Project	**IEEE 802.16 Broadband Wireless Access Working Group <http://ieee802.org/16>**
Title	**Adding UCD management message encodings to wman2IfMib**
Date Submitted	**2006-09-26**
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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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Table of Content

1

1. Introduction

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

2.1 wman2IfBsCps Change

15.2.1.1.5 wman2IfBsPhy

[Replace Fig 23 with the following:]

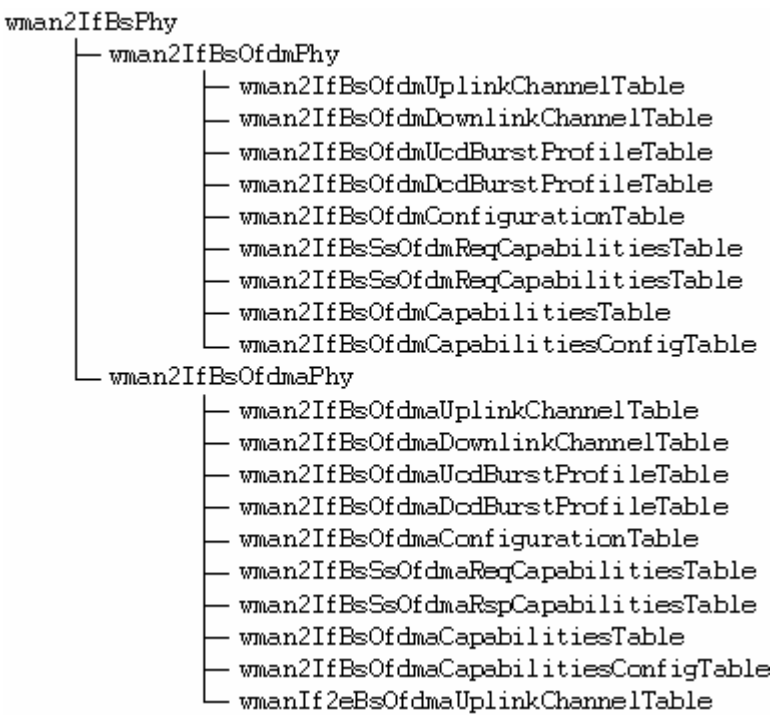

Figure 23— wman2IfBsPhy Structure

15.2.1.1.5.2 wman2IfBsOfdmaPhy

[Insert the following new subclauses:]

15.2.1.1.5.2.10 wmanIf2eBsOfdmaUplinkChannelTable

wmanIf2eBsOfdmaUplinkChannelTable is the AUGMENTS to wmanIf2BsOfdmaUplinkChannelTable to contain new UCD attributes that have been added to IEEE 802.16e 2005.

15.2.2 ASN.1 Definitions of 802.16 MIB for SNMP

2.2 WmanIf2eHarqAckDelay Change

[Insert the following ASN.1 notation:]

```
WmanIf2eHarqAckDelay ::= TEXTUAL-CONVENTION
        STATUS      current
        DESCRIPTION
            "HARQ ACK delay for DL burst
               1 = one frame offset
               2 = two frames offset
               3 = three frames offset"
        REFERENCE
            "Table 353 in IEEE Std 802.16e-2005"
        SYNTAX      INTEGER {oneframeoffset(1),
                             twoframesoffset(2),
                             threeframesoffset(3)}

WmanIf2eAasBeamSel ::= TEXTUAL-CONVENTION
        STATUS      current
        DESCRIPTION
            "Boolean to indicate whether unsolicited AAS Beam Select
             messages (see 6.3.2.3.41 in IEEE 802.16e-2005) should be
             sent by the MS.
               0: MS should not send AAS Beam Select Messages
               1: MS may send AAS Beam Select Messages"
        REFERENCE
            "Table 353 in IEEE Std 802.16e-2005"
        SYNTAX      INTEGER {notAllowed(0),
                             allowed(1)}
```

2.3 Object Status Change

[Change the status of the following objects to "deprecated":]

- wmanIf2BsOfdmaInitRngCodes
- wmanIf2BsOfdmaPeriodicRngCodes
- wmanIf2BsOfdmaBWReqCodes
- wmanIf2BsOfdmaPerRngBackoffStart
- wmanIf2BsOfdmaPerRngBackoffEnd
- wmanIf2BsOfdmaSafetyChAllocThreshold
- wmanIf2BsOfdmaSafetyChReleaseThreshold
- wmanIf2BsOfdmaSafetyChAllocTimer
- wmanIf2BsOfdmaSafetyChReleaseTimer
- wmanIf2BsOfdmaBinStatRepMAXPeriod
- wmanIf2BsOfdmaSafetyChaRetryTimer
- wmanIf2BsOfdmaHARQAackDelayULBurst
- wmanIf2BsOfdmaCQICHBandAMCTranaDelay

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,
        wmanIf2eBsOfdmaTxPwrRepThreshold        INTEGER,
        wmanIf2eBsOfdmaTprPower                 INTEGER,
        wmanIf2eBsOfdmaAlphaPavg                INTEGER,
        wmanIf2eBsOfdmaCqichTxPwrRepThreshold   INTEGER,
        wmanIf2eBsOfdmaCqichTprPower            INTEGER,
        wmanIf2eBsOfdmaCqichAlphaPavg           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
                "Table 349, in IEEE Std 802.16e-2005"
            ::= { wmanIf2eBsOfdmaUplinkChannelEntry 1 }

    wmanIf2eBsOfdmaHandoverRangingEnd OBJECT-TYPE
            SYNTAX      INTEGER (0..15)
            MAX-ACCESS  read-write
            STATUS      current
            DESCRIPTION
                "Final backoff window size for MS performing initial
                 ranging during handover process, expressed as a power
                 of 2."
            REFERENCE
                "Table 349, in IEEE Std 802.16e-2005"
            ::= { wmanIf2eBsOfdmaUplinkChannelEntry 2 }

    wmanIf2eBsOfdmaHARQAackDelayDLBurst OBJECT-TYPE
            SYNTAX      WmanIf2eHarqAckDelay
            MAX-ACCESS  read-write
            STATUS      current
            DESCRIPTION
                "This object defines the OFDMA H-ARQ ACK delay for DL
                 burst."
            REFERENCE
                "Subclause 11.3.1, Table 353, in IEEE Std 802.16e-2005"
            ::= { wmanIf2eBsOfdmaUplinkChannelEntry 3 }

    wmanIf2eBsOfdmaUlAmcAlloPhyBandsBitmap OBJECT-TYPE
            SYNTAX      OCTET STRING (SIZE (6))
            MAX-ACCESS  read-write
            STATUS      current
            DESCRIPTION
                "A bitmap describing the physical bands allocated to the
                 segment in the UL, when using the optional AMC permutation
                 with regular MAPs (see 8.4.6.3). The LSB of the first byte
                 shall correspond to the physical band 0. For any bit that
                 is not set, the corresponding physical bands shall not be
                 used by the SS on that segment. When this TLV is not
                 present, BS may allocate any physical bands to an SS."
            REFERENCE
                "Subclause 11.3.1, Table 353, in IEEE Std 802.16e-2005"
            ::= { wmanIf2eBsOfdmaUplinkChannelEntry 4 }

    wmanIf2eBsOfdmaMaxRetransmission OBJECT-TYPE
            SYNTAX      INTEGER (1..255)
            MAX-ACCESS  read-write
            STATUS      current
            DESCRIPTION
                "Maximum number of retransmission in UL HARQ."
            REFERENCE
                "Table 353, in IEEE Std 802.16e-2005"
            DEFVAL      { 4 }
            ::= { wmanIf2eBsOfdmaUplinkChannelEntry 5 }

    wmanIf2eBsOfdmaNormalizedCnOverride OBJECT-TYPE
            SYNTAX      OCTET STRING (SIZE (8))
            MAX-ACCESS  read-write
            STATUS      current
            DESCRIPTION
```

```
                "This is a list of numbers, where each number is encoded by
                 one nibble, and interpreted as a signed integer. The
                 nibbles correspond in order to the list define by Table
                 334, starting from the second line, such that the LS
                 nibble of the first byte corresponds to the second line in
                 the table. The number encoded by each nibble represents
                 the difference in normalized C/N relative to the previous
                 line in the table."
            REFERENCE
                "Subclause 11.3.1, Table 353, in IEEE Std 802.16e-2005"
            ::= { wmanIf2eBsOfdmaUplinkChannelEntry 6 }

    wmanIf2eBsOfdmaSizeOfCqichId OBJECT-TYPE
            SYNTAX      INTEGER (0..7)
            MAX-ACCESS  read-write
            STATUS      current
            DESCRIPTION
                "Size of CQICH ID field.
                     0 = 0 bits
                     1 = 3 bits
                     2 = 4 bits
                     3 = 5 bits
                     4 = 6 bits
                     5 = 7 bits
                     6 = 8 bits
                     7 = 9 bits"
            REFERENCE
                "Subclause 11.3.1, Table 353, in IEEE Std 802.16e-2005"
            DEFVAL      { 0 }
            ::= { wmanIf2eBsOfdmaUplinkChannelEntry 7 }

    wmanIf2eBsOfdmaNormalizedCnValue OBJECT-TYPE
            SYNTAX      INTEGER (-128..128)
            UNITS       "dB"
            MAX-ACCESS  read-write
            STATUS      current
            DESCRIPTION
                "It shall be interpreted as signed integer in dB. It
                 corresponds to the normalized C/N value in the first line
                 (counting except for header cell of table)"
            REFERENCE
                "Subclause 11.3.1, Table 353, in IEEE Std 802.16e-2005"
            ::= { wmanIf2eBsOfdmaUplinkChannelEntry 8 }

    wmanIf2eBsOfdmaNormalizedCnOverride2 OBJECT-TYPE
            SYNTAX      OCTET STRING (SIZE (7))
            MAX-ACCESS  read-write
            STATUS      current
            DESCRIPTION
                "This is a list of numbers, where each number is encoded
                 by one nibble, and interpreted as a signed integer. The
                 nibbles correspond in order to the list define by Table
                 334, starting from the second line (counting except for
                 the header cell of table), such that the LS nibble of
                 the first byte corresponds to the second line in the
                 table. The number encoded by each nibble represents the
                 difference in normalized C/N relative to the previous
                 line in the table."
            REFERENCE
                "Subclause 11.3.1, Table 353, in IEEE Std 802.16e-2005"
            ::= { wmanIf2eBsOfdmaUplinkChannelEntry 9 }

    wmanIf2eBsOfdmaBandAmcEntryAvgCinr OBJECT-TYPE
            SYNTAX      INTEGER (-128..128)
```

```
            UNITS       "dB"
            MAX-ACCESS  read-write
            STATUS      current
            DESCRIPTION
                "Threshold of the average CINR of the whole bandwidth to
                 trigger mode transition from normal subchannel to AMC"
            REFERENCE
                "Subclause 11.3.1, Table 353, in IEEE Std 802.16e-2005"
            ::= { wmanIf2eBsOfdmaUplinkChannelEntry 10 }

    wmanIf2eBsOfdmaAasPreambleUpperBond OBJECT-TYPE
            SYNTAX      INTEGER (-128..128)
            UNITS       "0.25 dB"
            MAX-ACCESS  read-write
            STATUS      current
            DESCRIPTION
                "Upper bound of AAS preamble."
            REFERENCE
                "Subclause 11.3.1, Table 353, in IEEE Std 802.16e-2005"
            ::= { wmanIf2eBsOfdmaUplinkChannelEntry 11 }

    wmanIf2eBsOfdmaAasPreambleLowerBond OBJECT-TYPE
            SYNTAX      INTEGER (-128..128)
            UNITS       "0.25 dB"
            MAX-ACCESS  read-write
            STATUS      current
            DESCRIPTION
                "Lower bound of AAS preamble."
            REFERENCE
                "Subclause 11.3.1, Table 353, in IEEE Std 802.16e-2005"
            ::= { wmanIf2eBsOfdmaUplinkChannelEntry 12 }

    wmanIf2eBsOfdmaAasBeamSelectAllowed OBJECT-TYPE
            SYNTAX      WmanIf2eAasBeamSel
            UNITS       "0.25 dB"
            MAX-ACCESS  read-write
            STATUS      current
            DESCRIPTION
                "Indicate whether unsolicited AAS Beam Select messages
                (see 6.3.2.3.41 in IEEE 802.16e-2005) should be sent by
                the MS."
            REFERENCE
                "Subclause 11.3.1, Table 353, in IEEE Std 802.16e-2005"
            DEFVAL      { allowed }
            ::= { wmanIf2eBsOfdmaUplinkChannelEntry 13 }

    wmanIf2eBsOfdmaCqichIndicationFlag OBJECT-TYPE
            SYNTAX      OCTET STRING (SIZE (1))
            MAX-ACCESS  read-write
            STATUS      current
            DESCRIPTION
                "The N MSB values of this field represents the N-bit
                 payload value on the Fast-Feedback channel reserved as
                 indication flag for MS to initiate feedback on the
                 Feedback header, where N is the number of payload bits
                 used for S/N measurement feedback on the Fast-Feedback
                 channel. The value shall not be set to all zeros."
            REFERENCE
                "Subclause 11.3.1, Table 353, in IEEE Std 802.16e-2005"
            ::= { wmanIf2eBsOfdmaUplinkChannelEntry 14 }

    wmanIf2eBsOfdmaUpPowerAdjStep OBJECT-TYPE
            SYNTAX      Unsigned32
            UNITS       "0.01 dB"
```

```
            MAX-ACCESS  read-write
            STATUS      current
            DESCRIPTION
                "MS-specific up power offset adjustment step"
            REFERENCE
                "Subclause 11.3.1, Table 353, in IEEE Std 802.16e-2005"
            ::= { wmanIf2eBsOfdmaUplinkChannelEntry 15 }

    wmanIf2eBsOfdmaDownPowerAdjStep OBJECT-TYPE
            SYNTAX      Unsigned32
            UNITS       "0.01 dB"
            MAX-ACCESS  read-write
            STATUS      current
            DESCRIPTION
                "MS-specific down power offset adjustment step"
            REFERENCE
                "Subclause 11.3.1, Table 353, in IEEE Std 802.16e-2005"
            ::= { wmanIf2eBsOfdmaUplinkChannelEntry 16 }

    wmanIf2eBsOfdmaMinPowerOffsetAdj OBJECT-TYPE
            SYNTAX      INTEGER
            UNITS       "0.1 dB"
            MAX-ACCESS  read-write
            STATUS      current
            DESCRIPTION
                "Minimum level of power offset adjustment"
            REFERENCE
                "Subclause 11.3.1, Table 353, in IEEE Std 802.16e-2005"
            ::= { wmanIf2eBsOfdmaUplinkChannelEntry 17 }

    wmanIf2eBsOfdmaMaxPowerOffsetAdj OBJECT-TYPE
            SYNTAX      INTEGER
            UNITS       "0.1 dB"
            MAX-ACCESS  read-write
            STATUS      current
            DESCRIPTION
                "Minimum level of power offset adjustment"
            REFERENCE
                "Subclause 11.3.1, Table 353, in IEEE Std 802.16e-2005"
            ::= { wmanIf2eBsOfdmaUplinkChannelEntry 18 }

    wmanIf2eBsOfdmaHandoverRngCodes OBJECT-TYPE
            SYNTAX      INTEGER (0..255)
            MAX-ACCESS  read-write
            STATUS      current
            DESCRIPTION
                "Number of handover ranging CDMA codes"
            REFERENCE
                "Subclause 11.3.1, Table 353, in IEEE Std 802.16e-2005"
            ::= { wmanIf2eBsOfdmaUplinkChannelEntry 19 }

    wmanIf2eBsOfdmaInitialRngInterval OBJECT-TYPE
            SYNTAX      INTEGER
            MAX-ACCESS  read-write
            STATUS      current
            DESCRIPTION
                "Number of frames between initial ranging interval
                 allocation."
            REFERENCE
                "Subclause 11.3.1, Table 353, in IEEE Std 802.16e-2005"
            ::= { wmanIf2eBsOfdmaUplinkChannelEntry 20 }

    wmanIf2eBsOfdmaTxPwrRepThreshold OBJECT-TYPE
            SYNTAX      INTEGER (0..15)
```

```
            UNITS       "dB"
            MAX-ACCESS  read-write
            STATUS      current
            DESCRIPTION
                "Tx power report threshold.
                 wmanIf2eBsOfdmaTxPwrRepThreshold = 0b1111 means infinite."
            REFERENCE
                "Subclause 11.3.1, Table 353, and 8.4.10.3.2.1 in IEEE
                 Std 802.16e-2005"
            ::= { wmanIf2eBsOfdmaUplinkChannelEntry 21 }

    wmanIf2eBsOfdmaTprPower OBJECT-TYPE
            SYNTAX      INTEGER (0..15)
            UNITS       "dB"
            MAX-ACCESS  read-write
            STATUS      current
            DESCRIPTION
                "Tx power report interval = 2 ^ wmanIf2eBsOfdmaTprPower.
                 The unit of Tx power report interval is frame.
                 wmanIf2eBsOfdmaTprPower = 0b1111 means infinite."
            REFERENCE
                "Subclause 11.3.1, Table 353, and 8.4.10.3.2.1 in IEEE
                 Std 802.16e-2005"
            ::= { wmanIf2eBsOfdmaUplinkChannelEntry 22 }

    wmanIf2eBsOfdmaAlphaPavg OBJECT-TYPE
            SYNTAX      INTEGER (0..15)
            UNITS       "dB"
            MAX-ACCESS  read-write
            STATUS      current
            DESCRIPTION
                "Aplha p_avg parameter as shown in equation 138d in
                 IEEE 802.16e-2005 indicates the multiple of 1/16. For
                 example '0' means 1/16, 15 means 16/16. "
            REFERENCE
                "Subclause 11.3.1, Table 353, and 8.4.10.3.2.1 in IEEE
                 Std 802.16e-2005"
            ::= { wmanIf2eBsOfdmaUplinkChannelEntry 23 }

    wmanIf2eBsOfdmaCqichTxPwrRepThreshold OBJECT-TYPE
            SYNTAX      INTEGER (0..15)
            UNITS       "dB"
            MAX-ACCESS  read-write
            STATUS      current
            DESCRIPTION
                "Tx power report threshold.
                 wmanIf2eBsOfdmaTxPwrRepThreshold = 0b1111 means infinite.
                 It shall be used when CQICH is allocated to the SS."
            REFERENCE
                "Subclause 11.3.1, Table 353, and 8.4.10.3.2.1 in IEEE
                 Std 802.16e-2005"
            ::= { wmanIf2eBsOfdmaUplinkChannelEntry 24 }

    wmanIf2eBsOfdmaCqichTprPower OBJECT-TYPE
            SYNTAX      INTEGER (0..15)
            UNITS       "dB"
            MAX-ACCESS  read-write
            STATUS      current
            DESCRIPTION
                "Tx power report interval = 2 ^ wmanIf2eBsOfdmaTprPower.
                 The unit of Tx power report interval is frame.
                 wmanIf2eBsOfdmaTprPower = 0b1111 means infinite.
                 It shall be used when CQICH is allocated to the SS."
            REFERENCE
```

```
                "Subclause 11.3.1, Table 353, and 8.4.10.3.2.1 in IEEE
                 Std 802.16e-2005"
            ::= { wmanIf2eBsOfdmaUplinkChannelEntry 25 }

    wmanIf2eBsOfdmaCqichAlphaPavg OBJECT-TYPE
            SYNTAX      INTEGER (0..15)
            UNITS       "dB"
            MAX-ACCESS  read-write
            STATUS      current
            DESCRIPTION
                "Aplha p_avg parameter as shown in equation 138d in
                 IEEE 802.16e-2005 indicates the multiple of 1/16. For
                 example '0' means 1/16, 15 means 16/16. It shall be
                 used when CQICH is allocated to the SS."
            REFERENCE
                "Subclause 11.3.1, Table 353, and 8.4.10.3.2.1 in IEEE
                 Std 802.16e-2005"
            ::= { wmanIf2eBsOfdmaUplinkChannelEntry 26 }

    wmanIf2eBsOfdmaNormalizedCnChSounding OBJECT-TYPE
            SYNTAX      INTEGER
            MAX-ACCESS  read-write
            STATUS      current
            DESCRIPTION
                "Signed integer for the required C/N (dB) for Channel
                 Sounding."
            REFERENCE
                "Subclause 11.3.1, Table 353, in IEEE Std 802.16e-2005"
            ::= { wmanIf2eBsOfdmaUplinkChannelEntry 27 }

    wmanIf2eBsOfdmaInitialRngBackoffStart OBJECT-TYPE
            SYNTAX      INTEGER (0..15)
            MAX-ACCESS  read-write
            STATUS      current
            DESCRIPTION
                "Initial backoff window size for initial ranging
                 contention, expressed as a power of 2."
            REFERENCE
                "Subclause 11.3.1, Table 353, in IEEE Std 802.16e-2005"
            ::= { wmanIf2eBsOfdmaUplinkChannelEntry 28 }

    wmanIf2eBsOfdmaInitialRngBackoffEnd OBJECT-TYPE
            SYNTAX      INTEGER (0..15)
            MAX-ACCESS  read-write
            STATUS      current
            DESCRIPTION
                "Final backoff window size for initial ranging
                 contention, expressed as a power of 2."
            REFERENCE
                "Subclause 11.3.1, Table 353, in IEEE Std 802.16e-2005"
            ::= { wmanIf2eBsOfdmaUplinkChannelEntry 29 }

    wmanIf2eBsOfdmaBwRequestBackoffStart OBJECT-TYPE
            SYNTAX      INTEGER (0..15)
            MAX-ACCESS  read-write
            STATUS      current
            DESCRIPTION
                "Initial backoff window size for contention BW requests,
                 expressed as a power of 2."
            REFERENCE
                "Subclause 11.3.1, Table 353, in IEEE Std 802.16e-2005"
            ::= { wmanIf2eBsOfdmaUplinkChannelEntry 30 }

    wmanIf2eBsOfdmaBwRequestBackoffEnd OBJECT-TYPE
```

```
            SYNTAX      INTEGER (0..15)
            MAX-ACCESS  read-write
            STATUS      current
            DESCRIPTION
                "Final backoff window size for contention BW requests,
                 expressed as a power of 2."
            REFERENCE
                "Subclause 11.3.1, Table 353, in IEEE Std 802.16e-2005"
            ::= { wmanIf2eBsOfdmaUplinkChannelEntry 31 }
```