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**Telecommunications and exchange  
between information technology  
systems — Requirements for local and  
metropolitan area networks —**

Part 11:

**Wireless LAN medium access control  
(MAC) and physical layer (PHY)  
specifications**

**AMENDMENT 4: Enhancements for  
transit links within bridged network**

*Télécommunications et échange entre systèmes informatiques —  
Exigences pour les réseaux locaux et métropolitains —*

*Partie 11: Spécifications du contrôle d'accès du milieu sans fil (MAC)  
et de la couche physique (PHY)*

*AMENDEMENT 4: Améliorations pour les liaisons de transit dans un  
réseau ponté*



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Institute of Electrical and Electronics Engineers, Inc  
3 Park Avenue, New York  
NY 10016-5997, USA

Email: [stds.ipr@ieee.org](mailto:stds.ipr@ieee.org)  
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**IEEE Std 802.11ak™-2018**

(Amendment to IEEE Std 802.11™-2016  
as amended by IEEE Std 802.11aj™-2016,  
IEEE Std 802.11ah™-2016,  
and IEEE Std 802.11aj™-2018)

**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 4: Enhancements for Transit Links  
Within Bridged Networks**

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Approved 8 March 2018

**IEEE-SA Standards Board**

**Abstract:** Protocols, procedures, and managed objects to enhance the ability of IEEE 802.11™ media to provide transit links internal to IEEE 802.1Q™ bridged networks are specified in this amendment to IEEE Std 802.11™-2016.

**Keywords:** bridged, bridging, EPD, GCR, GLK, GLK-GCR, IEEE 802.11™, IEEE 802.11ak™, IEEE 802.1Q™, LPD, priority code point, SYNRA, transit link

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## Introduction

This introduction is not part of IEEE Std 802.11ak-2018, IEEE Standard for Information technology—Local and metropolitan area networks—Specific requirements—Part 11: Wireless LAN MAC and PHY Specifications—Amendment 3: Enhancements for Transit Links Within Bridged Networks.

IEEE Std 802.11™ was originally designed with the assumption that non-access point (non-AP) non-mesh stations (STAs) would be leaf nodes of the network. This amendment extends IEEE Std 802.11 so that communication links can be established between general link (GLK) STAs that are usable as transit links inside an IEEE 802.1Q™ network.

Areas of extension and related improvements include the following:

- a) Optional support of IEEE 802<sup>®</sup> length/type (EPD) frame encoding, as opposed to ISO/IEC 8802-2: 1998 logical link control (LLC) encoding (LPD).
- b) Facilities for GLK APs to send group addressed Data GLK frames to a subset of receiving GLK STAs.
- c) Priority code points in IEEE Std 802.1Q™ have a different default meaning than they do in IEEE Std 802.1D™. For example, in IEEE Std 802.1Q, priority 2 is, by default, higher priority than priority 1, while in IEEE Std 802.1D, it is lower. Thus it is suggested in Annex V that GLK associations use a Priority code point to user priority mapping in their corresponding IEEE 802.1Q bridge port.
- d) Accessibility to the wireless medium via one or more Internal Sublayer Service service access points (SAPs) that map to attached bridge ports.
- e) Improvement of groupcast with retries (GCR) setup to extend GCR to GLK STAs.

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