INTERNATIONAL ELECTROTECHNICAL COMMISSION

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IEC 62439-7
Edition 1.0 2011-12

INDUSTRIAL COMMUNICATION NETWORKS – HIGH AVAILABILITY AUTOMATION NETWORKS – Part 7: Ring-based Redundancy Protocol (RRP)

IEC 62439-7
Édition 1.0 2011-12

RESEAUX DE COMMUNICATION INDUSTRIELS – RESEAUX DE HAUTE DISPONIBILITE POUR L'AUTOMATION – Partie 7: Protocole de redondance pour réseau en anneau (RRP)

CORRIGENDUM 1

Corrections to the French version appear after the English text.

Les corrections à la version française sont données après le texte anglais.

10 RRP Management Information Base (MIB)

Replace the existing text in Clause 10 with the following text (note that only sections highlighted in yellow have actually been changed):

```
-- ****************************************************************************

IEC-62439-7-MIB DEFINITIONS ::= BEGIN

-- ****************************************************************************
-- Imports
-- ****************************************************************************

IMPORTS
       OBJECT-IDENTITY,
       OBJECT-TYPE,
       TimeTicks,
       Counter32,
       Unsigned32,
       Counter64,
       VISIBLE-STRING,
       INTEGER                 FROM SNMPv2-SMI
       Boolean                 FROM HOST-RESOURCES-MIB
       MacAddress              FROM BRIDGE-MIB
       iso                     FROM RFC1155-SMI;

-- ****************************************************************************
-- Declaration of TIMEOFDAY
-- ****************************************************************************
TIMEOFDAY    ::= TEXTUAL-CONVENTION
    STATUS          current
    DESCRIPTION "
        The IEC 61158-5-21 defines the structure of
        the TIMEOFDAY as a data type numeric
        identifier 12.
        "
    SYNTAX          VISIBLE STRING (SIZE (6))

-- ****************************************************************************
```

```
-- Root OID
-- ************************************************************************
iec62439    MODULE-IDENTITY
            LAST-UPDATED "201306110000Z"  --  June 11, 2013
            ORGANIZATION "IEC/SC 65C"
            CONTACT-INFO "
                         International Electrotechnical Commission
                         IEC Central Office
                         3, rue de Varembe
                         P.O. Box 131
                         CH - 1211 GENEVA 20
                         Switzerland
                         Phone: +41 22 919 02 11
                         Fax: +41 22 919 03 00
                         email: info@iec.ch
                       "
            DESCRIPTION  "
                This MIB module defines the Network Management interfaces
                for the Redundancy Protocols defined by the IEC
                standard 62439.
                "

            REVISION    "201306110000Z"  --  June 11, 2013
            DESCRIPTION  "
                Consistency adjustment with other parts of IEC 62439
                "

            REVISION    "200811100000Z"  --  November 10, 2008
            DESCRIPTION  "
                Seperation of IEC 62439 into a suite of documents.
                This MIB applies to IEC 62439-7, added RRP functionality.
                "


            REVISION    "200708240000Z"  --  August 24, 2007
            DESCRIPTION  "
                Initial version of the Network Management interface for the
                Ring-based Redundancy Protocol
                "

    ::= { IEC 62439 }

-- ************************************************************************
-- Redundancy Protocols
-- ************************************************************************
mrp                 OBJECT IDENTIFIER ::= { iec62439 1 }
prp                 OBJECT IDENTIFIER ::= { iec62439 2 }
crp                 OBJECT IDENTIFIER ::= { iec62439 3 }
brp                 OBJECT IDENTIFIER ::= { iec62439 4 }
drp                 OBJECT IDENTIFIER ::= { iec62439 5 }
rrp                 OBJECT IDENTIFIER ::= { iec62439 6 }

-- ************************************************************************
-- Objects of the RRP Network Management
-- ************************************************************************

ServiceID    OBJECT-TYPE
    SYNTAX          Unsigned32
    MAX-ACCESS      read-write
    STATUS          mandatory
    DESCRIPTION     "
                    specifies information sufficient for local
                    identification of the RRP device that will
                    convey the service
                    "
    ::= { rrp 1 }

InvokeID    OBJECT-TYPE
    SYNTAX          Unsigned32
    MAX-ACCESS      read-write
    STATUS          mandatory
    DESCRIPTION     "
                    specifies the invocation of the service
                    "
    ::= { rrp 2 }

DeviceAddress    OBJECT-TYPE
    SYNTAX          INTEGER
```

```
    MAX-ACCESS      read-write
    STATUS          mandatory
    DESCRIPTION     "
                    specifies the value for the RRP device address
                    "
    ::= { rrp 3 }

DeviceFlags    OBJECT-TYPE
    SYNTAX          BITS {
                        DeviceAddressCollision(0),
                        DeviceStateChanged(1)
                    }
    MAX-ACCESS      read-only
    STATUS          mandatory
    DESCRIPTION     "
                    specifies the flags for events that occurred
                    in a local device
                    "
    ::= { rrp 4 }

DeviceState    OBJECT-TYPE
    SYNTAX          INTEGER {
                        Invalid(0),
                        SA(1),
                        LNM(2),
                        GD(3),
                        RNMP(4),
                        RNMS(5)
                    }
    MAX-ACCESS      read-only
    STATUS          mandatory
    DESCRIPTION     "
                    specifies the device state of the RRP device
                    "
    ::= { rrp 5 }

DeviceUID    OBJECT-TYPE
    SYNTAX          Counter64
    MAX-ACCESS      read-only
    STATUS          mandatory
    DESCRIPTION     "
                    specifies the unique 8-octet identification that
                    identifies a RRP device in a network
                    "
    ::= { rrp 6 }

DeviceUIDRport1    OBJECT-TYPE
    SYNTAX          Counter64
    MAX-ACCESS      read-only
    STATUS          mandatory
    DESCRIPTION     "
                    specifies the UID of the device that is linked
                    through the R-port1
                    "
    ::= { rrp 7 }

DeviceUIDRport2    OBJECT-TYPE
    SYNTAX          Counter64
    MAX-ACCESS      read-only
    STATUS          mandatory
    DESCRIPTION     "
                    specifies the UID of the device that is linked
                    through the R-port2
                    "
    ::= { rrp 8 }

MACAddress    OBJECT-TYPE
    SYNTAX          MacAddress
    MAX-ACCESS      read-write
    STATUS          mandatory
    DESCRIPTION     "
                    specifies the MAC address of the RRP device
                    "
    ::= { rrp 9 }

Rport1Information    OBJECT-TYPE
    SYNTAX          BITS {
                        PortLinkDown(0),
```

```
                        PortCFMFamily(1),
                        PortWaitADV(2),
                        PortWaitML(3)
                        PortCFM(4)
                    }
    MAX-ACCESS      read-only
    STATUS          mandatory
    DESCRIPTION     "
                    specifies the port information for R-port1
                    "
    ::= { rrp 10 }

Rport2Information    OBJECT-TYPE
    SYNTAX          BITS {
                        PortLinkDown(0),
                        PortCFMFamily(1),
                        PortWaitADV(2),
                        PortWaitML(3)
                        PortCFM(4)
                    }
    MAX-ACCESS      read-only
    STATUS          mandatory
    DESCRIPTION     "
                    specifies the port information for R-port2
                    "
    ::= { rrp 11 }

Version    OBJECT-TYPE
    SYNTAX          INTEGER
    MAX-ACCESS      read-write
    STATUS          mandatory
    DESCRIPTION     "
                    specifies the protocol version of the RRP device
                    "
    ::= { rrp 12 }

DeviceType    OBJECT-TYPE
    SYNTAX          INTEGER
    MAX-ACCESS      read-write
    STATUS          mandatory
    DESCRIPTION     "
                    specifies the local device type that represents
                    the general function of the device
                    "
    ::= { rrp 13 }

DeviceDescription    OBJECT-TYPE
    SYNTAX          VISIBLE STRING (SIZE(1..16))
    MAX-ACCESS      read-write
    STATUS          mandatory
    DESCRIPTION     "
                    specifies a description of the local device
                    "
    ::= { rrp 14 }

FamilyResWaitingTime    OBJECT-TYPE
    SYNTAX          Unsigned32
    MAX-ACCESS      read-write
    STATUS          mandatory
    DESCRIPTION     "
                    specifies the time interval betweensending the FamilyReq
                    frame andreceiving the FamilyRes frame
                    "
    ::= { rrp 15 }

AdvThisWaitingTime    OBJECT-TYPE
    SYNTAX          Unsigned32
    MAX-ACCESS      read-write
    STATUS          mandatory
    DESCRIPTION     "
                    specifies the time interval betweensending the MediaLinked
                    frame andreceiving the AdvThis frame
                    "
    ::= { rrp 16 }

AckRNMSWaitingTime    OBJECT-TYPE
    SYNTAX          Unsigned32
    MAX-ACCESS      read-write
```

```
    STATUS          mandatory
    DESCRIPTION     "
                    specifies the time interval betweensending the RingStart
                    frame andreceiving the AckRNMS frame
                    "
    ::= { rrp 17 }

RingStateChangeTimeout    OBJECT-TYPE
    SYNTAX          Unsigned32
    MAX-ACCESS      read-write
    STATUS          mandatory
    DESCRIPTION     "
                    specifies the timeout to generate event for changing
                    RNMP device state
                    "
    ::= { rrp 18 }

DiagnosticInformation    OBJECT-TYPE
    SYNTAX          INTEGER {
                        NetworkInformation(1),
                        PathTableInformation(2)
                    }
    MAX-ACCESS      write-only
    STATUS          mandatory
    DESCRIPTION     "
                    specifies the type of diagnostic information
                    "
    ::= { rrp 19 }

-- ************************************************************************
-- Objects of the RRP Network Information
-- ************************************************************************

NetworkTopology    OBJECT-TYPE
    SYNTAX          INTEGER {
                        Invalid(0),
                        NET_TPG_SA(1),
                        NET_TPG_LINE(2),
                        NET_TPG_RING(3)
                    }
    MAX-ACCESS      read-only
    STATUS          mandatory
    DESCRIPTION     "
                    specifies the type of network topology
                    "
    ::= { rrp 20 }

CollisionCnt    OBJECT-TYPE
    SYNTAX          INTEGER
    MAX-ACCESS      read-only
    STATUS          mandatory
    DESCRIPTION     "
                    specifies the device address collision count
                    for remote devices
                    "
    ::= { rrp 21 }

DeviceCnt    OBJECT-TYPE
    SYNTAX          INTEGER
    MAX-ACCESS      read-only
    STATUS          mandatory
    DESCRIPTION     "
                    specifies the total number of devices on the network
                    "
    ::= { rrp 22 }

TopologyChangeCnt    OBJECT-TYPE
    SYNTAX          INTEGER
    MAX-ACCESS      read-only
    STATUS          mandatory
    DESCRIPTION     "
                    specifies the topology change count
                    "
    ::= { rrp 23 }

LastTopologyChangeTime    OBJECT-TYPE
    SYNTAX          TIMEOFDAY
    MAX-ACCESS      read-only
```

```
    STATUS          mandatory
    DESCRIPTION     "
                    specifies the date and time at whichthe network topology
                    was last changed
                    "
    ::= { rrp 24 }

RNMPDeviceUID    OBJECT-TYPE
    SYNTAX          Counter64
    MAX-ACCESS      read-only
    STATUS          mandatory
    DESCRIPTION     "
                    specifies the UID of the device selected as the RNMP
                    on the network
                    "
    ::= { rrp 25 }

RNMSDeviceUID    OBJECT-TYPE
    SYNTAX          Counter64
    MAX-ACCESS      read-only
    STATUS          mandatory
    DESCRIPTION     "
                    specifies the UID of the device selected as the RNMS
                    on the network
                    "
    ::= { rrp 26 }

LNMDeviceUIDRport1    OBJECT-TYPE
    SYNTAX          Counter64
    MAX-ACCESS      read-only
    STATUS          mandatory
    DESCRIPTION     "
                    specifies the UID of the device selected as the LNM
                    in the R-port1 direction
                    "
    ::= { rrp 27 }

LNMDeviceUIDRport2    OBJECT-TYPE
    SYNTAX          Counter64
    MAX-ACCESS      read-only
    STATUS          mandatory
    DESCRIPTION     "
                    specifies the UID of the device selected as the LNM
                    in the R-port2 direction
                    "
    ::= { rrp 28 }

NetworkFlags    OBJECT-TYPE
    SYNTAX          BITS {
                        NetworkTopologyChanged(0),
                        DeviceAddressCollisionInNetwork(1),
                        DeviceJoinedNetwork(2),
                        DeviceLeftNetwork(3)
                    }
    MAX-ACCESS      read-only
    STATUS          mandatory
    DESCRIPTION     "
                    specifies the flags for events that occurred
                    in the network
                    "
    ::= { rrp 29 }

-- ************************************************************************
-- Objects of the RRP Path Table Information
-- ************************************************************************

PathTableInfo    OBJECT-TYPE
    SYNTAX          SEQUENCE OF PathTableInfoEntry
    MAX-ACCESS      read-only
    STATUS          mandatory
    DESCRIPTION     "
                    Path Table in the form of an array table containing
                    the path information foreach RRP device on the network
                    "
    ::= { rrp 30 }

PathTableEntry    OBJECT-TYPE
    SYNTAX          PathTableInfoEntry
```

```
    MAX-ACCESS      read-only
    STATUS          mandatory
    DESCRIPTION     "Row of Path Table Information"
    INDEX           { PathTableIndex }
    ::= { PathTableInfo 1 }

PathTableInfoEntry ::=  SEQUENCE {
                    pathDevAddress                      INTEGER,
                    pathHopCntRp1                       INTEGER,
                    pathHopCntRp2                       INTEGER,
                    pathPreferRp                        INTEGER,
                    pathDstRp                           INTEGER,
                    pathDevState                        INTEGER,
                    pathMACAddress                      MacAddress,
                    pathRp1Info                         INTEGER,
                    pathRp2Info                         INTEGER,
                    pathVersion                         INTEGER,
                    pathDevType                         INTEGER,
                    pathDevDesc                         VISIBLE STRING (SIZE(1..16)),
                    pathDevUID                          Counter64,
                    pathDevUIDRp1                       Counter64,
                    pathDevUIDRp2                       Counter64
                    }

END
-- ************************************************************************
--   EOF
-- ************************************************************************
```

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Corrections à la version française:

10 Base d'informations d'administration RRP (MIB)

Remplacer le texte existant de l'Article 10 par le texte suivant (à noter que seules les sections surlignées en jaune ont été effectivement modifiées):

```
-- ************************************************************************

IEC-62439-7-MIB DEFINITIONS ::= BEGIN

-- ************************************************************************
-- Imports
-- ************************************************************************

IMPORTS
       OBJECT-IDENTITY,
       OBJECT-TYPE,
       TimeTicks,
       Counter32,
       Unsigned32,
       Counter64,
       VISIBLE-STRING,
       INTEGER                  FROM SNMPv2-SMI
       Boolean                  FROM HOST-RESOURCES-MIB
       MacAddress               FROM BRIDGE-MIB
       iso                      FROM RFC1155-SMI;

-- ************************************************************************
-- Declaration of TIMEOFDAY
-- ************************************************************************
TIMEOFDAY    ::= TEXTUAL-CONVENTION
    STATUS          current
    DESCRIPTION "
        The IEC 61158-5-21 defines the structure of
        the TIMEOFDAY as a data type numeric
        identifier 12.
        "
    SYNTAX          VISIBLE STRING (SIZE (6))
```

```
-- ************************************************************************
-- Root OID
-- ************************************************************************
iec62439    MODULE-IDENTITY
            LAST-UPDATED "2013061100000Z"  --  June 11, 2013
            ORGANIZATION "IEC/SC 65C"
            CONTACT-INFO "
                         International Electrotechnical Commission
                         IEC Central Office
                         3, rue de Varembe
                         P.O. Box 131
                         CH - 1211 GENEVA 20
                         Switzerland
                         Phone: +41 22 919 02 11
                         Fax: +41 22 919 03 00
                         email: info@iec.ch
                        "
            DESCRIPTION  "
                This MIB module defines the Network Management interfaces
                for the Redundancy Protocols defined by the IEC
                standard 62439.
                "

            REVISION    "2013061100000Z"  --  June 11, 2013
            DESCRIPTION  "
                Consistency adjustment with other parts of IEC 62439
                "

            REVISION    "2008111000000Z"  --  November 10, 2008
            DESCRIPTION  "
                Seperation of IEC 62439 into a suite of documents.
                This MIB applies to IEC 62439-7, added RRP functionality.
                "


            REVISION    "2007082400000Z"  --  August 24, 2007
            DESCRIPTION  "
                Initial version of the Network Management interface for the
                Ring-based Redundancy Protocol
                "

    ::= { IEC 62439 }

-- ************************************************************************
-- Redundancy Protocols
-- ************************************************************************
mrp                 OBJECT IDENTIFIER ::= { iec62439 1 }
prp                 OBJECT IDENTIFIER ::= { iec62439 2 }
crp                 OBJECT IDENTIFIER ::= { iec62439 3 }
brp                 OBJECT IDENTIFIER ::= { iec62439 4 }
drp                 OBJECT IDENTIFIER ::= { iec62439 5 }
rrp                 OBJECT IDENTIFIER ::= { iec62439 6 }

-- ************************************************************************
-- Objects of the RRP Network Management
-- ************************************************************************

ServiceID    OBJECT-TYPE
    SYNTAX          Unsigned32
    MAX-ACCESS      read-write
    STATUS          mandatory
    DESCRIPTION     "
                    specifies information sufficient for local
                    identification of the RRP device that will
                    convey the service
                    "
    ::= { rrp 1 }

InvokeID    OBJECT-TYPE
    SYNTAX          Unsigned32
    MAX-ACCESS      read-write
    STATUS          mandatory
    DESCRIPTION     "
                    specifies the invocation of the service
                    "
    ::= { rrp 2 }

DeviceAddress    OBJECT-TYPE
```

```
    SYNTAX          INTEGER
    MAX-ACCESS      read-write
    STATUS          mandatory
    DESCRIPTION     "
                    specifies the value for the RRP device address
                    "
    ::= { rrp 3 }

DeviceFlags    OBJECT-TYPE
    SYNTAX          BITS {
                        DeviceAddressCollision(0),
                        DeviceStateChanged(1)
                    }
    MAX-ACCESS      read-only
    STATUS          mandatory
    DESCRIPTION     "
                    specifies the flags for events that occurred
                    in a local device
                    "
    ::= { rrp 4 }

DeviceState    OBJECT-TYPE
    SYNTAX          INTEGER {
                        Invalid(0),
                        SA(1),
                        LNM(2),
                        GD(3),
                        RNMP(4),
                        RNMS(5)
                    }
    MAX-ACCESS      read-only
    STATUS          mandatory
    DESCRIPTION     "
                    specifies the device state of the RRP device
                    "
    ::= { rrp 5 }

DeviceUID    OBJECT-TYPE
    SYNTAX          Counter64
    MAX-ACCESS      read-only
    STATUS          mandatory
    DESCRIPTION     "
                    specifies the unique 8-octet identification that
                    identifies a RRP device in a network
                    "
    ::= { rrp 6 }

DeviceUIDRport1    OBJECT-TYPE
    SYNTAX          Counter64
    MAX-ACCESS      read-only
    STATUS          mandatory
    DESCRIPTION     "
                    specifies the UID of the device that is linked
                    through the R-port1
                    "
    ::= { rrp 7 }

DeviceUIDRport2    OBJECT-TYPE
    SYNTAX          Counter64
    MAX-ACCESS      read-only
    STATUS          mandatory
    DESCRIPTION     "
                    specifies the UID of the device that is linked
                    through the R-port2
                    "
    ::= { rrp 8 }

MACAddress    OBJECT-TYPE
    SYNTAX          MacAddress
    MAX-ACCESS      read-write
    STATUS          mandatory
    DESCRIPTION     "
                    specifies the MAC address of the RRP device
                    "
    ::= { rrp 9 }

Rport1Information    OBJECT-TYPE
    SYNTAX          BITS {
```

```
                        PortLinkDown(0),
                        PortCFMFamily(1),
                        PortWaitADV(2),
                        PortWaitML(3)
                        PortCFM(4)
                    }
    MAX-ACCESS      read-only
    STATUS          mandatory
    DESCRIPTION     "
                    specifies the port information for R-port1
                    "
    ::= { rrp 10 }

Rport2Information    OBJECT-TYPE
    SYNTAX          BITS {
                        PortLinkDown(0),
                        PortCFMFamily(1),
                        PortWaitADV(2),
                        PortWaitML(3)
                        PortCFM(4)
                    }
    MAX-ACCESS      read-only
    STATUS          mandatory
    DESCRIPTION     "
                    specifies the port information for R-port2
                    "
    ::= { rrp 11 }

Version    OBJECT-TYPE
    SYNTAX          INTEGER
    MAX-ACCESS      read-write
    STATUS          mandatory
    DESCRIPTION     "
                    specifies the protocol version of the RRP device
                    "
    ::= { rrp 12 }

DeviceType    OBJECT-TYPE
    SYNTAX          INTEGER
    MAX-ACCESS      read-write
    STATUS          mandatory
    DESCRIPTION     "
                    specifies the local device type that represents
                    the general function of the device
                    "
    ::= { rrp 13 }

DeviceDescription    OBJECT-TYPE
    SYNTAX          VISIBLE STRING (SIZE(1..16))
    MAX-ACCESS      read-write
    STATUS          mandatory
    DESCRIPTION     "
                    specifies a description of the local device
                    "
    ::= { rrp 14 }

FamilyResWaitingTime    OBJECT-TYPE
    SYNTAX          Unsigned32
    MAX-ACCESS      read-write
    STATUS          mandatory
    DESCRIPTION     "
                    specifies the time interval betweensending the FamilyReq
                    frame andreceiving the FamilyRes frame
                    "
    ::= { rrp 15 }

AdvThisWaitingTime    OBJECT-TYPE
    SYNTAX          Unsigned32
    MAX-ACCESS      read-write
    STATUS          mandatory
    DESCRIPTION     "
                    specifies the time interval betweensending the MediaLinked
                    frame andreceiving the AdvThis frame
                    "
    ::= { rrp 16 }

AckRNMSWaitingTime    OBJECT-TYPE
    SYNTAX          Unsigned32
```

```
    MAX-ACCESS      read-write
    STATUS          mandatory
    DESCRIPTION     "
                    specifies the time interval betweensending the RingStart
                    frame andreceiving the AckRNMS frame
                    "
    ::= { rrp 17 }

RingStateChangeTimeout    OBJECT-TYPE
    SYNTAX          Unsigned32
    MAX-ACCESS      read-write
    STATUS          mandatory
    DESCRIPTION     "
                    specifies the timeout to generate event for changing
                    RNMP device state
                    "
    ::= { rrp 18 }

DiagnosticInformation    OBJECT-TYPE
    SYNTAX          INTEGER {
                        NetworkInformation(1),
                        PathTableInformation(2)
                    }
    MAX-ACCESS      write-only
    STATUS          mandatory
    DESCRIPTION     "
                    specifies the type of diagnostic information
                    "
    ::= { rrp 19 }

-- ************************************************************************
-- Objects of the RRP Network Information
-- ************************************************************************

NetworkTopology    OBJECT-TYPE
    SYNTAX          INTEGER {
                        Invalid(0),
                        NET_TPG_SA(1),
                        NET_TPG_LINE(2),
                        NET_TPG_RING(3)
                    }
    MAX-ACCESS      read-only
    STATUS          mandatory
    DESCRIPTION     "
                    specifies the type of network topology
                    "
    ::= { rrp 20 }

CollisionCnt    OBJECT-TYPE
    SYNTAX          INTEGER
    MAX-ACCESS      read-only
    STATUS          mandatory
    DESCRIPTION     "
                    specifies the device address collision count
                    for remote devices
                    "
    ::= { rrp 21 }

DeviceCnt    OBJECT-TYPE
    SYNTAX          INTEGER
    MAX-ACCESS      read-only
    STATUS          mandatory
    DESCRIPTION     "
                    specifies the total number of devices on the network
                    "
    ::= { rrp 22 }

TopologyChangeCnt    OBJECT-TYPE
    SYNTAX          INTEGER
    MAX-ACCESS      read-only
    STATUS          mandatory
    DESCRIPTION     "
                    specifies the topology change count
                    "
    ::= { rrp 23 }

LastTopologyChangeTime    OBJECT-TYPE
    SYNTAX          TIMEOFDAY
```

```
    MAX-ACCESS      read-only
    STATUS          mandatory
    DESCRIPTION     "
                    specifies the date and time at whichthe network topology
                    was last changed
                    "
    ::= { rrp 24 }

RNMPDeviceUID    OBJECT-TYPE
    SYNTAX          Counter64
    MAX-ACCESS      read-only
    STATUS          mandatory
    DESCRIPTION     "
                    specifies the UID of the device selected as the RNMP
                    on the network
                    "
    ::= { rrp 25 }

RNMSDeviceUID    OBJECT-TYPE
    SYNTAX          Counter64
    MAX-ACCESS      read-only
    STATUS          mandatory
    DESCRIPTION     "
                    specifies the UID of the device selected as the RNMS
                    on the network
                    "
    ::= { rrp 26 }

LNMDeviceUIDRport1    OBJECT-TYPE
    SYNTAX          Counter64
    MAX-ACCESS      read-only
    STATUS          mandatory
    DESCRIPTION     "
                    specifies the UID of the device selected as the LNM
                    in the R-port1 direction
                    "
    ::= { rrp 27 }

LNMDeviceUIDRport2    OBJECT-TYPE
    SYNTAX          Counter64
    MAX-ACCESS      read-only
    STATUS          mandatory
    DESCRIPTION     "
                    specifies the UID of the device selected as the LNM
                    in the R-port2 direction
                    "
    ::= { rrp 28 }

NetworkFlags    OBJECT-TYPE
    SYNTAX          BITS {
                        NetworkTopologyChanged(0),
                        DeviceAddressCollisionInNetwork(1),
                        DeviceJoinedNetwork(2),
                        DeviceLeftNetwork(3)
                    }
    MAX-ACCESS      read-only
    STATUS          mandatory
    DESCRIPTION     "
                    specifies the flags for events that occurred
                    in the network
                    "
    ::= { rrp 29 }

-- ************************************************************************
-- Objects of the RRP Path Table Information
-- ************************************************************************

PathTableInfo    OBJECT-TYPE
    SYNTAX          SEQUENCE OF PathTableInfoEntry
    MAX-ACCESS      read-only
    STATUS          mandatory
    DESCRIPTION     "
                    Path Table in the form of an array table containing
                    the path information foreach RRP device on the network
                    "
    ::= { rrp 30 }

PathTableEntry    OBJECT-TYPE
```

```
    SYNTAX          PathTableInfoEntry
    MAX-ACCESS      read-only
    STATUS          mandatory
    DESCRIPTION     "Row of Path Table Information"
    INDEX           { PathTableIndex }
    ::= { PathTableInfo 1 }

PathTableInfoEntry ::=  SEQUENCE {
                    pathDevAddress                  INTEGER,
                    pathHopCntRp1                   INTEGER,
                    pathHopCntRp2                   INTEGER,
                    pathPreferRp                    INTEGER,
                    pathDstRp                       INTEGER,
                    pathDevState                    INTEGER,
                    pathMACAddress                  MacAddress,
                    pathRp1Info                     INTEGER,
                    pathRp2Info                     INTEGER,
                    pathVersion                     INTEGER,
                    pathDevType                     INTEGER,
                    pathDevDesc                     VISIBLE STRING (SIZE(1..16)),
                    pathDevUID                      Counter64,
                    pathDevUIDRp1                   Counter64,
                    pathDevUIDRp2                   Counter64
                    }

END
-- ****************************************************************************
--   EOF
-- ****************************************************************************
```

_____