**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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| Source | [Clint Powell, (PWC, LLC)] [1563 W Kaibab Dr] [Chandler, AZ 85248] | Voice: [ 480 586-8457] Fax: [ ] E-mail: [ cpowell@ieee.org] |
| Re: | [Draft 5c for revision to IEEE 802.15.5] | |
| Abstract | [Draft 5c for revision to IEEE 802.15.5 for preliminary review] | |
| Purpose | [Working draft for preliminary review] | |
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**IEEE P802.15 Low Rate Wireless Personal Area Networks Study Group Functional Requirements Standards Development Criteria**

The IEEE P802.15.4 Study Group for Wireless Personal Area Networks (WPANs) reviewed and completed the required IEEE Project 802 Functional Requirements, Standards Development Criteria (a.k.a. the Five Criteria). The IEEE 802.15 WPAN Five Criteria response is in Italics below.

**1. BROAD MARKET POTENTIAL**

**a) Broad sets of applicability**

*Applications of the IEEE 802.15.5 enable Mesh Topologies to provide: extension of network coverage without increasing the transmit power or the receiver sensitivity; enhanced reliability via route redundancy and easier network configuration. The increasing use of Low-Rate WPAN mesh networks, where the network is dynamically changing, such as in Field Area Networks and Neighborhood Area Networks and even Home Area Networks requires route handling for changes on the order of a minute time frame.*

**b) Multiple vendors and numerous users**

*The membership of IEEE 802.15 demonstrates the interest in WPANs. Members include international wireless industry leaders, academic researchers, semiconductor manufacturers, communication equipment manufacturers, system integrators and end users.*

*There are at least 14 semiconductor manufacturers that are already providing chipsets for IEEE 802.15.4. The 802.15.4 based solutions have been used and are being used in a wide range of applications.*

**c) Balanced costs (LAN versus attached stations)**

*The proposed revision to 802.15.5 will be developed with the aim that the route handling costs will be a very small fraction of the cost of the target applications.*

**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 which are compatible with systems management standards.**

*This revision will not affect the IEEE 802.15 standards' compliance with the IEEE 802 Architecture, Management, and Interworking documents as required. This recommended practice will be in conformance with the IEEE 802.1 Architecture, Management, and Interworking documents.*

**3. DISTINCT IDENTITY**

**a) Substantially different from other IEEE 802 standards.**

*IEEE 802.15.5 enables mesh networking for both high rate and low rate WPANs and is well suited for networks which are not dynamically changing (changes on the order of a minute time frame). This 802.15.5 revision for low rate WPANs minimizes the route handling overhead for dynamically changing mesh networks.*

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

*The proposed revision to IEEE 802.15.5 will provide a unique solution for dynamically changing mesh networks.*

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

*The proposed revision for IEEE 802.15.5 will include a recommended specification for the route handling of dynamically changing mesh networks.*

**4. TECHNICAL FEASIBILITY**

1. **Demonstrated system feasibility**

*Approaches to route handling of dynamically changing networks are in use today in pilot programs and in operational networks.*

**b) Proven technology, reasonable testing**

*Many examples of route handling of dynamically changing networks have not only been published in the literature and demonstrated in laboratories worldwide, but have deployed in operational networks.*

**c) Confidence in reliability**

*Confidence in reliability has been consistently demonstrated in currently deployed non IEEE based solutions.*

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

*An appropriate coexistence assurance document will be created.*

**5. ECONOMIC FEASIBILITY**

**a) Known cost factors, reliable data**

*IEEE 802.15.4 devices, implementing meshed network protocols, will make use of the existing high volume applications in the targeted frequency bands. The incremental cost for implementation is expected to be minimal.*

**b) Reasonable cost for performance**

*Performance and costs associated with route handling solutions for meshed network protocols have been shown to be minimal.*

**c) Consideration of installation costs**

*One of the IEEE 802.15 standard objectives includes low cost installation with minimal or no operator intervention.*