P802.11aj

Submitter Email: eldad.perahia@intel.com
Type of Project: Amendment to IEEE Standard 802.11-2012
PAR Request Date: 18-May-2012
PAR Approval Date:
PAR Expiration Date:
Status: Unapproved PAR, PAR for an Amendment to an existing IEEE Standard

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

2.1 Title: 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: Wireless LAN Medium Access Control (MAC) and Physical Layer (PHY) Specifications - Amendment: Enhancements for Very High Throughput to support Chinese millimeter wave frequency bands.

3.1 Working Group: Wireless LAN Working Group (C/LM/WG802.11)
Contact Information for Working Group Chair
Name: Bruce Kraemer
Email Address: bkraemer@marvell.com
Phone: 321-751-3988
Contact Information for Working Group Vice-Chair
Name: Jon Rosdahl
Email Address: jrosdahl@ieee.org
Phone: 801-492-4023

3.2 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
None

4.1 Type of Ballot: Individual
4.2 Expected Date of submission of draft to the IEEE-SA for Initial Sponsor Ballot: 07/2015
4.3 Projected Completion Date for Submittal to RevCom: 10/2016

5.1 Approximate number of people expected to be actively involved in the development of this project: 50
5.2.a. Scope of the complete standard: The scope of this standard is to define one medium access control (MAC) and several physical layer (PHY) specifications for wireless connectivity for fixed, portable, and moving stations (STAs) within a local area.

5.2.b. Scope of the project: This amendment defines modifications to the IEEE P802.11ad Physical (PHY) layer and the Medium Access Control (MAC) layer to enable operation in the Chinese 59-64 GHz frequency band. The amendment shall maintain backward compatibility with 802.11ad when it operates in the 59-64 GHz frequency band. The amendment also defines modifications to the PHY and MAC layers to enable the operation in the Chinese 45 GHz frequency band. The amendment maintains the 802.11 user experience.

5.3 Is the completion of this standard dependent upon the completion of another standard: No
5.4 Purpose: The purpose of this standard is to provide wireless connectivity for fixed, portable, and moving stations within a local area. This standard also offers regulatory bodies a means of standardizing access to one or more frequency bands for the purpose of local area communication.

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 comparable throughput.

802.11 has embraced operation in 3 bands: 2.4 GHz, 5 GHz for global use and 60 GHz band as regionally available. Currently 802.11ad supports 57-64 GHz band in US, Canada, Korea, 59-66 GHz band in Japan and the 57-66 GHz band in Europe. However, the 60 GHz frequency band allocated in China only has a bandwidth of 5 GHz (59-64 GHz) which is smaller than the typical 7-9 GHz bandwidth allocated in other countries. The current band plan considered in the 802.11ad amendment uses

channels with 2.16 GHz bandwidth which gives only 2 logical channels for networking when operating in China. This may limit the usage of 802.11ad products in the China market.

In addition, the Chinese WPAN group has made a request to the Radio Management Bureau of the Ministry of Industry and Information Technology of the People's Republic of China for the use of the 45 GHz frequency band. As the 45 GHz frequency band has better propagation characteristics than the 60 GHz frequency band, this amendment enables larger coverage area and portable devices with lower-power supporting more application scenarios than 802.11ad. China is a huge and important market that makes undertaking a project like this worthwhile.

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. 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

---

7.1 Are there other standards or projects with a similar scope?: Yes
If Yes please explain: There are 60 GHz PHY projects in 802.11ad, 802.15.3c and ECMA TC48.

and answer the following
Sponsor Organization: IEEE 802
Project/Standard Number: IEEE P802.11ad
Project/Standard Date: 31-Dec-2012
Project/Standard Title: Part 11: Wireless Medium Access Control (MAC) and Physical Layer (PHY) Specifications for High Rate Wireless Personal Area Networks (WPANs): Amendment 5: Millimeter-wave based Alternative Physical Layer Extension
7.2 Joint Development
Is it the intent to develop this document jointly with another organization?: Yes
Organization: China National Information Technology Standardization
Technical Committee Name: China Wireless Personal Area Network
Technical Committee Number: 1
Contact Name: Zhuo Lan
Phone: +86-10-6783 1834
Email: zhuolan@cesi.ac.cn

8.1 Additional Explanatory Notes (Item Number and Explanation): (5.2, 5.4 and 5.5) The 45 GHz frequency band (43.5 GHz to 47 GHz) is pending approval from the China Ministry of Industry and Information Technology (MIIT) of the People's Republic of China (PRC) complying with the applicable MIIT of PRC rules reference documents:
*11-12-0398-04-cmmw
*11-12-0682-00-cmmw

(5.2) Explanatory material on the Chinese 60GHz frequency band regulation is given in the following reference documents
*MIIT XWH 2006-082:
http://www.miit.gov.cn/n11293472/n11295310/n11297428/11637344.html
*MIIT XBW 2005-423:
http://www.miit.gov.cn/n11293472/n11505629/n11506593/n11960250/n11960606/n11960700/n12330791.files/n12330790.pdf

(7.1)
Sponsor Organization: IEEE 802
Project/Standard Number: IEEE 802.15.3c
Project/Standard Date: 2009-09-30
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

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