

```

IEEE8023-SNMP-REPEATER-MIB DEFINITIONS ::= BEGIN

IMPORTS
    Counter32, Counter64, Integer32, Gauge32,
    OBJECT-TYPE, MODULE-IDENTITY, NOTIFICATION-TYPE, org
        FROM SNMPv2-SMI
    TimeStamp, MacAddress, TEXTUAL-CONVENTION,
    RowStatus, TestAndIncr
        FROM SNMPv2-TC
    OBJECT-GROUP, MODULE-COMPLIANCE, NOTIFICATION-GROUP
        FROM SNMPv2-CONF
    OwnerString
        FROM RFC1271-MIB;

ieee8023snmpRptrMIB MODULE-IDENTITY
    LAST-UPDATED "201304110000Z" -- April 11, 2013
    ORGANIZATION
        "IEEE 802.3 working group"
    CONTACT-INFO
        "WG-URL: http://www.ieee802.org/3/index.html
        WG-EMail: STDS-802-3-MIB@LISTSERV.IEEE.ORG

        Contact: Howard Frazier
        Postal: 3151 Zanker Road
                San Jose, CA 95134
                USA
        Tel:    +1.408.922.8164
        E-mail: hfrazier@broadcom.com"
    DESCRIPTION
        "Management information for IEEE 802.3 repeaters."

    REVISION    "201304110000Z" -- April 11, 2013
    DESCRIPTION
        "Revision, based on an earlier version in IEEE Std 802.3.1-2011."

    REVISION    "201102020000Z" -- February 2, 2011
    DESCRIPTION
        "Initial revision, based on an earlier version in RFC 2108"

    ::= { org ieee(111) standards-association-numbers-series-standards(2)
        lan-man-stds(802) ieee802dot3(3) ieee802dot3dot1mibs(1) 7 }

ieee8023snmpDot3RptrMgt OBJECT IDENTIFIER ::= { ieee8023snmpRptrMIB 1}

OptMacAddr ::= TEXTUAL-CONVENTION
    DISPLAY-HINT    "1x:"
    STATUS          current
    DESCRIPTION
        "Either a 6 octet address in the 'canonical'
        order defined by IEEE Std 802.1a, i.e., as if it
        were transmitted least significant bit first
        if a value is available or a zero length string."
    REFERENCE
        "See MacAddress in SNMPv2-TC. The only difference
        is that a zero length string is allowed as a value
        for OptMacAddr and not for MacAddress."
    SYNTAX OCTET STRING (SIZE (0 | 6))

-- Basic information at the repeater, group, and port level.

rptrBasicPackage
    OBJECT IDENTIFIER ::= { ieee8023snmpDot3RptrMgt 1 }
rptrGroupInfo
    OBJECT IDENTIFIER ::= { rptrBasicPackage 1 }
rptrPortInfo
    OBJECT IDENTIFIER ::= { rptrBasicPackage 2 }
rptrAllRptrInfo
    OBJECT IDENTIFIER ::= { rptrBasicPackage 3 }

```

```

-- Monitoring information at the repeater, group, and port level.
rpPtrMonitorPackage
  OBJECT IDENTIFIER ::= { ieee8023snmpDot3RptrMgt 2 }
  rpPtrMonitorRptrInfo
    OBJECT IDENTIFIER ::= { rpPtrMonitorPackage 1 }
  rpPtrMonitorGroupInfo
    OBJECT IDENTIFIER ::= { rpPtrMonitorPackage 2 }
  rpPtrMonitorPortInfo
    OBJECT IDENTIFIER ::= { rpPtrMonitorPackage 3 }
  rpPtrMonitorAllRptrInfo
    OBJECT IDENTIFIER ::= { rpPtrMonitorPackage 4 }

-- Address tracking information at the repeater, group,
-- and port level.
rpPtrAddrTrackPackage
  OBJECT IDENTIFIER ::= { ieee8023snmpDot3RptrMgt 3 }
  rpPtrAddrTrackRptrInfo
    OBJECT IDENTIFIER ::= { rpPtrAddrTrackPackage 1 }
  rpPtrAddrTrackGroupInfo
    -- this subtree is currently unused
    OBJECT IDENTIFIER ::= { rpPtrAddrTrackPackage 2 }
  rpPtrAddrTrackPortInfo
    OBJECT IDENTIFIER ::= { rpPtrAddrTrackPackage 3 }

-- TopN information.
rpPtrTopNPackage
  OBJECT IDENTIFIER ::= { ieee8023snmpDot3RptrMgt 4 }
  rpPtrTopNRptrInfo
    -- this subtree is currently unused
    OBJECT IDENTIFIER ::= { rpPtrTopNPackage 1 }
  rpPtrTopNGroupInfo
    -- this subtree is currently unused
    OBJECT IDENTIFIER ::= { rpPtrTopNPackage 2 }
  rpPtrTopNPortInfo
    OBJECT IDENTIFIER ::= { rpPtrTopNPackage 3 }

-- Basic information at the group level.
--
-- Configuration and status objects for each
-- managed group in the repeater system, independent
-- of whether there is one or more managed
-- repeater-units in the repeater system.

rpPtrGroupTable OBJECT-TYPE
  SYNTAX      SEQUENCE OF RptrGroupEntry
  MAX-ACCESS  not-accessible
  STATUS      current
  DESCRIPTION
    "Table of descriptive and status information about
    the groups of ports."
  ::= { rpPtrGroupInfo 1 }

rpPtrGroupEntry OBJECT-TYPE
  SYNTAX      RptrGroupEntry
  MAX-ACCESS  not-accessible
  STATUS      current
  DESCRIPTION
    "An entry in the table, containing information
    about a single group of ports."
  INDEX      { rpPtrGroupIndex }
  ::= { rpPtrGroupTable 1 }

RptrGroupEntry ::=
  SEQUENCE {
    rpPtrGroupIndex
      Integer32,
    rpPtrGroupObjectID
      OBJECT IDENTIFIER,
    rpPtrGroupOperStatus
      INTEGER,
    rpPtrGroupPortCapacity
      Integer32
  }

```

```

rpPtrGroupIndex OBJECT-TYPE
    SYNTAX      Integer32 (1..2147483647)
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "This object identifies the group within the
        repeater system for which this entry contains
        information."
    REFERENCE
        "IEEE Std 802.3, 30.4.2.1.1, aGroupID."
 ::= { rpPtrGroupEntry 1 }

```

```

rpPtrGroupObjectID OBJECT-TYPE
    SYNTAX      OBJECT IDENTIFIER
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "The vendor's authoritative identification of the
        group. This value may be allocated within the SMI
        enterprises subtree (1.3.6.1.4.1) and provides a
        straight-forward and unambiguous means for
        determining what kind of group is being managed.

        For example, this object could take the value
        1.3.6.1.4.1.4242.1.2.14 if vendor 'Flintstones,
        Inc.' was assigned the subtree 1.3.6.1.4.1.4242,
        and had assigned the identifier
        1.3.6.1.4.1.4242.1.2.14 to its 'Wilma Flintstone
        6-Port FOIRL Plug-in module.'"
 ::= { rpPtrGroupEntry 2 }

```

```

rpPtrGroupOperStatus OBJECT-TYPE
    SYNTAX      INTEGER {
        other(1),
        operational(2),
        malfunctioning(3),
        notPresent(4),
        underTest(5),
        resetInProgress(6)
    }
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "An object that indicates the operational status
        of the group.

        A status of notPresent(4) indicates that the group
        is temporarily or permanently physically and/or
        logically not a part of the repeater. It is an
        implementation-specific matter as to whether the
        agent effectively removes notPresent entries from
        the table.

        A status of operational(2) indicates that the
        group is functioning, and a status of
        malfunctioning(3) indicates that the group is
        malfunctioning in some way."
 ::= { rpPtrGroupEntry 3 }

```

```

rpPtrGroupPortCapacity OBJECT-TYPE
    SYNTAX      Integer32 (1..2147483647)
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "The rpPtrGroupPortCapacity is the number of ports
        that can be contained within the group. Valid
        range is 1-2147483647. Within each group, the
        ports are uniquely numbered in the range from 1 to
        rpPtrGroupPortCapacity.

```

Some ports may not be present in the repeater system, in which case the actual number of ports present

will be less than the value of rpPtrGroupPortCapacity.
The number of ports present in the group will never
be greater than the value of rpPtrGroupPortCapacity.

Note: In practice, this will generally be the
number of ports on a module, card, or board, and
the port numbers will correspond to numbers marked
on the physical embodiment."

REFERENCE

"IEEE Std 802.3, 30.4.2.1.2, ~~aGroupPortCapacity.~~"
::= { rpPtrGroupEntry 4 }

-- Basic information at the port level.
--
-- Configuration and status objects for
-- each managed repeater port in the repeater system,
-- independent of whether there is one or more
-- managed repeater-units in the repeater system.

rpPtrPortTable OBJECT-TYPE

SYNTAX SEQUENCE OF RpPtrPortEntry
MAX-ACCESS not-accessible
STATUS current
DESCRIPTION
"Table of descriptive and status information about
the repeater ports in the repeater system. The number of
entries is independent of the number of repeaters
in the managed repeater system."
::= { rpPtrPortInfo 1 }

rpPtrPortEntry OBJECT-TYPE

SYNTAX RpPtrPortEntry
MAX-ACCESS not-accessible
STATUS current
DESCRIPTION
"An entry in the table, containing information
about a single port."

INDEX { rpPtrPortGroupIndex, rpPtrPortIndex }
::= { rpPtrPortTable 1 }

RpPtrPortEntry ::=

SEQUENCE {
rpPtrPortGroupIndex
Integer32,
rpPtrPortIndex
Integer32,
rpPtrPortAdminStatus
INTEGER,
rpPtrPortAutoPartitionState
INTEGER,
rpPtrPortOperStatus
INTEGER,
rpPtrPortRpPtrId
Integer32
}

rpPtrPortGroupIndex OBJECT-TYPE

SYNTAX Integer32 (1..2147483647)
MAX-ACCESS not-accessible
STATUS current
DESCRIPTION
"This object identifies the group containing the
port for which this entry contains information."
::= { rpPtrPortEntry 1 }

rpPtrPortIndex OBJECT-TYPE

SYNTAX Integer32 (1..2147483647)
MAX-ACCESS not-accessible
STATUS current
DESCRIPTION
"This object identifies the port within the group

for which this entry contains information. This identifies the port independently from the repeater to which it may be attached. The numbering scheme for ports is implementation specific; however, this value can never be greater than rptrGroupPortCapacity for the associated group."

REFERENCE

"IEEE Std 802.3, 30.4.3.1.1, ~~aPortID.~~"
 ::= { rptrPortEntry 2 }

rptrPortAdminStatus OBJECT-TYPE

SYNTAX INTEGER {
 enabled(1),
 disabled(2)
 }

MAX-ACCESS read-write

STATUS current

DESCRIPTION

"Setting this object to disabled(2) disables the port. A disabled port neither transmits nor receives. Once disabled, a port shall be explicitly enabled to restore operation. A port that is disabled when power is lost or when a reset is exerted shall remain disabled when normal operation resumes.

The admin status takes precedence over auto-partition and functionally operates between the auto-partition mechanism and the AUI/PMA-, PCS/PMA or GMII/PCS as applicable.

Setting this object to enabled(1) enables the port and exerts a BEGIN on the port's auto-partition state machine.

(In effect, when a port is disabled, the value of rptrPortAutoPartitionState for that port is frozen until the port is next enabled. When the port becomes enabled, the rptrPortAutoPartitionState becomes notAutoPartitioned(1), regardless of its pre-disabling state.)"

REFERENCE

"IEEE Std 802.3, 30.4.3.1.2, ~~aPortAdminState and 30.4.3.2.1~~
~~and 30.4.3.2.1, acPortAdminControl.~~"
 ::= { rptrPortEntry 3 }

rptrPortAutoPartitionState OBJECT-TYPE

SYNTAX INTEGER {
 notAutoPartitioned(1),
 autoPartitioned(2)
 }

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The autoPartitionState flag indicates whether the port is currently partitioned by the repeater's auto-partition protection.

The conditions that cause port partitioning are specified in partition state machine in Clauses IEEE Std 802.3 Clause 9 and Clause 27 of IEEE Std 802.3. They are not differentiated here."

An IEEE Std 802.3, Clause 27 and Clause 41 repeater port partitions on entry to the PARTITION WAIT state of the partition state diagram (see IEEE Std 802.3, Figure 27-8 and Figure 41-4)."

REFERENCE

"IEEE Std 802.3, 30.4.3.1.3, ~~aAutoPartitionState.~~"
 ::= { rptrPortEntry 4 }

rptrPortOperStatus OBJECT-TYPE

SYNTAX INTEGER {
 operational(1),

```

        notOperational(2),
        notPresent(3)
    }
MAX-ACCESS read-only
STATUS current
DESCRIPTION
    "This object indicates the port's operational
    status. The notPresent(3) status indicates the
    port is physically removed (note this may or may
    not be possible depending on the type of port.)
    The operational(1) status indicates that the port
    is enabled (see rpPtrPortAdminStatus) and working,
    even though it might be auto-partitioned (see
    rpPtrPortAutoPartitionState).

    If this object has the value operational(1) and
    rpPtrPortAdminStatus is set to disabled(2), it is
    expected that this object's value will soon change
    to notOperational(2)."
```

::= { rpPtrPortEntry 5 }

```

rpPtrPortRpPtrId OBJECT-TYPE
SYNTAX Integer32 (0..2147483647)
MAX-ACCESS read-only
STATUS current
DESCRIPTION
    "This object identifies the repeater to
    which this port belongs. The repeater
    identified by a particular value of this object
    is the same as that identified by the same
    value of rpPtrInfoId. A value of zero
    indicates that this port currently is not
    a member of any repeater."
```

::= { rpPtrPortEntry 6 }

```

-- New version of basic information at the repeater level.
--
-- Configuration, status, and control objects for
-- each managed repeater in the repeater system.
```

```

rpPtrInfoTable OBJECT-TYPE
SYNTAX SEQUENCE OF RpPtrInfoEntry
MAX-ACCESS not-accessible
STATUS current
DESCRIPTION
    "A table of information about each
    non-trivial repeater. The number of entries
    depends on the physical configuration of the
    managed repeater system."
```

::= { rpPtrAllRpPtrInfo 1 }

```

rpPtrInfoEntry OBJECT-TYPE
SYNTAX RpPtrInfoEntry
MAX-ACCESS not-accessible
STATUS current
DESCRIPTION
    "An entry in the table, containing information
    about a single non-trivial repeater."
```

INDEX { rpPtrInfoId }

::= { rpPtrInfoTable 1 }

```

RpPtrInfoEntry ::=
SEQUENCE {
    rpPtrInfoId
        Integer32,
    rpPtrInfoRpPtrType
        INTEGER,
    rpPtrInfoOperStatus
        INTEGER,
    rpPtrInfoReset
        INTEGER,
    rpPtrInfoPartitionedPorts
```

```
Gauge32,  
rpPtrInfoLastChange  
TimeStamp  
}
```

rpPtrInfoId OBJECT-TYPE

```
SYNTAX      Integer32 (1..2147483647)  
MAX-ACCESS  not-accessible  
STATUS      current  
DESCRIPTION  
    "This object identifies the repeater for which  
    this entry contains information."  
 ::= { rpPtrInfoEntry 1 }
```

rpPtrInfoRpPtrType OBJECT-TYPE

```
SYNTAX      INTEGER {  
    other(1),          -- undefined or unknown  
    tenMb(2),  
    onehundredMbClassI(3),  
    onehundredMbClassII(4+),  
    onethousandMb(5)  
    }  
MAX-ACCESS  read-only  
STATUS      current  
DESCRIPTION  
    "The rpPtrInfoRpPtrType returns a value that identifies  
    the CSMA/CD repeater type."  
REFERENCE  
    "IEEE Std 802.3, 30.4.1.1.2, aRepeaterType."  
 ::= { rpPtrInfoEntry 2 }
```

rpPtrInfoOperStatus OBJECT-TYPE

```
SYNTAX      INTEGER {  
    other(1),  
    ok(2),  
    failure(3+),  
    failureGroup(4),  
    failurePort(5),  
    failureGeneral(6)  
    }  
MAX-ACCESS  read-only  
STATUS      current  
DESCRIPTION  
    "The rpPtrInfoOperStatus object indicates the  
    operational state of the repeater."  
REFERENCE  
    "IEEE Std 802.3, 30.4.1.1.5, aRepeaterHealthState."  
 ::= { rpPtrInfoEntry 3 }
```

rpPtrInfoReset OBJECT-TYPE

```
SYNTAX      INTEGER {  
    noReset(1),  
    reset(2)  
    }  
MAX-ACCESS  read-write  
STATUS      current  
DESCRIPTION  
    "Setting this object to reset(2) causes a  
    transition to the START state of Figure 9-2 in see IEEE Std 802.3,  
    Clause Figure 9-IEEE Std 802.3--2 for a 10 Mb/s repeater,  
    and to the START  
    state of see IEEE Std 802.3, Figure 27-2 in Clause 27  
    of that standard for a  
    100 Mb/s repeater.
```

Setting this object to noReset(1) has no effect.
The agent will return the value noReset(1)
when this object is read.

After receiving a request to set this variable to
reset(2), the agent is allowed to delay the reset
for a short period. For example, the implementor
may choose to delay the reset long enough to allow

the SNMP response to be transmitted. In any event, SNMP requires that a response be transmitted.

This action does not reset the management counters defined in this document nor does it affect the portAdminStatus parameters. Included in this action is the execution of a disruptive Self-Test with the following characteristics: a) The nature of the tests is not specified. b) The test resets the repeater but without affecting management information about the repeater. c) The test does not inject packets onto any segment. d) Packets received during the test may or may not be transferred. e) The test does not interfere with management functions.

After performing this self-test, the agent will update the repeater health information (including rpPtrInfoOperStatus), and send a rpPtrInfoResetEvent notification."

REFERENCE

"IEEE Std 802.3, 30.4.1.2.1, ~~acResetRepeater."~~"
::= { rpPtrInfoEntry 4 }

rpPtrInfoPartitionedPorts OBJECT-TYPE

SYNTAX Gauge32

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"This object returns the total number of ports in the repeater whose current state meets all three of the following criteria: rpPtrPortOperStatus does not have the value notPresent(3), rpPtrPortAdminStatus is enabled(1), and rpPtrPortAutoPartitionState is autoPartitioned(2)."

::= { rpPtrInfoEntry 5 }

rpPtrInfoLastChange OBJECT-TYPE

SYNTAX TimeStamp

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The value of sysUpTime when any of the following conditions occurred:

- 1) agent cold- or warm-started;
- 2) this instance of repeater was created (such as when a device or module was added to the repeater system);
- 3) a change in the value of rpPtrInfoOperStatus;
- 4) ports were added or removed as members of the repeater; or
- 5) any of the counters associated with this repeater had a discontinuity."

::= { rpPtrInfoEntry 6 }

-- Statistics at the port level.

--

rpPtrMonitorPortTable OBJECT-TYPE

SYNTAX SEQUENCE OF RpPtrMonitorPortEntry

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"Table of performance and error statistics for the ports. The number of entries is the same as that in the rpPtrPortTable.

The columnar object rpPtrMonitorPortLastChange is used to indicate possible discontinuities of counter type columnar objects in the table."

::= { rpPtrMonitorPortInfo 1 }

rpPtrMonitorPortEntry OBJECT-TYPE


```

SYNTAX      RptrMonitorPortEntry
MAX-ACCESS  not-accessible
STATUS      current
DESCRIPTION
    "An entry in the table, containing performance and
    error statistics for a single port."
INDEX       { rptrMonitorPortGroupIndex, rptrMonitorPortIndex }
 ::= { rptrMonitorPortTable 1 }

```

```

RptrMonitorPortEntry ::=
SEQUENCE {
    rptrMonitorPortGroupIndex
        Integer32,
    rptrMonitorPortIndex
        Integer32,
    rptrMonitorPortReadableFrames
        Counter32,
    rptrMonitorPortReadableOctets
        Counter32,
    rptrMonitorPortFCSErrors
        Counter32,
    rptrMonitorPortAlignmentErrors
        Counter32,
    rptrMonitorPortFrameTooLongs
        Counter32,
    rptrMonitorPortShortEvents
        Counter32,
    rptrMonitorPortRunts
        Counter32,
    rptrMonitorPortCollisions
        Counter32,
    rptrMonitorPortLateEvents
        Counter32,
    rptrMonitorPortVeryLongEvents
        Counter32,
    rptrMonitorPortDataRateMismatches
        Counter32,
    rptrMonitorPortAutoPartitions
        Counter32,
    rptrMonitorPortTotalErrors
        Counter32,
    rptrMonitorPortLastChange
        TimeStamp
}

```

```

rptrMonitorPortGroupIndex OBJECT-TYPE
SYNTAX      Integer32 (1..2147483647)
MAX-ACCESS  not-accessible
STATUS      current
DESCRIPTION
    "This object identifies the group containing the
    port for which this entry contains information."
 ::= { rptrMonitorPortEntry 1 }

```

```

rptrMonitorPortIndex OBJECT-TYPE
SYNTAX      Integer32 (1..2147483647)
MAX-ACCESS  not-accessible
STATUS      current
DESCRIPTION
    "This object identifies the port within the group
    for which this entry contains information."
REFERENCE
    "IEEE Std 802.3, 30.4.3.1.1, aPortID.""
 ::= { rptrMonitorPortEntry 2 }

```

```

rptrMonitorPortReadableFrames OBJECT-TYPE
SYNTAX      Counter32
MAX-ACCESS  read-only
STATUS      current
DESCRIPTION
    "This object is the number of frames of valid
    frame length that have been received on this port.
    This counter is incremented by one for each frame

```

received on this port whose OctetCount is greater than or equal to minFrameSize and less than or equal to maxFrameSize (Ref: IEEE 802.3 Std, 4.4.2.1) and for which the FCSError and CollisionEvent signals are not asserted.

A discontinuity may occur in the value when the value of object rptrMonitorPortLastChange changes.

This statistic provides one of the parameters necessary for obtaining the packet error ratio. The approximate minimum time for rollover of this counter is 80 hours at 10 Mb/s."

REFERENCE

"IEEE Std 802.3, 30.4.3.1.4, ~~aReadableFrames.~~"
 ::= { rptrMonitorPortEntry 3 }

rptrMonitorPortReadableOctets OBJECT-TYPE

SYNTAX Counter32
MAX-ACCESS read-only
STATUS current
DESCRIPTION

"This object is the number of octets contained in valid frames that have been received on this port. This counter is incremented by OctetCount for each frame received on this port that has been determined to be a readable frame (i.e., including FCS octets but excluding framing bits and dribble bits).

A discontinuity may occur in the value when the value of object rptrMonitorPortLastChange changes.

This statistic provides an indicator of the total data transferred. The approximate minimum time for rollover of this counter in a 10 Mb/s repeater is 58 minutes.

For ports receiving traffic at a maximum rate in a 100 Mb/s repeater, this counter can roll over in less than 6 minutes. Since that amount of time could be less than a management station's poll cycle time, in order to avoid a loss of information a management station is advised to also poll the rptrMonitorPortUpper32Octets object, or to use the 64-bit counter defined by rptrMonitorPortHCReadableOctets instead of the two 32-bit counters."

REFERENCE

"IEEE Std 802.3, 30.4.3.1.5, ~~aReadableOctets.~~"
 ::= { rptrMonitorPortEntry 4 }

rptrMonitorPortFCSErrors OBJECT-TYPE

SYNTAX Counter32
MAX-ACCESS read-only
STATUS current
DESCRIPTION

"This counter is incremented by one for each frame received on this port with the FCSError signal asserted and the FramingError and CollisionEvent signals deasserted and whose OctetCount is greater than or equal to minFrameSize and less than or equal to maxFrameSizeLimit (See IEEE Std 802.3, 4.2.7.1).

A discontinuity may occur in the value when the value of object rptrMonitorPortLastChange changes.

The approximate minimum time for rollover of this counter is 80 hours at 10 Mb/s."

REFERENCE

```
      "IEEE Std 802.3, 30.4.3.1.6, "_aFrameCheckSequenceErrors.""
 ::= { rpPtrMonitorPortEntry 5 }
```

rpPtrMonitorPortAlignmentErrors OBJECT-TYPE

```
SYNTAX      Counter32
MAX-ACCESS  read-only
STATUS      current
```

DESCRIPTION

"This counter is incremented by one for each frame received on this port with the FCSError and FramingError signals asserted and CollisionEvent signal deasserted and whose OctetCount is greater than or equal to minFrameSize and less than or equal to maxFrameSizeLimit (See IEEE Std 802.3, 4.2.7.1). If rpPtrMonitorPortAlignmentErrors is incremented then the rpPtrMonitorPortFCSErrors Counter shall not be incremented for the same frame.

A discontinuity may occur in the value when the value of object rpPtrMonitorPortLastChange changes.

The approximate minimum time for rollover of this counter is 80 hours at 10 Mb/s."

REFERENCE

```
      "IEEE Std 802.3, 30.4.3.1.7, "_aAlignmentErrors.""
 ::= { rpPtrMonitorPortEntry 6 }
```

rpPtrMonitorPortFrameTooLongs OBJECT-TYPE

```
SYNTAX      Counter32
MAX-ACCESS  read-only
STATUS      current
```

DESCRIPTION

"This counter is incremented by one for each frame received on this port whose OctetCount is greater than maxFrameSizeLimit (See IEEE Std 802.3, 4.2.7.1). If rpPtrMonitorPortFrameTooLongs is incremented then neither the rpPtrMonitorPortAlignmentErrors nor the rpPtrMonitorPortFCSErrors counter shall be incremented for the frame.

A discontinuity may occur in the value when the value of object rpPtrMonitorPortLastChange changes.

The approximate minimum time for rollover of this counter is 61 days in a 10 Mb/s repeater."

REFERENCE

```
      "IEEE Std 802.3, 30.4.3.1.8, "_aFramesTooLong.""
 ::= { rpPtrMonitorPortEntry 7 }
```

rpPtrMonitorPortShortEvents OBJECT-TYPE

```
SYNTAX      Counter32
MAX-ACCESS  read-only
STATUS      current
```

DESCRIPTION

"This counter is incremented by one for each CarrierEvent on this port with ActivityDuration less than ShortEventMaxTime. ShortEventMaxTime is greater than 74 bit times and less than 82 bit times. ShortEventMaxTime has tolerances included to provide for circuit losses between a conformance test point at the AUI and the measurement point within the state machine.

Notes:

ShortEvents may indicate externally generated noise hits that will cause the repeater to transmit Runtts to its other ports, or propagate a collision (which may be late) back to the

transmitting DTE and damaged frames to the rest of the network.

Implementors may wish to consider selecting the ShortEventMaxTime towards the lower end of the allowed tolerance range to accommodate bit losses suffered through physical channel devices not budgeted for within this standard.

The significance of this attribute is different in 10 and 100 Mb/s collision domains. ~~Clause 9~~IEEE Std 802.3, Clause 9 repeaters perform fragment extension of short events which would be counted as runts on the interconnect ports of other repeaters. ~~Clause~~IEEE Std 802.3, Clause 27 repeaters do not perform fragment extension.

A discontinuity may occur in the value when the value of object rptrMonitorPortLastChange changes.

The approximate minimum time for rollover of this counter is 16 hours in a 10 Mb/s repeater."

REFERENCE

"IEEE Std 802.3, 30.4.3.1.9, ~~aShortEvents."~~
 ::= { rptrMonitorPortEntry 8 }

rptrMonitorPortRunts OBJECT-TYPE

SYNTAX Counter32
MAX-ACCESS read-only
STATUS current
DESCRIPTION

"This counter is incremented by one for each CarrierEvent on this port that meets one of the following two conditions. Only one test need be made. a) The ActivityDuration is greater than ShortEventMaxTime and less than ValidPacketMinTime and the CollisionEvent signal is deasserted. b) The OctetCount is less than 64, the ActivityDuration is greater than ShortEventMaxTime and the CollisionEvent signal is deasserted. ValidPacketMinTime is greater than or equal to 552 bit times and less than 565 bit times.

An event whose length is greater than 74 bit times but less than 82 bit times shall increment either the shortEvents counter or the runts counter but not both. A CarrierEvent greater than or equal to 552 bit times but less than 565 bit times may or may not be counted as a runt.

ValidPacketMinTime has tolerances included to provide for circuit losses between a conformance test point at the AUI and the measurement point within the state machine.

Runts usually indicate collision fragments, a normal network event. In certain situations associated with large diameter networks a percentage of collision fragments may exceed ValidPacketMinTime.

A discontinuity may occur in the value when the value of object rptrMonitorPortLastChange changes.

The approximate minimum time for rollover of this counter is 16 hours in a 10 Mb/s repeater."

REFERENCE

"IEEE Std 802.3, 30.4.3.1.10, ~~aRunts."~~
 ::= { rptrMonitorPortEntry 9 }

rptrMonitorPortCollisions OBJECT-TYPE

SYNTAX Counter32
MAX-ACCESS read-only

STATUS current

DESCRIPTION

"For ~~an IEEE Std 802.3~~, Clause 9 repeater, ~~this counter is~~
~~counter is~~ incremented by one for any CarrierEvent
signal
on any port for which the CollisionEvent signal
on this port is asserted. For ~~an IEEE Std 802.3~~,
Clause 27
repeater port the counter increments on
entering
the Collision Count Increment state of the
partition state diagram (~~see IEEE Std 802.3~~,
Figure 27-8-~~of~~).
~~IEEE Std 802.3~~).

A discontinuity may occur in the value
when the value of object
rpPtrMonitorPortLastChange changes.

The approximate minimum time for rollover of this
counter is 16 hours in a 10 Mb/s repeater."

REFERENCE

"IEEE Std 802.3, 30.4.3.1.11, ~~aCollisions.~~"
 ::= { rpPtrMonitorPortEntry 10 }

rpPtrMonitorPortLateEvents OBJECT-TYPE

SYNTAX Counter32

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"For ~~an IEEE Std 802.3~~, Clause 9 repeater port, ~~this counter is~~
~~this counter is~~ incremented by one for each
CarrierEvent
on this port in which the CollIn(X)
variable transitions to the value SQE (see
~~9.6.6.2~~, IEEE Std 802.3, ~~9.6.6.2~~) while the
ActivityDuration is greater than the
LateEventThreshold. For ~~an IEEE Std 802.3~~, Clause 27 ~~repeater~~
~~repeater~~ port, this counter is incremented by one on
entering the Collision Count Increment state
of the ~~partition~~ state diagram (~~see IEEE Std 802.3~~,
Figure 27-8)
while the ~~ActivityDuration~~ is greater ~~than~~
~~Than~~ the LateEvent- Threshold. Such a CarrierEvent
is counted twice, as both a collision and as a
lateEvent.

The LateEventThreshold is greater than 480 bit
times and less than 565 bit times.
LateEventThreshold has tolerances included to
permit an implementation to build a single
threshold to serve as both the LateEventThreshold
and ValidPacketMinTime threshold.

A discontinuity may occur in the value
when the value of object
rpPtrMonitorPortLastChange changes.

The approximate minimum time for rollover of this
counter is 81 hours in a 10 Mb/s repeater."

REFERENCE

"IEEE Std 802.3, 30.4.3.1.12, ~~aLateEvents.~~"
 ::= { rpPtrMonitorPortEntry 11 }

rpPtrMonitorPortVeryLongEvents OBJECT-TYPE

SYNTAX Counter32

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"For ~~an IEEE Std 802.3~~, Clause 9 repeater port, ~~this counter~~
~~this counter~~ is incremented by one for each
CarrierEvent
whose ActivityDuration is greater than

the
MAU Jabber Lockup Protection timer TW3
(~~See~~ IEEE Std 802.3 9.6.1 and 9.6.5).

For ~~an IEEE Std 802.3~~, Clause 27 repeater port, ~~this counter~~
this counter is incremented by one on entry to the
Rx Jabber state of the receiver timer state
diagram (~~see IEEE Std 802.3~~, Figure 27-7).
Other counters may
be incremented as appropriate.

A discontinuity may occur in the value
when the value of object
rpPtrMonitorPortLastChange changes."

REFERENCE

"IEEE Std 802.3, 30.4.3.1.13, ~~aVeryLongEvents.~~"
 ::= { rpPtrMonitorPortEntry 12 }

rpPtrMonitorPortDataRateMismatches OBJECT-TYPE

SYNTAX Counter32
MAX-ACCESS read-only
STATUS current
DESCRIPTION

"This counter is incremented by one for each
frame received by this port that meets all
of the conditions required by only one of the
following two measurement methods:

Measurement method A: 1) The CollisionEvent
signal is not asserted (10 Mb/s operation) or
the Collision Count Increment state of the
partition state diagram (~~Figure 27-8 of~~~~see IEEE Std 802.3,~~
~~IEEE Std 802.3~~Figure 27-8) has not been entered
(100 Mb/s operation). 2) The ActivityDuration
is greater than ValidPacketMinTime. 3) The
frequency (data rate) is detectably mismatched
from the local transmit frequency.

Measurement method B: 1) The CollisionEvent
signal is not asserted (10 Mb/s operation)
or the Collision Count Increment state of the
partition state diagram (~~Figure 27-8 of~~~~see IEEE Std 802.3,~~
~~IEEE Std 802.3~~Figure 27-8) has not been entered
(100 Mb/s operation). 2) The OctetCount is
greater than 63. 3) The frequency (data
rate) is detectably mismatched from the local
transmit frequency. The exact degree of
mismatch is vendor specific and is to be
defined by the vendor for conformance testing.

When this event occurs, other counters whose
increment conditions were satisfied may or may not
also be incremented, at the implementor's
discretion. Whether or not the repeater was able
to maintain data integrity is beyond the scope of
this standard.

A discontinuity may occur in the value
when the value of object
rpPtrMonitorPortLastChange changes."

REFERENCE

"IEEE Std 802.3, 30.4.3.1.14, ~~aDataRateMismatches.~~"
 ::= { rpPtrMonitorPortEntry 13 }

rpPtrMonitorPortAutoPartitions OBJECT-TYPE

SYNTAX Counter32
MAX-ACCESS read-only
STATUS current
DESCRIPTION

"This counter is incremented by one for
each time the repeater has automatically
partitioned this port.

The conditions that cause ~~a Clause 9~~an IEEE Std 802.3, Clause 9 repeater port to partition are specified in the partition state diagram in ~~Clause 9 of~~ IEEE Std 802.3-~~1~~ Clause 9. They are not differentiated here. ~~An IEEE Std 802.3~~, Clause 27 repeater port partitions on entry to the Partition Wait state of the partition state diagram (see IEEE Std 802.3, Figure 27-8-~~in~~). ~~IEEE Std 802.3~~).

A discontinuity may occur in the value when the value of object rpPtrMonitorPortLastChange changes."

REFERENCE

"IEEE Std 802.3, 30.4.3.1.15, ~~aAutoPartitions."~~
 ::= { rpPtrMonitorPortEntry 14 }

rpPtrMonitorPortTotalErrors OBJECT-TYPE

SYNTAX Counter32

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The total number of errors which have occurred on this port. This counter is the summation of the values of other error counters (for the same port), namely:

rpPtrMonitorPortFCSErrors,
rpPtrMonitorPortAlignmentErrors,
rpPtrMonitorPortFrameTooLongs,
rpPtrMonitorPortShortEvents,
rpPtrMonitorPortLateEvents,
rpPtrMonitorPortVeryLongEvents,
rpPtrMonitorPortDataRateMismatches, and
rpPtrMonitorPortSymbolErrors.

This counter is redundant in the sense that it is the summation of information already available through other objects. However, it is included specifically because the regular retrieval of this object as a means of tracking the health of a port provides a considerable optimization of network management traffic over the otherwise necessary retrieval of the summed counters.

Note that rpPtrMonitorPortRunts is not included in this total; this is because runts usually indicate collision fragments, a normal network event.

A discontinuity may occur in the value when the value of object rpPtrMonitorPortLastChange changes."

::= { rpPtrMonitorPortEntry 15 }

rpPtrMonitorPortLastChange OBJECT-TYPE

SYNTAX TimeStamp

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The value of sysUpTime when the last of the following occurred:
1) the agent cold- or warm-started;
2) the row for the port was created (such as when a device or module was added to the repeater system); or
3) any condition that would cause one of the counters for the row to experience a discontinuity."

::= { rpPtrMonitorPortEntry 16 }

```

rpPtrMonitor100PortTable OBJECT-TYPE
    SYNTAX      SEQUENCE OF RPtrMonitor100PortEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "Table of additional performance and error
        statistics for 100 Mb/s ports, above and
        beyond those parameters that apply to both
        10 and 100 Mb/s ports. Entries exist only for
        ports attached to 100 Mb/s repeaters.

        The columnar object rpPtrMonitorPortLastChange
        is used to indicate possible discontinuities
        of counter type columnar objects in this table."
    ::= { rpPtrMonitorPortInfo 2 }

rpPtrMonitor100PortEntry OBJECT-TYPE
    SYNTAX      RPtrMonitor100PortEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "An entry in the table, containing performance
        and error statistics for a single 100 Mb/s port."
    INDEX      { rpPtrMonitorPortGroupIndex, rpPtrMonitorPortIndex }
    ::= { rpPtrMonitor100PortTable 1 }

RPtrMonitor100PortEntry ::=
    SEQUENCE {
        rpPtrMonitorPortIsolates
            Counter32,
        rpPtrMonitorPortSymbolErrors
            Counter32,
        rpPtrMonitorPortUpper32Octets
            Counter32,
        rpPtrMonitorPortHCReadableOctets
            Counter64
    }

rpPtrMonitorPortIsolates OBJECT-TYPE
    SYNTAX      Counter32
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "This counter is incremented by one each time that
        the repeater port automatically isolates as a
        consequence of false carrier events. The conditions
        which cause a port to automatically isolate are
        defined by the transition from the False Carrier
        state to the Link Unstable state of the carrier
        integrity state diagram (Figure 27-9 ofsee IEEE Std 802.3,
        IEEE Std 802.3Figure 27-9).

        Note: Isolates do not affect the value of
        the PortOperStatus object.

        A discontinuity may occur in the value
        when the value of object
        rpPtrMonitorPortLastChange changes."
    REFERENCE
        "IEEE Std 802.3, 30.4.3.1.16, aIsolates.""
    ::= { rpPtrMonitor100PortEntry 1 }

rpPtrMonitorPortSymbolErrors OBJECT-TYPE
    SYNTAX      Counter32
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "This counter is incremented by one each time when
        valid length packet was received at the port and
        there was at least one occurrence of an invalid
        data symbol. This can increment only once per valid
        carrier event. A collision presence at any port of
        the repeater containing port N, will not cause this

```


attribute to increment.

A discontinuity may occur in the value when the value of object rpPtrMonitorPortLastChange changes.

The approximate minimum time for rollover of this counter is 7.4 hours at 100 Mb/s."

REFERENCE

"IEEE Std 802.3, 30.4.3.1.17, ~~"aSymbolErrorDuringPacket."~~

::= { rpPtrMonitor100PortEntry 2 }

rpPtrMonitorPortUpper32Octets OBJECT-TYPE

SYNTAX Counter32

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"This object is the number of octets contained in valid frames that have been received on this port, modulo 2**32. That is, it contains the upper 32 bits of a 64-bit octets counter, of which the lower 32 bits are contained in the rpPtrMonitorPortReadableOctets object.

This two-counter mechanism is provided for those network management protocols that do not support 64-bit counters (e.g. SNMP V1) and are used to manage a repeater type of 100 Mb/s.

Conformance clauses for this MIB are defined such that implementation of this object is not required in a repeater system which does not support 100 Mb/s. However, repeater systems with mixed 10 and 100 Mb/s ports may implement this object across all ports, including 10 Mb/s. If this object is implemented, the value shall be a valid count as defined in the first paragraph of this description.

A discontinuity may occur in the value when the value of object rpPtrMonitorPortLastChange changes."

::= { rpPtrMonitor100PortEntry 3 }

rpPtrMonitorPortHCReadableOctets OBJECT-TYPE

SYNTAX Counter64

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"This object is the number of octets contained in valid frames that have been received on this port. This counter is incremented by OctetCount for each frame received on this port which has been determined to be a readable frame (i.e., including FCS octets but excluding framing bits and dribble bits).

This statistic provides an indicator of the total data transferred.

This counter is a 64-bit version of rpPtrMonitorPortReadableOctets. It should be used by network management protocols which support 64-bit counters (e.g., SNMPv2).

Conformance clauses for this MIB are defined such that implementation of this object is not required in a repeater system which does not support 100 Mb/s. However, repeater systems with mixed 10 and 100 Mb/s ports may implement this object across all ports, including 10 Mb/s. If this object is implemented, the value shall be a valid count as defined in the first paragraph of this description.

A discontinuity may occur in the value
when the value of object
rpPtrMonitorPortLastChange changes."

REFERENCE

"IEEE Std 802.3, 30.4.3.1.5, ~~aReadableOctets."~~"
 ::= { rpPtrMonitor100PortEntry 4 }

-- New version of statistics at the repeater level.
--
-- Statistics objects for each managed repeater
-- in the repeater system.

rpPtrMonTable OBJECT-TYPE

SYNTAX SEQUENCE OF RpPtrMonEntry

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"A table of information about each
non-trivial repeater. The number of entries
in this table is the same as the number of
entries in the rpPtrInfoTable.

The columnar object rpPtrInfoLastChange is
used to indicate possible discontinuities of
counter type columnar objects in this table."

::= { rpPtrMonitorAllRpPtrInfo 1 }

rpPtrMonEntry OBJECT-TYPE

SYNTAX RpPtrMonEntry

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"An entry in the table, containing information
about a single non-trivial repeater."

INDEX { rpPtrInfoId }

::= { rpPtrMonTable 1 }

RpPtrMonEntry ::=

SEQUENCE {

rpPtrMonTxCollisions

Counter32,

rpPtrMonTotalFrames

Counter32,

rpPtrMonTotalErrors

Counter32,

rpPtrMonTotalOctets

Counter32

}

rpPtrMonTxCollisions OBJECT-TYPE

SYNTAX Counter32

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"For ~~an IEEE Std 802.3~~, Clause 9 (10 Mb/s) repeater, ~~this counter~~
~~this counter~~ is incremented every time the repeater
state

machine enters the TRANSMIT COLLISION state
from any state other than ONE PORT LEFT
(see ~~Figure 9-2-IEEE Std 802.3~~, ~~Figure 9-2~~).

For ~~an IEEE Std 802.3~~, Clause 27 repeater, this counter ~~is~~
~~is~~ incremented every time the repeater core state
diagram enters the Jam state as a result of
Activity(ALL) > 1 (see ~~Figure 27-2-IEEE Std 802.3~~, ~~Figure 27-2~~).

The approximate minimum time for rollover of this
counter is 16 hours in a 10 Mb/s repeater and 1.6
hours in a 100 Mb/s repeater."

REFERENCE

"IEEE Std 802.3, 30.4.1.1.8, ~~aTransmitCollisions~~"

```
::= { rptrMonEntry 1 }
```

```
rptrMonTotalFrames OBJECT-TYPE
```

```
SYNTAX Counter32
```

```
MAX-ACCESS read-only
```

```
STATUS current
```

```
DESCRIPTION
```

"The number of frames of valid frame length that have been received on the ports in this repeater and for which the FCSError and CollisionEvent signals were not asserted. If an implementation can not obtain a count of frames as seen by the repeater itself, this counter may be implemented as the summation of the values of the rptrMonitorPortReadableFrames counters for all of the ports in the repeater.

This statistic provides one of the parameters necessary for obtaining the packet error ratio. The approximate minimum time for rollover of this counter is 80 hours in a 10 Mb/s repeater."

```
::= { rptrMonEntry 3 }
```

```
rptrMonTotalErrors OBJECT-TYPE
```

```
SYNTAX Counter32
```

```
MAX-ACCESS read-only
```

```
STATUS current
```

```
DESCRIPTION
```

"The total number of errors which have occurred on all of the ports in this repeater. The errors included in this count are the same as those listed for the rptrMonitorPortTotalErrors counter. If an implementation can not obtain a count of these errors as seen by the repeater itself, this counter may be implemented as the summation of the values of the rptrMonitorPortTotalErrors counters for all of the ports in the repeater."

```
::= { rptrMonEntry 4 }
```

```
rptrMonTotalOctets OBJECT-TYPE
```

```
SYNTAX Counter32
```

```
MAX-ACCESS read-only
```

```
STATUS current
```

```
DESCRIPTION
```

"The total number of octets contained in the valid frames that have been received on the ports in this group. If an implementation can not obtain a count of octets as seen by the repeater itself, this counter may be the summation of the values of the rptrMonitorPortReadableOctets counters for all of the ports in the group.

This statistic provides an indicator of the total data transferred. The approximate minimum time for rollover of this counter in a 10 Mb/s repeater is 58 minutes divided by the number of ports in the repeater.

For 100 Mb/s repeaters processing traffic at a maximum rate, this counter can roll over in less than 6 minutes divided by the number of ports in the repeater. Since that amount of time could be less than a management station's poll cycle time, in order to avoid a loss of information a management station is advised to also poll the rptrMonUpper32TotalOctets object, or to use the 64-bit counter defined by rptrMonHCTotalOctets instead of the two 32-bit counters."

```
::= { rptrMonEntry 5 }
```

```
rptrMon100Table OBJECT-TYPE
```

```
SYNTAX SEQUENCE OF RptrMon100Entry
```

```
MAX-ACCESS not-accessible
```

```
STATUS      current
DESCRIPTION
    "A table of additional information about each
    100 Mb/s repeater, augmenting the entries in
    the rpPtrMonTable. Entries exist in this table
    only for 100 Mb/s repeaters.

    The columnar object rpPtrInfoLastChange is
    used to indicate possible discontinuities of
    counter type columnar objects in this table."
 ::= { rpPtrMonitorAllRpPtrInfo 2 }
```

```
rpPtrMon100Entry OBJECT-TYPE
SYNTAX      RpPtrMon100Entry
MAX-ACCESS  not-accessible
STATUS      current
DESCRIPTION
    "An entry in the table, containing information
    about a single 100 Mb/s repeater."
INDEX       { rpPtrInfoId }
 ::= { rpPtrMon100Table 1 }
```

```
RpPtrMon100Entry ::=
SEQUENCE {
    rpPtrMonUpper32TotalOctets
        Counter32,
    rpPtrMonHCTotalOctets
        Counter64
}
```

```
rpPtrMonUpper32TotalOctets OBJECT-TYPE
SYNTAX      Counter32
MAX-ACCESS  read-only
STATUS      current
DESCRIPTION
    "The total number of octets contained in the valid
    frames that have been received on the ports in
    this repeater, modulo 2**32. That is, it contains
    the upper 32 bits of a 64-bit counter, of which
    the lower 32 bits are contained in the
    rpPtrMonTotalOctets object. If an implementation
    can not obtain a count of octets as seen
    by the repeater itself, the 64-bit value
    may be the summation of the values of the
    rpPtrMonitorPortReadableOctets counters combined
    with the corresponding rpPtrMonitorPortUpper32Octets
    counters for all of the ports in the repeater.
```

This statistic provides an indicator of the total data transferred within the repeater.

This two-counter mechanism is provided for those network management protocols that do not support 64-bit counters (e.g., SNMP v1) and are used to manage a repeater type of 100 Mb/s.

Conformance clauses for this MIB are defined such that implementation of this object is not required in a repeater system which does not support 100 Mb/s. However, repeater systems with mixed 10 and 100 Mb/s ports may implement this object across all ports, including 10 Mb/s. If this object is implemented, the value shall be a valid count as defined in the first paragraph of this description."

```
 ::= { rpPtrMon100Entry 1 }
```

```
rpPtrMonHCTotalOctets OBJECT-TYPE
SYNTAX      Counter64
MAX-ACCESS  read-only
STATUS      current
DESCRIPTION
    "The total number of octets contained in the valid
    frames that have been received on the ports in
```

this group. If a implementation can not obtain a count of octets as seen by the repeater itself, this counter may be the summation of the values of the rptrMonitorPortReadableOctets counters for all of the ports in the group.

This statistic provides an indicator of the total data transferred.

This counter is a 64-bit (high-capacity) version of rptrMonUpper32TotalOctets and rptrMonTotalOctets. It should be used by network management protocols which support 64-bit counters (e.g. SNMPv2).

Conformance clauses for this MIB are defined such that implementation of this object is not required in a repeater system which does not support 100 Mb/s. However, repeater systems with mixed 10 and 100 Mb/s ports may implement this object across all ports, including 10 Mb/s. If this object is implemented, the value shall be a valid count as defined in the first paragraph of this description."

```
::= { rptrMon100Entry 2 }
```

```
--
```

```
-- The Repeater Address Search Table
```

```
--
```

```
-- This table provides an active address tracking  
-- capability which can be also used to collect the  
-- necessary information for mapping the topology  
-- of a network. Note that an NMS is required to have  
-- read-write access to the table in order to access  
-- this function. Section 4 "Topology Mapping" of  
-- IETF RFC 2108 [B19] contains a description of an  
-- algorithm that can make use of this table,  
-- in combination with the forwarding databases  
-- of managed bridges/switches in the network,  
-- to map network topology. Devices may also  
-- use the protocol and a set of managed  
-- objects defined in IEEE Std 802.1AB Station  
-- and Media Access Control Connectivity  
-- Discovery to discover the physical topology  
-- from adjacent stations.
```

```
--
```

```
rpTrAddrSearchTable OBJECT-TYPE
```

```
SYNTAX SEQUENCE OF RpTrAddrSearchEntry
```

```
MAX-ACCESS not-accessible
```

```
STATUS current
```

```
DESCRIPTION
```

```
"This table contains one entry per repeater in the  
repeater system. It defines objects that allow a network  
management application to instruct an agent to watch  
for a given MAC address and report which port it  
was seen on. Only one address search can be in  
progress on each repeater at any one time. Before  
starting an address search, a management application  
should obtain 'ownership' of the entry in  
rpTrAddrSearchTable for the repeater that is to  
perform the search. This is accomplished with the  
rpTrAddrSearchLock and rpTrAddrSearchStatus as  
follows:
```

```
try_again:
```

```
get(rpTrAddrSearchLock, rpTrAddrSearchStatus)  
while (rpTrAddrSearchStatus != notInUse)  
{  
    /* Loop waiting for objects to be available*/  
    short delay  
    get(rpTrAddrSearchLock, rpTrAddrSearchStatus)  
}
```

```

/* Try to claim map objects */
lock_value = rpPtrAddrSearchLock
if ( set(rpPtrAddrSearchLock = lock_value,
        rpPtrAddrSearchStatus = inUse,
        rpPtrAddrSearchOwner = 'my-IP-address')
    == FAILURE)
/* Another manager got the lock */
goto try_again

/* I have the lock */
set (rpPtrAddrSearchAddress = <search target>)

wait for rpPtrAddrSearchState to change from none

if (rpPtrAddrSearchState == single)
    get (rpPtrAddrSearchGroup, rpPtrAddrSearchPort)
/* release the lock, making sure not to overwrite
   anyone else's lock */
set (rpPtrAddrSearchLock = lock_value+1,
     rpPtrAddrSearchStatus = notInUse,
     rpPtrAddrSearchOwner = '')

```

A management station first retrieves the values of the appropriate instances of the rpPtrAddrSearchLock and rpPtrAddrSearchStatus objects, periodically repeating the retrieval if necessary, until the value of rpPtrAddrSearchStatus is 'notInUse'. The management station then tries to set the same instance of the rpPtrAddrSearchLock object to the value it just retrieved, the same instance of the rpPtrAddrSearchStatus object to 'inUse', and the corresponding instance of rpPtrAddrSearchOwner to a value indicating itself. If the set operation succeeds, then the management station has obtained ownership of the rpPtrAddrSearchEntry, and the value of rpPtrAddrSearchLock is incremented by the agent (as per the semantics of TestAndIncr). Failure of the set operation indicates that some other manager has obtained ownership of the rpPtrAddrSearchEntry.

Once ownership is obtained, the management station can proceed with the search operation. Note that the agent will reset rpPtrAddrSearchStatus to 'notInUse' if it has been in the 'inUse' state for an abnormally long period of time, to prevent a misbehaving manager from permanently locking the entry. It is suggested that this timeout period be between one and five minutes.

When the management station has completed its search operation, it should free the entry by setting the instance of the rpPtrAddrSearchLock object to the previous value + 1, the instance of the rpPtrAddrSearchStatus to 'notInUse', and the instance of rpPtrAddrSearchOwner to a zero length string. This is done to prevent overwriting another station's lock."

```
 ::= { rpPtrAddrTrackRpPtrInfo 1 }
```

```

rpPtrAddrSearchEntry OBJECT-TYPE
SYNTAX      RpPtrAddrSearchEntry
MAX-ACCESS not-accessible
STATUS      current
DESCRIPTION
    "An entry containing objects for invoking an address
     search on a repeater."
INDEX       { rpPtrInfoId }
 ::= { rpPtrAddrSearchTable 1 }

```

```

RpPtrAddrSearchEntry ::=
SEQUENCE {
    rpPtrAddrSearchLock      TestAndIncr,
    rpPtrAddrSearchStatus    INTEGER,

```

```

rptrAddrSearchAddress  MacAddress,
rptrAddrSearchState   INTEGER,
rptrAddrSearchGroup   Integer32,
rptrAddrSearchPort    Integer32,
rptrAddrSearchOwner   OwnerString
}

```

rptrAddrSearchLock OBJECT-TYPE

```

SYNTAX      TestAndIncr
MAX-ACCESS read-write
STATUS      current
DESCRIPTION
    "This object is used by a management station as an
    advisory lock for this rptrAddrSearchEntry."
 ::= { rptrAddrSearchEntry 1 }

```

rptrAddrSearchStatus OBJECT-TYPE

```

SYNTAX      INTEGER {
                notInUse(1),
                inUse(2)
            }
MAX-ACCESS read-write
STATUS      current
DESCRIPTION
    "This object is used to indicate that some management
    station is currently using this rptrAddrSearchEntry.
    Cooperating managers should set this object to
    'notInUse' when they are finished using this entry.
    The agent will automatically set the value of this
    object to 'notInUse' if it has been set to 'inUse'
    for an unusually long period of time."
 ::= { rptrAddrSearchEntry 2 }

```

rptrAddrSearchAddress OBJECT-TYPE

```

SYNTAX      MacAddress
MAX-ACCESS read-write
STATUS      current
DESCRIPTION
    "This object is used to search for a specified MAC
    address. When this object is set, an address search
    begins. This automatically sets the corresponding
    instance of the rptrAddrSearchState object to 'none'
    and the corresponding instances of the
    rptrAddrSearchGroup and rptrAddrSearchPort objects to
    0.

    When a valid frame is received by this repeater with
    a source MAC address that matches the current value
    of rptrAddrSearchAddress, the agent will update the
    corresponding instances of rptrAddrSearchState,
    rptrAddrSearchGroup and rptrAddrSearchPort to reflect
    the current status of the search, and the group and
    port on which the frame was seen."
 ::= { rptrAddrSearchEntry 3 }

```

rptrAddrSearchState OBJECT-TYPE

```

SYNTAX      INTEGER {
                none(1),
                single(2),
                multiple(3)
            }
MAX-ACCESS read-only
STATUS      current
DESCRIPTION
    "The current state of the MAC address search on this
    repeater. This object is initialized to 'none' when
    the corresponding instance of rptrAddrSearchAddress
    is set. If the agent detects the address on exactly
    one port, it will set this object to 'single', and
    set the corresponding instances of
    rptrAddrSearchGroup and rptrAddrSearchPort to reflect
    the group and port on which the address was heard."

```

```

        If the agent detects the address on more than one
        port, it will set this object to 'multiple'."
 ::= { rptrAddrSearchEntry 4 }

rpPtrAddrSearchGroup OBJECT-TYPE
SYNTAX      Integer32 (0..2147483647)
MAX-ACCESS  read-only
STATUS      current
DESCRIPTION
    "The group from which an error-free frame whose
    source address is equal to the corresponding instance
    of rpPtrAddrSearchAddress has been received. The
    value of this object is undefined when the
    corresponding instance of rpPtrAddrSearchState is
    equal to 'none' or 'multiple'."
 ::= { rpPtrAddrSearchEntry 5 }

rpPtrAddrSearchPort OBJECT-TYPE
SYNTAX      Integer32 (0..2147483647)
MAX-ACCESS  read-only
STATUS      current
DESCRIPTION
    "The port from which an error-free frame whose
    source address is equal to the corresponding instance
    of rpPtrAddrSearchAddress has been received. The
    value of this object is undefined when the
    corresponding instance of rpPtrAddrSearchState is
    equal to 'none' or 'multiple'."
 ::= { rpPtrAddrSearchEntry 6 }

rpPtrAddrSearchOwner OBJECT-TYPE
SYNTAX      OwnerString
MAX-ACCESS  read-write
STATUS      current
DESCRIPTION
    "The entity that currently has 'ownership' of this
    rpPtrAddrSearchEntry."
 ::= { rpPtrAddrSearchEntry 7 }

--
-- The Port Address Tracking Table
--
-- This table provides a way for a network management
-- application to passively gather information (using
-- read-only privileges) about which network addresses
-- are connected to which ports of a repeater.
--

rpPtrAddrTrackTable OBJECT-TYPE
SYNTAX      SEQUENCE OF RptrAddrTrackEntry
MAX-ACCESS  not-accessible
STATUS      current
DESCRIPTION
    "Table of address mapping information about the
    ports."
 ::= { rpPtrAddrTrackPortInfo 1 }

rpPtrAddrTrackEntry OBJECT-TYPE
SYNTAX      RptrAddrTrackEntry
MAX-ACCESS  not-accessible
STATUS      current
DESCRIPTION
    "An entry in the table, containing address mapping
    information about a single port."
INDEX      { rpPtrAddrTrackGroupIndex, rpPtrAddrTrackPortIndex }
 ::= { rpPtrAddrTrackTable 1 }

RptrAddrTrackEntry ::=
SEQUENCE {
    rpPtrAddrTrackGroupIndex
        INTEGER,
    rpPtrAddrTrackPortIndex

```



```

        INTEGER,
        rpPtrAddrTrackSourceAddrChanges
            Counter32,
        rpPtrAddrTrackNewLastSrcAddress
            OptMacAddr,
        rpPtrAddrTrackCapacity
            Integer32
    }

rpPtrAddrTrackGroupIndex OBJECT-TYPE
    SYNTAX      Integer32 (1..2147483647)
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "This object identifies the group containing the
         port for which this entry contains information."
    ::= { rpPtrAddrTrackEntry 1 }

rpPtrAddrTrackPortIndex OBJECT-TYPE
    SYNTAX      Integer32 (1..2147483647)
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "This object identifies the port within the group
         for which this entry contains information."
    REFERENCE
        "IEEE Std 802.3, 30.4.3.1.1, aPortID."
    ::= { rpPtrAddrTrackEntry 2 }

rpPtrAddrTrackSourceAddrChanges OBJECT-TYPE
    SYNTAX      Counter32
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "This counter is incremented by one for each time
         that the rpPtrAddrTrackNewLastSrcAddress attribute
         for this port has changed.

         This may indicate whether a link is connected to a
         single DTE or another multi-user segment.

         A discontinuity may occur in the value when the
         value of object rpPtrMonitorPortLastChange changes.

         The approximate minimum time for rollover of this
         counter is 81 hours in a 10 Mb/s repeater."
    REFERENCE
        "IEEE Std 802.3, 30.4.3.1.19, aSourceAddressChanges."
    ::= { rpPtrAddrTrackEntry 3 }

rpPtrAddrTrackNewLastSrcAddress OBJECT-TYPE
    SYNTAX      OptMacAddr
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "This object is the SourceAddress of the last
         readable frame (i.e., counted by
         rpPtrMonitorPortReadableFrames) received by this
         port. If no frames have been received by this
         port since the agent began monitoring the port
         activity, the agent shall return a string of
         length zero."
    REFERENCE
        "IEEE Std 802.3, 30.4.3.1.18, aLastSourceAddress."
    ::= { rpPtrAddrTrackEntry 4 }

rpPtrAddrTrackCapacity OBJECT-TYPE
    SYNTAX      Integer32
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "The maximum number of addresses that can be
         detected on this port. This value indicates

```

to the maximum number of entries in the
rpPtrExtAddrTrackTable relative to this port.

If this object has the value of 1, the agent
implements only the LastSourceAddress mechanism
described by IETF RFC 1368 or IETF RFC 1516."

::= { rpPtrAddrTrackEntry 5 }

-- Table for multiple addresses per port

rpPtrExtAddrTrackTable OBJECT-TYPE

SYNTAX SEQUENCE OF RpPtrExtAddrTrackEntry

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"A table to extend the address tracking table (i.e.,
rpPtrAddrTrackTable) with a list of source MAC
addresses that were recently received on each port.
The number of ports is the same as the number of
entries in table rpPtrPortTable. The number of
entries in this table depends on the agent/repeater
implementation and the number of different
addresses received on each port.

The first entry for each port contains
the same MAC address that is given by the
rpPtrAddrTrackNewLastSrcAddress for that port.

Entries in this table for a particular port are
retained when that port is switched from one
repeater to another.

The ordering of MAC addresses listed for a
particular port is implementation dependent."

::= { rpPtrAddrTrackPortInfo 2 }

rpPtrExtAddrTrackEntry OBJECT-TYPE

SYNTAX RpPtrExtAddrTrackEntry

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"A row in the table of extended address tracking
information for ports. Entries cannot be directly
created or deleted via SNMP operations."

INDEX { rpPtrAddrTrackGroupIndex,
rpPtrAddrTrackPortIndex,
rpPtrExtAddrTrackMacIndex }

::= { rpPtrExtAddrTrackTable 1 }

RpPtrExtAddrTrackEntry ::= SEQUENCE {

rpPtrExtAddrTrackMacIndex Integer32,

rpPtrExtAddrTrackSourceAddress MacAddress

}

rpPtrExtAddrTrackMacIndex OBJECT-TYPE

SYNTAX Integer32 (1..2147483647)

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"The index of a source MAC address seen on
the port.

The ordering of MAC addresses listed for a
particular port is implementation dependent.

There is no implied relationship between a
particular index and a particular MAC
address. The index for a particular MAC
address may change without notice."

::= { rpPtrExtAddrTrackEntry 1 }

rpPtrExtAddrTrackSourceAddress OBJECT-TYPE

```

SYNTAX      MacAddress
MAX-ACCESS  read-only
STATUS      current
DESCRIPTION
    "The source MAC address from a readable frame
    (i.e., counted by rpPtrMonitorPortReadableFrames)
    recently received by the port."
REFERENCE
    "IEEE Std 802.3, 30.4.3.1.18, aLastSourceAddress."
 ::= { rpPtrExtAddrTrackEntry 2 }

```

```

-- The Repeater Top "N" Port Group
-- The Repeater Top N Port group is used to prepare reports that
-- describe a list of ports ordered by one of the statistics in the
-- Repeater Monitor Port Table. The statistic chosen by the
-- management station is sampled over a management
-- station-specified time interval, making the report rate based.
-- The management station also specifies the number of ports that
-- are reported.
--
-- The rpPtrTopNPortControlTable is used to initiate the generation
-- of a report. The management station may select the parameters
-- of such a report, such as which repeater, which statistic, how
-- many ports, and the start and stop times of the sampling. When
-- the report is prepared, entries are created in the
-- rpPtrTopNPortTable associated with the relevant
-- rpPtrTopNPortControlEntry. These entries are static for
-- each report after it has been prepared.
--
-- Note that counter discontinuities may appear in some
-- implementations if ports' assignment to repeaters changes
-- during the collection of data for a Top "N" report.
-- A management application could read the corresponding
-- rpPtrMonitorPortLastChange timestamp in order to check
-- whether a discontinuity occurred.

```

```

rpPtrTopNPortControlTable OBJECT-TYPE
    SYNTAX      SEQUENCE OF RptrTopNPortControlEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "A table of control records for reports on the top 'N'
        ports for the rate of a selected counter. The number
        of entries depends on the configuration of the agent.
        The maximum number of entries is implementation
        dependent."
    ::= { rpPtrTopNPortInfo 1 }

```

```

rpPtrTopNPortControlEntry OBJECT-TYPE
    SYNTAX      RptrTopNPortControlEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "A set of parameters that control the creation of a
        report of the top N ports according to several metrics."
    INDEX       { rpPtrTopNPortControlIndex }
    ::= { rpPtrTopNPortControlTable 1 }

```

```

RptrTopNPortControlEntry ::= SEQUENCE {
    rpPtrTopNPortControlIndex
        Integer32,
    rpPtrTopNPortRepeaterId
        Integer32,
    rpPtrTopNPortRateBase
        INTEGER,
    rpPtrTopNPortTimeRemaining
        Integer32,
    rpPtrTopNPortDuration
        Integer32,
    rpPtrTopNPortRequestedSize
        Integer32,

```

```

rpPtrTopNPortGrantedSize
    Integer32,
rpPtrTopNPortStartTime
    TimeStamp,
rpPtrTopNPortOwner
    OwnerString,
rpPtrTopNPortRowStatus
    RowStatus
}

rpPtrTopNPortControlIndex OBJECT-TYPE
SYNTAX      Integer32 (1 .. 65535)
MAX-ACCESS  not-accessible
STATUS      current
DESCRIPTION
    "An index that uniquely identifies an entry in the
    rpPtrTopNPortControl table. Each such entry defines
    one top N report prepared for a repeater or repeater system."
 ::= { rpPtrTopNPortControlEntry 1 }

rpPtrTopNPortRepeaterId OBJECT-TYPE
SYNTAX      Integer32 (0..2147483647)
MAX-ACCESS  read-create
STATUS      current
DESCRIPTION
    "Identifies the repeater for which a top N report will
    be prepared (see rpPtrInfoId). If the value of this
    object is positive, only ports assigned to this repeater
    will be used to form the list in which to order the
    Top N table. If this value is zero, all ports will be
    eligible for inclusion on the list.

    The value of this object may not be modified if the
    associated rpPtrTopNPortRowStatus object is equal to
    active(1).

    If, for a particular row in this table, the repeater
    specified by the value of this object goes away (is
    removed from the rpPtrInfoTable) while the associated
    rpPtrTopNPortRowStatus object is equal to active(1),
    the row in this table is preserved by the agent but
    the value of rpPtrTopNPortRowStatus is changed to
    notInService(2), and the agent may time out the row
    if appropriate. If the specified repeater comes
    back (reappears in the rpPtrInfoTable) before the row
    has been timed out, the management station sets
    the value of the rpPtrTopNPortRowStatus object back
    to active(1) if desired (the agent doesn't do this
    automatically)."
```

```

 ::= { rpPtrTopNPortControlEntry 2 }

rpPtrTopNPortRateBase OBJECT-TYPE
SYNTAX      INTEGER {
    readableFrames(1),
    readableOctets(2),
    fcsErrors(3),
    alignmentErrors(4),
    frameTooLongs(5),
    shortEvents(6),
    runts(7),
    collisions(8),
    lateEvents(9),
    veryLongEvents(10),
    dataRateMismatches(11),
    autoPartitions(12),
    totalErrors(13),
    isolates(14),
    symbolErrors(15)
}
MAX-ACCESS  read-create
STATUS      current
DESCRIPTION
    "The monitored variable, which the rpPtrTopNPortRate
    variable is based upon.
```

The value of this object may not be modified if the associated rptrTopNPortRowStatus object has a value of active(1)."

::= { rptrTopNPortControlEntry 3 }

rptrTopNPortTimeRemaining OBJECT-TYPE

SYNTAX Integer32 (0..2147483647)

MAX-ACCESS read-create

STATUS current

DESCRIPTION

"The number of seconds left in the report currently being collected. When this object is modified by the management station, a new collection is started, possibly aborting a currently running report. The new value is used as the requested duration of this report, which is loaded into the associated rptrTopNPortDuration object.

When this object is set to a non-zero value, any associated rptrTopNPortEntries shall be made inaccessible by the agent. While the value of this object is non-zero, it decrements by one per second until it reaches zero. During this time, all associated rptrTopNPortEntries shall remain inaccessible. At the time that this object decrements to zero, the report is made accessible in the rptrTopNPortTable. Thus, the rptrTopNPort table needs to be created only at the end of the collection interval.

If the value of this object is set to zero while the associated report is running, the running report is aborted and no associated rptrTopNPortEntries are created."

DEFVAL { 0 }

::= { rptrTopNPortControlEntry 4 }

rptrTopNPortDuration OBJECT-TYPE

SYNTAX Integer32 (0..2147483647)

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The number of seconds that this report has collected during the last sampling interval, or if this report is currently being collected, the number of seconds that this report is being collected during this sampling interval.

When the associated rptrTopNPortTimeRemaining object is set, this object shall be set by the agent to the same value and shall not be modified until the next time the rptrTopNPortTimeRemaining is set.

This value shall be zero if no reports have been requested for this rptrTopNPortControlEntry."

::= { rptrTopNPortControlEntry 5 }

rptrTopNPortRequestedSize OBJECT-TYPE

SYNTAX Integer32

MAX-ACCESS read-create

STATUS current

DESCRIPTION

"The maximum number of repeater ports requested for the Top N Table.

When this object is created or modified, the agent should set rptrTopNPortGrantedSize as close to this object as is possible for the particular implementation and available resources."

DEFVAL { 10 }

```

 ::= { rpPtrTopNPortControlEntry 6 }

rpPtrTopNPortGrantedSize OBJECT-TYPE
    SYNTAX      Integer32 (0..65535)
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "The maximum number of repeater ports in the
        top N table.

        When the associated rpPtrTopNPortRequestedSize object is
        created or modified, the agent should set this object as
        closely to the requested value as is possible for the
        particular implementation and available resources. The
        agent shall not lower this value except as a result of a
        set to the associated rpPtrTopNPortRequestedSize object."
 ::= { rpPtrTopNPortControlEntry 7 }

rpPtrTopNPortStartTime OBJECT-TYPE
    SYNTAX      TimeStamp
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "The value of sysUpTime when this top N report was
        last started. In other words, this is the time that
        the associated rpPtrTopNPortTimeRemaining object was
        modified to start the requested report.

        If the report has not yet been started, the value
        of this object is zero."
 ::= { rpPtrTopNPortControlEntry 8 }

rpPtrTopNPortOwner OBJECT-TYPE
    SYNTAX      OwnerString
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "The entity that configured this entry and is
        using the resources assigned to it."
 ::= { rpPtrTopNPortControlEntry 9 }

rpPtrTopNPortRowStatus OBJECT-TYPE
    SYNTAX      RowStatus
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "The status of this row.

        If the value of this object is not equal to
        active(1), all associated entries in the
        rpPtrTopNPortTable shall be deleted by the
        agent."
 ::= { rpPtrTopNPortControlEntry 10 }

-- Top "N" reports

rpPtrTopNPortTable OBJECT-TYPE
    SYNTAX      SEQUENCE OF RpPtrTopNPortEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "A table of reports for the top 'N' ports based on
        setting of associated control table entries. The
        maximum number of entries depends on the number
        of entries in table rpPtrTopNPortControlTable and
        the value of object rpPtrTopNPortGrantedSize for
        each entry.

        For each entry in the rpPtrTopNPortControlTable,
        repeater ports with the highest value of
        rpPtrTopNPortRate shall be placed in this table
        in decreasing order of that rate until there is

```

```

        no more room or until there are no more ports."
 ::= { rpPtrTopNPortInfo 2 }

rpPtrTopNPortEntry OBJECT-TYPE
    SYNTAX      RpPtrTopNPortEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "A set of statistics for a repeater port that is
         part of a top N report."
    INDEX       { rpPtrTopNPortControlIndex,
                 rpPtrTopNPortIndex }
 ::= { rpPtrTopNPortTable 1 }

RpPtrTopNPortEntry ::= SEQUENCE {
    rpPtrTopNPortIndex
        Integer32,
    rpPtrTopNPortGroupIndex
        Integer32,
    rpPtrTopNPortPortIndex
        Integer32,
    rpPtrTopNPortRate
        Gauge32
}

rpPtrTopNPortIndex OBJECT-TYPE
    SYNTAX      Integer32 (1..65535)
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "An index that uniquely identifies an entry in
         the rpPtrTopNPort table among those in the same
         report. This index is between 1 and N, where N
         is the number of entries in this report. Increasing
         values of rpPtrTopNPortIndex shall be assigned to
         entries with decreasing values of rpPtrTopNPortRate
         until index N is assigned to the entry with the
         lowest value of rpPtrTopNPortRate or there are no
         more rpPtrTopNPortEntries.

         No ports are included in a report where their
         value of rpPtrTopNPortRate would be zero."
 ::= { rpPtrTopNPortEntry 1 }

rpPtrTopNPortGroupIndex OBJECT-TYPE
    SYNTAX      Integer32 (1..2147483647)
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "This object identifies the group containing
         the port for this entry. (See also object
         type rpPtrGroupIndex.)"
 ::= { rpPtrTopNPortEntry 2 }

rpPtrTopNPortPortIndex OBJECT-TYPE
    SYNTAX      Integer32 (1..2147483647)
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "The index of the repeater port.
         (See object type rpPtrPortIndex.)"
 ::= { rpPtrTopNPortEntry 3 }

rpPtrTopNPortRate OBJECT-TYPE
    SYNTAX      Gauge32
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "The amount of change in the selected variable
         during this sampling interval for the identified
         port. The selected variable is that port's
         instance of the object selected by
         rpPtrTopNPortRateBase."

```

```
::= { rpPtrTopNPortEntry 4 }
```

```
-- Notifications for use by Repeaters  
-- Notifications for repeaters in a multiple-repeater implementation.  
-- An implementation may send either the single-repeater OR  
-- multiple-repeater version of these notifications (1 or 4; 2 or 5)  
-- but not both.
```

```
ieee8023snmpDot3RpPtrNotifications OBJECT IDENTIFIER  
 ::= { ieee8023snmpDot3RpPtrMgt 0 }
```

```
rpPtrInfoHealth NOTIFICATION-TYPE
```

```
OBJECTS      { rpPtrInfoOperStatus }  
STATUS       current  
DESCRIPTION
```

"In a repeater system containing multiple managed repeaters, the rpPtrInfoHealth notification conveys information related to the operational status of a repeater. It is sent either when the value of rpPtrInfoOperStatus changes, or upon completion of a non-disruptive test.

The agent shall limit the generation of consecutive rpPtrInfoHealth notifications for the same repeater so that there is at least a five-second gap between notifications of this type. When notifications are throttled, they are dropped, not queued for sending at a future time. (Note that 'generating' a notification means sending to all configured recipients.)"

```
REFERENCE
```

"IEEE Std 802.3, 30.4.1.3.1, ~~nRepeaterHealth~~ notification."

```
::= { ieee8023snmpDot3RpPtrNotifications 4 }
```

```
rpPtrInfoResetEvent NOTIFICATION-TYPE
```

```
OBJECTS      { rpPtrInfoOperStatus }  
STATUS       current  
DESCRIPTION
```

"In a repeater system containing multiple managed repeaters, the rpPtrInfoResetEvent notification conveys information related to the operational status of a repeater. This notification is sent on completion of a repeater reset action. A repeater reset action is defined as a transition to the START state of IEEE Std 802.3, Figure 9-2 ~~in Clause 9 of, IEEE Std 802.3,~~ when triggered by a management command (e.g., an SNMP Set on the rpPtrInfoReset object).

The agent shall limit the generation of consecutive rpPtrInfoResetEvent notifications for a single repeater so that there is at least a five-second gap between notifications of this type. When notifications are throttled, they are dropped, not queued for sending at a future time. (Note that 'generating' a notification means sending to all configured recipients.)

The rpPtrInfoResetEvent is not sent when the agent restarts and sends an SNMP coldStart or warmStart trap. However, it is recommended that a repeater agent send the rpPtrInfoOperStatus object as an optional object with its coldStart and warmStart trap PDUs."

```
REFERENCE
```

"IEEE Std 802.3, 30.4.1.3.2, ~~nRepeaterReset~~ notification."

```
::= { ieee8023snmpDot3RpPtrNotifications 5 }
```



```

-- Conformance statements

snmpRptrModConf
    OBJECT IDENTIFIER ::= { ieee8023snmpRptrMIB 2 }
snmpRptrModCompls
    OBJECT IDENTIFIER ::= { snmpRptrModConf 1 }
snmpRptrModObjGrps
    OBJECT IDENTIFIER ::= { snmpRptrModConf 2 }
snmpRptrModNotGrps
    OBJECT IDENTIFIER ::= { snmpRptrModConf 3 }

-- Object groups

snmpRptrGrpBasic OBJECT-GROUP
    OBJECTS      { rptrGroupObjectID,
                  rptrGroupOperStatus,
                  rptrGroupPortCapacity,
                  rptrPortAdminStatus,
                  rptrPortAutoPartitionState,
                  rptrPortOperStatus,
                  rptrPortRptrId,
                  rptrInfoRptrType,
                  rptrInfoOperStatus,
                  rptrInfoReset,
                  rptrInfoPartitionedPorts,
                  rptrInfoLastChange }
    STATUS      current
    DESCRIPTION
        "Basic group for a repeater system with one or more
        repeater-units in multisegment (post-RFC 1516)
        version of the MIB module."
    ::= { snmpRptrModObjGrps 1 }

snmpRptrGrpMonitor OBJECT-GROUP
    OBJECTS      { rptrMonitorPortReadableFrames,
                  rptrMonitorPortReadableOctets,
                  rptrMonitorPortFCSErrors,
                  rptrMonitorPortAlignmentErrors,
                  rptrMonitorPortFrameTooLongs,
                  rptrMonitorPortShortEvents,
                  rptrMonitorPortRunts,
                  rptrMonitorPortCollisions,
                  rptrMonitorPortLateEvents,
                  rptrMonitorPortVeryLongEvents,
                  rptrMonitorPortDataRateMismatches,
                  rptrMonitorPortAutoPartitions,
                  rptrMonitorPortTotalErrors,
                  rptrMonitorPortLastChange,

                  rptrMonTxCollisions,
                  rptrMonTotalFrames,
                  rptrMonTotalErrors,
                  rptrMonTotalOctets }
    STATUS      current
    DESCRIPTION
        "Monitor group for a repeater system with one or more
        repeater-units in multisegment (post-RFC 1516)
        version of the MIB module."
    ::= { snmpRptrModObjGrps 2 }

snmpRptrGrpMonitor100 OBJECT-GROUP
    OBJECTS      { rptrMonitorPortIsolates,
                  rptrMonitorPortSymbolErrors,
                  rptrMonitorPortUpper32Octets,

                  rptrMonUpper32TotalOctets }
    STATUS      current
    DESCRIPTION
        "Monitor group for 100 Mb/s ports and repeaters
        in a repeater system with one or more repeater-units in
        multisegment (post-RFC 1516) version of the MIB

```

```

        module. Repeater systems which support Counter64 should
        also implement snmpRptrGrpMonitor100w64."
 ::= { snmpRptrModObjGrps 3 }

snmpRptrGrpMonitor100w64 OBJECT-GROUP
OBJECTS      { rptrMonitorPortHCReadableOctets,
               rptrMonHCTotalOctets }
STATUS       current
DESCRIPTION   "Monitor group for 100 Mb/s ports and repeaters in a
               repeater system with one or more repeater-units and support
               for Counter64."
 ::= { snmpRptrModObjGrps 4 }

snmpRptrGrpAddrTrack OBJECT-GROUP
OBJECTS      { rptrAddrTrackSourceAddrChanges,
               rptrAddrTrackNewLastSrcAddress,
               rptrAddrTrackCapacity }
STATUS       current
DESCRIPTION   "Passive address tracking group for post-RFC 1516
               version of the MIB module."
 ::= { snmpRptrModObjGrps 5 }

snmpRptrGrpExtAddrTrack OBJECT-GROUP
OBJECTS      { rptrExtAddrTrackSourceAddress }
STATUS       current
DESCRIPTION   "Extended passive address tracking group for
               a repeater system with one or more repeater-units in
               post-RFC 1516 version of the MIB module."
 ::= { snmpRptrModObjGrps 6 }

snmpRptrGrpRptrAddrSearch OBJECT-GROUP
OBJECTS      { rptrAddrSearchLock,
               rptrAddrSearchStatus,
               rptrAddrSearchAddress,
               rptrAddrSearchState,
               rptrAddrSearchGroup,
               rptrAddrSearchPort,
               rptrAddrSearchOwner }
STATUS       current
DESCRIPTION   "Active MAC address search group and topology
               mapping support for repeaters."
 ::= { snmpRptrModObjGrps 7 }

snmpRptrGrpTopNPort OBJECT-GROUP
OBJECTS      { rptrTopNPortRepeaterId,
               rptrTopNPortRateBase,
               rptrTopNPortTimeRemaining,
               rptrTopNPortDuration,
               rptrTopNPortRequestedSize,
               rptrTopNPortGrantedSize,
               rptrTopNPortStartTime,
               rptrTopNPortOwner,
               rptrTopNPortRowStatus,
               rptrTopNPortGroupIndex,
               rptrTopNPortPortIndex,
               rptrTopNPortRate }
STATUS       current
DESCRIPTION   "Top 'N' group for repeater ports."
 ::= { snmpRptrModObjGrps 8 }

ieee8023snmpDot3RptrNotGroup NOTIFICATION-GROUP
NOTIFICATIONS { rptrInfoHealth,
                rptrInfoResetEvent }
STATUS       current
DESCRIPTION   "Conformance Group for repeater notifications.
               Formerly an empty group."
 ::= { snmpRptrModNotGrps 1}

```

```

-- Compliance statements

snmpRptrModCompl MODULE-COMPLIANCE
  STATUS      current
  DESCRIPTION
    "Compliance for the multisegment version of the
    MIB module for a repeater system with one or more
    repeater-units."

  MODULE -- this module
    MANDATORY-GROUPS { snmpRptrGrpBasic,
                       snmpRptrGrpMonitor,
                       snmpRptrGrpAddrTrack }

  GROUP snmpRptrGrpMonitor100
  DESCRIPTION
    "Implementation of this group is
    mandatory for managed repeater systems that
    contain 100 Mb/s repeaters."

  GROUP snmpRptrGrpMonitor100w64
  DESCRIPTION
    "Implementation of this group is
    mandatory for managed repeater systems that
    contain 100 Mb/s repeaters and that
    can support Counter64."

  GROUP snmpRptrGrpExtAddrTrack
  DESCRIPTION
    "Implementation of this group is
    recommended for repeater systems that have
    the necessary instrumentation to track
    MAC addresses of multiple DTEs attached
    to a single repeater port."

  GROUP snmpRptrGrpRptrAddrSearch
  DESCRIPTION
    "Implementation of this group is
    recommended for repeater systems that allow
    read-write access and that have
    the necessary instrumentation to
    search all incoming data streams
    for a particular MAC address."

  GROUP snmpRptrGrpTopNPort
  DESCRIPTION
    "Implementation of this group is
    recommended for repeater systems that have
    the necessary resources to support
    TopN statistics reporting."

  GROUP ieee8023snmpDot3RptrNotGroup
  DESCRIPTION
    "Implementation of this group is
    recommended for repeaters that
    support notifications."

 ::= { snmpRptrModCompls 1 }

```

END