Wireless Personal Area Networks (WPANs), the Bluetooth™-IEEE Standards-Making Effort

Interest Convergence

Issue 2 of the SIGnal [1] introduced the cooperative effort now underway between the IEEE [2] 802.15 Working Group and the Bluetooth™ SIG to derive an IEEE standard based upon the Bluetooth™ Version 1.0 Specification. This cooperative effort has resulted from a convergence of IEEE standards development activities previously underway within the IEEE coupled with the formation of the Bluetooth™ SIG in 1998 and its subsequent phenomenal growth under the leadership of the Bluetooth™ SIG promoter companies.

The IEEE 802.15 Working Group for WPANs is authorized to provide, into the IEEE 802 family, standards for low-complexity, low-power-consumption wireless connectivity.

The goal of Task Group (TG1) is to have a draft IEEE standard this summer. Full ratification and publication will occur early next year.

Peer Review

The jointly crafted IEEE 802.15 standard will provide a check and balance to the Bluetooth™ specification. As a result, a key benefit to the Bluetooth™ Community will be achieved by the IEEE peer review process. For example, the first IEEE draft standard letter ballot [3] generated 1013 comments against the IEEE derivative work. Many of these comments referred directly to the Bluetooth™ Specification and were forwarded immediately to the Bluetooth™ SIG for review and disposition.

The IEEE 802 family of standards

Another of the key benefits to the Bluetooth™ Community is that this standard will add the Bluetooth™ Specification to the IEEE 802 family of standards.

The IEEE 802 LAN/MAN Standards Committee develops wired and wireless standards. IEEE 802 standards deal with the Physical and Data Link layers as defined by the International Organization for Standardization (ISO) Open Systems Interconnection (OSI) Basic Reference Model (ISO/IEC 7498-1: 1994).

Currently, IEEE 802 standards define eight (8) types of medium access technologies and associated physical media, each appropriate for particular applications or system objectives (see Figure 1). The most popular of these standards is IEEE 802.3, the Ethernet standard.

The Bluetooth™ SIG standards-making effort is based within the Wireless PANs (802.15), which is chartered to provide standards for different

Figure 1 IEEE 802 family of standards

Usage Models, based on wireless technology. It is expected to be a major growth area for IEEE 802 standards.

IEEE Outlook

Since the formation of the 802.15 WG in March 1999 there have been three projects authorized. The first being the TG1 which is the Bluetooth™-IEEE standards-making effort. The second Project authorized is designated Task Group 2 (TG2) and the third Project authorized is designated Task Group 3 (TG3).

TG1 - Numerous meetings have been held over the past two years, "…however, significant progress towards the completion of the IEEE standard occurred during the February 25, 2000 face-2-face meeting between the Bluetooth™-IEEE team in Copenhagen." said Tom Siep, IEEE P802.15.1 Editor-in-Chief. Again, the goal of TG1 is to publish, early next year, an approved standard derived from the Bluetooth™ Specification.

TG2 - Will address the issue of coexistence between 802.15 and 802.11 wireless networks. The purpose of the TG2 is twofold. First, to develop a Coexistence Model quantifying the effect of the mutual interference of the two networks. Second, to develop a Recommended Practice to facilitate coexistence of 802.15 and 802.11 devices operating in a common environment. The target completion date for this project is March 2001.

TG3 - The latest addition to the IEEE 802.15 Working Group is the newly formed High-Rate Task Group, chartered to draft and publish a new standard for high-rate (20Mbps or greater) WPANs. The new HR standard will provide for low power, low cost solutions addressing the needs of consumer digital imaging and multimedia applications. In addition, the new HR standard will provide compatibility with the TG1 specification. The process of reviewing responses to the formal Call for Applications and Proposals is expected to be completed in July 2000. The target completion date for this project is November 2001.
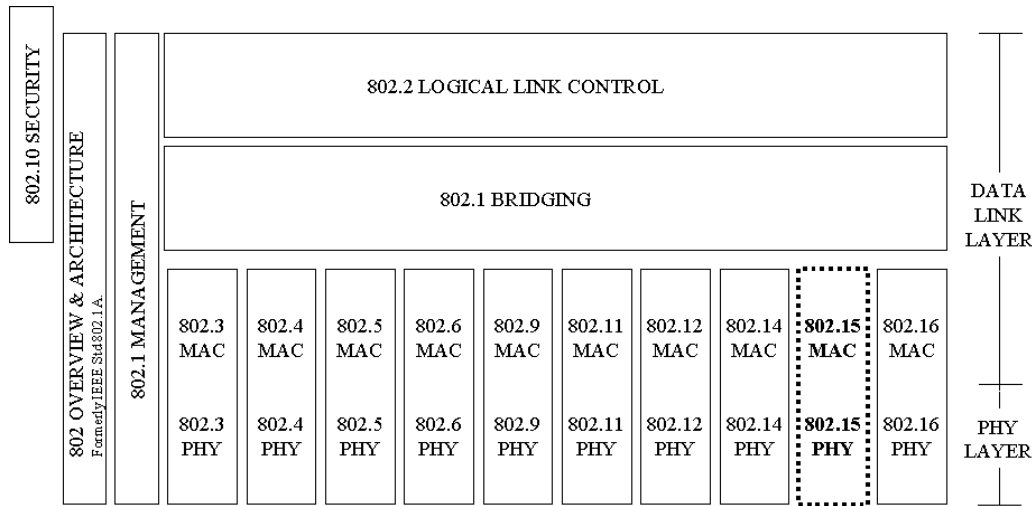
More info at:
http://grouper.ieee.org/groups/802/15/

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[1] Bluetooth™ SIGnal no.2. More info at:
http://www.bluetooth.com

[2] IEEE is a not-for-profit, technical professional association of more than 350,000 individual members in 150 countries. More info at: http://www.ieee.org/about/whatis/

[3] Ballots are a part of the standards process. More info at:
http://standards.ieee.org/resources/glance.html