Project	**IEEE 802.16 Broadband Wireless Access Working Group <http://ieee802.org/16>**
Title	**MIB II Integration and MIB II Table**
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Re:	
Abstract	This contribution proposed the text for Section 9 of IEEE P802.16i WG draft.
Purpose	Adoption
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Table of Content

1. Introduction

This contribution proposes the text for Section 9 of IEEE P802.16i WG draft.

2. MIB-II Integration

wmanIfMib, as defined in IEEE P802.16f standard, is located under MIB-II subtree, and can be accessed through ifType – propBWAp2Mp. propBWAp2Mp is originally defined for proprietary broadband wireless access for point to multipoint connections, and therefore, it is not sufficient to support a complete suite of applications based on 802.16 standard. This contribution proposes the test for section 9, Configuration.

Th NetMan WG should submit a request to IANA for the assignment of a new `IANAiftype` – `ieee80216WMAN`.

1. Configuration

[Insert a new subclause 9.4:]

9.4 Mobile MIB for SNMP

9.4.1 MIB-II integration

wmanIfMib is located under MIB-II subtree. A submission will be sent to the Internet Assigned Numbers Authority (IANA) to assign `ieee80216WMAN` for wmanIfMib.

```
IANAifType ::= TEXTUAL-CONVENTION
      SYNTAX INTEGER
      {
            ieee80216WMAN (???) -- IEEE 802.16 WirelessMAN
                                -- standard to be assigned
                                      -- by IANA
      }
```

Pending on IETF approval, wmanIfMib will be accessed through

```
iso.org.dod.internet.mgmt.mib-2.transmission.ifType
(1.3.6.1.2.1.10.???)
```

3. Mobile MIB Definition

The mobile MIB is an extension to IEEE 802.16f in adding MIB support for new features and functions included in IEEE 802.16e standard. Therefore, mobile MIB should be a revision of IEEE 802.16f MIB based on the following reasons:

- The revision approach will reduce significantly the amount of IEEE 802.16i work, as opposed to open the complete 802.16f MIB for changes.
- Avoid the duplication of the majority of managed objects that were defined in IEEE 802.16f MIB.
- IEEE 802.16f MIB structure has been designed to support multiple PHYs (e.g. OFDM-256 OFDMA-2048), and MAC enhancements.
- Support the backward-compatibility requirement as defined in RFC4181, section 4.9

- "over the wire" compability of agent and manager implementation that are based on different revisions of the MIB module.
- "Compilation" compatibility

Support the additional enhancements to be proposed by other WGs.

[Insert a new subclause 9.4.2:]

9.4.2 Usage of MIB-II tables

"Interfaces" group of MIB-II, in RFC2863, has been designed to manage various sub-layers (e.g. MAC and PHY) beneath the internetwork-layer for numerous media-specific interfaces. The implementation of ifTable in SNMP managed BS and SS is mandatory.

The implementation of the ifTable for BS must create one row for each BS sector. Each BS sector may support different standards (e.g. IEEE 802.16-2004, IEEE 802.16e). The following recommendations must be applied to each row defining BS sector:

ifIndex value is implementation specific

ifType must be set to `ieee80216WMAN`

ifSpeed must be null

ifPhysAddress must be set to the MAC Address of the BS sector

All other columnar objects must be initialized as specified in RFC2863

ifTable	*ifIndex*	*ifType (IANA)*	*ifSpeed*	*ifPhysAddress*	*ifAdminStatus*	*ifOperStatus*
BS Sector 1	1	ieee80216WMAN	Null	MAC address of BS sector	Administration Status	Operational Status
BS Sector 2	2	ieee80216WMAN	Null	MAC address of BS sector	Administration Status	Operational Status
BS Sector 3	3	ieee80216WMAN	Null	MAC address of BS sector	Administration Status	Operational Status
BS Sector 4	4	ieee80216WMAN	Null	MAC address of BS sector	Administration Status	Operational Status
Ethernet			Null	MAC address	Administration Status	Operational Status

Table 1—Example of the Usage of ifTable objects for BS

Table 1 shows an example of the usage of ifTable for BS that supports multiple sectors. Each sector may support one of the following MAC / PHY interfaces:

IEEE 802.16-2004, OFDM 256

IEEE 802.16-2004, OFDMA 2048

IEEE 802.16e, OFDM 128

IEEE 802.16e, OFDM 512

IEEE 802.16e, OFDM 1024

The implementation of the ifTable for SS must create one row for each SS WirelessMAN interface. Additional rows may be necessary to support other network interfaces, such as Ethernet. The following recommendations must be applied to each row:

IEEE 802.16-2004, OFDM 256

ifIndex value is implementation specific

ifType must be set to `ieee80216WMAN`

ifSpeed must be null

ifPhysAddress must be set to the SS MAC Address (of the WirelessMAN interface)

All other columnar objects must be initialized as specified in RFC286

ifTable	*ifIndex*	*ifType (IANA)*	*ifSpeed*	*ifPhysAddress*	*ifAdminStatus*	*ifOperStatus*
SS	An ifEntry for SS	ieee80216WMAN	Null	MAC address of SS	Administration Status	Operational Status
Ethernet			Null	MAC address	Administration Status	Operational Status

Table 2— Example of the Usage of ifTable objects for SS

Table 2 shows an example of the usage of ifTable for SS that may support one of the following MAC / PHY interfaces:

IEEE 802.16-2004, OFDM 256

IEEE 802.16-2004, OFDMA 2048

IEEE 802.16e, OFDMA 128

IEEE 802.16e, OFDMA 512

IEEE 802.16e, OFDMA 102

Figure 20 shows a procedure describing how BS can determine the FFT size of a SS or MS during the DL synchronization for.

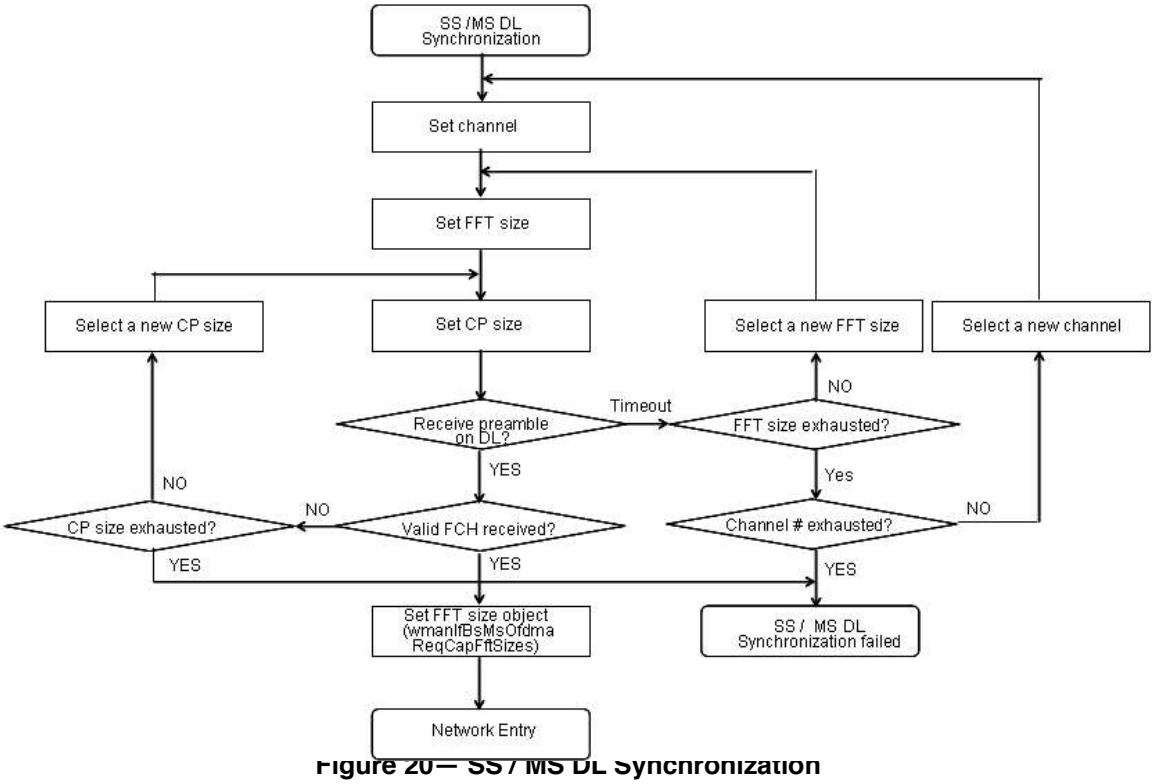

Figure 20— SS / MS DL Synchronization

1. Set the Rx channel (Select a frequency for receiving DL channel)
2. Set the FFT size
3. Set the CP size
4. If a preamble is received successfully, then go to step 5; otherwise,

a. If FFT size is not exhausted, then select a new FFT size, and go to step 2; otherwise,

- If channel to be scanned is exhausted, then declare SS / MS DL synchronization failed; otherwise, select a new channel, and go step 1

5. Set the CP size
6. If a FCH (Frame Control Header) is received successfully, then go to network entry; otherwise,
    a. If CP size is not exhausted, then select a new CP size, and go to step 3; otherwise, declare SS / MS DL synchronization failed
    b. Set FFT size object

Figure 21 shows a procedure describing how BS can determine the MAC / PHY standard interface and capability a SS / MS can support.

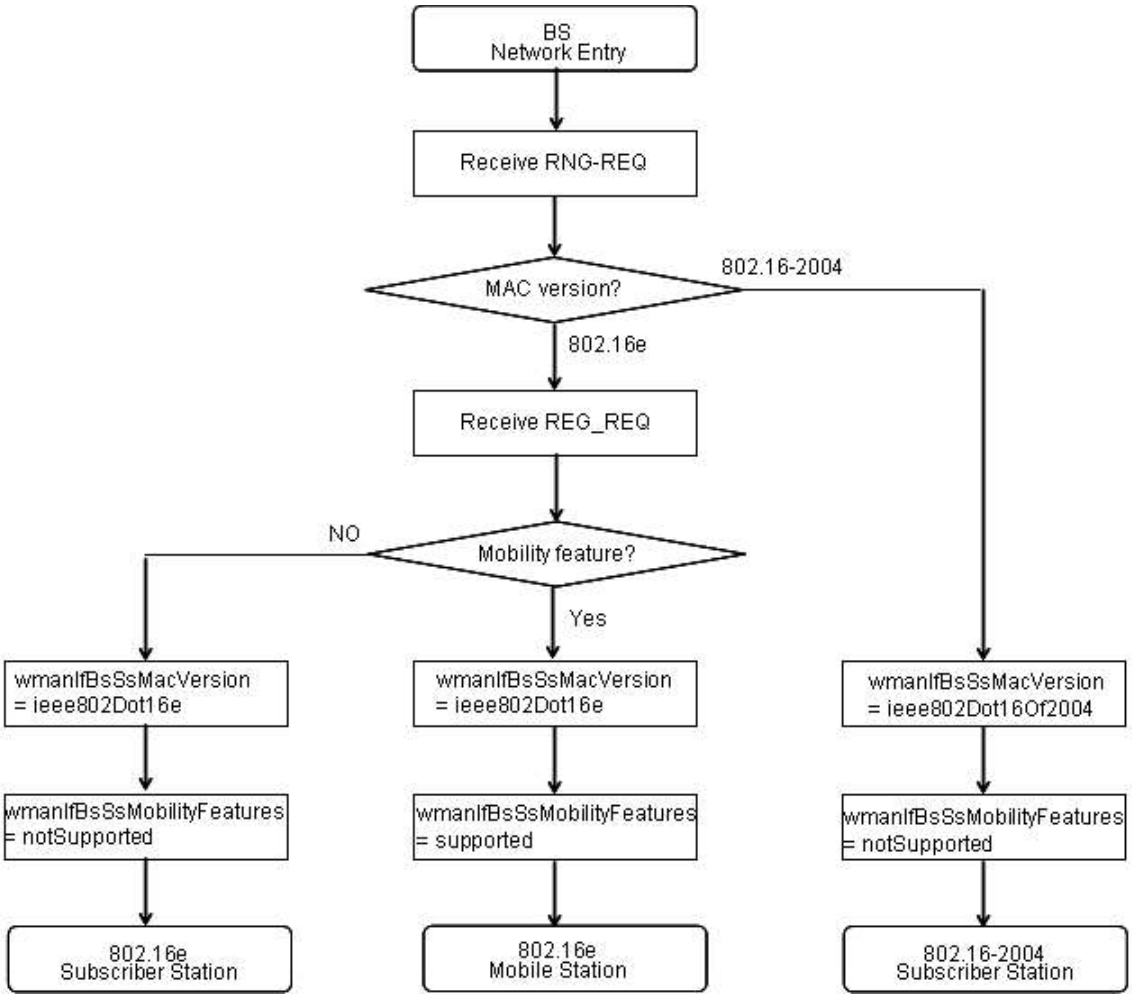

Figure 21— SS / MS Network Entry

1. Receive RNG-REQ from SS / MS
2. If MAC version is 802.16-2004

   Then

   a. wmanIfBsSsMacVersion = ieee802Dot16Of2004
   b. wmanIfBsSsMobilityFeatures = No Supported
   c. Go to step 5
3. Receive REG-REQ from SS / MS
4. If Mobility Feature is supported,

   Then

   a. wmanIfBsSsMacVersion = ieee802Dot16e
   b. wmanIfBsSsMobilityFeatures = Supported

   Otherwise

   a. wmanIfBsSsMacVersion = ieee802Dot16e
   b. wmanIfBsSsMobilityFeatures = Not Supported
5. Continue network entry procedure

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

```
WmanIfMacVersion ::= TEXTUAL-CONVENTION
        STATUS      current
        DESCRIPTION
            "Version number of IEEE 802.16."
        SYNTAX      INTEGER {ieee802Dot16Of2001(1),
                             ieee802Dot16cOf2002(2),
                             ieee802Dot16aOf2003(3),
                             ieee802Dot16Of2004(4),
                             ieee802Dot16e(5)}

WmanIfMobilityFeatures ::= TEXTUAL-CONVENTION
        STATUS      current
        DESCRIPTION
            "IEEE 802.16 Mobility Features."
        SYNTAX      BITS {mobilitySupport(0),
                          sleepModeSupport(1),
                          idleModeSupport(2)}
```