

Project	<b>IEEE 802.16 Broadband Wireless Access Working Group</b> < <a href="http://ieee802.org/16">http://ieee802.org/16</a> >
Title	<b>OFDMA PHY Configuration and ASN.1 code</b>
Date Submitted	<b>2006-03-09</b>
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Re:	
Abstract	This contribution proposed the text and ASN.1 code for OFDMA PHY.
Purpose	Adoption
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## 2 1. Introduction

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This contribution proposes the text for Section 13 and Annex E of IEEE P802.16i WG draft.

## 4 2. OFDMA PHY Configuration

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5

This section proposes new table for OFDMA PHY.

6

7

*[Insert a new subclause 16:]*

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### 15.2 NRM IRP SNMP Solution Set

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#### 15.2.1.1.5 wmanIfBsPhy

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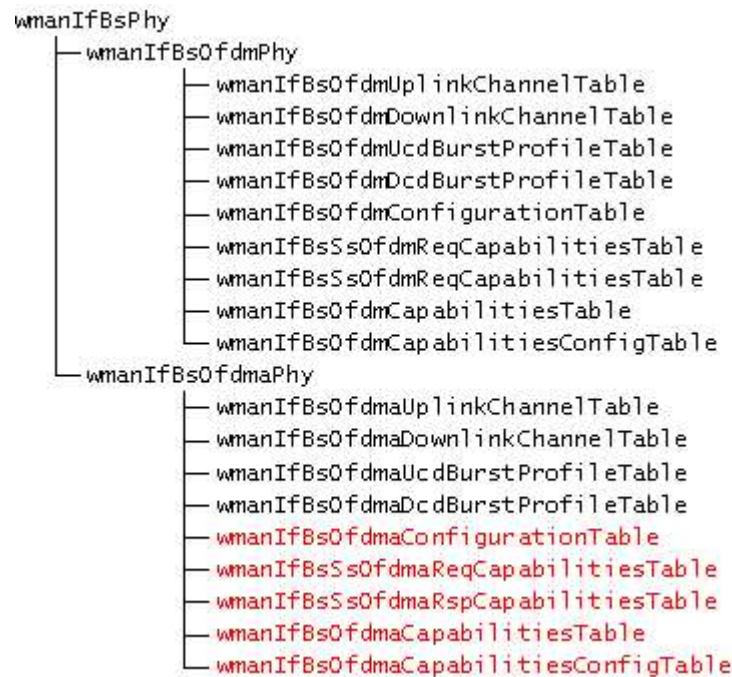


Figure 7—wmanIfBsPhy structure

#### 15.2.1.1.5.2.5 wmanIfBsOfdmaConfigurationTable

wmanIfBsOfdmaConfigurationTable contains BS configuration objects, specific to OFDMA PHY.

#### 15.2.1.1.5.2.6 wmanIfBsSsOfdmaReqCapabilitiesTable

wmanIfBsSsOfdmaReqCapabilitiesTable contains the basic capability information, specific to OFDMA Phy, of SSs or MSs that have been reported by SSs to BS using RNG-REQ, SBC-REQ and REG-REQ messages. Entries in this table should be created when an SS registers with a BS.

#### 15.2.1.1.5.2.7 wmanIfBsSsOfdmaRspCapabilitiesTable

wmanIfBsSsOfdmaRspCapabilitiesTable contains the basic capability information, specific to OFDMA Phy, of SSs or MSs that have been negotiated and agreed between BS and SS via RNG-REQ/RSP, SBC-REQ/RSP and REG-REQ/RSP messages. This table augments the wmanIfBsRegisteredSsTable.

### 1 15.2.1.1.5.2.8 wmanIfBsOfdmaCapabilitiesTable

2 wmanIfBsOfdmaCapabilitiesTable contains the basic capabilities, specific to OFDMA Phy, of the  
3 BS as implemented in BS hardware and software.

### 4 15.2.1.1.5.2.9 wmanIfBsOfdmaCapabilitiesConfigTable

5 wmanIfBsOfdmaCapabilitiesConfigTable contains the configuration for basic capabilities of BS,  
6 specific to OFDMA Phy. The table is intended to be used to restrict the Capabilities implemented  
7 by BS.

## 8 3. ASN.1 Code for OFDMA PHY

9 The following lists the ASN.1 code for OFDMA PHY enhancement.

10 *[Insert the following ASN.1 code to subclause 15.2.2:]*

```

11 WmanIfOfdmFftSizes ::= TEXTUAL-CONVENTION
12     STATUS         current
13     DESCRIPTION
14         "This field indicates the FFT sizes supported by the SS/MS.
15         For each FFT size, a bit value of 0 indicates
16         'not supported' while 1 indicates 'supported'."
17     REFERENCE
18         "Subclause 11.8.3.6.1 in IEEE 802.16-2004"
19     SYNTAX         BITS {fft256(0),
20                     fft2048(1),
21                     fft128(2),
22                     fft512(3),
23                     fft1024(4)}
24
25
26 WmanIfOfdmaMsDeModType ::= TEXTUAL-CONVENTION
27     STATUS         current
28     DESCRIPTION
29         "This field indicates the different demodulator options
30         supported by a WirelessMAN-OFDMA PHY SS for downlink.
31         A bit value of 0 indicates 'not supported' while 1
32         indicates 'supported'."
33     REFERENCE
34         "Subclause 11.8.3.7.2 in IEEE 802.16e"
35     SYNTAX         BITS {qam64(0),
36                     btc(1),
37                     ctc(2),
38                     stc(3),
39                     aasDiversityMapScan(4),
40                     harqChase(5),
41                     harqCtcIr(6),
42                     reserved(7),
43                     harqCcIr(8),
44                     ldpc(9)}
45
46 WmanIfOfdmaMsModType ::= TEXTUAL-CONVENTION
47     STATUS         current
48     DESCRIPTION
49         "This field indicates the different modulator options
50         supported by a WirelessMAN-OFDMA PHY SS for uplink. A bit
51         value of 0 indicates 'not supported' while 1 indicates
52         'supported'."
53     REFERENCE
54         "Subclause 11.8.3.7.3 in IEEE 802.16e"
55     SYNTAX         BITS {qam64(0),
56                     btc(1),
57                     ctc(2),
58                     stc(3),
59                     harqChase(4),

```

```

1          ctcIr(5),
2          ccIr(6),
3          ldpc(7)}
4
5 WmanIfOfdmaPermutation ::= TEXTUAL-CONVENTION
6     STATUS      current
7     DESCRIPTION
8         "This field indicates the OFDMA SS Permutation support
9         A bit value of 0 indicates 'not supported' while 1
10        indicates 'supported'."
11    REFERENCE
12        "Subclause 11.8.3.7.5 in IEEE 802.16e"
13    SYNTAX      BITS {optionalPuscSupport(0),
14                    optionalFuscSupport(1),
15                    amcOneBySixSupport(2),
16                    amcTwoByThreeSupport(3),
17                    amcThreeByTwoSupport(4),
18                    amcSupportWithHarqMap(5),
19                    tusclSupport(6),
20                    tusc2(7)}
21
22 WmanIfOfdmaMobility ::= TEXTUAL-CONVENTION
23     STATUS      current
24     DESCRIPTION
25         "This field indicates whether or not the MS supports
26         mobility hand-over, Sleepmode, and Idle-mode. A bit
27         value of 0 indicates 'not supported' while 1 indicates
28         it is supported."
29    REFERENCE
30        "Subclause 11.8.3.7.5 in IEEE 802.16e"
31    SYNTAX      BITS {handoverSupport(0),
32                    sleepModeSupport(1),
33                    idleModeSupport(2)}
34
35 wmanIfBsMsOfdmaReqCapabilitiesTable OBJECT-TYPE
36     SYNTAX      SEQUENCE OF WmanIfBsMsOfdmaReqCapabilitiesEntry
37     MAX-ACCESS  not-accessible
38     STATUS      current
39     DESCRIPTION
40         "This table contains the basic capability information,
41         specific to OFDMA Phy, of MSs that have been reported by
42         MSs to BS using RNG-REQ, SBC-REQ and REG-REQ messages.
43         Entries in this table should be created when an MS
44         registers with a BS."
45     ::= { wmanIfBsOfdmaPhy 5 }
46
47 wmanIfBsMsOfdmaReqCapabilitiesEntry OBJECT-TYPE
48     SYNTAX      WmanIfBsMsOfdmaReqCapabilitiesEntry
49     MAX-ACCESS  not-accessible
50     STATUS      current
51     DESCRIPTION
52         "This table provides one row for each MS that has been
53         registered in the BS. This table augments the table
54         wmanIfBsRegisteredSsTable."
55     AUGMENTS { wmanIfBsRegisteredSsEntry }
56     ::= { wmanIfBsMsOfdmaReqCapabilitiesTable 1 }
57
58 WmanIfBsMsOfdmaReqCapabilitiesEntry ::= SEQUENCE {
59     wmanIfBsMsOfdmaReqCapFftSizes      WmanIfOfdmFftSizes,
60     wmanIfBsMsOfdmaReqCapDemodulator   WmanIfOfdmaMsDeModType,
61     wmanIfBsMsOfdmaReqCapModulator     WmanIfOfdmaMsModType,
62     wmanIfBsMsOfdmaReqCapPermutation   WmanIfOfdmaPermutation,
63     wmanIfBsMsOfdmaReqCapMobilityFeature WmanIfOfdmaMobility}
64
65 wmanIfBsMsOfdmaReqCapFftSizes OBJECT-TYPE
66     SYNTAX      WmanIfOfdmFftSizes
67     MAX-ACCESS  read-only
68     STATUS      current
69     DESCRIPTION
70         "This field indicates the FFT sizes supported by MS."
71     ::= { wmanIfBsMsOfdmaReqCapabilitiesEntry 1 }

```

```

1
2   wmanIfBsMsOfdmaReqCapDemodulator OBJECT-TYPE
3       SYNTAX      WmanIfOfdmaMsDeModType
4       MAX-ACCESS  read-only
5       STATUS      current
6       DESCRIPTION
7           "This field indicates the different demodulator options
8            supported by MS for downlink."
9       ::= { wmanIfBsMsOfdmaReqCapabilitiesEntry 2 }
10
11  wmanIfBsMsOfdmaReqCapModulator OBJECT-TYPE
12      SYNTAX      WmanIfOfdmaMsModType
13      MAX-ACCESS  read-only
14      STATUS      current
15      DESCRIPTION
16          "This field indicates the different modulator options
17           supported by MS for uplink."
18      ::= { wmanIfBsMsOfdmaReqCapabilitiesEntry 3 }
19
20  wmanIfBsMsOfdmaReqCapPermutation OBJECT-TYPE
21      SYNTAX      WmanIfOfdmaPermutation
22      MAX-ACCESS  read-only
23      STATUS      current
24      DESCRIPTION
25          "This field indicates the OFDMA MS Permutation support"
26      ::= { wmanIfBsMsOfdmaReqCapabilitiesEntry 4 }
27
28  wmanIfBsMsOfdmaReqCapMobilityFeature OBJECT-TYPE
29      SYNTAX      WmanIfOfdmaMobility
30      MAX-ACCESS  read-only
31      STATUS      current
32      DESCRIPTION
33          "The field indicates whether or not the MS supports
34           mobility hand-over, Sleepmode, and Idle-mode."
35      ::= { wmanIfBsMsOfdmaReqCapabilitiesEntry 5 }
36
37  wmanIfBsMsOfdmaRspCapabilitiesTable OBJECT-TYPE
38      SYNTAX      SEQUENCE OF WmanIfBsMsOfdmaRspCapabilitiesEntry
39      MAX-ACCESS  not-accessible
40      STATUS      current
41      DESCRIPTION
42          "This table contains the basic capability information,
43           specific to OFDMA Phy, of MSs that have been reported by
44           MSs to BS using RNG-REQ, SBC-REQ and REG-REQ messages.
45           Entries in this table should be created when an MS
46           registers with a BS."
47      ::= { wmanIfBsOfdmaPhy 6 }
48
49  wmanIfBsMsOfdmaRspCapabilitiesEntry OBJECT-TYPE
50      SYNTAX      WmanIfBsMsOfdmaRspCapabilitiesEntry
51      MAX-ACCESS  not-accessible
52      STATUS      current
53      DESCRIPTION
54          "This table provides one row for each MS that has been
55           registered in the BS. This table augments the table
56           wmanIfBsRegisteredSsTable."
57      AUGMENTS { wmanIfBsRegisteredSsEntry }
58      ::= { wmanIfBsMsOfdmaRspCapabilitiesTable 1 }
59
60  WmanIfBsMsOfdmaRspCapabilitiesEntry ::= SEQUENCE {
61      wmanIfBsMsOfdmaRspCapFftSizes      WmanIfOfdmFftSizes,
62      wmanIfBsMsOfdmaRspCapDemodulator  WmanIfOfdmaMsDeModType,
63      wmanIfBsMsOfdmaRspCapModulator    WmanIfOfdmaMsModType,
64      wmanIfBsMsOfdmaRspCapPermutation  WmanIfOfdmaPermutation,
65      wmanIfBsMsOfdmaRspCapMobilityFeature WmanIfOfdmaMobility}
66
67  wmanIfBsMsOfdmaRspCapFftSizes OBJECT-TYPE
68      SYNTAX      WmanIfOfdmFftSizes
69      MAX-ACCESS  read-only
70      STATUS      current
71      DESCRIPTION

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1           "This field indicates the FFT sizes negotiated with the
2           MS."
3           ::= { wmanIfBsMsOfdmaRspCapabilitiesEntry 1 }
4
5 wmanIfBsMsOfdmaRspCapDemodulator OBJECT-TYPE
6     SYNTAX      WmanIfOfdmaMsDeModType
7     MAX-ACCESS  read-only
8     STATUS      current
9     DESCRIPTION
10            "This field indicates the different demodulator options
11            negotiated for MS for downlink."
12            ::= { wmanIfBsMsOfdmaRspCapabilitiesEntry 2 }
13
14 wmanIfBsMsOfdmaRspCapModulator OBJECT-TYPE
15     SYNTAX      WmanIfOfdmaMsModType
16     MAX-ACCESS  read-only
17     STATUS      current
18     DESCRIPTION
19            "This field indicates the different modulator options
20            negotiated for MS for uplink."
21            ::= { wmanIfBsMsOfdmaRspCapabilitiesEntry 3 }
22
23 wmanIfBsMsOfdmaRspCapPermutation OBJECT-TYPE
24     SYNTAX      WmanIfOfdmaPermutation
25     MAX-ACCESS  read-only
26     STATUS      current
27     DESCRIPTION
28            "This field indicates the OFDMA MS Permutation support
29            negotiated for MS."
30            ::= { wmanIfBsMsOfdmaRspCapabilitiesEntry 4 }
31
32 wmanIfBsMsOfdmaRspCapMobilityFeature OBJECT-TYPE
33     SYNTAX      WmanIfOfdmaMobility
34     MAX-ACCESS  read-only
35     STATUS      current
36     DESCRIPTION
37            "The field indicates the mobility hand-over, Sleepmode,
38            and Idle-mode negotiated for MS."
39            ::= { wmanIfBsMsOfdmaRspCapabilitiesEntry 5 }
40
41 wmanIfBsOfdmaCapabilitiesTable OBJECT-TYPE
42     SYNTAX      SEQUENCE OF WmanIfBsOfdmaCapabilitiesEntry
43     MAX-ACCESS  not-accessible
44     STATUS      current
45     DESCRIPTION
46            "This table contains the basic capabilities, specific to
47            OFDMA Phy, of the BS as implemented in BS hardware and
48            software. These capabilities along with the configuration
49            for them (wmanIfBsOfdmaCapabilitiesConfigTable) are used
50            for negotiation of basic capabilities with SS using
51            RNG-RSP, SBC-RSP and REG-RSP messages. The negotiated
52            capabilities are obtained by interSubclause of MS raw
53            reported capabilities, BS raw capabilities and BS
54            configured capabilities. The objects in the table have
55            read-only access. The table is maintained by BS."
56            ::= { wmanIfBsOfdmaPhy 7 }
57
58 wmanIfBsOfdmaCapabilitiesEntry OBJECT-TYPE
59     SYNTAX      WmanIfBsOfdmaCapabilitiesEntry
60     MAX-ACCESS  not-accessible
61     STATUS      current
62     DESCRIPTION
63            "This table provides one row for each BS sector and is
64            indexed by ifIndex."
65     INDEX { ifIndex }
66     ::= { wmanIfBsOfdmaCapabilitiesTable 1 }
67
68 WmanIfBsOfdmaCapabilitiesEntry ::= SEQUENCE {
69     wmanIfBsOfdmaCapFftSizes          WmanIfOfdmFftSizes,
70     wmanIfBsOfdmaCapDemodulator      WmanIfOfdmaMsDeModType,
71     wmanIfBsOfdmaCapModulator        WmanIfOfdmaMsModType,

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1           wmanIfBsOfdmaCapPermutation                WmanIfOfdmaPermutation,
2           wmanIfBsOfdmaCapMobilityFeature            WmanIfOfdmaMobility}
3
4   wmanIfBsOfdmaCapFftSizes OBJECT-TYPE
5       SYNTAX      WmanIfOfdmFftSizes
6       MAX-ACCESS  read-only
7       STATUS      current
8       DESCRIPTION
9           "This field indicates the FFT sizes supported by BS."
10          ::= { wmanIfBsOfdmaCapabilitiesEntry 1 }
11
12  wmanIfBsOfdmaCapDemodulator OBJECT-TYPE
13      SYNTAX      WmanIfOfdmaMsDeModType
14      MAX-ACCESS  read-only
15      STATUS      current
16      DESCRIPTION
17          "This field indicates the different demodulator options
18          supported by BS."
19          ::= { wmanIfBsOfdmaCapabilitiesEntry 2 }
20
21  wmanIfBsOfdmaCapModulator OBJECT-TYPE
22      SYNTAX      WmanIfOfdmaMsModType
23      MAX-ACCESS  read-only
24      STATUS      current
25      DESCRIPTION
26          "This field indicates the different modulator options
27          supported by BS."
28          ::= { wmanIfBsOfdmaCapabilitiesEntry 3 }
29
30  wmanIfBsOfdmaCapPermutation OBJECT-TYPE
31      SYNTAX      WmanIfOfdmaPermutation
32      MAX-ACCESS  read-only
33      STATUS      current
34      DESCRIPTION
35          "This field indicates the OFDMA MS Permutation support
36          supported by BS."
37          ::= { wmanIfBsOfdmaCapabilitiesEntry 4 }
38
39  wmanIfBsOfdmaCapMobilityFeature OBJECT-TYPE
40      SYNTAX      WmanIfOfdmaMobility
41      MAX-ACCESS  read-only
42      STATUS      current
43      DESCRIPTION
44          "The field indicates the mobility hand-over, Sleepmode,
45          and Idle-mode supported by BS."
46          ::= { wmanIfBsOfdmaCapabilitiesEntry 5 }
47
48  wmanIfBsOfdmaCapabilitiesConfigTable OBJECT-TYPE
49      SYNTAX      SEQUENCE OF WmanIfBsOfdmaCapabilitiesConfigEntry
50      MAX-ACCESS  not-accessible
51      STATUS      current
52      DESCRIPTION
53          "This table contains the configuration for basic
54          capabilities of BS, specific to OFDMA Phy. The table is
55          intended to be used to restrict the Capabilities
56          implemented by BS, for example in order to comply with
57          local regulatory requirements. The BS should use the
58          configuration along with the implemented Capabilities
59          (wmanIfBsOfdmaPhyTable) for negotiation of basic
60          capabilities with SS using RNG-RSP, SBC-RSP and REG-RSP
61          messages. The negotiated capabilities are obtained by
62          interSubclause of MS reported capabilities, BS raw
63          capabilities and BS configured capabilities. The objects
64          in the table have read-write access. The rows are created
65          by BS as a copy of wmanIfBsBasicCapabilitiesTable
66          and can be modified by NMS."
67          ::= { wmanIfBsOfdmaPhy 8 }
68
69  wmanIfBsOfdmaCapabilitiesConfigEntry OBJECT-TYPE
70      SYNTAX      WmanIfBsOfdmaCapabilitiesConfigEntry
71      MAX-ACCESS  not-accessible

```



```

1          STATUS      current
2          DESCRIPTION
3              "This table provides one row for each BS sector and is
4              indexed by ifIndex."
5          INDEX { ifIndex }
6          ::= { wmanIfBsOfdmaCapabilitiesConfigTable 1 }
7
8          WmanIfBsOfdmaCapabilitiesConfigEntry ::= SEQUENCE {
9              wmanIfBsOfdmaCapCfgFftSizes          WmanIfOfdmFftSizes,
10             wmanIfBsOfdmaCapCfgDemodulator        WmanIfOfdmaMsDeModType,
11             wmanIfBsOfdmaCapCfgModulator          WmanIfOfdmaMsModType,
12             wmanIfBsOfdmaCapCfgPermutation        WmanIfOfdmaPermutation,
13             wmanIfBsOfdmaCapCfgMobilityFeature    WmanIfOfdmaMobility}
14
15          wmanIfBsOfdmaCapCfgFftSizes OBJECT-TYPE
16              SYNTAX      WmanIfOfdmFftSizes
17              MAX-ACCESS  read-only
18              STATUS      current
19              DESCRIPTION
20                  "This field indicates the FFT sizes configured for the BS."
21              ::= { wmanIfBsOfdmaCapabilitiesConfigEntry 1 }
22
23          wmanIfBsOfdmaCapCfgDemodulator OBJECT-TYPE
24              SYNTAX      WmanIfOfdmaMsDeModType
25              MAX-ACCESS  read-only
26              STATUS      current
27              DESCRIPTION
28                  "This field indicates the different demodulator options
29                  configured for the BS."
30              ::= { wmanIfBsOfdmaCapabilitiesConfigEntry 2 }
31
32          wmanIfBsOfdmaCapCfgModulator OBJECT-TYPE
33              SYNTAX      WmanIfOfdmaMsModType
34              MAX-ACCESS  read-only
35              STATUS      current
36              DESCRIPTION
37                  "This field indicates the different modulator options
38                  configured for the BS."
39              ::= { wmanIfBsOfdmaCapabilitiesConfigEntry 3 }
40
41          wmanIfBsOfdmaCapCfgPermutation OBJECT-TYPE
42              SYNTAX      WmanIfOfdmaPermutation
43              MAX-ACCESS  read-only
44              STATUS      current
45              DESCRIPTION
46                  "This field indicates the OFDMA MS Permutation support
47                  configured for the BS."
48              ::= { wmanIfBsOfdmaCapabilitiesConfigEntry 4 }
49
50          wmanIfBsOfdmaCapCfgMobilityFeature OBJECT-TYPE
51              SYNTAX      WmanIfOfdmaMobility
52              MAX-ACCESS  read-only
53              STATUS      current
54              DESCRIPTION
55                  "The field indicates the mobility hand-over, Sleepmode,
56                  and Idle-mode configured for the BS."
57              ::= { wmanIfBsOfdmaCapabilitiesConfigEntry 5 }
58
59
60

```

