IEEE P802.11  
Wireless LANs

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| 802.11 NGP SG Proposed PAR | | | | |
| Date: 2015-01-06 | | | | |
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Abstract

This submission includes the IEEE 802.11 Next Generation Positioning (NGP) Study Group PAR.

# PAR

**P802.11**

**Submitter Email:** jonathan.segev@intel.com  
**Type of Project:** Amendment to IEEE Standard 802.11  
**PAR Request Date:** July 2015   
**PAR Approval Date:** July 2015 **PAR Expiration Date:** July 2019 **Status:** Unapproved PAR, PAR for an amendment to an existing IEEE Standard

**1.1 Project Number:** P802.11ay  
**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: Positioning Enhancements.

**3.1 Working Group:** Wireless LAN Working Group (C/LM/WG802.11)   
**Contact Information for Working Group Chair**

**Name:** Adrian Stephens  
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**3.2 Sponsoring Society and Committee:** IEEE Computer Society/LAN/MAN Standards Committee (C/LM)   
**Contact Information for Sponsor Chair**

**Name:** Paul Nikolich  
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**4.1 Type of Ballot:** Individual  
**4.2 Expected Date of submission of draft to the IEEE-SA for Initial Sponsor Ballot:**Sep. 2018.   
**4.3 Projected Completion Date for Submittal to RevCom:**Sep. 2019.

**5.1 Approximate number of people expected to be actively involved in the development of this project:** 40

**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 standardized modifications to both the IEEE 802.11 physical layers (PHY) and the IEEE 802.11 medium access control layer (MAC) that enables high accuracy absolute and relative positioning determination, with efficient medium and power usage and that is scalable in dense deployments.

802.11ay devices maintain coexistence with legacy devices.

802.11ay devices maintain backward compatability with legacy devices (the exact definition of backward compatability requires discussion).

**5.3 Is the completion of this standard dependent upon the completion of another standard:** No.

Note:

IEEE Std 802.11 is currently in revision, but will have completed by the time this project goes to sponsor ballot. This amendment might depend on mechanisms in that revision.  **5.4 Purpose:**

The purpose of this amendment is to enhance accuracy and scalability of positioning (over and above that provided by the Fine Timing Measurement mechanism in IEEE Std 802.11) for fixed, portable, and mobile stations.

**5.5 Need for the Project**TBD

**5.6 Stakeholders for the Standard**Manufacturers and users of semiconductors, personal computers, enterprise networking devices, consumer electronic devices, home networking equipment, mobile wearable devices, test and measurement equipment providers.

**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?**

TBD

Bluetooth based positioning exists – but we try and have that support for 802.11 based systems in that respect its unique.

For accuracy – LED technology need specific standard referance.

For angle detection – yes BLE need specific standard referance.

For large scale – no.

Format:

Sponsor Organization: IEEE 802  
Standard Number: IEEE 802.15.3c  
Standard Date: 2009-09-30   
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:

**7.2 Joint Development**  
**Is it the intent to develop this document jointly with another organization?**

No

**8.1 Additional Explanatory Notes (Item Number and Explanation):**

**References:**

\*1- Indoor Location Positioning Technology: Research, Start-ups and Predictions by Grizzly Analytics market Research.

\*2 – Smartphone Indoor Location Technologies by ABI Research.

\*3-11-14-1235/r0 – Scalable Location by Brian Hart, Peter Thornycroft and Mark Rison.

\*4- 11-13-0072-01-000m-client-positioning-using-timing-measurements-between-access-points by Erik Lindskog, Naveen Kakani et-al.

\*5 – 11-12-1249-04-000m-802-11-2012-cid-46-47-48 by Carlos Aldana et-al.

\*6- Reference to use case document

\*7- Reference to CSD document