CRITERIA FOR STANDARDS DEVELOPMENT (CSD)

Based on IEEE 802 LMSC Operations Manuals approved 15 November 2013

Last edited 20 January 2014

**Amendment to IEEE 802.15.4:**

**Standard for Low Data Rate Wireless Networks**

Amendment for use of the 865-867 MHz band in India

# 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. While no new managed objects are anticipated, any managed objects that are required will be defined as part of the project.
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.

The Government of India recently announced that 100 smart cities will be developed in the near future with the result that the Internet of Everything (IoE) and Machine to Machine (M2M) communications have become popular names in the technology circles. The market for products addressing this opportunity is enormous. Numerous government agencies and groups, including the Ministry of Urban Development (MoUD), the National Smart Grid Mission (NSGM), the Department of Telecommunications (DoT), the Telecommunication Engineering Centre (TEC), the Department of Electronics and Information Technology (DietY), the India Smart Grid Forum (ISGF), and the Telecommunications Standards Development Society, India (TSDSI), to name but a few, are engaged in defining what is needed. From a communications perspective, open standards, like IEEE 802.15.4, are being advocated with the strong desire that the unlicensed 865-867 MHz band in India be supported. This project addresses that desire and enables a very large market opportunity.

1. Multiple vendors and numerous users.

There are many silicon and system vendors already producing devices and systems based on IEEE 802.15.4 for use in IoT applications which includes things like consumer electronics, mobile devices, building automation, medical applications, SmartGrid, industrial control and many more and therefore has a very large end user community.

### 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

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

* + 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 base standard was developed specifically to optimally address the needs of IoT networks and is broadly used in that application. It remains unique in that regard. This amendment uniquely addresses 15.4 operation in the 865-867 MHz band in India

### 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.

There are many regional sub 1 GHz 15.4 solutions already on the market. This project does not require any new technical innovation to implement

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 well over a billion shipped devices, to be suitable to effectively address IoT networking needs.

1. Known cost factors.

See a)

1. Consideration of installation costs.

Implementation of this PHY requires no change to current manufacturing methods

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

There are already 15.4 devices in volume shipment operating in nearby frequency bands. Complying with the regulatory requirements of this band has zero impact on these well-known operational costs.

1. Other areas, as appropriate.