IEEE P802.16p AWD

~~DRAFT Amendment to IEEE Standard for Local and metropolitan area networks~~

~~Part 16: Air Interface for Broadband Wireless Access Systems~~

Enhancements to Support Machine-to-Machine Applications

~~Sponsor~~

~~LAN/MAN Standards Committee~~
~~of the~~
~~IEEE Computer Society~~

~~and the~~

~~IEEE Microwave Theory and Techniques Society~~

Introduction

This introduction is not part of IEEE Std 802.16p, IEEE Standard for Local and metropolitan area networks—Part 16: Air Interface for Broadband Wireless Access Systems - Amendment: Air Interface for Broadband Wireless Access Systems – Enhancements to Support Machine-to-Machine Applications.

This amendment specifies support for Machine-to-Machine Applications. As of the publication date, the current applicable version of IEEE Std 802.16 is IEEE Std 802.16-2009, as amended by IEEE 802.16j-2009, IEEE 802.16h-2010, and IEEE 802.16m-2011.

Notice to users

Laws and regulations

~~Users of these documents should consult all applicable laws and regulations. Compliance with the provisions of this standard does not imply compliance to any applicable regulatory requirements. Implementers of the standard are responsible for observing or referring to the applicable regulatory requirements. IEEE does not, by the publication of its standards, intend to urge action that is not in compliance with applicable laws, and these documents may not be construed as doing so.~~

Copyrights

~~This document is copyrighted by the IEEE. It is made available for a wide variety of both public and private uses. These include both use, by reference, in laws and regulations, and use in private self-regulation, standardization, and the promotion of engineering practices and methods. By making this document available for use and adoption by public authorities and private users, the IEEE does not waive any rights in copyright to this document.~~

Updating of IEEE documents

~~Users of IEEE standards should be aware that these documents may be superseded at any time by the issuance of new editions or may be amended from time to time through the issuance of amendments, corrigenda, or errata. An official IEEE document at any point in time consists of the current edition of the document together with any amendments, corrigenda, or errata then in effect. In order to determine whether a given document is the current edition and whether it has been amended through the issuance of amendments, corrigenda, or errata, visit the IEEE Standards Association website at http://ieeexplore.ieee.org/xpl/standards.jsp, or contact the IEEE at the address listed previously.~~

~~For more information about the IEEE Standards Association or the IEEE standards development process, visit the IEEE-SA website at http://standards.ieee.org.~~

Errata

~~Errata, if any, for this and all other standards can be accessed at the following URL: http://standards.ieee.org/reading/ieee/updates/errata/index.html. Users are encouraged to check this URL for errata periodically.~~

Interpretations

Current interpretations can be accessed at the following URL: http://standards.ieee.org/reading/ieee/interp/index.html.

Patents

~~***[The following notice shall appear when the IEEE receives assurance from a known patent holder or patent applicant prior to the time of publication that a license will be made available to all applicants either without compensation or under reasonable rates, terms, and conditions that are demonstrably free of any unfair discrimination.]***~~

~~Attention is called to the possibility that implementation of this standard may require use of subject matter covered by patent rights. By publication of this standard, no position is taken with respect to the existence or validity of any patent rights in connection therewith. A patent holder or patent applicant has filed a statement of assurance that it will grant licenses under these rights without compensation or under reasonable rates, with reasonable terms and conditions that are demonstrably free of any unfair discrimination to applicants desiring to obtain such licenses. Other Essential Patent Claims may exist for which a statement of assurance has not been received. The IEEE is not responsible for identifying Essential Patent Claims for which a license may be required, for conducting inquiries into the legal validity or scope of Patents Claims, or determining whether any licensing terms or conditions are reasonable or non-discriminatory. Further information may be obtained from the IEEE Standards Association.~~

~~***[If the IEEE has not received letters of assurance prior to the time of publication, the following notice shall appear:]***~~

~~Attention is called to the possibility that implementation of this standard may require use of subject matter covered by patent rights. By publication of this standard, no position is taken with respect to the existence or validity of any patent rights in connection therewith. The IEEE shall not be responsible for identifying patents or patent applications for which a license may be required to implement an IEEE standard or for conducting inquiries into the legal validity or scope of those patents that are brought to its attention.~~

Participants

This document was developend by the IEEE 802.16 Working Group on Broadband Wireless Access, which develops the WirelessMAN® Standard for Wireless Metropolitan Area Networks.

Roger B. Marks, *Chair*
Jose Puthenkulam, *Vice-Chair*
Herbert M. Ruck, *Secretary*
Scott Migaldi, *Treasurer*

The following members of the IEEE 802.16 Working Group on Broadband Wireless Access participated in the Working Group Letter Ballot in which the draft of this standard was prepared and finalized for IEEE Ballot:

Yan-Xiu Zheng	Lei Zhou	Jing Zhu
Hua Zhou	Chenxi Zhu	Peiying Zhu

Primary development was carried out by the Working Group's Task Group p.

TGp Leadership Team:

Ron Murias, Chair
TBD, Vice Chair
TBD, Secretary
TBD, Chief Editor, 802.16m
Jin Lee, Editor, System Requirements Document
HanGyu Cho, Editor, M2M Technical Report

The following members of the [individual/entity] balloting committee voted on this standard. Balloters may have voted for approval, disapproval, or abstention.

When the IEEE-SA Standards Board approved this standard on XX Month 2008, it had the following membership:

Robert M. Grow, *Chair*
Thomas Prevost, *Vice Chair*
Steve M. Mills, *Past Chair*
Judith Gorman, *Secretary*

Victor Berman	Jim Hughes	Chuck Powers
Richard DeBlasio	Richard H. Hulett	Narayanan Ramachandran
Andy Drozd	Young Kyun Kim	Jon Walter Rosdahl
Mark Epstein	Joseph L. Koepfinger*	Robby Robson
Alexander Gelman	John Kulick	Anne-Marie Sahazizia
William R. Goldbach	David J. Law	Malcolm V. Thaden
Arnold M. Greenspan	Glenn Parsons	Howard L. Wolfman
Kenneth S. Hanus	Ronald C. Petersen	Don Wright

*Member Emeritus

Also included are the following nonvoting IEEE-SA Standards Board liaisons:

Satish K. Aggarwal, *NRC Representative*
Michael H. Kelly, *NIST Representative*

Your name here
IEEE Standards Program Manager, Document Development

Your name here
IEEE Standards Program Manager, Technical Program Development

Amendment Working Document (AWD) to IEEE Standard for

Local and metropolitan area networks

Part 16: Air Interface for Broadband Wireless Access Systems —

Enhancements to Support Machine-to-Machine Applications

NOTE-The editing instructions contained in this amendment define how to merge the material contained herein into the existing base standard IEEE Std 802.16-2009 as amended by IEEE Std 802.16j, IEEE Std 802.16h, and IEEE 802.16m. The editing instructions are shown in ***bold italic***. Four editing instructions are used: ***change***, ***delete***, ***insert***, and ***replace***. ***Change*** is used to make small corrections in existing text or tables. The editing instruction specifies the location of the change and describes what is being changed by using strike through (to remove old material) and underscore (to add new material). ***Delete*** removes existing material. ***Insert*** adds new material without disturbing the existing material. Insertions may require renumbering. If so, renumbering instructions are given in the editing instruction. ***Replace*** is used to make large changes in existing text, subclauses, tables, or figures by removing existing material and replacing it with new material. Editorial notes will not be carried over into future editions because the changes will be incorporated into the base standard.

1. Overview

1.1 Scope

1.2 Purpose

2. Normative references

3. Definitions

4. Abbreviations and acronyms

5. Service Specific CS

6. MAC common part sublayer

7. Security sublayer

8. Physical layer (PHY)

9. Configuration

10. Parameters and constants

11. TLV encodings

11. System profiles

16. WirelessMAN-Advanced Air Interface

16.1 Introduction

16.2 Medium access control

16.2.1 Addressing

16.2.2 MAC PDU formats

16.2.3 MAC Control messages

16.2.4 Construction and Transmission of MAC PDUs

16.2.5 AAI Security

16.2.6 MAC HO procedures

16.2.7 Persistent Scheduling in the Advanced Air Interface

16.2.8 Multicarrier operation

16.2.9 Group Resource Allocation

16.2.10 Connection Management

16.2.11 Bandwidth Request and Allocation Mechanism

16.2.12 Quality of Service (QoS)

16.2.13 ARQ mechanism

16.2.14 HARQ functions

16.2.15 Network entry and initialization

16.2.16 Periodic ranging

16.2.17 Sleep mode

16.2.18 Idle mode

16.2.19 Deregistration with context retention (DCR) mode

16.2.20 Co-located coexistence (CLC)

16.2.21 Interference mitigation mechanism

16.2.22 MAC control reliability

16.2.23 Power management for active mode

16.2.24 Update of S-SFH IEs

16.2.25 Short Message Service

16.2.26 Coverage Loss Detection and Recovery from Coverage Loss

16.2.27 AMS deregistration

16.2.28 Support for Multicast Service

16.3 Physical layer

16.3.11 Global Values

16.4 Support for Femto ABS

16.5 Multi-BS MIMO

16.6 Support for Relay

16.7 Support for Self-organization

16.8 Support for Location Based Services (LBS)

16.9 Support for Enhanced Multicast Broadcast Service

16.10 Support for Advanced Air Interface in LZone

16.10.11 Global Values