

**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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Title	New Standard – IEEE Standard for Impulse Radio Ultra Wideband Wireless Ad Hoc Networks Criteria for Standards Development Draft		
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Date Submitted	[16 July 2021]		
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Abstract	[CSD for 802.15.14]		
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Purpose	[CSD and PAR development]		
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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

### Standard: Impulse Radio Ultra Wideband Wireless Ad Hoc Networks

#### **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:

- 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.

##### Coexistence

A WG proposing a wireless project shall prepare a Coexistence Assessment (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) **Yes**
- b) 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:

- a) Broad sets of applicability.

This standard defines the physical layer (PHY) and media access control sublayer (MAC) capabilities to support impulse radio ultra wideband features and capabilities, including real time precision ranging capability that is accurate to within a few centimeters.

Applications include utility, smart city, industrial, energy, transportation, entertainment and other consumer products including smart phones, and the list keeps growing.

b) Multiple vendors and numerous users.

The Connected Car Consortium (CCC), Fine Ranging Consortium (FiRa), UWB Alliance, and Connectivity Standards Alliance (previously known as the Zigbee Alliance) are adopting UWB technology. There are numerous vendors of UWB based products and solutions. The number of deployed devices is estimated in the 100s of millions and this figure continues to grow and encompasses components (ICs, modules) solutions, and end-product vendors. The capabilities defined by this standard will be implementable by many of these existing vendors and will attract many new vendors supporting many different user communities.

## 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?

No. While the standard shall comply with IEEE Std 802, it does not intend to comply with IEEE Std 802.1Q and IEEE Std 802.1AC to maintain backwards compatibility with IEEE Std 802.15.4 which uses Extended Unique Identifier – 64 (EUI-64).

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

Compliance with IEEE Std 802.1Q and IEEE Std 802.1AC is not possible due to the need to maintain backwards compatibility with IEEE Std 802.15.4 using Extended Unique Identifier – 64 (EUI-64). A comprehensive response was provided at the March 2016 802 Plenary Mtg. in Macao (see doc. # TBD).

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.

An impulse radio UWB PHY and MAC standard will be unique within the 802 standards family.

## 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.  
Impulse radio UWB technology has been implemented in volume and widely deployed in many applications, demonstrating feasibility and value. This standard consolidates this proven technology.
- b) Proven similar technology via testing, modeling, simulation, etc.  
Enhancements created by this project will have been proven by implementation, testing, and demonstration in existing standards-based and non-standards-based products, prototypes, and demonstration systems. This project brings these proven capabilities into the standard in a way compatible with existing standards-based solutions.

## 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) Known cost factors.  
The standard is built upon widely deployed impulse radio UWB technology at reasonable and known costs.
- b) Balanced costs.  
The proposed new standard will define the impulse radio UWB PHY and MAC functionality that provides a balanced approach for all forms/instantiations of wirelessly connected devices.
- c) Consideration of installation costs.  
There are no or at most minimal additional costs associated with installation.
- d) Consideration of operational costs (e.g., energy consumption).  
Costs associated with operation are negligible.
- e) Other areas, as appropriate.