Agenda and General Information

IEEE P802.3cg 10 Mbps Single Pair Ethernet Task Force

George Zimmerman (Chair)

CME Consulting, Inc.
Orlando, FL USA Nov. 6-8, 2017

Agenda

- Appointment of Recording Secretary
- Welcome and Introductions
- Approve Agenda
- Approve Previous 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
- Presentations
- Motions and Closing Business
- Future Meetings

Task Force Decorum

- Photography or recording by permission only (December 2014 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 2014 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

- Charter Draft 1.0

  – Fill out all baselines

- Respond if necessary to liaisons from: IEC SC65, TIA TR42 and ISO/IEC SC25 WG3 on single pair cabling and components

Big ticket items

- Adopt baseline for short reach PHY PCS & PMA

- Adopt baseline for associated powering

- Adopt baseline for auto negotiation

Reflector and Web

- To subscribe to the 10 Mbps Single-Pair Ethernet Task Force reflector, send an email to:

  ListServ@ieee.org

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

  subscribe **STDS-802-3-10SPE-***<yourfirstname> <yourlastname>*

  end

  THIS IS THE SAME REFLECTOR WE USED FOR STUDY GROUP – YOU DO NOT HAVE TO RE-SUBSCRIBE

- Send 10 Mbps Single-Pair Ethernet Task Force reflector messages to:

  STDS-802-3-10SPE *@listserv.ieee.org*

- Task Force web page URL: (NEW WEB PAGE FOR TASK FORCE)

  www.ieee802.org/3/cg

Task Force Private Area

- PRIVATE AREA Defined
- URL: http://www.ieee802.org/3/cg/private
  - Username: <<>>
  - 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/
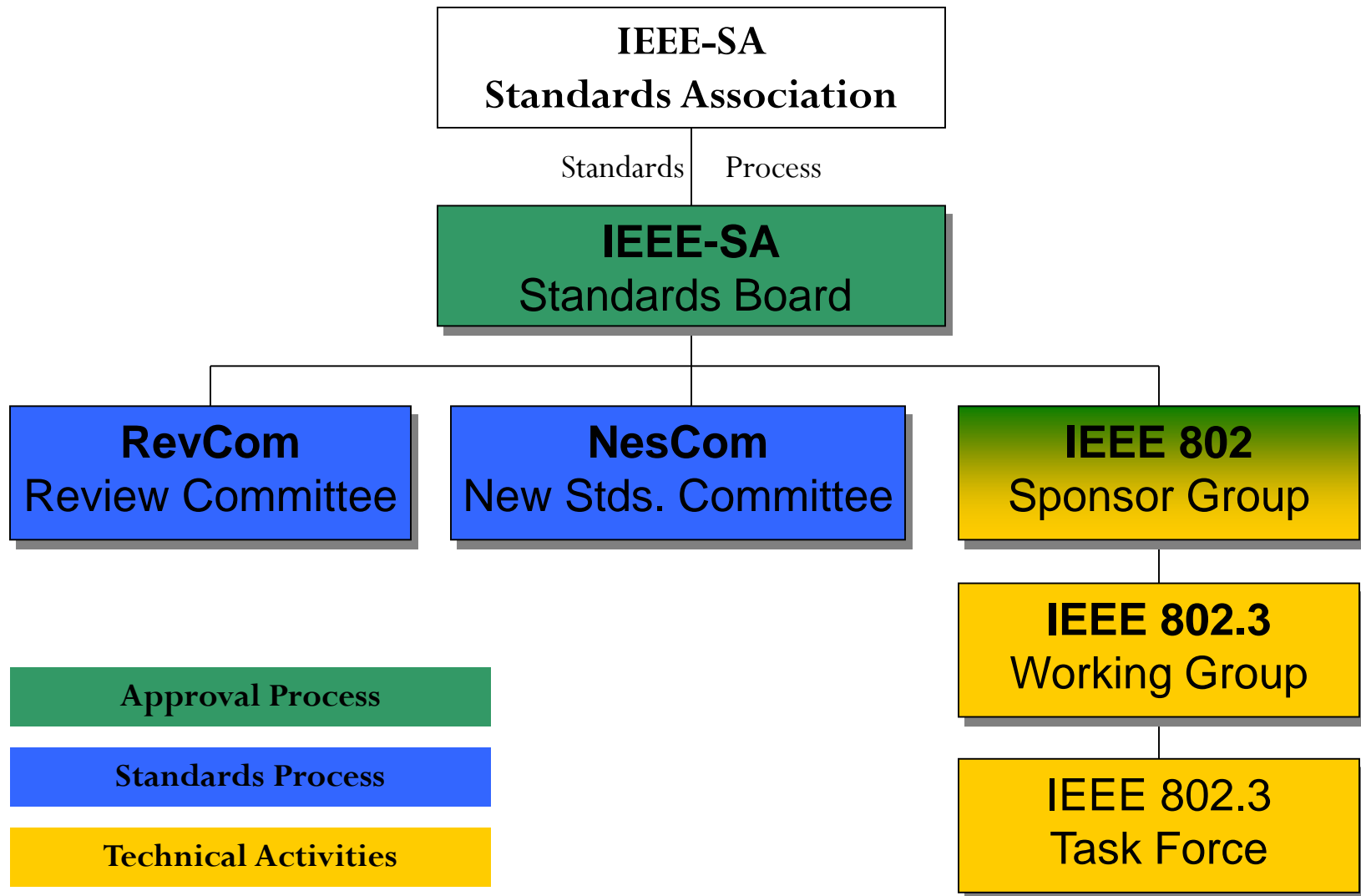
Participation in IEEE 802 Meetings

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)

Slide 10　　　　　　　　　　　IEEE 802 Executive Committee

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**
  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

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 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.

◆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**
    - **"Should inform the IEEE (or cause the IEEE to be informed)" of the identity of "any other holders of 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**

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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**

15 March 2015

IEEE

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
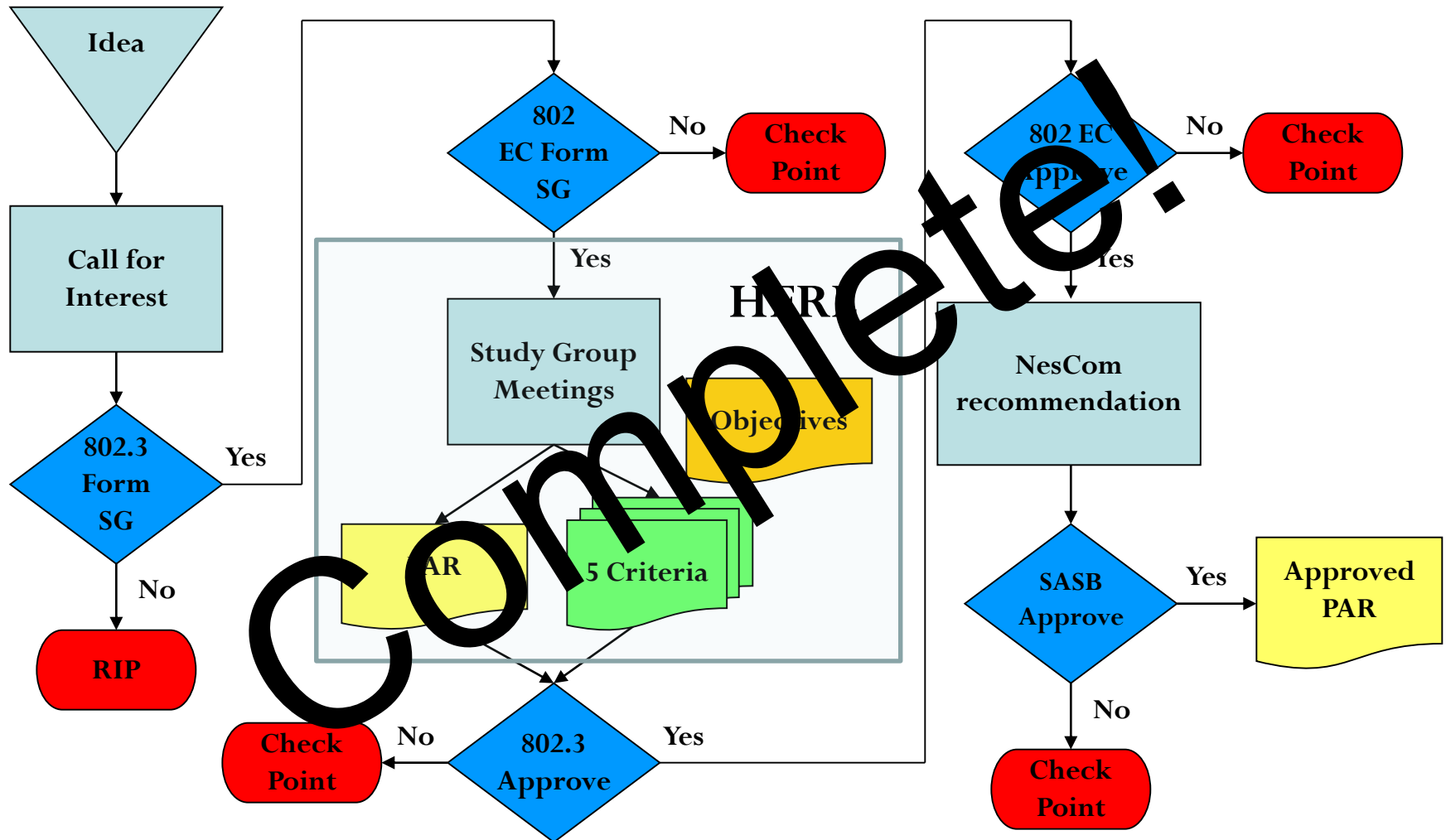 - Cause an LOA to be submitted

◈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.**

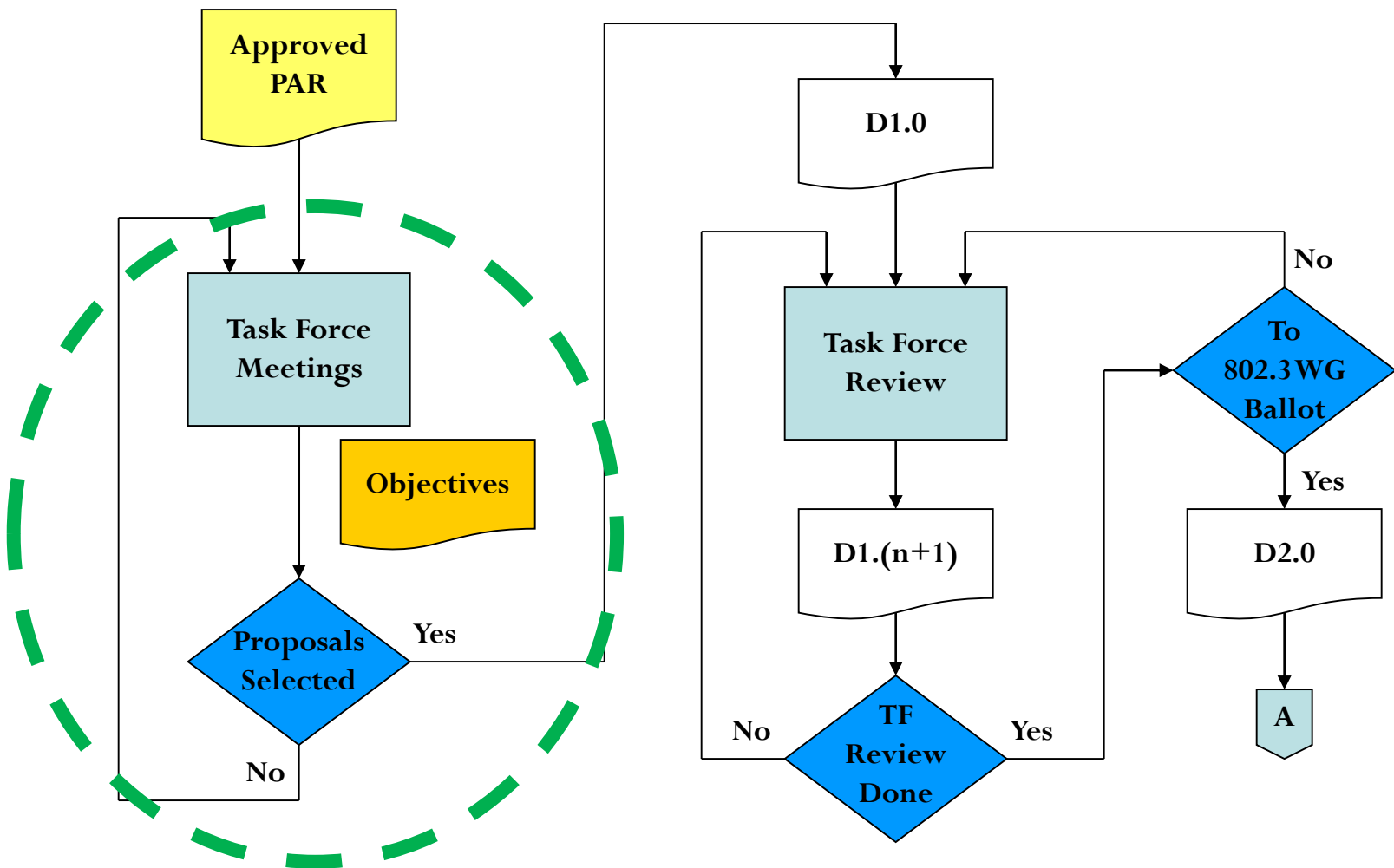 - **Don't be silent if inappropriate topics are discussed … do formally object.**

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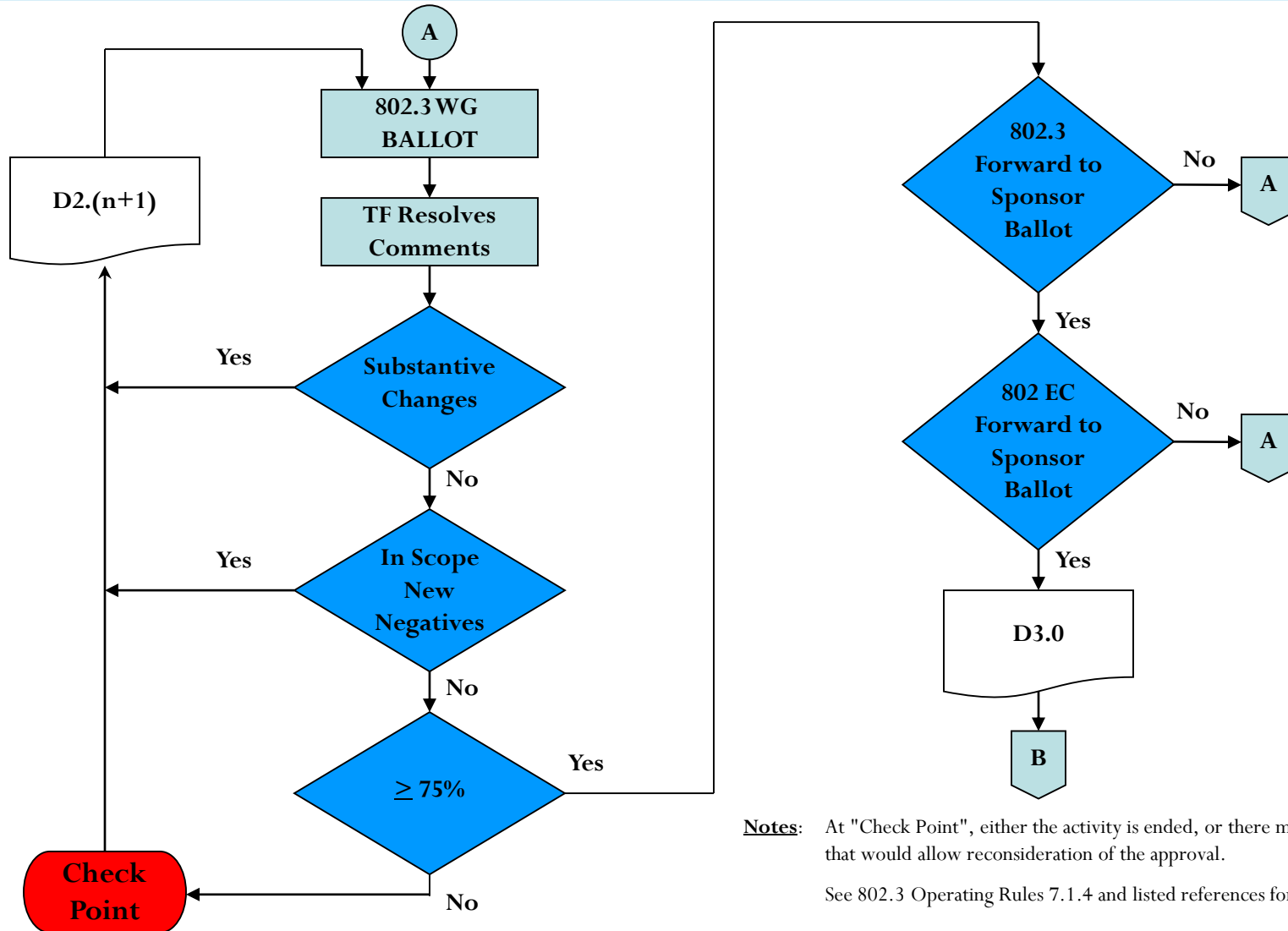
Note: At "Check Point", either the activity is ended, or there may be various options that would allow reconsideration of the approval.

Overview of IEEE 802.3 Standards Process (2/5) – Task Force Comment Phase
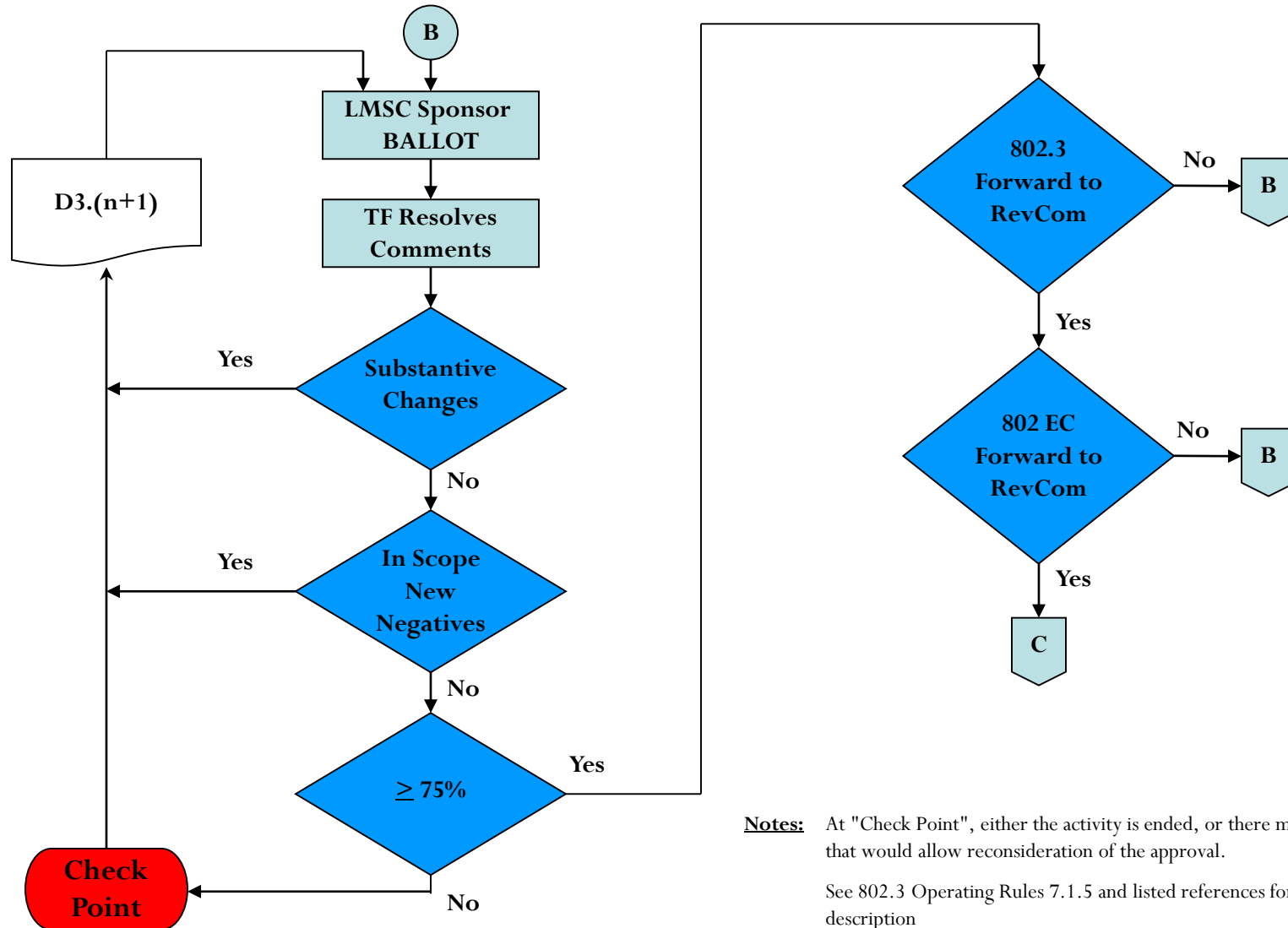
Overview of IEEE 802.3 Standards Process (3/5) – Working Group Ballot Phase

A

802.3 WG BALLOT

D2.(n+1)

TF Resolves Comments

Substantive Changes — Yes → **D2.(n+1)**

No

In Scope New Negatives — Yes

No

≥ 75% — Yes

No → **Check Point**

802.3 Forward to Sponsor Ballot — No → **A**

Yes

802 EC Forward to Sponsor Ballot — No → **A**

Yes

D3.0

B

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

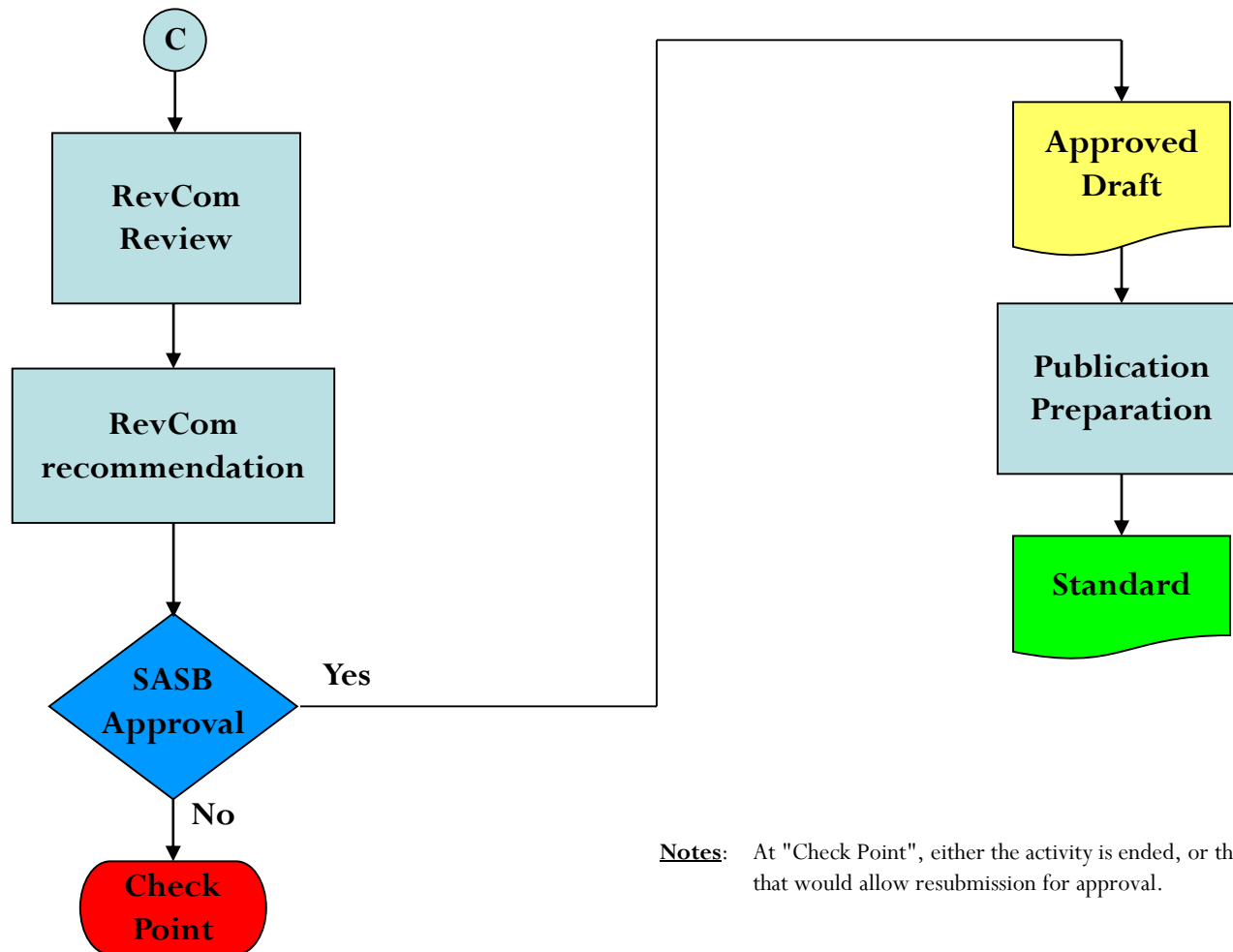See 802.3 Operating Rules 7.1.4 and listed references for complete description

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

- IEC TC 65/SC 65C/JWG 10 to IEEE 802.3 on single pair Ethernet

- TIA TR-42 to IEEE 802.3 on connectors and topologies for single pair applications

- ISO/IEC JTC1 SC25 to IEEE 802.3 on 1-pair cabling

- PI (PROFIBUS and PROFINET International) to IEEE P802.3cg on establishing an official liaison

IEEE P802.3cg 10Mbps Single-Pair Ethernet Approved Project Documents

- ## PAR

  - http://www.ieee802.org/3/cg/IEEE_P802_3cg_PAR_071216.pdf

- ## 5 Criteria

  - https://mentor.ieee.org/802-ec/dcn/16/ec-16-0153-00-00EC-ieee-p802-3cg-draft-csd.pdf

- ## Objectives

  - http://www.ieee802.org/3/cg/objectives_10SPE_111016.pdf

IEEE P802.3cg Adopted Objectives Approved by 802.3 11/10/16 (1)

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 a speed of 10 Mb/s at the MAC/PLS service interface.
4. Do not preclude meeting FCC and CISPR EMC requirements
5. Support for optional single-pair Auto-Negotiation
6. Support optional Energy Efficient Ethernet
7. Support 10 Mb/s operation in automotive environments (e.g. EMC, temperature) over single balanced twisted-pair cabling.
8. Support 10 Mb/s operation in industrial environments (e.g. EMC, temperature) over single balanced twisted-pair cabling.
9. Do not preclude the ability to survive automotive and industrial fault conditions (e.g. shorts, over voltage, EMC, ISO16750)
10. Do not preclude working within an Intrinsically Safe device and system as defined in IEC 60079

IEEE P802.3cg Adopted Objectives Approved by 802.3 11/10/16 (2)

11. Define the performance characteristics of a link segment and a PHY to support operation over this link segment with single twisted pair supporting up to four inline connectors using balanced cabling for up to at least 15 m reach

12. Define the performance characteristics of a link segment and a PHY to support point-to-point operation over this link segment with single twisted pair supporting up to 10 inline connectors using balanced cabling for up to at least 1 km reach

13. Support fast-startup operation using predetermined configurations which enables the time from power_on**=FALSE to a state capable of transmitting and receiving valid data to be less than 100ms

14. Maintain a bit error ratio (BER) at the MAC/PLS service interface of less than or equal to 10^{-10} on link segments up to at least 15m, and 10^{-9} on link segments up to at least 1km

15. Specify one or more optional power distribution techniques for use over the 10 Mb/s single balanced twisted-pair link segments, in conjunction with 10 Mb/s single balanced twisted-pair PHYs, in the automotive and industrial environments

Proposed new objective
(not yet adopted by Working Group)

Motion #16

- **Move that 802.3cg add the following objective:**
  - Define a multi-drop PHY using Clause 4 half-duplex operation supporting up to at least 25m of balanced pair cabling in passive linear topologies.
- **M: Kirsten Matheus   S: David Brandt**
- **Technical (>= 75%)**
- **Y: 33 N:0   A:0**
- **Motion Passes**

IEEE P802.3cg 10 Mb/s Single Twisted Pair Ethernet Adopted timeline

- ✓ January 2017 – First Task Force meeting
- ✓ July 2017 – Objectives Finalized, Draft 0.1 (skeleton), all baselines presented
- ✓ September 2017 – Baselines selected, draft 0.9 for Task Force Review
- **November 2017 –Last features selected - Task Force Review D1.0**
  - – Nov:D1.0, Jan:D1.1, possible Feb 2018 extra off-cycle interim, D1.2
- March 2018 – Complete Task Force Review(D1.2/1.3)
- **May 2018 – Draft 2.0, enter working group ballot** (2 recircs: July:D2.1, Sept:D2.2)
- **Nov 2018 – D3.0 – enter Sponsor ballot** (2 recircs Jan'19:D3.1, Mar'19:D3.2)
- **June 2019 Standards Board approval**

- *[NOTE: only 1 meeting cycle slack spread between WG ballot and Sponsor Ballot]*

Presentations (Day 1)
(times are approximate)

Title	Presenters(s)	Affiliation(s)	App. Time
Admin			
Agenda	George Zimmerman, Chair, IEEE P802.3cg Task Force	CME Consulting/(ADI, APL Group, Aquantia, BMW, Cisco, Commscope)	1:00-1:30
802.3cg Ad Hoc Report	Peter Jones	Cisco	1:30-1:45
Liaison Reports: TIA TR42, ISO/IEC JTC1 SC25 WG3, ODVA	Valerie Maguire, TR42 Liaison Alan Flatman, ISO/IEC Liaison David Brandt, ODVA Liaison	Siemon Company LAN Technologies/Indep. Rockwell Automation	1:45-2pm
Editor's opening report	Valerie Maguire, Chief Editor, IEEE P802.3cg Task Force	Siemon Co.	2-2:20PM
Powering			
PoDL Thoughts	Steffen Graber	Pepperl+Fuchs	2:20-2:50PM
Extensions to Clause 104 powering	Heath Stewart	ADI	2:50-3:10PM
Afternoon Break (3:10-3:40)			
Auto Negotiation			
Autonegotiation Use Cases	Markus Wucher	Endress+Hauser/Flowtech	3:40-4:10
Clause 98 AutoNegotiation	Steffen Graber	Pepperl+Fuchs	4:10-4:30
Other			
Scope Issues	Geoff Thompson	GraCaSi/Independent	4:30-5PM

Presentations (Day 2)
(times are approximate)

Title	Presenters(s)	Affiliation(s)	App. Time
Agenda	George Zimmerman, Chair, IEEE P802.3cg Task Force	CME Consulting/(ADI, APL Group, Aquantia, BMW, Cisco, Commscope)	8:30-9:00
10BASE-T1S Proposals and Parameters			
Short reach PCS, PMA, and PLCA baseline proposal	Piergiorgio Beruto	CanovaTech	9:00-9:30
Parameters for multidrop short reach PHY	Gergely Huszak	Kone	9:30-10:00
Morning Break (10:00-10:30)			
10SPE Encoding Comparison	Hongming An	MicroChip	10:30-11:00
Proposal for PSD Mask Adoption	Piergiorgio Beruto	CanovaTech	11-11:30
Short reach PHY discussion	All		11:30-12
Lunch (12-1:30)			
Joint meeting with 802.1 TSN (1:30-3:30)			
Welcome & Introductions	Chairs – Janos, George		1:30-1:40
Overview of 802.3cg	George Zimmerman	CME Consulting	1:40-2
Overview of PLCA	Piergiorgio Beruto	CanovaTech	2:00-2:20
Overview of TSN and TSN on 802.3cg	Craig Gunther	Harman	2:20-2:50
TIME SYNCHRONIZED COLLISION AVOIDANCE IN MULTIDROP NETWORKS	Michael Rentschler	MicroChip	2:50-3:10
Plan for Next Steps	All		3:10-3:30
Afternoon Break (3-3:30)			
Draft 0.3 Comments and Review			
10BASE-T1L PHY Draft comments	Steffen Graber	Pepperl+Fuchs	3:30-5

Presentations (Day 3)
(times are approximate)

Title	Presenters(s)	Affiliation(s)	App. Time
Agenda	George Zimmerman, Chair, IEEE P802.3cg Task Force	CME Consulting/(ADI, APL Group, Aquantia, BMW, Cisco, Commscope)	8:30-9:00
Editor's Report detail/wrap up	Valerie Maguire	Siemon Company	9:00-9:30
802.3CG PMA ELECTRICAL AND LINK SEGMENT DEFINITION … CHECKED	Conrad Zerna	Fraunhofer	9:30-10:00
Morning Break (10:00-10:30)			
Additional Information, Liaisons, Wrap-Up			
Single-pair cabling channel specifications	Dave Hess	Cord Data	10:30-11:00
Liaison Letter Responses	All		11:00-11:20
Motions and Closing Business	All		11:20-12:00
Adjourn (12PM)			

Future Meetings

- See: http://www.ieee802.org/3/interims/index.html
- November 802 Plenary
  - Orlando, FL USA (Caribe Royale)
  - Plenaries are Monday morning – Thursday Evening
    - Opening 802.3 Plenary Monday morning, Closing Thursday afternoon
    - We meet all week
- January 802.3 Interim
  - Geneva, CH (no hotel – at ITU)
  - Schedule TBD, 802.3cg expected to be the start of the week, 2 days

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

Thank You!