

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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P802.19.3a IEEE Recommended Practice for Local and Metropolitan Area Networks--Part 19: Coexistence Methods for IEEE 802.11 and IEEE 802.15.4 Based Systems Operating in the Sub-1 GHz Frequency Bands

Amendment: Additional recommendations for improved coexistence

1. 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.

1.1 Project process requirements

1.1.1 Managed objects

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

- a) The definitions will be part of this project.
- b) The definitions will be part of a different project and provide the plan for that project or anticipated future project.
- c) The definitions will not be developed and explain why such definitions are not needed.
This project will use method (c). The recommended practice will not define new managed objects. It will utilize the managed objects defined in IEEE Std 802.11 and IEEE Std 802.15.4 standards.

1.1.2 Coexistence

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

- a) Will the WG create a CA document as part of the WG balloting process as described in Clause 13? (yes/no)
No.
- b) If not, explain why the CA document is not applicable.
The recommended practice does not add or modify existing physical layer definitions. This recommended practice uses existing features of the IEEE Std 802.11-2020 and IEEE Std 802.15.4-2020 (the referenced standards) and provides guidance to implementers and users of IEEE 802® wireless standards.

1.2 5C requirements

1.2.1 Broad market potential

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

- a) Broad sets of applicability.
- b) Multiple vendors and numerous users.

The proposed amendment extends recommendations on the use of features and services from the underlying standards. Many millions of devices based on IEEE Std 802.15.4-~~2020~~2024 are currently operating in Sub-1 GHz frequency bands, and the market continues to expand; products based on IEEE Std 802.11-~~2020~~2024 operating in Sub-1 GHz frequency bands have begun to enter the market. Both standards use technology that is well proven, widely available, and widely used. This project will provide recommendations based on the existing capabilities defined in those standards.

Numerous vendors currently build many products based on IEEE Std 802.15.4-~~2020~~2024 and multiple vendors presently advertise solutions based on IEEE Std 802.11-~~2020~~2024. There are numerous semiconductor companies providing chips and chipsets based on 802 wireless standards capable of operating in the Sub-1 GHz frequency bands. These vendors provide products to many millions of users, and the markets are expanding.

1.2.2 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.

- a) Will the proposed standard comply with IEEE Std 802, IEEE Std 802.1AC and IEEE Std 802.1Q?
No.

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

The recommended practice uses features and services from the underlying standards IEEE Std 802.11-~~2020~~2024 and IEEE Std 802.15.4-~~2020~~2024; it has been previously determined that compliance with the above IEEE 802 standards is not possible with IEEE Std 802.15.4-~~2020~~2024.

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.

1.2.3 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.

No, there is neither a recommend practice nor standard with similar scope

1.2.4 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:

a) Demonstrated system feasibility.

The performance characteristics of systems based on independently operating IEEE Std 802.11-~~2020~~2024 and IEEE Std 802.15.4-~~2020~~2024 are well characterized in many applications. Many millions of implementations are deployed. Numerous simulation studies of IEEE Std 802.11-~~2020~~2024 and IEEE Std 802.15.4-~~2020~~2024 operating in the Sub-1 GHz bands within a common radio sphere of influence were conducted in development of the initial recommended practice (IEEE Std 802.19.3). Additional simulations were conducted and presented in the interest group phase showing how additional coexistence mechanisms can improve performance.

b) Proven similar technology via testing, modeling, simulation, etc.

Implementation of the referenced standards has been proven by mass market deployment, testing, modeling and simulation. Additional modeling and simulation has been presented to show how improvements in coexistence can be achieved with updated recommendations.

1.2.5 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:

a) Known cost factors.

The recommendations developed will utilize existing features of the referenced standards. Existing implementations could adopt the recommendations with no hardware changes needed. Thus, implementation and deployment cost impacts would be small.

b) Balanced costs.

The balance between end station and infrastructure is not affected by the recommendations to be developed by this project.

c) Consideration of installation costs.

No change in installation costs is expected by the recommendations added by this amendment.

d) Consideration of operational costs (e.g., energy consumption).

This recommended practice will not result in additional operational costs.

e) Other areas, as appropriate.