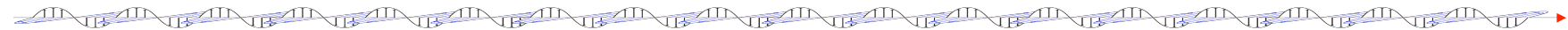# Agenda and General Information
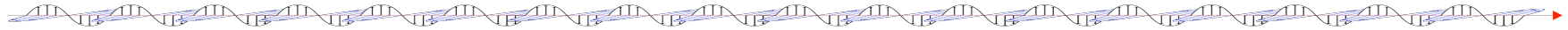
IEEE 802.3

40 Gb/s and 100 Gb/s Fiber Optic Task Force
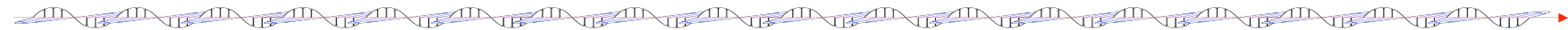
Dan Dove

Applied Micro

Phoenix, AZ USA – 22-23, January 2013

Agenda

- Appointment of Recording Secretary
- Welcome and Introductions
- Approve Agenda
- Approve Minutes of November Plenary Meeting
- 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 November Meeting
- Presentations
- Motions, Discussions and Closing Business
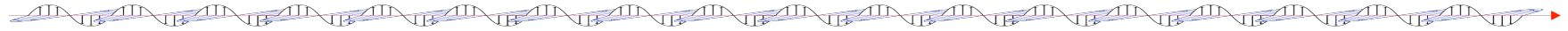- Future Meetings
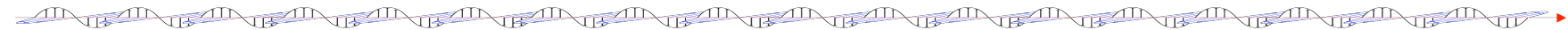
Task Force Decorum

- Photography or recording by permission only (2012 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

- Review Task Force Operation & Schedule
- Review Ad hoc Activities & Reports
- Presentation of Material Relevant to Our Objectives
- Consider Motions & Discussions
  - 27 Presentations
  - Consider baseline proposals
  - Lay the ground work for the next meeting
- Amend our PAR (sec 8) and forward to 802.3 for approval.
- Wrap Up & Future Meeting Discussion

Reflector and Web

- To subscribe to the *Next Generation 40 Gb/s and 100 Gb/s Optical Ethernet* reflector, send an email to: *ListServ@ieee.org*

  with the following in the body of the message (do not include "<>"):
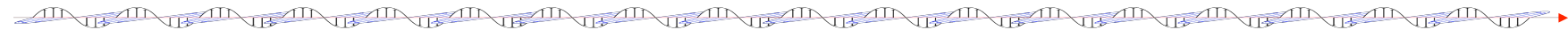 - **subscribe stds-802-3-100Goptx** <yourfirstname> <yourlastname>
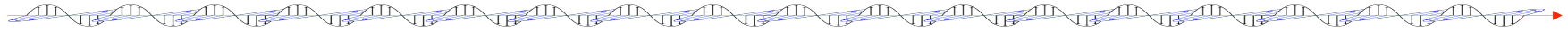   *end*

- Send *Next Generation 40 Gb/s and 100 Gb/s Optical Ethernet* reflector messages to:
  - ***STDS-802-3-100Goptx@LISTSERV.IEEE.ORG***

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

# Task Force Private Area

- URL: http://www.ieee802.org/3/bm/private/index.html
  - Username:
  - Password:

    To be provided

- 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.
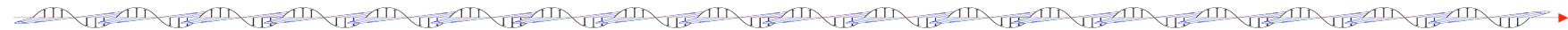
Ground Rules

- 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 – Do unto others…
- NO product pitches (ex: "LightZippyDoo is the best!")
- NO corporate pitches (ex: "We Illuminate Your Networks!")
- NO prices!!!
  - This includes costs, ASPs, etc. no matter what the currency
- NO restrictive notices
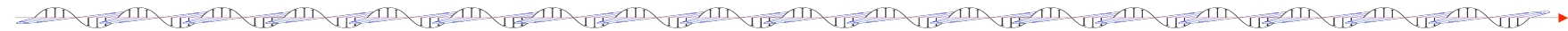
Attendance

- Tutorial Material on attendance tool
  - http://ieee802.org/3/minutes/mar11/0311_imat.pdf

- URL (Valid for this meeting only)
  - URL: https://imat.ieee.org

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

Approval Process

Standards Process

Technical Activities

Study Group
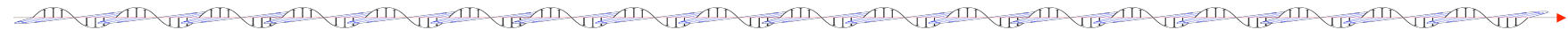
Task Force
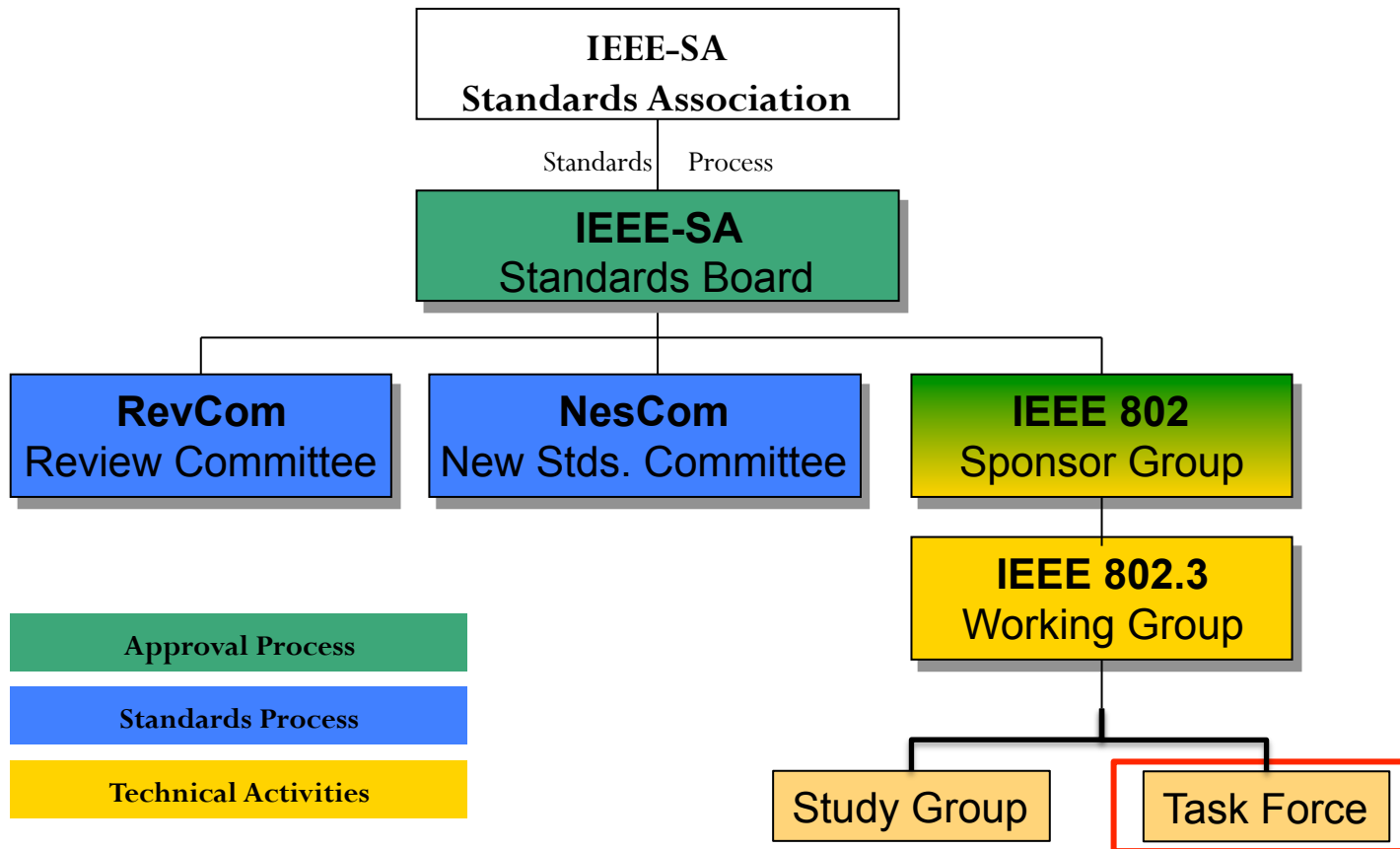
Important Bylaws and Rules

- **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

- **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/2012-07/IEEE_802_LMSC_OM_approved_120725.pdf

- **IEEE 802 LAN/MAN Standards Committee (LMSC) Working Group (WG) Policies and Procedures**
  http://www.ieee802.org/PNP/2012-07/IEEE_802_LMSC_PandP_approved_120720.pdf

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

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/slideset.ppt
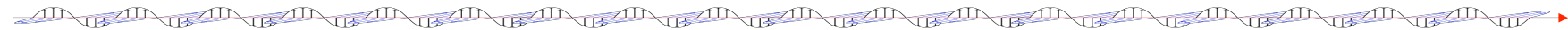
Participants, Patents, and Duty to Inform

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**
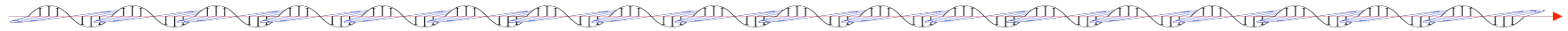
Patent Related Links

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
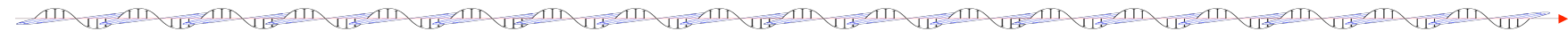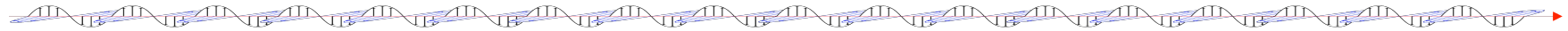
Call for Potentially Essential Patents

- 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

  ❖ NOTE TO SECRETARY – Record this Call & Response to Call
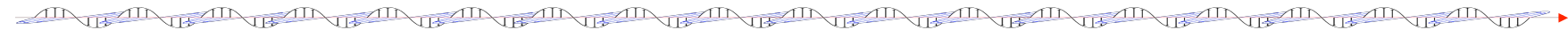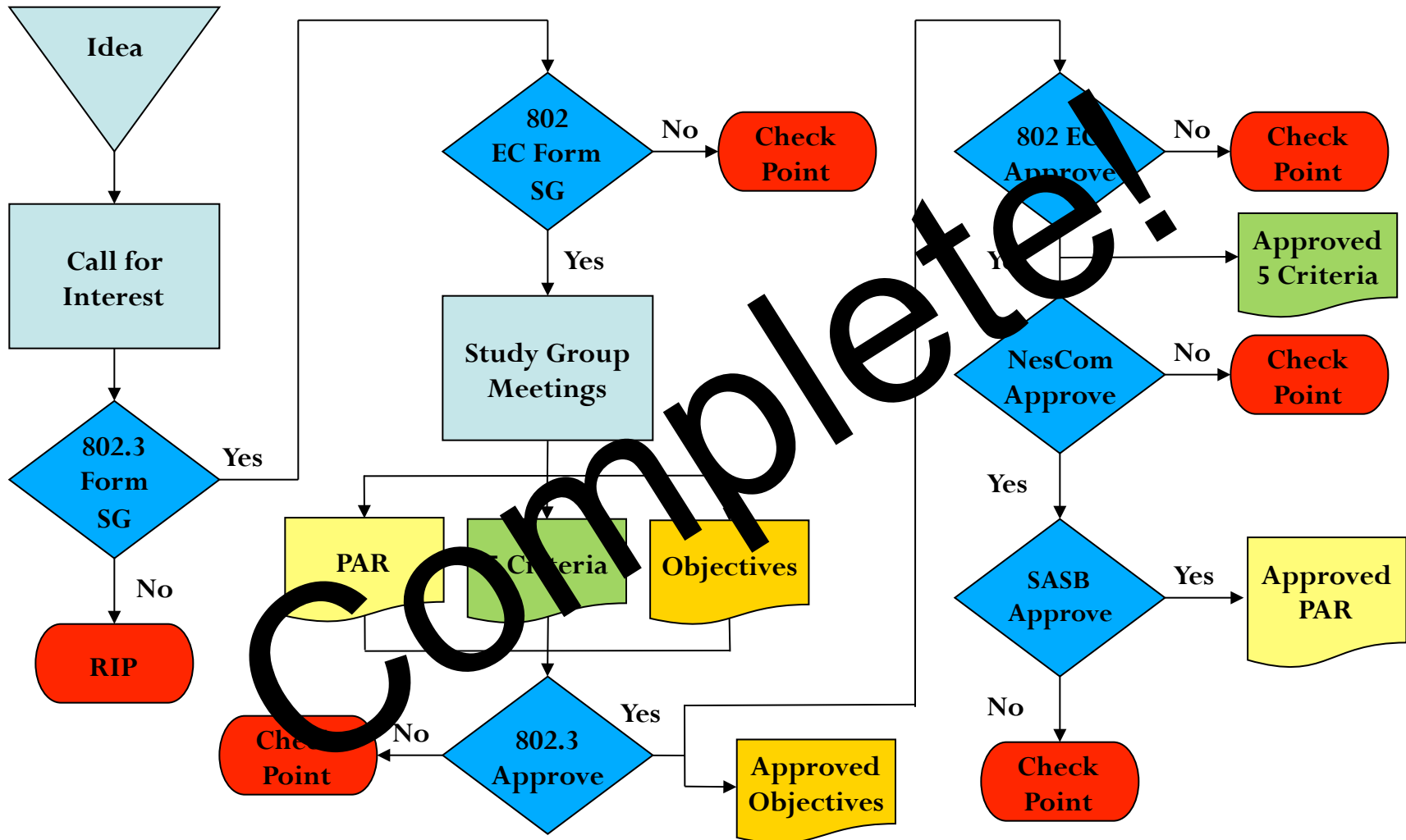
Note: At "Check Point", either the activity is ended, or there may be various options that would allow reconsideration of the approval.

WE ARE HERE

Approved PAR

Task Force Meetings

Objectives

Proposals Selected — Yes / No

D1.0

Task Force Review

D1.(n+1)

TF Review Done — No / Yes

To 802.3 WG Ballot — No / Yes

D2.0

A
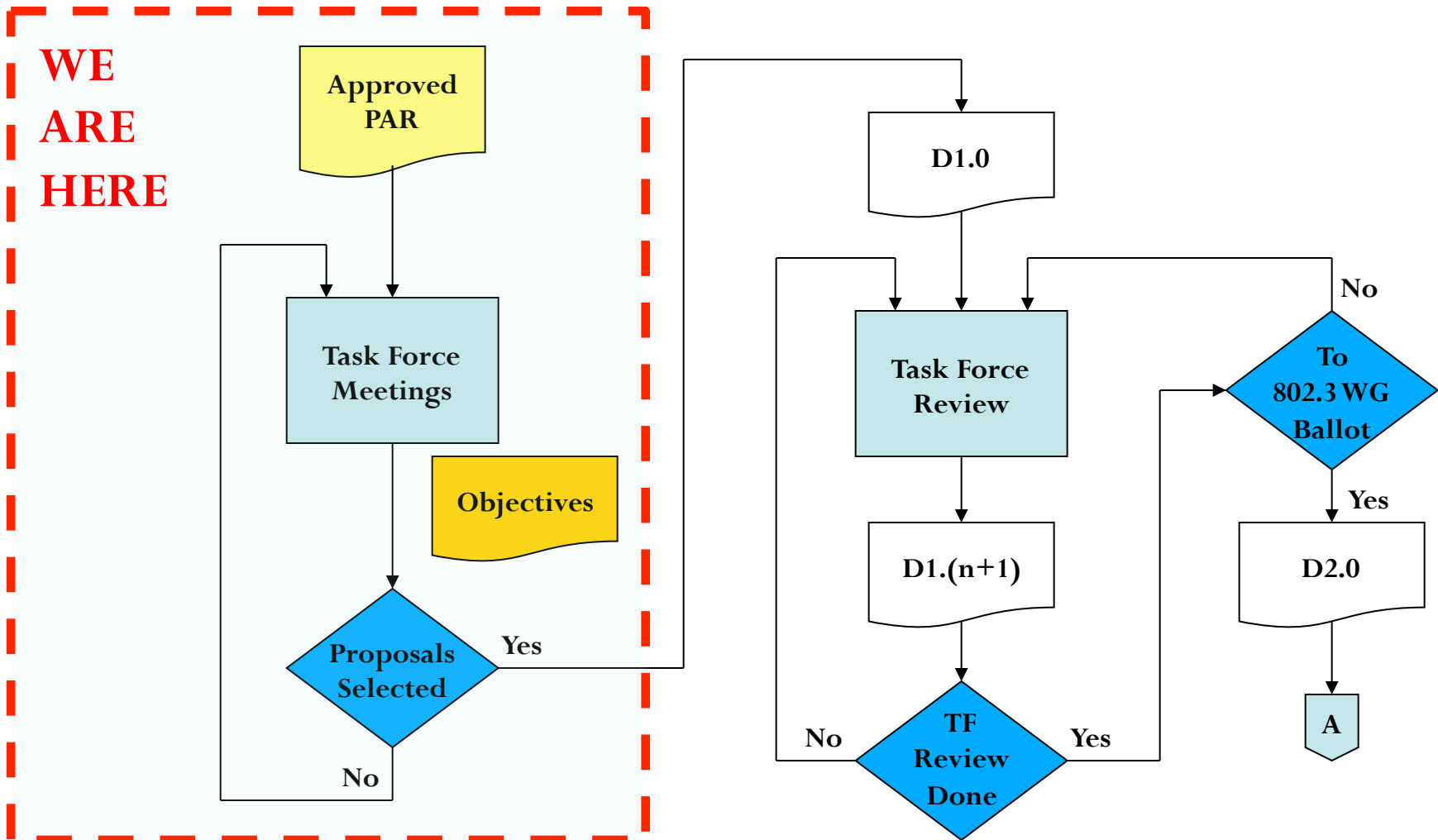
Overview of IEEE 802.3 Standards Process (3/5) – Working Group Ballot Phase

A

802.3 WG BALLOT

D2.(n+1)

TF Resolves Comments

Substantive Changes — Yes

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
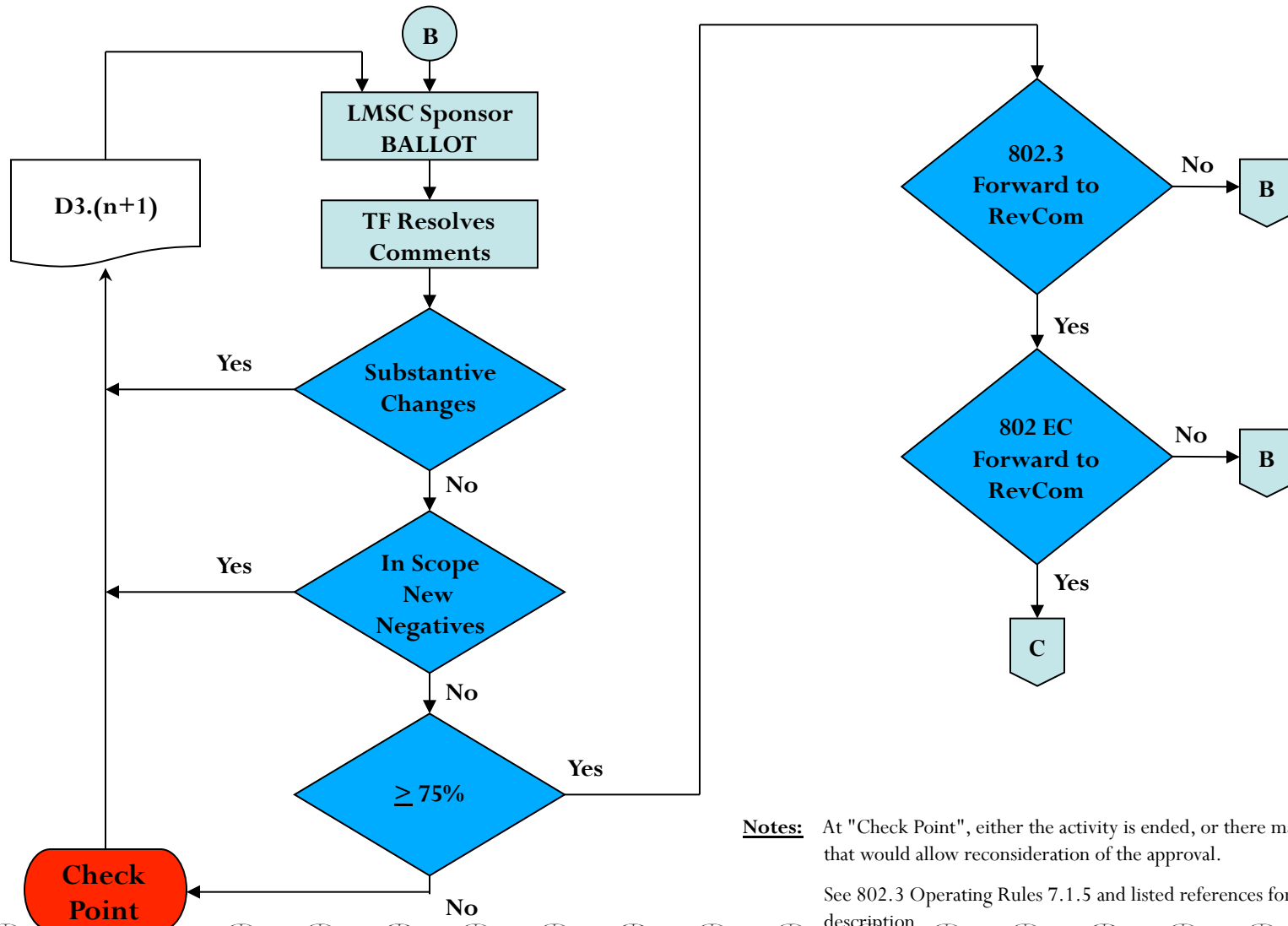
B

LMSC Sponsor BALLOT

D3.(n+1)

TF Resolves Comments

Substantive Changes — Yes

In Scope New Negatives — Yes

No

No

≥ 75% — Yes

No

Check Point

802.3 Forward to RevCom — No → **B**
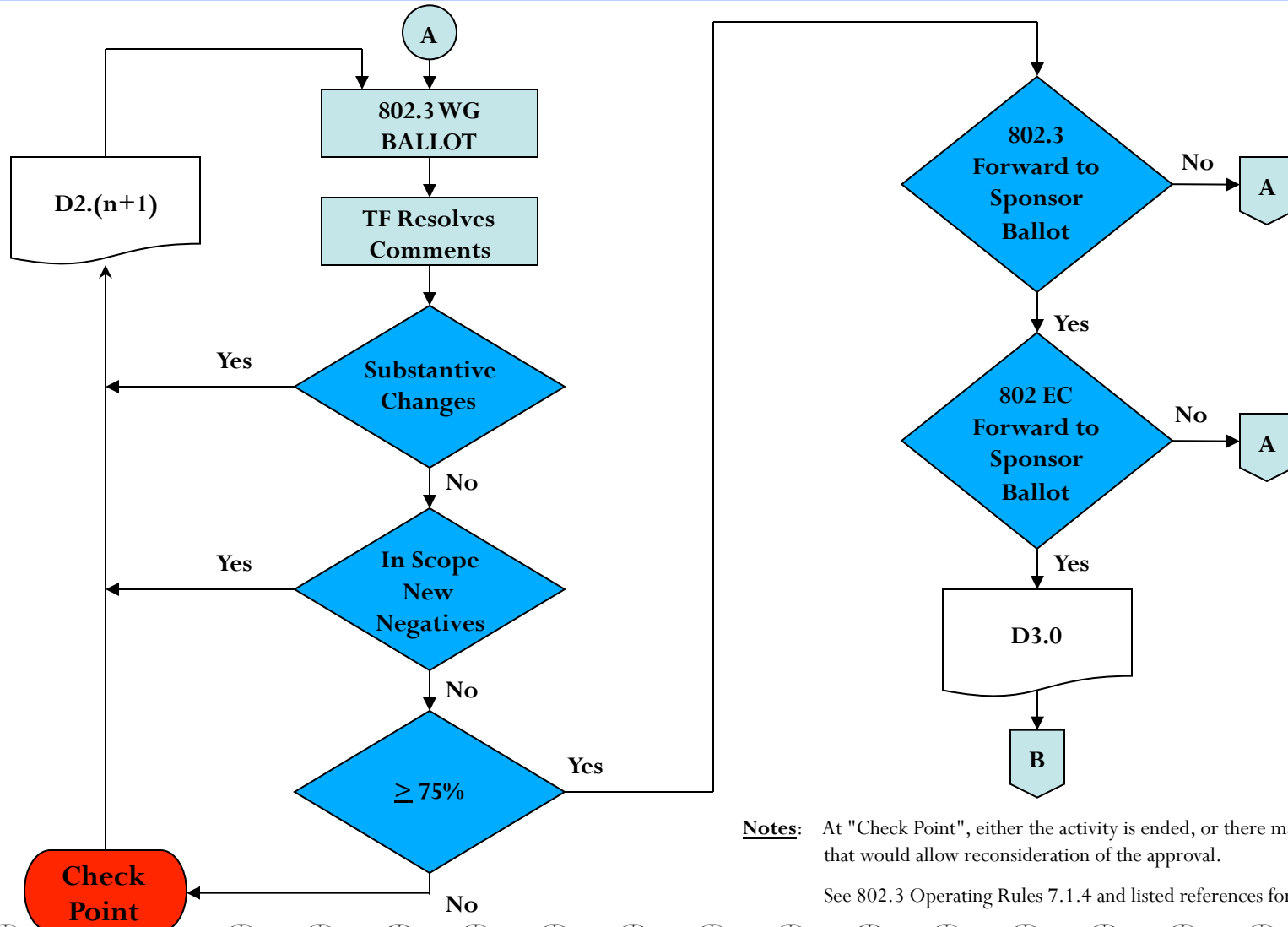
Yes

802 EC Forward to RevCom — No → **B**

Yes

C

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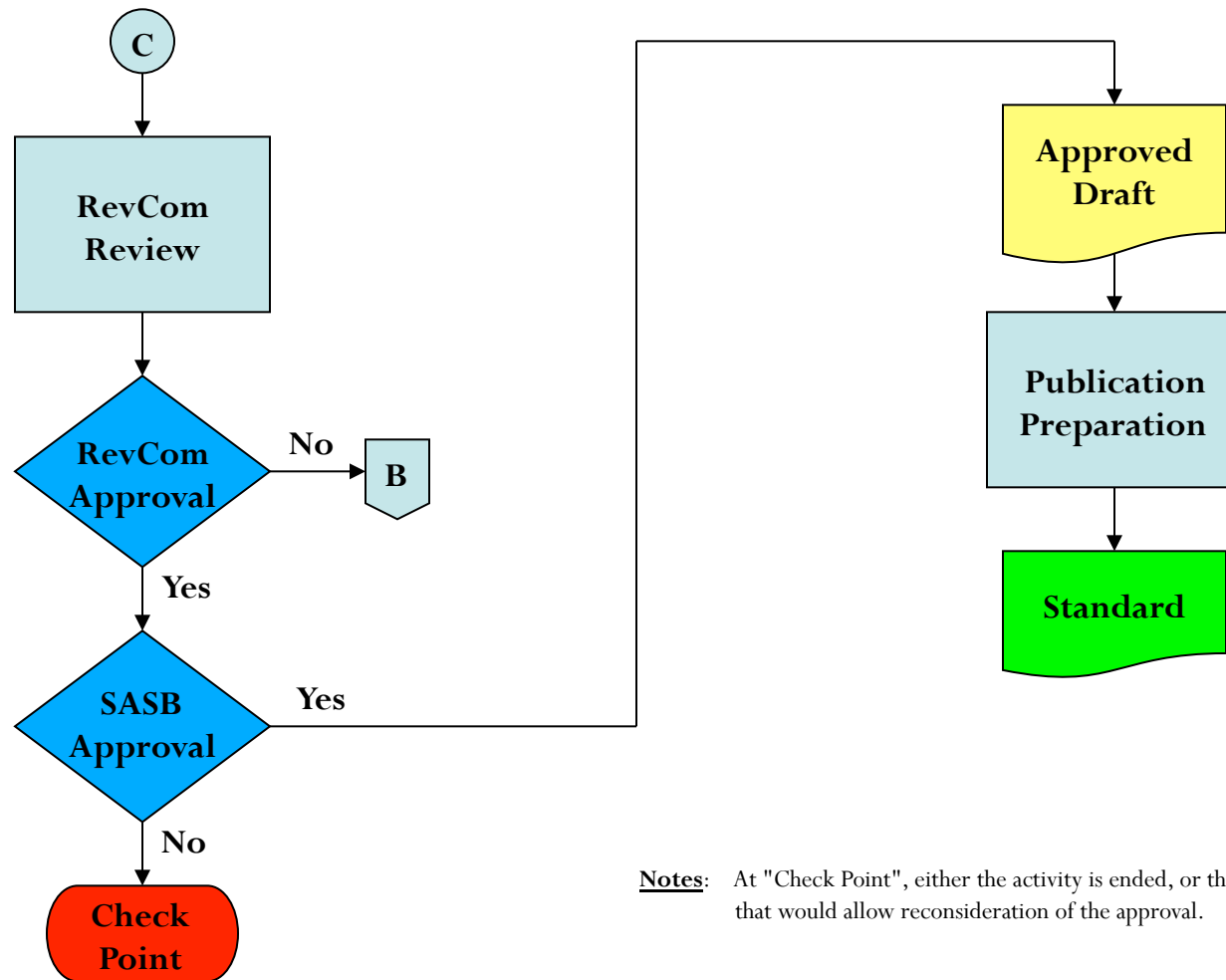
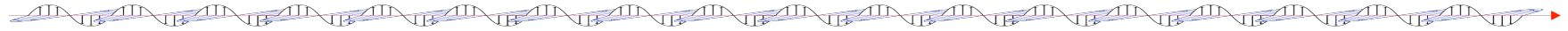# Overview of IEEE 802.3 Standards Process (5/5) – Final Approvals / Standard Release

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

Liaisons and Communications

- **P802.3bj/P802.3bm Joint Session**
  - None at this meeting.
- OIF
  - Ongoing communications between OIF and IEEE 802.3 initiated by IEEE P802.3ba project
  - In regards to OIF CEI-25G-LR, CEI-28G-SR, CEI-28G-VSR
  - Currently being operated through 802.3 Working Group
  - Sent OIF Liaison letter on November 28th, 2012
- ITU-T
  - Proposed liaison activity to ensure alignment.
  - Joint Workshop held in Geneva, Switzerland in September

Pending Action Items

- **Complete Baseline Proposals for objectives**
  - MMF >100m
  - MMF >20m*
  - CAUI-4 (chip-to-chip)
  - SMF >500m*

* These baselines may be satisfied by preceding specifications
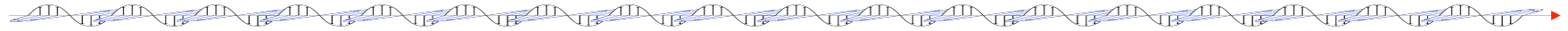
IEEE P802.3bm Next Generation 40 Gb/s and 100 Gb/s Optical Ethernet
Approved Project Documents

- # PAR
    - http://www.ieee802.org/3/bm/P802.3bm.pdf

- # 5 Criteria
    - http://www.ieee802.org/3/bm/5Criteria.pdf

- # Objectives
    - http://www.ieee802.org/3/bm/P8023bm_Objectives_1112.pdf

- # Timeline
    - http://www.ieee802.org/3/bm/timeline_0912.pdf
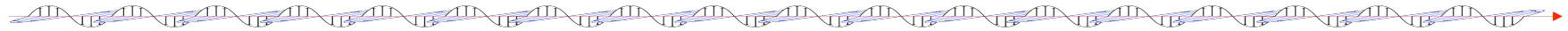
IEEE P802.3bm Next Generation 40 Gb/s and 100 Gb/s Optical Ethernet
Objectives

- Support full-duplex operation only
- Preserve the IEEE 802.3 / Ethernet frame format utilizing the IEEE 802.3 MAC
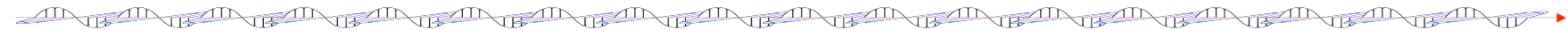- Preserve minimum and maximum FrameSize of current IEEE 802.3 standard
- Support a BER better than or equal to 10^{-12} at the MAC/PLS service interface
- Provide appropriate support for OTN
- Define re-timed 4-lane 100G PMA to PMA electrical interfaces for chip to chip and chip to module applications
- Define a 40 Gb/s PHY for operation over at least 40 km of SMF
- Define a 100 Gb/s PHY for operation up to at least 500 m of SMF
- Define a 100 Gb/s PHY for operation up to at least 100 m of MMF
- Define a 100 Gb/s PHY for operation up to at least 20 m of MMF
- Specify optional Energy Efficient Ethernet (EEE) for 40 Gb/s and 100 Gb/s operation over fiber optic cables
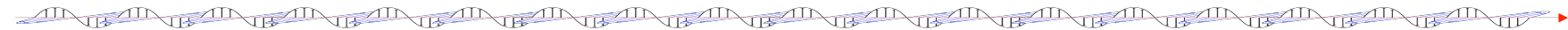
IEEE P802.3bm Next Generation 40 Gb/s and 100 Gb/s Optical Ethernet
Timeline (Adopted 28th, September 2012)
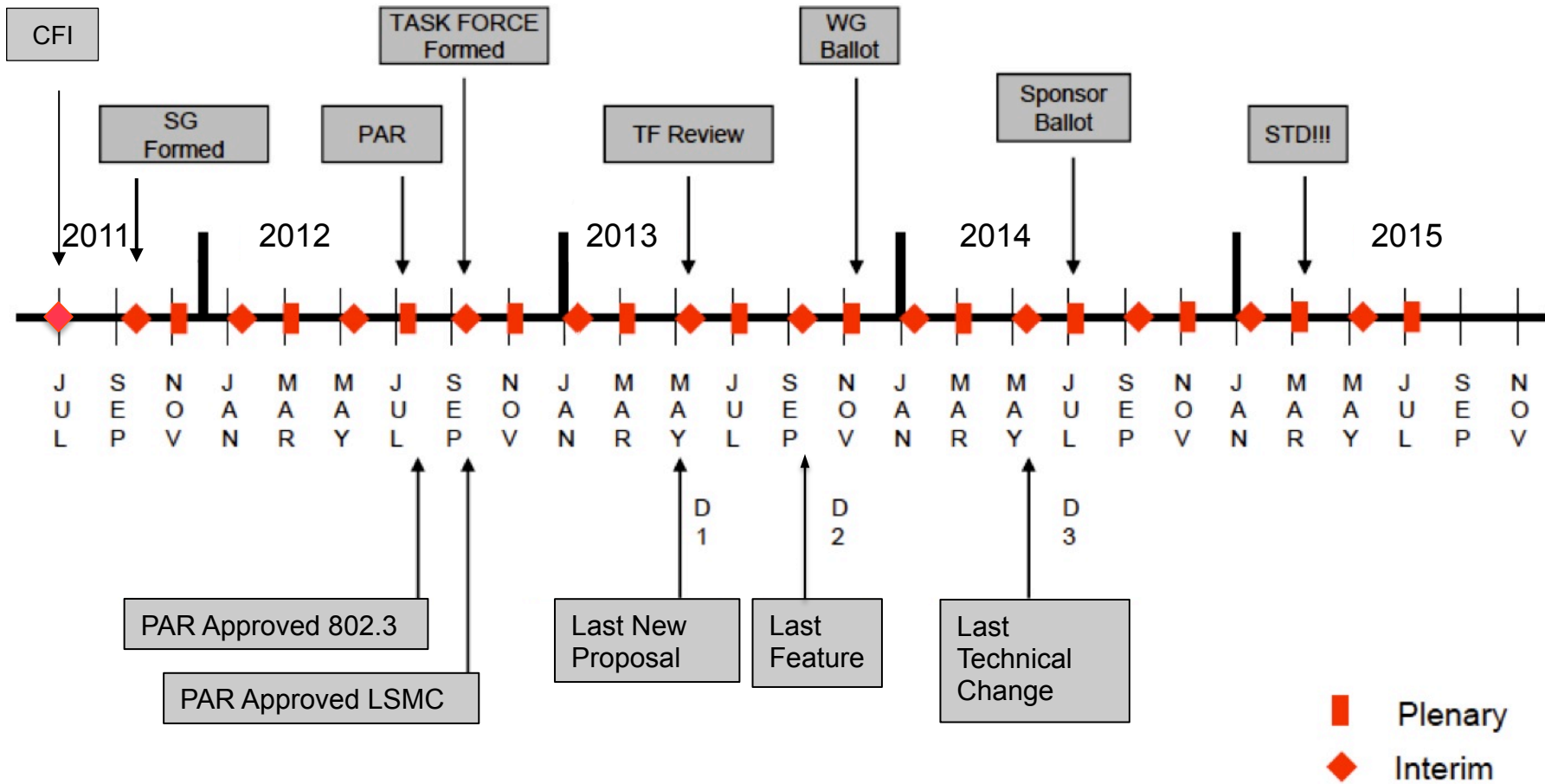
Tuesday Presentations

Tuesday   22-January-2013

Note –Times listed are subject to change.

Tuesday		Start Time	8:15	Discussion Time	15
Presentation Time	**Duration**	**Presenter**	**Affiliation**	**Title**	**Filename**
8:15	30	Dan Dove	Applied Micro	Introduction & Agenda	dove_01_0113_optx.pdf
8:45	10	Pete Anslow	Ciena	SMF Ad hoc report	anslow_01_0113_optx.pdf
8:55	15	Pete Anslow	Ciena	Editor's Report	anslow_02_0113_optx.pdf
9:10	10	Jonathan King	Finisar	MMF Ad hoc report	king_01_0113_optx.pdf
9:20	10	Ryan Latchman	MindSpeed	CAUI-4 Ad hoc Report	latchman_02_0113_optx.pdf
9:30	15	Pete Anslow	Ciena	BER for 100GBASE-SR4	anslow_03_0113_optx
10:00	15	BREAK			
10:15	25	Jonathan King	Finisar	100m MMF reach objective baseline proposal	king_02_0113_optx.pdf
10:55	20	Ali Ghiasi	Broadcom	Feasibility of Unretime 100Gbase-SR4	ghiasi_02_0113_optx.pdf
11:30	15	John Petrilla	Avago	100G SR4 Link Model Update & TDP	petrilla_01_0113_optx.pdf
12:00	75	LUNCH			
13:15	75	John D'Ambrosia	Dell	802.3bj and 802.3bm Common-Time	trowbridge_01_0113_optx.pdf
14:45	15	BREAK			
15:00	15	Piers Dawe	Iptronics	Unretimed PHY For the 20m MMF Objective	dawe_01_0113_optx.pdf
15:30	25	Ryan Latchman	MindSpeed	CAUI-4 chip to chip baseline discussion	latchman_01_0113_optx.pdf
16:10	15	Mike Li	Altera	A CAUI-4 Chip-to-Chip Link Study	li_01_0113_optx.pdf
16:40	20	Ali Ghiasi	Broadcom	CAUI-4 Chip to Chip Simulations	ghiasi_01_0113_optx.pdf
17:15	45	Discussion		Motions, Straw Polls, Discussion	
18:00	0	RECESS Till 8:00am			

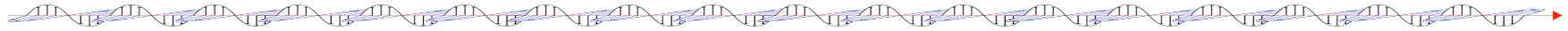# Wednesday Presentations

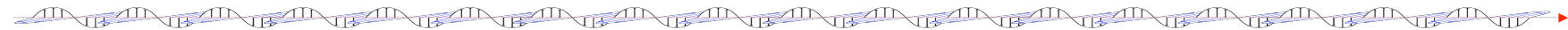Wednesday   23-January-2013   Note –Times listed are subject to change.

Wednesday			Start Time	8:30	Discussion Time	15
Presentation Time	Duration	Presenter	Affiliation	Title	Filename	
8:30	20	Dan Dove	Applied Micro	Introductions, Review Task Force Operation		
8:50	15	Brian Welch	Luxtera	An Economic Comparison of PSM4, PAM, and LR4	welch_01_0113_optx.pdf	
9:20	15	John Petrilla	Avago	100G PSM4 Power, Size & Cost Estimates & Comparisons	petrilla_03_0113_optx.pdf	
9:50	15	John Petrilla	Avago	100G PSM4 Link Model Results Update	petrilla_02_0113_optx.pdf	
10:20	15	BREAK				
10:35	25	Vipul Bhatt	Cisco	PAM8 Baseline Proposal	bhatt_01_0113_optx.pdf	
11:15	15	Zhongfeng Wang	Broadcom	FEC Coding and Analysis for 100G PAM8 System	wang_01_0113_optx.pdf	
11:45	10	Ali Ghiasi	Broadcom	100 GbE PAM Power Dissipation	ghiasi_03_0113_optx.pdf	
12:10	60	LUNCH				
13:10	15	Jon Anderson	Oclaro	PSM4 Technology & Relative Cost Analysis Update	anderson_01_0113_optx.pdf	
13:40	15	Yurii Vlasov	IBM	100GBASE-WDM4 Baseline Proposal	vlasov_01_0113_optx.pdf	
14:10	20	Tek Ming Shen	Huawei	System vendor perspective to NG100GE SMF interface	shen_01_0113_optx.pdf	
14:45	15	Toshiki Tanaka	Fujitsu Labs	Optical Transmitter and Receiver in Optical 100GbE DMT	tanaka_01_0113_optx.pdf	
15:15	15	BREAK				
15:30	15	Tomoo Takahara	Fujitsu Labs	Power Budget for Discrete Multi-Tone	takahara_01_0113_optx.pdf	
16:00	15	Tomoo Takahara	Fujitsu Labs	Relative cost estimation of TOSA&ROSA for DMT	takahara_02_0113_optx.pdf	
16:30	15	Ilya Lyubomirsky	Finisar	Analytical Model for 100 Gb/s Discrete Multi-Tone Modulation	lyubomirsky_01_0113_optx.pdf	
16:45	60	Discussion		Motions, Straw Polls, Discussion		
17:45	0	Adjourn				

Future Meetings

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

- **Monday, March 18th through Thursday, March 21st , 2012**
  - **IEEE 802 plenary**
  - **Caribe Royale Hotel**
  - **Orlando, FLA**
  - **USA**

- **Week of May 13, 2013**
  - **The Fairmont Empress**
  - **Victoria, BC, Canada**

- **Week of July 15 – 18, 2013**
  - **ITU**
  - **Geneva, Switzerland**
  - **Hotel List To Be Provided**

- **Week of Sept 2, 2013**
  - **York Racecourse Conference Center**
  - **York, UK**

- Anyone interested in hosting a meeting contact me or Steve Carlson.

Thank You!