

Channel Operating Margin (COM) Code Open Source Proposal

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Background

- IEEE Std. 802.3 and amendments normatively specify Channel Operating Margin (COM) via equations and methods in Annex 93A and 178A
- There have been and continue to be contributions of software code implementations of these equations and methods for participants to use
 - The contributed COM software code implementation is being widely used by industry participants
 - The COM code is not normatively or informatively included nor referenced as part of the text of the standard or cited in the IEEE Std. 802.3 nor amendments (e.g. 3dj).
- It is increasingly important to ensure that the Matlab-based “example” code implementation is revision controlled, peer reviewed, cross checked, and bug free and maintained over time
 - Specifically, the code contributed by Rich Mellitz, et. al.
- This proposal would not impact the continued normative specification of COM through equations and methods in Annex 93A and 178A

Detailed Proposal

IEEE SA Open Source Path

- Use the IEEE SA BOG Open Source Committee (IEEE OSCom) framework for the COM code and the configuration spreadsheets
 - https://standards.ieee.org/wp-content/uploads/import/documents/other/OSCOM_Operations_Manual.pdf
 - The IEEE Open Source Platform consists of the code and document repositories, license repositories, communication forums, Project management systems, and related administrative and end-user tools maintained by IEEE for the purpose of hosting Open Source Projects together with the associated governance mechanisms, support mechanisms, and other services offered to participants, users, and consumers of Open Source Projects.

Tier 3 Project Form (1/6)



IEEE SA Open Source Committee (OSCom)

Open Source Project Request

Title: IEEE 802.3 Channel Operating Margin (COM) Tool

OS Project Lead/POC: Kent Lusted

Alternate OS Project lead: Adam Healey

OS Project Maintainer(s): Kent Lusted, Rich Mellitz

Last updated January 2023



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PROJECT TITLE AND RELATED STANDARDS

Open source project title: IEEE Std. 802.3 Channel Operating Margin (COM) Code

Related standards project (if applicable):

- PAR number or standard number: IEEE Std. 802.3 and Amendments
- Scope statement:

- Explanation of what the standard does:

Defines Ethernet local area network operation for selected speeds of operation from 1 Mb/s to 800 Gb/s using a common media access control (MAC) specification and management information base (MIB).

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PROJECT DESCRIPTION

What open source will be developed:

Reference software code implementations and configuration spreadsheets of the Channel Operating Margin (COM) equations and methods in IEEE Std. 802.3 and Amendments (e.g. Annex 93A and 178A). It will also provide branch support to enable participants to development new features and new capabilities for use by industry.

Why this is valuable:

The contributed COM software code implementation and configuration spreadsheets are being widely used by IEEE 802.3 participants as well as participants in other industry SDOs/SIGs (e.g. OIF)

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RELATION TO EXISTING OPEN SOURCE

Relation to known open source:

none

Description of pre-existing open source that will be used (if any):

Not applicable

(5/6)

GOVERNANCE

Requested license (and reason):

BSD 3-clause. Requested by the contributor of the initial code commit

How will the project be governed?

By the IEEE 802.3 Working Group and will follow all applicable IEEE governance requirements including having an Open Source Lead and Maintainer per SASB and OSCom Operations Manuals

(6/6)

SUMMARY

Summary of the project and your questions for OSCom:

The contributed COM software code implementation and configuration spreadsheets are being widely used by industry participants for the development of IEEE Std. 802.3 specifications and amendments. The IEEE SA Open Source platform provides a viable platform for the development of the code in an open source manner that benefits broad industry.

Review of the formal project request: (To be completed by the OSCom Administrator.)

Thanks!

Useful References

- IEEE SA Open Source Committee (OSCom) Operations Manual
 - https://standards.ieee.org/wp-content/uploads/import/documents/other/OSCOM_Operations_Manual.pdf
- IEEE SA Open Source Committee Maintenance Manual
 - <https://opensource.ieee.org/community/manual>

IEEE OSCom Project Tiers

There are five tiers of IEEE Open Source Projects:

Tier 1 — Individual Projects, which are maintained and managed by an individual who may accept contributions from others.

Tier 2 — Group Projects—Projects maintained and managed by a group of individuals or organizations. Such Projects will typically have multiple maintainer(s), committers, etc.

Tier 3 — Open Source Projects reviewed and approved for use of the IEEE Open Source Platform by OSCom to create IEEE Open Source Releases or products.

Tier 4 — IEEE Open Source Projects incorporated into IEEE standards—IEEE Open Source Projects operating in conjunction with an SASB authorized standards Project.

Tier 5 — Joint IEEE Open Source Projects—IEEE Open Source Projects that are operating in conjunction with another IEEE Board or Organizational Unit and are also subject to the policies and procedures of that Board or Organizational Unit.

https://standards.ieee.org/wp-content/uploads/import/documents/other/OSCOM_Operations_Manual.pdf

Select Tier 3
for COM

Per IEEE SA OSCom Operations Manual Clause 2, “Open Source is **incorporated** into an IEEE standard if it is normatively or informatively included as part of the text of the standard or cited in the standard.”

- Neither of these apply to the COM code at this time

Tier 3 Rationale

- Clarified with IEEE SA OSCom that the existing COM code and configuration spreadsheets do not meet the requirement of “incorporated into IEEE standards” at this time
 - The COM code is not normatively or informatively included nor referenced as part of the text of the standard or cited in the IEEE Std. 802.3 nor amendments (e.g. 3dj).
- Therefore, COM Open Source project tier changes to a Tier 3 (from Tier 4)
 - Several OSCom Ops Manual requirements are eliminated, such as
 - “IEEE Open Source Project Lead shall be an Officer of the Standards Committee or Working Group responsible for the Project.” (Section 3.2.1)
 - “Maintainers and Committers shall be members of the Standards Committee or Working Group responsible for the Project, or affiliated with an entity member of such Working Group.” (Section 3.2.3)
 - “Maintainers for IEEE Open Source Projects incorporated into IEEE standards shall also be IEEE members of any grade and a member of IEEE SA.” (Section 3.2.3)

IEEE Open Source Definitions

2 IEEE Open Source Definitions

Open Source is a digital work for which the human-readable source code is available—in the preferred form for making modifications—for use, study, re-use, modification, enhancement, and re-distribution by the users. Open Source applies to software, hardware, and other artifacts, which may include computer code, hardware designs, data, documentation, documents, and other digital objects.

Open Source Community refers to the community of individuals who are actively involved in the development, governance, or application of Open Source, whether or not they are IEEE members.

The **IEEE Open Source Platform** consists of the code and document repositories, license repositories, communication forums, Project management systems, and related administrative and end-user tools maintained by IEEE for the purpose of hosting Open Source Projects together with the associated governance mechanisms, support mechanisms, and other services offered to participants, users, and consumers of Open Source Projects.

An **IEEE Open Source Project** is a Project that is authorized to use the IEEE Open Source Platform in accordance with this Operations Manual.

Per IEEE SA OSCom Operations Manual December 20222