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Title	OFDMA PHY Configuration and ASN.1 code	
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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

2 1. Introduction

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

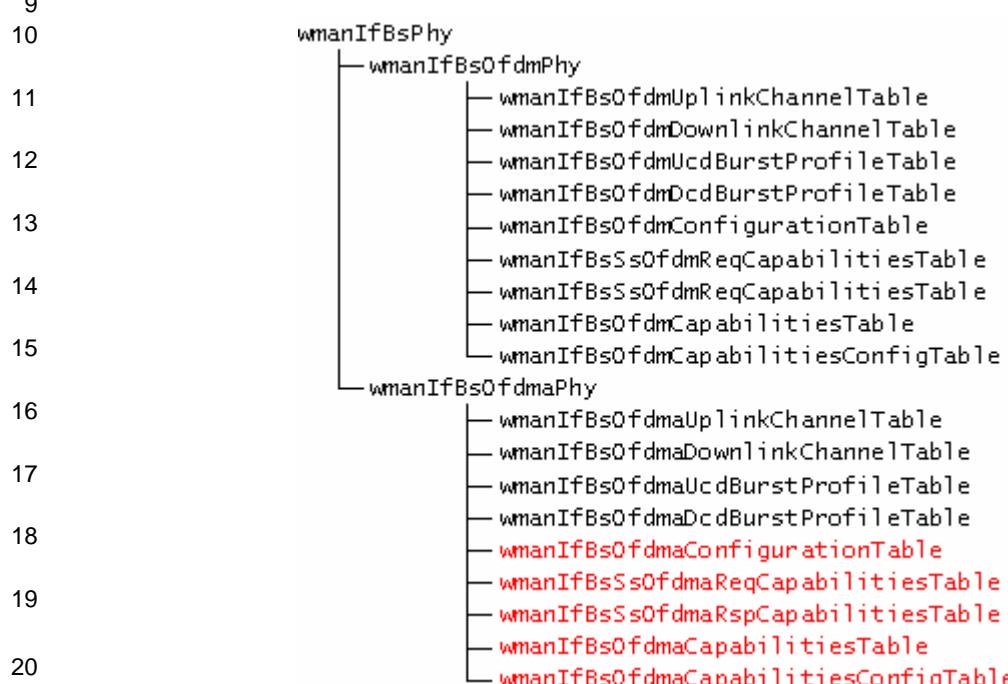
4 2. OFDMA PHY Configuration

5 This section proposes new table for OFDMA PHY.

6

7 13.1.1.5 wmanIfBsPhy

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



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 {qam64(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                           tusc1Support(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
73                                WmanIfOfdmFftSizes,
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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

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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

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