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**IEEE P802.15**  
**Wireless Personal Area Networks**

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Project	IEEE P802.15 Working Group for Wireless Personal Area Networks (WPANs)		
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Re:	[Draft 5c for new recommended practice in IEEE 802.15]		
Abstract	[Draft 5c for new recommended practice in IEEE 802.15 for preliminary review]		
Purpose	[Working draft for preliminary review]		
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## CRITERIA FOR STANDARDS DEVELOPMENT (CSD)

Based on IEEE 802 LMSC Operations Manuals approved 15 November 2013  
Last edited 20 January 2014

### **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.

*c) At the current stage there is no need for the definition of managed objects.. If necessary, the CSD will be amended to describe the updated plan.*

##### 1.1.2 Coexistence

A WG proposing a wireless project shall demonstrate coexistence through the preparation of a Coexistence Assurance (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)
- b) If not, explain why the CA document is not applicable.

yes

## 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.

*There is a need for increased wireless data rates to service aggregated data streams in switched point-to-point applications in data center, wireless backhaul/fronthaul, intra-device communication and kiosk downloading. In this context the term switching is used to describe the switching of the physical beams from one antenna to another antenna. Fronthaul is the link between the PHY control unit of a base station and a remote radio unit. The wireless communication links can have a coverage range of up to several 100m.*

*A literature study has revealed that data centers need to be reconfigured frequently. In data centers wireless links will make frequent reconfiguration easier and more cost-effective compared to e. g. fibre and copper twin/ax deployments . In the case of backhaul and fronthaul, wireless solutions will reduce costs for the case when installing a fiber network is not cost-effective. In the cases of kiosk-downloading and intra-device communication, a guaranteed minimum data rate is required.*

- b) Multiple vendors and numerous users.

*Participants of IEEE 802.15 have shown interest in communications capabilities of this type. Participants include international wireless carriers/service providers, academic researchers, semiconductor manufacturers, communication equipment manufacturers, system integrators and end users.*

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

*Yes.*

### 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.

*There are currently no wireless standards servicing switched point-to-point applications beyond 10 Gbps. Standards addressing wireless links with data rates < 10 Gbps operating at 60 GHz are IEEE 802.15.3c, IEEE 802.11ad, ECMA-387 and WirelessHD.*

*Wireless connections at 100 Gbps complements 100 Gbps IEEE 802.3 links in data centers to increase reconfigurability.*

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

##### **a) Demonstrated system feasibility**

*There are prototypes and commercially existing hardware for components available today that demonstrate the feasibility of 100 Gbps at wavelengths shorter than millimeter wave. Data rates of up to 40 Gbits/s over a distance of 1.1km and 100 Gbit/s over a distance of 20m have been demonstrated.*

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

*Many examples of 25-100 Gbps data rate wireless technology have been published in the literature, demonstrated in laboratories and deployed in similar systems worldwide.*

#### 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) Balanced costs (infrastructure versus attached stations).
- b) Known cost factors.
- c) Consideration of installation costs.
- d) Consideration of operational costs (e.g., energy consumption).
- e) Other areas, as appropriate.

##### **a) Balanced costs**

*The cost of the communications technology proposed here is only a small fraction of the cost of the infrastructure being served by this application.*

**b) Known cost factors**

*There are no cost factors which would inhibit the effective deployment or use of this technology.*

**c) Consideration of installation costs**

*Wireless installations typically substantially simplify configuration. This particular wireless technology at 100 Gbps is expected to provide substantial cost savings in comparison to wire or fibre installations. This is particularly true in situations requiring frequent changes in configuration.*

**d) Consideration of operational costs**

*Operational costs are low and in the range one would expect for wireless systems of this class.*