

# Agenda, Study Group Status and Work

IEEE 802.3 100 Gb/s Wavelength Short Reach PHYs Study Group

Robert Lingle, Jr  
Study Group Chair  
OFS

Ad Hoc Meeting, May 7, 2020

# Meeting

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- Attendance
  - The WebEx tool does not record attendance
  - Please indicate your name and employer/affiliation in an e-mail to the ad hoc recording secretary: Mabud Choudhury ([mchoudhury@ofsoptics.com](mailto:mchoudhury@ofsoptics.com)).
- Webex
  - Please mute your lines if you are not speaking
    - \*6 to mute/unmute or click on mute button in the WebEx window
  - Noisy, unmuted lines will be muted by the WebEx organizer
    - \*6 to unmute if this happens to you
- Calendar invitation for WebEx was sent to the Reflector
  - <https://listserv.ieee.org/cgi-bin/wa?A2=ind20&L=STDS-802-3-100GSR&O=D&P=7450>

# Agenda

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- Meeting Attendance and Webex
- Approve Agenda
- Approve March 26<sup>th</sup> and April 9<sup>th</sup> ad hoc meeting minutes
- 100GSR Study Group ad hoc communications
- IEEE Patent Policy reminder:
  - <https://mentor.ieee.org/myproject/Public/mytools/mob/preparslides.pdf>
- IEEE SA Copyright Policy reminder:
  - <https://standards.ieee.org/ipr/index.html>
- IEEE Participation Requirements reminder:
  - <https://standards.ieee.org/content/dam/ieee-standards/standards/web/documents/other/Participant-Behavior-Individual-Method.pdf>
- SG Status
- May 13<sup>th</sup> and May 20<sup>th</sup> 100GSR SG telephonic interims
- Future Meetings
- Presentations
  - "Exploring the Feasibility of Longer Reach" Vipul Bhatt, (II-VI), Jose Castro,(Panduit), Lance Thompson, (II-VI)
  - "Proposals for two PMDs for 100G lambda" Jose Castro (Panduit), Rick Pimpinella (Panduit)
- Straw Polls

# Approve March 26<sup>th</sup> and April 9<sup>th</sup> Minutes

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- Any modifications, additions, deletions or corrections?
- Move to approve meeting minutes, previously posted, for March 26, 2020 and for April 9, 2020 IEEE 100GSR Study Group Ad Hoc Webex meetings:
  - [unapproved\\_minutes\\_100GSR\\_adhoc\\_01\\_032620.pdf](#)
  - [unapproved\\_minutes\\_100GSR\\_adhoc\\_01\\_040920.pdf](#)

# 100GSR Study Group ad hoc communications

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- The SG web page:
  - <http://www.ieee802.org/3/100GSR/index.html>
- SG ad hoc schedule and WebEx information:
  - <http://www.ieee802.org/3/100GSR/public/adhoc/>
- SG ad hoc presentations:
  - <http://www.ieee802.org/3/100GSR/public/adhoc/presentations/index.html>
- All e-mail communications are via the SG reflector
  - archive and subscription links are here:  
<https://listserv.ieee.org/cgi-bin/wa?A0=STDS-802-3-100GSR>  
<http://www.ieee802.org/3/100GSR/reflector.html>

# IEEE Patent, SA Copyright, Participation Policies & Requirements

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- IEEE Patent Policy reminder:
  - <https://mentor.ieee.org/myproject/Public/mytools/mob/preparslides.pdf>
- IEEE SA Copyright Policy reminder:
  - <https://standards.ieee.org/ipr/index.html>
- IEEE Participation Requirements reminder:
  - <https://standards.ieee.org/content/dam/ieee-standards/standards/web/documents/other/Participant-Behavior-Individual-Method.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 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.

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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>

If you have questions, contact the IEEE-SA Standards Board Patent Committee Administrator at [patcom@ieee.org](mailto:patcom@ieee.org)

# INSTRUCTIONS FOR CHAIRS OF STANDARDS DEVELOPMENT ACTIVITIES

**At the beginning of each standards development meeting the chair or a designee is to:**

- Show the following slides (or provide them beforehand)
- Advise the standards development group participants that:
  - IEEE SA's copyright policy is described in Clause 7 of the IEEE SA Standards Board Bylaws and Clause 6.1 of the IEEE SA Standards Board Operations Manual;
  - Any material submitted during standards development, whether verbal, recorded, or in written form, is a Contribution and shall comply with the IEEE SA Copyright Policy;
- Instruct the Secretary to record in the minutes of the relevant meeting:
  - That the foregoing information was provided and that the copyright slides were shown (or provided beforehand).



# **IEEE SA COPYRIGHT POLICY**

**By participating in this activity, you agree to comply with the IEEE Code of Ethics, all applicable laws, and all IEEE policies and procedures including, but not limited to, the IEEE SA Copyright Policy.**

- Previously Published material (copyright assertion indicated) shall not be presented/submitted to the Working Group nor incorporated into a Working Group draft unless permission is granted.
- Prior to presentation or submission, you shall notify the Working Group Chair of previously Published material and should assist the Chair in obtaining copyright permission acceptable to IEEE SA.
- For material that is not previously Published, IEEE is automatically granted a license to use any material that is presented or submitted.

# IEEE SA COPYRIGHT POLICY

- The IEEE SA Copyright Policy is described in the IEEE SA Standards Board Bylaws and IEEE SA Standards Board Operations Manual
  - IEEE SA Copyright Policy, see
    - Clause 7 of the IEEE SA Standards Board Bylaws  
<https://standards.ieee.org/about/policies/bylaws/sect6-7.html#7>
    - Clause 6.1 of the IEEE SA Standards Board Operations Manual  
<https://standards.ieee.org/about/policies/opman/sect6.html>
- IEEE SA Copyright Permission
  - <https://standards.ieee.org/content/dam/ieee-standards/standards/web/documents/other/permissionltrs.zip>
- IEEE SA Copyright FAQs
  - <http://standards.ieee.org/faqs/copyrights.html/>
- IEEE SA Best Practices for IEEE Standards Development
  - [http://standards.ieee.org/develop/policies/best\\_practices\\_for\\_ieee\\_standards\\_development\\_051215.pdf](http://standards.ieee.org/develop/policies/best_practices_for_ieee_standards_development_051215.pdf)
- Distribution of Draft Standards (see 6.1.3 of the SASB Operations Manual)
  - <https://standards.ieee.org/about/policies/opman/sect6.html>

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## Participant behavior in IEEE-SA activities is guided by the IEEE Codes of Ethics & Conduct

- All participants in IEEE-SA activities are expected to adhere to the core principles underlying the:
  - [IEEE Code of Ethics](#)
  - [IEEE Code of Conduct](#)
- The core principles of the IEEE Codes of Ethics & Conduct are to:
  - *Uphold the highest standards of integrity, responsible behavior, and ethical and professional conduct*
  - *Treat people fairly and with respect, to not engage in harassment, discrimination, or retaliation, and to protect people's privacy.*
  - *Avoid injuring others, their property, reputation, or employment by false or malicious action*
- The most recent versions of these Codes are available at <http://www.ieee.org/about/corporate/governance>

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## Participants in the IEEE-SA “*individual process*” shall act independently of others, including employers

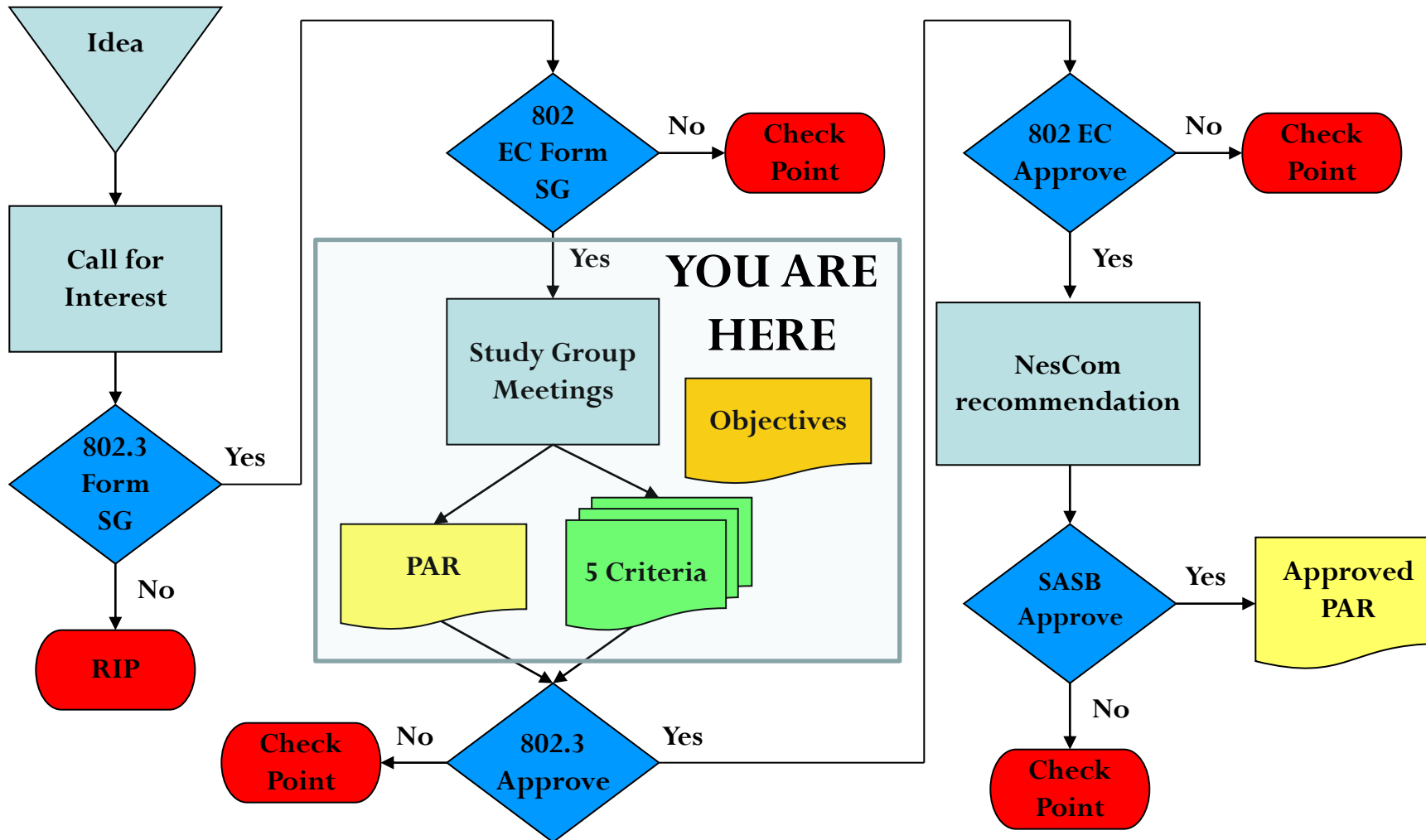
- The [IEEE-SA Standards Board Bylaws](#) require that “*participants in the IEEE standards development individual process shall act based on their qualifications and experience*”
- This means participants:
  - **Shall act & vote** based on their personal & independent opinions derived from their expertise, knowledge, and qualifications
  - **Shall not act or vote** based on any obligation to or any direction from any other person or organization, including an employer or client, regardless of any external commitments, agreements, contracts, or orders
  - **Shall not direct** the actions or votes of other participants or retaliate against other participants for fulfilling their responsibility to act & vote based on their personal & independently developed opinions
- By participating in standards activities using the “*individual process*”, you are deemed to accept these requirements; if you are unable to satisfy these requirements then you shall immediately cease any participation

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## IEEE-SA standards activities shall allow the fair & equitable consideration of all viewpoints

- The [IEEE-SA Standards Board Bylaws](#) (clause 5.2.1.3) specifies that *“the standards development process shall not be dominated by any single interest category, individual, or organization”*
  - This means no participant may exercise *“authority, leadership, or influence by reason of superior leverage, strength, or representation to the exclusion of fair and equitable consideration of other viewpoints”* or *“to hinder the progress of the standards development activity”*
- This rule applies equally to those participating in a standards development project and to that project’s leadership group
- Any person who reasonably suspects that dominance is occurring in a standards development project is encouraged to bring the issue to the attention of the Standards Committee or the project’s IEEE-SA Program Manager

# 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.

# The Study Group

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- 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.

# Draft PAR, CSD, Objectives

## IEEE 802.3 100 Gb/s Wavelength Short Reach PHYs Study Group

The IEEE 802 LMSC Executive Committee has chartered a Study Group under the IEEE 802.3 Ethernet Working Group to develop a Project Authorization Request (PAR) and Criteria for Standards Development (CSD) responses for "Lower cost, short reach, optical PHYs using 100 Gb/s wavelengths".

- Draft project documents
  - [PAR](#) (Approved by Study Group - Jan 2020)
  - [Criteria for Standards Development](#) (Approved by Study Group - Jan 2020)
  - [Objectives](#) (Approved by Study Group - Jan 2020)

- Draft project documents. Adopted by SG, January 2020:
  - [PAR](#)
  - [Criteria for Standards Development](#)
  - [Objectives](#)



# Objectives

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1. Support a MAC data rate of 100 Gb/s, 200 Gb/s and 400 Gb/s
2. Support full-duplex operation only
3. Preserve the Ethernet frame format utilizing the Ethernet MAC
4. Preserve minimum and maximum FrameSize of current IEEE 802.3 standard
5. Provide appropriate support for OTN
6. Support a BER of better than or equal to  $10^{-12}$  at the MAC/PLS service interface (or the frame loss ratio equivalent) for 100 Gb/s operation
7. Support a BER of better than or equal to  $10^{-13}$  at the MAC/PLS service interface (or the frame loss ratio equivalent) for 200 Gb/s and 400 Gb/s operation

# Objectives

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8. Define a physical layer specification that supports 100 Gb/s operation over 1 pair of MMF with lengths up to at least 50 m
9. Define a physical layer specification that supports 200 Gb/s operation over 2 pairs of MMF with lengths up to at least 50 m
10. Define a physical layer specification that supports 400 Gb/s operation over 4 pairs of MMF with lengths up to at least 50 m

# Possibilities for handling proposals for alternate objectives

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- The draft objectives must still be approved by the WG
- Alternate MMF objectives have been suggested since Geneva
  - A longer reach than 50m for switch-switch links
  - A shorter reach for lower cost for server attachment
- Options
  - 75% consensus required to change existing draft objectives in SG
  - Our process does allow us to modify objectives in TF, provided they are within the scope of the PAR, with approval of both the TF and the WG.
  - There is precedent for a SG to adopt specific objectives plus one or more “Consider” or “Research” objectives, e.g. IEEE P802.3af and P802.3at. Some WG members may dislike this approach, but it has been done.

# The draft PAR for 802.3db seems sufficiently broad to allow future flexibility on MMF objectives

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- 2.1 Title: Standard for Ethernet Amendment: Physical Layer Specifications and Management Parameters for 100 Gb/s, 200 Gb/s, and 400 Gb/s Operation over Optical Fiber using 100 Gb/s Signaling
- 5.2.b. Scope of the project: This project specifies additions to and appropriate modifications of IEEE Std 802.3 and adds Physical Layer specifications and management parameters for 100 Gb/s, 200 Gb/s, and 400 Gb/s Ethernet optical interfaces for server attachment and other intra-data center applications using 100 Gb/s signaling over optical fiber.
- 5.5 Need for the Project: Rapid growth of server, network, and internet traffic is driving the need for higher data rates, higher density, lower cost fiber optic solutions, including the shortest links in the data center such as server-attachment. To address these needs, advances in technology now enable the specification of 100 Gb/s, 200 Gb/s, and 400 Gb/s Physical Layer types operating over optical interconnects using 100 Gb/s signaling. IEEE Std 802.3 does not currently define operation over multimode fiber using 100 Gb/s signaling.

# IEEE P802.3at adopted several “Research” objectives

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Example of “Research” objectives - <http://ieee802.org/3/at/objectives.html>

Objective 9 was successfully updated in TF to a specific objective

Objective 11 was withdrawn in TF after further research

## IEEE P802.3at DTE Power Enhancements Task Force Objectives

### Objective 9 (Updated November 2008)

~~Research potential extension of power classification to support PoEPlus modes.~~

Extend power classification to support PoEPlus modes.

### Objective 10 (Updated November 2008)

~~PoE Plus will vigorously pursue supporting the operation of midspan PSEs for 1000BASE-T.~~

Support the operation of midspan PSEs for 1000BASE-T.

### ~~Objective 11 (Withdrawn May 2007)~~

~~Research the operations of midspan and endpoint PSEs for 10GBASE-T including providing cable heating data for evaluation by IEEE P802.3an.~~

# 13 May & 20 May 2020 SG telephonic interims

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- The IEEE 802.3 100G Short Reach SG will hold its first Interim Teleconference meeting on **May 13, 2020 at 10am US Eastern Time for up to 2 hours**. At this meeting, we will be able to vote on motions and conduct the full business of the SG.
  - The goal will be to vote on motions for additional objectives plus potential changes to the previously adopted PAR/CSD responses.
  - If any comments from the EC on the pre-submitted PAR & CSD responses have been received, we could begin comment resolution on those. The deadline for receiving comments is 14 May AOE.
- The IEEE 802.3 100G Short Reach SG will hold its second Interim Teleconference meeting on **May 20, 2020 at 10am US Eastern Time for up to 2 hours**. At this meeting, we will be able to vote on motions and conduct the full business of the SG.
  - Primary goal is to review comments from the EC against our pre-submitted PAR & CSD responses out of the January Interim. The deadline for receiving comments is 14 May AOE. The WG needs to approve at meeting the following day, as I understand.
  - Additionally, conduct any other business of the SG that needs to be completed before the 802.3 WG teleconference interim meeting on 5/21

# 13 May & 20 May 2020 SG telephonic interims - registration

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- Registration Requirement: Because a roll call vote is required if a motion is not approved by unanimous consent, registration is required for this meeting.
- 13 May Registration Process:
  - Click on the following link [13 May 100GSR SG telephonic interim registration email](#)
  - Or send an email to [rlingle@ofsoptics.com](mailto:rlingle@ofsoptics.com) and [mchoudhury@ofsoptics.com](mailto:mchoudhury@ofsoptics.com) with the subject “13 May 2020 100GSR Study Group Telephonic Interim Registration.”
  - Please provide your name, employer, and affiliation in the email.
  - **Deadline: Tuesday, May 12, 2020 at 10am US Eastern Daylight Time (EDT/UTC -4)**, 24 hours before meeting
- 20 May Registration Process:
  - Click on the following link [20 May 100GSR SG telephonic interim registration email](#)
  - Or send an email to [rlingle@ofsoptics.com](mailto:rlingle@ofsoptics.com) and [mchoudhury@ofsoptics.com](mailto:mchoudhury@ofsoptics.com) with the subject “20 May 2020 100GSR Study Group Telephonic Interim Registration.”
  - Please provide your name, employer, and affiliation in the email.
  - **Deadline: Tuesday, May 19, 2020 at 10am US Eastern Daylight Time (EDT/UTC -4)**, 24 hours before meeting
- Please register for both interims as soon as you know you will be attending interim(s)

# 13 May 2020 SG telephonic interim – Webex information

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100GSR SG Interim Teleconference  
Hosted by Seat2 802Webex

Wednesday, May 13, 2020 10:00 am | 2 hours | (UTC-04:00) Eastern Time (US & Canada)

Meeting number: 793 586 172

Password: hNmAEAt3S44

<https://ieee802.my.webex.com/ieee802.my/j.php?MTID=meef5b0feab9297466c395098b1c0e726>

Join by phone

[+1-510-338-9438](tel:+15103389438) USA Toll

[Global call-in numbers](#)

Join from a video system or application

Dial [793586172@ieee802.my.webex.com](tel:793586172@ieee802.my.webex.com)

You can also dial 173.243.2.68 and enter your meeting number.

Join using Microsoft Lync or Microsoft Skype for Business

Dial [793586172.ieee802.my@lync.webex.com](tel:793586172.ieee802.my@lync.webex.com)



# 20 May 2020 SG telephonic interim – Webex information

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100GSR SG Interim Teleconference  
Hosted by Seat2 802Webex

Wednesday, May 20, 2020 10:00 am | 2 hours | (UTC-04:00) Eastern Time (US & Canada)

Meeting number: 797 051 613

Password: X6ZptUN9Pp2 (96978869 from phones and video systems)

<https://ieee802.my.webex.com/ieee802.my/j.php?MTID=mccb4d733a321c7e2338f424dc841cc0d>

Join by phone

[+1-510-338-9438](tel:+15103389438) USA Toll

[Global call-in numbers](#)

Join from a video system or application

Dial [797051613@ieee802.my.webex.com](tel:797051613@ieee802.my.webex.com)

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Join using Microsoft Lync or Microsoft Skype for Business

Dial [797051613.ieee802.my@lync.webex.com](tel:797051613.ieee802.my@lync.webex.com)

# Future Meetings

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- Interim Teleconference Meetings:
  - May 13, 2020, 10 am – 12 noon EDT/UTC -4
  - May 20, 2020, 10 am – 12 noon EDT/UTC -4
- May 2020 face to face 802.3 Interim meeting: **CANCELLED** due to COVID-19 pandemic
- July 2020 face to face 802 Plenary meeting: **CANCELLED** due to COVID-19 pandemic
- The cancelled face to face meetings may be replaced by virtual meetings as appropriate.
  - I anticipate that the IEEE 802 EC will enact temporary rules to allow the business of July plenary to proceed

# Ad Hoc Presentations & Straw Polls

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- "Exploring the Feasibility of Longer Reach, An Overview of Tradeoffs"
  - Vipul Bhatt, (II-VI), Jose Castro,(Panduit), Lance Thompson, (II-VI)
    - [bhatt\\_100GSR\\_adhoc\\_01\\_050720.pdf](#)
- "Proposals for two PMDs for 100G lambda"
  - Jose Castro (Panduit), Rick Pimpinella (Panduit)
    - [castro\\_100GSR\\_adhoc\\_01\\_050720.pdf](#)
- Straw Polls regarding possible motions for the Telephonic Interims

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# Thank You!