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IEEE 802.5 Token Ring MIB

Status of this Memo

This memo defines a MIB for 805.5 networks for use with the SNMP protocol. This memo is a product of the Transmission Working Group of the Internet Engineering Task Force (IETF). This RFC specifies an IAB standards track protocol for the Internet community, and requests discussion and suggestions for improvements. Please refer to the current edition of the "IAB Official Protocol Standards" for the standardization state and status of this protocol. Distribution of this memo is unlimited.

Table of Contents

1. Abstract

This memo defines an experimental portion of the Management Information Base (MIB) for use with network management protocols in TCP/IP-based internets. In particular, this memo defines managed objects used for managing subnetworks which use the IEEE 802.5 Token Ring technology described in 802.5 Token Ring Access Method and Physical Layer Specifications, IEEE Standard 802.5-1989.

2. The Network Management Framework

The Internet-standard Network Management Framework consists of three components. They are:

RFC 1155 which defines the SMI, the mechanisms used for describing and naming objects for the purpose of management. RFC 1212 defines a more concise description mechanism, which is wholly consistent with the SMI.

RFC 1156 which defines MIB-I, the core set of managed objects for the Internet suite of protocols. RFC 1213, defines MIB-II, an evolution of MIB-I based on implementation experience and new operational requirements.

RFC 1157 which defines the SNMP, the protocol used for network access to managed objects.

The Framework permits new objects to be defined for the purpose of experimentation and evaluation.

3. Objects

Managed objects are accessed via a virtual information store, termed the Management Information Base or MIB. Objects in the MIB are defined using the subset of Abstract Syntax Notation One (ASN.1) [7] defined in the SMI. In particular, each object has a name, a syntax, and an encoding. The name is an object identifier, an administratively assigned name, which specifies an object type. 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 OBJECT DESCRIPTOR, to also refer to the object type.

The syntax of an object type defines the abstract data structure corresponding to that object type. The ASN.1 language is used for this purpose. However, the SMI [3] purposely restricts the ASN.1 constructs which may be used. These restrictions are explicitly made for simplicity.

The encoding of an object type is simply how that object type is represented using the object type's syntax. Implicitly tied to the notion of an object type's syntax and encoding is how the object type is represented when being transmitted on the network.

The SMI specifies the use of the basic encoding rules of ASN.1 [8], subject to the additional requirements imposed by the SNMP.

3.1. Format of Definitions

Section 5 contains contains the specification of all object types contained in this MIB module. The object types are defined using the conventions defined in the SMI, as amended by the extensions specified in [9,10].

4. Overview

This memo defines three tables: the 802.5 Interface Table, which contains state and parameter information which is specific to 802.5 interfaces, the 802.5 Statistics Table, which contains 802.5 interface statistics, and the 802.5 Timer Table, which contains the values of 802.5-defined timers. A managed system will have one entry in the 802.5 Interface Table and one entry in the 802.5 Statistics Table for each of its 802.5 interfaces. Implementation of the 802.5 Timer Table is optional.

This memo also defines OBJECT IDENTIFIERs, some to identify 802.5 tests, for use with the ifExtnsTestTable defined in [11], and some to identify Token Ring interface Chip Sets, for use with the ifExtnsChipSet object defined in [11].

4.1. Scope of Definitions

All objects defined in this memo are registered in a single subtree within the experimental namespace [3], and are for use with every interface which conforms to the IEEE 802.5 Token Ring Access Method and Physical Layer Specifications [10]. At present, this applies to interfaces for which the ifType variable in the Internet-standard MIB [4,6] has the value:

```
iso88025-tokenRing(9)
```

For these interfaces, the value of the ifSpecific variable in the MIB-II [6] has the OBJECT IDENTIFIER value:

```
dot5    OBJECT IDENTIFIER ::= { experimental 4 }
```

as defined below.

4.2. Textual Conventions

A new datatype, MacAddress, is introduced as a textual convention in this document. This textual convention has NO effect on either the syntax nor the semantics of any managed object. Objects defined using this convention are always encoded by means of the rules that define their primitive type. Hence, no changes to the SMI or the SNMP are

necessary to accommodate this textual convention which is adopted merely for the convenience of readers.

5. Definitions

```
        RFC1231-MIB DEFINITIONS ::= BEGIN

        --                IEEE 802.5 Token Ring MIB

        IMPORTS
                experimental
                        FROM RFC1155-SMI
                OBJECT-TYPE
                        FROM RFC-1212;

        --  This MIB Module uses the extended OBJECT-TYPE macro as
        --  defined in [9].



        dot5    OBJECT IDENTIFIER ::= { experimental 4 }

        -- All representations of MAC addresses in this MIB Module
        -- use, as a textual convention (i.e. this convention does
        -- not affect their encoding), the data type:

        MacAddress ::= OCTET STRING (SIZE (6))    -- a 6 octet
                                                  -- address in the
                                                  -- "canonical" order
        -- defined by IEEE 802.1a, i.e., as if it were transmitted
        -- least significant bit first, even though 802.5 (in
        -- contrast to other 802.x protocols) requires MAC addresses
        -- to be transmitted most significant bit first.
        --
        -- 16-bit addresses, if needed, are represented by setting
        -- their upper 4 octets to all 0's, i.e., AAFF would be
        -- represented as 00000000AAFF.



        -- The Interface Table

        -- This table contains state and parameter information which
        -- is specific to 802.5 interfaces.  It is mandatory that
        -- systems having 802.5 interfaces implement this table in
        -- addition to the generic interfaces table [4,6] and its
        -- generic extensions [11].
```

```
          dot5Table  OBJECT-TYPE
                     SYNTAX  SEQUENCE OF Dot5Entry
                     ACCESS  not-accessible
                     STATUS  mandatory
                     DESCRIPTION
                             "This table contains Token Ring interface
                             parameters and state variables, one entry
                             per 802.5 interface."
                     ::= { dot5 1 }

          dot5Entry  OBJECT-TYPE
                     SYNTAX  Dot5Entry
                     ACCESS  not-accessible
                     STATUS  mandatory
                     DESCRIPTION
                             "A list of Token Ring status and parameter
                              values for an 802.5 interface."
                     INDEX   { dot5IfIndex }
                     ::= { dot5Table 1 }

          Dot5Entry
              ::= SEQUENCE {
                       dot5IfIndex
                           INTEGER,
                       dot5Commands
                           INTEGER,
                       dot5RingStatus
                           INTEGER,
                       dot5RingState
                           INTEGER,
                       dot5RingOpenStatus
                           INTEGER,
                       dot5RingSpeed
                           INTEGER,
                       dot5UpStream
                           MacAddress,
                       dot5ActMonParticipate
                           INTEGER,
                       dot5Functional
                           MacAddress
                  }

          dot5IfIndex  OBJECT-TYPE
                     SYNTAX  INTEGER
                     ACCESS  read-only
                     STATUS  mandatory
                     DESCRIPTION
                             "The value of this object identifies the
```

```
                        802.5 interface for which this entry
                        contains management information.  The
                        value of this object for a particular
                        interface has the same value as the
                        ifIndex object, defined in [4,6],
                        for the same interface."
                ::= { dot5Entry 1 }

        dot5Commands  OBJECT-TYPE
                SYNTAX  INTEGER {
                             no-op(1),
                             open(2),
                             reset(3),
                             close(4)
                        }
                ACCESS  read-write
                STATUS  mandatory
                DESCRIPTION
                        "When this object is set to the value of
                         open(2), the station should go into the
                         open state.  The progress and success of
                         the open is given by the values of the
                         objects dot5RingState and
                         dot5RingOpenStatus.
                             When this object is set to the value
                         of reset(3), then the station should do
                         a reset.  On a reset, all MIB counters
                         should retain their values, if possible.
                         Other side affects are dependent on the
                         hardware chip set.
                             When this object is set to the value
                         of close(4), the station should go into
                         the stopped state by removing itself
                         from the ring.
                             Setting this object to a value of
                         no-op(1) has no effect.
                             When read, this object always has a
                         value of no-op(1)."
                ::= { dot5Entry 2 }

        dot5RingStatus OBJECT-TYPE
                SYNTAX  INTEGER
                ACCESS  read-only
                STATUS  mandatory
                DESCRIPTION
                        "The current interface status which can
                        be used to diagnose fluctuating problems
                        that can occur on token rings, after a
```

```
                        station has successfully been added to
                        the ring.
                           Before an open is completed, this
                        object has the value for the 'no status'
                        condition.  The dot5RingState and
                        dot5RingOpenStatus objects provide for
                        debugging problems when the station
                        can not even enter the ring.
                            The object's value is a sum of
                        values, one for each currently applicable
                        condition.  The following values are
                        defined for various conditions:

                                0 = No Problems detected
                               32 = Ring Recovery
                               64 = Single Station
                              256 = Remove Received
                              512 = reserved
                             1024 = Auto-Removal Error
                             2048 = Lobe Wire Fault
                             4096 = Transmit Beacon
                             8192 = Soft Error
                            16384 = Hard Error
                            32768 = Signal Loss
                           131072 = no status, open not completed."
                ::= { dot5Entry 3 }

        dot5RingState  OBJECT-TYPE
                SYNTAX  INTEGER {
                              opened(1),
                              closed(2),
                              opening(3),
                              closing(4),
                              openFailure(5),
                              ringFailure(6)
                        }
                ACCESS  read-only
                STATUS  mandatory
                DESCRIPTION
                        "The current interface state with respect
                        to entering or leaving the ring."
                ::= { dot5Entry 4 }

        dot5RingOpenStatus  OBJECT-TYPE
                SYNTAX  INTEGER {
                              noOpen(1),     -- no open attempted
                              badParam(2),
                              lobeFailed(3),
```

```
                                signalLoss(4),
                                insertionTimeout(5),
                                ringFailed(6),
                                beaconing(7),
                                duplicateMAC(8),
                                requestFailed(9),
                                removeReceived(10),
                                open(11)      -- last open successful
                        }
                ACCESS  read-only
                STATUS  mandatory
                DESCRIPTION
                        "This object indicates the success, or the
                        reason for failure, of the station's most
                        recent attempt to enter the ring."
                ::= { dot5Entry 5 }

        dot5RingSpeed  OBJECT-TYPE
                SYNTAX  INTEGER {
                                unknown(1),
                                oneMegabit(2),
                                fourMegabit(3),
                                sixteenMegabit(4)
                        }
                ACCESS  read-write
                STATUS  mandatory
                DESCRIPTION
                        "The ring's bandwidth."
                ::= { dot5Entry 6 }

        dot5UpStream  OBJECT-TYPE
                SYNTAX  MacAddress
                ACCESS  read-only
                STATUS  mandatory
                DESCRIPTION
                        "The MAC-address of the up stream neighbor
                         station in the ring."
                ::= { dot5Entry 7 }

        dot5ActMonParticipate OBJECT-TYPE
                SYNTAX  INTEGER {
                                true(1),
                                false(2)
                        }
                ACCESS  read-write
                STATUS  mandatory
                DESCRIPTION
                        "If this object has a value of true(1) then
```

```
                        this interface will participate in the
                        active monitor selection process.  If the
                        value is false(2) then it will not.
                        Setting this object might not have an
                        effect until the next time the interface
                        is opened."
                ::= { dot5Entry 8 }

        dot5Functional OBJECT-TYPE
                SYNTAX  MacAddress
                ACCESS  read-write
                STATUS  mandatory
                DESCRIPTION
                        "The bit mask of all Token Ring functional
                        addresses for which this interface will
                        accept frames."
                ::= { dot5Entry 9 }



        --   The Statistics Table

        -- This table contains statistics and error counter which are
        -- specific to 802.5 interfaces.  It is mandatory that systems
        -- having 802.5 interfaces implement this table.

        dot5StatsTable  OBJECT-TYPE
                SYNTAX  SEQUENCE OF Dot5StatsEntry
                ACCESS  not-accessible
                STATUS  mandatory
                DESCRIPTION
                        "A table containing Token Ring statistics,
                        one entry per 802.5 interface.
                            All the statistics are defined using
                        the syntax Counter as 32-bit wrap around
                        counters.  Thus, if an interface's
                        hardware maintains these statistics in
                        16-bit counters, then the agent must read
                        the hardware's counters frequently enough
                        to prevent loss of significance, in order
                        to maintain 32-bit counters in software."
                ::= { dot5 2 }

        dot5StatsEntry  OBJECT-TYPE
                SYNTAX  Dot5StatsEntry
                ACCESS  not-accessible
                STATUS  mandatory
                DESCRIPTION
```

```
                        "An entry contains the 802.5 statistics
                         for a particular interface."
                    INDEX   { dot5StatsIfIndex }
                    ::= { dot5StatsTable 1 }

        Dot5StatsEntry
            ::= SEQUENCE {
                    dot5StatsIfIndex
                        INTEGER,
                    dot5StatsLineErrors
                        Counter,
                    dot5StatsBurstErrors
                        Counter,
                    dot5StatsACErrors
                        Counter,
                    dot5StatsAbortTransErrors
                        Counter,
                    dot5StatsInternalErrors
                        Counter,
                    dot5StatsLostFrameErrors
                        Counter,
                    dot5StatsReceiveCongestions
                        Counter,
                    dot5StatsFrameCopiedErrors
                        Counter,
                    dot5StatsTokenErrors
                        Counter,
                    dot5StatsSoftErrors
                        Counter,
                    dot5StatsHardErrors
                        Counter,
                    dot5StatsSignalLoss
                        Counter,
                    dot5StatsTransmitBeacons
                        Counter,
                    dot5StatsRecoverys
                        Counter,
                    dot5StatsLobeWires
                        Counter,
                    dot5StatsRemoves
                        Counter,
                    dot5StatsSingles
                        Counter,
                    dot5StatsFreqErrors
                        Counter
                }
```

```
        dot5StatsIfIndex  OBJECT-TYPE
                    SYNTAX  INTEGER
                    ACCESS  read-only
                    STATUS  mandatory
                    DESCRIPTION
                            "The value of this object identifies the
                            802.5 interface for which this entry
                            contains management information.  The
                            value of this object for a particular
                            interface has the same value as the
                            ifIndex object, defined in [4,6], for
                            the same interface."
                    ::= { dot5StatsEntry 1 }

        dot5StatsLineErrors OBJECT-TYPE
                    SYNTAX  Counter
                    ACCESS  read-only
                    STATUS  mandatory
                    DESCRIPTION
                            "This counter is incremented when a frame
                            or token is copied or repeated by a
                            station, the E bit is zero in the frame
                            or token and one of the following
                            conditions exists: 1) there is a
                            non-data bit (J or K bit) between the SD
                            and the ED of the frame or token, or
                            2) there is an FCS error in the frame."
                    ::= { dot5StatsEntry 2 }

        dot5StatsBurstErrors OBJECT-TYPE
                    SYNTAX  Counter
                    ACCESS  read-only
                    STATUS  mandatory
                    DESCRIPTION
                            "This counter is incremented when a station
                            detects the absence of transitions for five
                            half-bit timers (burst-five error)."
                    ::= { dot5StatsEntry 3 }

        dot5StatsACErrors OBJECT-TYPE
                    SYNTAX  Counter
                    ACCESS  read-only
                    STATUS  mandatory
                    DESCRIPTION
                            "This counter is incremented when a station
                            receives an AMP or SMP frame in which A is
                            equal to C is equal to 0, and then receives
                            another SMP frame with A is equal to C is
```

```
                        equal to 0 without first receiving an AMP
                        frame. It denotes a station that cannot set
                        the AC bits properly."
                ::= { dot5StatsEntry 4 }

        dot5StatsAbortTransErrors OBJECT-TYPE
                SYNTAX  Counter
                ACCESS  read-only
                STATUS  mandatory
                DESCRIPTION
                        "This counter is incremented when a station
                        transmits an abort delimiter while
                        transmitting."
                ::= { dot5StatsEntry 5 }

        dot5StatsInternalErrors OBJECT-TYPE
                SYNTAX  Counter
                ACCESS  read-only
                STATUS  mandatory
                DESCRIPTION
                        "This counter is incremented when a station
                        recognizes an internal error."
                ::= { dot5StatsEntry 6 }

        dot5StatsLostFrameErrors OBJECT-TYPE
                SYNTAX  Counter
                ACCESS  read-only
                STATUS  mandatory
                DESCRIPTION
                        "This counter is incremented when a station
                        is transmitting and its TRR timer expires.
                        This condition denotes a condition where a
                        transmitting station in strip mode does not
                        receive the trailer of the frame before the
                        TRR timer goes off."
                ::= { dot5StatsEntry 7 }

        dot5StatsReceiveCongestions OBJECT-TYPE
                SYNTAX  Counter
                ACCESS  read-only
                STATUS  mandatory
                DESCRIPTION
                        "This counter is incremented when a station
                        recognizes a frame addressed to its
                        specific address, but has no available
                        buffer space indicating that the station
                        is congested."
                ::= { dot5StatsEntry 8 }
```

```
        dot5StatsFrameCopiedErrors OBJECT-TYPE
                    SYNTAX  Counter
                    ACCESS  read-only
                    STATUS  mandatory
                    DESCRIPTION
                            "This counter is incremented when a station
                            recognizes a frame addressed to its
                            specific address and detects that the FS
                            field A bits are set to 1 indicating a
                            possible line hit or duplicate address."
                    ::= { dot5StatsEntry 9 }

        dot5StatsTokenErrors OBJECT-TYPE
                    SYNTAX  Counter
                    ACCESS  read-only
                    STATUS  mandatory
                    DESCRIPTION
                            "This counter is incremented when a station
                            acting as the active monitor recognizes an
                            error condition that needs a token
                            transmitted."
                    ::= { dot5StatsEntry 10 }

        dot5StatsSoftErrors OBJECT-TYPE
                    SYNTAX  Counter
                    ACCESS  read-only
                    STATUS  mandatory
                    DESCRIPTION
                            "The number of Soft Errors the interface
                            has detected. It directly corresponds to
                            the number of Report Error MAC frames
                            that this interface has transmitted.
                            Soft Errors are those which are
                            recoverable by the MAC layer protocols."
                    ::= { dot5StatsEntry 11 }

        dot5StatsHardErrors OBJECT-TYPE
                    SYNTAX  Counter
                    ACCESS  read-only
                    STATUS  mandatory
                    DESCRIPTION
                            "The number of times this interface has
                            detected an immediately recoverable
                            fatal error.  It denotes the number of
                            times this interface is either
                            transmitting or receiving beacon MAC
                            frames."
                    ::= { dot5StatsEntry 12 }
```

```
        dot5StatsSignalLoss OBJECT-TYPE
                    SYNTAX  Counter
                    ACCESS  read-only
                    STATUS  mandatory
                    DESCRIPTION
                            "The number of times this interface has
                            detected the loss of signal condition from
                            the ring."
                    ::= { dot5StatsEntry 13 }

        dot5StatsTransmitBeacons OBJECT-TYPE
                    SYNTAX  Counter
                    ACCESS  read-only
                    STATUS  mandatory
                    DESCRIPTION
                            "The number of times this interface has
                            transmitted a beacon frame."
                    ::= { dot5StatsEntry 14 }

        dot5StatsRecoverys OBJECT-TYPE
                    SYNTAX  Counter
                    ACCESS  read-only
                    STATUS  mandatory
                    DESCRIPTION
                            "The number of Claim Token MAC frames
                            received or transmitted after the interface
                            has received a Ring Purge MAC frame.  This
                            counter signifies the number of times the
                            ring has been purged and is being recovered
                            back into a normal operating state."
                    ::= { dot5StatsEntry 15 }

        dot5StatsLobeWires OBJECT-TYPE
                    SYNTAX  Counter
                    ACCESS  read-only
                    STATUS  mandatory
                    DESCRIPTION
                            "The number of times the interface has
                            detected an open or short circuit in the
                            lobe data path.  The adapter will be closed
                            and dot5RingState will signify this
                            condition."
                    ::= { dot5StatsEntry 16 }

        dot5StatsRemoves OBJECT-TYPE
                    SYNTAX  Counter
                    ACCESS  read-only
                    STATUS  mandatory
```

```
                DESCRIPTION
                        "The number of times the interface has
                        received a Remove Ring Station MAC frame
                        request.  When this frame is received
                        the interface will enter the close state
                        and dot5RingState will signify this
                        condition."
                ::= { dot5StatsEntry 17 }

        dot5StatsSingles OBJECT-TYPE
                SYNTAX  Counter
                ACCESS  read-only
                STATUS  mandatory
                DESCRIPTION
                        "The number of times the interface has
                        sensed that it is the only station on the
                        ring.  This will happen if the interface
                        is the first one up on a ring, or if
                        there is a hardware problem."
                ::= { dot5StatsEntry 18 }

        dot5StatsFreqErrors OBJECT-TYPE
                SYNTAX  Counter
                ACCESS  read-only
                STATUS  optional
                DESCRIPTION
                        "The number of times the interface has
                        detected that the frequency of the
                        incoming signal differs from the expected
                        frequency by more than that specified by
                        the IEEE 802.5 standard, see chapter 7
                        in [10]."
                ::= { dot5StatsEntry 19 }


        -- The Timer Table

        -- This group contains the values of the timers defined in
        -- [10] for 802.5 interfaces.  It is optional that systems
        -- having 802.5 interfaces implement this group.

        dot5TimerTable  OBJECT-TYPE
                SYNTAX  SEQUENCE OF Dot5TimerEntry
                ACCESS  not-accessible
                STATUS  mandatory
                DESCRIPTION
                        "This table contains Token Ring interface
                        timer values, one entry per 802.5
```

```
                        interface."
                ::= { dot5 5 }

        dot5TimerEntry  OBJECT-TYPE
                    SYNTAX  Dot5TimerEntry
                    ACCESS  not-accessible
                    STATUS  mandatory
                    DESCRIPTION
                            "A list of Token Ring timer values for an
                            802.5 interface."
                    INDEX   { dot5TimerIfIndex }
                    ::= { dot5TimerTable 1 }

        Dot5TimerEntry
            ::= SEQUENCE {
                    dot5TimerIfIndex
                        INTEGER,
                    dot5TimerReturnRepeat
                        INTEGER,
                    dot5TimerHolding
                        INTEGER,
                    dot5TimerQueuePDU
                        INTEGER,
                    dot5TimerValidTransmit
                        INTEGER,
                    dot5TimerNoToken
                        INTEGER,
                    dot5TimerActiveMon
                        INTEGER,
                    dot5TimerStandbyMon
                        INTEGER,
                    dot5TimerErrorReport
                        INTEGER,
                    dot5TimerBeaconTransmit
                        INTEGER,
                    dot5TimerBeaconReceive
                        INTEGER
               }

        dot5TimerIfIndex  OBJECT-TYPE
                    SYNTAX  INTEGER
                    ACCESS  read-only
                    STATUS  mandatory
                    DESCRIPTION
                            "The value of this object identifies the
                             802.5 interface for which this entry
                             contains timer values.  The value of
                             this object for a particular interface
```

```
                        has the same value as the ifIndex
                        object, defined in [4,6], for the same
                        interface."
                ::= { dot5TimerEntry 1 }

        dot5TimerReturnRepeat  OBJECT-TYPE
                SYNTAX  INTEGER
                ACCESS  read-only
                STATUS  mandatory
                DESCRIPTION
                        "The time-out value used to ensure the
                        interface will return to Repeat State, in
                        units of 100 micro-seconds.  The value
                        should be greater than the maximum ring
                        latency.
                            Implementors are encouraged to provide
                        read-write access to this object if that is
                        possible/useful in their system, but giving
                        due consideration to the dangers of
                        write-able timers."
                ::= { dot5TimerEntry 2 }

        dot5TimerHolding  OBJECT-TYPE
                SYNTAX  INTEGER
                ACCESS  read-only
                STATUS  mandatory
                DESCRIPTION
                        "Maximum period of time a station is
                        permitted to transmit frames after capturing
                        a token, in units of 100 micro-seconds.
                            Implementors are encouraged to provide
                        read-write access to this object if that is
                        possible/useful in their system, but giving
                        due consideration to the dangers of
                        write-able timers."
                ::= { dot5TimerEntry 3 }

        dot5TimerQueuePDU  OBJECT-TYPE
                SYNTAX  INTEGER
                ACCESS  read-only
                STATUS  mandatory
                DESCRIPTION
                        "The time-out value for enqueuing of an SMP
                        PDU after reception of an AMP or SMP
                        frame in which the A and C bits were
                        equal to 0, in units of 100
                        micro-seconds.
                            Implementors are encouraged to provide
```

```
                        read-write access to this object if that is
                        possible/useful in their system, but giving
                        due consideration to the dangers of
                        write-able timers."
                ::= { dot5TimerEntry 4 }

        dot5TimerValidTransmit OBJECT-TYPE
                SYNTAX  INTEGER
                ACCESS  read-only
                STATUS  mandatory
                DESCRIPTION
                        "The time-out value used by the active
                        monitor to detect the absence of valid
                        transmissions, in units of 100
                        micro-seconds.
                            Implementors are encouraged to provide
                        read-write access to this object if that is
                        possible/useful in their system, but giving
                        due consideration to the dangers of
                        write-able timers."
                ::= { dot5TimerEntry 5 }

        dot5TimerNoToken  OBJECT-TYPE
                SYNTAX  INTEGER
                ACCESS  read-only
                STATUS  mandatory
                DESCRIPTION
                        "The time-out value used to recover from
                        various-related error situations [9].
                        If N is the maximum number of stations on
                        the ring, the value of this timer is
                        normally:
                        dot5TimerReturnRepeat + N*dot5TimerHolding.
                            Implementors are encouraged to provide
                        read-write access to this object if that is
                        possible/useful in their system, but giving
                        due consideration to the dangers of
                        write-able timers."
                ::= { dot5TimerEntry 6 }

        dot5TimerActiveMon  OBJECT-TYPE
                SYNTAX  INTEGER
                ACCESS  read-only
                STATUS  mandatory
                DESCRIPTION
                        "The time-out value used by the active
                        monitor to stimulate the enqueuing of an
                        AMP PDU for transmission, in units of
```

```
                        100 micro-seconds.
                            Implementors are encouraged to provide
                        read-write access to this object if that is
                        possible/useful in their system, but giving
                        due consideration to the dangers of
                        write-able timers."
                ::= { dot5TimerEntry 7 }

        dot5TimerStandbyMon  OBJECT-TYPE
                    SYNTAX  INTEGER
                    ACCESS  read-only
                    STATUS  mandatory
                    DESCRIPTION
                            "The time-out value used by the stand-by
                            monitors to ensure that there is an active
                            monitor on the ring and to detect a
                            continuous stream of tokens, in units of
                            100 micro-seconds.
                                Implementors are encouraged to provide
                            read-write access to this object if that is
                            possible/useful in their system, but giving
                            due consideration to the dangers of
                            write-able timers."
                    ::= { dot5TimerEntry 8 }

        dot5TimerErrorReport  OBJECT-TYPE
                    SYNTAX  INTEGER
                    ACCESS  read-only
                    STATUS  mandatory
                    DESCRIPTION
                            "The time-out value which determines how
                            often a station shall send a Report Error
                            MAC frame to report its error counters,
                            in units of 100 micro-seconds.
                                Implementors are encouraged to provide
                            read-write access to this object if that is
                            possible/useful in their system, but giving
                            due consideration to the dangers of
                            write-able timers."
                    ::= { dot5TimerEntry 9 }

        dot5TimerBeaconTransmit  OBJECT-TYPE
                    SYNTAX  INTEGER
                    ACCESS  read-only
                    STATUS  mandatory
                    DESCRIPTION
                            "The time-out value which determines how
                            long a station shall remain in the state
```

```
                        of transmitting Beacon frames before
                        entering the Bypass state, in units of
                        100 micro-seconds.
                            Implementors are encouraged to provide
                        read-write access to this object if that is
                        possible/useful in their system, but giving
                        due consideration to the dangers of
                        write-able timers."
                ::= { dot5TimerEntry 10 }

        dot5TimerBeaconReceive  OBJECT-TYPE
                    SYNTAX  INTEGER
                    ACCESS  read-only
                    STATUS  mandatory
                    DESCRIPTION
                            "The time-out value which determines how
                            long a station shall receive Beacon
                            frames from its downstream neighbor
                            before entering the Bypass state, in
                            units of 100 micro-seconds.
                                Implementors are encouraged to provide
                            read-write access to this object if that is
                            possible/useful in their system, but giving
                            due consideration to the dangers of
                            write-able timers."
                    ::= { dot5TimerEntry 11 }


        --                      802.5 Interface Tests

        dot5Tests         OBJECT IDENTIFIER ::= { dot5 3 }

        -- The extensions to the interfaces table proposed in [11]
        -- define a table object, ifExtnsTestTable, through which a
        -- network manager can instruct an agent to test an interface
        -- for various faults.  A test to be performed is identified
        -- (as the value of ifExtnsTestType) via an OBJECT IDENTIFIER.
        --
        -- The Full-Duplex Loop Back Test is a common test, defined
        -- in [11] as:
        --
        --    testFullDuplexLoopBack
        --
        -- Invoking this test on a 802.5 interface causes the
        -- interface to check the path from memory through the
        -- chip set's internal logic and back to memory, thus
        -- checking the proper functioning of the systems's
        -- interface to the chip set.
```

```
        -- The Insert Function test is defined by:

        testInsertFunc    OBJECT IDENTIFIER ::= { dot5Tests 1 }

        -- Invoking this test causes the station to test the insert
        -- ring logic of the hardware if the station's lobe media
        -- cable is connected to a wiring concentrator.  Note that
        -- this command inserts the station into the network, and
        -- thus, could cause problems if the station is connected
        -- to a operational network.

        --                 802.5 Hardware Chip Sets

        dot5ChipSets   OBJECT IDENTIFIER ::= { dot5 4 }

        -- The extensions to the interfaces table proposed in [11]
        -- define an object, ifExtnsChipSet, with the syntax of
        -- OBJECT IDENTIFIER, to identify the hardware chip set in
        -- use by an interface.  That definition specifies just
        -- one applicable object identifier:
        --
        --    unknownChipSet
        --
        -- for use as the value of ifExtnsChipSet when the specific
        -- chip set is unknown.
        --
        -- This MIB defines the following for use as values of
        -- ifExtnsChipSet:

           -- IBM 16/4 Mb/s
        chipSetIBM16       OBJECT IDENTIFIER ::= { dot5ChipSets 1 }

           -- TI 4Mb/s
        chipSetTItms380    OBJECT IDENTIFIER ::= { dot5ChipSets 2 }

           -- TI 16/4 Mb/s
        chipSetTItms380c16 OBJECT IDENTIFIER ::= { dot5ChipSets 3 }

        END
```

6. Acknowledgements

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8. Security Considerations

Security issues are not discussed in this memo.

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