




# IEEE 802.3 Higher Speed Study Group

## Agenda and General Information

Ottawa, ON, Canada  
April, 2007



# Agenda

- Welcome and Introductions
- Appoint/Volunteer Recording Secretary
- Approve Agenda
- Approve Meeting Minutes
- Goals for this Meeting
- Ground Rules
- Reflector and Web
- IEEE
  - Structure
  - Bylaws and Rules
  - Call for Patents
  - IEEE Standards Process
- Ad Hoc Reports
- Presentations
- Discussion and Motions
- Future Meetings

# IEEE 802.3 HSSG Organization

- Study Group Chair:
  - John D'Ambrosia ([jdambrosia@force10networks.com](mailto:jdambrosia@force10networks.com))
- Web Master
  - Frank Chang ([ychang@vitesse.com](mailto:ychang@vitesse.com))
  
- “Reach” Ad Hoc Chair
  - Andy Moorwood ([amoorwood@extremenetworks.com](mailto:amoorwood@extremenetworks.com))
- “Fiber Optic” Ad Hoc Chair
  - Dan Dove ([dan.dove@hp.com](mailto:dan.dove@hp.com))

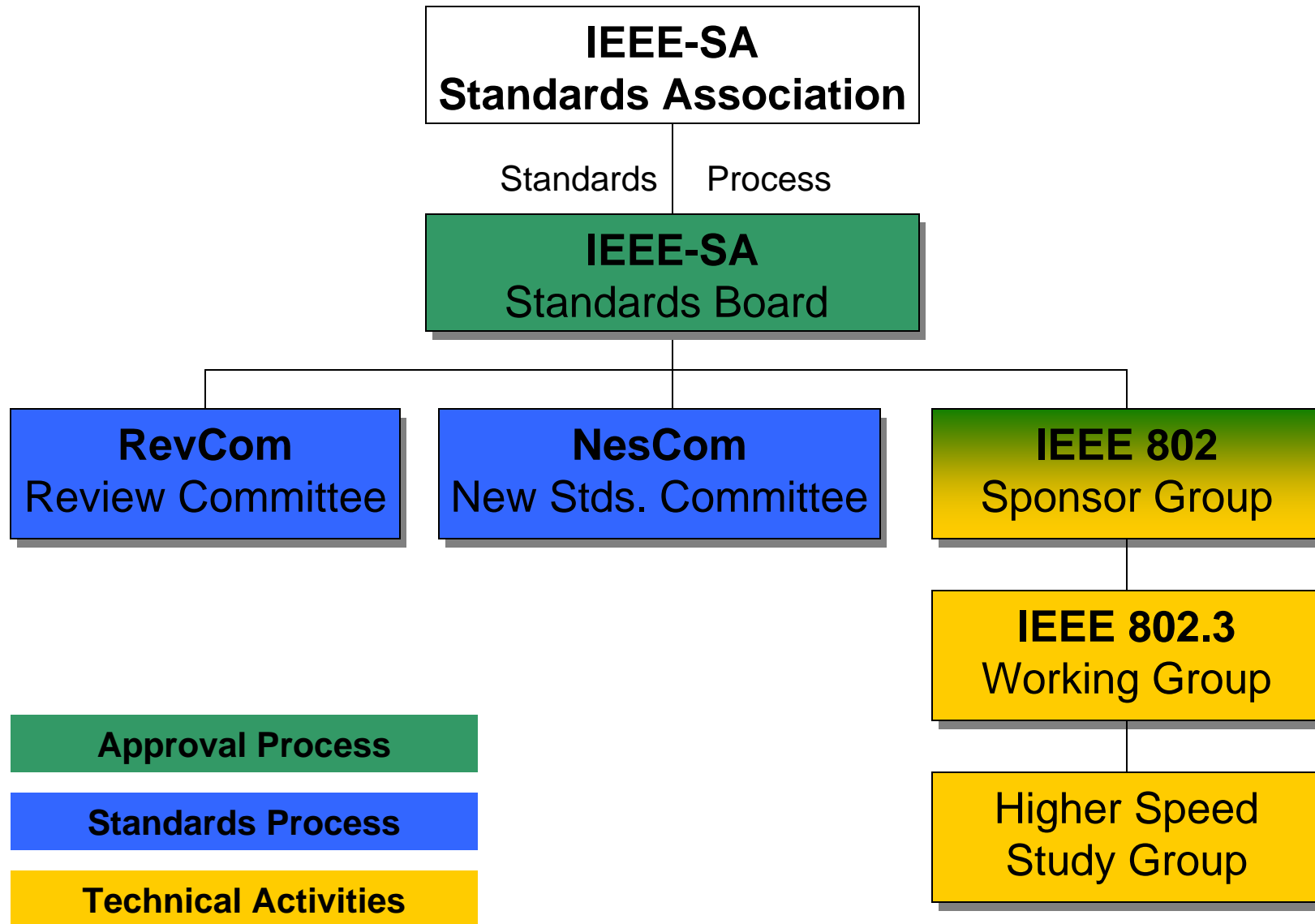
# Goals for this Meeting

- Hear presentations related to objectives and 5 Criteria
- Finalize HSSG Objectives
- Finalize number of recommended PAR
- Refinement of “PAR A”
  - Project Authorization Request
  - 5 Criteria Responses
- If needed, start developing consensus on:
  - Project Authorization Request (PAR)s
  - 5 Criteria Responses
- Tutorial Preparations

# 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



# Bylaws and Rules

- 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>
- LAN/MAN Standards Committee (LMSC) Policies and Procedures:
  - <http://ieee802.org/policies-and-procedures.pdf>
- IEEE 802.3 Working Group Operating Rules:
  - [http://ieee802.org/3/rules/P802\\_3\\_rules.pdf](http://ieee802.org/3/rules/P802_3_rules.pdf)

# *IEEE-SA Standards Board Bylaws on Patents in Standards*

## **6. Patents**

IEEE standards may include the known use of essential patents and patent applications provided the IEEE receives assurance from the patent holder or applicant with respect to patents whose infringement is, or in the case of patent applications, potential future infringement the applicant asserts will be, unavoidable in a compliant implementation of either mandatory or optional portions of the standard [essential patents]. This assurance shall be provided without coercion. The patent holder or applicant should provide this assurance as soon as reasonably feasible in the standards development process. This assurance shall be provided no later than the approval of the standard (or reaffirmation when a patent or patent application becomes known after initial approval of the standard). This assurance shall be either:

- a) A general disclaimer to the effect that the patentee will not enforce any of its present or future patent(s) whose use would be required to implement either mandatory or optional portions of the proposed IEEE standard against any person or entity complying with the standard; or
- b) A statement that a license for such implementation will be made available without compensation or under reasonable rates, with reasonable terms and conditions that are demonstrably free of any unfair discrimination.

This assurance is irrevocable once submitted and accepted and shall apply, at a minimum, from the date of the standard's approval to the date of the standard's withdrawal.

Approved by IEEE-SA Standards Board – March 2003 (Revised February 2006)



# Inappropriate Topics for IEEE WG Meetings

- Don't discuss the validity/essentiality of patents/patent claims
- Don't discuss the cost of specific patent use
- Don't discuss licensing terms or conditions
- Don't discuss product pricing, territorial restrictions, or market share
- Don't discuss ongoing litigation 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](mailto:patcom@ieee.org) or visit <http://standards.ieee.org/board/pat/index.html>**

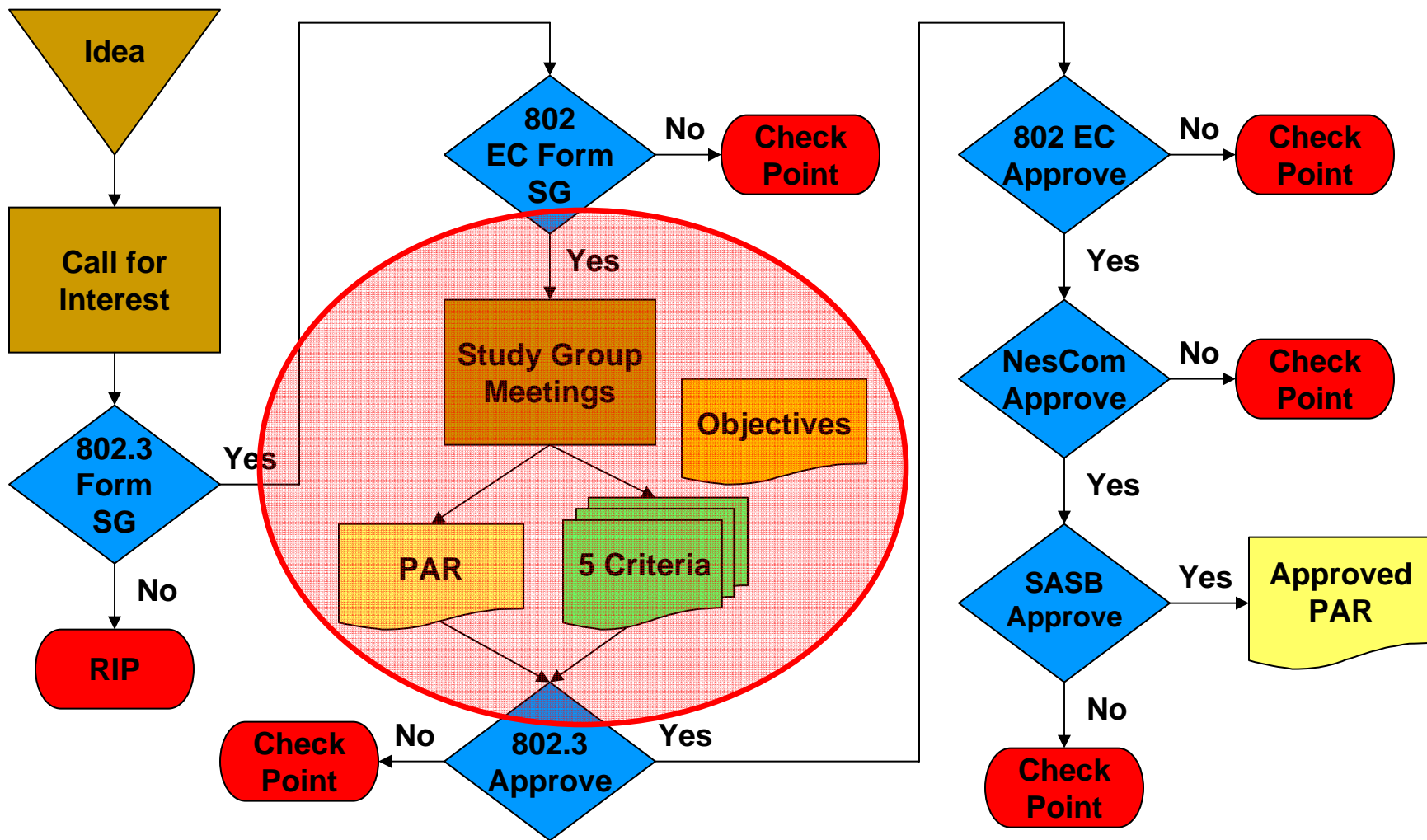
**This slide set is available at  
<http://standards.ieee.org/board/pat/pat-slideset.ppt>**

Approved by IEEE-SA Standards Board – March 2003 (Revised February 2006)

# The Study Group

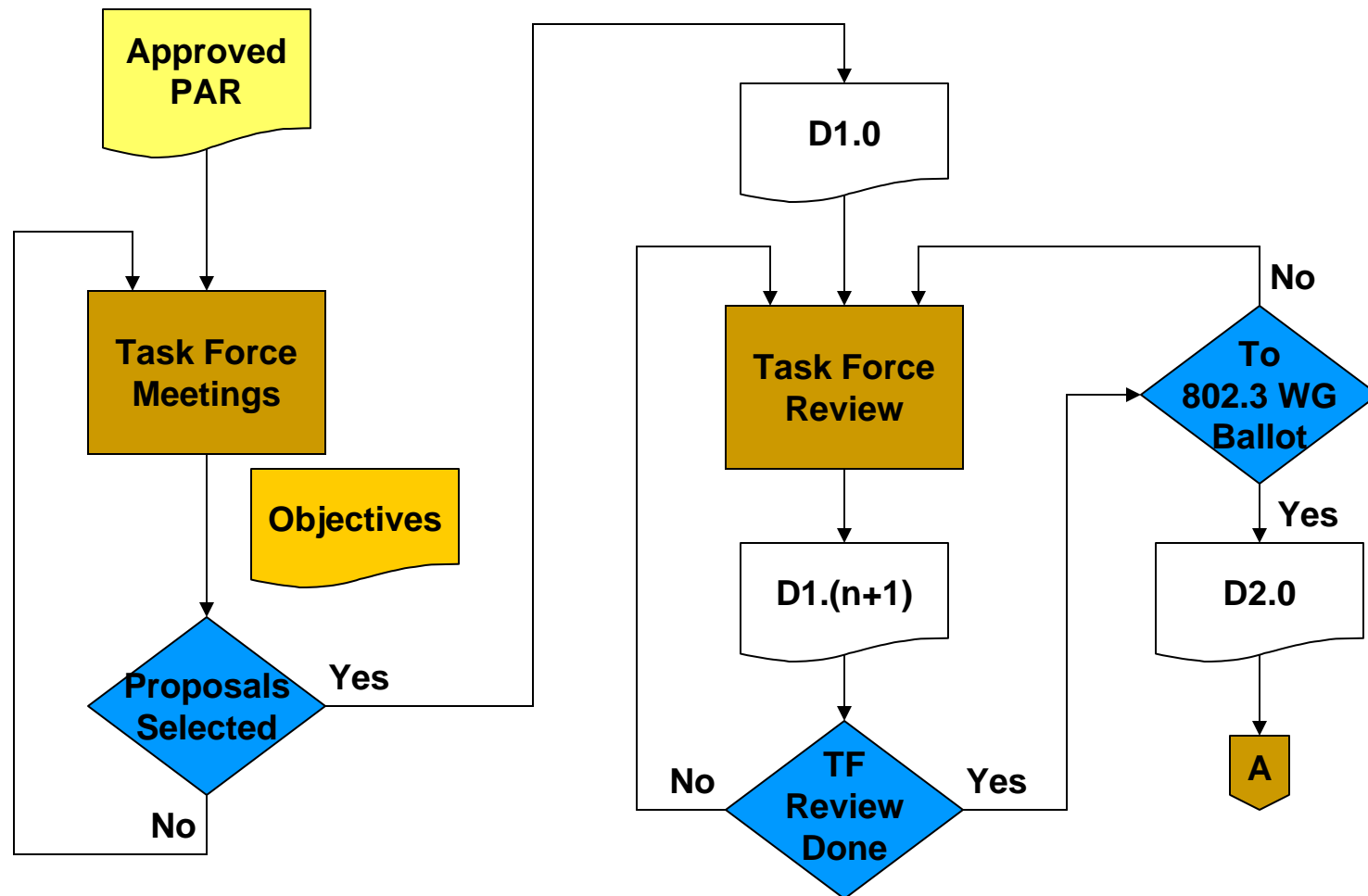
- Normal function is to draft a complete PAR and Five Criteria
- Provide a plenary week tutorial to the LMSC.
- Gain approval at the WG 802.3, 802 SEC, IEEE NesCom and IEEE-SA Standards Board.
- SG only exists for 6 months
  - Extensions can be requested, voted on by 802.3, ratified by SEC
- Development of Objectives helps set the goals for the Task Force
- Consensus (>75%) required to move forward
  
- Not a goal – choosing a solution.

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

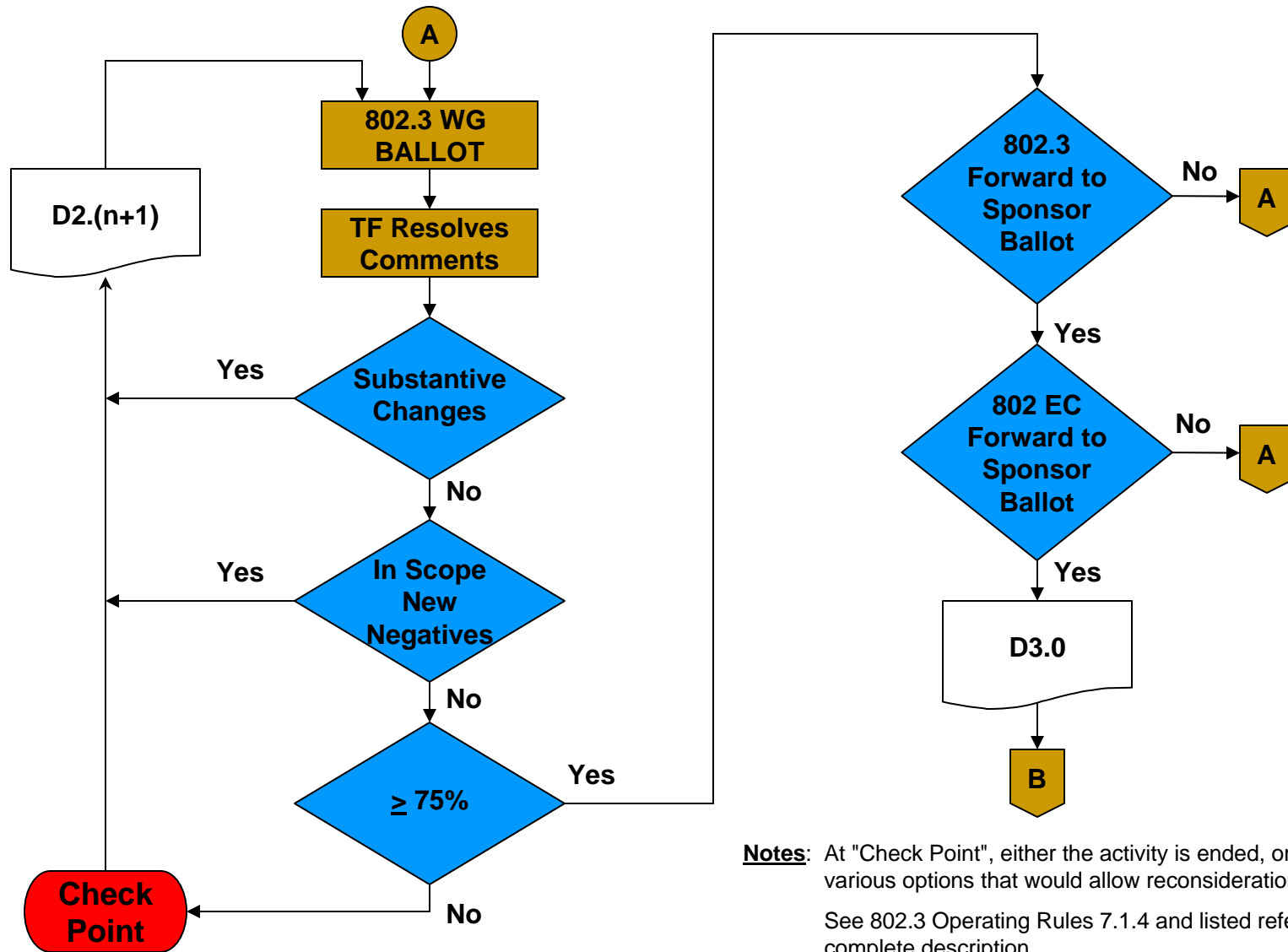


Note: At "Check Point", either the activity is ended, or there may be various options that would allow reconsideration of the approval.

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

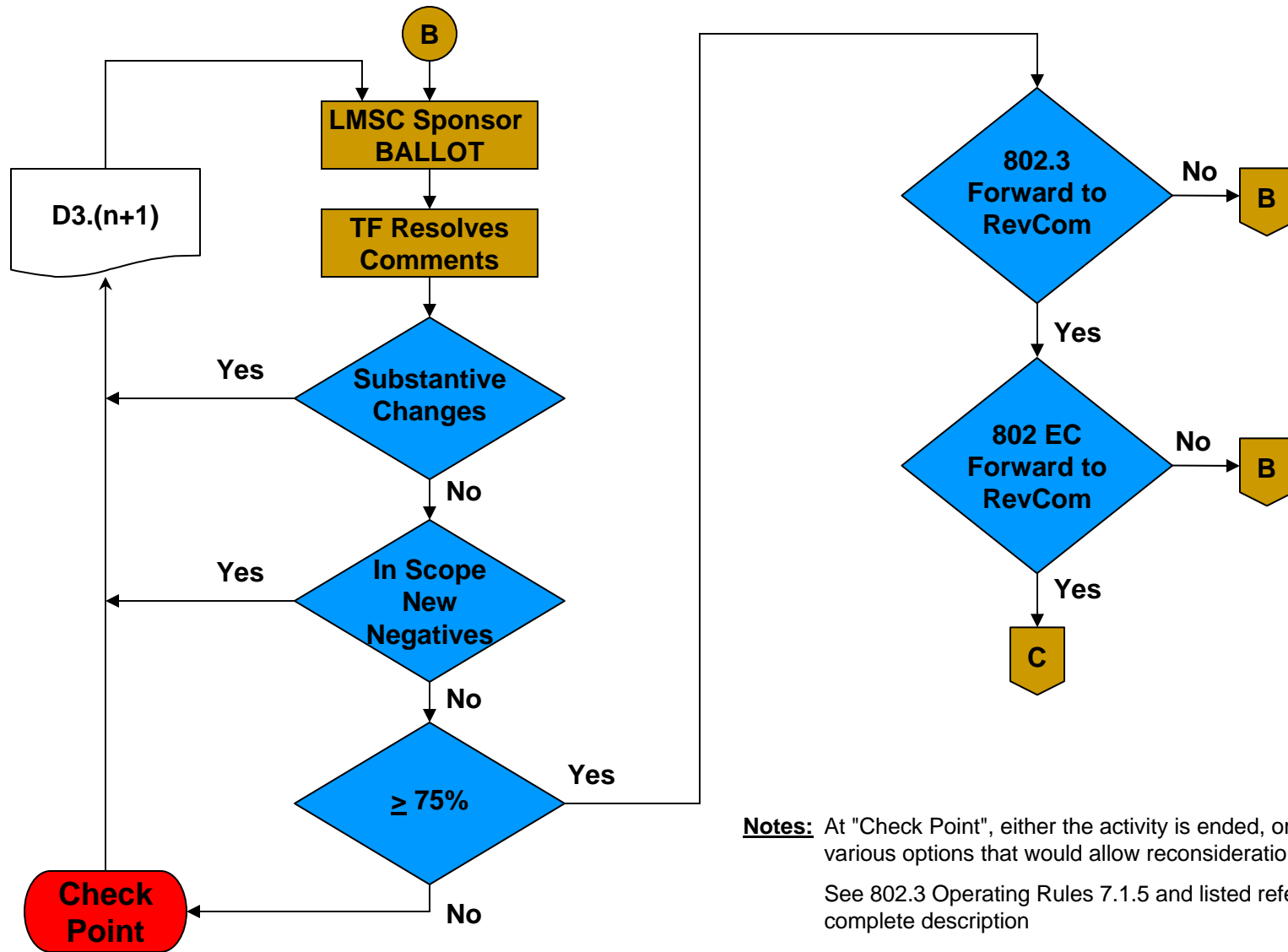


# Overview of IEEE 802.3 Standards Process (3/5) - Working Group Ballot Phase



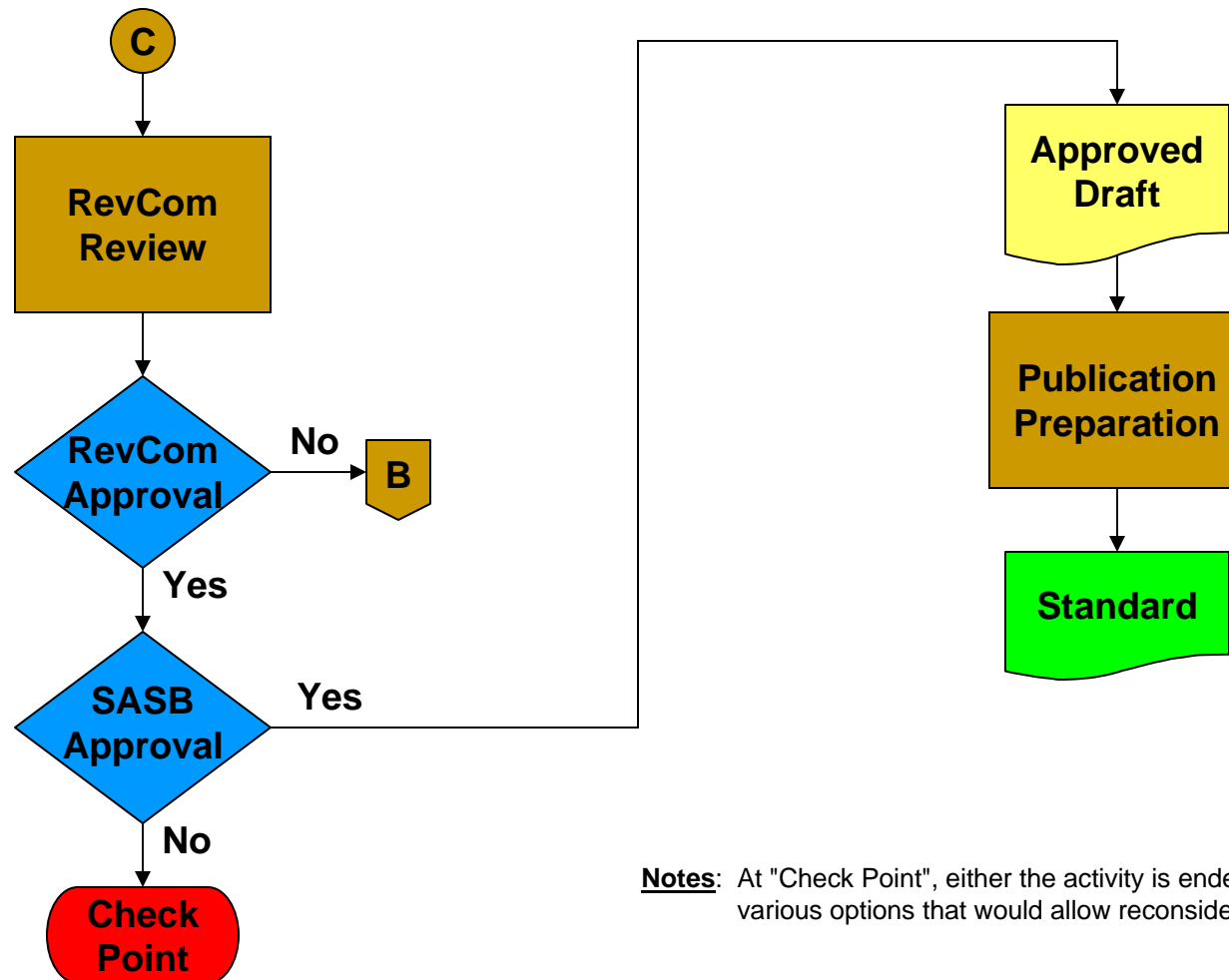
**Notes:** At "Check Point", either the activity is ended, or there may be various options that would allow reconsideration of the approval. See 802.3 Operating Rules 7.1.4 and listed references for complete description

# 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 reconsideration of the approval.

# Request for Formation of HSSG (as per July '06 Plenary Motion)

Move the IEEE 802.3 Working Group requests formation of a “Higher Speed Study Group” to evaluate definition of greater than 10 Gb/s MAC data rate and related PHY capability to IEEE Std 802.3. The Study Group may recommend one or more PARs.



# HSSG Objectives

- Support full-duplex operation only (approved 11/16/06: All 73/0/4)
- Preserve the 802.3 / Ethernet frame format at the MAC Client service interface (approved 11/16/06: All 76/0/4)
- Preserve minimum and maximum FrameSize of current 802.3 Std (approved 11/16/06: All 74/0/4)
- Support a speed of 100 Gb/s at the MAC/PLS interface (approved 11/16/06: All 67/9/14, 802.3 26/4/11)
- Support at least 10km on SMF. (approved 11/16/06: All 86/0/4, 802.3 40/0/4)
- Support at least 100 meters on OM3 MMF. (approved 11/16/06, All 61/3/27, 802.3 33/2/13)
- Support a BER better than or equal to  $10^{-12}$  at the MAC /PLS service interface. (approved 1/19/07, All 68/0/4).
- Support at least 40-km on SMF. (approved 1/19/07, All 38/10/32, **802.3 12/6/16**).

Updated Jan 19, 2007

# HSSG PAR A

- Objectives ([http://grouper.ieee.org/groups/802/3/hssg/PAR-A/HSSG\\_PAR\\_A\\_Objectives\\_0307.pdf](http://grouper.ieee.org/groups/802/3/hssg/PAR-A/HSSG_PAR_A_Objectives_0307.pdf))
  - Support full-duplex operation only.
  - Preserve the 802.3/Ethernet frame format at the MAC Client service interface.
  - Preserve minimum and maximum FrameSize of current 802.3 Std.
  - Support a speed of 100 Gb/s at the MAC/PLS service interface.
  - Support at least 10km on SMF.
  - Support at least 100 meters on OM3 MMF.
  - Support a BER better than or equal to 10<sup>-12</sup> at the MAC/PLS service interface.
  
- PAR – Working Draft
  - [http://grouper.ieee.org/groups/802/3/hssg/PAR-A/par\\_workingdraft.pdf](http://grouper.ieee.org/groups/802/3/hssg/PAR-A/par_workingdraft.pdf)
  
- Critters – Working Draft
  - [http://grouper.ieee.org/groups/802/3/hssg/PAR-A/HSSG\\_PARA\\_5C\\_WD\\_0107.pdf](http://grouper.ieee.org/groups/802/3/hssg/PAR-A/HSSG_PARA_5C_WD_0107.pdf)

# HSSG “PAR A” (Working Draft)

## ■ Title -

- IEEE Standard for Information Technology - Telecommunications and Information Exchange Between Systems - Local and Metropolitan Area Networks – Specific Requirements Part 3: Carrier Sense Multiple Access with Collision Detection (CSMA/CD) Access Method and Physical Layer Specifications – Amendment: Media Access Control Parameters, Physical Layers and Management Parameters for 100 Gb/s Operation

## ■ Scope –

- Define 802.3 Media Access Control (MAC) parameters, physical layer specifications, and management parameters for the transfer of 802.3 format frames at 100 Gb/s over standardized fiber cabling.

## ■ Purpose

- The purpose of this project is to extend the 802.3 protocol to an operating speed of 100 Gb/s in order to provide a significant increase in bandwidth while maintaining maximum compatibility with the installed base of 802.3 interfaces, previous investment in research and development, and principles of network operation and management. The project is to provide for the interconnection of equipment satisfying the distance requirements of the intended applications.

- Working Draft - [http://grouper.ieee.org/groups/802/3/hssg/PAR-A/par\\_workingdraft.pdf](http://grouper.ieee.org/groups/802/3/hssg/PAR-A/par_workingdraft.pdf)

# Resolution of Objectives

- Adopted Objective
  - Support at least 40-km on SMF.
- Proposed Objectives
  - 40G MAC Rate
  - Cu PMD
  - 2km on SMF Reach Objective

# Checkpoint

- Decisions on objectives (old / new?) / # PAR
- How should the group proceed?
  - Super Project – everything in one PAR
  - Initial Super Project - Split out efforts that lag
  - Study and define all PARs simultaneously
- Alternative mechanisms for “serial PARs”
  - 802.3 WG Chair email to HSSG reflector -  
<http://grouper.ieee.org/groups/802/3/hssg/email/msg00519.html>

# Study Group Schedule

- January, 2007 Interim Meeting
  - Draft Objectives
- March, 2007 Plenary Meeting
  - Complete Objectives (if not complete from Jan)
  - Draft PAR & 5 Criteria
  - Prepare for Tutorial in July
- April, 2007 Interim Meeting
  - Complete PAR & 5 Criteria
- May, 2007 Interim Meeting
  - Complete PAR & 5 Criteria
  - Submit draft to 802 SEC (30 day circulation requirement for 802 EC – June 16)
  - Tutorial Preparation (45 day minimum to request tutorial session (first come – first serve) – June 1)
- July, 2007 Plenary Meeting
  - Execute PAR approval process
  - 802.3 Approve PAR for forwarding to 802 SEC
  - 802 SEC approve and forward to NesCom
- August, 2007
  - Submit PAR to NesCom
- September, 2007
  - If HSSG exists, then it will meet at the September Interim
  - NesCom: Approve PAR
  - IEEE-SA Standards Board Approve PAR
- November 2007 Plenary Meeting
  - First official Task Force Meeting

# Presentations – Tuesday, 4/17

Time	Presenter	Affiliation	Title	Duration
9:00 AM			Agenda and General Information	0:40
9:40 AM	Dan Dove	Procurve Networking by HP	Fiber Optic Ad Hoc Report	0:20
10:00 AM	Shoukei Kobayashi	NTT	Network Provider's View - Rate Adaption	0:20
10:20 AM	Break			0:20
10:40 AM	Donn Lee	Google	Networking with 1/10/40/100G: Design and Deployment Perspective	0:30
11:10 AM	Robert Hays Howard Frazier	Intel Broadcom	40GbE Market Potential	0:30
12:00 PM	Lunch			1:15
1:15 PM	Howard Frazier	Broadcom	802.3ad link aggregation	0:30
1:45 PM	Shimon Muller	Sun	Standardizing 40Gb Ethernet	0:30
2:15 PM	Schelto van Doorn	Intel	Economic Feasibility 10G vs 40G vs 100G	0:20
3:00 PM	Break			0:20
3:20 PM	Jason Weil	Cox Communications	MSO Usage and Forecasting for Ethernet-based Services	0:20
3:40 PM	Joel Goergen	Force10 Networks	Applications that Limit Network Performance	0:30

Note – Order and times listed are subject to change.

# Presentations – Wednesday, 4/18

Time	Presenter	Affiliation	Title	Duration	File Name
9:00 AM			Day's Opening Comments	0:15	
9:15 AM	Chris Cole	Finisar	Technical Feasibility of 40km SMF 100GE Transceivers	0:30	cole_01_0407.pdf
9:45 AM	Matt Traverso	Opnext	Updates on Approach on 40km PMD	0:15	traverso_01_0407.pdf
10:00 AM	Matt Traverso	Opnext	Optical Specifications for 2km Link	0:15	traverso_02_0407.pdf
10:15 AM	Break			0:20	
10:35 AM	Wenbin Jiang Diechi Sun	JDSU JDSU	4 x 25 G Transmitter for 10km SMF	0:25	jiang_01_0407.pdf
11:00 AM	Farhad Shafai	Sarance Technologies	Technical Feasibility of 100G Designs	0:30	shafai_01_0407.pdf
11:30 AM	Chris DiMinico	MC Communications	HSSG Copper	0:30	diminico_01_0407.pdf
12:00 PM	Lunch			1:15	
1:15 PM	John Jaeger	Infinera	HSSG Presentation Mapping to 5 Criteria Responses (Update)	0:20	jaeger_02_0407.pdf jaeger_03_0407.xls
1:35 PM	John Jaeger	Infinera	Draft HSSG Tutorial Outline & Discussion Points	0:30	jaeger_01_0407.pdf
2:05 PM			Discussion		
3:15 PM	Break			0:20	
3:35 PM			Discussion		
6:30 PM	Reception - Sponsored by Nortel				

Note – Order of presentations and times listed are subject to change.



# Thursday, 4/19

Time	Presenter	Affiliation	Title	File Name
9:00 AM			Day's Opening Comments	
9:15 AM			Discussion & Motions (Objectives)	
10:15 AM	Break			
10:35 AM			Discussion & Motions (PAR(s) / 5 Criteria)	
12:00 PM	Lunch			
1:15 PM			Tutorial Preparation	
3:15 PM	Break			
3:35 PM			Discussion, Motions, & Closing Business	
5:00 PM	Adjourn			

Note – Order of presentations and times listed are subject to change.

# Remember to Declare Your Affiliation

- From the IEEE SA Standards Board By-laws

- **5.2.1.5 Disclosure of affiliation** (<http://standards.ieee.org/guides/bylaws/sect5.html#5.2.1.5>)

- Every member and participant in a working group, Sponsor ballot, or other standards development activity shall disclose his or her affiliation. An individual is deemed "affiliated" with any individual or entity that has been, or will be, financially or materially supporting that individual's participation in a particular IEEE standards activity. This includes, but is not limited to, his or her employer and any individual or entity that has or will have, either directly or indirectly, requested, paid for, or otherwise sponsored his or her participation. Failure to disclose every such affiliation may result in complete or partial loss of rights to participate in IEEE-SA activities. An individual is not excused from compliance with this policy by reason of any claim of a conflicting obligation (whether contractual or otherwise) that prohibits disclosure of affiliation.

- From the IEEE SA Standards Board Operations Manual

- **5.3.3.1 Disclosure of affiliation** (<http://standards.ieee.org/guides/opman/sect5.html#5.3.3.1>)

- Each participant's affiliation shall be disclosed at any working group or project meeting. The chair or the chair's delegate shall inform the meeting of the requirement for disclosure of affiliation (see [5.2.1.5](#) of the *IEEE-SA Standards Board Bylaws*). This shall be via a sign-in (e.g., sign-in sheet, electronic sign-in, verbal disclosure, or electronic communication) that provides for disclosure of employer and any other affiliation, a reminder of the definition of affiliation, and possible penalties for non-compliance.

Whenever an individual is aware that the ownership of his or her employer or other affiliation may be material to the process, or when the Sponsor or the IEEE-SA Standards Board requests, that individual shall also declare the "ultimate parent entity" of their affiliation. The ultimate parent entity is an entity that directly or indirectly, through one or more intermediaries, controls the entity identified as the individual's affiliation. For the purposes of this definition, the term "control" and its derivatives, with respect to for-profit entities, means the legal, beneficial or equitable ownership, directly or indirectly, of more than fifty percent (50%) of the capital stock (or other ownership interest, if not a corporation) of an entity ordinarily having voting rights. "Control" and its derivatives, with respect to nonprofit entities, means the power to elect or appoint more than fifty percent (50%) of the Board of Directors of an entity.

- **5.3.3.2 False or misleading disclosure** (<http://standards.ieee.org/guides/opman/sect5.html#5.3.3.2>)

- A meeting attendee who fails to disclose affiliation shall not accrue any membership rights, including rights of or towards voting membership, until such disclosures have been made. The chair shall review the adequacy of disclosures. Failure to disclose affiliation, or materially false or misleading disclosure of affiliation, shall result in loss of membership privileges and may also result in loss of other participation privileges within the IEEE-SA for such participants and any affiliated entities

# Future Meetings

- May 2007 Interim

- May 28 – 31
- ITU
- Geneva, Switzerland
- For information, see <http://www.ieee802.org/1/files/public/docs2006/meetings-may07-interim+workshop-1106.pdf>

- July 2007 IEEE 802 Plenary

- July 16 – 19
- Hyatt Regency
- San Francisco, CA, USA



Thank You!

