# IEEE 802 LAN/MAN STANDARDS COMMITTEE (LMSC)

# CRITERIA FOR STANDARDS DEVELOPMENT (CSD)

Based on IEEE 802 LMSC Operations Manuals approved 4 August 2020

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**Title:**

IEEE Standard for Low-Rate Wireless Networks Amendment: Privacy Enhancements

# IEEE 802 criteria for standards development (CSD)

The CSD documents an agreement between the WG and the Sponsor that provides a description of the project and the Sponsor's requirements more detailed than required in the PAR. The CSD consists of the project process requirements, 1.1, and the 5C requirements, 1.2.

## Project process requirements

### Managed objects

Describe the plan for developing a definition of managed objects. The plan shall specify one of the following:

1. The definitions will be part of this project. Yes.
2. The definitions will be part of a different project and provide the plan for that project or anticipated future project.
3. The definitions will not be developed and explain why such definitions are not needed.

### Coexistence

A WG proposing a wireless project shall prepare a Coexistence Assessment (CA) document unless it is not applicable.

1. Will the WG create a CA document as part of the WG balloting process as described in Clause 13? (yes/no)
2. If not, explain why the CA document is not applicable.

No, We are not changing of the over the air behavior of the 802.15.4. Only the values or fields inside the frames of 802.15.4 are going to be changed.

## 5C requirements

### Broad market potential

Each proposed IEEE 802 LMSC standard shall have broad market potential. At a minimum, address the following areas:

1. Broad sets of applicability.
2. Multiple vendors and numerous users.

Currently the 802.15.4 standard is extensively implemented for an increasingly diverse range of applications including Internet of Things. 802.15.4 specifies a range of PHYs which are suitable for vastly different applications.

User privacy has been an increasing area of focus in the wireless marketplace. Smartphones, for example have been starting to include IEEE Std 802.15.4 radios, and this trend seems to be continuing. Because of this, enhancing the privacy of the IEEE Std 802.15.4-2020 is needed.

The set of interested parties is not confined to mobile device manufacturers and users. At the same time, static infrastructure that mobile devices are connected to might need some understanding about randomized addresses to cope with them.

802.15.4 has been extensively adopted. The existing standard is used by a number of industry alliances, including ISA100, Profibus & Profinet International / omlox, Thread, Wi-SUN, Connectivity Standards Alliance (CSA), the Connected Car Consortium (CCC), Fine Ranging Consortium (FiRa), and the UWB Alliance. There are hundreds of vendors of 802.15.4 products and solutions. The number of deployed devices is estimated in the 100s of millions and this figure continues to grow. The enhancements included in this project are implementable by many of these existing vendors and will attract many new vendors supporting many different user communities.

### Compatibility

Each proposed IEEE 802 LMSC standard should be in conformance with IEEE Std 802, IEEE 802.1AC, and IEEE 802.1Q. If any variances in conformance emerge, they shall be thoroughly disclosed and reviewed with IEEE 802.1 WG prior to submitting a PAR to the Sponsor.

1. Will the proposed standard comply with IEEE Std 802, IEEE Std 802.1AC and IEEE Std 802.1Q?

No.

1. If the answer to a) is no, supply the response from the IEEE 802.1 WG.

This project is an amendment to an existing standard for which it has been previously determined that compliance with the above IEEE 802 standards is not possible.

If the project decides to use local MAC addresses it will comply with IEEE Std 802 and proved amendments.

The review and response is not required if the proposed standard is an amendment or revision to an existing standard for which it has been previously determined that compliance with the above IEEE 802 standards is not possible. In this case, the CSD statement shall state that this is the case.

### Distinct Identity

Each proposed IEEE 802 LMSC standard shall provide evidence of a distinct identity. Identify standards and standards projects with similar scopes and for each one describe why the proposed project is substantially different.

There is no other project working on privacy of the IEEE Std 802.15.4-2020.

### Technical Feasibility

Each proposed IEEE 802 LMSC standard shall provide evidence that the project is technically feasible within the time frame of the project. At a minimum, address the following items to demonstrate technical feasibility:

1. Demonstrated system feasibility.
2. Proven similar technology via testing, modeling, simulation, etc.

The existing 802.15.4 PHYs have been implemented in volume and widely deployed in many applications, demonstrating feasibility and value. The privacy enhancements such as randomized and changing addresses have already been implemented on other standards like IEEE Std 802.11, and this amendment learns from those other projects. This project brings these proven capabilities into IEEE Std 802.15.4 implementations.

### Economic Feasibility

Each proposed IEEE 802 LMSC standard shall provide evidence of economic feasibility. Demonstrate, as far as can reasonably be estimated, the economic feasibility of the proposed project for its intended applications. Among the areas that may be addressed in the cost for performance analysis are the following:

1. Known cost factors.
2. Balanced costs.
3. Consideration of installation costs.
4. Consideration of operational costs (e.g., energy consumption).
5. Other areas, as appropriate.

The proposed amendment does not add any significant cost to either the infrastructure or the attached stations. The amendment is built upon 802.15.4 which has been widely deployed at reasonable costs. It is expected to only minimal changes to implementations are need, and the costs of that is minimal.