Project	IEEE 802.16 Broadband Wireless Access Working Group <**http://ieee802.org/16**>
Title	Fixes and changes to 802.16f-2005 based on 802.16COR1
Date Submitted	2006-07-11
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Re:	Call for comments IEEE802.16i-06/001r2
Abstract	802.16f-2005 MIBs received very good test and verification coverage but there are still some small issues discovered in everyday use. Also 802.16f-2005 is not compatible with the 802.16e-2005 Corrigendum 1 changes. This contribution proposes the changes to address some of these issues.
Purpose	Adopt the contribution and apply required changes in the text of 802.16i document.
Notice	
Release	
Patent Policy and Procedures	

Fixes and changes to 802.16f-2005 based on 802.16COR1

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1. Introduction

- 802.16f MIB has some errors, which escaped the scrutiny of the group before it was published

- 802.16f was approved and publish before the work of 802.16COR1 group. The work of maintenance group effectively made some of the MIB definitions invalid, incomplete or inaccurate.

This contribution presents a set of issues and remedies found as a result of using existing 802.16f MIb and as a result of continues review o standard text. The list is surely not complete in respect to Corrigendum work published as a part of amendment 802.16e-2005 but it contains a fair number of fixes and changes for group consideration and constitutes a start of the MIB review process.

2. Issues and changes

1. Issue:
SYNTAX construct is not compatible with 802.16-2004 (Table 358) for the following objects:
wmanIfBsOfdmBsEIRP,
wmanIfBsOfdmaBsEIRP,
wmanIfSsOfdmBsEIRP,
wmanIfSsOfdmaBsEIRP

Remedy:
Change SYNTAX for wmanIfBsOfdmBsEIRP, wmanIfBsOfdmaBsEIRP, wmanIfSsOfdmBsEIRP, wmanIfSsOfdmaBsEIRP as follows:

```
~~SYNTAX INTEGER (0..65535)~~
SYNTAX INTEGER (-32768..32767)
```

2. Issue:
SYNTAX construct is not compatible with 802.16-2004 (Table 358) and DESCRIPTION is not compatible with 802.16e-2005 (Table 358) for the following objects:
wmanIfBsOfdmInitRngMaxRSS,
wmanIfBsOfdmaInitRngMaxRSS,
wmanIfCmnOfdmInitRngMaxRSS,
wmanIfSsOfdmaInitRngMaxRSS

Remedy:
Change SYNTAX and DESCRIPTION constructs for wmanIfBsOfdmInitRngMaxRSS, wmanIfBsOfdmaInitRngMaxRSS, wmanIfCmnOfdmInitRngMaxRSS, wmanIfSsOfdmaInitRngMaxRSS as follows:

```
~~SYNTAX INTEGER (0..65535)~~
SYNTAX INTEGER (-32768..32767)
```

```
        DESCRIPTION
                ~~"Initial Ranging Max. Received Signal Strength at BS~~
                "Initial Ranging Max. equivalent isotropic received power at BS
                Signed in units of 1 dBm."
```

3. Issue:
SYNTAX construct of objects:
wmanIfBsClassifierRulePhsSize,
wmanIfCmnPhsRulePhsSize
is incompatible with 802.16-2004 (subclause 11.13.19.3.7.4). Standard defines the size of TLV data as 1 byte.

Remedy:
Change SYNTAX for wmanIfBsClassifierRulePhsSize, wmanIfCmnPhsRulePhsSize as follows:

```
        ~~SYNTAX Integer32~~
        SYNTAX Integer32 (0..255)
```

3. Issue:
Trap wmanIfBsSsDynamicServiceFailTrap doesn't report SFID of the service flow the DSx operation failed for. Without SFID this trap has no real value.

Remedy:
Make wmanIfBsSsDynamicServiceFailTrap deprecated and create new trap wmanIfBsSsDynamicServiceFail2Trap with added SFID object as follows:

3.1 Deprecate existing trap wmanIfBsSsDynamicServiceFailTrap

```
wmanIfBsSsDynamicServiceFailTrap NOTIFICATION-TYPE
        OBJECTS { ifIndex, wmanIfBsSsNotificationMacAddr, wmanIfBsDynamicServiceType,
wmanIfBsDynamicServiceFailReason }
        STATUS ~~current~~deprecated
        DESCRIPTION
                "Trap deprecated due to limited value without object reporting
                SFID of victim service flow.
                "An event to report the failure of a dynamic service
                operation happened during the dynamic services process
                and detected in the Bs side."
```

3.2 Create new trap wmanIfBsSsDynamicServiceFail2Trap

```
wmanIfBsSsDynamicServiceFail2Trap NOTIFICATION-TYPE
        OBJECTS { ifIndex, wmanIfBsSsNotificationMacAddr, wmanIfBsDynamicServiceType,
wmanIfBsDynamicServiceFailReason, wmanIfBsDynamicServiceFailSfid }
        STATUS current
        DESCRIPTION
                "An event reporting failure of DSx operation for a service flow
                identified by wmanIfBsDynamicServiceFailSfid and detected in the Bs side."
        ::= { wmanIfBsTrapPrefix 6 }
```

3.3 create new object wmanIfBsDynamicServiceFailSfid

```
wmanIfBsDynamicServiceFailSfid OBJECT-TYPE
        SYNTAX Unsigned32 (1..4294967295)
        MAX-ACCESS read-only
        STATUS current
```

```
        DESCRIPTION
              "This object identifies the dynamic service flow
              for notification purposes."
        ::= { wmanIfBsSsNotificationObjectsEntry 9 }
```

3.4 add object wmanIfBsDynamicServiceFailSfid to wmanIfBsSsNotificationObjectsTable

```
WmanIfBsSsNotificationObjectsEntry ::= SEQUENCE {
        wmanIfBsSsNotificationMacAddr          MacAddress,
        wmanIfBsSsStatusValue                  INTEGER,
        wmanIfBsSsStatusInfo                   OCTET STRING,
        wmanIfBsDynamicServiceType             INTEGER,
        wmanIfBsDynamicServiceFailReason       OCTET STRING,
        wmanIfBsSsRssiStatus                   INTEGER,
        wmanIfBsSsRssiStatusInfo               OCTET STRING,
        wmanIfBsSsRegisterStatus               INTEGER},
        wmanIfBsDynamicServiceFailSfid         INTEGER}
```

3.5 add control bit for newly created trap

```
        SYNTAX      BITS {wmanIfBsSsStatusNotification    (0),
                          wmanIfBsSsDynamicServiceFail    (1),
                          wmanIfBsSsRssiStatusChange      (2),
                          wmanIfBsSsRegistrer             (3),
                          wmanIfBsSsPkmFail               (4)},
                          wmanIfBsSsDynamicServiceFail2   (5)}
```

4. Issue:
Trap wmanIfBsSsRegistrerTrap doesn't report ifIndex of the sector SS registered on. Without SFID this trap has no real value and cannot be mapped properly to the row in the table wmanIfBsSsNotificationObjectsTable.

Remedy:
Make wmanIfBsSsRegistrerTrap deprecated and create new trap wmanIfBsSsRegistrer2Trap with added ifIndex object as follows (assumes issue 3 remedy applied):

4.1 Deprecate existing trap wmanIfBsSsRegistrerTrap

```
wmanIfBsSsRegistrerTrap NOTIFICATION-TYPE
        OBJECTS     {wmanIfBsSsNotificationMacAddr,
                     wmanIfBsSsRegisterStatus}
        STATUS      currentdeprecated
        DESCRIPTION
            "Trap deprecated due to limited value without object ifIndex reported.
            An event to report SS registration status."
        ::= { wmanIfBsTrapPrefix 5 }
```

4.2 Create new trap wmanIfBsSsRegister2Trap

```
wmanIfBsSsRegister2Trap NOTIFICATION-TYPE
        OBJECTS     {ifIndex,
                     wmanIfBsSsNotificationMacAddr,
                     wmanIfBsSsRegisterStatus}
        STATUS      current
        DESCRIPTION
            "An event to report SS registration status for a given sector identified
            by ifIndex."
        ::= { wmanIfBsTrapPrefix 7 }
```

4.3 add control bit for newly created trap wmanIfBsSsRegister2Trap

```
        SYNTAX      BITS {wmanIfBsSsStatusNotification    (0),
                          wmanIfBsSsDynamicServiceFail    (1),
                          wmanIfBsSsRssiStatusChange      (2),
                          wmanIfBsSsRegistrer             (3),
                          wmanIfBsSsPkmFail               (4),
                          wmanIfBsSsDynamicServiceFail2   (5)},
                          wmanIfBsSsRegister2Trap         (6)}
```

5. Missing configuration for privacy configuration settings used in AuthReply message as defined in IEEE802.16-2004 subclause 11.9.19 and in table 343. Parameters listed in Table 343 are defined as read-only objects in SS part of the MIB but they are not defined in BS part of the MIB as read-write objects even though BS must provide them for SS in AuthReply message. The objects affected are:
wmanIfSsPkmAuthGraceTime,
wmanIfSsPkmTekGraceTime,
wmanIfSsPkmAuthWaitTimeout,
wmanIfSsPkmReauthWaitTimeout,
wmanIfSsPkmOpWaitTimeout,
wmanIfSsPkmRekeyWaitTimeout,
wmanIfSsPkmAuthRejectWaitTimeout.

Remedy: Add the following objects definition to table wmanIfBsPkmBaseTable as follows:

```
wmanIfSsPkmAuthGraceTime OBJECT-TYPE
        SYNTAX      Integer32 (300..3024000)
        UNITS       "seconds"
        MAX-ACCESS  read-write
        STATUS      current
        DESCRIPTION
            "The value of this object is the grace time for an
             authorization key.  A SS is expected to start trying to get
             a new authorization key beginning AuthGraceTime seconds
             before the authorization key actually expires."
        REFERENCE
            "Table 343 and subclause 11.9.19 in IEEE Std 802.16-2004"
        DEFVAL      { 600 }
        ::= { wmanIfBsPkmBaseEntry 10 }

wmanIfBsPkmTekGraceTime OBJECT-TYPE
        SYNTAX      Integer32 (300..3024000)
        UNITS       "seconds"
        MAX-ACCESS  read-write
        STATUS      current
        DESCRIPTION
            "The value of this object is the grace time for the TEK in
             seconds. The SS is expected to start trying to acquire a
             new TEK beginning TEK GraceTime seconds before the
             expiration of the most recent TEK."
        REFERENCE
            "Table 343 and subclause 11.9.19 in IEEE Std 802.16-2004"
        DEFVAL      { 3600 }
        ::= { wmanIfBsPkmBaseEntry 11 }

wmanIfBsPkmAuthWaitTimeout OBJECT-TYPE
        SYNTAX      Integer32 (2..30)
        UNITS       "seconds"
        MAX-ACCESS  read-write
        STATUS      current
        DESCRIPTION
```

```
            "The value of this object is the Authorize Wait Timeout."
        REFERENCE
            "Table 343 and subclause 11.9.19 in IEEE Std 802.16-2004"
        DEFVAL      { 10 }
        ::= { wmanIfBsPkmBaseEntry 12 }

wmanIfBsPkmReauthWaitTimeout OBJECT-TYPE
        SYNTAX      Integer32 (2..30)
        UNITS       "seconds"
        MAX-ACCESS  read-write
        STATUS      current
        DESCRIPTION
            "The value of this object is the Reauthorize Wait Timeout
             in seconds."
        REFERENCE
            "Table 343 and subclause 11.9.19 in IEEE Std 802.16-2004"
        DEFVAL      { 10 }
        ::= { wmanIfBsPkmBaseEntry 13 }

wmanIfBsPkmOpWaitTimeout OBJECT-TYPE
        SYNTAX      Integer32 (1..10)
        UNITS       "seconds"
        MAX-ACCESS  read-write
        STATUS      current
        DESCRIPTION
            "The value of this object is the Operational Wait Timeout
             in seconds."
        REFERENCE
            "Table 343 and subclause 11.9.19 in IEEE Std 802.16-2004"
        DEFVAL      { 1 }
        ::= { wmanIfBsPkmBaseEntry 14 }

wmanIfBsPkmRekeyWaitTimeout OBJECT-TYPE
        SYNTAX      Integer32 (1..10)
        UNITS       "seconds"
        MAX-ACCESS  read-write
        STATUS      current
        DESCRIPTION
            "The value of this object is the Rekey Wait Timeout in
             seconds."
        REFERENCE
            "Table 343 and subclause 11.9.19 in IEEE Std 802.16-2004"
        DEFVAL      { 1 }
        ::= { wmanIfBsPkmBaseEntry 15 }

wmanIfBsPkmAuthRejectWaitTimeout OBJECT-TYPE
        SYNTAX      Integer32 (10..600)
        UNITS       "seconds"
        MAX-ACCESS  read-write
        STATUS      current
        DESCRIPTION
            "The value of this object is the Authorization Reject Wait
             Timeout in seconds."
        REFERENCE
             "Table 343 and subclause 11.9.19 in IEEE Std 802.16-2004"
        DEFVAL      { 60 }
        ::= { wmanIfBsPkmBaseEntry 16 }
```

6. The following objects have wrong reference to Table 341. It should be Table 343:
wmanIfBsPkmDefaultAuthLifetime,
wmanIfBsPkmDefaultTekLifetime,
wmanIfBsSsPkmAuthLifetime,

wmanIfBsPkmTekLifetime,
wmanIfSsPkmAuthGraceTime,
wmanIfSsPkmTekGraceTime,
wmanIfSsPkmAuthWaitTimeout,
wmanIfSsPkmReauthWaitTimeout,
wmanIfSsPkmOpWaitTimeout,
wmanIfSsPkmRekeyWaitTimeout,
wmanIfSsPkmAuthRejectWaitTimeout.

Remedy: Change reference from Table 341 to Table 343 for the following objects: