**IEEE P802.15**

**Wireless Specialty Networks**

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| Project | IEEE P802.15 Working Group for Wireless Specialty Networks (WSNs) |
| Title |  |
| Date Submitted | [18 January 2018] |
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| Re: |  |
| Abstract | [CSD for 802.15.4x FAN Enhancements] |
| Purpose | [CSD for 802.15. 4x FAN Enhancements] |
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CRITERIA FOR STANDARDS DEVELOPMENT (CSD)

Based on IEEE 802 LMSC Operations Manuals approved 13 November 2015

Last edited 3 December 2015

**Title of Amendment to IEEE Std 802.15.4:**

Amendment defining enhancements to the Smart Utility Network (SUN) Physical Layers (PHYs) supporting up to 2.4 Mb/s data rates

# 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 demonstrate coexistence through the preparation of a Coexistence Assurance (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) Yes
2. If not, explain why the CA document is not applicable.

## 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.

Building upon the numerous successful deployments using IEEE Std. 802.15.4 and the rapid growth in applications, such as Internet of Things (IoT), Smart Grid, and Smart Cities, SUN PHY enhancements are needed to support higher data rates along with enhancements for longer range utilizing existing hardware deployments based upon 802.15.4 SUN PHY’s. These enhancements enable Electric System Distribution Automation, and reduce the amount of equipment needed to be deployed for Smart Grid systems, for example. These requirements are becoming necessary to Utilities on a Global scale.

1. Multiple vendors and numerous users.

There are many silicon and system vendors already producing devices and systems using IEEE Std 802.15.4, for use in Internet of Things (IoT) applications which includes: Smart Grid, and Smart City. Of increasing importance are applications like Electric System Distribution Automation, Street Light Automation, and similar. This amendment addresses these applications and serves a large and global Utility end user market.

### 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? While the standard shall comply with IEEE Std 802, it cannot comply with IEEE Std 802.1Q and IEEE Std 802.1AC because IEEE Std 802.15.4 uses 64-bit MAC addresses.

b) If the answer to a) is no, supply the response from the IEEE 802.1 WG. Compliance with IEEE Std 802.1Q and IEEE Std 802.1AC is not possible due to IEEE Std 802.15.4 using 64-bit MAC addresses

* + 1. 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.

The proposed amendment enhances and is limited to the existing 802.15.4 SUN PHY’s.

### 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.

This project does not require any new technical innovation to implement. There are numerous existing proprietary solutions deployed that can support the proposed enhancements.

1. Proven similar technology via testing, modeling, simulation, etc.

See a)

### 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. Balanced costs (infrastructure versus attached stations).

This project can be implemented with no change to the existing device cost basis which has been demonstrated, through millions of shipped devices.

1. Known cost factors.

Anticipated enhancements of this amendment will utilize current 802.15.4 SUN implementations and should not affect or create additional costs for implementation. This amendment could reduce cost of SUN implementations.

1. Consideration of installation costs.

Implementation of this amendment requires no change to current installation costs and costs could potentially be reduced because less network equipment could be required.

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

There are already IEEE 802.15.4 devices in volume shipment operating in the same frequency bands and PHY modes. The proposed enhancements included in this project could reduce well-known operational costs.

1. Other areas, as appropriate.