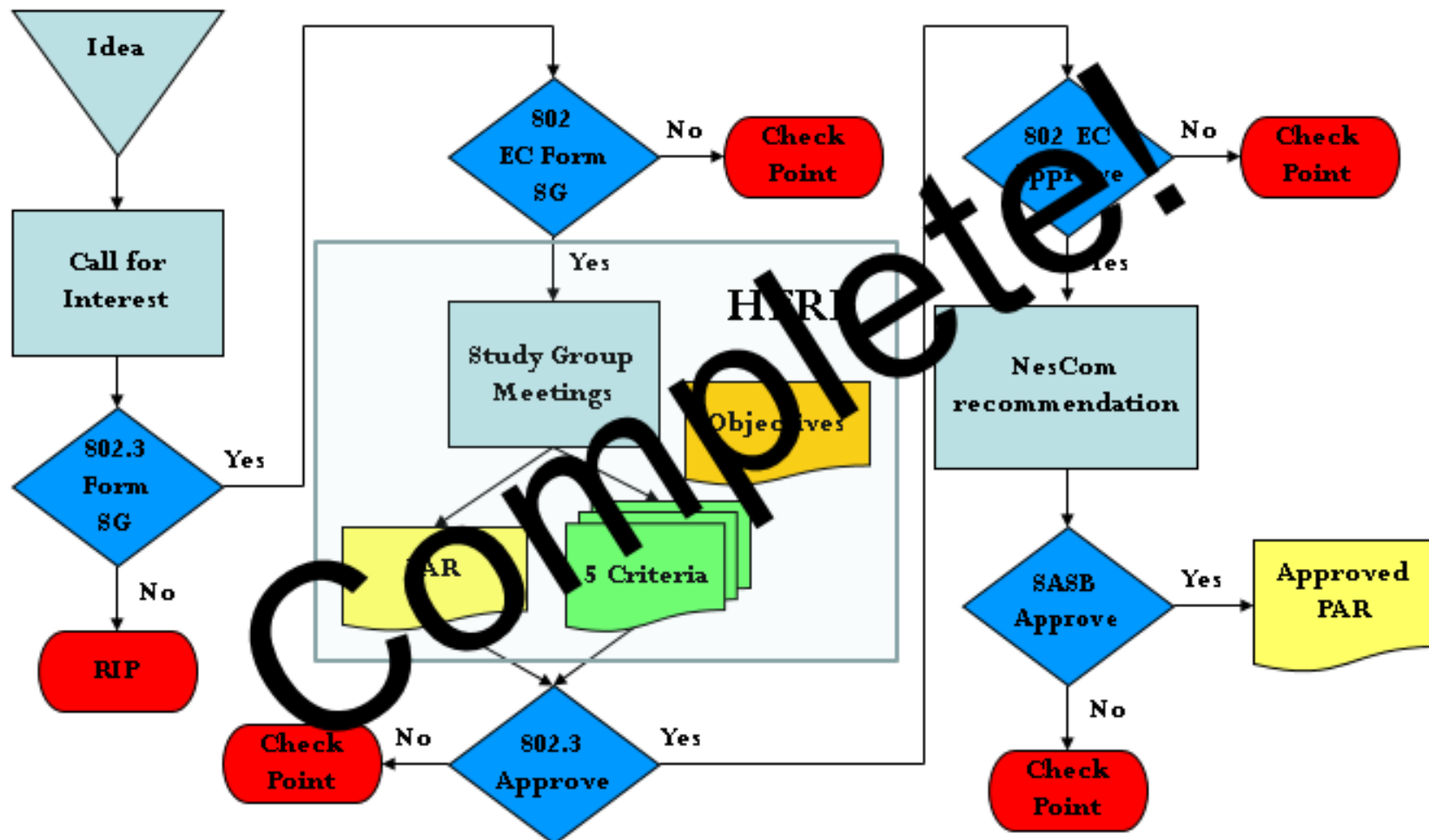
1. **Entity or Individual on BIS Entity List.** In reliance on the EAR Exclusions and other applicable authority in the EAR, any such Designated Person may attend public sessions of IEEE-SA standards development meetings, submit technology proposals for standards, make presentations on proposals, participate in public discussions of technology proposals, submit public comments on standards, become or remain a member, and earn or exercise voting rights of membership in IEEE-SA.
2. **Other Participants.** In reliance on the EAR Exclusions and other applicable authority in the EAR, other participants in IEEE-SA standards development meetings may review technology proposals that such a Designated Person has submitted, participate with a Designated Person in discussions of technology proposals during public sessions, respond to comments submitted through IEEE working group Communications tools, and vote on technology proposals submitted by such a Designated Person.
3. **Private or Personal Discussions.** Any private or personal discussions outside the scope of open and public sessions between such a Designated Person and any other standards development participants are beyond the scope of these IEEE-SA meeting conduct rules. Entities and individuals should consult their company or individual legal counsel for guidance about such discussions.
4. **IEEE-SA Leadership and Governance Meetings.** A Designated Person may participate in IEEE-SA business, logistics, and other leadership meetings, and may participate in governance meetings, including executive sessions to the extent that such meetings deal solely with governance issues and only if such Designated Person is not otherwise conflicted. However, a Designated Person shall not participate in meetings or communications that involve technical discussions.

This statement merely provides IEEE-SA meeting conduct rules and does not constitute legal advice to any participants. Participants should consult with their company or personal legal counsel for legal advice.

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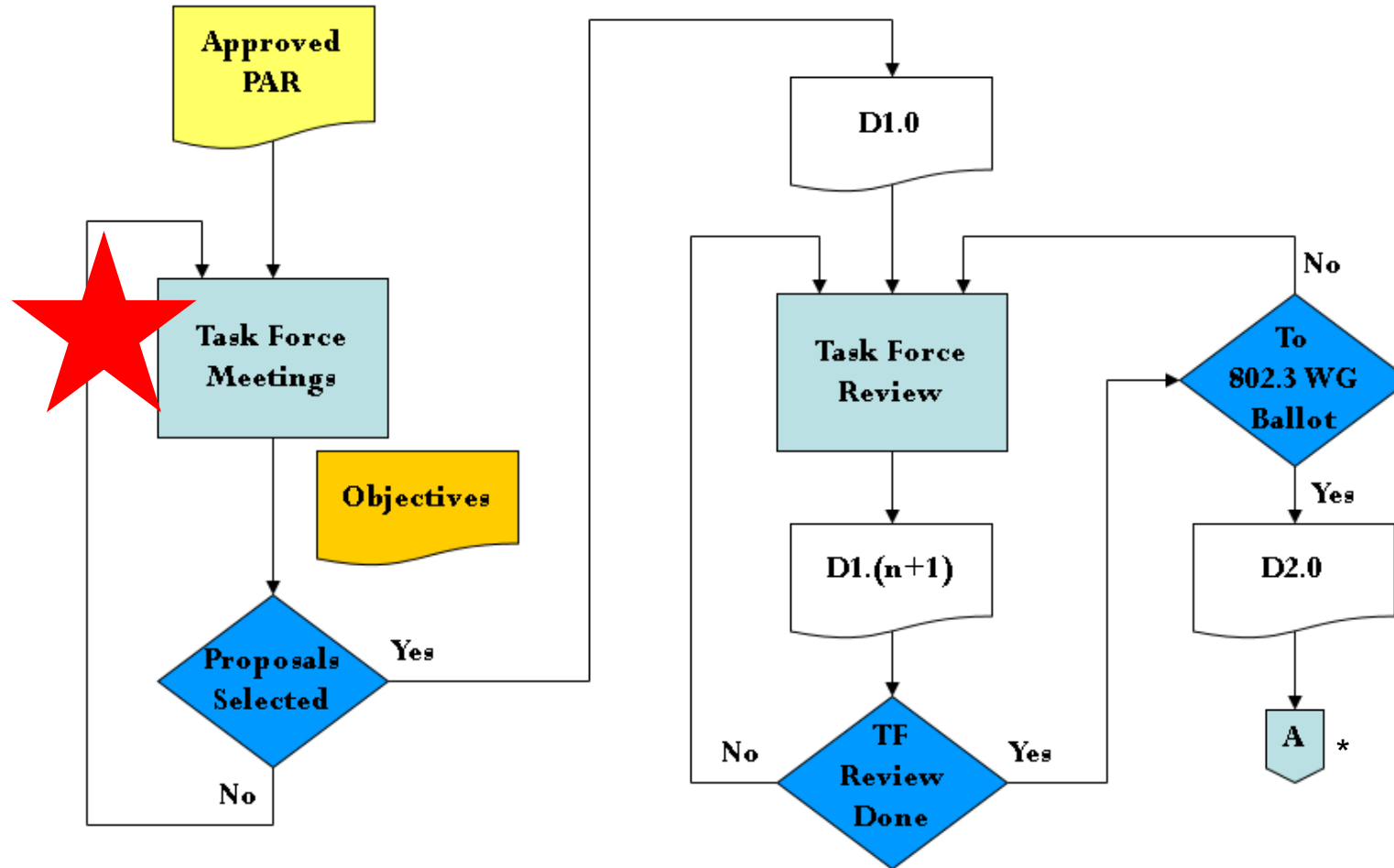
Issued: 19 May 2019

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

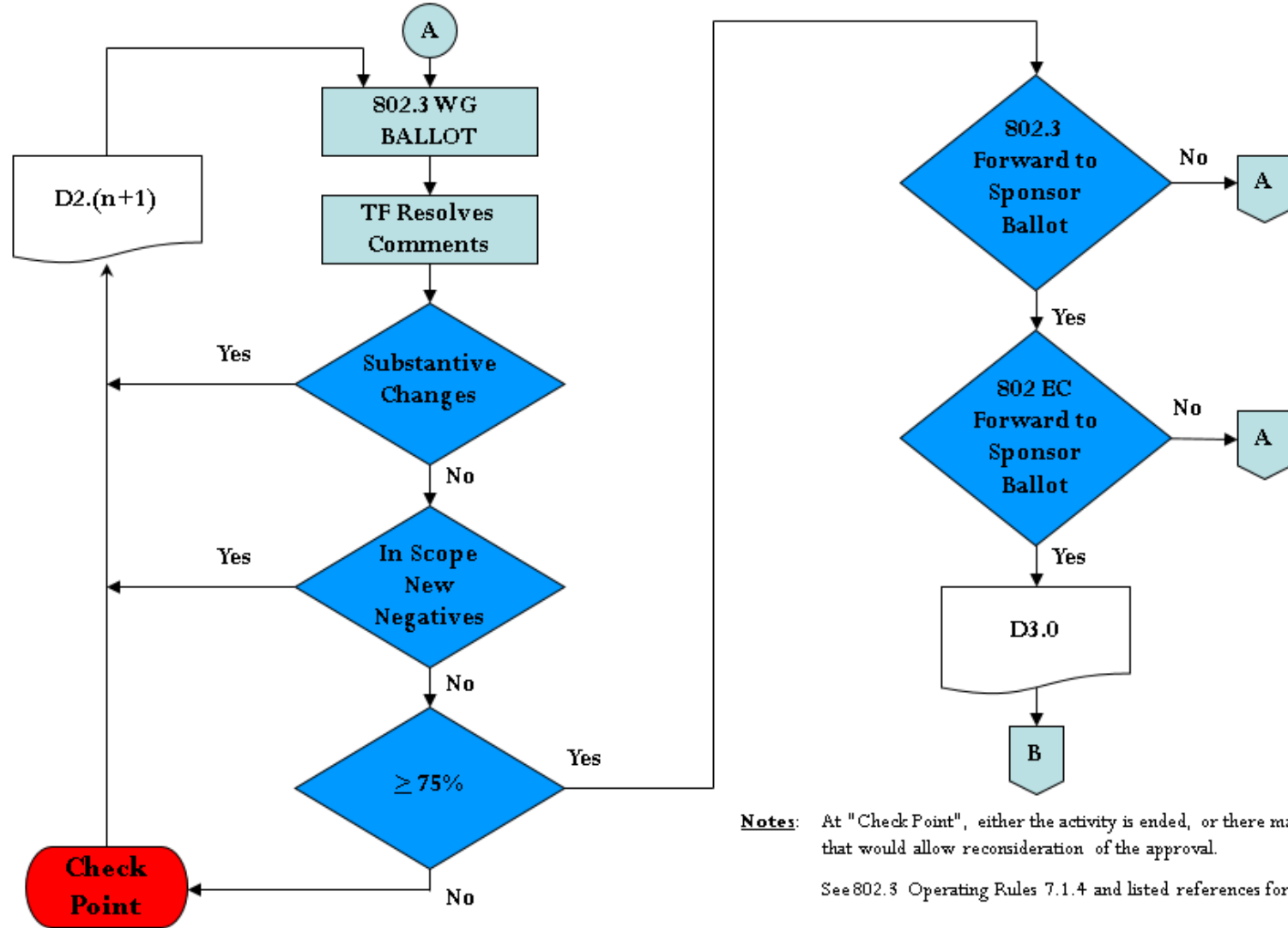


Note: At "Check Point", either the activity is ended, or there may be various options that would allow reconsideration of the approval.

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



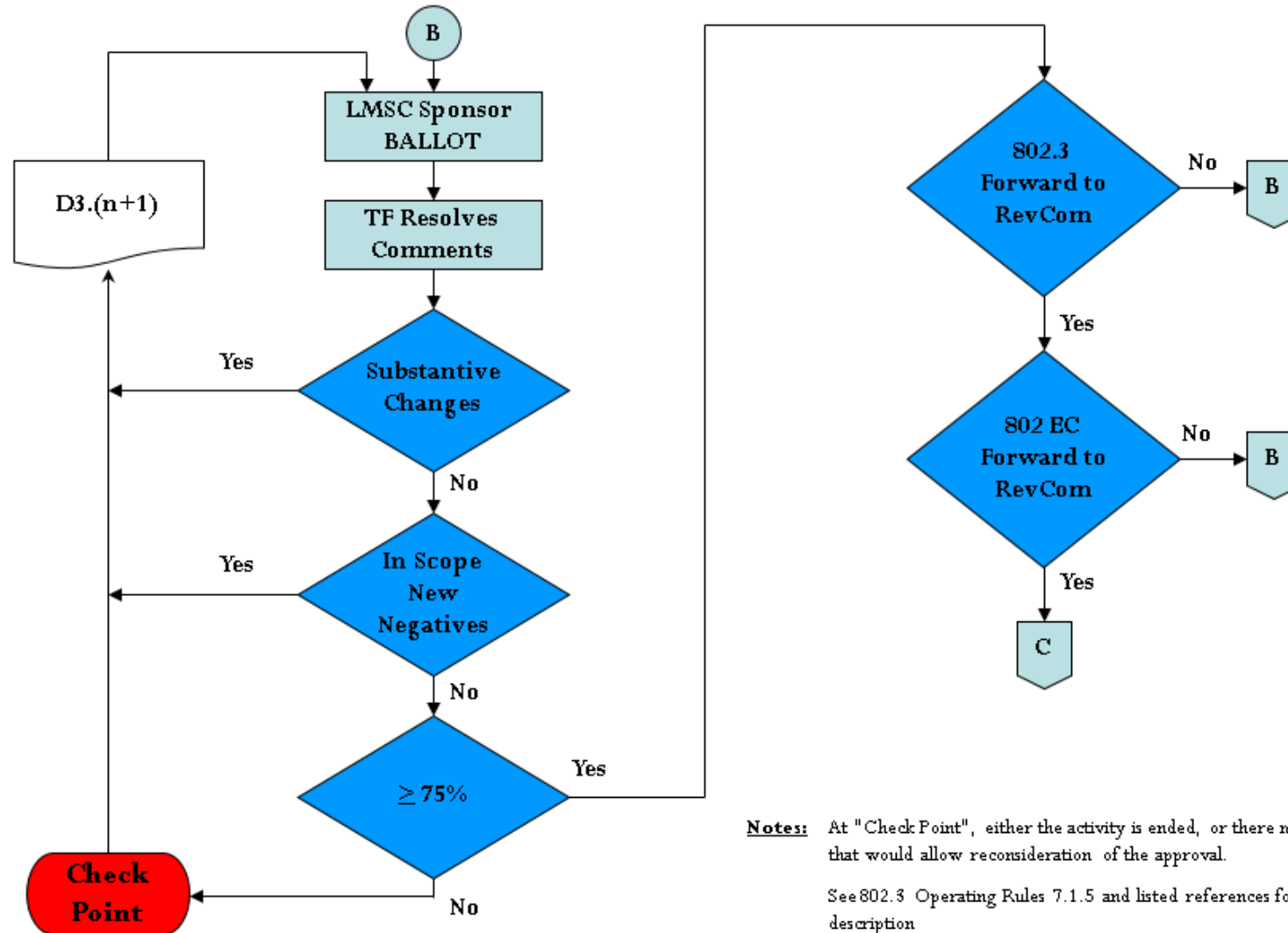
Overview of IEEE 802.3 Standards Process (3/5) – Working Group Ballot Phase



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

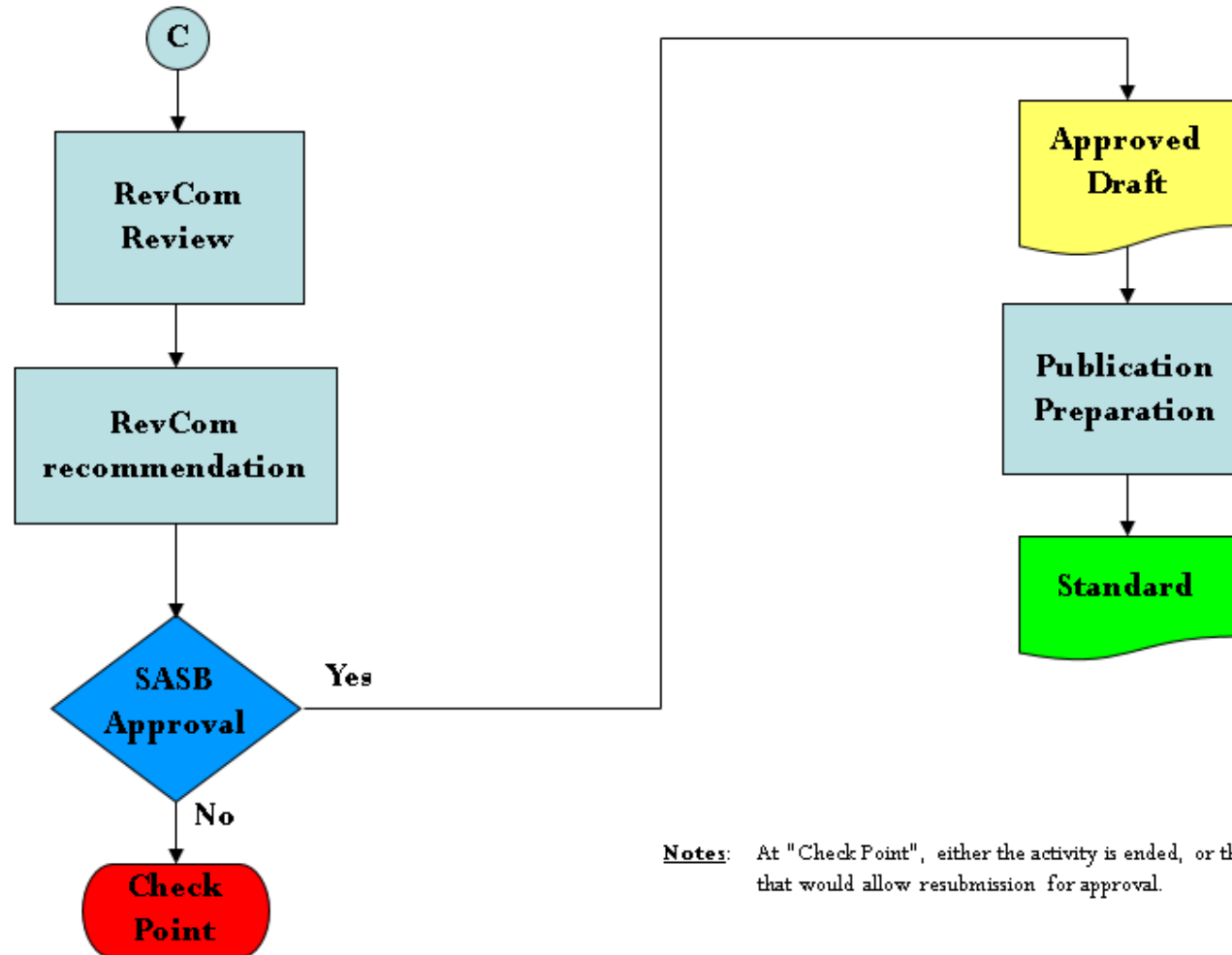
Overview of IEEE 802.3 Standards Process (4/5)- Sponsor Ballot Phase



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.

IEEE P802.3CK – 100 GB/S, 200 GB/S, 400 GB/S ELECTRICAL INTERFACES TASK FORCE - APPROVED PROJECT DOCUMENTS

- PAR: http://www.ieee802.org/3/ck/P802_3ck_PAR_140518.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

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-802-3-100GEL@LISTSERV.IEEE.ORG

- Task Force  web page URL:

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

ATTENDANCE

- Tutorial Material on attendance tool
 - http://iee802.org/3/minutes/attendance_procedures.pdf
- Access details
 - URL: <http://imat.ieee.org/>
 - You may need to sign off your VPN to record attendance

GOALS FOR THE MEETING

- Technical discussions towards baseline consensus
- Adopt baselines where consensus is close or already formed
 - Targeting baseline adoptions:
 - Backplane Reference RX
 - KR/CR FEC
 - C2M Reference RX
 - Cu Cable IL?
- Understand direction towards September

CURRENT ADOPTED TIMELINE



— Plenary meeting

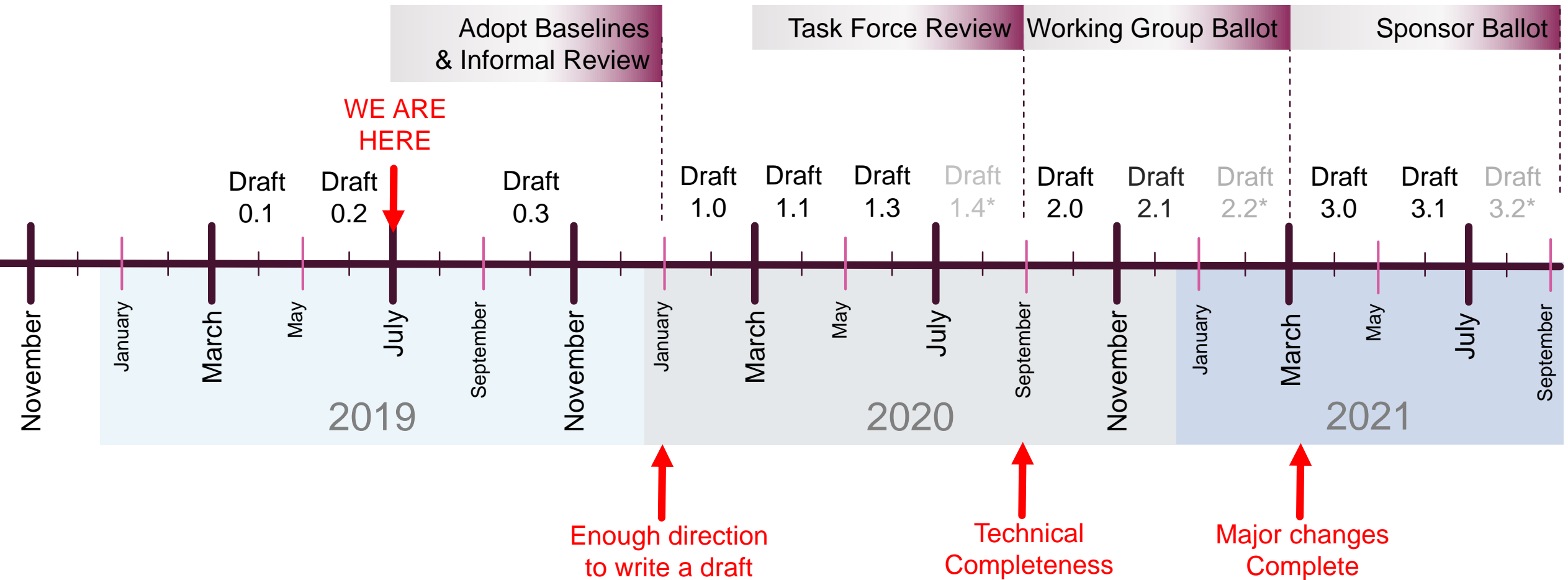
— Interim meeting

* These drafts should have no/minor comments in order to move to next phase of the project.

THE WAY I SEE IT...

- C2M Ref RX and Backplane Ref RX are building blocks
 - C2M thresholds, methodology, & M2C direction
 - C2C decisions
 - Cu Cable end-to-end boundary
 - FEC decision?
- Need to *decide* and move on

TIMELINE TO PROPOSE, IF NEEDED



— Plenary meeting

— Interim meeting

* These drafts should have no/minor comments in order to move to next phase of the project.

LEADERSHIP

- Need to find an Interim Chief Editor for 2-3 meetings
 - Heavy load, help us through initial task force review
 - Fast ramp-up
 - Strong team
 - Manage schedule, team, database
- Kent to take over Chair responsibilities
 - Beth on Maternity leave Mid Aug –
Early December
 - 3-week transition period

Editorial Team

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

LIAISONS AND COMMUNICATIONS

- Tabled Liaison from OIF; re:VSR & LR in May
 - http://www.ieee802.org/3/minutes/may19/incoming/OIF_to_IEEE_802d3_CEI_112G_Apr_2019.pdf
 - The attachment (password protected):
http://www.ieee802.org/3/private/liaison_docs/OIF/OIF_to_IEEE_802d3_CEI_112G_Apr_2019_att1.pdf
- New Liaison from OIF; re:VSR & LR
 - http://www.ieee802.org/3/minutes/jul19/incoming/OIF_to_IEEE_802d3_CEI_112G_Jul_2019.pdf
 - The attachment (password protected):
http://www.ieee802.org/3/private/liaison_docs/OIF/OIF_to_IEEE_802d3_CEI_112G_Jul_2019_att1.pdf
- Reminder: Informal Communication from IEEE370 (<https://standards.ieee.org/project/370.html>) in May

Revs 08 & 04
Specific request:
channel loss and
reference equalizer
architecture.

Revs 09 & 05
Meeting July 30-Aug. 1
Specific request:
channel loss and
reference equalizer
architecture.

Looking for a draft

TUESDAY

Time	Presenter	Affiliation	Title	File Name	Duration
9:00 AM	Beth Kochuparambil	Cisco	Agenda	agenda_3ck_01_0719	0:40
9:40 AM	Matt Brown	Macom	802.3ck Editor's Report	brown_3ck_01_0719	0:20
10:00 AM	Ali Ghiasi	Ghiasi Quantum	C2M Simulations with T-Coil model	ghiasi_3ck_02_0719	0:30
10:30 AM	BREAK				0:15
10:45 AM	Phil Sun	Credo	C2M simulation updates	sun_3ck_01_0719	0:40
11:25 AM	Ed Frlan	Semtech	100G C2M TP1a Channel/System Analysis	frlan_3ck_01_0719	0:40
12:05 PM	BREAK				0:45
12:50 PM	Tom Palkert	Macom	RX FFE Reference Receiver	palkert_3ck_01_0719	0:30
1:20 PM	Mike Dudek	Marvell	The effect of host trace length on 100G chip to module performance – Update	dudek_3ck_01_0719	0:30
1:50 PM	Phil Sun	Credo	C2M TP1a/TP4 Methodology	sun_3ck_02_0719	0:30
2:20 PM	Jane Lim	Cisco	100G C2M Channel Model Update (Module-to-Host)	lim_3ck_02_0719	0:20
2:40 PM	Kent Lusted	Intel	P802.3ck C2M AUI Small Group Update	lusted_3ck_01_0719	0:20
3:00 PM	BREAK				0:15
	Discussion & Straw Polls?				
4:15 PM	Louis Lu	Huawei	Towards Consensus on 100GE CR/KR PCS&FEC&PMA Baseline	lu_3ck_01_0719	0:20
1:20 AM	Xiang He	Huawei	Error Statistics Study for 802.3ck Channels	he_3ck_01_0719	0:20
4:55 PM	Mark Gustlin	Cisco	A Dual FEC option for 100GBASE-KR1/CR1	gustlin_3ck_01_0719	0:20
	Discussion & Straw Polls? & Motions?				
<i>Tentative</i>	Nathan Tracy	TE	100 Gbps Copper Cable Measurement and S-Parameter File	tracy_3ck_01_0719	0:20
<i>Tentative</i>	Tom Palkert	Molex	Updated TP1-TP4 QSFP-DD 2m Reach Channel	palkert_3ck_02_0719	0:20
6:00 PM	BREAK FOR THE DAY - CFIs begin at 6:30pm (in this room)				

WEDNESDAY

Time	Presenter	Affiliation	Title	File Name	Duration
8:00 AM	Beth Kochuparambil	Cisco	Plan for the day		0:05
8:05 AM	Liav Ben Artsi	Marvell	Representing imperfections for CR Host Board	benartsi_3ck_01_0719	0:30
8:35 AM	Rich Mellitz	Samtec	Closing CR Baseline Specifications with Signal to Noise Distortion Ratio (SNDR)	mellitz_3ck_01_0719	0:30
9:05 AM	Jane Lim	Cisco	100G CR End-to-End Channel Analysis Updates	lim_3ck_01_0719	0:30
	BREAK				
10:15 AM	Chris DiMinico	PHY-SI	Baseline Proposal Cable assembly, Host, MTF, and Channel Insertion Loss	diminico_3ck_01_0719	0:40
10:55 AM	Nathan Tracy	TE	Streamlining P802.3ck MDIs	tracy_3ck_03_0719	0:10
	Discussion & Straw Polls? & Motions?				
12:00 PM	BREAK				1:00
1:00 PM	Howard Heck	Intel	Backplane Reference Receiver Baseline	heck_3ck_01_0719	0:50
1:50 PM	Mike Li	Intel	106Gbps Ethernet LR COM Investigation (V)	li_3ck_01_0719	0:30
2:20 PM	David Rennie	Synopsys	Effects of Non-ideality Equalizer Coefficients on COM	rennie_3ck_01_0719	0:30
2:50 PM	Clint Walker	Alphawave IP	Baseline Proposal for 100, 200, and 400 Gb/s Backplane	walker_3ck_01_0719	0:20
3:00 PM	BREAK				0:15
	Discussion & Straw Polls?				
3:15 PM	Kent Lusted	Intel	P802.3ck C2C AUI Small Group Update	lusted_3ck_02_0719	0:20
12:00 AM	Jane Lim	Cisco	100G C2C-S Channel Estimate	lim_3ck_04_0719	0:20
3:35 PM	Ali Ghiasi	Ghiasi Quantum	How to Proceed on C2C Application	ghiasi_3ck_01_0719	0:20
	Discussion & Straw Polls?				
6:00 PM	BREAK FOR THE DAY - Room and building must be evacuated no later than 6:30pm				

THURSDAY

Time	Presenter	Affiliation	Title	File Name	Duration
8:00 AM	Beth Kochuparambil	Cisco	Plan for the day		0:05
	Remaining or further late presentations?				
	Baseline, Straw Polls & Motions				
10:00 AM	BREAK				0:15
	Baseline, Straw Polls & Motions				
	Liasion Response??				
	Closing Business				
12:00 PM	CLOSE OF MEETING - Working Group Mtg starts @ 1:00 PM				

FUTURE MEETINGS

- September Interim – Indianapolis, Indiana, USA
 - Week of September 9
- November Plenary - Waikoloa Village, HI, USA
 - Week of November 11
- January Interim – Geneva, Switzerland
 - Week of January 20
- See <http://www.ieee802.org/3/interims/index.html> for more information
- Anyone interested in hosting a interim meeting contact me or the IEEE 802.3 Executive Secretary Steve Carlson.

FUTURE MEETINGS

- 7 weeks before September meeting.
- Looking at **two-three 2hour Ad Hocs** between now and Sept.
 - Wednesdays at 7am PST (to be announced)
 - Will cancel or shorten on the Tuesday prior, as needed.

July						
Su	Mo	Tu	We	Th	Fr	Sa
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

August						
Su	Mo	Tu	We	Th	Fr	Sa
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

September						
Su	Mo	Tu	We	Th	Fr	Sa
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					

October						
Su	Mo	Tu	We	Th	Fr	Sa
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		



THANK YOU!

