

IEEE Standard for Air Interface for Broadband Wireless Access Systems— Amendment 3: Multi-tier Networks

IEEE Computer Society
and the
IEEE Microwave Theory and Techniques Society

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IEEE Std 802.16q™-2015
(Amendment to
IEEE Std 802.16™-2012)

IEEE Standard for Air Interface for Broadband Wireless Access Systems—

Amendment 3: Multi-tier Networks

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Approved 16 February 2015
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Abstract: MAC/PHY protocol enhancements for cooperation among base stations in multi-tier networks to enhance interference mitigation, mobility management, and base station power management are specified in this amendment. Enhanced base stations shall support legacy mobile stations. PHY changes to any mobile stations are out of scope.

In addition, these protocol enhancements include management messaging between base stations, and between base stations and mobile stations.

Keywords: amendment, broadband wireless access (BWA), IEEE 802.16™, IEEE 802.16q™, multi-tier network, mobile broadband, orthogonal frequency-division multiple access (OFDMA), WirelessMAN-OFDMA Air Interface, wireless metropolitan area networks

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Harry Bims, *Secretary*
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Catherine Berger
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Kathryn Bennett
IEEE-SA Technical Community

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IEEE 802.16 Standards	Date approved by IEEE	Officers at the time of Working Group Letter Ballot
IEEE Std 802.16-2001	6 December 2001	Roger B. Marks , <i>Working Group Chair, Task Group Chair, Technical Editor</i> Brian Kiernan , <i>Working Group Vice Chair</i> Carl Bushue , <i>Working Group Secretary</i> Carl Eklund , <i>MAC Chair</i> Jay Klein , <i>PHY Chair</i> Carl Eklund, Kenneth Stanwood, Stanley Wang , <i>MAC Editors</i> Jay Klein, Lars Lindh , <i>PHY Editors</i>
IEEE Std 802.16c™-2002 (amendment)	12 December 2002	Roger B. Marks , <i>Working Group Chair</i> Paul F. Struhsaker , <i>Working Group Vice Chair</i> Dean Chang , <i>Working Group Secretary</i> Kenneth Stanwood , <i>Task Group Chair</i> Carl Eklund , <i>Technical Editor</i>
IEEE Std 802.16a™-2003 (amendment)	29 January 2003	Roger B. Marks , <i>Working Group Chair</i> Carl Eklund , <i>Vice Chair</i> Dean Chang , <i>Working Group and Task Group Secretary</i> Brian Kiernan , <i>Task Group Chair</i> Nico van Waes , <i>Technical Editor</i> Brian Eidson , <i>Lead SCA PHY Editor</i>
IEEE Std 802.16-2004	24 June 2004	Roger B. Marks , <i>Working Group Chair</i> Kenneth Stanwood , <i>Vice Chair</i> Dean Chang , <i>Working Group Secretary</i> Gordon Antonello , <i>Task Group Chair</i> Itzik Kitroser , <i>Chief Technical Editor</i> Robert Nelson , <i>Assistant Editor</i> Brian Eidson , <i>SCA PHY Editorial Contributor</i> Nico van Waes , <i>Former Chief Technical Editor</i>
IEEE Std 802.16f™-2005 (amendment)	7 September 2005	Roger B. Marks , <i>Working Group Chair</i> Kenneth Stanwood , <i>Vice Chair</i> Dean Chang , <i>Working Group Secretary</i> Phillip Barber , <i>Task Group Chair</i> Changhoi Koo , <i>Task Group Vice Chair</i> Itzik Kitroser , <i>Task Group Vice Chair</i> Joey Chou , <i>IEEE 802.16f Chief Technical Editor</i>
IEEE Std 802.16e™-2005 and IEEE Std 802.16-2004/Cor 1-2005 (amendment and corrigendum)	7 December 2005 (amendment) and 8 November 2005 (corrigendum)	Roger B. Marks , <i>Working Group Chair</i> Kenneth Stanwood , <i>Vice Chair</i> Dean Chang , <i>Working Group Secretary</i> Brian Kiernan , <i>Task Group Vice Chair</i> Ronald Murias , <i>Chief Technical Editor</i> Itzik Kitroser , <i>Assistant Editor</i> Jose Puthenkulam , <i>Assistant Editor</i> Jonathan Labs , <i>Maintenance Task Group Chair</i> Itzik Kitroser , <i>Chief Technical Editor</i> Kenneth Stanwood , <i>Former Maintenance Task Group Chair</i>

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IEEE Std 802.16g™-2007 (amendment)	December 2007	Roger B. Marks , <i>Working Group Chair</i> Jose Puthenkulam , <i>Vice Chair, Co-Editor</i> Peiyong Zhu , <i>Secretary</i> Phillip Barber , <i>Task Group Chair</i> Achim Brandt , <i>Chief Technical Editor</i>
IEEE Std 802.16-2009	May 2009	Roger B. Marks , <i>Working Group Chair</i> Peiyong Zhu , <i>Secretary</i> Jonathan Labs , <i>Maintenance Task Group Chair</i> Joseph Schumacher , <i>Chief Technical Editor</i> Joey Chou , <i>Assitant Editor</i> Itzik Kitroser , <i>Assitant Editor</i> Ronald Murias , <i>Assitant Editor</i> Scott Probasco , <i>Assitant Editor</i>
IEEE Std 802.16j™-2009 (amendment)	May 2009	Roger B. Marks , <i>Working Group Chair</i> Jose Puthenkulam , <i>Working Group Vice Chair</i> Peiyong Zhu , <i>Working Group Secretary</i> Mitsuo Nohara , <i>Task Group Chair</i> Peiyong Zhu , <i>Task Group Vice Chair</i> Mike Hart , <i>Task Group Vice Chair</i> Jung Je Son , <i>Chief Technical Editor</i>
IEEE Std 802.16h™-2010 (amendment)	June 2010	Roger B. Marks , <i>Working Group Chair</i> Jose Puthenkulam , <i>Working Group Vice Chair</i> Peiyong Zhu , <i>Working Group Secretary</i> Herbert Ruck , <i>Working Group Secretary</i> Scott Probasco , <i>Working Group Secretary</i> Mariana Goldhamer , <i>Task Group Chair</i> Harry Bims , <i>Task Group Vice Chair</i> Barry Lewis , <i>Task Group Vice Chair</i> Paul Piggini , <i>Task Group Vice Chair</i> Harry Bims , <i>Task Group Secretary</i> Jung Je Son , <i>Chief Technical Editor</i>
IEEE Std 802.16m™-2011 (amendment)	March 2011	Roger B. Marks , <i>Working Group Chair</i> Jose Puthenkulam , Rakesh Taori , <i>Working Group Vice Chairs</i> Herbert Ruck , Scott Probasco , Erik Colban , <i>Working Group Secretaries</i>
IEEE Std 802.16™-2012	June 2012	Roger B. Marks , <i>Working Group Chair</i> Rakesh Taori , <i>Working Group Vice Chair</i> Erik Colban , Harry Bims , <i>Working Group Secretaries</i>
IEEE Std 802.16p™-2012 (amendment)	August 2012	Roger B. Marks , <i>Working Group Chair</i> Rakesh Taori , <i>Working Group Vice Chair</i> Erik Colban , Harry Bims , <i>Working Group Secretaries</i>
IEEE Std 802.16n™-2013 (amendment)	March 2013	Roger B. Marks , <i>Working Group Chair</i> Harry Bims , <i>Working Group Secretary</i> Tim Godfrey , <i>Working Group Treasurer</i>
IEEE Std 802.16q™-2015 (amendment)	February 2015	Roger B. Marks , <i>Working Group Chair</i> Harry Bims , <i>Working Group Vice Chair and Secretary</i> Tim Godfrey , <i>Working Group Treasurer</i>

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David Castelow	Jonathan Labs	Radu Selea
Dean Chang	Yigal Leiba	James Simkins
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Mark Cudak	Toshiyuki Kuze	Maximilian Riegel
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Frank Exeler	Sungjin Lee	Christian Seagren
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Mo-Han Fong	Li Li	Gang Shen
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Introduction

This introduction is not part of IEEE Std 802.16q-2015, IEEE Standard for Air Interface for Broadband Wireless Access Systems—Amendment 3: Multi-tier Networks.

This amendment specifies support for Multi-tier Networks. As of the publication date, the current applicable version of IEEE Std 802.16 is IEEE Std 802.16-2012, as amended by IEEE Std 802.16p-2012 and IEEE Std 802.16n-2013, and IEEE Std 802.16q-2015.

Conformance test methodology

The multipart conformance test documents for IEEE Std 802.16 are designated by “IEEE Standard 802.16/ConformanceXX.”

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