                 Definitions of Managed Objects for the ADSL Lines

Status of this Memo

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

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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.

```
         _____                              _____
        |       |_____      |       |
        | ATUC  |_____      | ATUR  |
        |       |_____|     |       |
        |       |_____|     |       |
        |_____|                            |_____|

             | <----- physical --------> |

             | <--- fast channel ------> |

             | <- interleaved channel -> |

                 Figure 1: ADSL Model
```
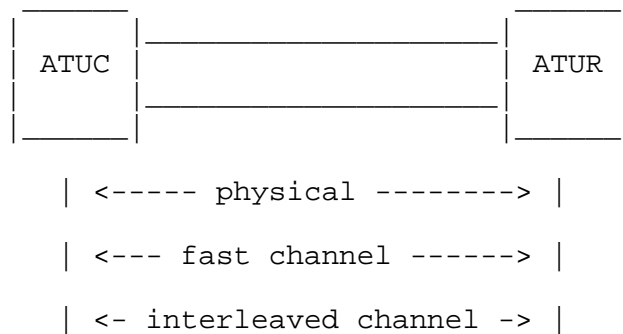
4.1.2 Use of IF-MIB (Interface MIB RFC 2233) [5]

   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).

```
            _____           (ifEntry=j)         _____
           |       |           fast channel      |      |
           |       |_____     |      |
           |       |          and/or         |    |      |
           |       |                         |    |      |
           |       |        (ifEntry=k)      |    |      |
           |       |     interleaved channel |    |      |
           |       |_____|    |      |
           | ATUC  |                              | ATUR |
           |       |                              |      |
           |       |        (ifEntry=i)           |      |
           |       |         physical             |      |
           |       |_____|    |      |
           |_____|                              |_____|
```
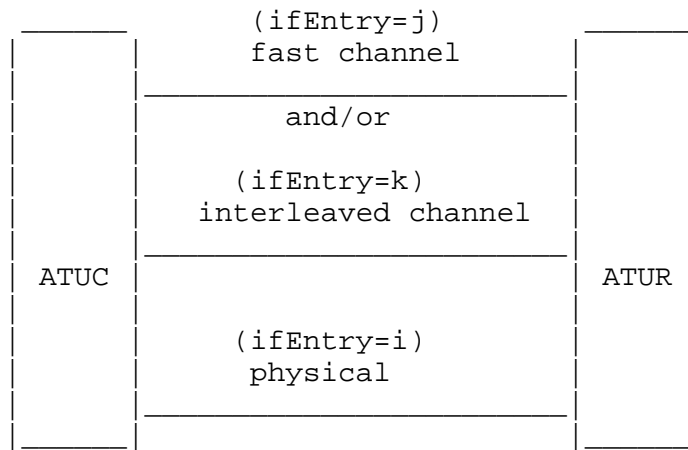
                   Figure 3: Use of ifStackTable (part 1)

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:

      o MODE-I: Dynamic Profiles - one profile shared by one or
         multiple ADSL lines.

      o 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
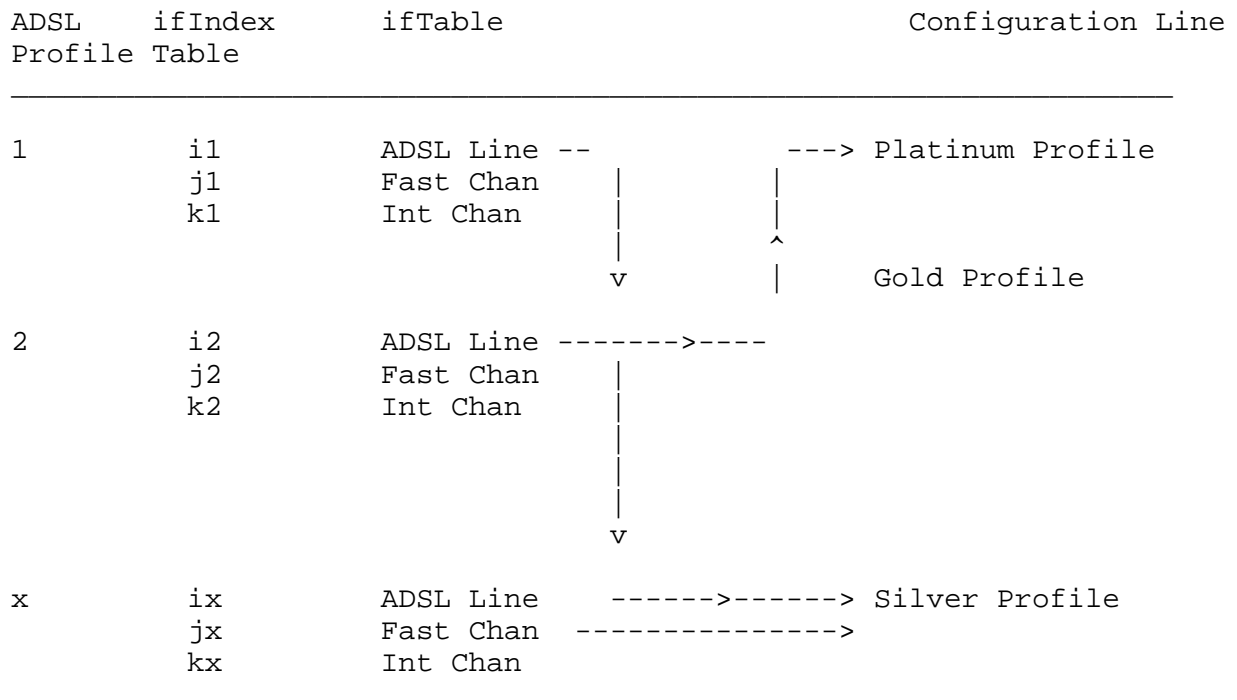   'platinum' profile. The 'gold' profile has no lines associated with
   it.

```
ADSL      ifIndex    ifTable                      Configuration Line
Profile Table
_____

1         i1         ADSL Line --              ---> Platinum Profile
          j1         Fast Chan    |        |
          k1         Int Chan     |        |
                                  |        ^
                                  v        |       Gold Profile

2         i2         ADSL Line ------->----
          j2         Fast Chan    |
          k2         Int Chan     |
                                  |
                                  |
                                  |
                                  v

x         ix         ADSL Line    ------>------> Silver Profile
          jx         Fast Chan -------------->
          kx         Int Chan
_____
```

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.

```
ADSL      ifIndex       ifTable                        Configuration Line
Profile Table
_____


1         i1            ADSL Line     ------------>  Profile
          j1            Fast Chan
          k1            Int Chan

2         i2            ADSL Line     ------------>  Profile
          j2            Fast Chan

          k2            Int Chan

x         ix            ADSL Line     ------------>  Profile
          jx            Fast Chan
          kx            Int Chan
_____
```

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"

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```
     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"

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        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
```

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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.

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Acknowledgement