IEEE P802.11
Wireless LANs

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| 802.11 GLK Draft PAR and 5C |
| Date: 2012-09-17 |
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Abstract

This is a draft PAR and five criteria for IEEE 802.11 General Link (GLK) Study Group consideration.

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# PAR

**P802.11**

**Submitter Email:**
**Type of Project:** Amendment to IEEE Standard 802.11-2012
**PAR Request Date:** TBD
**PAR Approval Date:
PAR Expiration Date:
Status:** Unapproved PAR, PAR for an Amendment to an existing IEEE Standard

**1.1 Project Number:** P802.11ak
**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: Enhanced 802.11 Media Transit Links

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

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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:**2015-05
**4.3 Projected Completion Date for Submittal to RevCom:**2016-07

**5.1 Approximate number of people expected to be actively involved in the development of this project:** 45

**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 specifies protocols, procedures, and managed objects to enhance the ability of 802.11 media to provide internal connections as transit links within bridged networks.
 **5.3 Is the completion of this standard dependent upon the completion of another standard:**This standard will require features to be standardized in a parallel IEEE 802.1 project P802.1Qbz. This project will be amending the IEEE 802.11 standard, and the IEEE 802.1 project will make the corresponding changes that are necessary for combining the two solutions.
 **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:**There are a large number of new products including home entertainment systems and industrial control equipment that have both an IEEE 802.11 wireless station capability and a wired IEEE 802.3 Ethernet capability. IEEE 802.11 is working on 802.11 media operating in the gigabit per second range and has standardized 802.11 security and quality of service improvements. These developments raise a demand for supporting IEEE 802.11 media to the same level as other media supported by bridges, as a medium internal to the network, as well as a medium offering access to the network.
 **5.6 Stakeholders for the Standard:**Vendors, users, administrators, designers, customers, and owners of mixed IEEE 802.11 wireless and IEEE 802 wired networks.

**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?:**
IEEE Std 802.11-2012 includes a definition for a Mesh Network which addresses a part of this need in the mesh mode and can be used as a transit link in the middle of an 802 network. However, 802.11 has several non-mesh modes, such as the infrastructure basic service set involving access point and associated stations, that are much more widely deployed than 802.11 mesh networks and must be amended if they are to provide transit link capability.

**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):**

# Five Criteria

## Broad Market Potential

A standards project authorized by IEEE 802 LMSC shall have a broad market potential. Specifically, it shall have the potential for:

a) Broad sets of applicability.

Home entertainment devices are acquiring wired and wireless interfaces. The ability to build a plug-and-play bridged network using arbitrary connections would accelerate the acceptance of IEEE 802.3 and IEEE (Wi-Fi) as the primary means of transmitting video and audio signals. Other networks have similar requirements for arbitrary wired and IEEE connectivity.

b) Multiple vendors and numerous users.

A great many vendors offer devices with both wired and IEEE 802.11 capability.

c) Balanced costs (LAN versus attached stations).

This project reduces the cost of ownership of devices with wired and IEEE 802.11 connectivity by reducing the overall network complexity in the absence of a bridging solution.

## Compatibility

IEEE 802 LMSC defines a family of standards. All standards should be in conformance : IEEE Std 802, IEEE 802.1D, and IEEE 802.1Q. If any variances in conformance emerge, they shall be thoroughly disclosed and reviewed with IEEE 802.1 Working Group. In order to demonstrate compatibility with this criterion, the Five Criteria statement must answer the following questions.

a)Does the PAR mandate that the standard shall comply with IEEE Std 802, IEEE Std 802.1D and IEEE Std 802.1Q?

b)If not, how will the Working Group ensure that the resulting draft standard is compliant, or if not, receives appropriate review from the IEEE 802.1 Working Group?

The PAR does not mandate that the standard will comply with IEEE Std 802, IEEE Std 802.1D, and IEEE Std 802.1Q. However, compatibility with IEEE 802 requirements will result from keeping the MAC SAP interface the same as for the existing IEEE 802.11 standard.  In addition the proposed amendment shall introduce no 802.1 architectural changes and the MAC SAP definition shall not be altered, ensuring that all LLC and MAC interfaces are compatible to and in conformance with IEEE Std 802, IEEE Std 802.1D, and IEEE Std 802.1Q. Lastly, new managed objects shall be defined as necessary in a format and structure consistent with existing IEEE 802.11 managed objects.

## Distinct Identity

Each IEEE 802 LMSC standard shall have a distinct identity. To achieve this, each authorized project shall be:

a) Substantially different from other IEEE 802 LMSC standards.

There is no IEEE 802 standard that provides this capability.

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

There is no standard that provides this capability.

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

The title chosen provides the reader sufficient information to identify the amendment topic.

## Technical Feasibility

For a project to be authorized, it shall be able to show its technical feasibility. At a minimum, the proposed project shall show:

a) Demonstrated system feasibility.

Multiple vendors have implemented similar  proprietary solutions.

b) Proven technology, reasonable testing.

IEEE 802.1Q and IEEE 802.11 are widely  implemented and successful in the market.

c) Confidence in reliability.

Use of IEEE 802.1 will not reduce the well-known and accepted reliability if IEEE 802.11 media.

d) Coexistence of IEEE 802 LMSC wireless standards specifying devices for unlicensed operation.

A Coexistence Assurance document is not necessary for this amendment. It will change neither the IEEE 802.11 channel access mechanism nor physical layer operation in such a fashion to impact coexistence with other IEEE 802 standards specifying unlicensed operation

## Economic Feasibility

For a project to be authorized, it shall be able to show economic feasibility (so far as can reasonably be estimated) for its intended applications. At a minimum, the proposed project shall show:

a) Known cost factors, reliable data.

This project introduces no additional required hardware costs. The Additional software should be able to run on existing hardware.

b) Reasonable cost for performance.

The cost of upgrading software and configuring the protocol is reasonable, given the improvement in connectivity and forwarding efficiency gained.

c) Consideration of installation costs

The cost of installing enhanced software, in exchange for improved network performance, is familiar to vendors and users of bridged networks. **References:**

1. IEEE Std 802.1Q-2011, “Media Access Control Bridges and Virtual Bridge Local Area Networks”, 31 August 2011.
2. IEEE Std 802.11-2012, “… Wireless LAN Medium Access Control (MAC) and Physical Layer (PHY) Specifications”, 6 February 2012.