

Project	IEEE 802.16 Broadband Wireless Access Working Group < http://ieee802.org/16 >
Title	Power Saving Classes objects
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Re:	
Abstract	This contribution proposed the text and ASN.1 code for Power Saving Classes objects.
Purpose	Adoption
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1

2 **1. Introduction**

3

4 This contribution proposes the text for Section 15.2.1.1.2 and ASN.1 code Section 15.2.2 of IEEE P802.16i-06-001r1 draft.

5 **2. Power Saving Classes**

6

7 This section proposes new table for Power Saving Classes.

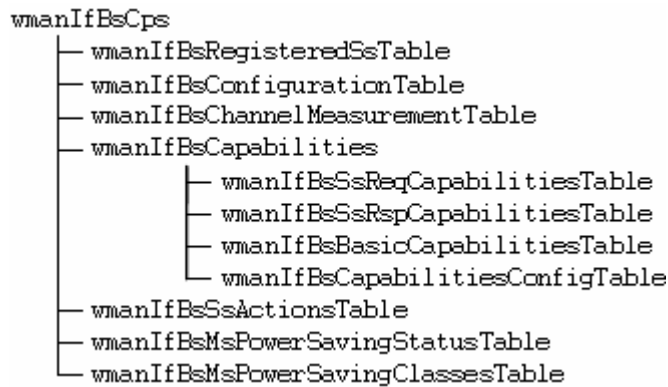
8

9 *[Insert a new subclause 15.2.1.1.2:]*

10

11 **15.2.1.1.2 wmanIfBsCps**

12



13

14

15

16

17

18

19 **Figure 7— wmanIfBsCps structure**

20

21 *[Insert a new subclause 15.2.1.1.2.6 and 15.2.1.1.2.7:]*

22

23 **15.2.1.1.2.6 wmanIfMsBsPowerSavingStatusTable**

24

25 wmanIfMsBsPowerSavingClassesTable contains the power saving status for each CID in an MS.

26

27 **15.2.1.1.2.7 wmanIfMsBsPowerSavingClassesTable**

28

29 wmanIfMsBsPowerSavingClassesTable contains the power saving classes definitions, and activation / deactivation information that are provided by MOB_SLP-REQ and MOB_SLP-RSP messages.

30

31 **3. ASN.1 Code for Power Saving Classes**

32

33 The following lists the ASN.1 code for power saving classes.

34

35 *[Insert the following ASN.1 code to subclause 15.2:]*

36

37 --
38 -- wmanIfBsMsPowerSavingStatusTable contains the power saving status

39

40

```

1      --
2      wmanIfBsMsPowerSavingStatusTable OBJECT-TYPE
3          SYNTAX      SEQUENCE OF WmanIfBsMsPowerSavingStatusEntry
4          MAX-ACCESS  not-accessible
5          STATUS      current
6          DESCRIPTION
7              "This table contains the power saving status for each CID
8              in an MS. When the BS roams to a different BS, all entries
9              associated with such MS will be deleted."
10         ::= { wmanIfBsCps 6 }
11
12     wmanIfBsMsPowerSavingStatusEntry OBJECT-TYPE
13         SYNTAX      WmanIfBsMsPowerSavingStatusEntry
14         MAX-ACCESS  not-accessible
15         STATUS      current
16         DESCRIPTION
17             "This table provides one row for each CID in an MS, and
18             is indexed by ifIndex, wmanIfBsSsMacAddress,
19             wmanIfBsMsCidDirection, and wmanIfBsMsCid."
20         INDEX       { ifIndex,
21                     wmanIfBsSsMacAddress,
22                     wmanIfBsMsCidDirection,
23                     wmanIfBsMsCid }
24         ::= { wmanIfBsMsPowerSavingStatusTable 1 }
25
26     WmanIfBsMsPowerSavingStatusEntry ::= SEQUENCE {
27         wmanIfBsMsCidDirection      INTEGER,
28         wmanIfBsMsCid                WmanIfCidType,
29         wmanIfBsMsPowerSavingClassId WmanIfPsClassId}
30
31     wmanIfBsMsCidDirection OBJECT-TYPE
32         SYNTAX      INTEGER {downstream(1),
33                          upstream(2)}
34         MAX-ACCESS  read-only
35         STATUS      current
36         DESCRIPTION
37             "An attribute indicating the CID is downstream or
38             upstream."
39         ::= { wmanIfBsMsPowerSavingStatusEntry 1 }
40
41     wmanIfBsMsCid OBJECT-TYPE
42         SYNTAX      WmanIfCidType
43         MAX-ACCESS  read-only
44         STATUS      current
45         DESCRIPTION
46             "A 16 bit channel identifier to identify a connection."
47         ::= { wmanIfBsMsPowerSavingStatusEntry 2 }
48
49     wmanIfBsMsPowerSavingClassId OBJECT-TYPE
50         SYNTAX      WmanIfPsClassId
51         MAX-ACCESS  read-only
52         STATUS      current
53         DESCRIPTION
54             "wmanIfBsMsPowerSavingClassId identifies the power
55             saving class associated with this CID. It maps to an
56             entry in wmanIfBsMsPowerSavingClassesTable."
57         ::= { wmanIfBsMsPowerSavingStatusEntry 3 }
58
59     --
60     -- wmanIfBsMsPowerSavingClassesTable contains the power saving classes
61     -- information
62     --
63     wmanIfBsMsPowerSavingClassesTable OBJECT-TYPE
64         SYNTAX      SEQUENCE OF WmanIfBsMsPowerSavingClassesEntry
65         MAX-ACCESS  not-accessible
66         STATUS      current
67         DESCRIPTION
68             "This table contains the power saving classes definitions,
69             and activation / deactivation information that are provided
70             by MOB_SLP-REQ and MOB_SLP-RSP messages. When the BS roams
71             to a different BS, all entries associated with such MS will
72             be deleted."

```

```

1         ::= { wmanIfBsCps 7 }
2
3 wmanIfBsMsPowerSavingClassesEntry OBJECT-TYPE
4     SYNTAX      WmanIfBsMsPowerSavingClassesEntry
5     MAX-ACCESS  not-accessible
6     STATUS      current
7     DESCRIPTION
8         "This table is indexed by ifIndex, wmanIfBsSsMacAddress,
9         and wmanIfBsMsPsClassesId. It is intended to support both
10        unicast and multicast service flows.
11        wmanIfBsSsMacAddress contains the MAC address of the MS
12        to which the power saving classes are associated."
13     INDEX { ifIndex,
14            wmanIfBsSsMacAddress,
15            wmanIfBsMsPsClassId }
16     ::= { wmanIfBsMsPowerSavingClassesTable 1 }
17
18 WmanIfBsMsPowerSavingClassesEntry ::= SEQUENCE {
19     wmanIfBsMsPsClassId          WmanIfPsClassId,
20     wmanIfBsMsStartFrameNumber  INTEGER,
21     wmanIfBsMsPowerSavingClassType WmanPsClassType,
22     wmanIfBsMsPsClassCidDirection WmanPsClassCidDirection,
23     wmanIfBsMsTrafficTrigeredWakening INTEGER,
24     wmanIfBsMsInitialSleepWindow INTEGER,
25     wmanIfBsMsFinalSleepWindowBase INTEGER,
26     wmanIfBsMsFinalSleepWindowExponent INTEGER,
27     wmanIfBsMsLinteningWindow    INTEGER,
28     wmanIfBsMsPowerSavingMode     WmanIfPowerSavingMode,
29     wmanIfBsMsSlpId               INTEGER}
30
31 wmanIfBsMsPsClassId OBJECT-TYPE
32     SYNTAX      WmanIfPsClassId
33     MAX-ACCESS  not-accessible
34     STATUS      current
35     DESCRIPTION
36         "This object uniquely identifies the power saving classes
37         in a MS."
38     ::= { wmanIfBsMsPowerSavingClassesEntry 1 }
39
40 wmanIfBsMsStartFrameNumber OBJECT-TYPE
41     SYNTAX      INTEGER
42     MAX-ACCESS  read-write
43     STATUS      current
44     DESCRIPTION
45         "Start frame number for first sleep window."
46     REFERENCE
47         "Subclause 6.3.2.3.44 in IEEE Std 802.16e-2005"
48     ::= { wmanIfBsMsPowerSavingClassesEntry 2 }
49
50 wmanIfBsMsPowerSavingClassType OBJECT-TYPE
51     SYNTAX      WmanPsClassType
52     MAX-ACCESS  read-write
53     STATUS      current
54     DESCRIPTION
55         "Power saving classes type I - BE & NRT-VR,
56         Power saving classes type II - UGS & RT-VR,
57         Power saving classes type III - multicast, management CID"
58     REFERENCE
59         "Subclause 6.3.21.2-4, in IEEE Std 802.16e-2005"
60     ::= { wmanIfBsMsPowerSavingClassesEntry 3 }
61
62 wmanIfBsMsPsClassCidDirection OBJECT-TYPE
63     SYNTAX      WmanPsClassCidDirection
64     MAX-ACCESS  read-write
65     STATUS      current
66     DESCRIPTION
67         "The direction of power saving class's CIDs."
68     REFERENCE
69         "Subclause 6.3.2.3.44, in IEEE Std 802.16e-2005"
70     ::= { wmanIfBsMsPowerSavingClassesEntry 4 }
71
72 wmanIfBsMsTrafficTrigeredWakening OBJECT-TYPE

```

```

1          SYNTAX      INTEGER (0..1)
2          MAX-ACCESS  read-write
3          STATUS      current
4          DESCRIPTION
5              "0 = Power Saving Class shall not be deactivated if
6              traffic appears at the connection as per 6.3.19.2.
7              1 = Power Saving Class shall be deactivated if
8              traffic appears at the connection as 6.3.19.2."
9          REFERENCE
10             "Subclause 6.3.19.2, in IEEE Std 802.16e-2005"
11             ::= { wmanIfBsMsPowerSavingClassesEntry 5 }
12
13 wmanIfBsMsInitialSleepWindow OBJECT-TYPE
14     SYNTAX      INTEGER (0..255)
15     UNITS       "frame"
16     MAX-ACCESS  read-write
17     STATUS      current
18     DESCRIPTION
19         "The initial duration for the sleep window. It is not
20         relevant for Power Saving Class type III, and shall
21         return '0'."
22     REFERENCE
23         "Subclause 6.3.2.3.44, in IEEE Std 802.16e-2005"
24         ::= { wmanIfBsMsPowerSavingClassesEntry 6 }
25
26 wmanIfBsMsFinalSleepWindowBase OBJECT-TYPE
27     SYNTAX      INTEGER (0..1023)
28     UNITS       "frame"
29     MAX-ACCESS  read-write
30     STATUS      current
31     DESCRIPTION
32         "The final value for the sleep interval. It is not
33         relevant for Power Saving Class type II, and shall
34         return '0'. For Power Saving Class type III, it is the
35         base for duration of single sleep window request."
36     REFERENCE
37         "Subclause 6.3.2.3.44, in IEEE Std 802.16e-2005"
38         ::= { wmanIfBsMsPowerSavingClassesEntry 7 }
39
40 wmanIfBsMsFinalSleepWindowExponent OBJECT-TYPE
41     SYNTAX      INTEGER (0..7)
42     MAX-ACCESS  read-write
43     STATUS      current
44     DESCRIPTION
45         "The factor by which the final-sleep window base is
46         multiplied in order to calculate the final-sleep window.
47         The following formula is used:
48         final-sleep window = final-sleep window base x
49                             2^(final-sleep window exponent)
50         For Power Saving Class type III, it is the exponent for
51         the duration of single sleep window request."
52     REFERENCE
53         "Subclause 6.3.2.3.44, in IEEE Std 802.16e-2005"
54         ::= { wmanIfBsMsPowerSavingClassesEntry 8 }
55
56 wmanIfBsMsLinteningWindow OBJECT-TYPE
57     SYNTAX      INTEGER (0..255)
58     UNITS       "frame"
59     MAX-ACCESS  read-write
60     STATUS      current
61     DESCRIPTION
62         "The Duration of MS listening window. It is not
63         relevant for Power Saving Class type III, and shall
64         return '0'."
65     REFERENCE
66         "Subclause 6.3.2.3.44, in IEEE Std 802.16e-2005"
67         ::= { wmanIfBsMsPowerSavingClassesEntry 9 }
68
69 wmanIfBsMsPowerSavingMode OBJECT-TYPE
70     SYNTAX      WmanIfPowerSavingMode
71     MAX-ACCESS  read-write
72     STATUS      current

```

```
1          DESCRIPTION
2          "Indicate whether the power saving class mode of such
3          CID is active or not.
4          wmanIfBsMsPowerSavingMode = Sleep_Approved && Operation."
5          REFERENCE
6          "Subclause 6.3.2.3.45, in IEEE Std 802.16e-2005"
7          ::= { wmanIfBsMsPowerSavingClassesEntry 10 }
8
9          wmanIfBsMsSlpId OBJECT-TYPE
10         SYNTAX      INTEGER (0..1023)
11         MAX-ACCESS  read-only
12         STATUS      current
13         DESCRIPTION
14         "wmanIfBsMsSlpId is assigned by the BS whenever an MS is
15         instructed to enter sleep mode. This number shall be unique
16         among all MSs that are in sleep mode."
17         REFERENCE
18         "Subclause 6.3.2.3.45, in IEEE Std 802.16e-2005"
19         ::= { wmanIfBsMsPowerSavingClassesEntry 11 }
20
21
```

