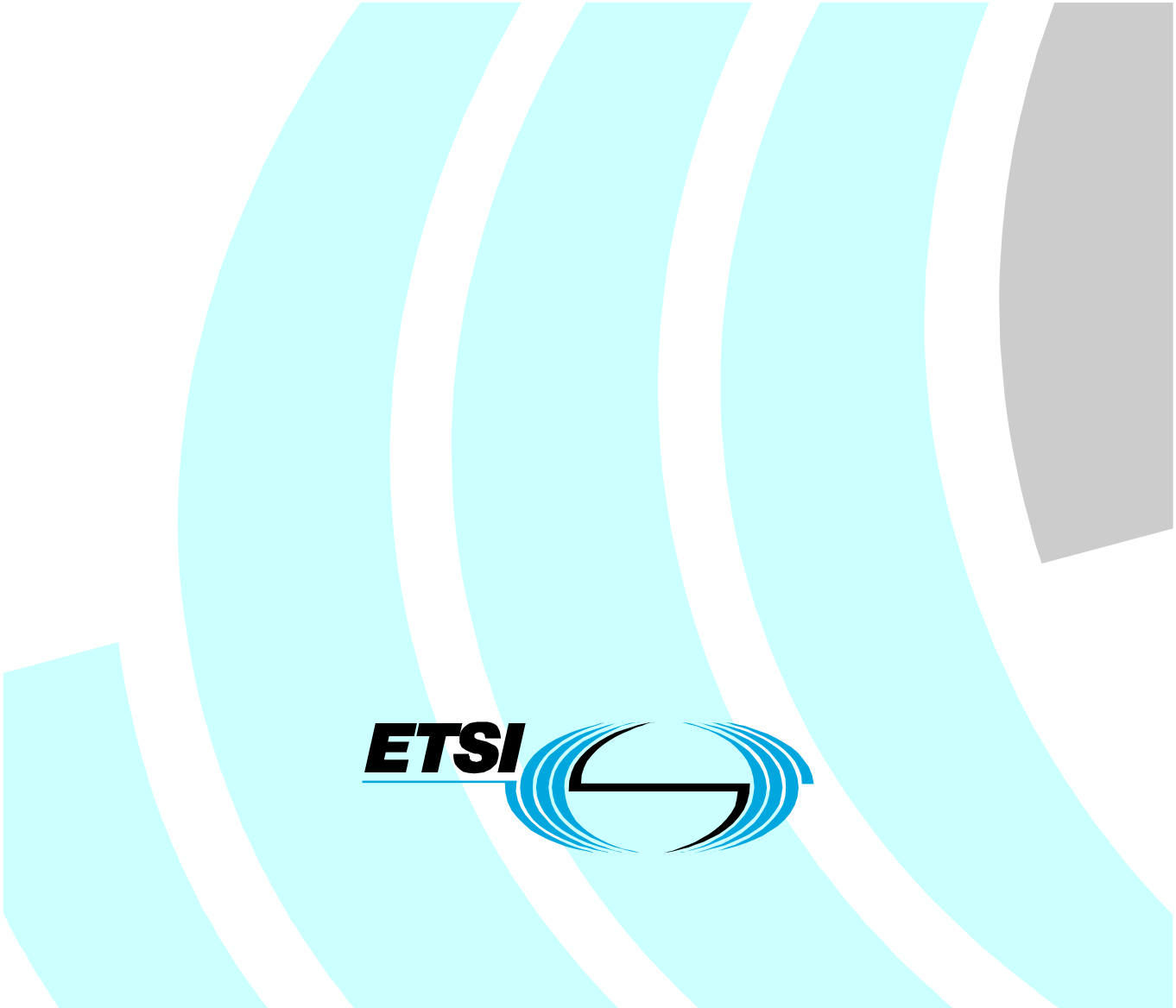
ETSI TS 102 389 V1.1.1 (2005-01)

Technical Specification

Broadband Radio Access Networks (BRAN);
HiperMAN;
Simple Network Management Protocol (SNMP)
Management Information Base (MIB)



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Contents

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Foreword

This Technical Specification (TS) has been produced by ETSI Project Broadband Radio Access Networks (BRAN).

Introduction

HiperMAN group defines air interface specifications for the development of standard based Base Station (BS) and Subscriber Station (SS) to provide broadband wireless services to Metropolitan Area Networks (MANs). The present document defines the HiperMAN MIB for DLC and PHY layers to achieve management interoperability and provide the remote management capability that are urgently needed for massive HiperMAN deployment.

1 Scope

The scope of the present document is to define the HiperMAN DLC and PHY MIB for the SS and BS, based on HiperMAN PHY and DLC specifications. The definition of managed objects in this MIB is based on SNMPv2 Structure of Management Information (SMI) [4] and Textual Conventions [5]. Therefore, HiperMAN MIB is compliant to SNMPv2, but is backward compatible to SNMPv1 through appropriate translation.

Since the HiperMAN MIB has to be accessed through the MIB tree, its relationship with the Interface MIB-RFC 2863 [7] are described. Additional MIBs may be necessary to manage other interfaces in the SS or BS, such as Ethernet, T1/E1 and ATM, but they are outside the scope of the present document.

2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication and/or edition number or version number) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, the latest version applies.

Referenced documents which are not found to be publicly available in the expected location might be found at http://docbox.etsi.org/Reference.

[1] ETSI TS 102 177 (V1.2.1): "Broadband Radio Access Networks (BRAN); HiperMAN; Physical (PHY) layer".

[2] ETSI TS 102 178 (V1.2.1): "Broadband Radio Access Networks (BRAN); HiperMAN; Data Link Control (DLC) layer".

[3] IEEE P802.16-2004: "IEEE Standard for Local and Metropolitan area networks - Part 16: Air Interface for Fixed Broadband Wireless Access Systems".

[4] IETF RFC 1902 (1996): "Structure of Management Information for version 2 of the Simple Network Management Protocol (SNMPv2)".

[5] IETF RFC 1903 (1996): "Textual Convention for Version 2 of the Simple Network Management Protocol (SNMPv2)".

[6] IETF RFC 1213 (1991): "Management Information Base for Network Management of TCP/IP-based internets: MIB-II".

[7] IETF RFC 2863 (2000): "The Interfaces Group MIB".

[8] PKCS #1 v2.0: "RSA Cryptography Standard", RSA Laboratories, October 1998." http://www.rsasecurity.com/rsalabs/pkcs/pkcs-1.

3 Abbreviations

For the purposes of the present document, the following abbreviations apply:

ATM	Asynchronous Transfer Mode
BS	Base Station
BWA	Broadband Wireless Access
CID	Connection ID
DL	Downlink
ID	Identifier

MAC	Medium Access Control
MIB	Management Information Base
NMS	Network Management System
PHY	Physical layer (of network)
QoS	Quality of Service
RSSI	Received Signal Strength Indicator
SDU	Service Data Unit
SFID	Service Flow ID
SMI	Structure of Management Information
SNMP	Simple Network Management Protocol
SS	Subscriber Station
UL	Uplink

4 BWA Network Management Reference Model

Figure 1 shows the management reference model of Broadband Wireless Access (BWA) networks. It consists of a Network Management System (NMS), performing the network manager role, and managed nodes, which provide access to managed objects via MIB or virtual information store. SSs and BSs are managed nodes that act in the SNMP agent role. Furthermore, managed SSs, which have a secondary management CID, may be managed indirectly through the BS to which they are registered. In this case, the BS acts in an SNMP Proxy role on behalf of managed SSs. SS can be managed by NMS directly as well.

The management information between SS and BS will be carried over Second Management CID for managed SS. If the 2nd management CID does not exist, the SNMP messages shall go through another interface in the customer premise. The SNMP agent in the SS can be managed directly, or via a SNMP proxy in the BS.

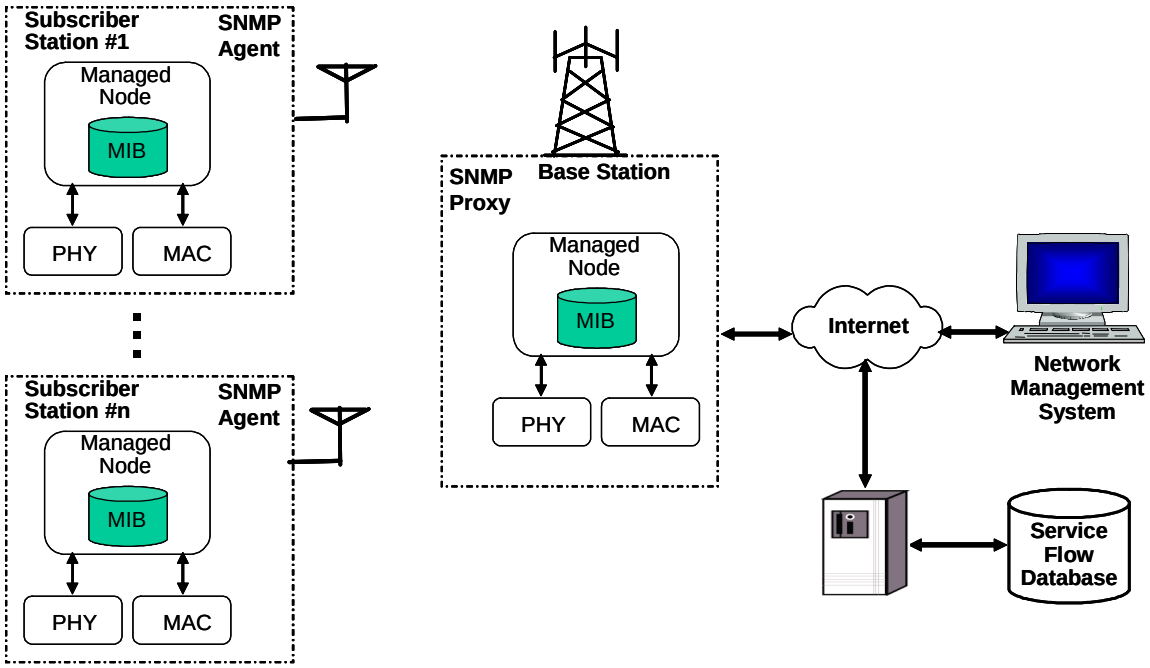

Figure 1: BWA Network Management Reference Model

5 Relationship with Interface MIB

This clause describes the integration with MIB-II [6] under Interface Group MIB defined in RFC 2863 [7], as wmanIfMib will need to be integrated in the MIB tree. It describes where wmanIfMib is located in the MIB-II subtree, and how it can be accessed by NMS.

5.1 MIB-2 Integration

The IANA has assigned the following ifType to point to multipoint broadband wireless access.

```
IANAifType ::= TEXTUAL-COVENTION
SYNTAX INTEGER {
    propBWAp2Mp (184)   -- prop broadband wireless access
-- point to multipoint
}
```

Therefore, upon wmanIfMib being approved by the IETF, this MIB can be accessed through iso.org.dod.internet.mgmt.mib-2.transmission.ifType (1.3.6.1.2.1.10.184) Wireless MAN interface table is located under transmission subtree, as follows.

wmanIfMib ::= {transmission 184} -- WMAN interface table

Before the approval of the IETF; however, wmanIfMib is temporary located under enterprise via:

- iso.org.dod.internet.private.enterprise.wmanIfMib (1.3.6.1.4.1.n); or
- iso.org.dod.internet.private.enterprise.vendorID.wmanIfMib (1.3.6.1.4.1.xxx.n).

5.2 Usage of MIB-II Tables

"Interfaces" group of MIB-II, in RFC 1573, has been designed to manage various sub-layers (e.g. MAC and PHY) beneath the internetwork-layer for numerous media-specific interfaces. ifTable in MIB-II is used to access the wmanIfMib.

Table 1 describes some key attributes in the ifTable that will be reused in the BS wmanIfMib. When the SNMP agent is implemented in a common base station controller, each BS sector will have an entry in the ifTable. When the SNMP agent is implemented in the sector controller, there is only one entry for the BS sector in the ifTable.

Table 1: Usage of ifTable objects for Base Station

ifTable	*ifIndex*	*IfType (IANA)*	*IfSpeed*	*ifPhysAddress*	*ifAdminStatus*	*ifOperStatus*
BS Sector 1	An ifEntry per BS sector (1)	propBWAp2Mp	Null	MAC address of BS sector	Administration Status	Operational Status
BS Sector 2	An ifEntry per BS sector (2)	propBWAp2Mp	Null	MAC address of BS sector	Administration Status	Operational Status
BS Sector 3	An ifEntry per BS sector (3)	propBWAp2Mp	Null	MAC address of BS sector	Administration Status	Operational Status
Ethernet			Null	MAC address	Administration Status	Operational Status

Table 2 shows the usage of ifTable for SS. There is only one entry for the SS itself. Additional entries may be necessary to support other network interfaces, such as Ethernet.

Table 2: Usage of ifTable objects for Subscriber Station

ifTable	*ifIndex*	*IfType (IANA)*	*IfSpeed*	*ifPhysAddress*	*ifAdminStatus*	*ifOperStatus*
SS	An ifEntry for SS	propBWAp2Mp	Null	MAC address of SS	Administration Status	Operational Status
Ethernet			Null	MAC address	Administration Status	Operational Status

5.3 Events and Traps

wmanIfMib defines objects for reporting events through mechanisms, such as traps and non-volatile logging. However, the definition and coding of events is vendor-specific. In order to assist the network operators who must troubleshoot multi-vendor equipment, the circumstances and meaning of each event should be reported as human-readable text.

Therefore, the trap definitions should include the event reason encoded as display String, and is shown in the following example.

```
trapName NOTIFICATION-TYPE
    OBJECTS      {ifIndex,
                  eventReason,
                  other useful objects
                 }
    MAX-Access   read-only
    STATUS       current
    DESCRIPTION
        "trap description"
    ::= { Object Id }
```

5.4 HiperMAN MIB Structure

Figure 2 shows the MIB structure of `wmanIfMib` for HiperMAN. The MIB structure is organized based on the reference model as defined in HiperMAN standards [1] and [2].

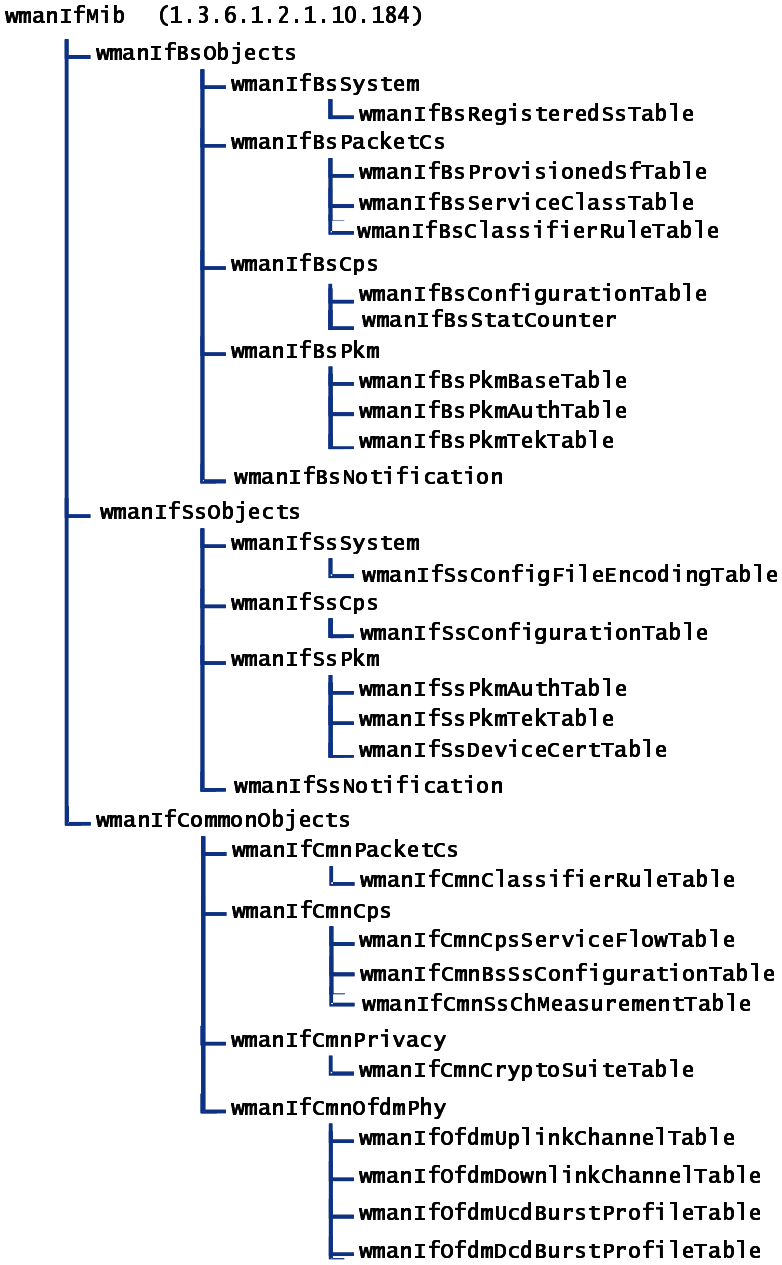

Figure 2: wmanIfMib Structure

wmanIfMib is composed of three groups:

- wmanIfBsObjects: This group contains managed objects to be implemented in the SNMP agent in BS.
- wmanIfSsObjects: This group contains managed objects to be implemented in the SNMP agent in SS.
- wmanIfCommonObjects: This group contains common managed objects to be implemented in the SNMP agent in BS and SS.

5.5 wmanIfBsObjects

5.5.1 wmanIfBsSystem

wmanIfBsSystem group contains system level BS managed objects.

5.5.1.1 wmanIfBsRegisteredSsTable

This table is indexed by BS ifIndex and wmanIfBsSsIdIndex, each entry contains the information of SS that has been registered through REG-REQ message as defined in section 6.3.2.3.7 in [3].

5.5.2 wmanIfBsPacketCs

wmanIfBsPacketCs group contains BS managed objects relating to the Packet CS management entity layer in figure 1 of [3].

5.5.2.1 wmanIfBsProvisionedSfTable

This table is doubly indexed by SS MAC address and Service Flow ID and contains provisioned service flow profiles, Per SS. It contains the service flow attributes that have been pre-provisioned by NMS.

5.5.2.2 wmanIfBsServiceClassTable

This table is provisioned and is indexed by QoS profile index. Each entry of the table contains QoS parameter set, as defined in sections 6.3.14 and 11.13 in [3].

To facilitate the NMS task of provisioning service flow attributes for hundreds or even thousands of subscriber stations supported by each BS, the concept of Provisioned Service Classes are devised. Figure 3 shows an example of QoS profiles that are created to define the service flow attributes that can be shared by multiple service flows. For example, Basic CID UL for SSs A1, B1, and X1 uses profile 1. Service flow attribute profiles can be added or deleted dynamically to meet different QoS demands from subscribers.

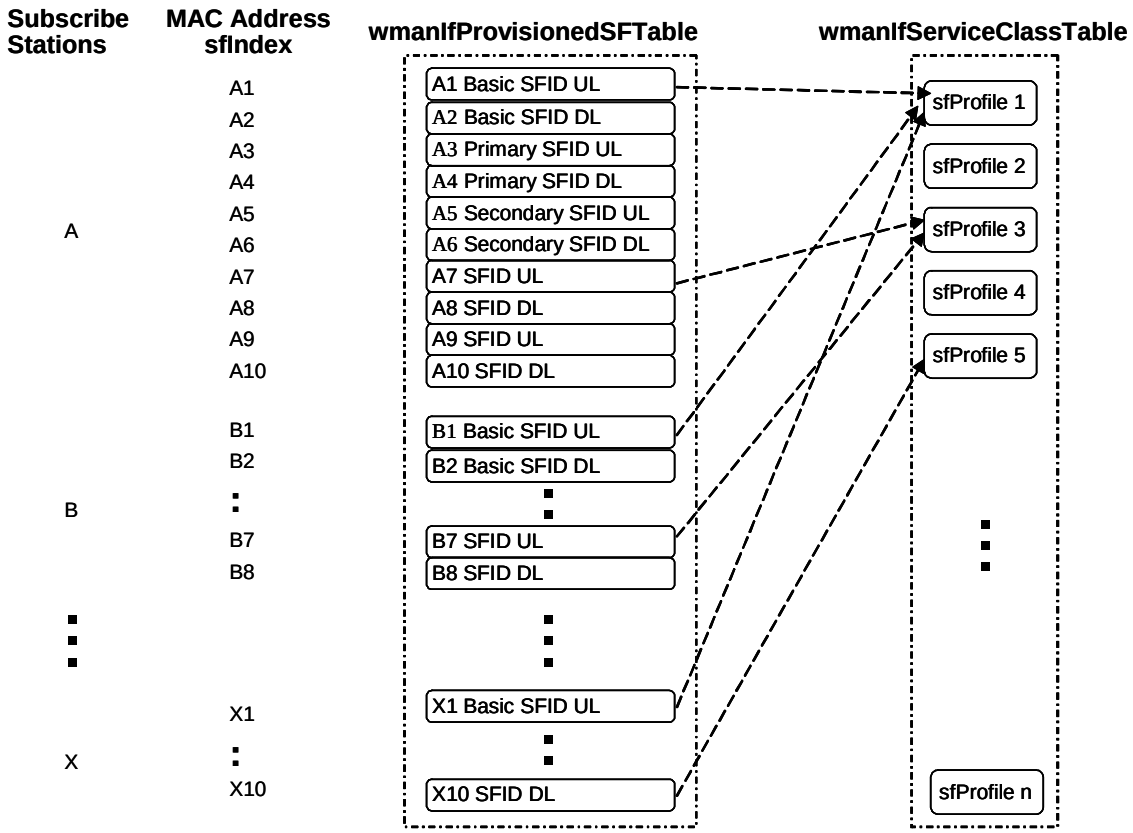

Figure 3: Service Classes – Service Flows Mapping

5.5.2.3 wmanIfBsClassifierRuleTable

This table is indexed by service flow index and classifier rule index, and contains the packet classifier rules.

5.5.3 wmanIfBsCps

wmanIfBsCpsParameters group contains BS managed objects relating to the MAC CPS management entity layer in figure 1 of [3].

5.5.3.1 wmanIfBsConfigurationTable

This table contains objects for BS system parameters and constants as defined in section 10.1, table 340 of [3]. It is indexed by BS Id.

5.5.3.2 wmanIfBsChMeasurementTable

This table is indexed by BS ifIndex and contains statistics about the channel measurement.

5.5.4 wmanIfBsPkm

wmanIfBsPkm group contains BS managed objects relating to the MAC CPS privacy management entity section in figure 1 of [3].

5.5.4.1 wmanIfBsPkmBaselineTable

This table is indexed by BS ifIndex and contains base station PKM operational parameters described in section 10.2 and table 341 of [3].

5.5.4.2 wmanIfBsPkmAuthTable

This table is double indexed by ifIndex and SsMacAddress and contains runtime subscriber station authentication and authorization parameters for each base station.

5.5.4.3 wmanIfBsPkmTekTable

This table is double indexed by ifIndex and SAId and contains runtime Security association parameters for each base station.

5.5.5 wmanIfBsNotification

wmanIfBsNotification group contains BS traps to report fault events and exceptions, such as power status, RSSI threshold crossing.

5.6 wmanIfSsObjects

5.6.1 wmanSsSystem

wmanIfS wmanIfSsSystem group contains subscriber station system level objects.

5.6.1.1 wmanIfSsConfigFileEncodingTable

This table is indexed by SS index, and contain configuration file information about the subscriber station such as manufacturer, hardware model, serial number, and software or firmware revision.

5.6.2 wmanIfSsCps

wm wmanIfSsCpsParameters group contains subscriber station manageable objects relating to the MAC CPS management entity layer in figure 1 of [3].

5.6.2.1 wmanIfSsConfigurationTable

This table is indexed by SS Id and contains objects for SS system parameters and constants as defined in section 10.1, table 341 of [3].

5.6.2.2 wmanIfSsStatisticsCountersTable

This object contains the performance monitoring data for SS.

5.6.3 wmanIfSsPkm

wmanIfSsPkmParameters group contains subscriber station manageable objects relating to the MAC CPS privacy management entity section in figure 1 of [3].

5.6.3.1 wmanIfSsPkmAuthTable

This table is indexed by SS MAC address and contains subscriber station authentication and authorization parameters including those described in section 10.2 and table 342 of [3].

5.6.3.2 wmanIfSsPkmTekTable

This table is doubly indexed by SS MAC address and SAId and contains subscriber station runtime parameters for each active security association.

5.6.3.3 wmanIfSsPkmCertificatesTable

This table is indexed by SS MAC address and contains subscriber station and SS manufacturer certificates.

5.6.4 wmanIfSsTraps

wmanIfBsTraps group contains SS traps to report fault events and exceptions, such as power status, RSSI threshold crossing.

5.7 wmanIfCommonObjects

5.7.1 wmanIfCmnPacketCs

5.7.1.1 wmanIfCmnClassifierRuleTable

wmanIfClassifierRuleTable is indexed by service flow ID and contains runtime classifier rules screening criteria for each service flow as described in section 11.13.19.3.4 of [3].

5.7.2 wmanIfCmnCps

5.7.2.1 wmanIfCmnServiceFlowTable

This table is doubly indexed by ifIndex and service flow ID. In the BS, it represents the totality of all provisioned, admitted, and active service flow for both DL and UL directions. In the SS, this table should contain the service flows, both DL and UL, being allocated to a specific SS.

A Service Flow is represented by parameters, such as:

- Service Flow common parameters, like SFID and CID.
- Classifiers associated with Service Flow, see [3], sections 5.2.2, 5.2.5 to 5.2.7.
- Service Flow QoS parameters like QoS parameters of specific Service Flow, like Max Sustained Traffic Rate, QoS status (admitted etc.).
- Service Flow Header Suppression parameters like associated classifier and PHS rule, see [3], section 5.2.4.

5.7.2.2 wmanIfCmnBsSsConfigurationTable

This table is indexed by SS Id and contains objects for SS system parameters and constants as defined in section 10.1, table 341 of [3].

5.7.2.3 wmanIfCmnSsChMeasurementTable

This object contains the channel measurement table for SS.

5.7.3 wmanIfCmnPrivacy

5.7.3.1 wmanIfCmnCryptoSuiteTable

This table is doubly indexed by ifIndex and wmanIfCryptoSuiteIndex and contains supported crypto suites for the particular SS and other crypto parameters such as key lifetimes. See sections 11.9.14 and 11.9.15 of [3].

5.7.4 wmanIfCmnOfdmPhy

wmanIfOfdmPhy is a group containing objects specific to OFDM PHY.

5.7.4.1 wmanIfOfdmUplinkChannelTable

This table contains the uplink channels that the BS is able to receive. In the SS, this table should have an entry indicating the uplink channel that the SS can transmit. Each entry contains the parameters needed to describe uplink channel descriptor as defined in section 11, table 347 and 350 of [3].

5.7.4.2 wmanIfOfdmDownlinkChannelTable

This table contains the downlink channels that the BS is able to transmit. In the SS, this table should have an entry indicating the downlink channel that the SS can receive. Each entry contains the parameters needed to describe downlink channel descriptor as defined in section 11, table 356 of [3].

5.7.4.3 wmanIfOfdmUcdBurstProfileTable

Each entry in this table contains the parameters needed for the UCD burst profile as defined in section 11, table 354 of [3].

5.7.4.4 wmanIfOfdmDcdBurstProfileTable

wmanIfDcdBurstProfileTable: Each entry in this table contains the parameters needed for the UCD burst profile as defined in section 11, table 360 of [3].

6 ASN.1 Definition of HiperMAN MIB

```
WMAN-IF-MIB DEFINITIONS ::= BEGIN

  IMPORTS
        MODULE-IDENTITY,
        OBJECT-TYPE,
        NOTIFICATION-TYPE,
        Unsigned32,
        Integer32,
        Counter32,
        Counter64,
        TimeTicks,
        IpAddress,
        transmission
                FROM SNMPv2-SMI
        SnmpAdminString
                FROM SNMP-FRAMEWORK-MIB
        TEXTUAL-CONVENTION,
        MacAddress,
        RowStatus,
        TruthValue,
        DateAndTime,
        DisplayString,
        TimeInterval,
        TimeStamp
                FROM SNMPv2-TC
        InetAddressType, InetAddress
                FROM INET-ADDRESS-MIB
        OBJECT-GROUP,

        MODULE-COMPLIANCE
                FROM SNMPv2-CONF
        ifIndex, InterfaceIndexOrZero
                FROM IF-MIB;

wmanIfMib MODULE-IDENTITY
        LAST-UPDATED    "0408260000Z" -- August 26, 2004
        ORGANIZATION    "IETF IPCDN Working Group"
        CONTACT-INFO
            "        Joey Chou
             Postal: Intel Corporation
                     5000 W. Chandler Blvd, Chandler, AZ 85227, USA
             E-mail: joey.chou@intel.com

                     Russ Reynolds
             Postal: Proxim Corporation
```

```
                935 Stewart Drive, Sunnyvale, CA 94085, USA
            E-mail: RReynolds@proxim.com

                Shlomi Eini
            Postal: Airspan Networks
                Airport city 70100, Israel
            E-mail: seini@airspan.com

                Bogdan Moldoveanu
            Postal: Redline Communications Inc.
                302 Town Centre Blvd., Markham, ON L3R 0E8, Canada
            E-mail: bmoldoveanu@redlinecommunications.com"

        DESCRIPTION
            "This MIB Module defines managed objects for 802.16 based
             Subscriber Station and Base Station."
        ::= { transmission 184 }

wmanIfMibObjects  OBJECT IDENTIFIER ::= { wmanIfMib 1 }
wmanIfBsObjects OBJECT IDENTIFIER ::= { wmanIfMibObjects 1 }
wmanIfSsObjects   OBJECT IDENTIFIER ::= { wmanIfMibObjects 2 }
wmanIfCommonObjects OBJECT IDENTIFIER ::= { wmanIfMibObjects 3 }

-- Textual Conventions
WmanIfSfSchedulingType ::= TEXTUAL-CONVENTION
        STATUS      current
        DESCRIPTION
            "The scheduling service provided by a SC for an
             upstream service flow. If the parameter is omitted
             from an upstream QOS Parameter Set, this object takes
             the value of bestEffort (2). This parameter must be
             reported as undefined (1) for downstream QOS Parameter
             Sets."
        SYNTAX      INTEGER {undefined(1),
                             bestEffort(2),
                             nonRealTimePollingService(3),
                             realTimePollingService(4),
                             unsolictedGrantService(6)}

--
-- BS object group – containing tables and objects to be implemented in
-- the Base station
--
-- wmanIfBsSystem contain the Base Station system objects
wmanIfBsSystem OBJECT IDENTIFIER ::= { wmanIfBsObjects 1 }

wmanIfBsRegisteredSsTable OBJECT-TYPE
        SYNTAX      SEQUENCE OF WmanIfBsRegisteredSsEntry
        MAX-ACCESS  not-accessible
        STATUS      current
        DESCRIPTION
            "This table contains entries of SSs that have been
             registered to the BS through REG-REQ message"
        REFERENCE
            "Section 6.3.2.3.7 in IEEE 802.16REVd/D5-2004; Sec.5.2 of ETSI TS 102 178"
        ::= { wmanIfBsSystem 1 }

wmanIfBsRegisteredSsEntry OBJECT-TYPE
        SYNTAX      WmanIfBsRegisteredSsEntry
        MAX-ACCESS  not-accessible
        STATUS      current
        DESCRIPTION
            "This table provides one row for each SS that has been
             registered in the BS, and is indexed by
             wmanIfBsSsIdIndex. The primary index is the ifIndex
             with an ifType of propBWAp2Mp, indicating the BS sector
             with which the SS is associated. wmanIfBsSsIdIndex
             identifies the SS being registered."
        INDEX { ifIndex, wmanIfBsSsIdIndex }
        ::= { wmanIfBsRegisteredSsTable 1 }

WmanIfBsRegisteredSsEntry ::= SEQUENCE {
        wmanIfBsSsIdIndex                       Unsigned32,
        wmanIfBsSsMacAddress                    MacAddress,
        wmanIfBsSsBasicCid                      INTEGER,
        wmanIfBsSsPrimaryCid                    INTEGER,
        wmanIfBsSsSecondaryCid                  INTEGER,
        wmanIfBsSsHmacTuple                     OCTET STRING,
```

```
        wmanIfBsSsUlCidSupport                  INTEGER,
        wmanIfBsSsManagementSupport             INTEGER,
        wmanIfBsSsArqSupport                    INTEGER,
        wmanIfBsSsDsxFlowControl                INTEGER,
        wmanIfBsSsMacCrcSupport                 INTEGER,
        wmanIfBsSsMcaFlowControl                INTEGER,
        wmanIfBsSsMcpGroupCidSupport            INTEGER,
        wmanIfBsSsPkmFlowControl                INTEGER,
        wmanIfBsSsAuthorizationPolicyControl    BITS,
        wmanIfBsSsMaxNumOfSupportedSA           INTEGER,
        wmanIfBsSsIpVersion                     INTEGER,
        wmanIfBsSsMacCsSupportBitMap            BITS,
        wmanIfBsSsMaxNumOfClassifier            INTEGER,
        wmanIfBsSsPhsSupport                    INTEGER,
        wmanIfBsSsIpManagementSupport           INTEGER,
        wmanIfBsSs2ndMgmtArqEnable              TruthValue,
        wmanIfBsSs2ndMgmtArqWindowSize          INTEGER,
        wmanIfBsSs2ndMgmtArqFragmentLifetime    INTEGER,
        wmanIfBsSs2ndMgmtArqSyncLossTimeout     INTEGER,
        wmanIfBsSs2ndMgmtArqDeliverInOrder      TruthValue,
        wmanIfBsSs2ndMgmtArqRxPurgeTimeout      INTEGER,
        wmanIfBsSsVendorIdEncoding              OCTET STRING
        }

wmanIfBsSsIdIndex OBJECT-TYPE
        SYNTAX      Unsigned32 (1 .. 4294967295)
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "wmanIfBsSsIdIndex identifies the SS that is registered."
        ::= { wmanIfBsRegisteredSsEntry 1 }

wmanIfBsSsMacAddress OBJECT-TYPE
        SYNTAX      MacAddress
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "The MAC address of SS is received from the RNG-REQ
             message. When SS registers, this MAC address is entered
             into the table, and used as the identifier to the SS."
        REFERENCE
            "Section 6.3.2.3.6 in IEEE 802.16REVd/D5-2004"
        ::= { wmanIfBsRegisteredSsEntry 2 }

wmanIfBsSsBasicCid OBJECT-TYPE
        SYNTAX      INTEGER
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "The value of this object indicates the SS's basic CID
             that was sent in the RNG-RSP message."
        REFERENCE
            "Section 6.3.2.3.8 in IEEE 802.16REVd/D5-2004"
        ::= { wmanIfBsRegisteredSsEntry 3 }

wmanIfBsSsPrimaryCid OBJECT-TYPE
        SYNTAX      INTEGER
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "The value of this object indicates the primary CID of the
             SS received from the RNG-RSP message."
        REFERENCE
            "Section 6.3.2.3.8 in IEEE 802.16REVd/D5-2004"
        ::= { wmanIfBsRegisteredSsEntry 4 }

wmanIfBsSsSecondaryCid OBJECT-TYPE
        SYNTAX      INTEGER
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "The value of this object indicates the secondary
             management CID present in the REG-RSP message. The value
             should be null if the 2nd management channel is not
             available."
```

```
        REFERENCE
            "Section 6.4.2.3.8 in IEEE 802.16REVd/D5-2004"
        ::= { wmanIfBsRegisteredSsEntry 5 }

wmanIfBsSsHmacTuple OBJECT-TYPE
        SYNTAX      OCTET STRING
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "This parameter contains the HMAC Key Sequence Number
             concatenated with an HMAC-Digest message during the
             authentication. The HMAC Key Sequence Number is stored
             in the four least significant bits of the first byte of
             the HMAC Tuple, and the most significant four bits
             are reserved."
        REFERENCE
            "Section 11.1.2 in IEEE 802.16REVd/D5-2004"
        ::= { wmanIfBsRegisteredSsEntry 6 }

wmanIfBsSsUlCidSupport OBJECT-TYPE
        SYNTAX      INTEGER
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "This object shows the number of Uplink CIDs the SS can
             support."
        REFERENCE
            "Section 11.7.4 in IEEE 802.16REVd/D5-2004"
        ::= { wmanIfBsRegisteredSsEntry 7 }

wmanIfBsSsManagementSupport OBJECT-TYPE
        SYNTAX      INTEGER {unmanagedSs(0),
                             managedSs(1)}
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "This object indicates whether or not the SS is managed."
        REFERENCE
            "Section 11.7.1.1 in IEEE 802.16REVd/D5-2004"
        ::= { wmanIfBsRegisteredSsEntry 8 }

wmanIfBsSsArqSupport OBJECT-TYPE
        SYNTAX      INTEGER {arqNotSupported(0),
                             arqSupported(1)}
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "This object indicates whether the SS support ARQ."
        REFERENCE
            "Section 11.7.6.1 in IEEE 802.16REVd/D5-2004"
        ::= { wmanIfBsRegisteredSsEntry 9 }

wmanIfBsSsDsxFlowControl OBJECT-TYPE
        SYNTAX      INTEGER (0..255)
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "This object specifies the maximum number of concurrent
             DSA, DSC, or DSD transactions that may be outstanding."
        REFERENCE
            "Section 11.7.6.2 in IEEE 802.16REVd/D5-2004"
        DEFVAL      { 0 }
        ::= { wmanIfBsRegisteredSsEntry 10 }

wmanIfBsSsMacCrcSupport OBJECT-TYPE
        SYNTAX      INTEGER {noMacCrcSupport(0),
                             macCrcSupport(1)}
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "This object indicates whether or not the SS supports MAC
             level CRC."
        REFERENCE
            "Section 11.7.6.3 in IEEE 802.16REVd/D5-2004"
        DEFVAL      { 1 }
        ::= { wmanIfBsRegisteredSsEntry 11 }
```

```
wmanIfBsSsMcaFlowControl OBJECT-TYPE
        SYNTAX      INTEGER (0..255)
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "This object specifies the maximum number of concurrent
             MCA transactions that may be outstanding."
        REFERENCE
            "Section 11.7.6.4 in IEEE 802.16REVd/D5-2004"
        DEFVAL      { 0 }
        ::= { wmanIfBsRegisteredSsEntry 12 }

wmanIfBsSsMcpGroupCidSupport OBJECT-TYPE
        SYNTAX      INTEGER (0..255)
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "This object indicates the maximum number of
             simultaneous Multicast Polling Groups the SS is
             capable of belonging to."
        REFERENCE
            "Section 11.7.6.5 in IEEE 802.16REVd/D5-2004"
        DEFVAL      { 0 }
        ::= { wmanIfBsRegisteredSsEntry 13 }

wmanIfBsSsPkmFlowControl OBJECT-TYPE
        SYNTAX      INTEGER (0..255)
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "This object specifies the maximum number of concurrent PKM
             transactions that may be outstanding."
        REFERENCE
            "Section 11.7.6.6 in IEEE 802.16REVd/D5-2004; Sec.6.7 of ETSI TS 102 178"
        DEFVAL      { 0 }
        ::= { wmanIfBsRegisteredSsEntry 14 }

wmanIfBsSsAuthorizationPolicyControl OBJECT-TYPE
        SYNTAX      BITS {ieee802-16PrivacySupported(0),
                          reserved1(1),
                          reserved2(2),
                          reserved3(3),
                          reserved4(4),
                          reserved5(5),
                          reserved6(6),
                          reserved7(7)}
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "This object specifies authorization policy that both SS and
             BS need to negotiate and implement. A bit value of 0 =
             not supported, 1 = supported. If this field is omitted, then
             both SS and BS shall use the IEEE 802.16 security,
             constituting X.509 digital certificates and the RSA public
             key encryption algorithm, as authorization policy."
        REFERENCE
            "Section 11.7.8.7 in IEEE 802.16REVd/D5-2004; Sec.6.7 of ETSI TS 102 178"
        ::= { wmanIfBsRegisteredSsEntry 15 }

wmanIfBsSsMaxNumOfSupportedSA OBJECT-TYPE
        SYNTAX      INTEGER (0..255)
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "This field specifies maximum number of supported security
             association of the SS."
        REFERENCE
            "Section 11.7.8.8 in IEEE 802.16REVd/D5-2004; Sec.6.7 of ETSI TS 102 178"
        DEFVAL      { 1 }
        ::= { wmanIfBsRegisteredSsEntry 16 }

wmanIfBsSsIpVersion OBJECT-TYPE
        SYNTAX      INTEGER {ipv4(1),
                             ipv6(2)}
        MAX-ACCESS  read-only
        STATUS      current
```

```
        DESCRIPTION
            "This object indicates the version of IP used on the
             Secondary Management Connection. The values should be null
             if the second management CID does not exist."
        REFERENCE
            "Section 11.7.2.1 in IEEE 802.16REVd/D5-2004"
        ::= { wmanIfBsRegisteredSsEntry 17 }

wmanIfBsSsMacCsSupportBitMap OBJECT-TYPE
        SYNTAX      BITS {atm(0),
                          packetIpv4(1),
                          packetIpv6(2),
                          packet802-3(3),
                          packet802-1Q(4),
                          packetIpv4Over802-3(5),
                          packetIpv6Over802-3(6),
                          packetIpv4Over802-1Q(7),
                          packetIpv6Over802-1Q(8)}
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "This object indicates the set of MAC convergence
             sublayer support. When a bit is set, it indicates
             the corresponding CS feature is supported."
        REFERENCE
            "Section 11.7.5.1 in IEEE 802.16REVd/D5-2004"
        ::= { wmanIfBsRegisteredSsEntry 18 }

wmanIfBsSsMaxNumOfClassifier OBJECT-TYPE
        SYNTAX      INTEGER
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "This object indicates the maximum number of admitted
             Classifiers that the SS is allowed to have."
        REFERENCE
            "Section 11.7.5.2 in IEEE 802.16REVd/D5-2004"
        DEFVAL      { 0 }
        ::= { wmanIfBsRegisteredSsEntry 19 }

wmanIfBsSsPhsSupport OBJECT-TYPE
        SYNTAX      INTEGER {noPhsSupport(0),
                             atmPhsSupport(1),
                             packetPhsSupport(2)}
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "This object indicates the level of PHS support."
        REFERENCE
            "Section 11.7.5.3 in IEEE 802.16REVd/D5-2004"
        DEFVAL      { 0 }
        ::= { wmanIfBsRegisteredSsEntry 20 }

wmanIfBsSsIpManagementSupport OBJECT-TYPE
        SYNTAX      INTEGER {unmanaged(0),
                             ipManaged(1)}
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "The IP management mode parameter dictates whether
             the provider intends to manage the SS on an ongoing
             basis via IP-based mechanisms."
        REFERENCE
            "Section 11.7.3 in IEEE 802.16REVd/D5-2004"
        ::= { wmanIfBsRegisteredSsEntry 21 }

wmanIfBsSs2ndMgmtArqEnable OBJECT-TYPE
        SYNTAX      TruthValue
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "True(1) ARQ enabling is requested for the 2nd
             management channel."
        REFERENCE
            "Section 11.13.20 in IEEE 802.16REVd/D5-2004"
        ::= { wmanIfBsRegisteredSsEntry 22 }
```

```
wmanIfBsSs2ndMgmtArqWindowSize   OBJECT-TYPE
        SYNTAX      INTEGER (1 .. 1024)
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "Indicates the maximum number of unacknowledged
             fragments at any time for 2nd management channel."
        REFERENCE
            "Section 11.13.20 in IEEE 802.16REVd/D5-2004"
        ::= { wmanIfBsRegisteredSsEntry 23 }

wmanIfBsSs2ndMgmtArqFragmentLifetime OBJECT-TYPE
        SYNTAX      INTEGER (0 .. 65535)
        UNITS       "10 us"
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "The maximum time interval an ARQ fragment will be
             managed by the transmitter ARQ machine, once
             initial transmission of the fragment has occurred.
             If transmission or retransmission of the fragment
             is not acknowledged by the receiver before the
             time limit is reached, the fragment is discarded.
             A value of 0 means Infinite."
        REFERENCE
            "Section 11.13.20 in IEEE 802.16REVd/D5-2004"
        DEFVAL      {0}
        ::= { wmanIfBsRegisteredSsEntry 24 }

wmanIfBsSs2ndMgmtArqSyncLossTimeout OBJECT-TYPE
        SYNTAX      INTEGER (0 .. 65535 )
        UNITS       "10 us"
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "The maximum interval before declaring a loss
             of synchronization of the sender and receiver
             state machines. A value of 0 means Infinite."
        REFERENCE
            "Section 11.13.20 in IEEE 802.16REVd/D5-2004"
        DEFVAL      {0}
        ::= { wmanIfBsRegisteredSsEntry 25 }

wmanIfBsSs2ndMgmtArqDeliverInOrder  OBJECT-TYPE
        SYNTAX      TruthValue
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "Indicates whether or not data is to be delivered
             by the receiving MAC to its client application
             in the order in which data was handed off to the
             originating MAC."
        REFERENCE
            "Section 11.13.20 in IEEE 802.16REVd/D5-2004"
        ::= { wmanIfBsRegisteredSsEntry 26 }

wmanIfBsSs2ndMgmtArqRxPurgeTimeout  OBJECT-TYPE
        SYNTAX      INTEGER (0 .. 65535)
        UNITS       "10 us"
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "Indicates the time interval the ARQ window is advanced
             after a fragment is received. A value of 0 means Infinite."
        REFERENCE
            "Section 11.13.20 in IEEE 802.16REVd/D5-2004"
        DEFVAL      {0}
        ::= { wmanIfBsRegisteredSsEntry 27 }

wmanIfBsSsVendorIdEncoding OBJECT-TYPE
        SYNTAX      OCTET STRING (SIZE(3))
        MAX-ACCESS  read-only
        STATUS      current
```

```
        DESCRIPTION
            "The value field contains the vendor identification
             specified by the 3 byte vendor-specific organizationally
             unique identifier of the SS or BS MAC address. A vendor ID
             used in a REG-REQ shall be the Vendor ID of the SS sending
             the request. A vendor ID used in a REG-RSP shall be the
             Vendor ID of the BS sending the response."
        REFERENCE
            "Section 11.1.5 in IEEE 802.16REVd/D5-2004"
        ::= { wmanIfBsRegisteredSsEntry 28 }

--
-- wmanIfBsPacketCs contain the Base Station Packet Convergence Sublayer
-- objects
wmanIfBsPacketCs OBJECT IDENTIFIER ::= { wmanIfBsObjects 2 }

wmanIfBsProvisionedSfTable OBJECT-TYPE
        SYNTAX      SEQUENCE OF WmanIfBsProvisionedSfEntry
        MAX-ACCESS  not-accessible
        STATUS      current
        DESCRIPTION
            "This table is doubly indexed (SS MAC address, SF ID) and
             contains pre-provisioned service flow profiles, Per SS.
             These connection parameters shall be provisioned for the SS
             using DSA messages. NMS shall pre-provisioning the service
             class table - wmanIfBsServiceClassTable by using
             wmanIfBsServiceClassIndex, and packet classifier rule table
             - wmanIfBsClassifierRuleTable by using wmanIfBsSfId"
        REFERENCE
            "Section 6.4.13 in IEEE 802.16REVd/D5-2004"
        ::= { wmanIfBsPacketCs 1 }

wmanIfBsProvisionedSfEntry OBJECT-TYPE
        SYNTAX      WmanIfBsProvisionedSfEntry
        MAX-ACCESS  not-accessible
        STATUS      current
        DESCRIPTION
            "This table provides one row for each service flow been
             pre-provisioned by NMS."
        INDEX { wmanIfBsSsProvMacAddress, wmanIfBsSfId}
        ::= { wmanIfBsProvisionedSfTable 1 }

WmanIfBsProvisionedSfEntry ::= SEQUENCE {
        wmanIfBsSfId                            Unsigned32,
        wmanIfBsSsProvMacAddress                MacAddress,
        wmanIfBsSfDirection                     INTEGER,
        wmanIfBsServiceClassIndex               INTEGER,
        wmanIfBsServiceClassName                DisplayString,
        wmanIfBsSfState                         INTEGER,
        wmanIfBsSfProvisionedTime               TimeStamp,
        wmanIfBsProvisionedSfRowStatus          RowStatus
        }

wmanIfBsSfId OBJECT-TYPE
        SYNTAX      Unsigned32 (1 .. 4294967295)
        MAX-ACCESS  not-accessible
        STATUS      current
        DESCRIPTION
            "A 32 bit quantity that uniquely identifies a service flow
             to both the subscriber station and base station (BS)."
        ::= { wmanIfBsProvisionedSfEntry 1 }

wmanIfBsSsProvMacAddress OBJECT-TYPE
        SYNTAX      MacAddress
        MAX-ACCESS  not-accessible
        STATUS      current
        DESCRIPTION
            "The MAC address of the SS, where the service flow resides.
             It can be used as the index to associate service flows
             with the SS."
        ::= { wmanIfBsProvisionedSfEntry 2 }

wmanIfBsSfDirection OBJECT-TYPE
        SYNTAX      INTEGER {downstream(1),
                             upstream(2)}
        MAX-ACCESS  read-create
        STATUS      current
```

```
        DESCRIPTION
            "An attribute indicating the service flow is downstream or
             upstream."
        ::= { wmanIfBsProvisionedSfEntry 3 }

wmanIfBsServiceClassIndex OBJECT-TYPE
        SYNTAX      INTEGER
        MAX-ACCESS  read-create
        STATUS      current
        DESCRIPTION
            "The index in wmanIfBsServiceClassTable describing the
             service class or QoS parameters for such service flow.
             If no associated entry in wmanIfBsServiceClassTable
             exists, this object returns a value of zero."
        ::= { wmanIfBsProvisionedSfEntry 4 }

wmanIfBsServiceClassName  OBJECT-TYPE
        SYNTAX      DisplayString (SIZE(1..32))
        MAX-ACCESS  read-create
        STATUS      current
        DESCRIPTION
            "Refers to the Service Class Name"
        REFERENCE
            "Section 11.13.7 in IEEE 802.16REVd/D5-2004"
        ::= { wmanIfBsProvisionedSfEntry 5 }

wmanIfBsSfState OBJECT-TYPE
        SYNTAX      INTEGER {provisioned(1),
                             admitted(2),
                             active(3)}
        MAX-ACCESS  read-create
        STATUS      current
        DESCRIPTION
            "wmanIfBsSfState determines the state of a service flow.
             provisioned state: A service flow is provisioned but
             not resource is reserved yet
             admitted state: service flow has resources reserved.
             active state: has resources committed by the BS (e.g., is
             actively sending maps containing unsolicited grants for a
             UGS-based service flow)"
        REFERENCE
            "Section 6.4.13.6, in IEEE 802.16REVd/D5-2004"
        ::= { wmanIfBsProvisionedSfEntry 6 }

wmanIfBsSfProvisionedTime OBJECT-TYPE
        SYNTAX      TimeStamp
        MAX-ACCESS  read-create
        STATUS      current
        DESCRIPTION
            "Indicates the date and time when the service flow is
             provisioned."
        ::= { wmanIfBsProvisionedSfEntry 7 }

wmanIfBsProvisionedSfRowStatus OBJECT-TYPE
        SYNTAX          RowStatus
        MAX-ACCESS      read-create
        STATUS          current
        DESCRIPTION
            "This object is used to create a new row or modify or
             delete an existing row in this table.

             If the implementator of this MIB has chosen not
             to implement 'dynamic assignment' of profiles, this
             object is not useful and should return noSuchName
             upon SNMP request."
        ::= { wmanIfBsProvisionedSfEntry 8 }

wmanIfBsServiceClassTable OBJECT-TYPE
        SYNTAX      SEQUENCE OF WmanIfBsServiceClassEntry
        MAX-ACCESS  not-accessible
        STATUS      current
        DESCRIPTION
            "This table is provisioned and is indexed by
             wmanIfBsQoSProfileIndex. Each entry of the table contains
             corresponding service flow characteristic attributes
             (e.g. QoS parameter set). The value of
             wmanIfBsQoSProfileIndex is obtained from
             wmanIfBsServiceClassIndex in wmanIfBsProvisionedSfTable"
```

```
        REFERENCE
            "Section 6.4.13.4 in IEEE 802.16REVd/D5-2004"
        ::= { wmanIfBsPacketCs 2 }

wmanIfBsServiceClassEntry OBJECT-TYPE
        SYNTAX      WmanIfBsServiceClassEntry
        MAX-ACCESS  not-accessible
        STATUS      current
        DESCRIPTION
            "This table provides one row for each service class"
        INDEX { wmanIfBsQoSProfileIndex }
        ::= { wmanIfBsServiceClassTable 1 }

WmanIfBsServiceClassEntry ::= SEQUENCE {
        wmanIfBsQoSProfileIndex                 INTEGER,
        wmanIfBsQosServiceClassName             DisplayString,
        wmanIfBsQoSTrafficPriority              INTEGER,
        wmanIfBsQoSMaxSustainedRate             INTEGER,
        wmanIfBsQoSMaxTrafficBurst              INTEGER,
        wmanIfBsQoSMinReservedRate              INTEGER,
        wmanIfBsQoSToleratedJitter              INTEGER,
        wmanIfBsQoSMaxLatency                   INTEGER,
        wmanIfBsQoSFixedVsVariableSduInd        INTEGER,
        wmanIfBsQoSSduSize                      INTEGER,
        wmanIfBsQosScSchedulingType             WmanIfSfSchedulingType,
        wmanIfBsQosScArqEnable                  TruthValue,
        wmanIfBsQosScArqWindowSize              INTEGER,
        wmanIfBsQosScArqFragmentLifetime        INTEGER,
        wmanIfBsQosScArqSyncLossTimeout         INTEGER,
        wmanIfBsQosScArqDeliverInOrder          TruthValue,
        wmanIfBsQosScArqRxPurgeTimeout          INTEGER,
        wmanIfBsQosScFragmentLen                INTEGER,
        wmanIfBsQosSCMinRsvdTolerableRate       INTEGER,
        wmanIfBsQoSReqTxPolicy                  BITS,
        wmanIfBsQoSServiceClassRowStatus        RowStatus
        }

wmanIfBsQoSProfileIndex OBJECT-TYPE
        SYNTAX      INTEGER (1 .. 1000)
        MAX-ACCESS  not-accessible
        STATUS      current
        DESCRIPTION
            "The index value which uniquely identifies an entry
             in the wmanIfBsServiceClassTable"
        ::= { wmanIfBsServiceClassEntry 1 }

wmanIfBsQosServiceClassName  OBJECT-TYPE
        SYNTAX      DisplayString (SIZE(1..32))
        MAX-ACCESS  read-create
        STATUS      current
        DESCRIPTION
            "Refers to the Service Class Name"
        REFERENCE
            "Section 11.13.7 in IEEE 802.16REVd/D5-2004"
        ::= { wmanIfBsServiceClassEntry 2 }

wmanIfBsQoSTrafficPriority OBJECT-TYPE
        SYNTAX      INTEGER (0..7)
        MAX-ACCESS  read-create
        STATUS      current
        DESCRIPTION
            "The value of this parameter specifies the priority
             assigned to a service flow. For uplink service flows,
             the BS should use this parameter when determining
             precedence in request service and grant generation,
             and the SS shall preferentially select contention
             Request opportunities for Priority Request CIDs
             based on this priority. Higher numbers indicate higher
             priority"
        REFERENCE
            "Section 11.13.7 in IEEE 802.16REVd/D5-2004"
        ::= { wmanIfBsServiceClassEntry 3 }

wmanIfBsQoSMaxSustainedRate OBJECT-TYPE
        SYNTAX      INTEGER
        UNITS       "bps"
        MAX-ACCESS  read-create
        STATUS      current
```

```
        DESCRIPTION
            "This parameter defines the peak information rate
             of the service. The rate is expressed in bits per
             second and pertains to the SDUs at the input to
             the system."
        REFERENCE
            "Section 11.13.8 in IEEE 802.16REVd/D5-2004"
        ::= { wmanIfBsServiceClassEntry 4 }

wmanIfBsQoSMaxTrafficBurst OBJECT-TYPE
        SYNTAX      INTEGER
        UNITS       "byte"
        MAX-ACCESS  read-create
        STATUS      current
        DESCRIPTION
            "This parameter defines the maximum burst size that
             must be accommodated for the service."
        REFERENCE
            "Section 11.13.9 in IEEE 802.16REVd/D5-2004"
        ::= { wmanIfBsServiceClassEntry 5 }

wmanIfBsQoSMinReservedRate OBJECT-TYPE
        SYNTAX      INTEGER
        UNITS       "bps"
        MAX-ACCESS  read-create
        STATUS      current
        DESCRIPTION
            "This parameter specifies the minimum rate reserved
             for this service flow."
        REFERENCE
            "Section 11.13.10 in IEEE 802.16REVd/D5-2004"
        ::= { wmanIfBsServiceClassEntry 6 }

wmanIfBsQoSToleratedJitter OBJECT-TYPE
        SYNTAX      INTEGER
        UNITS       "millisecond"
        MAX-ACCESS  read-create
        STATUS      current
        DESCRIPTION
            "This parameter defines the Maximum delay
             variation (jitter) for the connection."
        REFERENCE
            "Section 11.13.15 in IEEE 802.16REVd/D5-2004"
        ::= { wmanIfBsServiceClassEntry 7 }

wmanIfBsQoSMaxLatency OBJECT-TYPE
        SYNTAX      INTEGER
        UNITS       "millisecond"
        MAX-ACCESS  read-create
        STATUS      current
        DESCRIPTION
            "The value of this parameter specifies the maximum
             latency between the reception of a packet by the BS
             or SS on its network interface and the forwarding
             of the packet to its RF Interface."
        REFERENCE
            "Section 11.13.16 in IEEE 802.16REVd/D5-2004"
        ::= { wmanIfBsServiceClassEntry 8 }

wmanIfBsQoSFixedVsVariableSduInd OBJECT-TYPE
        SYNTAX      INTEGER {variableLength(0),
                             fixedLength(1)}
        MAX-ACCESS  read-create
        STATUS      current
        DESCRIPTION
            "The value of this parameter specifies whether the SDUs
             on the service flow are fixed-length (0) or
             variable-length (1). The parameter is used only if
             packing is on for the service flow. The default value
             is 0, i.e., variable-length SDUs."
        REFERENCE
            "Section 11.13.15 in IEEE 802.16REVd/D5-2004"
        DEFVAL      { 0 }
        ::= { wmanIfBsServiceClassEntry 9 }

wmanIfBsQoSSduSize OBJECT-TYPE
        SYNTAX      INTEGER
        UNITS       "byte"
```

```
        MAX-ACCESS  read-create
        STATUS      current
        DESCRIPTION
            "The value of this parameter specifies the length of the
             SDU for a fixed-length SDU service flow. This parameter
             is used only if packing is on and the service flow is
             indicated as carrying fixed-length SDUs. The default
             value is 49 bytes, i.e., VC-switched ATM cells with PHS.
             The parameter is relevant for both ATM and Packet
             Convergence Sublayers."
        REFERENCE
            "Section 11.13.17 in IEEE 802.16REVd/D4-2004"
        DEFVAL      { 49 }
        ::= { wmanIfBsServiceClassEntry 10 }

wmanIfBsQosScSchedulingType OBJECT-TYPE
        SYNTAX      WmanIfSfSchedulingType
        MAX-ACCESS  read-create
        STATUS      current
        DESCRIPTION
            "Specifies the upstream scheduling service used for
             upstream service flow. If the referenced parameter
             is not present in the corresponding 802.16 QOS
             Parameter Set of an upstream service flow, the
             default value of this object is bestEffort(2)."
        REFERENCE
            "Section 11.13.13 in IEEE 802.16REVd/D5-2004"
        DEFVAL         {2}
        ::= { wmanIfBsServiceClassEntry 11 }

wmanIfBsQosScArqEnable OBJECT-TYPE
        SYNTAX      TruthValue
        MAX-ACCESS  read-create
        STATUS      current
        DESCRIPTION
            "True(1) ARQ enabling is requested for the connection."
        REFERENCE
            "Section 11.13.20 in IEEE 802.16REVd/D5-2004"
        ::= { wmanIfBsServiceClassEntry 12 }

wmanIfBsQosScArqWindowSize   OBJECT-TYPE
        SYNTAX      INTEGER (1 .. 1024)
        MAX-ACCESS  read-create
        STATUS      current
        DESCRIPTION
            "Indicates the maximum number of unacknowledged
             fragments at any time."
        REFERENCE
            "Section 11.13.20 in IEEE 802.16REVd/D5-2004"
        ::= { wmanIfBsServiceClassEntry 13 }

wmanIfBsQosScArqFragmentLifetime OBJECT-TYPE
        SYNTAX      INTEGER (0 .. 65535)
        UNITS       "10 us"
        MAX-ACCESS  read-create
        STATUS      current
        DESCRIPTION
            "The maximum time interval an ARQ fragment will be
             managed by the transmitter ARQ machine, once
             initial transmission of the fragment has occurred.
             If transmission or retransmission of the fragment
             is not acknowledged by the receiver before the
             time limit is reached, the fragment is discarded.
             A value of 0 means Infinite."
        REFERENCE
            "Section 11.13.20 in IEEE 802.16REVd/D5-2004"
        DEFVAL      {0}
        ::= { wmanIfBsServiceClassEntry 14 }

wmanIfBsQosScArqSyncLossTimeout OBJECT-TYPE
        SYNTAX      INTEGER (0 .. 65535 )
        UNITS       "10 us"
        MAX-ACCESS  read-create
        STATUS      current
        DESCRIPTION
            "The maximum interval before declaring a loss
             of synchronization of the sender and receiver
             state machines. A value of 0 means Infinite."
```

```
        REFERENCE
            "Section 11.13.20 in IEEE 802.16REVd/D5-2004"
        DEFVAL      {0}
        ::= { wmanIfBsServiceClassEntry 15 }

wmanIfBsQosScArqDeliverInOrder  OBJECT-TYPE
        SYNTAX      TruthValue
        MAX-ACCESS  read-create
        STATUS      current
        DESCRIPTION
            "Indicates whether or not data is to be delivered
             by the receiving MAC to its client application
             in the order in which data was handed off to the
             originating MAC."
        REFERENCE
            "Section 11.13.20 in IEEE 802.16REVd/D5-2004"
        ::= { wmanIfBsServiceClassEntry 16 }

wmanIfBsQosScArqRxPurgeTimeout  OBJECT-TYPE
        SYNTAX      INTEGER (0 .. 65535)
        UNITS       "10 us"
        MAX-ACCESS  read-create
        STATUS      current
        DESCRIPTION
            "Indicates the time interval the ARQ window is advanced
             after a fragment is received. A value of 0 means
             Infinite."
        REFERENCE
            "Section 11.13.20 in IEEE 802.16REVd/D5-2004"
        DEFVAL      {0}
        ::= { wmanIfBsServiceClassEntry 17 }

wmanIfBsQosScFragmentLen OBJECT-TYPE
        SYNTAX      INTEGER (32 .. 2040)
        UNITS       "byte"
        MAX-ACCESS  read-create
        STATUS      current
        DESCRIPTION
            "The maximum size fragment a transmitter shall form
             or a receiver shall expect to receive."
        ::= { wmanIfBsServiceClassEntry 18 }

wmanIfBsQosSCMinRsvdTolerableRate OBJECT-TYPE
        SYNTAX      INTEGER
        UNITS       "bps"
        MAX-ACCESS  read-create
        STATUS      current
        DESCRIPTION
            "Minimum Tolerable Traffic Rate = R (bits/sec) with
             time base T(sec) means the following. Let S denote
             additional demand accumulated at the MAC SAP of the
             transmitter during an arbitrary time interval of the
             length T. Then the amount of data forwarded at the
             receiver to CS (in bits) during this interval should
             be not less than min {S, R * T}."
        REFERENCE
            "Section 11.13.11 in IEEE 802.16REVd/D5-2004"
        ::= { wmanIfBsServiceClassEntry 19 }

wmanIfBsQoSReqTxPolicy OBJECT-TYPE
        SYNTAX      BITS {noBroadcastBwReq(0),
                          reserved1(1),
                          noPiggybackReq(2),
                          noFragmentData(3),
                          noPHS(4),
                          noSduPacking(5),
                          noCrc(6),
                          reserved2(7)}
        MAX-ACCESS  read-create
        STATUS      current
        DESCRIPTION
            "The value of this parameter provides the capability to
             specify certain attributes for the associated service
             flow. An attribute is enabled by setting the
             corresponding bit position to 1."
        REFERENCE   "Section 11.13.12 in IEEE 802.16REVd/D5-2004"
        ::= { wmanIfBsServiceClassEntry 20 }
```

```
wmanIfBsQoSServiceClassRowStatus OBJECT-TYPE
        SYNTAX      RowStatus
        MAX-ACCESS  read-create
        STATUS      current
        DESCRIPTION
            "This object is used to create a new row or modify or
             delete an existing row in this table.

             If the implementator of this MIB has chosen not
             to implement 'dynamic assignment' of profiles, this
             object is not useful and should return noSuchName
             upon SNMP request."
        ::= { wmanIfBsServiceClassEntry 21 }

wmanIfBsClassifierRuleTable OBJECT-TYPE
        SYNTAX      SEQUENCE OF WmanIfBsClassifierRuleEntry
        MAX-ACCESS  not-accessible
        STATUS      current
        DESCRIPTION
            "This table contains packet classifier rules associated
             with service flows."
        REFERENCE
            "Section 11.13.22.3.4 in IEEE 802.16REVd/D5-2004"
        ::= { wmanIfBsPacketCs 3 }

wmanIfBsClassifierRuleEntry OBJECT-TYPE
        SYNTAX      WmanIfBsClassifierRuleEntry
        MAX-ACCESS  not-accessible
        STATUS      current
        DESCRIPTION
           "This table provides one row for each packet classifier
            rule, and is indexed by wmanIfBsSfId and
            wmanIfBsClassifierRuleIndex. wmanIfBsSfIndex
            identifies the service flow, while
            wmanIfBsClassifierRuleIndex identifies the packet
            classifier rule."
        INDEX { wmanIfBsSfIndex, wmanIfBsClassifierRuleIndex }
        ::= { wmanIfBsClassifierRuleTable 1 }

WmanIfBsClassifierRuleEntry::= SEQUENCE {
        wmanIfBsSfIndex                         Unsigned32,
        wmanIfBsClassifierRuleIndex             Unsigned32,
        wmanIfBsClassifierRulePriority          INTEGER,
        wmanIfBsClassifierRuleIpTosLow          OCTET STRING,
        wmanIfBsClassifierRuleIpTosHigh         OCTET STRING,
        wmanIfBsClassifierRuleIpTosMask         OCTET STRING,
        wmanIfBsClassifierRuleIpProtocol        Integer32,
        wmanIfBsClassifierRuleIpAddressType     InetAddressType,
        wmanIfBsClassifierRuleIpSourceAddr      InetAddress,
        wmanIfBsClassifierRuleIpSourceMask      InetAddress,
        wmanIfBsClassifierRuleIpDestAddr        InetAddress,
        wmanIfBsClassifierRuleIpDestMask        InetAddress,
        wmanIfBsClassifierRuleSourcePortStart   Integer32,
        wmanIfBsClassifierRuleSourcePortEnd     Integer32,
        wmanIfBsClassifierRuleDestPortStart     Integer32,
        wmanIfBsClassifierRuleDestPortEnd       Integer32,
        wmanIfBsClassifierRuleDestMacAddr       MacAddress,
        wmanIfBsClassifierRuleDestMacMask       MacAddress,
        wmanIfBsClassifierRuleSourceMacAddr     MacAddress,
        wmanIfBsClassifierRuleSourceMacMask     MacAddress,
        wmanIfBsClassifierRuleEnetProtocolType  INTEGER,
        wmanIfBsClassifierRuleEnetProtocol      Integer32,
        wmanIfBsClassifierRuleUserPriLow        Integer32,
        wmanIfBsClassifierRuleUserPriHigh       Integer32,
        wmanIfBsClassifierRuleVlanId            Integer32,
        wmanIfBsClassifierRuleState             INTEGER,
        wmanIfBsClassifierRulePkts              Counter64,
        wmanIfBsClassifierRuleRowStatus         RowStatus
        }

wmanIfBsSfIndex OBJECT-TYPE
        SYNTAX      Unsigned32 (1 .. 4294967295)
        MAX-ACCESS  not-accessible
        STATUS      current
```

```
        DESCRIPTION
            "A 32 bit quantity that uniquely identifies a service flow
             to both the subscriber station and base station (BS)."
        ::= { wmanIfBsClassifierRuleEntry 1 }

wmanIfBsClassifierRuleIndex  OBJECT-TYPE
        SYNTAX      Unsigned32 (1..4294967295)
        MAX-ACCESS  not-accessible
        STATUS      current
        DESCRIPTION
            "An index is assigned to a classifier in BS classifiers
             table"
        ::= { wmanIfBsClassifierRuleEntry 2 }

wmanIfBsClassifierRulePriority OBJECT-TYPE
        SYNTAX      INTEGER (0..255)
        MAX-ACCESS  read-create
        STATUS      current
        DESCRIPTION
            "The value specifies the priority for the Classifier, which
             is used for determining the order of the Classifier. A
             higher value indicates higher priority. Classifiers may
             have priorities in the range 0..255."
        REFERENCE
            "Section 11.13.19.3.4.1 in IEEE 802.16REVd/D4-2004"
        DEFVAL      { 0 }
        ::= { wmanIfBsClassifierRuleEntry 3 }

wmanIfBsClassifierRuleIpTosLow OBJECT-TYPE
        SYNTAX      OCTET STRING (SIZE(1))
        MAX-ACCESS  read-create
        STATUS      current
        DESCRIPTION
            "The low value of a range of TOS byte values. If the
            referenced parameter is not present in a classifier, this
            object reports the value of 0."
        REFERENCE
            "Section 11.13.19.3.4.2 in IEEE 802.16REVd/D5-2004"
        ::= { wmanIfBsClassifierRuleEntry 4 }

wmanIfBsClassifierRuleIpTosHigh OBJECT-TYPE
        SYNTAX      OCTET STRING (SIZE(1))
        MAX-ACCESS  read-create
        STATUS      current
        DESCRIPTION
            "The 8-bit high value of a range of TOS byte values.
             If the referenced parameter is not present in a classifier,
             this object reports the value of 0."
        REFERENCE
            "Section 11.13.19.3.4.2 in IEEE 802.16REVd/D5-2004"
        ::= { wmanIfBsClassifierRuleEntry 5 }

wmanIfBsClassifierRuleIpTosMask OBJECT-TYPE
        SYNTAX      OCTET STRING (SIZE(1))
        MAX-ACCESS  read-create
        STATUS      current
        DESCRIPTION
            "The mask value is bitwise ANDed with TOS byte in an IP
             packet and this value is used check range checking of
             TosLow and TosHigh. If the referenced parameter is not
             present in a classifier, this object reports the value
             of 0."
        REFERENCE
            "Section 11.13.19.3.4.2 in IEEE 802.16REVd/D5-2004"
        ::= { wmanIfBsClassifierRuleEntry 6 }

wmanIfBsClassifierRuleIpProtocol OBJECT-TYPE
        SYNTAX      Integer32 (0..255)
        MAX-ACCESS  read-create
        STATUS      current
        DESCRIPTION
            "This object indicates the value of the IP Protocol field
             required for IP packets to match this rule. If the
             referenced parameter is not present in a classifier, this
             object reports the value of 0."
```

```
        REFERENCE
            "Section 11.13.19.3.4.3 in IEEE 802.16REVd/D5-2004"
        ::= { wmanIfBsClassifierRuleEntry 7 }

wmanIfBsClassifierRuleIpAddressType OBJECT-TYPE
        SYNTAX      InetAddressType
        MAX-ACCESS  read-create
        STATUS      current
        DESCRIPTION
            "The type of the internet address for
             wmanIfBsClassifierRuleIpSourceAddr,
             wmanIfBsClassifierRuleIpSourceMask,
             wmanIfBsClassifierRuleIpDestAddr, and
             wmanIfBsClassifierRuleIpDestMask.
             If the referenced parameter is not present in a classifier,
             this object reports the value of ipv4(1)."
        REFERENCE
            "Section 11.13.19.3.4.4 in IEEE 802.16REVd/D5-2004"
        ::= { wmanIfBsClassifierRuleEntry 8 }

wmanIfBsClassifierRuleIpSourceAddr OBJECT-TYPE
        SYNTAX      InetAddress
        MAX-ACCESS  read-create
        STATUS      current
        DESCRIPTION
            "This object specifies the value of the IP Source Address
             required for packets to match this rule. An IP packet
             matches the rule when the packet ip source address bitwise
             ANDed with the wmanIfBsClassifierRuleIpSourceMask value
             equals the wmanIfBsClassifierRuleIpSourceAddr value.
             If the referenced parameter is not present n a classifier,
             this object reports the value of 0.0.0.0."
        REFERENCE
            "Section 11.13.19.3.4.4 in IEEE 802.16REVd/D5-2004"
        ::= { wmanIfBsClassifierRuleEntry 9 }

wmanIfBsClassifierRuleIpSourceMask OBJECT-TYPE
        SYNTAX      InetAddress
        MAX-ACCESS  read-create
        STATUS      current
        DESCRIPTION
            "This object specifies which bits of a packet's IP Source
             Address that are compared to match this rule. An IP packet
             matches the rule when the packet source address bitwise
             ANDed with the
             wmanIfBsClassifierRuleIpSourceMask value equals the
             wmanIfBsClassifierRuleIpSourceAddr value.
             If the referenced parameter is not present in a classifier,
             this object reports the value of 0.0.0.0."
        REFERENCE
            "Section 11.13.19.3.4.4 in IEEE 802.16REVd/D5-2004"
        ::= { wmanIfBsClassifierRuleEntry 10 }

wmanIfBsClassifierRuleIpDestAddr OBJECT-TYPE
        SYNTAX      InetAddress
        MAX-ACCESS  read-create
        STATUS      current
        DESCRIPTION
            "This object specifies the value of the IP Destination
             Address required for packets to match this rule. An IP
             packet matches the rule when the packet IP destination
             address bitwise ANDed with the
             wmanIfBsClassifierRuleIpDestMask value equals the
             wmanIfBsClassifierRuleIpDestAddr value.
             If the referenced parameter is not present in a
             classifier, this object reports the value of 0.0.0.0."
        REFERENCE
            "Section 11.13.19.3.4.5 in IEEE 802.16REVd/D5-2004"
        ::= { wmanIfBsClassifierRuleEntry 11 }

wmanIfBsClassifierRuleIpDestMask OBJECT-TYPE
        SYNTAX      InetAddress
        MAX-ACCESS  read-create
        STATUS      current
```

```
        DESCRIPTION
            "This object specifies which bits of a packet's IP
             Destination Address that are compared to match this rule.
             An IP packet matches the rule when the packet destination
             address bitwise ANDed with the
             wmanIfBsClassifierRuleIpDestMask value equals the
             wmanIfBsClassifierRuleIpDestAddr value.
             If the referenced parameter is not present in a classifier
              , this object reports the value of 0.0.0.0."
        REFERENCE
            "Section 11.13.19.3.4.5 in IEEE 802.16REVd/D5-2004"
        ::= { wmanIfBsClassifierRuleEntry 12 }

wmanIfBsClassifierRuleSourcePortStart OBJECT-TYPE
        SYNTAX      Integer32 (0..65535)
        MAX-ACCESS  read-create
        STATUS      current
        DESCRIPTION
            "This object specifies the low end inclusive range of
             TCP/UDP source port numbers to which a packet is compared.
             This object is irrelevant for non-TCP/UDP IP packets.
             If the referenced parameter is not present in a
             classifier, this object reports the value of 0."
        REFERENCE
            "Section 11.13.19.3.4.6 in IEEE 802.16REVd/D5-2004"
        ::= { wmanIfBsClassifierRuleEntry 13 }

wmanIfBsClassifierRuleSourcePortEnd OBJECT-TYPE
        SYNTAX      Integer32 (0..65535)
        MAX-ACCESS  read-create
        STATUS      current
        DESCRIPTION
            "This object specifies the high end inclusive range of
             TCP/UDP source port numbers to which a packet is compared.
             This object is irrelevant for non-TCP/UDP IP packets.
             If the referenced parameter is not present in a classifier,
             this object reports the value of 65535."
        REFERENCE
            "Section 11.13.19.3.4.6 in IEEE 802.16REVd/D5-2004"
        ::= { wmanIfBsClassifierRuleEntry 14 }

wmanIfBsClassifierRuleDestPortStart OBJECT-TYPE
        SYNTAX      Integer32 (0..65535)
        MAX-ACCESS  read-create
        STATUS      current
        DESCRIPTION
            "This object specifies the low end inclusive range of
             TCP/UDP destination port numbers to which a packet is
             compared. If the referenced parameter is not present
             in a classifier, this object reports the value of 0."
        REFERENCE
            "Section 11.13.19.3.4.7 in IEEE 802.16REVd/D5-2004"
        ::= { wmanIfBsClassifierRuleEntry 15 }

wmanIfBsClassifierRuleDestPortEnd OBJECT-TYPE
        SYNTAX      Integer32 (0..65535)
        MAX-ACCESS  read-create
        STATUS      current
        DESCRIPTION
            "This object specifies the high end inclusive range of
             TCP/UDP destination port numbers to which a packet is
             compared. If the referenced parameter is not present
             in a classifier, this object reports the value of
             65535."
        REFERENCE
            "Section 11.13.19.3.4.7 in IEEE 802.16REVd/D5-2004"
        ::= { wmanIfBsClassifierRuleEntry 16 }
```

```
wmanIfBsClassifierRuleDestMacAddr OBJECT-TYPE
        SYNTAX      MacAddress
        MAX-ACCESS  read-create
        STATUS      current
        DESCRIPTION
            "An Ethernet packet matches an entry when its destination
             MAC address bitwise ANDed with
             wmanIfBsClassifierRuleDestMacMask equals the value of
             wmanIfBsClassifierRuleDestMacAddr. If the referenced
             parameter is not present in a classifier, this object
             reports the value of '000000000000'H."
        REFERENCE
            "Section 11.13.19.3.4.8 in IEEE 802.16REVd/D5-2004"
        ::= { wmanIfBsClassifierRuleEntry 17 }

wmanIfBsClassifierRuleDestMacMask OBJECT-TYPE
        SYNTAX      MacAddress
        MAX-ACCESS  read-create
        STATUS      current
        DESCRIPTION
            "An Ethernet packet matches an entry when its destination
             MAC address bitwise ANDed with
             wmanIfBsClassifierRuleDestMacMask equals the value of
             wmanIfBsClassifierRuleDestMacAddr. If the referenced
             parameter is not present in a classifier, this object
             reports the value of '000000000000'H."
        REFERENCE
            "Section 11.13.19.3.4.8 in IEEE 802.16REVd/D5-2004"
        ::= { wmanIfBsClassifierRuleEntry 18 }

wmanIfBsClassifierRuleSourceMacAddr OBJECT-TYPE
        SYNTAX      MacAddress
        MAX-ACCESS  read-create
        STATUS      current
        DESCRIPTION
            "An Ethernet packet matches this entry when its source
             MAC address  bitwise ANDed with
             wmanIfBsClassifierRuleSourceMacMask equals the value
             of wmanIfBsClassifierRuleSourceMacAddr. If the
             referenced parameter is not present in a classifier,
             this object reports the value of '000000000000'H."
        REFERENCE
            "Section 11.13.19.3.4.9 in IEEE 802.16REVd/D5-2004"
        ::= { wmanIfBsClassifierRuleEntry 19 }

wmanIfBsClassifierRuleSourceMacMask OBJECT-TYPE
        SYNTAX      MacAddress
        MAX-ACCESS  read-create
        STATUS      current
        DESCRIPTION
            "An Ethernet packet matches an entry when its destination
             MAC address bitwise ANDed with
             wmanIfBsClassifierRuleSourceMacMask equals the value of
             wmanIfBsClassifierRuleSourceMacAddr. If the referenced
             parameter is not present in a classifier, this object
             reports the value of '000000000000'H."
        REFERENCE
            "Section 11.13.19.3.4.9 in IEEE 802.16REVd/D5-2004"
        ::= { wmanIfBsClassifierRuleEntry 20 }

wmanIfBsClassifierRuleEnetProtocolType OBJECT-TYPE
        SYNTAX      INTEGER {none(0),
                             ethertype(1),
                             dsap(2)}
        MAX-ACCESS  read-create
        STATUS      current
```

```
        DESCRIPTION
            "This object indicates the format of the layer 3 protocol
             id in the Ethernet packet. A value of none(0) means that
             the rule does not use the layer 3 protocol type as a
             matching criteria. A value of ethertype(1) means that the
             rule applies only to frames which contains an EtherType
             value. Ethertype values are contained in packets using
             the Dec-Intel-Xerox (DIX) encapsulation or the RFC 1042
             Sub-Network Access Protocol (SNAP) encapsulation formats.
             A value of dsap(2) means that the rule applies only to
             frames using the IEEE802.3 encapsulation format with a
             Destination Service Access Point (DSAP) other than 0xAA
             (which is reserved for SNAP). If the Ethernet frame
             contains an 802.1P/Q Tag header (i.e. EtherType 0x8100),
             this object applies to the embedded EtherType field within
             the 802.1P/Q header. If the referenced parameter is not
             present in a classifier, this object reports the value of
             0."
        REFERENCE
            "Section 11.13.19.3.4.10 in IEEE 802.16REVd/D5-2004"
        ::= { wmanIfBsClassifierRuleEntry 21 }

wmanIfBsClassifierRuleEnetProtocol OBJECT-TYPE
        SYNTAX      Integer32 (0..65535)
        MAX-ACCESS  read-create
        STATUS      current
        DESCRIPTION
            "If wmanIfBsClassifierRuleEnetProtocolType is none(0),
             this object is ignored when considering whether a packet
             matches the current rule.
             If wmanIfBsClassifierRuleEnetProtocolType is ethertype(1),
             this object gives the 16-bit value of the EtherType that
             the packet must match in order to match the rule.
             If wmanIfBsClassifierRuleEnetProtocolType is dsap(2), the
             lower 8 bits of this object's value must match the DSAP
             byte of the packet in order to match the rule.
             If the Ethernet frame contains an 802.1P/Q Tag header
             (i.e. EtherType 0x8100), this object applies to the
             embedded EtherType field within the 802.1P/Q header.
             If the referenced parameter is not present in the
             classifier, the value of this object is reported as 0."
        REFERENCE
            "Section 11.13.19.3.4.10 in IEEE 802.16REVd/D5-2004"
        ::= { wmanIfBsClassifierRuleEntry 22 }

wmanIfBsClassifierRuleUserPriLow OBJECT-TYPE
        SYNTAX      Integer32 (0..7)
        MAX-ACCESS  read-create
        STATUS      current
        DESCRIPTION
            "This object applies only to Ethernet frames using the
             802.1P/Q tag header (indicated with EtherType 0x8100).
             Such frames include a 16-bit Tag that contains a 3 bit
             Priority field and a 12 bit VLAN number.
             Tagged Ethernet packets must have a 3-bit Priority field
             within the range of wmanIfBsClassifierRulePriLow and
             wmanIfBsClassifierRulePriHigh in order to match this
             rule.
             If the referenced parameter is not present in the
             classifier, the value of this object is reported as 0."
        REFERENCE
            "Section 11.13.19.3.4.11 in IEEE 802.16REVd/D5-2004"
        ::= { wmanIfBsClassifierRuleEntry 23 }

wmanIfBsClassifierRuleUserPriHigh OBJECT-TYPE
        SYNTAX      Integer32 (0..7)
        MAX-ACCESS  read-create
        STATUS      current
        DESCRIPTION
            "This object applies only to Ethernet frames using the
             802.1P/Q tag header (indicated with EtherType 0x8100).
             Such frames include a 16-bit Tag that contains a 3 bit
             Priority field and a 12 bit VLAN number.
             Tagged Ethernet packets must have a 3-bit Priority
             field within the range of wmanIfBsClassifierRulePriLow
             and wmanIfBsClassifierRulePriHigh in order to match
             this rule.
```

```
             If the referenced parameter is not present in the
             classifier, the value of this object is reported as 7."
        REFERENCE
            "Section 11.13.19.3.4.11 in IEEE 802.16REVd/D5-2004"
        ::= { wmanIfBsClassifierRuleEntry 24 }

wmanIfBsClassifierRuleVlanId OBJECT-TYPE
        SYNTAX      Integer32 (0..4095)
        MAX-ACCESS  read-create
        STATUS      current
        DESCRIPTION
            "This object applies only to Ethernet frames using the
             802.1P/Q tag header.
             If this object's value is nonzero, tagged packets must
             have a VLAN Identifier that matches the value in order
             to match the rule.
             Only the least significant 12 bits of this object's
             value are valid.
             If the referenced parameter is not present in the
             classifier, the value of this object is reported as 0."
        REFERENCE
            "Section 11.13.19.3.4.12 in IEEE 802.16REVd/D5-2004"
        ::= { wmanIfBsClassifierRuleEntry 25 }

wmanIfBsClassifierRuleState OBJECT-TYPE
        SYNTAX      INTEGER {active(1),
                             inactive(2)}
        MAX-ACCESS  read-create
        STATUS      current
        DESCRIPTION
            "This object indicates whether or not the classifier is
             enabled to classify packets to a Service Flow.
             If the referenced parameter is not present in the
             classifier, the value of this object is reported
             as active(1)."
        REFERENCE
            "Section 11.13.19.3.4.1 in IEEE 802.16REVd/D5-2004"
        ::= { wmanIfBsClassifierRuleEntry 26 }

wmanIfBsClassifierRulePkts OBJECT-TYPE
        SYNTAX      Counter64
        MAX-ACCESS  read-create
        STATUS      current
        DESCRIPTION
            "This object counts the number of packets that have
             been classified using this entry."
        REFERENCE
            "Section 11.13.19.3.4.1 in IEEE 802.16REVd/D5-2004"
        ::= { wmanIfBsClassifierRuleEntry 27 }

wmanIfBsClassifierRuleRowStatus OBJECT-TYPE
        SYNTAX      RowStatus
        MAX-ACCESS  read-create
        STATUS      current
        DESCRIPTION
            "This object is used to create a new row or modify or
             delete an existing row in this table.

             If the implementator of this MIB has chosen not
             to implement 'dynamic assignment' of profiles, this
             object is not useful and should return noSuchName
             upon SNMP request."
        ::= { wmanIfBsClassifierRuleEntry 28 }

wmanIfBsSsPacketCounterTable OBJECT-TYPE
        SYNTAX      SEQUENCE OF WmanIfBsSsPacketCounterEntry
        MAX-ACCESS  not-accessible
        STATUS      current
        DESCRIPTION
            "This table contains counters to keep track of the number
             of packets or octets that have been received or
             transmitted on the per service flow basis."
        ::= { wmanIfBsPacketCs 4 }

wmanIfBsSsPacketCounterEntry OBJECT-TYPE
        SYNTAX      WmanIfBsSsPacketCounterEntry
        MAX-ACCESS  not-accessible
        STATUS      current
```

```
        DESCRIPTION
           "This table provides one row for each service flow, and
            is indexed by wmanIfBsSsSfIndex and
            wmanIfBsSsMacAddress."
        INDEX { wmanIfBsSsSfIndex, wmanIfBsSsMacAddr }
        ::= { wmanIfBsSsPacketCounterTable 1 }

WmanIfBsSsPacketCounterEntry::= SEQUENCE {
        wmanIfBsSsSfIndex                       Unsigned32,
        wmanIfBsSsMacAddr                       MacAddress,
        wmanIfBsSsSfDirection                   INTEGER,
        wmanIfBsSsMacSduCount                   Counter64,
        wmanIfBsSsOctetCount                    Counter64,
        wmanIfBsSsResetCounter                  INTEGER,
        wmanIfBsSsResetCounterTime              TimeStamp
        }

wmanIfBsSsSfIndex OBJECT-TYPE
        SYNTAX      Unsigned32 (1 .. 4294967295)
        MAX-ACCESS  not-accessible
        STATUS      current
        DESCRIPTION
            "A 32 bit quantity that uniquely identifies a service flow."
        ::= { wmanIfBsSsPacketCounterEntry 1 }

wmanIfBsSsMacAddr OBJECT-TYPE
        SYNTAX      MacAddress
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "The MAC address of the SS, where the service flow resides.
             It can be used as the index to associate service flows
             with the SS."
        ::= { wmanIfBsSsPacketCounterEntry 2 }

wmanIfBsSsSfDirection OBJECT-TYPE
        SYNTAX      INTEGER {transmit(1),
                             receive(2)}
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "An attribute indicating whether the packet counter is on
             transmit or receive direction from the BS perspective."
        ::= { wmanIfBsSsPacketCounterEntry 3 }

wmanIfBsSsMacSduCount OBJECT-TYPE
        SYNTAX      Counter64
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "This object counts the number of MAC SDUs that have
             been transmitted or received."
        ::= { wmanIfBsSsPacketCounterEntry 4 }

wmanIfBsSsOctetCount OBJECT-TYPE
        SYNTAX      Counter64
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "This object counts the number of octets that have
             been transmitted or received."
        ::= { wmanIfBsSsPacketCounterEntry 5 }

wmanIfBsSsResetCounter OBJECT-TYPE
        SYNTAX      INTEGER {null(0),
                             resetCounter(1)}
        MAX-ACCESS  read-write
        STATUS      current
        DESCRIPTION
            "When SET this attribute to resetCounter(1), the
             corresponding entry of packet counters will be reset.
             A GET operation performed on this object will always
             return null(0). The counter is normally reset after
             the packet count information is retrieved. "
        ::= { wmanIfBsSsPacketCounterEntry 6 }
```

```
wmanIfBsSsResetCounterTime OBJECT-TYPE
        SYNTAX      TimeStamp
        MAX-ACCESS  read-create
        STATUS      current
        DESCRIPTION
            "Indicates the date and time when the counter is
             reset."
        ::= { wmanIfBsSsPacketCounterEntry 7 }

--
-- wmanIfBsCps contain the Base Station Common Part Sublayer objects
wmanIfBsCps OBJECT IDENTIFIER ::= { wmanIfBsObjects 3 }

--
-- wmanIfBsConfigurationTable contains global parameters common in BS
--
wmanIfBsConfigurationTable OBJECT-TYPE
        SYNTAX      SEQUENCE OF WmanIfBsConfigurationEntry
        MAX-ACCESS  not-accessible
        STATUS      current
        DESCRIPTION
            "This table provides one row for each BS sector that
             contains the BS system parameters as defined in section
             10.1 of [3]."
        ::= { wmanIfBsCps 1 }

wmanIfBsConfigurationEntry OBJECT-TYPE
        SYNTAX      WmanIfBsConfigurationEntry
        MAX-ACCESS  not-accessible
        STATUS      current
        DESCRIPTION
            "This table is indexed by ifIndex with an ifType of
             propBWAp2Mp."
        INDEX { ifIndex }
        ::= { wmanIfBsConfigurationTable 1 }

WmanIfBsConfigurationEntry ::= SEQUENCE {
        wmanIfBsDcdInterval                     INTEGER,
        wmanIfBsUcdInterval                     INTEGER,
        wmanIfBsUcdTransition                   INTEGER,
        wmanIfBsDcdTransition                   INTEGER,
        wmanIfBsMaxMAPPending                   INTEGER,
        wmanIfBsInitialRangingInterval          INTEGER,
        wmanIfBsClkCmpInterval                  INTEGER,
        wmanIfBsSsULMapProcTime                 Unsigned32,
        wmanIfBsSsRangRespProcTime              Unsigned32,
        wmanIfBsT5Timeout                       INTEGER,
        wmanIfBsT9Timeout                       INTEGER,
        wmanIfBsT13Timeout                      INTEGER,
        wmanIfBsT15Timeout                      INTEGER,
        wmanIfBsT17Timeout                      INTEGER,
        wmanIfBsT27IdleTimer                    INTEGER,
        wmanIfBsT27ActiveTimer                  INTEGER,
        wmanIfBsConfigurationRowStatus          RowStatus
        }

wmanIfBsDcdInterval OBJECT-TYPE
        SYNTAX      INTEGER(0..10000)
        UNITS       "milliseconds"
        MAX-ACCESS  read-write
        STATUS      current
        DESCRIPTION
            "Time between transmission of DCD messages in ms."
        ::= { wmanIfBsConfigurationEntry 1 }

wmanIfBsUcdInterval OBJECT-TYPE
        SYNTAX      INTEGER(0..10000)
        UNITS       "milliseconds"
        MAX-ACCESS  read-write
        STATUS      current
        DESCRIPTION
            "Time between transmission of UCD messages in ms."
        ::= { wmanIfBsConfigurationEntry 2 }

wmanIfBsUcdTransition OBJECT-TYPE
        SYNTAX      INTEGER
        UNITS       "Number of MAC Frames"
        MAX-ACCESS  read-write
```

```
        STATUS      current
        DESCRIPTION
            "The time the BS shall wait after repeating a UCD message
             with an incremented Configuration Change Count before
             issuing a UL-MAP message referring to
             Downlink_Burst_Profiles defined in that UCD message."
        ::= { wmanIfBsConfigurationEntry 3 }

wmanIfBsDcdTransition OBJECT-TYPE
        SYNTAX      INTEGER
        UNITS       "Number of MAC Frames"
        MAX-ACCESS  read-write
        STATUS      current
        DESCRIPTION
            "The time the BS shall wait after repeating a DCD message
             with an incremented Configuration Change Count before
             issuing a DL-MAP message referring to Uplink_Burst_Profiles
             defined in that DCD message."
        ::= { wmanIfBsConfigurationEntry 4 }

wmanIfBsMaxMAPPending OBJECT-TYPE
        SYNTAX      INTEGER
        MAX-ACCESS  read-write
        STATUS      current
        DESCRIPTION
            "Maximum validity of map."
        ::= { wmanIfBsConfigurationEntry 5 }

wmanIfBsInitialRangingInterval OBJECT-TYPE
        SYNTAX      INTEGER(0..2000)
        UNITS       "milliseconds"
        MAX-ACCESS  read-write
        STATUS      current
        DESCRIPTION
            "Time between Initial Ranging regions assigned by the BS
             in ms."
        ::= { wmanIfBsConfigurationEntry 6 }

wmanIfBsClkCmpInterval OBJECT-TYPE
        SYNTAX      INTEGER(50..50)
        UNITS       "milliseconds"
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "Time between the clock compare measurements used for the
             generation of CLK-CMP messages."
        ::= { wmanIfBsConfigurationEntry 7 }

wmanIfBsSsULMapProcTime OBJECT-TYPE
        SYNTAX      Unsigned32 (200 .. 4294967295)
        UNITS       "micro seconds"
        MAX-ACCESS  read-write
        STATUS      current
        DESCRIPTION
            "Time provided between arrival of the last bit of a UL-MAP
             at an SS and effectiveness of that map in us."
        ::= { wmanIfBsConfigurationEntry 8 }

wmanIfBsSsRangRespProcTime OBJECT-TYPE
        SYNTAX      Unsigned32 (10000 .. 4294967295)
        UNITS       "micro seconds"
        MAX-ACCESS  read-write
        STATUS      current
        DESCRIPTION
            "Time allowed for an SS following receipt of a ranging
             response before it is expected to reply to an invited
             ranging request in us."
        ::= { wmanIfBsConfigurationEntry 9 }

wmanIfBsT5Timeout OBJECT-TYPE
        SYNTAX      INTEGER(0 .. 2000)
        UNITS       "milliseconds"
        MAX-ACCESS  read-write
        STATUS      current
        DESCRIPTION
            "Wait for Uplink Channel Change Response in ms."
        ::= { wmanIfBsConfigurationEntry 10 }
```

```
wmanIfBsT9Timeout OBJECT-TYPE
        SYNTAX      INTEGER(300 .. 65535)
        UNITS       "milliseconds"
        MAX-ACCESS  read-write
        STATUS      current
        DESCRIPTION
            "Registration Timeout, the time allowed between the BS
             sending a RNG-RSP (success) to an SS,  and receiving a
             SBC-REQ from that same SS in ms."
        ::= { wmanIfBsConfigurationEntry 11 }

wmanIfBsT13Timeout OBJECT-TYPE
        SYNTAX      INTEGER(15 .. 65535)
        UNITS       "minutes"
        MAX-ACCESS  read-write
        STATUS      current
        DESCRIPTION
            "The time allowed for an SS, following receipt of a
             REG-RSP message to send a TFTP-CPLT message to the BS
             in min."
        ::= { wmanIfBsConfigurationEntry 12 }

wmanIfBsT15Timeout OBJECT-TYPE
        SYNTAX      INTEGER(20 .. 65535)
        UNITS       "milliseconds"
        MAX-ACCESS  read-write
        STATUS      current
        DESCRIPTION
            "Wait for MCA-RSP in ms."
        ::= { wmanIfBsConfigurationEntry 13 }

wmanIfBsT17Timeout OBJECT-TYPE
        SYNTAX      INTEGER(5 .. 65535)
        UNITS       "minutes"
        MAX-ACCESS  read-write
        STATUS      current
        DESCRIPTION
            "Time allowed for SS to complete SS Authorization and
              Key Exchange in minutes."
        ::= { wmanIfBsConfigurationEntry 14 }

wmanIfBsT27IdleTimer OBJECT-TYPE
        SYNTAX      INTEGER
        UNITS       "milliseconds"
        MAX-ACCESS  read-write
        STATUS      current
        DESCRIPTION
            "Maximum time between unicast grants to SS when BS believes
             SS uplink transmission quality is good enough."
        ::= { wmanIfBsConfigurationEntry 15 }

wmanIfBsT27ActiveTimer OBJECT-TYPE
        SYNTAX      INTEGER
        UNITS       "milliseconds"
        MAX-ACCESS  read-write
        STATUS      current
        DESCRIPTION
            "Maximum time between unicast grants to SS when BS believes
             SS uplink transmission quality is not good enough."
        ::= { wmanIfBsConfigurationEntry 16 }

wmanIfBsConfigurationRowStatus OBJECT-TYPE
        SYNTAX      RowStatus
        MAX-ACCESS  read-create
        STATUS      current
        DESCRIPTION
            "This object is used to create a new row or modify or
             delete an existing row in this table.

             If the implementator of this MIB has chosen not
             to implement 'dynamic assignment' of profiles, this
             object is not useful and should return noSuchName
             upon SNMP request."
        ::= { wmanIfBsConfigurationEntry 17 }

--
-- Base Station statistics counters
--
```

```
wmanIfBsStatisticCounter OBJECT IDENTIFIER ::= { wmanIfBsCps 2 }

wmanIfBsChMeasurementTable OBJECT-TYPE
        SYNTAX      SEQUENCE OF   WmanIfBsChMeasurementEntry
        MAX-ACCESS  not-accessible
        STATUS      current
        DESCRIPTION
            "This table contains channel measurement information
             on the uplink signal received from SS. The table shall
             be maintained as FIFO to store measurement samples that
             can be used to create RSSI and CINR histogram report.
             When the measurement entry for a SS reaches the limit,
             the oldest entry shall be deleted as the new entry is
             added to the table."
        ::= { wmanIfBsStatisticCounter  1 }

wmanIfBsChMeasurementEntry OBJECT-TYPE
        SYNTAX      WmanIfBsChMeasurementEntry
        MAX-ACCESS  not-accessible
        STATUS      current
        DESCRIPTION
            "Each entry in the table contains RSSI and CINR
             signal quality measurement on signal received from the SS.
             The primary index is the ifIndex with ifType of propBWAp2Mp
             identifying the BS sector. wmanIfChSsIdIndex identifies
             the SS from which the signal was received.
             wmanIfBsHistogramIndex is the index to histogram samples.
             Since there is no time stamp in the table,
             wmanIfBsHistogramIndex should be increased monotonically,
             and warps around when it reaches the limit. "
        INDEX       { ifIndex, wmanIfBsChSsIdIndex,
                      wmanIfBsHistogramIndex }
        ::= { wmanIfBsChMeasurementTable  1 }

WmanIfBsChMeasurementEntry ::= SEQUENCE {
        wmanIfBsChSsIdIndex                     Unsigned32,
        wmanIfBsHistogramIndex                  Unsigned32,
        wmanIfBsChannelNumber                   INTEGER,
        wmanIfBsStartFrame                      INTEGER,
        wmanIfBsDuration                        INTEGER,
        wmanIfBsBasicReport                     BITS,
        wmanIfBsMeanCinrReport                  INTEGER,
        wmanIfBsMeanRssiReport                  INTEGER,
        wmanIfBsStdDeviationCinrReport          INTEGER,
        wmanIfBsStdDeviationRssiReport          INTEGER}

wmanIfBsChSsIdIndex OBJECT-TYPE
        SYNTAX      Unsigned32 (1 .. 4294967295)
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "wmanIfBsChIdIndex identifies the SS providing the
             channel measurement."
        REFERENCE
            "Section 6.4.2.3.5 in IEEE 802.16REVd/D5-2004"
        ::= { wmanIfBsChMeasurementEntry 1 }

wmanIfBsHistogramIndex OBJECT-TYPE
        SYNTAX      Unsigned32 (1 .. 4294967295)
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "wmanIfBsHistogramIndex identifies the histogram samples
             in the table for each subscriber station."
        ::= { wmanIfBsChMeasurementEntry 2 }

wmanIfBsChannelNumber OBJECT-TYPE
        SYNTAX      INTEGER
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "Physical channel number to be reported on is only
             applicable to licence exempt band. For licensed band,
             this parameter should be null."
        REFERENCE
            "Section 8.5.1 in IEEE 802.16REVd/D5-2004"
        ::= { wmanIfBsChMeasurementEntry 3 }
```

```
wmanIfBsStartFrame OBJECT-TYPE
        SYNTAX      INTEGER
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "Frame number in which measurement for this channel
             started."
        REFERENCE
            "Section 11.12 in IEEE 802.16REVd/D5-2004"
        ::= { wmanIfBsChMeasurementEntry 4 }

wmanIfBsDuration OBJECT-TYPE
        SYNTAX      INTEGER
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "Cumulative measurement duration on the channel in
             multiples of Ts. For any value exceeding 0xFFFFFF,
             report 0xFFFFFF."
        REFERENCE
            "Section 11.12 in IEEE 802.16REVd/D5-2004"
        ::= { wmanIfBsChMeasurementEntry 5 }

wmanIfBsBasicReport OBJECT-TYPE
        SYNTAX      BITS {wirelessHuman(0),
                          unknownTransmission(1),
                          primaryUser(2),
                          channegNotMeasured(3)}
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "Bit #0: WirelessHUMAN detected on the channel
             Bit #1: Unknown transmissions detected on the channel
             Bit #2: Primary User detected on the channel
             Bit #3: Unmeasured. Channel not measured"
        REFERENCE
            "Section 11.12 in IEEE 802.16REVd/D5-2004"
        ::= { wmanIfBsChMeasurementEntry 6 }

wmanIfBsMeanCinrReport OBJECT-TYPE
        SYNTAX      INTEGER
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "Mean CINR report."
        REFERENCE
            "Section 8.2.2, 8.3.8, 8.4.1, 11.12 in IEEE
             802.16REVd/D5-2004"
        ::= { wmanIfBsChMeasurementEntry 7 }

wmanIfBsMeanRssiReport OBJECT-TYPE
        SYNTAX      INTEGER
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "Mean RSSI report."
        REFERENCE
            "Section 8.2.2, 8.3.8, 8.4.1, 11.12 in IEEE
             802.16REVd/D5-2004"
        ::= { wmanIfBsChMeasurementEntry 8 }

wmanIfBsStdDeviationCinrReport OBJECT-TYPE
        SYNTAX      INTEGER
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
             "Standard deviation CINR report."
        REFERENCE
            "Section 8.2.2, 8.3.8, 8.4.1, 11.12 in IEEE
            802.16REVd/D5-2004"
        ::= { wmanIfBsChMeasurementEntry 9 }

wmanIfBsStdDeviationRssiReport OBJECT-TYPE
        SYNTAX      INTEGER
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
             "Standard deviation RSSI report."
```

```
        REFERENCE
            "Section 8.2.2, 8.3.8, 8.4.1, 11.12 in IEEE
            802.16REVd/D5-2004"
        ::= { wmanIfBsChMeasurementEntry 10 }

--
-- Base station PKM group
-- wmanIfBsPkmObjects contain the Base Station Privacy Sublayer objects
wmanIfBsPkmObjects OBJECT IDENTIFIER ::= { wmanIfBsObjects  4 }

--
-- Table wmanIfBsPkmBaseTable
--
wmanIfBsPkmBaseTable OBJECT-TYPE
        SYNTAX      SEQUENCE OF   WmanIfBsPkmBaseEntry
        MAX-ACCESS  not-accessible
        STATUS      current
        DESCRIPTION
            "This table describes the basic PKM attributes of each Base
             Station wireless interface."
        ::= { wmanIfBsPkmObjects  1 }

wmanIfBsPkmBaseEntry OBJECT-TYPE
        SYNTAX      WmanIfBsPkmBaseEntry
        MAX-ACCESS  not-accessible
        STATUS      current
        DESCRIPTION
            "Each entry contains objects describing attributes of one
             BS wireless interface."
        INDEX       { ifIndex }
        ::= { wmanIfBsPkmBaseTable  1 }

WmanIfBsPkmBaseEntry ::= SEQUENCE {
        wmanIfBsPkmDefaultAuthLifetime          Integer32,
        wmanIfBsPkmDefaultTEKLifetime           Integer32,
        wmanIfBsPkmDefaultSelfSigManufCertTrust INTEGER,
        wmanIfBsPkmCheckCertValidityPeriods     TruthValue,
        wmanIfBsPkmAuthentInfos                 Counter32,
        wmanIfBsPkmAuthRequests                 Counter32,
        wmanIfBsPkmAuthReplies                  Counter32,
        wmanIfBsPkmAuthRejects                  Counter32,
        wmanIfBsPkmAuthInvalids                 Counter32
        }

wmanIfBsPkmDefaultAuthLifetime OBJECT-TYPE
        SYNTAX      Integer32 (86400..6048000)
        UNITS       "seconds"
        MAX-ACCESS  read-write
        STATUS      current
        DESCRIPTION
            "The value of this object is the default lifetime, in
             seconds, the BS assigns to a new authorization key."
        REFERENCE
             "Table 341 in IEEE 802.16REVd/D5-2004"
        DEFVAL         { 604800 }
        ::= { wmanIfBsPkmBaseEntry 1 }

wmanIfBsPkmDefaultTEKLifetime OBJECT-TYPE
        SYNTAX      Integer32 (1800..604800)
        UNITS       "seconds"
        MAX-ACCESS  read-write
        STATUS      current
        DESCRIPTION
            "The value of this object is the default lifetime, in
             seconds, the BS assigns to a new Traffic Encryption
             Key(TEK)."
        REFERENCE
             "Table 341 in IEEE 802.16REVd/D5-2004"
        DEFVAL         { 43200 }
        ::= { wmanIfBsPkmBaseEntry 2 }


wmanIfBsPkmDefaultSelfSigManufCertTrust OBJECT-TYPE
        SYNTAX      INTEGER { trusted (1),
                              untrusted (2) }
        MAX-ACCESS  read-write
        STATUS      current
```

```
        DESCRIPTION
            "This object determines the default trust of all (new)
             self-signed manufacturer certificates obtained after
             setting the object."
        ::= { wmanIfBsPkmBaseEntry 3 }

wmanIfBsPkmCheckCertValidityPeriods OBJECT-TYPE
        SYNTAX      TruthValue
        MAX-ACCESS  read-write
        STATUS      current
        DESCRIPTION
            "Setting this object to TRUE causes all certificates
             received? thereafter to have their validity periods (and
             their chain's validity periods) checked against the current
             time of day. A FALSE setting will cause all certificates
             received? Thereafter to not have their validity periods
             (nor their chain's validity periods) checked against the
             current time of day."
        ::= { wmanIfBsPkmBaseEntry 4 }

wmanIfBsPkmAuthentInfos OBJECT-TYPE
        SYNTAX      Counter32
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "The value of this object is the count of times the BS has
             received an Authentication Information message from any
             SS."
        ::= { wmanIfBsPkmBaseEntry 5 }

wmanIfBsPkmAuthRequests OBJECT-TYPE
        SYNTAX      Counter32
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "The value of this object is the count of times the BS has
             received an Authorization Request message from any SS"
        ::= { wmanIfBsPkmBaseEntry 6 }

wmanIfBsPkmAuthReplies OBJECT-TYPE
        SYNTAX      Counter32
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "The value of this object is the count of times the BS has
             transmitted an Authorization Reply message to any SS."
        ::= { wmanIfBsPkmBaseEntry 7 }

wmanIfBsPkmAuthRejects OBJECT-TYPE
        SYNTAX      Counter32
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "The value of this object is the count of times the BS has
             transmitted an Authorization Reject message to any SS."
        ::= { wmanIfBsPkmBaseEntry 8 }

wmanIfBsPkmAuthInvalids OBJECT-TYPE
        SYNTAX      Counter32
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "The value of this object is the count of times the BS has
             transmitted an Authorization Invalid message to any SS."
        ::= { wmanIfBsPkmBaseEntry 9 }

--
-- Table wmanIfBsPkmAuthTable
--
wmanIfBsPkmAuthTable OBJECT-TYPE
        SYNTAX      SEQUENCE OF   WmanIfBsPkmAuthEntry
        MAX-ACCESS  not-accessible
        STATUS      current
        DESCRIPTION
            "This table describes the attributes of each SS
             authorization association. The BS maintains one
             authorization association with each Baseline
             Privacy-enabled SS on each BS wireless interface."
```

```
        ::= { wmanIfBsPkmObjects  2 }

wmanIfBsPkmAuthEntry OBJECT-TYPE
        SYNTAX      WmanIfBsPkmAuthEntry
        MAX-ACCESS  not-accessible
        STATUS      current
        DESCRIPTION
            "Each entry contains objects describing attributes of one
             authorization association. The BS MUST create one entry per
             SS per wireless interface, based on the receipt of an
             Authorization Request message, and MUST not delete the
             entry before the SS authorization permanently expires."
        INDEX       { ifIndex, wmanIfBsPkmAuthSsMacAddress }
        ::= { wmanIfBsPkmAuthTable  1 }

WmanIfBsPkmAuthEntry ::= SEQUENCE {
        wmanIfBsPkmAuthSsMacAddress             MacAddress,
        wmanIfBsPkmAuthSsPublicKey              OCTET STRING,
        wmanIfBsPkmAuthSsKeySequenceNumber      Integer32,
        wmanIfBsPkmAuthSsExpiresOld             DateAndTime,
        wmanIfBsPkmAuthSsExpiresNew             DateAndTime,
        wmanIfBsPkmAuthSsLifetime               Integer32,
        wmanIfBsPkmAuthSsReset                  INTEGER,
        wmanIfBsPkmAuthSsInfos                  Counter64,
        wmanIfBsPkmAuthSsRequests               Counter64,
        wmanIfBsPkmAuthSsReplies                Counter64,
        wmanIfBsPkmAuthSsRejects                Counter64,
        wmanIfBsPkmAuthSsInvalids               Counter64,
        wmanIfBsPkmAuthRejectErrorCode          INTEGER,
        wmanIfBsPkmAuthRejectErrorString        SnmpAdminString,
        wmanIfBsPkmAuthInvalidErrorCode         INTEGER,
        wmanIfBsPkmAuthInvalidErrorString       SnmpAdminString,
        wmanIfBsPkmAuthPrimarySAId              Integer32,
        wmanIfBsPkmAuthBpkmSsCertValid          INTEGER,
        wmanIfBsPkmAuthBpkmSsCert               OCTET STRING
        }

wmanIfBsPkmAuthSsMacAddress OBJECT-TYPE
        SYNTAX      MacAddress
        MAX-ACCESS  not-accessible
        STATUS      current
        DESCRIPTION
            "The value of this object is the physical address of the SS
             to which the authorization association applies."
        ::= { wmanIfBsPkmAuthEntry 1 }

wmanIfBsPkmAuthSsPublicKey OBJECT-TYPE
        SYNTAX      OCTET STRING (SIZE (140))
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "The value of this object is a DER-encoded RSAPublicKey
             ASN.1 type string, as defined in the RSA Encryption
             Standard (PKCS #1) [8], corresponding to the public key of
             the SS. The 74, 106, 140, 204, and 270 byte key encoding
             lengths correspond to 512 bit, 768 bit, 1024 bit, 1536 bit,
             and 2048 public moduli respectively. This is a zero-length
             string if the BS does not retain the public key."
        ::= { wmanIfBsPkmAuthEntry 2 }

wmanIfBsPkmAuthSsKeySequenceNumber OBJECT-TYPE
        SYNTAX      Integer32 (0..15)
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "The value of this object is the most recent authorization
             key sequence number for this SS."
        ::= { wmanIfBsPkmAuthEntry 3 }

wmanIfBsPkmAuthSsExpiresOld OBJECT-TYPE
        SYNTAX      DateAndTime
        MAX-ACCESS  read-only
        STATUS      current
```

```
        DESCRIPTION
            "The value of this object is the actual clock time for
             expiration of the immediate predecessor of the most recent
             authorization key for this FSM. If this FSM has only one
             authorization key, then the value is the time of activation
             of this FSM."
        ::= { wmanIfBsPkmAuthEntry 4 }

wmanIfBsPkmAuthSsExpiresNew OBJECT-TYPE
        SYNTAX      DateAndTime
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "The value of this object is the actual clock time for
             expiration of the most recent authorization key for this
             FSM"
        ::= { wmanIfBsPkmAuthEntry 5 }

wmanIfBsPkmAuthSsLifetime OBJECT-TYPE
        SYNTAX      Integer32 (86400..6048000)
        UNITS       "seconds"
        MAX-ACCESS  read-write
        STATUS      current
        DESCRIPTION
            "The value of this object is the lifetime, in seconds, the
             BS assigns to an authorization key for this SS."
        REFERENCE
             "Table 341 in IEEE 802.16REVd/D5-2004"
        DEFVAL         { 604800 }
        ::= { wmanIfBsPkmAuthEntry 6 }

wmanIfBsPkmAuthSsReset OBJECT-TYPE
        SYNTAX      INTEGER {noResetRequested(1),
                             invalidateAuth(2),
                             sendAuthInvalid(3),
                             invalidateTeks(4) }
        MAX-ACCESS  read-write
        STATUS      current
        DESCRIPTION
            "Setting this object to invalidateAuth(2) causes the BS to
             invalidate the current SS authorization key(s), but not to
             transmit an Authorization Invalid message nor to invalidate
             unicast TEKs. Setting this object to sendAuthInvalid(3)
             causes the BS to invalidate the current SS authorization
             key(s), and to transmit an Authorization Invalid message to
             the SS, but not to invalidate unicast TEKs. Setting this
             object to invalidateTeks(4) causes the BS to invalidate the
             current SS authorization key(s), to transmit an
             Authorization Invalid message to the SS, and to
             invalidate all unicast TEKs associated with this SS
             authorization. Reading this object returns the
             most-recently-set value of this object, or returns
             noResetRequested(1) if the object has not been set since
             the last BS reboot."
        ::= { wmanIfBsPkmAuthEntry 7 }

wmanIfBsPkmAuthSsInfos OBJECT-TYPE
        SYNTAX      Counter64
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "The value of this object is the count of times the BS has
             received an Authentication Information message from this
             SS."
        ::= { wmanIfBsPkmAuthEntry 8 }

wmanIfBsPkmAuthSsRequests OBJECT-TYPE
        SYNTAX      Counter64
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "The value of this object is the count of times the BS has
             received an Authorization Request message from this SS."
        ::= { wmanIfBsPkmAuthEntry 9 }

wmanIfBsPkmAuthSsReplies OBJECT-TYPE
        SYNTAX      Counter64
        MAX-ACCESS  read-only
```

```
        STATUS      current
        DESCRIPTION
            "The value of this object is the count of times the BS has
             transmitted an Authorization Reply message to this SS."
        ::= { wmanIfBsPkmAuthEntry 10 }

wmanIfBsPkmAuthSsRejects OBJECT-TYPE
        SYNTAX      Counter64
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "The value of this object is the count of times the BS has
             transmitted an Authorization Reject message to this SS."
        ::= { wmanIfBsPkmAuthEntry 11 }

wmanIfBsPkmAuthSsInvalids OBJECT-TYPE
        SYNTAX      Counter64
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "The value of this object is the count of times the BS has
             transmitted an Authorization Invalid message to this SS."
        ::= { wmanIfBsPkmAuthEntry 12 }

wmanIfBsPkmAuthRejectErrorCode OBJECT-TYPE
        SYNTAX      INTEGER {noInformation(0),
                             unauthorizedSs(1),
                             unauthorizedSaid(2),
                             permanentAuthorizationFailure(6)
                             }
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "The value of this object is the enumerated description of
             the Error-Code in most recent Authorization Reject message
             transmitted to the SS."
        REFERENCE
             "IEEE 802.16 standard; table 371"
        ::= { wmanIfBsPkmAuthEntry 13 }

wmanIfBsPkmAuthRejectErrorString OBJECT-TYPE
        SYNTAX      SnmpAdminString (SIZE (0..128))
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "The value of this object is the Display-String in most
             recent Authorization Reject message transmitted to the SS.
             This is a zero length string if no Authorization Reject
             message has been transmitted to the SS."
        ::= { wmanIfBsPkmAuthEntry 14 }

wmanIfBsPkmAuthInvalidErrorCode OBJECT-TYPE
        SYNTAX      INTEGER {noInformation(0),
                             unauthorizedSs(1),
                             unsolicited(3),
                             invalidKeySequence(4),
                             keyRequestAuthenticationFailure(5)
                            }
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "The value of this object is the enumerated description of
             the Error-Code in most recent Authorization Invalid message
             transmitted to the SS."
        REFERENCE
             "IEEE 802.16 standard; table 371"
        ::= { wmanIfBsPkmAuthEntry 15 }

wmanIfBsPkmAuthInvalidErrorString OBJECT-TYPE
        SYNTAX      SnmpAdminString (SIZE (0..128))
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "The value of this object is the Display-String in most
             recent Authorization Invalid message transmitted to the SS.
             This is a zero length string if no Authorization Invalid
             message has been transmitted to the SS."
```

```
        ::= { wmanIfBsPkmAuthEntry 16 }

wmanIfBsPkmAuthPrimarySAId OBJECT-TYPE
        SYNTAX      Integer32 (0..65536)
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "The value of this object is the Primary Security
             Association identifier."
        REFERENCE
             "IEEE 802.16 standard; 11.9.7"
        ::= { wmanIfBsPkmAuthEntry 17 }

wmanIfBsPkmAuthBpkmSsCertValid OBJECT-TYPE
        SYNTAX      INTEGER {unknown (0),
                             validSsChained (1),
                             validSsTrusted (2),
                             invalidSsUntrusted (3),
                             invalidCAUntrusted (4),
                             invalidSsOther (5),
                             invalidCAOther (6) }
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "Contains the reason why a SS's certificate is deemed valid
             or invalid. Return unknown if the SS is running PKM mode.
             ValidSsChained means the certificate is valid because it
             chains to a valid certificate. ValidSsTrusted means the
             certificate is valid because it has been provisioned to be
             trusted. InvalidSsUntrusted means the certificate is
             invalid because it has been provisioned to be untrusted.
             InvalidCAUntrusted means the certificate is invalid
             because   it chains to an untrusted certificate.
             InvalidSsOther and InvalidCAOther refer to errors in
             parsing, validity periods, etc, which are attributable to
             the SS certificate or its chain respectively."
        ::= { wmanIfBsPkmAuthEntry 18 }

wmanIfBsPkmAuthBpkmSsCert OBJECT-TYPE
        SYNTAX      OCTET STRING
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "The X509 SS Certificate sent as part of a PKM
             Authorization Request."
        ::= { wmanIfBsPkmAuthEntry 19 }

--
-- Table wmanIfBsPkmTEKTable
wmanIfBsPkmTEKTable OBJECT-TYPE
        SYNTAX      SEQUENCE OF   WmanIfBsPkmTEKEntry
        MAX-ACCESS  not-accessible
        STATUS      current
        DESCRIPTION
            "This table describes the attributes of each Traffic
             Encryption Key (TEK) association. The BS maintains one TEK
             association per SAID on each BS wireless interface."
        ::= { wmanIfBsPkmObjects  3 }

wmanIfBsPkmTEKEntry OBJECT-TYPE
        SYNTAX      WmanIfBsPkmTEKEntry
        MAX-ACCESS  not-accessible
        STATUS      current
        DESCRIPTION
            "Each entry contains objects describing attributes of one
             TEK association on a particular BS wireless interface. The
             BS MUST create one entry per SAID per wireless interface,
             based on the receipt of a Key Request message, and MUST not
             delete the entry before the SS authorization for the SAID
             permanently expires."
        INDEX       { ifIndex, wmanIfBsPkmTEKSAId }
        ::= { wmanIfBsPkmTEKTable  1 }

WmanIfBsPkmTEKEntry ::= SEQUENCE {
        wmanIfBsPkmTEKSAId                      Integer32,
        wmanIfBsPkmTEKSAType                    INTEGER,
        wmanIfBsPkmTEKDataEncryptAlg            INTEGER,
        wmanIfBsPkmTEKDataAuthentAlg            INTEGER,
```

```
        wmanIfBsPkmTEKEncryptAlg                INTEGER,
        wmanIfBsPkmTEKLifetime                  Integer32,
        wmanIfBsPkmTEKKeySequenceNumber         Integer32,
        wmanIfBsPkmTEKExpiresOld                DateAndTime,
        wmanIfBsPkmTEKExpiresNew                DateAndTime,
        wmanIfBsPkmTEKReset                     TruthValue,
        wmanIfBsPkmKeyRequests                  Counter32,
        wmanIfBsPkmKeyReplies                   Counter32,
        wmanIfBsPkmKeyRejects                   Counter32,
        wmanIfBsPkmTEKInvalids                  Counter32,
        wmanIfBsPkmKeyRejectErrorCode           INTEGER,
        wmanIfBsPkmKeyRejectErrorString         SnmpAdminString,
        wmanIfBsPkmTEKInvalidErrorCode          INTEGER,
        wmanIfBsPkmTEKInvalidErrorString        SnmpAdminString
        }

wmanIfBsPkmTEKSAId OBJECT-TYPE
        SYNTAX      Integer32 (0..65536)
        MAX-ACCESS  not-accessible
        STATUS      current
        DESCRIPTION
            "The value of this object is the WiMAX Security Association
             ID (SAID)."
        REFERENCE
             "IEEE 802.16 standard; 11.9.7"
        ::= { wmanIfBsPkmTEKEntry 1 }

wmanIfBsPkmTEKSAType OBJECT-TYPE
        SYNTAX      INTEGER {primarySA(0),
                             staticSA(1),
                             dynamicSA(2)
                             }
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "The value of this object is the type of security
             association. Dynamic does not apply to SSs running in PKM
             mode."
        REFERENCE
             "IEEE 802.16 standard; 11.9.18"
        ::= { wmanIfBsPkmTEKEntry 2 }

wmanIfBsPkmTEKDataEncryptAlg OBJECT-TYPE
        SYNTAX      INTEGER {none(0),
                             des56CbcMode(1) }
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "The value of this object is the data encryption algorithm
             being utilized."
        REFERENCE
             "IEEE 802.16 standard; table 301"
        ::= { wmanIfBsPkmTEKEntry 3 }

wmanIfBsPkmTEKDataAuthentAlg OBJECT-TYPE
        SYNTAX      INTEGER { none(0) }
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "The value of this object is the data authentication
             algorithm being utilized."
        REFERENCE
             "IEEE 802.16 standard; table 302"
        ::= { wmanIfBsPkmTEKEntry 4 }

wmanIfBsPkmTEKEncryptAlg OBJECT-TYPE
        SYNTAX      INTEGER { tripleDES(0),
                              rsa1024(1) }
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "The value of this object is the TEK key encryption
             algorithm being utilized."
        REFERENCE
             "IEEE 802.16 standard; table 303"
        ::= { wmanIfBsPkmTEKEntry 5 }
```

```
wmanIfBsPkmTEKLifetime OBJECT-TYPE
        SYNTAX      Integer32 (1800..604800)
        UNITS       "seconds"
        MAX-ACCESS  read-write
        STATUS      current
        DESCRIPTION
            "The value of this object is the lifetime, in seconds, the
             BS assigns to keys for this TEK association."
        REFERENCE
             "Table 341 in IEEE 802.16REVd/D5-2004"
        DEFVAL         { 43200 }
        ::= { wmanIfBsPkmTEKEntry 6 }

wmanIfBsPkmTEKKeySequenceNumber OBJECT-TYPE
        SYNTAX      Integer32 (0..3)
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "The value of this object is the most recent TEK key
             sequence number for this SAID."
        REFERENCE
             "IEEE 802.16 standard; 11.9.5"
        ::= { wmanIfBsPkmTEKEntry 7 }

wmanIfBsPkmTEKExpiresOld OBJECT-TYPE
        SYNTAX      DateAndTime
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "The value of this object is the actual clock time for
             expiration of the immediate predecessor of the most recent
             TEK for this FSM. If this FSM has only one TEK, then the
             value is the time of activation of this FSM."
        ::= { wmanIfBsPkmTEKEntry 8 }

wmanIfBsPkmTEKExpiresNew OBJECT-TYPE
        SYNTAX      DateAndTime
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "The value of this object is the actual clock time for
             expiration of the most recent TEK for this FSM."
        ::= { wmanIfBsPkmTEKEntry 9 }

wmanIfBsPkmTEKReset OBJECT-TYPE
        SYNTAX      TruthValue
        MAX-ACCESS  read-write
        STATUS      current
        DESCRIPTION
            "Setting this object to TRUE causes the BS to invalidate
             the current active TEK(s) (plural due to key transition
             periods), and to generate a new TEK for the associated
             SAID; the BS MAY also generate an unsolicited TEK Invalid
             message, to optimize the TEK synchronization between the BS
             and the SS. Reading this object always returns   FALSE."
        ::= { wmanIfBsPkmTEKEntry 10 }

wmanIfBsPkmKeyRequests OBJECT-TYPE
        SYNTAX      Counter32
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "The value of this object is the count of times the BS has
             received a Key Request message."
        ::= { wmanIfBsPkmTEKEntry 11 }

wmanIfBsPkmKeyReplies OBJECT-TYPE
        SYNTAX      Counter32
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "The value of this object is the count of times the BS has
             transmitted a Key Reply message."
        ::= { wmanIfBsPkmTEKEntry 12 }

wmanIfBsPkmKeyRejects OBJECT-TYPE
        SYNTAX      Counter32
        MAX-ACCESS  read-only
```

```
        STATUS      current
        DESCRIPTION
            "The value of this object is the count of times the BS has
             transmitted a Key Reject message."
        ::= { wmanIfBsPkmTEKEntry 13 }

wmanIfBsPkmTEKInvalids OBJECT-TYPE
        SYNTAX      Counter32
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "The value of this object is the count of times the BS has
             transmitted a TEK Invalid message."
        ::= { wmanIfBsPkmTEKEntry 14 }

wmanIfBsPkmKeyRejectErrorCode OBJECT-TYPE
        SYNTAX      INTEGER {noInformation(0),
                             unauthorizedSaid(2)
                            }
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "The value of this object is the enumerated; description of
             the Error-Code in the most recent Key Reject message sent
             in response to a Key Request for this SAID."
        REFERENCE
             "IEEE 802.16 standard; table 371"
        ::= { wmanIfBsPkmTEKEntry 15 }

wmanIfBsPkmKeyRejectErrorString OBJECT-TYPE
        SYNTAX      SnmpAdminString (SIZE (0..128))
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "The value of this object is the Display-String in the most
             recent Key Reject message sent in response to a Key Request
             for this SAID. This is a zero length string if no Key
             Reject message has been received since reboot."
        ::= { wmanIfBsPkmTEKEntry 16 }

wmanIfBsPkmTEKInvalidErrorCode OBJECT-TYPE
        SYNTAX      INTEGER  {noInformation(0),
                              invalidKeySequence(4)}
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "The value of this object is the enumerated description of
             the Error-Code in the most recent TEK Invalid message sent
             in association with this SAID."
        REFERENCE
             "IEEE 802.16 standard; table 371"
        ::= { wmanIfBsPkmTEKEntry 17 }

wmanIfBsPkmTEKInvalidErrorString OBJECT-TYPE
        SYNTAX      SnmpAdminString (SIZE (0..128))
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "The value of this object is the Display-String in the most
             recent TEK Invalid message sent in association with this
             SAID.  This is a zero length string if no TEK Invalid
             message has been received since reboot."
        ::= { wmanIfBsPkmTEKEntry 18 }

--
-- Base station Notification Group
-- wmanIfBsNotificationObjects contains the BS SNMP Trap objects
wmanIfBsNotification OBJECT IDENTIFIER ::= { wmanIfBsObjects  5 }
wmanIfBsTrapDefinitions OBJECT IDENTIFIER ::= { wmanIfBsNotification 1 }
wmanIfBsTrapControl     OBJECT IDENTIFIER ::= { wmanIfBsNotification 2 }

wmanIfBsTrapControlRegister    OBJECT-TYPE
        SYNTAX      BITS {wmanBsSsStatusNotification    (0),
                          wmanBsSsDynamicServiceFail    (1),
                          wmanBsPowerStatusChange       (2),
                          wmanBsFanStatusChange         (3),
                          wmanBsTemperatureChange       (4),
                          wmanBsSsRssiStatusChange      (5),
```

```
                        wmanBsSsBPKMFail              (6)
                        }
        MAX-ACCESS read-write
        STATUS     current
        DESCRIPTION
            "The object is used to enable Base Station traps. From left
             to right, the set bit indicates the corresponding Base
             Station trap is enabled."
        ::= { wmanIfBsTrapControl 1 }

--
-- BS threshold Definitions
wmanIfBsThresholdConfigTable OBJECT-TYPE
        SYNTAX      SEQUENCE OF WmanIfBsThresholdConfigEntry
        MAX-ACCESS  not-accessible
        STATUS      current
        DESCRIPTION
            "This table contains threshold objects to be used to detect
             the threshold crossing events."
        ::= { wmanIfBsTrapDefinitions 1 }

wmanIfBsThresholdConfigEntry OBJECT-TYPE
        SYNTAX      WmanIfBsThresholdConfigEntry
        MAX-ACCESS  not-accessible
        STATUS      current
        DESCRIPTION
            "This table provides one row for each BS sector, and is
             ifIndex."
        INDEX       { ifIndex }
        ::= { wmanIfBsThresholdConfigTable 1 }

WmanIfBsThresholdConfigEntry ::= SEQUENCE {
        wmanIfBsRssiLowThreshold                INTEGER,
        wmanIfBsRssiHighThreshold               INTEGER,
        wmanIfBsTempLowAlarmThreshold           INTEGER,
        wmanIfBsTempLowAlarmRestoredThreshold   INTEGER,
        wmanIfBsTempHighAlarmThreshold          INTEGER,
        wmanIfBsTempHighAlarmRestoredThreshold  INTEGER
        }

wmanIfBsRssiLowThreshold OBJECT-TYPE
        SYNTAX      INTEGER
        UNITS       "dBm"
        MAX-ACCESS  read-write
        STATUS      current
        DESCRIPTION
            "Low threshold for generating the RSSI alarm trap.
             The detection of RSSI alarm will be disabled until the
             RSSI goes above wmanIfBsRssiHighThreshold"
        ::= { wmanIfBsThresholdConfigEntry 1 }

wmanIfBsRssiHighThreshold OBJECT-TYPE
        SYNTAX      INTEGER
        UNITS       "dBm"
        MAX-ACCESS  read-write
        STATUS      current
        DESCRIPTION
            "High threshold for generating a trap indicating
             the RSSI alarm is restored."
        ::= { wmanIfBsThresholdConfigEntry 2 }

wmanIfBsTempLowAlarmThreshold OBJECT-TYPE
        SYNTAX      INTEGER
        UNITS       "degreeF"
        MAX-ACCESS  read-write
        STATUS      current
        DESCRIPTION
            "Low threshold for generating the temperature low alarm
             trap. The detection of temperature low alarm will be
             disabled until the temperature goes above
             wmanIfBsTempLowAlarmRestoredThreshold"
        ::= { wmanIfBsThresholdConfigEntry 3 }

wmanIfBsTempLowAlarmRestoredThreshold OBJECT-TYPE
        SYNTAX      INTEGER
        UNITS       "degreeF"
        MAX-ACCESS  read-write
        STATUS      current
```

```
        DESCRIPTION
            "Low threshold for generating a trap indicating
             the temperature alarm is restored."
        ::= { wmanIfBsThresholdConfigEntry 4 }

wmanIfBsTempHighAlarmThreshold OBJECT-TYPE
        SYNTAX      INTEGER
        UNITS       "degreeF"
        MAX-ACCESS  read-write
        STATUS      current
        DESCRIPTION
            "Low threshold for generating the temperature low alarm
             trap. The detection of temperature low alarm will be
             disabled until the temperature goes above
             wmanIfBsTempLowAlarmRestoredThreshold"
        ::= { wmanIfBsThresholdConfigEntry 5 }

wmanIfBsTempHighAlarmRestoredThreshold OBJECT-TYPE
        SYNTAX      INTEGER
        UNITS       "degreeF"
        MAX-ACCESS  read-write
        STATUS      current
        DESCRIPTION
            "High threshold for generating a trap indicating
             the temperature alarm is restored."
        ::= { wmanIfBsThresholdConfigEntry 6 }

--
-- Subscriber station Notification Objects Definitions
wmanIfBsSsNotificationObjectsTable OBJECT-TYPE
        SYNTAX      SEQUENCE OF WmanIfBsSsNotificationObjectsEntry
        MAX-ACCESS  not-accessible
        STATUS      current
        DESCRIPTION
            "This table contains SS notification objects that have been
             reported by the trap."
        ::= { wmanIfBsTrapDefinitions 2 }

wmanIfBsSsNotificationObjectsEntry OBJECT-TYPE
        SYNTAX      WmanIfBsSsNotificationObjectsEntry
        MAX-ACCESS  not-accessible
        STATUS      current
        DESCRIPTION
            "This table provides one row for each SS that has
             generated traps, and is double indexed by
             wmanIfBsTrapSsId and ifIndex for BS sector."
        INDEX       { ifIndex, wmanIfBsTrapSsId }
        ::= { wmanIfBsSsNotificationObjectsTable 1 }

WmanIfBsSsNotificationObjectsEntry ::= SEQUENCE {
        wmanIfBsTrapSsId                        Unsigned32,
        wmanIfBsSsMacAddress                    MacAddress,
        wmanIfBsSsStatusValue                   INTEGER,
        wmanIfBsSsStatusInfo                    OCTET STRING,
        wmanIfBsDynamicServiceType              INTEGER,
        wmanIfBsDynamicServiceFailReason        OCTET STRING,
        wmanIfBsSsRssiStatus                    INTEGER,
        wmanIfBsSsRssiStatusInfo                OCTET STRING
        }

wmanIfBsTrapSsId  OBJECT-TYPE
        SYNTAX      Unsigned32 (1 .. 4294967295)
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "wmanIfBsTrapSsId identifies the entry in
             wmanIfBsSsNotificationObjectsTable."
        ::= { wmanIfBsSsNotificationObjectsEntry 1 }

wmanIfBsSsStatusValue  OBJECT-TYPE
        SYNTAX      INTEGER {ssInitRangingSucc(1),
                             ssInitRangingFail(2),
                             ssRegistered(3),
                             ssRegistrationFail(4),
                             ssDeregistered(5),
                             ssBasicCapabilitySucc(6),
                             ssBasicCapabilityFail(7),
                             ssAuthorizationSucc(8),
```

```
                            ssAuthorizationFail(9),
                            tftpSucc(10),
                            tftpFail(11),
                            sfCreationSucc(12),
                            sfCreationFail(13)
                            }
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "This object indicates the status of a SS, as it goes
             through network entry and initialization procedure."
        ::= { wmanIfBsSsNotificationObjectsEntry 2 }

wmanIfBsSsStatusInfo  OBJECT-TYPE
        SYNTAX      OCTET STRING
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "This object indicates the reason of SS's status change."
        ::= { wmanIfBsSsNotificationObjectsEntry 3 }

wmanIfBsDynamicServiceType  OBJECT-TYPE
        SYNTAX      INTEGER {bsSfCreationReq(1),
                             bsSfCreationRsp(2),
                             bsSfCreationAck(3)
                             }
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "This object indicates the dynamic service flow
             creation command type."
        ::= { wmanIfBsSsNotificationObjectsEntry 4 }

wmanIfBsDynamicServiceFailReason  OBJECT-TYPE
        SYNTAX      OCTET STRING
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "This object indicates the reason why the service flow
             creation has failed."
        ::= { wmanIfBsSsNotificationObjectsEntry 5 }

wmanIfBsSsRssiStatus  OBJECT-TYPE
        SYNTAX      INTEGER {bsRssiAlarm(1),
                             bsRssiNoAlarm(2)
                            }
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "A RSSI alarm is generated if the RSSI is lower than
             wmanIfBsLowRssiThreshold."
        ::= { wmanIfBsSsNotificationObjectsEntry 6 }

wmanIfBsSsRssiStatusInfo  OBJECT-TYPE
        SYNTAX      OCTET STRING
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "This object indicates the reason why RSSI alarm is
             generated."
        ::= { wmanIfBsSsNotificationObjectsEntry 7 }

--
-- Subscriber station Notification Trap Definitions
wmanBsSsStatusNotificationTrap NOTIFICATION-TYPE
        OBJECTS     {ifIndex,
                     wmanIfBsTrapSsId,
                     wmanIfBsSsMacAddress,
                     wmanIfBsSsStatusValue,
                     wmanIfBsSsStatusInfo
                    }
        STATUS      current
        DESCRIPTION
            "This trap reports the status of a SS. Based on this
             notification the NMS will issue an alarm with certain
             severity depending on the status and the reason received."
        ::= { wmanIfBsTrapDefinitions 3 }
```

```
wmanBsSsDynamicServiceFailTrap NOTIFICATION-TYPE
        OBJECTS     {ifIndex,
                     wmanIfBsTrapSsId,
                     wmanIfBsSsMacAddress,
                     wmanIfBsDynamicServiceType,
                     wmanIfBsDynamicServiceFailReason
                    }
        STATUS      current
        DESCRIPTION
            "An event to report the failure of a dynamic service
             operation happened during the dynamic services process
             and detected in the Bs side."
        ::= { wmanIfBsTrapDefinitions 4 }

wmanBsSsRssiStatusChangeTrap NOTIFICATION-TYPE
        OBJECTS     {ifIndex,
                     wmanIfBsTrapSsId,
                     wmanIfBsSsMacAddress,
                     wmanIfBsSsRssiStatus,
                     wmanIfBsSsRssiStatusInfo
                    }
        STATUS      current
        DESCRIPTION
            "An event to report that the uplink RSSI is below
             wmanIfBsLowRssiThreshold, or above
             wmanIfBsHighRssiThreshold after restore."
        ::= { wmanIfBsTrapDefinitions 5 }

wmanBsSsBPKMFailTrap NOTIFICATION-TYPE
        OBJECTS     {wmanIfBsSsMacAddress}
        STATUS      current
        DESCRIPTION
            "An event to report the failure of a BPKM operation."
        ::= { wmanIfBsTrapDefinitions 6 }

--
-- Base station Notification Object Definitions
wmanIfBsNotificationObjectsTable OBJECT-TYPE
        SYNTAX      SEQUENCE OF WmanIfBsNotificationObjectsEntry
        MAX-ACCESS  not-accessible
        STATUS      current
        DESCRIPTION
            "This table contains BS notification objects that have been
            reported by the trap."
        ::= { wmanIfBsTrapDefinitions 7 }

wmanIfBsNotificationObjectsEntry OBJECT-TYPE
        SYNTAX      WmanIfBsNotificationObjectsEntry
        MAX-ACCESS  not-accessible
        STATUS      current
        DESCRIPTION
            "This table provides one row for each BS sector that has
             generated traps, and is indexed by ifIndex."
        INDEX       { ifIndex }
        ::= { wmanIfBsNotificationObjectsTable 1 }

WmanIfBsNotificationObjectsEntry ::= SEQUENCE {
        wmanIfBsPowerStatus                     INTEGER,
        wmanIfBsFanStatus                       INTEGER,
        wmanIfBsTemperatureStatus               INTEGER,
        wmanIfBsPowerStatusInfo                 OCTET STRING,
        wmanIfBsFanStatusInfo                   OCTET STRING,
        wmanIfBsTemperatureStatusInfo           OCTET STRING
        }

wmanIfBsPowerStatus OBJECT-TYPE
        SYNTAX      INTEGER {priOnSecStandby(0),
                             secOnPriStandby(1),
                             priOnSecFailed(2),
                             secOnPriFailed(3)
                            }
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "Describes the status of the power supply in BS."
        ::= { wmanIfBsNotificationObjectsEntry 1 }
```

```
wmanIfBsFanStatus OBJECT-TYPE
        SYNTAX      INTEGER {fanFail(1),
                             fanSucc(2)
                            }
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "Describes the status of the fan in BS."
        ::= { wmanIfBsNotificationObjectsEntry 2 }

wmanIfBsTemperatureStatus OBJECT-TYPE
        SYNTAX      INTEGER {lowTempReached(1),
                             highTempReached(2),
                             temperatureNormal(3)
                            }
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "lowTempReached event is generated when temperature goes
             below wmanIfBsTempLowAlarmThreshold.
             temperatureNormal event is generated when temperature
             goes above wmanIfBsTempLowAlarmRestoredThreshold or
             below wmanIfBsTempHighAlarmRestoredThreshold after alarm.
             highTempReached event is generated when temperature goes
             above wmanIfBsTempHighAlarmThreshold."
        ::= { wmanIfBsNotificationObjectsEntry 3 }

wmanIfBsPowerStatusInfo OBJECT-TYPE
        SYNTAX      OCTET STRING
        MAX-ACCESS  read-write
        STATUS      current
        DESCRIPTION
            "Display the power supply status in text form."
        ::= { wmanIfBsNotificationObjectsEntry 4 }

wmanIfBsFanStatusInfo OBJECT-TYPE
        SYNTAX      OCTET STRING
        MAX-ACCESS  read-write
        STATUS      current
        DESCRIPTION
            "Display the fan status in text form."
        ::= { wmanIfBsNotificationObjectsEntry 5 }

wmanIfBsTemperatureStatusInfo OBJECT-TYPE
        SYNTAX      OCTET STRING
        MAX-ACCESS  read-write
        STATUS      current
        DESCRIPTION
            "Display the temperature status in text form."
        ::= { wmanIfBsNotificationObjectsEntry 6 }

--
-- Base station Notification Trap Definitions
wmanBsPowerStatusChangeTrap NOTIFICATION-TYPE
        OBJECTS     {wmanIfBsPowerStatus,
                     wmanIfBsPowerStatusInfo
                    }
        STATUS      current
        DESCRIPTION
            "An event to report a change in the status of the power
             supply in BS. Typically it represents a failure."
        ::= { wmanIfBsTrapDefinitions 8 }

wmanBsFanStatusTrap NOTIFICATION-TYPE
        OBJECTS     {wmanIfBsFanStatus,
                     wmanIfBsFanStatusInfo
                    }
        STATUS      current
        DESCRIPTION
            "An event to report the status of the fan inside the BS."
        ::= { wmanIfBsTrapDefinitions 9 }

wmanBsTemperatureChangeTrap NOTIFICATION-TYPE
        OBJECTS     {wmanIfBsTemperatureStatus,
                     wmanIfBsTemperatureStatusInfo
                    }
        STATUS      current
```

```
        DESCRIPTION
            "An alarm event will be generated when the temperature goes
             above wmanIfBsTempHighAlarmThreshold or below
             wmanIfBsTempLowAlarmThreshold. An event reporting the alarm
             has disappeared when the temperature goes below
             wmanIfBsTempHighAlarmRestoredThreshold or above
             wmanIfBsTempLowAlarmRestoredThreshold."
        ::= { wmanIfBsTrapDefinitions 10 }

--
-- SS object group – containing tables and objects to be implemented in
-- the Subscriber station
--
-- wmanIfSsSystem contain the Subscriber Station System objects
wmanIfSsSystem OBJECT IDENTIFIER ::= { wmanIfSsObjects 1 }

wmanIfSsConfigFileEncodingTable OBJECT-TYPE
        SYNTAX      SEQUENCE OF WmanIfSsConfigFileEncodingEntry
        MAX-ACCESS  not-accessible
        STATUS      current
        DESCRIPTION
            "This table contains configuration file encoding
            information of the SS."
        REFERENCE
            "Section 11.2 in IEEE 802.16REVd/D5-2004"
        ::= { wmanIfSsSystem 1 }

wmanIfSsConfigFileEncodingEntry OBJECT-TYPE
        SYNTAX      WmanIfSsConfigFileEncodingEntry
        MAX-ACCESS  not-accessible
        STATUS      current
        DESCRIPTION
              "This table has only one entry, and is indexed
              by ifIndex."
        INDEX { ifIndex }
        ::= { wmanIfSsConfigFileEncodingTable 1 }

WmanIfSsConfigFileEncodingEntry ::= SEQUENCE {
        wmanIfSsMicConfigSetting                OCTET STRING,
        wmanIfSsVendorId                        OCTET STRING,
        wmanIfSsHwId                            OCTET STRING,
        wmanIfSsSwVersion                       OCTET STRING,
        wmanIfSsUpgradeFileName                 OCTET STRING,
        wmanIfSsSwUpgradeTftpServer             InetAddress,
        wmanIfSsTftpServerTimeStamp             DateAndTime
        }

wmanIfSsMicConfigSetting OBJECT-TYPE
        SYNTAX      OCTET STRING (SIZE(20))
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "The value field contains the SS MIC code. This is used
            to detect unauthorized modification or corruption of
            the configuration file."
        ::= { wmanIfSsConfigFileEncodingEntry 1 }

wmanIfSsVendorId OBJECT-TYPE
        SYNTAX      OCTET STRING (SIZE(3))
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "This value identifies the managed SS vendor to which the
            software upgrade is to be applied."
        ::= { wmanIfSsConfigFileEncodingEntry 2 }

wmanIfSsHwId OBJECT-TYPE
        SYNTAX      OCTET STRING
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "This value identifies the hardware version to which the
            software upgrade is to be applied."
        ::= { wmanIfSsConfigFileEncodingEntry 3 }

wmanIfSsSwVersion OBJECT-TYPE
        SYNTAX      OCTET STRING
        MAX-ACCESS  read-only
```

```
        STATUS      current
        DESCRIPTION
            "This value identifies the software version of the software
             upgrade file. The value is administered by the vendor
             identified in the Vendor ID field. It should be defined by
             the vendor to be unique with respect to a given hardware
             ID."
        ::= { wmanIfSsConfigFileEncodingEntry 4 }

wmanIfSsUpgradeFileName OBJECT-TYPE
        SYNTAX      OCTET STRING
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "The filename is a fully qualified directory path
            name which is in a format appropriate to the server."
        ::= { wmanIfSsConfigFileEncodingEntry 5 }

wmanIfSsSwUpgradeTftpServer OBJECT-TYPE
        SYNTAX      InetAddress
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "This object is the IP address of the TFTP server on
            which the software upgrade file for the SS resides."
        ::= { wmanIfSsConfigFileEncodingEntry 6 }

wmanIfSsTftpServerTimeStamp OBJECT-TYPE
        SYNTAX      DateAndTime
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "This is the sending time of the configuration file in
            seconds. The definition of time is as in RFC 868."
        ::= { wmanIfSsConfigFileEncodingEntry 7 }

--
-- wmanIfSsCps contain the Base Station Common Part Sublayer objects
wmanIfSsCps OBJECT IDENTIFIER ::= { wmanIfSsObjects 2 }

--
-- wmanIfSsConfigurationTable contains global parameters for SS
wmanIfSsConfigurationTable OBJECT-TYPE
        SYNTAX      SEQUENCE OF WmanIfSsConfigurationEntry
        MAX-ACCESS  not-accessible
        STATUS      current
        DESCRIPTION
              "This table contains one row for the SS system
               parameters."
        ::= { wmanIfSsCps 1 }

wmanIfSsConfigurationEntry OBJECT-TYPE
        SYNTAX      WmanIfSsConfigurationEntry
        MAX-ACCESS  not-accessible
        STATUS      current
        DESCRIPTION
              "This table is indexed by ifIndex."
        INDEX { ifIndex }
        ::= { wmanIfSsConfigurationTable 1 }

WmanIfSsConfigurationEntry ::= SEQUENCE {
        wmanIfSsLostDLMapInterval               INTEGER,
        wmanIfSsLostULMapInterval               INTEGER,
        wmanIfSsContentionRangRetries           INTEGER,
        wmanIfSsRequestRetries                  INTEGER,
        wmanIfSsRegRequestRetries               INTEGER,
        wmanIfSsTftpBackoffStart                INTEGER,
        wmanIfSsTftpBackoffEnd                  INTEGER,
        wmanIfSsTftpRequestRetries              INTEGER,
        wmanIfSsTftpDownloadRetries             INTEGER,
        wmanIfSsTftpWait                        INTEGER,
        wmanIfSsToDRetries                      INTEGER,
        wmanIfSsToDRetryPeriod                  INTEGER,
        wmanIfSsT1Timeout                       INTEGER,
        wmanIfSsT2Timeout                       INTEGER,
        wmanIfSsT3Timeout                       INTEGER,
        wmanIfSsT4Timeout                       INTEGER,
        wmanIfSsT6Timeout                       INTEGER,
```

```
        wmanIfSsT12Timeout                      INTEGER,
        wmanIfSsT14Timeout                      INTEGER,
        wmanIfSsT16Timeout                      INTEGER,
        wmanIfSsT18Timeout                      INTEGER,
        wmanIfSsT19Timeout                      INTEGER,
        wmanIfSsT20Timeout                      INTEGER,
        wmanIfSsT21Timeout                      INTEGER,
        wmanIfSsSBCRequestRetries               INTEGER,
        wmanIfSsTftpCpltRetries                 INTEGER,
        wmanIfSsT26Timeout                      INTEGER,
        wmanIfSsDLManagProcTime                 INTEGER,
        wmanIfSsConfigurationRowStatus          RowStatus
        }

wmanIfSsLostDLMapInterval OBJECT-TYPE
        SYNTAX      INTEGER(0..600)
        UNITS       "milliseconds"
        MAX-ACCESS  read-write
        STATUS      current
        DESCRIPTION
             "Time since last received DL-MAP message before downlink
              synchronization is considered lost in ms."
        ::= { wmanIfSsConfigurationEntry 1 }

wmanIfSsLostULMapInterval OBJECT-TYPE
        SYNTAX      INTEGER(0..600)
        UNITS       "milliseconds"
        MAX-ACCESS  read-write
        STATUS      current
        DESCRIPTION
             "Time since last received UL-MAP message before downlink
              synchronization is considered lost in ms."
        ::= { wmanIfSsConfigurationEntry 2 }

wmanIfSsContentionRangRetries OBJECT-TYPE
        SYNTAX      INTEGER(16..65535)
        MAX-ACCESS  read-write
        STATUS      current
        DESCRIPTION
             "Number of retries on contention Ranging Requests."
        ::= { wmanIfSsConfigurationEntry 3 }

wmanIfSsRequestRetries OBJECT-TYPE
        SYNTAX      INTEGER(16..65535)
        MAX-ACCESS  read-write
        STATUS      current
        DESCRIPTION
             "Number of retries on bandwidth allocation requests."
        ::= { wmanIfSsConfigurationEntry 4 }

wmanIfSsRegRequestRetries OBJECT-TYPE
        SYNTAX      INTEGER(3..65535)
        MAX-ACCESS  read-write
        STATUS      current
        DESCRIPTION
             "Number of retries on registration requests."
        ::= { wmanIfSsConfigurationEntry 5 }

wmanIfSsTftpBackoffStart OBJECT-TYPE
        SYNTAX      INTEGER(1..65535)
        UNITS       "seconds"
        MAX-ACCESS  read-write
        STATUS      current
        DESCRIPTION
             "Initial value for TFTP backoff in second."
        ::= { wmanIfSsConfigurationEntry 6 }

wmanIfSsTftpBackoffEnd OBJECT-TYPE
        SYNTAX      INTEGER(16..65535)
        UNITS       "seconds"
        MAX-ACCESS  read-write
        STATUS      current
        DESCRIPTION
             "Last value for TFTP backoff in s."
        ::= { wmanIfSsConfigurationEntry 7 }
```

```
wmanIfSsTftpRequestRetries OBJECT-TYPE
        SYNTAX      INTEGER(16..65535)
        MAX-ACCESS  read-write
        STATUS      current
        DESCRIPTION
             "Number of retries on TFTP request."
        ::= { wmanIfSsConfigurationEntry 8 }

wmanIfSsTftpDownloadRetries OBJECT-TYPE
        SYNTAX      INTEGER(3..65535)
        MAX-ACCESS  read-write
        STATUS      current
        DESCRIPTION
             "Number of retries on entire TFTP downloads."
        ::= { wmanIfSsConfigurationEntry 9 }

wmanIfSsTftpWait OBJECT-TYPE
        SYNTAX      INTEGER(2..65535)
        UNITS       "minutes"
        MAX-ACCESS  read-write
        STATUS      current
        DESCRIPTION
             "The duration between two consecutive TFTP retries in min."
        ::= { wmanIfSsConfigurationEntry 10 }

wmanIfSsToDRetries OBJECT-TYPE
        SYNTAX      INTEGER(3..65535)
        MAX-ACCESS  read-write
        STATUS      current
        DESCRIPTION
             "Number of Retries per Time of Day Retry Period."
        ::= { wmanIfSsConfigurationEntry 11 }

wmanIfSsToDRetryPeriod OBJECT-TYPE
        SYNTAX      INTEGER(5..65535)
        UNITS       "minutes"
        MAX-ACCESS  read-write
        STATUS      current
        DESCRIPTION
             "Time of Day Retry Period."
        ::= { wmanIfSsConfigurationEntry 12 }

wmanIfSsT1Timeout OBJECT-TYPE
        SYNTAX      INTEGER(0..50000)
        UNITS       "milliseconds"
        MAX-ACCESS  read-write
        STATUS      current
        DESCRIPTION
             "Wait for DCD timeout in ms."
        ::= { wmanIfSsConfigurationEntry 13 }

wmanIfSsT2Timeout OBJECT-TYPE
        SYNTAX      INTEGER(0..10000)
        UNITS       "milliseconds"
        MAX-ACCESS  read-write
        STATUS      current
        DESCRIPTION
             "Wait for broadcast ranging timeout in ms."
        ::= { wmanIfSsConfigurationEntry 14 }

wmanIfSsT3Timeout OBJECT-TYPE
        SYNTAX      INTEGER(0..200)
        UNITS       "milliseconds"
        MAX-ACCESS  read-write
        STATUS      current
        DESCRIPTION
             "Ranging Response reception timeout following the
             transmission of a Ranging Request in ms."
        ::= { wmanIfSsConfigurationEntry 15 }

wmanIfSsT4Timeout OBJECT-TYPE
        SYNTAX      INTEGER(30..35)
        UNITS       "seconds"
        MAX-ACCESS  read-write
        STATUS      current
```

```
        DESCRIPTION
             "Wait for unicast ranging opportunity. If the pending until
              complete field was used earlier by this SS, then the value
              of that field shall be added to this interval in s."
        ::= { wmanIfSsConfigurationEntry 16 }

wmanIfSsT6Timeout OBJECT-TYPE
        SYNTAX      INTEGER(0..3000)
        UNITS       "milliseconds"
        MAX-ACCESS  read-write
        STATUS      current
        DESCRIPTION
             "Wait for registration response in ms."
        ::= { wmanIfSsConfigurationEntry 17 }

wmanIfSsT12Timeout OBJECT-TYPE
        SYNTAX      INTEGER (0..50000)
        UNITS       "milliseconds"
        MAX-ACCESS  read-write
        STATUS      current
        DESCRIPTION
             "Wait for UCD descriptor in ms."
        ::= { wmanIfSsConfigurationEntry 18 }

wmanIfSsT14Timeout OBJECT-TYPE
        SYNTAX      INTEGER(0..200)
        UNITS       "milliseconds"
        MAX-ACCESS  read-write
        STATUS      current
        DESCRIPTION
             "Wait for DSX-RVD Timeout in ms."
        ::= { wmanIfSsConfigurationEntry 19 }

wmanIfSsT16Timeout OBJECT-TYPE
        SYNTAX      INTEGER(10..65535)
        UNITS       "milliseconds"
        MAX-ACCESS  read-write
        STATUS      current
        DESCRIPTION
             "wait for bandwidth request grant in ms."
        ::= { wmanIfSsConfigurationEntry 20 }

wmanIfSsT18Timeout OBJECT-TYPE
        SYNTAX      INTEGER(0..65535)
        UNITS       "milliseconds"
        MAX-ACCESS  read-write
        STATUS      current
        DESCRIPTION
             "wait for SBC-RSP timeout in ms."
        ::= { wmanIfSsConfigurationEntry 21 }

wmanIfSsT19Timeout OBJECT-TYPE
        SYNTAX      INTEGER(0..65535)
        UNITS       "milliseconds"
        MAX-ACCESS  read-write
        STATUS      current
        DESCRIPTION
             "Time DL-channel remains unusable in ms."
        ::= { wmanIfSsConfigurationEntry 22 }

wmanIfSsT20Timeout OBJECT-TYPE
        SYNTAX      INTEGER(0..65535)
        UNITS       "milliseconds"
        MAX-ACCESS  read-write
        STATUS      current
        DESCRIPTION
             "Time SS searches for preambles on a given channel in ms."
        ::= { wmanIfSsConfigurationEntry 23 }

wmanIfSsT21Timeout OBJECT-TYPE
        SYNTAX      INTEGER(0..10000)
        UNITS       "milliseconds"
        MAX-ACCESS  read-write
        STATUS      current
        DESCRIPTION
             "Time SS searches for DL-MAP on a given channel in ms."
        ::= { wmanIfSsConfigurationEntry 24 }
```

```
wmanIfSsSBCRequestRetries OBJECT-TYPE
        SYNTAX      INTEGER(3..16)
        MAX-ACCESS  read-write
        STATUS      current
        DESCRIPTION
             "Number of retries on SBC Request."
        ::= { wmanIfSsConfigurationEntry 25 }

wmanIfSsTftpCpltRetries OBJECT-TYPE
        SYNTAX      INTEGER(3..16)
        MAX-ACCESS  read-write
        STATUS      current
        DESCRIPTION
             "Number of retries on TFTP-CPLT."
        ::= { wmanIfSsConfigurationEntry 26 }

wmanIfSsT26Timeout OBJECT-TYPE
        SYNTAX      INTEGER(10..200)
        UNITS       "milliseconds"
        MAX-ACCESS  read-write
        STATUS      current
        DESCRIPTION
             "Wait for TFTP-RSP in ms."
        ::= { wmanIfSsConfigurationEntry 27 }

wmanIfSsDLManagProcTime OBJECT-TYPE
        SYNTAX      INTEGER(0..200)
        UNITS       "micro seconds"
        MAX-ACCESS  read-write
        STATUS      current
        DESCRIPTION
             "Max. time between reception of Fast Power Control
              management message and compliance to its instructions
              by SS in us."
        ::= { wmanIfSsConfigurationEntry 28 }

wmanIfSsConfigurationRowStatus OBJECT-TYPE
        SYNTAX      RowStatus
        MAX-ACCESS  read-create
        STATUS      current
        DESCRIPTION
            "This object is used to create a new row or modify or
            delete an existing row in this table.

            If the implementator of this MIB has chosen not
            to implement 'dynamic assignment' of profiles, this
            object is not useful and should return noSuchName
            upon SNMP request."
        ::= { wmanIfSsConfigurationEntry 29 }

-- Subscriber station PKM group
-- wmanIfSsPkmObjects contain the Subscriber Station Privacy Sublayer
-- objects
wmanIfSsPkmObjects OBJECT IDENTIFIER ::= { wmanIfSsObjects  3 }

--
-- Table wmanIfSsPkmBaseTable
--
wmanIfSsPkmBaseTable OBJECT-TYPE
        SYNTAX      SEQUENCE OF   WmanIfSsPkmBaseEntry
        MAX-ACCESS  not-accessible
        STATUS      current
        DESCRIPTION
             "This table describes the basic PKM attributes of each
              SS wireless interface."
        ::= { wmanIfSsPkmObjects  1 }

wmanIfSsPkmBaseEntry OBJECT-TYPE
        SYNTAX      WmanIfSsPkmBaseEntry
        MAX-ACCESS  not-accessible
        STATUS      current
        DESCRIPTION
             "Each entry contains objects describing attributes of one
              SS wireless interface."
        INDEX       { ifIndex }
        ::= { wmanIfSsPkmBaseTable  1 }
```

```
WmanIfSsPkmBaseEntry ::= SEQUENCE {
        wmanIfSsPkmPrivacyEnable               TruthValue,
        wmanIfSsPkmPublicKey                   OCTET STRING,
        wmanIfSsPkmAuthGraceTime               Integer32,
        wmanIfSsPkmTEKGraceTime                Integer32,
        wmanIfSsPkmAuthWaitTimeout             Integer32,
        wmanIfSsPkmReauthWaitTimeout           Integer32,
        wmanIfSsPkmOpWaitTimeout               Integer32,
        wmanIfSsPkmRekeyWaitTimeout            Integer32,
        wmanIfSsPkmAuthRejectWaitTimeout       Integer32
        }

wmanIfSsPkmPrivacyEnable OBJECT-TYPE
        SYNTAX      TruthValue
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
             "This object identifies whether this SS is provisioned to
             run Baseline Privacy Plus."
        ::= { wmanIfSsPkmBaseEntry 1 }

wmanIfSsPkmPublicKey OBJECT-TYPE
        SYNTAX      OCTET STRING (SIZE (140))
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
             "The value of this object is a DER-encoded RSAPublicKey
             ASN.1 type string, as defined in the RSA Encryption
             Standard (PKCS#1) [8], corresponding to the public key of
             the SS. The 74, 106, 140, 204, and 270 byte key encoding
             lengths correspond to 512 bit, 768 bit, 1024 bit, 1536 bit,
             and 2048 public moduli respectively."
        ::= { wmanIfSsPkmBaseEntry 2 }

wmanIfSsPkmAuthGraceTime OBJECT-TYPE
        SYNTAX      Integer32 (300..3024000)
        UNITS       "seconds"
        MAX-ACCESS  read-only
        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 341 in IEEE 802.16REVd/D5-2004"
        DEFVAL         { 600 }
        ::= { wmanIfSsPkmBaseEntry 3 }

wmanIfSsPkmTEKGraceTime OBJECT-TYPE
        SYNTAX      Integer32 (300..3024000)
        UNITS       "seconds"
        MAX-ACCESS  read-only
        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 341 in IEEE 802.16REVd/D5-2004"
        DEFVAL         { 3600 }
        ::= { wmanIfSsPkmBaseEntry 4 }

wmanIfSsPkmAuthWaitTimeout OBJECT-TYPE
        SYNTAX      Integer32 (2..30)
        UNITS       "seconds"
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
             "The value of this object is the Authorize Wait Timeout."
        REFERENCE
             "Table 341 in IEEE 802.16REVd/D5-2004"
        DEFVAL         { 10 }
        ::= { wmanIfSsPkmBaseEntry 5 }
```

```
wmanIfSsPkmReauthWaitTimeout OBJECT-TYPE
        SYNTAX      Integer32 (2..30)
        UNITS       "seconds"
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
             "The value of this object is the Reauthorize Wait Timeout
             in seconds."
        REFERENCE
             "Table 341 in IEEE 802.16REVd/D5-2004"
        DEFVAL         { 10 }
        ::= { wmanIfSsPkmBaseEntry 6 }

wmanIfSsPkmOpWaitTimeout OBJECT-TYPE
        SYNTAX      Integer32 (1..10)
        UNITS       "seconds"
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
             "The value of this object is the Operational Wait Timeout
             in seconds."
        REFERENCE
             "Table 341 in IEEE 802.16REVd/D5-2004"
        DEFVAL         { 1 }
        ::= { wmanIfSsPkmBaseEntry 7 }

wmanIfSsPkmRekeyWaitTimeout OBJECT-TYPE
        SYNTAX      Integer32 (1..10)
        UNITS       "seconds"
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
             "The value of this object is the Rekey Wait Timeout in
             seconds."
        REFERENCE
             "Table 341 in IEEE 802.16REVd/D5-2004"
        DEFVAL         { 1 }
        ::= { wmanIfSsPkmBaseEntry 8 }

wmanIfSsPkmAuthRejectWaitTimeout OBJECT-TYPE
        SYNTAX      Integer32 (10..600)
        UNITS       "seconds"
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
             "The value of this object is the Authorization Reject Wait
             Timeout in seconds."
        REFERENCE
             "Table 341 in IEEE 802.16REVd/D5-2004"
        DEFVAL         { 60 }
        ::= { wmanIfSsPkmBaseEntry 9 }

--
-- Table wmanIfSsPkmAuthTable
--
wmanIfSsPkmAuthTable OBJECT-TYPE
        SYNTAX      SEQUENCE OF   WmanIfSsPkmAuthEntry
        MAX-ACCESS  not-accessible
        STATUS      current
        DESCRIPTION
             "This table describes the PKM attributes related
              to the authorization for each SS wireless interface."
        ::= { wmanIfSsPkmObjects  2 }

wmanIfSsPkmAuthEntry OBJECT-TYPE
        SYNTAX      WmanIfSsPkmAuthEntry
        MAX-ACCESS  not-accessible
        STATUS      current
        DESCRIPTION
             "Each entry contains objects describing attributes of one
              SS wireless interface."
        INDEX       { ifIndex }
        ::= { wmanIfSsPkmAuthTable  1 }

WmanIfSsPkmAuthEntry ::= SEQUENCE {
        wmanIfSsPkmAuthState                    INTEGER,
        wmanIfSsPkmAuthKeySequenceNumber        Integer32,
        wmanIfSsPkmAuthExpiresOld               DateAndTime,
```

```
        wmanIfSsPkmAuthExpiresNew               DateAndTime,
        wmanIfSsPkmAuthReset                    TruthValue,
        wmanIfSsPkmAuthentInfos                 Counter32,
        wmanIfSsPkmAuthRequests                 Counter32,
        wmanIfSsPkmAuthReplies                  Counter32,
        wmanIfSsPkmAuthRejects                  Counter32,
        wmanIfSsPkmAuthInvalids                 Counter32,
        wmanIfSsPkmAuthRejectErrorCode          INTEGER,
        wmanIfSsPkmAuthRejectErrorString        SnmpAdminString,
        wmanIfSsPkmAuthInvalidErrorCode         INTEGER,
        wmanIfSsPkmAuthInvalidErrorString       SnmpAdminString
        }

wmanIfSsPkmAuthState OBJECT-TYPE
        SYNTAX      INTEGER {start(1),
                             authWait(2),
                             authorized(3),
                             reauthWait(4),
                             authRejectWait(5),
                             silent(6)}
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
             "The value of this object is the state of the SS
             authorization FSM.  The start state indicates that FSM is
             in its initial state."
        ::= { wmanIfSsPkmAuthEntry 1 }

wmanIfSsPkmAuthKeySequenceNumber OBJECT-TYPE
        SYNTAX      Integer32 (0..15)
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
             "The value of this object is the most recent authorization
             key sequence number for this FSM."
        ::= { wmanIfSsPkmAuthEntry 2 }

wmanIfSsPkmAuthExpiresOld OBJECT-TYPE
        SYNTAX      DateAndTime
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
             "The value of this object is the actual clock time for
             expiration of the immediate predecessor of the most recent
             authorization key for this FSM.  If this FSM has only one
             authorization key, then the value is the time of activation
             of this FSM."
        ::= { wmanIfSsPkmAuthEntry 3 }

wmanIfSsPkmAuthExpiresNew OBJECT-TYPE
        SYNTAX      DateAndTime
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
             "The value of this object is the actual clock time for
             expiration of the most recent authorization key for this
             FSM."
        ::= { wmanIfSsPkmAuthEntry 4 }

wmanIfSsPkmAuthReset OBJECT-TYPE
        SYNTAX      TruthValue
        MAX-ACCESS  read-write
        STATUS      current
        DESCRIPTION
            "Setting this object to TRUE generates a Reauthorize event
             in the authorization FSM. Reading this object always
             returns FALSE."
        ::= { wmanIfSsPkmAuthEntry 5 }

wmanIfSsPkmAuthentInfos OBJECT-TYPE
        SYNTAX      Counter32
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
             "The value of this object is the count of times the SS has
             transmitted an Authentication Information message."
        ::= { wmanIfSsPkmAuthEntry 6 }
```

```
wmanIfSsPkmAuthRequests OBJECT-TYPE
        SYNTAX      Counter32
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
             "The value of this object is the count of times the SS has
             transmitted an Authorization Request message."
        ::= { wmanIfSsPkmAuthEntry 7 }

wmanIfSsPkmAuthReplies OBJECT-TYPE
        SYNTAX      Counter32
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
             "The value of this object is the count of times the SS has
             received an Authorization Reply message."
        ::= { wmanIfSsPkmAuthEntry 8 }

wmanIfSsPkmAuthRejects OBJECT-TYPE
        SYNTAX      Counter32
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
             "The value of this object is the count of times the SS has
             received an Authorization Reject message."
        ::= { wmanIfSsPkmAuthEntry 9 }

wmanIfSsPkmAuthInvalids OBJECT-TYPE
        SYNTAX      Counter32
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
             "The value of this object is the count of times the SS has
             received an Authorization Invalid message."
        ::= { wmanIfSsPkmAuthEntry 10 }

wmanIfSsPkmAuthRejectErrorCode OBJECT-TYPE
        SYNTAX      INTEGER {none(1),
                             unknown(2),
                             unauthorizedSs(3),
                             unauthorizedSaid(4),
                             permanentAuthorizationFailure(8),
                             timeOfDayNotAcquired(11)}
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
             "The value of this object is the enumerated description of
             the Error-Code in most recent Authorization Reject message
             received by the SS.  This has value unknown(2)if the last
             Error-Code value was 0, and none(1) if no Authorization
             Reject message has been received since reboot."
        ::= { wmanIfSsPkmAuthEntry 11 }

wmanIfSsPkmAuthRejectErrorString OBJECT-TYPE
        SYNTAX      SnmpAdminString (SIZE (0..128))
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "The value of this object is the Display-String in most
             recent Authorization Reject message received by the SS.
             This is a zero length string if no Authorization Reject
             message has been received since reboot."
        ::= { wmanIfSsPkmAuthEntry 12 }

wmanIfSsPkmAuthInvalidErrorCode OBJECT-TYPE
        SYNTAX      INTEGER {none(1),
                             unknown(2),
                             unauthorizedSs(3),
                             unsolicited(5),
                             invalidKeySequence(6),
                             keyRequestAuthenticationFailure(7)}
        MAX-ACCESS  read-only
        STATUS      current
```

```
        DESCRIPTION
             "The value of this object is the enumerated description of
             the Error-Code in most recent Authorization Invalid message
             received by the SS.  This has value unknown(2) if the last
             Error-Code value was 0, and none(1) if no Authorization
             Invalid message has been received since reboot."
        ::= { wmanIfSsPkmAuthEntry 13 }

wmanIfSsPkmAuthInvalidErrorString OBJECT-TYPE
        SYNTAX      SnmpAdminString (SIZE (0..128))
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
             "The value of this object is the Display-String in most
             recent Authorization Invalid message received by the SS.
             This is a zero length string if no Authorization Invalid
             message has been received since reboot."
        ::= { wmanIfSsPkmAuthEntry 14 }

--
-- Table wmanIfSsPkmTEKTable
--
wmanIfSsPkmTEKTable OBJECT-TYPE
        SYNTAX      SEQUENCE OF   WmanIfSsPkmTEKEntry
        MAX-ACCESS  not-accessible
        STATUS      current
        DESCRIPTION
             "This table describes the attributes of each SS Traffic
             Encryption Key(TEK) association. The SS maintains (no more
             than) one TEK association per SAID per SS wireless
             interface."
        ::= { wmanIfSsPkmObjects  3 }

wmanIfSsPkmTEKEntry OBJECT-TYPE
        SYNTAX      WmanIfSsPkmTEKEntry
        MAX-ACCESS  not-accessible
        STATUS      current
        DESCRIPTION
             "Each entry contains objects describing the TEK association
              attributes of one SAID. The SS MUST create one entry per
              SAID, regardless of whether the SAID was obtained from a
              Registration Response message, from an Authorization Reply
              message, or from any dynamic SAID establishment
              mechanisms."
        INDEX       { ifIndex, wmanIfSsPkmTEKSAId }
        ::= { wmanIfSsPkmTEKTable  1 }

WmanIfSsPkmTEKEntry ::= SEQUENCE {
        wmanIfSsPkmTEKSAId                      Integer32,
        wmanIfSsPkmTEKSAType                    INTEGER,
        wmanIfSsPkmTEKDataEncryptAlg            INTEGER,
        wmanIfSsPkmTEKDataAuthentAlg            INTEGER,
        wmanIfSsPkmTEKEncryptAlg                INTEGER,
        wmanIfSsPkmTEKState                     INTEGER,
        wmanIfSsPkmTEKKeySequenceNumber         Integer32,
        wmanIfSsPkmTEKExpiresOld                DateAndTime,
        wmanIfSsPkmTEKExpiresNew                DateAndTime,
        wmanIfSsPkmTEKKeyRequests               Counter32,
        wmanIfSsPkmTEKKeyReplies                Counter32,
        wmanIfSsPkmTEKKeyRejects                Counter32,
        wmanIfSsPkmTEKInvalids                  Counter32,
        wmanIfSsPkmTEKAuthPends                 Counter32,
        wmanIfSsPkmTEKKeyRejectErrorCode        INTEGER,
        wmanIfSsPkmTEKKeyRejectErrorString      SnmpAdminString,
        wmanIfSsPkmTEKInvalidErrorCode          INTEGER,
        wmanIfSsPkmTEKInvalidErrorString        SnmpAdminString
        }

wmanIfSsPkmTEKSAId OBJECT-TYPE
        SYNTAX      Integer32 (1..16383)
        MAX-ACCESS  not-accessible
        STATUS      current
        DESCRIPTION
             "The value of this object is the WiMAX Security Association
             ID (SAID)."
        ::= { wmanIfSsPkmTEKEntry 1 }
```

```
wmanIfSsPkmTEKSAType OBJECT-TYPE
        SYNTAX      INTEGER {primarySA(0),
                             staticSA(1),
                             dynamicSA(2)}
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
             "The value of this object is the type of security
             association."
        REFERENCE
             "IEEE 802.16 standard; 11.9.18"
        ::= { wmanIfSsPkmTEKEntry 2 }

wmanIfSsPkmTEKDataEncryptAlg OBJECT-TYPE
        SYNTAX      INTEGER { none(0),
                              des56CbcMode(1) }
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
             "The value of this object is the data encryption algorithm
             being utilized."
        REFERENCE
             "IEEE 802.16 standard; table 301"
        ::= { wmanIfSsPkmTEKEntry 3 }

wmanIfSsPkmTEKDataAuthentAlg OBJECT-TYPE
        SYNTAX      INTEGER { none(0) }
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
             "The value of this object is the data authentication
             algorithm being utilized."
        REFERENCE
             "IEEE 802.16 standard; table 302"
        ::= { wmanIfSsPkmTEKEntry 4 }

wmanIfSsPkmTEKEncryptAlg OBJECT-TYPE
        SYNTAX      INTEGER { tripleDES(0),
                              rsa1024(1) }
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
             "The value of this object is the TEK key encryption
             algorithm for this cryptographic suite capability."
        REFERENCE
             "IEEE 802.16 standard; table 303"
        ::= { wmanIfSsPkmTEKEntry 5 }

wmanIfSsPkmTEKState OBJECT-TYPE
        SYNTAX      INTEGER { start(1),
                              opWait(2),
                              opReauthWait(3),
                              operational(4),
                              rekeyWait(5),
                              rekeyReauthWait(6) }
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
             "The value of this object is the state of the indicated TEK
             FSM. The start(1) state indicates that FSM is in its
             initial state."
        ::= { wmanIfSsPkmTEKEntry 6 }

wmanIfSsPkmTEKKeySequenceNumber OBJECT-TYPE
        SYNTAX      Integer32 (0..3)
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
             "The value of this object is the most recent TEK key
             sequence number for this TEK FSM."
        REFERENCE
             "IEEE 802.16 standard; 11.9.5"
        ::= { wmanIfSsPkmTEKEntry 7 }

wmanIfSsPkmTEKExpiresOld OBJECT-TYPE
        SYNTAX      DateAndTime
        MAX-ACCESS  read-only
        STATUS      current
```

```
        DESCRIPTION
            "The value of this object is the actual clock time for
             expiration of the immediate predecessor of the most recent
             TEK for this FSM.  If this FSM has only one TEK, then the
             value is the time of activation of this FSM."
        ::= { wmanIfSsPkmTEKEntry 8 }

wmanIfSsPkmTEKExpiresNew OBJECT-TYPE
        SYNTAX      DateAndTime
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
             "The value of this object is the actual clock time for
             expiration of the most recent TEK for this FSM."
        ::= { wmanIfSsPkmTEKEntry 9 }

wmanIfSsPkmTEKKeyRequests OBJECT-TYPE
        SYNTAX      Counter32
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
             "The value of this object is the count of times the SS has
             transmitted a Key Request message."
        ::= { wmanIfSsPkmTEKEntry 10 }

wmanIfSsPkmTEKKeyReplies OBJECT-TYPE
        SYNTAX      Counter32
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "The value of this object is the count of times the SS has
             received a Key Reply message, including a message whose
             authentication failed."
        ::= { wmanIfSsPkmTEKEntry 11 }

wmanIfSsPkmTEKKeyRejects OBJECT-TYPE
        SYNTAX      Counter32
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
             "The value of this object is the count of times the SS has
             received a Key Reject message, including a message whose
             authentication failed."
        ::= { wmanIfSsPkmTEKEntry 12 }

wmanIfSsPkmTEKInvalids OBJECT-TYPE
        SYNTAX      Counter32
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
             "The value of this object is the count of times the SS has
             received a TEK Invalid message, including a message whose
             authentication failed."
        ::= { wmanIfSsPkmTEKEntry 13 }

wmanIfSsPkmTEKAuthPends OBJECT-TYPE
        SYNTAX      Counter32
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
             "The value of this object is the count of times an
             Authorization Pending (Auth Pend) event occurred in this
             FSM."
        ::= { wmanIfSsPkmTEKEntry 14 }

wmanIfSsPkmTEKKeyRejectErrorCode OBJECT-TYPE
        SYNTAX      INTEGER {none(1),
                             unknown(2),
                             unauthorizedSaid(4)}
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
             "The value of this object is the enumerated description of
             the Error-Code in most recent Key Reject message received
             by the SS. This has value unknown(2) if the last Error-Code
             value was 0, and none(1) if no Key Reject message has been
             received since reboot."
```

```
        ::= { wmanIfSsPkmTEKEntry 15 }

wmanIfSsPkmTEKKeyRejectErrorString OBJECT-TYPE
        SYNTAX      SnmpAdminString (SIZE (0..128))
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
             "The value of this object is the Display-String in most
             recent Key Reject message received by the SS. This is a
             zero length string if no Key Reject message has been
             received since reboot."
        ::= { wmanIfSsPkmTEKEntry 16 }

wmanIfSsPkmTEKInvalidErrorCode OBJECT-TYPE
        SYNTAX      INTEGER {none(1),
                             unknown(2),
                             invalidKeySequence(6)}
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
             "The value of this object is the enumerated description of
             the Error-Code in most recent TEK Invalid message received
             by the SS.  This has value unknown(2) if the last
             Error-Code value was 0, and  none(1) if no TEK Invalid
             message has been received since reboot."
        ::= { wmanIfSsPkmTEKEntry 17 }

wmanIfSsPkmTEKInvalidErrorString OBJECT-TYPE
        SYNTAX      SnmpAdminString (SIZE (0..128))
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "The value of this object is the Display-String in most
             recent TEK Invalid message received by the SS. This is a
             zero length string if no TEK Invalid message has been
             received since reboot."
        ::= { wmanIfSsPkmTEKEntry 18 }

--
-- Table wmanIfSsDeviceCertTable
--
wmanIfSsDeviceCertTable OBJECT-TYPE
        SYNTAX      SEQUENCE OF   WmanIfSsDeviceCertEntry
        MAX-ACCESS  not-accessible
        STATUS      current
        DESCRIPTION
             "This table describes the PKM device certificates for each
             SS wireless interface."
        ::= { wmanIfSsPkmObjects  4 }

wmanIfSsDeviceCertEntry OBJECT-TYPE
        SYNTAX      WmanIfSsDeviceCertEntry
        MAX-ACCESS  not-accessible
        STATUS      current
        DESCRIPTION
             "Each entry contains the device certificate of one SS."
        INDEX       { ifIndex }
        ::= { wmanIfSsDeviceCertTable  1 }

WmanIfSsDeviceCertEntry ::= SEQUENCE {
        wmanIfSsDeviceCert                      OCTET STRING,
        wmanIfSsDeviceManufCert                 OCTET STRING
        }

wmanIfSsDeviceCert OBJECT-TYPE
        SYNTAX      OCTET STRING
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
             "The X509 DER-encoded subscriber station certificate."
        ::= { wmanIfSsDeviceCertEntry 1 }

wmanIfSsDeviceManufCert OBJECT-TYPE
        SYNTAX      OCTET STRING
        MAX-ACCESS  read-only
        STATUS      current
```

```
        DESCRIPTION
             "The X509 DER-encoded manufacturer certificate which is
             signed by the CA root authority certificate."
        ::= { wmanIfSsDeviceCertEntry 2 }

--
-- Subscriber station Notification Group
-- wmanIfSsNotificationObjects contains the SS SNMP Trap objects
--
wmanIfSsNotification OBJECT IDENTIFIER ::= { wmanIfSsObjects  4 }
wmanIfSsTrapDefinitions OBJECT IDENTIFIER ::= { wmanIfSsNotification 1 }
wmanIfSsTrapControl OBJECT IDENTIFIER ::= { wmanIfSsNotification 2 }

wmanIfSsTrapControlRegister    OBJECT-TYPE
        SYNTAX      BITS {wmanSsTLVUnknown(0),
                          wmanSsDynamicServiceFail(1),
                          wmanSsDHCPSuccess(2),
                          wmanSsRssiStatusChange(3)
                         }
        MAX-ACCESS  read-write
        STATUS      current
        DESCRIPTION
             "The object is used to enable Subscriber Station traps.
             From left to right, the set bit indicates the corresponding
             Subscriber Station trap is enabled."
        ::= { wmanIfSsTrapControl  1 }

wmanIfSsRssiLowThreshold OBJECT-TYPE
        SYNTAX      INTEGER
        UNITS       "dBm"
        MAX-ACCESS  read-write
        STATUS      current
        DESCRIPTION
            "Low RSSI threshold for generating the RSSI alarm trap."
        ::= { wmanIfSsTrapControl 2 }

wmanIfSsRssiHighThreshold OBJECT-TYPE
        SYNTAX      INTEGER
        UNITS       "dBm"
        MAX-ACCESS  read-write
        STATUS      current
        DESCRIPTION
            "High RSSI threshold for generating a trap to indicate
             the RSSI is restored."
        ::= { wmanIfSsTrapControl 3 }

wmanSsTLVUnknownTrap NOTIFICATION-TYPE
        OBJECTS     {wmanIfSsMacAddress,
                     wmanIfSsUnknownTlv
                    }
        STATUS      current
        DESCRIPTION
             "Event that notifies detection of unknown TLV during
              the TLV parsing process."
        ::= { wmanIfSsTrapDefinitions 1 }

wmanSsDynamicServiceFailTrap NOTIFICATION-TYPE
        OBJECTS     {wmanIfSsMacAddress,
                     wmanIfSsDynamicServiceType,
                     wmanIfSsDynamicServiceFailReason
                    }
        STATUS      current
        DESCRIPTION
            "An event to report the failure of a dynamic service
             operation happened during the dynamic services process
             and detected in the Bs side."
        ::= { wmanIfSsTrapDefinitions 2 }

wmanSsDHCPSuccessTrap    NOTIFICATION-TYPE
        OBJECTS     {wmanIfSsMacAddress}
        STATUS      current
        DESCRIPTION
            "An event to report a successful DHCP Handshake for
             the SS."
        ::= { wmanIfSsTrapDefinitions 3 }
```

```
wmanSsRssiStatusChangeTrap NOTIFICATION-TYPE
        OBJECTS     {wmanIfSsMacAddress,
                     wmanIfSsRssiStatus,
                     wmanIfSsRssiStatusInfo
                    }
        STATUS      current
        DESCRIPTION
            "An event to report that the uplink RSSI is below
             wmanIfSsRssiLowThreshold, or above
             wmanIfSsRssiHighThreshold after restore."
        ::= { wmanIfSsTrapDefinitions 4 }

wmanIfSsMacAddress  OBJECT-TYPE
        SYNTAX      MacAddress
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "The MAC address of the SS generating the trap."
        ::= { wmanIfSsTrapDefinitions 5 }

wmanIfSsUnknownTlv  OBJECT-TYPE
        SYNTAX      OCTET STRING
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "Indicating the value of the unknown TLV."
        ::= { wmanIfSsTrapDefinitions 6 }

wmanIfSsDynamicServiceType  OBJECT-TYPE
        SYNTAX      INTEGER {ssSfCreationReq(1),
                             ssSfCreationRsp(2),
                             ssSfCreationAck(3)
                             }
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "This object indicates the dynamic service flow
             creation command type."
        ::= { wmanIfSsTrapDefinitions 7 }

wmanIfSsDynamicServiceFailReason  OBJECT-TYPE
        SYNTAX      OCTET STRING
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "This object indicates the reason why the service flow
             creation has failed."
        ::= { wmanIfSsTrapDefinitions 8 }

wmanIfSsRssiStatus  OBJECT-TYPE
        SYNTAX      INTEGER {ssRssiAlarm(1),
                             ssRssiNoAlarm(2)
                             }
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "A RSSI alarm is generated if the RSSI is lower than
             wmanIfSsRssiLowThreshold, or above
             wmanIfSsRssiHighThreshold after alarm is restored."
        ::= { wmanIfSsTrapDefinitions 9 }

wmanIfSsRssiStatusInfo  OBJECT-TYPE
        SYNTAX      OCTET STRING
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "This object indicates the reason why RSSI event is
             generated."
        ::= { wmanIfSsTrapDefinitions 10 }

--
-- Common object group – containing common tables and objects to be
-- implemented in both Base Station and Subscriber Station
--
-- wmanIfCmnPacketCs contain the Packet Convergence Sublayer objects
-- that are common to both Base Station and Subscriber Station
wmanIfCmnPacketCs OBJECT IDENTIFIER ::= { wmanIfCommonObjects 1 }
```

```
wmanIfCmnClassifierRuleTable OBJECT-TYPE
        SYNTAX      SEQUENCE OF WmanIfCmnClassifierRuleEntry
        MAX-ACCESS  not-accessible
        STATUS      current
        DESCRIPTION
            "This table contains packet classifier rules associated
            with service flows."
        ::= { wmanIfCmnPacketCs 1 }

wmanIfCmnClassifierRuleEntry OBJECT-TYPE
        SYNTAX      WmanIfCmnClassifierRuleEntry
        MAX-ACCESS  not-accessible
        STATUS      current
        DESCRIPTION
            "This table provides one row for each packet classifier
             rule, and is indexed by wmanIfCmnCpsSfIndex and
             wmanIfCmnClassifierRuleIndex. wmanIfCmnCpsSfIndex identifies
             the service flow, and wmanIfCmnClassifierRuleIndexAn
             identifies the packet classifier rule."
        INDEX { wmanIfCmnClassifierRuleIndex, wmanIfCmnCpsSfIndex }
        ::= { wmanIfCmnClassifierRuleTable 1 }

WmanIfCmnClassifierRuleEntry::= SEQUENCE {
        wmanIfCmnClassifierRuleIndex            Unsigned32,
        wmanIfCmnCpsSfIndex                     Unsigned32,
        wmanIfCmnClassifierRulePriority         INTEGER,
        wmanIfCmnClassifierRuleIpTosLow         OCTET STRING,
        wmanIfCmnClassifierRuleIpTosHigh        OCTET STRING,
        wmanIfCmnClassifierRuleIpTosMask        OCTET STRING,
        wmanIfCmnClassifierRuleIpProtocol       Integer32,
        wmanIfCmnClassifierRuleIpAddressType    InetAddressType,
        wmanIfCmnClassifierRuleIpSourceAddr     InetAddress,
        wmanIfCmnClassifierRuleIpSourceMask     InetAddress,
        wmanIfCmnClassifierRuleIpDestAddr       InetAddress,
        wmanIfCmnClassifierRuleIpDestMask       InetAddress,
        wmanIfCmnClassifierRuleSourcePortStart  Integer32,
        wmanIfCmnClassifierRuleSourcePortEnd    Integer32,
        wmanIfCmnClassifierRuleDestPortStart    Integer32,
        wmanIfCmnClassifierRuleDestPortEnd      Integer32,
        wmanIfCmnClassifierRuleDestMacAddr      MacAddress,
        wmanIfCmnClassifierRuleDestMacMask      MacAddress,
        wmanIfCmnClassifierRuleSourceMacAddr    MacAddress,
        wmanIfCmnClassifierRuleSourceMacMask    MacAddress,
        wmanIfCmnClassifierRuleEnetProtocolType INTEGER,
        wmanIfCmnClassifierRuleEnetProtocol     Integer32,
        wmanIfCmnClassifierRuleUserPriLow       Integer32,
        wmanIfCmnClassifierRuleUserPriHigh      Integer32,
        wmanIfCmnClassifierRuleVlanId           Integer32,
        wmanIfCmnClassifierRuleState            INTEGER,
        wmanIfCmnClassifierRulePkts             Counter64,
        wmanIfCmnClassifierRuleRowStatus        RowStatus
        }

wmanIfCmnClassifierRuleIndex  OBJECT-TYPE
        SYNTAX      Unsigned32 (1..4294967295)
        MAX-ACCESS  not-accessible
        STATUS      current
        DESCRIPTION
            "An index is assigned to each classifier in the classifiers
             table"
        ::= { wmanIfCmnClassifierRuleEntry 1 }

wmanIfCmnCpsSfIndex OBJECT-TYPE
        SYNTAX      Unsigned32 (1 .. 4294967295)
        MAX-ACCESS  not-accessible
        STATUS      current
        DESCRIPTION
            "A 32 bit quantity that uniquely identifies a service flow
            to both the subscriber station and base station (BS)."
        ::= { wmanIfCmnClassifierRuleEntry 2 }

wmanIfCmnClassifierRulePriority OBJECT-TYPE
        SYNTAX      INTEGER (0..255)
        MAX-ACCESS  read-only
        STATUS      current
```

```
        DESCRIPTION
            "The value specifies the order of evaluation of the
            classifiers. The higher the value the higher the
            priority. The value of 0 is used as default in
            provisioned service flows classifiers. The default
            value of 64 is used for dynamic service flow classifiers.
            If the referenced parameter is not present in a classifier,
            this object reports the default value as defined above"
        REFERENCE
            "Section 11.13.19.3.4.1 in IEEE 802.16REVd/D5-2004"
        DEFVAL      { 0 }
        ::= { wmanIfCmnClassifierRuleEntry 3 }

wmanIfCmnClassifierRuleIpTosLow OBJECT-TYPE
        SYNTAX      OCTET STRING (SIZE(1))
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "The low value of a range of TOS byte values. If the
            referenced parameter is not present in a classifier, this
            object reports the value of 0."
        REFERENCE
            "Section 11.13.19.3.4.2 in IEEE 802.16REVd/D5-2004"
        ::= { wmanIfCmnClassifierRuleEntry 4 }

wmanIfCmnClassifierRuleIpTosHigh OBJECT-TYPE
        SYNTAX      OCTET STRING (SIZE(1))
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "The 8-bit high value of a range of TOS byte values.
            If the referenced parameter is not present in a classifier,
            this object reports the value of 0."
        REFERENCE
            "Section 11.13.19.3.4.2 in IEEE 802.16REVd/D5-2004"
        ::= { wmanIfCmnClassifierRuleEntry 5 }

wmanIfCmnClassifierRuleIpTosMask OBJECT-TYPE
        SYNTAX      OCTET STRING (SIZE(1))
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "The mask value is bitwise ANDed with TOS byte in an IP
            packet and this value is used check range checking of
            TosLow and TosHigh. If the referenced parameter is not
            present in a classifier, this object reports the value
            of 0."
        REFERENCE
            "Section 11.13.19.3.4.2 in IEEE 802.16REVd/D5-2004"
        ::= { wmanIfCmnClassifierRuleEntry 6 }

wmanIfCmnClassifierRuleIpProtocol OBJECT-TYPE
        SYNTAX      Integer32 (0..255)
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "This object indicates the value of the IP Protocol field
            required for IP packets to match this rule. If the
            referenced parameter is not present in a classifier, this
            object reports the value of 0."
        REFERENCE
            "Section 11.13.19.3.4.3 in IEEE 802.16REVd/D5-2004"
        ::= { wmanIfCmnClassifierRuleEntry 7 }

wmanIfCmnClassifierRuleIpAddressType OBJECT-TYPE
        SYNTAX      InetAddressType
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "The type of the internet address for
            wmanIfCmnClassifierRuleIpSourceAddr,
            wmanIfCmnClassifierRuleIpSourceMask,
            wmanIfCmnClassifierRuleIpDestAddr, and
            wmanIfCmnClassifierRuleIpDestMask.
            If the referenced parameter is not present in a classifier,
            this object reports the value of ipv4(1)."
```

```
        REFERENCE
            "Section 11.13.19.3.4.4 in IEEE 802.16REVd/D5-2004"
        ::= { wmanIfCmnClassifierRuleEntry 8 }

wmanIfCmnClassifierRuleIpSourceAddr OBJECT-TYPE
        SYNTAX      InetAddress
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "This object specifies the value of the IP Source Address
            required for packets to match this rule. An IP packet
            matches the rule when the packet ip source address bitwise
            ANDed with the wmanIfCmnClassifierRuleIpSourceMask value
            equals the wmanIfCmnClassifierRuleIpSourceAddr value.
            If the referenced parameter is not present n a classifier,
            this object reports the value of 0.0.0.0."
        REFERENCE
            "Section 11.13.19.3.4.4 in IEEE 802.16REVd/D5-2004"
        ::= { wmanIfCmnClassifierRuleEntry 9 }

wmanIfCmnClassifierRuleIpSourceMask OBJECT-TYPE
        SYNTAX      InetAddress
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "This object specifies which bits of a packet's IP Source
            Address that are compared to match this rule. An IP packet
            matches the rule when the packet source address bitwise
            ANDed with the
            wmanIfCmnClassifierRuleIpSourceMask value equals the
            wmanIfCmnClassifierRuleIpSourceAddr value.
            If the referenced parameter is not present in a classifier,
            this object reports the value of 0.0.0.0."
        REFERENCE
            "Section 11.13.19.3.4.4 in IEEE 802.16REVd/D5-2004"
        ::= { wmanIfCmnClassifierRuleEntry 10 }

wmanIfCmnClassifierRuleIpDestAddr OBJECT-TYPE
        SYNTAX      InetAddress
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "This object specifies the value of the IP Destination
            Address required for packets to match this rule. An IP
            packet matches the rule when the packet IP destination
            address bitwise ANDed with the
            wmanIfCmnClassifierRuleIpDestMask value equals the
            wmanIfCmnClassifierRuleIpDestAddr value.
            If the referenced parameter is not present in a
            classifier, this object reports the value of 0.0.0.0."
        REFERENCE
            "Section 11.13.19.3.4.5 in IEEE 802.16REVd/D5-2004"
        ::= { wmanIfCmnClassifierRuleEntry 11 }

wmanIfCmnClassifierRuleIpDestMask OBJECT-TYPE
        SYNTAX      InetAddress
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "This object specifies which bits of a packet's IP
            Destination Address that are compared to match this rule.
            An IP packet matches the rule when the packet destination
            address bitwise ANDed with the
            wmanIfCmnClassifierRuleIpDestMask value equals the
            wmanIfCmnClassifierRuleIpDestAddr value.
            If the referenced parameter is not present in a classifier
            , this object reports the value of 0.0.0.0."
        REFERENCE
            "Section 11.13.19.3.4.5 in IEEE 802.16REVd/D5-2004"
        ::= { wmanIfCmnClassifierRuleEntry 12 }

wmanIfCmnClassifierRuleSourcePortStart OBJECT-TYPE
        SYNTAX      Integer32 (0..65535)
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
             "This object specifies the low end inclusive range of
             TCP/UDP source port numbers to which a packet is compared.
```

```
             This object is irrelevant for non-TCP/UDP IP packets.
             If the referenced parameter is not present in a
             classifier, this object reports the value of 0."
        REFERENCE
            "Section 11.13.19.3.4.6 in IEEE 802.16REVd/D5-2004"
        ::= { wmanIfCmnClassifierRuleEntry 13 }

wmanIfCmnClassifierRuleSourcePortEnd OBJECT-TYPE
        SYNTAX      Integer32 (0..65535)
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "This object specifies the high end inclusive range of
            TCP/UDP source port numbers to which a packet is compared.
            This object is irrelevant for non-TCP/UDP IP packets.
            If the referenced parameter is not present in a classifier,
            this object reports the value of 65535."
        REFERENCE
            "Section 11.13.19.3.4.6 in IEEE 802.16REVd/D5-2004"
        ::= { wmanIfCmnClassifierRuleEntry 14 }

wmanIfCmnClassifierRuleDestPortStart OBJECT-TYPE
        SYNTAX      Integer32 (0..65535)
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "This object specifies the low end inclusive range of
            TCP/UDP destination port numbers to which a packet is
            compared. If the referenced parameter is not present
            in a classifier, this object reports the value of 0."
        REFERENCE
            "Section 11.13.19.3.4.7 in IEEE 802.16REVd/D5-2004"
        ::= { wmanIfCmnClassifierRuleEntry 15 }

wmanIfCmnClassifierRuleDestPortEnd OBJECT-TYPE
        SYNTAX      Integer32 (0..65535)
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "This object specifies the high end inclusive range of
            TCP/UDP destination port numbers to which a packet is
            compared. If the referenced parameter is not present
            in a classifier, this object reports the value of
            65535."
        REFERENCE
            "Section 11.13.19.3.4.7 in IEEE 802.16REVd/D5-2004"
        ::= { wmanIfCmnClassifierRuleEntry 16 }

wmanIfCmnClassifierRuleDestMacAddr OBJECT-TYPE
        SYNTAX      MacAddress
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "An Ethernet packet matches an entry when its destination
            MAC address bitwise ANDed with
            wmanIfCmnClassifierRuleDestMacMask equals the value of
            wmanIfCmnClassifierRuleDestMacAddr. If the referenced
            parameter is not present in a classifier, this object
            reports the value of '000000000000'H."
        REFERENCE
            "Section 11.13.19.3.4.8 in IEEE 802.16REVd/D5-2004"
        ::= { wmanIfCmnClassifierRuleEntry 17 }

wmanIfCmnClassifierRuleDestMacMask OBJECT-TYPE
        SYNTAX      MacAddress
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "An Ethernet packet matches an entry when its destination
            MAC address bitwise ANDed with
            wmanIfCmnClassifierRuleDestMacMask equals the value of
            wmanIfCmnClassifierRuleDestMacAddr. If the referenced
            parameter is not present in a classifier, this object
            reports the value of '000000000000'H."
        REFERENCE
            "Section 11.13.19.3.4.8 in IEEE 802.16REVd/D5-2004"
        ::= { wmanIfCmnClassifierRuleEntry 18 }
```

```
wmanIfCmnClassifierRuleSourceMacAddr OBJECT-TYPE
        SYNTAX      MacAddress
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "An Ethernet packet matches this entry when its source
            MAC address  bitwise ANDed with
            wmanIfCmnClassifierRuleSourceMacMask equals the value
            of wmanIfCmnClassifierRuleSourceMacAddr. If the
            referenced parameter is not present in a classifier,
            this object reports the value of '000000000000'H."
        REFERENCE
            "Section 11.13.19.3.4.9 in IEEE 802.16REVd/D5-2004"
        ::= { wmanIfCmnClassifierRuleEntry 19 }

wmanIfCmnClassifierRuleSourceMacMask OBJECT-TYPE
        SYNTAX      MacAddress
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "An Ethernet packet matches an entry when its destination
            MAC address bitwise ANDed with
            wmanIfCmnClassifierRuleSourceMacMask equals the value of
            wmanIfCmnClassifierRuleSourceMacAddr. If the referenced
            parameter is not present in a classifier, this object
            reports the value of '000000000000'H."
        REFERENCE
            "Section 11.13.19.3.4.9 in IEEE 802.16REVd/D5-2004"
        ::= { wmanIfCmnClassifierRuleEntry 20 }

wmanIfCmnClassifierRuleEnetProtocolType OBJECT-TYPE
        SYNTAX      INTEGER {none(0),
                             ethertype(1),
                             dsap(2)}
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "This object indicates the format of the layer 3 protocol
            id in the Ethernet packet. A value of none(0) means that
            the rule does not use the layer 3 protocol type as a
            matching criteria. A value of ethertype(1) means that the
            rule applies only to frames which contains an EtherType
            value. Ethertype values are contained in packets using
            the Dec-Intel-Xerox (DIX) encapsulation or the RFC 1042
            Sub-Network Access Protocol (SNAP) encapsulation formats.
            A value of dsap(2) means that the rule applies only to
            frames using the IEEE802.3 encapsulation format with a
            Destination Service Access Point (DSAP) other than 0xAA
            (which is reserved for SNAP). If the Ethernet frame
            contains an 802.1P/Q Tag header (i.e. EtherType 0x8100),
            this object applies to the embedded EtherType field within
            the 802.1P/Q header. If the referenced parameter is not
            present in a classifier, this object reports the value of
            0."
        REFERENCE
            "Section 11.13.19.3.4.10 in IEEE 802.16REVd/D5-2004"
        ::= { wmanIfCmnClassifierRuleEntry 21 }

wmanIfCmnClassifierRuleEnetProtocol OBJECT-TYPE
        SYNTAX      Integer32 (0..65535)
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "If wmanIfCmnClassifierRuleEnetProtocolType is none(0),
            this object is ignored when considering whether a packet
            matches the current rule.
            If wmanIfCmnClassifierRuleEnetProtocolType is ethertype(1),
            this object gives the 16-bit value of the EtherType that
            the packet must match in order to match the rule.
            If wmanIfCmnClassifierRuleEnetProtocolType is dsap(2), the
            lower 8 bits of this object's value must match the DSAP
            byte of the packet in order to match the rule.
            If the Ethernet frame contains an 802.1P/Q Tag header
            (i.e. EtherType 0x8100), this object applies to the
            embedded EtherType field within the 802.1P/Q header.
            If the referenced parameter is not present in the
            classifier, the value of this object is reported as 0."
```

```
        REFERENCE
            "Section 11.13.19.3.4.10 in IEEE 802.16REVd/D5-2004"
        ::= { wmanIfCmnClassifierRuleEntry 22 }

wmanIfCmnClassifierRuleUserPriLow OBJECT-TYPE
        SYNTAX      Integer32 (0..7)
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "This object applies only to Ethernet frames using the
            802.1P/Q tag header (indicated with EtherType 0x8100).
            Such frames include a 16-bit Tag that contains a 3 bit
            Priority field and a 12 bit VLAN number.
            Tagged Ethernet packets must have a 3-bit Priority field
            within the range of wmanIfCmnClassifierRulePriLow and
            wmanIfCmnClassifierRulePriHigh in order to match this
            rule.
            If the referenced parameter is not present in the
            classifier, the value of this object is reported as 0."
        REFERENCE
            "Section 11.13.19.3.4.11 in IEEE 802.16REVd/D5-2004"
        ::= { wmanIfCmnClassifierRuleEntry 23 }

wmanIfCmnClassifierRuleUserPriHigh OBJECT-TYPE
        SYNTAX      Integer32 (0..7)
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "This object applies only to Ethernet frames using the
            802.1P/Q tag header (indicated with EtherType 0x8100).
            Such frames include a 16-bit Tag that contains a 3 bit
            Priority field and a 12 bit VLAN number.
            Tagged Ethernet packets must have a 3-bit Priority
            field within the range of wmanIfCmnClassifierRulePriLow
            and wmanIfCmnClassifierRulePriHigh in order to match
            this rule.
            If the referenced parameter is not present in the
            classifier, the value of this object is reported as 7."
        REFERENCE
            "Section 11.13.19.3.4.11 in IEEE 802.16REVd/D5-2004"
        ::= { wmanIfCmnClassifierRuleEntry 24 }

wmanIfCmnClassifierRuleVlanId OBJECT-TYPE
        SYNTAX      Integer32 (0..4095)
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "This object applies only to Ethernet frames using the
            802.1P/Q tag header.
            If this object's value is nonzero, tagged packets must
            have a VLAN Identifier that matches the value in order
            to match the rule.
            Only the least significant 12 bits of this object's
            value are valid.
            If the referenced parameter is not present in the
            classifier, the value of this object is reported as 0."
        REFERENCE
            "Section 11.13.19.3.4.12 in IEEE 802.16REVd/D5-2004"
        ::= { wmanIfCmnClassifierRuleEntry 25 }

wmanIfCmnClassifierRuleState OBJECT-TYPE
        SYNTAX      INTEGER {active(1),
                             inactive(2)}
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "This object indicates whether or not the classifier is
            enabled to classify packets to a Service Flow.
            If the referenced parameter is not present in the
            classifier, the value of this object is reported
            as active(1)."
        ::= { wmanIfCmnClassifierRuleEntry 26 }

wmanIfCmnClassifierRulePkts OBJECT-TYPE
        SYNTAX      Counter64
        MAX-ACCESS  read-only
        STATUS      current
```

```
        DESCRIPTION
            "This object counts the number of packets that have
            been classified using this entry."
        ::= { wmanIfCmnClassifierRuleEntry 27 }

wmanIfCmnClassifierRuleRowStatus OBJECT-TYPE
        SYNTAX      RowStatus
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "This object is used to create a new row or modify or
            delete an existing row in this table.

            If the implementator of this MIB has chosen not
            to implement 'dynamic assignment' of profiles, this
            object is not useful and should return noSuchName
            upon SNMP request."
        ::= { wmanIfCmnClassifierRuleEntry 28 }

--
-- wmanIfCmnCps contain the Common Part Sublayer objects that are
-- common to both Base Station and Subscriber Station
wmanIfCmnCps OBJECT IDENTIFIER ::= { wmanIfCommonObjects 2 }

wmanIfCmnCpsServiceFlowTable OBJECT-TYPE
        SYNTAX      SEQUENCE OF WmanIfCmnCpsServiceFlowEntry
        MAX-ACCESS  not-accessible
        STATUS      current
        DESCRIPTION
            "This table contains Service Flows that are created in
             both BS and SS."
        ::= { wmanIfCmnCps 1 }

wmanIfCmnCpsServiceFlowEntry OBJECT-TYPE
        SYNTAX      WmanIfCmnCpsServiceFlowEntry
        MAX-ACCESS  not-accessible
        STATUS      current
        DESCRIPTION
            "This table provides one row for each service flow, and is
            indexed by wmanIfCmnCpsSfId. The value of wmanIfCmnCpsSfId
            is obtained from wmanIfBsSfId."
        INDEX     { wmanIfCmnCpsSfId }
        ::= { wmanIfCmnCpsServiceFlowTable 1 }

WmanIfCmnCpsServiceFlowEntry::= SEQUENCE {
        wmanIfCmnCpsSfId                        Unsigned32,
        wmanIfCmnCpsSfCid                       INTEGER,
        wmanIfCmnCpsSfDirection                 INTEGER,
        wmanIfCmnCpsSfState                     INTEGER,
        wmanIfCmnCpsServiceClassName            DisplayString,
        wmanIfCmnCpsTrafficPriority             INTEGER,
        wmanIfCmnCpsMaxSustainedRate            INTEGER,
        wmanIfCmnCpsMaxTrafficBurst             INTEGER,
        wmanIfCmnCpsMinReservedRate             INTEGER,
        wmanIfCmnCpsToleratedJitter             INTEGER,
        wmanIfCmnCpsMaxLatency                  INTEGER,
        wmanIfCmnCpsFixedVsVariableSduInd       INTEGER,
        wmanIfCmnCpsSduSize                     INTEGER,
        wmanIfCmnCpsSfSchedulingType            WmanIfSfSchedulingType,
        wmanIfCmnCpsArqEnable                   TruthValue,
        wmanIfCmnCpsArqWindowSize               INTEGER,
        wmanIfCmnCpsArqFragmentLifetime         INTEGER,
        wmanIfCmnCpsArqSyncLossTimeout          INTEGER,
        wmanIfCmnCpsArqDeliverInOrder           TruthValue,
        wmanIfCmnCpsArqRxPurgeTimeout           INTEGER,
        wmanIfCmnCpsFragmentLen                 INTEGER,
        wmanIfCmnCpsMinRsvdTolerableRate        INTEGER,
        wmanIfCmnCpsReqTxPolicy                 BITS
        }

wmanIfCmnCpsSfId OBJECT-TYPE
        SYNTAX      Unsigned32 ( 1 .. 4294967295)
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "A 32 bit quantity that uniquely identifies a service flow
            to both the subscriber station and base station (BS)."
```

```
        ::= { wmanIfCmnCpsServiceFlowEntry 1 }

wmanIfCmnCpsSfCid OBJECT-TYPE
        SYNTAX      INTEGER
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "A 16 bit channel identifier to identify the connection
            being created by DSA."
        ::= { wmanIfCmnCpsServiceFlowEntry 2 }

wmanIfCmnCpsSfDirection OBJECT-TYPE
        SYNTAX      INTEGER {downstream(1),
                             upstream(2)}
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "An attribute indicating the service flow is downstream or
            upstream."
        ::= { wmanIfCmnCpsServiceFlowEntry 3 }

wmanIfCmnCpsSfState OBJECT-TYPE
        SYNTAX      INTEGER {provisioned(1),
                             admitted(2),
                             active(3)}
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "wmanIfCmnCpsSfState indicates the service flow state:
            Provisioned, AdmittedState(2), and Active service flow
            state."
        REFERENCE
            "Section 6.4.13.6, in IEEE 802.16REVd/D5-2004"
        ::= { wmanIfCmnCpsServiceFlowEntry 4 }

wmanIfCmnCpsServiceClassName  OBJECT-TYPE
        SYNTAX      DisplayString
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "Refers to the Service Class Name"
        REFERENCE
            "Section 11.13.3 in IEEE 802.16REVd/D5-2004"
        ::= { wmanIfCmnCpsServiceFlowEntry 5 }

wmanIfCmnCpsTrafficPriority OBJECT-TYPE
        SYNTAX      INTEGER
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "The value of this parameter specifies the priority
            assigned to a service flow. For uplink service flows,
            the BS should use this parameter when determining
            precedence in request service and grant generation,
            and the SS shall preferentially select contention
            Request opportunities for Priority Request CIDs
            based on this priority"
        REFERENCE
            "Section 11.13.7 in IEEE 802.16REVd/D5-2004"
        ::= { wmanIfCmnCpsServiceFlowEntry 6 }

wmanIfCmnCpsMaxSustainedRate OBJECT-TYPE
        SYNTAX      INTEGER
        UNITS       "bps"
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "This parameter defines the peak information rate
            of the service. The rate is expressed in bits per
            second and pertains to the SDUs at the input to
            the system."
        REFERENCE
            "Section 11.13.8 in IEEE 802.16REVd/D5-2004"
        ::= { wmanIfCmnCpsServiceFlowEntry 7 }

wmanIfCmnCpsMaxTrafficBurst OBJECT-TYPE
        SYNTAX      INTEGER
        UNITS       "byte"
```

```
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "This parameter defines the maximum burst size that
            must be accommodated for the service."
        REFERENCE
            "Section 11.13.9 in IEEE 802.16REVd/D5-2004"
        ::= { wmanIfCmnCpsServiceFlowEntry 8 }

wmanIfCmnCpsMinReservedRate OBJECT-TYPE
        SYNTAX      INTEGER
        UNITS       "byte"
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "This parameter specifies the minimum rate reserved
            for this service flow."
        REFERENCE
            "Section 11.13.10 in IEEE 802.16REVd/D5-2004"
        ::= { wmanIfCmnCpsServiceFlowEntry 9 }

wmanIfCmnCpsToleratedJitter OBJECT-TYPE
        SYNTAX      INTEGER
        UNITS       "millisecond"
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "This parameter defines the Maximum delay
            variation (jitter) for the connection."
        REFERENCE
            "Section 11.13.15 in IEEE 802.16REVd/D5-2004"
        ::= { wmanIfCmnCpsServiceFlowEntry 10 }

wmanIfCmnCpsMaxLatency OBJECT-TYPE
        SYNTAX      INTEGER
        UNITS       "millisecond"
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "The value of this parameter specifies the maximum
            latency between the reception of a packet by the BS
            or SS on its network interface and the forwarding
            of the packet to its RF Interface."
        REFERENCE
            "Section 11.13.16 in IEEE 802.16REVd/D5-2004"
        ::= { wmanIfCmnCpsServiceFlowEntry 11 }

wmanIfCmnCpsFixedVsVariableSduInd OBJECT-TYPE
        SYNTAX      INTEGER {variableLengthSdu(0),
                             fixedLengthSdu(1)}
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "The value of this parameter specifies whether the SDUs
             on the service flow are fixed-length (0) or
             variable-length (1). The parameter is used only if
             packing is on for the service flow. The default value
             is 0, i.e.,variable-length SDUs."
        REFERENCE
            "Section 11.13.15 in IEEE 802.16REVd/D5-2004"
        DEFVAL      { 0 }
        ::= { wmanIfCmnCpsServiceFlowEntry 12 }

wmanIfCmnCpsSduSize OBJECT-TYPE
        SYNTAX      INTEGER
        UNITS       "byte"
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "The value of this parameter specifies the length of the
             SDU for a fixed-length SDU service flow. This parameter
             is used only if packing is on and the service flow is
             indicated as carrying fixed-length SDUs. The default
             value is 49 bytes, i.e., VC-switched ATM cells with PHS.
             The parameter is relevant for both ATM and Packet
             Convergence Sublayers."
```

```
        REFERENCE
            "Section 11.13.17 in IEEE 802.16REVd/D5-2004"
        DEFVAL      { 49 }
        ::= { wmanIfCmnCpsServiceFlowEntry 13 }

wmanIfCmnCpsSfSchedulingType OBJECT-TYPE
        SYNTAX      WmanIfSfSchedulingType
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "Specifies the upstream scheduling service used for
            upstream service flow. If the referenced parameter
            is not present in the corresponding 802.16 QOS
            Parameter Set of an upstream service flow, the
            default value of this object is bestEffort(2)."
        REFERENCE
            "Section 11.13.11 in IEEE 802.16REVd/D5-2004"
        DEFVAL         { 2 }
        ::= { wmanIfCmnCpsServiceFlowEntry 14 }

wmanIfCmnCpsArqEnable OBJECT-TYPE
        SYNTAX      TruthValue
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "True(1) ARQ enabling is requested for the connection."
        ::= { wmanIfCmnCpsServiceFlowEntry 15 }

wmanIfCmnCpsArqWindowSize    OBJECT-TYPE
        SYNTAX      INTEGER (1..1024)
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "Indicates the maximum number of unacknowledged
            fragments at any time."
        ::= { wmanIfCmnCpsServiceFlowEntry 16 }

wmanIfCmnCpsArqFragmentLifetime OBJECT-TYPE
        SYNTAX      INTEGER (0 .. 65535)
        UNITS       "10 us"
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "The maximum time interval an ARQ fragment will be
            managed by the transmitter ARQ machine, once
            initial transmission of the fragment has occurred.
            If transmission or retransmission of the fragment
            is not acknowledged by the receiver before the
            time limit is reached, the fragment is discarded.
            A value of 0 means Infinite."
        ::= { wmanIfCmnCpsServiceFlowEntry 17 }

wmanIfCmnCpsArqSyncLossTimeout OBJECT-TYPE
        SYNTAX      INTEGER (0 .. 65535 )
        UNITS       "10 us"
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "The maximum interval before declaring a loss
            of synchronization of the sender and receiver
            state machines. A value of 0 means Infinite."
        ::= { wmanIfCmnCpsServiceFlowEntry 18}

wmanIfCmnCpsArqDeliverInOrder  OBJECT-TYPE
        SYNTAX      TruthValue
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "Indicates whether or not data is to be delivered
            by the receiving MAC to its client application
            in the order in which data was handed off to the
            originating MAC."
        ::= { wmanIfCmnCpsServiceFlowEntry 19 }

wmanIfCmnCpsArqRxPurgeTimeout  OBJECT-TYPE
        SYNTAX      INTEGER (0 .. 65535)
        UNITS       "10 us"
        MAX-ACCESS  read-only
```

```
        STATUS      current
        DESCRIPTION
            "Indicates the time interval the ARQ window is advanced
             after a fragment is received. A value of 0 means
             Infinite."
        ::= { wmanIfCmnCpsServiceFlowEntry 20}

wmanIfCmnCpsFragmentLen OBJECT-TYPE
        SYNTAX      INTEGER (32 .. 2040)
        UNITS       "byte"
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "The maximum size fragment a transmitter shall form
            or a receiver shall expect to receive."
        ::= { wmanIfCmnCpsServiceFlowEntry 21 }

wmanIfCmnCpsMinRsvdTolerableRate OBJECT-TYPE
        SYNTAX      INTEGER
        UNITS       "bps"
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "Minimum Tolerable Traffic Rate = R (bits/sec) with
            time base T(sec) means the following. Let S denote
            additional demand accumulated at the MAC SAP of the
            transmitter during an arbitrary time interval of the
            length T. Then the amount of data forwarded at the
            receiver to CS (in bits) during this interval should
            be not less than min {S, R * T}."
        REFERENCE
            "Section 11.13.11 in IEEE 802.16REVd/D5-2004"
        ::= { wmanIfCmnCpsServiceFlowEntry 22 }

wmanIfCmnCpsReqTxPolicy OBJECT-TYPE
        SYNTAX      BITS {noBroadcastBwReq(0),
                          reserved1(1),
                          noPiggybackReq(2),
                          noFragmentData(3),
                          noPHS(4),
                          noSduPacking(5),
                          noCrc(6),
                          reserved2(7)}
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "The value of this parameter provides the capability to
             specify certain attributes for the associated service
             flow. An attribute is enabled by setting the
             corresponding bit position to 1."
        REFERENCE
            "Section 11.13.12 in IEEE 802.16REVd/D5-2004"
        ::= { wmanIfCmnCpsServiceFlowEntry 23 }

--
-- wmanIfCmnBsSsConfigurationTable contains global parameters
-- common in BS and SS
wmanIfCmnBsSsConfigurationTable OBJECT-TYPE
        SYNTAX      SEQUENCE OF WmanIfCmnBsSsConfigurationEntry
        MAX-ACCESS  not-accessible
        STATUS      current
        DESCRIPTION
              "This table provides one row for each BS sector that
               contains the system parameters common in both SS and
               BS. All SSs shall have the same parameters as the BS
               to which the SSs are associated."
        ::= { wmanIfCmnCps 2 }

wmanIfCmnBsSsConfigurationEntry OBJECT-TYPE
        SYNTAX      WmanIfCmnBsSsConfigurationEntry
        MAX-ACCESS  not-accessible
        STATUS      current
        DESCRIPTION
              "This table is indexed by ifIndex, indicating BS
               sector."
        INDEX { ifIndex }
        ::= { wmanIfCmnBsSsConfigurationTable 1 }
```

```
WmanIfCmnBsSsConfigurationEntry ::= SEQUENCE {
        wmanIfCmnInvitedRangRetries             INTEGER,
        wmanIfCmnMinislotSize                   INTEGER,
        wmanIfCmnDSxReqRetries                  INTEGER,
        wmanIfCmnDSxRespRetries                 INTEGER,
        wmanIfCmnT7Timeout                      INTEGER,
        wmanIfCmnT8Timeout                      INTEGER,
        wmanIfCmnT10Timeout                     INTEGER,
        wmanIfCmnT22Timeout                     INTEGER,
        wmanIfCmnBsSsConfigurationRowStatus     RowStatus
        }

wmanIfCmnInvitedRangRetries OBJECT-TYPE
        SYNTAX      INTEGER(16..65535)
        MAX-ACCESS  read-write
        STATUS      current
        DESCRIPTION
            "Number of retries on inviting Ranging Requests."
        ::= { wmanIfCmnBsSsConfigurationEntry 1 }

wmanIfCmnMinislotSize OBJECT-TYPE
        SYNTAX      INTEGER (1..100)
        MAX-ACCESS  read-write
        STATUS      current
        DESCRIPTION
            "Size of minislot for uplink transmission. Shall be a power
             of 2 (in units of PS)."
        ::= { wmanIfCmnBsSsConfigurationEntry 2 }

wmanIfCmnDSxReqRetries OBJECT-TYPE
        SYNTAX      INTEGER
        MAX-ACCESS  read-write
        STATUS      current
        DESCRIPTION
            "Number of Timeout Retries on DSA/DSC/DSD Requests."
        DEFVAL         { 3 }
        ::= { wmanIfCmnBsSsConfigurationEntry 3 }

wmanIfCmnDSxRespRetries OBJECT-TYPE
        SYNTAX      INTEGER
        MAX-ACCESS  read-write
        STATUS      current
        DESCRIPTION
            "Number of Timeout Retries on DSA/DSC/DSD Responses."
        DEFVAL         { 3 }
        ::= { wmanIfCmnBsSsConfigurationEntry 4 }

wmanIfCmnT7Timeout OBJECT-TYPE
        SYNTAX      INTEGER(0 .. 1000)
        UNITS       "milliseconds"
        MAX-ACCESS  read-write
        STATUS      current
        DESCRIPTION
            "Wait for DSA/DSC/DSD Response Timeout in ms."
        ::= { wmanIfCmnBsSsConfigurationEntry 5 }

wmanIfCmnT8Timeout OBJECT-TYPE
        SYNTAX      INTEGER(0 .. 300)
        UNITS       "milliseconds"
        MAX-ACCESS  read-write
        STATUS      current
        DESCRIPTION
            "Wait for DSA/DSC/DSD Acknowledge Timeout in ms."
        ::= { wmanIfCmnBsSsConfigurationEntry 6 }

wmanIfCmnT10Timeout OBJECT-TYPE
        SYNTAX      INTEGER(0 .. 3000)
        UNITS       "milliseconds"
        MAX-ACCESS  read-write
        STATUS      current
        DESCRIPTION
            "Wait for Transaction End timeout in ms."
        ::= { wmanIfCmnBsSsConfigurationEntry 7 }

wmanIfCmnT22Timeout OBJECT-TYPE
        SYNTAX      INTEGER(0 .. 500)
        UNITS       "milliseconds"
        MAX-ACCESS  read-write
```

```
        STATUS      current
        DESCRIPTION
            "Wait for ARQ Reset in ms."
        ::= { wmanIfCmnBsSsConfigurationEntry 8 }

wmanIfCmnBsSsConfigurationRowStatus OBJECT-TYPE
        SYNTAX      RowStatus
        MAX-ACCESS  read-create
        STATUS      current
        DESCRIPTION
            "This object is used to create a new row or modify or
            delete an existing row in this table.

            If the implementator of this MIB has chosen not
            to implement 'dynamic assignment' of profiles, this
            object is not useful and should return noSuchName
            upon SNMP request."
        ::= { wmanIfCmnBsSsConfigurationEntry 9 }

--
-- wmanIfCmnSsStatCounter contain the performance statistics information
wmanIfCmnSsStatCounter OBJECT IDENTIFIER ::= { wmanIfCmnCps 3 }

wmanIfCmnSsChMeasurementTable OBJECT-TYPE
        SYNTAX      SEQUENCE OF   WmanIfCmnSsChMeasurementEntry
        MAX-ACCESS  not-accessible
        STATUS      current
        DESCRIPTION
             "This table contains channel measurement information
             for each SS. BS retrieves the channel measurement
             information from REP-REQ/RSP messages. This table contains
             channel measurement information on the downlink signal
             sent to SS."
        ::= { wmanIfCmnSsStatCounter  1 }

wmanIfCmnSsChMeasurementEntry OBJECT-TYPE
        SYNTAX      WmanIfCmnSsChMeasurementEntry
        MAX-ACCESS  not-accessible
        STATUS      current
        DESCRIPTION
             "Each entry in the table contains RSSI and CINR
             signal quality measurement taken from the SS. The primary
             index is the ifIndex with ifType propBWAp2Mp identifying
             the BS sector. The primary index is the ifIndex with ifType
             of propBWAp2Mp identifying the BS sector. wmanIfCmnSsIdIndex
             identifies the SS where the measurements taking place.
             wmanIfCmnHistogramIndex is the index to histogram samples.
             Since there is no time stamp in the table,
             wmanIfCmnHistogramIndex should be increased monotonically,
             and warps around when it reaches the limit.
             be maintained as FIFO to store measurement samples that
             can be used to create RSSI and CINR histogram report.
             When the measurement entry for a SS reaches the limit,
             the oldest entry shall be deleted as the new entry is
             added to the table."
        INDEX       { ifIndex, wmanIfCmnSsIdIndex,
                      wmanIfCmnHistogramIndex }
        ::= { wmanIfCmnSsChMeasurementTable  1 }

WmanIfCmnSsChMeasurementEntry ::= SEQUENCE {
        wmanIfCmnSsIdIndex                      Unsigned32,
        wmanIfCmnHistogramIndex                 Unsigned32,
        wmanIfCmnChannelNumber                  INTEGER,
        wmanIfCmnStartFrame                     INTEGER,
        wmanIfCmnDuration                       INTEGER,
        wmanIfCmnBasicReport                    BITS,
        wmanIfCmnMeanCinrReport                 INTEGER,
        wmanIfCmnStdDeviationCinrReport         INTEGER,
        wmanIfCmnMeanRssiReport                 INTEGER,
        wmanIfCmnStdDeviationRssiReport         INTEGER
        }

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

```
        DESCRIPTION
             "wmanIfCmnSsIdIndex identifies the SS providing the
              channel measurement."
        REFERENCE
            "Section 6.4.2.3.5 in IEEE 802.16REVd/D5-2004"
        ::= { wmanIfCmnSsChMeasurementEntry 1 }

wmanIfCmnHistogramIndex OBJECT-TYPE
        SYNTAX      Unsigned32 (1 .. 4294967295)
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
             "wmanIfBsHistogramIndex identifies the histogram samples
             in the table for each subscriber station."
        ::= { wmanIfCmnSsChMeasurementEntry 2 }

wmanIfCmnChannelNumber OBJECT-TYPE
        SYNTAX      INTEGER
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
             "Physical channel number to be reported on."
        REFERENCE
            "Section 8.5.1 in IEEE 802.16REVd/D5-2004"
        ::= { wmanIfCmnSsChMeasurementEntry 3 }

wmanIfCmnStartFrame OBJECT-TYPE
        SYNTAX      INTEGER
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
             "Frame number in which measurement for this channel
              started."
        REFERENCE
            "Section 11.12 in IEEE 802.16REVd/D5-2004"
        ::= { wmanIfCmnSsChMeasurementEntry 4 }

wmanIfCmnDuration OBJECT-TYPE
        SYNTAX      INTEGER
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
             "Cumulative measurement duration on the channel in
              multiples of Ts. For any value exceeding 0xFFFFFF,
              report 0xFFFFFF."
        REFERENCE
            "Section 11.12 in IEEE 802.16REVd/D5-2004"
        ::= { wmanIfCmnSsChMeasurementEntry 5 }

wmanIfCmnBasicReport OBJECT-TYPE
        SYNTAX      BITS {wirelessHuman(0),
                          unknownTransmission(1),
                          primaryUser(2),
                          channegNotMeasured(3)}
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
             "Bit #0: WirelessHUMAN detected on the channel
              Bit #1: Unknown transmissions detected on the channel
              Bit #2: Primary User detected on the channel
              Bit #3: Unmeasured. Channel not measured"
        REFERENCE
            "Section 11.12 in IEEE 802.16REVd/D5-2004"
        ::= { wmanIfCmnSsChMeasurementEntry 6 }

wmanIfCmnMeanCinrReport OBJECT-TYPE
        SYNTAX      INTEGER
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
             "Mean CINR report."
        REFERENCE
            "Section 8.2.2, 8.3.8, 8.4.1, 11.12 in IEEE
            802.16REVd/D5-2004"
        ::= { wmanIfCmnSsChMeasurementEntry 7 }
```

```
wmanIfCmnStdDeviationCinrReport OBJECT-TYPE
        SYNTAX      INTEGER
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
             "Standard deviation CINR report."
        REFERENCE
            "Section 8.2.2, 8.3.8, 8.4.1, 11.12 in IEEE
            802.16REVd/D5-2004"
        ::= { wmanIfCmnSsChMeasurementEntry 8 }

wmanIfCmnMeanRssiReport OBJECT-TYPE
        SYNTAX      INTEGER
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
             "Mean RSSI report."
        REFERENCE
            "Section 8.2.2, 8.3.8, 8.4.1, 11.12 in IEEE
            802.16REVd/D5-2004"
        ::= { wmanIfCmnSsChMeasurementEntry 9 }

wmanIfCmnStdDeviationRssiReport OBJECT-TYPE
        SYNTAX      INTEGER
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
             "Standard deviation RSSI report."
        REFERENCE
            "Section 8.2.2, 8.3.8, 8.4.1, 11.12 in IEEE
            802.16REVd/D5-2004"
        ::= { wmanIfCmnSsChMeasurementEntry 10 }

-- Common PKM  group
-- wmanIfCmnPkmObjects contain the Privacy Sublayer objects that are
-- common to both Base Station and Subscriber Station
wmanIfCmnPkmObjects OBJECT IDENTIFIER ::= { wmanIfCommonObjects  3 }

--
-- Table wmanIfCmnCryptoSuiteTable
--
wmanIfCmnCryptoSuiteTable OBJECT-TYPE
        SYNTAX      SEQUENCE OF   WmanIfCmnCryptoSuiteEntry
        MAX-ACCESS  not-accessible
        STATUS      current
        DESCRIPTION
             "This table describes the PKM cryptographic suite
             capabilities for each SS or BS wireless interface."
        ::= { wmanIfCmnPkmObjects  1 }

wmanIfCmnCryptoSuiteEntry OBJECT-TYPE
        SYNTAX      WmanIfCmnCryptoSuiteEntry
        MAX-ACCESS  not-accessible
        STATUS      current
        DESCRIPTION
             "Each entry contains the cryptographic suite pair that SS
             or BS supports."
        INDEX       { ifIndex, wmanIfCmnCryptoSuiteIndex }
        ::= { wmanIfCmnCryptoSuiteTable  1 }

WmanIfCmnCryptoSuiteEntry ::= SEQUENCE {
        wmanIfCmnCryptoSuiteIndex               Integer32,
        wmanIfCmnCryptoSuiteDataEncryptAlg      INTEGER,
        wmanIfCmnCryptoSuiteDataAuthentAlg      INTEGER,
        wmanIfCmnCryptoSuiteTEKEncryptAlg       INTEGER
        }

wmanIfCmnCryptoSuiteIndex OBJECT-TYPE
        SYNTAX      Integer32 (1 .. 1000)
        MAX-ACCESS  not-accessible
        STATUS      current
        DESCRIPTION
             "The index for a cryptographic suite row."
        ::= { wmanIfCmnCryptoSuiteEntry 1 }
```

```
wmanIfCmnCryptoSuiteDataEncryptAlg OBJECT-TYPE
        SYNTAX      INTEGER { none(0),
                              des56CbcMode(1),
                              aesCcmMode(2) }
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
             "The value of this object is the data encryption algorithm
             for this cryptographic suite capability."
        REFERENCE
             "IEEE 802.16 standard; table 373"
        ::= { wmanIfCmnCryptoSuiteEntry 2 }

wmanIfCmnCryptoSuiteDataAuthentAlg OBJECT-TYPE
        SYNTAX      INTEGER { none(0) }
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
             "The value of this object is the data authentication
             algorithm for this cryptographic suite capability."
        REFERENCE
             "IEEE 802.16 standard; table 302"
        ::= { wmanIfCmnCryptoSuiteEntry 3 }

wmanIfCmnCryptoSuiteTEKEncryptAlg OBJECT-TYPE
        SYNTAX      INTEGER {tripleDES128Key(1),
                              rsa1024Key(2),
                              aes128Key(3) }
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
             "The value of this object is the TEK key encryption
             algorithm for this cryptographic suite capability."
        REFERENCE
             "IEEE 802.16 standard; table 375"
        ::= { wmanIfCmnCryptoSuiteEntry 4 }

--
-- wmanIfCmnOfdmPhy contain the OFDM PHY objects that are common to both
-- Base Station and Subscriber Station. When the objects are implemented
-- in the BS, they should have the read-write access. When the objects
-- are implemented the SS, they should have the read-only access.
--
wmanIfCmnOfdmPhy OBJECT IDENTIFIER ::= { wmanIfCommonObjects 4 }

wmanIfCmnOfdmUplinkChannelTable OBJECT-TYPE
        SYNTAX      SEQUENCE OF WmanIfCmnOfdmUplinkChannelEntry
        MAX-ACCESS  not-accessible
        STATUS      current
        DESCRIPTION
            "This table contains UCD channel attributes, defining the
            transmission characteristics of uplink channels"
        REFERENCE
            "Section 11.3.1, table 276 and 279, in IEEE
            802.16REVd/D5-2004"
        ::= { wmanIfCmnOfdmPhy 1 }

wmanIfCmnOfdmUplinkChannelEntry OBJECT-TYPE
        SYNTAX      WmanIfCmnOfdmUplinkChannelEntry
        MAX-ACCESS  not-accessible
        STATUS      current
        DESCRIPTION
              "This table provides one row for each uplink channel of
              multi-sector BS, and is indexed by BS ifIndex. An entry
              in this table exists for each ifEntry of BS with an
              ifType of propBWAp2Mp.
              The objects in each entry will be implemented as
              read-create in BS and read-only in SS."
        INDEX { ifIndex }
        ::= { wmanIfCmnOfdmUplinkChannelTable 1 }

WmanIfCmnOfdmUplinkChannelEntry ::= SEQUENCE {
        wmanIfCmnOfdmCtBasedResvTimeout         INTEGER,
        wmanIfCmnOfdmBwReqOppSize               INTEGER,
        wmanIfCmnOfdmRangReqOppSize             INTEGER,
        wmanIfCmnOfdmUplinkCenterFreq           INTEGER,
        wmanIfCmnOfdmSubChReqRegionFull         INTEGER,
        wmanIfCmnOfdmSubChFocusCtCode           INTEGER,
```

```
        wmanIfCmnOfdmUplinkChannelRowStatus     RowStatus
        }

wmanIfCmnOfdmCtBasedResvTimeout OBJECT-TYPE
        SYNTAX      INTEGER (1..255)
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "The number of UL-MAPs to receive before contention-based
            reservation is attempted again for the same connection."
        REFERENCE
            "Section 11.3.1, table 276, in IEEE 802.16REVd/D5-2004"
        ::= { wmanIfCmnOfdmUplinkChannelEntry 1 }

wmanIfCmnOfdmBwReqOppSize OBJECT-TYPE
        SYNTAX      INTEGER (1..65535)
        UNITS       "PS"
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            " Size (in units of PS) of PHY payload that SS may use to
            format and transmit a bandwidth request message in a
            contention request opportunity. The value includes all
            PHY overhead as well as allowance for the MAC data the
            message may hold."
        REFERENCE
            "Section 11.3.1, table 276, in IEEE 802.16REVd/D5-2004"
        ::= { wmanIfCmnOfdmUplinkChannelEntry 2 }

wmanIfCmnOfdmRangReqOppSize OBJECT-TYPE
        SYNTAX      INTEGER (1..65535)
        UNITS       "PS"
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            " Size (in units of PS) of PHY payload that SS may use to
            format and transmit a RNG-REQ message in a contention
            request opportunity. The value includes all PHY overhead
            as well as allowance for the MAC data the message may
            hold and the maximum SS/BS roundtrip propagation delay."
        REFERENCE
            "Section 11.3.1, table 276, in IEEE 802.16REVd/D5-2004"
        ::= { wmanIfCmnOfdmUplinkChannelEntry 3 }

wmanIfCmnOfdmUplinkCenterFreq OBJECT-TYPE
        SYNTAX      INTEGER
        UNITS       "KHz"
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            " Uplink center frequency (KHz)"
        REFERENCE
            "Section 11.3.1, table 276, in IEEE 802.16REVd/D5-2004"
        ::= { wmanIfCmnOfdmUplinkChannelEntry 4 }

wmanIfCmnOfdmSubChReqRegionFull OBJECT-TYPE
        SYNTAX      INTEGER {oneSubchannel(0),
                             twoSubchannels(1),
                             fourSubchannels(2),
                             eightSubchannels(3),
                             sixteenSubchannels(4)}
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "Bits 0 - 2 Number of subchannels used by each transmit
            opportunity when REQ Region-Full is allocated in
            subchannelization region, per the following enumeration:
               0: 1 Subchannel.
               1: 2 Subchannels.
               2: 4 Subchannels.
               3: 8 Subchannels.
               4: 16 Subchannels.
               5-7: Shall not be used.
             Bits 3 - 7: Number of OFDM symbols used by each transmit
             opportunity when REQ Region-Full is allocated in
             subchannelization region.
```

```
        REFERENCE
             Section 11.3.1, table 279, in IEEE 802.16REVd/D5-2004"
        ::= { wmanIfCmnOfdmUplinkChannelEntry 5 }

wmanIfCmnOfdmSubChFocusCtCode OBJECT-TYPE
        SYNTAX      INTEGER (0..8)
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "Number of contention codes (CSE) that shall only be used to
             request a subchannelized allocation. Default value 0.
             Allowed values 0-8."
        REFERENCE
            "Section 11.3.1, table 279, in IEEE 802.16REVd/D5-2004"
        DEFVAL         { 0 }
        ::= { wmanIfCmnOfdmUplinkChannelEntry 6 }

wmanIfCmnOfdmUplinkChannelRowStatus OBJECT-TYPE
        SYNTAX          RowStatus
        MAX-ACCESS      read-only
        STATUS          current
        DESCRIPTION
            "This object is used to create a new row or modify or
            delete an existing row in this table.

            If the implementator of this MIB has chosen not
            to implement 'dynamic assignment' of profiles, this
            object is not useful and should return noSuchName
            upon SNMP request."
        ::= { wmanIfCmnOfdmUplinkChannelEntry 7 }

wmanIfCmnOfdmDownlinkChannelTable OBJECT-TYPE
        SYNTAX      SEQUENCE OF WmanIfCmnOfdmDownlinkChannelEntry
        MAX-ACCESS  not-accessible
        STATUS      current
        DESCRIPTION
            "This table contains DCD channel attributes, defining the
            transmission characteristics of downlink channels"
        REFERENCE
            "Section 11.4.1, table 286, in IEEE 802.16REVd/D5-2004"
        ::= { wmanIfCmnOfdmPhy 2 }

wmanIfCmnOfdmDownlinkChannelEntry OBJECT-TYPE
        SYNTAX      WmanIfCmnOfdmDownlinkChannelEntry
        MAX-ACCESS  not-accessible
        STATUS      current
        DESCRIPTION
              "This table provides one row for each downlink channel of
              multi-sector BS, and is indexed by BS ifIndex. An entry
              in this table exists for each ifEntry of BS with an
              ifType of propBWAp2Mp.
              The objects in each entry will be implemented as
              read-create in BS and read-only in SS."
        INDEX { ifIndex }
        ::= { wmanIfCmnOfdmDownlinkChannelTable 1 }

WmanIfCmnOfdmDownlinkChannelEntry ::= SEQUENCE {
        wmanIfCmnOfdmBsEIRP                     INTEGER,
        wmanIfCmnOfdmChannelNumber              INTEGER,
        wmanIfCmnOfdmTTG                        INTEGER,
        wmanIfCmnOfdmRTG                        INTEGER,
        wmanIfCmnOfdmInitRngMaxRSS              INTEGER,
        wmanIfCmnOfdmChSwitchFrameNmr           INTEGER,
        wmanIfCmnOfdmDownlinkCenterFreq         INTEGER,
        wmanIfCmnOfdmBsId                       OCTET STRING,
        wmanIfCmnOfdmMacVersion                 INTEGER,
        wmanIfCmnOfdmFrameDurationCode          INTEGER,
        wmanIfCmnOfdmFrameNumber                INTEGER,
        wmanIfCmnOfdmDownlinkChannelRowStatus   RowStatus
        }

wmanIfCmnOfdmBsEIRP OBJECT-TYPE
        SYNTAX      INTEGER (0..65535)
        UNITS       "dbM"
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            " Signed in units of 1 dBM."
```

```
        REFERENCE
            "Section 11.4.1, table 286, in IEEE 802.16REVd/D5-2004"
        ::= { wmanIfCmnOfdmDownlinkChannelEntry 1 }

wmanIfCmnOfdmChannelNumber OBJECT-TYPE
        SYNTAX      INTEGER (1..255)
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            " Downlink channel number as defined in 8.5.
              Used for license-exempt operation only."
        REFERENCE
            "Section 11.4.1, table 286, in IEEE 802.16REVd/D5-2004"
        ::= { wmanIfCmnOfdmDownlinkChannelEntry 2 }

wmanIfCmnOfdmTTG OBJECT-TYPE
        SYNTAX      INTEGER (0..255)
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            " Transmit / Receive Transition Gap."
        REFERENCE
            "Section 11.4.1, table 286, in IEEE 802.16REVd/D5-2004"
        ::= { wmanIfCmnOfdmDownlinkChannelEntry 3 }

wmanIfCmnOfdmRTG OBJECT-TYPE
        SYNTAX      INTEGER (0..255)
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            " Receive / Transmit Transition Gap."
        REFERENCE
            "Section 11.4.1, table 286, in IEEE 802.16REVd/D5-2004"
        ::= { wmanIfCmnOfdmDownlinkChannelEntry 4 }

wmanIfCmnOfdmInitRngMaxRSS OBJECT-TYPE
        SYNTAX      INTEGER (0..65535)
        UNITS       "dbM"
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            " Initial Ranging Max. Received Signal Strength at BS
            Signed in units of 1 dBm."
        REFERENCE
            "Section 11.4.1, table 286, in IEEE 802.16REVd/D5-2004"
        ::= { wmanIfCmnOfdmDownlinkChannelEntry 5 }

wmanIfCmnOfdmChSwitchFrameNmr OBJECT-TYPE
        SYNTAX      INTEGER (0..16777215)
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            " Channel switch frame number as defined in 6.4.14.7,
            Used for license-exempt operation only."
        REFERENCE
            "Section 11.4.1, table 286, in IEEE 802.16REVd/D5-2004"
        ::= { wmanIfCmnOfdmDownlinkChannelEntry 6 }

wmanIfCmnOfdmDownlinkCenterFreq OBJECT-TYPE
        SYNTAX      INTEGER
        UNITS       "KHz"
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            " Downlink center frequency (kHz)."
        REFERENCE
            "Section 11.4.1, table 286, in IEEE 802.16REVd/D5-2004"
        ::= { wmanIfCmnOfdmDownlinkChannelEntry 7 }

wmanIfCmnOfdmBsId OBJECT-TYPE
        SYNTAX      OCTET STRING (SIZE(6))
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            " Base station ID."
```

```
        REFERENCE
            "Section 11.4.1, table 286, in IEEE 802.16REVd/D5-2004"
        ::= { wmanIfCmnOfdmDownlinkChannelEntry 8 }

wmanIfCmnOfdmMacVersion OBJECT-TYPE
        SYNTAX      INTEGER {ieee802Dot16-2001(1),
                             ieee802Dot16c-2002(2),
                             ieee802Dot16a-2003(3),
                             ieee802Dot16-2004(4)}
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            " This parameter specifies the version of 802.16 to which
             the message originator conforms."
        REFERENCE
            "Section 11.4.1, table 286, in IEEE 802.16REVd/D5-2004"
        ::= { wmanIfCmnOfdmDownlinkChannelEntry 9 }

wmanIfCmnOfdmFrameDurationCode OBJECT-TYPE
        SYNTAX      INTEGER (0..6)
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            " The duration of the frame. The frame duration code
            values are specified in table 230."
        REFERENCE
            "Section 11.4.1, table 230, in IEEE 802.16/2004"
        ::= { wmanIfCmnOfdmDownlinkChannelEntry 10 }

wmanIfCmnOfdmFrameNumber OBJECT-TYPE
        SYNTAX      INTEGER (0..16777215)
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            " The number of frame containing the DCD message."
        REFERENCE
            "Section 11.4.1, table 286, in IEEE 802.16REVd/D5-2004"
        ::= { wmanIfCmnOfdmDownlinkChannelEntry 11 }

wmanIfCmnOfdmDownlinkChannelRowStatus OBJECT-TYPE
        SYNTAX      RowStatus
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "This object is used to create a new row or modify or
            delete an existing row in this table.

            If the implementator of this MIB has chosen not
            to implement 'dynamic assignment' of profiles, this
            object is not useful and should return noSuchName
            upon SNMP request."
        ::= { wmanIfCmnOfdmDownlinkChannelEntry 12 }

wmanIfCmnOfdmUcdBurstProfileTable OBJECT-TYPE
        SYNTAX      SEQUENCE OF WmanIfCmnOfdmUcdBurstProfileEntry
        MAX-ACCESS  not-accessible
        STATUS      current
        DESCRIPTION
            "This table contains UCD burst profiles for each uplink
            channel"
        REFERENCE
            "Section 11.3.1.1, table 281 and 284, in IEEE
            802.16REVd/D5-2004"
        ::= { wmanIfCmnOfdmPhy 3 }

wmanIfCmnOfdmUcdBurstProfileEntry OBJECT-TYPE
        SYNTAX      WmanIfCmnOfdmUcdBurstProfileEntry
        MAX-ACCESS  not-accessible
        STATUS      current
        DESCRIPTION
              "This table provides one row for each UCD burst profile.
              This table is double indexed. The primary index is an
              ifIndex with an ifType of propBWAp2Mp. The secondary index
              is wmanIfCmnOfdmOfdmUcdBurstProfIndex.
              The objects in each entry will be implemented as
              read-create in BS and read-only in SS."
```

```
        INDEX { ifIndex, wmanIfCmnOfdmOfdmUcdBurstProfIndex }
        ::= { wmanIfCmnOfdmUcdBurstProfileTable 1 }

WmanIfCmnOfdmUcdBurstProfileEntry ::= SEQUENCE {
        wmanIfCmnOfdmOfdmUcdBurstProfIndex      INTEGER,
        wmanIfCmnOfdmUiucValue                  INTEGER,
        wmanIfCmnOfdmUplinkFrequency            INTEGER,
        wmanIfCmnOfdmUcdFecCodeType             INTEGER,
        wmanIfCmnOfdmFocusCtPowerBoost          INTEGER,
        wmanIfCmnOfdmUcdBurstProfileRowStatus   RowStatus
        }

wmanIfCmnOfdmOfdmUcdBurstProfIndex OBJECT-TYPE
        SYNTAX      INTEGER (5 .. 12)
        MAX-ACCESS  not-accessible
        STATUS      current
        DESCRIPTION
            "ifIndex and wmanIfCmnOfdmOfdmUcdBurstProfIndex uniquely
            identify an entry in the wmanIfCmnOfdmUcdBurstProfileTable."
        ::= { wmanIfCmnOfdmUcdBurstProfileEntry 1 }

wmanIfCmnOfdmUiucValue OBJECT-TYPE
        SYNTAX      INTEGER (5..12)
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "The Uplink Interval Usage Code indicates the uplink burst
             profile in the UCD message."
        REFERENCE
            "Section 8.3.6.3.1, in IEEE 802.16/2004"
        ::= { wmanIfCmnOfdmUcdBurstProfileEntry 2 }

wmanIfCmnOfdmUplinkFrequency OBJECT-TYPE
        SYNTAX      INTEGER
        UNITS       "KHz"
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "Uplink Frequency (kHz)."
        REFERENCE
            "Section 11.3.1.1, table 281, in IEEE 802.16REVd/D5-2004"
        ::= { wmanIfCmnOfdmUcdBurstProfileEntry 3 }

wmanIfCmnOfdmUcdFecCodeType OBJECT-TYPE
        SYNTAX      INTEGER {qpskRsCcCc1-2(0),
                             qpskRsCcCc3-4(1),
                             sixteenQamRsCcCc1-2(2),
                             sixteenQamRsCcCc3-4(3),
                             sixtyFourQamRsCcCc2-3(4),
                             sixtyFourQamRsCcCc3-4(5),
                             qpskBtc1-2(6),
                             qpskBtc3-4(7),
                             sixteenQamBtc3-5(8),
                             sixteenQamBtc4-5(9),
                             sixtyFourQamBtc2-3(10),
                             sixtyFourQamBtc5-6(11),
                             qpskCtc1-2(12),
                             qpskCtc2-3(13),
                             qpskCtc3-4(14),
                             sixteenQamCtc3-4(16),
                             sixteenQamCtc2-3(17),
                             sixtyFourQamCtc3-4(18)}
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            " 0= QPSK (RS+CC/CC) 1/2
              1= QPSK (RS+CC/Cc) 3/4
              2= 16-QAM (RS+CC/CC) 1/2
              3= 16-QAM (RS+CC/CC) 3/4
              4= 64-QAM (RS+CC/CC) 2/3
              5= 64-QAM (RS+CC/CC) 3/4
              6= QPSK (BTC) 1/2
              7= QPSK (BTC) 3/4
              8= 16-QAM (BTC) 3/5
              9= 16-QAM (BTC) 4/5
              10 = 64-QAM (BTC) 2/3
              11 = 64-QAM (BTC) 5/6
              12 = QPSK (CTC) 1/2
```

```
              13 = QPSK (CTC) 2/3
              14 = QPSK (CTC) 3/4
              15 = 16-QAM (CTC) 1/2
              16 = 16-QAM (CTC) 3/4
              17 = 64-QAM (CTC) 2/3
              18 = 64-QAM (CTC) 3/4
              19 - 255 Reserved."
        REFERENCE
            "Section 11.3.1.1, table 284, in IEEE 802.16REVd/D5-2004"
        ::= { wmanIfCmnOfdmUcdBurstProfileEntry 4 }

wmanIfCmnOfdmFocusCtPowerBoost OBJECT-TYPE
        SYNTAX      INTEGER
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "The power boost in dB of focused contention carriers, as
           described in 8.3.6.3.3."
        REFERENCE
            "Section 11.3.1.1, table 284, in IEEE 802.16REVd/D5-2004"
        ::= { wmanIfCmnOfdmUcdBurstProfileEntry 5 }

wmanIfCmnOfdmUcdBurstProfileRowStatus OBJECT-TYPE
        SYNTAX      RowStatus
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "This object is used to create a new row or modify or
            delete an existing row in this table.

            If the implementator of this MIB has chosen not
            to implement 'dynamic assignment' of profiles, this
            object is not useful and should return noSuchName
            upon SNMP request."
        ::= { wmanIfCmnOfdmUcdBurstProfileEntry 6 }

wmanIfCmnOfdmDcdBurstProfileTable OBJECT-TYPE
        SYNTAX      SEQUENCE OF WmanIfOfdmDcdBurstProfileEntry
        MAX-ACCESS  not-accessible
        STATUS      current
        DESCRIPTION
              "This table provides one row for each DCD burst profile.
              This table is double indexed. The primary index is an
              ifIndex with an ifType of propBWAp2Mp. The secondary
              index is wmanIfCmnOfdmOfdmDcdBurstProfIndex"
        ::= { wmanIfCmnOfdmPhy 4 }


wmanIfCmnOfdmDcdBurstProfileEntry OBJECT-TYPE
        SYNTAX      WmanIfOfdmDcdBurstProfileEntry
        MAX-ACCESS  not-accessible
        STATUS      current
        DESCRIPTION
              "This table provides one row for each DCD burst profile.
              This table is double indexed. The primary index is an
              ifIndex with an ifType of propBWAp2Mp. The secondary index
              is wmanIfCmnOfdmDcdBurstProfIndex.
              The objects in each entry will be implemented as
              read-create in BS and read-only in SS."
        INDEX { ifIndex, wmanIfCmnOfdmDcdBurstProfIndex }
        ::= { wmanIfCmnOfdmDcdBurstProfileTable 1 }

WmanIfOfdmDcdBurstProfileEntry ::= SEQUENCE {
        wmanIfCmnOfdmDcdBurstProfIndex          INTEGER,
        wmanIfCmnOfdmDiucValue                  INTEGER,
        wmanIfCmnOfdmDownlinkFrequency          INTEGER,
        wmanIfCmnOfdmDcdFecCodeType             INTEGER,
        wmanIfCmnOfdmDiucMandatoryExitThresh    INTEGER,
        wmanIfCmnOfdmDiucMinEntryThresh         INTEGER,
        wmanIfCmnOfdmTcsEnable                  INTEGER,
        wmanIfCmnOfdmDcdBurstProfileRowStatus   RowStatus
        }

wmanIfCmnOfdmDcdBurstProfIndex OBJECT-TYPE
        SYNTAX      INTEGER (1 .. 11)
        MAX-ACCESS  not-accessible
        STATUS      current
```

```
        DESCRIPTION
            "ifIndex and wmanIfCmnOfdmDcdBurstProfIndex uniquely
            identify an entry in the wmanIfCmnOfdmDcdBurstProfileTable."
        ::= { wmanIfCmnOfdmDcdBurstProfileEntry 1 }

wmanIfCmnOfdmDiucValue OBJECT-TYPE
        SYNTAX      INTEGER (1..11)
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "The Downlink Interval Usage Code indicates the downlink
             burst profile in the UCD message."
        REFERENCE
            "Section 8.3.6.3.1, in IEEE 802.16/2004"
        ::= { wmanIfCmnOfdmDcdBurstProfileEntry 2 }

wmanIfCmnOfdmDownlinkFrequency OBJECT-TYPE
        SYNTAX      INTEGER
        UNITS       "KHz"
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "Downlink Frequency (kHz)."
        REFERENCE
            "Section 11.4.1, table 287, in IEEE 802.16REVd/D5-2004"
        ::= { wmanIfCmnOfdmDcdBurstProfileEntry 3 }

wmanIfCmnOfdmDcdFecCodeType OBJECT-TYPE
        SYNTAX      INTEGER {qpskRsCc1-2(0),
                             qpskRsCc3-4(1),
                             sixteenQamRsCc1-2(2),
                             sixteenQamRsCc3-4(3),
                             sixtyFourQamRsCc2-3(4),
                             sixtyFourQamRsCc3-4(5),
                             qpskBtc1-2(6),
                             qpskBtc3-4(7),
                             sixteenQamBtc3-4(8),
                             sixteenQamBtc4-5(9),
                             sixtyFourQamBtc2-3or5-8(10),
                             sixtyFourQamBtc5-6or4-5(11),
                             qpskCtc1-2(12),
                             qpskCtc2-3(13),
                             qpskCtc3-4(14),
                             sixteenQamCtc1-2(16),
                             sixteenQamCtc3-4(17),
                             sixtyFourQamCtc3-4(18)}
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            " 0= QPSK (RS+CC) 1/2
              1= QPSK (RS+CC) 3/4
              2= 16-QAM (RS+CC) 1/2
              3= 16-QAM (RS+CC) 3/4
              4= 64-QAM (RS+CC) 2/3
              5= 64-QAM (RS+CC) 3/4
              6= QPSK (BTC) 1/2
              7= QPSK (BTC) 3/4
              8= 16-QAM (BTC) 3/5
              9= 16-QAM (BTC) 4/5
              10 = 64-QAM (BTC) 2/3 or 5/8
              11 = 64-QAM (BTC) 5/6 or 4/5
              12 = QPSK (CTC) 1/2
              13 = QPSK (CTC) 2/3
              14 = QPSK (CTC) 3/4
              15 = 16-QAM (CTC) 1/2
              16 = 16-QAM (CTC) 3/4
              17 = 64-QAM (CTC) 2/3
              18 = 64-QAM (CTC) 3/4
              19 - 255 Reserved."
        REFERENCE
            "Section 11.4.1, table 290, in IEEE 802.16REVd/D5-2004"
        ::= { wmanIfCmnOfdmDcdBurstProfileEntry 4 }

wmanIfCmnOfdmDiucMandatoryExitThresh OBJECT-TYPE
        SYNTAX      INTEGER (0..255)
        MAX-ACCESS  read-only
        STATUS      current
```

```
        DESCRIPTION
            "DIUC mandatory exit threshold: 0 - 63.75 dB CINR at or
            below where this DIUC can no longer be used and where this
            change to a more robust DIUC is required, in 0.25 dB units."
        REFERENCE
            "Section 11.4.1, table 290, in IEEE 802.16REVd/D5-2004"
        ::= { wmanIfCmnOfdmDcdBurstProfileEntry 5 }

wmanIfCmnOfdmDiucMinEntryThresh OBJECT-TYPE
        SYNTAX      INTEGER (0..255)
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "DIUC minimum entry threshold: 0 - 63.75 dB The minimum CINR
            required to start using this DIUC when changing from a more
            robust DIUC is required, in 0.25 dB units."
        REFERENCE
            "Section 11.4.1, table 290, in IEEE 802.16REVd/D5-2004"
        ::= { wmanIfCmnOfdmDcdBurstProfileEntry 6 }

wmanIfCmnOfdmTcsEnable OBJECT-TYPE
        SYNTAX      INTEGER {tcsDisabled (0),
                             tcsEnabled (1)}
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "Indicates whether Transmission COnvergence Sublayer
             is enabled or disabled."
        REFERENCE
            "Section 11.4.1, table 360, in IEEE 802.16/2004"
        ::= { wmanIfCmnOfdmDcdBurstProfileEntry 7 }

wmanIfCmnOfdmDcdBurstProfileRowStatus OBJECT-TYPE
        SYNTAX      RowStatus
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "This object is used to create a new row or modify or
            delete an existing row in this table.

            If the implementator of this MIB has chosen not
            to implement 'dynamic assignment' of profiles, this
            object is not useful and should return noSuchName
            upon SNMP request."
        ::= { wmanIfCmnOfdmDcdBurstProfileEntry 8 }


END
```

Annex A (informative): Bibliography

IETF RFC 2515 (February, 1999): "Definitions of Managed Objects for ATM Management".

IETF RFC 1573: "Evolution of the Interfaces Group of MIB-II".

IETF RFC 1042: "Standard for the transmission of IP datagrams over IEEE 802 networks".

IETF RFC 868: "Time Protocol".

History

Document history		
V1.1.1	January 2005	Publication