Project	**IEEE 802.16 Broadband Wireless Access Working Group <http://ieee802.org/16>**	
Title	**MAC and PHY MIB for WirelessMAN and WirelessHUMAN BS and SS**	
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Abstract	IEEE 802.16 working group defines WirelessMAN and WirelessHUMAN 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). This contribution defines the 802.16 MIB for MAC and PHY layers to achieve management interoperability and provide the remote management capability that are urgently needed for massive WirelessMAN and WirelessHUMAN deployment by carriers.	
Purpose	Adoption	
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1. Introduction

IEEE 802.16 working group defines WirelessMAN and WirelessHUMAN 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). This contribution defines the 802.16 MIB for MAC and PHY layers to achieve management interoperability and provide the remote management capability that are urgently needed for massive WirelessMAN and WirelessHUMAN deployment.

1.1 Scope

The scope of this contribution is to define the 802.16 MAC and PHY MIB for SS and BS, based on IEEE 802.16REVd/D3 specification [3]. The definition of managed objects in this MIB is based on SNMPv2 Structure of Management Information (SMI) [4] and Textual Conventions [5]. Therefore, 802.16 MIB is compliant to SNMPV2, but is backward compatible to SNMPv1 through appropriate translation. It is also the intent to support SNMPv3.

Since 802.16 MIB has to be accessed through MIB tree, its relationship with Interface MIB—RFC2863 [7] will be described. Additional MIBs may be necessary to manage other interfaces in SS or BS, such as Ethernet, T1/E1, and ATM, but they are outside the scope of this contribution.

1.2 References

[1] IEEE 802.16-2001, "IEEE Standard for Local and Metropolitan area networks – Part 16: Air Interface for Fixed Wireless Access Systems".

[2] IEEE 802.16a-2003, "IEEE Standard for Local and Metropolitan area networks – Part 16: Air Interface for Fixed Wireless Access Systems – Amendment 2: Medium Access Control Modifications and Additional Physical Layer Specifications for 2-11 GHz.

[3] IEEE 802.16REVd/D3-2004, "Draft IEEE Standard for Local and Metropolitan area networks – Part 16: Air Interface for Fixed Broadband Wireless Access Systems".

[4] RFC1902, "Structure of Management Information for version 2 of the Simple Network Management Protocol (SNMPv2)", January 1996

[5] RFC1903, "Textual Convention for Version 2 of the Simple Network Management Protocol (SNMPv2)", January 1996

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

[7] RFC2863, "The Interfaces Group MIB", June, 2000

[8] RFC2515, "Definitions of Managed Objects for ATM Management", February, 1999

[9] IEEE P802.16-REVd/D4-2004, "Draft IEEE Standard for Local and Metropolitan area networks – Part 16: Air Interface for Fixed Broadband Wireless Access Systems", March 29, 2004.

2. 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.

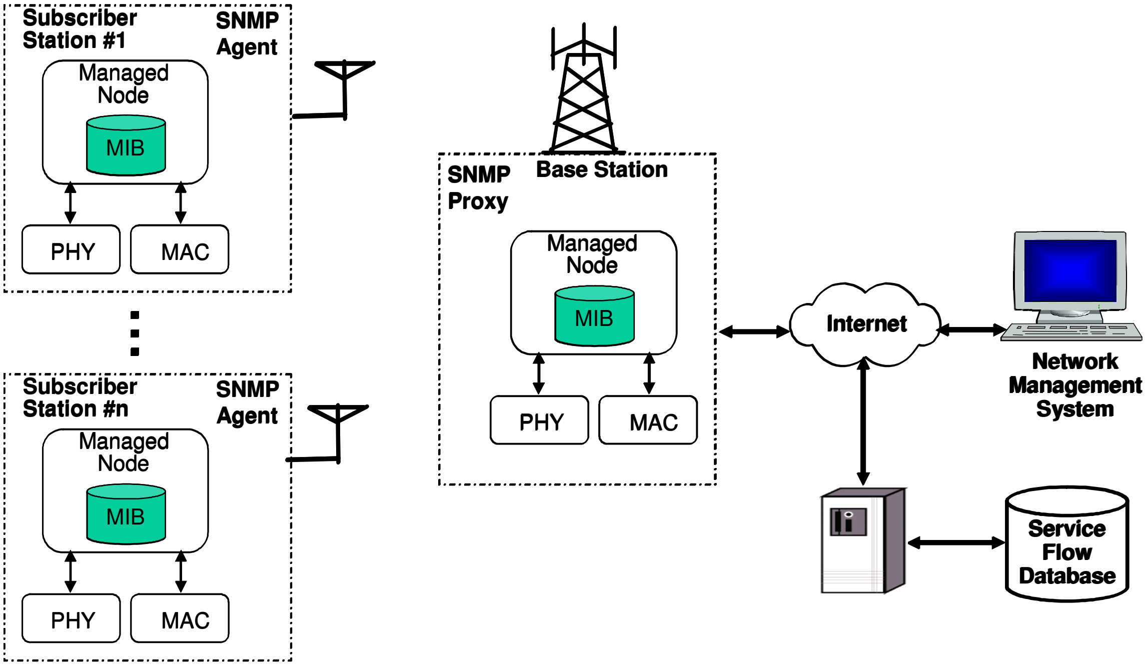

Figure 1 - BWA Network Management Reference Model

3. Relationship with Interface MIB

This section describes the integration with MIB-II [6] under Interface Group MIB defined in RFC2863, as 802.16 MIB will need to be integrated in the MIB tree. It describes where 802.16 MIB is located in the MIB-II subtree, and how it can be accessed by NMS.

3.1 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 802.16 MIB 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.

```
wmanMIB ::= {transmission 184}    -- WMAN interface table
```

Before the approval of the IETF; however, 802.16 MIB is temporary located under enterprise via

```
iso.org.dod.internet.private.enterprise.wmanMIB
(1.3.6.1.4.1.n)
```

Or

```
iso.org.dod.internet.private.enterprise.vendorID.wmanMIB
(1.3.6.1.4.1.xxx.n)
```

3.2 Usage of MIB-II Tables

“Interfaces” group of MIB-II, in RFC1573, 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.

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 1 – Usage of ifTable objects for Base Station

Table 2 show 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.

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

Table 2– Usage of ifTable objects for Subscriber Station

4. 802.16 MIB Structure

Figure 2 shows the MIB structure of wmanIfMib for 802.16 [3]. The MIB structure is organized based on the the reference model as defined in IEEE 802.16REVd/D3 standard [3].

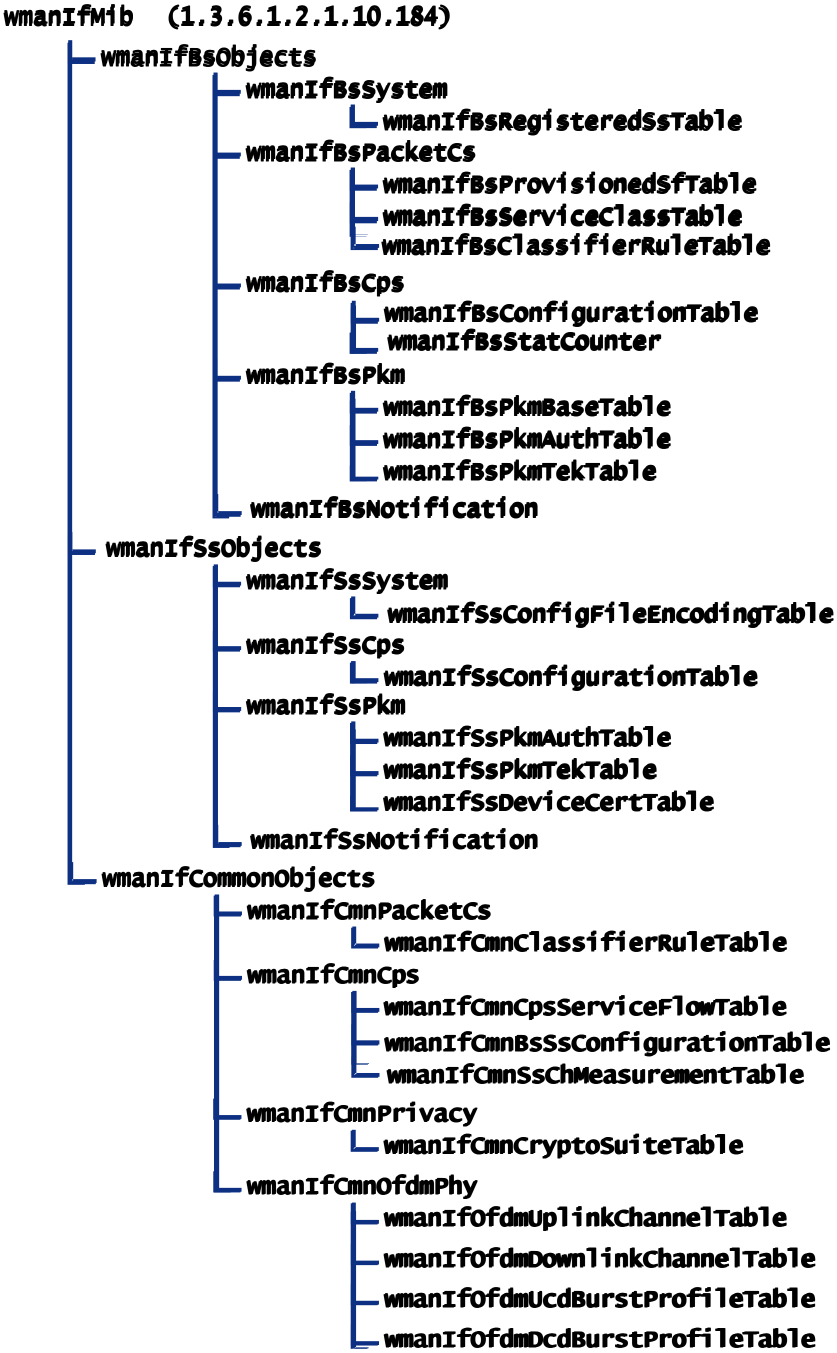
wmanIfMib (1.3.6.1.2.1.10.184)
wmanIfBsObjects
wmanIfBsSystem
wmanIfBsRegisteredSsTable
wmanIfBsPacketCs
wmanIfBsProvisionedSfTable
wmanIfBsServiceClassTable
wmanIfBsClassifierRuleTable
wmanIfBsCps
wmanIfBsConfigurationTable
wmanIfBsStatCounter
wmanIfBsPkm
wmanIfBsPkmBaseTable
wmanIfBsPkmAuthTable
wmanIfBsPkmTekTable
wmanIfBsNotification
wmanIfSsObjects
wmanIfSsSystem
wmanIfSsConfigFileEncodingTable
wmanIfSsCps
wmanIfSsConfigurationTable
wmanIfSsPkm
wmanIfSsPkmAuthTable
wmanIfSsPkmTekTable
wmanIfSsDeviceCertTable
wmanIfSsNotification
wmanIfCommonObjects
wmanIfCmnPacketCs
wmanIfCmnClassifierRuleTable
wmanIfCmnCps
wmanIfCmnCpsServiceFlowTable
wmanIfCmnBsSsConfigurationTable
wmanIfCmnSsChMeasurementTable
wmanIfCmnPrivacy
wmanIfCmnCryptoSuiteTable
wmanIfCmnOfdmPhy
wmanIfOfdmUplinkChannelTable
wmanIfOfdmDownlinkChannelTable
wmanIfOfdmUcdBurstProfileTable
wmanIfOfdmDcdBurstProfileTable

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.

4.1 wmanIfBsObjects

4.1.1 wmanIfBsSystem

wmanIfBsSystem group contains system level BS managed objects.

4.1.1.1 wmanIfBsRegisteredSsTable

This table is indexed by BS ifIndex and wmanIfBsSsIdIndex that contains SS information obtained from REG-REQ message as defined in section 6.3.2.3.7 in [9]. Each entry in the table may contain the following objects.

- Basic CID
- Primary management CID
- Secondary Management CID
- HMAC tuple
- Uplink CID support
- SS management support
- SS capability
- IP version
- CS sublayer capabilities

4.1.2 wmanIfBsPacketCs

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

4.1.2.1 wmanIfBsProvisionedSfTable

This table is doubly indexed by SS MAC address and Service Flow ID and contains provisioned service flow profiles, Per SS. These connection parameters shall be provisioned for the SS using DSA messages, as specified in [9], 6.3.2.3.10. Admittance and activation of provisioned service flow may be postponed.

4.1.2.2 wmanIfBsServiceClassTable

This table is provisioned and is indexed by QoS profile index. Each entry of the table contains corresponding service flow characteristic attributes (e.g. QoS parameter set) as defined in section 6.13.4 in [9].

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.

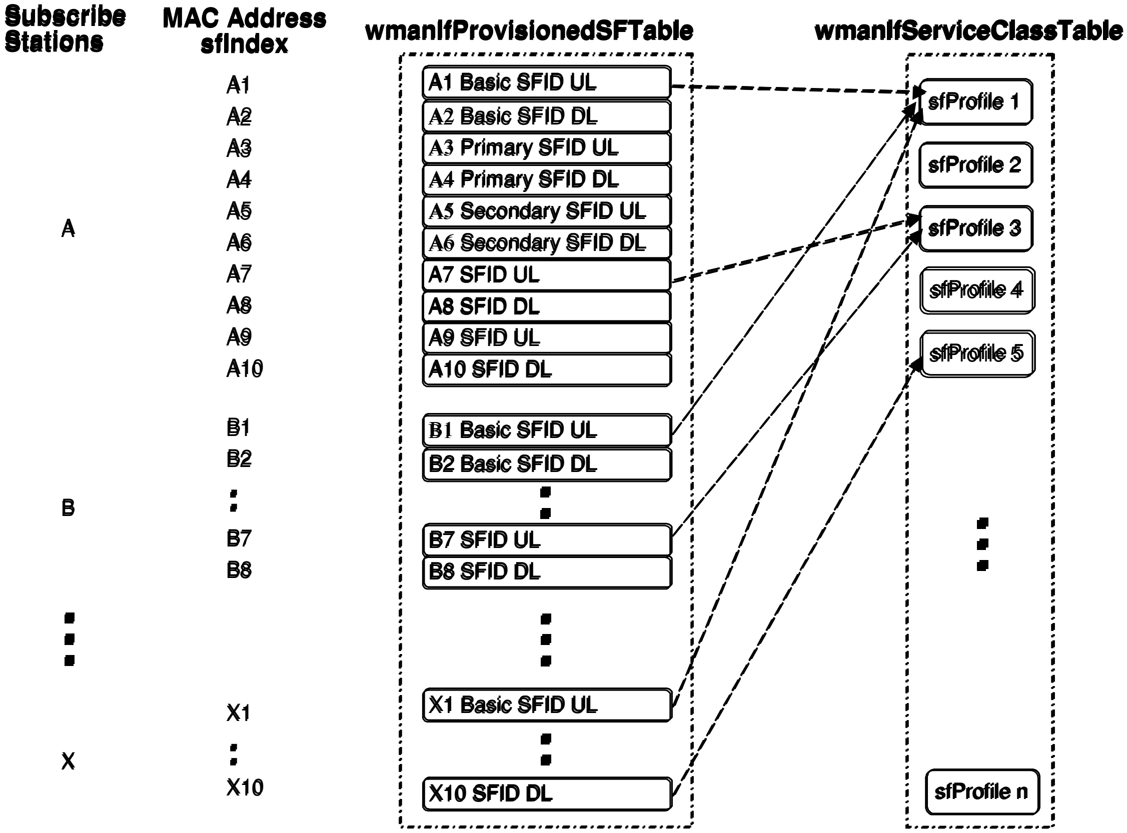

Figure 3 – Service Classes – Service Flows Mapping

4.1.2.3 wmanIfBsClassifierRuleTable

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

4.1.3 wmanIfBsCps

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

4.1.3.1 wmanIfBsConfigurationTable

This table contains objects for BS system parameters and constants as defined in section 10.1, Table 295 of [9]. It is indexed by BS Id.

4.1.3.2 wmanIfBsChMeasurementTable

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

4.1.4 **wmanIfBsPkm**

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

4.1.4.1 wmanIfBsPkmBaselineTable

This table is indexed by BS ifIndex and contains base station PKM operational parameters described in section 10.2 and table 296 of [9].

4.1.4.2 wmanIfBsPkmAuthTable

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

4.1.4.3 wmanIfBsPkmTekTable

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

4.1.5 **wmanIfBsNotification**

wmanIfBsNotification group contains BS traps to report fault events and exceptions, such as link-up and link-down.

4.2 wmanIfSsObjects

4.2.1 **wmanSsSystem**

wmanIfSsSystem group contains subscriber station system level objects.

4.2.1.1 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.

4.2.2 **wmanIfSsCps**

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

4.2.2.1 wmanIfSsConfigurationTable

This table is indexed by SS Id and contains objects for SS system parameters and constants as defined in section 10.1, Table 295 of [9].

4.2.2.2 wmanIfSsStatisticsCountersTable

This object contains the performance monitoring data for SS.

4.2.3 wmanIfSsPkm

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

4.2.3.1 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 296 of [9].

4.2.3.2 wmanIfSsPkmTekTable

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

4.2.3.3 wmanIfSsPkmCertificatesTable

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

4.2.4 wmanIfSsTraps

wmanIfBsTraps group contains SS traps to report fault events and exceptions, such as link-up and link-down.

4.3 wmanIfCommonObjects

4.3.1 wmanIfCmnPacketCs

4.3.1.1 wmanIfCmnClassifierRuleTable

wmanIfClassifierRuleTable is indexed by service flow ID and contains runtime classifier rules screening criteria for each service flow as described in section 11.13.21 of [9].

4.3.2 wmanIfCmnCps

4.3.2.1 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 [9] , 5.2.2, 5.2.5 – 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 [9] , 5.2.4

4.3.2.2 wmanIfCmnBsSsConfigurationTable

This table is indexed by SS Id and contains objects for SS system parameters and constants as defined in section 10.1, Table 295 of [9].

4.3.2.3 wmanIfCmnSsChMeasurementTable

This object contains the channel measurement table for SS.

4.3.3 wmanIfCmnPrivacy

4.3.3.1 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 [9].

4.3.4 wmanIfCmnOfdmPhy

`wmanIfOfdmPhy` is a group containing objects specific to OFDM PHY.

4.3.4.1 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 302 and 305 of [9], and include the following objects.

- Uplink center frequency (KHz)
- Subchannelization REQ Region-Full Parameters
- Bandwidth request opportunity size
- Ranging request opportunity size

4.3.4.2 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 312 of [9], and including the following.

- channel number (for license exempt operation only)
- Frequency (downlink center frequency (kHz)
- BS EIRP
- TTG
- RTG
- MAC Version

4.3.4.3 wmanIfOfdmUcdBurstProfileTable

Each entry in this table contains the parameters needed for the UCD burst profile as defined in section 11, Table 310 of [9].

4.3.4.4 wmanIfOfdmDcdBurstProfileTable

`wmanIfDcdBurstProfileTable` – Each entry in this table contains the parameters needed for the UCD burst profile as defined in section 11, Table 316 of [9].

5. ASN.1 Definition of 802.16 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    "0405120000Z" -- May 12, 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 }

-- Textual Conventions

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

--
-- 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 through REG-REQ message"
        REFERENCE
            "Section 6.4.3.2.7 in IEEE 802.16REVd/D3-2004"
        ::= { 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. The ifIndex identifies
              which BS sector with which the SS is associated."
        INDEX { ifIndex, wmanIfBsSsIdIndex }
        ::= { wmanIfBsRegisteredSsTable 1 }

WmanIfBsRegisteredSsEntry ::= SEQUENCE {
        wmanIfBsSsIdIndex                      Unsigned32,
        wmanIfBsSsMacAddress                   MacAddress,
        wmanIfBsSsBasicCid                      INTEGER,
        wmanIfBsSsPrimaryCid                    INTEGER,
        wmanIfBsSsSecondaryCid                  INTEGER,
        wmanIfBsHmacTuple                       OCTET STRING,
        wmanIfBsUlCidSupport                    INTEGER,
        wmanIfBsSsManagementSupport             INTEGER,
        wmanIfBsSsArqSupport                    INTEGER,
        wmanIfBsSsDsxFlowControl                INTEGER,
        wmanIfBsSsMacCrcSupport                 INTEGER,
        wmanIfBsSsMcaFlowControl                INTEGER,
        wmanIfBsSsMcpGroupCidSupport            INTEGER,
        wmanIfBsSsPkmFlowControl                INTEGER,
        wmanIfBsIpVersion                       INTEGER,
        wmanIfBsSSMacCsSupportBitMap            BITS,
        wmanIfBsSSMaxNumOfClassifier            INTEGER,
        wmanIfBsSSPhsSupport                    INTEGER
        }

wmanIfBsSsIdIndex OBJECT-TYPE
        SYNTAX      Unsigned32 (1 .. 4294967295)
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
             "wmanIfBsSsIdIndex identifies the SS that is registered."
        REFERENCE
            "Section 6.4.2.3.5 in IEEE 802.16REVd/D3-2004"
        ::= { 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. This MAC address can be used as the
             index to find out the BS and its associated SSs."
        REFERENCE
            "Section 6.4.2.3.5 in IEEE 802.16REVd/D3-2004"
        ::= { 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 6.4.9.5 in IEEE 802.16REVd/D3-2004"
        ::= { wmanIfBsRegisteredSsEntry 3 }

wmanIfBsSsPrimaryCid OBJECT-TYPE
        SYNTAX      INTEGER
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
             "The value of this object indicates the basic CID of the
             SS received from the RNG-RSP message."
        REFERENCE
            "Section 6.4.9.5 in IEEE 802.16REVd/D3-2004"
        ::= { 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-REQ message. The value
             should be null indicating the 2nd management CID doesn't
             exist."
        REFERENCE
            "Section 6.4.2.3.8 in IEEE 802.16REVd/D3-2004"
        ::= { wmanIfBsRegisteredSsEntry 5 }

wmanIfBsHmacTuple 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 used for message
             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/D3-2004"
        ::= { wmanIfBsRegisteredSsEntry 6 }

wmanIfBsUlCidSupport 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/D3-2004"
        ::= { 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/D3-2004"
        ::= { wmanIfBsRegisteredSsEntry 8 }

wmanIfBsSsArqSupport OBJECT-TYPE
        SYNTAX      INTEGER {arqOn(0),
                             arqOff(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/D3-2004"
        ::= { 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/D3-2004"
        ::= { 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/D3-2004"
        ::= { 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/D3-2004"
        ::= { 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/D3-2004"
        ::= { 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/D3-2004"
        ::= { wmanIfBsRegisteredSsEntry 14 }

wmanIfBsIpVersion 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 valus should be numm
             if the 2nd management CID doesn't exist."
        REFERENCE
            "Section 11.7.2.1 in IEEE 802.16REVd/D3-2004"
        ::= { wmanIfBsRegisteredSsEntry 15 }

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/D3-2004"
        ::= { wmanIfBsRegisteredSsEntry 16 }

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/D3-2004"
        ::= { wmanIfBsRegisteredSsEntry 17 }

wmanIfBsSSPhsSupport OBJECT-TYPE
        SYNTAX      INTEGER {noPhsSupport(0),
                             atmPhsSupport(1),
                             packetPhsSupport(2)}
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
             "This object indicates indicates the level of PHS support."
        REFERENCE
            "Section 11.7.5.3 in IEEE 802.16REVd/D3-2004"
        ::= { wmanIfBsRegisteredSsEntry 18 }

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

WmanUlSchedulingType ::= 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)}

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/D3-2004"
        ::= { 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,
        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 indiating 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 }

wmanIfBsSfState OBJECT-TYPE
        SYNTAX      INTEGER {provisionedState(1),
                             admittedState(2),
                             activeState(3)}
        MAX-ACCESS  read-create
        STATUS      current
        DESCRIPTION
            "wmanIfBsSfState determines how the service flow will be
            transitioned to the Admitted or Active state.
            Admitted or Active state: The pre-provisioned service flow
            will be transitioned to the Admitted or Active state, as
            soon as the SS passes the network entry procedure, and
            connection admission control. An entry will be created
            in the SS and BS service flow tables.
            Provisioned state: After SS enters the network; the
            pre-provisioned service flow will remain in the Provisioned
            state until NMS set it different state. An entry will be
            created in the SS and BS service flow tables"
        REFERENCE
            "Section 6.4.13.6, in IEEE 802.16REVd/D3-2004"
        ::= { wmanIfBsProvisionedSfEntry 5 }

wmanIfBsSfProvisionedTime OBJECT-TYPE
        SYNTAX      TimeStamp
        MAX-ACCESS  read-create
        STATUS      current
        DESCRIPTION
            "Indicates the data and time when the service flow is
            provisioned."
        ::= { wmanIfBsProvisionedSfEntry 6 }

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 choosen not
            to implement 'dynamic assignment' of profiles, this
            object is not useful and should return noSuchName
            upon SNMP request."
        ::= { wmanIfBsProvisionedSfEntry 7 }

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/D3-2004"
        ::= { 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             WmanUlSchedulingType,
        wmanIfBsQosScArqEnable                  TruthValue,
        wmanIfBsQosScArqWindowSize              INTEGER,
        wmanIfBsQosScArqFragmentLifetime        INTEGER,
        wmanIfBsQosScArqSyncLossTimeout         INTEGER,
        wmanIfBsQosScArqDeliverInOrder          TruthValue,
        wmanIfBsQosScArqRxPurgeTimeout          INTEGER,
        wmanIfBsQosScFragmentLen                INTEGER,
        wmanIfBsQosSCMinRsvdTolerableRate       INTEGER,
        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
        MAX-ACCESS  read-create
        STATUS      current
        DESCRIPTION    "Refers to the Service Class Name"
        REFERENCE
            "Section 11.13.7 in IEEE 802.16REVd/D3-2004"
        ::= { 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/D3-2004"
        ::= { 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/D3-2004"
        ::= { wmanIfBsServiceClassEntry 4 }

wmanIfBsQoSMaxTrafficBurst OBJECT-TYPE
        SYNTAX      INTEGER
        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/D3-2004"
        ::= { 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/D3-2004"
        ::= { 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/D3-2004"
        ::= { 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/D3-2004"
        ::= { wmanIfBsServiceClassEntry 8 }

wmanIfBsQoSFixedVsVariableSduInd OBJECT-TYPE
        SYNTAX      INTEGER (0..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 11.13.16 in IEEE 802.16REVd/D4-2004"
        DEFVAL      { 0 }
        ::= { wmanIfBsServiceClassEntry 9 }

wmanIfBsQoSSduSize OBJECT-TYPE
        SYNTAX      INTEGER
        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      WmanUlSchedulingType
        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/D3-2004"
        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/D3-2004"
        ::= { 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/D3-2004"
        ::= { 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 occured.
                If transmission or retransmission of the fragment
                is not acknowledged by the receiver before the
                time limit is reached, the fragmnet is discarded.
                A value of 0 means Infinite."
        REFERENCE
            "Section 11.13.20 in IEEE 802.16REVd/D3-2004"
        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/D3-2004"
        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/D3-2004"
        ::= { 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/D3-2004"
        DEFVAL      {0}
        ::= { wmanIfBsServiceClassEntry 17 }
```

```
wmanIfBsQosScFragmentLen OBJECT-TYPE
        SYNTAX      INTEGER (32 .. 2040)
        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/D3-2004"
        ::= { wmanIfBsServiceClassEntry 19 }

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 choosen not
            to implement 'dynamic assignment' of profiles, this
            object is not useful and should return noSuchName
            upon SNMP request."
        ::= { wmanIfBsServiceClassEntry 20 }

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/D3-2004"
        ::= { 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,
        wmanIfBsClassifierRuleInetAddressType   InetAddressType,
        wmanIfBsClassifierRuleInetSourceAddr    InetAddress,
        wmanIfBsClassifierRuleInetSourceMask    InetAddress,
        wmanIfBsClassifierRuleInetDestAddr      InetAddress,
        wmanIfBsClassifierRuleInetDestMask      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
        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 with the default value = 0."
        REFERENCE
            "Section 11.13.21.3.4.3 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 11.13.22.3.4 in IEEE 802.16REVd/D3-2004"
        ::= { 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 11.13.22.3.4 in IEEE 802.16REVd/D3-2004"
        ::= { 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 11.13.22.3.4 in IEEE 802.16REVd/D3-2004"
        ::= { 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 11.13.22.3.4 in IEEE 802.16REVd/D3-2004"
        ::= { wmanIfBsClassifierRuleEntry 7 }

wmanIfBsClassifierRuleInetAddressType OBJECT-TYPE
        SYNTAX      InetAddressType
        MAX-ACCESS  read-create
        STATUS      current
        DESCRIPTION
            "The type of the internet address for
            wmanIfBsClassifierRuleInetSourceAddr,
            wmanIfBsClassifierRuleInetSourceMask,
            wmanIfBsClassifierRuleInetDestAddr, and
            wmanIfBsClassifierRuleInetDestMask.
            If the referenced parameter is not present in a classifier,
            this object reports the value of ipv4(1)."
        REFERENCE
            "Section 11.13.22.3.4 in IEEE 802.16REVd/D3-2004"
        ::= { wmanIfBsClassifierRuleEntry 8 }

wmanIfBsClassifierRuleInetSourceAddr 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 wmanIfBsClassifierRuleInetSourceMask value
            equals the wmanIfBsClassifierRuleInetSourceAddr value.
            If the referenced parameter is not present n a classifier,
            this object reports the value of 0.0.0.0."
        REFERENCE
            "Section 11.13.22.3.4 in IEEE 802.16REVd/D3-2004"
        ::= { wmanIfBsClassifierRuleEntry 9 }

wmanIfBsClassifierRuleInetSourceMask 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
            wmanIfBsClassifierRuleInetSourceMask value equals the
            wmanIfBsClassifierRuleInetSourceAddr value.
            If the referenced parameter is not present in a classifier,
            this object reports the value of 0.0.0.0."
        REFERENCE
            "Section 11.13.22.3.4 in IEEE 802.16REVd/D3-2004"
        ::= { wmanIfBsClassifierRuleEntry 10 }

wmanIfBsClassifierRuleInetDestAddr 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
            wmanIfBsClassifierRuleInetDestMask value equals the
            wmanIfBsClassifierRuleInetDestAddr value.
            If the referenced parameter is not present in a
            classifier, this object reports the value of 0.0.0.0."
        REFERENCE
            "Section 11.13.22.3.4 in IEEE 802.16REVd/D3-2004"
        ::= { wmanIfBsClassifierRuleEntry 11 }

wmanIfBsClassifierRuleInetDestMask 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
            wmanIfBsClassifierRuleInetDestMask value equals the
            wmanIfBsClassifierRuleInetDestAddr value.
            If the referenced parameter is not present in a classifier
            , this object reports the value of 0.0.0.0."
        REFERENCE
            "Section 11.13.22.3.4 in IEEE 802.16REVd/D3-2004"
        ::= { 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 11.13.22.3.4 in IEEE 802.16REVd/D3-2004"
        ::= { 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 11.13.22.3.4 in IEEE 802.16REVd/D3-2004"
        ::= { 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 11.13.22.3.4 in IEEE 802.16REVd/D3-2004"
        ::= { 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 11.13.22.3.4 in IEEE 802.16REVd/D3-2004"
        ::= { 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 11.13.22.3.4 in IEEE 802.16REVd/D3-2004"
        ::= { 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 11.13.22.3.4 in IEEE 802.16REVd/D3-2004"
        ::= { 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 11.13.22.3.4 in IEEE 802.16REVd/D3-2004"
        ::= { 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 11.13.22.3.4 in IEEE 802.16REVd/D3-2004"
        ::= { 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 RFC1042
            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 11.13.22.3.4 in IEEE 802.16REVd/D3-2004"
        ::= { 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 wmanIfBsClassifierRuleEnetProtocolType is mac(3), the
            lower 8 bits of this object value represent a lower bound
            (inclusive) of MAC management message type codes matched,
            and the upper 8 bits of this object value represent the
            upper bound (inclusive) of matched MAC message type codes.
            Certain message type codes are excluded from matching, as
            specified in the reference.
            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 11.13.22.3.4 in IEEE 802.16REVd/D3-2004"
        ::= { 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 11.13.22.3.4 in IEEE 802.16REVd/D3-2004"
        ::= { 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 11.13.22.3.4 in IEEE 802.16REVd/D3-2004"
        ::= { 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 11.13.22.3.4 in IEEE 802.16REVd/D3-2004"
            ::= { 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 11.13.22.3.4 in IEEE 802.16REVd/D3-2004"
            ::= { 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 11.13.22.3.4 in IEEE 802.16REVd/D3-2004"
            ::= { 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 choosen not
                to implement 'dynamic assignment' of profiles, this
                object is not useful and should return noSuchName
                upon SNMP request."
            ::= { wmanIfBsClassifierRuleEntry 28 }

    --
    -- 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 min ."
        ::= { 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 choosen 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
```

```
--
wmanIfBsStatCounter 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."
        ::= { wmanIfBsStatCounter  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
             identifing 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
        }

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/D3-2004"
        ::= { 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 exampt band. For licenced band,
              this parameter should be null."
        REFERENCE
            "Section 8.5.1 in IEEE 802.16REVd/D3-2004"
        ::= { 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/D3-2004"
        ::= { 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/D3-2004"
        ::= { 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/D3-2004"
        ::= { 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/D3-2004"
        ::= { 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/D3-2004"
        ::= { wmanIfBsChMeasurementEntry 8 }

--
-- 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
             "IEEE 802.16 standard; Table 270"
        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
             "IEEE 802.16 standard; Table 270"
        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,
        wmanIfBsPkmAuthSsGraceTime              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) [10], 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 vaue of this object is the lifetime, in seconds, the
             BS assigns to an authorization key for this SS."
        REFERENCE
             "IEEE 802.16 standard; Table 270"
        DEFVAL         { 604800 }
        ::= { wmanIfBsPkmAuthEntry 6 }

wmanIfBsPkmAuthSsGraceTime 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
             authorization key in seconds.  The SS is expected to start
             trying to get a new authorization key beginning
             AuthGraceTime seconds before the authorization key actually
             expires."
        REFERENCE
             "IEEE 802.16 standard; Table 270"
        DEFVAL         { 600 }
        ::= { wmanIfBsPkmAuthEntry 7 }

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 8 }

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 9 }

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 10 }

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 11 }

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 12 }

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 13 }

wmanIfBsPkmAuthRejectErrorCode 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
             transmitted to 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 transmitted to the
             SS."
        ::= { wmanIfBsPkmAuthEntry 14 }

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 15 }

wmanIfBsPkmAuthInvalidErrorCode 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
             transmitted to 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 transmitted to the
             SS."
        ::= { wmanIfBsPkmAuthEntry 16 }

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 17 }

wmanIfBsPkmAuthPrimarySAId OBJECT-TYPE
```

```
        SYNTAX      Integer32 (0..16383)
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
             "The value of this object is the Primary Security
             Association identifier."
        ::= { wmanIfBsPkmAuthEntry 18 }

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 19 }

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 20 }

--
-- 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,
        wmanIfBsPkmTEKGraceTime                 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..16383)
        MAX-ACCESS  not-accessible
        STATUS      current
        DESCRIPTION
             "The value of this object is the WiMAX Security Association
             ID (SAID)."
        ::= { wmanIfBsPkmTEKEntry 1 }

wmanIfBsPkmTEKSAType OBJECT-TYPE
        SYNTAX      INTEGER {none(0),
                             primary(1),
                             static(2),
                             dynamic(3) }
        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."
        ::= { 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
             "IEEE 802.16 standard; Table 270"
        DEFVAL         { 43200 }
        ::= { wmanIfBsPkmTEKEntry 6 }

wmanIfBsPkmTEKGraceTime OBJECT-TYPE
```

```
        SYNTAX      Integer32 (300..302399)
        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 TEK
             actually expires."
        REFERENCE
             "IEEE 802.16 standard; Table 270"
        DEFVAL         { 3600 }
        ::= { wmanIfBsPkmTEKEntry 7 }

wmanIfBsPkmTEKKeySequenceNumber OBJECT-TYPE
        SYNTAX      Integer32 (0..15)
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "The value of this object is the most recent TEK key
             sequence number for this SAID."
        ::= { wmanIfBsPkmTEKEntry 8 }

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 9 }

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 10 }

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 11 }

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 12 }

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 13 }

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 14 }

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 15 }

wmanIfBsPkmKeyRejectErrorCode 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 the most recent Key Reject message sent
             in response to a Key Request for this SAID. 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."
        ::= { wmanIfBsPkmTEKEntry 16 }

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 17 }

wmanIfBsPkmTEKInvalidErrorCode 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 the most recent TEK Invalid message sent
             in association with this SAID.  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."
        ::= { wmanIfBsPkmTEKEntry 18 }

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 19 }

--
-- 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 { wmanSwUpgradeInit             (0),
                          wmanSwUpgradeFail             (1),
                          wmanSwUpgradeSuccess          (2),
                          wmanSwConfigurationChanged    (3),
                          wmanPswdChangeFail            (4),
                          wmanPowerSupplyFail           (5),
                          wmanTODFail                   (6),
                          wmanBsInitRegReqSuccess       (7),
                          wmanBsInitRegReqFail          (8),
                          wmanBsDynServReqFail          (9),
                          wmanBsDynServRspFail          (10),
                          wmanBsDynServAckFail          (11),
                          wmanBsBPKMFail                (12),
                          wmanBsSsOnOffNotification     (13)
                        }
        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 }

wmanIfBsSsStatusValue OBJECT-TYPE
        SYNTAX     INTEGER {active(1),
                                offline(2)}
        MAX-ACCESS read-write
        STATUS     current
        DESCRIPTION
             "This type defines the status of each subscriber station"
        ::= { wmanIfBsTrapControl 2 }

wmanBsInitRegReqSuccessTrap    NOTIFICATION-TYPE
        OBJECTS    { wmanIfBsSsMacAddress }
        STATUS     current
        DESCRIPTION
             "An event to report the success of a registration request
             from Subscriber Station happened during the Subscriber
             Station initialization process and detected in the Bs side"
        ::= { wmanIfBsTrapDefinitions 1 }

wmanBsInitRegReqFailTrap    NOTIFICATION-TYPE
        OBJECTS    { wmanIfBsSsMacAddress }
        STATUS     current
        DESCRIPTION
             "An event to report the failure of a registration request
             from Subscriber Station happened during the Subscriber
             Station initialization process and detected in the Bs side"
        ::= { wmanIfBsTrapDefinitions 2 }

wmanBsDynServReqFailTrap    NOTIFICATION-TYPE
        OBJECTS    { wmanIfBsSsMacAddress }
        STATUS     current
        DESCRIPTION
             "An event to report the failure of a dynamic service
             request happened during the dynamic services process
             and detected in the Bs side"
        ::= { wmanIfBsTrapDefinitions 3 }

wmanBsDynServRspFailTrap    NOTIFICATION-TYPE
        OBJECTS    { wmanIfBsSsMacAddress }
        STATUS     current
        DESCRIPTION
             "An event to report the failure of a dynamic service
             response happened during the dynamic services process
             and detected in the Bs side."
        ::= { wmanIfBsTrapDefinitions 4 }

wmanBsDynServAckFailTrap    NOTIFICATION-TYPE
        OBJECTS    { wmanIfBsSsMacAddress }
        STATUS     current
        DESCRIPTION
             "An event to report the failure of a dynamic service
             acknowledgement happened during the dynamic services
             process and detected in the Bs side."
        ::= { wmanIfBsTrapDefinitions 5 }

wmanBsBPKMFailTrap    NOTIFICATION-TYPE
        OBJECTS    { wmanIfBsSsMacAddress }
        STATUS     current
        DESCRIPTION
             "An event to report the failure of a BPKM operation
             which is detected in the Bs side."
        ::= { wmanIfBsTrapDefinitions 6 }

wmanBsSsOnOffNotificationTrap    NOTIFICATION-TYPE
        OBJECTS    { wmanIfBsSsMacAddress,
                     wmanIfBsSsStatusValue
                   }
        STATUS     current
        DESCRIPTION
             "Possible values for wmanIfBsSsStatusValue are: active(1)
             and offline(2).
             Based on this notification the NMS will issue an alarm
             with Critical severity if the Subscriber Station with MAC
             address wmanIfBsSsMacAddress becomes offline, and an
             alarm with a Clear severity is generated when a
             Subscriber     Station comes active."
        ::= { wmanIfBsTrapDefinitions 7 }

--
-- 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/D3-2004"
        ::= { wmanIfSsSystem 1 }

wmanIfSsConfigFileEncodingEntry OBJECT-TYPE
```

```
        SYNTAX      WmanIfSsConfigFileEncodingEntry
        MAX-ACCESS  not-accessible
        STATUS      current
        DESCRIPTION
              "This table provides one row for each SS, and is indexed
              by wmanIfSsIdIndex."
        INDEX { wmanIfSsIdIndex }
        ::= { wmanIfSsConfigFileEncodingTable 1 }

WmanIfSsConfigFileEncodingEntry ::= SEQUENCE {
        wmanIfSsIdIndex                         Unsigned32,
        wmanIfSsMicConfigSetting                OCTET STRING,
        wmanIfSsVendorId                        OCTET STRING,
        wmanIfSsHwId                            OCTET STRING,
        wmanIfSsSwVersion                       OCTET STRING,
        wmanIfSsUpgradeFileName                 OCTET STRING,
        wmanIfSsSwUpgradeTftpServer             InetAddress,
        wmanIfSsTftpServerTimeStamp             DateAndTime
        }

wmanIfSsIdIndex OBJECT-TYPE
        SYNTAX      Unsigned32 (1 .. 4294967295)
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
             "wmanIfSsIdIndex identifies the SS that is registered."
        REFERENCE
            "Section 6.4.2.3.5 in IEEE 802.16REVd/D3-2004"
        ::= { wmanIfSsConfigFileEncodingEntry 1 }

wmanIfSsMicConfigSetting OBJECT-TYPE
        SYNTAX      OCTET STRING (SIZE(16))
        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 2 }

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 3 }

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 4 }

wmanIfSsSwVersion OBJECT-TYPE
        SYNTAX      OCTET STRING
        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 5 }

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 6 }

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 7 }

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 IETF RFC 868."
        ::= { wmanIfSsConfigFileEncodingEntry 8 }

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

--
-- wmanIfSsConfigurationTable contains global parameters common
-- in BS and SS
wmanIfSsConfigurationTable OBJECT-TYPE
        SYNTAX      SEQUENCE OF WmanIfSsConfigurationEntry
        MAX-ACCESS  not-accessible
        STATUS      current
        DESCRIPTION
              "This table provides one row for each SS that contains
```

```
               the system parameters as defined in section 10.1 of [3]."
        ::= { wmanIfSsCps 1 }

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

WmanIfSsConfigurationEntry ::= SEQUENCE {
        wmanIfSsId                              Unsigned32,
        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
        }

wmanIfSsId OBJECT-TYPE
        SYNTAX      Unsigned32 (1 .. 4294967295)
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
             "wmanIfSsId is the index to
              wmanIfSsConfigurationTable."
        REFERENCE
            "Section 6.4.2.3.5 in IEEE 802.16REVd/D3-2004"
        ::= { wmanIfSsConfigurationEntry 1 }

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 2 }

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 3 }

wmanIfSsContentionRangRetries OBJECT-TYPE
        SYNTAX      INTEGER(16..65535)
        MAX-ACCESS  read-write
        STATUS      current
        DESCRIPTION
           "Number of retries on contention Ranging Requests."
        ::= { wmanIfSsConfigurationEntry 4 }

wmanIfSsRequestRetries OBJECT-TYPE
        SYNTAX      INTEGER(16..65535)
        MAX-ACCESS  read-write
        STATUS      current
        DESCRIPTION
           "Number of retries on bandwidth allocation requests."
        ::= { wmanIfSsConfigurationEntry 5 }

wmanIfSsRegRequestRetries OBJECT-TYPE
        SYNTAX      INTEGER(3..65535)
        MAX-ACCESS  read-write
        STATUS      current
        DESCRIPTION
           "Number of retries on registration requests."
        ::= { wmanIfSsConfigurationEntry 6 }

wmanIfSsTftpBackoffStart OBJECT-TYPE
        SYNTAX      INTEGER(1..65535)
        UNITS       "seconds"
        MAX-ACCESS  read-write
        STATUS      current
        DESCRIPTION
           "Initial value for TFTP backoff in s."
        ::= { wmanIfSsConfigurationEntry 7 }
```

```
wmanIfSsTftpBackoffEnd OBJECT-TYPE
        SYNTAX      INTEGER(16..65535)
        UNITS       "seconds"
        MAX-ACCESS  read-write
        STATUS      current
        DESCRIPTION
           "Last value for TFTP backoff in s."
        ::= { wmanIfSsConfigurationEntry 8 }

wmanIfSsTftpRequestRetries OBJECT-TYPE
        SYNTAX      INTEGER(16..65535)
        MAX-ACCESS  read-write
        STATUS      current
        DESCRIPTION
           "Number of retries on TFTP request."
        ::= { wmanIfSsConfigurationEntry 9 }

wmanIfSsTftpDownloadRetries OBJECT-TYPE
        SYNTAX      INTEGER(3..65535)
        MAX-ACCESS  read-write
        STATUS      current
        DESCRIPTION
           "Number of retries on entire TFTP downloads."
        ::= { wmanIfSsConfigurationEntry 10 }

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 11 }

wmanIfSsToDRetries OBJECT-TYPE
        SYNTAX      INTEGER(3..65535)
        MAX-ACCESS  read-write
        STATUS      current
        DESCRIPTION
           "Number of Retries per Time of Day Retry Period."
        ::= { wmanIfSsConfigurationEntry 12 }

wmanIfSsToDRetryPeriod OBJECT-TYPE
        SYNTAX      INTEGER(5..65535)
        MAX-ACCESS  read-write
        STATUS      current
        DESCRIPTION
           "Time of Day Retry Period."
        ::= { wmanIfSsConfigurationEntry 13 }

wmanIfSsT1Timeout OBJECT-TYPE
        SYNTAX      INTEGER(0..65535)
        UNITS       "milliseconds"
        MAX-ACCESS  read-write
        STATUS      current
        DESCRIPTION
           "Wait for DCD timeout in ms."
        ::= { wmanIfSsConfigurationEntry 14 }

wmanIfSsT2Timeout OBJECT-TYPE
        SYNTAX      INTEGER(0..65535)
        UNITS       "milliseconds"
        MAX-ACCESS  read-write
        STATUS      current
        DESCRIPTION
           "Wait for broadcast ranging timeout in ms."
        ::= { wmanIfSsConfigurationEntry 15 }

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 16 }

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 17 }

wmanIfSsT6Timeout OBJECT-TYPE
        SYNTAX      INTEGER(0..3000)
        UNITS       "milliseconds"
        MAX-ACCESS  read-write
        STATUS      current
        DESCRIPTION
           "Wait for registration response in ms."
        ::= { wmanIfSsConfigurationEntry 18 }

wmanIfSsT12Timeout OBJECT-TYPE
        SYNTAX      INTEGER
        UNITS       "milliseconds"
        MAX-ACCESS  read-write
        STATUS      current
        DESCRIPTION
           "Wait for UCD descriptor in ms."
        ::= { wmanIfSsConfigurationEntry 19 }
```

```
wmanIfSsT14Timeout OBJECT-TYPE
        SYNTAX      INTEGER(0..200)
        UNITS       "milliseconds"
        MAX-ACCESS  read-write
        STATUS      current
        DESCRIPTION
           "Wait for DSX-RVD Timeout in ms."
        ::= { wmanIfSsConfigurationEntry 20 }

wmanIfSsT16Timeout OBJECT-TYPE
        SYNTAX      INTEGER(10..65535)
        UNITS       "milliseconds"
        MAX-ACCESS  read-write
        STATUS      current
        DESCRIPTION
           "wait for bandwidth request grant in ms."
        ::= { wmanIfSsConfigurationEntry 21 }

wmanIfSsT18Timeout OBJECT-TYPE
        SYNTAX      INTEGER(0..65535)
        UNITS       "milliseconds"
        MAX-ACCESS  read-write
        STATUS      current
        DESCRIPTION
           "wait for SBC-RSP timeout in ms."
        ::= { wmanIfSsConfigurationEntry 22 }

wmanIfSsT19Timeout OBJECT-TYPE
        SYNTAX      INTEGER(0..65535)
        UNITS       "milliseconds"
        MAX-ACCESS  read-write
        STATUS      current
        DESCRIPTION
           "Time DL-channel remains unusable in ms."
        ::= { wmanIfSsConfigurationEntry 23 }

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 24 }

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 25 }
```

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

wmanIfSsTftpCpltRetries OBJECT-TYPE
        SYNTAX      INTEGER(3..16)
        MAX-ACCESS  read-write
        STATUS      current
        DESCRIPTION
           "Number of retries on TFTP-CPLT."
        ::= { wmanIfSsConfigurationEntry 27 }

wmanIfSsT26Timeout OBJECT-TYPE
        SYNTAX      INTEGER(10..200)
        UNITS       "milliseconds"
        MAX-ACCESS  read-write
        STATUS      current
        DESCRIPTION
           "Wait for TFTP-RSP in ms."
        ::= { wmanIfSsConfigurationEntry 28 }

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 29 }

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 choosen not
            to implement 'dynamic assignment' of profiles, this
            object is not useful and should return noSuchName
            upon SNMP request."
        ::= { wmanIfSsConfigurationEntry 30 }

-- 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 and authorization related
             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,
        wmanIfSsPkmAuthState                    INTEGER,
        wmanIfSsPkmAuthKeySequenceNumber        Integer32,
        wmanIfSsPkmAuthExpiresOld               DateAndTime,
        wmanIfSsPkmAuthExpiresNew               DateAndTime,
        wmanIfSsPkmAuthReset                    TruthValue,
        wmanIfSsPkmAuthGraceTime                Integer32,
        wmanIfSsPkmTEKGraceTime                 Integer32,
        wmanIfSsPkmAuthWaitTimeout              Integer32,
        wmanIfSsPkmReauthWaitTimeout            Integer32,
        wmanIfSsPkmOpWaitTimeout                Integer32,
        wmanIfSsPkmRekeyWaitTimeout             Integer32,
        wmanIfSsPkmAuthRejectWaitTimeout        Integer32,
        wmanIfSsPkmAuthentInfos                 Counter32,
        wmanIfSsPkmAuthRequests                 Counter32,
        wmanIfSsPkmAuthReplies                  Counter32,
        wmanIfSsPkmAuthRejects                  Counter32,
        wmanIfSsPkmAuthInvalids                 Counter32,
        wmanIfSsPkmAuthRejectErrorCode          INTEGER,
        wmanIfSsPkmAuthRejectErrorString        SnmpAdminString,
        wmanIfSsPkmAuthInvalidErrorCode         INTEGER,
        wmanIfSsPkmAuthInvalidErrorString       SnmpAdminString
        }

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) [10], 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 }

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."
        ::= { wmanIfSsPkmBaseEntry 3 }

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."
        ::= { wmanIfSsPkmBaseEntry 4 }

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."
        ::= { wmanIfSsPkmBaseEntry 5 }
```

```
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."
        ::= { wmanIfSsPkmBaseEntry 6 }

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."
        ::= { wmanIfSsPkmBaseEntry 7 }

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
             "IEEE 802.16 standard; Table 270"
        DEFVAL         { 600 }
        ::= { wmanIfSsPkmBaseEntry 8 }

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
             "IEEE 802.16 standard; Table 270"
        DEFVAL         { 3600 }
        ::= { wmanIfSsPkmBaseEntry 9 }

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
             "IEEE 802.16 standard; Table 270"
        DEFVAL         { 10 }
        ::= { wmanIfSsPkmBaseEntry 10 }

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
             "IEEE 802.16 standard; Table 270"
        DEFVAL         { 10 }
        ::= { wmanIfSsPkmBaseEntry 11 }

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
             "IEEE 802.16 standard; Table 270"
        DEFVAL         { 1 }
        ::= { wmanIfSsPkmBaseEntry 12 }

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
             "IEEE 802.16 standard; Table 270"
        DEFVAL         { 1 }
        ::= { wmanIfSsPkmBaseEntry 13 }

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
             "IEEE 802.16 standard; Table 270"
        DEFVAL         { 60 }
        ::= { wmanIfSsPkmBaseEntry 14 }

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."
        ::= { wmanIfSsPkmBaseEntry 15 }

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."
        ::= { wmanIfSsPkmBaseEntry 16 }

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."
        ::= { wmanIfSsPkmBaseEntry 17 }

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."
        ::= { wmanIfSsPkmBaseEntry 18 }

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."
        ::= { wmanIfSsPkmBaseEntry 19 }

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."
        ::= { wmanIfSsPkmBaseEntry 20 }

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."
        ::= { wmanIfSsPkmBaseEntry 21 }

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 Invald 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."
        ::= { wmanIfSsPkmBaseEntry 22 }

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."
        ::= { wmanIfSsPkmBaseEntry 23 }

--
```

```
-- 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  2 }

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 {none(0),
                             primary(1),
                             static(2),
                             dynamic(3)}
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
             "The value of this object is the type of security
             association."
        ::= { 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..15)
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
             "The value of this object is the most recent TEK key
             sequence number for this TEK FSM."
        ::= { 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  3 }

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 { wmanSwUpgradeInit(0),
                           wmanSwUpgradeFail(1),
                           wmanSwUpgradeSuccess(2),
                           wmanSwConfigurationChanged(3),
                           wmanPswdChangeFail(4),
                           wmanPowerSupplyFail(5),
                           wmanTODFail(6),
                           wmanSsTLVUnknown(7),
                           wmanSsDynServReqFail(8),
                           wmanSsDynServRspFail(9),
                           wmanSsDynServAckFail(10),
                           wmanSsBPKMFail(11),
                           wmanSsDHCPSuccess(12)
                           }
        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 }

wmanBsTLVUnknown    NOTIFICATION-TYPE
```

```
        STATUS     current
        DESCRIPTION
                 "Event that notifies detection of unknown TLV during
the
                 TLV parsing process."
        ::= { wmanIfSsTrapDefinitions 1 }

wmanSsDynServReqFailTrap    NOTIFICATION-TYPE
        STATUS     current
        DESCRIPTION
               "An event to report the failure of a dynamic service
               request happened during the dynamic services process"
        ::= { wmanIfSsTrapDefinitions 2 }

wmanSsDynServRspFailTrap    NOTIFICATION-TYPE
        STATUS     current
        DESCRIPTION
                 "An event to report the failure of a dynamic service
                 response happened during the dynamic services process."
        ::= { wmanIfSsTrapDefinitions 3 }

wmanSsDynServAckFailTrap    NOTIFICATION-TYPE
        STATUS     current
        DESCRIPTION
                 "An event to report the failure of a dynamic service
                 acknowledgement happened during the dynamic services
                 process."
        ::= { wmanIfSsTrapDefinitions 4 }

wmanSsBPKMFailTrap    NOTIFICATION-TYPE
        STATUS     current
        DESCRIPTION
                "An event to report the failure of a BPKM operation."
        ::= { wmanIfSsTrapDefinitions 5 }

wmanSsDHCPSuccessTrap    NOTIFICATION-TYPE
        STATUS     current
        DESCRIPTION
                 "An event to report a successful DHCP Handshake for
                 the SS."
        ::= { wmanIfSsTrapDefinitions 6 }

--
-- 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 wmanIfCmnPcsSfIndex and
            wmanIfCmnClassifierRuleIndex. wmanIfCmnPcsSfIndex identifies
            the service flow, and wmanIfCmnClassifierRuleIndexAn
            identifies the packet classifier rule."
        INDEX { wmanIfCmnClassifierRuleIndex, wmanIfCmnPcsSfIndex }
        ::= { wmanIfCmnClassifierRuleTable 1 }

WmanIfCmnClassifierRuleEntry::= SEQUENCE {
        wmanIfCmnClassifierRuleIndex            Unsigned32,
        wmanIfCmnPcsSfIndex                     Unsigned32,
        wmanIfCmnClassifierRuleServiceFlowId    Unsigned32,
        wmanIfCmnClassifierRulePriority         INTEGER,
        wmanIfCmnClassifierRuleIpTosLow         OCTET STRING,
        wmanIfCmnClassifierRuleIpTosHigh        OCTET STRING,
        wmanIfCmnClassifierRuleIpTosMask        OCTET STRING,
        wmanIfCmnClassifierRuleIpProtocol       Integer32,
        wmanIfCmnClassifierRuleInetAddressType  InetAddressType,
        wmanIfCmnClassifierRuleInetSourceAddr   InetAddress,
        wmanIfCmnClassifierRuleInetSourceMask   InetAddress,
        wmanIfCmnClassifierRuleInetDestAddr     InetAddress,
        wmanIfCmnClassifierRuleInetDestMask     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"
        REFERENCE      ""
        ::= { wmanIfCmnClassifierRuleEntry 1 }

wmanIfCmnPcsSfIndex 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 }

wmanIfCmnClassifierRuleServiceFlowId OBJECT-TYPE
        SYNTAX      Unsigned32 (1..4294967295)
        MAX-ACCESS  read-write
        STATUS      current
        DESCRIPTION
            "An index assigned to a service flow by SC (SFID)."
        REFERENCE      "802.16 Chapter 11.4.8"
        ::= { wmanIfCmnClassifierRuleEntry 3 }

wmanIfCmnClassifierRulePriority OBJECT-TYPE
        SYNTAX      INTEGER
        MAX-ACCESS  read-write
        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"
        ::= { wmanIfCmnClassifierRuleEntry 4 }

wmanIfCmnClassifierRuleIpTosLow OBJECT-TYPE
        SYNTAX      OCTET STRING (SIZE(1))
        MAX-ACCESS  read-write
        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       "802.16 Chapter 11.4.9"
        ::= { wmanIfCmnClassifierRuleEntry 5 }

wmanIfCmnClassifierRuleIpTosHigh OBJECT-TYPE
        SYNTAX      OCTET STRING (SIZE(1))
        MAX-ACCESS  read-write
        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       "802.16 Chapter 11.4.9"
        ::= { wmanIfCmnClassifierRuleEntry 6 }

wmanIfCmnClassifierRuleIpTosMask OBJECT-TYPE
        SYNTAX      OCTET STRING (SIZE(1))
        MAX-ACCESS  read-write
        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       "802.16 Chapter 11.4.9"
        ::= { wmanIfCmnClassifierRuleEntry 7 }

wmanIfCmnClassifierRuleIpProtocol OBJECT-TYPE
        SYNTAX      Integer32 (0..255)
        MAX-ACCESS  read-write
        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      "802.16 Chapter 11.4.9"
        ::= { wmanIfCmnClassifierRuleEntry 8 }

wmanIfCmnClassifierRuleInetAddressType OBJECT-TYPE
        SYNTAX      InetAddressType
        MAX-ACCESS  read-write
        STATUS      current
        DESCRIPTION
            "The type of the internet address for
            wmanIfCmnClassifierRuleInetSourceAddr,
            wmanIfCmnClassifierRuleInetSourceMask,
            wmanIfCmnClassifierRuleInetDestAddr, and
            wmanIfCmnClassifierRuleInetDestMask.
            If the referenced parameter is not present in a classifier,
            this object reports the value of ipv4(1)."
        REFERENCE       ""
        ::= { wmanIfCmnClassifierRuleEntry 9 }

wmanIfCmnClassifierRuleInetSourceAddr OBJECT-TYPE
        SYNTAX      InetAddress
        MAX-ACCESS  read-write
        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 wmanIfCmnClassifierRuleInetSourceMask value
            equals the wmanIfCmnClassifierRuleInetSourceAddr value.
            If the referenced parameter is not present n a classifier,
            this object reports the value of 0.0.0.0."
        REFERENCE       "802.16 Chapter 11.4.9"
        ::= { wmanIfCmnClassifierRuleEntry 10 }

wmanIfCmnClassifierRuleInetSourceMask OBJECT-TYPE
        SYNTAX      InetAddress
        MAX-ACCESS  read-write
        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
            wmanIfCmnClassifierRuleInetSourceMask value equals the
            wmanIfCmnClassifierRuleInetSourceAddr value.
            If the referenced parameter is not present in a classifier,
            this object reports the value of 0.0.0.0."
        REFERENCE      "802.16 Chapter 11.4.9"
        ::= { wmanIfCmnClassifierRuleEntry 11 }

wmanIfCmnClassifierRuleInetDestAddr OBJECT-TYPE
        SYNTAX      InetAddress
        MAX-ACCESS  read-write
        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
            wmanIfCmnClassifierRuleInetDestMask value equals the
            wmanIfCmnClassifierRuleInetDestAddr value.
            If the referenced parameter is not present in a
            classifier, this object reports the value of 0.0.0.0."
        REFERENCE       "802.16 Chapter 11.4.9"
        ::= { wmanIfCmnClassifierRuleEntry 12 }

wmanIfCmnClassifierRuleInetDestMask OBJECT-TYPE
        SYNTAX      InetAddress
        MAX-ACCESS  read-write
        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
            wmanIfCmnClassifierRuleInetDestMask value equals the
            wmanIfCmnClassifierRuleInetDestAddr value.
            If the referenced parameter is not present in a classifier
            , this object reports the value of 0.0.0.0."
        REFERENCE       "802.16 Chapter 11.4.9"
        ::= { wmanIfCmnClassifierRuleEntry 13 }
```

```
wmanIfCmnClassifierRuleSourcePortStart OBJECT-TYPE
        SYNTAX      Integer32 (0..65535)
        MAX-ACCESS  read-write
        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        "802.16 Chapter 11.4.9"
        ::= { wmanIfCmnClassifierRuleEntry 14 }

wmanIfCmnClassifierRuleSourcePortEnd OBJECT-TYPE
        SYNTAX      Integer32 (0..65535)
        MAX-ACCESS  read-write
        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   "802.16 Chapter 11.4.9"
        ::= { wmanIfCmnClassifierRuleEntry 15 }

wmanIfCmnClassifierRuleDestPortStart OBJECT-TYPE
        SYNTAX      Integer32 (0..65535)
        MAX-ACCESS  read-write
        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      "802.16 Chapter 11.4.9"
        ::= { wmanIfCmnClassifierRuleEntry 16 }

wmanIfCmnClassifierRuleDestPortEnd OBJECT-TYPE
        SYNTAX      Integer32 (0..65535)
        MAX-ACCESS  read-write
        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      "802.16 Chapter 11.4.9"
        ::= { wmanIfCmnClassifierRuleEntry 17 }

wmanIfCmnClassifierRuleDestMacAddr OBJECT-TYPE
        SYNTAX      MacAddress
        MAX-ACCESS  read-write
        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      "802.16 Chapter 11.4.9"
        ::= { wmanIfCmnClassifierRuleEntry 18 }

wmanIfCmnClassifierRuleDestMacMask OBJECT-TYPE
        SYNTAX      MacAddress
        MAX-ACCESS  read-write
        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      "802.16 Chapter 11.4.9"
        ::= { wmanIfCmnClassifierRuleEntry 19 }

wmanIfCmnClassifierRuleSourceMacAddr OBJECT-TYPE
        SYNTAX      MacAddress
        MAX-ACCESS  read-write
        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 'FFFFFFFFFFFF'H."
        REFERENCE      "802.16 Chapter 11.4.9"
        ::= { wmanIfCmnClassifierRuleEntry 20 }

wmanIfCmnClassifierRuleSourceMacMask OBJECT-TYPE
        SYNTAX      MacAddress
        MAX-ACCESS  read-write
        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      "802.16 Chapter 11.4.9"
        ::= { wmanIfCmnClassifierRuleEntry 21 }
```

```
wmanIfCmnClassifierRuleEnetProtocolType OBJECT-TYPE
        SYNTAX      INTEGER {none(0),
                             ethertype(1),
                             dsap(2)}
        MAX-ACCESS  read-write
        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 RFC1042
            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   "802.16 Chapter 11.4.9"
        ::= { wmanIfCmnClassifierRuleEntry 22 }

wmanIfCmnClassifierRuleEnetProtocol OBJECT-TYPE
        SYNTAX      Integer32 (0..65535)
        MAX-ACCESS  read-write
        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 wmanIfCmnClassifierRuleEnetProtocolType is mac(3), the
            lower 8 bits of this object value represent a lower bound
            (inclusive) of MAC management message type codes matched,
            and the upper 8 bits of this object value represent the
            upper bound (inclusive) of matched MAC message type codes.
            Certain message type codes are excluded from matching, as
            specified in the reference.
            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   "802.16 Chapter 11.4.9"
        ::= { wmanIfCmnClassifierRuleEntry 23 }

wmanIfCmnClassifierRuleUserPriLow OBJECT-TYPE
        SYNTAX      Integer32 (0..7)
        MAX-ACCESS  read-write
        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   "802.16 Chapter 11.4.9"
        ::= { wmanIfCmnClassifierRuleEntry 24 }

wmanIfCmnClassifierRuleUserPriHigh OBJECT-TYPE
        SYNTAX      Integer32 (0..7)
        MAX-ACCESS  read-write
        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   "802.16 Chapter 11.4.9"
        ::= { wmanIfCmnClassifierRuleEntry 25 }

wmanIfCmnClassifierRuleVlanId OBJECT-TYPE
        SYNTAX      Integer32 (0..4095)
        MAX-ACCESS  read-write
        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      "802.16 Chapter 11.4.9"
        ::= { wmanIfCmnClassifierRuleEntry 26 }
```

```

wmanIfCmnClassifierRuleState OBJECT-TYPE
        SYNTAX      INTEGER {active(1),
                             inactive(2)}
        MAX-ACCESS  read-write
        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      "802.16 Chapter 11.4.9"
        ::= { wmanIfCmnClassifierRuleEntry 27 }

wmanIfCmnClassifierRulePkts OBJECT-TYPE
        SYNTAX      Counter64
        MAX-ACCESS  read-write
        STATUS      current
        DESCRIPTION
            "This object counts the number of packets that have
            been classified using this entry."
        ::= { wmanIfCmnClassifierRuleEntry 28 }

wmanIfCmnClassifierRuleRowStatus 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 choosen not
            to implement 'dynamic assignment' of profiles, this
            object is not useful and should return noSuchName
            upon SNMP request."
        ::= { wmanIfCmnClassifierRuleEntry 29 }

--
-- 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,
        wmanIfCmnCpsServiceClassIndex           INTEGER,
        wmanIfCmnCpsSfState                     INTEGER,
        wmanIfCmnCpsServiceClassName            DisplayString,
        wmanIfCmnCpsTrafficPriority             INTEGER,
        wmanIfCmnCpsMaxSustainedRate            INTEGER,
        wmanIfCmnCpsMaxTrafficBurst             INTEGER,
        wmanIfCmnCpsMinReservedRate             INTEGER,
        wmanIfCmnCpsToleratedJitter             INTEGER,
        wmanIfCmnCpsMaxLatency                  INTEGER,
        wmanIfCmnCpsScSchedulingType            WmanUlSchedulingType,
        wmanIfCmnCpsScArqEnable                 TruthValue,
        wmanIfCmnCpsScArqWindowSize             INTEGER,
        wmanIfCmnCpsScArqFragmentLifetime       INTEGER,
        wmanIfCmnCpsScArqSyncLossTimeout        INTEGER,
        wmanIfCmnCpsScArqDeliverInOrder         TruthValue,
        wmanIfCmnCpsScArqRxPurgeTimeout         INTEGER,
        wmanIfCmnCpsScFragmentLen               INTEGER,
        wmanIfCmnCpsSCMinRsvdTolerableRate      INTEGER
        }

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 attriibute indiating the service flow is downstream or
            upstream."
        ::= { wmanIfCmnCpsServiceFlowEntry 3 }

wmanIfCmnCpsServiceClassIndex OBJECT-TYPE
        SYNTAX      INTEGER
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "The wmanIfCmnCpsServiceClassIndex associates this
             service flow with QoS parameters.
             If no associated entry in wmanIfCmnCpsServiceFlowTable
             exists, this object returns a value of zero."
        ::= { wmanIfCmnCpsServiceFlowEntry 4 }

wmanIfCmnCpsSfState OBJECT-TYPE
        SYNTAX      INTEGER {provisionedState(1),
                             admittedState(2),
                             activeState(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/D3-2004"
        ::= { wmanIfCmnCpsServiceFlowEntry 5 }

wmanIfCmnCpsServiceClassName  OBJECT-TYPE
        SYNTAX      DisplayString
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "Refers to the Service Class Name"
        REFERENCE      "802.16 Chapter 11.4.8"
        ::= { wmanIfCmnCpsServiceFlowEntry 6 }

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/D3-2004"
        ::= { wmanIfCmnCpsServiceFlowEntry 7 }

wmanIfCmnCpsMaxSustainedRate OBJECT-TYPE
        SYNTAX      INTEGER
        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/D3-2004"
        ::= { wmanIfCmnCpsServiceFlowEntry 8 }

wmanIfCmnCpsMaxTrafficBurst OBJECT-TYPE
        SYNTAX      INTEGER
        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/D3-2004"
        ::= { wmanIfCmnCpsServiceFlowEntry 9 }

wmanIfCmnCpsMinReservedRate OBJECT-TYPE
        SYNTAX      INTEGER
        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/D3-2004"
        ::= { wmanIfCmnCpsServiceFlowEntry 10 }

wmanIfCmnCpsToleratedJitter OBJECT-TYPE
        SYNTAX      INTEGER
        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/D3-2004"
        ::= { wmanIfCmnCpsServiceFlowEntry 11 }

wmanIfCmnCpsMaxLatency OBJECT-TYPE
        SYNTAX      INTEGER
        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/D3-2004"
            ::= { wmanIfCmnCpsServiceFlowEntry 12 }

    wmanIfCmnCpsScSchedulingType OBJECT-TYPE
            SYNTAX      WmanUlSchedulingType
            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      "802.16 Chapter 11.4.8"
            ::= { wmanIfCmnCpsServiceFlowEntry 13 }

    wmanIfCmnCpsScArqEnable OBJECT-TYPE
            SYNTAX      TruthValue
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "True(1) ARQ enabling is requested for the connection."
            ::= { wmanIfCmnCpsServiceFlowEntry 14 }

    wmanIfCmnCpsScArqWindowSize   OBJECT-TYPE
            SYNTAX      INTEGER (1 .. 255)
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "Indicates the maximum number of unacknowledged
                  fragments at any time."
            ::= { wmanIfCmnCpsServiceFlowEntry 15 }

    wmanIfCmnCpsScArqFragmentLifetime 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 occured.
                    If transmission or retransmission of the fragment
                    is not acknowledged by the receiver before the
                    time limit is reached, the fragmnet is discarded.
                    A value of 0 means Infinite."
            ::= { wmanIfCmnCpsServiceFlowEntry 16 }

    wmanIfCmnCpsScArqSyncLossTimeout 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 17}

wmanIfCmnCpsScArqDeliverInOrder  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 18 }

wmanIfCmnCpsScArqRxPurgeTimeout  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 19}

wmanIfCmnCpsScFragmentLen OBJECT-TYPE
        SYNTAX      INTEGER (32 .. 2040)
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "The maximum size fragment a transmitter shall form
            or a receiver shall expect to receive."
        ::= { wmanIfCmnCpsServiceFlowEntry 20 }

wmanIfCmnCpsSCMinRsvdTolerableRate OBJECT-TYPE
        SYNTAX      INTEGER
        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/D3-2004"
        ::= { wmanIfCmnCpsServiceFlowEntry 21 }

--
-- 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 SS that contains
               the system parameters as defined in section 10.1 of [3]."
        ::= { wmanIfCmnCps 2 }

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

WmanIfCmnBsSsConfigurationEntry ::= SEQUENCE {
        wmanIfCmnSsId                           Unsigned32,
        wmanIfCmnInvitedRangRetries             INTEGER,
        wmanIfCmnMinislotSize                   INTEGER,
        wmanIfCmnDSxReqRetries                  INTEGER,
        wmanIfCmnDSxRespRetries                 INTEGER,
        wmanIfCmnT7Timeout                      INTEGER,
        wmanIfCmnT8Timeout                      INTEGER,
        wmanIfCmnT10Timeout                     INTEGER,
        wmanIfCmnT22Timeout                     INTEGER,
        wmanIfCmnBsSsConfigurationRowStatus     RowStatus
        }

wmanIfCmnSsId OBJECT-TYPE
        SYNTAX      Unsigned32 (1 .. 4294967295)
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
             "wmanIfCmnSsId is the index to
              wmanIfCmnBsSsConfigurationTable."
        REFERENCE
            "Section 6.4.2.3.5 in IEEE 802.16REVd/D3-2004"
        ::= { wmanIfCmnBsSsConfigurationEntry 1 }

wmanIfCmnInvitedRangRetries OBJECT-TYPE
        SYNTAX      INTEGER(16..65535)
        MAX-ACCESS  read-write
        STATUS      current
        DESCRIPTION
            "Number of retries on inviting Ranging Requests."
        ::= { wmanIfCmnBsSsConfigurationEntry 2 }
```

```
wmanIfCmnMinislotSize OBJECT-TYPE
        SYNTAX      INTEGER
        MAX-ACCESS  read-write
        STATUS      current
        DESCRIPTION
            "Size of minislot for uplink transmission. Shall be a power
             of 2 (in units of PS)."
        ::= { wmanIfCmnBsSsConfigurationEntry 3 }

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

wmanIfCmnDSxRespRetries OBJECT-TYPE
        SYNTAX      INTEGER
        MAX-ACCESS  read-write
        STATUS      current
        DESCRIPTION
            "Number of Timeout Retries on DSA/DSC/DSD Responses."
        ::= { wmanIfCmnBsSsConfigurationEntry 5 }

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 6 }

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 7 }

wmanIfCmnT10Timeout OBJECT-TYPE
        SYNTAX      INTEGER(0 .. 3000)
        UNITS       "milliseconds"
        MAX-ACCESS  read-write
        STATUS      current
        DESCRIPTION
            "Wait for Transaction End timeout in ms."
        ::= { wmanIfCmnBsSsConfigurationEntry 8 }

wmanIfCmnT22Timeout OBJECT-TYPE
```

```
        SYNTAX      INTEGER(0 .. 500)
        UNITS       "milliseconds"
        MAX-ACCESS  read-write
        STATUS      current
        DESCRIPTION
            "Wait for ARQ Reset in ms."
        ::= { wmanIfCmnBsSsConfigurationEntry 9 }

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 choosen not
            to implement 'dynamic assignment' of profiles, this
            object is not useful and should return noSuchName
            upon SNMP request."
        ::= { wmanIfCmnBsSsConfigurationEntry 10 }

--
-- 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 teh ifIndex with ifType propBWAp2Mp identifing
             the BS sector. The primary index is the ifIndex with ifType
             of propBWAp2Mp identifing the BS sector. wmanIfCmnSsIdIndex
             identifies the SS where th emeasurement 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/D3-2004"
        ::= { 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/D3-2004"
        ::= { 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/D3-2004"
        ::= { 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/D3-2004"
        ::= { 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/D3-2004"
        ::= { 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/D3-2004"
        ::= { 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/D3-2004"
            ::= { 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/D3-2004"
        ::= { 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/D3-2004"
        ::= { 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
             capabilites 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, wmanIfSsCryptoSuiteIndex }
        ::= { wmanIfCmnCryptoSuiteTable  1 }

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

wmanIfSsCryptoSuiteIndex 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) }
        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 301"
        ::= { 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 { 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"
        ::= { 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/D3-2004"
        ::= { 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-write
        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/D3-2004"
        ::= { wmanIfCmnOfdmUplinkChannelEntry 1 }

wmanIfCmnOfdmBwReqOppSize OBJECT-TYPE
        SYNTAX      INTEGER (1..65535)
        MAX-ACCESS  read-write
        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/D3-2004"
        ::= { wmanIfCmnOfdmUplinkChannelEntry 2 }

wmanIfCmnOfdmRangReqOppSize OBJECT-TYPE
        SYNTAX      INTEGER (1..65535)
        UNITS       "PS"
        MAX-ACCESS  read-write
        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 maxiumum SS/BS roundtrip propagation delay."
        REFERENCE
            "Section 11.3.1, table 276, in IEEE 802.16REVd/D3-2004"
        ::= { wmanIfCmnOfdmUplinkChannelEntry 3 }

wmanIfCmnOfdmUplinkCenterFreq OBJECT-TYPE
        SYNTAX      INTEGER
        UNITS       "KHz"
        MAX-ACCESS  read-write
        STATUS      current
        DESCRIPTION
            " Uplink center frequency (KHz)"
        REFERENCE
            "Section 11.3.1, table 276, in IEEE 802.16REVd/D3-2004"
        ::= { wmanIfCmnOfdmUplinkChannelEntry 4 }

wmanIfCmnOfdmSubChReqRegionFull OBJECT-TYPE
        SYNTAX      INTEGER {oneSubchannel(0),
                             twoSubchannels(1),
                             fourSubchannels(2),
                             eightSubchannels(3),
                             sixteenSubchannels(4)}
        MAX-ACCESS  read-write
        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/D3-2004"
        ::= { wmanIfCmnOfdmUplinkChannelEntry 5 }

wmanIfCmnOfdmSubChFocusCtCode OBJECT-TYPE
        SYNTAX      INTEGER
        MAX-ACCESS  read-write
        STATUS      current
        DESCRIPTION
            "Number of contention codes (CSE) that shall only be used to
             request a subchannelized allocation. Default value 0.
             Allowed values 0-48."
        REFERENCE
            "Section 11.3.1, table 279, in IEEE 802.16REVd/D3-2004"
        ::= { wmanIfCmnOfdmUplinkChannelEntry 6 }

wmanIfCmnOfdmUplinkChannelRowStatus 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 choosen 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/D3-2004"
        ::= { 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                       INTEGER,
        wmanIfCmnOfdmMacVersion                 INTEGER,
        wmanIfCmnOfdmFrameDurationCode          INTEGER,
        wmanIfCmnOfdmFrameNumber                INTEGER,
        wmanIfCmnOfdmDownlinkChannelRowStatus   RowStatus
        }

wmanIfCmnOfdmBsEIRP OBJECT-TYPE
        SYNTAX      INTEGER
        UNITS       "dbM"
        MAX-ACCESS  read-write
        STATUS      current
        DESCRIPTION
            " Signed in units of 1 dBM."
        REFERENCE
            "Section 11.4.1, table 286, in IEEE 802.16REVd/D3-2004"
        ::= { wmanIfCmnOfdmDownlinkChannelEntry 1 }

wmanIfCmnOfdmChannelNumber OBJECT-TYPE
        SYNTAX      INTEGER
        MAX-ACCESS  read-write
        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/D3-2004"
        ::= { wmanIfCmnOfdmDownlinkChannelEntry 2 }

wmanIfCmnOfdmTTG OBJECT-TYPE
        SYNTAX      INTEGER
        MAX-ACCESS  read-write
        STATUS      current
        DESCRIPTION
            " Transmit / Receive Transition Gap."
        REFERENCE
            "Section 11.4.1, table 286, in IEEE 802.16REVd/D3-2004"
        ::= { wmanIfCmnOfdmDownlinkChannelEntry 3 }

wmanIfCmnOfdmRTG OBJECT-TYPE
        SYNTAX      INTEGER
        MAX-ACCESS  read-write
```

```
            STATUS      current
            DESCRIPTION
                " Receive / Transmit Transition Gap."
            REFERENCE
                "Section 11.4.1, table 286, in IEEE 802.16REVd/D3-2004"
            ::= { wmanIfCmnOfdmDownlinkChannelEntry 4 }

    wmanIfCmnOfdmInitRngMaxRSS OBJECT-TYPE
            SYNTAX      INTEGER
            UNITS       "dbM"
            MAX-ACCESS  read-write
            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/D3-2004"
            ::= { wmanIfCmnOfdmDownlinkChannelEntry 5 }

    wmanIfCmnOfdmChSwitchFrameNmr OBJECT-TYPE
            SYNTAX      INTEGER
            MAX-ACCESS  read-write
            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/D3-2004"
            ::= { wmanIfCmnOfdmDownlinkChannelEntry 6 }

    wmanIfCmnOfdmDownlinkCenterFreq OBJECT-TYPE
            SYNTAX      INTEGER
            UNITS       "KHz"
            MAX-ACCESS  read-write
            STATUS      current
            DESCRIPTION
                " Downlink center frequency (kHz)."
            REFERENCE
                "Section 11.4.1, table 286, in IEEE 802.16REVd/D3-2004"
            ::= { wmanIfCmnOfdmDownlinkChannelEntry 7 }

    wmanIfCmnOfdmBsId OBJECT-TYPE
            SYNTAX      INTEGER
            MAX-ACCESS  read-write
            STATUS      current
            DESCRIPTION
                " Base station ID."
            REFERENCE
                "Section 11.4.1, table 286, in IEEE 802.16REVd/D3-2004"
            ::= { wmanIfCmnOfdmDownlinkChannelEntry 8 }

    wmanIfCmnOfdmMacVersion OBJECT-TYPE
            SYNTAX      INTEGER
            MAX-ACCESS  read-write
```

```
        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/D3-2004"
        ::= { wmanIfCmnOfdmDownlinkChannelEntry 9 }

wmanIfCmnOfdmFrameDurationCode OBJECT-TYPE
        SYNTAX      INTEGER
        MAX-ACCESS  read-write
        STATUS      current
        DESCRIPTION
            " The duration of the frame. The frame duration code
            values are specified in Table 211."
        REFERENCE
            "Section 11.4.1, table 286, in IEEE 802.16REVd/D3-2004"
        ::= { wmanIfCmnOfdmDownlinkChannelEntry 10 }

wmanIfCmnOfdmFrameNumber OBJECT-TYPE
        SYNTAX      INTEGER
        MAX-ACCESS  read-write
        STATUS      current
        DESCRIPTION
            " The number of frame containing the DCD message."
        REFERENCE
            "Section 11.4.1, table 286, in IEEE 802.16REVd/D3-2004"
        ::= { wmanIfCmnOfdmDownlinkChannelEntry 11 }

wmanIfCmnOfdmDownlinkChannelRowStatus 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 choosen 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/D3-2004"
        ::= { 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,
        wmanIfCmnOfdmUplinkFrequency            INTEGER,
        wmanIfCmnOfdmUcdFecCodeType             INTEGER,
        wmanIfCmnOfdmFocusCtPowerBoost          INTEGER,
        wmanIfCmnOfdmUcdBurstProfileRowStatus   RowStatus
        }

wmanIfCmnOfdmOfdmUcdBurstProfIndex OBJECT-TYPE
        SYNTAX      INTEGER (1 .. 100)
        MAX-ACCESS  not-accessible
        STATUS      current
        DESCRIPTION
            "ifIndex and wmanIfCmnOfdmOfdmUcdBurstProfIndex uniquely
            identify an entry in the wmanIfCmnOfdmUcdBurstProfileTable."
        ::= { wmanIfCmnOfdmUcdBurstProfileEntry 1 }

wmanIfCmnOfdmUplinkFrequency OBJECT-TYPE
        SYNTAX      INTEGER
        UNITS       "KHz"
        MAX-ACCESS  read-write
        STATUS      current
        DESCRIPTION
            "Uplink Frequency (kHz)."
        REFERENCE
            "Section 11.3.1.1, table 281, in IEEE 802.16REVd/D3-2004"
        ::= { wmanIfCmnOfdmUcdBurstProfileEntry 2 }

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-write
        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/D3-2004"
        ::= { wmanIfCmnOfdmUcdBurstProfileEntry 3 }

wmanIfCmnOfdmFocusCtPowerBoost OBJECT-TYPE
        SYNTAX      INTEGER
        MAX-ACCESS  read-write
        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/D3-2004"
        ::= { wmanIfCmnOfdmUcdBurstProfileEntry 4 }

wmanIfCmnOfdmUcdBurstProfileRowStatus 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 choosen not
            to implement 'dynamic assignment' of profiles, this
            object is not useful and should return noSuchName
            upon SNMP request."
        ::= { wmanIfCmnOfdmUcdBurstProfileEntry 5 }

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,
        wmanIfCmnOfdmDownlinkFrequency          INTEGER,
        wmanIfCmnOfdmDcdFecCodeType             INTEGER,
        wmanIfCmnOfdmDiucMandatoryExitThresh    INTEGER,
        wmanIfCmnOfdmDiucMinEntryThresh         INTEGER,
        wmanIfCmnOfdmDcdBurstProfileRowStatus   RowStatus
        }

wmanIfCmnOfdmDcdBurstProfIndex OBJECT-TYPE
        SYNTAX      INTEGER (1 .. 100)
        MAX-ACCESS  not-accessible
        STATUS      current
        DESCRIPTION
            "ifIndex and wmanIfCmnOfdmDcdBurstProfIndex uniquely
            identify an entry in the wmanIfCmnOfdmDcdBurstProfileTable."
        ::= { wmanIfCmnOfdmDcdBurstProfileEntry 1 }

wmanIfCmnOfdmDownlinkFrequency OBJECT-TYPE
        SYNTAX      INTEGER
        UNITS       "KHz"
        MAX-ACCESS  read-write
        STATUS      current
        DESCRIPTION
            "Downlink Frequency (kHz)."
        REFERENCE
            "Section 11.4.1, table 287, in IEEE 802.16REVd/D3-2004"
        ::= { wmanIfCmnOfdmDcdBurstProfileEntry 2 }

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-write
        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/D3-2004"
        ::= { wmanIfCmnOfdmDcdBurstProfileEntry 3 }

wmanIfCmnOfdmDiucMandatoryExitThresh OBJECT-TYPE
```

```
        SYNTAX      INTEGER
        MAX-ACCESS  read-write
        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/D3-2004"
        ::= { wmanIfCmnOfdmDcdBurstProfileEntry 4 }

wmanIfCmnOfdmDiucMinEntryThresh OBJECT-TYPE
        SYNTAX      INTEGER
        MAX-ACCESS  read-write
        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/D3-2004"
        ::= { wmanIfCmnOfdmDcdBurstProfileEntry 5 }

wmanIfCmnOfdmDcdBurstProfileRowStatus 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 choosen not
            to implement 'dynamic assignment' of profiles, this
            object is not useful and should return noSuchName
            upon SNMP request."
        ::= { wmanIfCmnOfdmDcdBurstProfileEntry 6 }


END
```