

Definitions of Extension Managed Objects for Asymmetric Digital Subscriber Lines

Status of this Memo

This document specifies an Internet standards track protocol for the Internet community, and requests discussion and suggestions for improvements. Please refer to the current edition of the "Internet Official Protocol Standards" (STD 1) for the standardization state and status of this protocol. Distribution of this memo is unlimited.

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Abstract

This memo defines a portion of the Management Information Base (MIB) for use with network management protocols in the Internet community. In particular, it describes additional managed objects used for managing Asymmetric Digital Subscriber Line (ADSL) interfaces not covered by the ADSL Line MIB (RFC 2662).

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1. The Internet-Standard Management Framework

For a detailed overview of the documents that describe the current Internet-Standard Management Framework, please refer to section 7 of RFC 3410 [RFC3410].

Managed objects are accessed via a virtual information store, termed the Management Information Base or MIB. MIB objects are generally accessed through the Simple Network Management Protocol (SNMP). Objects in the MIB are defined using the mechanisms defined in the Structure of Management Information (SMI). This memo specifies a MIB module that is compliant to the SMIV2, which is described in STD 58, RFC 2578 [RFC2578], STD 58, RFC 2579 [RFC2579] and STD 58, RFC 2580 [RFC2580].

2. Introduction

The purpose of this memo is to define a supplemental set of managed objects that is not covered by the ADSL Line MIB as defined in [RFC2662]. This memo addresses the additional objects defined in ITU G.997.1 [ITU G.997.1].

3. Relationship of ADSL Line Extension MIB with standard MIBs

This section outlines the relationship of the ADSL Line Extension MIB with other MIBs described in RFCs and in their various degrees of standardization. In regards to these relationships, the ADSL Line Extension MIB follows conventions as used by the ADSL Line MIB with one exception. The value of the RFC 2863 object, `ifOperstatus`, SHALL be `down(2)` when the ADSL line interface is in power state L3, as defined in ITU G.992.1 [ITU G.992.1], which means no power. Its value shall be `up(1)` if the ADSL line interface is in power state L0 (power on) [ITU G.992.1] or L1 (reduced power). Power Status L2 [ITU G.992.1] is not applicable.

4. Conventions used in the MIB

4.1 Structure

The MIB is organized to follow the same structure of the ADSL Line MIB [RFC2662].

4.2 Additional Managed Objects

Objects specific to the management of ADSL G.Lite as defined in ITU G.992.2 [ITU G.992.2] are:

- ADSL Transceiver Unit - Central Office End (ATU-C) Transmission System and Line Mode
- Power Management
- Counters for Fast Retrans and Failed Fast Retrans
- Counters for Severe Error Second-line and Unavailable Second
- Alternative profile configuration for the Dual line mode interface

Besides the management of G.Lite, another object has been added in order to manage the ADSL line profile. The object is the line mode configuration.

4.2.1 ATU-C ADSL Transmission System Parameters and Line Mode

The `adslLineConfigTable` needs to be extended to cover control of the ATU-C ADSL Transmission system. Three objects are defined to monitor and configure the transmission mode as well as the actual line mode:

- Capability
- Configuration
- Actual Status

Transmission modes can further determine the line mode of the ADSL interface. For example, if `g9921PotsNonOverlapped(2)` is the actual value of the ADSL interface, the interface is operating in Full rate ADSL. If the interface is set to `g9922PotsOverlapped(9)`, the interface is operating in G.Lite mode.

The transmission mode and the corresponding line mode are defined as:

Transmission mode	Line Mode

Regional Std. (ANSI T1.413)	Full
[ANSI T1.413]	
Regional Std. (ETSI DTS/TM06006)	Full
[ETSI DTS/TM06006]	
G.992.1 [ITU G992.1] POTS non-overlapped	Full
G.992.1 POTS overlapped	Full
G.992.1 Integrated Services Digital	
Network (ISDN) non-overlapped	Full
G.992.1 ISDN overlapped	Full
G.992.1 TCM-ISDN non-overlapped	Full
G.992.1 TCM-ISDN overlapped	Full
G.992.2 POTS non-overlapped	G.Lite
G.992.2 POTS overlapped	G.Lite
G.992.2 with TCM-ISDN	G.Lite
non-overlapped	
G.992.2 with TCM-ISDN overlapped	G.Lite
G.992.1 TCM-ISDN symmetric	Full

Table 1: Transmission Mode and Line Mode

In case more than one bit is configured for an ADSL interface and both Full and G.Lite modes are selected, the interface is said to be configured in the dual mode. Only one bit can be set in the Actual object that reflects the actual mode of transmission as well as the line mode.

4.2.2 Power Management

There are three possible power states for each managed ADSL interface operating in the G.Lite mode. L0 is power on, L1 is power on but reduced and L3 is power off. Power state cannot be configured by an operator but it can be viewed via the ifOperStatus object for the managed ADSL interface. The value of the object ifOperStatus is set to down(2) if the ADSL interface is in power state L3 and is set to up(1) if the ADSL line interface is in power state L0 or L1.

An ADSL line power state, if the interface is operating in the G.Lite mode, can also be monitored by the adslLineGlitePowerState object defined in the ADSL Line Extension table. The value of the object enumerates the three power states attainable by the managed interface.

4.2.3 Fast Retrain Parameters

Section 7.4.15 [ITU G.997.1] specifies fast retrain parameters. Fast retrain parameters include two counters: fast retrain count and failed fast retrain count. These two counters have been added to all performance tables.

4.2.4 Counters for Severely Errored Second-line and Unavailable Seconds-line

ITU G.997.1 sections 6.2.1.1.7 and 6.2.1.1.9 specify two counters that are not covered by the ADSL Line MIB [RFC2662]. These two counters (severely errored seconds-line and unavailable seconds-line) are added to all the performance tables.

Unavailable seconds counts the cumulative number of seconds in which the interface was unavailable during the measured period. This counter does not include the seconds in which unavailability was caused solely by fast retrains and failed fast retrains. Fast retrains and failed fast retrains are considered to be part of the normal network operation and thus are not counted as unavailable errors.

4.2.5 Counters, Interval Buckets and Thresholds

For physical-level events, there are counters, current 15-minute and one (up to 96) 15-minute history bucket(s) of "interval-counters", as well as current and previous 1-day interval-counters. Threshold notification can be configured for each physical-layer current 15-minute bucket.

There is no requirement for an agent to ensure fixed relationship between the start of a fifteen minute and any wall clock; however some implementations may align the fifteen-minute intervals with quarter hours. Likewise, an implementation may choose to align one day intervals with start of a day.

Separate tables are provided for the 96 interval-counters. They are indexed by {ifIndex, AdslAtu*IntervalNumber}.

Counters are not reset when an ATU-C or ATU-R is reinitialized, only when the agent is reset or reinitialized (or under specific request outside the scope of this MIB).

The 15-minute event counters are of the type PerfCurrentCount and PerfIntervalCount. The 1-day event counters are of the type AdslPerfCurrDayCount and AdslPerfPrevDayCount. Both 15-minute and 1-day time elapsed counters are of the type AdslPerfTimeElapsed.

4.2.6 Alternative profile configuration for the dual line mode interface

The object, `adslLineConfProfileDualLite`, is used only when the interface (the ADSL line and, if applicable, channel) is configured as dual mode, that is, the object `adslLineTransAtucConfig` is configured with one or more full-rate modes and one or more G.Lite modes.

The object `adslLineConfProfile` defined in ADSL-MIB [RFC2662] is used as the primary full-rate profile. The newly added object in this MIB module, `adslLineConfProfileDualLite`, is used to describe and configure the G.Lite profile. Note that if one or more full-rate modes are configured, or only G.Lite modes are configured, only the original full-rate profile is needed. The dual-mode profile object is only needed when both full-rate and G.Lite profiles are needed. In this case, it will be set to the value of `adslLineConfProfile` when 'dynamic' profiles are implemented.

When 'static' profiles are implemented, however, similar to the case of the object, `adslLineConfProfileName` [RFC2662], this object's value will need to algorithmically represent the line. In this case, the value of the line's `ifIndex` plus a value indicating the line mode type (e.g., G.Lite, Full-rate) will be used. Therefore, the profile's name is a string of the concatenation of the `ifIndex` and one of the following values: Full or Lite. This string will be fixed-length (i.e., 14) with leading zero(s). For example, the profile name for `ifIndex` that equals '15' and is a full rate line will be '0000000015Full'.

5. Conformance and Compliance

See the conformance and compliance statements within the information module.

6. Definitions

ADSL-LINE-EXT-MIB DEFINITIONS ::= BEGIN

IMPORTS

```
Counter32,
Integer32,
NOTIFICATION-TYPE,
MODULE-IDENTITY,
OBJECT-TYPE                               FROM SNMPv2-SMI
MODULE-COMPLIANCE, OBJECT-GROUP,
NOTIFICATION-GROUP                       FROM SNMPv2-CONF
TEXTUAL-CONVENTION                       FROM SNMPv2-TC
PerfCurrentCount,
```

```
PerfIntervalCount          FROM PerfHist-TC-MIB
AdslPerfCurrDayCount,
AdslPerfPrevDayCount       FROM ADSL-TC-MIB
SnmpAdminString            FROM SNMP-FRAMEWORK-MIB
adslLineAlarmConfProfileEntry,
adslLineConfProfileEntry,
adslAturIntervalEntry,
adslAturPerfDataEntry,
adslAtucIntervalEntry,
adslAtucPerfDataEntry,
adslLineEntry,
adslMIB                    FROM ADSL-LINE-MIB
;
```

adslExtMIB MODULE-IDENTITY

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ORGANIZATION "IETF ADSL MIB Working Group"

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"

DESCRIPTION

"Copyright (C) The Internet Society (2002). This version of this MIB module is part of RFC 3440; see the RFC itself for full legal notices.

This MIB Module is a supplement to the ADSL-LINE-MIB [RFC2662]."

REVISION "200212100000Z" -- 10 dec 2002
 DESCRIPTION "Initial Version, published as RFC 3440. This MIB
 module supplements the ADSL-LINE-MIB [RFC2662]."
 ::= { adslMIB 3 }

adslExtMibObjects OBJECT IDENTIFIER ::= { adslExtMIB 1 }

AdslTransmissionModeType ::= TEXTUAL-CONVENTION

STATUS current

DESCRIPTION

"A set of ADSL line transmission modes, with one bit
 per mode. The notes (F) and (L) denote Full-Rate
 and G.Lite respectively:

Bit 00 : Regional Std. (ANSI T1.413) (F)
 Bit 01 : Regional Std. (ETSI DTS/TM06006) (F)
 Bit 02 : G.992.1 POTS non-overlapped (F)
 Bit 03 : G.992.1 POTS overlapped (F)
 Bit 04 : G.992.1 ISDN non-overlapped (F)
 Bit 05 : G.992.1 ISDN overlapped (F)
 Bit 06 : G.992.1 TCM-ISDN non-overlapped (F)
 Bit 07 : G.992.1 TCM-ISDN overlapped (F)
 Bit 08 : G.992.2 POTS non-overlapped (L)
 Bit 09 : G.992.2 POTS overlapped (L)
 Bit 10 : G.992.2 with TCM-ISDN non-overlapped (L)
 Bit 11 : G.992.2 with TCM-ISDN overlapped (L)
 Bit 12 : G.992.1 TCM-ISDN symmetric (F)

"

SYNTAX BITS {
 ansit1413(0),
 etsi(1),
 q9921PotsNonOverlapped(2),
 q9921PotsOverlapped(3),
 q9921IsdnNonOverlapped(4),
 q9921IsdnOverlapped(5),
 q9921tcmIsdnNonOverlapped(6),
 q9921tcmIsdnOverlapped(7),
 q9922potsNonOverlapped(8),
 q9922potsOverlapped(9),
 q9922tcmIsdnNonOverlapped(10),
 q9922tcmIsdnOverlapped(11),
 q9921tcmIsdnSymmetric(12)
 }

adslLineExtTable	OBJECT-TYPE
SYNTAX	SEQUENCE OF AdslLineExtEntry
MAX-ACCESS	not-accessible
STATUS	current
DESCRIPTION	

```

        "This table is an extension of RFC 2662.  It
        contains ADSL line configuration and
        monitoring information. This includes the ADSL
        line's capabilities and actual ADSL transmission
        system."
 ::= { adslExtMibObjects 17 }

adslLineExtEntry    OBJECT-TYPE
    SYNTAX            AdslLineExtEntry
    MAX-ACCESS        not-accessible
    STATUS            current
    DESCRIPTION
        "An entry extends the adslLineEntry defined in
        [RFC2662].  Each entry corresponds to an ADSL
        line."
    AUGMENTS { adslLineEntry }
 ::= { adslLineExtTable 1 }

AdslLineExtEntry ::=
    SEQUENCE {
        adslLineTransAtucCap            AdslTransmissionModeType,
        adslLineTransAtucConfig        AdslTransmissionModeType,
        adslLineTransAtucActual        AdslTransmissionModeType,
        adslLineGlitePowerState        INTEGER,
        adslLineConfProfileDualLite    SnmpAdminString
    }

adslLineTransAtucCap OBJECT-TYPE
    SYNTAX            AdslTransmissionModeType
    MAX-ACCESS        read-only
    STATUS            current
    DESCRIPTION
        "The transmission modes, represented by a
        bitmask that the ATU-C is capable of
        supporting.  The modes available are limited
        by the design of the equipment."
    REFERENCE "Section 7.3.2 ITU G.997.1"
 ::= { adslLineExtEntry 1 }

adslLineTransAtucConfig OBJECT-TYPE
    SYNTAX            AdslTransmissionModeType
    MAX-ACCESS        read-write
    STATUS            current
    DESCRIPTION
        "The transmission modes, represented by a bitmask,
        currently enabled by the ATU-C.  The manager can
        only set those modes that are supported by the

```

ATU-C. An ATU-C's supported modes are provided by
 AdslLineTransAtucCap."
 REFERENCE "Section 7.3.2 ITU G.997.1"
 ::= { adslLineExtEntry 2 }

adslLineTransAtucActual OBJECT-TYPE

SYNTAX AdslTransmissionModeType

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The actual transmission mode of the ATU-C.
 During ADSL line initialization, the ADSL
 Transceiver Unit - Remote terminal end (ATU-R)
 will determine the mode used for the link.
 This value will be limited a single transmission
 mode that is a subset of those modes enabled
 by the ATU-C and denoted by
 adslLineTransAtucConfig. After an initialization
 has occurred, its mode is saved as the 'Current'
 mode and its persistence should the link go
 down. This object returns 0 (i.e. BITS with no
 mode bit set) if the mode is not known."

REFERENCE "Section 7.3.2 ITU G.997.1 "

::= { adslLineExtEntry 3 }

adslLineGlitePowerState OBJECT-TYPE

SYNTAX INTEGER {

none(1),

l0(2),

l1(3),

l3(4)

-- L0 Power on

-- L1 Power on but reduced

-- L3 Power off

}

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The value of this object specifies the power
 state of this interface. L0 is power on, L1 is
 power on but reduced and L3 is power off. Power
 state cannot be configured by an operator but it
 can be viewed via the ifOperStatus object for the
 managed ADSL interface. The value of the object
 ifOperStatus is set to down(2) if the ADSL
 interface is in power state L3 and is set to up(1)
 if the ADSL line interface is in power state L0 or
 L1. If the object adslLineTransAtucActual is set to
 a G.992.2 (G.Lite)-type transmission mode, the
 value of this object will be one of the valid power
 states: L0(2), L1(3), or L3(4). Otherwise, its

value will be none(1)."
 ::= { adslLineExtEntry 4 }

adslLineConfProfileDualLite OBJECT-TYPE

SYNTAX SnmpAdminString

MAX-ACCESS read-write

STATUS current

DESCRIPTION

"This object extends the definition an ADSL line and associated channels (when applicable) for cases when it is configured in dual mode, and operating in a G.Lite-type mode as denoted by adslLineTransAtucActual. Dual mode exists when the object, adslLineTransAtucConfig, is configured with one or more full-rate modes and one or more G.Lite modes simultaneously.

When 'dynamic' profiles are implemented, the value of object is equal to the index of the applicable row in the ADSL Line Configuration Profile Table, AdslLineConfProfileTable defined in ADSL-MIB [RFC2662].

In the case when dual-mode has not been enabled, the value of the object will be equal to the value of the object adslLineConfProfile [RFC2662].

When 'static' profiles are implemented, in much like the case of the object, adslLineConfProfileName [RFC2662], this object's value will need to algorithmically represent the characteristics of the line. In this case, the value of the line's ifIndex plus a value indicating the line mode type (e.g., G.Lite, Full-rate) will be used. Therefore, the profile's name is a string concatenating the ifIndex and one of the follow values: Full or Lite. This string will be fixed-length (i.e., 14) with leading zero(s). For example, the profile name for ifIndex that equals '15' and is a full rate line, it will be '0000000015Full'."

REFERENCE "Section 5.4 Profiles, RFC 2662"

::= { adslLineExtEntry 5 }

adslAtucPerfDataExtTable OBJECT-TYPE

SYNTAX

MAX-ACCESS

SEQUENCE OF AdslAtucPerfDataExtEntry

not-accessible

```

STATUS          current
DESCRIPTION
    "This table extends adslAtucPerfDataTable [RFC2662]
    with additional ADSL physical line counter
    information such as unavailable seconds-line and
    severely errored seconds-line."
 ::= { adslExtMibObjects 18 }

```

```

adslAtucPerfDataExtEntry  OBJECT-TYPE
    SYNTAX              AdslAtucPerfDataExtEntry
    MAX-ACCESS          not-accessible
    STATUS              current
    DESCRIPTION
        "An entry extends the adslAtucPerfDataEntry defined
        in [RFC2662]. Each entry corresponds to an ADSL
        line."
    AUGMENTS { adslAtucPerfDataEntry }
 ::= { adslAtucPerfDataExtTable 1 }

```

```

AdslAtucPerfDataExtEntry ::=
    SEQUENCE {
        adslAtucPerfStatFastR          Counter32,
        adslAtucPerfStatFailedFastR    Counter32,
        adslAtucPerfStatSesL           Counter32,
        adslAtucPerfStatUasL           Counter32,
        adslAtucPerfCurr15MinFastR     PerfCurrentCount,
        adslAtucPerfCurr15MinFailedFastR PerfCurrentCount,
        adslAtucPerfCurr15MinSesL      PerfCurrentCount,
        adslAtucPerfCurr15MinUasL      PerfCurrentCount,
        adslAtucPerfCurr1DayFastR       AdslPerfCurrDayCount,
        adslAtucPerfCurr1DayFailedFastR AdslPerfCurrDayCount,
        adslAtucPerfCurr1DaySesL        AdslPerfCurrDayCount,
        adslAtucPerfCurr1DayUasL        AdslPerfCurrDayCount,
        adslAtucPerfPrev1DayFastR       AdslPerfPrevDayCount,
        adslAtucPerfPrev1DayFailedFastR AdslPerfPrevDayCount,
        adslAtucPerfPrev1DaySesL        AdslPerfPrevDayCount,
        adslAtucPerfPrev1DayUasL        AdslPerfPrevDayCount
    }

```

```

adslAtucPerfStatFastR OBJECT-TYPE
    SYNTAX          Counter32
    UNITS           "line retrains"
    MAX-ACCESS      read-only
    STATUS          current
    DESCRIPTION
        "The value of this object reports the count of
        the number of fast line bs since last
        agent reset."

```

```
REFERENCE "ITU G.997.1 Section 7.4.15.1 "
 ::= { adslAtucPerfDataExtEntry 1 }

adslAtucPerfStatFailedFastR OBJECT-TYPE
    SYNTAX      Counter32
    UNITS       "line retrains"
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "The value of this object reports the count of
         the number of failed fast line retrains since
         last agent reset."
    REFERENCE "ITU G.997.1 Section 7.4.15.2 "
 ::= { adslAtucPerfDataExtEntry 2 }

adslAtucPerfStatSesL OBJECT-TYPE
    SYNTAX      Counter32
    UNITS       "seconds"
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "The value of this object reports the count of
         the number of severely errored seconds-line since
         last agent reset."
    REFERENCE "ITU G.997.1 Section 7.2.1.1.7 "
 ::= { adslAtucPerfDataExtEntry 3 }

adslAtucPerfStatUasL OBJECT-TYPE
    SYNTAX      Counter32
    UNITS       "seconds"
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "The value of this object reports the count of
         the number of unavailable seconds-line since
         last agent reset."
    REFERENCE "ITU G.997.1 Section 7.2.1.1.9 "
 ::= { adslAtucPerfDataExtEntry 4 }

adslAtucPerfCurr15MinFastR OBJECT-TYPE
    SYNTAX      PerfCurrentCount
    UNITS       "seconds"
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "For the current 15-minute interval,
         adslAtucPerfCurr15MinFastR reports the current
         number of seconds during which there have been
```

```

        fast retrains."
    REFERENCE "ITU G.997.1 Section 7.4.15.1 "
 ::= { adslAtucPerfDataExtEntry 5 }

adslAtucPerfCurr15MinFailedFastR    OBJECT-TYPE
    SYNTAX      PerfCurrentCount
    UNITS       "seconds"
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "For the current 15-minute interval,
         adslAtucPerfCurr15MinFailedFastR reports the
         current number of seconds during which there
         have been failed fast retrains."
    REFERENCE "ITU G.997.1 Section 7.4.15.2 "
 ::= { adslAtucPerfDataExtEntry 6 }

adslAtucPerfCurr15MinSesL    OBJECT-TYPE
    SYNTAX      PerfCurrentCount
    UNITS       "seconds"
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "For the current 15-minute interval,
         adslAtucPerfCurr15MinSesL reports the current
         number of seconds during which there have been
         severely errored seconds-line."
    REFERENCE "ITU G.997.1 Section 7.2.1.1.7 "
 ::= { adslAtucPerfDataExtEntry 7 }

adslAtucPerfCurr15MinUasL    OBJECT-TYPE
    SYNTAX      PerfCurrentCount
    UNITS       "seconds"
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "For the current 15-minute interval,
         adslAtucPerfCurr15MinUasL reports the current
         number of seconds during which there have been
         unavailable seconds-line."
    REFERENCE "ITU G.997.1 Section 7.2.1.1.9 "
 ::= { adslAtucPerfDataExtEntry 8 }

adslAtucPerfCurr1DayFastR    OBJECT-TYPE
    SYNTAX      AdslPerfCurrDayCount
    UNITS       "seconds"
    MAX-ACCESS  read-only
    STATUS      current

```

DESCRIPTION

"For the current day as measured by
adslAtucPerfCurr1DayTimeElapsed [RFC2662],
adslAtucPerfCurr1DayFastR reports the number
of seconds during which there have been
fast retrains."

REFERENCE "ITU G.997.1 Section 7.4.15.1 "

::= { adslAtucPerfDataExtEntry 9 }

adslAtucPerfCurr1DayFailedFastR OBJECT-TYPE

SYNTAX AdslPerfCurrDayCount

UNITS "seconds"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"For the current day as measured by
adslAtucPerfCurr1DayTimeElapsed [RFC2662],
adslAtucPerfCurr1DayFailedFastR reports the
number of seconds during which there have been
failed fast retrains."

REFERENCE "ITU G.997.1 Section 7.4.15.2 "

::= { adslAtucPerfDataExtEntry 10 }

adslAtucPerfCurr1DaySesL OBJECT-TYPE

SYNTAX AdslPerfCurrDayCount

UNITS "seconds"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"For the current day as measured by
adslAtucPerfCurr1DayTimeElapsed [RFC2662],
adslAtucPerfCurr1DaySesL reports the
number of seconds during which there have been
severely errored seconds-line."

REFERENCE "ITU G.997.1 Section 7.2.1.1.7 "

::= { adslAtucPerfDataExtEntry 11 }

adslAtucPerfCurr1DayUasL OBJECT-TYPE

SYNTAX AdslPerfCurrDayCount

UNITS "seconds"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"For the current day as measured by
adslAtucPerfCurr1DayTimeElapsed [RFC2662],
adslAtucPerfCurr1DayUasL reports the
number of seconds during which there have been
unavailable seconds-line."

```

    REFERENCE "ITU G.997.1 Section 7.2.1.1.9 "
 ::= { adslAtucPerfDataExtEntry 12 }

adslAtucPerfPrev1DayFastR      OBJECT-TYPE
    SYNTAX      AdslPerfPrevDayCount
    UNITS       "seconds"
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "For the previous day, adslAtucPerfPrev1DayFastR
         reports the number of seconds during which there
         were fast retrains."
    REFERENCE "ITU G.997.1 Section 7.4.15.1 "
 ::= { adslAtucPerfDataExtEntry 13 }

adslAtucPerfPrev1DayFailedFastR OBJECT-TYPE
    SYNTAX      AdslPerfPrevDayCount
    UNITS       "seconds"
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "For the previous day,
         adslAtucPerfPrev1DayFailedFastR reports the number
         of seconds during which there were failed fast
         retrains."
    REFERENCE "ITU G.997.1 Section 7.4.15.2 "
 ::= { adslAtucPerfDataExtEntry 14 }

adslAtucPerfPrev1DaySesL      OBJECT-TYPE
    SYNTAX      AdslPerfPrevDayCount
    UNITS       "seconds"
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "For the previous day, adslAtucPerfPrev1DaySesL
         reports the number of seconds during which there
         were severely errored seconds-line."
    REFERENCE "ITU G.997.1 Section 7.2.1.1.7 "
 ::= { adslAtucPerfDataExtEntry 15 }

adslAtucPerfPrev1DayUasL      OBJECT-TYPE
    SYNTAX      AdslPerfPrevDayCount
    UNITS       "seconds"
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "For the previous day, adslAtucPerfPrev1DayUasL
         reports the number of seconds during which there

```

```

        were unavailable seconds-line."
    REFERENCE "ITU G.997.1 Section 7.2.1.1.9 "
 ::= { adslAtucPerfDataExtEntry 16 }

adslAtucIntervalExtTable OBJECT-TYPE
    SYNTAX      SEQUENCE OF AdslAtucIntervalExtEntry
    MAX-ACCESS   not-accessible
    STATUS       current
    DESCRIPTION
        "This table provides one row for each ATU-C
        performance data collection interval for
        ADSL physical interfaces whose
        IfEntries' ifType is equal to adsl(94)."
```

```

 ::= { adslExtMibObjects 19 }

adslAtucIntervalExtEntry OBJECT-TYPE
    SYNTAX      AdslAtucIntervalExtEntry
    MAX-ACCESS   not-accessible
    STATUS       current
    DESCRIPTION
        "An entry in the
        adslAtucIntervalExtTable."
```

```

    AUGMENTS    { adslAtucIntervalEntry }
 ::= { adslAtucIntervalExtTable 1 }

AdslAtucIntervalExtEntry ::=
    SEQUENCE {
        adslAtucIntervalFastR          PerfIntervalCount,
        adslAtucIntervalFailedFastR    PerfIntervalCount,
        adslAtucIntervalSesL           PerfIntervalCount,
        adslAtucIntervalUasL           PerfIntervalCount
    }

adslAtucIntervalFastR OBJECT-TYPE
    SYNTAX      PerfIntervalCount
    UNITS       "seconds"
    MAX-ACCESS   read-only
    STATUS       current
    DESCRIPTION
        "For the current interval, adslAtucIntervalFastR
        reports the current number of seconds during which
        there have been fast retrains."
```

```

 ::= { adslAtucIntervalExtEntry 1 }

adslAtucIntervalFailedFastR OBJECT-TYPE
    SYNTAX      PerfIntervalCount
    UNITS       "seconds"
    MAX-ACCESS   read-only
    STATUS       current
```

```

DESCRIPTION
    "For the each interval, adslAtucIntervalFailedFastR
    reports the number of seconds during which
    there have been failed fast retrains."
::= { adslAtucIntervalExtEntry 2 }

adslAtucIntervalSesL OBJECT-TYPE
    SYNTAX      PerfIntervalCount
    UNITS       "seconds"
    MAX-ACCESS   read-only
    STATUS      current
    DESCRIPTION
        "For the each interval, adslAtucIntervalSesL
        reports the number of seconds during which
        there have been severely errored seconds-line."
::= { adslAtucIntervalExtEntry 3 }

adslAtucIntervalUasL OBJECT-TYPE
    SYNTAX      PerfIntervalCount
    UNITS       "seconds"
    MAX-ACCESS   read-only
    STATUS      current
    DESCRIPTION
        "For the each interval, adslAtucIntervalUasL
        reports the number of seconds during which
        there have been unavailable seconds-line."
::= { adslAtucIntervalExtEntry 4 }

adslAturPerfDataExtTable OBJECT-TYPE
    SYNTAX      SEQUENCE OF AdslAturPerfDataExtEntry
    MAX-ACCESS   not-accessible
    STATUS      current
    DESCRIPTION
        "This table contains ADSL physical line counters
        not defined in the adslAturPerfDataTable
        from the ADSL-LINE-MIB [RFC2662]."
::= { adslExtMibObjects 20 }

adslAturPerfDataExtEntry OBJECT-TYPE
    SYNTAX      AdslAturPerfDataExtEntry
    MAX-ACCESS   not-accessible
    STATUS      current
    DESCRIPTION
        "An entry extends the adslAturPerfDataEntry defined
        in [RFC2662]. Each entry corresponds to an ADSL
        line."
    AUGMENTS { adslAturPerfDataEntry }
::= { adslAturPerfDataExtTable 1 }

```

```

AdslAturPerfDataExtEntry ::=
    SEQUENCE {
        adslAturPerfStatSesL          Counter32,
        adslAturPerfStatUasL          Counter32,
        adslAturPerfCurr15MinSesL     PerfCurrentCount,
        adslAturPerfCurr15MinUasL     PerfCurrentCount,
        adslAturPerfCurr1DaySesL      AdslPerfCurrDayCount,
        adslAturPerfCurr1DayUasL      AdslPerfCurrDayCount,
        adslAturPerfPrev1DaySesL      AdslPerfPrevDayCount,
        adslAturPerfPrev1DayUasL      AdslPerfPrevDayCount
    }

```

```

adslAturPerfStatSesL OBJECT-TYPE
    SYNTAX      Counter32
    UNITS        "seconds"
    MAX-ACCESS   read-only
    STATUS       current
    DESCRIPTION
        "The value of this object reports the count of
         severely errored second-line since the last agent
         reset."
    REFERENCE   "ITU G.997.1 Section 7.2.1.1.7 "
    ::= { adslAturPerfDataExtEntry 1 }

```

```

adslAturPerfStatUasL OBJECT-TYPE
    SYNTAX      Counter32
    UNITS        "seconds"
    MAX-ACCESS   read-only
    STATUS       current
    DESCRIPTION
        "The value of this object reports the count of
         unavailable seconds-line since the last agent
         reset."
    REFERENCE   "ITU G.997.1 Section 7.2.1.2.9 "
    ::= { adslAturPerfDataExtEntry 2 }

```

```

adslAturPerfCurr15MinSesL OBJECT-TYPE
    SYNTAX      PerfCurrentCount
    UNITS        "seconds"
    MAX-ACCESS   read-only
    STATUS       current
    DESCRIPTION
        "For the current 15-minute interval,
         adslAturPerfCurr15MinSesL reports the current
         number of seconds during which there have been
         severely errored seconds-line."
    REFERENCE   "ITU G.997.1 Section 7.2.1.2.7 "

```

```

 ::= { adslAturPerfDataExtEntry 3 }

adslAturPerfCurr15MinUasL    OBJECT-TYPE
    SYNTAX      PerfCurrentCount
    UNITS        "seconds"
    MAX-ACCESS   read-only
    STATUS       current
    DESCRIPTION
        "For the current 15-minute interval,
         adslAturPerfCurr15MinUasL reports the current
         number of seconds during which there have been
         available seconds-line."
    REFERENCE   "ITU G.997.1 Section 7.2.1.2.9 "
 ::= { adslAturPerfDataExtEntry 4 }

adslAturPerfCurr1DaySesL    OBJECT-TYPE
    SYNTAX      AdslPerfCurrDayCount
    UNITS        "seconds"
    MAX-ACCESS   read-only
    STATUS       current
    DESCRIPTION
        "For the current day as measured by
         adslAturPerfCurr1DayTimeElapsed [RFC2662],
         adslAturPerfCurr1DaySesL reports the
         number of seconds during which there have been
         severely errored seconds-line."
    REFERENCE   "ITU G.997.1 Section 7.2.1.2.7 "
 ::= { adslAturPerfDataExtEntry 5 }

adslAturPerfCurr1DayUasL    OBJECT-TYPE
    SYNTAX      AdslPerfCurrDayCount
    UNITS        "seconds"
    MAX-ACCESS   read-only
    STATUS       current
    DESCRIPTION
        "For the current day as measured by
         adslAturPerfCurr1DayTimeElapsed [RFC2662],
         adslAturPerfCurr1DayUasL reports the
         number of seconds during which there have been
         unavailable seconds-line."
    REFERENCE   "ITU G.997.1 Section 7.2.1.2.9 "
 ::= { adslAturPerfDataExtEntry 6 }

adslAturPerfPrev1DaySesL    OBJECT-TYPE
    SYNTAX      AdslPerfPrevDayCount
    UNITS        "seconds"
    MAX-ACCESS   read-only
    STATUS       current

```

DESCRIPTION

"For the previous day, adslAturPerfPrev1DaySesL reports the number of seconds during which there were severely errored seconds-line."

REFERENCE "ITU G.997.1 Section 7.2.1.2.7 "

::= { adslAturPerfDataExtEntry 7 }

adslAturPerfPrev1DayUasL OBJECT-TYPE

SYNTAX AdslPerfPrevDayCount

UNITS "seconds"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"For the previous day, adslAturPerfPrev1DayUasL reports the number of seconds during which there were severely errored seconds-line."

REFERENCE "ITU G.997.1 Section 7.2.1.2.9 "

::= { adslAturPerfDataExtEntry 8 }

adslAturIntervalExtTable OBJECT-TYPE

SYNTAX SEQUENCE OF AdslAturIntervalExtEntry

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"This table provides one row for each ATU-R performance data collection interval for ADSL physical interfaces whose IfEntries' ifType is equal to adsl(94)."

::= { adslExtMibObjects 21 }

adslAturIntervalExtEntry OBJECT-TYPE

SYNTAX AdslAturIntervalExtEntry

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION "An entry in the adslAturIntervalExtTable."

AUGMENTS { adslAturIntervalEntry }

::= { adslAturIntervalExtTable 1 }

AdslAturIntervalExtEntry ::=

SEQUENCE {

adslAturIntervalSesL PerfIntervalCount,

adslAturIntervalUasL PerfIntervalCount

}

adslAturIntervalSesL OBJECT-TYPE

SYNTAX PerfIntervalCount

UNITS "seconds"

```

MAX-ACCESS    read-only
STATUS        current
DESCRIPTION
    "For the each interval, adslAturIntervalSesL
    reports the number of seconds during which
    there have been severely errored seconds-line."
::= { adslAturIntervalExtEntry 1 }

adslAturIntervalUasL OBJECT-TYPE
    SYNTAX      PerfIntervalCount
    UNITS        "seconds"
    MAX-ACCESS   read-only
    STATUS       current
    DESCRIPTION
        "For the each interval, adslAturIntervalUasL
        reports the number of seconds during which
        there have been unavailable seconds-line."
    ::= { adslAturIntervalExtEntry 2 }

adslConfProfileExtTable OBJECT-TYPE
    SYNTAX      SEQUENCE OF AdslConfProfileExtEntry
    MAX-ACCESS   not-accessible
    STATUS       current
    DESCRIPTION
        "The adslConfProfileExtTable extends the ADSL line
        profile configuration information in the
        adslLineConfProfileTable from the ADSL-LINE-MIB
        [RFC2662] by adding the ability to configure the
        ADSL physical line mode."
    ::= { adslExtMibObjects 22 }

adslConfProfileExtEntry OBJECT-TYPE
    SYNTAX      AdslConfProfileExtEntry
    MAX-ACCESS   not-accessible
    STATUS       current
    DESCRIPTION
        "An entry extends the adslLineConfProfileEntry
        defined in [RFC2662]. Each entry corresponds to an
        ADSL line profile."
    AUGMENTS { adslLineConfProfileEntry }
    ::= { adslConfProfileExtTable 1 }

AdslConfProfileExtEntry ::=
    SEQUENCE {
        adslConfProfileLineType  INTEGER
    }

adslConfProfileLineType OBJECT-TYPE

```

```

SYNTAX      INTEGER {
    noChannel (1),          -- no channels exist
    fastOnly (2),          -- only fast channel exists
    interleavedOnly (3),    -- only interleaved channel
                           -- exist
    fastOrInterleaved (4),  -- either fast or interleaved
                           -- channels can exist, but
                           -- only one at any time
    fastAndInterleaved (5) -- both the fast channel and
                           -- the interleaved channel
                           -- exist
}
MAX-ACCESS   read-create
STATUS       current
DESCRIPTION
    "This object is used to configure the ADSL physical
    line mode.  It has following valid values:

    noChannel(1), when no channels exist.
    fastOnly(2), when only fast channel exists.
    interleavedOnly(3), when only interleaved channel
    exist.
    fastOrInterleaved(4), when either fast or
    interleaved channels can exist, but only one
    at any time.
    fastAndInterleaved(5), when both the fast channel
    and the interleaved channel exist.

    In the case when no value has been set, the default
    Value is noChannel(1).
    "
DEFVAL { fastOnly }
::= { adslConfProfileExtEntry 1 }

adslAlarmConfProfileExtTable OBJECT-TYPE
    SYNTAX      SEQUENCE OF AdslAlarmConfProfileExtEntry
    MAX-ACCESS   not-accessible
    STATUS       current
    DESCRIPTION
        "This table extends the
        adslLineAlarmConfProfileTable and provides
        threshold parameters for all the counters defined
        in this MIB module."
    ::= { adslExtMibObjects 23 }

adslAlarmConfProfileExtEntry OBJECT-TYPE
    SYNTAX      AdslAlarmConfProfileExtEntry
    MAX-ACCESS   not-accessible

```

```

STATUS          current
DESCRIPTION
    "An entry extends the adslLineAlarmConfProfileTable
    defined in [RFC2662]. Each entry corresponds to
    an ADSL alarm profile."
AUGMENTS { adslLineAlarmConfProfileEntry }
::= { adslAlarmConfProfileExtTable 1 }

AdslAlarmConfProfileExtEntry ::=
SEQUENCE {
    adslAtucThreshold15MinFailedFastR      Integer32,
    adslAtucThreshold15MinSesL             Integer32,
    adslAtucThreshold15MinUasL             Integer32,
    adslAturThreshold15MinSesL             Integer32,
    adslAturThreshold15MinUasL             Integer32
}

adslAtucThreshold15MinFailedFastR  OBJECT-TYPE
SYNTAX      Integer32(0..900)
UNITS       "seconds"
MAX-ACCESS  read-create
STATUS      current
DESCRIPTION
    "The first time the value of the corresponding
    instance of adslAtucPerfCurr15MinFailedFastR
    reaches or exceeds this value within a given
    15-minute performance data collection period,
    an adslAtucFailedFastRThreshTrap notification
    will be generated. The value '0' will disable
    the notification. The default value of this
    object is '0'."
DEFVAL { 0 }
::= { adslAlarmConfProfileExtEntry 1 }

adslAtucThreshold15MinSesL OBJECT-TYPE
SYNTAX      Integer32(0..900)
UNITS       "seconds"
MAX-ACCESS  read-create
STATUS      current
DESCRIPTION
    "The first time the value of the corresponding
    instance of adslAtucPerf15MinSesL reaches or
    exceeds this value within a given 15-minute
    performance data collection period, an
    adslAtucSesLThreshTrap notification will be
    generated. The value '0' will disable the
    notification. The default value of this
    object is '0'."

```

```
DEFVAL { 0 }

 ::= { adslAlarmConfProfileExtEntry 2 }

adslAtucThreshold15MinUasL OBJECT-TYPE
    SYNTAX      Integer32(0..900)
    UNITS       "seconds"
    MAX-ACCESS   read-create
    STATUS      current
    DESCRIPTION
        "The first time the value of the corresponding
         instance of adslAtucPerf15MinUasL reaches or
         exceeds this value within a given 15-minute
         performance data collection period, an
         adslAtucUasLThreshTrap notification will be
         generated. The value '0' will disable the
         notification. The default value of this
         object is '0'."
    DEFVAL { 0 }
 ::= { adslAlarmConfProfileExtEntry 3 }

adslAturThreshold15MinSesL OBJECT-TYPE
    SYNTAX      Integer32(0..900)
    UNITS       "seconds"
    MAX-ACCESS   read-create
    STATUS      current
    DESCRIPTION
        "The first time the value of the corresponding
         instance of adslAturPerf15MinSesL reaches or
         exceeds this value within a given 15-minute
         performance data collection period, an
         adslAturSesLThreshTrap notification will be
         generated. The value '0' will disable the
         notification. The default value of this
         object is '0'."
    DEFVAL { 0 }
 ::= { adslAlarmConfProfileExtEntry 4 }

adslAturThreshold15MinUasL OBJECT-TYPE
    SYNTAX      Integer32(0..900)
    UNITS       "seconds"
    MAX-ACCESS   read-create
    STATUS      current
    DESCRIPTION
        "The first time the value of the corresponding
         instance of adslAturPerf15MinUasL reaches or
         exceeds this value within a given 15-minute
         performance data collection period, an
```

```

        adslAturUasLThreshTrap notification will be
        generated. The value '0' will disable the
        notification. The default value of this
        object is '0'."
    DEFVAL { 0 }

    ::= { adslAlarmConfProfileExtEntry 5 }

-- definitions

adslExtTraps OBJECT IDENTIFIER ::= { adslExtMibObjects 24 }

adslExtAtucTraps OBJECT IDENTIFIER ::= { adslExtTraps 1 }

adslExtAtucTrapsPrefix OBJECT IDENTIFIER ::= { adslExtAtucTraps 0 }

    adslAtucFailedFastRThreshTrap      NOTIFICATION-TYPE
    OBJECTS { adslAtucPerfCurr15MinFailedFastR }
    STATUS current
    DESCRIPTION
        "Failed Fast Retrains 15-minute threshold reached."
    ::= { adslExtAtucTrapsPrefix 1 }

    adslAtucSesLThreshTrap      NOTIFICATION-TYPE
    OBJECTS { adslAtucPerfCurr15MinSesL }
    STATUS current
    DESCRIPTION
        "Severely errored seconds-line 15-minute threshold
        reached."
    ::= { adslExtAtucTrapsPrefix 2 }

    adslAtucUasLThreshTrap      NOTIFICATION-TYPE
    OBJECTS { adslAtucPerfCurr15MinUasL }
    STATUS current
    DESCRIPTION
        "Unavailable seconds-line 15-minute threshold
        reached."
    ::= { adslExtAtucTrapsPrefix 3 }

adslExtAturTraps OBJECT IDENTIFIER ::= { adslExtTraps 2 }

adslExtAturTrapsPrefix OBJECT IDENTIFIER ::= { adslExtAturTraps 0 }

    adslAturSesLThreshTrap      NOTIFICATION-TYPE
    OBJECTS { adslAturPerfCurr15MinSesL }
    STATUS current
    DESCRIPTION

```

```

        "Severely errored seconds-line 15-minute threshold
        reached."
 ::= { adslExtAturTrapsPrefix 1 }

adslAturUasLThreshTrap      NOTIFICATION-TYPE
OBJECTS { adslAturPerfCurr15MinUasL }
STATUS current
DESCRIPTION
    "Unavailable seconds-line 15-minute threshold
    reached."
 ::= { adslExtAturTrapsPrefix 2 }

-- conformance information

adslExtConformance OBJECT IDENTIFIER ::= { adslExtMIB 2 }

adslExtGroups OBJECT IDENTIFIER ::= { adslExtConformance 1 }
adslExtCompliances OBJECT IDENTIFIER ::= { adslExtConformance 2 }

-- ATU-C agent compliance statements

adslExtLineMibAtucCompliance MODULE-COMPLIANCE
STATUS current
DESCRIPTION
    "The compliance statement for SNMP entities which
    represent ADSL ATU-C interfaces."

MODULE -- this module
MANDATORY-GROUPS
    {
        adslExtLineGroup,
        adslExtLineConfProfileControlGroup,
        adslExtLineAlarmConfProfileGroup
    }

GROUP          adslExtAtucPhysPerfCounterGroup
DESCRIPTION
    "This group is optional. Implementations which
    require continuous ATU-C physical event counters
    should implement this group."

GROUP          adslExtAturPhysPerfCounterGroup
DESCRIPTION
    "This group is optional. Implementations which
    require continuous ATU-R physical event counters
    should implement this group."

```

GROUP adslExtNotificationsGroup
DESCRIPTION
"This group is optional. Implementations which support TCA (Threshold Crossing Alert) should implement this group."

OBJECT adslAtucThreshold15MinFailedFastR
MIN-ACCESS read-write
DESCRIPTION
"Read-write access is applicable only when static profiles as defined in ADSL Line MIB [RFC2662] are implemented."

OBJECT adslAtucThreshold15MinSesL
MIN-ACCESS read-write
DESCRIPTION
"Read-write access is applicable only when static profiles as defined in ADSL Line MIB [RFC2662] are implemented."

OBJECT adslAtucThreshold15MinUasL
MIN-ACCESS read-write
DESCRIPTION
"Read-write access is applicable only when static profiles as defined in ADSL Line MIB [RFC2662] are implemented."

OBJECT adslAturThreshold15MinSesL
MIN-ACCESS read-write
DESCRIPTION
"Read-write access is applicable only when static profiles as defined in ADSL Line MIB [RFC2662] are implemented."

OBJECT adslAturThreshold15MinUasL
MIN-ACCESS read-write
DESCRIPTION
"Read-write access is applicable only when static profiles as defined in ADSL Line MIB [RFC2662] are implemented."

OBJECT adslLineConfProfileDualLite
MIN-ACCESS read-only
DESCRIPTION
"Read-only access is applicable only when static profiles as defined in ADSL Line MIB [RFC2662] are implemented."

```

 ::= { adslExtCompliances 1 }

-- units of conformance
adslExtLineGroup      OBJECT-GROUP
    OBJECTS {
        adslLineConfProfileDualLite,
        adslLineTransAtucCap,
        adslLineTransAtucConfig,
        adslLineTransAtucActual,
        adslLineGlitePowerState
    }
    STATUS      current
    DESCRIPTION
        "A collection of objects providing extended
        configuration information about an ADSL Line."
 ::= { adslExtGroups 1 }

adslExtAtucPhysPerfCounterGroup OBJECT-GROUP
    OBJECTS {
        adslAtucPerfStatFastR,
        adslAtucPerfStatFailedFastR,
        adslAtucPerfCurr15MinFastR,
        adslAtucPerfCurr15MinFailedFastR,
        adslAtucPerfCurr1DayFastR,
        adslAtucPerfCurr1DayFailedFastR,
        adslAtucPerfPrev1DayFastR,
        adslAtucPerfPrev1DayFailedFastR,
        adslAtucPerfStatSesL,
        adslAtucPerfStatUasL,
        adslAtucPerfCurr15MinSesL,
        adslAtucPerfCurr15MinUasL,
        adslAtucPerfCurr1DaySesL,
        adslAtucPerfCurr1DayUasL,
        adslAtucPerfPrev1DaySesL,
        adslAtucPerfPrev1DayUasL,
        adslAtucIntervalFastR,
        adslAtucIntervalFailedFastR,
        adslAtucIntervalSesL,
        adslAtucIntervalUasL
    }
    STATUS      current
    DESCRIPTION
        "A collection of objects providing raw performance
        counts on an ADSL Line (ATU-C end)."
 ::= { adslExtGroups 2 }

adslExtAturPhysPerfCounterGroup OBJECT-GROUP
    OBJECTS {

```

```

        adslAturPerfStatSesL,
        adslAturPerfStatUasL,
        adslAturPerfCurr15MinSesL,
        adslAturPerfCurr15MinUasL,
        adslAturPerfCurr1DaySesL,
        adslAturPerfCurr1DayUasL,
        adslAturPerfPrev1DaySesL,
        adslAturPerfPrev1DayUasL,
        adslAturIntervalSesL, adslAturIntervalUasL
    }
    STATUS      current
    DESCRIPTION
        "A collection of objects providing raw performance
        counts on an ADSL Line (ATU-C end)."
 ::= { adslExtGroups 3 }

adslExtLineConfProfileControlGroup OBJECT-GROUP
    OBJECTS {
        adslConfProfileLineType
    }
    STATUS      current
    DESCRIPTION
        "A collection of objects providing profile
        control for the ADSL system."
 ::= { adslExtGroups 4 }

adslExtLineAlarmConfProfileGroup OBJECT-GROUP
    OBJECTS {
        adslAtucThreshold15MinFailedFastR,
        adslAtucThreshold15MinSesL,
        adslAtucThreshold15MinUasL,
        adslAturThreshold15MinSesL,
        adslAturThreshold15MinUasL
    }
    STATUS      current
    DESCRIPTION
        "A collection of objects providing alarm profile
        control for the ADSL system."
 ::= { adslExtGroups 5 }

adslExtNotificationsGroup NOTIFICATION-GROUP
    NOTIFICATIONS {
        adslAtucFailedFastRThreshTrap,
        adslAtucSesLThreshTrap,
        adslAtucUasLThreshTrap,
        adslAturSesLThreshTrap,
        adslAturUasLThreshTrap
    }

```

```
STATUS          current
DESCRIPTION
    "The collection of ADSL extension notifications."
 ::= { adslExtGroups 6 }
```

END

7. Acknowledgments

This document is a product of the ADSL MIB Working Group.

8. References

8.1 Normative References

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- [ITU G.992.2] ITU-T Telecommunication Standardization Sector, "Splitterless asymmetric digital subscriber line (ADSL) transceivers", June 1999.
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- [RFC3415] Wijnen, B., Presuhn, R. and K. McCloghrie, "View-based Access Control Model (VACM) for the Simple Network Management Protocol (SNMP)", STD 62, RFC 3415, December 2002.

8.2 Informative References

- [RFC3410] Case, J., Mundy, R., Partain, D. and B. Stewart, "Introduction and Applicability Statements for Internet-Standard Management Framework", RFC 3410, December 2002.

9. Security Considerations

The following security matters should be considered when implementing this MIB.

- 1) Blocking unauthorized access to the ADSL MIB via the element management system is outside the scope of this document. It should be noted that access to the MIB permits the unauthorized entity to modify the profiles (section 6.4) such that both subscriber service and network operations can be interfered with.

Subscriber service can be altered by modifying any of a number of service characteristics such as rate partitioning and maximum transmission rates. Network operations can be impacted by modifying notification thresholds such as Signal-to-Noise Ratio (SNR) margins.

- 2) SNMPv1 by itself is such an insecure environment. Even if the network itself is secure (for example by using IPSec), there is no control over who on the secure network is allowed to access and GET (read) the objects in this MIB. It is recommended that the implementors consider the security features as provided by the SNMPv3 framework. Specifically, the use of the User-based Security Model STD 62, RFC 3414 [RFC3414] and the View-based Access Control Model STD 62, RFC 3415 [RFC3415] is recommended.

It is then a customer/user responsibility to ensure that the SNMP entity giving access to an instance of this MIB, is properly configured to give access to only those objects, and to those principals (users) that have legitimate rights to access them.

- 3) The profile mechanism presented in this document requires specific attention. The implementor of this MIB has a choice of implementing either 'static' or 'dynamic' profiles. This decision must be consistent with the implementation of RFC 2662.

In the case of 'static' profiles, the elements of the profile are read-write, as opposed to read-create when 'dynamic' profiles are implemented:

- adslConfProfileLineType,
- adslAtucThreshold15MinFailedFastR,
- adslAtucThreshold15MinSesL,
- adslAtucThreshold15MinUasL,
- adslAturThreshold15MinSesL, and
- adslAturThreshold15MinUasL.

This decision also impacts the mechanics of the index, adslLineConfProfileDualLite. When 'static' profiles are implemented, its value is algorithmically set by the system and its value is based on the ifIndex. Hence it is not guaranteed across system reboots. Similar to the handling of adslLineConfProfile [RFC2662], the implementor of this MIB must ensure that the profile object values associated with these indices are maintained across system reboots.

In the case of dynamic profiles, this object is set by the SNMP manager. The implementor of this MIB may want to provide a view of the profile on a customer-by-customer standpoint, but should be cautious of the dynamic nature of these objects.

4) ADSL layer connectivity from the ATU-R will permit the subscriber to manipulate both the ADSL link directly and the ADSL overhead control channel(AOC)/embedded operations channel (EOC) for their own loop. For example, unchecked or unfiltered fluctuations initiated by the subscriber could generate sufficient notifications to potentially overwhelm either the management interface to the network or the element manager. Other attacks affecting the ATU-R portions of the MIB may also be possible.

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