**IEEE P802.15**

**Wireless Personal Area Networks**

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| Project | IEEE P802.15 Working Group for Wireless Personal Area Networks (WPANs) | |
| Title | **Working draft of SG SRU CSD** | |
| Date Submitted | [18 March, 2014] | |
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| Re: | [ ] | |
| Abstract | [This document is working draft of the CSD.] | |
| Purpose | [Submit the CSD to the P802.15 Working Group] | |
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# IEEE 802 LAN/MAN STANDARDS COMMITTEE (LMSC)

# CRITERIA FOR STANDARDS DEVELOPMENT (CSD)

Based on IEEE 802 LMSC Operations Manuals approved 15 November 2013

Last edited 20 January 2014

# 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.

Wide application spaces of the IEEE 802.15.4, including Hospital/Medical/Healthcare, Industrial Automation and Social Infrastructure systems, require a set of standardized definitions and protocol for radio resource measurement, which facilitates management functions in WPANs enabling each strategy and policy of Spectrum Resources Usage (SRU) for the reliable system operation. The SRU strategy and policy required by each application space may diverse and sometimes unique, while pertaining radio resource measurement protocol has to be crafted such that maximize the commonality for each application spaces and eventually enhance the reliability, resilience and securities.

1. Multiple vendors and numerous users.

The membership of IEEE 802.15 demonstrates the interest in WPANs. Members include international wireless industry leaders, academic researchers, semiconductor manufacturers, communication equipment manufacturers, system integrators and end users.

There are at least 10 semiconductor manufacturers that are already providing chipsets for IEEE 802.15.4. The 802.15.4 based solutions have been used and are being used in a wide range of applications.

### 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? YES
2. If the answer to a) is no, supply the response from the IEEE 802.1 WG.

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.

This amendment will focus on maximizing the efficiency of areal SRU by utilizing acquired radio resource measurements information. The existing 802.15.4 does not support mechanisms for adequate radio resource measurements particularly in license-exempt bands.

The proposed amendment to IEEE 802.15.4 will provide a unique solution for the radio resource measurement and eventual efficient SRU functions.

### 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.

A variety of radio resource measurement mechanisms have been deployed for the systems operating in shared spectrum bands. Those can be utilized for network management to improve the efficiency of SRU. The concept of those is similar to the proposed standard amendment.

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

Many examples of radio resource measurement mechanisms have been published in the literature and demonstrated in laboratories worldwide. There are also examples that the measurement has been deployed in operational networks.

### 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).

The proposed amendment to 802.15.4 will be developed with the aim such that the additional cost of the radio resource measurement capabilities could be a negligible fraction of the entire cost of target applications.

1. Known cost factors.

IEEE 802.15.4 devices implementing the radio resource measurement protocols will make use of the existing high volume applications in the license-exempt frequency bands including 2.4GHz and 915MHz bands. The incremental cost for implementation is expected to be reasonable.

1. Consideration of installation costs.

One of the IEEE 802.15 standard objectives includes low cost installation with minimal or no operator intervention. The radio resource measurement in this amendment facilitates achieving the objectives.

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

This amendment is not expected to change operation costs of existing system.

1. Other areas, as appropriate.

None.

**References:**

Masayuki Ariyoshi, Shoichi Kitazawa “SRU Working draft 5C” IEEE P802.15-13-0616r1 https://mentor.ieee.org/802.15/dcn/13/15-13-0616-01-0sru-sru-working-draft-5c.docx