IEEE P802.11
Wireless LANs

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| TGah Revised CSD  |
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Abstract

This document contains the revised CSD for TGah PAR extension request.

# 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:

1. The definitions will be part of this project. YES
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.

### 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.

1. Will the WG create a CA document as part of the WG balloting process as described in Clause 13? YES
2. If not, explain why the CA document is not applicable.

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## 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 are a number of license-exempt bands below 1 GHz suitable for indoor/outdoor applications. For instance, the 902-928 MHz ISM band is available in the U.S.

**b) Multiple vendors and numerous users.** There are a number of vendors that run IEEE 802.11 on 900 MHz. Standardization is needed for interoperability.

## 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.

1. Will the proposed standard comply with IEEE Std 802, IEEE Std 802.1AC and IEEE Std 802.1Q? YES
2. If the answer to a) is no, supply the response from the IEEE 802.1 WG.

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.

## 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.

a) Substantially different from other IEEE 802 standards.

IEEE 802.11 does not currently cover license-exempt operation below 1 GHz.

Existing Standards and Projects

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| --- | --- | --- | --- |
| **Element** | **802.11** | **802.16h** | **P802.15.4g** |
| PHY |  |  |  |
| Outdoor Timebase | 20 ppm xtal | Internal clock and GPS | ? |
| Indoor Timebase | 20 ppm xtal | Internal clock and network sync. | ? |
| Radio bands  | 2.4, 3.65, 4.9, 5 GHz | Any license-exempt | 220-956 MHz, 2.4 GHz |
| Data rates | 1 - 6933.3 Mbits/s | 125 kbits/s – 72 Mbits/s | Below 1 Mbit/s |
| Master Transmissions | Listen Before Talk | Synchronous | ? |
| MAC and System |  |  |  |
| Access method with others | Carrier Sense Multiple Access-Collision Avoid | 5 msec frames | ? |
| Timebase (Master) | Per AP | GPS/IEEE 1588/NTP | ? |
| **System** | **Distributed** | **Centralized and distributed in 802.16h** | **?** |

b) One unique solution per problem (not two solutions to a problem).

The 802.11 Project will define channel widths and center frequencies for interoperability among 802.11 systems. No other IEEE 802 standard includes the IEEE 802.11 MAC, which supports link security, quality of service, radio resource measurements and the IEEE 802.11 IP integration function.

c) Easy for the document reader to select the relevant specification.

The Project will produce an amendment to the IEEE 802.11 specification.

## 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.

Equipment that utilizes IEEE 802.11 OFDM radio modulations running at 1 MHz, 2 MHz, 4 MHz, 8 MHz and 16 MHz are in use today in the 902-928 MHz ISM band.

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

The main components of radio technology and signaling are in use today. There are OFDM systems in operation today, and their reliability is factored into the services offered.

**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).

Operation below 1 GHz in not expected to impact the cost of clients versus base stations, which is expected to be the same as existing devices.

b) Known cost factors.

The fundamental radio and baseband architecture of the WLAN is well known, and adding another supported band is a well-understood process.

c) Consideration of installation costs.

The installation cost of sub 1 GHz license-exempt WLAN equipment will not change from that of installing current 5 GHz band equipment.

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

The extension of IEEE 802.11 products and/or chipsets to cover sub 1 GHz license-exempt operation is similar in cost to that of adding the 3650 MHz operation as specified in IEEE 802.11y.

e) Other areas, as appropriate.

None.

**References:**

[**https://mentor.ieee.org/802.11/dcn/10/11-10-0001-13-0wng-900mhz-par-and-5c.doc**](https://mentor.ieee.org/802.11/dcn/10/11-10-0001-13-0wng-900mhz-par-and-5c.doc)