Agenda and General Information

IEEE P802.3ch Multi-Gigabit Automotive Ethernet PHY Task Force

Steve Carlson, Chair

High Speed Design, Inc., Robert Bosch, Marvell

San Diego, CA, USA July 11 - 12, 2018

Agenda

- Jon Lewis, Dell EMC – Recording Secretary
- Welcome and Introductions
- Approve Agenda
- Approve May 2018 Task Force Minutes
- Goals for this meeting
- Big Ticket Items
- Reflector and Web
- Ground Rules
- IEEE
  - Structure, Bylaws and Rules
  - Call for Patents
  - IEEE Standards Process
- Liaisons and Communications
- Review of Action Items from May Meeting
- Presentations – Wednesday
- Motions, Timeline, Action Items and Closing Business – Thursday morning
- 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. (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

Goals for the meeting

- Review Task Force Operation
- Hear presentations on objectives (media, power and PHY)
- PHY modulation proposals
- Select modulation scheme
- Lay the ground work for the next meeting

Big ticket items

- Link segment selection
  - What's is missing?
- PHY selection
  - Signaling type and modulation
  - RS-FEC
- Create D0.5 and review in September
- MIPI liaison letter
- Lay the ground work for the next meeting
- Remember---we are a contribution driven organization!

Reflector and Web

- To subscribe to the Multi-Gigabit Automotive Ethernet PHY reflector, send an email to: *ListServ@ieee.org*

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

  > *subscribe* **STDS-802-3-NGAUTO** *<yourfirstname> <yourlastname>*
  >
  > *end*

- Send Multi-Gigabit Automotive Ethernet PHY reflector messages to:
  > **STDS-802-3-NGAUTO @*listserv.ieee.org***

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

Task Force Private Area

URL: **http://www.ieee802.org/3/ch/private/index.html**

- Username: 802.3ch
- 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.
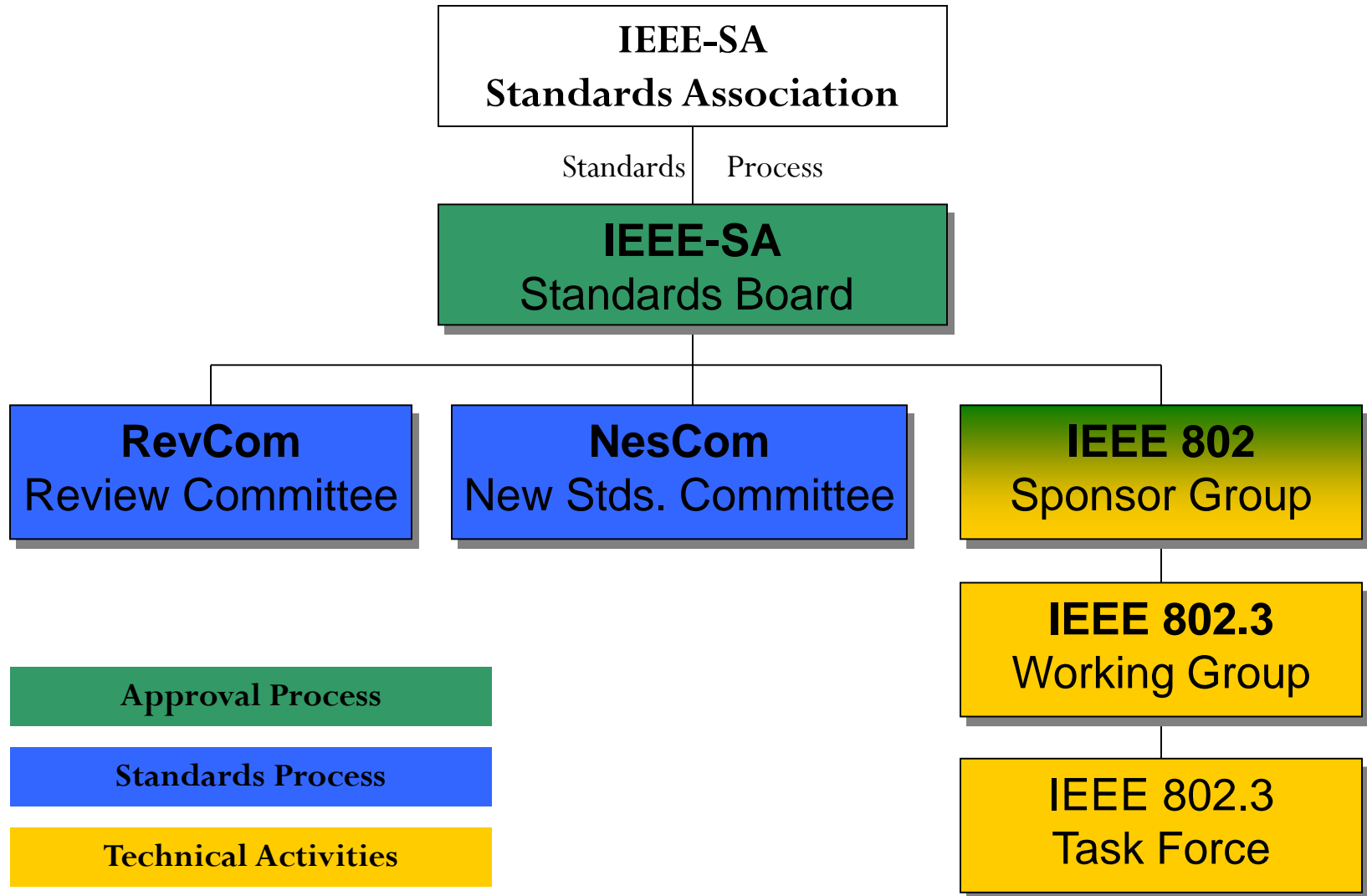
Ground Rules

- 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/ Please sign the paper attendance sheet

IEEE Structure

IEEE-SA
Standards Association

Standards | Process

IEEE-SA
Standards Board

RevCom	NesCom	IEEE 802
Review Committee	New Stds. Committee	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**
  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

Participants have a duty to inform the IEEE

- Participants <u>shall</u> 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 <u>should</u> 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

◆IEEE

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

◈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 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

02 January 2018

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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

02 January 2018

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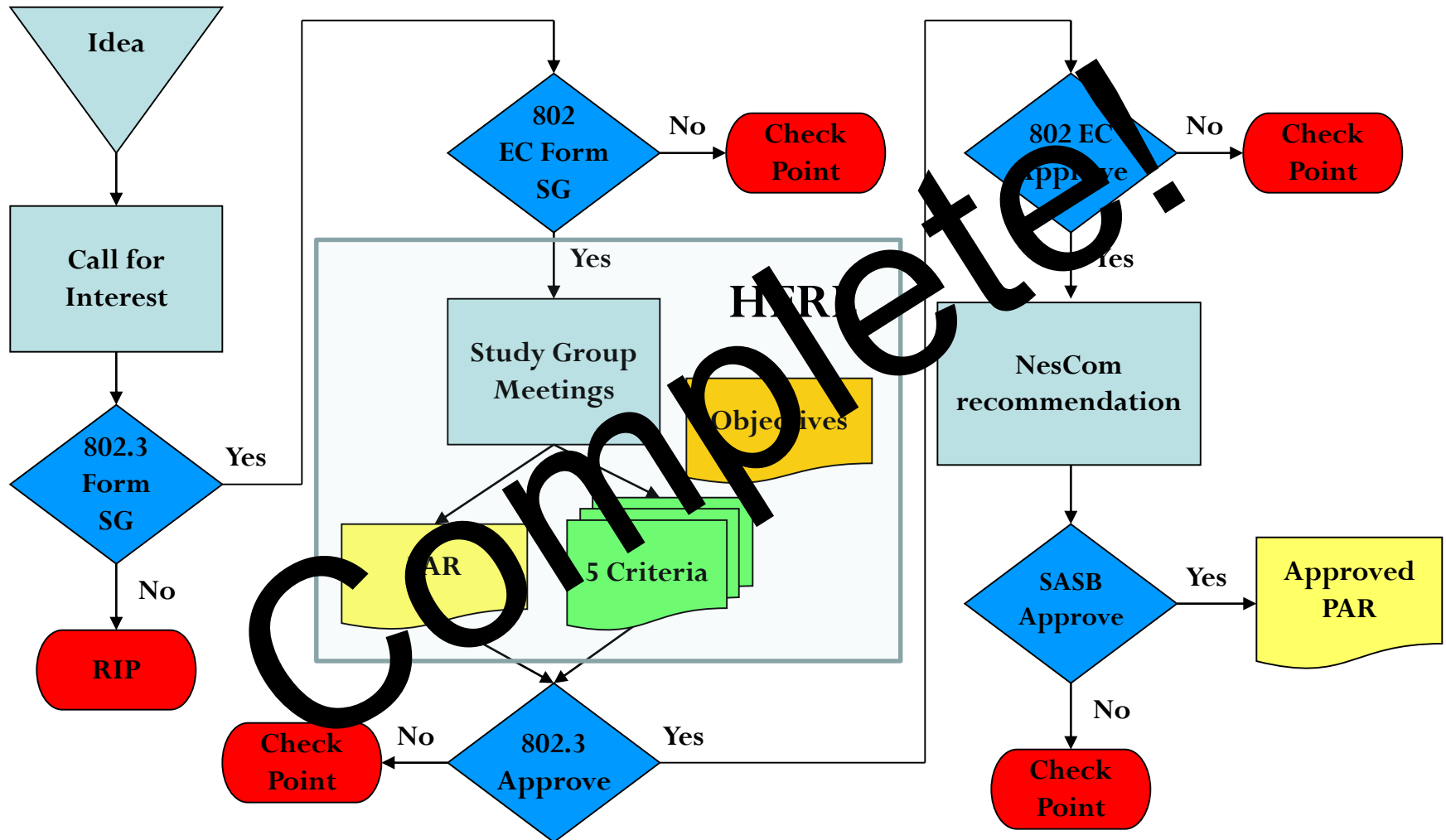# Participation in IEEE 802 Meetings

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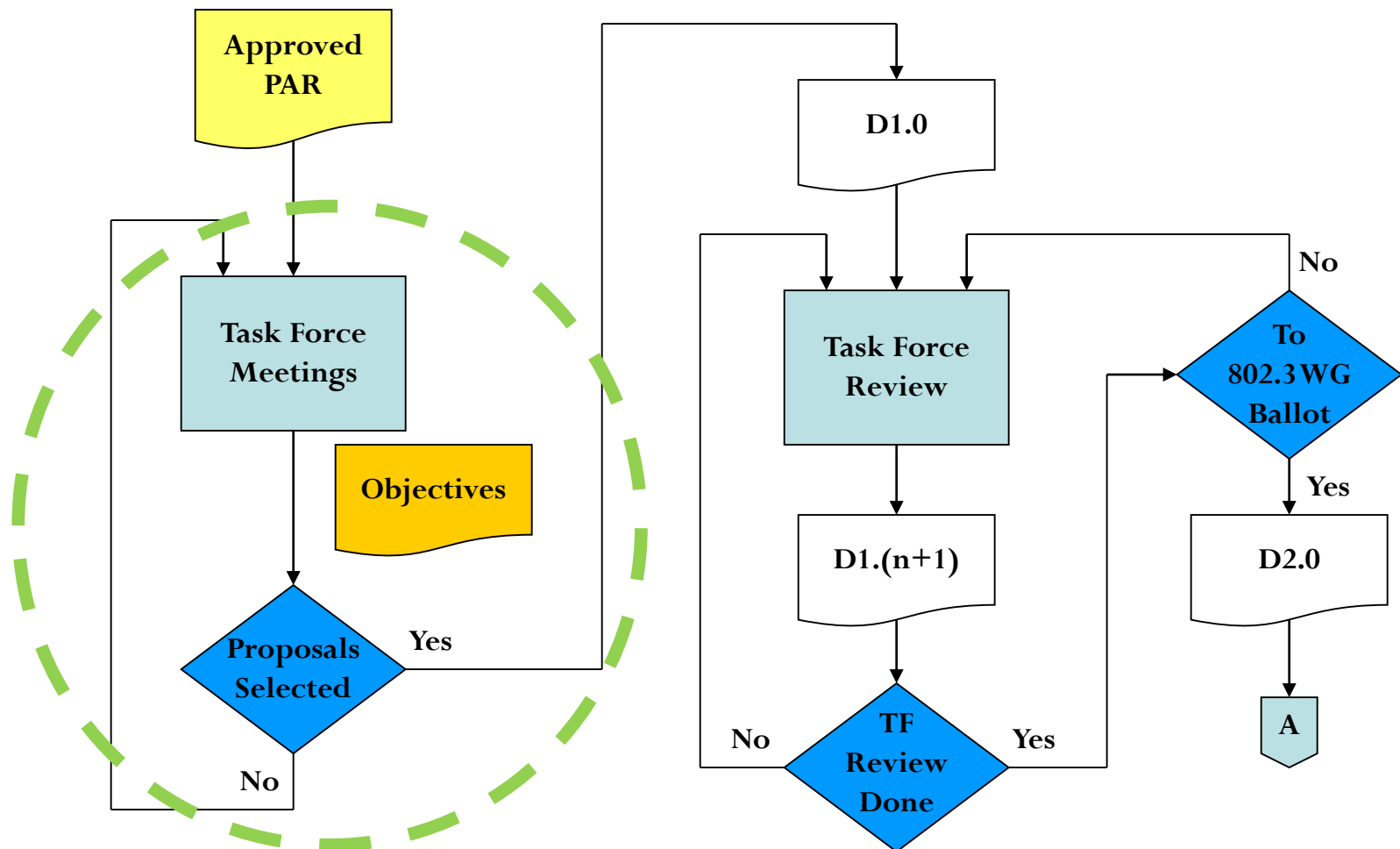
(Latest revision of IEEE 802 LMSC Working Group Policies and Procedures: http://www.ieee802.org/devdocs.shtml)

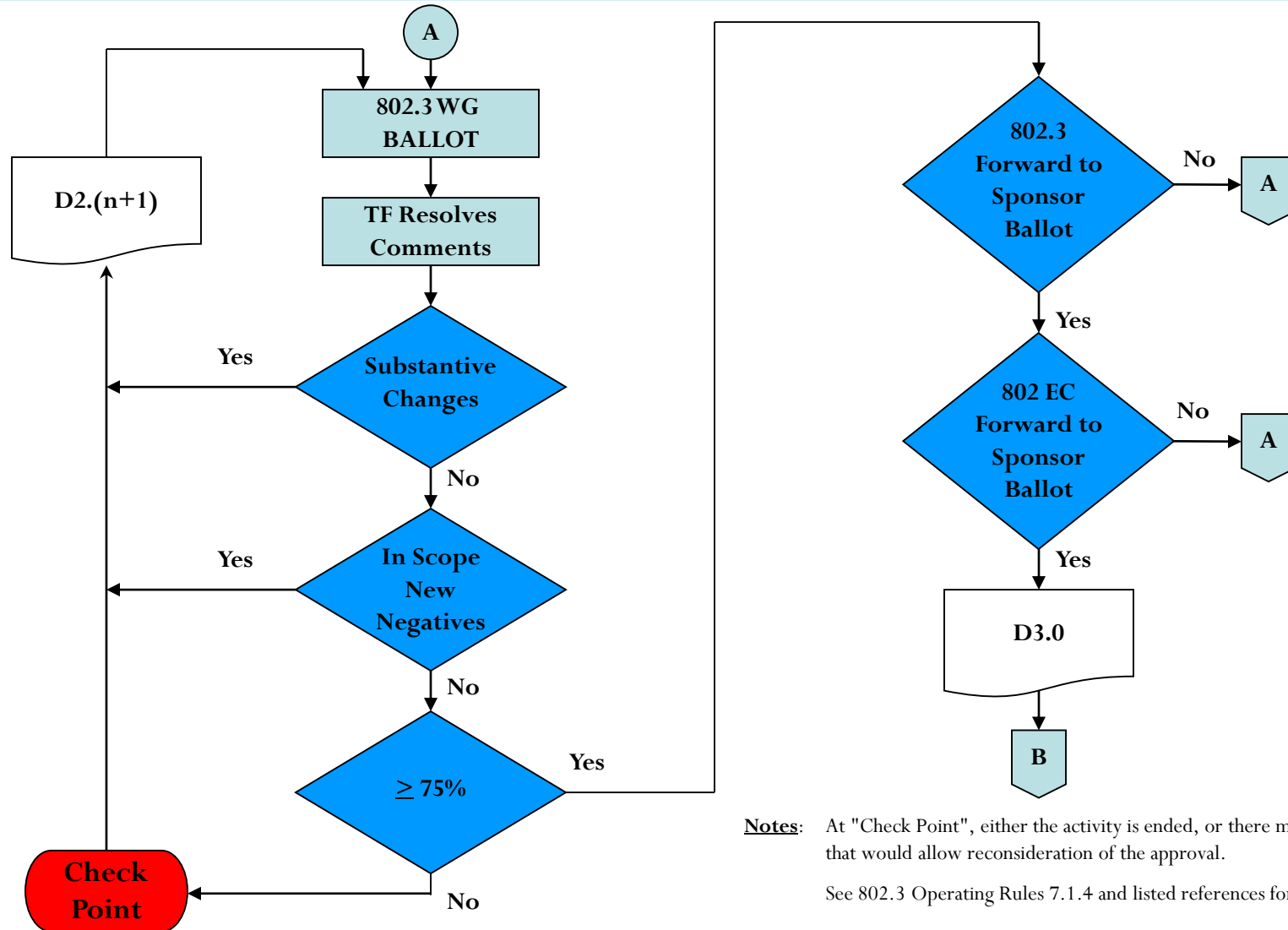# Overview of IEEE 802.3 Standards Process (1/5)- Study Group Phase

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

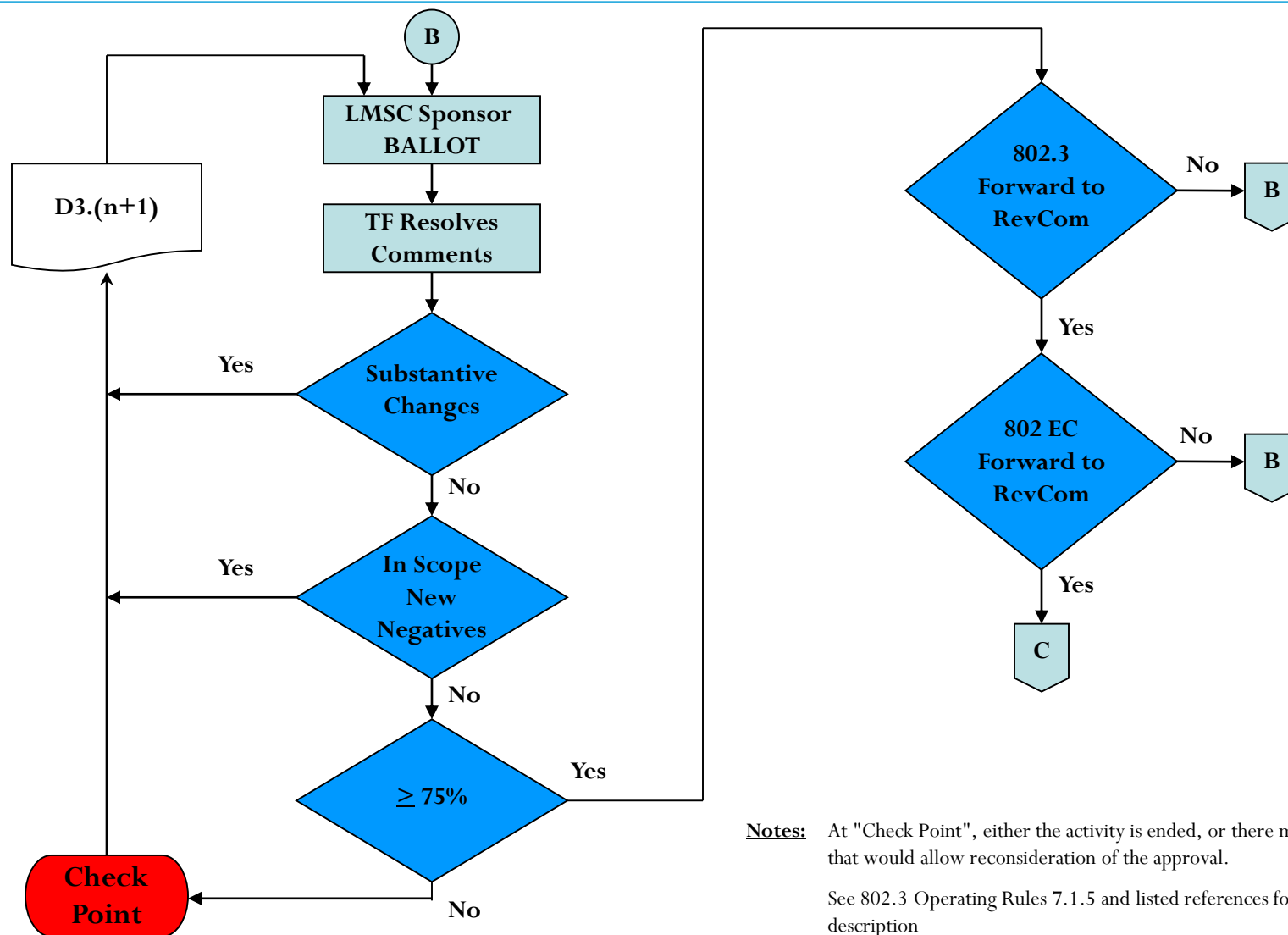# Overview of IEEE 802.3 Standards Process (2/5) – Task Force Comment Phase

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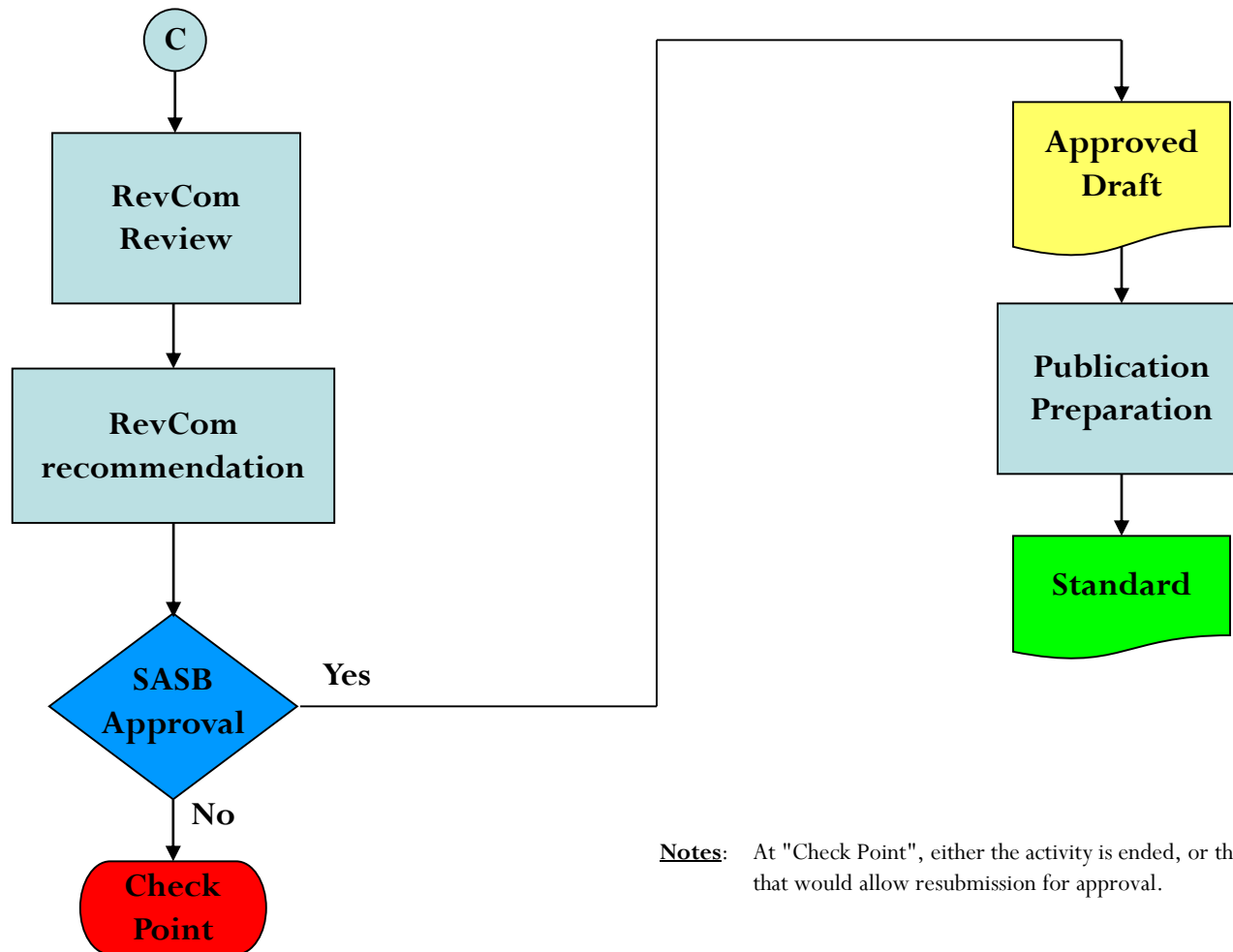
Overview of IEEE 802.3 Standards Process (5/5) – Final Approvals / Standard Release

C

RevCom Review

RevCom recommendation

SASB Approval

Yes

No

Check Point

Approved Draft

Publication Preparation

Standard

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

Liaisons and Communications

MIPI Alliance to IEEE 802.3 on establishing a liaison

IEEE P802.3ch NGAUTO Ethernet PHY Task Force

Approved Project Documents

- PAR
  - http://ieee802.org/3/ch/P802.3ch_PAR.pdf
- 5 Criteria
  - https://mentor.ieee.org/802-ec/dcn/17/ec-17-0069-00-ACSD-802-3ch.pdf
- Objectives
  - http://ieee802.org/3/ch/0317_approved_objectives_3NGAUTO.pdf

IEEE P802.3 P802.3ch NGAUTO Ethernet PHY Task Force Objectives

1. Preserve the IEEE 802.3/Ethernet frame format at the MAC client service interface

2. Preserve minimum and maximum frame size of the current IEEE 802.3 standard

3. Support full duplex operation only

4. Define optional startup procedure which enables the time from power_on=FALSE to a state capable of transmitting and receiving valid data to be less than 100ms

5. Support data rates of 2.5 Gb/s, 5 Gb/s and 10 Gb/s at the MAC/PLS service interface.

6. Support a BER better than or equal to 10^{-12} at the MAC/PLS service interface (or the frame loss ratio equivalent)

7. Support optional Auto-Negotiation

8. Support optional Energy Efficient Ethernet

9. Support operation in automotive environments (e.g., EMC, temperature)

10. Do not preclude meeting FCC and CISPR EMC requirements.

IEEE P802.3ch NGAUTO Ethernet PHY Task Force Objectives

11. Define the performance characteristics of an automotive link segment and an **electrical** PHY to support 2.5 Gb/s point-to-point operation over this link segment supporting up to four inline connectors for at least 15m on at least one type of automotive cabling (e.g., UTP, STQ, STP, SPP, Coax, or Twinax).

12. Define the performance characteristics of an automotive link segment and an electrical PHY to support 5 Gb/s point-to-point operation over this link segment supporting up to four inline connectors for at least 15m on at least one type of automotive cabling.

IEEE P802.3 P802.3ch NGAUTO Ethernet PHY Task Force Objectives

13. Define the performance characteristics of an automotive link segment and an electrical PHY to support 10 Gb/s point-to-point operation over this link segment supporting up to four inline connectors for at least 15m on at least one type of automotive cabling.

14. Support optional Clause 104 power over data lines on appropriate media.

Presentation Issues

- Filenames
  - Much better
  - Revision
- Templates
  - Please make the title and author field selectable
- PDF properties
  - Please fill these fields out to aid the search engine
- Confidentiality Statements
  - No issues
  - Applies to presentations and emails
- Discussion of Cost
  - No issues

Presentation Issues

- Material from other presentations
  - If you use material from another presentation, it must be properly attributed
  - Use the filename

- Material from outside sources
  - Make sure you have permission and indicate that on the slide

Presentations

Title	Author	Affilation	Approximate Time
Agenda	Steve Carlson, P802.3ch Chair	HSD, Bosch, Marvell	15
Ad Hoc Chair's Report	George Zimmerman	CME Consulting/CommScope, LTC, Aquantia	5
Chief Editor's Report	Natalie Weinckowski	GM	15
IEEE Process			
Copper Link Segment			
Insertion Loss Limit Analysis	Eric DiBiaso	TE Connectivity	20
PoDL			
PoDL for NGAUTO- Technical and Economic Feasibility	**Gitesh Bhagwat**	Analog Devices	20
PHY			
Complexity Study for Multi-Gig Automotive PHYs	Michael Leung et al	Marvell	20
Multi-Gig PHYs Channel Code Proposal	Sujan Pandey	NXP Semiconductors	20
Morning Break			15
MGBASE-T1 PCS/PMA	William Lo	Axonne Inc.	20
Line modulation considerations for 2.5Gbps and 5/10Gbps Automotive Ethernet	Gerrit W. den Besten	NXP Semiconductors	20
RS FEC Proposal for Multi-Gigabit Automotive PHY	Mike Tu	Broadcom Ltd.	20
Lunch			1:15
FEC/Framing/Modulation for 10GBASE-T1 PHY	Ramin Farjadrad et al	Aquantia	20
2.5Gbps Implementation Considerations	Ramin Farjadrad et al	Aquantia	20
End User PHY Preferences	Natalie Weinckowski et al	GM et al	20
Asymmetrical Data Transmission	Tom Souvignier	Broadcom Ltd.	20
SEND_S Synchronization without Optional Autoneg	Mike Tu	Broadcom Ltd.	20
2.5G and 10G PHYs Modulation Scheme Proposal (01b)	Sujan Pandey	NXP Semiconductors	20
Afternoon Break			15
OAM Proposal	Natalie Weinckowski, Mike Potts	GM	20
Additional Discussion (if needed)	Tsk Force		60
End of Wednesday Presentations			15
Thursday morning			
Joint proposals			1:00
Motions and Straw Polls			2:00
Working Sessions on Output			

Note –Times listed are subject to change.

Motions and Straw Polls

Action Items

Future Meetings

- See: http://www.ieee802.org/3/interims/index.html
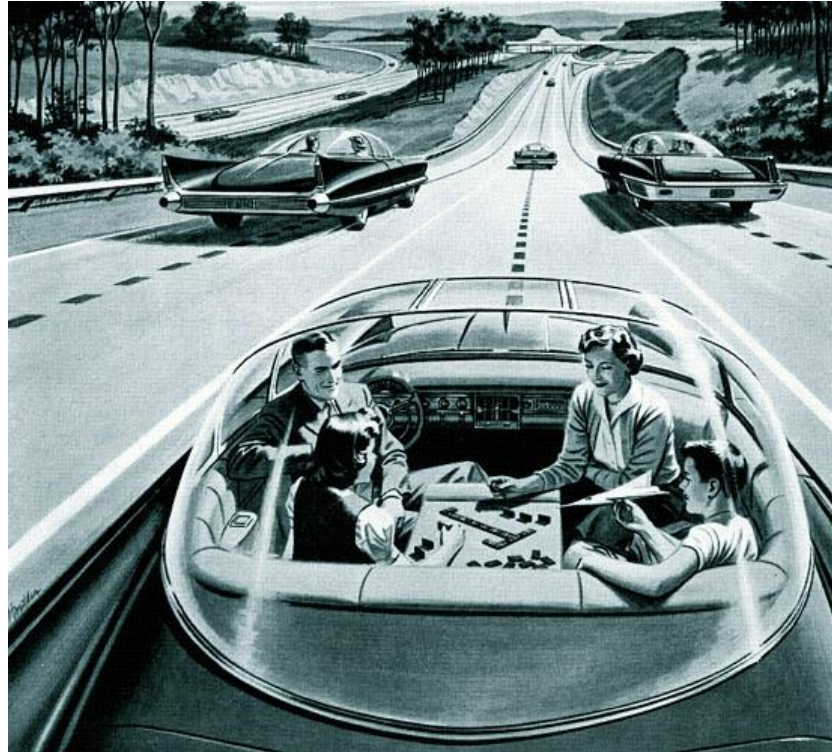
- July 2018 Plenary
  - Manchester Grand Hyatt
  - July 9 – 12
  - San Diego, CA, USA

- September 2018 Interim, Dell EMC
  - Historic Davenport Hotel
  - September 10 - 14
  - Spokane, WA, USA

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

Straw Poll on Attendance

- Attend September 2018 interim, Dell EMC, Spokane, WA, USA:
  - Y: N: M:

- Attend November 2018 802 Bangkok, Thailand plenary:
  - Y: N: M:

Questions?

Thank you!