Agenda and General Information

IEEE P802.3bs 400GbE Task Force
400 Gb/s Ethernet Study Group

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Norfolk, VA, USA
IEEE 802.3 May 2014 Interim

Agenda

- Appointment of Recording Secretary
- Appointment of Task Force Chair
- Welcome and Introductions
- Approve Agenda
- Approve Mar 2014 Plenary Minutes
- Goals for this meeting
- Reflector and Web
- Patent Policy
- Ground Rules
- IEEE
  - Structure
  - Bylaws and Rules
  - Guidelines for IEEE-SA Meetings
  - IEEE Standards Process
- Project Documentation
- Liaisons & Communications
- Ad Hoc Reports
- Technical Presentations
- Motions and Closing Business
- Future Meetings

Task Force Decorum

- Photography or recording by permission only (2010 SASB Op Manual 5.3.3.4)
- Cell phone ringers off
- Press (i.e., anyone reporting publicly on this meeting) are to announce their presence (5.3.3.5)
- 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

Goals for the meeting week

- Task Force Level Setting
- Hear Technical Presentations
- Adopt Timeline
- Identify Steps Moving Forward

- Thanks to the Ethernet Alliance and Lynn Kennedy!

Attendance

- Tutorial Material on attendance tool
  - http://ieee802.org/3/minutes/attendance_procedures.pdf

- Access details
  - URL: http://imat.ieee.org/
  - (For interim) Password will be provided

Reflector and Web

- To subscribe to the 400G reflector, send an email to:

    ListServ@ieee.org

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

    subscribe stds-802-3-400G <yourfirstname> <yourlastname>

    end

- Send 400G reflector messages to:
    STDS-802-3-400G@listserv.ieee.org

- Task Force web page URL:
    http://www.ieee802.org/3/bs/index.html

Ad hoc area URL:
    http://www.ieee802.org/3/bs/public/adhoc/index.shtml

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:**
  - The 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 the IEEE is not aware. Additionally, neither the 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 12 and 12a 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.

25 March 2008 (updated January 2012)

◆IEEE

(Optional to be shown)

Participants, Patents, and Duty to Inform

All participants in this meeting have certain obligations under the IEEE-SA Patent Policy.

- **Participants [Note: Quoted text excerpted from IEEE-SA Standards Board Bylaws subclause 6.2]:**
  - **"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**
    - **"Personal awareness" means that the participant "is personally aware that the holder may have a potential Essential Patent Claim," even if the participant is not personally aware of the specific patents or patent claims**
  - **"Should inform the IEEE (or cause the IEEE to be informed)" of the identity of "any other holders of such potential Essential Patent Claims" (that is, third parties that are not affiliated with the participant, with the participant's employer, or with anyone else that the participant is from or otherwise represents)**
- **The above does not apply if the patent claim is already the subject of an Accepted Letter of Assurance that applies to the proposed standard(s) under consideration by this group**
- **Early identification of holders of potential Essential Patent Claims is strongly encouraged**
- **No duty to perform a patent search**

25 March 2008 (updated January 2012)

◆IEEE

Patent Related Links

All participants should be familiar with their obligations under the IEEE-SA Policies & Procedures for standards development.

Patent Policy is stated in these sources:

IEEE-SA Standards Boards 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 or visit http://standards.ieee.org/about/sasb/patcom/index.html

This slide set is available at https://development.standards.ieee.org/myproject/Public/mytools/mob/slideset.ppt

IEEE

25 March 2008 (updated January 2012)

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:

  - Either speak up now 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
  - Cause an LOA to be submitted

25 March 2008 (updated January 2012)

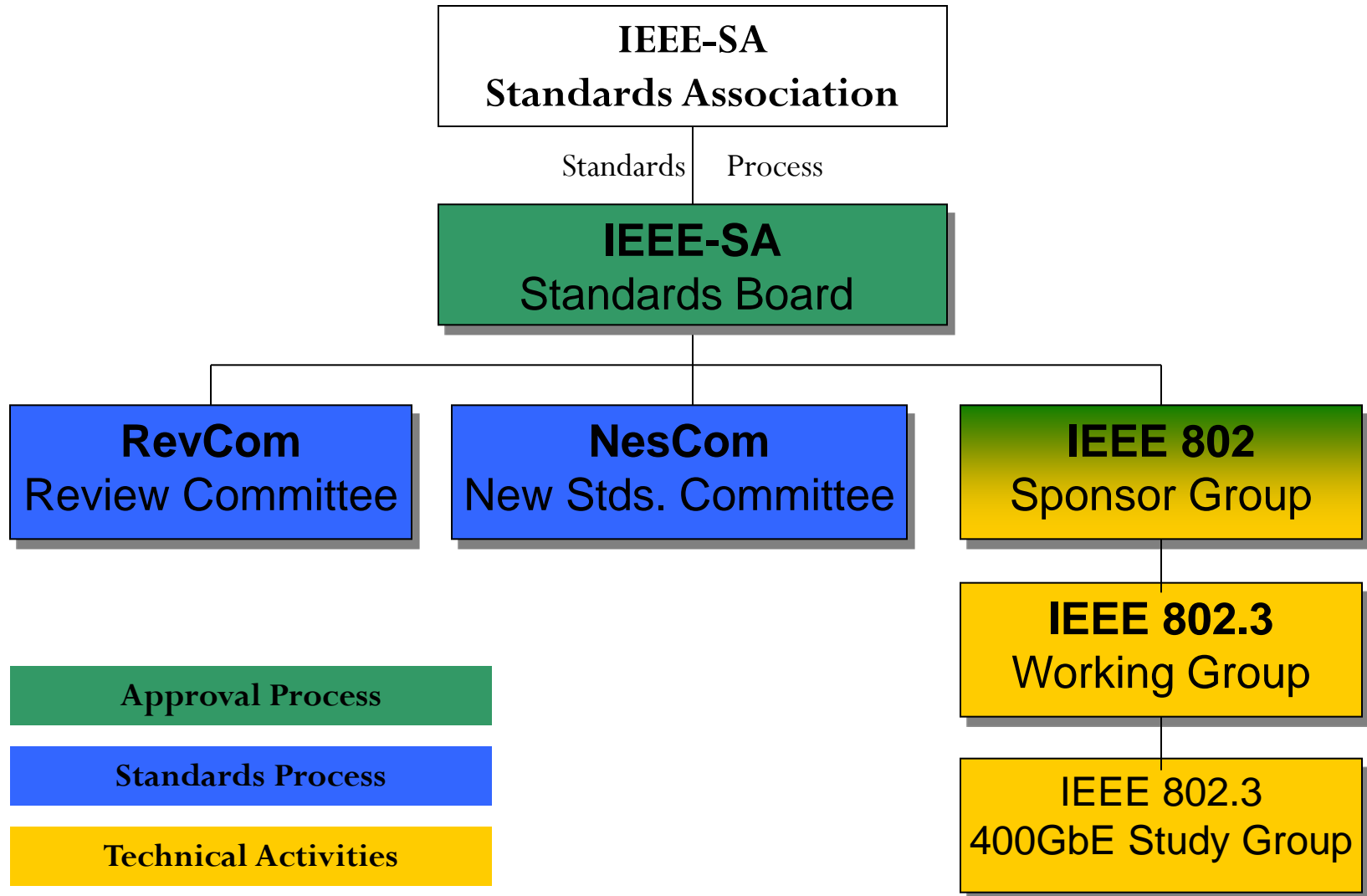IEEE

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, including licensing costs of essential patent claims, of different technical approaches may be discussed in standards development meetings.

      - Technical considerations remain 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.**

See *IEEE-SA Standards Board Operations Manual*, clause 5.3.10 and "Promoting Competition and Innovation: What You Need to Know about the IEEE Standards Association's Antitrust and Competition Policy" for more details.

◈ IEEE

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
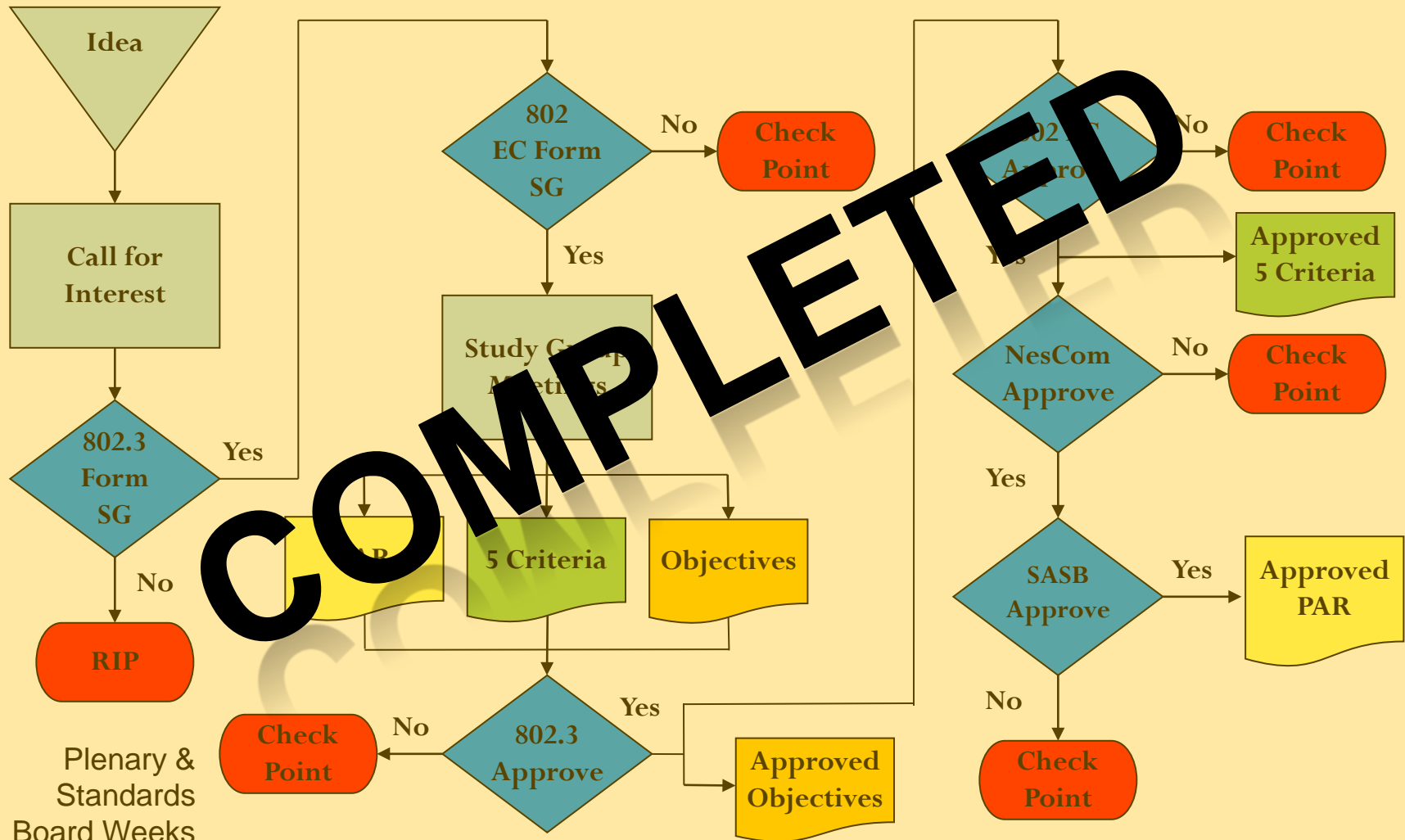- NO restrictive notices

IEEE Structure

IEEE-SA
Standards Association

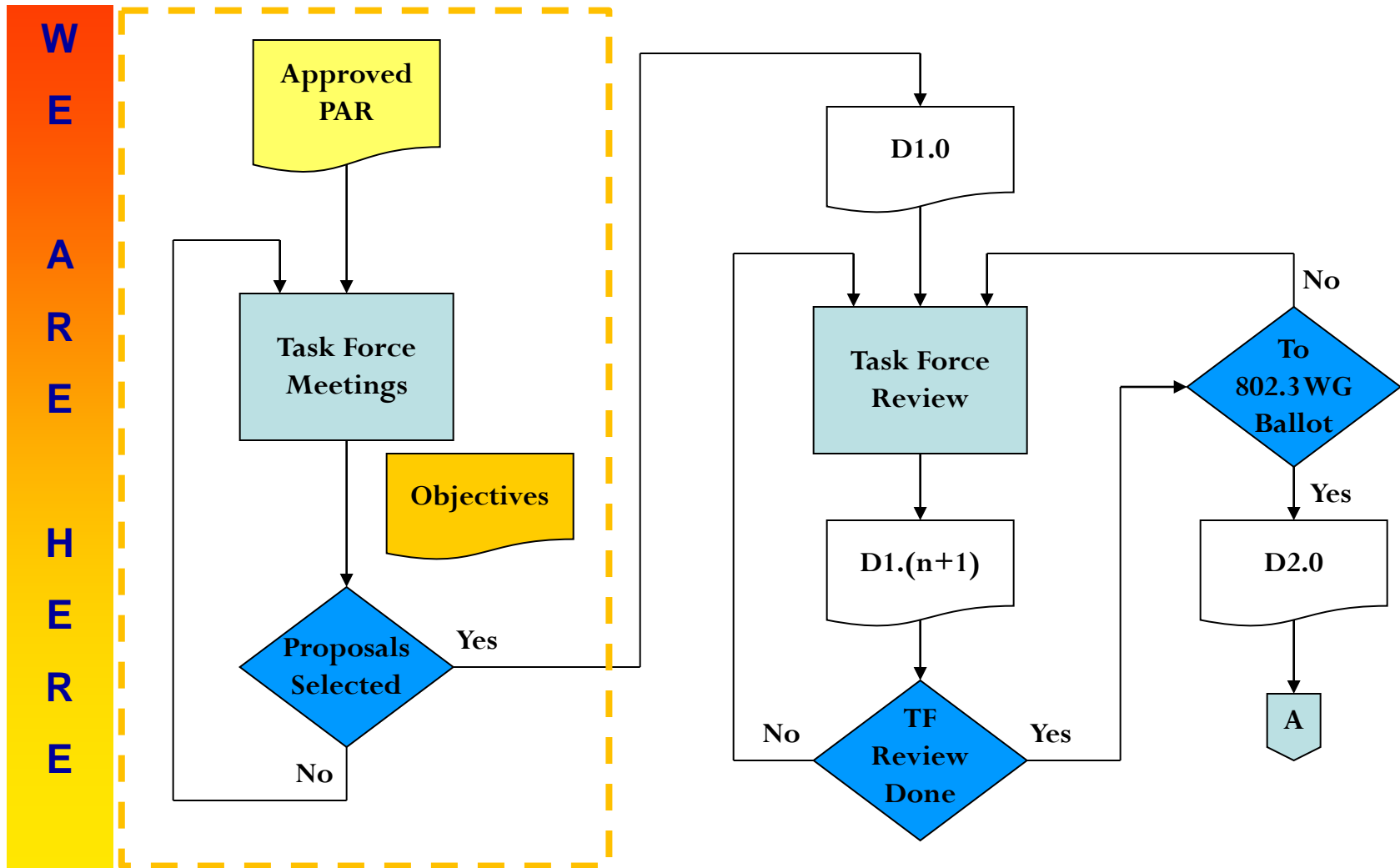Standards | Process

IEEE-SA
Standards Board

RevCom
Review Committee

NesCom
New Stds. Committee

IEEE 802
Sponsor Group

IEEE 802.3
Working Group

IEEE 802.3
400GbE Study Group

Approval Process

Standards Process

Technical Activities

Important Bylaws, Rules, & References

- **IEEE-SA Operations Manual**
  http://standards.ieee.org/sa/sa-om.pdf

- **IEEE-SA Standards Board Bylaws**
  http://standards.ieee.org/guides/bylaws/sb-bylaws.pdf

- **IEEE-SA Standards Board Operations Manual**
  http://standards.ieee.org/guides/opman/sb-om.pdf

- **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/PNP/2010-07/IEEE_802_LMSC_OM_approved_100716.pdf

- **IEEE 802 LAN/MAN Standards Committee (LMSC) Working Group (WG) Policies and Procedures**
  http://www.ieee802.org/PNP/2010-07/IEEE_802_LMSC_WG_PandP_approved_100716.pdf

- **IEEE 802.3 Working Group Operating Rules**
  http://ieee802.org/3/rules/P802_3_rules.pdf

- **"Promoting Competition and Innovation: What You Need to Know about the IEEE Standards Association's Antitrust and Competition Policy"**
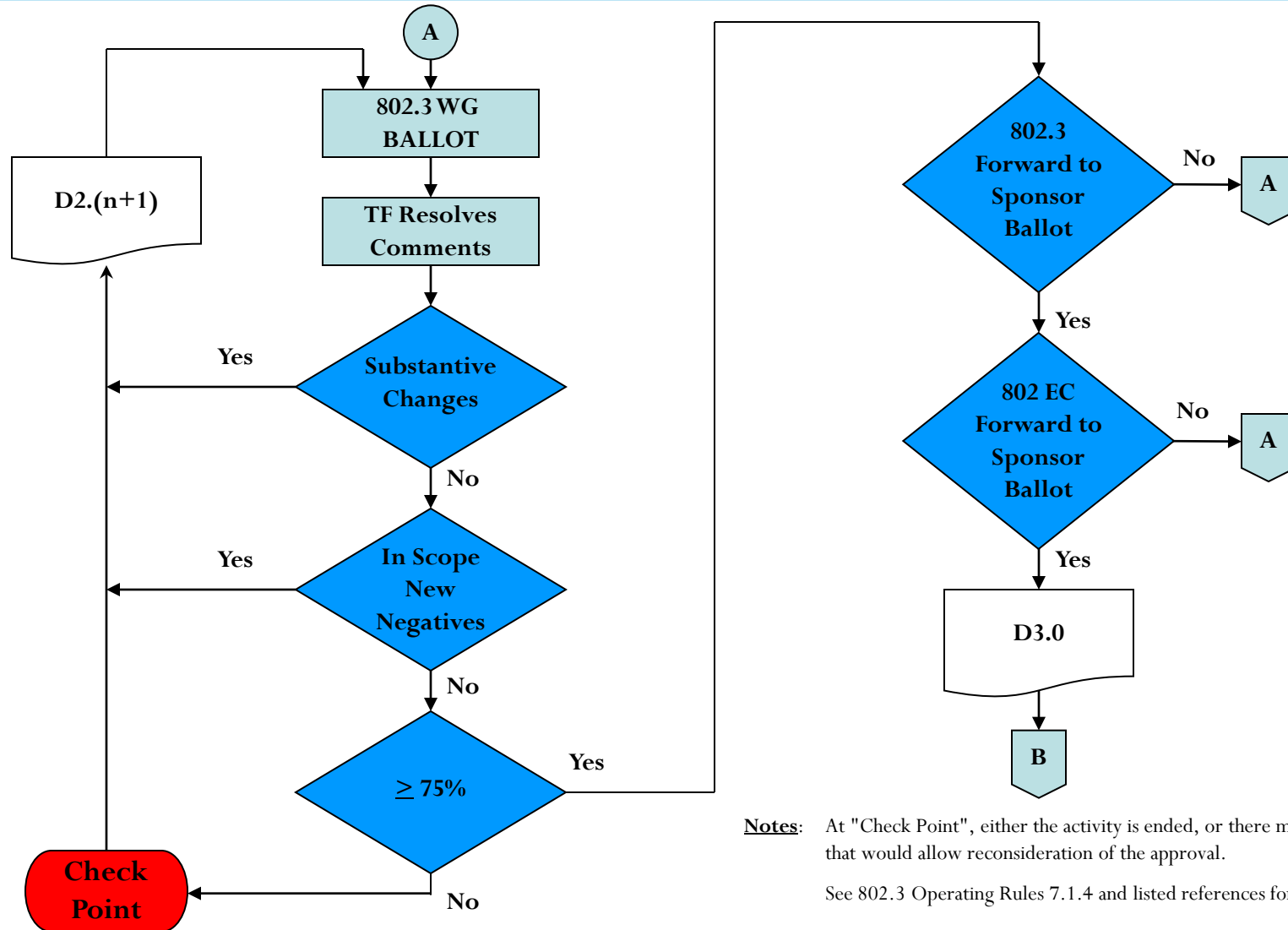 http://standards.ieee.org/develop/policies/antitrust.pdf

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

W E A R E

H E R E

Approved PAR

Task Force Meetings

Objectives

Proposals Selected

Yes

No

D1.0

Task Force Review

D1.(n+1)

No   TF Review Done   Yes
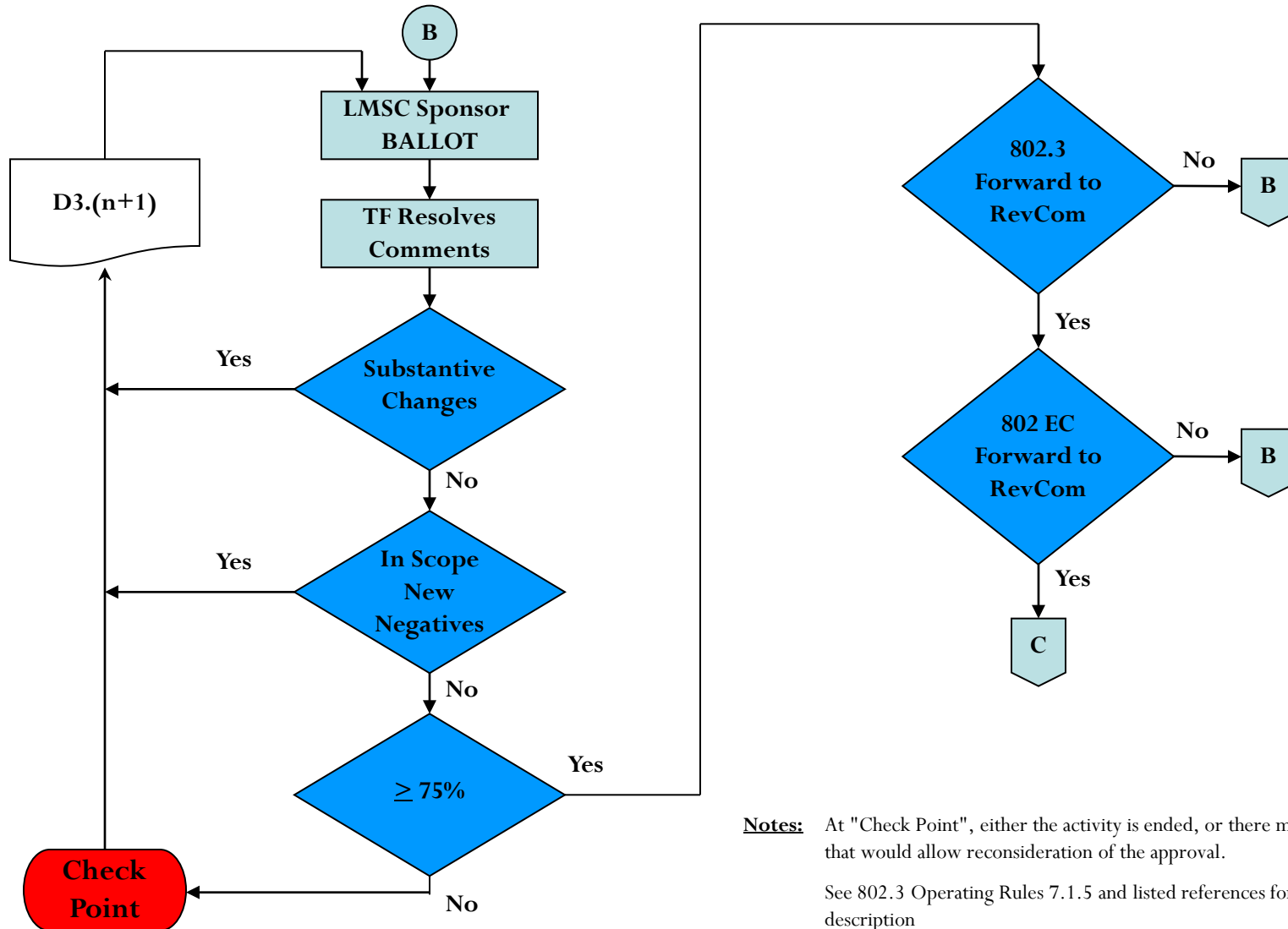
No

To 802.3 WG Ballot

Yes

D2.0

A

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

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
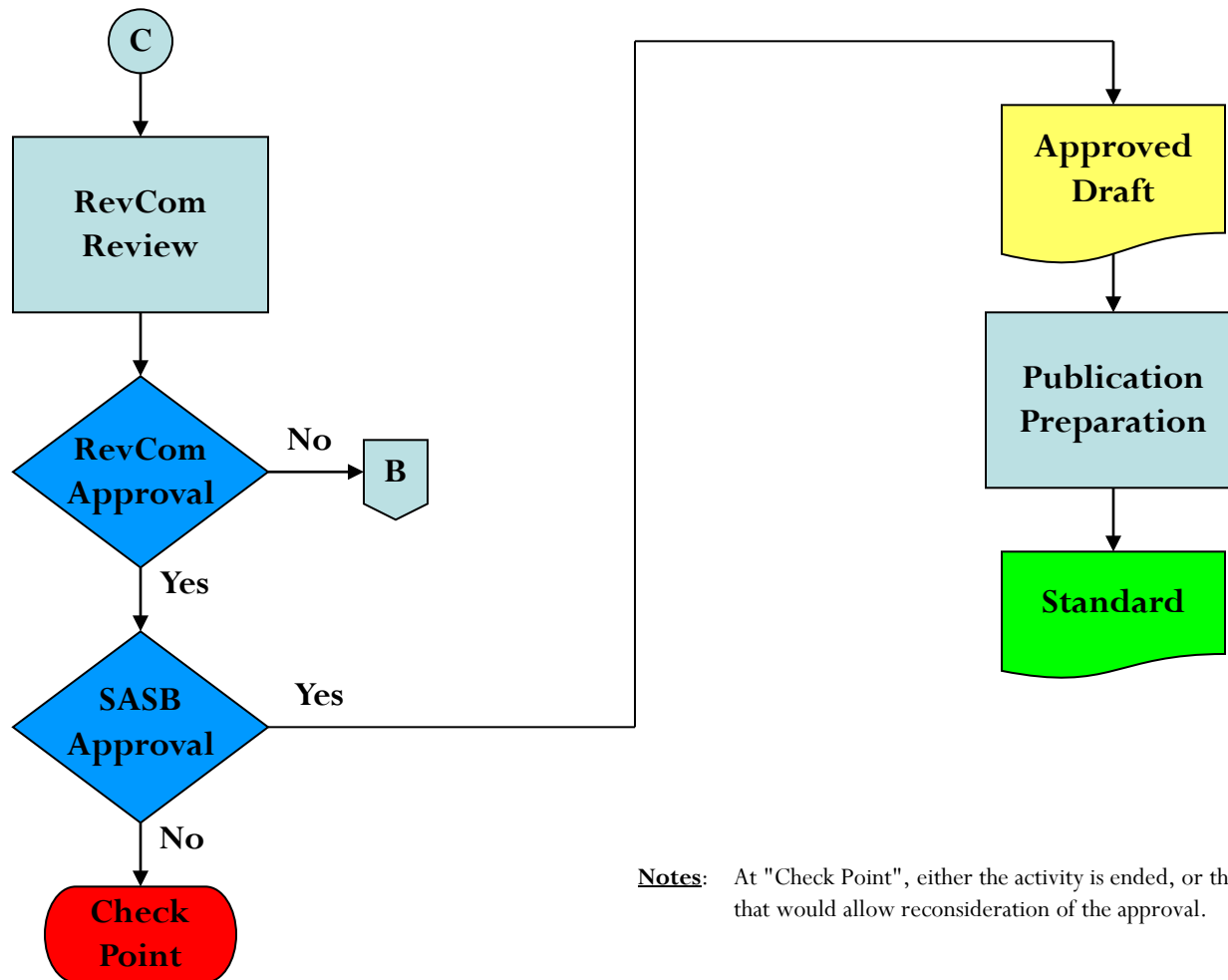
Overview of IEEE 802.3 Standards Process (5/5) – Final Approvals / Standard Release

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

Project Documentation

- Approved PAR - http://www.ieee802.org/3/bs/P802d3bs_PAR.pdf
  - Modified PAR (Request)- http://www.ieee802.org/3/bs/P802_3bs_PAR_modification_0414.pdf
  - PAR Modification Request to be made @ June Standards Board Meeting to correct unknown system error that resulted in wrong PAR being approved (Pre-Jan Update Stakeholders / Need statements)

- CSD - http://www.ieee802.org/3/bs/CSD_400_14_0121.pdf

- Objectives - http://www.ieee802.org/3/bs/Objectives_14_0320.pdf

Project Objectives

- Support a MAC data rate of 400 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)
- Support full-duplex operation only
- Preserve the Ethernet frame format utilizing the Ethernet MAC
- Preserve minimum and maximum FrameSize of current Ethernet standard
- Provide appropriate support for OTN
- Specify optional Energy Efficient Ethernet (EEE) capability for 400 Gb/s PHYs
- Support optional 400 Gb/s Attachment Unit Interfaces for chip-to-chip and chip-to-module applications
- Provide physical layer specifications which support link distances of:
    - At least 100 m over MMF
    - At least 500 m over SMF
    - At least 2 km over SMF
    - At least 10 km over SMF

Liaisons and Communications

- Consider sending informal communications to:
  - ITU-T
  - OIF
  - Others?

Ad Hoc Report

- Webpage: Ad Hoc
  - http://www.ieee802.org/3/bs/public/adhoc/index.shtml

- Ad Hocs
  - "Logic"

Monday

subject to change.

Note –Times listed are subject to change.

Time	Presenter	Affiliation	Title	File Name
9:00 AM	John D'Ambrosia	Dell	Agenda and General Information	agenda_3bs_01_0514.pdf
9:30 AM	Mark Gustlin	Xilinx	Logic Ad hoc	gustlin_3bs_01_0514.pdf
9:40 AM	John D'Ambrosia	Dell	The 400 GbE Project: An Overview	dambrosia_3bs_01_0514.pdf
10:00 AM	Pete Anslow	Ciena	The Road to a Completed Standard	anslow_3bs_01_0514.pdf
10:30 AM	Break			
10:50 AM	Mark Gustlin	Xilinx	A 400GbE Architecture	gustlin_3bs_02_0514.pdf
11:20 AM	Steve Trowbridge	Alcatel-Lucent	PCS/PMA Architecture and OTN Support Proposal	trowbridge_3bs_01_0514.pdf
12:00 PM	Lunch			
1:15 PM	Xinyuan Wang	Huawei	Update of Bit multiplexing in 400GbE PMA	wang_x_3bs_01_0514.pdf
1:45 PM	Steve Trowbridge	Alcatel-Lucent	Initial thoughts on EEE for 400 GbE	trowbridge_3bs_02_0514.pdf
2:15 PM	Tongtong Wang	Huawei	Evaluation of FEC Performance with Symbol and Bit Muxing	wang_t_3bs_01_0514.pdf
2:45 PM	Hugh Barrass	Cisco	Architecture: Configurations and use cases (corollary to gustlin_3bs_02_0514)	barrass_3bs_01_0514.pdf
3:15 PM	Break			
3:35 PM	Jeff Maki	Juniper	BER Targets	maki_3bs_02_0514.pdf
4:05 PM	Joel Goergen	Cisco	400GE Electrical Interconnect Thoughts	goergen_3bs_01_0514.pdf
4:35 PM	Tom Palkert	Molex	CDAUI-16 vs CAUI-4 comparison	palkert_3bs_01_0514.pdf
5:05 PM	Jeff Maki	Juniper	Pivotal Issues for 400 Gb/s Ethernet	maki_3bs_01_0514.pdf
5:35 PM	Brian Welch	Luxtera	400G Optics – Technologies, Timing, and Transceivers	welch_3bs_01_0514.pdf
6:05 PM	Brian Teipen	ADVA	Considerations on Baud Rate and Lane Number for 400 Giga	teipen_3bs_01_0514.pdf
6:35 PM	Discussion & Strawpolls			
7:00 PM	Break for Day			

Tuesday

9:00 AM	John D'Ambrosia	Dell	Opening Comments	
9:10 AM	Paul Kolesar	Commscope	SMF Loss Budgets	kolesar_3bs_01_0514.pdf
9:40 AM	Ali Ghiasi	Ghiasi Quantum LLC	Path to Consensus on 400 GbE PMDs	ghiasi_3bs_02_0514.pdf
10:00 AM	Gary Nicholl	Cisco	Thoughts on 400GbE PMDs	nicholl_3bs_01_0514.pdf
10:30 AM	Break			
10:50 AM	Sudeep Bhoja	Inphi	PAM Modulation for 400G SMF	bhoja_3bs_01_0514.pdf
11:20 AM	Xiaolu Song	Huawei	Investigation of a 4x112Gbps PAM4 configuration for the 2km SMF PMD	song_3bs_01_0514.pdf
12:00 PM	Lunch			
1:15 PM	Winston Way	NeoPhotonics	Technical study of 56Gb/s and 112Gb/s PAM-4 transmission	way_3bs_01_0514.pdf
1:45 PM	Yu Xu	Huawei	Test Result of 8 * 56G PAM4 Transmission	xu_3bs_01_0514.pdf
2:15 PM	Jiangwei Man	Huwei	Investigation of 56Gbps PAM4 based bi-directional architecture for 400GbE	man_3bs_01_0514.pdf
2:35 PM	Riu Hirai	Hitachi	400GE 2-km and 10-km SMF PMD Proposals and Experimental Verification with Nyquist Modulation	hirai_3bs_01_0514.pdf
3:00 PM	Break			
3:20 PM	Fei Zhu	Huawei	Technical feasibility of Single Wavelength 400GbE 2km and 10km PMD	zhu_3bs_01_0514.pdf
3:40 PM	David Lewis	JDSU	400G DMT PMD for 2km SMF	lewis_3bs_01_0514.pdf
4:10 PM	Hideki Isono	Fujitsu	Discrete Multi-Tone for 400GbE 10km reach	isono_3bs_01_0514.pdf
4:40 PM	Hideki Isono	Fujitsu	DMT relative cost consideration	isono_3bs_02_0514.pdf
5:10 PM	Toshiki Tanaka	Fujitsu	Dependency of Transmission Parameters for 400GbE DMT 10km Transceiver	tanaka_3bs_01_0514.pdf
5:40 PM	Discussion & Strawpolls			
6:30 PM	Adjourn			

Wednesday

8:30 AM	John D'Ambrosia	Dell	Opening Comments	
8:40 AM	Ali Ghiasi	Ghiasi Quantum LLC	Overview of Largest Data Centers	ghiasi_3bs_01_0514.pdf
9:05 AM	Chris Cole	Finisar	400Gb/s 500m PMD Alternatives	cole_3bs_01_0514.pdf
9:35 AM	Jonathan King	Finisar	: 16 x 25G per lane optical PMD for MMF, re-using 100GBASE-SR4 technology and spec's.	king_3bs_01_0514.pdf
10:05 AM	Nathan Tracy	TE Connectivity	Proposal for a PMD for 400GBASE-SR16	tracy_3bs_01_0514.pdf
10:35 AM	Break			
10:55 AM	Discussion, Strawpolls, Motions			
11:50 AM	Closing Business			
12:00 PM	Adjourn			

Future Meetings

- See: http://www.ieee802.org/3/interims/index.html

- July 2014 Plenary
  - Week of July 13
  - Manchester Grand Hyatt, San Diego, CA, USA

- Sept 2014 Interim
  - Week of September 8
  - Brookstreet Hotel, Ottawa, Canada

- Nov 2014 Plenary
  - Week of November 2
  - Grand Hyatt San Antonio, San Antonio, TX, USA

- Jan 2015 Interim
  - Week of Jan 12
  - TBA

- Mar 2015 Plenary
  - Week of Mar 8
  - Estrel Hotel and Convention Center, Berlin, Germany

- May 2015 Interim
  - Week of May 18, 2015
  - TBA

- Anyone interested in hosting a meeting or webex contact me.

Thank You!