**IEEE P802.15**

**Wireless Personal Area Networks**

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| Project | IEEE P802.15 Working Group for Wireless Personal Area Networks (WPANs) | |
| Title | **IEEE 802.15 SG L2R Working Draft PAR** | |
| Date Submitted | [21 March, 2013] | |
| Source | [Clint Powell, PWC, LLC] [1563 W Kaibab Dr] [Chandler, AZ 85248] | Voice: [ 480 586-8457] Fax: [ ] E-mail: [ cpowell@ieee.org] |
| Re: | [Draft PAR for revision to IEEE 802.15.5] | |
| Abstract | [Draft PAR for revision to IEEE 802.15.5 for preliminary review] | |
| Purpose | [Working draft for preliminary review] | |
| Notice | This document has been prepared to assist the IEEE P802.15. It is offered as a basis for discussion and is not binding on the contributing individual(s) or organization(s). The material in this document is subject to change in form and content after further study. The contributor(s) reserve(s) the right to add, amend or withdraw material contained herein. | |
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**P802.15.5**

**Submitter Email: cpowell@ieee.org**

**Type of Project: Revision to IEEE Standard 802.15.5-2009**

**PAR Request Date: 21-Mar-2013 PAR Approval Date:**

**PAR Expiration Date:**

**Status: Unapproved PAR, PAR for a Revision to an existing IEEE Standard**

1. **Project Number: P802.15.5**
2. **Type of Document: Recommended Practice**
3. **Life Cycle: Full Use**

**2.1 Title: Recommended Practice for Information technology-- Telecommunications and information exchange between systems-- Local and metropolitan area networks-- Specific requirements Part 15.5: Mesh Topology Capability in Wireless Personal Area Networks (WPANs)**

**Changes in title: ~~IEEE~~ Recommended Practice for Information technology-- Telecommunications and information exchange between systems-- Local and metropolitan area networks-- Specific requirements Part 15.5: Mesh Topology Capability in Wireless Personal Area Networks (WPANs)**

1. **Working Group: Wireless Personal Area Network (WPAN) Working Group (C/LM/WG802.15)**

**Contact Information for Working Group Chair Name: Robert Heile**

**Email Address: bheile@ieee.org Phone: 781-929-4832**

**Contact Information for Working Group Vice-Chair Name: Richard Alfvin**

**Email Address: alfvin@ieee.org Phone: 585-781-0952**

1. **Sponsoring Society and Committee: IEEE Computer Society/LAN/MAN Standards Committee (C/LM)**

**Contact Information for Sponsor Chair Name: Paul Nikolich**

**Email Address: p.nikolich@ieee.org Phone: 857.205.0050**

**Contact Information for Standards Representative Name: James Gilb**

**Email Address: gilb@ieee.org**

**Phone: 858-229-4822**

1. **Type of Ballot: Individual**
2. **Expected Date of submission of draft to the IEEE-SA for Initial Sponsor Ballot: 11/2014**
3. **Projected Completion Date for Submittal to RevCom: 05/2015**

**5.1 Approximate number of people expected to be actively involved in the development of this project: 25**

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| **5.2 Scope: The scope of this standard is to provide a** | **Changes in scope: The scope of this standard is to provide a** |  |
| **recommended practice to provide the architectural framework** | **recommended practice to provide the architectural framework** |  |
| **enabling WPAN devices to promote interoperable, stable, and** | **enabling WPAN devices to promote interoperable, stable, and** |  |
| **scaleable wireless mesh topologies and, if needed, to provide** | **scaleable wireless mesh topologies and, if needed, to provide** |  |
| **the amendment text to the current WPAN standards that is** | **the amendment text to the current WPAN standards that is** |  |
| **required to implement this recommended practice.** | **required to implement this recommended practice. This** |  |
| **This revision to the 802.15.5 recommended practice will** | **revision to the 802.15.5 recommended practice will extend** |  |
| **wireless mesh topologies by providing a protocol that routes** |  |
| **extend wireless mesh topologies by providing a protocol that** | **packets in a dynamically changing network (changes on the** |  |
| **routes packets in a dynamically changing network (changes on** | **order of a minute time frame), with minimal impact to route** |  |
| **the order of a minute time frame), with minimal impact to** | **handling.** |  |
| **route handling.** |  |  |
| **5.3 Is the completion of this standard dependent upon the completion of another standard: No** | |  |
| **5.4 Purpose: The purpose of this project is to facilitate** | **Changes in purpose: The purpose of this project is to** |  |
| **wireless mesh topologies optimized for IEEE 802.15 WPANs.** | **facilitate wireless mesh topologies optimized for IEEE 802.15** |  |
| **Mesh Topology provides the following features to WPANs:** | **WPANs. Mesh Topology provides the following features to** |  |
| **WPANs: - Extension of network coverage without increasing** |  |
| **- Extension of network coverage without increasing the** | **the transmit power or the receiver sensitivity - Enhanced** |  |
| **transmit power or the receiver sensitivity** | **reliability via route redundancy - Easier network configuration -** |  |

* **Enhanced reliability via route redundancy**
* **Easier network configuration**
* **Better device battery life**

**This revision facilitates enhancement of IEEE 802.15.5 for IEEE 802.15 WPAN mesh topologies. Specifically it will provide for automatic handling of route related capabilities such as:**

* **Route establishment**
* **Dynamic route reconfiguration**
* **Discovery and addition of new nodes**
* **Breaking of established routes**
* **Loss and recurrence of routes**
* **Real time gathering of link status**
* **Allowing for single hop appearance at the networking layer (not breaking standard L3 mechanisms)**
* **Support of broadcast**
* **Support of multicast**
* **Effective frame forwarding**

**Better device battery life This revision facilitates enhancement of IEEE 802.15.5 for IEEE 802.15 WPAN mesh topologies. Specifically it will provide for automatic handling of route related capabilities such as: - Route establishment - Dynamic route reconfiguration -- Discovery and addition of new nodes -- Breaking of established routes -- Loss and recurrence of routes - Real time gathering of link status - Allowing for single hop appearance at the networking layer (not breaking standard L3 mechanisms) - Support of broadcast - Support of multicast - Effective frame forwarding**

1. **Need for the Project: Wireless PANs are being increasingly used in a variety of applications, including in Field Area Networks and in Neighborhood Area Networks. In these networks there is increased mobility as well as an increase in the opportunity for loss of connection due to both mobility and blockers/interferers. The ability to handle dynamically changing networks would be satisfied by defining new route handling capabilities**
2. **Stakeholders for the Standard: Chip vendors, Equipment Manufacturers, wireless sensor application developers and users.**

**Intellectual Property**

**6.1.a. Is the Sponsor aware of any copyright permissions needed for this project?: No 6.1.b. Is the Sponsor aware of possible registration activity related to this project?: No**

1. **Are there other standards or projects with a similar scope?: No**
2. **Joint Development**

**Is it the intent to develop this document jointly with another organization?: No**

**8.1 Additional Explanatory Notes (Item Number and Explanation): (7.1) None that make use of the features provided by IEEE Std. 802.15.4e-2012.**