

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>
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Re:	
Abstract	This contribution proposed the text and ASN.1 code for OFDMA PHY.
Purpose	Adoption
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1

1

2 **1. Introduction**

3

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

4

5 **2. OFDMA PHY Configuration**

6

This section proposes new table for OFDMA PHY.

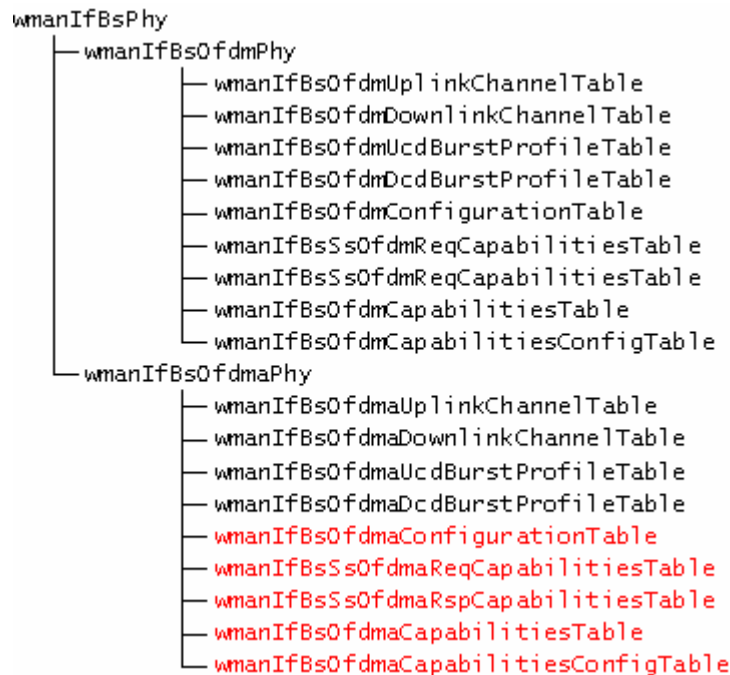
7

8 **13.1.1.5 wmanIfBsPhy**

9

*[Replace the Figure 7 with the following:]*

10



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20

21 *[Add the following subclauses:]*

22 **13.1.1.5.2.5 wmanIfBsOfdmaConfigurationTable**

23 wmanIfBsOfdmaConfigurationTable contains BS configuration objects, specific to OFDMA  
24 PHY.

25 **13.1.1.5.2.6 wmanIfBsSsOfdmaReqCapabilitiesTable**

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

29 **13.1.1.5.2.7 wmanIfBsSsOfdmaRspCapabilitiesTable**

30 wmanIfBsSsOfdmaRspCapabilitiesTable contains the basic capability information, specific to  
31 OFDMA Phy, of SSs or MSs that have been negotiated and agreed between BS and SS via RNG-

1 REQ/RSP, SBC-REQ/RSP and REG-REQ/RSP messages. This table augments the  
2 wmanIfBsRegisteredSsTable.

### 3 13.1.1.5.2.8 wmanIfBsOfdmaCapabilitiesTable

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

### 6 13.1.1.5.2.9 wmanIfBsOfdmaCapabilitiesConfigTable

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

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

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

12 *[Add the following ASN.1 code to Annex E:]*

```

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

```

```

1          SYNTAX      BITS {gam64(0),
2                      btc(1),
3                      ctc(2),
4                      stc(3),
5                      harqChase(4),
6                      ctcIr(5),
7                      ccIr(6),
8                      ldpc(7)}
9
10         WmanIfOfdmaPermutation ::= TEXTUAL-CONVENTION
11         STATUS      current
12         DESCRIPTION
13             "This field indicates the OFDMA SS Permutation support
14             A bit value of 0 indicates 'not supported' while 1
15             indicates 'supported'."
16         REFERENCE
17             "Subclause 11.8.3.7.5 in IEEE 802.16e"
18         SYNTAX      BITS {optionalPuscSupport(0),
19                      optionalFuscSupport(1),
20                      amcOneBySixSupport(2),
21                      amcTwoByThreeSupport(3),
22                      amcThreeByTwoSupport(4),
23                      amcSupportWithHarqMap(5),
24                      tusclSupport(6),
25                      tusc2(7)}
26
27         WmanIfOfdmaMobility ::= TEXTUAL-CONVENTION
28         STATUS      current
29         DESCRIPTION
30             "This field indicates whether or not the MS supports
31             mobility hand-over, Sleepmode, and Idle-mode. A bit
32             value of 0 indicates 'not supported' while 1 indicates
33             it is supported."
34         REFERENCE
35             "Subclause 11.8.3.7.5 in IEEE 802.16e"
36         SYNTAX      BITS {handoverSupport(0),
37                      sleepModeSupport(1),
38                      idleModeSupport(2)}
39
40         wmanIfBsMsOfdmaReqCapabilitiesTable OBJECT-TYPE
41         SYNTAX      SEQUENCE OF WmanIfBsMsOfdmaReqCapabilitiesEntry
42         MAX-ACCESS  not-accessible
43         STATUS      current
44         DESCRIPTION
45             "This table contains the basic capability information,
46             specific to OFDMA Phy, of MSs that have been reported by
47             MSs to BS using RNG-REQ, SBC-REQ and REG-REQ messages.
48             Entries in this table should be created when an MS
49             registers with a BS."
50         ::= { wmanIfBsOfdmaPhy 5 }
51
52         wmanIfBsMsOfdmaReqCapabilitiesEntry OBJECT-TYPE
53         SYNTAX      WmanIfBsMsOfdmaReqCapabilitiesEntry
54         MAX-ACCESS  not-accessible
55         STATUS      current
56         DESCRIPTION
57             "This table provides one row for each MS that has been
58             registered in the BS. This table augments the table
59             wmanIfBsRegisteredSsTable."
60         AUGMENTS { wmanIfBsRegisteredSsEntry }
61         ::= { wmanIfBsMsOfdmaReqCapabilitiesTable 1 }
62
63         WmanIfBsMsOfdmaReqCapabilitiesEntry ::= SEQUENCE {
64             wmanIfBsMsOfdmaReqCapFftSizes      WmanIfOfdmFftSizes,
65             wmanIfBsMsOfdmaReqCapDemodulator    WmanIfOfdmaMsDeModType,
66             wmanIfBsMsOfdmaReqCapModulator      WmanIfOfdmaMsModType,
67             wmanIfBsMsOfdmaReqCapPermutation    WmanIfOfdmaPermutation,
68             wmanIfBsMsOfdmaReqCapMobilityFeature WmanIfOfdmaMobility}
69
70         wmanIfBsMsOfdmaReqCapFftSizes OBJECT-TYPE
71         SYNTAX      WmanIfOfdmFftSizes
72         MAX-ACCESS  read-only

```

```

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

```

```

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

```

```

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

```



```

1         MAX-ACCESS not-accessible
2         STATUS current
3         DESCRIPTION
4             "This table provides one row for each BS sector and is
5             indexed by ifIndex."
6         INDEX { ifIndex }
7         ::= { wmanIfBsOfdmaCapabilitiesConfigTable 1 }
8
9         wmanIfBsOfdmaCapabilitiesConfigEntry ::= SEQUENCE {
10            wmanIfBsOfdmaCapCfgFftSizes          WmanIfOfdmFftSizes,
11            wmanIfBsOfdmaCapCfgDemodulator       WmanIfOfdmaMsDeModType,
12            wmanIfBsOfdmaCapCfgModulator         WmanIfOfdmaMsModType,
13            wmanIfBsOfdmaCapCfgPermutation       WmanIfOfdmaPermutation,
14            wmanIfBsOfdmaCapCfgMobilityFeature   WmanIfOfdmaMobility}
15
16         wmanIfBsOfdmaCapCfgFftSizes OBJECT-TYPE
17             SYNTAX      WmanIfOfdmFftSizes
18             MAX-ACCESS  read-only
19             STATUS      current
20             DESCRIPTION
21                 "This field indicates the FFT sizes configured for the BS."
22             ::= { wmanIfBsOfdmaCapabilitiesConfigEntry 1 }
23
24         wmanIfBsOfdmaCapCfgDemodulator OBJECT-TYPE
25             SYNTAX      WmanIfOfdmaMsDeModType
26             MAX-ACCESS  read-only
27             STATUS      current
28             DESCRIPTION
29                 "This field indicates the different demodulator options
30                 configured for the BS."
31             ::= { wmanIfBsOfdmaCapabilitiesConfigEntry 2 }
32
33         wmanIfBsOfdmaCapCfgModulator OBJECT-TYPE
34             SYNTAX      WmanIfOfdmaMsModType
35             MAX-ACCESS  read-only
36             STATUS      current
37             DESCRIPTION
38                 "This field indicates the different modulator options
39                 configured for the BS."
40             ::= { wmanIfBsOfdmaCapabilitiesConfigEntry 3 }
41
42         wmanIfBsOfdmaCapCfgPermutation OBJECT-TYPE
43             SYNTAX      WmanIfOfdmaPermutation
44             MAX-ACCESS  read-only
45             STATUS      current
46             DESCRIPTION
47                 "This field indicates the OFDMA MS Permutation support
48                 configured for the BS."
49             ::= { wmanIfBsOfdmaCapabilitiesConfigEntry 4 }
50
51         wmanIfBsOfdmaCapCfgMobilityFeature OBJECT-TYPE
52             SYNTAX      WmanIfOfdmaMobility
53             MAX-ACCESS  read-only
54             STATUS      current
55             DESCRIPTION
56                 "The field indicates the mobility hand-over, Sleepmode,
57                 and Idle-mode configured for the BS."
58             ::= { wmanIfBsOfdmaCapabilitiesConfigEntry 5 }
59
60
61

```

