Next-Gen 200G & 400G PHYs for MMF Study Group Agenda and General Information

Robert Lingle, Jr,

Acting Chair, IEEE 802.3 NGMMF Study Group

OFS

IEEE 802 Jan 2018 Interim

Geneva, Switzerland

Agenda

- Appointment of Recording Secretary
- Appointment of Chair
- Welcome / Introductions
- Approval of Agenda
- IEEE 802 Participation
- Pre-PAR Patent Policy
- Study Group Information
- Attendance
- Ground Rules
- The Role of the Chair
- IEEE
  - Structure
  - Bylaws and Rules
  - IEEE 802.3 Standards Process
  - Study Group Chartering Motion
- Goals for the Week
- Presentations
- Discussion, Straw Polls, Motions
- Closing Business
- Future Meetings

Task Force Decorum

- Photography or recording by permission only (2016 SASB Op Manual 5.3.3.2)
- Cell phone ringers off
- Press (i.e., anyone reporting publicly on this meeting) are to announce their presence (5.3.3.3)
- 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

Guidelines for IEEE-SA 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.**

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

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.

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

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)

IEEE 802 Executive Committee

IEEE 802.3 Next-Gen PHYs for MMF SG Information

- Robert Lingle Jr, Acting Chair
- Home Page - http://www.ieee802.org/3/NGMMF/index.html
- Reflector Information – http://www.ieee802.org/3/NGMMF/reflector.html

Attendance

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

- Access details
  - URL: http://imat.ieee.org/
  - Password will be provided

- Attendance books
  - Keeps track of attendance in room
  - Used to support requests to verify attendance by chair if IMAT not used.
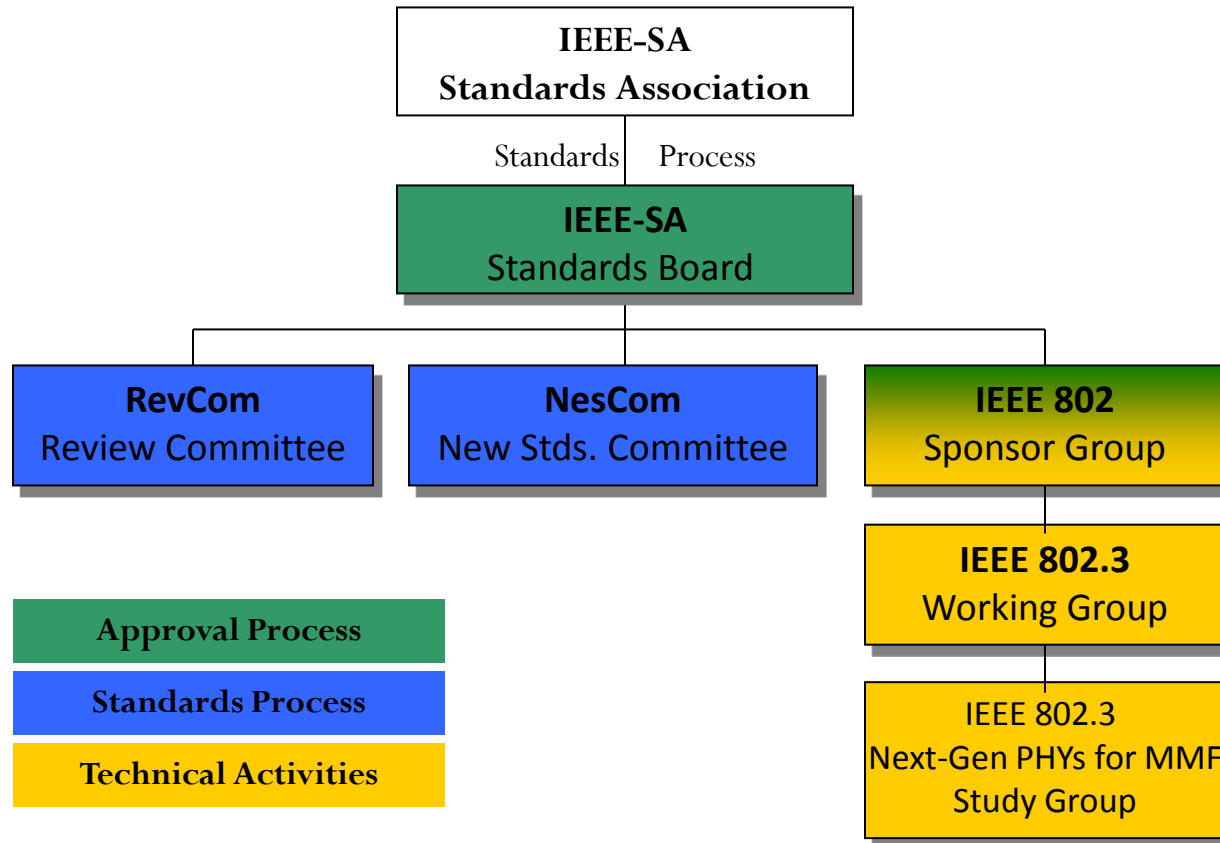
Ground Rules

- **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**

The Role of the Chair

- Per the IEEE 802.3 Ethernet WG Operations Manual (http://www.ieee802.org/3/rules/P802_3_rules.pdf)

  - The operation of the TF has to be balanced between democratic procedures that reflect the desires of the TF members and the TF Chair's responsibility to produce a draft standard, recommended practice, or guideline in a reasonable amount of time for review and approval by the WG. Robert's Rules of Order shall be used in combination with these operating rules to achieve this balance.

  - The full responsibilities of the chair are specified in 3.4.3 Task Force Chair's Responsibilities.

- Reminder - individual standards activities within the WG are, at the discretion of the WG, carried out by Task Forces (TF) operating under, and reporting to, the WG.

IEEE Structure

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                    ┌─────────────────────┐
                    │      IEEE-SA         │
                    │ Standards Association│
                    └─────────────────────┘
                      Standards │ Process
                    ┌─────────────────────┐
                    │      IEEE-SA         │
                    │  Standards Board     │
                    └─────────────────────┘
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RevCom	NesCom	IEEE 802
Review Committee	New Stds. Committee	Sponsor Group

IEEE 802.3
Working Group

IEEE 802.3
Next-Gen PHYs for MMF
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://ieee802.org/PNP/approved/IEEE_802_OM_v19.pdf

- **IEEE 802 LAN/MAN Standards Committee (LMSC) Working Group (WG) Policies and Procedures**
  http://standards.ieee.org/about/sasb/audcom/pnp/LMSC.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"**
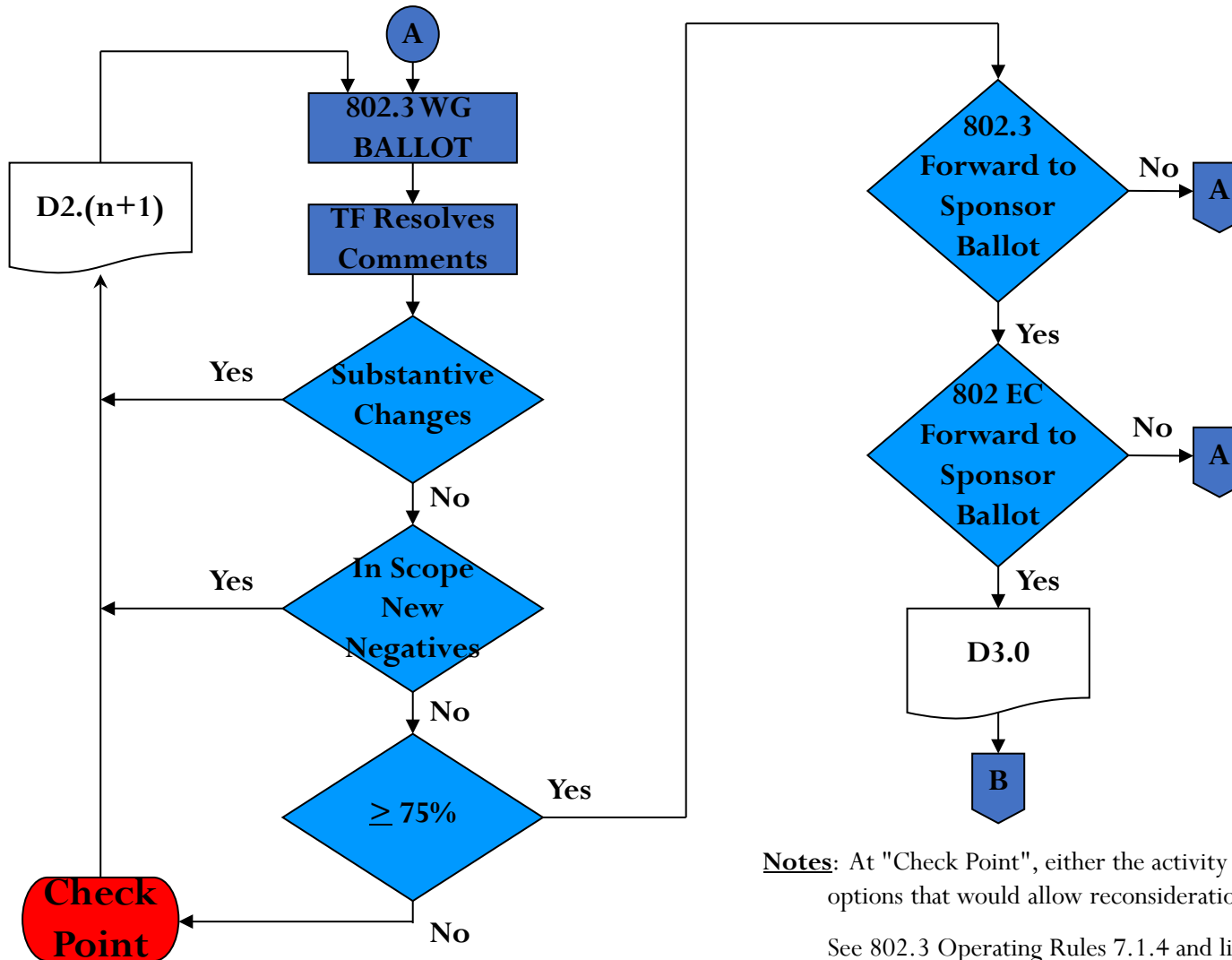 http://standards.ieee.org/develop/policies/antitrust.pdf
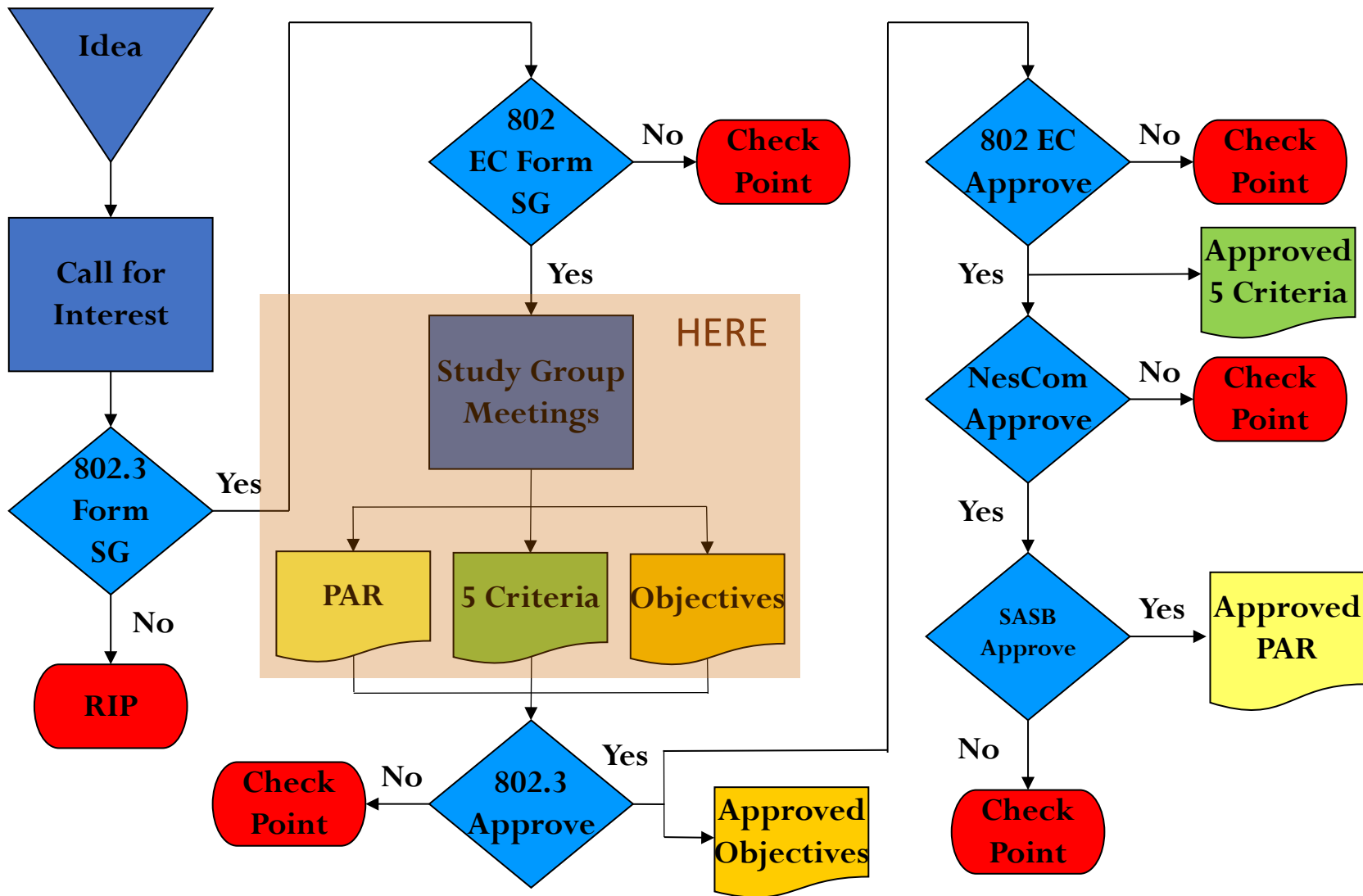
Note: At "Check Point", either the activity is ended, or there may be various options that would allow reconsideration of the approval.

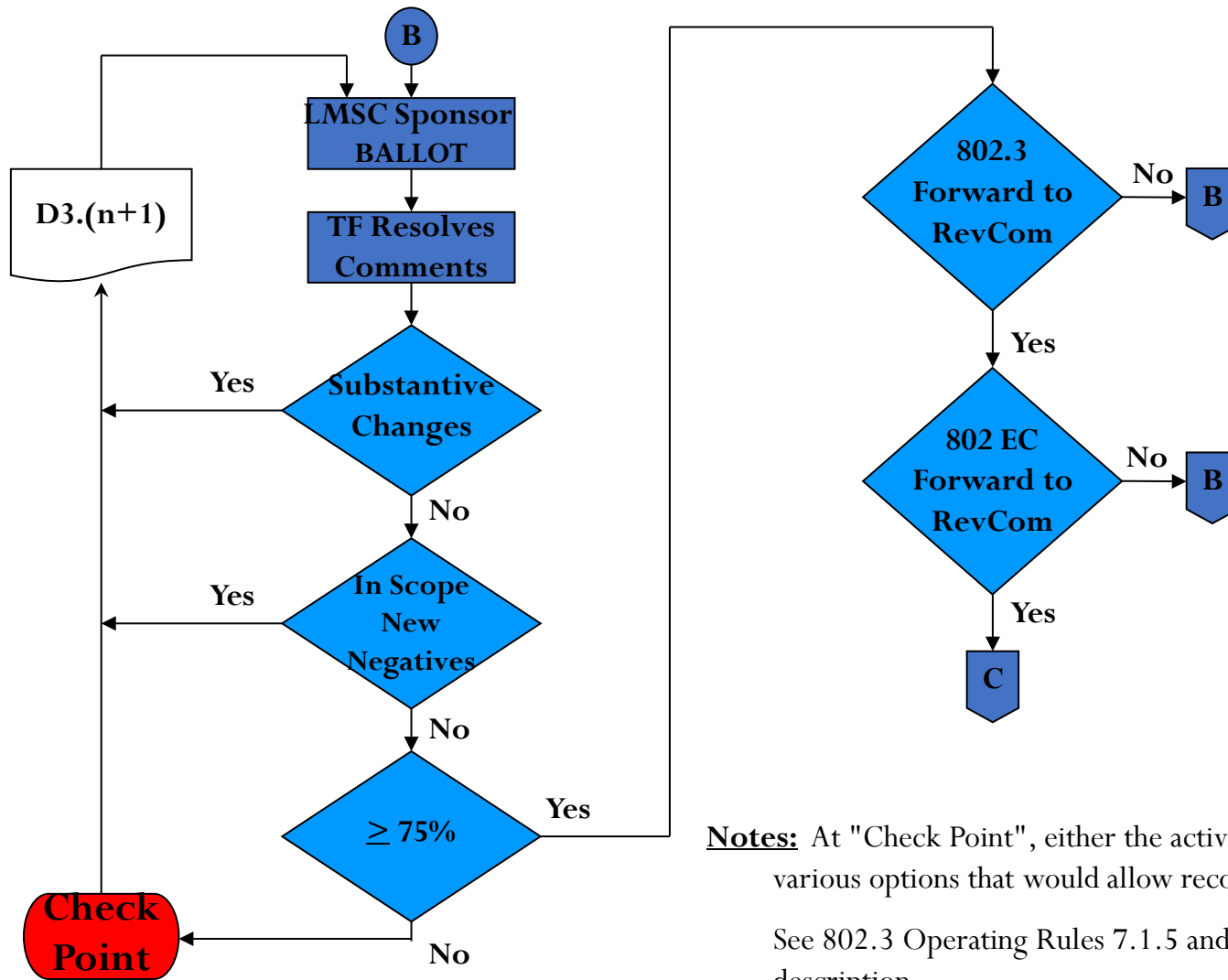# Overview of IEEE 802.3 Standards Process (2/5) – Task Force Comment Phase
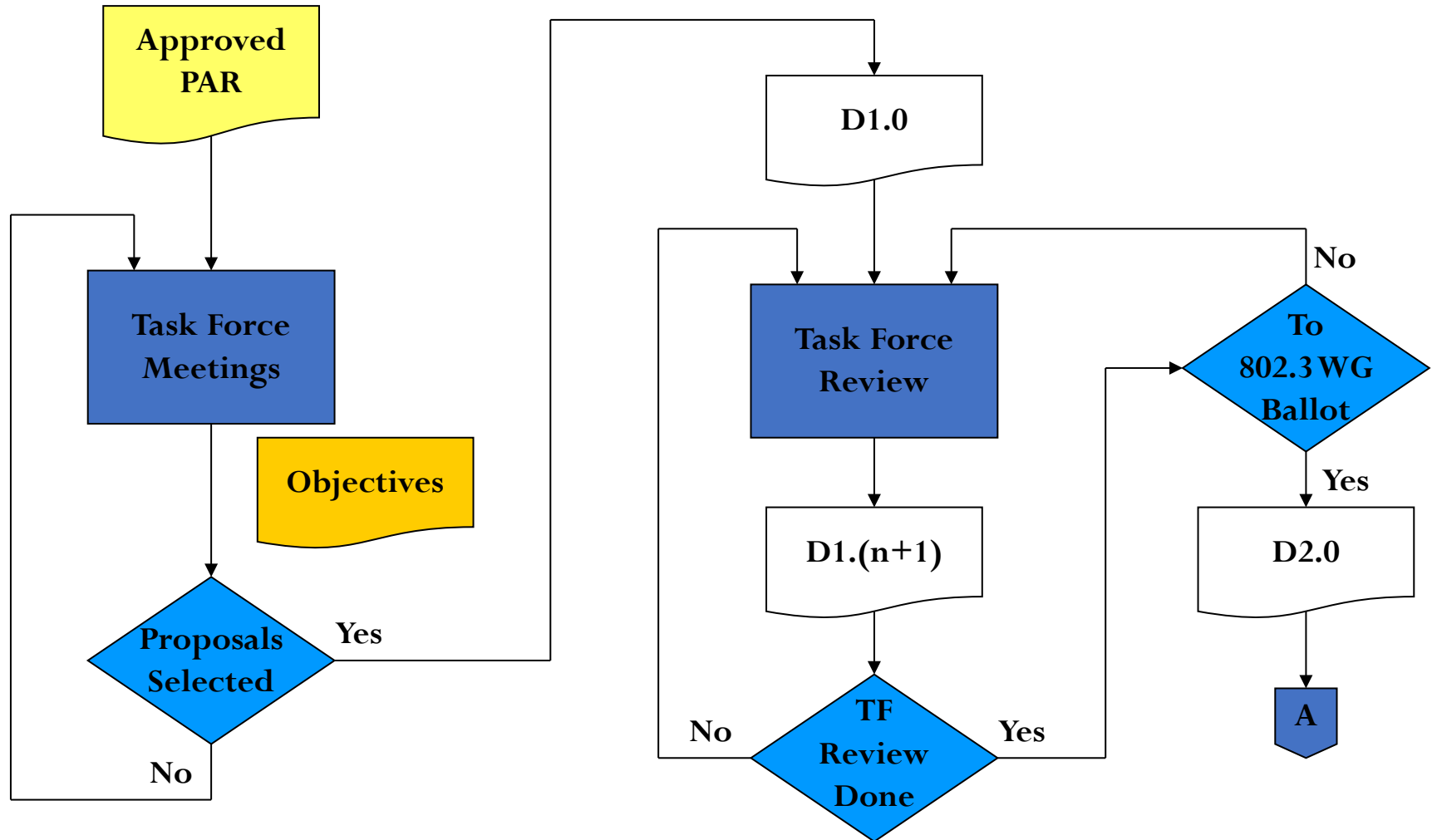
Notes: At "Check Point", either the activity is ended, or there may be various options that would allow reconsideration of the approval.
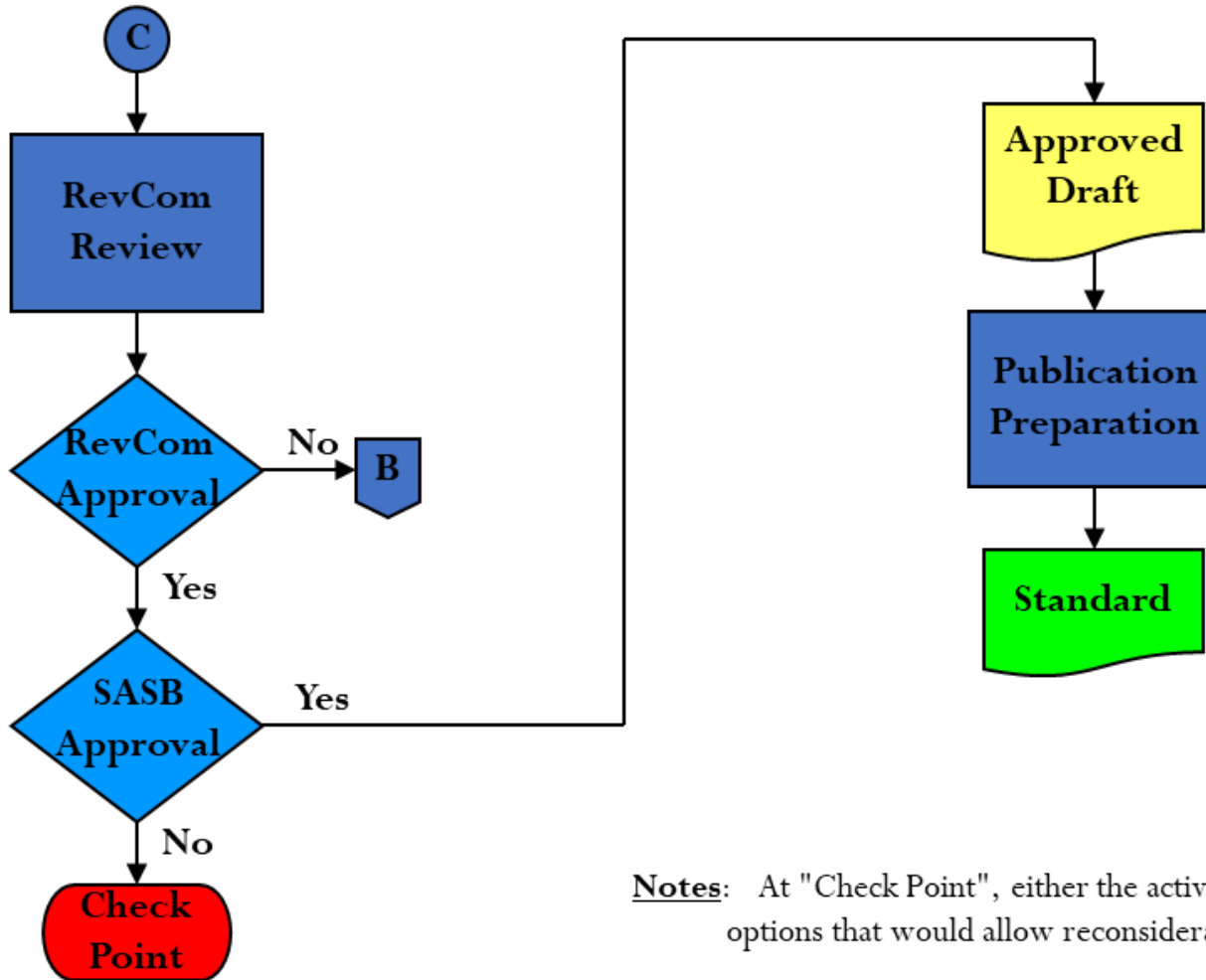
See 802.3 Operating Rules 7.1.4 and listed references for complete description

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

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

SG Chartering Motion

Move that the IEEE 802.3 Ethernet Working Group authorizes the formation of a study group to develop a Project Authorization Request (PAR) and Criteria for Standards Development (CSD) responses for "Next-generation 200 Gb/s and 400 Gb/s PHYs over fewer MMF pairs than in existing Ethernet projects and standards."

The Study Group

- Normal function is to draft a complete PAR and Five Criteria
- Provide a plenary week tutorial to the LMSC.
- Gain approval at the IEEE 802.3 WG, IEEE 802 EC, IEEE-SA NesCom and IEEE-SA Standards Board.
- SG only exists for 6 months
    - Extensions can be requested
    - Voted on by IEEE 802.3
    - Ratified by IEEE 802 EC
- Development of Objectives helps set the goals for the Task Force
- Consensus required to move forward

- Not a goal: choosing a solution.

Ad Hoc Report

- December 05, 2017: 28 attendees
  - Tutorial on CSD Responses by G. Zimmerman

- December 18, 2017: 31 attendees
  - Presentation on Michael Lindsay slides on cost discussions by D. Law
  - Review "400/200GbE PCS Overview" M. Gustlin

- January 11, 2018: 34 attendees
  - Review draft PAR by M. Choudhury
  - Review "Objectives for 200G & 400G PHYs" S. Swanson
  - Objectives discussion

- January 16, 2018: 28 attendees
  - Review draft CSD Responses by M. Choudhury
  - Objectives discussion

Goals for the Week

➢ Consensus building on PAR / Objectives / CSD
➢ 17 technical presentations
➢ Adoption of PAR / Objectives / CSD

Schedule (1 of 2)

Monday CICG building, Room 18				
Time	**Presenter**	**Affiliation**	**Title**	**File Name**
9:15 AM	David Law	HPE	Open meeting, Appoint chair	
9:30 AM	Robert Lingle, Jr.	OFS	Agenda & General Information	
10:00 AM	Robert Lingle, Jr.	OFS	Path Forward	
10:30 AM	Coffee Break			
10:45 AM	Rick Pimpinella	Panduit	Proposed PMD Progression	
11:15 AM	Steve Swanson	Corning	Objectives for NG 200G and 400G PHYs	
11:45 AM	Robert Lingle, Jr.	OFS	Opening Straw Polls	
12:00 PM	Lunch			
1:00 PM	Mabud Choudhury	OFS	Draft PAR	
1:30 PM	Mabud Choudhury	OFS	Draft CSD Responses	
2:15 PM	Mark Gustlin	Xilinx	400/200GbE PCS Overview	
2:45 PM	Paul Kolesar	CommScope	Towards OM3, OM4 Modal Bandwidth Guidance for WDM	
3:15 PM	Coffee Break			
3:30 PM	Paul Kolesar	CommScope	OM3, OM4, OM5 Modal Bandwidth Over Wavelengths for WDM	
4:00 PM	Rick Pimpinella	Panduit	Wavelength dependent channel performance	
4:30 PM	Earl Parsons	CommScope	50 Gbit/s PAM4 beyond 850nm	
5:00 PM	Zuowei Shen	Google	400GBASE-SR8 for Data Center Interconnect	
5:30 PM	Robert Lingle, Jr.	OFS	Broad market potential, economic feasibility, and distinct identity for an 400GBASE-SR4.2 objective	
6:00 PM			Break for the Day	

Schedule (2 of 2)

Tuesday CICG building, Room 18				
9:00 AM	James Young	CommScope	In Support of 200G MMF Ethernet PMDs: Broad Market Potential, Economic Feasibility	
9:40 AM	Rick Pimpinella	Panduit	Channel Cost Analysis	
10:20 AM	Coffee Break			
10:40 AM	Ingham	FIT	Technical feasibility of a 400 Gb/s optical PMD supporting four MMF pairs	
11:20 AM	King	Finisar	Lower fibre count 200 Gb/s and 400 Gb/s PMDs	
12:00 PM	Lunch			
1:00 PM	Ali Ghiasi	Ghiasi Quantum	The need for 100 Gb/s/lane MMF PMDs	
1:30 PM				
2:00 PM			Discussion, Straw Polls, Motions on Objectives, CSD Responses, PAR	
2:30 PM				
3:00 PM	Coffee Break			
3:30 PM				
4:00 PM			Discussion, Straw Polls, Motions on Objectives, CSD Responses, PAR	
4:30 PM				
5:00 PM				
5:30 PM				
6:00 PM			Adjourn	

Future Meetings

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

- Mar 2018
  - Week of Mar 5, 2018
  - Hyatt Regency O'Hare
  - Rosemont, IL, USA
- May 2018
  - Week of May 21,2018
  - Omni William Penn Hotel
  - Pittsburgh, PA, USA
- July 2018
  - Week of July 9, 2018
  - Manchester Grand Hyatt
  - San Diego, CA, USA
- Sept 2018
  - Week of Sept 10, 2018
  - TBD
- Nov 2018
  - Week of July 9, 2018
  - Marriott Marquis Queen's Park
  - Bangkok, Thailand

Thank You!