

Agenda and General Information

IEEE 802.3 TIA Extended Reach BASE-T/PoE Ad Hoc

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Telephonic Meeting, 14 October 2026

Agenda

- Welcome and Introductions
- Approve Agenda
- Goals for this meeting
- Reflector and Web
- Ground Rules
- IEEE
 - Structure, Bylaws and Rules
 - Call for Patents
 - IEEE Standards Process
- Liaisons and Communications
- Presentations
- Closing Business
- Future Meetings

General Decorum

- An officer of the Standards Committee or any of its subgroups, unless prohibited by the P & P of the Standards Committee or Working Group, is permitted to record the proceedings of an IEEE standards development meeting for which they are responsible by making an audio or slideshow recording or by producing a transcript using software or an artificial intelligence (AI) application approved by IEEE. **IEEE 802.3 meetings do not use this option.** Recording of the proceedings by any other participant or observer, in part or in whole, via any means, is prohibited. Software or AI shall not be used if it enables persons other than the officer making the recording or authorized Standards Department staff to initiate or obtain the transcription or recording.
 - See subclause 5.3.3.2 of the January 2026 IEEE-SA Standards Board Operations Manual
- If a member of the press (i.e., anyone reporting publicly on this meeting) attends a standards development meeting, they shall either inform the chair before the meeting or at the beginning of the meeting of their attendance. The chair shall then announce the presence of the press in attendance at the meeting.
 - See subclause 5.3.3.3 of the January 2026 IEEE-SA Standards Board Operations Manual

Teleconference Decorum



- Please **MUTE** unless called on
- Please use the **Chat** to be placed in the Queue.
- The chat can only send to “Everyone” or the officers
- Please observe proper decorum in meetings

Goals for the meeting

- Review the TIA Extended Reach TSB 5073 draft 3 –
- https://ieee802.org/3/private/liaison_docs/tia/TR42.7-2026-10-6%20Draft%203%20TIA%20PN%20TSB-5073.pdf
- Draft liaison with any comments if necessary

Private Area

- URL: https://ieee802.org/3/private/liaison_docs/tia/TR42.7-2026-10-6%20Draft%203%20TIA%20PN%20TSB-5073.pdf
 - Username: <<XXXXXX>>
 - Password: <<XXXXXXXX>>
- 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.

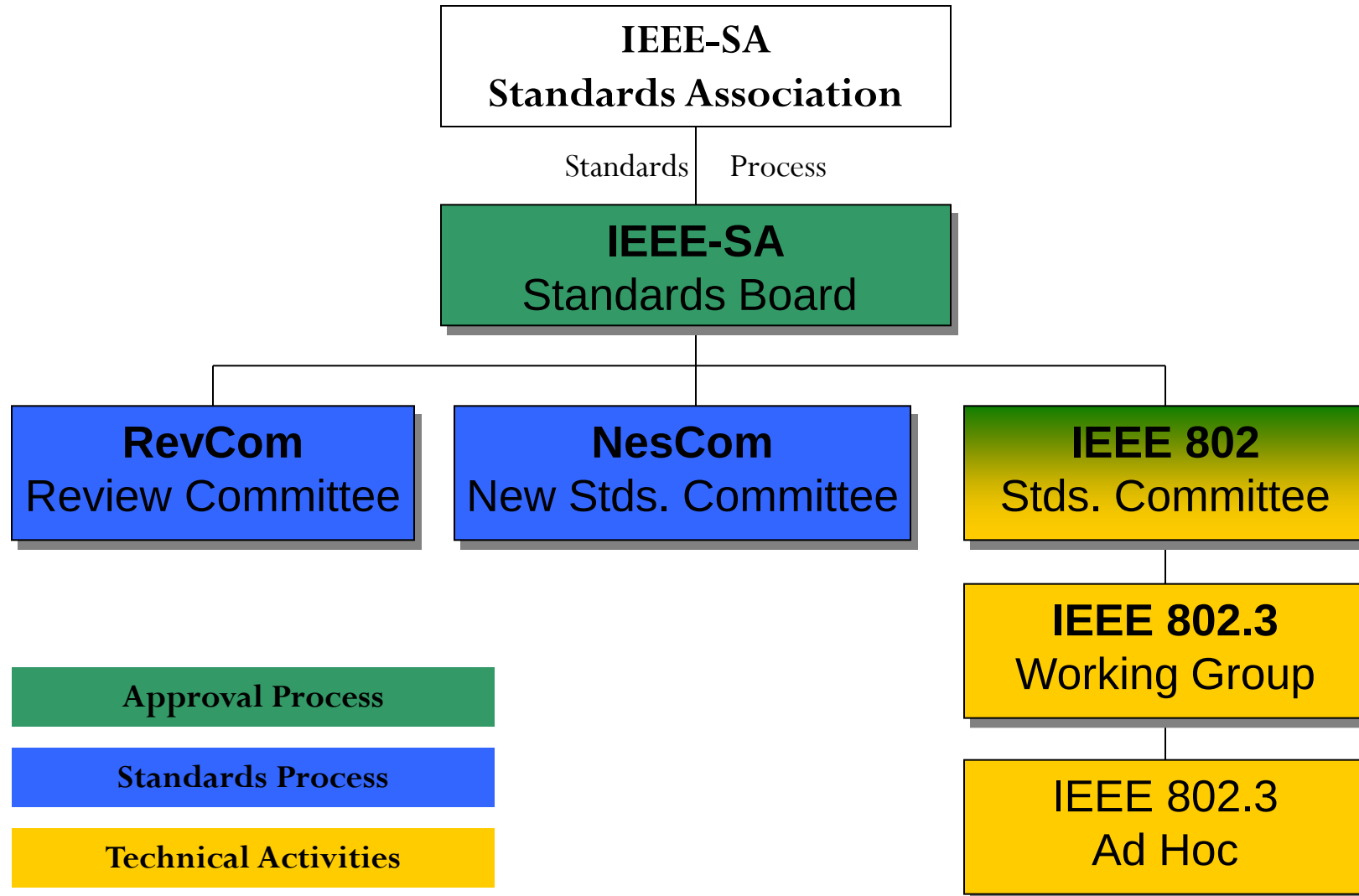
Ground Rules

- 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, Only 802.3 voters vote on electronic meetings
- **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

- Attendance will be taken from the conference tool
- Please email the chair if your affiliation is not readily identifiable from your email or otherwise.
 - Please put your affiliation in your Displayed Name in the conference tool or in the chat

IEEE Structure



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**
<https://ieee.app.box.com/v/PandP-LMSC>
- **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

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. Formally object to the discussion immediately.

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

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
 - <https://standards.ieee.org/faqs/copyrights/>
- IEEE SA Best Practices for IEEE Standards Development
 - 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>

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>

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

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

Participants in attendance at IEEE Standards development activity meetings shall follow appropriate meeting decorum, and the SA meeting rules, including but not limited to:

- Recording (e.g., via audio, video, photography, artificial intelligence (AI) application or other software) of the proceedings by any participant or observer other than Officers of this IEEE standards development group, in part or in whole, via any means, is NOT permitted. (See IEEE Standards Board Operations Manual subclause 5.3.3.2 Recordings of the proceedings of standards development meetings)
- Participants intending to report publicly on this meeting (e.g., news outlets, social media, or online forums) shall inform the Chair of their attendance and the Chair shall announce their presence and their intent to report publicly. (See IEEE Standards Board Operations Manual Subclause 5.3.3.3 Press attendance)
- Participants shall comply with IEEE SA Standards Board Operations Manual 5.1.4 Standards promotion and social media communication

IEEE ETHICS REPORTING LINE

Ethics Reporting Line

Attention!

This web page is hosted on EthicsPoint's (owned and operated by NAVEX) secure servers and is not part of the Institute of Electrical and Electronics Engineers web site or intranet.

[Make a Report](#)[Follow-up on a Report](#)

ETHICS AT IEEE

IEEE strives to achieve the highest standards of integrity and endeavors to conduct business around the world in a responsible and ethical way. It is important that those who act on the organization's behalf ensure IEEE's compliance by adhering to the same standards and expectations.

When you become aware of or suspect a violation of IEEE's Code of Ethics, Code of Conduct or Policies, raising your concern should be as easy as possible. For this reason, IEEE has selected EthicsPoint, an independent third party for the receipt and resolution of reports of impropriety. The information you provide will be sent to IEEE by EthicsPoint on an entirely confidential (and, if you choose, anonymous) basis. (For more information see, [IEEE's Ethics Reporting Line FAQ](#))

We will review every concern raised using a defined process to ensure fairness and consistency as defined in IEEE's Bylaws and Policies. We will treat you with dignity and respect throughout the process. You can trust that we will handle your question or concern seriously and as soon as practicable. If something needs to be addressed, we will take action based on what we learn.

ETHICSPOINT IS NOT A 911 OR EMERGENCY SERVICE:

Do not use this site to report events presenting an immediate threat to life or property. Reports submitted through this service may not receive an immediate response. If you require emergency assistance, please contact your local authorities.

TO MAKE A REPORT

You may use either of the following two methods to submit a report: dial toll-free, within the United States, Guam, Puerto Rico, and Canada: **+1 888 359 6323** Or select the **"Make a Report"** link at the top of this Web page.

After you complete your report, you will be assigned a unique code called a "report key." Write down your report key and password and keep them in a safe place. After **7-10** business days, use your report key and password to check your report for feedback or questions.

Please be aware that the IEEE Ethics Reporting Line will only accept complaints regarding IEEE's business and activities. IEEE will not review or accept complaints regarding any other organization, including the employers of members. IEEE members seeking ethical assistance regarding their employers should seek their own counsel or consult their employers.

NON-RETALIATION POLICY

It is the policy of IEEE not to take any retaliatory action against any director, officer, manager, employee or volunteer for raising a good faith compliance or ethics concern, for making a good faith report of a possible violation of the IEEE Code of Ethics, Code of Conduct or IEEE Policies, or assisting or cooperating in an investigation of a possible violation.

Any elected director or officer of IEEE and any staff manager or employee who engages in any such retaliatory action can be punished by penalties up to and including expulsion from IEEE membership for a volunteer and termination of employment for any IEEE staff member.

OTHER COMPLIANCE INQUIRIES may be directed to compliance@ieee.org.

Reports alleging violations of IEEE's Code of Conduct, Code of Ethics, or other policies and rules, can be reported in two ways:

- **Phone:** +1 888-359-6323
- **Web:** www.ieee-ethics-reporting.org

Under IEEE Bylaw I-110 and IEEE Policy 7.10, any individual may report an allegation of misconduct against a member, or a non-member engaged in an IEEE activity. Reports may be filed anonymously.

References

Code of Ethics:

<https://www.ieee.org/about/corporate/governance/p7-8.html>

Code of Conduct:

<https://www.ieee.org/about/corporate/governance/code-of-conduct.html>

Purpose of TSB-5073

https://ieee802.org/3/private/liaison_docs/tia/TR42.7-2026-10-6%20Draft%203%20TIA%20PN%20TSB-5073.pdf

3.1 PURPOSE

This Telecommunications Systems Bulletin (TSB-5073) describes guidelines on the capability of 100 Ohm, 4-pair twisted-pair copper cabling to support channel lengths beyond 100 meters. It includes channel component characteristics that should be considered when seeking to support devices at IEEE 802.3 BASE-T Ethernet data rates from 10 Mbps through 10 Gbps and PoE powering types 1 to 4 beyond 100 meters. The TSB also provides guidance on field testing procedures, as well as installation conditions, use cases, and cabling parameters which relate to IEEE application requirements affecting the channel length capability. The transmission parameter recommendations included herein provide a means to assess installations of channels, including recommendations for possible additional parameters to improve reliability and repeatability of application support for reaches beyond 100 meters. Risk assessment criteria and administration recommendations for channels greater than 100 meters are also provided.

Scope

3.2 SCOPE

This Telecommunications Systems Bulletin (TSB-5073) addresses the electrical and transmission performance characteristics to be considered when qualifying channels to be used for applications at lengths greater than 100 meters. It will identify the IEEE 802.3 application transmission requirements and compare TIA Category cable specifications extrapolated to the maximum distance that would still meet each Ethernet speed's minimum requirements. In addition, the document will outline the likelihood of variability in Ethernet PHYs that can affect total distance capabilities and identify the risks at various lengths for cables with different conductor gauges for different Ethernet speeds. Use case examples for extended distance channels and the process and tester settings required to test installed channels longer than 100 meters will also be addressed. Installation considerations and system administration recommendations will be made when designing and installing a network that incorporates channels longer than 100 meters. This will include consideration of the cable pathway environment and the effect of increased temperatures on the total channel length that can be supported. Field testing of installed links and channels will also be addressed. Finally, recommendations for remediation or mitigation of application failures will be provided.

Examples of text meeting link segment parameters

5.1 Channel Characteristics

...For example, the IEEE 802.3 specification for 10BASE-T transmission media requires a maximum propagation delay of 1000 ns and a maximum IL of 11.5 dB (at 10 MHz). An ANSI/TIA-568.2 compliant 100-meter category 5e channel has an IL of 7.1 dB (at 10 MHz) and a propagation delay of 570 ns per 100 meters. Theoretically, that minimally compliant category 5e channel could be elongated to 162 meters and still meet the transmission requirements of 10BASE-T.

5.2 Component Characteristics

...most channels can be extended some distance beyond 100m and result in a channel (and IEEE 802.3 link segment) which still meets the requirements of PHYs designed to comply with IEEE Std 802.3-2022.

7.3 Using Cable Certifiers to Test Extended Distance Cabling

...

Using IEEE application test limits

Some field certifiers include application test limits based on IEEE Ethernet requirements for specific Ethernet data rates. In these instances, the limits for insertion loss, NEXT and return loss are defined by the IEEE for each channel.

Examples of text beyond IEEE 802.3 Link Segment requirements

5.2 Component Characteristics

...There are practical limits and costs to designing cables with the intent of optimizing length-based parameters. A channel that is extended beyond its ability to provide compliant link segment performance relies on the performance margin of the networking equipment and the environmental conditions to achieve desired transmission performance. Adaptive equalizers within Ethernet PHYs help mitigate signal degradation caused by multipath propagation, which can be exacerbated by extending a channel beyond standard lengths. Additionally, design choices that improve propagation delay and insertion loss can negatively impact other parameters such as crosstalk. These impacts could have an adverse effect causing data loss, leaving the end-user to determine acceptability of the channel.

5.3 Ethernet Equipment Design and Performance Considerations

(continues to describe equipment margin...)

6 Risk Assessment – Beyond 802.3 Parameters

Editor's note: additional contributions are requested to support the risk assessment criteria used in this section

Based on the application transmission parameters and laboratory testing of frame errors in networking equipment connected to different cable types, informative tables 1 and 2 are provided as broad indicators of the risk of running various applications at extended distances.

Cabling that employs transmission impairment mitigation features may result in performance levels that differ from the recommendations in Tables 1, 2 and 3. Consult with the manufacturer regarding specific cable types and applications supported for extended reach. Performance risk may be lower for cabling systems specifically engineered, tested, and warranted by the manufacturer for extended reach applications.

All data in tables 1, 2, and 3 are TBD

Table 1 - Extended reach channel risk matrix for applications with limited alien crosstalk sensitivity at 20 °C with no PoE or Type 1 PoE

	10BASE-T				100BASE-T				1000BASE-T			
	Cable AWG				Cable AWG				Cable AWG			
Extended Reach (m)	24	23	22	21	24	23	22	21	24	23	22	21
101 - 105	VL	VL	VL	VL	VL	VL	VL	VL	L	VL	VL	VL
106 - 135	VL	VL	VL	VL	VL	VL	VL	VL	M	VL	VL	VL
136 - 155	VL	VL	VL	VL	M	VL	VL	VL	MH	VL	VL	VL
156 - 185	L	VL	VL	VL	MH	M	L	VL	H	M	L	L
186 - 200	L	L	L	L	H	MH	L	L	H	MH	L	L

Table 3 – Extended reach risk matrix for applications with significant alien crosstalk sensitivity @20 °C

	2.5GBASE-T				5GBASE-T				10GBASE-T			
	AWG				AWG				AWG			
Extended Reach (m)	24	23	22	21	24	23	22	21	24	23	22	21
101 - 105	MH	M	M	M	MH	H	H	H	H	H	H	H
106 - 135	H	M	M	M	H	MH	MH	MH	H	H	H	H
136 - 155	H	H	H	H	H	H	H	H	H	H	H	H
156 - 185	H	H	H	H	H	H	H	H	H	H	H	H
186 - 200	H	H	H	H	H	H	H	H	H	H	H	H

Next meeting

- Thursday October 29, 7-9AM Pacific
- No registration Required
- Please send requests for presentations to
 - George@cmephyconsulting.com by 10/27 5PM pacific time

Proposed Response

- The IEEE 802.3 Working Group thanks TIA TR42 for the opportunity to review the draft of TIA TSB-5073.
- (attach any comments)

Thank You!