
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

BANGKOK, THAILAND – NOVEMBER 12-15, 2018

AGENDA

- Welcome and Introductions
- Approve Agenda
- Approve September Interim 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. (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

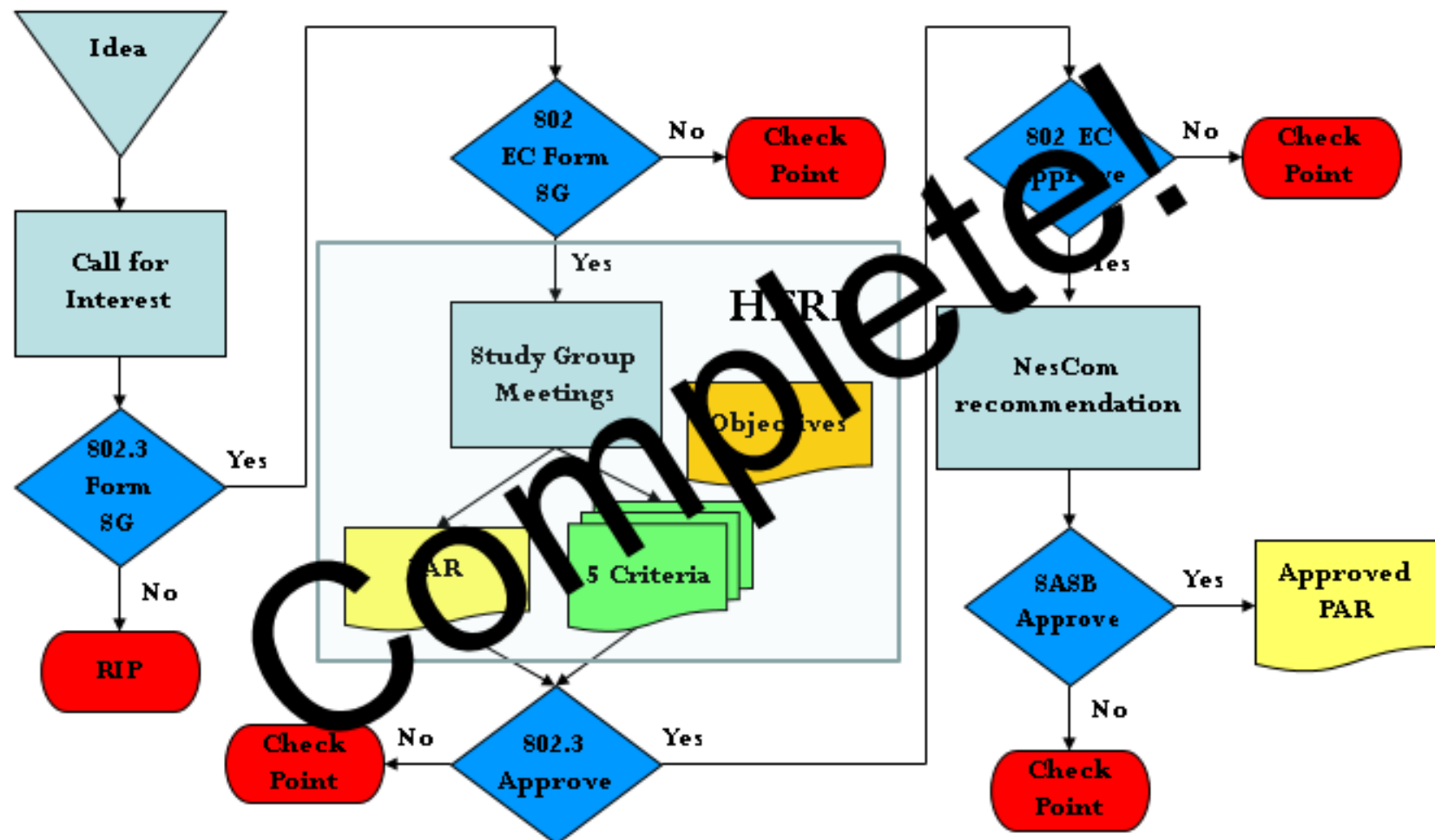
Participation in any IEEE 802 meeting (Sponsor, Sponsor subgroup, Working Group, Working Group subgroup, etc.) is on an individual basis

- 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.

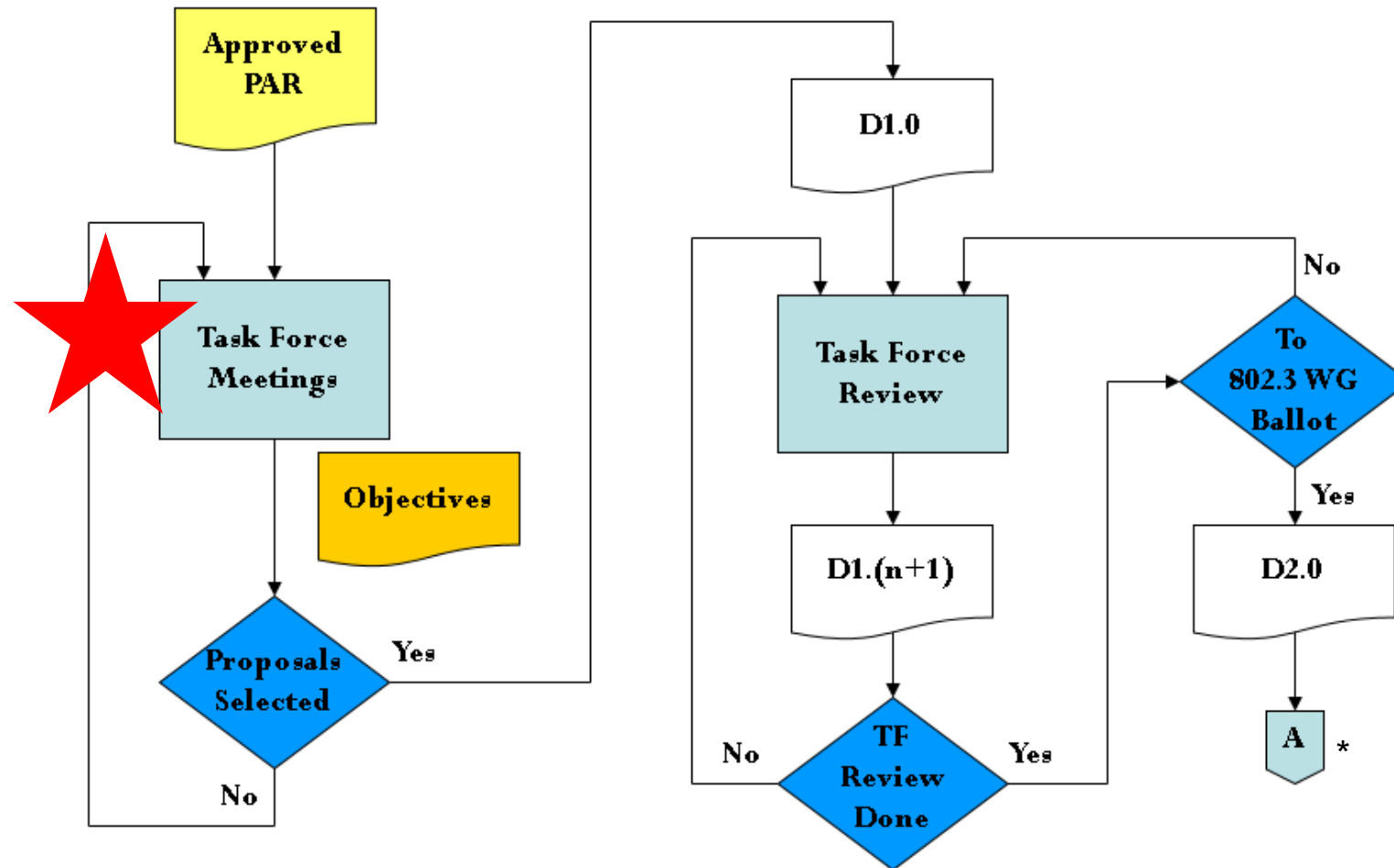
(Latest revision of IEEE 802 LMSC Working Group Policies and Procedures: <http://www.ieee802.org/devdocs.shtml>)

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

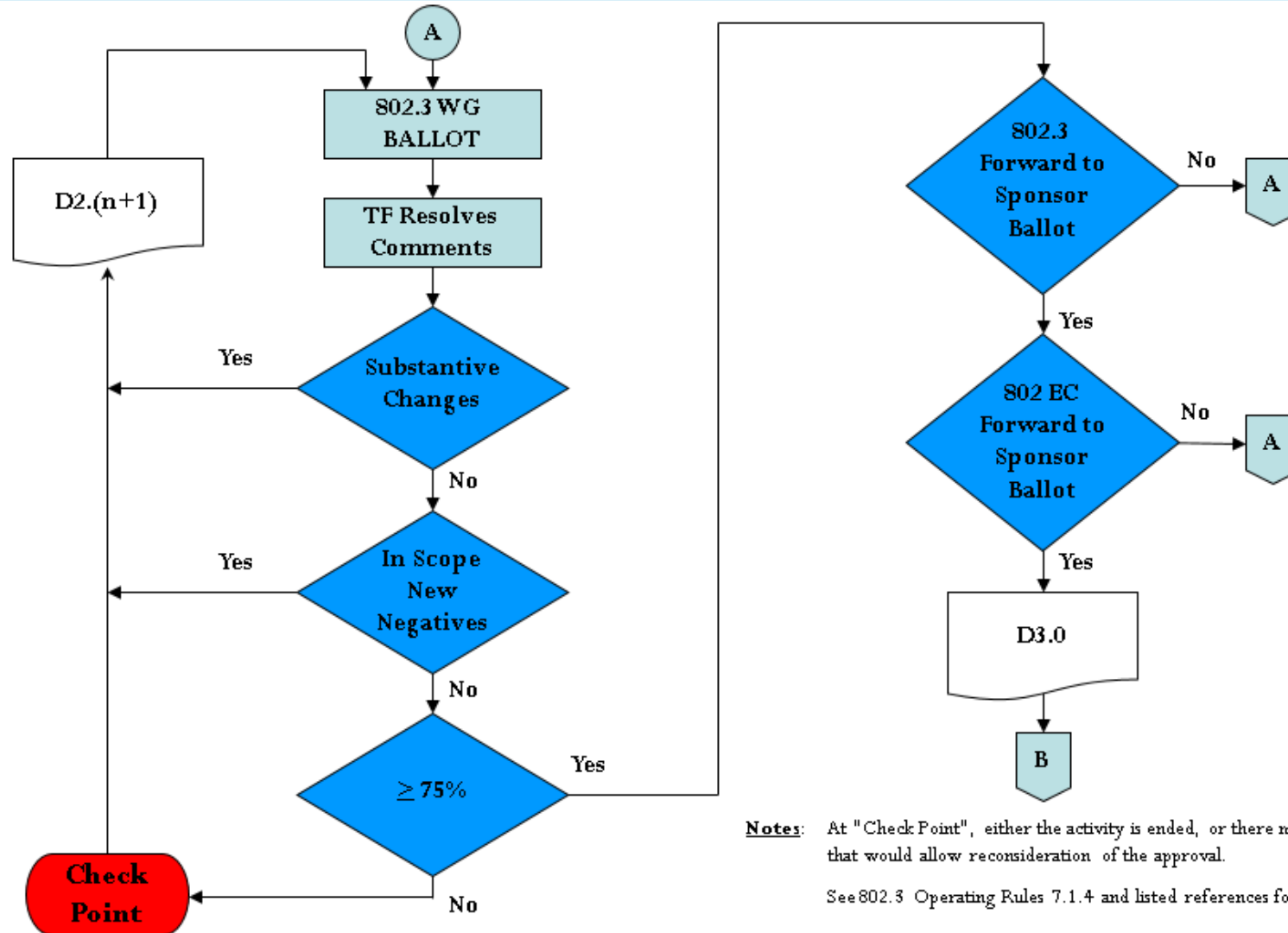


Note: At "Check Point", either the activity is ended, or there may be various options that would allow reconsideration of the approval.

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



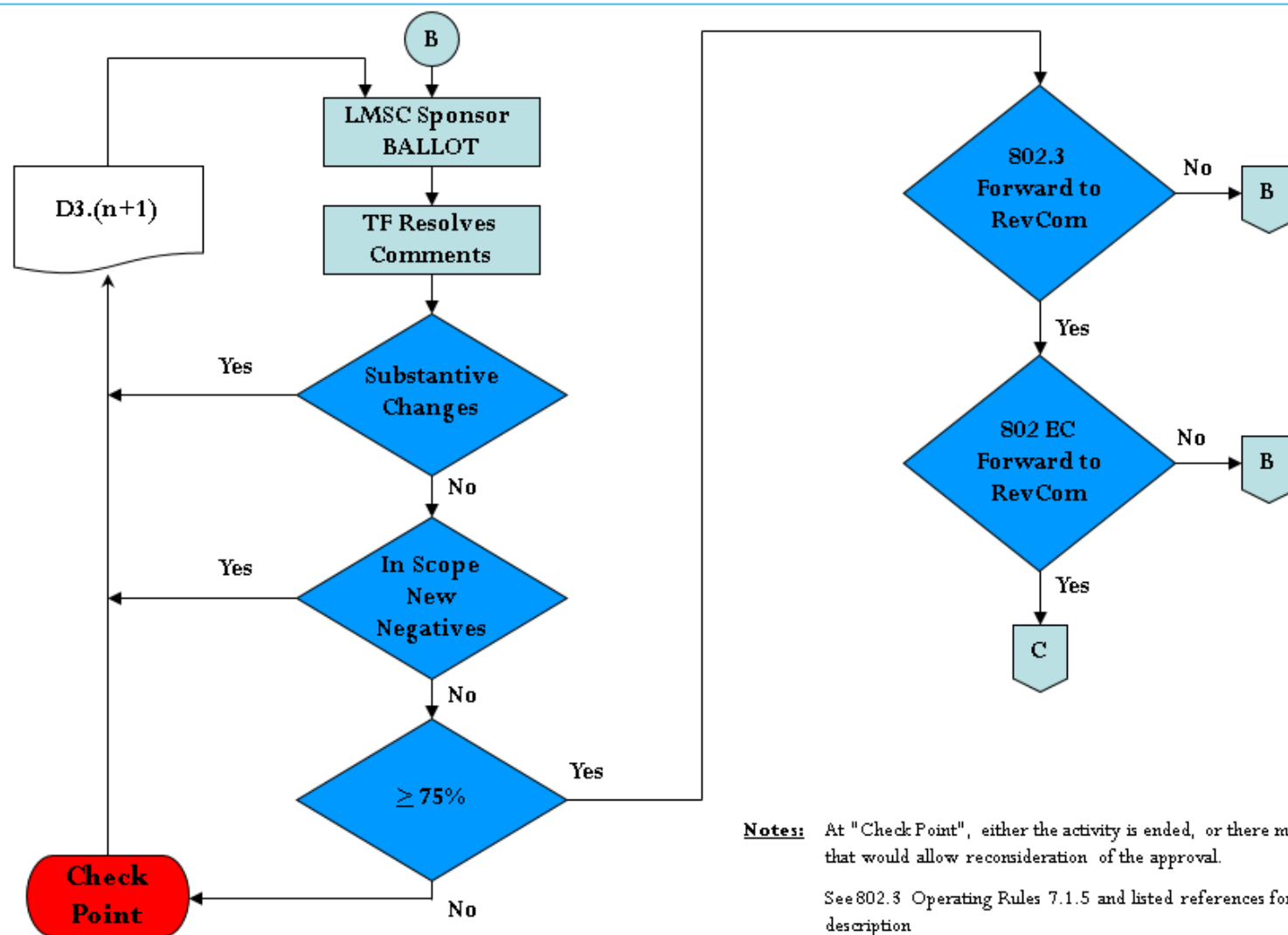
Overview of IEEE 802.3 Standards Process (3/5) – Working Group Ballot Phase



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

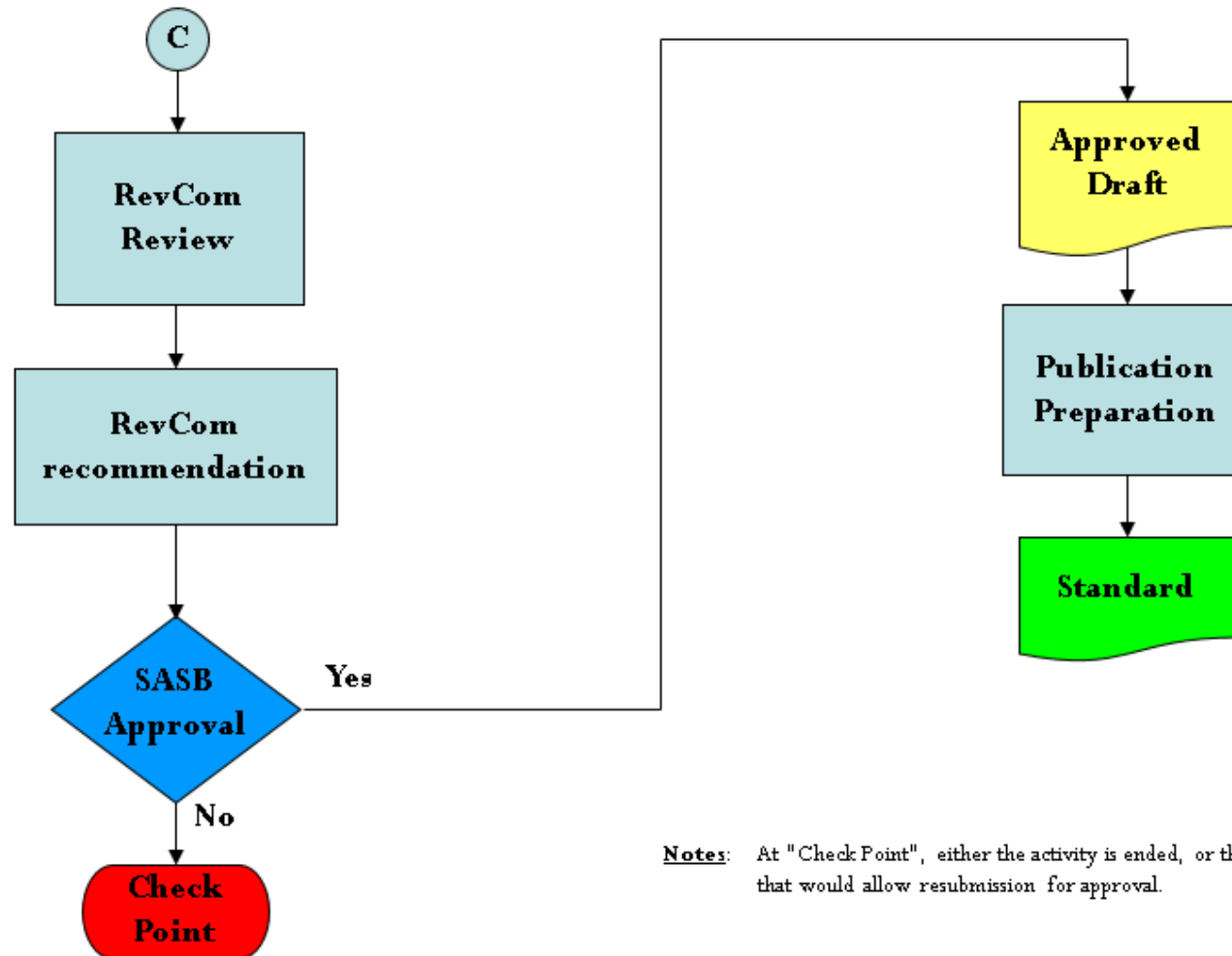
Overview of IEEE 802.3 Standards Process (4/5)- Sponsor Ballot Phase



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://ieee802.org/3/minutes/attendance_procedures.pdf
- Access details
 - URL: <http://imat.ieee.org/>
 - You may need to sign off your VPN to record attendance
- Access Code for this meeting: <given in the meeting>

GOALS FOR THE MEETING

- Adopt a timeline
- Understand consensus level for C2M direction
- Movement on Backplane and Cu Cable studies
- Topics of Conversation
 - FEC Analysis
 - Package Model
 - C2M Budget/Equalization
 - COM Architecture/Modifications
 - Backplane/Cu Cable

TIMELINE

- Can we adopt a timeline this meeting?
- Timeline proposal in presentations
 - http://www.ieee802.org/3/ck/public/18_09/kochuparambil_3ck_01_1118.pdf
 - All baselines adopted by ~~March~~ May
 - Final draft reviews in January 2021

LIAISONS AND COMMUNICATIONS

- ITU-T SG15: IEEE 802.3cb 2.5 Gb/s specification liaison letter
 - http://www.ieee802.org/3/minutes/nov18/incoming/ITU_SG15_LS-146_to_IEEE_802d3.pdf
 - and attachment http://www.ieee802.org/3/private/liaison_docs/itu/ITU_SG15_LS-146_to_IEEE_802d3_att1.pdf
- COBO liaison letter
 - http://www.ieee802.org/3/minutes/nov18/incoming/COBO_to_IEEE_802d3_Oct_2018.pdf

TUESDAY

Time	Presenter	Affiliation	Title	File Name	Duration
1:00 PM	Beth Kochuparambi	Cisco	Agenda & Liaisons	agenda_3ck_01_1118	0:40
	Beth Kochuparambi	Cisco	Timeline Discussion	kochuparambil_3ck_01_1118	0:20
	Mark Gustlin	Cisco	Interleaved 100GbE FEC sublayer	gustlin_3ck_01_1118	0:25
	Pete Anslow	Ciena	RS(544,514) FEC performance for 100G	anslow_3ck_01_1118	0:25
	Rich Mellitz	Samtec	COM 100G Revision History, Latest Feedback/Update and Configuration Spre	mellitz_3ck_01_1118	0:20
	Liav Ben-Artzi	Marvell	Towards Package baseline Proposal for 802.3ck	benartzi_3ck_01_1118	0:20
3:15 PM	BREAK				0:20
	Nathan Tracy	TE Connectivity	Impedance and Reach COM Analysis	tracy_3ck_01_1118	0:15
	Nathan Tracy	TE Connectivity	Chip to Module and Direct Attach Cable Channel Analysis	tracy_3ck_02_1118	0:20
	Kent Lusted	Intel	C2M Direction Check	lusted_3ck_02_1118	0:15
	Karthik Golpalakrish	Inphi	Performance comparison study for Rx vs Tx based equalization for C2M links	gopalakrishnan_3ck_01_1118	0:20
	Mike Peng Li	Intel	(late) Ethernet 106Gbps C2M VSR Simulations and Updates	li_3ck_01_1118	0:20
	Ali Ghiasi	Ghiasi Quantum	C2M receiver architecture	ghiasi_3ck_02_1118	0:20
	Discussion & Straw Polls				
6:00 PM	BREAK FOR THE DAY - CFI begins at 6:30pm in our room				

WEDNESDAY

Time	Presenter	Affiliation	Title	File Name	Duration
8:00 AM	Beth Kochuparambi	Cisco	Opening		0:10
	Ali Ghiasi	Ghiasi Quantum	C2M Simulations with improved CTLE	ghiasi_3ck_03_1118	0:20
	Toshiyasu Ito	Yamaichi	100GEL C2M Channel model Study	ito_3ck_01_1118	0:15
	Sam Kocsis	Amphenol	100GEL Compliance Test Fixtures - MCB, HCB Design	kocsis_3ck_01_1118	0:15
	Rob Stone	Broadcom	Next Generation Ultra Low Loss PCB Materials	stone_3ck_01_1118	0:15
	Discussion & Straw Polls				
10:00 AM	BREAK				0:20
	Discussion & Straw Polls				
	Beth Kochuparambi	Cisco	Backplane Discussion Direction Check	kochuparambil_3ck_02_1118	0:30
	Howard Heck	Intel	Server Backplane Channels	heck_3ck_01_1118	0:35
	Andy Zambell	Amphenol	Trace and Chassis Tolerance vs. COM	zambell_3ck_01_1118	0:20
12:00 PM	BREAK				1:00
	Upen Reddy Kareti	Cisco	A Look into Channels for High Connectivity and Scalable Systems	kareti_3ck_01_1118	0:35
	David Malicoat	Malicoat Networking Solutions	System Complexity/Cost Tradeoffs of Signal-Duplex vs. Dual-Duplex schemes	malicoat_3ck_01_1118	0:15
	Yuchun Lu	Huawei	Investigation of COM for DFE- and FFE-based reference receivers	lu_3ck_01_1118	0:40
	Toshiaki Sakai	Socionext	100Gb/s KR COM - Reference Receiver (FFE/DFE) - Reference PKG	sakai_3ck_01_1118	0:25
3:15 PM	BREAK				0:20
	Mike Peng Li	Intel	(late) 112Gbps LR/Backplane COM New Investigations	li_3ck_02_1118	0:25
	Mau-Lin Wu	Media-Tek	Discussion on Reference Receiver in COM	wu_3ck_01_1118	0:25
	Ali Ghiasi	Ghiasi Quantum	Use case for 100G C2C-S	ghiasi_3ck_01_1118	0:15
	Discussion & Straw Polls				
6:00 PM	CLOSE OF MEETING - Social busses start leaving around 6, meaning we should have a hard stop				

THURSDAY

Time	Presenter	Affiliation	Title	File Name	Duration
8:00 AM	Beth Kochuparambi	Cisco	Opening		0:10
	Chris DiMinico		Baseline proposals for twin-axial copper	diminico_3ck_01_1118	0:20
	Rich Mellitz	Samtec	Synthesized Cable Assembly for 0.3ck Project Advancement	mellitz_3ck_02_1118	0:15
	Sam Kocsis	Amphenol	100GEL Cable Assembly Characteristics	kocsis_3ck_01_1118	0:15
	Kent Lusted	Intel	Nomenclature	lusted_3ck_01_1118	0:20
	Discussions & Straw Polls, Closing Business				
12:00 PM	CLOSE OF MEETING - Working Group Mtg starts @ 1:00 PM				

FUTURE MEETINGS

- January Interim – Long Beach, CA, USA
 - Week of January 14th
- March Plenary – Vancouver, BC, Canada
 - Week of March 11th
- May Interim – Salt Lake City, Utah, USA
 - Week of May 20th
- 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

- 8 weeks before January meeting, but US Holidays at the end of December.
- As announced, there will be **four 2hour Ad Hocs** between now and January.
 - Wednesdays at 7am PST; **Dec. 5, 12, 19, and Jan 2**
 - Will cancel or shorten on the Tuesday prior as needed.

November						
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	

December						
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						1
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9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

January						
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13	14	15	16	17	18	19
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27	28	29	30	31		

February						
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					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		

March						
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17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

April						
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				



THANK YOU!

