IEEE P802.11  
Wireless LANs

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| Sub 1 GHz non-licensed PAR and 5C | | | | |
| Date: 2010-01-10 | | | | |
| Author(s): | | | | |
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Abstract

This document proposes a Sub 1 GHz non-licensed PAR in NesCom format plus 5 Criteria

Top of Form

      



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| **Draft PAR Confirmation Number** |
| **Submittal Email:** dhalasz@aclara.com |
| **Type of Project:** PAR for an amendment to existing Standard 802.11-2007 |
| **1.1 Project Number:** P802.11 |
| **1.2 Type of Document:** Standard for |
| **1.3 Life Cycle:** Full |
| **1.4 Is this project in ballot now?** No |

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| **2.1 Title of Standard:** IEEE Standard for Information Technology - Telecommunications and Information Exchange Between Systems - Local and Metropolitan Area Networks - Specific Requirements - Part 11: Wireless LAN Medium Access Control (MAC) and Physical Layer (PHY) Specifications - Amendment: Sub 1 GHz non-licensed operation |

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| **3.1 Name of Working Group:** Wireless LAN Working Group(C/LM/WG802.11)    **Contact information for Working Group Chair**  Bruce Kraemer 517 La Costa Court  Melbourne, FL 32940 US bkraemer@marvell.com  **Working Group Vice Chair:** Jon Rosdahl 10871 N 5750 West  Highland, UT 84003 US, **Email:** jrosdahl@ieee.org |
| **3.2 Sponsoring Society and Committee:** IEEE Computer Society/Local and Metropolitan Area Networks(C/LM)  **Contact information for Sponsor Chair:**  Paul Nikolich 18 Bishops Lane  Lynnfield, MA 01940 US p.nikolich@ieee.org **Contact information for Standards Representative:** |
| **4.1 Type of Ballot:** Individual |
| **4.2 Expected Date of Submission for Initial Sponsor Ballot:** 2011-12 |
| **4.3 Projected Completion Date for Submittal to RevCom:** 2012-09 |
| **5.1 Approximate number of people expected to work on this project:** 50 |

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| **5.2 Scope of Proposed Standard:** An amendment that defines modifications to both the 802.11 physical layers (PHY) and the 802.11 Medium Access Control Layer (MAC), for standardization of non-licensed operation below 1 GHz. | **Old Scope:** |

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| **5.3 Is the completion of this standard is dependent upon the completion of another standard:** No  **If yes, please explain:** |

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| **5.4 Purpose of Proposed Standard:** The purpose of this amendment is to allow non-licensed 802.11 wireless networks to be used below 1 GHz. | **Old Purpose:** |

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| **5.5 Need for the Project:** Equipment ships today that runs IEEE 802.11 below 1 GHz. However, the channel width and center frequencies are not for these bands. This amendment is needed to establish the channel widths and center frequencies. The changes should largely be done in new regulatory classes (extending 802.11 annex i and j of IEEE 802.11-2007). Changes for channel widths down to 1.25 MHz are expected to change clause 17. |
| **5.6 Stakeholders for the Standard: Manufacturers and users of** semiconductor, personal computer, enterprise networking devices, consumer electronic devices, home networking equipment, mobile devices. |
| **Intellectual Property** **6.1.a.** Has the IEEE-SA policy on intellectual property been presented to those responsible for preparing/submitting this PAR prior to the PAR submittal to the IEEE-SA Standards Board? Yes (Needs follow up) If yes, state date: 2010-xx-xx If no, please explain:  **6.1.b.** Is the Sponsor aware of any copyright permissions needed for this project? No If yes, please explain:  **6.1.c.** Is the Sponsor aware of possible registration activity related to this project? No If yes, please explain: |
| **7.1 Are there other standards or projects with a similar scope?** Yes Explanation: IEEE P802.15 addresses one product segment of the new regulatory rules.  Sponsor Organization: IEEE Project/Standard Number: P802.15 Project/Standard Date: 0000-00-00 Project/Standard Title: Draft Standard for Wireless Regional Area Networks Part 15: Call out 802.15.4g |
| **7.2 International Standards Activities**  **a. Adoptions**   Is there potential for this standard to be adopted by another organization? **Do not know at this time**   Organization:   Technical Committee Name:   Technical Committee Number:   Contact person Name:   Contact Phone:   Contact Email:  **b. Joint Development**   Is it the intent to develop this document jointly with another organization? No  Organization:   Technical Committee Name:   Technical Committee Number:   Contact person Name:   Contact Phone:   Contact Email:  **c. Harmonization**   Are you aware of another organization that may be interested in portions of this document in their standardization development efforts? No  Organization:   Technical Committee Name:   Technical Committee Number:   Contact person Name:   Contact Phone:   Contact Email: |
| **8.1 Additional Explanatory Notes: (Item Number and Explanation)** |

Bottom of Form

Contact the [NesCom Administrator](mailto:nescom-admin@ieee.org)

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# Five Criteria

1. **17.5.1 Broad Market Potential**

**A standards project authorized by IEEE 802 shall have a broad market potential. Specifically, it shall have the potential for:**

**a) Broad sets of applicability.** There are a number of unlicensed bands below 1 GHz. 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.

**c) Balanced costs (LAN versus attached stations).** Operation below 1 GHz is not expected to impact the cost of clients versus base stations, which is expected to be the same as the 5 GHz bands.

1. **17.5.2 Compatibility**

**IEEE 802 defines a family of standards. All standards shall be in conformance with the IEEE 802.1 Architecture, Management, and Interworking documents as follows: 802. Overview and Architecture, 802.1D, 802.1Q, and parts of 802.1f. If any variances in conformance emerge, they shall be thoroughly disclosed and reviewed with 802.**

**Each standard in the IEEE 802 family of standards shall include a definition of managed objects that are compatible with systems management standards.**

Compatibility with IEEE 802 requirements will result from keeping the MAC SAP interface the same as for the existing 802.11 standard. The proposed amendment shall introduce no 802.1 architectural changes. The MAC SAP definition shall not be altered, ensuring that all LLC and MAC interfaces are compatible to and in conformance with the IEEE 802.1 Architecture, Management and Internetworking standards. New managed objects shall be defined as necessary in a format and structure consistent with existing 802.11 managed objects.

1. **17.5.3 Distinct Identity**

**Each IEEE 802 standard shall have a distinct identity. To achieve this, each authorized project shall be:**

1. **Substantially different from other IEEE 802 standards.** IEEE 802.11 does not currently cover unlicensed operation below 1 GHz .
2. **One unique solution per problem (not two solutions to a problem).** The 802.11 Project will define channel widths and center frequencies for interoperability.
3. **Easy for the document reader to select the relevant specification.** The Project will produce an amendment to the IEEE 802.11 specification.
4. **17.5.4 Technical Feasibility**

**For a project to be authorized, it shall be able to show its technical feasibility. At a minimum, the proposed project shall show:**

**a) Demonstrated system feasibility.** Equipment that conforms to IEEE 802.11a are in use today in the 902-928 MHz ISM band.

**b) Proven technology, reasonable testing.** The main components of radio technology and signalling are in use today.

**c) Confidence in reliability.** There are IEEE 802.11 systems in operation today, and their reliability is factored into the services offered

**17.5.4.1 Coexistence of 802 wireless standards specifying devices for unlicensed operation**

**A working group proposing a wireless project is required to demonstrate coexistence through the preparation of a Coexistence Assurance (CA) document unless it is not applicable. The Working Group will create a CA document as part of the WG balloting process. If the Working Group elects not to create a CA document, it will explain to the EC the reason the CA document is not applicable**.

1. The working group will create a CA document as part of the WG balloting process
2. **17.5.5 Economic Feasibility**

**For a project to be authorized, it shall be able to show economic feasibility (so far as can reasonably be estimated) for its intended applications. At a minimum, the proposed project shall show:**

**a) Known cost factors, reliable data.** The fundamental radio and baseband architecture of the WLAN is well known, and adding another supported band is a well-understood process.

**b) Reasonable cost for performance.** The extension of IEEE 802.11a products and/or chipsets to cover sub 1 GHz unlicensed operation is similar in cost to that of adding 3650 MHz operation as specified in IEEE 802.11y.

**c) Consideration of installation costs**. The installation cost of sub 1 GHz unlicensed WLAN equipment will not change from that of installing current 5 GHz band equipment.

**References:**