P802.11ad

Submitter Email: bkraemer@marvell.com
Type of Project: Amendment to IEEE Standard
PAR Request Date: 10-Oct-2008
PAR Approval Date: 10-Dec-2008
PAR Expiration Date: 31-Dec-2012
Status: PAR for an Amendment to an existing IEEE Standard 802.11-2007
Project Record:

1.1 Project Number: P802.11ad
1.2 Type of Document: Standard
1.3 Life Cycle: Full Use

2.1 Title: 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: Enhancements for Very High Throughput in the 60 GHz Band

3.1 Working Group: Wireless LAN Working Group (C/LM/WG802.11)
Contact Information for Working Group Chair
  Name: Bruce Kraemer
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3.2 Sponsoring Society and Committee: IEEE Computer Society/Local and Metropolitan Area Networks (C/LM)
Contact Information for Sponsor Chair
  Name: Paul Nikolich
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Contact Information for Standards Representative
None

4.1 Type of Ballot: Individual
4.2 Expected Date of submission of draft to the IEEE-SA for Initial Sponsor Ballot: 12/2011
4.3 Projected Completion Date for Submittal to RevCom: 12/2012

5.1 Approximate number of people expected to be actively involved in the development of this project: 100
5.2 Scope: This amendment defines standardized modifications to both the 802.11 physical layers (PHY) and the 802.11 Medium Access Control Layer (MAC) to enable operation in the 60 GHz frequency band (typically 57-66 GHz) capable of very high throughput. The MAC and PHY specified in this amendment:
  Enables a maximum throughput of at least 1 Gbps, as measured at the MAC data service access point (SAP)
  Enables fast session transfer between PHYs
  Maintains the 802.11 user experience
  Provides mechanisms that enable coexistence with other systems in the band including IEEE 802.15.3c systems
5.3 Is the completion of this standard dependent upon the completion of another standard: Yes
If yes please explain: 802.11n (for fast session transfer between PHYs)

5.4 Purpose: The purpose of the amendment is to improve the 802.11 user experience by providing significantly higher throughput for local area networking
5.5 Need for the Project: As WLAN usage grows, there exists an increasing need for additional capacity. Additional high bandwidth channels are needed for efficient support of high throughput usage.

Mainstream wired LAN products have shifted to Gigabit per second speeds. WLAN technology must advance to provide a comparable throughput.

5.6 Stakeholders for the Standard: Manufacturers and users of semiconductors, personal computers, enterprise networking devices, consumer electronic devices, home networking equipment, and 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
If yes, state date: 12-May-2008
6.1.b. Is the Sponsor aware of any copyright permissions needed for this project?: No
6.1.c. Is the Sponsor aware of possible registration activity related to this project?: No

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7.1 Are there other standards or projects with a similar scope?: Yes
If yes please explain: There are 60 GHz PHY projects in 802.15.3c and ECMA TC48.

1)Sponsor Organization: IEEE 802
Project/Standard Number: IEEE 802.15.3c
Project/Standard Date: 2009-09-30 (projected date)0000-00-00
Project/Standard Title: Part 15.3: Wireless Medium Access Control (MAC) and Physical Layer (PHY) Specifications for High Rate Wireless Personal Area Networks (WPANs): Amendment 2: Millimeter-wave based Alternative Physical Layer Extension

2)Sponsor Organization: ECMA
Project/Standard Number: TC48 60 GHz
Project/Standard Date: 2008-12-31 (projected date)
Project/Standard Title: PHY and MAC layers for 60 GHz wireless network

and answer the following
  Sponsor Organization: IEEE 802
  Project/Standard Number: IEEE 802.15.3c
  Project/Standard Date: 30-Sep-2009
  Project/Standard Title: Part 15.3: Wireless Medium Access Control (MAC) and Physical Layer (PHY) Specifications for High Rate Wireless Personal Area Networks (WPANs): Amendment 2: Millimeter-wave based Alternative Physical Layer Extension
7.2 International Activities
  a. Adoption
  Is there potential for this standard (in part or in whole) to be adopted by another national, regional or international organization?: No
  b. Joint Development
  Is it the intent to develop this document jointly with another organization?: No
  c. Harmonization
  Are you aware of another organization that may be interested in portions of this document in their standardization development efforts?: No

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8.1 Additional Explanatory Notes (Item Number and Explanation): 5.2) Fast session transfer between 60 GHz and 2.4/5 GHz bands will enable typical WLAN coverage for multi-band devices. However, this does not imply that devices must be multi-band. The amendment will specify a mechanism for multi-band devices.

It is in the best interest of users and the industry to strive for a level of coexistence between wireless systems. VHT will investigate coexistence with other systems in the 60 GHz band.
  One approach will be to investigate a common PHY between VHT and 802.15.3c, and adopt if feasible.
  Another approach is a common coexistence mechanism that may be used by other 60 GHz systems

Regarding 802.11 user experience, this refers to 1) maintaining the network architecture of the 802.11 system (e.g. infrastructure basic service set, extended service set, access point, station) and 2) reuse and maintain backward compatibility to 802.11 management plane (e.g. association, authentication, security, measurement, capability exchange, MIB)

1.1) this is an amendment to the then current revision of the IEEE standard 802.11, whick will include a PICS proforma.