Network Working Group
Request for Comments: 2662
Category: Standards Track

G. Bathrick
AG Communication Systems
F. Ly
Copper Mountain Networks

August 1999

Definitions of Managed Objects for the ADSL Lines

Status of this Memo

Copyright Notice

Table of Contents

1. Abstract

This document defines a standard SNMP MIB for ADSL lines based on the ADSL Forum standard data model [9]. The ADSL standard describes ATU-C and ATU-R as two sides of the ADSL line. This MIB covers both ATU-C and ATU-R agent's perspectives. Each instance defined in the

MIB represents a single ADSL line.

It should be noted that the ADSL Forum Network Management Working Group provided input towards the content of this document. See the Acknowledgement Section for a list of individuals who made this document possible.

2. The SNMP Network Management Framework

The SNMP Management Framework presently consists of five major components:

- o An overall architecture, described in RFC 2571 [13].
- o Mechanisms for describing and naming objects and events for the purpose of management. The first version of this Structure of Management Information (SMI) is called SMIv1 and described in STD 16, RFC 1155 [14], STD 16, RFC 1212 [15] and RFC 1215 [16]. The second version, called SMIv2, is described in STD 58, RFC 2578 [1], STD 58, RFC 2579 [2] and STD 58, RFC 2580 [17].
- o Message protocols for transferring management information. The first version of the SNMP message protocol is called SNMPv1 and described in STD 15, RFC 1157 [7]. A second version of the SNMP message protocol, which is not an Internet standards track protocol, is called SNMPv2c and described in RFC 1901 [18] and RFC 1906 [19]. The third version of the message protocol is called SNMPv3 and described in RFC 1906 [19], RFC 2572 [20] and RFC 2574 [21].
- o Protocol operations for accessing management information. The first set of protocol operations and associated PDU formats is described in STD 15, RFC 1157 [7]. A second set of protocol operations and associated PDU formats is described in RFC 1905 [8].
- o A set of fundamental applications described in RFC 2573 [22] and the view-based access control mechanism described in RFC 2575 [23].

This document specifies a MIB module that is compliant to the SMIv2. A MIB conforming to the SMIv1 can be produced through the appropriate translations. The resulting translated MIB must be semantically equivalent, except where objects or events are omitted because no translation is possible (e.g., use of Counter64). Some machine readable information in SMIv2 will be converted into textual descriptions in SMIv1 during the translation process. However, this loss of machine readable information is not considered to change the semantics of the MIB.

3. Object Definitions

Managed objects are accessed via a virtual information store, termed the Management Information Base or MIB. Objects in the MIB are defined using the extended subset of Abstract Syntax Notation One (ASN.1) defined in the SMI. In particular, each object type is named by an OBJECT IDENTIFIER, an administratively assigned name. The object type together with an object instance serves to uniquely identify a specific instantiation of the object. For human convenience, we often use a textual string, termed the descriptor, to also refer to the object type.

4. Relationship of the ADSL LINE MIB with standard MIBs

This section outlines the relationship of ADSL Line MIB with other MIBs described in RFCs and in their various degrees of "standardization".

4.1 Use of the IfTable

The ADSL LINE MIB specifies the detailed attributes of a data interface. As such, it needs to integrate with IF-MIB [5]. The IANA has assigned the following ifType(s) relative to ADSL:

```
    IANAifType ::= TEXTUAL-CONVENTION

        . . .

    SYNTAX INTEGER {

             . . .

        adsl(94),    -- Asymmetric Digital Subscriber Loop

             . . .

        adslInterleave(124),    -- ADSL Interleaved Channel
        adslFast(125),          -- ADSL Fast Channel

             . . .          }
```

Interfaces of each of these types are modeled by this document. Most MIB tables in this document represent information of one of these interface types and are indexed by ifIndex. Remaining are ‘profile’ tables which may be accessed by the profileIndex. This is explained in more detail in section 5.4 Profiles.

4.1.1 ADSL Interface Types

As shown below, three ADSL interface types are defined in this document, namely physical, interleaved channel, and fast channel. The physical interface represents characteristics of the physical media associated with both the ATUC and ATUR. The interleaved and fast channel interface represent the characteristics of the two types of ADSL channels.

For each ADSL Line, a physical interface always exists. Depending on which ADSL operational configuration is present (as listed in Figure 5), the channel interfaces (fast or interleaved) may or may not exist.

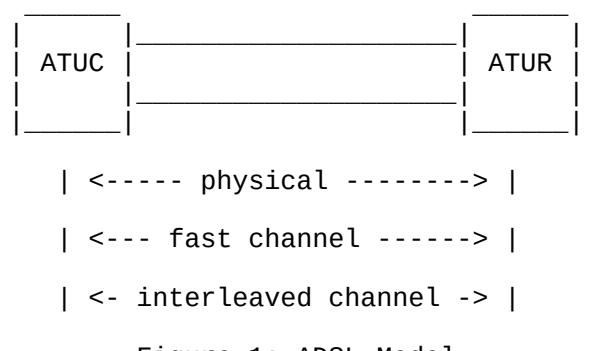

Figure 1: ADSL Model

4.1.2 Use of IF-MIB (Interface MIB RFC 2233) [5]

The following attributes are part of the required ifGeneralInformationGroup object group specified in RFC 2233 [5], and are not duplicated in the ADSL MIB. Keep in mind that these objects apply to the agent’s view of the line.

ifTable Object	Use for ADSL
ifIndex	Interface index.
ifDescr	See interfaces MIB [5]
ifType	physical - adsl(94) fast - adslFast(125) interleaved - adslInterleave(124)
ifSpeed	Transmit rate from the perspective of the agent. physical - line rate fast - channel rate interleaved - channel rate
ifPhysAddress	This object should have an octet string with zero length.
ifAdminStatus	See interfaces MIB [5]
ifOperStatus	See interfaces MIB [5] Supplemented by adslAturCurrStatus and adslAturCurrStatus
ifLastChange	See interfaces MIB [5]
ifName	See interfaces MIB [5]
ifLinkUpDownTrapEnable	See interfaces MIB [5] Default set as follows: physical - enabled(1) fast - disabled(2) interleaved - disabled(2)
ifHighSpeed	Speed of line in Mega-bits per second (ifSpeed/1,000,000)
ifConnectorPresent	See interfaces MIB [5] Default set as follows: physical - true(1) fast - false(2)

	interleaved - false(2)
ifAlias	See interfaces MIB [5]
ifTableLastChange	See interfaces MIB [5]

Figure 2: Use of ifTable Objects: ifGeneralInformationGroup

Use of the ifStackTable to associate the entries for physical, fast, interleaved channels, and higher layers (e.g., ATM) is shown below in figure 3. Use of ifStackTable is necessary, because configuration information is stored in profile tables associated with the physical-layer ifEntry only. The channels' ifEntrys need the ifStackTable to find their associated physical-layer entry and thus their configuration parameters. (See Profile section, 5.4).

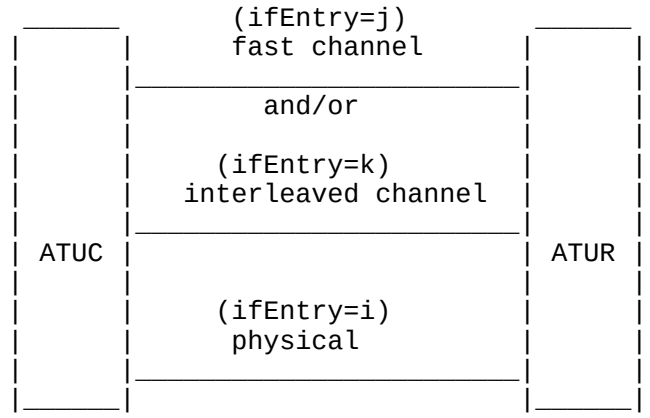

Figure 3: Use of ifStackTable (part 1)

The ifStackTable is then used to show the relationships between the various ADSL interfaces, as illustrated below in figure 4.

HigherLayer	LowerLayer
j	i
k	i

Figure 4: Use of ifStackTable (part 2)

The ifRcvAddressTable is not applicable for ADSL interfaces.

4.2 Relationship with RFC 2037 [25]

Implementation of the Entity MIB [25] is optional. It in no way alters the information required in the adslLineMib, nor does it alter the relationship with IF-MIB.

The Entity MIB introduces a standardized way of presenting the components of complex systems, such as a Digital Subscriber Line Access Multiplexer (DSLAM), that may contain multiple racks, shelves, line cards, and/or ports. The Entity MIB's main goal is to present these system components, their containment relationship, and mapping information with other MIBs such as the Interface MIB and the adslLineMib.

If ATU-C agent is implemented, the Entity MIB should include entities for the ATU-C in the entPhysicalTable. The MIB's entAliasMappingTable would contain mapping information identifying the 'ifIndex' object associated with each ATU-C. However, if ATU-R agent is implemented, the Entity MIB should include entities for the ATU-R in the entPhysicalTable. In this case, the MIB's entAliasMappingTable would contain mapping information identifying the 'ifIndex' object associated with each ATU-R.

Also associating the relationship between the ifTable and Entity MIB, the entPhysicalTable contains an 'entPhysicalName' object, which approximates the semantics of the 'ifName' object from the Interface MIB.

5. Conventions used in the MIB

5.1 Naming Conventions

A. Atuc/Atur are used for the ATU-C and ATU-R. In other RFCs, these are sometimes referred to as the Near End (Ne) and Far End (Fe) respectively, but not in this document.

B. The terms, "transmit" and "receive", are from the perspective of the corresponding table's end of the line. For example, in the case of Fast channels, adslAtucChanConfFastMaxTxRate defines the "downstream" rate, while adslAturChanConfFastMaxTxRate defines the "upstream" rate for a particular channel.

C. There are two possible channels: fast, and interleaved. None, one or both may be implemented on a particular ADSL Line. Figure 5 illustrates all possible operational configurations.

D. Lof, Lol, Los, Lpr mean Loss of Framing, Link, Signal, and Power, respectively. Lpr is used by T1E1, so it is used for consistency (rather than Lop).

   A Loss of Link condition is declared at the ATU-C if a Loss of Signal is not preceded by a 'dying-gasp' message from the ATU-R. Note that Loss of Link is only supported by the ATU-C.

E. ES means errored second. An Errored Second is any second containing one or more CRC anomaly, or one or more Los(s) or Severely Errored Frame (Sef) defect(s).

F. A "block" is a physical-layer 'data buffer' over which CRCs are calculated. For example, in DMT, the block is defined as the ADSL superframe. The block duration is 250 micro-seconds so the block length in bytes, as defined in adslAtu*ChanCrcBlockLength, varies with data rate. See Line Code Specific MIBs [11] [12] for more line code specific information.

G. Atn means Attenuation, Psd is Power Spectral Density and Snr is Signal to Noise Ratio.

H. LCS means line code specific, e.g.,

   o DMT = Discrete MultiTone

   o CAP = Carrierless Amplitude and Phase modulation and

   o QAM = Quadrature Amplitude Modulation

I. Vendor (in the Inventory objects) refers to the manufacturer of the ATU-C or ATU-R assembly, not the modem chip vendor. When in doubt, use the manufacturer of the smallest field replaceable unit (e.g., stand-alone modem box, plug-in board).

J. RADSL - Rate Adaptive Asymmetric Digital Subscriber Loop

5.2 Structure

The MIB has multiple parallel tables. There are tables for:

   o line - common attributes

   o atuc and atur status

- o atuc and atur performance
  - Current and up to 96 buckets of 15 min performance history
  - Current and Previous 1-day bucket performance history
- o profiles - configuration parameters and alarm parameters

There are separate tables for Physical and Channel layers. Since their attributes are similar, only one set of "channel" tables are defined to be used for both fast and interleaved channels. The corresponding ifType gives the proper interpretation for that ifEntry.

It is intented that Line Code Specific MIBs be located under adslLCSMib. These MIBs will be defined in separate modules.

There could have been fewer tables by combining the ATU-C and ATU-R information into shared tables. However, the tables are more easily read when there are two identical sets of data.

The figure below lists the five possible ADSL operational configurations. (indicated by the value of the adslLineType). In all configurations, the physical line interface entry will exist. However, the existence of the ADSL channel varies in each case, as shown below.

Table	Phys	Fast	Interleaved
No Channels (1)	Y		
Fast Only (2)	Y	Y	
Interleaved Only (3)	Y		Y
Fast or Interleaved (4)	Y	Y	Y
Fast and Interleaved (5)	Y	Y	Y

Figure 5: ADSL Operational configurations

NOTE: In (4), channel exists of either Fast or Interleaved type, but not both. The Manager may select the type of channel to be used.

Depending on which operation configuration exists, some or all ADSL MIB tables could be supported, as shown in below. See Conformance Statements for more information on which objects are mandatory.

Table	Phys	Fast	Interleaved
adslLineTable	Y		
adslAtucPhysTable	Y		
adslAturPhysTable	Y		
adslAtucChanTable		Y	Y
adslAturChanTable		Y	Y
adslAtucPerfDataTable	Y		
adslAturPerfDataTable	Y		
adslAtucIntervalTable	Y		
adslAturIntervalTable	Y		
adslAtucChanPerfDataTable		Y	Y
adslAturChanPerfDataTable		Y	Y
adslAtucChanIntervalTable		Y	Y
adslAturChanIntervalTable		Y	Y

Figure 6: Use of ADSL MIB Tables with various ifIndex values

NOTE: The adslLineConfProfileTable and adslLineAlarmConfProfileTable will be present for all scenarios. See Profile Section of this document for implementation details such as profile creation, assignment, and indexing.

5.2.1 Structure of Conformance Groups

The MIB is organized to cover both ends of the ADSL line, ATU-C and ATU-R. Objects defined can be categorized into two groups: the ATU-C group which provides objects that are supported by ATU-C agents and the ATU-R group which provides objects that are supported by ATU-R agents. These two groups are defined by the conformance section of the MIB. All objects defined in the MIB module are supported by the ATU-C agent and only portions of the objects are supported by the ATU-R agent. Figure 7 lists all tables/objects that are supported by the ATU-R agent.

Table	Objects
adslLineTable	adslLineCoding
adslAtucPhysTable	adslAtucInvVendorID adslAtucInvVersionNumber adslAtucCurrStatus (Partial) adslAtucCurrOutputPwr adslAtucCurrAttainableRate
adslAturPhysTable	all are supported
adslAtucChanTable	all except adslAtucChanCrcBlockLength are supported
adslAtucPerfDataTable	all except adslAtucPerfLols, adslAtucPerfLprs adslAtucPerfCurr15MinLols, adslAtucPerfCurr15MinLprs, adslAtucPerfCurr1DayLols, adslAtucPerfCurr1DayLprs, adslAtucPerfPrev1DayLols and adslAtucPerfPrev1DayLprs are supported
adslAturPerfDataTable	all are supported
adslAtucIntervalTable	adslAtucIntervalLofs adslAtucIntervalLoss adslAtucIntervalESs adslAtucIntervalInits adslAtucIntervalValidData
adslAturIntervalTable	all are supported
adslAtucChanPerfDataTable	all are supported
adslAturChanPerfDataTable	all are supported
adslAtucChanIntervalTable	all are supported
adslAturChanIntervalTable	all are supported
adslLineConfProfileTable	not supported
adslLineAlarmConfProfileTable	all are supported except adslAtucThresh15MinLols and adslAtucThresh15MinLprs

Figure 7: MIB Tables and Objects Supported by the ATU-R Agent

All traps supported by the ATU-R agent are also listed:

```
adslAtucPerfLofsThreshTrap
adslAtucPerfLossThreshTrap
adslAtucPerfESsThreshTrap
adslAtucRateChangeTrap
adslAturPerfLofsThreshTrap
adslAturPerfLossThreshTrap
adslAturPerfLprsThreshTrap
adslAturPerfESsThreshTrap
adslAturRateChangeTrap
```

5.3 Counters, Interval Buckets and Thresholds

For physical-level ES, Los, Lof, Lol, Lpr and line initialization attempts, there are event 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. Each physical-layer current 15-minute event bucket has threshold trap.

At the channel level, there are counters for total received blocks, received-and-corrected blocks, received-but-uncorrectable blocks, and transmitted blocks. There are the same set of 15-minute and 1-day buckets as at the physical-layer.

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

5.4 Profiles

As a managed node can handle a large number of ATU-Cs (e.g., hundreds or perhaps thousands of ADSL lines), provisioning every parameter on every ATU-C may become burdensome. In response, two MIB tables have been created to define ADSL equipment configuration data profiles, as well as a mechanism to associate the equipment to these profiles.

Profile tables may be implemented in one of two ways, but not simultaneously:

- MODE-I: Dynamic Profiles - one profile shared by one or multiple ADSL lines.
- MODE-II: Static Profiles - one profile per ADSL physical line always.

5.4.1 MODE-I : Dynamic Profiles

Implementations using this mode will enable the manager to dynamically create and delete profiles as needed. The index of the profile is an locally-unique administratively assigned name for the profile having the textual convention 'SnmpAdminString' (RFC2571 [13]).

One or more ADSL lines may be configured to share parameters of a single profile (e.g., adslLineConfProfileName = 'silver') by setting its adslLineConfProfile objects to the index value of this profile. If a change is made to the profile, all lines that refer to it will be re-configured to the changed parameters. Before a profile can be deleted or taken out of service it must be first unreferenced from all associated lines.

This figure below shows an example of how this mode can be implemented. In the example, ADSL lines '1' and 'x' share the configuration of the 'silver' profile, while line '2' uses the 'platinum' profile. The 'gold' profile has no lines associated with it.

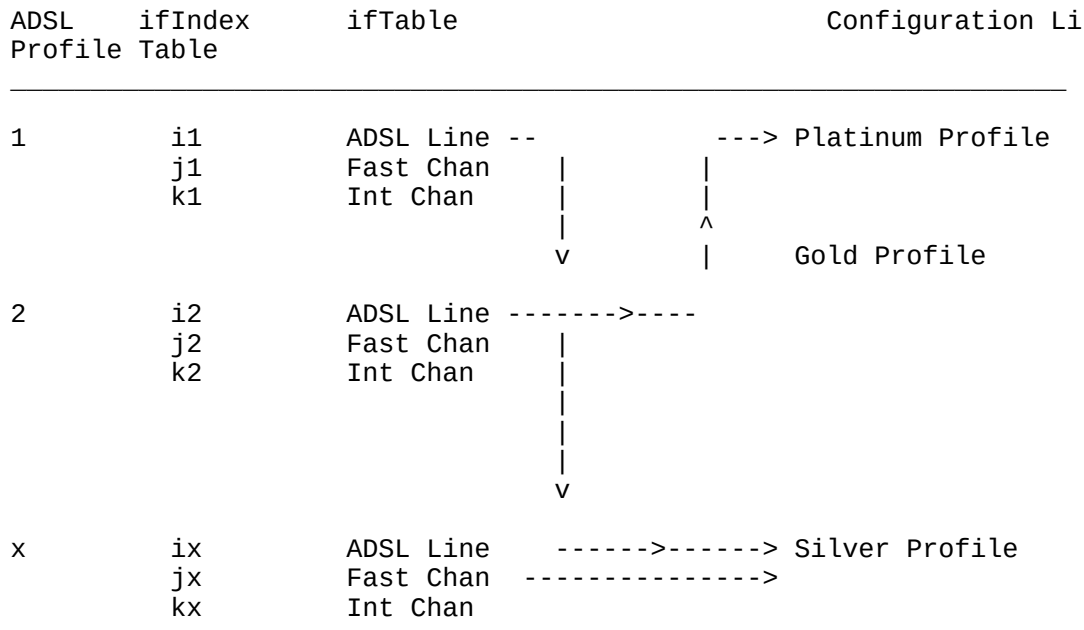

Figure 8: Use of Dynamic Profiles: MODE-I

In the figure above, note that three interface entries of an ADSL line, physical, fast channel, and interleaved channel, are represented by ‘i’, ‘j’, and ‘k’. Only the physical-layer entry ‘i’ contains an adslLineTable entry, therefore only those entries contain pointers to the adslLineConfProfileTable. The ifStackTable (see rfc2233 [5]) can be used to link the channel entries to the corresponding physical-layer entry to get the channel’s configuration parameters. See figure 4 for use of the ifStackTable.

The same characteristics and mechanisms are present for the alarm profile type. There is no requirement that its index be the same as the configuration profile.

Implementations of this mode, must provide a default profile whose name is ‘DEFVAL’ for each profile type: Configuration and Alarm. The values of the associated parameters will be vendor specific unless otherwise indicated in this document. Before a line’s profiles have been set, these profiles will be automatically used by setting adslLineConfProfile and adslLineAlarmConfProfile to ‘DEFVAL’.

In this mode, profiles are created, assigned, and deleted dynamically using these four objects: adslLineConfProfile, adslLineConfProfileRowStatus, adslLineAlarmConfProfile, and adslLineAlarmConfProfileRowStatus.

5.4.2 MODE-II : Static Profiles

Implementations with this mode will automatically create a profile one-for-one with each ADSL line physical entry. The name of this profile is a system generated read-only object whose value is equivalent to the index of the physical line. The Agent will not allow a Manager to create/delete profiles in this mode. Therefore, adslLineConfProfile, adslLineConfProfileRowStatus, adslLineAlarmConfProfile, and adslLineAlarmConfProfileRowStatus objects have minimal value in this mode and are read-only.

The figure below shows an example of this mode. In the example, ADSL lines '1', '2', and 'x' each have their own profiles.

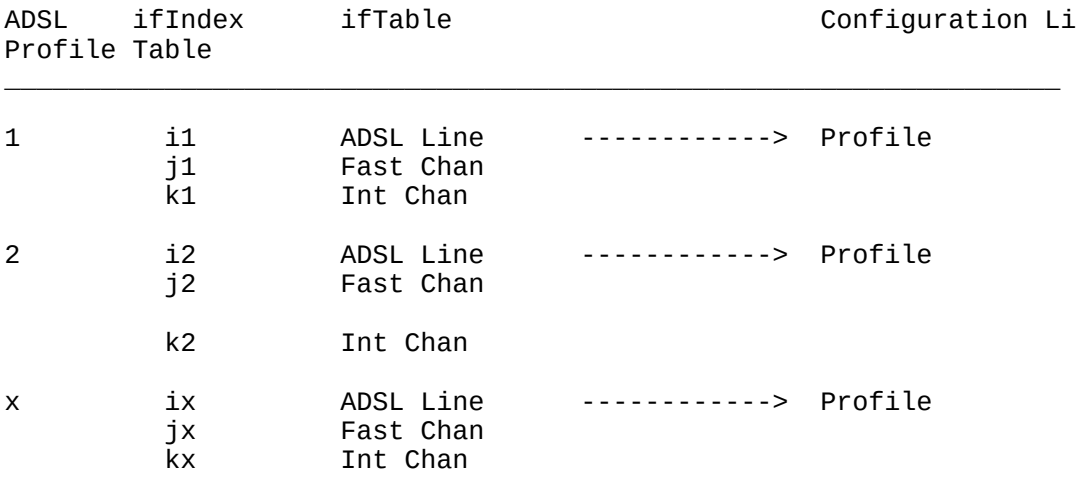

Figure 9: Use of Static Profiles: MODE II

5.5 Traps

These SNMP traps are required: coldStart / warmStart (per [6]) -- which are per agent (e.g., per DSLAM in such a device), and linkUp / linkDown (per [5]) -- which are per interface (i.e., ADSL line). Note: RFC 2233 [5] recommends that linkUp / linkDown only be used at a physical-layer ifEntry, as discussed above.

A linkDown trap is generated whenever any of Lof, Los, Lol, Loss of Signal Quality, or Lpr events occurs. At this operational point, a manager can use adslAtu*CurrStatus for additional detailed information. The corresponding linkUp trap is sent when all link failure conditions are cleared.

The traps defined in this MIB are for initialization failure, rate change, and for the threshold crossings associated with the following events: Lofs, Lols, Loss, Lprs, and ESs. Each threshold has its own enable/threshold value. When that value is 0, the trap is disabled.

The current status objects (adslAtu*CurrStatus) indicate, through a bitmask, all outstanding error conditions or that the line is operational. Note that each object claims to represent the status of the modem at that end of the line. However, since the SNMP agent likely co-resides with only one end of the line, the corresponding far-end current status object may be incomplete. For example, when there are errors on the line, the far-end ATU may not be able to correctly report this condition. Therefore, not all conditions are included in its current status.

A threshold trap occurs whenever the corresponding current 15-minute interval error counter becomes equal and/or exceeds to the threshold value. One trap will be sent per interval per interface. Since the current 15-minute counter are reset to 0 every 15 minutes, if the condition persists, the trap may recur as often as every 15 minutes. For example, to get a trap whenever a "loss of" event occurs (but at most once every 15 minutes), set the corresponding "Thresh15Min" to 1. The agent will generate a trap when the event originally occurs.

Note that the NMS will get a linkDown trap, as well, if enabled. At the beginning of the next 15 minute interval, the counter is reset. When the first second goes by and the event occurs, the current interval bucket will be 1, which equals the threshold and the trap will be sent again.

The rate change trap is invoked when the transmit rate on a channel either increases by adsl(x)Thresh(y)RateUp or decreases by adsl(x)Thresh(y)RateDown. The trap is per direction:(x) == Atuc or Atur, and per channel: (y) == Fast or Interleave. In other words, the trap is sent whenever the rate changes in either direction on either channel and:

CurrTxRate >= PrevTxRate plus ThreshRateUp

or

CurrTxRate <= PrevTxRate minus ThreshRateDown

No trap is sent on initialization.

It can be disabled by setting the Up (and/or) Down threshold rates to 0.

The PrevTxRate object is set to the current value at initialization and when a trap is sent. Thus rate changes are cumulative until the total change reaches the threshold.

6. Conformance and Compliance

See the conformance and compliance statements within the information module.

7. Definitions

```
ADSL-TC-MIB DEFINITIONS ::= BEGIN

IMPORTS
    transmission,
    MODULE-IDENTITY, Gauge32            FROM SNMPv2-SMI
    TEXTUAL-CONVENTION                  FROM SNMPv2-TC;

adsltcmib MODULE-IDENTITY

LAST-UPDATED "9908190000Z"

ORGANIZATION "IETF ADSL MIB Working Group"

CONTACT-INFO
    "
    Gregory Bathrick
    AG Communication Systems
    A Subsidiary of Lucent Technologies
    2500 W Utopia Rd.
    Phoenix, AZ 85027 USA
    Tel: +1 602-582-7679
    Fax: +1 602-582-7697
    E-mail: bathricg@agcs.com

    Faye Ly
    Copper Mountain Networks
    Norcal Office
    2470 Embarcadero Way
    Palo Alto, CA 94303
    Tel: +1 650-858-8500
    Fax: +1 650-858-8085
    E-Mail: faye@coppermountain.com
```

```
        IETF ADSL MIB Working Group (adsl@xlist.agcs.com)
        "
        DESCRIPTION
            "The MIB module which provides a ADSL
            Line Coding Textual Convention to be used
            by ADSL Lines."

        --  Revision history
        REVISION     "9908190000Z"  -- 19 August 1999, midnight
        DESCRIPTION  "Initial Version, published as RFC 2662"

        ::= { transmission 94 2 } -- adslMIB 2

        AdslLineCodingType ::= TEXTUAL-CONVENTION
            STATUS       current
            DESCRIPTION
                "This data type is used as the syntax for the ADSL
                Line Code."
            SYNTAX  INTEGER {
                other(1),-- none of the following
                dmt (2), -- Discrete MultiTone
                cap (3), -- Carrierless Amplitude & Phase modulation
                qam (4)  -- Quadrature Amplitude Modulation
            }

        AdslPerfCurrDayCount ::= TEXTUAL-CONVENTION
            STATUS  current
            DESCRIPTION
                "A counter associated with interface performance
                measurements in a current 1-day (24 hour) measurement
                interval.

                The value of this counter starts at zero at the
                beginning of an interval and is increased when
                associated events occur, until the end of the
                1-day interval.  At that time the value of the
                counter is stored in the previous 1-day history
                interval, if available, and the current interval
                counter is restarted at zero.

                In the case where the agent has no valid data available
                for this interval the corresponding object
                instance is not available and upon a retrieval
                request a corresponding error message shall be
                returned to indicate that this instance does
                not exist (for example, a noSuchName error for
                SNMPv1 and a noSuchInstance for SNMPv2 GET
                operation)."
```

```
            SYNTAX  Gauge32

        AdslPerfPrevDayCount ::= TEXTUAL-CONVENTION
            STATUS  current
            DESCRIPTION
                "A counter associated with interface performance
                measurements during the most previous 1-day (24 hour)
                measurement interval.  The value of this counter is
                equal to the value of the current day counter at
                the end of its most recent interval.

                In the case where the agent has no valid data available
                for this interval the corresponding object
                instance is not available and upon a retrieval
                request a corresponding error message shall be
                returned to indicate that this instance does
                not exist (for example, a noSuchName error for
                SNMPv1 and a noSuchInstance for SNMPv2 GET
                operation)."
            SYNTAX  Gauge32

        AdslPerfTimeElapsed ::= TEXTUAL-CONVENTION
            STATUS current
            DESCRIPTION
                "The number of seconds that have elapsed since
                the beginning of the current measurement period.
                If, for some reason, such as an adjustment in the
                system's time-of-day clock, the current interval
                exceeds the maximum value, the agent will return
                the maximum value."
            SYNTAX  Gauge32

    END

    ADSL-LINE-MIB DEFINITIONS ::= BEGIN

    IMPORTS
        MODULE-IDENTITY, OBJECT-TYPE,
        Counter32, Gauge32,
        NOTIFICATION-TYPE,
        transmission, Unsigned32          FROM SNMPv2-SMI
        RowStatus,
        TruthValue, VariablePointer       FROM SNMPv2-TC
        MODULE-COMPLIANCE, OBJECT-GROUP,
        NOTIFICATION-GROUP                FROM SNMPv2-CONF
        ifIndex                           FROM IF-MIB
        PerfCurrentCount,
        PerfIntervalCount                 FROM PerfHist-TC-MIB
```

```
        SnmpAdminString                 FROM SNMP-FRAMEWORK-MIB
        AdslPerfCurrDayCount,
        AdslPerfPrevDayCount,
        AdslPerfTimeElapsed,
        AdslLineCodingType              FROM ADSL-TC-MIB
        ;

    adslMIB MODULE-IDENTITY

    LAST-UPDATED "9908190000Z"

    ORGANIZATION "IETF ADSL MIB Working Group"

    CONTACT-INFO
        "
        Gregory Bathrick
        AG Communication Systems
        A Subsidiary of Lucent Technologies
        2500 W Utopia Rd.
        Phoenix, AZ 85027 USA
        Tel: +1 602-582-7679
        Fax: +1 602-582-7697
        E-mail: bathricg@agcs.com

        Faye Ly
        Copper Mountain Networks
        Norcal Office
        2470 Embarcadero Way
        Palo Alto, CA 94303
        Tel: +1 650-858-8500
        Fax: +1 650-858-8085
        E-Mail: faye@coppermountain.com

        (ADSL Forum input only)
        John Burgess
        Predictive Systems, Inc.
        25A Vreeland Rd.
        Florham Park, NJ 07932 USA
        Tel: +1 973-301-5610
        Fax: +1 973-301-5699
        E-mail: jtburgess@predictive.com

        IETF ADSL MIB Working Group (adsl@xlist.agcs.com)
        "

    DESCRIPTION
        "The MIB module defining objects for the management of a pair of
        ADSL modems at each end of the ADSL line.  Each such line has
```

```
        an entry in an ifTable which may include multiple modem lines.
        An agent may reside at either end of the ADSL line however the
        MIB is designed to require no management communication between
        them beyond that inherent in the low-level ADSL line protocol.
        The agent may monitor and control this protocol for its needs.

        ADSL lines may support optional Fast or Interleaved channels.
        If these are supported, additional entries corresponding to the
        supported channels must be created in the ifTable. Thus an ADSL
        line that supports both channels will have three entries in the
        ifTable, one for each physical, fast, and interleaved, whose
        ifType values are equal to adsl(94), fast(125), and
        interleaved(124), respectively. The ifStackTable is used to
        represent the relationship between the entries.

        Naming Conventions:
                  Atuc -- (ATUC) modem at near (Central) end of line
                  Atur -- (ATUR) modem at Remote end of line
                  Curr -- Current
                  Prev -- Previous
                  Atn -- Attenuation
                  ES  -- Errored Second.
                  LCS -- Line Code Specific
                  Lof -- Loss of Frame
                  Lol -- Loss of Link
                  Los -- Loss of Signal
                  Lpr -- Loss of Power
                  xxxs-- interval of Seconds in which xxx occurs
                          (e.g., xxx=Lof, Los, Lpr)
                  Max -- Maximum
                  Mgn -- Margin
                  Min -- Minimum
                  Psd -- Power Spectral Density
                  Snr -- Signal to Noise Ratio
                  Tx  -- Transmit
                  Blks-- Blocks, a data unit, see
                         adslAtuXChanCrcBlockLength
          "
          --  Revision history
          REVISION     "9908190000Z"  -- 19 August 1999, midnight
          DESCRIPTION  "Initial Version, published as RFC 2662"

   ::= { transmission 94 }

   adslLineMib OBJECT IDENTIFIER ::= { adslMIB 1 }

   adslMibObjects OBJECT IDENTIFIER ::= { adslLineMib 1 }
```

```
   -- objects
        adslLineTable   OBJECT-TYPE
            SYNTAX          SEQUENCE OF AdslLineEntry
            MAX-ACCESS      not-accessible
            STATUS          current
            DESCRIPTION
                "This table includes common attributes describing
                both ends of the line.  It is required for all ADSL
                physical interfaces.  ADSL physical interfaces are
                those ifEntries where ifType is equal to adsl(94)."
        ::= { adslMibObjects 1 }

        adslLineEntry   OBJECT-TYPE
            SYNTAX          AdslLineEntry
            MAX-ACCESS      not-accessible
            STATUS          current
            DESCRIPTION     "An entry in adslLineTable."
            INDEX           { ifIndex }
        ::= { adslLineTable 1 }

        AdslLineEntry ::=
            SEQUENCE {
            adslLineCoding           AdslLineCodingType,
            adslLineType             INTEGER,
            adslLineSpecific         VariablePointer,
            adslLineConfProfile      SnmpAdminString,
            adslLineAlarmConfProfile SnmpAdminString
            }

        adslLineCoding OBJECT-TYPE
            SYNTAX      AdslLineCodingType
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "Specifies the ADSL coding type used on this
                line."
        ::= { adslLineEntry 1 }

       adslLineType OBJECT-TYPE
            SYNTAX      INTEGER {
                noChannel (1),         -- no channels exist
                fastOnly (2),          -- fast channel exists only
                interleavedOnly (3),   -- interleaved channel exists
                                       -- only
                fastOrInterleaved (4),-- either fast or interleaved
                                       -- channels can exist, but
                                       -- only one at any time
                fastAndInterleaved (5)-- both fast or interleaved
```

```
                                    -- channels exist
            }
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "Defines the type of ADSL physical line
                entity that exists, by defining whether and how
                the line is channelized.  If the line is channelized,
                the value will be other than noChannel(1).  This
                object defines which channel type(s) are supported.

                In the case that the line is channelized, the manager
                can use the ifStackTable to determine the ifIndex for
                the associated channel(s)."
        ::= { adslLineEntry 2 }

        adslLineSpecific OBJECT-TYPE
            SYNTAX      VariablePointer
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "OID instance in vendor-specific MIB. The Instance may
                be used to determine shelf/slot/port of the ATUC
                interface in a DSLAM."
        ::= { adslLineEntry 3 }

        adslLineConfProfile OBJECT-TYPE
            SYNTAX      SnmpAdminString (SIZE (1..32))
            MAX-ACCESS  read-write
            STATUS      current
            DESCRIPTION
                "The value of this object identifies the row
                in the ADSL Line Configuration Profile Table,
                (adslLineConfProfileTable), which applies for this
                ADSL line, and channels if applicable.

                For 'dynamic' mode, in the case which the
                configuration profile has not been set, the
                value will be set to 'DEFVAL'.

                If the implementator of this MIB has chosen not
                to implement 'dynamic assignment' of profiles, this
                object's MIN-ACCESS is read-only."
        ::= { adslLineEntry 4 }

        adslLineAlarmConfProfile OBJECT-TYPE
            SYNTAX      SnmpAdminString (SIZE (1..32))
            MAX-ACCESS  read-write
```

```
            STATUS      current
            DESCRIPTION
                "The value of this object identifies the row
                in the ADSL Line Alarm Configuration Profile Table,
                (adslLineAlarmConfProfileTable), which applies to this
                ADSL line, and channels if applicable.

                For 'dynamic' mode, in the case which the
                alarm profile has not been set, the
                value will be set to 'DEFVAL'.

                If the implementator of this MIB has chosen not
                to implement 'dynamic assignment' of profiles, this
                object's MIN-ACCESS is read-only."
        ::= { adslLineEntry 5 }

        adslAtucPhysTable       OBJECT-TYPE
            SYNTAX          SEQUENCE OF AdslAtucPhysEntry
            MAX-ACCESS      not-accessible
            STATUS          current
            DESCRIPTION
                "This table provides one row for each ATUC.
                Each row contains the Physical Layer Parameters
                table for that ATUC. ADSL physical interfaces are
                those ifEntries where ifType is equal to adsl(94)."
        ::= { adslMibObjects 2 }

        adslAtucPhysEntry       OBJECT-TYPE
            SYNTAX          AdslAtucPhysEntry
            MAX-ACCESS      not-accessible
            STATUS          current
            DESCRIPTION     "An entry in the adslAtucPhysTable."
            INDEX           { ifIndex }
        ::= { adslAtucPhysTable 1 }

        AdslAtucPhysEntry ::=
            SEQUENCE {
            adslAtucInvSerialNumber         SnmpAdminString,
            adslAtucInvVendorID             SnmpAdminString,
            adslAtucInvVersionNumber        SnmpAdminString,
            adslAtucCurrSnrMgn              INTEGER,
            adslAtucCurrAtn                 Gauge32,
            adslAtucCurrStatus              BITS,
            adslAtucCurrOutputPwr           INTEGER,
            adslAtucCurrAttainableRate      Gauge32
            }

        -- inventory group
```

```
        --
        -- These items should describe the lowest level identifiable
        -- component, be it a stand-alone modem, a card in a rack,
        -- a child-board, etc.
        --
        adslAtucInvSerialNumber OBJECT-TYPE
            SYNTAX      SnmpAdminString (SIZE (0..32))
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "The vendor specific string that identifies the
                vendor equipment."
        ::= { adslAtucPhysEntry 1 }

        adslAtucInvVendorID OBJECT-TYPE
            SYNTAX      SnmpAdminString (SIZE (0..16))
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "The vendor ID code is a copy of the binary
                vendor identification field defined by the
                PHY[10] and expressed as readable characters."

            REFERENCE "ANSI T1.413[10]"
        ::= { adslAtucPhysEntry 2 }

        adslAtucInvVersionNumber OBJECT-TYPE
            SYNTAX      SnmpAdminString (SIZE (0..16))
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "The vendor specific version number sent by this ATU
                as part of the initialization messages.  It is a copy
                of the binary version number field defined by the
                PHY[10] and expressed as readable characters."
            REFERENCE "ANSI T1.413[10]"
        ::= { adslAtucPhysEntry 3 }

        -- current status group
        --
        adslAtucCurrSnrMgn OBJECT-TYPE
            SYNTAX      INTEGER (-640..640)
            UNITS       "tenth dB"
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "Noise Margin as seen by this ATU with respect to its
                received signal in tenth dB."
```

```
        ::= { adslAtucPhysEntry 4 }

        adslAtucCurrAtn OBJECT-TYPE
            SYNTAX      Gauge32(0..630)
            UNITS       "tenth dB"
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "Measured difference in the total power transmitted by
                the peer ATU and the total power received by this ATU."
        ::= { adslAtucPhysEntry 5 }

       adslAtucCurrStatus OBJECT-TYPE
            SYNTAX      BITS {
                              noDefect(0),
                              lossOfFraming(1),
                              lossOfSignal(2),
                              lossOfPower(3),
                              lossOfSignalQuality(4),
                              lossOfLink(5),
                              dataInitFailure(6),
                              configInitFailure(7),
                              protocolInitFailure(8),
                              noPeerAtuPresent(9)
                             }
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "Indicates current state of the ATUC line.  This is a
                bit-map of possible conditions.  The various bit
                positions are:

         0      noDefect             There no defects on the line

         1      lossOfFraming        ATUC failure due to not
                                     receiving valid frame.

         2      lossOfSignal         ATUC failure due to not
                                     receiving signal.

         3      lossOfPower          ATUC failure due to loss of
                                     power.
                                     Note: the Agent may still
                                     function.

         4      lossOfSignalQuality  Loss of Signal Quality is
                                     declared when the Noise Margin
                                     falls below the Minimum Noise
```

```
                                   Margin, or the bit-error-rate
                                   exceeds 10^-7.

            5      lossOfLink           ATUC failure due to inability
                                        to link with ATUR.

            6      dataInitFailure      ATUC failure during
                                        initialization due to bit
                                        errors corrupting startup
                                        exchange data.

            7      configInitFailure    ATUC failure during
                                        initialization due to peer
                                        ATU not able to support
                                        requested configuration

            8      protocolInitFailure  ATUC failure during
                                        initialization due to
                                        incompatible protocol used by
                                        the peer ATU.

            9      noPeerAtuPresent     ATUC failure during
                                        initialization due to no
                                        activation sequence detected
                                        from peer ATU.

            This is intended to supplement ifOperStatus."
        ::= { adslAtucPhysEntry 6 }

        adslAtucCurrOutputPwr OBJECT-TYPE
            SYNTAX      INTEGER (-310..310)
            UNITS       "tenth dBm"
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "Measured total output power transmitted by this ATU.
                This is the measurement that was reported during
                the last activation sequence."
        ::= { adslAtucPhysEntry 7 }

        adslAtucCurrAttainableRate OBJECT-TYPE
            SYNTAX      Gauge32
            UNITS       "bps"
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "Indicates the maximum currently attainable data rate
                by the ATU.  This value will be equal or greater than
```

```
            the current line rate."
        ::= { adslAtucPhysEntry 8 }

        adslAturPhysTable        OBJECT-TYPE
            SYNTAX          SEQUENCE OF AdslAturPhysEntry
            MAX-ACCESS      not-accessible
            STATUS          current
            DESCRIPTION
                "This table provides one row for each ATUR
                Each row contains the Physical Layer Parameters
                table for that ATUR. ADSL physical interfaces are
                those ifEntries where ifType is equal to adsl(94)."
        ::= { adslMibObjects 3 }

        adslAturPhysEntry       OBJECT-TYPE
            SYNTAX          AdslAturPhysEntry
            MAX-ACCESS      not-accessible
            STATUS          current
            DESCRIPTION     "An entry in the adslAturPhysTable."
            INDEX           { ifIndex }
        ::= { adslAturPhysTable 1 }

        AdslAturPhysEntry ::=
            SEQUENCE {
            adslAturInvSerialNumber         SnmpAdminString,
            adslAturInvVendorID             SnmpAdminString,
            adslAturInvVersionNumber        SnmpAdminString,
            adslAturCurrSnrMgn              INTEGER,
            adslAturCurrAtn                 Gauge32,
            adslAturCurrStatus              BITS,
            adslAturCurrOutputPwr           INTEGER,
            adslAturCurrAttainableRate      Gauge32
            }

        -- inventory group
        --
        adslAturInvSerialNumber OBJECT-TYPE
            SYNTAX      SnmpAdminString (SIZE (0..32))
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "The vendor specific string that identifies the
                vendor equipment."
        ::= { adslAturPhysEntry 1 }

        adslAturInvVendorID OBJECT-TYPE
            SYNTAX      SnmpAdminString (SIZE (0..16))
            MAX-ACCESS  read-only
```

```
            STATUS      current
            DESCRIPTION
                "The vendor ID code is a copy of the binary
                vendor identification field defined by the
                PHY[10] and expressed as readable characters."
            REFERENCE "ANSI T1.413"
        ::= { adslAturPhysEntry 2 }

        adslAturInvVersionNumber OBJECT-TYPE
            SYNTAX      SnmpAdminString (SIZE (0..16))
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "The vendor specific version number sent by this ATU
                as part of the initialization messages.  It is a copy
                of the binary version number field defined by the
                PHY[10] and expressed as readable characters."
            REFERENCE "ANSI T1.413"
        ::= { adslAturPhysEntry 3 }

        -- current status group
        --
        adslAturCurrSnrMgn OBJECT-TYPE
            SYNTAX      INTEGER (-640..640)
            UNITS       "tenth dB"
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "Noise Margin as seen by this ATU with respect to its
                received signal in tenth dB."
        ::= { adslAturPhysEntry 4 }

        adslAturCurrAtn OBJECT-TYPE
            SYNTAX      Gauge32(0..630)
            UNITS       "tenth dB"
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "Measured difference in the total power transmitted by
                the peer ATU and the total power received by this ATU."
        ::= { adslAturPhysEntry 5 }

       adslAturCurrStatus OBJECT-TYPE
            SYNTAX     BITS {
                             noDefect(0),
                             lossOfFraming(1),
                             lossOfSignal(2),
                             lossOfPower(3),
```

```
                        lossOfSignalQuality(4)
                       }
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "Indicates current state of the ATUR line.  This is a
        bit-map of possible conditions.  Due to the isolation
        of the ATUR when line problems occur, many state
        conditions like loss of power, loss of quality signal,
        and initialization errors,  can not be determined.
        While trouble shooting ATUR, also use object,
        adslAtucCurrStatus.  The various bit positions are:

     0      noDefect             There no defects on the line

     1      lossOfFraming        ATUR failure due to not
                                 receiving valid frame

     2      lossOfSignal         ATUR failure due to not
                                 receiving signal

     3      lossOfPower          ATUR failure due to loss of
                                 power

     4      lossOfSignalQuality  Loss of Signal Quality is
                                 declared when the Noise Margin
                                 falls below the Minimum Noise
                                 Margin, or the
                                 bit-error-rate exceeds 10^-7.

        This is intended to supplement ifOperStatus."
::= { adslAturPhysEntry 6 }

adslAturCurrOutputPwr OBJECT-TYPE
    SYNTAX      INTEGER (-310..310)
    UNITS       "tenth dBm"
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "Measured total output power transmitted by this ATU.
        This is the measurement that was reported during
        the last activation sequence."
::= { adslAturPhysEntry 7 }

adslAturCurrAttainableRate OBJECT-TYPE
    SYNTAX      Gauge32
    UNITS       "bps"
    MAX-ACCESS  read-only
```

```
            STATUS      current
            DESCRIPTION
                "Indicates the maximum currently attainable data rate
                by the ATU.  This value will be equal or greater than
                the current line rate."
        ::= { adslAturPhysEntry 8 }

        adslAtucChanTable       OBJECT-TYPE
            SYNTAX          SEQUENCE OF AdslAtucChanEntry
            MAX-ACCESS      not-accessible
            STATUS          current
            DESCRIPTION
                "This table provides one row for each ATUC channel.
                ADSL channel interfaces are those ifEntries
                where ifType is equal to adslInterleave(124)
                or adslFast(125)."
        ::= { adslMibObjects 4 }

        adslAtucChanEntry       OBJECT-TYPE
            SYNTAX          AdslAtucChanEntry
            MAX-ACCESS      not-accessible
            STATUS          current
            DESCRIPTION     "An entry in the adslAtucChanTable."
            INDEX           { ifIndex }
        ::= { adslAtucChanTable 1 }

        AdslAtucChanEntry ::=
            SEQUENCE {
            adslAtucChanInterleaveDelay     Gauge32,
            adslAtucChanCurrTxRate          Gauge32,
            adslAtucChanPrevTxRate          Gauge32,
            adslAtucChanCrcBlockLength      Gauge32
            }

        -- current group
        --
        adslAtucChanInterleaveDelay OBJECT-TYPE
            SYNTAX      Gauge32
            UNITS       "milli-seconds"
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "Interleave Delay for this channel.

                Interleave delay applies only to the
                interleave channel and defines the mapping
                (relative spacing) between subsequent input
                bytes at the interleaver input and their placement
```

```
            in the bit stream at the interleaver output.
            Larger numbers provide greater separation between
            consecutive input bytes in the output bit stream
            allowing for improved impulse noise immunity at
            the expense of payload latency.

            In the case where the ifType is Fast(125), use
            noSuchObject."
        ::= { adslAtucChanEntry 1 }

        adslAtucChanCurrTxRate  OBJECT-TYPE
            SYNTAX      Gauge32
            UNITS       "bps"
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "Actual transmit rate on this channel."
        ::= { adslAtucChanEntry 2 }

        adslAtucChanPrevTxRate OBJECT-TYPE
            SYNTAX      Gauge32
            UNITS        "bps"
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "The rate at the time of the last
                adslAtucRateChangeTrap event. It is also set at
                initialization to prevent a trap being sent.

                Rate changes less than adslAtucThresh(*)RateDown
                or less than adslAtucThresh(*)RateUp will not
                cause a trap or cause this object to change.
                (*) == Fast or Interleave.
                See AdslLineAlarmConfProfileEntry."
        ::= { adslAtucChanEntry 3 }

        adslAtucChanCrcBlockLength OBJECT-TYPE
            SYNTAX      Gauge32
            UNITS        "byte"
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "Indicates the length of the channel data-block
                on which the CRC operates.  Refer to Line Code
                Specific MIBs, [11] and [12] for more
                information."
        ::= { adslAtucChanEntry 4 }
```

```
        adslAturChanTable       OBJECT-TYPE
             SYNTAX          SEQUENCE OF AdslAturChanEntry
             MAX-ACCESS      not-accessible
             STATUS          current
             DESCRIPTION
                 "This table provides one row for each ATUR channel.
                 ADSL channel interfaces are those ifEntries
                 where ifType is equal to adslInterleave(124)
                 or adslFast(125)."
         ::= { adslMibObjects 5 }

         adslAturChanEntry       OBJECT-TYPE
             SYNTAX          AdslAturChanEntry
             MAX-ACCESS      not-accessible
             STATUS          current
             DESCRIPTION     "An entry in the adslAturChanTable."
             INDEX           { ifIndex }
         ::= { adslAturChanTable 1 }

         AdslAturChanEntry ::=
             SEQUENCE {
             adslAturChanInterleaveDelay     Gauge32,
             adslAturChanCurrTxRate          Gauge32,
             adslAturChanPrevTxRate          Gauge32,
             adslAturChanCrcBlockLength      Gauge32
             }

         -- current group
         --
         adslAturChanInterleaveDelay OBJECT-TYPE
             SYNTAX      Gauge32
             UNITS       "milli-seconds"
             MAX-ACCESS  read-only
             STATUS      current
             DESCRIPTION
                 "Interleave Delay for this channel.

                 Interleave delay applies only to the
                 interleave channel and defines the mapping
                 (relative spacing) between subsequent input
                 bytes at the interleaver input and their placement
                 in the bit stream at the interleaver output.
                 Larger numbers provide greater separation between
                 consecutive input bytes in the output bit stream
                 allowing for improved impulse noise immunity at
                 the expense of payload latency.

                 In the case where the ifType is Fast(125), use
```

```
            noSuchObject."
        ::= { adslAturChanEntry 1 }

        adslAturChanCurrTxRate  OBJECT-TYPE
            SYNTAX      Gauge32
            UNITS       "bps"
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "Actual transmit rate on this channel."
        ::= { adslAturChanEntry 2 }

        adslAturChanPrevTxRate OBJECT-TYPE
            SYNTAX      Gauge32
            UNITS       "bps"
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
               "The rate at the time of the last
                adslAturRateChangeTrap event. It is also set at
                initialization to prevent a trap being sent.
                Rate changes less than adslAturThresh(*)RateDown
                or less than adslAturThresh(*)RateUp will not
                cause a trap or cause this object to change.
                (*) == Fast or Interleave.
                See AdslLineAlarmConfProfileEntry."
        ::= { adslAturChanEntry 3 }

        adslAturChanCrcBlockLength OBJECT-TYPE
            SYNTAX      Gauge32
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "Indicates the length of the channel data-block
                on which the CRC operates.  Refer to Line Code
                Specific MIBs, [11] and [12] for more
                information."
        ::= { adslAturChanEntry 4 }

        adslAtucPerfDataTable   OBJECT-TYPE
            SYNTAX          SEQUENCE OF AdslAtucPerfDataEntry
            MAX-ACCESS      not-accessible
            STATUS          current
            DESCRIPTION
                "This table provides one row for each ATUC.
                ADSL physical interfaces are
                those ifEntries where ifType is equal to adsl(94)."
        ::= { adslMibObjects 6 }
```

```
adslAtucPerfDataEntry       OBJECT-TYPE
    SYNTAX          AdslAtucPerfDataEntry
    MAX-ACCESS      not-accessible
    STATUS          current
    DESCRIPTION     "An entry in adslAtucPerfDataTable."
    INDEX           { ifIndex }
::= { adslAtucPerfDataTable 1 }

AdslAtucPerfDataEntry ::=
    SEQUENCE {
    adslAtucPerfLofs                 Counter32,
    adslAtucPerfLoss                 Counter32,
    adslAtucPerfLols                 Counter32,
    adslAtucPerfLprs                 Counter32,
    adslAtucPerfESs                  Counter32,
    adslAtucPerfInits                Counter32,
    adslAtucPerfValidIntervals       INTEGER,
    adslAtucPerfInvalidIntervals     INTEGER,
    adslAtucPerfCurr15MinTimeElapsed AdslPerfTimeElapsed,
    adslAtucPerfCurr15MinLofs        PerfCurrentCount,
    adslAtucPerfCurr15MinLoss        PerfCurrentCount,
    adslAtucPerfCurr15MinLols        PerfCurrentCount,
    adslAtucPerfCurr15MinLprs        PerfCurrentCount,
    adslAtucPerfCurr15MinESs         PerfCurrentCount,
    adslAtucPerfCurr15MinInits       PerfCurrentCount,
    adslAtucPerfCurr1DayTimeElapsed  AdslPerfTimeElapsed,
    adslAtucPerfCurr1DayLofs         AdslPerfCurrDayCount,
    adslAtucPerfCurr1DayLoss         AdslPerfCurrDayCount,
    adslAtucPerfCurr1DayLols         AdslPerfCurrDayCount,
    adslAtucPerfCurr1DayLprs         AdslPerfCurrDayCount,
    adslAtucPerfCurr1DayESs          AdslPerfCurrDayCount,
    adslAtucPerfCurr1DayInits        AdslPerfCurrDayCount,
    adslAtucPerfPrev1DayMoniSecs     INTEGER,
    adslAtucPerfPrev1DayLofs         AdslPerfPrevDayCount,
    adslAtucPerfPrev1DayLoss         AdslPerfPrevDayCount,
    adslAtucPerfPrev1DayLols         AdslPerfPrevDayCount,
    adslAtucPerfPrev1DayLprs         AdslPerfPrevDayCount,
    adslAtucPerfPrev1DayESs          AdslPerfPrevDayCount,
    adslAtucPerfPrev1DayInits        AdslPerfPrevDayCount
    }

-- Event Counters
--
-- Also see adslAtucIntervalTable for 15 minute interval
-- elapsed counters.
--
adslAtucPerfLofs OBJECT-TYPE
    SYNTAX      Counter32
```

```
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "Count of the number of Loss of Framing failures since
                agent reset."
        ::= { adslAtucPerfDataEntry 1 }

        adslAtucPerfLoss  OBJECT-TYPE
            SYNTAX      Counter32
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "Count of the number of Loss of Signal failures since
                agent reset."
        ::= { adslAtucPerfDataEntry 2 }

        adslAtucPerfLols OBJECT-TYPE
            SYNTAX      Counter32
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "Count of the number of Loss of Link failures since
                agent reset."
        ::= { adslAtucPerfDataEntry 3 }

        adslAtucPerfLprs OBJECT-TYPE
            SYNTAX      Counter32
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "Count of the number of Loss of Power failures since
                agent reset."
        ::= { adslAtucPerfDataEntry 4 }

        adslAtucPerfESs OBJECT-TYPE
            SYNTAX      Counter32
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "Count of the number of Errored Seconds since agent
                reset.  The errored second parameter is a count of
                one-second intervals containing one or more crc
                anomalies, or one or more los or sef defects."
        ::= { adslAtucPerfDataEntry 5 }

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

```
            STATUS      current
            DESCRIPTION
                "Count of the line initialization attempts since
                agent reset. Includes both successful and failed
                attempts."
        ::= { adslAtucPerfDataEntry 6 }

        -- general 15 min interval information
        --

        adslAtucPerfValidIntervals OBJECT-TYPE
            SYNTAX      INTEGER(0..96)
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "The number of previous 15-minute intervals in the
                interval table for which data was collected.  Given
                that <n> is the maximum # of intervals supported.
                The value will be <n> unless the measurement was
                (re-)started within the last (<n>*15) minutes, in which
                case the value will be the number of complete 15
                minute intervals for which the agent has at least
                some data. In certain cases (e.g., in the case
                where the agent is a proxy) it is possible that some
                intervals are unavailable.  In this case, this
                interval is the maximum interval number for
                which data is available."
        ::= { adslAtucPerfDataEntry 7 }

        adslAtucPerfInvalidIntervals OBJECT-TYPE
            SYNTAX      INTEGER(0..96)
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "The number of intervals in the range from
                0 to the value of adslAtucPerfValidIntervals
                for which no data is available. This object
                will typically be zero except in cases where
                the data for some intervals are not available
                (e.g., in proxy situations)."
        ::= { adslAtucPerfDataEntry 8 }

        -- 15 min current performance group
        --
        adslAtucPerfCurr15MinTimeElapsed OBJECT-TYPE
            SYNTAX      AdslPerfTimeElapsed(0..899)
            UNITS       "seconds"
            MAX-ACCESS  read-only
```

```
            STATUS      current
            DESCRIPTION
                "Total elapsed seconds in this interval."
        ::= { adslAtucPerfDataEntry 9 }

        adslAtucPerfCurr15MinLofs OBJECT-TYPE
            SYNTAX      PerfCurrentCount
            UNITS       "seconds"
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "Count of seconds in the current 15 minute interval
                when there was Loss of Framing."
        ::= { adslAtucPerfDataEntry 10 }

        adslAtucPerfCurr15MinLoss  OBJECT-TYPE
            SYNTAX      PerfCurrentCount
            UNITS       "seconds"
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "Count of seconds in the current 15 minute interval
                when there was Loss of Signal."
        ::= { adslAtucPerfDataEntry 11 }

        adslAtucPerfCurr15MinLols  OBJECT-TYPE
            SYNTAX      PerfCurrentCount
            UNITS       "seconds"
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "Count of seconds in the current 15 minute interval
                when there was Loss of Link."
        ::= { adslAtucPerfDataEntry 12 }

        adslAtucPerfCurr15MinLprs  OBJECT-TYPE
            SYNTAX      PerfCurrentCount
            UNITS       "seconds"
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "Count of seconds in the current 15 minute interval
                when there was Loss of Power."
        ::= { adslAtucPerfDataEntry 13 }

        adslAtucPerfCurr15MinESs OBJECT-TYPE
            SYNTAX      PerfCurrentCount
            UNITS       "seconds"
```

```
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "Count of Errored Seconds in the current 15 minute
                interval.  The errored second parameter is a count of
                one-second intervals containing one or more crc
                anomalies, or one or more los or sef defects."
        ::= { adslAtucPerfDataEntry 14 }

        adslAtucPerfCurr15MinInits  OBJECT-TYPE
            SYNTAX      PerfCurrentCount
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "Count of the line initialization attempts in the
                current 15 minute interval. Includes both successful
                and failed attempts."
        ::= { adslAtucPerfDataEntry 15 }

        -- 1-day current and previous performance group
        --
        adslAtucPerfCurr1DayTimeElapsed OBJECT-TYPE
            SYNTAX      AdslPerfTimeElapsed(0..86399)
            UNITS       "seconds"
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "Number of seconds that have elapsed since the
                beginning of the current 1-day interval."
        ::= { adslAtucPerfDataEntry 16 }

        adslAtucPerfCurr1DayLofs  OBJECT-TYPE
            SYNTAX      AdslPerfCurrDayCount
            UNITS       "seconds"
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "Count of the number of seconds when there was Loss of
                Framing during the current day as measured by
                adslAtucPerfCurr1DayTimeElapsed."
        ::= { adslAtucPerfDataEntry 17 }

        adslAtucPerfCurr1DayLoss  OBJECT-TYPE
            SYNTAX      AdslPerfCurrDayCount
            UNITS       "seconds"
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
```

```
            "Count of the number of seconds when there was Loss of
            Signal during the current day as measured by
            adslAtucPerfCurr1DayTimeElapsed."
        ::= { adslAtucPerfDataEntry 18 }

        adslAtucPerfCurr1DayLols  OBJECT-TYPE
            SYNTAX      AdslPerfCurrDayCount
            UNITS       "seconds"
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "Count of the number of seconds when there was Loss of
                Link during the current day as measured by
                adslAtucPerfCurr1DayTimeElapsed."
        ::= { adslAtucPerfDataEntry 19 }

        adslAtucPerfCurr1DayLprs  OBJECT-TYPE
            SYNTAX      AdslPerfCurrDayCount
            UNITS       "seconds"
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "Count of the number of seconds when there was Loss of
                Power during the current day as measured by
                adslAtucPerfCurr1DayTimeElapsed."
        ::= { adslAtucPerfDataEntry 20 }

        adslAtucPerfCurr1DayESs OBJECT-TYPE
            SYNTAX      AdslPerfCurrDayCount
            UNITS       "seconds"
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "Count of Errored Seconds during the current day as
                measured by adslAtucPerfCurr1DayTimeElapsed.
                The errored second parameter is a count of
                one-second intervals containing one or more crc
                anomalies, or one or more los or sef defects."
        ::= { adslAtucPerfDataEntry 21 }

        adslAtucPerfCurr1DayInits  OBJECT-TYPE
            SYNTAX      AdslPerfCurrDayCount
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "Count of the line initialization attempts in the
                day as measured by adslAtucPerfCurr1DayTimeElapsed.
                Includes both successful and failed attempts."
```

```
        ::= { adslAtucPerfDataEntry 22 }

        adslAtucPerfPrev1DayMoniSecs OBJECT-TYPE
            SYNTAX      INTEGER(0..86400)
            UNITS       "seconds"
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "The amount of time in the previous 1-day interval
                over which the performance monitoring information
                is actually counted. This value will be the same as
                the interval duration except in a situation where
                performance monitoring data could not be collected
                for any reason."
        ::= { adslAtucPerfDataEntry 23 }

        adslAtucPerfPrev1DayLofs  OBJECT-TYPE
            SYNTAX      AdslPerfPrevDayCount
            UNITS       "seconds"
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "Count of seconds in the interval when there was
                Loss of Framing within the most recent previous
                1-day period."
        ::= { adslAtucPerfDataEntry 24 }

        adslAtucPerfPrev1DayLoss  OBJECT-TYPE
            SYNTAX      AdslPerfPrevDayCount
            UNITS       "seconds"
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "Count of seconds in the interval when there was
                Loss of Signal within the most recent previous
                1-day period."
        ::= { adslAtucPerfDataEntry 25 }

        adslAtucPerfPrev1DayLols  OBJECT-TYPE
            SYNTAX      AdslPerfPrevDayCount
            UNITS       "seconds"
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "Count of seconds in the interval when there was
                Loss of Link within the most recent previous
                1-day period."
        ::= { adslAtucPerfDataEntry 26 }
```

```
        adslAtucPerfPrev1DayLprs  OBJECT-TYPE
            SYNTAX      AdslPerfPrevDayCount
            UNITS       "seconds"
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "Count of seconds in the interval when there was
                Loss of Power within the most recent previous
                1-day period."
        ::= { adslAtucPerfDataEntry 27 }

        adslAtucPerfPrev1DayESs OBJECT-TYPE
            SYNTAX      AdslPerfPrevDayCount
            UNITS       "seconds"
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "Count of Errored Seconds within the most recent
                previous 1-day period. The errored second parameter is
                a count of one-second intervals containing one or more
                crc anomalies, or one or more los or sef defects."
        ::= { adslAtucPerfDataEntry 28 }

        adslAtucPerfPrev1DayInits  OBJECT-TYPE
            SYNTAX      AdslPerfPrevDayCount
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "Count of the line initialization attempts in the most
                recent previous 1-day period. Includes both successful
                and failed attempts."
        ::= { adslAtucPerfDataEntry 29 }

        adslAturPerfDataTable   OBJECT-TYPE
            SYNTAX          SEQUENCE OF AdslAturPerfDataEntry
            MAX-ACCESS      not-accessible
            STATUS          current
            DESCRIPTION
                "This table provides one row for each ATUR.
                ADSL physical interfaces are
                those ifEntries where ifType is equal to adsl(94)."
        ::= { adslMibObjects 7 }

        adslAturPerfDataEntry       OBJECT-TYPE
            SYNTAX          AdslAturPerfDataEntry
            MAX-ACCESS      not-accessible
            STATUS          current
            DESCRIPTION     "An entry in adslAturPerfDataTable."
```

```
        INDEX           { ifIndex }
    ::= { adslAturPerfDataTable 1 }

    AdslAturPerfDataEntry ::=
        SEQUENCE {
        adslAturPerfLofs                 Counter32,
        adslAturPerfLoss                 Counter32,
        adslAturPerfLprs                 Counter32,
        adslAturPerfESs                  Counter32,
        adslAturPerfValidIntervals       INTEGER,
        adslAturPerfInvalidIntervals     INTEGER,
        adslAturPerfCurr15MinTimeElapsed AdslPerfTimeElapsed,
        adslAturPerfCurr15MinLofs        PerfCurrentCount,
        adslAturPerfCurr15MinLoss        PerfCurrentCount,
        adslAturPerfCurr15MinLprs        PerfCurrentCount,
        adslAturPerfCurr15MinESs         PerfCurrentCount,
        adslAturPerfCurr1DayTimeElapsed  AdslPerfTimeElapsed,
        adslAturPerfCurr1DayLofs         AdslPerfCurrDayCount,
        adslAturPerfCurr1DayLoss         AdslPerfCurrDayCount,
        adslAturPerfCurr1DayLprs         AdslPerfCurrDayCount,
        adslAturPerfCurr1DayESs          AdslPerfCurrDayCount,
        adslAturPerfPrev1DayMoniSecs     INTEGER,
        adslAturPerfPrev1DayLofs         AdslPerfPrevDayCount,
        adslAturPerfPrev1DayLoss         AdslPerfPrevDayCount,
        adslAturPerfPrev1DayLprs         AdslPerfPrevDayCount,
        adslAturPerfPrev1DayESs          AdslPerfPrevDayCount
        }

    -- Event (Raw) Counters
    --
    -- Also see adslAturIntervalTable for 15 minute interval
    -- elapsed counters.
    --
    adslAturPerfLofs OBJECT-TYPE
        SYNTAX      Counter32
        UNITS       "seconds"
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "Count of the number of Loss of Framing failures since
            agent reset."
    ::= { adslAturPerfDataEntry 1 }

    adslAturPerfLoss  OBJECT-TYPE
        SYNTAX      Counter32
        UNITS       "seconds"
        MAX-ACCESS  read-only
        STATUS      current
```

```
            DESCRIPTION
                "Count of the number of Loss of Signal failures since
                agent reset."
        ::= { adslAturPerfDataEntry 2 }

       adslAturPerfLprs  OBJECT-TYPE
            SYNTAX      Counter32
            UNITS       "seconds"
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "Count of the number of Loss of Power failures since
                agent reset."
        ::= { adslAturPerfDataEntry 3 }

        adslAturPerfESs  OBJECT-TYPE
            SYNTAX      Counter32
            UNITS       "seconds"
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "Count of the number of Errored Seconds since agent
                reset.  The errored second parameter is a count of
                one-second intervals containing one or more crc
                anomalies, or one or more los or sef defects."
        ::= { adslAturPerfDataEntry 4 }

        -- general 15 min interval information
        --
        adslAturPerfValidIntervals OBJECT-TYPE
            SYNTAX      INTEGER(0..96)
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "The number of previous 15-minute intervals in the
                interval table for which data was collected.  Given
                that <n> is the maximum # of intervals supported.
                The value will be <n> unless the measurement was
                (re-)started within the last (<n>*15) minutes, in which
                case the value will be the number of complete 15
                minute intervals for which the agent has at least
                some data. In certain cases (e.g., in the case
                where the agent is a proxy) it is possible that some
                intervals are unavailable.  In this case, this
                interval is the maximum interval number for
                which data is available."
        ::= { adslAturPerfDataEntry 5 }
```

```
        adslAturPerfInvalidIntervals OBJECT-TYPE
            SYNTAX      INTEGER(0..96)
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "The number of intervals in the range from
                0 to the value of adslAturPerfValidIntervals
                for which no data is available. This object
                will typically be zero except in cases where
                the data for some intervals are not available
                (e.g., in proxy situations)."
        ::= { adslAturPerfDataEntry 6 }

        -- 15 min current performance group
        --
        adslAturPerfCurr15MinTimeElapsed OBJECT-TYPE
            SYNTAX      AdslPerfTimeElapsed(0..899)
            UNITS       "seconds"
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "Total elapsed seconds in this interval."
        ::= { adslAturPerfDataEntry 7 }

        adslAturPerfCurr15MinLofs OBJECT-TYPE
            SYNTAX      PerfCurrentCount
            UNITS       "seconds"
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "Count of seconds in the current 15 minute interval
                when there was Loss of Framing."
        ::= { adslAturPerfDataEntry 8 }

        adslAturPerfCurr15MinLoss  OBJECT-TYPE
            SYNTAX      PerfCurrentCount
            UNITS       "seconds"
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "Count of seconds in the current 15 minute interval
                when there was Loss of Signal."
        ::= { adslAturPerfDataEntry 9 }

        adslAturPerfCurr15MinLprs  OBJECT-TYPE
            SYNTAX      PerfCurrentCount
            UNITS       "seconds"
            MAX-ACCESS  read-only
```

```
            STATUS      current
            DESCRIPTION
                "Count of seconds in the current 15 minute interval
                when there was Loss of Power."
        ::= { adslAturPerfDataEntry 10 }

        adslAturPerfCurr15MinESs OBJECT-TYPE
            SYNTAX      PerfCurrentCount
            UNITS       "seconds"
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
               "Count of Errored Seconds in the current 15 minute
               interval.  The errored second parameter is a count of
               one-second intervals containing one or more crc
               anomalies, or one or more los or sef defects."

        ::= { adslAturPerfDataEntry 11 }

        -- 1-day current and previous performance group
        --
        adslAturPerfCurr1DayTimeElapsed OBJECT-TYPE
            SYNTAX      AdslPerfTimeElapsed(0..86399)
            UNITS       "seconds"
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "Number of seconds that have elapsed since the
                beginning of the current 1-day interval."
        ::= { adslAturPerfDataEntry 12 }

        adslAturPerfCurr1DayLofs  OBJECT-TYPE
            SYNTAX      AdslPerfCurrDayCount
            UNITS       "seconds"
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "Count of the number of seconds when there was Loss
                of Framing during the current day as measured by
                adslAturPerfCurr1DayTimeElapsed."
        ::= { adslAturPerfDataEntry 13 }

        adslAturPerfCurr1DayLoss  OBJECT-TYPE
            SYNTAX      AdslPerfCurrDayCount
            UNITS       "seconds"
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
```

```
                "Count of the number of seconds when there was Loss
                of Signal during the current day as measured by
                adslAturPerfCurr1DayTimeElapsed."
        ::= { adslAturPerfDataEntry 14 }

        adslAturPerfCurr1DayLprs  OBJECT-TYPE
            SYNTAX      AdslPerfCurrDayCount
            UNITS       "seconds"
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "Count of the number of seconds when there was Loss
                of Power during the current day as measured by
                adslAturPerfCurr1DayTimeElapsed."
        ::= { adslAturPerfDataEntry 15 }

    adslAturPerfCurr1DayESs OBJECT-TYPE
            SYNTAX      AdslPerfCurrDayCount
            UNITS       "seconds"
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "Count of Errored Seconds during the current day as
                measured by adslAturPerfCurr1DayTimeElapsed.
                The errored second parameter is a count of
                one-second intervals containing one or more crc
                anomalies, or one or more los or sef defects."
        ::= { adslAturPerfDataEntry 16 }

        adslAturPerfPrev1DayMoniSecs OBJECT-TYPE
            SYNTAX      INTEGER(0..86400)
            UNITS       "seconds"
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "The amount of time in the previous 1-day interval
                over which the performance monitoring information
                is actually counted. This value will be the same as
                the interval duration except in a situation where
                performance monitoring data could not be collected
                for any reason."
        ::= { adslAturPerfDataEntry 17 }

        adslAturPerfPrev1DayLofs  OBJECT-TYPE
            SYNTAX      AdslPerfPrevDayCount
            UNITS       "seconds"
            MAX-ACCESS  read-only
            STATUS      current
```

```
            DESCRIPTION
                "Count of seconds in the interval when there was
                Loss of Framing within the most recent previous
                1-day period."
        ::= { adslAturPerfDataEntry 18 }

        adslAturPerfPrev1DayLoss  OBJECT-TYPE
            SYNTAX      AdslPerfPrevDayCount
            UNITS       "seconds"
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "Count of seconds in the interval when there was
                Loss of Signal within the most recent previous
                1-day period."
        ::= { adslAturPerfDataEntry 19 }

        adslAturPerfPrev1DayLprs  OBJECT-TYPE
            SYNTAX      AdslPerfPrevDayCount
            UNITS       "seconds"
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "Count of seconds in the interval when there was
                Loss of Power within the most recent previous
                1-day period."
        ::= { adslAturPerfDataEntry 20 }

        adslAturPerfPrev1DayESs OBJECT-TYPE
            SYNTAX      AdslPerfPrevDayCount
            UNITS       "seconds"
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "Count of Errored Seconds within the most recent
                previous 1-day period. The errored second parameter is
                a count of one-second intervals containing one or more
                crc anomalies, or one or more los or sef defects."
        ::= { adslAturPerfDataEntry 21 }

        adslAtucIntervalTable   OBJECT-TYPE
            SYNTAX          SEQUENCE OF AdslAtucIntervalEntry
            MAX-ACCESS      not-accessible
            STATUS          current
            DESCRIPTION
                "This table provides one row for each ATUC
                performance data collection interval.
                ADSL physical interfaces are
```

```
            those ifEntries where ifType is equal to adsl(94)."
        ::= { adslMibObjects 8 }

        adslAtucIntervalEntry   OBJECT-TYPE
            SYNTAX          AdslAtucIntervalEntry
            MAX-ACCESS      not-accessible
            STATUS          current
            DESCRIPTION     "An entry in the adslAtucIntervalTable."
            INDEX           { ifIndex, adslAtucIntervalNumber }
        ::= { adslAtucIntervalTable 1 }

        AdslAtucIntervalEntry ::=
            SEQUENCE {
            adslAtucIntervalNumber          INTEGER,
            adslAtucIntervalLofs            PerfIntervalCount,
            adslAtucIntervalLoss            PerfIntervalCount,
            adslAtucIntervalLols            PerfIntervalCount,
            adslAtucIntervalLprs            PerfIntervalCount,
            adslAtucIntervalESs             PerfIntervalCount,
            adslAtucIntervalInits           PerfIntervalCount,
            adslAtucIntervalValidData       TruthValue
            }

        adslAtucIntervalNumber OBJECT-TYPE
            SYNTAX      INTEGER(1..96)
            MAX-ACCESS  not-accessible
            STATUS      current
            DESCRIPTION
                "Performance Data Interval number 1 is the
                the most recent previous interval; interval
                96 is 24 hours ago.  Intervals 2..96 are
                optional."
        ::= { adslAtucIntervalEntry 1 }

        adslAtucIntervalLofs OBJECT-TYPE
            SYNTAX      PerfIntervalCount
            UNITS       "seconds"
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "Count of seconds in the interval when there was Loss
                of Framing."
        ::= { adslAtucIntervalEntry 2 }

        adslAtucIntervalLoss  OBJECT-TYPE
            SYNTAX      PerfIntervalCount
            UNITS       "seconds"
            MAX-ACCESS  read-only
```

```
            STATUS      current
            DESCRIPTION
                "Count of seconds in the interval when there was Loss
                of Signal."
        ::= { adslAtucIntervalEntry 3 }

        adslAtucIntervalLols  OBJECT-TYPE
            SYNTAX      PerfIntervalCount
            UNITS       "seconds"
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "Count of seconds in the interval when there was Loss
                of Link."
        ::= { adslAtucIntervalEntry 4 }

        adslAtucIntervalLprs  OBJECT-TYPE
            SYNTAX      PerfIntervalCount
            UNITS       "seconds"
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "Count of seconds in the interval when there was Loss
                of Power."
        ::= { adslAtucIntervalEntry 5 }

        adslAtucIntervalESs OBJECT-TYPE
            SYNTAX      PerfIntervalCount
            UNITS       "seconds"
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "Count of Errored Seconds in the interval.
                The errored second parameter is a count of
                one-second intervals containing one or more crc
                anomalies, or one or more los or sef defects."
        ::= { adslAtucIntervalEntry 6 }

        adslAtucIntervalInits  OBJECT-TYPE
            SYNTAX      PerfIntervalCount
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "Count of the line initialization attempts
                during the interval. Includes both successful
                and failed attempts."
        ::= { adslAtucIntervalEntry 7 }
```

```
        adslAtucIntervalValidData OBJECT-TYPE
            SYNTAX TruthValue
            MAX-ACCESS read-only
            STATUS current
            DESCRIPTION
                "This variable indicates if the data for this
                interval is valid."
        ::= { adslAtucIntervalEntry 8 }

        adslAturIntervalTable   OBJECT-TYPE
            SYNTAX          SEQUENCE OF AdslAturIntervalEntry
            MAX-ACCESS      not-accessible
            STATUS          current
            DESCRIPTION
                "This table provides one row for each ATUR
                performance data collection interval.
                ADSL physical interfaces are those
                ifEntries where ifType is equal to adsl(94)."
        ::= { adslMibObjects 9 }

        adslAturIntervalEntry   OBJECT-TYPE
            SYNTAX          AdslAturIntervalEntry
            MAX-ACCESS      not-accessible
            STATUS          current
            DESCRIPTION     "An entry in the adslAturIntervalTable."
            INDEX           { ifIndex, adslAturIntervalNumber }
        ::= { adslAturIntervalTable 1 }

        AdslAturIntervalEntry ::=
            SEQUENCE {
            adslAturIntervalNumber          INTEGER,
            adslAturIntervalLofs            PerfIntervalCount,
            adslAturIntervalLoss            PerfIntervalCount,
            adslAturIntervalLprs            PerfIntervalCount,
            adslAturIntervalESs             PerfIntervalCount,
            adslAturIntervalValidData       TruthValue
            }

        adslAturIntervalNumber OBJECT-TYPE
            SYNTAX      INTEGER(1..96)
            MAX-ACCESS  not-accessible
            STATUS      current
            DESCRIPTION
                "Performance Data Interval number 1 is the
                the most recent previous interval; interval
                96 is 24 hours ago.  Intervals 2..96 are
                optional."
        ::= { adslAturIntervalEntry 1 }
```

```
        adslAturIntervalLofs OBJECT-TYPE
            SYNTAX      PerfIntervalCount
            UNITS       "seconds"
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "Count of seconds in the interval when there was
                Loss of Framing."
        ::= { adslAturIntervalEntry 2 }

        adslAturIntervalLoss  OBJECT-TYPE
            SYNTAX      PerfIntervalCount
            UNITS       "seconds"
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "Count of seconds in the interval when there was
                Loss of Signal."
        ::= { adslAturIntervalEntry 3 }

        adslAturIntervalLprs  OBJECT-TYPE
            SYNTAX      PerfIntervalCount
            UNITS       "seconds"
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "Count of seconds in the interval when there was
                Loss of Power."
        ::= { adslAturIntervalEntry 4 }

        adslAturIntervalESs OBJECT-TYPE
            SYNTAX      PerfIntervalCount
            UNITS       "seconds"
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "Count of Errored Seconds in the interval.
                The errored second parameter is a count of
                one-second intervals containing one or more crc
                anomalies, or one or more los or sef defects."
        ::= { adslAturIntervalEntry 5 }

        adslAturIntervalValidData OBJECT-TYPE
            SYNTAX TruthValue
            MAX-ACCESS read-only
            STATUS current
            DESCRIPTION
                "This variable indicates if the data for this
```

```
            interval is valid."
        ::= { adslAturIntervalEntry 6 }

        adslAtucChanPerfDataTable       OBJECT-TYPE
            SYNTAX          SEQUENCE OF AdslAtucChanPerfDataEntry
            MAX-ACCESS      not-accessible
            STATUS          current
            DESCRIPTION
                "This table provides one row for each ATUC channel.
                ADSL channel interfaces are those ifEntries
                where ifType is equal to adslInterleave(124)
                or adslFast(125)."
        ::= { adslMibObjects 10 }

        adslAtucChanPerfDataEntry       OBJECT-TYPE

            SYNTAX          AdslAtucChanPerfDataEntry
            MAX-ACCESS      not-accessible
            STATUS          current
            DESCRIPTION     "An entry in adslAtucChanPerfDataTable."
            INDEX           { ifIndex }
        ::= { adslAtucChanPerfDataTable 1 }

        AdslAtucChanPerfDataEntry ::=
         SEQUENCE {
         adslAtucChanReceivedBlks                Counter32,
         adslAtucChanTransmittedBlks             Counter32,
         adslAtucChanCorrectedBlks               Counter32,
         adslAtucChanUncorrectBlks               Counter32,
         adslAtucChanPerfValidIntervals          INTEGER,
         adslAtucChanPerfInvalidIntervals        INTEGER,
         adslAtucChanPerfCurr15MinTimeElapsed    AdslPerfTimeElapsed,
         adslAtucChanPerfCurr15MinReceivedBlks   PerfCurrentCount,
         adslAtucChanPerfCurr15MinTransmittedBlks PerfCurrentCount,
         adslAtucChanPerfCurr15MinCorrectedBlks  PerfCurrentCount,
         adslAtucChanPerfCurr15MinUncorrectBlks  PerfCurrentCount,
         adslAtucChanPerfCurr1DayTimeElapsed     AdslPerfTimeElapsed,
         adslAtucChanPerfCurr1DayReceivedBlks    AdslPerfCurrDayCount,
         adslAtucChanPerfCurr1DayTransmittedBlks AdslPerfCurrDayCount,
         adslAtucChanPerfCurr1DayCorrectedBlks   AdslPerfCurrDayCount,
         adslAtucChanPerfCurr1DayUncorrectBlks   AdslPerfCurrDayCount,
         adslAtucChanPerfPrev1DayMoniSecs        INTEGER,
         adslAtucChanPerfPrev1DayReceivedBlks    AdslPerfPrevDayCount,
         adslAtucChanPerfPrev1DayTransmittedBlks AdslPerfPrevDayCount,
         adslAtucChanPerfPrev1DayCorrectedBlks   AdslPerfPrevDayCount,
         adslAtucChanPerfPrev1DayUncorrectBlks   AdslPerfPrevDayCount
        }
        -- performance group
```

```
        --
        -- Note: block is intended to be the length of the channel
        --       data-block on which the CRC operates. See
        --       adslAtucChanCrcBlockLength for more information.
        --
        adslAtucChanReceivedBlks OBJECT-TYPE
            SYNTAX      Counter32
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "Count of all encoded blocks received on this channel
                since agent reset."
        ::= { adslAtucChanPerfDataEntry 1 }

        adslAtucChanTransmittedBlks  OBJECT-TYPE
            SYNTAX      Counter32
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "Count of all encoded blocks transmitted on this
                channel since agent reset."
        ::= { adslAtucChanPerfDataEntry 2 }

        adslAtucChanCorrectedBlks  OBJECT-TYPE
            SYNTAX      Counter32
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "Count of all blocks received with errors that were
                corrected since agent reset.  These blocks are passed
                on as good data."
        ::= { adslAtucChanPerfDataEntry 3 }

        adslAtucChanUncorrectBlks  OBJECT-TYPE
            SYNTAX      Counter32
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "Count of all blocks received with uncorrectable
                errors since agent reset."
        ::= { adslAtucChanPerfDataEntry 4 }

        -- general 15 min interval information
        --
        adslAtucChanPerfValidIntervals OBJECT-TYPE
            SYNTAX      INTEGER(0..96)
            MAX-ACCESS  read-only
            STATUS      current
```

```
            DESCRIPTION
                "The number of previous 15-minute intervals in the
                interval table for which data was collected.  Given
                that <n> is the maximum # of intervals supported.
                The value will be <n> unless the measurement was
                (re-)started within the last (<n>*15) minutes, in which
                case the value will be the number of complete 15
                minute intervals for which the agent has at least
                some data. In certain cases (e.g., in the case
                where the agent is a proxy) it is possible that some
                intervals are unavailable.  In this case, this
                interval is the maximum interval number for
                which data is available."
        ::= { adslAtucChanPerfDataEntry 5 }

        adslAtucChanPerfInvalidIntervals OBJECT-TYPE
            SYNTAX      INTEGER(0..96)
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "The number of intervals in the range from
                0 to the value of adslAtucChanPerfValidIntervals
                for which no data is available. This object
                will typically be zero except in cases where
                the data for some intervals are not available
                (e.g., in proxy situations)."
        ::= { adslAtucChanPerfDataEntry 6 }

        -- 15 min current performance group
        --
        adslAtucChanPerfCurr15MinTimeElapsed OBJECT-TYPE
            SYNTAX      AdslPerfTimeElapsed(0..899)
            UNITS       "seconds"
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "Total elapsed seconds in this interval."
        ::= { adslAtucChanPerfDataEntry 7 }

        adslAtucChanPerfCurr15MinReceivedBlks OBJECT-TYPE
            SYNTAX      PerfCurrentCount
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "Count of all encoded blocks received on this channel
                within the current 15 minute interval."
        ::= { adslAtucChanPerfDataEntry 8 }
```

```
        adslAtucChanPerfCurr15MinTransmittedBlks OBJECT-TYPE
            SYNTAX      PerfCurrentCount
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "Count of all encoded blocks transmitted on this
                channel within the current 15 minute interval."
        ::= { adslAtucChanPerfDataEntry 9 }

        adslAtucChanPerfCurr15MinCorrectedBlks  OBJECT-TYPE
            SYNTAX      PerfCurrentCount
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "Count of all blocks received with errors that were
                corrected on this channel within the current 15 minute
                interval."
        ::= { adslAtucChanPerfDataEntry 10 }

        adslAtucChanPerfCurr15MinUncorrectBlks  OBJECT-TYPE
            SYNTAX      PerfCurrentCount
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "Count of all blocks received with uncorrectable
                errors on this channel within the current 15 minute
                interval."
        ::= { adslAtucChanPerfDataEntry 11 }

        -- 1-day current and previous performance group
        --
        adslAtucChanPerfCurr1DayTimeElapsed OBJECT-TYPE
            SYNTAX      AdslPerfTimeElapsed(0..86399)
            UNITS       "seconds"
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "Number of seconds that have elapsed since the
                beginning of the current 1-day interval."
        ::= { adslAtucChanPerfDataEntry 12 }

        adslAtucChanPerfCurr1DayReceivedBlks  OBJECT-TYPE
            SYNTAX      AdslPerfCurrDayCount
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "Count of all encoded blocks received on this
                channel during the current day as measured by
```

```
            adslAtucChanPerfCurr1DayTimeElapsed."
        ::= { adslAtucChanPerfDataEntry 13 }

        adslAtucChanPerfCurr1DayTransmittedBlks  OBJECT-TYPE
            SYNTAX      AdslPerfCurrDayCount
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "Count of all encoded blocks transmitted on this
                channel during the current day as measured by
                adslAtucChanPerfCurr1DayTimeElapsed."
        ::= { adslAtucChanPerfDataEntry 14 }

        adslAtucChanPerfCurr1DayCorrectedBlks  OBJECT-TYPE
            SYNTAX      AdslPerfCurrDayCount
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "Count of all blocks received with errors that were
                corrected on this channel during the current day as
                measured by adslAtucChanPerfCurr1DayTimeElapsed."
        ::= { adslAtucChanPerfDataEntry 15 }

        adslAtucChanPerfCurr1DayUncorrectBlks  OBJECT-TYPE
            SYNTAX      AdslPerfCurrDayCount
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "Count of all blocks received with uncorrectable
                errors on this channel during the current day as
                measured by adslAtucChanPerfCurr1DayTimeElapsed."
        ::= { adslAtucChanPerfDataEntry 16 }

        adslAtucChanPerfPrev1DayMoniSecs OBJECT-TYPE
            SYNTAX      INTEGER(0..86400)
            UNITS       "seconds"
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "The amount of time in the previous 1-day interval
                over which the performance monitoring information
                is actually counted. This value will be the same as
                the interval duration except in a situation where
                performance monitoring data could not be collected
                for any reason."
        ::= { adslAtucChanPerfDataEntry 17 }

        adslAtucChanPerfPrev1DayReceivedBlks  OBJECT-TYPE
```

```
            SYNTAX      AdslPerfPrevDayCount
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "Count of all encoded blocks received on this
                channel within the most recent previous 1-day
                period."
        ::= { adslAtucChanPerfDataEntry 18 }

        adslAtucChanPerfPrev1DayTransmittedBlks  OBJECT-TYPE
            SYNTAX      AdslPerfPrevDayCount
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "Count of all encoded blocks transmitted on this
                channel within the most recent previous 1-day
                period."
        ::= { adslAtucChanPerfDataEntry 19 }

        adslAtucChanPerfPrev1DayCorrectedBlks  OBJECT-TYPE
            SYNTAX      AdslPerfPrevDayCount
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "Count of all blocks received with errors that were
                corrected on this channel within the most recent
                previous 1-day period."
        ::= { adslAtucChanPerfDataEntry 20 }

        adslAtucChanPerfPrev1DayUncorrectBlks  OBJECT-TYPE
            SYNTAX      AdslPerfPrevDayCount
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "Count of all blocks received with uncorrectable
                errors on this channel within the most recent previous
                1-day period."
        ::= { adslAtucChanPerfDataEntry 21 }

        adslAturChanPerfDataTable       OBJECT-TYPE
            SYNTAX          SEQUENCE OF AdslAturChanPerfDataEntry
            MAX-ACCESS      not-accessible
            STATUS          current
            DESCRIPTION
                "This table provides one row for each ATUR channel.
                ADSL channel interfaces are those ifEntries
                where ifType is equal to adslInterleave(124)
                or adslFast(125)."
```

```
        ::= { adslMibObjects 11 }

        adslAturChanPerfDataEntry       OBJECT-TYPE
            SYNTAX          AdslAturChanPerfDataEntry
            MAX-ACCESS      not-accessible
            STATUS          current
            DESCRIPTION     "An entry in adslAturChanPerfDataTable."
            INDEX           { ifIndex }
        ::= { adslAturChanPerfDataTable 1 }

        AdslAturChanPerfDataEntry ::=
         SEQUENCE {
         adslAturChanReceivedBlks                Counter32,
         adslAturChanTransmittedBlks             Counter32,
         adslAturChanCorrectedBlks               Counter32,
         adslAturChanUncorrectBlks               Counter32,
         adslAturChanPerfValidIntervals          INTEGER,
         adslAturChanPerfInvalidIntervals        INTEGER,
         adslAturChanPerfCurr15MinTimeElapsed    AdslPerfTimeElapsed,
         adslAturChanPerfCurr15MinReceivedBlks   PerfCurrentCount,
         adslAturChanPerfCurr15MinTransmittedBlks PerfCurrentCount,
         adslAturChanPerfCurr15MinCorrectedBlks  PerfCurrentCount,
         adslAturChanPerfCurr15MinUncorrectBlks  PerfCurrentCount,
         adslAturChanPerfCurr1DayTimeElapsed     AdslPerfTimeElapsed,
         adslAturChanPerfCurr1DayReceivedBlks    AdslPerfCurrDayCount,
         adslAturChanPerfCurr1DayTransmittedBlks AdslPerfCurrDayCount,
         adslAturChanPerfCurr1DayCorrectedBlks   AdslPerfCurrDayCount,
         adslAturChanPerfCurr1DayUncorrectBlks   AdslPerfCurrDayCount,
         adslAturChanPerfPrev1DayMoniSecs        INTEGER,
         adslAturChanPerfPrev1DayReceivedBlks    AdslPerfPrevDayCount,
         adslAturChanPerfPrev1DayTransmittedBlks AdslPerfPrevDayCount,
         adslAturChanPerfPrev1DayCorrectedBlks   AdslPerfPrevDayCount,
         adslAturChanPerfPrev1DayUncorrectBlks   AdslPerfPrevDayCount
         }
        -- performance group
        --
        -- Note: block is intended to be the length of the channel
        --       data-block on which the CRC operates. See
        --       adslAturChanCrcBlockLength for more information.
        --
        adslAturChanReceivedBlks OBJECT-TYPE
            SYNTAX      Counter32
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "Count of all encoded blocks received on this channel
                since agent reset."
        ::= { adslAturChanPerfDataEntry 1 }
```

```
        adslAturChanTransmittedBlks  OBJECT-TYPE
            SYNTAX      Counter32
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "Count of all encoded blocks transmitted on this
                channel since agent reset."
        ::= { adslAturChanPerfDataEntry 2 }

        adslAturChanCorrectedBlks  OBJECT-TYPE
            SYNTAX      Counter32
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "Count of all blocks received with errors that were
                corrected since agent reset.  These blocks are passed
                on as good data."
        ::= { adslAturChanPerfDataEntry 3 }

        adslAturChanUncorrectBlks  OBJECT-TYPE
            SYNTAX      Counter32
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "Count of all blocks received with uncorrectable
                errors since agent reset."
        ::= { adslAturChanPerfDataEntry 4 }

        -- general 15 min interval information
        --
        adslAturChanPerfValidIntervals OBJECT-TYPE
            SYNTAX      INTEGER(0..96)
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "The number of previous 15-minute intervals in the
                interval table for which data was collected.  Given
                that <n> is the maximum # of intervals supported.
                The value will be <n> unless the measurement was
                (re-)started within the last (<n>*15) minutes, in which
                case the value will be the number of complete 15
                minute intervals for which the agent has at least
                some data. In certain cases (e.g., in the case
                where the agent is a proxy) it is possible that some
                intervals are unavailable.  In this case, this
                interval is the maximum interval number for
                which data is available."
        ::= { adslAturChanPerfDataEntry 5 }
```

```
        adslAturChanPerfInvalidIntervals OBJECT-TYPE
            SYNTAX      INTEGER(0..96)
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "The number of intervals in the range from
                0 to the value of adslAturChanPerfValidIntervals
                for which no data is available. This object
                will typically be zero except in cases where
                the data for some intervals are not available
                (e.g., in proxy situations)."
        ::= { adslAturChanPerfDataEntry 6 }

        -- 15 min current performance group
        --
        adslAturChanPerfCurr15MinTimeElapsed OBJECT-TYPE
            SYNTAX      AdslPerfTimeElapsed(0..899)
            UNITS       "seconds"
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "Total elapsed seconds in this interval.
                A full interval is 900 seconds."
        ::= { adslAturChanPerfDataEntry 7 }

        adslAturChanPerfCurr15MinReceivedBlks OBJECT-TYPE
            SYNTAX      PerfCurrentCount
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "Count of all encoded blocks received on this
                channel within the current 15 minute interval."
        ::= { adslAturChanPerfDataEntry 8 }

        adslAturChanPerfCurr15MinTransmittedBlks OBJECT-TYPE
            SYNTAX      PerfCurrentCount
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "Count of all encoded blocks transmitted on this
                channel within the current 15 minute interval."
        ::= { adslAturChanPerfDataEntry 9 }

        adslAturChanPerfCurr15MinCorrectedBlks  OBJECT-TYPE
            SYNTAX      PerfCurrentCount
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
```

```
            "Count of all blocks received with errors that were
            corrected on this channel within the current 15 minute
            interval."
        ::= { adslAturChanPerfDataEntry 10 }

        adslAturChanPerfCurr15MinUncorrectBlks  OBJECT-TYPE
            SYNTAX      PerfCurrentCount
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "Count of all blocks received with uncorrectable
                errors on this channel within the current 15 minute
                interval."
        ::= { adslAturChanPerfDataEntry 11 }

        -- 1-day current and previous performance group
        --
        adslAturChanPerfCurr1DayTimeElapsed OBJECT-TYPE
            SYNTAX      AdslPerfTimeElapsed(0..86399)
            UNITS       "seconds"
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "Number of seconds that have elapsed since the
                beginning of the current 1-day interval."
        ::= { adslAturChanPerfDataEntry 12 }

        adslAturChanPerfCurr1DayReceivedBlks  OBJECT-TYPE
            SYNTAX      AdslPerfCurrDayCount
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "Count of all encoded blocks received on this
                channel during the current day as measured by
                adslAturChanPerfCurr1DayTimeElapsed."
        ::= { adslAturChanPerfDataEntry 13 }

        adslAturChanPerfCurr1DayTransmittedBlks  OBJECT-TYPE
            SYNTAX      AdslPerfCurrDayCount
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "Count of all encoded blocks transmitted on this
                channel during the current day as measured by
                adslAturChanPerfCurr1DayTimeElapsed."

        ::= { adslAturChanPerfDataEntry 14 }
```

```
        adslAturChanPerfCurr1DayCorrectedBlks  OBJECT-TYPE
            SYNTAX      AdslPerfCurrDayCount
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "Count of all blocks received with errors that were
                corrected on this channel during the current day as
                measured by adslAturChanPerfCurr1DayTimeElapsed."
        ::= { adslAturChanPerfDataEntry 15 }

        adslAturChanPerfCurr1DayUncorrectBlks  OBJECT-TYPE
            SYNTAX      AdslPerfCurrDayCount
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "Count of all blocks received with uncorrectable
                errors on this channel during the current day as
                measured by adslAturChanPerfCurr1DayTimeElapsed."
        ::= { adslAturChanPerfDataEntry 16 }

        adslAturChanPerfPrev1DayMoniSecs OBJECT-TYPE
            SYNTAX      INTEGER(0..86400)
            UNITS       "seconds"
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "The amount of time in the previous 1-day interval
                over which the performance monitoring information
                is actually counted. This value will be the same as
                the interval duration except in a situation where
                performance monitoring data could not be collected
                for any reason."
        ::= { adslAturChanPerfDataEntry 17 }

        adslAturChanPerfPrev1DayReceivedBlks  OBJECT-TYPE
            SYNTAX      AdslPerfPrevDayCount
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "Count of all encoded blocks received on this
                channel within the most recent previous 1-day
                period."
        ::= { adslAturChanPerfDataEntry 18 }

        adslAturChanPerfPrev1DayTransmittedBlks  OBJECT-TYPE
            SYNTAX      AdslPerfPrevDayCount
            MAX-ACCESS  read-only
            STATUS      current
```

```
            DESCRIPTION
                "Count of all encoded blocks transmitted on this
                channel within the most recent previous 1-day
                period."
        ::= { adslAturChanPerfDataEntry 19 }

        adslAturChanPerfPrev1DayCorrectedBlks  OBJECT-TYPE
            SYNTAX      AdslPerfPrevDayCount
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "Count of all blocks received with errors that were
                corrected on this channel within the most recent
                previous 1-day period."
        ::= { adslAturChanPerfDataEntry 20 }

        adslAturChanPerfPrev1DayUncorrectBlks  OBJECT-TYPE
            SYNTAX      AdslPerfPrevDayCount
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "Count of all blocks received with uncorrectable
                errors on this channel within the most recent previous
                1-day period."
        ::= { adslAturChanPerfDataEntry 21 }

        adslAtucChanIntervalTable   OBJECT-TYPE
            SYNTAX          SEQUENCE OF AdslAtucChanIntervalEntry
            MAX-ACCESS      not-accessible
            STATUS          current
            DESCRIPTION
                "This table provides one row for each ATUC channel's
                performance data collection interval.
                ADSL channel interfaces are those ifEntries
                where ifType is equal to adslInterleave(124)
                or adslFast(125)."
        ::= { adslMibObjects 12 }

        adslAtucChanIntervalEntry   OBJECT-TYPE
            SYNTAX          AdslAtucChanIntervalEntry
            MAX-ACCESS      not-accessible
            STATUS          current
            DESCRIPTION     "An entry in the adslAtucIntervalTable."
            INDEX           { ifIndex, adslAtucChanIntervalNumber }
        ::= { adslAtucChanIntervalTable 1 }

        AdslAtucChanIntervalEntry ::=
            SEQUENCE {
```

```
        adslAtucChanIntervalNumber          INTEGER,
        adslAtucChanIntervalReceivedBlks    PerfIntervalCount,
        adslAtucChanIntervalTransmittedBlks PerfIntervalCount,
        adslAtucChanIntervalCorrectedBlks   PerfIntervalCount,
        adslAtucChanIntervalUncorrectBlks   PerfIntervalCount,
        adslAtucChanIntervalValidData       TruthValue
        }
    adslAtucChanIntervalNumber OBJECT-TYPE
        SYNTAX      INTEGER(1..96)
        MAX-ACCESS  not-accessible
        STATUS      current
        DESCRIPTION
            "Performance Data Interval number 1 is the
            the most recent previous interval; interval
            96 is 24 hours ago.  Intervals 2..96 are
            optional."
    ::= { adslAtucChanIntervalEntry 1 }

    adslAtucChanIntervalReceivedBlks OBJECT-TYPE
        SYNTAX      PerfIntervalCount
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "Count of all encoded blocks received on this channel
            during this interval."
    ::= { adslAtucChanIntervalEntry 2 }

    adslAtucChanIntervalTransmittedBlks  OBJECT-TYPE
        SYNTAX      PerfIntervalCount
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "Count of all encoded blocks transmitted on this
            channel during this interval."
    ::= { adslAtucChanIntervalEntry 3 }

    adslAtucChanIntervalCorrectedBlks  OBJECT-TYPE
        SYNTAX      PerfIntervalCount
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "Count of all blocks received with errors that were
            corrected on this channel during this interval."
    ::= { adslAtucChanIntervalEntry 4 }

    adslAtucChanIntervalUncorrectBlks  OBJECT-TYPE
        SYNTAX      PerfIntervalCount
        MAX-ACCESS  read-only
```

```
            STATUS      current
            DESCRIPTION
                "Count of all blocks received with uncorrectable
                errors on this channel during this interval."
        ::= { adslAtucChanIntervalEntry 5 }

        adslAtucChanIntervalValidData OBJECT-TYPE
            SYNTAX TruthValue
            MAX-ACCESS read-only
            STATUS current
            DESCRIPTION
                "This variable indicates if the data for this
                interval is valid."
        ::= { adslAtucChanIntervalEntry 6 }

        adslAturChanIntervalTable   OBJECT-TYPE
            SYNTAX          SEQUENCE OF AdslAturChanIntervalEntry
            MAX-ACCESS      not-accessible
            STATUS          current
            DESCRIPTION
                "This table provides one row for each ATUR channel's
                performance data collection interval.
                ADSL channel interfaces are those ifEntries
                where ifType is equal to adslInterleave(124)
                or adslFast(125)."
        ::= { adslMibObjects 13 }

        adslAturChanIntervalEntry   OBJECT-TYPE
            SYNTAX          AdslAturChanIntervalEntry
            MAX-ACCESS      not-accessible
            STATUS          current
            DESCRIPTION     "An entry in the adslAturIntervalTable."
            INDEX           { ifIndex, adslAturChanIntervalNumber }
        ::= { adslAturChanIntervalTable 1 }

        AdslAturChanIntervalEntry ::=
            SEQUENCE {
            adslAturChanIntervalNumber              INTEGER,
            adslAturChanIntervalReceivedBlks        PerfIntervalCount,
            adslAturChanIntervalTransmittedBlks     PerfIntervalCount,
            adslAturChanIntervalCorrectedBlks       PerfIntervalCount,
            adslAturChanIntervalUncorrectBlks       PerfIntervalCount,
            adslAturChanIntervalValidData           TruthValue
            }
        adslAturChanIntervalNumber OBJECT-TYPE
            SYNTAX      INTEGER(1..96)
            MAX-ACCESS  not-accessible
            STATUS      current
```

```
            DESCRIPTION
                "Performance Data Interval number 1 is the
                the most recent previous interval; interval
                96 is 24 hours ago.  Intervals 2..96 are
                optional."
        ::= { adslAturChanIntervalEntry 1 }

        adslAturChanIntervalReceivedBlks OBJECT-TYPE
            SYNTAX      PerfIntervalCount
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "Count of all encoded blocks received on this channel
                during this interval."
        ::= { adslAturChanIntervalEntry 2 }

        adslAturChanIntervalTransmittedBlks  OBJECT-TYPE
            SYNTAX      PerfIntervalCount
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "Count of all encoded blocks transmitted on this
                channel during this interval."
        ::= { adslAturChanIntervalEntry 3 }

        adslAturChanIntervalCorrectedBlks  OBJECT-TYPE
            SYNTAX      PerfIntervalCount
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "Count of all blocks received with errors that were
                corrected on this channel during this interval."
        ::= { adslAturChanIntervalEntry 4 }

        adslAturChanIntervalUncorrectBlks  OBJECT-TYPE
            SYNTAX      PerfIntervalCount
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "Count of all blocks received with uncorrectable
                errors on this channel during this interval."
        ::= { adslAturChanIntervalEntry 5 }

        adslAturChanIntervalValidData OBJECT-TYPE
            SYNTAX TruthValue
            MAX-ACCESS read-only
            STATUS current
            DESCRIPTION
```

```
            "This variable indicates if the data for this
            interval is valid."
        ::= { adslAturChanIntervalEntry 6 }

        -- Profile Group
        --

        adslLineConfProfileTable    OBJECT-TYPE
            SYNTAX          SEQUENCE OF AdslLineConfProfileEntry
            MAX-ACCESS      not-accessible
            STATUS          current
            DESCRIPTION
                "This table contains information on the ADSL line
                configuration.  One entry in this table reflects a
                profile defined by a manager which can be used to
                configure the ADSL line."
        ::= { adslMibObjects 14}

        adslLineConfProfileEntry    OBJECT-TYPE
            SYNTAX          AdslLineConfProfileEntry
            MAX-ACCESS      not-accessible
            STATUS          current
            DESCRIPTION
                "Each entry consists of a list of parameters that
                represents the configuration of an ADSL modem.

                When 'dynamic' profiles are implemented, a default
                profile will always exist.  This profile's name will
                be set to 'DEFVAL' and its parameters will be set
                to vendor specific values, unless otherwise specified
                in this document.

                When 'static' profiles are implemented, profiles
                are automaticly created or destroyed as ADSL
                physical lines are discovered and removed by
                the system.  The name of the profile will be
                equivalent to the decimal value of the line's
                interface index.
                "
            INDEX { IMPLIED adslLineConfProfileName}
        ::= { adslLineConfProfileTable 1}

        AdslLineConfProfileEntry ::=
            SEQUENCE {
            adslLineConfProfileName              SnmpAdminString,
            adslAtucConfRateMode                 INTEGER,
            adslAtucConfRateChanRatio            INTEGER,
            adslAtucConfTargetSnrMgn             INTEGER,
```

```
        adslAtucConfMaxSnrMgn                 INTEGER,
        adslAtucConfMinSnrMgn                 INTEGER,
        adslAtucConfDownshiftSnrMgn           INTEGER,
        adslAtucConfUpshiftSnrMgn             INTEGER,
        adslAtucConfMinUpshiftTime            INTEGER,
        adslAtucConfMinDownshiftTime          INTEGER,
        adslAtucChanConfFastMinTxRate         Unsigned32,
        adslAtucChanConfInterleaveMinTxRate   Unsigned32,
        adslAtucChanConfFastMaxTxRate         Unsigned32,
        adslAtucChanConfInterleaveMaxTxRate   Unsigned32,
        adslAtucChanConfMaxInterleaveDelay    INTEGER,
        adslAturConfRateMode                  INTEGER,
        adslAturConfRateChanRatio             INTEGER,
        adslAturConfTargetSnrMgn              INTEGER,
        adslAturConfMaxSnrMgn                 INTEGER,
        adslAturConfMinSnrMgn                 INTEGER,
        adslAturConfDownshiftSnrMgn           INTEGER,
        adslAturConfUpshiftSnrMgn             INTEGER,
        adslAturConfMinUpshiftTime            INTEGER,
        adslAturConfMinDownshiftTime          INTEGER,
        adslAturChanConfFastMinTxRate         Unsigned32,
        adslAturChanConfInterleaveMinTxRate   Unsigned32,
        adslAturChanConfFastMaxTxRate         Unsigned32,
        adslAturChanConfInterleaveMaxTxRate   Unsigned32,
        adslAturChanConfMaxInterleaveDelay    INTEGER,
        adslLineConfProfileRowStatus          RowStatus
    }

    adslLineConfProfileName    OBJECT-TYPE
            SYNTAX          SnmpAdminString (SIZE (1..32))
            MAX-ACCESS      not-accessible
            STATUS          current
            DESCRIPTION
            "This object is used by the line configuration table
            in order to identify a row of this table.

            When 'dynamic' profiles are implemented, the profile
            name is user specified.  Also, the system will always
            provide a default profile whose name is 'DEFVAL'.

            When 'static' profiles are implemented, there is an
            one-to-one relationship between each line and its
            profile.  In which case, the profile name will
            need to algorithmicly represent the Line's ifIndex.
            Therefore, the profile's name is a decimalized string
            of the ifIndex that is fixed-length (i.e., 10) with
            leading zero(s).  For example, the profile name for
            ifIndex which equals '15' will be '0000000015'."
```

```
        ::= { adslLineConfProfileEntry 1 }

        adslAtucConfRateMode OBJECT-TYPE
            SYNTAX      INTEGER {
                fixed (1),              -- no rate adaptation
                adaptAtStartup (2),     -- perform rate adaptation
                                        -- only at initialization
                adaptAtRuntime (3)      -- perform rate adaptation at
                                        -- any time
            }
            MAX-ACCESS  read-create
            STATUS      current
            DESCRIPTION
                "Defines what form of transmit rate adaptation is
                configured on this modem.  See ADSL Forum TR-005 [3]
                for more information."
        ::= { adslLineConfProfileEntry 2 }

        adslAtucConfRateChanRatio OBJECT-TYPE
            SYNTAX      INTEGER(0..100)
            UNITS        "%"
            MAX-ACCESS  read-create
            STATUS      current
            DESCRIPTION
                "Configured allocation ratio of excess transmit
                bandwidth between fast and interleaved channels.  Only
                applies when two channel mode and RADSL are supported.
                Distribute bandwidth on each channel in excess of the
                corresponding ChanConfMinTxRate so that:
                adslAtucConfRateChanRatio =

                        [Fast / (Fast + Interleaved)] * 100

                In other words this value is the fast channel
                percentage."
        ::= { adslLineConfProfileEntry 3 }

      adslAtucConfTargetSnrMgn OBJECT-TYPE
            SYNTAX      INTEGER (0..310)
            UNITS       "tenth dB"
            MAX-ACCESS  read-create
            STATUS      current
            DESCRIPTION
                "Configured Target Signal/Noise Margin.
                This is the Noise Margin the modem must achieve
                with a BER of 10-7 or better to successfully complete
                initialization."
        ::= { adslLineConfProfileEntry 4 }
```

```
    adslAtucConfMaxSnrMgn OBJECT-TYPE
          SYNTAX      INTEGER (0..310)
          UNITS       "tenth dB"
          MAX-ACCESS  read-create
          STATUS      current
          DESCRIPTION
              "Configured Maximum acceptable Signal/Noise Margin.
              If the Noise Margin is above this the modem should
              attempt to reduce its power output to optimize its
              operation."
      ::= { adslLineConfProfileEntry 5 }

      adslAtucConfMinSnrMgn  OBJECT-TYPE
          SYNTAX      INTEGER (0..310)
          UNITS       "tenth dB"
          MAX-ACCESS  read-create
          STATUS      current
          DESCRIPTION
              "Configured Minimum acceptable Signal/Noise Margin.
              If the noise margin falls below this level, the modem
              should attempt to increase its power output.  If that
              is not possible the modem will attempt to
              re-initialize or shut down."
      ::= { adslLineConfProfileEntry 6 }

      adslAtucConfDownshiftSnrMgn  OBJECT-TYPE
          SYNTAX      INTEGER (0..310)
          UNITS       "tenth dB"
          MAX-ACCESS  read-create
          STATUS      current
          DESCRIPTION
              "Configured Signal/Noise Margin for rate downshift.
              If the noise margin falls below this level, the modem
              should attempt to decrease its transmit rate.  In
              the case that RADSL mode is not present,
              the value will be '0'."
      ::= { adslLineConfProfileEntry 7 }

      adslAtucConfUpshiftSnrMgn  OBJECT-TYPE
          SYNTAX      INTEGER (0..310)
          UNITS       "tenth dB"
          MAX-ACCESS  read-create
          STATUS      current
          DESCRIPTION
              "Configured Signal/Noise Margin for rate upshift.
              If the noise margin rises above this level, the modem
              should attempt to increase its transmit rate.    In
              the case that RADSL is not present, the value will
```

```
            be '0'."
        ::= { adslLineConfProfileEntry 8 }

        adslAtucConfMinUpshiftTime OBJECT-TYPE
            SYNTAX      INTEGER(0..16383)
            UNITS       "seconds"
            MAX-ACCESS  read-create
            STATUS      current
            DESCRIPTION
                "Minimum time that the current margin is above
                UpshiftSnrMgn before an upshift occurs.
                In the case that RADSL is not present, the value will
                be '0'."
        ::= { adslLineConfProfileEntry 9 }
       adslAtucConfMinDownshiftTime OBJECT-TYPE
            SYNTAX      INTEGER(0..16383)
            UNITS       "seconds"
            MAX-ACCESS  read-create
            STATUS      current
            DESCRIPTION
                "Minimum time that the current margin is below
                DownshiftSnrMgn before a downshift occurs.
                In the case that RADSL mode is not present,
                the value will be '0'."
        ::= { adslLineConfProfileEntry 10 }

        adslAtucChanConfFastMinTxRate  OBJECT-TYPE
            SYNTAX      Unsigned32
            UNITS       "bps"
            MAX-ACCESS  read-create
            STATUS      current
            DESCRIPTION
                "Configured Minimum Transmit rate for 'Fast' channels,
                in bps.  See adslAtucConfRateChanRatio for information
                regarding RADSL mode and ATUR transmit rate for
                ATUC receive rates."
        ::= { adslLineConfProfileEntry 11 }

        adslAtucChanConfInterleaveMinTxRate OBJECT-TYPE
            SYNTAX      Unsigned32
            UNITS       "bps"
            MAX-ACCESS  read-create
            STATUS      current
            DESCRIPTION
                "Configured Minimum Transmit rate for 'Interleave'
                channels, in bps.  See adslAtucConfRateChanRatio for
                information regarding RADSL mode and see
                ATUR transmit rate for receive rates."
```

```
        ::= { adslLineConfProfileEntry 12 }

        adslAtucChanConfFastMaxTxRate  OBJECT-TYPE
            SYNTAX      Unsigned32
            UNITS       "bps"
            MAX-ACCESS  read-create
            STATUS      current
            DESCRIPTION
                "Configured Maximum Transmit rate for 'Fast' channels,
                in bps.  See adslAtucConfRateChanRatio for information
                regarding RADSL mode and see ATUR transmit rate for
                ATUC receive rates."
        ::= { adslLineConfProfileEntry 13 }

        adslAtucChanConfInterleaveMaxTxRate OBJECT-TYPE
            SYNTAX      Unsigned32
            UNITS       "bps"
            MAX-ACCESS  read-create
            STATUS      current
            DESCRIPTION
                "Configured Maximum Transmit rate for 'Interleave'
                channels, in bps.  See adslAtucConfRateChanRatio for
                information regarding RADSL mode and ATUR transmit
                rate for ATUC receive rates."
        ::= { adslLineConfProfileEntry 14 }

        adslAtucChanConfMaxInterleaveDelay OBJECT-TYPE
            SYNTAX      INTEGER(0..255)
            UNITS        "milli-seconds"
            MAX-ACCESS  read-create
            STATUS      current
            DESCRIPTION
                "Configured maximum Interleave Delay for this channel.

                Interleave delay applies only to the interleave channel
                and defines the mapping (relative spacing) between
                subsequent input bytes at the interleaver input and
                their placement in the bit stream at the interleaver
                output.  Larger numbers provide greater separation
                between consecutive input bytes in the output bit
                stream allowing for improved impulse noise immunity
                at the expense of payload latency."
        ::= { adslLineConfProfileEntry 15 }

        adslAturConfRateMode OBJECT-TYPE
            SYNTAX      INTEGER {
                fixed (1),              -- no rate adaptation
                adaptAtStartup (2),     -- perform rate adaptation
```

```
                                        -- only at initialization
                adaptAtRuntime (3)      -- perform rate adaptation at
                                        -- any time
            }
            MAX-ACCESS  read-create
            STATUS      current
            DESCRIPTION
                "Defines what form of transmit rate adaptation is
                configured on this modem.  See ADSL Forum TR-005 [3]
                for more information."
        ::= { adslLineConfProfileEntry 16 }

        adslAturConfRateChanRatio OBJECT-TYPE
            SYNTAX      INTEGER(0..100)
            UNITS        "%"
            MAX-ACCESS  read-create
            STATUS      current
            DESCRIPTION
                "Configured allocation ratio of excess transmit
                bandwidth between fast and interleaved channels.  Only
                applies when two channel mode and RADSL are supported.
                Distribute bandwidth on each channel in excess of the
                corresponding ChanConfMinTxRate so that:
                adslAturConfRateChanRatio =

                        [Fast / (Fast + Interleaved)] * 100

                In other words this value is the fast channel
                percentage."
        ::= { adslLineConfProfileEntry 17 }

    adslAturConfTargetSnrMgn OBJECT-TYPE
          SYNTAX      INTEGER (0..310)
          UNITS       "tenth dB"
          MAX-ACCESS  read-create
          STATUS      current
          DESCRIPTION
              "Configured Target Signal/Noise Margin.
              This is the Noise Margin the modem must achieve
              with a BER of 10-7 or better to successfully complete
              initialization."
        ::= { adslLineConfProfileEntry 18 }

    adslAturConfMaxSnrMgn OBJECT-TYPE
          SYNTAX      INTEGER (0..310)
          UNITS       "tenth dB"
          MAX-ACCESS  read-create
          STATUS      current
```

```
            DESCRIPTION
                "Configured Maximum acceptable Signal/Noise Margin.
                If the Noise Margin is above this the modem should
                attempt to reduce its power output to optimize its
                operation."
        ::= { adslLineConfProfileEntry 19 }

        adslAturConfMinSnrMgn  OBJECT-TYPE
            SYNTAX      INTEGER (0..310)
            UNITS       "tenth dB"
            MAX-ACCESS  read-create
            STATUS      current
            DESCRIPTION
                "Configured Minimum acceptable Signal/Noise Margin.
                If the noise margin falls below this level, the modem
                should attempt to increase its power output.  If that
                is not possible the modem will attempt to
                re-initialize or shut down."
        ::= { adslLineConfProfileEntry 20 }

        adslAturConfDownshiftSnrMgn  OBJECT-TYPE
            SYNTAX      INTEGER (0..310)
            UNITS       "tenth dB"
            MAX-ACCESS  read-create
            STATUS      current
            DESCRIPTION
                "Configured Signal/Noise Margin for rate downshift.
                If the noise margin falls below this level, the modem
                should attempt to decrease its transmit rate.
                In the case that RADSL mode is not present,
                the value will be '0'."
        ::= { adslLineConfProfileEntry 21 }

        adslAturConfUpshiftSnrMgn  OBJECT-TYPE
            SYNTAX      INTEGER (0..310)
            UNITS       "tenth dB"
            MAX-ACCESS  read-create
            STATUS      current
            DESCRIPTION
                "Configured Signal/Noise Margin for rate upshift.
                If the noise margin rises above this level, the modem
                should attempt to increase its transmit rate.
                In the case that RADSL is not present,
                the value will be '0'."
        ::= { adslLineConfProfileEntry 22 }

        adslAturConfMinUpshiftTime OBJECT-TYPE
            SYNTAX      INTEGER(0..16383)
```

```
            UNITS       "seconds"
            MAX-ACCESS  read-create
            STATUS      current
            DESCRIPTION
                "Minimum time that the current margin is above
                UpshiftSnrMgn before an upshift occurs.
                In the case that RADSL is not present, the value will
                be '0'."
        ::= { adslLineConfProfileEntry 23 }

        adslAturConfMinDownshiftTime OBJECT-TYPE
            SYNTAX      INTEGER(0..16383)
            UNITS       "seconds"
            MAX-ACCESS  read-create
            STATUS      current
            DESCRIPTION
                "Minimum time that the current margin is below
                DownshiftSnrMgn before a downshift occurs.
                In the case that RADSL mode is not present,
                the value will be '0'."
        ::= { adslLineConfProfileEntry 24 }

        adslAturChanConfFastMinTxRate  OBJECT-TYPE
            SYNTAX      Unsigned32
            UNITS       "bps"
            MAX-ACCESS  read-create
            STATUS      current
            DESCRIPTION
                "Configured Minimum Transmit rate for 'Fast' channels,
                in bps.  See adslAturConfRateChanRatio for information
                regarding RADSL mode and ATUC transmit rate
                for ATUR receive rates."
        ::= { adslLineConfProfileEntry 25 }

        adslAturChanConfInterleaveMinTxRate OBJECT-TYPE
            SYNTAX      Unsigned32
            UNITS       "bps"
            MAX-ACCESS  read-create
            STATUS      current
            DESCRIPTION
                "Configured Minimum Transmit rate for 'Interleave'
                channels, in bps.  See adslAturConfRateChanRatio for
                information regarding RADSL mode and ATUC transmit rate
                for ATUR receive rates."
        ::= { adslLineConfProfileEntry 26 }

        adslAturChanConfFastMaxTxRate  OBJECT-TYPE
            SYNTAX      Unsigned32
```

```
            UNITS       "bps"
            MAX-ACCESS  read-create
            STATUS      current
            DESCRIPTION
                "Configured Maximum Transmit rate for 'Fast' channels,
                in bps.  See adslAturConfRateChanRatio for information
                regarding RADSL mode and ATUC transmit rate
                for ATUR receive rates."
        ::= { adslLineConfProfileEntry 27 }

        adslAturChanConfInterleaveMaxTxRate OBJECT-TYPE
            SYNTAX      Unsigned32
            UNITS       "bps"
            MAX-ACCESS  read-create
            STATUS      current
            DESCRIPTION
                "Configured Maximum Transmit rate for 'Interleave'
                channels, in bps.  See adslAturConfRateChanRatio for
                information regarding RADSL mode and see
                ATUC transmit rate for ATUR receive rates."
        ::= { adslLineConfProfileEntry 28 }

        adslAturChanConfMaxInterleaveDelay OBJECT-TYPE
            SYNTAX      INTEGER(0..255)
            UNITS        "milli-seconds"
            MAX-ACCESS  read-create
            STATUS      current
            DESCRIPTION
                "Configured maximum Interleave Delay for this channel.

                Interleave delay applies only to the interleave channel
                and defines the mapping (relative spacing) between
                subsequent input bytes at the interleaver input and
                their placement in the bit stream at the interleaver
                output.  Larger numbers provide greater separation
                between consecutive input bytes in the output bit
                stream allowing for improved impulse noise immunity
                at the expense of payload latency."
        ::= { adslLineConfProfileEntry 29 }

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

```
            A profile activated by setting this object to
            'active'.  When 'active' is set, the system
            will validate the profile.

            Before a profile can be deleted or taken out of
            service, (by setting this object to 'destroy' or
            'outOfService') it must be first unreferenced
            from all associated lines.

            If the implementator of this MIB has chosen not
            to implement 'dynamic assignment' of profiles, this
            object's MIN-ACCESS is read-only and its value
            is always to be 'active'."
        ::= { adslLineConfProfileEntry 30 }

        adslLineAlarmConfProfileTable    OBJECT-TYPE
            SYNTAX          SEQUENCE OF AdslLineAlarmConfProfileEntry
            MAX-ACCESS      not-accessible
            STATUS          current
            DESCRIPTION
                "This table contains information on the ADSL line
                configuration.  One entry in this table reflects a
                profile defined by a manager which can be used to
                configure the modem for a physical line"
        ::= { adslMibObjects 15}

        adslLineAlarmConfProfileEntry    OBJECT-TYPE
            SYNTAX          AdslLineAlarmConfProfileEntry
            MAX-ACCESS      not-accessible
            STATUS          current
            DESCRIPTION
                "Each entry consists of a list of parameters that
                represents the configuration of an ADSL modem.

                When 'dynamic' profiles are implemented, a default
                profile will always exist.  This profile's name will
                be set to 'DEFVAL' and its parameters will be set to
                vendor specific values, unless otherwise specified
                in this document.

                When 'static' profiles are implemented, profiles
                are automaticly created or destroyed as ADSL
                physical lines are discovered and removed by
                the system.  The name of the profile will be
                equivalent to the decimal value of the line's
                interface index.
                "
            INDEX { IMPLIED adslLineAlarmConfProfileName}
```

```
::= { adslLineAlarmConfProfileTable 1}

AdslLineAlarmConfProfileEntry ::=
    SEQUENCE {
    adslLineAlarmConfProfileName          SnmpAdminString,
    adslAtucThresh15MinLofs               INTEGER,
    adslAtucThresh15MinLoss               INTEGER,
    adslAtucThresh15MinLols               INTEGER,
    adslAtucThresh15MinLprs               INTEGER,
    adslAtucThresh15MinESs                INTEGER,
    adslAtucThreshFastRateUp              Unsigned32,
    adslAtucThreshInterleaveRateUp        Unsigned32,
    adslAtucThreshFastRateDown            Unsigned32,
    adslAtucThreshInterleaveRateDown      Unsigned32,
    adslAtucInitFailureTrapEnable         INTEGER,
    adslAturThresh15MinLofs               INTEGER,
    adslAturThresh15MinLoss               INTEGER,
    adslAturThresh15MinLprs               INTEGER,
    adslAturThresh15MinESs                INTEGER,
    adslAturThreshFastRateUp              Unsigned32,
    adslAturThreshInterleaveRateUp        Unsigned32,
    adslAturThreshFastRateDown            Unsigned32,
    adslAturThreshInterleaveRateDown      Unsigned32,
    adslLineAlarmConfProfileRowStatus     RowStatus
    }

adslLineAlarmConfProfileName    OBJECT-TYPE
    SYNTAX          SnmpAdminString (SIZE (1..32))
    MAX-ACCESS      not-accessible
    STATUS          current
    DESCRIPTION
        "This object is used by the line alarm configuration
        table in order to identify a row of this table.

        When 'dynamic' profiles are implemented, the profile
        name is user specified.  Also, the system will always
        provide a default profile whose name is 'DEFVAL'.

        When 'static' profiles are implemented, there is an
        one-to-one relationship between each line and its
        profile.  In which case, the profile name will
        need to algorithmicly represent the Line's ifIndex.
        Therefore, the profile's name is a decimalized string
        of the ifIndex that is fixed-length (i.e., 10) with
        leading zero(s).  For example, the profile name for
        ifIndex which equals '15' will be '0000000015'."
::= { adslLineAlarmConfProfileEntry 1}
```

```
        adslAtucThresh15MinLofs OBJECT-TYPE
            SYNTAX      INTEGER(0..900)
            UNITS       "seconds"
            MAX-ACCESS  read-create
            STATUS      current
            DESCRIPTION
                "The number of Loss of Frame Seconds
                encountered by an ADSL interface within any given 15
                minutes performance data collection period, which
                causes the SNMP agent to send an
                adslAtucPerfLofsThreshTrap.
                One trap will be sent per interval per interface.
                A value of '0' will disable the trap."
        ::= { adslLineAlarmConfProfileEntry 2}

        adslAtucThresh15MinLoss  OBJECT-TYPE
            SYNTAX      INTEGER(0..900)
            UNITS       "seconds"
            MAX-ACCESS  read-create
            STATUS      current
            DESCRIPTION
                "The number of Loss of Signal Seconds
                encountered by an ADSL interface within any given 15
                minutes performance data collection period, which
                causes the SNMP agent to send an
                adslAtucPerfLossThreshTrap.
                One trap will be sent per interval per interface.
                A value of '0' will disable the trap."
        ::= { adslLineAlarmConfProfileEntry 3}

        adslAtucThresh15MinLols  OBJECT-TYPE
            SYNTAX      INTEGER(0..900)
            UNITS       "seconds"
            MAX-ACCESS  read-create
            STATUS      current
            DESCRIPTION
                "The number of Loss of Link Seconds
                encountered by an ADSL interface within any given 15
                minutes performance data collection period, which
                causes the SNMP agent to send an
                adslAtucPerfLolsThreshTrap.
                One trap will be sent per interval per interface.
                A value of '0' will disable the trap."
        ::= { adslLineAlarmConfProfileEntry 4}

        adslAtucThresh15MinLprs  OBJECT-TYPE
            SYNTAX      INTEGER(0..900)
            UNITS       "seconds"
```

```
            MAX-ACCESS  read-create
            STATUS      current
            DESCRIPTION
                "The number of Loss of Power Seconds
                encountered by an ADSL interface within any given 15
                minutes performance data collection period, which
                causes the SNMP agent to send an
                adslAtucPerfLprsThreshTrap.
                One trap will be sent per interval per interface.
                A value of '0' will disable the trap."
        ::= { adslLineAlarmConfProfileEntry 5}

        adslAtucThresh15MinESs  OBJECT-TYPE
            SYNTAX      INTEGER(0..900)
            UNITS       "seconds"
            MAX-ACCESS  read-create
            STATUS      current
            DESCRIPTION
                "The number of Errored Seconds
                encountered by an ADSL interface within any given 15
                minutes performance data collection period, which
                causes the SNMP agent to send an
                adslAtucPerfESsThreshTrap.
                One trap will be sent per interval per interface.
                A value of '0' will disable the trap."
        ::= { adslLineAlarmConfProfileEntry 6}

        adslAtucThreshFastRateUp OBJECT-TYPE
            SYNTAX      Unsigned32
            UNITS       "bps"
            MAX-ACCESS  read-create
            STATUS      current
            DESCRIPTION
                "Applies to 'Fast' channels only.
                Configured change in rate causing an
                adslAtucRateChangeTrap. A trap is produced when:
                ChanCurrTxRate >= ChanPrevTxRate plus the value of
                this object. A value of '0' will disable the trap."
        ::= { adslLineAlarmConfProfileEntry 7}

        adslAtucThreshInterleaveRateUp OBJECT-TYPE
            SYNTAX      Unsigned32
            UNITS       "bps"
            MAX-ACCESS  read-create
            STATUS      current
            DESCRIPTION
                "Applies to 'Interleave' channels only.
                Configured change in rate causing an
```

```
            adslAtucRateChangeTrap.  A trap is produced when:
            ChanCurrTxRate >= ChanPrevTxRate plus the value of
            this object. A value of '0' will disable the trap."
        ::= { adslLineAlarmConfProfileEntry 8}

        adslAtucThreshFastRateDown OBJECT-TYPE
            SYNTAX      Unsigned32
            UNITS       "bps"
            MAX-ACCESS  read-create
            STATUS      current
            DESCRIPTION
                "Applies to 'Fast' channels only.
                Configured change in rate causing an
                adslAtucRateChangeTrap.  A trap is produced when:
                ChanCurrTxRate <= ChanPrevTxRate minus the value of
                this object. A value of '0' will disable the trap."
        ::= { adslLineAlarmConfProfileEntry 9 }

        adslAtucThreshInterleaveRateDown OBJECT-TYPE
            SYNTAX      Unsigned32
            UNITS       "bps"
            MAX-ACCESS  read-create
            STATUS      current
            DESCRIPTION
                "Applies to 'Interleave' channels only.
                Configured change in rate causing an
                adslAtucRateChangeTrap.  A trap is produced when:
                ChanCurrTxRate <= ChanPrevTxRate minus the value of
                this object. A value of '0' will disable the trap."
        ::= { adslLineAlarmConfProfileEntry 10 }

        adslAtucInitFailureTrapEnable OBJECT-TYPE
            SYNTAX      INTEGER {
                enable (1),
                disable (2)
            }
            MAX-ACCESS  read-create
            STATUS      current
            DESCRIPTION
                "Enables and disables the InitFailureTrap.  This
                object is defaulted disable(2)."
        DEFVAL { disable }
        ::= { adslLineAlarmConfProfileEntry 11 }

        adslAturThresh15MinLofs OBJECT-TYPE
            SYNTAX      INTEGER(0..900)
            UNITS       "seconds"
            MAX-ACCESS  read-create
```

```
            STATUS      current
            DESCRIPTION
                "The number of Loss of Frame Seconds
                encountered by an ADSL interface within any given 15
                minutes performance data collection period, which
                causes the SNMP agent to send an
                adslAturPerfLofsThreshTrap.
                One trap will be sent per interval per interface.
                A value of '0' will disable the trap."
        ::= { adslLineAlarmConfProfileEntry 12 }

        adslAturThresh15MinLoss  OBJECT-TYPE
            SYNTAX      INTEGER(0..900)
            UNITS       "seconds"
            MAX-ACCESS  read-create
            STATUS      current
            DESCRIPTION
                "The number of Loss of Signal Seconds
                encountered by an ADSL interface within any given 15
                minutes performance data collection period, which
                causes the SNMP agent to send an
                adslAturPerfLossThreshTrap.
                One trap will be sent per interval per interface.
                A value of '0' will disable the trap."
        ::= { adslLineAlarmConfProfileEntry 13 }

        adslAturThresh15MinLprs  OBJECT-TYPE
            SYNTAX      INTEGER(0..900)
            UNITS       "seconds"
            MAX-ACCESS  read-create
            STATUS      current
            DESCRIPTION
                "The number of Loss of Power Seconds
                encountered by an ADSL interface within any given 15
                minutes performance data collection period, which
                causes the SNMP agent to send an
                adslAturPerfLprsThreshTrap.
                One trap will be sent per interval per interface.
                A value of '0' will disable the trap."
        ::= { adslLineAlarmConfProfileEntry 14 }

        adslAturThresh15MinESs  OBJECT-TYPE
            SYNTAX      INTEGER(0..900)
            UNITS       "seconds"
            MAX-ACCESS  read-create
            STATUS      current
            DESCRIPTION
                "The number of Errored Seconds
```

```
            encountered by an ADSL interface within any given 15
            minutes performance data collection period, which
            causes the SNMP agent to send an
            adslAturPerfESsThreshTrap.
            One trap will be sent per interval per interface.
            A value of '0' will disable the trap."
        ::= { adslLineAlarmConfProfileEntry 15 }

        adslAturThreshFastRateUp OBJECT-TYPE
            SYNTAX      Unsigned32
            UNITS       "bps"
            MAX-ACCESS  read-create
            STATUS      current
            DESCRIPTION
                "Applies to 'Fast' channels only.
                Configured change in rate causing an
                adslAturRateChangeTrap.  A trap is produced when:
                ChanCurrTxRate >= ChanPrevTxRate plus the value of
                this object. A value of '0' will disable the trap."
        ::= { adslLineAlarmConfProfileEntry 16 }

        adslAturThreshInterleaveRateUp OBJECT-TYPE
            SYNTAX      Unsigned32
            UNITS       "bps"
            MAX-ACCESS  read-create
            STATUS      current
            DESCRIPTION
                "Applies to 'Interleave' channels only.
                configured change in rate causing an
                adslAturRateChangeTrap.  A trap is produced when:
                ChanCurrTxRate >= ChanPrevTxRate plus the value of
                this object. A value of '0' will disable the trap."
        ::= { adslLineAlarmConfProfileEntry 17 }

        adslAturThreshFastRateDown OBJECT-TYPE
            SYNTAX      Unsigned32
            UNITS       "bps"
            MAX-ACCESS  read-create
            STATUS      current
            DESCRIPTION
                "Applies to 'Fast' channels only.
                Configured change in rate causing an
                adslAturRateChangeTrap.  A trap is produced when:
                ChanCurrTxRate <= ChanPrevTxRate minus the value of
                this object. A value of '0' will disable the trap."
        ::= { adslLineAlarmConfProfileEntry 18 }

        adslAturThreshInterleaveRateDown OBJECT-TYPE
```

```
            SYNTAX      Unsigned32
            UNITS       "bps"
            MAX-ACCESS  read-create
            STATUS      current
            DESCRIPTION
                "Applies to 'Interleave' channels only.
                Configured change in rate causing an
                adslAturRateChangeTrap.  A trap is produced when:
                ChanCurrTxRate <= ChanPrevTxRate minus the value of
                this object. A value of '0' will disable the trap."
        ::= { adslLineAlarmConfProfileEntry 19 }

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

                A profile activated by setting this object to
                'active'.  When 'active' is set, the system
                will validate the profile.

                Before a profile can be deleted or taken out of
                service, (by setting this object to 'destroy' or
                'outOfService') it must be first unreferenced
                from all associated lines.

                If the implementator of this MIB has chosen not
                to implement 'dynamic assignment' of profiles, this
                object's MIN-ACCESS is read-only and its value
                is always to be 'active'."
        ::= { adslLineAlarmConfProfileEntry 20 }

        -- Line Code Specific Tables

        -- These are place holders for the Line Code Specific MIBs
        -- once they become available.

        adslLCSMib  OBJECT IDENTIFIER ::= { adslMibObjects 16 }

    -- trap definitions

    adslTraps OBJECT IDENTIFIER ::= { adslLineMib 2 }

    adslAtucTraps OBJECT IDENTIFIER ::= { adslTraps 1 }
```

```
        adslAtucPerfLofsThreshTrap      NOTIFICATION-TYPE
            OBJECTS { adslAtucPerfCurr15MinLofs,
                      adslAtucThresh15MinLofs }
            STATUS  current
            DESCRIPTION
                "Loss of Framing 15-minute interval threshold reached."
        ::= { adslAtucTraps 0 1 }

        adslAtucPerfLossThreshTrap      NOTIFICATION-TYPE
            OBJECTS { adslAtucPerfCurr15MinLoss,
                      adslAtucThresh15MinLoss }
            STATUS  current
            DESCRIPTION
                "Loss of Signal 15-minute interval threshold reached."
        ::= { adslAtucTraps 0 2 }

        adslAtucPerfLprsThreshTrap      NOTIFICATION-TYPE
            OBJECTS { adslAtucPerfCurr15MinLprs,
                      adslAtucThresh15MinLprs }
            STATUS  current
            DESCRIPTION
                "Loss of Power 15-minute interval threshold reached."
        ::= { adslAtucTraps 0 3 }

        adslAtucPerfESsThreshTrap       NOTIFICATION-TYPE
            OBJECTS { adslAtucPerfCurr15MinESs,
                      adslAtucThresh15MinESs }
            STATUS  current
            DESCRIPTION
                "Errored Second 15-minute interval threshold reached."
        ::= { adslAtucTraps 0 4 }

        adslAtucRateChangeTrap  NOTIFICATION-TYPE
            OBJECTS { adslAtucChanCurrTxRate,
                      adslAtucChanPrevTxRate }
            STATUS  current
            DESCRIPTION
                "The ATUCs transmit rate has changed (RADSL mode only)"
        ::= { adslAtucTraps 0 5 }

        adslAtucPerfLolsThreshTrap      NOTIFICATION-TYPE
            OBJECTS { adslAtucPerfCurr15MinLols,
                      adslAtucThresh15MinLols }
            STATUS  current
            DESCRIPTION
                "Loss of Link 15-minute interval threshold reached."
        ::= { adslAtucTraps 0 6 }
```

```
        adslAtucInitFailureTrap NOTIFICATION-TYPE
            OBJECTS { adslAtucCurrStatus }
            STATUS  current
            DESCRIPTION
                "ATUC initialization failed. See adslAtucCurrStatus
                for potential reasons."
        ::= { adslAtucTraps 0 7 }

   adslAturTraps OBJECT IDENTIFIER ::= { adslTraps 2 }

        adslAturPerfLofsThreshTrap      NOTIFICATION-TYPE
            OBJECTS { adslAturPerfCurr15MinLofs,
                      adslAturThresh15MinLofs }
            STATUS  current
            DESCRIPTION
                "Loss of Framing 15-minute interval threshold reached."
        ::= { adslAturTraps 0 1 }

        adslAturPerfLossThreshTrap      NOTIFICATION-TYPE
            OBJECTS { adslAturPerfCurr15MinLoss,
                      adslAturThresh15MinLoss }
            STATUS  current
            DESCRIPTION
                "Loss of Signal 15-minute interval threshold reached."
        ::= { adslAturTraps 0 2 }

        adslAturPerfLprsThreshTrap      NOTIFICATION-TYPE
            OBJECTS { adslAturPerfCurr15MinLprs,
                      adslAturThresh15MinLprs }
            STATUS  current
            DESCRIPTION
                "Loss of Power 15-minute interval threshold reached."
        ::= { adslAturTraps 0 3 }

        adslAturPerfESsThreshTrap       NOTIFICATION-TYPE
            OBJECTS { adslAturPerfCurr15MinESs,
                      adslAturThresh15MinESs }
            STATUS  current
            DESCRIPTION
                "Errored Second 15-minute interval threshold reached."
        ::= { adslAturTraps 0 4 }

        adslAturRateChangeTrap  NOTIFICATION-TYPE
            OBJECTS { adslAturChanCurrTxRate,
                      adslAturChanPrevTxRate }
            STATUS  current
            DESCRIPTION
                "The ATURs transmit rate has changed (RADSL mode only)"
```

```
        ::= { adslAturTraps 0 5 }

        -- no adslAturPerfLolsThreshTrap possible { 0 6 }

        -- no adslAturInitFailureTrap possible { 0 7 }

   -- conformance information

   adslConformance OBJECT IDENTIFIER ::= { adslLineMib 3 }

   adslGroups OBJECT IDENTIFIER ::= { adslConformance 1 }
   adslCompliances OBJECT IDENTIFIER ::= { adslConformance 2 }

        -- ATU-C agent compliance statements

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

            MODULE  -- this module
            MANDATORY-GROUPS
               {
               adslLineGroup, adslPhysicalGroup, adslChannelGroup,
               adslAtucPhysPerfIntervalGroup,
               adslAturPhysPerfIntervalGroup, adslLineConfProfileGroup,
               adslLineAlarmConfProfileGroup,
               adslLineConfProfileControlGroup
               }

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

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

            GROUP       adslAtucChanPerformanceGroup
            DESCRIPTION
                "This group is optional.  Implementations which
                 require ATU-C channel block event counters should
                 implement this group."
```

```
            GROUP       adslAturChanPerformanceGroup
            DESCRIPTION
                "This group is optional.  Implementations which
                 require ATU-R channel block event counters should
                 implement this group."

            OBJECT      adslLineConfProfile
            MIN-ACCESS  read-only
            DESCRIPTION
                "Read-only access is applicable when static
                 profiles are implemented."

            OBJECT      adslAtucConfRateMode
            MIN-ACCESS  read-write
            DESCRIPTION
                "Read-write access is applicable when
                 static profiles are implemented."

            OBJECT      adslAtucConfRateChanRatio
            MIN-ACCESS  read-write
            DESCRIPTION
                "Read-write access is applicable when
                 static profiles are implemented."

            OBJECT      adslAtucConfTargetSnrMgn
            MIN-ACCESS  read-write
            DESCRIPTION
                "Read-write access is applicable when
                 static profiles are implemented."

            OBJECT      adslAtucConfMaxSnrMgn
            MIN-ACCESS  read-write
            DESCRIPTION
                "Read-write access is applicable when
                 static profiles are implemented."

            OBJECT      adslAtucConfMinSnrMgn
            MIN-ACCESS  read-wr
            MIN-ACCESS  read-write
            DESCRIPTION
                "Read-write access is applicable when
                 static profiles are implemented."

            OBJECT      adslAtucConfDownshiftSnrMgn
            MIN-ACCESS  read-write
            DESCRIPTION
                "Read-write access is applicable when
                 static profiles are implemented."
```

```
            OBJECT      adslAtucConfUpshiftSnrMgn
            MIN-ACCESS  read-write
            DESCRIPTION
                "Read-write access is applicable when
                 static profiles are implemented."

            OBJECT      adslAtucConfMinUpshiftTime
            MIN-ACCESS  read-write
            DESCRIPTION
                "Read-write access is applicable when
                 static profiles are implemented."

            OBJECT      adslAtucConfMinDownshiftTime
            MIN-ACCESS  read-write
            DESCRIPTION
                "Read-write access is applicable when
                 static profiles are implemented."

            OBJECT      adslAtucChanConfFastMinTxRate
            MIN-ACCESS  read-write
            DESCRIPTION
                "Read-write access is applicable when
                 static profiles are implemented."

            OBJECT      adslAtucChanConfInterleaveMinTxRate
            MIN-ACCESS  read-write
            DESCRIPTION
                "Read-write access is applicable when
                 static profiles are implemented."

            OBJECT      adslAtucChanConfFastMaxTxRate
            MIN-ACCESS  read-write
            DESCRIPTION
                "Read-write access is applicable when
                 static profiles are implemented."

            OBJECT      adslAtucChanConfInterleaveMaxTxRate
            MIN-ACCESS  read-write
            DESCRIPTION
                "Read-write access is applicable when
                 static profiles are implemented."

            OBJECT      adslAtucChanConfMaxInterleaveDelay
            MIN-ACCESS  read-write
            DESCRIPTION
                "Read-write access is applicable when
                 static profiles are implemented."
```

```
            OBJECT      adslAturConfRateMode
            MIN-ACCESS  read-write
            DESCRIPTION
                "Read-write access is applicable when
                 static profiles are implemented."

            OBJECT      adslAturConfRateChanRatio
            MIN-ACCESS  read-write
            DESCRIPTION
                "Read-write access is applicable when
                 static profiles are implemented."

            OBJECT      adslAturConfTargetSnrMgn
            MIN-ACCESS  read-write
            DESCRIPTION
                "Read-write access is applicable when
                 static profiles are implemented."

            OBJECT      adslAturConfMaxSnrMgn
            MIN-ACCESS  read-write
            DESCRIPTION
                "Read-write access is applicable when
                 static profiles are implemented."

            OBJECT      adslAturConfMinSnrMgn
            MIN-ACCESS  read-write
            DESCRIPTION
                "Read-write access is applicable when
                 static profiles are implemented."

            OBJECT      adslAturConfDownshiftSnrMgn
            MIN-ACCESS  read-write
            DESCRIPTION
                "Read-write access is applicable when
                 static profiles are implemented."

            OBJECT      adslAturConfUpshiftSnrMgn
            MIN-ACCESS  read-write
            DESCRIPTION
                "Read-write access is applicable when
                 static profiles are implemented."

            OBJECT      adslAturConfMinUpshiftTime
            MIN-ACCESS  read-write
            DESCRIPTION
                "Read-write access is applicable when
                 static profiles are implemented."
```

```
            OBJECT      adslAturConfMinDownshiftTime
            MIN-ACCESS  read-write
            DESCRIPTION
                "Read-write access is applicable when
                 static profiles are implemented."

            OBJECT      adslAturChanConfFastMinTxRate
            MIN-ACCESS  read-write
            DESCRIPTION
                "Read-write access is applicable when
                 static profiles are implemented."

            OBJECT      adslAturChanConfInterleaveMinTxRate
            MIN-ACCESS  read-write
            DESCRIPTION
                "Read-write access is applicable when
                 static profiles are implemented."

            OBJECT      adslAturChanConfFastMaxTxRate
            MIN-ACCESS  read-write
            DESCRIPTION
                "Read-write access is applicable when
                 static profiles are implemented."

            OBJECT      adslAturChanConfInterleaveMaxTxRate
            MIN-ACCESS  read-write
            DESCRIPTION
                "Read-write access is applicable when
                 static profiles are implemented."

            OBJECT      adslAturChanConfMaxInterleaveDelay
            MIN-ACCESS  read-write
            DESCRIPTION
                "Read-write access is applicable when
                 static profiles are implemented."

            OBJECT      adslLineConfProfileRowStatus
            MIN-ACCESS  read-only
            DESCRIPTION
                "Read-only access is applicable only when static
                 profiles are implemented."

            OBJECT      adslLineAlarmConfProfile
            MIN-ACCESS  read-only
            DESCRIPTION
                "Read-only access is applicable only when static
                 profiles are implemented."
```

```
            OBJECT      adslAtucThresh15MinLofs
            MIN-ACCESS  read-write
            DESCRIPTION
                "Read-write access is applicable when
                 static profiles are implemented."

            OBJECT      adslAtucThresh15MinLoss
            MIN-ACCESS  read-write
            DESCRIPTION
                "Read-write access is applicable when
                 static profiles are implemented."

            OBJECT      adslAtucThresh15MinLols
            MIN-ACCESS  read-write
            DESCRIPTION
                "Read-write access is applicable when
                 static profiles are implemented."

            OBJECT      adslAtucThresh15MinLprs
            MIN-ACCESS  read-write
            DESCRIPTION
                "Read-write access is applicable when
                 static profiles are implemented."

            OBJECT      adslAtucThresh15MinESs
            MIN-ACCESS  read-write
            DESCRIPTION
                "Read-write access is applicable when
                 static profiles are implemented."

            OBJECT      adslAtucThreshFastRateUp
            MIN-ACCESS  read-write
            DESCRIPTION
                "Read-write access is applicable when
                 static profiles are implemented."

            OBJECT      adslAtucThreshInterleaveRateUp
            MIN-ACCESS  read-write
            DESCRIPTION
                "Read-write access is applicable when
                 static profiles are implemented."

            OBJECT      adslAtucThreshFastRateDown
            MIN-ACCESS  read-write
            DESCRIPTION
                "Read-write access is applicable when
                 static profiles are implemented."
```

```
            OBJECT      adslAtucThreshInterleaveRateDown
            MIN-ACCESS  read-write
            DESCRIPTION
                "Read-write access is applicable when
                 static profiles are implemented."

            OBJECT      adslAtucInitFailureTrapEnable
            MIN-ACCESS  read-write
            DESCRIPTION
                "Read-write access is applicable when
                 static profiles are implemented."

            OBJECT      adslAturThresh15MinLofs
            MIN-ACCESS  read-write
            DESCRIPTION
                "Read-write access is applicable when
                 static profiles are implemented."

            OBJECT      adslAturThresh15MinLoss
            MIN-ACCESS  read-write
            DESCRIPTION
                "Read-write access is applicable when
                 static profiles are implemented."

            OBJECT      adslAturThresh15MinLprs
            MIN-ACCESS  read-write
            DESCRIPTION
                "Read-write access is applicable when
                 static profiles are implemented."

            OBJECT      adslAturThresh15MinESs
            MIN-ACCESS  read-write
            DESCRIPTION
                "Read-write access is applicable when
                 static profiles are implemented."

            OBJECT      adslAturThreshFastRateUp
            MIN-ACCESS  read-write
            DESCRIPTION
                "Read-write access is applicable when
                 static profiles are implemented."

            OBJECT      adslAturThreshInterleaveRateUp
            MIN-ACCESS  read-write
            DESCRIPTION
                "Read-write access is applicable when
                 static profiles are implemented."
```

```
            OBJECT      adslAturThreshFastRateDown
            MIN-ACCESS  read-write
            DESCRIPTION
                "Read-write access is applicable when
                 static profiles are implemented."

            OBJECT      adslAturThreshInterleaveRateDown
            MIN-ACCESS  read-write
            DESCRIPTION
                "Read-write access is applicable when
                 static profiles are implemented."

            OBJECT      adslLineAlarmConfProfileRowStatus
            MIN-ACCESS  read-only
            DESCRIPTION
                "Read-only access is applicable only when static
                 profiles are implemented."

        ::= { adslCompliances 1 }

        -- ATU-R agent compliance statements

        adslLineMibAturCompliance MODULE-COMPLIANCE
            STATUS  current
            DESCRIPTION
                "The compliance statement for SNMP entities
                 which manage ADSL ATU-R interfaces."

            MODULE  -- this module
            MANDATORY-GROUPS
                {
                adslAturLineGroup, adslAturPhysicalGroup,
                adslAturChannelGroup,
                adslAturAtucPhysPerfIntervalGroup,
                adslAturAturPhysPerfIntervalGroup,
                adslAturLineAlarmConfProfileGroup,
                adslAturLineConfProfileControlGroup
                }

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

            GROUP       adslAturAturPhysPerfRawCounterGroup
            DESCRIPTION
                "This group is optional.  Implementations which
```

```
            require continuous ATU-R physical event counters
            should implement this group."

        GROUP       adslAturAtucChanPerformanceGroup
        DESCRIPTION
            "This group is optional.  Implementations which
            require ATU-C channel block event counters should
            implement this group."

        GROUP       adslAturAturChanPerformanceGroup
        DESCRIPTION
            "This group is optional.  Implementations which
            require ATU-R channel block event counters should
            implement this group."

        OBJECT      adslLineAlarmConfProfile
        MIN-ACCESS  read-only
        DESCRIPTION
            "Read-only access is applicable only when static
            profiles are implemented."

        OBJECT      adslAtucThresh15MinLofs
        MIN-ACCESS  read-write
        DESCRIPTION
            "Read-write access is applicable when
            static profiles are implemented."

        OBJECT      adslAtucThresh15MinLoss
        MIN-ACCESS  read-write
        DESCRIPTION
            "Read-write access is applicable when
            static profiles are implemented."

        OBJECT      adslAtucThresh15MinESs
        MIN-ACCESS  read-write
        DESCRIPTION
            "Read-write access is applicable when
            static profiles are implemented."

        OBJECT      adslAtucThreshFastRateUp
        MIN-ACCESS  read-write
        DESCRIPTION
            "Read-write access is applicable when
            static profiles are implemented."

        OBJECT      adslAtucThreshInterleaveRateUp
        MIN-ACCESS  read-write
        DESCRIPTION
```

```
            "Read-write access is applicable when
             static profiles are implemented."

        OBJECT      adslAtucThreshFastRateDown
        MIN-ACCESS  read-write
        DESCRIPTION
            "Read-write access is applicable when
             static profiles are implemented."

        OBJECT      adslAtucInitFailureTrapEnable
        MIN-ACCESS  read-write

        DESCRIPTION
            "Read-write access is applicable when
             static profiles are implemented."

        OBJECT      adslAturThresh15MinLofs
        MIN-ACCESS  read-write
        DESCRIPTION
            "Read-write access is applicable when
             static profiles are implemented."

        OBJECT      adslAturThresh15MinLoss
        MIN-ACCESS  read-write
        DESCRIPTION
            "Read-write access is applicable when
             static profiles are implemented."

        OBJECT      adslAturThresh15MinLprs
        MIN-ACCESS  read-write
        DESCRIPTION
            "Read-write access is applicable when
             static profiles are implemented."

        OBJECT      adslAturThresh15MinESs
        MIN-ACCESS  read-write
        DESCRIPTION
            "Read-write access is applicable when
             static profiles are implemented."

        OBJECT      adslAturThreshFastRateUp
        MIN-ACCESS  read-write
        DESCRIPTION
            "Read-write access is applicable when
             static profiles are implemented."

        OBJECT      adslAturThreshInterleaveRateUp
        MIN-ACCESS  read-write
```

```
            DESCRIPTION
                "Read-write access is applicable when
                 static profiles are implemented."

            OBJECT      adslAturThreshFastRateDown
            MIN-ACCESS  read-write
            DESCRIPTION
                "Read-write access is applicable when
                 static profiles are implemented."

            OBJECT      adslAturThreshInterleaveRateDown
            MIN-ACCESS  read-write
            DESCRIPTION
                "Read-write access is applicable when
                 static profiles are implemented."

            OBJECT      adslLineAlarmConfProfileRowStatus
            MIN-ACCESS  read-only
            DESCRIPTION
                "Read-only access is applicable only when static
                 profiles are implemented."

            OBJECT     adslAtucCurrStatus
            SYNTAX   BITS {
                           noDefect(0),
                           lossOfFraming(1),
                           lossOfSignal(2)
                          }
            DESCRIPTION
                "It is allowable to implement only noDefect(0),
                lossOfFraming(1) and lossOfSignal(2) by the ATU-R
                agent."

        ::= { adslCompliances 2 }

         -- units of conformance
         adslLineGroup    OBJECT-GROUP
             OBJECTS {
                adslLineCoding, adslLineType, adslLineSpecific
                }
             STATUS     current
             DESCRIPTION
                 "A collection of objects providing configuration
                 information about an ADSL Line."
         ::= { adslGroups 1 }

         adslPhysicalGroup    OBJECT-GROUP
             OBJECTS {
```

```
            adslAtucInvSerialNumber, adslAtucInvVendorID,
            adslAtucInvVersionNumber, adslAtucCurrSnrMgn,
            adslAtucCurrAtn, adslAtucCurrStatus,
            adslAtucCurrOutputPwr, adslAtucCurrAttainableRate,
            adslAturInvSerialNumber, adslAturInvVendorID,
            adslAturInvVersionNumber, adslAturCurrSnrMgn,
            adslAturCurrAtn, adslAturCurrStatus,
            adslAturCurrOutputPwr, adslAturCurrAttainableRate
            }
        STATUS     current
        DESCRIPTION
            "A collection of objects providing physical
            configuration information of the ADSL Line."
    ::= { adslGroups 2 }

    adslChannelGroup    OBJECT-GROUP
        OBJECTS {
            adslAtucChanInterleaveDelay, adslAtucChanCurrTxRate,
            adslAtucChanPrevTxRate, adslAtucChanCrcBlockLength,
            adslAturChanInterleaveDelay, adslAturChanCurrTxRate,
            adslAturChanPrevTxRate, adslAturChanCrcBlockLength
            }
        STATUS     current
        DESCRIPTION
            "A collection of objects providing configuration
            information about an ADSL channel."
    ::= { adslGroups 3 }

    adslAtucPhysPerfRawCounterGroup OBJECT-GROUP
        OBJECTS {
            adslAtucPerfLofs, adslAtucPerfLoss,
            adslAtucPerfLols, adslAtucPerfLprs,
            adslAtucPerfESs, adslAtucPerfInits
            }
        STATUS     current
        DESCRIPTION
            "A collection of objects providing raw performance
            counts on an ADSL Line (ATU-C end)."
    ::= { adslGroups 4 }

    adslAtucPhysPerfIntervalGroup OBJECT-GROUP
        OBJECTS {
            adslAtucPerfValidIntervals,
            adslAtucPerfInvalidIntervals,
            adslAtucPerfCurr15MinTimeElapsed,
            adslAtucPerfCurr15MinLofs, adslAtucPerfCurr15MinLoss,
            adslAtucPerfCurr15MinLols, adslAtucPerfCurr15MinLprs,
            adslAtucPerfCurr15MinESs, adslAtucPerfCurr15MinInits,
```

```
            adslAtucPerfCurr1DayLofs, adslAtucPerfCurr1DayLoss,
            adslAtucPerfCurr1DayLols, adslAtucPerfCurr1DayLprs,
            adslAtucPerfCurr1DayESs, adslAtucPerfCurr1DayInits,
            adslAtucPerfPrev1DayMoniSecs,
            adslAtucPerfPrev1DayLofs, adslAtucPerfPrev1DayLoss,
            adslAtucPerfPrev1DayLols, adslAtucPerfPrev1DayLprs,
            adslAtucPerfPrev1DayESs, adslAtucPerfPrev1DayInits,
            adslAtucIntervalLofs, adslAtucIntervalLoss,
            adslAtucIntervalLols, adslAtucIntervalLprs,
            adslAtucIntervalESs, adslAtucIntervalInits,
            adslAtucIntervalValidData
            }

        STATUS     current
        DESCRIPTION
            "A collection of objects providing current 15-minute,
            1-day; and previous 1-day performance counts on
            ADSL Line (ATU-C end) ."
    ::= { adslGroups 5 }

    adslAturPhysPerfRawCounterGroup OBJECT-GROUP
        OBJECTS {
           adslAturPerfLofs, adslAturPerfLoss,
           adslAturPerfLprs, adslAturPerfESs
           }
        STATUS     current
        DESCRIPTION
            "A collection of objects providing raw performance
            counts on an ADSL Line (ATU-R end)."
    ::= { adslGroups 6 }

    adslAturPhysPerfIntervalGroup OBJECT-GROUP
        OBJECTS {
           adslAturPerfValidIntervals,
           adslAturPerfInvalidIntervals,
           adslAturPerfCurr15MinTimeElapsed,
           adslAturPerfCurr15MinLofs, adslAturPerfCurr15MinLoss,
           adslAturPerfCurr15MinLprs, adslAturPerfCurr15MinESs,
           adslAturPerfCurr1DayTimeElapsed,
           adslAturPerfCurr1DayLofs, adslAturPerfCurr1DayLoss,
           adslAturPerfCurr1DayLprs, adslAturPerfCurr1DayESs,
           adslAturPerfPrev1DayMoniSecs,
           adslAturPerfPrev1DayLofs, adslAturPerfPrev1DayLoss,
           adslAturPerfPrev1DayLprs, adslAturPerfPrev1DayESs,
           adslAturIntervalLofs,
           adslAturIntervalLoss, adslAturIntervalLprs,
           adslAturIntervalESs, adslAturIntervalValidData
           }
```

```
            STATUS     current
            DESCRIPTION
                "A collection of objects providing current 15-minute,
                1-day; and previous 1-day performance counts on
                ADSL Line (ATU-R end)."
        ::= { adslGroups 7 }

        adslAtucChanPerformanceGroup OBJECT-GROUP
            OBJECTS {
               adslAtucChanReceivedBlks,
               adslAtucChanTransmittedBlks,
               adslAtucChanCorrectedBlks,
               adslAtucChanUncorrectBlks,
               adslAtucChanPerfValidIntervals,
               adslAtucChanPerfInvalidIntervals,
               adslAtucChanPerfCurr15MinTimeElapsed,
               adslAtucChanPerfCurr15MinReceivedBlks,
               adslAtucChanPerfCurr15MinTransmittedBlks,
               adslAtucChanPerfCurr15MinCorrectedBlks,
               adslAtucChanPerfCurr15MinUncorrectBlks,
               adslAtucChanPerfCurr1DayTimeElapsed,
               adslAtucChanPerfCurr1DayReceivedBlks,
               adslAtucChanPerfCurr1DayTransmittedBlks,
               adslAtucChanPerfCurr1DayCorrectedBlks,
               adslAtucChanPerfCurr1DayUncorrectBlks,
               adslAtucChanPerfPrev1DayMoniSecs,
               adslAtucChanPerfPrev1DayReceivedBlks,
               adslAtucChanPerfPrev1DayTransmittedBlks,
               adslAtucChanPerfPrev1DayCorrectedBlks,
               adslAtucChanPerfPrev1DayUncorrectBlks,
               adslAtucChanIntervalReceivedBlks,
               adslAtucChanIntervalTransmittedBlks,
               adslAtucChanIntervalCorrectedBlks,
               adslAtucChanIntervalUncorrectBlks,
               adslAtucChanIntervalValidData
               }
            STATUS     current
            DESCRIPTION
                "A collection of objects providing channel block
                performance information on an ADSL channel
                (ATU-C end)."
        ::= { adslGroups 8 }

        adslAturChanPerformanceGroup OBJECT-GROUP
            OBJECTS {
               adslAturChanReceivedBlks,
               adslAturChanTransmittedBlks,
               adslAturChanCorrectedBlks,
```

```
            adslAturChanUncorrectBlks,
            adslAturChanPerfValidIntervals,
            adslAturChanPerfInvalidIntervals,
            adslAturChanPerfCurr15MinTimeElapsed,
            adslAturChanPerfCurr15MinReceivedBlks,
            adslAturChanPerfCurr15MinTransmittedBlks,
            adslAturChanPerfCurr15MinCorrectedBlks,
            adslAturChanPerfCurr15MinUncorrectBlks,
            adslAturChanPerfCurr1DayTimeElapsed,
            adslAturChanPerfCurr1DayReceivedBlks,
            adslAturChanPerfCurr1DayTransmittedBlks,
            adslAturChanPerfCurr1DayCorrectedBlks,
            adslAturChanPerfCurr1DayUncorrectBlks,
            adslAturChanPerfPrev1DayMoniSecs,
            adslAturChanPerfPrev1DayReceivedBlks,
            adslAturChanPerfPrev1DayTransmittedBlks,
            adslAturChanPerfPrev1DayCorrectedBlks,
            adslAturChanPerfPrev1DayUncorrectBlks,
            adslAturChanIntervalReceivedBlks,
            adslAturChanIntervalTransmittedBlks,
            adslAturChanIntervalCorrectedBlks,
            adslAturChanIntervalUncorrectBlks,
            adslAturChanIntervalValidData
            }
        STATUS     current
        DESCRIPTION
            "A collection of objects providing channel block
            performance information on an ADSL channel
            (ATU-C end)."
    ::= { adslGroups 9 }

    adslLineConfProfileGroup OBJECT-GROUP
        OBJECTS {
            adslAtucConfRateMode, adslAtucConfRateChanRatio,
            adslAtucConfTargetSnrMgn, adslAtucConfMaxSnrMgn,
            adslAtucConfMinSnrMgn,
            adslAtucConfDownshiftSnrMgn,
            adslAtucConfUpshiftSnrMgn,
            adslAtucConfMinUpshiftTime,
            adslAtucConfMinDownshiftTime,
            adslAtucChanConfFastMinTxRate,
            adslAtucChanConfInterleaveMinTxRate,
            adslAtucChanConfFastMaxTxRate,
            adslAtucChanConfInterleaveMaxTxRate,
            adslAtucChanConfMaxInterleaveDelay,
            adslAturConfRateMode, adslAturConfRateChanRatio,
            adslAturConfTargetSnrMgn, adslAturConfMaxSnrMgn,
            adslAturConfMinSnrMgn, adslAturConfDownshiftSnrMgn,
```

```
            adslAturConfUpshiftSnrMgn,
            adslAturConfMinUpshiftTime,
            adslAturConfMinDownshiftTime,
            adslAturChanConfFastMinTxRate,
            adslAturChanConfInterleaveMinTxRate,
            adslAturChanConfFastMaxTxRate,
            adslAturChanConfInterleaveMaxTxRate,
            adslAturChanConfMaxInterleaveDelay
            }
        STATUS     current
        DESCRIPTION
            "A collection of objects providing provisioning
            information about an ADSL Line."
    ::= { adslGroups 10 }

    adslLineAlarmConfProfileGroup OBJECT-GROUP
        OBJECTS {
            adslAtucThresh15MinLofs, adslAtucThresh15MinLoss,
            adslAtucThresh15MinLols, adslAtucThresh15MinLprs,
            adslAtucThresh15MinESs, adslAtucThreshFastRateUp,
            adslAtucThreshInterleaveRateUp,
            adslAtucThreshFastRateDown,
            adslAtucThreshInterleaveRateDown,
            adslAtucInitFailureTrapEnable,
            adslAturThresh15MinLofs, adslAturThresh15MinLoss,
            adslAturThresh15MinLprs, adslAturThresh15MinESs,
            adslAturThreshFastRateUp,
            adslAturThreshInterleaveRateUp,
            adslAturThreshFastRateDown,
            adslAturThreshInterleaveRateDown
            }
        STATUS     current
        DESCRIPTION
            "A collection of objects providing alarm provisioning
            information about an ADSL Line."
    ::= { adslGroups 11 }

    adslLineConfProfileControlGroup OBJECT-GROUP
        OBJECTS {
            adslLineConfProfile, adslLineAlarmConfProfile,
            adslLineConfProfileRowStatus,
            adslLineAlarmConfProfileRowStatus
            }
        STATUS     current
        DESCRIPTION
            "A collection of objects providing profile
            control for the ADSL system."
    ::= { adslGroups 12 }
```

```
        adslNotificationsGroup NOTIFICATION-GROUP
            NOTIFICATIONS {
               adslAtucPerfLofsThreshTrap,
               adslAtucPerfLossThreshTrap,
               adslAtucPerfLprsThreshTrap,
               adslAtucPerfESsThreshTrap,
               adslAtucRateChangeTrap,
               adslAtucPerfLolsThreshTrap,
               adslAtucInitFailureTrap,
               adslAturPerfLofsThreshTrap,
               adslAturPerfLossThreshTrap,
               adslAturPerfLprsThreshTrap,
               adslAturPerfESsThreshTrap,
               adslAturRateChangeTrap
               }
            STATUS        current
            DESCRIPTION
                "The collection of adsl notifications."
        ::= { adslGroups 13 }

   -- units of conformance for ATU-R agent

           adslAturLineGroup    OBJECT-GROUP
               OBJECTS {
                  adslLineCoding
                  }
               STATUS     current
               DESCRIPTION
                   "A collection of objects providing configuration
                   information about an ADSL Line on the ATU-R side."
           ::= { adslGroups 14 }

           adslAturPhysicalGroup    OBJECT-GROUP
               OBJECTS {
                  adslAtucInvVendorID,
                  adslAtucInvVersionNumber,
                  adslAtucCurrOutputPwr, adslAtucCurrAttainableRate,
                  adslAturInvSerialNumber, adslAturInvVendorID,
                  adslAturInvVersionNumber, adslAturCurrSnrMgn,
                  adslAturCurrAtn, adslAturCurrStatus,
                  adslAturCurrOutputPwr, adslAturCurrAttainableRate,
                  adslAtucCurrStatus
                  }
               STATUS     current
               DESCRIPTION
                   "A collection of objects providing physical
                   configuration information of the ADSL Line on the
                   ATU-R side."
```

```
            ::= { adslGroups 15 }

            adslAturChannelGroup    OBJECT-GROUP
                OBJECTS {
                   adslAtucChanInterleaveDelay, adslAtucChanCurrTxRate,
                   adslAtucChanPrevTxRate,
                   adslAturChanInterleaveDelay, adslAturChanCurrTxRate,
                   adslAturChanPrevTxRate, adslAturChanCrcBlockLength
                   }
                STATUS     current
                DESCRIPTION
                    "A collection of objects providing configuration
                   information about an ADSL channel on the ATU-R
                   side."
            ::= { adslGroups 16 }

            adslAturAtucPhysPerfRawCounterGroup OBJECT-GROUP
                OBJECTS {
                   adslAtucPerfLofs, adslAtucPerfLoss,
                   adslAtucPerfESs, adslAtucPerfInits
                   }
                STATUS     current
                DESCRIPTION
                    "A collection of objects providing raw performance
                   counts on an ADSL Line (ATU-C end) provided by the
                   ATU-R agent."
            ::= { adslGroups 17 }

            adslAturAtucPhysPerfIntervalGroup OBJECT-GROUP
                OBJECTS {
                   adslAtucPerfValidIntervals,
                   adslAtucPerfInvalidIntervals,
                   adslAtucPerfCurr15MinTimeElapsed,
                   adslAtucPerfCurr15MinLofs, adslAtucPerfCurr15MinLoss,
                   adslAtucPerfCurr15MinESs, adslAtucPerfCurr15MinInits,
                   adslAtucPerfCurr1DayTimeElapsed,
                   adslAtucPerfCurr1DayLofs, adslAtucPerfCurr1DayLoss,
                   adslAtucPerfCurr1DayESs, adslAtucPerfCurr1DayInits,
                   adslAtucPerfPrev1DayMoniSecs,
                   adslAtucPerfPrev1DayLofs, adslAtucPerfPrev1DayLoss,
                   adslAtucPerfPrev1DayESs, adslAtucPerfPrev1DayInits,
                   adslAtucIntervalLofs, adslAtucIntervalLoss,
                   adslAtucIntervalESs, adslAtucIntervalInits,
                   adslAtucIntervalValidData
                   }
                STATUS     current
                DESCRIPTION
                    "A collection of objects providing current
```

```
            15-minute, 1-day; and previous 1-day performance
            counts on ADSL Line (ATU-C end) provided by the
            ATU-R agent."
        ::= { adslGroups 18 }

        adslAturAturPhysPerfRawCounterGroup OBJECT-GROUP
            OBJECTS {
               adslAturPerfLofs, adslAturPerfLoss,
               adslAturPerfLprs, adslAturPerfESs
               }
            STATUS     current
            DESCRIPTION
                "A collection of objects providing raw performance
               counts on an ADSL Line (ATU-R end) provided by the
               ATU-R agent."
        ::= { adslGroups 19 }

        adslAturAturPhysPerfIntervalGroup OBJECT-GROUP
            OBJECTS {
               adslAturPerfValidIntervals,
               adslAturPerfInvalidIntervals,
               adslAturPerfCurr15MinTimeElapsed,
               adslAturPerfCurr15MinLofs, adslAturPerfCurr15MinLoss,
               adslAturPerfCurr15MinLprs, adslAturPerfCurr15MinESs,
               adslAturPerfCurr1DayTimeElapsed,
               adslAturPerfCurr1DayLofs, adslAturPerfCurr1DayLoss,
               adslAturPerfCurr1DayLprs, adslAturPerfCurr1DayESs,
               adslAturPerfPrev1DayMoniSecs,
               adslAturPerfPrev1DayLofs, adslAturPerfPrev1DayLoss,
               adslAturPerfPrev1DayLprs, adslAturPerfPrev1DayESs,
               adslAturIntervalLofs,
               adslAturIntervalLoss, adslAturIntervalLprs,
               adslAturIntervalESs, adslAturIntervalValidData
               }
            STATUS     current
            DESCRIPTION
                "A collection of objects providing current
               15-minute, 1-day; and previous 1-day performance
               counts on ADSL Line (ATU-R end) provided by the
               ATU-R agent."
        ::= { adslGroups 20 }

        adslAturAtucChanPerformanceGroup OBJECT-GROUP
            OBJECTS {
               adslAtucChanReceivedBlks,
               adslAtucChanTransmittedBlks,
               adslAtucChanCorrectedBlks,
               adslAtucChanUncorrectBlks,
```

```
                adslAtucChanPerfCurr15MinTimeElapsed,
                adslAtucChanPerfCurr15MinReceivedBlks,
                adslAtucChanPerfCurr15MinTransmittedBlks,
                adslAtucChanPerfCurr15MinCorrectedBlks,
                adslAtucChanPerfCurr15MinUncorrectBlks,
                adslAtucChanPerfCurr1DayTimeElapsed,
                adslAtucChanPerfCurr1DayReceivedBlks,
                adslAtucChanPerfCurr1DayTransmittedBlks,
                adslAtucChanPerfCurr1DayCorrectedBlks,
                adslAtucChanPerfCurr1DayUncorrectBlks,
                adslAtucChanPerfPrev1DayMoniSecs,
                adslAtucChanPerfPrev1DayReceivedBlks,
                adslAtucChanPerfPrev1DayTransmittedBlks,
                adslAtucChanPerfPrev1DayCorrectedBlks,
                adslAtucChanPerfPrev1DayUncorrectBlks,
                adslAtucChanPerfValidIntervals,
                adslAtucChanPerfInvalidIntervals,
                adslAtucChanIntervalReceivedBlks,
                adslAtucChanIntervalTransmittedBlks,
                adslAtucChanIntervalCorrectedBlks,
                adslAtucChanIntervalUncorrectBlks,
                adslAtucChanIntervalValidData
                }
            STATUS     current
            DESCRIPTION
                "A collection of objects providing channel block
                performance information on an ADSL channel
                (ATU-C end) provided by the ATU-R agent."
        ::= { adslGroups 21 }

        adslAturAturChanPerformanceGroup OBJECT-GROUP
            OBJECTS {
                adslAturChanReceivedBlks,
                adslAturChanTransmittedBlks,
                adslAturChanCorrectedBlks,
                adslAturChanUncorrectBlks,
                adslAturChanPerfValidIntervals,
                adslAturChanPerfInvalidIntervals,
                adslAturChanPerfCurr15MinTimeElapsed,
                adslAturChanPerfCurr15MinReceivedBlks,
                adslAturChanPerfCurr15MinTransmittedBlks,
                adslAturChanPerfCurr15MinCorrectedBlks,
                adslAturChanPerfCurr15MinUncorrectBlks,
                adslAturChanPerfCurr1DayTimeElapsed,
                adslAturChanPerfCurr1DayReceivedBlks,
                adslAturChanPerfCurr1DayTransmittedBlks,
                adslAturChanPerfCurr1DayCorrectedBlks,
                adslAturChanPerfCurr1DayUncorrectBlks,
```

```
                   adslAturChanPerfPrev1DayMoniSecs,
                   adslAturChanPerfPrev1DayReceivedBlks,
                   adslAturChanPerfPrev1DayTransmittedBlks,
                   adslAturChanPerfPrev1DayCorrectedBlks,
                   adslAturChanPerfPrev1DayUncorrectBlks,
                   adslAturChanIntervalReceivedBlks,
                   adslAturChanIntervalTransmittedBlks,
                   adslAturChanIntervalCorrectedBlks,
                   adslAturChanIntervalUncorrectBlks,
                   adslAturChanIntervalValidData
                   }
               STATUS     current
               DESCRIPTION
                   "A collection of objects providing channel block
                   performance information on an ADSL channel
                   (ATU-R end) provided by the ATU-R agent."
           ::= { adslGroups 22 }

           adslAturLineAlarmConfProfileGroup OBJECT-GROUP
               OBJECTS {
                   adslAtucThresh15MinLofs, adslAtucThresh15MinLoss,
                   adslAtucThresh15MinESs, adslAtucThreshFastRateUp,
                   adslAtucThreshInterleaveRateUp,
                   adslAtucThreshFastRateDown,
                   adslAtucThreshInterleaveRateDown,
                   adslAtucInitFailureTrapEnable,
                   adslAturThresh15MinLofs, adslAturThresh15MinLoss,
                   adslAturThresh15MinLprs, adslAturThresh15MinESs,
                   adslAturThreshFastRateUp,
                   adslAturThreshInterleaveRateUp,
                   adslAturThreshFastRateDown,
                   adslAturThreshInterleaveRateDown
                   }
               STATUS     current
               DESCRIPTION
                   "A collection of objects providing alarm
  provisioning
                   information about an ADSL Line provided by the
                   ATU-R agent."
           ::= { adslGroups 23 }

           adslAturLineConfProfileControlGroup OBJECT-GROUP
               OBJECTS {
                   adslLineAlarmConfProfile,
                   adslLineAlarmConfProfileRowStatus
                   }
               STATUS     current
               DESCRIPTION
```

```
                "A collection of objects providing profile
                control for the ADSL system by the ATU-R agent."
        ::= { adslGroups 24 }

        adslAturNotificationsGroup NOTIFICATION-GROUP
            NOTIFICATIONS {
                adslAtucPerfLofsThreshTrap,
                adslAtucPerfLossThreshTrap,
                adslAtucPerfESsThreshTrap,
                adslAtucRateChangeTrap,
                adslAturPerfLofsThreshTrap,
                adslAturPerfLossThreshTrap,
                adslAturPerfLprsThreshTrap,
                adslAturPerfESsThreshTrap,
                adslAturRateChangeTrap
                }
            STATUS        current
            DESCRIPTION
                "The collection of ADSL notifications implemented by
                the ATU-R agent."
        ::= { adslGroups 25 }

   END
```

8. Acknowledgments

The current authors/editors are:

Gregory Bathrick (AG Communication Systems)
Faye Ly (Copper Mountain Networks)

Input from the ADSL Forum was edited by:

Gregory Bathrick (AG Communication Systems)
John Burgess (Predictive Systems)

Contributions have been received from, but not limited to the following. (in alphabetical order)

David Allen (Nortel)
Rajesh Abbi (Alcatel)
Gregory Bathrick (AG Communication Systems)
Umberto Bonollo (NEC)
John Burgess (Predictive Systems)
Gail Cone (Amati)
Andrew Cheers (NEC)
Peter Duffy (Atlantech)
Kevin Godfrey (Motorola)
Bill Hong (Diamond Lane)
Bob Jenness (Siemens)
Lars Johansson (Ericsson)
Jeff Johnson (RedBack Network)
Tsu Kai Lu (DSC)
Faye Ly (Copper Mountain Networks)
Gigi Karmous-Edwards (Pulsecom)
Ron Knipper (Diamond Lane)
Adil Masood (AG Communication Systems)
Padmore Peterson (BT)
Anna Salguero (SBC)
Donald Simon (Motorola)
Mike Sneed (Pulsecom)
Ted Soo-Hoo (Pulsecom)
John Stehman (Diamond Lane)
Chuck Storry (Newbridge)
Chi-Lin Tom (AFC)
Frank Van der Putten (Alcatel)
Marc Van Vlimmeren (Alcatel)
Bert Wijnen (IBM)

9. References

[1] McCloghrie K., Perkins D. and J. Schoenwaelder, "Structure of Management Information Version 2 (SMIv2)", STD 58, RFC 2578, April 1999.

[2] McCloghrie K., Perkins D. and J. Schoenwaelder, "Textual Conventions for SMIv2", STD 58, RFC 2579, April 1999.

[3] ADSL Forum TR-005, "Network Management Element Management", March 1998.

[4] McCloghrie, K. and M. Rose, Editors, "Management Information Base for Network Management of TCP/IP-based internets: MIB-II", STD 17, RFC 1213, March 1991.

[5] McCloghrie, K. and F. Kastenholz, "The Interfaces Group MIB using SMIv2", RFC 2233, November 1997.

[6] Case, J., McCloghrie, K., Rose, M. and S. Waldbusser, "Management Information Base for version 2 of the Simple Network Management Protocol (SNMPv2)", RFC 1907, January 1996.

[7] Case, J., Fedor, M., Schoffstall, M. and J. Davin. " A Simple Network Management Protocol (SNMP)", STD 15, RFC 1157, May 1990.

[8] Case, J., McCloghrie, K., Rose, M. and S. Waldbusser, "Protocol Operations for Version 2 of the Simple Network Management Protocol (SNMPv2)", RFC 1905, January 1996.

[9] ADSL Forum TR-006, "SNMP-based ADSL Line MIB", March 1998.

[10] American National Standards Institute, ANSI T1.413-1995, August 1995.

[11] ADSL Forum WT-014, "DMT Line Code Specific MIB", February 1999.

[12] ADSL Forum WT-015, "CAP Line Code Specific MIB", February 1999.

[13] Wijnen, B., Harrington, D. and R. Presuhn, "An Architecture for Describing SNMP Management Frameworks", RFC 2571, April 1999.

[14] Rose, M. and K. McCloghrie, "Structure and Identification of Management Information for TCP/IP-based Internets", STD 16, RFC 1155, May 1990.

[15] Rose, M. and K. McCloghrie, "Concise MIB Definitions", STD 16, RFC 1212, March 1991.

[16] Rose, M., "A Convention for Defining Traps for use with the SNMP", RFC 1215, March 1991.

[17] McCloghrie K., Perkins D. and J. Schoenwaelder, "Conformance Statements for SMIv2", RFC 2580, April 1999.

[18] Case, J., McCloghrie, K., Rose, M. and S. Waldbusser, "Introduction to Community-based SNMPv2", RFC 1901, January 1996.

[19] Case, J., McCloghrie, K., Rose, M. and S. Waldbusser, "Transport Mappings for Version 2 of the Simple Network Management Protocol (SNMPv2)", RFC 1906, January 1996.

[20] Case, J., Harrington D., Presuhn R. and B. Wijnen, "Message Processing and Dispatching for the Simple Network Management Protocol (SNMP)", RFC 2572, April 1999.

[21] Blumenthal, U. and B. Wijnen, "User-based Security Model (USM) for version 3 of the Simple Network Management Protocol (SNMPv3)", RFC 2574, April 1999.

[22] Levi, D., Meyer, P. and B. Stewart, "SNMP Applications", RFC 2573, April 1999.

[23] Wijnen, B., Presuhn, R. and K. McCloghrie, "View-based Access Control Model (VACM) for the Simple Network Management Protocol (SNMP)", RFC 2575, April 1999.

[24] Ahmed, M. and K. Tesink, Editors, "Definitions of Managed Objects for ATM Management Version 8.0 using SMIv2", RFC 1695, August 1994.

[25] McCloghrie, K. and A. Bierman, "Entity MIB", RFC 2037, October 1996.

[26] Yergeau, F., "UTF-8, a transformation format of ISO 10646", RFC 2279, January 1998.

10. Security Considerations

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 (sect 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 modification of trap thresholds such as SNR margins.

2) There are a number of managed objects in this MIB that may be considered to contain sensitive information. In particular, the certain objects may be considered sensitive in many environments, since it would allow an intruder to obtain information about which vendor's equipment is in use on the network. Therefore, it may be important in some environments to control read access to these objects and possibly to even encrypt the values of these object when sending them over the network via SNMP. Not all versions of SNMP provide features for such a secure environment.

SNMPv1 by itself is such an insecure environment. Even if the network itself is secure (for example by using IPSec), even then, there is no control as to 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 RFC 2574 [21] and the View-based Access Control Model RFC 2575 [23] 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 those objects only to those principals (users) that have legitimate rights to access them.

3) ADSL layer connectivity from the ATU-R will permit the subscriber to manipulate both the ADSL link directly and the AOC/EOC channels for their own loop. For example, unchecked or unfiltered fluctuations initiated by the subscriber could generate sufficient traps 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.

11. Intellectual Property Notice

The IETF takes no position regarding the validity or scope of any intellectual property or other rights that might be claimed to pertain to the implementation or use of the technology described in this document or the extent to which any license under such rights might or might not be available; neither does it represent that it has made any effort to identify any such rights. Information on the IETF's procedures with respect to rights in standards-track and standards-related documentation can be found in BCP-11. Copies of claims of rights made available for publication and any assurances of licenses to be made available, or the result of an attempt made to obtain a general license or permission for the use of such proprietary rights by implementers or users of this specification can be obtained from the IETF Secretariat."

The IETF invites any interested party to bring to its attention any copyrights, patents or patent applications, or other proprietary rights which may cover technology that may be required to practice this standard. Please address the information to the IETF Executive Director.

12. Authors' Addresses

Gregory Bathrick
AG Communication Systems
[A Subsidiary of Lucent Technologies]
2500 W Utopia Rd.
Phoenix, AZ 85027 USA

Phone: +1 602-582-7679
Fax: +1 602-582-7697
EMail: bathricg@agcs.com

Faye Ly
Copper Mountain Networks
Norcal Office
2470 Embarcadero Way
Palo Alto, CA 94303

Phone: +1 650-858-8500
Fax: +1 650-858-8085
EMail: faye@coppermountain.com

13. Full Copyright Statement

Acknowledgement

Funding for the RFC Editor function is currently provided by the Internet Society.