
Project	IEEE 802.16 Broadband Wireless Access Working Group <http://ieee802.org/16>	
Title	Mobile MIB	
Date Submitted	2006-01-12	
Source(s)	Joey Chou Intel Corporation 5000 W. Chandler Blvd. Chandler, AZ 85226	[mailto: joey.chou@intel.com]

Re:

Abstract	This contribution proposed the enhancement of wmanIfMib, as defined in IEEE P802.16f, to support IEEE P802.16e standard.
Purpose	Adoption
Notice	This document has been prepared to assist IEEE 802.16. It is offered as a basis for discussion and is not binding on the contributing individual(s) or organization(s). The material in this document is subject to change in form and content after further study. The contributor(s) reserve(s) the right to add, amend or withdraw material contained herein.
Release	The contributor grants a free, irrevocable license to the IEEE to incorporate material contained in this contribution, and any modifications thereof, in the creation of an IEEE Standards publication; to copyright in the IEEE's name any IEEE Standards publication even though it may include portions of this contribution; and at the IEEE's sole discretion to permit others to reproduce in whole or in part the resulting IEEE Standards publication. The contributor also acknowledges and accepts that this contribution may be made public by IEEE 802.16.
Patent Policy and Procedures	The contributor is familiar with the IEEE 802.16 Patent Policy and Procedures (Version 1.0) < http://ieee802.org/16/ipr/patents/policy.html >, including the statement "IEEE standards may include the known use of patent(s), including patent applications, if there is technical justification in the opinion of the standards-developing committee and provided the IEEE receives assurance from the patent holder that it will license applicants under reasonable terms and conditions for the purpose of implementing the standard."
<p>Early disclosure to the Working Group of patent information that might be relevant to the standard is essential to reduce the possibility for delays in the development process and increase the likelihood that the draft publication will be approved for publication. Please notify the Chair <mailto:r.b.marks@ieee.org> as early as possible, in written or electronic form, of any patents (granted or under application) that may cover technology that is under consideration by or has been approved by IEEE 802.16. The Chair will disclose this notification via the IEEE 802.16 web site <http://ieee802.org/16/ipr/patents/notices>.</p>	

Table of Content

1. Introduction.....	4
2. Overview.....	4
2.1 Scope	4
2.2 Purpose.....	4
2.3 Management Reference Models.....	4
3 Configuration.....	5
3.1 BS ifTable.....	5
3.2 SS and MS Management.....	5
4 wmanIfMib MIB structure.....	6
4.1.1 wmanIfBsPacketCs	6
4.1.1.1 wmanIfBsClassifierRuleTable.....	6
• Large Context ID for ROHC- or EC RTP-compressed packet or ROHC feedback packet.....	6
• Classifier Action Rule	6
• Short-format Context ID for ROHC- or EC RTP-compressed packet or ROHC feedback packet	6
4.1.2 wmanIfBsCps.....	6
4.1.2.1 wmanIfBsRegisteredSsTable.....	7
4.1.2.2 wmanIfBsConfigurationTable	7
4.1.2.3 wmanIfBsCapabilities.....	8
4.1.2.4 wmanIfBsNeighborAdvertiseTable	9
4.1.2.5 wmanIfBsPowerSavingClassTable.....	9
wmanIfBsPowerSavingClassTable includes objects as defined in Table 364a.	9
4.1.3 wmanIfBsPhy.....	9
Figure 4— wmanIfBsPhystructure	10
4.1.3.1 wmanIfBsOfdmaPhy	10
4.1.3.1.1 wmanIfBsOfdmaUplinkChannelTable.....	10
4.1.3.1.2 wmanIfBsOfdmaDownlinkChannelTable.....	10
4.1.3.1.3 wmanIfBsOfdmaUcdBurstProfileTable	11
4.1.3.1.4 wmanIfBsOfdmaDcdBurstProfileTable	12
4.1.3.1.5 wmanIfBsSsOfdmaReqCapabilitiesTable.....	13
wmanIfBsSsOfdmaReqCapabilitiesTable includes the following objects:	13
4.1.3.1.6 wmanIfBsSsOfdmaRspCapabilitiesTable	14
wmanIfBsSsOfdmaReqCapabilitiesTable includes the following objects:	14
4.1.3.1.7 wmanIfBsOfdmaCapabilitiesTable	14
wmanIfBsSsOfdmaReqCapabilitiesTable includes the following objects:	14

4.1.3.1.8	wmanIfBsOfdmaCapabilitiesConfigTable	14
	wmanIfBsSsOfdmaReqCapabilitiesTable includes the following objects:	14
4.2	wmanIfSsObjects	15
4.2.1	wmanIfSsCps.....	15
4.2.1.1	wmanIfSsConfigurationTable	15
4.2.2	wmanIfSsPhy	15
4.2.2.1	wmanIfSsOfdmaPhy.....	15
4.1.2.1.1	wmanIfSsOfdmaUplinkChannelTable	16
4.1.2.1.2	wmanIfSsOfdmaDownlinkChannelTable	16
4.1.2.1.3	wmanIfSsOfdmaUcdBurstProfileTable	16
4.1.2.1.4	wmanIfSsOfdmaDcdBurstProfileTable	17

1

1

2 1. Introduction

3 wmanIfMib, as defined in IEEE P802.16f standard, has been architected to support multiple PHYs and MAC
 4 enhancements. This contribution proposed the enhancements of wmanIfMib, to support the upcoming IEEE
 5 P802.16e standard. This contribution proposes the following text be adopted to the IEEE P802.16g draft.

6 2. Overview

7 2.1 Scope

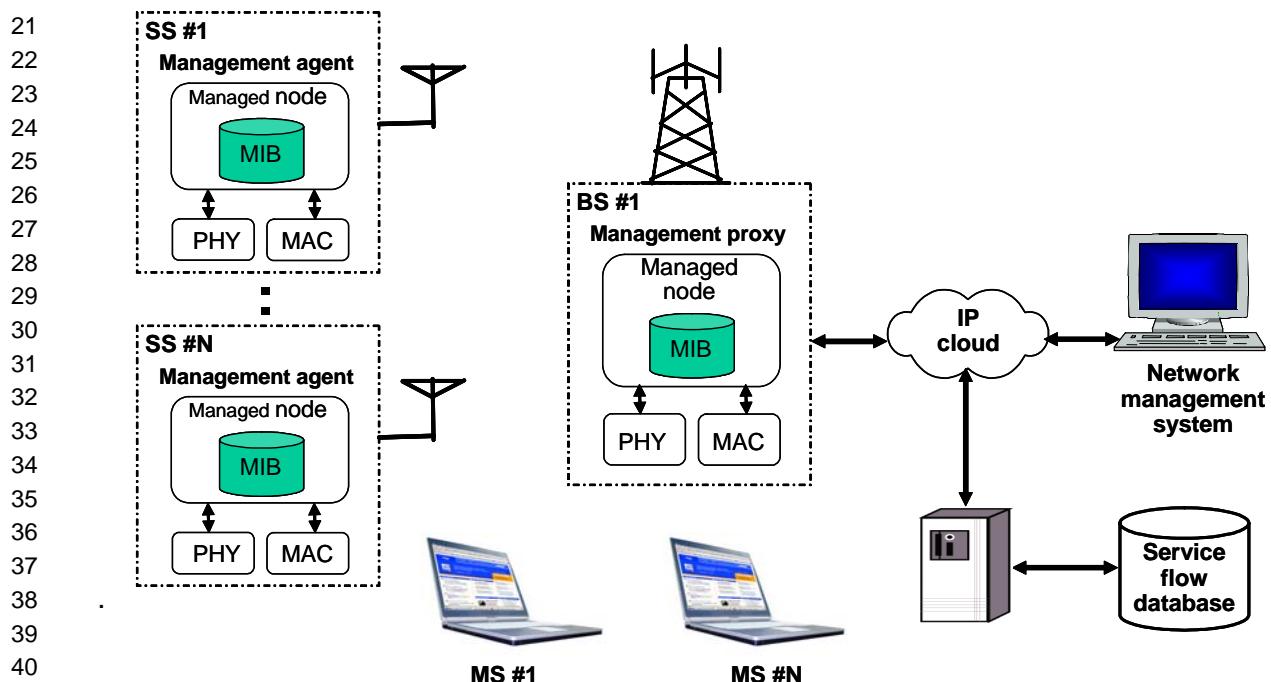
8 This document provides enhancements to IEEE P802.16f to define a management information base
 9 (MIB) for the support of IEEE P802.16e standard.

10 2.2 Purpose

11 The purpose of this project is to provide a definition of managed objects to enable standards-based
 12 management of IEEE 802.16e device.

13 2.3 Management Reference Models

14 Figure 1 shows a management reference model of fixed and mobile Broadband Wireless Access (BWA)
 15 networks that comply with IEEE 802.16-2004 and IEEE 802.16e standards, respectively. The BS can be
 16 managed by a Network Management System (NMS) directly, while the SS or MS can be managed in two
 17 different modes—direct mode or proxy mode. In the direct mode, NMS accesses the managed objects via an
 18 IP connection directly to the SNMP agent in SS. In the proxy mode, BS acts as the front-end proxy that routes
 19 the SNMP messages to the appropriate SS or MS, or the back-end proxy that can manage SS or MS in a
 20 different protocol.



41 **Figure 1—BWA Network Management Reference Models**

1 3 Configuration

2 The wmanIfMib shall support the configuration described in the section.

3 3.1 BS ifTable

4 The implementation of the ifTable for BS must create one row for each BS sector. Table 1 provides an
 5 example of the ifTable in a BS that has multiple sectors supporting both IEEE 802.16-2004 and IEEE
 6 802.16e standards. This configuration enables BS to evolve smoothly from fixed BWA to mobile BWA
 7 networks, and provides an easy way to support different flavors of OFDM PHYs to meet the market needs

<i>ifTable</i>	<i>ifIndex</i>	<i>ifType (IANA)</i>	<i>ifDescr</i>	<i>ifPhysAddress</i>	<i>ifAdminStatus</i>	<i>ifOperStatus</i>
BS Sector 1	1	propBWA2Mp	OFDM	MAC address of BS sector	Administration Status	Operational Status
BS Sector 2	2	propBWA2Mp	OFDMA 2048	MAC address of BS sector	Administration Status	Operational Status
BS Sector 3	3	propBWA2Mp	OFDMA 1024	MAC address of BS sector	Administration Status	Operational Status
BS Sector 4	4	propBWA2Mp	OFDMA 512	MAC address of BS sector	Administration Status	Operational Status
BS Sector 5	5	propBWA2Mp	OFDMA 128	MAC address of BS sector	Administration Status	Operational Status

14 **Table 1—Example of the Usage of ifTable objects for BS**

15 3.2 SS and MS Management

16 SS and MS management will have the following configuration:

- 17 • SS based on IEEE 802.16-2004
- 18 • SS based on IEEE 802.16e
- 19 • MS based on IEEE 802.16e

4 wmanIfMib MIB structure

Figure 2 shows the high level MIB structure of wmanIfMib for 802.16. The MIB structure is organized based on the reference model as defined in IEEE 802.16-2004 standard

The wmanIfMib is composed of three groups:

- wmanIfBsObjects: contains managed objects to be implemented in the SNMP agent in BS.
- wmanIfSsObjects: contains managed objects to be implemented in the SNMP agent in SS.
- wmanIfCommonObjects: contains common managed objects to be implemented in the SNMP agent in BS and SS.

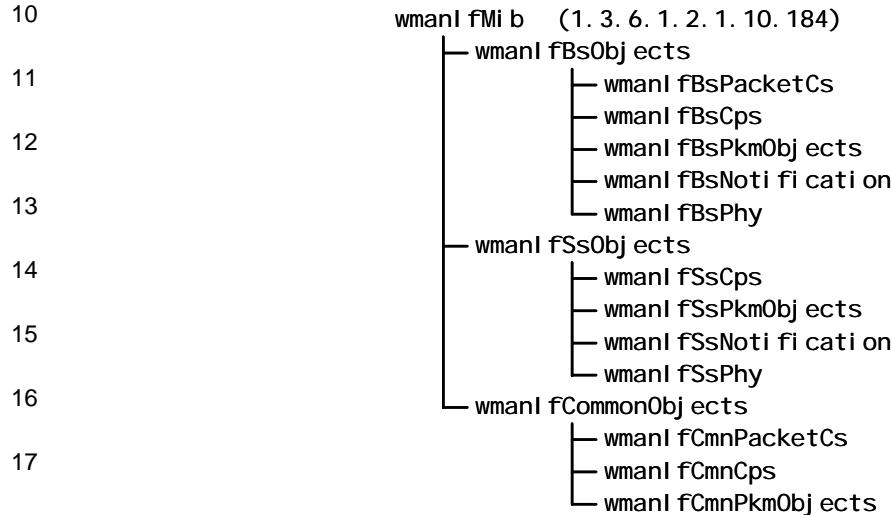


Figure 2—wmanIfMib structure

4.1 wmanIfBsObjects

4.1.1 wmanIfBsPacketCs

4.1.1.1 wmanIfBsClassifierRuleTable

wmanIfBsClassifierRuleTable contains the additional objects as defined in 11.13.19.3.4.

- Large Context ID for ROHC- or EC RTP-compressed packet or ROHC feedback packet
- Classifier Action Rule
- Short-format Context ID for ROHC- or EC RTP-compressed packet or ROHC feedback packet

4.1.2 wmanIfBsCps

Figure 3 shows the structure of wmanIfBsCps subtree. It adds two new tables – wmanIfBsNeighborAdvertiseTable and wmanIfBsPowerSavingClassTable.

```

1   .
2   wmanIfBsCps (1.3.6.1.2.1.10.184.1.2)
3     |
4     +-- wmanIfBsRegisteredSsTable
5     |
6     +-- wmanIfBsConfigurationTable
7     |
8     +-- wmanIfBsCapabilities
9       |
10      +-- wmanIfBsSsReqCapabilitiesTable
11      |
12      +-- wmanIfBsSsRspCapabilitiesTable
13      |
14      +-- wmanIfBsBasicCapabilitiesTable
15      |
16      +-- wmanIfBsCapabilitiesConfigurationsTable
17
18     +-- wmanIfBsSsActionsTable
19
20     +-- wmanIfBsNeighborAdvertisementsTable
21
22     +-- wmanIfBsPowerSavингConfigurationsTable

```

Figure 3— wmanIfBsCps structure

4.1.2.1 wmanIfBsRegisteredSsTable

WmanIfMacVersion includes a new type of ieee802Dot16e to indicate the registered SS is running the 802.16e version of MAC software.

```

12   WmanIfMacVersion ::= TEXTUAL-CONVENTION
13     STATUS      current
14     DESCRIPTION
15       "Version number of IEEE 802.16."
16     SYNTAX      INTEGER {ieee802Dot16Of2001(1),
17                           ieee802Dot16cOf2002(2),
18                           ieee802Dot16aOf2003(3),
19                           ieee802Dot16Of2004(4),
20                           ieee802Dot16e(5)}
21

```

4.1.2.2 wmanIfBsConfigurationTable

wmanIfBsConfigurationTable includes additional BS objects as defined in subclause 10.1. These parameters are associated with power saving mode and handoff.

- MOB-NBR-ADV interval
- ASC-AGING-TIMER
- Paging Retry Count
- Mode Selection Feedback processing time
- Idle Mode System Timer For
- Management Resource Holding Timer
- DREG Command Retry Count
- T46
- T47
- Paging Interval Length
- Max Dir Scan Time
- SAChallengeTimer
- SATEKTimer
- SATEKRequestMaxResends

1 4.1.2.3 wmanIfBsCapabilities

- 2 wmanIfBsSsReqCapabilitiesTable, wmanIfBsSsRspCapabilitiesTable, and wmanIfBsBasicCapabilitiesTable
3 include additional objects, defined in 11.7.7 and 11.7.8.
- 4
- 5 • Maximum amount of MAC level data per DL frame
6 • Maximum amount of MAC level data per UL frame
7 • Packing support
8 • MAC Extended rtPS support
9 • Maximum number of bursts transmitted concurrently to the MS
10 • CID update encodings
11 • Method for allocating IP address for the secondary management connection
12 • System Resource_Retain_Time
13 • HO Process Optimization MS Timer
14 • MS Handover Retransmission Timer
15 • Mobility features supported
16 • Sleep-mode recovery time
17 • MS-PREV-IP-ADDR
18 • SKIP-ADDR-ACQUISITION
19 • SAID update encodings
20 • Total number of provisioned service flow
21 • Idle Mode Timeout
22 • SA TEK Update
23 • GKEK Parameters
24 • ARQ-ACK Type
25 • HO parameters processing time
26 • MAC header and extended subheader support
27 • SN Reporting Base
28 • OFDM private map support
29 • Uplink control channel support
30 • Maximum number of burst per frame capability in HARQ
31 • HARQ buffer capability
32 • HARQ incremental redundancy buffer capability
33 • HARQ Chase combining and CC-IR buffer capability
34 • PKM Version Support
35 • Authorization policy support
36 • MAC (Message Authentication Code) Mode
37 • PN window size
38 • Power save class types capability
39 • Extension capability
40 • HO Trigger metric support
41 • Association type support
42

1 4.1.2.4 wmanIfBsNeighborAdvertiseTable

2 wmanIfBsNeighborAdvertiseTable includes objects defined in Table 384b.

- Operator ID
 - Bandwidth
 - FFT Size
 - Cycle prefix (CP)
 - Frame duration code
 - FA Index

10 4.1.2.5 wmanIfBsPowerSavingClassTable

11 wmanIfBsPowerSavingClassTable includes objects as defined in Table 364a.

- Power_Saving_Class_ID
 - Power_Saving_Class_Type
 - Start_frame_number 4
 - initial-sleep window 5 1 Initial-sleep window
 - listening window
 - final-sleep window base
 - final-sleep window exponent
 - SLPID
 - CID
 - Direction

23 4.1.3 wmanIfBsPhy

Figure 3 shows the structure of wmanIfBsPhy subtree. It adds four new tables – wmanIfBsSsOfdmaReqCapabilitiesTable, wmanIfBsSsOfdmaRspCapabilitiesTable, wmanIfBsOfdmaCapabilitiesTable, and wmanIfBsOfdmaCapabilitiesConfigTable.

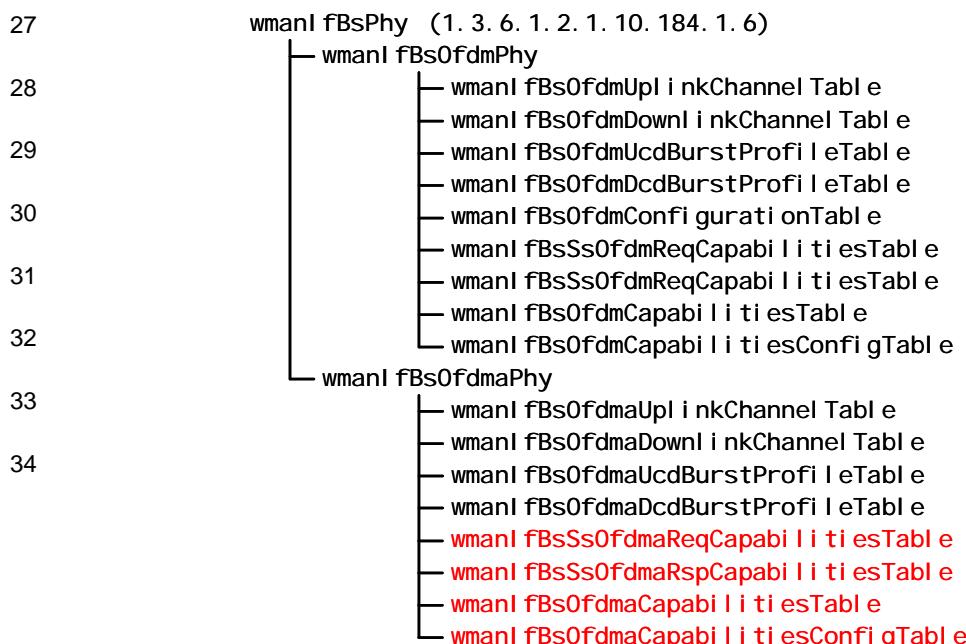


Figure 4—wmanIfBsPhystructure

2 4.1.3.1 wmanIfBsOfdmaPhy

wmanIfBsOfdmaPhy is a group containing objects specific to OFDMA PHY

4.1.3.1.1 wmanIfBsOfdmaUplinkChannelTable

wmanIfBsOfdmaUplinkChannelTable includes additional objects associated UCD channel encodings

6 Table 349

- Initial_ranging_backoff_start
 - Initial_ranging_backoff_end
 - Bandwidth_request_backoff_start
 - Bandwidth_request_backoff_end
 - Uplink_burst_profile for multiple FEC types
 - Normalized C/N override

14 Table 353a

- LowerBoundAAS_PREAMBLE
 - UpperBoundAAS_PREAMBLE
 - UL allocated subchannel bitmap for optimal AMC permutation
 - Allow AAS Beam Select Messages
 - Use CQICH indication flag
 - MS-specific up power offset adjustment step
 - MS-specific down power offset adjustment step
 - Minimum level of power offset adjustment
 - Maximum level of power offset adjustment
 - Handover Ranging Codes
 - Initial ranging interval
 - Normalized C/N for Channel Sounding

28 4.1.3.1.2 wmanIfBsOfdmaDownlinkChannelTable

wmanIfBsOfdmaDownlinkChannelTable includes additional objects defined in Table 358.

- DL region definition
 - HO type support
 - H_Add Threshold
 - H_Delete Threshold
 - ASR(Anchor Switch Report) Slot Length (M) and Switching Period (L)
 - Paging Group ID
 - DL allocated subchannel bitmap for optional AMC permutation
 - TUSC1 permutation active subchannels bitmap

- 1 • TUSC2 permutation active subchannels bitmap
- 2 • Hysteresis margin
- 3 • Time-to-Trigger duration
- 4 • Trigger
- 5 • N+I
- 6 • MAC version
- 7 • Downlink_burst_profile for multiple FEC types
- 8 • BS Restart Count
- 9

10 4.1.3.1.3 wmanIfBsOfdmaUcdBurstProfileTable

11 As per Table 357, the definition of FEC Code type and modulation type object in
12 wmanIfBsOfdmaUcdBurstProfileTable shall be changed as the following.

- 13 • 0 = QPSK (CC) 1/2
- 14 • 1 = QPSK (CC) 3/4
- 15 • 2 = 16-QAM (CC) 1/2
- 16 • 3 = 16-QAM (CC) 3/4
- 17 • 4 = 64-QAM (CC) 1/2
- 18 • 5 = 64-QAM (CC) 2/3
- 19 • 6 = 64-QAM (CC) 3/4
- 20 • 7 = QPSK (BTC) 1/2
- 21 • 8 = QPSK (BTC) 3/4
- 22 • 9 = 16-QAM (BTC) 3/5
- 23 • 10 = 16-QAM (BTC) 4/5
- 24 • 11 = 64-QAM (BTC) 5/8
- 25 • 12 = 64-QAM (BTC) 4/5
- 26 • 13 = QPSK (CTC) 1/2
- 27 • 14 = QPSK (CTC) 3/4
- 28 • 15 = 16-QAM (CTC) 1/2
- 29 • 16 = 16-QAM (CTC) 3/4
- 30 • 17 = 64-QAM (CTC) 1/2
- 31 • 18 = 64-QAM (CTC) 2/3
- 32 • 19 = 64-QAM (CTC) 3/4
- 33 • 20 = 64-QAM (CTC) 5/6
- 34 • 21 = QPSK (ZT CC) 1/2
- 35 • 22 = QPSK (ZT CC) 3/4
- 36 • 23 = 16-QAM (ZT CC) 1/2
- 37 • 24 = 16-QAM (ZT CC) 3/4
- 38 • 25 = 64-QAM (ZT CC) 1/2
- 39 • 26 = 64-QAM (ZT CC) 2/3
- 40 • 27 = 64-QAM (ZT CC) 3/4
- 41 • 28 = QPSK (LDPC) 1/2

- 1 • 29 = QPSK (LDPC) 2/3 A code
 - 2 • 30 = QPSK (LDPC) 3/4 A code
 - 3 • 31 = 16-QAM (LDPC) 1/2
 - 4 • 32 = 16-QAM (LDPC) 2/3 A code
 - 5 • 33 = 16-QAM (LDPC) 3/4 A code
 - 6 • 34 = 64-QAM (LDPC) 1/2
 - 7 • 35 = 64-QAM (LDPC) 2/3 A code
 - 8 • 36 = 64-QAM (LDPC) 3/4 A code
 - 9 • 37 = QPSK (LDPC) 2/3 B code
 - 10 • 38 = QPSK (LDPC) 3/4 B code
 - 11 • 39 = 16-QAM (LDPC) 2/3 B code
 - 12 • 40 = 16-QAM (LDPC) 3/4 B code
 - 13 • 41 = 64-QAM (LDPC) 2/3 B code
 - 14 • 42 = 64-QAM (LDPC) 3/4 B code
 - 15 • 43 = QPSK (LDPC) 5/6
 - 16 • 44 = 16-QAM(LDPC) 5/6
 - 17 • 45 = 64-QAM(LDPC) 5/6
- 18

19 4.1.3.1.4 wmanIfBsOfdmaDcdBurstProfileTable

20 As per Table 363, the definition of FEC Code type object in wmanIfBsOfdmaDcdBurstProfileTable
 21 shall be changed as the following

- 22 • 0 = QPSK (CC) 1/2
- 23 • 1 = QPSK (CC) 3/4
- 24 • 2 = 16-QAM (CC) 1/2
- 25 • 3 = 16-QAM (CC) 3/4
- 26 • 4 = 64-QAM (CC) 1/2
- 27 • 5 = 64-QAM (CC) 2/3
- 28 • 6 = 64-QAM (CC) 3/4
- 29 • 7 = QPSK (BTC) 1/2
- 30 • 8 = QPSK (BTC) 3/4
- 31 • 9 = 16-QAM (BTC) 3/5
- 32 • 10 = 16-QAM (BTC) 4/5
- 33 • 11 = 64-QAM (BTC) 5/8
- 34 • 12 = 64-QAM (BTC) 4/5
- 35 • 13 = QPSK (CTC) 1/2
- 36 • 14 = QPSK (CTC) 3/4
- 37 • 15 = 16-QAM (CTC) 1/2
- 38 • 16 = 16-QAM (CTC) 3/4
- 39 • 17 = 64-QAM (CTC) 1/2
- 40 • 18 = 64-QAM (CTC) 2/3
- 41 • 19 = 64-QAM (CTC) 3/4

- 1 • 20 = 64-QAM (CTC) 5/6
- 2 • 21 = QPSK (ZT CC) 1/2
- 3 • 22 = QPSK (ZT CC) 3/4
- 4 • 23= 16-QAM (ZT CC) 1/2
- 5 • 24= 16-QAM (ZT CC) 3/4
- 6 • 25= 64-QAM (ZT CC) 1/2
- 7 • 26= 64-QAM (ZT CC) 2/3
- 8 • 27= 64-QAM (ZT CC) 3/4
- 9 • 28 = QPSK (LDPC) 1/2
- 10 • 29= QPSK (LDPC) 2/3 A code
- 11 • 30= QPSK (LDPC) 3/4 A code
- 12 • 31 = 16-QAM (LDPC) 1/2
- 13 • 32 = 16-QAM (LDPC) 2/3 A code
- 14 • 33 = 16-QAM (LDPC) 3/4 A code
- 15 • 34 = 64-QAM (LDPC) 1/2
- 16 • 35 = 64-QAM (LDPC) 2/3 A code
- 17 • 36 = 64-QAM (LDPC) 3/4 A code
- 18 • 37 = QPSK (LDPC) 2/3 B code
- 19 • 38 = QPSK (LDPC) 3/4 B code
- 20 • 39 = 16-QAM (LDPC) 2/3 B code
- 21 • 40 = 16-QAM (LDPC) 3/4 B code
- 22 • 41 = 64-QAM (LDPC) 2/3 B code
- 23 • 42 = 64-QAM (LDPC) 3/4 B code
- 24 • 43 = QPSK (LDPC) 5/6
- 25 • 44 = 16-QAM(LDPC) 5/6
- 26 • 45 = 64-QAM(LDPC) 5/6
- 27

28 4.1.3.1.5 wmanIfBsSsOfdmaReqCapabilitiesTable

29 wmanIfBsSsOfdmaReqCapabilitiesTable includes the following objects: (section 11.8.3.7)

- 30 • OFDMA MS FFT sizes
- 31 • OFDMA SS demodulator
- 32 • OFDMA SS modulator
- 33 • OFDMA SS Permutation support
- 34 • OFDMA AAS private map support
- 35 • OFDMA SS uplink power control support
- 36 • OFDMA MAP Capability
- 37 • OFDMA MS CSIT capability
- 38 • OFDMA SS Demodulator for MIMO Support
- 39 • OFDMA SS Modulator for MIMO Support
- 40 • SDMA Pilot capability

- 1 • OFDMA Multiple Downlink Burst Profile Capability
2

3 **4.1.3.1.6 wmanIfBsSsOfdmaRspCapabilitiesTable**

4 wmanIfBsSsOfdmaReqCapabilitiesTable includes the following objects:

- 5 • OFDMA MS FFT sizes
6 • OFDMA SS demodulator
7 • OFDMA SS modulator
8 • OFDMA SS Permutation support
9 • OFDMA AAS private map support
10 • OFDMA SS uplink power control support
11 • OFDMA MAP Capability
12 • OFDMA MS CSIT capability
13 • OFDMA SS Demodulator for MIMO Support
14 • OFDMA SS Modulator for MIMO Support
15 • SDMA Pilot capability
16 • OFDMA Multiple Downlink Burst Profile Capability
17

18 **4.1.3.1.7 wmanIfBsOfdmaCapabilitiesTable**

19 wmanIfBsSsOfdmaReqCapabilitiesTable includes the following objects:

- 20 • OFDMA MS FFT sizes
21 • OFDMA SS demodulator
22 • OFDMA SS modulator
23 • OFDMA SS Permutation support
24 • OFDMA AAS private map support
25 • OFDMA SS uplink power control support
26 • OFDMA MAP Capability
27 • OFDMA MS CSIT capability
28 • OFDMA SS Demodulator for MIMO Support
29 • OFDMA SS Modulator for MIMO Support
30 • SDMA Pilot capability
31 • OFDMA Multiple Downlink Burst Profile Capability
32

33 **4.1.3.1.8 wmanIfBsOfdmaCapabilitiesConfigTable**

34 wmanIfBsSsOfdmaReqCapabilitiesTable includes the following objects:

- 35 • OFDMA MS FFT sizes
36 • OFDMA SS demodulator
37 • OFDMA SS modulator

- 1 • OFDMA SS Permutation support
 - 2 • OFDMA AAS private map support
 - 3 • OFDMA SS uplink power control support
 - 4 • OFDMA MAP Capability
 - 5 • OFDMA MS CSIT capability
 - 6 • OFDMA SS Demodulator for MIMO Support
 - 7 • OFDMA SS Modulator for MIMO Support
 - 8 • SDMA Pilot capability
 - 9 • OFDMA Multiple Downlink Burst Profile Capability
- 10

11 4.2 wmanIfSsObjects

12 4.2.1 wmanIfSsCps

13 4.2.1.1 wmanIfSsConfigurationTable

14 wmanIfSsConfigurationTable includes additional MS objects as defined in subclause 10.1. These parameters
 15 are associated with power saving mode and handoff.

- 16 • Min_Sleep_Interval
- 17 • MS Max_Sleep_Interval
- 18 • MS Listening_Interval
- 19 • ASC-AGING-TIMER
- 20 • Serving BS ID AGINGTIMER
- 21 • T42
- 22 • Fast-Tracking Response Processing Time
- 23 • Mode Selection Feedback processing time
- 24 • Idle Mode Timer
- 25 • T43
- 26 • T44
- 27 • T45
- 28 • DREG Request Retry Count
- 29 • HO Process Optimization MS Timer Retries
- 30 • Paging Interval Length
- 31 • Max Dir Scan Time
- 32 • SACHallengeTimer
- 33 • SATEKTimer
- 34 • SATEKRequestMaxResends

35 36 4.2.2 wmanIfSsPhy

37 4.2.2.1 wmanIfSsOfdmaPhy

38 wmanIfSsOfdmaPhy is a group containing objects specific to OFDMA PHY.

1 **4.1.2.1.1 wmanIfSsOfdmaUplinkChannelTable**

2 wmanIfBsOfdmaUplinkChannelTable includes additional objects associated UCD channel encodings

3 Table 349

- 4 • HO_ranging_start
- 5 • HO_ranging_end
- 6 • Initial_ranging_backoff_start
- 7 • Initial_ranging_backoff_end
- 8 • Bandwidth_request_backoff_start
- 9 • Bandwidth_request_backoff_end
- 10 • Uplink_burst_profile for multiple FEC types
- 11 • Normalized C/N override

12

13 Table 353a

- 14 • LowerBoundAAS_PREAMBLE
- 15 • UpperBoundAAS_PREAMBLE
- 16 • UL allocated subchannel bitmap for optimal AMC permutation
- 17 • Allow AAS Beam Select Messages
- 18 • Use CQICH indication flag
- 19 • MS-specific up power offset adjustment step
- 20 • MS-specific down power offset adjustment step
- 21 • Minimum level of power offset adjustment
- 22 • Maximum level of power offset adjustment
- 23 • Handover Ranging Codes
- 24 • Initial ranging interval
- 25 • Normalized C/N for Channel Sounding

26

27 **4.1.2.1.2 wmanIfSsOfdmaDownlinkChannelTable**

28 wmanIfSsOfdmaDownlinkChannelTable includes additional objects defined in Table 358 and 363.

29 **4.1.2.1.3 wmanIfSsOfdmaUcdBurstProfileTable**

30 As per Table 357, the definition of FEC Code type and modulation type object in
 31 wmanIfSsOfdmaUcdBurstProfileTable shall be changed as the following.

- 32 • 0 = QPSK (CC) 1/2
- 33 • 1 = QPSK (CC) 3/4
- 34 • 2 = 16-QAM (CC) 1/2
- 35 • 3 = 16-QAM (CC) 3/4
- 36 • 4 = 64-QAM (CC) 1/2
- 37 • 5 = 64-QAM (CC) 2/3
- 38 • 6 = 64-QAM (CC) 3/4
- 39 • 7 = QPSK (BTC) 1/2

- 1 • 8 = QPSK (BTC) 3/4
- 2 • 9 = 16-QAM (BTC) 3/5
- 3 • 10 = 16-QAM (BTC) 4/5
- 4 • 11 = 64-QAM (BTC) 5/8
- 5 • 12 = 64-QAM (BTC) 4/5
- 6 • 13 = QPSK (CTC) 1/2
- 7 • 14 = QPSK (CTC) 3/4
- 8 • 15 = 16-QAM (CTC) 1/2
- 9 • 16 = 16-QAM (CTC) 3/4
- 10 • 17 = 64-QAM (CTC) 1/2
- 11 • 18 = 64-QAM (CTC) 2/3
- 12 • 19 = 64-QAM (CTC) 3/4
- 13 • 20 = 64-QAM (CTC) 5/6
- 14 • 21 = QPSK (ZT CC) 1/2
- 15 • 22 = QPSK (ZT CC) 3/4
- 16 • 23 = 16-QAM (ZT CC) 1/2
- 17 • 24 = 16-QAM (ZT CC) 3/4
- 18 • 25 = 64-QAM (ZT CC) 1/2
- 19 • 26 = 64-QAM (ZT CC) 2/3
- 20 • 27 = 64-QAM (ZT CC) 3/4
- 21 • 28 = QPSK (LDPC) 1/2
- 22 • 29 = QPSK (LDPC) 2/3 A code
- 23 • 30 = QPSK (LDPC) 3/4 A code
- 24 • 31 = 16-QAM (LDPC) 1/2
- 25 • 32 = 16-QAM (LDPC) 2/3 A code
- 26 • 33 = 16-QAM (LDPC) 3/4 A code
- 27 • 34 = 64-QAM (LDPC) 1/2
- 28 • 35 = 64-QAM (LDPC) 2/3 A code
- 29 • 36 = 64-QAM (LDPC) 3/4 A code
- 30 • 37 = QPSK (LDPC) 2/3 B code
- 31 • 38 = QPSK (LDPC) 3/4 B code
- 32 • 39 = 16-QAM (LDPC) 2/3 B code
- 33 • 40 = 16-QAM (LDPC) 3/4 B code
- 34 • 41 = 64-QAM (LDPC) 2/3 B code
- 35 • 42 = 64-QAM (LDPC) 3/4 B code
- 36 • 43 = QPSK (LDPC) 5/6
- 37 • 44 = 16-QAM(LDPC) 5/6
- 38 • 45 = 64-QAM(LDPC) 5/6

40 4.1.2.1.4 wmanIfSsOfdmaDcdBurstProfileTable

- 41 As per Table 363, the definition of FEC Code type object in wmanIfSsOfdmaDcdBurstProfileTable
 42 shall be changed as the following.

- 1 • 0 = QPSK (CC) 1/2
- 2 • 1 = QPSK (CC) 3/4
- 3 • 2 = 16-QAM (CC) 1/2
- 4 • 3 = 16-QAM (CC) 3/4
- 5 • 4 = 64-QAM (CC) 1/2
- 6 • 5 = 64-QAM (CC) 2/3
- 7 • 6 = 64-QAM (CC) 3/4
- 8 • 7 = QPSK (BTC) 1/2
- 9 • 8 = QPSK (BTC) 3/4
- 10 • 9 = 16-QAM (BTC) 3/5
- 11 • 10 = 16-QAM (BTC) 4/5
- 12 • 11 = 64-QAM (BTC) 5/8
- 13 • 12 = 64-QAM (BTC) 4/5
- 14 • 13 = QPSK (CTC) 1/2
- 15 • 14 = QPSK (CTC) 3/4
- 16 • 15 = 16-QAM (CTC) 1/2
- 17 • 16 = 16-QAM (CTC) 3/4
- 18 • 17 = 64-QAM (CTC) 1/2
- 19 • 18 = 64-QAM (CTC) 2/3
- 20 • 19 = 64-QAM (CTC) 3/4
- 21 • 20 = 64-QAM (CTC) 5/6
- 22 • 21 = QPSK (ZT CC) 1/2
- 23 • 22 = QPSK (ZT CC) 3/4
- 24 • 23 = 16-QAM (ZT CC) 1/2
- 25 • 24 = 16-QAM (ZT CC) 3/4
- 26 • 25 = 64-QAM (ZT CC) 1/2
- 27 • 26 = 64-QAM (ZT CC) 2/3
- 28 • 27 = 64-QAM (ZT CC) 3/4
- 29 • 28 = QPSK (LDPC) 1/2
- 30 • 29 = QPSK (LDPC) 2/3 A code
- 31 • 30 = QPSK (LDPC) 3/4 A code
- 32 • 31 = 16-QAM (LDPC) 1/2
- 33 • 32 = 16-QAM (LDPC) 2/3 A code
- 34 • 33 = 16-QAM (LDPC) 3/4 A code
- 35 • 34 = 64-QAM (LDPC) 1/2
- 36 • 35 = 64-QAM (LDPC) 2/3 A code
- 37 • 36 = 64-QAM (LDPC) 3/4 A code
- 38 • 37 = QPSK (LDPC) 2/3 B code
- 39 • 38 = QPSK (LDPC) 3/4 B code
- 40 • 39 = 16-QAM (LDPC) 2/3 B code
- 41 • 40 = 16-QAM (LDPC) 3/4 B code
- 42 • 41 = 64-QAM (LDPC) 2/3 B code

- 1 • 42 = 64-QAM (LDPC) 3/4 B code
- 2 • 43 = QPSK (LDPC) 5/6
- 3 • 44 = 16-QAM(LDPC) 5/6
- 4 • 45 = 64-QAM(LDPC) 5/6

