Project	**IEEE 802.16 Broadband Wireless Access Working Group <http://ieee802.org/16>**
Title	**Proposed text and ASN.1 code for QoS Management**
Date Submitted	**2007-05-08**
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Re:	
Abstract	This contribution proposes the text and ASN.1 code in wmanIf2mMib to support QoS management.
Purpose	Adoption
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1. Introduction

This contribution proposes the text and ASN.1 code in wmanIf2mMib to support QoS management.

2. Proposed changes

2.1 wmanIf2mMib Change

[Add a new subclause as the following:]

13.1.4.3 wmanIf2mCmnObjects

13.1.4.3.1 wmanIf2mCmnCm

Figure 19 shows the structure of wmanIf2mCmnCm subtree that contains common managed objects related to Configuration Management.

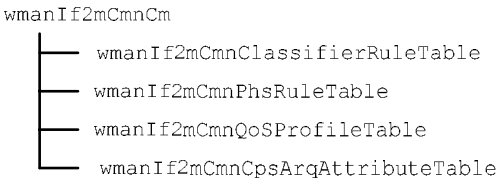

Figure 19—wmanIf2mCmnCm structure

[Change the following subclause as below:]

13.1.4.3.1.1 wmanIf2mCmnClassifierRuleTable

wmanIf2CmnQoSProfileTable contains packet classifier rules associated with service flows.

13.1.4.3.1.2 wmanIf2mCmnPhsRuleTable

wmanIf2mCmnPhsRuleTable contains PHS rule dictionary entries. Each entry contains the data of the header to be suppressed along with its identification - PHSI.

13.1.4.3.1.3 wmanIf2mCmnQoSProfileTable

wmanIf2mCmnQoSProfileTable contains QoS profiles that are associated with service flows or CIDs via the wmanIf2CmnQoSProfileIndex.

13.1.4.3.1.4 wmanIf2mCmnArqAttributeTable

wmanIf2mCmnArqAttributeTable contains ARQ parameters that are associated with the Service Flows.

2.2 ASN.1 Code Change

13.2 ASN.1 Definitions of MIB Modules

13.2.3 wmanIf2mMib

[Add the following ASN.1 code:]

```
-- XXX
wmanIf2mCmnClassifierRuleTable OBJECT-TYPE
        SYNTAX      SEQUENCE OF WmanIf2mCmnClassifierRuleEntry
        MAX-ACCESS  not-accessible
        STATUS      current
        DESCRIPTION
            "This table contains packet classifier rules associated
             with service flows."
        ::= { wmanIf2mCmnCm 1 }

wmanIf2mCmnClassifierRuleEntry OBJECT-TYPE
        SYNTAX      WmanIf2mCmnClassifierRuleEntry
        MAX-ACCESS  not-accessible
        STATUS      current
        DESCRIPTION
            "This table provides one row for each packet classifier rule
             , and is indexed by ifIndex, and
             wmanIf2mCmnClassifierRuleIndex."
        INDEX { ifIndex, wmanIf2mCmnClassifierRuleIndex }
        ::= { wmanIf2mCmnClassifierRuleTable 1 }

WmanIf2mCmnClassifierRuleEntry::= SEQUENCE {
        wmanIf2mCmnClassifierRuleIndex          Unsigned32,
        wmanIf2mCmnClassifierRulePriority       INTEGER,
        wmanIf2mCmnClassifierRuleIpTosLow       INTEGER,
        wmanIf2mCmnClassifierRuleIpTosHigh      INTEGER,
        wmanIf2mCmnClassifierRuleIpTosMask      INTEGER,
        wmanIf2mCmnClassifierRuleIpProtocol     Integer32,
        wmanIf2mCmnClassifierRuleIpSrcAddr      InetAddress,
        wmanIf2mCmnClassifierRuleIpSrcMask      InetAddress,
        wmanIf2mCmnClassifierRuleIpDestAddr     InetAddress,
        wmanIf2mCmnClassifierRuleIpDestMask     InetAddress,
        wmanIf2mCmnClassifierRuleSrcPortStart   Integer32,
        wmanIf2mCmnClassifierRuleSrcPortEnd     Integer32,
        wmanIf2mCmnClassifierRuleDestPortStart  Integer32,
        wmanIf2mCmnClassifierRuleDestPortEnd    Integer32,
        wmanIf2mCmnClassifierRuleDestMacAddr    MacAddress,
        wmanIf2mCmnClassifierRuleDestMacMask    MacAddress,
        wmanIf2mCmnClassifierRuleSrcMacAddr     MacAddress,
        wmanIf2mCmnClassifierRuleSrcMacMask     MacAddress,
        wmanIf2mCmnClassifierRuleEnetType       INTEGER,
        wmanIf2mCmnClassifierRuleEnetProtocol   Integer32,
        wmanIf2mCmnClassifierRuleUserPriLow     Integer32,
        wmanIf2mCmnClassifierRuleUserPriHigh    Integer32,
        wmanIf2mCmnClassifierRuleVlanId         Integer32,
        wmanIf2mCmnClassifierRuleIpv6FlowLabel  WmanIf2mIpv6FlowLabel,
        wmanIf2mCmnClassifierRulePkts           Counter64,
        wmanIf2mCmnClassifierRuleBitMap         WmanIf2mClassifierBitMap
                                                }

wmanIf2mCmnClassifierRuleIndex  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
                "Subclause 11.13.19.3.4.14 in IEEE Std 802.16-2004"
            ::= { wmanIf2mCmnClassifierRuleEntry 1 }

    wmanIf2mCmnClassifierRulePriority OBJECT-TYPE
            SYNTAX      INTEGER (0..255)
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "The value specifies the order of evaluation of the
                 classifiers. The higher the value the higher the priority.
                 The value of 0 is used as default in provisioned service
                 flows classifiers. The default value of 64 is used for
                 dynamic service flow classifiers. If the referenced
                 parameter is not present in a classifier, this object
                 reports the default value as defined above"
            REFERENCE
                "Subclause 11.13.19.3.4.1 in IEEE Std 802.16-2004"
            DEFVAL      { 0 }
            ::= { wmanIf2mCmnClassifierRuleEntry 2 }

    wmanIf2mCmnClassifierRuleIpTosLow OBJECT-TYPE
            SYNTAX      INTEGER (0 .. 255)
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "The low value of a range of TOS byte values. If the
                 referenced parameter is not present in a classifier, this
                 object reports the value of 0."
            REFERENCE
                "Subclause 11.13.19.3.4.2 in IEEE Std 802.16-2004"
            ::= { wmanIf2mCmnClassifierRuleEntry 3 }

    wmanIf2mCmnClassifierRuleIpTosHigh OBJECT-TYPE
            SYNTAX      INTEGER (0 .. 255)
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "The 8-bit high value of a range of TOS byte values. If the
                 referenced parameter is not present in a classifier, this
                 object reports the value of 0."
            REFERENCE
                "Subclause 11.13.19.3.4.2 in IEEE Std 802.16-2004"
            ::= { wmanIf2mCmnClassifierRuleEntry 4 }

    wmanIf2mCmnClassifierRuleIpTosMask OBJECT-TYPE
            SYNTAX      INTEGER (0 .. 255)
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "The mask value is bitwise ANDed with TOS byte in an IP
                 packet and this value is used for the range checking of
                 TosLow and TosHigh. If the referenced parameter is not
                 present in a classifier, this object reports the value of
                 0."
            REFERENCE
                "Subclause 11.13.19.3.4.2 in IEEE Std 802.16-2004"
            ::= { wmanIf2mCmnClassifierRuleEntry 5 }

    wmanIf2mCmnClassifierRuleIpProtocol OBJECT-TYPE
            SYNTAX      Integer32 (0..255)
```

```
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "This object indicates the value of the IP Protocol field
                 required for IP packets to match this rule. If the
                 referenced parameter is not present in a classifier, this
                 object reports the value of 0."
            REFERENCE
                "Subclause 11.13.19.3.4.3 in IEEE Std 802.16-2004"
            ::= { wmanIf2mCmnClassifierRuleEntry 6 }

    wmanIf2mCmnClassifierRuleIpSrcAddr OBJECT-TYPE
            SYNTAX      InetAddress
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "This object specifies the value of the IP Source Address
                 required for packets to match this rule. An IP packet
                 matches the rule when the packet ip source address bitwise
                 ANDed with the wmanIf2mCmnClassifierRuleIpSrcMask value
                 equals the wmanIf2mCmnClassifierRuleIpSrcAddr value.
                 If the referenced parameter is not present in a classifier
                 , this object reports the value of 0.0.0.0."
            REFERENCE
                "Subclause 11.13.19.3.4.4 in IEEE Std 802.16-2004"
            ::= { wmanIf2mCmnClassifierRuleEntry 7 }

    wmanIf2mCmnClassifierRuleIpSrcMask OBJECT-TYPE
            SYNTAX      InetAddress
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "This object specifies which bits of a packet's IP Source
                 Address that are compared to match this rule. An IP packet
                 matches the rule when the packet source address bitwise
                 ANDed with the
                 wmanIf2mCmnClassifierRuleIpSrcMask value equals the
                 wmanIf2mCmnClassifierRuleIpSrcAddr value.
                 If the referenced parameter is not present in a classifier
                 , this object reports the value of 0.0.0.0."
            REFERENCE
                "Subclause 11.13.19.3.4.4 in IEEE Std 802.16-2004"
            ::= { wmanIf2mCmnClassifierRuleEntry 8 }

    wmanIf2mCmnClassifierRuleIpDestAddr OBJECT-TYPE
            SYNTAX      InetAddress
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "This object specifies the value of the IP Destination
                 Address required for packets to match this rule. An IP
                 packet matches the rule when the packet IP destination
                 address bitwise ANDed with the
                 wmanIf2mCmnClassifierRuleIpDestMask value equals the
                 wmanIf2mCmnClassifierRuleIpDestAddr value.
                 If the referenced parameter is not present in a
                 classifier, this object reports the value of 0.0.0.0."
            REFERENCE
                "Subclause 11.13.19.3.4.5 in IEEE Std 802.16-2004"
            ::= { wmanIf2mCmnClassifierRuleEntry 9 }

    wmanIf2mCmnClassifierRuleIpDestMask OBJECT-TYPE
            SYNTAX      InetAddress
            MAX-ACCESS  read-only
```

```
            STATUS      current
            DESCRIPTION
                "This object specifies which bits of a packet's IP
                 Destination Address that are compared to match this rule.
                 An IP packet matches the rule when the packet destination
                 address bitwise ANDed with the
                 wmanIf2mCmnClassifierRuleIpDestMask value equals the
                 wmanIf2mCmnClassifierRuleIpDestAddr value.
                 If the referenced parameter is not present in a classifier
                 , this object reports the value of 0.0.0.0."
            REFERENCE
                "Subclause 11.13.19.3.4.5 in IEEE Std 802.16-2004"
            ::= { wmanIf2mCmnClassifierRuleEntry 10 }

    wmanIf2mCmnClassifierRuleSrcPortStart OBJECT-TYPE
            SYNTAX      Integer32 (0..65535)
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                 "This object specifies the low end inclusive range of
                  TCP/UDP source port numbers to which a packet is compared
                  . This object is irrelevant for non-TCP/UDP IP packets.
                  If the referenced parameter is not present in a
                  classifier, this object reports the value of 0."
            REFERENCE
                "Subclause 11.13.19.3.4.6 in IEEE Std 802.16-2004"
            ::= { wmanIf2mCmnClassifierRuleEntry 11 }

    wmanIf2mCmnClassifierRuleSrcPortEnd OBJECT-TYPE
            SYNTAX      Integer32 (0..65535)
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "This object specifies the high end inclusive range of
                 TCP/UDP source port numbers to which a packet is compared.
                 This object is irrelevant for non-TCP/UDP IP packets.
                 If the referenced parameter is not present in a classifier,
                 this object reports the value of 65535."
            REFERENCE
                "Subclause 11.13.19.3.4.6 in IEEE Std 802.16-2004"
            ::= { wmanIf2mCmnClassifierRuleEntry 12 }

    wmanIf2mCmnClassifierRuleDestPortStart OBJECT-TYPE
            SYNTAX      Integer32 (0..65535)
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "This object specifies the low end inclusive range of
                 TCP/UDP destination port numbers to which a packet is
                 compared. If the referenced parameter is not present in a
                 classifier, this object reports the value of 0."
            REFERENCE
                "Subclause 11.13.19.3.4.7 in IEEE Std 802.16-2004"
            ::= { wmanIf2mCmnClassifierRuleEntry 13 }

    wmanIf2mCmnClassifierRuleDestPortEnd OBJECT-TYPE
            SYNTAX      Integer32 (0..65535)
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "This object specifies the high end inclusive range of
                 TCP/UDP destination port numbers to which a packet is
                 compared. If the referenced parameter is not present
                 in a classifier, this object reports the value of
```

```
                65535."
            REFERENCE
                "Subclause 11.13.19.3.4.7 in IEEE Std 802.16-2004"
            ::= { wmanIf2mCmnClassifierRuleEntry 14 }

    wmanIf2mCmnClassifierRuleDestMacAddr OBJECT-TYPE
            SYNTAX      MacAddress
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "An Ethernet packet matches an entry when its destination
                 MAC address bitwise ANDed with
                 wmanIf2mCmnClassifierRuleDestMacMask equals the value of
                 wmanIf2mCmnClassifierRuleDestMacAddr. If the referenced
                 parameter is not present in a classifier, this object
                 reports the value of '000000000000'H."
            REFERENCE
                "Subclause 11.13.19.3.4.8 in IEEE Std 802.16-2004"
            ::= { wmanIf2mCmnClassifierRuleEntry 15 }

    wmanIf2mCmnClassifierRuleDestMacMask OBJECT-TYPE
            SYNTAX      MacAddress
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "An Ethernet packet matches an entry when its destination
                 MAC address bitwise ANDed with
                 wmanIf2mCmnClassifierRuleDestMacMask equals the value of
                 wmanIf2mCmnClassifierRuleDestMacAddr. If the referenced
                 parameter is not present in a classifier, this object
                 reports the value of '000000000000'H."
            REFERENCE
                "Subclause 11.13.19.3.4.8 in IEEE Std 802.16-2004"
            ::= { wmanIf2mCmnClassifierRuleEntry 16 }

    wmanIf2mCmnClassifierRuleSrcMacAddr OBJECT-TYPE
            SYNTAX      MacAddress
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "An Ethernet packet matches this entry when its source MAC
                 address  bitwise ANDed with
                 wmanIf2mCmnClassifierRuleSrcMacMask equals the value of
                 wmanIf2mCmnClassifierRuleSrcMacAddr. If the referenced
                 parameter is not present in a classifier, this object
                 reports the value of '000000000000'H."
            REFERENCE
                "Subclause 11.13.19.3.4.9 in IEEE Std 802.16-2004"
            ::= { wmanIf2mCmnClassifierRuleEntry 17 }

    wmanIf2mCmnClassifierRuleSrcMacMask OBJECT-TYPE
            SYNTAX      MacAddress
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "An Ethernet packet matches an entry when its destination
                 MAC address bitwise ANDed with
                 wmanIf2mCmnClassifierRuleSrcMacMask equals the value of
                 wmanIf2mCmnClassifierRuleSrcMacAddr. If the referenced
                 parameter is not present in a classifier, this object
                 reports the value of '000000000000'H."
            REFERENCE
                "Subclause 11.13.19.3.4.9 in IEEE Std 802.16-2004"
            ::= { wmanIf2mCmnClassifierRuleEntry 18 }
```

```
wmanIf2mCmnClassifierRuleEnetType OBJECT-TYPE
        SYNTAX      INTEGER {none(0),
                             ethertype(1),
                             dsap(2)}
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "This object indicates the format of the layer 3 protocol
             id in the Ethernet packet. A value of none(0) means that
             the rule does not use the layer 3 protocol type as a
             matching criteria. A value of ethertype(1) means that the
             rule applies only to frames which contains an EtherType
             value. Ethertype values are contained in packets using
             the Dec-Intel-Xerox (DIX) encapsulation or the 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
            "Subclause 11.13.19.3.4.10 in IEEE Std 802.16-2004"
        ::= { wmanIf2mCmnClassifierRuleEntry 19 }

wmanIf2mCmnClassifierRuleEnetProtocol OBJECT-TYPE
        SYNTAX      Integer32 (0..65535)
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "If wmanIf2mCmnClassifierRuleEnetType is none(0), this
             object is ignored when considering whether a packet matches
             the current rule. If wmanIf2mCmnClassifierRuleEnetType 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 wmanIf2mCmnClassifierRuleEnetType is dsap(2), the
             lower 8 bits of this object's value must match the DSAP
             byte of the packet in order to match the rule.
             If the Ethernet frame contains an 802.1P/Q Tag header
             (i.e. EtherType 0x8100), this object applies to the
             embedded EtherType field within the 802.1P/Q header.
             If the referenced parameter is not present in the
             classifier, the value of this object is reported as 0."
        REFERENCE
            "Subclause 11.13.19.3.4.10 in IEEE Std 802.16-2004"
        ::= { wmanIf2mCmnClassifierRuleEntry 20 }

wmanIf2mCmnClassifierRuleUserPriLow OBJECT-TYPE
        SYNTAX      Integer32 (0..7)
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "This object applies only to Ethernet frames using the
             802.1P/Q tag header (indicated with EtherType 0x8100).
             Such frames include a 16-bit Tag that contains a 3 bit
             Priority field and a 12 bit VLAN number.
             Tagged Ethernet packets must have a 3-bit Priority field
             within the range of wmanIf2mCmnClassifierRulePriLow and
             wmanIf2mCmnClassifierRulePriHigh 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
                "Subclause 11.13.19.3.4.11 in IEEE Std 802.16-2004"
            ::= { wmanIf2mCmnClassifierRuleEntry 21 }

    wmanIf2mCmnClassifierRuleUserPriHigh OBJECT-TYPE
            SYNTAX      Integer32 (0..7)
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "This object applies only to Ethernet frames using the
                802.1P/Q tag header (indicated with EtherType 0x8100).
                Such frames include a 16-bit Tag that contains a 3 bit
                Priority field and a 12 bit VLAN number.
                Tagged Ethernet packets must have a 3-bit Priority
                field within the range of wmanIf2mCmnClassifierRulePriLow
                and wmanIf2mCmnClassifierRulePriHigh 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
                "Subclause 11.13.19.3.4.11 in IEEE Std 802.16-2004"
            ::= { wmanIf2mCmnClassifierRuleEntry 22 }

    wmanIf2mCmnClassifierRuleVlanId OBJECT-TYPE
            SYNTAX      Integer32 (0..4095)
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "This object applies only to Ethernet frames using the
                 802.1P/Q tag header.
                 If this object's value is nonzero, tagged packets must
                 have a VLAN Identifier that matches the value in order
                 to match the rule.
                 Only the least significant 12 bits of this object's
                 value are valid.
                 If the referenced parameter is not present in the
                 classifier, the value of this object is reported as 0."
            REFERENCE
                "Subclause 11.13.19.3.4.12 in IEEE Std 802.16-2004"
            ::= { wmanIf2mCmnClassifierRuleEntry 23 }

    wmanIf2mCmnClassifierRuleIpv6FlowLabel OBJECT-TYPE
            SYNTAX      WmanIf2mIpv6FlowLabel
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "The value of this field specifies the matching values for
                 the IPv6 Flow label field."
            ::= { wmanIf2mCmnClassifierRuleEntry 24 }

    wmanIf2mCmnClassifierRulePkts OBJECT-TYPE
            SYNTAX      Counter64
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "This object counts the number of packets that have
                 been classified using this entry."
            ::= { wmanIf2mCmnClassifierRuleEntry 25 }

    wmanIf2mCmnClassifierRuleBitMap OBJECT-TYPE
            SYNTAX      WmanIf2mClassifierBitMap
            MAX-ACCESS  read-only
```

```
            STATUS      current
            DESCRIPTION
                "This object indicates which parameter encodings were
                 actually present in the entry. A bit set to '1' indicates
                 the corresponding classifier encoding is present, and '0'
                 means otherwise"
            ::= { wmanIf2mCmnClassifierRuleEntry 26 }

    -- XXX
    wmanIf2mCmnPhsRuleTable OBJECT-TYPE
            SYNTAX      SEQUENCE OF WmanIf2mCmnPhsRuleEntry
            MAX-ACCESS  not-accessible
            STATUS      current
            DESCRIPTION
                "This table contains PHS rule dictionary entries. Each
                 entry contains the data of the header to be suppressed
                 along with its identification - PHSI. The classifier
                 uniquely maps packets to its associated PHS Rule. The
                 receiving entity uses the CID and the PHSI to restore the
                 PHSF. Once a PHSF has been assigned to a PHSI, it shall
                 not be changed. To change the value of a PHSF on a
                 service flow, a new PHS rule shall be defined, the old
                 rule is removed from the service flow, and the new rule
                 is added. When a classifier is deleted, any associated
                 PHS rule shall also be deleted."
            REFERENCE
                "Subclause 5.2.3 in IEEE Std 802.16-2004"
            ::= { wmanIf2mCmnCm 2 }

    wmanIf2mCmnPhsRuleEntry OBJECT-TYPE
            SYNTAX      WmanIf2mCmnPhsRuleEntry
            MAX-ACCESS  not-accessible
            STATUS      current
            DESCRIPTION
                "This table provides one row for each PHS rule created
                 dynamically by the BS and SS on a given service flow. The
                 PHS rule is defined by the pair (PHSS, PHSM) for each
                 distinct header data. It is indexed by IfIndex, and
                 wmanIf2mCmnPhsIndex."
            INDEX       { ifIndex, wmanIf2mCmnPhsRulePhsIndex }
            ::= { wmanIf2mCmnPhsRuleTable 1 }

    WmanIf2mCmnPhsRuleEntry::= SEQUENCE {
            wmanIf2mCmnPhsRulePhsIndex              INTEGER,
            wmanIf2mCmnPhsRulePhsField              OCTET STRING,
            wmanIf2mCmnPhsRulePhsMask               OCTET STRING,
            wmanIf2mCmnPhsRulePhsSize               Integer32,
            wmanIf2mCmnPhsRulePhsVerify             WmanIf2mPhsRuleVerify}

    wmanIf2mCmnPhsRulePhsIndex OBJECT-TYPE
            SYNTAX      INTEGER (1 .. 255)
            MAX-ACCESS  not-accessible
            STATUS      current
            DESCRIPTION
                "The PHSI (PHS Index) has a value between 1 and 255, which
                 uniquely references the suppressed byte string. The index
                 is unique per service flow. The uplink and downlink PHSI
                 values are independent of each other."
            REFERENCE
                "Subclause 11.13.19.3.7.1 in IEEE Std 802.16-2004"
            ::= { wmanIf2mCmnPhsRuleEntry 1 }

    wmanIf2mCmnPhsRulePhsField OBJECT-TYPE
            SYNTAX      OCTET STRING (SIZE(0..65535))
```

```
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "The PHSF (PHS Field) is a string of bytes containing the
                 header information to be suppressed by the sending CS and
                 reconstructed by the receiving CS. The most significant
                 byte of the string corresponds to the first byte of the
                 CS-SDU."
            REFERENCE
                "Subclause 11.13.19.3.7.2 in IEEE Std 802.16-2004"
            ::= { wmanIf2mCmnPhsRuleEntry 2 }

    wmanIf2mCmnPhsRulePhsMask OBJECT-TYPE
            SYNTAX      OCTET STRING (SIZE(0..65535))
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "The PHSM An 8-bit mask that indicates which bytes in the
                 PHS Field (PHSF) to suppress and which bytes to not
                 suppress. The PHSM allows fields, such as sequence numbers
                 or checksums (which vary in value), to be excluded from
                 suppression with the constant bytes around them suppressed.
                 It is encodded as follows:
                 bit 0:
                    0 = don't suppress the 1st byte of the suppression field
                    1 = suppress first byte of the suppression field
                 bit 1:
                    0 = don't suppress the 2nd byte of the suppression field
                    1 = suppress second byte of the suppression field
                 bit x:
                    0 = don't suppress the (x+1) byte of the suppression
                        field
                    1 = suppress (x+1) byte of the suppression field
                 where the length of the octet string is ceiling
                 (wmanIf2mCmnPhsRulePhsSize/8)."
            REFERENCE
                "Subclause 11.13.19.3.7.3 in IEEE Std 802.16-2004"
            ::= { wmanIf2mCmnPhsRuleEntry 3 }

    wmanIf2mCmnPhsRulePhsSize OBJECT-TYPE
            SYNTAX      Integer32 (0..255)
            UNITS       "byte"
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "The value of this field - PHSS is the total number of bytes
                 in the header to be suppressed and then restored in a
                 service flow that uses PHS."
            REFERENCE
                "Subclause 11.13.19.3.7.4 in IEEE Std 802.16-2004"
            DEFVAL      {0}
            ::= { wmanIf2mCmnPhsRuleEntry 4 }

    wmanIf2mCmnPhsRulePhsVerify OBJECT-TYPE
            SYNTAX      WmanIf2mPhsRuleVerify
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "The value of this field indicates to the sending entity
                 whether or not the packet header contents are to be
                 verified prior to performing suppression."
            DEFVAL      { phsVerifyEnable }
            ::= { wmanIf2mCmnPhsRuleEntry 5 }
```

```
-- XXX
wmanIf2mCmnQoSProfileTable OBJECT-TYPE
        SYNTAX      SEQUENCE OF WmanIf2mCmnQoSProfileEntry
        MAX-ACCESS  not-accessible
        STATUS      current
        DESCRIPTION
            "This table contains QoS profiles that are associated with
             service flows or CIDs via the wmanIf2mCmnQoSProfileIndex.

             The following table shows the required parameters for
             different UL grant scheduling type.
                 0   - not required
                 1   - required
                 0-1 - optional

             QoS Parameters                BE  ertPS  UGS  rtPS  nrtPS
             ---------------------------------------------------------
             Traffic priority              0-1  0-1    0    0-1   0-1
             Max sustained traffic rate    0-1  0-1    1    0-1   0-1
             Min reserved traffic rate      0    1    0-1    1     1
             Minimum traffic burst          0   0-1    0    0-1   0-1
             Tolerated jitter               0   0-1    1     0     0
             Maximum latency                0    1     1     1     0
             Unsolicited Grant Interval     0    1     1     0     0
             SDU size                       0    0    0-1    0     0
             Unsolicited Polling Interval   0    0     0     1     0"
        REFERENCE
            "Subclause 6.3.14.4 in IEEE Std 802.16-2004"
        ::= { wmanIf2mCmnCm 3 }

wmanIf2mCmnQoSProfileEntry OBJECT-TYPE
        SYNTAX      WmanIf2mCmnQoSProfileEntry
        MAX-ACCESS  not-accessible
        STATUS      current
        DESCRIPTION
            "This table provides one row for each QoS parameter Set."
        INDEX { ifIndex, wmanIf2mCmnQoSProfileIndex }
        ::= { wmanIf2mCmnQoSProfileTable 1 }

WmanIf2mCmnQoSProfileEntry ::= SEQUENCE {
        wmanIf2mCmnQoSProfileIndex              INTEGER,
        wmanIf2mCmnQosServiceClassName          OCTET STRING,
        wmanIf2mCmnQosUlGrantScheduleType       WmanIf2mSchedulingType,
        wmanIf2mCmnQosTrafficPriority           INTEGER,
        wmanIf2mCmnQosMaximumSustainedRate      Unsigned32,
        wmanIf2mCmnQosMinimumReservedRate       Unsigned32,
        wmanIf2mCmnQosMaximumTrafficBurst       Unsigned32,
        wmanIf2mCmnQosToleratedJitter           Unsigned32,
        wmanIf2mCmnQosMaxLatency                Unsigned32,
        wmanIf2mCmnQosUnsolicitedGrantInterval  Unsigned32,
        wmanIf2mCmnQosSduSize                   Unsigned32,
        wmanIf2mCmnQosUnsolicitedPollInterval   Unsigned32}

wmanIf2mCmnQoSProfileIndex OBJECT-TYPE
        SYNTAX      INTEGER (1 .. 65535)
        MAX-ACCESS  not-accessible
        STATUS      current
        DESCRIPTION
            "The index value which uniquely identifies an entry in the
             wmanIf2mCmnQoSProfileTable"
        ::= { wmanIf2mCmnQoSProfileEntry 1 }

wmanIf2mCmnQosServiceClassName  OBJECT-TYPE
        SYNTAX      OCTET STRING (SIZE(2..128))
```

```
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "This object is the Null-terminated string of ASCII
                 characters. It refers to a predefined BS service
                 configuration to be used for a service flow."
            REFERENCE
                "Subclause 11.13.3 in IEEE Std 802.16-2004"
            ::= { wmanIf2mCmnQoSProfileEntry 2 }

    wmanIf2mCmnQosUlGrantScheduleType OBJECT-TYPE
            SYNTAX      WmanIf2mSchedulingType
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "This parameter specifies the Uplink grant scheduling type
                 that shall be enabled for the associated uplink service
                 flow upstream service flow. If the parameter is not
                 present in the corresponding 802.16 QOS Parameter Set of
                 an upstream service flow, the default value is assumed."
            REFERENCE
                "Subclause 11.13.11 in IEEE Std 802.16e-2004"
            DEFVAL      { bestEffort }
            ::= { wmanIf2mCmnQoSProfileEntry 3 }

    wmanIf2mCmnQosTrafficPriority OBJECT-TYPE
            SYNTAX      INTEGER (0..7)
            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, Higher numbers indicate
                 higher priority"
            REFERENCE
                "Subclause 11.13.5 in IEEE Std 802.16e-2005"
            ::= { wmanIf2mCmnQoSProfileEntry 4 }

    wmanIf2mCmnQosMaximumSustainedRate OBJECT-TYPE
            SYNTAX      Unsigned32
            UNITS       "bps"
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "This parameter defines the peak information rate of the
                 service. The rate is expressed in bits per second and
                 pertains to the SDUs at the input to the Convergence
                 Sublayer."
            REFERENCE
                "Subclause 11.13.6 in IEEE Std 802.16e-2005"
            ::= { wmanIf2mCmnQoSProfileEntry 5 }

    wmanIf2mCmnQosMinimumReservedRate OBJECT-TYPE
            SYNTAX      Unsigned32
            UNITS       "bps"
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "This parameter specifies the minimum rate reserved for this
                 service flow. It specifies the minimum amount of data to be
                 transported on behalf of the service flow when averaged
                 over time."
            REFERENCE
```

```
                "Subclause 11.13.8 in IEEE Std 802.16e-2004"
            ::= { wmanIf2mCmnQoSProfileEntry 6 }

    wmanIf2mCmnQosMaximumTrafficBurst OBJECT-TYPE
            SYNTAX      Unsigned32
            UNITS       "byte"
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "This parameter defines the maximum burst size that must be
                 accommodated for the service. It defines the maximum
                 continuous burst the system should accommodate for the
                 service assuming the service is not currently using any of
                 its available resources."
            REFERENCE
                "Subclause 11.13.7 in IEEE Std 802.16-2004"
            ::= { wmanIf2mCmnQoSProfileEntry 7 }

    wmanIf2mCmnQosToleratedJitter OBJECT-TYPE
            SYNTAX      Unsigned32
            UNITS       "millisecond"
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "This parameter defines the Maximum delay variation (jitter)
                 for the connection."
            REFERENCE
                "Subclause 11.13.13 in IEEE Std 802.16-2004"
            ::= { wmanIf2mCmnQoSProfileEntry 8 }

    wmanIf2mCmnQosMaxLatency OBJECT-TYPE
            SYNTAX      Unsigned32
            UNITS       "millisecond"
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "This parameter specifies the maximum latency between the
                 ingress of a packet to the Convergence Sublayer and the
                 forwarding of the SDU to its Air Interface."
            REFERENCE
                "Subclause 11.13.14 in IEEE Std 802.16-2004"
            ::= { wmanIf2mCmnQoSProfileEntry 9 }

    wmanIf2mCmnQosUnsolicitedGrantInterval OBJECT-TYPE
            SYNTAX      Unsigned32
            UNITS       "millisecond"
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "This object specifies the nominal interval between
                 successive data grant opportunities for a service flow."
            REFERENCE
                "Subclause 11.13.20 in IEEE Std 802.16e-2004"
            ::= { wmanIf2mCmnQoSProfileEntry 10 }

    wmanIf2mCmnQosSduSize OBJECT-TYPE
            SYNTAX      Unsigned32
            UNITS       "byte"
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "This parameter specifies the length of the SDU for a
                 fixed-length SDU service flow. It is used only if packing
                 is on and the service flow is indicated as carrying
```

```
                fixed-length SDUs. If this object is omitted in the QoS
                parameter set, it should return 0 that means the
                variable-length service flow."
            REFERENCE
                "Subclause 11.13.16 in IEEE Std 802.16-2004"
            ::= { wmanIf2mCmnQoSProfileEntry 11 }

    wmanIf2mCmnQosUnsolicitedPollInterval OBJECT-TYPE
            SYNTAX      Unsigned32
            UNITS       "millisecond"
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "This object specifies the maximal nominal interval between
                 successive polling grants opportunities for this Service
                 Flow."
            REFERENCE
                "Subclause 11.13.21 in IEEE Std 802.16e-2004"
            ::= { wmanIf2mCmnQoSProfileEntry 12 }

    -- XXX
    wmanIf2mCmnArqAttributeTable OBJECT-TYPE
            SYNTAX      SEQUENCE OF WmanIf2mCmnArqAttributeEntry
            MAX-ACCESS  not-accessible
            STATUS      current
            DESCRIPTION
                "This table contains ARQ parameters that are associated
                 with the Service Flows."
            ::= { wmanIf2mCmnCm 4 }

    wmanIf2mCmnArqAttributeEntry OBJECT-TYPE
            SYNTAX      WmanIf2mCmnArqAttributeEntry
            MAX-ACCESS  not-accessible
            STATUS      current
            DESCRIPTION
                "This table provides one row for each created service flow
                 for a given MacAddress, and is indexed by ifIndex, and
                 wmanIf2mCmnArqIndex. IfIndex is associated with the BS
                 sector."
            INDEX     { ifIndex, wmanIf2mCmnArqIndex  }
            ::= { wmanIf2mCmnArqAttributeTable 1 }

    WmanIf2mCmnArqAttributeEntry::= SEQUENCE {
            wmanIf2mCmnArqIndex                     INTEGER,
            wmanIf2mCmnArqEnable                    TruthValue,
            wmanIf2mCmnArqWindowSize                INTEGER,
            wmanIf2mCmnArqBlockLifetime             INTEGER,
            wmanIf2mCmnArqSyncLossTimeout           INTEGER,
            wmanIf2mCmnArqDeliverInOrder            TruthValue,
            wmanIf2mCmnArqRxPurgeTimeout            INTEGER,
            wmanIf2mCmnArqBlockSize                 INTEGER,
            wmanIf2mCmnArqAckProcessingTime         INTEGER}

    wmanIf2mCmnArqIndex OBJECT-TYPE
            SYNTAX      INTEGER ( 1 .. 65535)
            MAX-ACCESS  not-accessible
            STATUS      current
            DESCRIPTION
                "The index value which uniquely identifies an entry in the
                 in the wmanIf2mCmnArqAttributeTable."
            ::= { wmanIf2mCmnArqAttributeEntry 1 }

    wmanIf2mCmnArqEnable OBJECT-TYPE
            SYNTAX      TruthValue
```

```
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "True(1) ARQ enabling is requested for the connection."
            ::= { wmanIf2mCmnArqAttributeEntry 2 }

    wmanIf2mCmnArqWindowSize      OBJECT-TYPE
            SYNTAX      INTEGER (1..1024)
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "Indicates the maximum number of unacknowledged fragments
                 at any time."
            ::= { wmanIf2mCmnArqAttributeEntry 3 }

    wmanIf2mCmnArqBlockLifetime 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 fragment is
                 discarded. A value of 0 means Infinite."
            ::= { wmanIf2mCmnArqAttributeEntry 4 }

    wmanIf2mCmnArqSyncLossTimeout 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."
            ::= { wmanIf2mCmnArqAttributeEntry 5 }

    wmanIf2mCmnArqDeliverInOrder  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."
            ::= { wmanIf2mCmnArqAttributeEntry 6 }

    wmanIf2mCmnArqRxPurgeTimeout  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."
            ::= { wmanIf2mCmnArqAttributeEntry 7 }

    wmanIf2mCmnArqBlockSize OBJECT-TYPE
            SYNTAX      INTEGER (1..2040)
            UNITS       "byte"
```

```
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "This value of this parameter specifies the size of an ARQ
                 block. This parameter shall be established by negotiation
                 during the connection creation dialog."
            REFERENCE
                "Subclause 11.13.18.8 in IEEE Std 802.16-2004"
            ::= { wmanIf2mCmnArqAttributeEntry 8 }

    wmanIf2mCmnArqAckProcessingTime OBJECT-TYPE
            SYNTAX      INTEGER (0 .. 255)
            UNITS       "millisecond"
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "This parameter indicates the number of ms required by the
                 ARQ receiver to process the received ARQ blocks and provide
                 a valid ACK or NAK."
            REFERENCE
                "Subclause 11.13.18.9 in IEEE Std 802.16e-2005"
            ::= { wmanIf2mCmnArqAttributeEntry 9 }
```