

IEEE P802.15**Wireless Specialty Networks**

Project	IEEE P802.15 Working Group for Wireless Specialty Networks (WSNs)	
Title	IEEE 802 Criteria for Standards Development for P802.15.6 Revision	
Date Submitted	January 25th, 2022	
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Re:	Revision of IEEE Std 802.15.6 Wireless Body Area Networks	
Abstract	Draft of IEEE 802.15.6 CSD Revision	
Purpose	For discussion in TG 802.15.6a	
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Release	The contributor acknowledges and accepts that this contribution becomes the property of IEEE and may be made publicly available by P802.15.	

Revision History

Revision	Date	Notes
1	1/25/2022	Edits during the January meeting.
2	3/9/2022	Edits for the March meeting discussion.
3	3/10/2022	Edits during the AM1 session.

IEEE 802 LAN/MAN STANDARDS COMMITTEE (LMSC) CRITERIA FOR STANDARDS DEVELOPMENT (CSD)

Based on IEEE 802 LMSC Operations Manuals approved 4 August 2020. Last edited 31 August 2020

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:
YES.
- 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.

1.1.2 Coexistence

A WG proposing a wireless project shall prepare a Coexistence Assessment 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.
- b) If not, explain why the CA document is not applicable.

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.
Currently, IEEE Std 802.15.6-2012 Wireless Body Area Network (BAN) enables a wide variety of medical, fitness, and entertainment applications based on the unique capabilities of Ultra-Wide Band (UWB) technology such as low power consumption, sensing, and communication.

Enhancements of IEEE 802.15.6 will enable medical applications with higher dependability than IEEE Std 802.15.6-2012. 802.15.6 will support Vehicle Body Area Networks (VBAN) and its interaction with Human Body Area Networks (HBAN). The HBAN coordinator can interact with a VBAN coordinator as part of the 802.15.6 specification.

An example use case is a senior car driver with monitoring health indicators (HBAN), interacting with VBAN for safety, and preventing car incidents.

- b) Multiple vendors and numerous users.

There is identified interest and support for the outcome of this project from individuals affiliated with the following: 1) Medical device and equipment manufacturers, 2) Automotive OEMs and equipment manufacturers, 3) Environmental, Energy, and Consumer electronics equipment and manufacturers. 4) leading industry support and research groups. 5) Silicon manufacturers.

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

The review and response are 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 describes why the proposed project is substantially different.

The standard provides a unique focus on the dependable interaction of human body area networks (HBAN) and vehicle area networks (VBAN).

The standard supports HBAN, VBAN use cases with medical and non-medical applications with high dependability while coexisting with other BAN networks and other wireless systems operating in the UWB band. The IEEE 802.15.6-2012 Std does not work adequately under dense BAN and other piconets in the surroundings, and neither supports wireless vehicle applications. Other UWB-based IEEE 802.15 Stds do not support HBAN and VBAN use cases.

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 technical feasibility of 802.15.6 is proven in the market with UWB technology. The new capabilities of 802.15.6 are based on recent UWB technology prototypes and hybrid contention-

free and contention access MAC protocols. These are widely researched, prototyped, and applied to consumer electronic products.

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

The standard-based technologies have been proven by implementations in other UWB standards-based products, prototypes, testbeds, and peer-reviewed publications.

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

The capabilities of the standard will not incur significant costs. Recent advances in UWB technology enable affordable implementations.

- b) Known cost factors.

UWB is a mature technology known to implement and operate services at a reasonable cost.

- c) Consideration of installation costs.

There is minimal impact on installation costs.

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

Recent UWB implementations operate with lower power consumption compared to previous standard-based products.