

## IEEE P802.15

## Wireless Specialty Networks

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Project	IEEE P802.15 Working Group for Wireless Specialty Networks (WSNs)	
Title	<b>IEEE 802 Criteria for Standards Development for P802.15.6a Amendment – Dependable Human and Vehicle Body Area Networks</b>	
Date Submitted	May 18th, 2021	
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Re:	Amendment of IEEE Std 802.15.6 Wireless Body Area Networks	
Abstract	Draft of IEEE 802.15.6a CSD	
Purpose	For discussion in SG 802.15.6a	
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**Revision History**

<b>Revision</b>	<b>Date</b>	<b>Edits</b>
0	18 May 2021	Edits to Doc 21-0088-00-0dep
1	18 May 2021	Edits to Doc 21-0260-00-6a
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## 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 802.15.6a enable medical applications with higher dependability than IEEE Std 802.15.6, as well as interactions with Vehicle Body Area Networks (VBAN). A Human Body Area Network (HBAN) coordinator can interact with a VBAN coordinator as they are part of the

same 802.15.6a specification. An example use case is about a senior car driver, monitoring health (HBAN) and safety for preventing car incidents (VBAN).

- 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.

This amendment is unique in its focus on enhanced dependability in HBAN and its extension of the HBAN protocols to VBAN.

### 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.  
Enhancements of IEEE Std 802.15.6a are based on UWB technology and hybrid contention-free and contention access MAC protocols, which are widely researched, prototyped and applied to consumer electronic products.
- b) Proven similar technology via testing, modeling, simulation, etc.  
The enhancements created by this project have been proven by implementation, testing and demonstration in non-standards-based products, testbeds and peer-reviewed publications.

IEEE Std 802.15.6-2012 provides a link between a BAN coordinator and an Access Point (AP) for supporting infrastructure protocols.

### **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 proposed enhancements do not add significant cost.
- b) **Known cost factors.**  
The standard is built on IEEE Std 802.15.6 UWB technology and hybrid contention-free and contention access MAC protocols known to be obtained at reasonable cost.
- c) **Consideration of installation costs.**  
There is minimal impact on installation costs.
- d) **Consideration of operational costs (e.g., energy consumption).**  
UWB devices operate with lower power consumption than the radio interfaces defined in IEEE Std 802.15.6-2012.