Project	**IEEE 802.16 Broadband Wireless Access Working Group <http://ieee802.org/16>**
Title	**Adding UCD management message encodings to wman2IfMib**
Date Submitted	**2006-09-22**
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Re:	
Abstract	This contribution proposes the changes being included to wmanIf2Mib in order to support new capabilities that have been introduced in UCD management message encodings in IEEE 802.16e 2005.
Purpose	Adoption
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1. Introduction

2

This contribution proposes the changes being included to wmanIf2Mib in order to support new
capabilities that have been introduced in UCD management message encodings in IEEE 802.16e
2005.

2. wmanIfMib change Proposal

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2.1 wman2IfBsCps Change

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15.2.1.1.5 wman2IfBsPhy

9

[Replace Fig 23 with the following:]

```
wman2IfBsPhy
        ├── wman2IfBsOfdmPhy
        │               ├── wman2IfBsOfdmUplinkChannelTable
        │               ├── wman2IfBsOfdmDownlinkChannelTable
        │               ├── wman2IfBsOfdmUcdBurstProfileTable
        │               ├── wman2IfBsOfdmDcdBurstProfileTable
        │               ├── wman2IfBsOfdmConfigurationTable
        │               ├── wman2IfBsSsOfdmReqCapabilitiesTable
        │               ├── wman2IfBsSsOfdmReqCapabilitiesTable
        │               ├── wman2IfBsOfdmCapabilitiesTable
        │               └── wman2IfBsOfdmCapabilitiesConfigTable
        └── wman2IfBsOfdmaPhy
                        ├── wman2IfBsOfdmaUplinkChannelTable
                        ├── wman2IfBsOfdmaDownlinkChannelTable
                        ├── wman2IfBsOfdmaUcdBurstProfileTable
                        ├── wman2IfBsOfdmaDcdBurstProfileTable
                        ├── wman2IfBsOfdmaConfigurationTable
                        ├── wman2IfBsSsOfdmaReqCapabilitiesTable
                        ├── wman2IfBsSsOfdmaRspCapabilitiesTable
                        ├── wman2IfBsOfdmaCapabilitiesTable
                        ├── wman2IfBsOfdmaCapabilitiesConfigTable
                        └── wmanIf2eBsOfdmaUplinkChannelTable
```

Figure 23— wman2IfBsPhy Structure

15.2.1.1.5.2 wman2IfBsOfdmaPhy

[Insert the following new subclauses:]

15.2.1.1.5.2.10 wmanIf2eBsOfdmaUplinkChannelTable

42

1   wmanIf2eBsOfdmaUplinkChannelTable is the AUGMENTS to
2   wmanIf2BsOfdmaUplinkChannelTable to contain new UCD attributes that have been added to
3   IEEE 802.16e 2005.
4
5

15.2.2 ASN.1 Definitions of 802.16 MIB for SNMP

2.2 WmanIf2eHarqAckDelay Change

8
9   [Insert the following ASN.1 notation:]
10
```
11    WmanIf2eHarqAckDelay ::= TEXTUAL-CONVENTION
12            STATUS      current
13            DESCRIPTION
14                "HARQ ACK delay for DL burst
15                    1 = one frame offset
16                    2 = two frames offset
17                    3 = three frames offset"
18            REFERENCE
19                "Table 353 in IEEE Std 802.16e-2005"
20            SYNTAX      INTEGER {oneframeoffset(1),
21                                  twoframesoffset(2),
22                                  threeframesoffset(3)}
23
24    WmanIf2eAasBeamSel ::= TEXTUAL-CONVENTION
25            STATUS      current
26            DESCRIPTION
27                "Boolean to indicate whether unsolicited AAS Beam Select
28                 messages (see 6.3.2.3.41 in IEEE 802.16e-2005) should be
29                 sent by the MS.
30                    0: MS should not send AAS Beam Select Messages
31                    1: MS may send AAS Beam Select Messages"
32            REFERENCE
33                "Table 353 in IEEE Std 802.16e-2005"
34            SYNTAX      INTEGER {notAllowed(0),
35                                  allowed(1)}
36
```

2.3 Object Status Change

38   [Change the status of the following objects to "deprecated":]
39
40
41   • wmanIf2BsOfdmaInitRngCodes
42   • wmanIf2BsOfdmaPeriodicRngCodes
43   • wmanIf2BsOfdmaBWReqCodes
44   • wmanIf2BsOfdmaPerRngBackoffStart
45   • wmanIf2BsOfdmaPerRngBackoffEnd
46   • wmanIf2BsOfdmaSafetyChAllocThreshold
47   • wmanIf2BsOfdmaSafetyChReleaseThreshold
48   • wmanIf2BsOfdmaSafetyChAllocTimer
49   • wmanIf2BsOfdmaSafetyChReleaseTimer
50   • wmanIf2BsOfdmaBinStatRepMAXPeriod
51   • wmanIf2BsOfdmaSafetyChaRetryTimer
52   • wmanIf2BsOfdmaHARQAackDelayULBurst
53   • wmanIf2BsOfdmaCQICHBandAMCTranaDelay
54

2.4 Add wmanIf2eBsOfdmaUplinkChannelTable

[Insert the following ASN.1 code:]:]

```
wmanIf2eBsOfdmaUplinkChannelTable OBJECT-TYPE
        SYNTAX      SEQUENCE OF WmanIf2eBsOfdmaUplinkChannelEntry
        MAX-ACCESS  not-accessible
        STATUS      current
        DESCRIPTION
            "This table contains UCD channel attributes, defining the
             transmission characteristics of uplink channels"
        REFERENCE
            "Table 349 and Table 353, in IEEE Std 802.16-2004"
        ::= { wmanIf2BsOfdmaPhy 9 }

wmanIf2eBsOfdmaUplinkChannelEntry OBJECT-TYPE
        SYNTAX      WmanIf2eBsOfdmaUplinkChannelEntry
        MAX-ACCESS  not-accessible
        STATUS      current
        DESCRIPTION
            "This table provides one row for each uplink channel of
             multi-sector BS, and is indexed by BS ifIndex. An entry
             in this table exists for each ifEntry of BS with an
             ifType of propBWAp2Mp."
        AUGMENTS { wmanIf2BsOfdmaUplinkChannelEntry }
        ::= { wmanIf2eBsOfdmaUplinkChannelTable 1 }

WmanIf2eBsOfdmaUplinkChannelEntry ::= SEQUENCE {
        wmanIf2eBsOfdmaHandoverRangingStart    INTEGER,
        wmanIf2eBsOfdmaHandoverRangingEnd      INTEGER,
        wmanIf2eBsOfdmaHARQAackDelayDLBurst    WmanIf2eHarqAckDelay,
        wmanIf2eBsOfdmaUlAmcAlloPhyBandsBitmap OCTET STRING,
        wmanIf2eBsOfdmaMaxRetransmission       INTEGER,
        wmanIf2eBsOfdmaNormalizedCnOverride    OCTET STRING,
        wmanIf2eBsOfdmaSizeOfCqichId           INTEGER,
        wmanIf2eBsOfdmaNormalizedCnValue       INTEGER,
        wmanIf2eBsOfdmaNormalizedCnOverride2   OCTET STRING,
        wmanIf2eBsOfdmaBandAmcEntryAvgCinr     INTEGER,
        wmanIf2eBsOfdmaAasPreambleUpperBond    INTEGER,
        wmanIf2eBsOfdmaAasPreambleLowerBond    INTEGER,
        wmanIf2eBsOfdmaAasBeamSelectAllowed    WmanIf2eAasBeamSel,
        wmanIf2eBsOfdmaCqichIndicationFlag     OCTET STRING,
        wmanIf2eBsOfdmaUpPowerAdjStep          Unsigned32,
        wmanIf2eBsOfdmaDownPowerAdjStep        Unsigned32,
        wmanIf2eBsOfdmaMinPowerOffsetAdj       INTEGER,
        wmanIf2eBsOfdmaMaxPowerOffsetAdj       INTEGER,
        wmanIf2eBsOfdmaHandoverRngCodes        INTEGER,
        wmanIf2eBsOfdmaNormalizedCnChSounding  INTEGER,
        wmanIf2eBsOfdmaInitialRngInterval      INTEGER,
        wmanIf2eBsOfdmaInitialRngBackoffStart  INTEGER,
        wmanIf2eBsOfdmaInitialRngBackoffEnd    INTEGER,
        wmanIf2eBsOfdmaBwRequestBackoffStart   INTEGER,
        wmanIf2eBsOfdmaBwRequestBackoffEnd     INTEGER}

wmanIf2eBsOfdmaHandoverRangingStart OBJECT-TYPE
        SYNTAX      INTEGER (0..15)
        MAX-ACCESS  read-write
        STATUS      current
        DESCRIPTION
            "Initial backoff window size for MS performing initial
             ranging during handover process, expressed as a power
             of 2."
        REFERENCE
```

```
1                       "Table 349, in IEEE Std 802.16e-2005"
2                       ::= { wmanIf2eBsOfdmaUplinkChannelEntry 1 }
3
4       wmanIf2eBsOfdmaHandoverRangingEnd OBJECT-TYPE
5               SYNTAX      INTEGER (0..15)
6               MAX-ACCESS  read-write
7               STATUS      current
8               DESCRIPTION
9                       "Final backoff window size for MS performing initial
10                       ranging during handover process, expressed as a power
11                       of 2."
12              REFERENCE
13                      "Table 349, in IEEE Std 802.16e-2005"
14              ::= { wmanIf2eBsOfdmaUplinkChannelEntry 2 }
15
16      wmanIf2eBsOfdmaHARQAackDelayDLBurst OBJECT-TYPE
17              SYNTAX      WmanIf2eHarqAckDelay
18              MAX-ACCESS  read-write
19              STATUS      current
20              DESCRIPTION
21                      "This object defines the OFDMA H-ARQ ACK delay for DL
22                       burst."
23              REFERENCE
24                      "Subclause 11.3.1, Table 353, in IEEE Std 802.16e-2005"
25              ::= { wmanIf2eBsOfdmaUplinkChannelEntry 3 }
26
27      wmanIf2eBsOfdmaUlAmcAlloPhyBandsBitmap OBJECT-TYPE
28              SYNTAX      OCTET STRING (SIZE (6))
29              MAX-ACCESS  read-write
30              STATUS      current
31              DESCRIPTION
32                      "A bitmap describing the physical bands allocated to the
33                       segment in the UL, when using the optional AMC permutation
34                       with regular MAPs (see 8.4.6.3). The LSB of the first byte
35                       shall correspond to the physical band 0. For any bit that
36                       is not set, the corresponding physical bands shall not be
37                       used by the SS on that segment. When this TLV is not
38                       present, BS may allocate any physical bands to an SS."
39              REFERENCE
40                      "Subclause 11.3.1, Table 353, in IEEE Std 802.16e-2005"
41              ::= { wmanIf2eBsOfdmaUplinkChannelEntry 4 }
42
43      wmanIf2eBsOfdmaMaxRetransmission OBJECT-TYPE
44              SYNTAX      INTEGER (1..255)
45              MAX-ACCESS  read-write
46              STATUS      current
47              DESCRIPTION
48                      "Maximum number of retransmission in UL HARQ."
49              REFERENCE
50                      "Table 353, in IEEE Std 802.16e-2005"
51              DEFVAL      { 4 }
52              ::= { wmanIf2eBsOfdmaUplinkChannelEntry 5 }
53
54      wmanIf2eBsOfdmaNormalizedCnOverride OBJECT-TYPE
55              SYNTAX      OCTET STRING (SIZE (8))
56              MAX-ACCESS  read-write
57              STATUS      current
58              DESCRIPTION
59                      "This is a list of numbers, where each number is encoded by
60                       one nibble, and interpreted as a signed integer. The
61                       nibbles correspond in order to the list define by Table
62                       334, starting from the second line, such that the LS
63                       nibble of the first byte corresponds to the second line in
64                       the table. The number encoded by each nibble represents
```

```
1                        the difference in normalized C/N relative to the previous
2                        line in the table."
3               REFERENCE
4                   "Subclause 11.3.1, Table 353, in IEEE Std 802.16e-2005"
5               ::= { wmanIf2eBsOfdmaUplinkChannelEntry 6 }
6
7      wmanIf2eBsOfdmaSizeOfCqichId OBJECT-TYPE
8               SYNTAX        INTEGER (0..7)
9               MAX-ACCESS  read-write
10              STATUS        current
11              DESCRIPTION
12                  "Size of CQICH ID field.
13                        0 = 0 bits
14                        1 = 3 bits
15                        2 = 4 bits
16                        3 = 5 bits
17                        4 = 6 bits
18                        5 = 7 bits
19                        6 = 8 bits
20                        7 = 9 bits"
21              REFERENCE
22                  "Subclause 11.3.1, Table 353, in IEEE Std 802.16e-2005"
23              DEFVAL        { 0 }
24              ::= { wmanIf2eBsOfdmaUplinkChannelEntry 7 }
25
26     wmanIf2eBsOfdmaNormalizedCnValue OBJECT-TYPE
27              SYNTAX        INTEGER (-128..128)
28              UNITS         "dB"
29              MAX-ACCESS  read-write
30              STATUS        current
31              DESCRIPTION
32                  "It shall be interpreted as signed integer in dB. It
33                   corresponds to the normalized C/N value in the first line
34                   (counting except for header cell of table)"
35              REFERENCE
36                  "Subclause 11.3.1, Table 353, in IEEE Std 802.16e-2005"
37              ::= { wmanIf2eBsOfdmaUplinkChannelEntry 8 }
38
39     wmanIf2eBsOfdmaNormalizedCnOverride2 OBJECT-TYPE
40              SYNTAX        OCTET STRING (SIZE (7))
41              MAX-ACCESS  read-write
42              STATUS        current
43              DESCRIPTION
44                  "This is a list of numbers, where each number is encoded
45                   by one nibble, and interpreted as a signed integer. The
46                   nibbles correspond in order to the list define by Table
47                   334, starting from the second line (counting except for
48                   the header cell of table), such that the LS nibble of
49                   the first byte corresponds to the second line in the
50                   table. The number encoded by each nibble represents the
51                   difference in normalized C/N relative to the previous
52                   line in the table."
53              REFERENCE
54                  "Subclause 11.3.1, Table 353, in IEEE Std 802.16e-2005"
55              ::= { wmanIf2eBsOfdmaUplinkChannelEntry 9 }
56
57     wmanIf2eBsOfdmaBandAmcEntryAvgCinr OBJECT-TYPE
58              SYNTAX        INTEGER (-128..128)
59              UNITS         "dB"
60              MAX-ACCESS  read-write
61              STATUS        current
62              DESCRIPTION
63                  "Threshold of the average CINR of the whole bandwidth to
64                   trigger mode transition from normal subchannel to AMC"
```

```
1              REFERENCE
2                  "Subclause 11.3.1, Table 353, in IEEE Std 802.16e-2005"
3              ::= { wmanIf2eBsOfdmaUplinkChannelEntry 10 }
4
5       wmanIf2eBsOfdmaAasPreambleUpperBond OBJECT-TYPE
6              SYNTAX      INTEGER (-128..128)
7              UNITS       "0.25 dB"
8              MAX-ACCESS  read-write
9              STATUS      current
10             DESCRIPTION
11                 "Upper bound of AAS preamble."
12             REFERENCE
13                 "Subclause 11.3.1, Table 353, in IEEE Std 802.16e-2005"
14             ::= { wmanIf2eBsOfdmaUplinkChannelEntry 11 }
15
16      wmanIf2eBsOfdmaAasPreambleLowerBond OBJECT-TYPE
17             SYNTAX      INTEGER (-128..128)
18             UNITS       "0.25 dB"
19             MAX-ACCESS  read-write
20             STATUS      current
21             DESCRIPTION
22                 "Lower bound of AAS preamble."
23             REFERENCE
24                 "Subclause 11.3.1, Table 353, in IEEE Std 802.16e-2005"
25             ::= { wmanIf2eBsOfdmaUplinkChannelEntry 12 }
26
27      wmanIf2eBsOfdmaAasBeamSelectAllowed OBJECT-TYPE
28             SYNTAX      WmanIf2eAasBeamSel
29             UNITS       "0.25 dB"
30             MAX-ACCESS  read-write
31             STATUS      current
32             DESCRIPTION
33                 "Indicate whether unsolicited AAS Beam Select messages
34                 (see 6.3.2.3.41 in IEEE 802.16e-2005) should be sent by
35                 the MS."
36             REFERENCE
37                 "Subclause 11.3.1, Table 353, in IEEE Std 802.16e-2005"
38             DEFVAL      { allowed }
39             ::= { wmanIf2eBsOfdmaUplinkChannelEntry 13 }
40
41      wmanIf2eBsOfdmaCqichIndicationFlag OBJECT-TYPE
42             SYNTAX      OCTET STRING (SIZE (1))
43             MAX-ACCESS  read-write
44             STATUS      current
45             DESCRIPTION
46                 "The N MSB values of this field represents the N-bit
47                  payload value on the Fast-Feedback channel reserved as
48                  indication flag for MS to initiate feedback on the
49                  Feedback header, where N is the number of payload bits
50                  used for S/N measurement feedback on the Fast-Feedback
51                  channel. The value shall not be set to all zeros."
52             REFERENCE
53                 "Subclause 11.3.1, Table 353, in IEEE Std 802.16e-2005"
54             ::= { wmanIf2eBsOfdmaUplinkChannelEntry 14 }
55
56      wmanIf2eBsOfdmaUpPowerAdjStep OBJECT-TYPE
57             SYNTAX      Unsigned32
58             UNITS       "0.01 dB"
59             MAX-ACCESS  read-write
60             STATUS      current
61             DESCRIPTION
62                 "MS-specific up power offset adjustment step"
63             REFERENCE
64                 "Subclause 11.3.1, Table 353, in IEEE Std 802.16e-2005"
```

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```
1                ::= { wmanIf2eBsOfdmaUplinkChannelEntry 15 }
2
3    wmanIf2eBsOfdmaDownPowerAdjStep OBJECT-TYPE
4            SYNTAX      Unsigned32
5            UNITS       "0.01 dB"
6            MAX-ACCESS  read-write
7            STATUS      current
8            DESCRIPTION
9                "MS-specific down power offset adjustment step"
10           REFERENCE
11               "Subclause 11.3.1, Table 353, in IEEE Std 802.16e-2005"
12           ::= { wmanIf2eBsOfdmaUplinkChannelEntry 16 }
13
14   wmanIf2eBsOfdmaMinPowerOffsetAdj OBJECT-TYPE
15           SYNTAX      INTEGER
16           UNITS       "0.1 dB"
17           MAX-ACCESS  read-write
18           STATUS      current
19           DESCRIPTION
20               "Minimum level of power offset adjustment"
21           REFERENCE
22               "Subclause 11.3.1, Table 353, in IEEE Std 802.16e-2005"
23           ::= { wmanIf2eBsOfdmaUplinkChannelEntry 17 }
24
25   wmanIf2eBsOfdmaMaxPowerOffsetAdj OBJECT-TYPE
26           SYNTAX      INTEGER
27           UNITS       "0.1 dB"
28           MAX-ACCESS  read-write
29           STATUS      current
30           DESCRIPTION
31               "Minimum level of power offset adjustment"
32           REFERENCE
33               "Subclause 11.3.1, Table 353, in IEEE Std 802.16e-2005"
34           ::= { wmanIf2eBsOfdmaUplinkChannelEntry 18 }
35
36   wmanIf2eBsOfdmaHandoverRngCodes OBJECT-TYPE
37           SYNTAX      INTEGER (0..255)
38           MAX-ACCESS  read-write
39           STATUS      current
40           DESCRIPTION
41               "Number of handover ranging CDMA codes"
42           REFERENCE
43               "Subclause 11.3.1, Table 353, in IEEE Std 802.16e-2005"
44           ::= { wmanIf2eBsOfdmaUplinkChannelEntry 19 }
45
46   wmanIf2eBsOfdmaInitialRngInterval OBJECT-TYPE
47           SYNTAX      INTEGER
48           MAX-ACCESS  read-write
49           STATUS      current
50           DESCRIPTION
51               "Number of frames between initial ranging interval
52                allocation."
53           REFERENCE
54               "Subclause 11.3.1, Table 353, in IEEE Std 802.16e-2005"
55           ::= { wmanIf2eBsOfdmaUplinkChannelEntry 20 }
56
57   wmanIf2eBsOfdmaNormalizedCnChSounding OBJECT-TYPE
58           SYNTAX      INTEGER
59           MAX-ACCESS  read-write
60           STATUS      current
61           DESCRIPTION
62               "Signed integer for the required C/N (dB) for Channel
63                Sounding."
64           REFERENCE
```

9

```
1                        "Subclause 11.3.1, Table 353, in IEEE Std 802.16e-2005"
2                ::= { wmanIf2eBsOfdmaUplinkChannelEntry 21 }
3
4      wmanIf2eBsOfdmaInitialRngBackoffStart OBJECT-TYPE
5              SYNTAX        INTEGER (0..15)
6              MAX-ACCESS   read-write
7              STATUS        current
8              DESCRIPTION
9                    "Initial backoff window size for initial ranging
10                    contention, expressed as a power of 2."
11             REFERENCE
12                    "Subclause 11.3.1, Table 353, in IEEE Std 802.16e-2005"
13             ::= { wmanIf2eBsOfdmaUplinkChannelEntry 22 }
14
15     wmanIf2eBsOfdmaInitialRngBackoffEnd OBJECT-TYPE
16             SYNTAX        INTEGER (0..15)
17             MAX-ACCESS   read-write
18             STATUS        current
19             DESCRIPTION
20                    "Final backoff window size for initial ranging
21                    contention, expressed as a power of 2."
22             REFERENCE
23                    "Subclause 11.3.1, Table 353, in IEEE Std 802.16e-2005"
24             ::= { wmanIf2eBsOfdmaUplinkChannelEntry 23 }
25
26     wmanIf2eBsOfdmaBwRequestBackoffStart OBJECT-TYPE
27             SYNTAX        INTEGER (0..15)
28             MAX-ACCESS   read-write
29             STATUS        current
30             DESCRIPTION
31                    "Initial backoff window size for contention BW requests,
32                    expressed as a power of 2."
33             REFERENCE
34                    "Subclause 11.3.1, Table 353, in IEEE Std 802.16e-2005"
35             ::= { wmanIf2eBsOfdmaUplinkChannelEntry 24 }
36
37     wmanIf2eBsOfdmaBwRequestBackoffEnd OBJECT-TYPE
38             SYNTAX        INTEGER (0..15)
39             MAX-ACCESS   read-write
40             STATUS        current
41             DESCRIPTION
42                    "Final backoff window size for contention BW requests,
43                    expressed as a power of 2."
44             REFERENCE
45                    "Subclause 11.3.1, Table 353, in IEEE Std 802.16e-2005"
46             ::= { wmanIf2eBsOfdmaUplinkChannelEntry 25 }
47
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