

Network Working Group
Request for Comments: 3591
Category: Standards Track

H-K. Lam
Lucent Technologies
M. Stewart
Dorado Software
A. Huynh
Cetus Networks
September 2003

Definitions of Managed Objects for the Optical Interface Type

Status of this Memo

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

Copyright Notice

Copyright (C) The Internet Society (2003). All Rights Reserved.

Abstract

This memo defines a portion of the Management Information Base (MIB) for use with Simple Network Management Protocol (SNMP) in TCP/IP-based internets. In particular, it defines objects for managing Optical Interfaces associated with WavelengthDivision Multiplexing systems or characterized by the Optical Transport Network (OTN) in accordance with the OTN architecture defined in ITU-T Recommendation G.872.

The MIB module defined in this memo can be used for performance monitoring and/or configuration of such optical interface.

Table of Contents

| | |
|-----------------------------------------------------|-----|
| 1. The Internet-Standard Management Framework | 2 |
| 2. Overview | 3 |
| 2.1. Use of the ifTable | 3 |
| 2.2. Use of ifTable for OTN OTS/OMS Layer..... | 8 |
| 2.3. Use of ifTable for OTN OChGroup Layer..... | 9 |
| 2.4. Use of ifTable for OTN OCh Layer..... | 10 |
| 2.5. Use of ifStackTable..... | 12 |
| 2.6. Optical Network Terminology | 13 |
| 2.7. Tandem Connection Monitoring (TCM) | 20 |
| 3. Structure of the MIB..... | 21 |
| 3.1. The optIfOTMn group..... | 23 |
| 3.2. The optIfPerfMon group..... | 24 |
| 3.3. The optIfOTSn groups..... | 24 |
| 3.4. The optIfOMSn groups..... | 25 |
| 3.5. The optIfOChGroup groups..... | 26 |
| 3.6. The optIfOCh groups..... | 27 |
| 3.7. The optIfOTUk groups..... | 28 |
| 3.8. The optIfODUk groups..... | 29 |
| 3.9. The optIfODUKT groups..... | 30 |
| 4. Object Definitions | 30 |
| 5. Security Considerations | 167 |
| 6. Acknowledgments..... | 169 |
| 7. References | 169 |
| 7.1. Normative References | 169 |
| 7.2. Informative References | 171 |
| 8. Intellectual Property Statement | 171 |
| 9. Authors' Addresses | 172 |
| 10. Full Copyright Statement | 173 |

1. The Internet-Standard Management Framework

For a detailed overview of the documents that describe the current Internet-Standard Management Framework, please refer to section 7 of RFC 3410 [RFC3410].

Managed objects are accessed via a virtual information store, termed the Management Information Base or MIB. MIB objects are generally accessed through the Simple Network Management Protocol (SNMP). Objects in the MIB are defined using the mechanisms defined in the Structure of Management Information (SMI). This memo specifies a MIB module that is compliant to the SMIV2, which is described in STD 58, RFC 2578 [RFC2578], STD 58, RFC 2579 [RFC2579] and STD 58, RFC 2580 [RFC2580].

2. Overview

In this document, the term OTN (Optical Transport Network) system is used to describe devices that are compliant with the requirements specified in the ITU-T Recommendations G.872 [ITU-T G.872], G.709 [ITU-T G.709], G.798 [ITU-T G.798], G.874 [ITU-T G.874], and G.874.1 [ITU-T G.874.1].

The optical objects will be managed using the MIB II ifTable and ifStackTable. Additional tables will also be supported to monitor layer specific status and provide performance monitoring data. In the tables, some entries are required for OTN systems only. A Configuration (Config) table, Current Performance Monitoring (PM) table, and Interval PM table will be maintained for the OTSn, OMSn, OChGroup, and OCh layers on a source and sink trail termination basis. These tables will be linked to the ifTable by using the ifIndex that is associated with that layer.

These objects are used when the particular media being used to realize an interface is an Optical Transport interface. At present, this applies to these values of the ifType variable in the Internet-standard MIB:

opticalChannel (195), opticalChannelGroup (219), opticalTransport (196)

The definitions contained herein are based on the OTN specifications in ITU-T G.872[ITU-T G.872], G.709 [ITU-T G.709], G.798[ITU-T G.798], G.874[ITU-T G.874], and G.874.1 [ITU-T G.874.1].

2.1. Use of the ifTable

This section specifies how the MIB II interfaces group, as defined in RFC 2863 [RFC2863], is used for optical interfaces. Only the ifGeneralInformationGroup will be supported for the ifTable and the ifStackTable to maintain the relationship between the various layers. The OTN layers are managed in the ifTable using IfEntries that correlate to the layers depicted in Figure 1.

For example, a DWDM device with an Optical Network Node Interface (ONNI) will have an Optical Transmission Section (OTS) physical layer, an Optical Multiplex Section (OMS) layer (transports multiple optical channels), and an Optical Channel (OCh) layer. There is a one to one relationship between the OMS and OTS layers. The OMS layer has fixed connectivity via the OTS and thus no connectivity flexibility at the OMS layer is supported.

A device with an ONNI that does not multiplex would consist of the OTS and OCh layers supporting a single channel.

MIB-II (RFC 1213) [RFC1213], as amended and extended by RFC 3418 [RFC3418], RFC 2863 [RFC2863], and RFC 2864 [RFC2864], accommodates these cases through appropriate use of the system and interfaces groups. The system group names and describes the type of managed resource. The interfaces group defines which OTN layers exist and how these layers are configured and multiplexed. This is achieved by proper representation of OTN Layers as IfEntries as defined in RFC 2863 [RFC2863], as follows.

In the following figures, opticalChannel and opticalTransport are abbreviated as och and otn respectively.

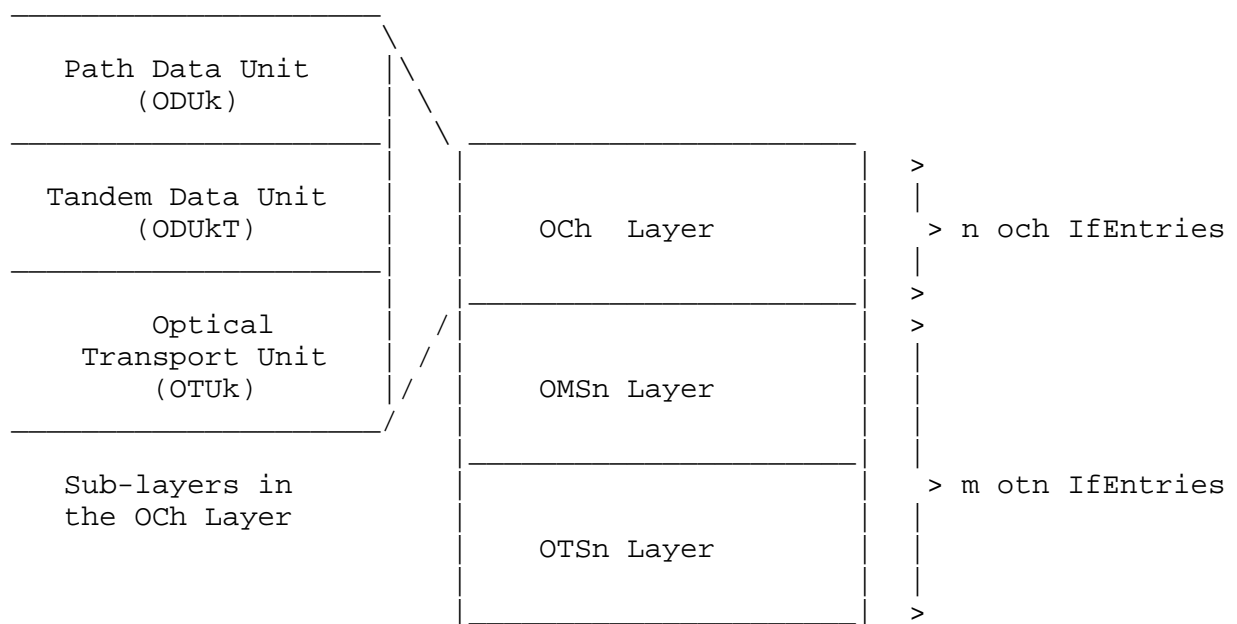


Figure 1: OTN Layers

Since the OMSn and OTSn layers have a one to one relationship, only one otn IfEntry is required to support these two layers. Therefore, each opticalChannel IfEntry may be mapped to m opticalTransport IfEntries, where m is greater than or equal to 1. Conversely, each opticalTransport entry may be mapped to n opticalChannel IfEntries, where n is greater than or equal to 1.

There are implementations that have banded amplifiers that operate on a group of optical channels separately (e.g., C and L band channels) before finally muxing them together and transporting them over a

physical layer. For such DWDM system implementations, it is important to have the ability to model each of the groups (or bands) with an ifIndex and measure the pre-OTN PM parameters for each band separately.

The OTN layering, as described in Figure 1, can be extended to accomodate such implementations by introducing another layer called the OChGroup Layer.

As an example, Figure 2 depicts the OTN layering of a DWDM system with 80 C-band and 80 L-band channels combined into their respective channel band groups before being muxed into the OMS and transported over the OTS.

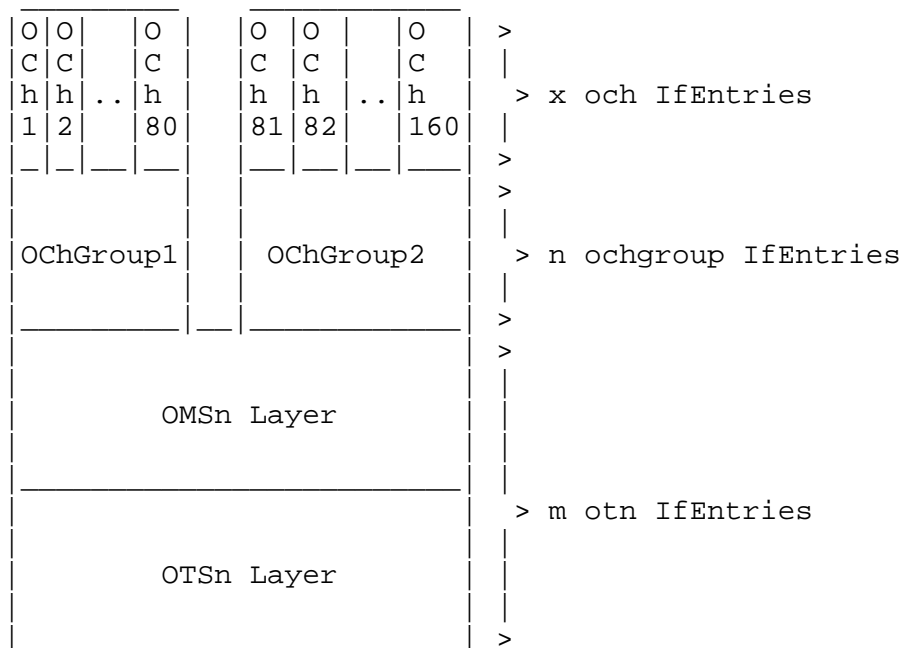


Figure 2: OTN Layers for a Banded Configuration

If an implementation does not wish to model the banded configuration, the OChGroup layer is absent and the OTN layering model degenerates to the description in Figure 1. In other words, when there is an amplifier that covers the whole band, the optIfOMSn objects should be used, rather than using the optIfOChGroup objects with a degenerate group that covers all channels.

The design of the Optical Interface MIB provides the option to model an interface either as a single bidirectional object containing both sink and source functions or as a pair of unidirectional objects, one containing sink functions and the other containing source functions.

If the sink and source for a given protocol layer are to be modelled as separate objects, then there need to be two ifTable entries, one that corresponds to the sink and one that corresponds to the source, where the directionality information is provided in the configuration tables for that layer via the xxxDirectionality objects. The agent is expected to maintain consistent directionality values between ifStackTable layers (e.g., a sink must not be stacked in a 1:1 manner on top of a source, or vice-versa), and all protocol layers that are represented by a given ifTable entry are expected to have the same directionality (i.e., instances of optIfOTSnDirectionality and optIfOMSnDirectionality that correspond to a given ifIndex value must have the same value, and instances of optIfOChDirectionality, optIfOTUkDirectionality, and optIfODUkDirectionality that correspond to a given ifIndex value must have the same value).

When separate ifTable entries are used for the source and sink functions of a given physical interface, association between the two uni-directional ifTable entries (one for the source function and the other for the sink functions) should be provided. It is recommended that identical ifName values are used for the two ifTable entries to indicate such association. An implementation shall explicitly state what mechanism is used to indicate the association, if ifName is not used.

Example 1: Management of unterminated opticalChannel (och) using passive optics

An OTN device connected with two adjacent nodes in a single fiber ring that supports 10 wavelengths per fiber would have 2 opticalTransport IfEntries and 20 opticalChannel IfEntries, as depicted in Figure 3. Thus 10 opticalChannel IfEntries are stacked above the first opticalTransport IfEntry, and the other 10 opticalChannel IfEntries are stacked above the second opticalTransport IfEntry. Note that the optical channels in this example are un-terminated, and thus no OTUk objects will be instantiated for these optical channels. The opticalChannel IfEntries of one otn may be dropped/added from/to the OTN device or cross-connected with the opticalChannel IfEntries of the other otn. Cross-connection from a member of the first 10 opticalChannel IfEntries to a member of the second 10 opticalChannel IfEntries could be modelled by using a cross-connect object, which is not yet defined in this version of the MIB.

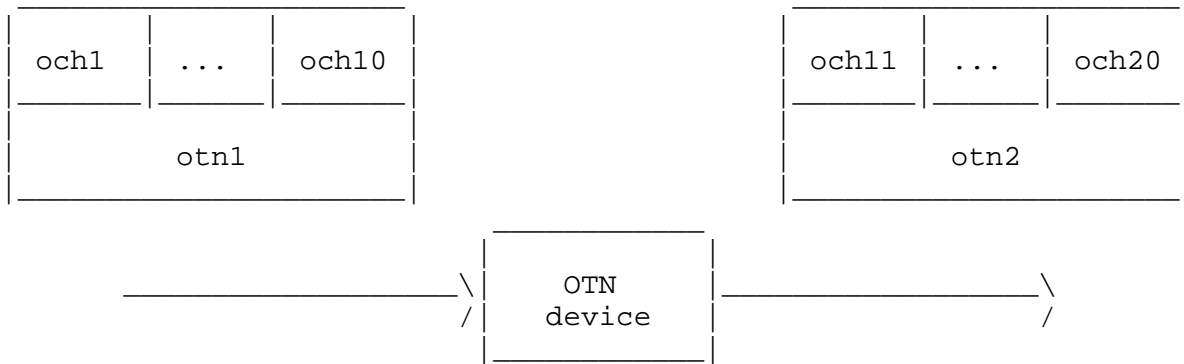


Figure 3: Interface stacks when channels are unterminated

Example 2: Management of terminated opticalChannel (och) interfaces

An OTN device connected with two adjacent nodes in a single fiber ring that supports 10 wavelengths per fiber would have 2 opticalTransport IfEntries and 20 opticalChannel IfEntries, as depicted in Figure 4. Thus 10 opticalChannel IfEntries are stacked above the first opticalTransport IfEntry, and the other 10 opticalChannel IfEntries are stacked above the second opticalTransport IfEntry. As the optical channels in this example are terminated, OTUk objects and possibly ODUk objects will be instantiated for the terminated opticalChannel IfEntries.

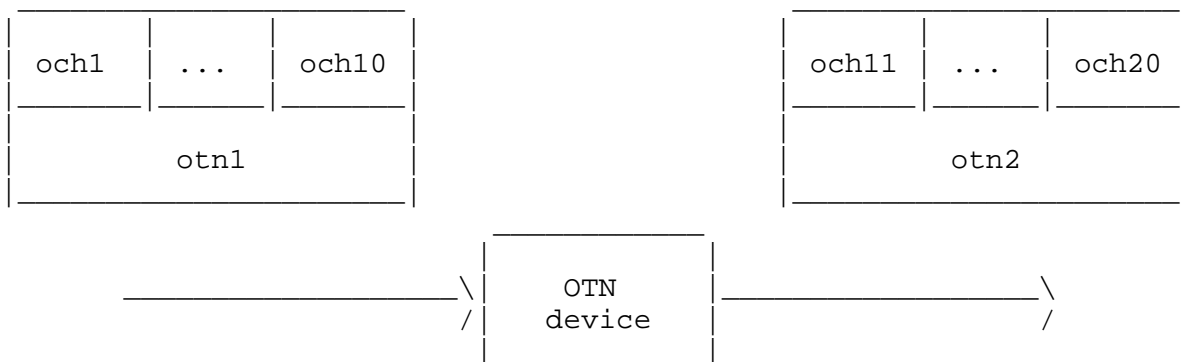


Figure 4: Interface stacks when channels are terminated

Note that the two examples described above depict the interface stacks when the banded configuration is not modeled.

The exact configuration and multiplexing of the layers is maintained in the ifStackTable (RFC 2863) [RFC2863] and in the ifInvStackTable (RFC 2864) [RFC2864]; see section 2.5 for details.

2.2. Use of ifTable for OTN OTS/OMS Layer

Only the ifGeneralInformationGroup needs to be supported.

| ifTable Object | Use for combined OTN OTS/OMS Layer |
|----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ===== | ===== |
| ifIndex | The interface index. |
| ifDescr | Optical Transport Network (OTN) Optical Transmission Section (OTS)/Optical Multiplex Section (OMS) |
| ifType | opticalTransport (196) |
| ifSpeed | Actual bandwidth of the interface in bits per second. If the bandwidth of the interface is greater than the maximum value of 4,294,967,295, then the maximum value is reported and ifHighSpeed must be used to report the interface's speed. |
| ifPhysAddress | An octet string with zero length. (There is no specific address associated with the interface.) |
| ifAdminStatus | The desired administrative status of the interface. Supports read-only access. |
| ifOperStatus | The operational status of the interface. The value lowerLayerDown(7) is not used, since there is no lower layer interface. This object is set to notPresent(6) if a component is missing, otherwise it is set to down(2) if either of the objects optIfOTSnCurrentStatus or optIfOMSnCurrentStatus indicates that any defect is present. |
| ifLastChange | The value of sysUpTime at the last change in ifOperStatus. |

ifName Enterprise-specific convention (e.g., TL-1 AID) to identify the physical or data entity associated with this interface or an OCTET STRING of zero length. The enterprise-specific convention is intended to provide the means to reference one or more enterprise-specific tables.

ifLinkUpDownTrapEnable Default value is enabled(1). Supports read-only access.

ifHighSpeed Actual bandwidth of the interface in Mega-bits per second. A value of n represents a range of 'n-0.5' to 'n+0.499999'.

ifConnectorPresent Set to true(1).

ifAlias The (non-volatile) alias name for this interface as assigned by the network manager.

2.3. Use of ifTable for OTN OChGroup Layer

Only the ifGeneralInformationGroup needs to be supported.

| ifTable Object | Use for OTN OChGroup Layer |
|----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ifIndex | The interface index. |
| ifDescr | Optical Transport Network (OTN) Optical Channel Group (OChGroup) |
| ifType | opticalChannelGroup(219) |
| ifSpeed | Current bandwidth of the interface in bits per second. If the bandwidth of the interface is greater than the maximum value of 4,294,967,295, then the maximum value is reported and ifHighSpeed must be used to report the interface's speed. |
| ifPhysAddress | A string that specifies the range of wavelengths in the format of w1-w2, where w1 and w2 are the lower and upper end of the wavelength range, both in ASCII decimal digits expressed in nanometers (e.g., 1350-1650) |

| | |
|------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ifAdminStatus | The desired administrative status of the interface. Supports read-only access. |
| ifOperStatus | The operational status of the interface. This object is set to lowerLayerDown(7) if the ifOperStatus of its otn interface is down(2). Otherwise, it is set to down(2) if the amplifier for this band is unable to carry traffic. |
| ifLastChange | The value of sysUpTime at the last change in ifOperStatus. |
| ifName | Enterprise-specific convention (e.g., TL-1 AID) to identify the physical or data entity associated with this interface or an OCTET STRING of zero length. The enterprise-specific convention is intended to provide the means to reference one or more enterprise-specific tables. |
| ifLinkUpDownTrapEnable | Default value is disabled(2). Supports read-only access. |
| ifHighSpeed | Current bandwidth of the interface in Mega-bits per second. A value of n represents a range of 'n-0.5' to 'n+0.499999'. |
| ifConnectorPresent | Set to false(2). |
| ifAlias | The (non-volatile) alias name for this interface as assigned by the network manager. |

2.4. Use of ifTable for OTN OCh Layer

Only the ifGeneralInformationGroup needs to be supported.

| | |
|----------------|-----------------------|
| ifTable Object | Use for OTN OCh Layer |
|----------------|-----------------------|

| | |
|---------|-------------------------------------------------------|
| ===== | |
| ifIndex | The interface index. |
| ifDescr | Optical Transport Network (OTN) Optical Channel (OCh) |
| ifType | opticalChannel(195) |

| | |
|------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ifSpeed | Current bandwidth of the interface in bits per second. If the bandwidth of the interface is greater than the maximum value of 4,294,967,295, then the maximum value is reported and ifHighSpeed must be used to report the interface's speed. |
| ifPhysAddress | A string of ASCII decimal digits containing the wavelength of the optical channel, expressed in nanometers (e.g., 1550). |
| ifAdminStatus | The desired administrative status of the interface. Supports read-only access. |
| ifOperStatus | The operational status of the interface. This object is set to lowerLayerDown(7) if the ifOperStatus of its otn interface or of its OChGroup interface is down(2). Otherwise, it is set to down(2) if one or more of the objects optIfOChCurrentStatus, optIfOTUkCurrentStatus, optIfODUkTCurrentStatus, and optIfODUkTtpCurrentStatus indicates that any defect is present. |
| ifLastChange | The value of sysUpTime at the last change in ifOperStatus. |
| ifName | Enterprise-specific convention (e.g., TL-1 AID) to identify the physical or data entity associated with this interface or an OCTET STRING of zero length. The enterprise-specific convention is intended to provide the means to reference one or more enterprise-specific tables. |
| ifLinkUpDownTrapEnable | Default value is disabled(2). Supports read-only access. |
| ifHighSpeed | Current bandwidth of the interface in Mega-bits per second. A value of n represents a range of 'n-0.5' to 'n+0.499999'. |
| ifConnectorPresent | Set to false(2). |
| ifAlias | The (non-volatile) alias name for this interface as assigned by the network manager. |

2.5. Use of ifStackTable

Use of the ifStackTable and ifInvStackTable to associate the opticalTransport and opticalChannel interface entries is best illustrated by the example shown in Figure 5. The example assumes an otn interface with ifIndex i that carries two multiplexed och interfaces with ifIndex values of j and k, respectively. The example shows that j and k are stacked above (i.e., multiplexed into) i. Furthermore, it shows that there is no layer lower than i and no layer higher than j and/or k.

| HigherLayer | LowerLayer |
|-------------|------------|
| ----- | |
| 0 | j |
| 0 | k |
| j | i |
| k | i |
| i | 0 |

Figure 5: Use of ifStackTable for an OTN port

Figure 6 illustrates an example for a banded configuration. The example assumes an otn interface with ifIndex i that carries two multiplexed och groups with ifIndex values u and v. An och group with ifIndex value u combines two och interfaces with ifIndex values of a and b. An och group with ifIndex value v combines two och interfaces with ifIndex values of c and d. The example show that a and b are stacked above (i.e., multiplexed into) u. Likewise, c and d are stacked above v. u and v are multiplexed into i. Furthermore, it shows that there is no layer lower than i and no layer higher than a, b, c, and/or d. It also shows that u has a and b as its higher layers, and v has c and d as its higher layers.

| HigherLayer | LowerLayer |
|-------------|------------|
| ----- | |
| 0 | a |
| 0 | b |
| 0 | c |
| 0 | d |
| a | u |
| b | u |
| c | v |
| d | v |
| u | i |
| v | i |
| i | 0 |

Figure 6: Use of ifStackTable for an OTN port for a banded configuration

For the inverse stack table, it provides the same information as the interface stack table, with the order of the Higher and Lower layer interfaces reversed.

2.6. Optical Network Terminology

The terminology used in this document to describe the layers of an optical network and the error conditions and performance monitoring parameters on an optical circuit as monitored by an optical system is listed below. These terms are defined in ITU-T Recommendations G.872 [ITU-T G.872], G.709 [ITU-T G.709], G.798 [ITU-T G.798], G.874 [ITU-T G.874], G.874.1 [ITU-T G.874.1], and G.806 [ITU-T G.806]. Brief definitions of some terms are also included here to facilitate the readability of this document.

Degraded Threshold (DEGTHR) - G.806

A threshold level for declaring a performance monitoring (PM) Second (a time period of one second) to be bad. A PM Second is declared bad if the percentage of detected errored blocks in that second or the number of errored blocks in that Second is greater than or equal to DEGTHR.

DEGM - G.806

A threshold level for declaring a Degraded Signal defect (dDEG). A dDEG shall be declared if DEGM consecutive bad PM Seconds are detected.

Expected Destination Access Point Identifier (ExDAPI) - G.798

The Expected Destination Access Point Identifier (ExDAPI), provisioned by the managing system, to be compared with the TTI accepted at the overhead position of the sink for the purpose of checking the integrity of connectivity.

Expected Source Access Point Identifier (ExSAPI) - G.798

The Expected Source Access Point Identifier (ExSAPI), provisioned by the managing system, to be compared with the TTI accepted at the overhead position of the sink for the purpose of checking the integrity of connectivity.

Inter-Domain Interface (IrDI) - G.872

A physical interface that represents the boundary between two administrative domains.

G.709 defines the requirements for the IrDI at the Network Node Interface (NNI).

Intra-Domain Interface (IaDI) - G.872

A physical interface within an administrative domain.

Optical Channel Layer Network (OCh) - G.872

This layer network provides end-to-end networking of optical channels for transparently conveying client information of varying format (e.g., SDH STM-N, PDH 565 Mbit/s, cell based ATM, etc.).

Optical Channel Data Unit Path Layer Network (ODUk) - G.709/Y.1331

This layer network provides functionality for the transport of information structure consisting of the information payload (OPUk) and the related overhead for management of an optical channel.

Optical Channel Data Unit Tandem Connection Sub-Layer Network (ODUKT) - G.709/Y.1331

This layer network is a sub-layer of the optical data unit layer, which provides the capability for tandem connection monitoring. One to six nested levels of monitoring are defined for OTN.

Optical Channel Payload Unit (OPUk) - G.709/Y.1331

The OPUk is the information structure used to adapt client information for transport over an optical channel. OPUk capacities for k=1, k=2, k=3 are defined in ITU-T. The index "k" is used to represent different versions of OPUk, ODUk and OTUk. k=1 represents an approximate bit rate of 2.5 Gbit/s, k=2 represents an approximate bit rate of 10 Gbit/s, and k=3 represents an approximate bit rate of 40 Gbit/s.

Optical Multiplex Section Layer Network (OMS) - G.872

This layer network provides functionality for networking of a multi-wavelength optical signal. Note that a "multi-wavelength" signal includes the case of just one optical channel.

Optical Transport Module (OTM-n[r].m) - G.872

The OTM is the information structure that is transported across an ONNI. The index n and m define the number of supported wavelengths and bit rates at the interface.

Two OTM structures are defined: OTM with full functionality (OTM-n.m) and OTM with reduced functionality (OTM-0.m & OTM-nr.m).

The OTM-n.m consists of up to n multiplexed optical channels and an OTM overhead signal to support the non-associated overhead. The OTM-0 consists of a single optical channel

without a specific color assigned. The OTM-nr.m consists of up to n multiplexed optical channels. Non associated overhead is not supported.

Optical Transport Network (OTN) - G.872

A transport network bounded by optical channel access points. The optical transport network layered structure is comprised of the optical channel, optical multiplex section and optical transmission section layer networks.

According to G.872, an OTN-compliant interface is an interface of the optical transport network based on the architecture defined in G.872, while an OTN-non-compliant interface is an interface that does not comply with the interface recommendations that will be defined for the optical transport network based on the architecture defined in G.872.

Optical Transmission Section Layer Network (OTS) - G.872

This layer network provides functionality for transmission of optical signals on optical media of various types.

Optical Channel Transport Unit Section Layer Network (OTUk) - G.709

The OTUk is the layer network that provides for the transport of an ODUk over one or more optical channel link connections. It consists of the optical channel data unit and OTUk related overhead (FEC and overhead for management of an optical channel link connection). It is characterized by its frame structure, bit rate, and bandwidth.

Payload Type Mismatch (PLM)

The detection of a mismatch of payload type is based on a comparison between the expected Payload Type signal, provisioned via the management interface, and the received Payload Type signal.

Trail Trace Identifier Transmitted (TxTI) - G.798

The Trail Trace Identifier (TTI) information, provisioned by the managing system, to be placed in the TTI overhead position of the source of a trail for transmission.

Trail Trace Identifier Accepted (AcTI) - G.798

The Trail Trace Identifier (TTI) information accepted from the TTI overhead position at the sink of a trail.

Trail Trace Identifier Accepted Status (AcTISStatus) - G.798

The Status of the Trail Trace Identifier (TTI) accepted from the TTI overhead position at the sink of a trail.

Trace Identifier Mismatch (TIM) - G.798

The detection of TIM is based on a comparison between the expected Trial Trace Identifier (TTI), configured via the management interface, and the received TTI.

Trace Identifier Mismatch Consequent Action Enabled (TimActEnabled) - G.798

The Consequent Action function of TIM is disabled.

Trace Identifier Mismatch Detection Mode (TimDetMode) - G.798

The mode of detecting Trace Identifier Mismatch (TIM). Possible modes are:

- (1) off - no checking,
- (2) SAPI - checking the SAPI only,
- (3) DAPI - checking the DAPI only, and
- (4) Both - checking both the SAPI and DAPI.

2.6.1. Defect Conditions

The following Defect conditions are defined in G.798 (as fault cause) for OTN monitoring.

| | |
|------|-----------------------------------------------|
| ais | Alarm Indication Signal (AIS) |
| bdi | Backward Defect Indication (BDI) |
| bdiO | Backward Defect Indication - Overhead (BDI-O) |
| bdiP | Backward Defect Indication - Payload (BDI-P) |
| deg | Degraded (DEG) |
| lck | Locked (LCK) |
| lof | Loss of Frame (LOF) |
| lom | Loss of Multi Frame |
| los | Loss of Signal (LOS) |
| losO | Loss of Signal - Overhead (LOS-O) |
| losP | Loss of Signal - Payload (LOS-P) |
| oci | Open Connection Indication (OCI) |
| plm | Payload Mismatch (PLM) |
| ssf | Server Signal Failure (SSF) |
| ssfO | Server Signal Failure - Overhead (SSF-O) |
| ssfP | Server Signal Failure - Payload (SSF-P) |
| tim | Trace Identifier Mismatch (TIM) |

The relationship of these conditions within a network layer and between layers are described in G.798 [ITU-T G.798].

2.6.2. Performance Parameters

To facilitate identification of equipment and facilities that may require maintenance, it is necessary to monitor parameters such as optical power at each layer. The measurements are taken periodically, and a snapshot of the current value is also made available. More specifically, performance parameters at each layer are maintained for the current 15-minute interval, the current 24-hour interval, N previous 15-minute intervals where $4 \leq N \leq 96$, and one previous 24-hour interval.

Note that some of the previous interval data will be unavailable if the agent has restarted within the last 24 hours.

There is no requirement for an agent to ensure a fixed relationship between the start of a 15-minute or 24-hour interval and any wall clock; however, some agents may align the 15-minute intervals with quarter hours and may align the 24-hour intervals with a particular hour of the day (e.g., 00:00 UTC).

Note that some DWDM systems may also monitor the laser temperature of the equipment in addition to monitoring the optical power. However, industry opinions vary widely with respect to laser temperature monitoring, in particular regarding the benefit of the monitoring and which temperatures are to be monitored (i.e., all or only some of the pump lasers). Similarly, there are varying opinions regarding mid-stage power monitoring. Since no consensus was reached, it was decided that the laser temperature monitoring and mid-stage monitoring would not be standardized in the MIB. If an implementation would like to monitor these parameters, one could use a proprietary MIB or the ENTITY-SENSOR-MIB [RFC3433] to capture this information.

The sink-side monitoring points for the various layers are shown in Figure 7 below.

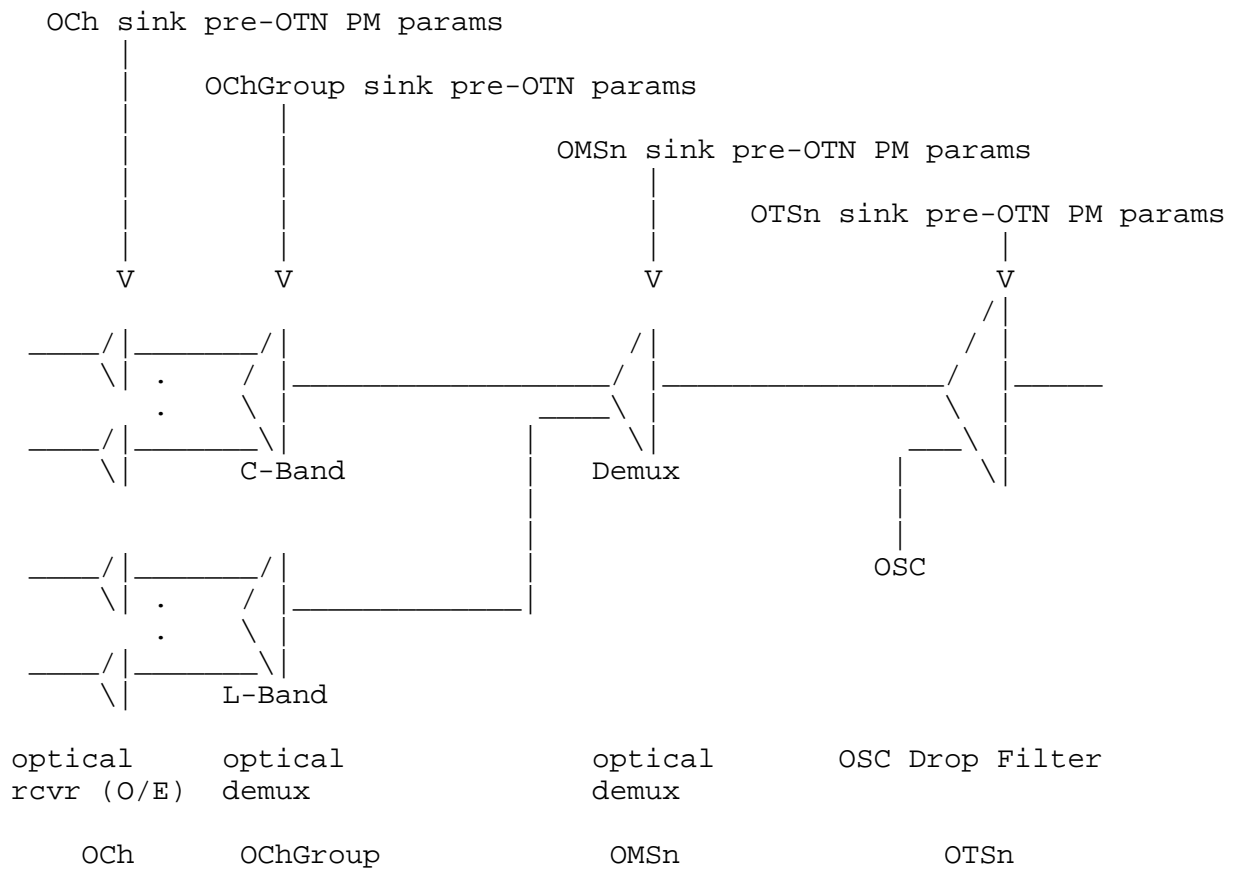


Figure 7: Sink-side pre-OTN monitoring points

The source-side monitoring points for the various layers are shown in Figure 8 below.

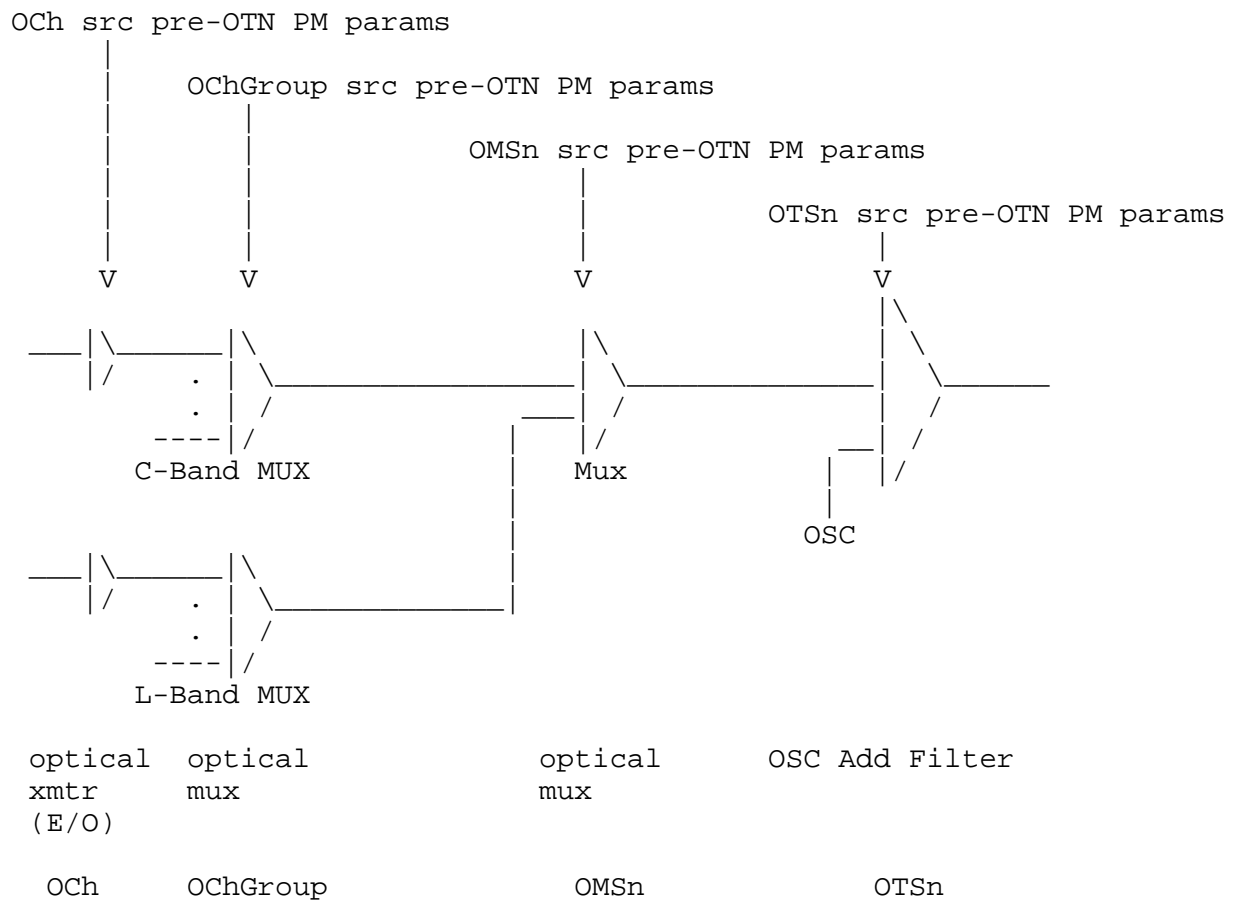


Figure 8: Source-side pre-OTN monitoring points

Note that optical performance parameters are of type Integer32, rather than Counter32 or Gauge32, because it is possible for these objects to increase or decrease and to assume negative or positive values.

2.7. Tandem Connection Monitoring (TCM)

An ODUk termination can be provisioned to support (0..6) TCM levels. Each TCM field contains the following subfields:

- Trail Trace Identifier (TTI)
- Bit Interleaved Parity 8 (BIP8)
- Backward Defect Indication (BDI)
- Backward Error Indication (BEI)
- Status bits indicating the presence of TCM overhead, Incoming AlignmentError, or a maintenance signal (STAT).

The insertion of these subfields is controlled by:

- optIfODUkTSourceMode or otnODUkTsinkMode

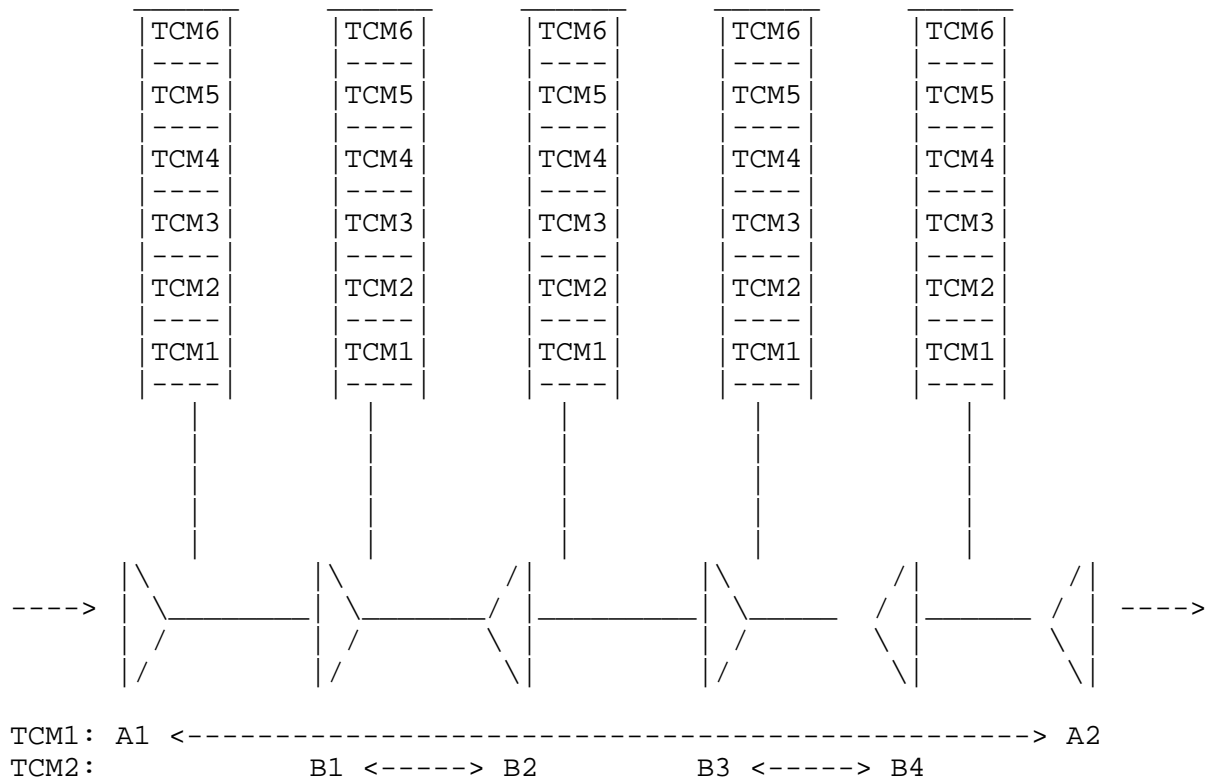
The detection and corresponding action of these subfields are controlled by:

- optIfODUkTTimDetMode
- optIfODUkTTimActEnabled

The TCM connection is used for monitoring the quality of an end to end connection or any segment, as illustrated in the example:

TCM1 used for the end-to-end connection from A1 to A2.
TCM2 used for segment B1-B2, then used again for segment B3-B4.
TCM3-TCM6 these bytes are not in used in this example.

The TCM connection can be nested (B1-B2 is nested in A1-A2) or cascaded (B1-B2 and B3-B4).



3. Structure of the MIB

The managed Optical Networking interface objects are arranged into the following groups of tables:

The optIfOTMn group handles the OTM information structure of an optical interface.

optIfOTMnTable

The optIfPerfMon group handles the current 15-minute and 24-hour interval elapsed time, as well as the number of 15-minute intervals for all layers.

optIfPerfMonIntervalTable

The optIfOTSn groups handle the configuration and performance monitoring information for OTS layers.

- optIfOTSnConfigTable
- optIfOTSnSinkCurrentTable
- optIfOTSnSinkIntervalTable
- optIfOTSnSinkCurDayTable
- optIfOTSnSinkPrevDayTable
- optIfOTSnSrcCurrentTable
- optIfOTSnSrcIntervalTable
- optIfOTSnSrcCurDayTable
- optIfOTSnSrcPrevDayTable

The optIfOMSn groups handle the configuration and performance information for OMS layers.

- optIfOMSnConfigTable
- optIfOMSnSinkCurrentTable
- optIfOMSnSinkIntervalTable
- optIfOMSnSinkCurDayTable
- optIfOMSnSinkPrevDayTable
- optIfOMSnSrcCurrentTable
- optIfOMSnSrcIntervalTable
- optIfOMSnSrcCurDayTable
- optIfOMSnSrcPrevDayTable

The optIfOChGroup groups handle the configuration and performance information for OChGroup layers.

- optIfOChGroupConfigTable
- optIfOChGroupSinkCurrentTable
- optIfOChGroupSinkIntervalTable
- optIfOChGroupSinkCurDayTable
- optIfOChGroupSinkPrevDayTable
- optIfOChGroupSrcCurrentTable
- optIfOChGroupSrcIntervalTable
- optIfOChGroupSrcCurDayTable
- optIfOChGroupSrcPrevDayTable

The optIfOCh groups handle the configuration and performance monitoring information for OCh layers.

- optIfOChConfigTable
- optIfOChSinkCurrentTable
- optIfOChSinkIntervalTable
- optIfOChSinkCurDayTable
- optIfOChSinkPrevDayTable
- optIfOChSrcCurrentTable
- optIfOChSrcIntervalTable
- optIfOChSrcCurDayTable
- optIfOChSrcPrevDayTable

The optIfOTUk groups handle configuration information for OTUk.

- optIfOTUkConfigTable
- optIfGCC0ConfigTable

The optIfODUk groups handle configuration information for ODUk.

- optIfODUkConfigTable
- optIfODUkTtpConfigTable
- optIfODUkPositionSeqTable
- optIfODUkNimConfigTable
- optIfGCC12ConfigTable

The optIfODUkT groups handle configuration information for ODUkT.

- optIfODUkTConfigTable
- optIfODUkTNimConfigTable

This memo does not define MIB objects for optical system cross-connects. After a consensus is reached on definitions of the interface MIB objects for optical systems (resulting from resolution of discussions on the objects proposed in this memo), work can progress on the definitions of tables to represent cross-connects (e.g., OCh optical cross-connects and ODUk electrical cross-connects).

3.1. The optIfOTMn group

3.1.1. optIfOTMnTable

This table contains the OTM structure information of an optical interface.

3.2. The optIfPerfMon group

3.2.1. optIf Performance Monitoring Interval Table

This table applies to all performance monitoring on an NE. It records on a per-interface basis the elapsed time in the current 15-minute and 24-hour interval, as well as the total number of 15-minute intervals and the number of invalid 15-minute intervals.

3.3. The optIfOTSn groups

3.3.1. optIfOTSn Configuration group

3.3.1.1. optIfOTSn Configuration Table

This table contains information on configuration of optIfOTSn interfaces, in addition to the information on such interfaces contained in the ifTable.

3.3.2. optIfOTSn Pre-OTN PM group

3.3.2.1. optIfOTSn Source Current Table

This table contains information on current performance of optIfOTSn interfaces contained in the ifTable.

3.3.2.2. optIfOTSn Source Interval Table

This table contains information on historic performance of optIfOTSn interfaces contained in the ifTable.

3.3.2.3. optIfOTSn Source Current Day Table

This table contains a snapshot of information for the current 24-hour period for optIfOTSn interfaces contained in the ifTable.

3.3.2.4. optIfOTSn Source Previous Day Table

This table contains a snapshot of information for the previous 24-hour period for optIfOTSn interfaces contained in the ifTable.

3.3.2.5. optIfOTSn Sink Current Table

This table contains information on current performance of optIfOTSn interfaces contained in the ifTable.

3.3.2.6. optIfOTSn Sink Interval Table

This table contains information on historic performance of optIfOTSn interfaces contained in the ifTable.

3.3.2.7. optIfOTSn Sink Current Day Table

This table contains a snapshot of information for the current 24-hour period for optIfOTSn interfaces contained in the ifTable.

3.3.2.8. optIfOTSn Sink Previous Day Table

This table contains a snapshot of information for the previous 24-hour period for optIfOTSn interfaces contained in the ifTable.

3.4. The optIfOMSn groups

3.4.1. optIfOMSn Configuration group

3.4.1.1. optIfOMSn Configuration Table

This table contains information on configuration of optIfOMSn interfaces, in addition to the information on such interfaces contained in the ifTable.

3.4.2. optIfOMSn Pre-OTN PM group

3.4.2.1. optIfOMSn Source Current Table

This table contains information on current performance of optIfOMSn interfaces contained in the ifTable.

3.4.2.2. optIfOMSn Source Interval Table

This table contains information on historic performance of optIfOMSn interfaces contained in the ifTable.

3.4.2.3. optIfOMSn Source Current Day Table

This table contains a snapshot of information for the current 24-hour period for optIfOMSn interfaces contained in the ifTable.

3.4.2.4. optIfOMSn Source Previous Day Table

This table contains a snapshot of information for the previous 24-hour period for optIfOMSn interfaces contained in the ifTable.

3.4.2.5. optIfOMSn Sink Current Table

This table contains information on current performance of optIfOMSn interfaces contained in the ifTable.

3.4.2.6. optIfOMSn Sink Interval Table

This table contains information on historic performance of optIfOMSn interfaces contained in the ifTable.

3.4.2.7. optIfOMSn Sink Current Day Table

This table contains a snapshot of information for the current 24-hour period for optIfOMSn interfaces contained in the ifTable.

3.4.2.8. optIfOMSn Sink Previous Day Table

This table contains a snapshot of information for the previous 24-hour period for optIfOMSn interfaces contained in the ifTable.

3.5. The optIfOChGroup groups

3.5.1. optIfOChGroup Configuration group

3.5.1.1. optIfOChGroup Configuration Table

This table contains information on configuration of optIfOChGroup interfaces, in addition to the information on such interfaces contained in the ifTable.

3.5.2. optIfOChGroup Pre-OTN PM group

3.5.2.1. optIfOChGroup Source Current Table

This table contains information on current performance of optIfOChGroup interfaces contained in the ifTable.

3.5.2.2. optIfOChGroup Source Interval Table

This table contains information on historic performance of optIfOChGroup interfaces contained in the ifTable.

3.5.2.3. optIfOChGroup Source Current Day Table

This table contains a snapshot of information for the current 24-hour period for optIfOChGroup interfaces contained in the ifTable.

3.5.2.4. optIfOChGroup Source Previous Day Table

This table contains a snapshot of information for the previous 24-hour period for optIfOChGroup interfaces contained in the ifTable.

3.5.2.5. optIfOChGroup Sink Current Table

This table contains information on current performance of optIfOChGroup interfaces contained in the ifTable.

3.5.2.6. optIfOChGroup Sink Interval Table

This table contains information on historic performance of optIfOChGroup interfaces contained in the ifTable.

3.5.2.7. optIfOChGroup Sink Current Day Table

This table contains a snapshot of information for the current 24-hour period for optIfOChGroup interfaces contained in the ifTable.

3.5.2.8. optIfOChGroup Sink Previous Day Table

This table contains a snapshot of information for the previous 24-hour period for optIfOChGroup interfaces contained in the ifTable.

3.6. The optIfOCh groups

3.6.1. optIfOCh Configuration group

3.6.1.1. optIfOCh Configuration Table

This table contains information on configuration of optIfOCh interfaces, in addition to the information on such interfaces contained in the ifTable.

3.6.2. optIfOCh Pre-OTN PM group

3.6.2.1. optIfOCh Source Current Table

This table contains information on current performance of optIfOCh interfaces contained in the ifTable.

3.6.2.2. optIfOCh Source Interval Table

This table contains information on historic performance of optIfOCh interfaces contained in the ifTable.

3.6.2.3. optIfOCh Source Current Day Table

This table contains a snapshot of information for the current 24-hour period for optIfOCh interfaces contained in the ifTable.

3.6.2.4. optIfOCh Source Previous Day Table

This table contains a snapshot of information for the previous 24-hour period for optIfOCh interfaces contained in the ifTable.

3.6.2.5. optIfOCh Sink Current Table

This table contains information on current performance of optIfOCh interfaces contained in the ifTable.

3.6.2.6. optIfOCh Sink Interval Table

This table contains information on historic performance of optIfOCh interfaces contained in the ifTable.

3.6.2.7. optIfOCh Sink Current Day Table

This table contains a snapshot of information for the current 24-hour period for optIfOCh interfaces contained in the ifTable.

3.6.2.8. optIfOCh Sink Previous Day Table

This table contains a snapshot of information for the previous 24-hour period for optIfOCh interfaces contained in the ifTable.

3.7. The optIfOTUk groups

3.7.1. optIfOTUk Configuration group

3.7.1.1. optIfOTUk Configuration Table

This table contains information on configuration of optIfOTUk interfaces, in addition to the information on such interfaces contained in the ifTable.

3.7.2. optIfGCC0 Configuration group

3.7.2.1. optIfGCC0 Configuration Table

This table contains information on configuration of the GCC0 communication channel.

3.8. The optIfODUk groups

3.8.1. optIfODUk Configuration group

3.8.1.1. optIfODUk Configuration Table

This table contains all the objects that are common to endpoints (called trail termination points or TTPs) and connection termination points (CTPs), and also includes a flag stating whether TTP functions are present.

3.8.2. optIfODUkTtp Configuration group

3.8.2.1. optIfODUkTtp Configuration Table

This table contains TTP-specific information on configuration of optIfODUk interfaces, in addition to the information on such interfaces contained in the ifTable.

3.8.3. optIfODUk Position Seq group

3.8.3.1. optIfODUk Position Seq Table

This table contains information on the position sequence of the TCM function and/or GCC12 access that have been created within the optIfODUk interfaces, in addition to the information on such interfaces contained in the ifTable.

3.8.4. optIfODUk Nim Configuration group

3.8.4.1. optIfODUk Nim Configuration Table

This table contains information on configuration of optIfODUk Non-intrusive monitoring.

3.8.5. optIfGCC12 Configuration group

3.8.5.1. optIfGCC12 Configuration Table

This table contains information on configuration of the GCC1 and GCC2 communication channels.

3.9. The optIfODUkT groups

3.9.1. optIfODUkT Configuration group

3.9.1.1. optIfODUkT Configuration Table

This table contains information on configuration of optIfODUkT interfaces, in addition to the information on such interfaces contained in the ifTable.

3.9.2. optIfODUkT Nim Configuration group

3.9.2.1. optIfODUkT Nim Configuration Table

This table contains information on configuration of optIfODUkT Non-intrusive monitoring.

4. Object Definitions

OPT-IF-MIB DEFINITIONS ::= BEGIN

IMPORTS

MODULE-IDENTITY, OBJECT-TYPE, Gauge32, Integer32,
Unsigned32, transmission
FROM SNMPv2-SMI
TEXTUAL-CONVENTION, RowPointer, RowStatus, TruthValue
FROM SNMPv2-TC
SnmpAdminString
FROM SNMP-FRAMEWORK-MIB
MODULE-COMPLIANCE, OBJECT-GROUP
FROM SNMPv2-CONF
ifIndex
FROM IF-MIB;

-- This is the MIB module for the OTN Interface objects.

optIfMibModule MODULE-IDENTITY

LAST-UPDATED "200308130000Z"

ORGANIZATION "IETF ATOM MIB Working Group"

CONTACT-INFO

"WG charter:

<http://www.ietf.org/html.charters/atommib-charter.html>

Mailing Lists:

General Discussion: atommib@research.telcordia.com

To Subscribe: atommib-request@research.telcordia.com

Editor: Hing-Kam Lam
Postal: Lucent Technologies, Room 4C-616
101 Crawfords Corner Road
Holmdel, NJ 07733
Tel: +1 732 949 8338
Email: hklam@lucent.com"

DESCRIPTION

"The MIB module to describe pre-OTN and OTN interfaces.

Copyright (C) The Internet Society (2003). This version
of this MIB module is part of RFC 3591; see the RFC
itself for full legal notices."

REVISION "200308130000Z"

DESCRIPTION

"Initial version, published as RFC 3591."

::={ transmission 133 }

-- textual conventions

OptIfAcTI ::= TEXTUAL-CONVENTION

STATUS current

DESCRIPTION

"The trace identifier (TI) accepted at the receiver."

SYNTAX OCTET STRING (SIZE(64))

OptIfBitRateK ::= TEXTUAL-CONVENTION

STATUS current

DESCRIPTION

"Indicates the index 'k' that is used to
represent a supported bit rate and the different
versions of OPUk, ODUk and OTUk.

Allowed values of k are defined in ITU-T G.709.

Currently allowed values in G.709 are:

k=1 represents an approximate bit rate of 2.5 Gbit/s,

k=2 represents an approximate bit rate of 10 Gbit/s,

k=3 represents an approximate bit rate of 40 Gbit/s."

SYNTAX Integer32

OptIfDEGM ::= TEXTUAL-CONVENTION

STATUS current

DESCRIPTION

"Indicates the threshold level for declaring a Degraded Signal
defect (dDEG). A dDEG shall be declared if OptIfDEGM
consecutive bad PM Seconds are detected."

SYNTAX Unsigned32 (2..10)

OptIfDEGThr ::= TEXTUAL-CONVENTION

STATUS current

DESCRIPTION

"Indicates the threshold level for declaring a performance monitoring (PM) Second to be bad. A PM Second is declared bad if the percentage of detected errored blocks in that second is greater than or equal to OptIfDEGThr."

SYNTAX Unsigned32 (1..100)

OptIfDirectionality ::= TEXTUAL-CONVENTION

STATUS current

DESCRIPTION

"Indicates the directionality of an entity."

SYNTAX INTEGER {

sink(1),

source(2),

bidirectional(3)

}

OptIfSinkOrSource ::= TEXTUAL-CONVENTION

STATUS current

DESCRIPTION

"Indicates the directionality of an entity that is allowed only to be a source or sink."

SYNTAX INTEGER {

sink(1),

source(2)

}

OptIfExDAPI ::= TEXTUAL-CONVENTION

STATUS current

DESCRIPTION

"The Destination Access Point Identifier (DAPI) expected by the receiver."

SYNTAX OCTET STRING (SIZE(16))

OptIfExSAPI ::= TEXTUAL-CONVENTION

STATUS current

DESCRIPTION

"The Source Access Point Identifier (SAPI) expected by the receiver."

SYNTAX OCTET STRING (SIZE(16))

OptIfIntervalNumber ::= TEXTUAL-CONVENTION

STATUS current

DESCRIPTION

"Uniquely identifies a 15-minute interval. The interval identified by 1 is the most recently completed interval, and

the interval identified by n is the interval immediately preceding the one identified by n-1."

SYNTAX Unsigned32 (1..96)

OptIfTIMDetMode ::= TEXTUAL-CONVENTION

STATUS current

DESCRIPTION

"Indicates the mode of the Trace Identifier Mismatch (TIM) Detection function."

SYNTAX INTEGER {

off(1),

dapi(2),

sapi(3),

both(4)

}

OptIfTxTI ::= TEXTUAL-CONVENTION

STATUS current

DESCRIPTION

"The trace identifier (TI) transmitted."

SYNTAX OCTET STRING (SIZE(64))

-- object groups

optIfObjects OBJECT IDENTIFIER ::= { optIfMibModule 1 }

optIfConfs OBJECT IDENTIFIER ::= { optIfMibModule 2 }

optIfOTMn OBJECT IDENTIFIER ::= { optIfObjects 1 }

optIfPerfMon OBJECT IDENTIFIER ::= { optIfObjects 2 }

optIfOTSn OBJECT IDENTIFIER ::= { optIfObjects 3 }

optIfOMSn OBJECT IDENTIFIER ::= { optIfObjects 4 }

optIfOChGroup OBJECT IDENTIFIER ::= { optIfObjects 5 }

optIfOCh OBJECT IDENTIFIER ::= { optIfObjects 6 }

optIfOTuk OBJECT IDENTIFIER ::= { optIfObjects 7 }

optIfODuk OBJECT IDENTIFIER ::= { optIfObjects 8 }

optIfODUKT OBJECT IDENTIFIER ::= { optIfObjects 9 }

optIfGroups OBJECT IDENTIFIER ::= { optIfConfs 1 }

optIfCompl OBJECT IDENTIFIER ::= { optIfConfs 2 }

-- the optIfOTMn group

-- This group defines the OTM structure information of an
-- optical interface.

-- OTMn Table

optIfOTMnTable OBJECT-TYPE

```
SYNTAX SEQUENCE OF OptIfOTMnEntry
MAX-ACCESS not-accessible
STATUS current
DESCRIPTION
    "A table of OTMn structure information."
 ::= { optIfOTMn 1 }
```

```
optIfOTMnEntry OBJECT-TYPE
SYNTAX OptIfOTMnEntry
MAX-ACCESS not-accessible
STATUS current
DESCRIPTION
    "A conceptual row that contains the OTMn structure
    information of an optical interface."
INDEX { ifIndex }
 ::= { optIfOTMnTable 1 }
```

```
OptIfOTMnEntry ::=
SEQUENCE {
    optIfOTMnOrder             Unsigned32,
    optIfOTMnReduced           TruthValue,
    optIfOTMnBitRates          BITS,
    optIfOTMnInterfaceType     SnmpAdminString,
    optIfOTMnTcmMax            Unsigned32,
    optIfOTMnOpticalReach      INTEGER
}
```

```
optIfOTMnOrder OBJECT-TYPE
SYNTAX Unsigned32 (1..900)
MAX-ACCESS read-only
STATUS current
DESCRIPTION
    "This object indicates the order of the OTM, which
    represents the maximum number of wavelengths that can be
    supported at the bit rate(s) supported on the interface."
 ::= { optIfOTMnEntry 1 }
```

```
optIfOTMnReduced OBJECT-TYPE
SYNTAX TruthValue
MAX-ACCESS read-only
STATUS current
DESCRIPTION
    "This object indicates whether a reduced or full
    functionality is supported at the interface. A value of
    true means reduced. A value of false means full."
 ::= { optIfOTMnEntry 2 }
```

```
optIfOTMnBitRates OBJECT-TYPE
```

SYNTAX BITS { bitRateK1(0), bitRateK2(1), bitRateK3(2) }
MAX-ACCESS read-only
STATUS current
DESCRIPTION

"This attribute is a bit map representing the bit rate or set of bit rates supported on the interface.

The meaning of each bit position is as follows:

bitRateK1(0) is set if the 2.5 Gbit/s rate is supported

bitRateK2(1) is set if the 10 Gbit/s rate is supported

bitRateK3(2) is set if the 40 Gbit/s rate is supported

Note that each bit position corresponds to one possible value of the type OptIfBitRateK.

The default value of this attribute is system specific."

::= { optIfOTMnEntry 3 }

optIfOTMnInterfaceType OBJECT-TYPE

SYNTAX SnmpAdminString
MAX-ACCESS read-only
STATUS current
DESCRIPTION

"This object identifies the type of interface. The value of this attribute will affect the behavior of the OTM with respect to presence/absence of OTM Overhead Signal (OOS) processing and TCM activation. For an IrDI interface, there is no OOS processing and TCM activation is limited to n levels as specified by a TCM level threshold.

This object contains two fields that are separated by whitespace. The possible values are:

field 1: one of the 4-character ASCII strings
'IrDI' or 'IaDI'

field 2: free-form text consisting of printable
UTF-8 encoded characters

Note that field 2 is optional. If it is not present then there is no requirement for trailing whitespace after field 1.

The default values are as follows:

field 1: 'IaDI'

field 2: an empty string."

::= { optIfOTMnEntry 4 }

optIfOTMnTcmMax OBJECT-TYPE

SYNTAX Unsigned32 (0..6)
MAX-ACCESS read-write
STATUS current
DESCRIPTION

"This object identifies the maximum number of TCM levels allowed for any Optical Channel contained in this OTM. A new TCM activation will be rejected if the requested level is greater than the threshold. If InterfaceType object specifies a type of 'IaDI' for this OTM, then this attribute is irrelevant.

Possible values: unsigned integers in the range
from 0 to 6 inclusive.

Default value: 3."

```
::= { optIfOTMnEntry 5 }
```

optIfOTMnOpticalReach OBJECT-TYPE

```
SYNTAX INTEGER { intraOffice(1), shortHaul(2), longHaul(3),
                 veryLongHaul(4), ultraLongHaul(5) }
```

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"This object indicates the length the optical signal may travel before requiring termination or regeneration.

The meaning of the enumeration are:

intraOffice(1) - intra-office (as defined in ITU-T G.957)

shortHaul(2) - short haul (as defined in ITU-T G.957)

longHaul(3) - long haul (as defined in ITU-T G.957)

veryLongHaul(4) - very long haul (as defined in ITU-T G.691)

ultraLongHaul(5) - ultra long haul (as defined in ITU-T G.691)"

```
::= { optIfOTMnEntry 6 }
```

-- the optIfPerfMon group

-- This group defines performance monitoring objects for all
-- layers.

-- PM interval table

optIfPerfMonIntervalTable OBJECT-TYPE

```
SYNTAX SEQUENCE OF OptIfPerfMonIntervalEntry
```

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"A table of 15-minute performance monitoring interval information."

```
::= { optIfPerfMon 1 }
```

optIfPerfMonIntervalEntry OBJECT-TYPE

```
SYNTAX OptIfPerfMonIntervalEntry
```

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"A conceptual row that contains 15-minute performance monitoring interval information of an interface."

INDEX { ifIndex }

::= { optIfPerfMonIntervalTable 1 }

OptIfPerfMonIntervalEntry ::=

```
SEQUENCE {
    optIfPerfMonCurrentTimeElapsed    Gauge32,
    optIfPerfMonCurDayTimeElapsed    Gauge32,
    optIfPerfMonIntervalNumIntervals  Unsigned32,
    optIfPerfMonIntervalNumInvalidIntervals Unsigned32
}
```

optIfPerfMonCurrentTimeElapsed OBJECT-TYPE

SYNTAX Gauge32 (0..900)

UNITS "seconds"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"Number of seconds elapsed in the current 15-minute performance monitoring interval.

If, for some reason, such as an adjustment in the NE's time-of-day clock, the number of seconds elapsed exceeds the maximum value, then the maximum value will be returned."

::= { optIfPerfMonIntervalEntry 1 }

optIfPerfMonCurDayTimeElapsed OBJECT-TYPE

SYNTAX Gauge32 (0..86400)

UNITS "seconds"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"Number of seconds elapsed in the current 24-hour interval performance monitoring period.

If, for some reason, such as an adjustment in the NE's time-of-day clock, the number of seconds elapsed exceeds the maximum value, then the maximum value will be returned."

::= { optIfPerfMonIntervalEntry 2 }

optIfPerfMonIntervalNumIntervals OBJECT-TYPE

SYNTAX Unsigned32 (0..96)

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The number of 15-minute intervals for which performance monitoring data is available. The number is the same for all the associated sub layers of the interface.

An optical interface must be capable of supporting at least *n* intervals, where *n* is defined as follows:

The minimum value of *n* is 4.

The default of *n* is 32.

The maximum value of *n* is 96.

The value of this object will be *n* unless performance monitoring was (re-)started for the interface within the last (*n**15) minutes, in which case the value will be the number of complete 15-minute intervals since measurement was (re-)started."

```
::= { optIfPerfMonIntervalEntry 3 }
```

optIfPerfMonIntervalNumInvalidIntervals OBJECT-TYPE

SYNTAX Unsigned32 (0..96)

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The number of intervals in the range from 0 to optIfPerfMonIntervalNumIntervals for which no performance monitoring data is available and/or the data is invalid."

```
::= { optIfPerfMonIntervalEntry 4 }
```

-- the optIfOTSn group

-- This group handles the configuration and performance

-- monitoring objects for OTS layers.

-- OTSn config table

optIfOTSnConfigTable OBJECT-TYPE

SYNTAX SEQUENCE OF OptIfOTSnConfigEntry

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"A table of OTSn configuration information."

```
::= { optIfOTSn 1 }
```

optIfOTSnConfigEntry OBJECT-TYPE

SYNTAX OptIfOTSnConfigEntry

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"A conceptual row that contains OTSn configuration information of an interface."

INDEX { ifIndex }

```
::= { optIfOTSnConfigTable 1 }
```

OptIfOTSnConfigEntry ::=

```

SEQUENCE {
    optIfOTSnDirectionality          OptIfDirectionality,
    optIfOTSnAprStatus               SnmpAdminString,
    optIfOTSnAprControl              SnmpAdminString,
    optIfOTSnTraceIdentifierTransmitted OptIfTxTI,
    optIfOTSnDAPIExpected            OptIfExDAPI,
    optIfOTSnSAPIExpected            OptIfExSAPI,
    optIfOTSnTraceIdentifierAccepted OptIfAcTI,
    optIfOTSnTIMDetMode              OptIfTIMDetMode,
    optIfOTSnTIMActEnabled            TruthValue,
    optIfOTSnCurrentStatus           BITS
}

```

optIfOTSnDirectionality OBJECT-TYPE

```

SYNTAX  OptIfDirectionality
MAX-ACCESS  read-only
STATUS  current
DESCRIPTION
    "Indicates the directionality of the entity."
 ::= { optIfOTSnConfigEntry 1 }

```

optIfOTSnAprStatus OBJECT-TYPE

```

SYNTAX  SnmpAdminString
MAX-ACCESS  read-only
STATUS  current
DESCRIPTION
    "This attribute indicates the status of the Automatic
    Power Reduction (APR) function of the entity.  Valid
    values are 'on' and 'off'."
 ::= { optIfOTSnConfigEntry 2 }

```

optIfOTSnAprControl OBJECT-TYPE

```

SYNTAX  SnmpAdminString
MAX-ACCESS  read-write
STATUS  current
DESCRIPTION
    "This object is a UTF-8 encoded string that specifies Automatic
    Power Reduction (APR) control actions requested of this entity
    (when written) and that returns the current APR control state
    of this entity (when read).  The values are implementation-defined.
    Any implementation that instantiates this object must document the
    set of values that it allows to be written, the set of values
    that it will return, and what each of those values means."
 ::= { optIfOTSnConfigEntry 3 }

```

optIfOTSnTraceIdentifierTransmitted OBJECT-TYPE

```

SYNTAX  OptIfTxTI
MAX-ACCESS  read-write

```

STATUS current

DESCRIPTION

"The trace identifier transmitted.

This object is applicable when optIfOTSnDirectionality has the value source(2) or bidirectional(3).

This object does not apply to reduced-capability systems (i.e., those for which optIfOTMnReduced has the value true(1)) or at IrDI interfaces (i.e., when optIfOTMnInterfaceType field 1 has the value 'IrDI').

If no value is ever set by a management entity for the object optIfOTSnTraceIdentifierTransmitted, system-specific default value will be used. Any implementation that instantiates this object must document the system-specific default value or how it is derived."

::= { optIfOTSnConfigEntry 4 }

optIfOTSnDAPIExpected OBJECT-TYPE

SYNTAX OptIfExDAPI

MAX-ACCESS read-write

STATUS current

DESCRIPTION

"The DAPI expected by the receiver.

This object is applicable when optIfOTSnDirectionality has the value sink(1) or bidirectional(3). It has no effect if optIfOTSnTIMDetMode has the value off(1) or sapi(3).

This object does not apply to reduced-capability systems (i.e., those for which optIfOTMnReduced has the value true(1)) or at IrDI interfaces (i.e., when optIfOTMnInterfaceType field 1 has the value 'IrDI')."

::= { optIfOTSnConfigEntry 5 }

optIfOTSnSAPIExpected OBJECT-TYPE

SYNTAX OptIfExSAPI

MAX-ACCESS read-write

STATUS current

DESCRIPTION

"The SAPI expected by the receiver.

This object is applicable when optIfOTSnDirectionality has the value sink(1) or bidirectional(3). It has no effect if optIfOTSnTIMDetMode has the value off(1) or dapi(2).

This object does not apply to reduced-capability systems (i.e., those for which optIfOTMnReduced has the value true(1)) or at IrDI interfaces (i.e., when optIfOTMnInterfaceType field 1 has the value 'IrDI')."

::= { optIfOTSnConfigEntry 6 }

optIfOTSnTraceIdentifierAccepted OBJECT-TYPE

SYNTAX OptIfAcTI

MAX-ACCESS read-only
STATUS current
DESCRIPTION

"The actual trace identifier received.

This object is applicable when optIfOTSnDirectionality has the value sink(1) or bidirectional(3). Its value is unspecified if optIfOTSnCurrentStatus has either or both of the los0(5) and los(6) bits set.

This object does not apply to reduced-capability systems (i.e., those for which optIfOTMnReduced has the value true(1)) or at IrDI interfaces (i.e., when optIfOTMnInterfaceType field 1 has the value 'IrDI')."

::= { optIfOTSnConfigEntry 7 }

optIfOTSnTIMDetMode OBJECT-TYPE

SYNTAX OptIfTIMDetMode
MAX-ACCESS read-write
STATUS current
DESCRIPTION

"Indicates the mode of the Trace Identifier Mismatch (TIM) Detection function. This object is applicable

when optIfOTSnDirectionality has the value sink(1) or bidirectional(3). The default value is off(1).

This object does not apply to reduced-capability systems (i.e., those for which optIfOTMnReduced has the value true(1)) or at IrDI interfaces (i.e., when optIfOTMnInterfaceType field 1 has the value 'IrDI').

The default value of this object is off(1)."

::= { optIfOTSnConfigEntry 8 }

optIfOTSnTIMActEnabled OBJECT-TYPE

SYNTAX TruthValue
MAX-ACCESS read-write
STATUS current
DESCRIPTION

"Indicates whether the Trace Identifier Mismatch (TIM) Consequent Action function is enabled. This object

is applicable when optIfOTSnDirectionality has the value sink(1) or bidirectional(3). It has no effect when the value of optIfOTSnTIMDetMode is off(1).

This object does not apply to reduced-capability systems (i.e., those for which optIfOTMnReduced has the value true(1)) or at IrDI interfaces (i.e., when optIfOTMnInterfaceType field 1 has the value 'IrDI').

The default value of this object is false(2)."

::= { optIfOTSnConfigEntry 9 }

optIfOTSnCurrentStatus OBJECT-TYPE

```

SYNTAX BITS {
    bdiP(0),
    bdiO(1),
    bdi(2),
    tim(3),
    losP(4),
    losO(5),
    los(6)
}

```

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"Indicates the defect condition of the entity, if any.
This object is applicable when optIfOTSnDirectionality
has the value sink(1) or bidirectional(3). In
reduced-capability systems or at IrDI interfaces
the only bit position that may be set is los(6)."

::= { optIfOTSnConfigEntry 10 }

```

-- OTSn sink current table
-- Contains data for the current 15-minute performance monitoring
-- interval.

```

optIfOTSnSinkCurrentTable OBJECT-TYPE

SYNTAX SEQUENCE OF OptIfOTSnSinkCurrentEntry

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"A table of OTSn sink performance monitoring information for
the current 15-minute interval."

::= { optIfOTSn 2 }

optIfOTSnSinkCurrentEntry OBJECT-TYPE

SYNTAX OptIfOTSnSinkCurrentEntry

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"A conceptual row that contains OTSn sink performance
monitoring information of an interface for the current
15-minute interval."

INDEX { ifIndex }

::= { optIfOTSnSinkCurrentTable 1 }

OptIfOTSnSinkCurrentEntry ::=

SEQUENCE {

| | |
|-----------------------------------|-------------|
| optIfOTSnSinkCurrentSuspectedFlag | TruthValue, |
| optIfOTSnSinkCurrentInputPower | Integer32, |
| optIfOTSnSinkCurrentLowInputPower | Integer32, |

```

optIfOTSnSinkCurrentHighInputPower      Integer32,
optIfOTSnSinkCurrentLowerInputPowerThreshold Integer32,
optIfOTSnSinkCurrentUpperInputPowerThreshold Integer32,
optIfOTSnSinkCurrentOutputPower          Integer32,
optIfOTSnSinkCurrentLowOutputPower        Integer32,
optIfOTSnSinkCurrentHighOutputPower       Integer32,
optIfOTSnSinkCurrentLowerOutputPowerThreshold Integer32,
optIfOTSnSinkCurrentUpperOutputPowerThreshold Integer32
}

```

optIfOTSnSinkCurrentSuspectedFlag OBJECT-TYPE

SYNTAX TruthValue

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"If true, the data in this entry may be unreliable."

::= { optIfOTSnSinkCurrentEntry 1 }

optIfOTSnSinkCurrentInputPower OBJECT-TYPE

SYNTAX Integer32

UNITS "0.1 dbm"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The optical power monitored at the input."

::= { optIfOTSnSinkCurrentEntry 2 }

optIfOTSnSinkCurrentLowInputPower OBJECT-TYPE

SYNTAX Integer32

UNITS "0.1 dbm"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The lowest optical power monitored at the input during the
current 15-minute interval."

::= { optIfOTSnSinkCurrentEntry 3 }

optIfOTSnSinkCurrentHighInputPower OBJECT-TYPE

SYNTAX Integer32

UNITS "0.1 dbm"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The highest optical power monitored at the input during the
current 15-minute interval."

::= { optIfOTSnSinkCurrentEntry 4 }

optIfOTSnSinkCurrentLowerInputPowerThreshold OBJECT-TYPE

```
SYNTAX Integer32
UNITS "0.1 dbm"
MAX-ACCESS read-write
STATUS current
DESCRIPTION
    "The lower limit threshold on input power.  If
    optIfOTSnSinkCurrentInputPower drops to this value or below,
    a Threshold Crossing Alert (TCA) should be sent."
::= { optIfOTSnSinkCurrentEntry 5 }
```

optIfOTSnSinkCurrentUpperInputPowerThreshold OBJECT-TYPE

```
SYNTAX Integer32
UNITS "0.1 dbm"
MAX-ACCESS read-write
STATUS current
DESCRIPTION
    "The upper limit threshold on input power.  If
    optIfOTSnSinkCurrentInputPower reaches or exceeds this value,
    a Threshold Crossing Alert (TCA) should be sent."
::= { optIfOTSnSinkCurrentEntry 6 }
```

optIfOTSnSinkCurrentOutputPower OBJECT-TYPE

```
SYNTAX Integer32
UNITS "0.1 dbm"
MAX-ACCESS read-only
STATUS current
DESCRIPTION
    "The optical power monitored at the output."
::= { optIfOTSnSinkCurrentEntry 7 }
```

optIfOTSnSinkCurrentLowOutputPower OBJECT-TYPE

```
SYNTAX Integer32
UNITS "0.1 dbm"
MAX-ACCESS read-only
STATUS current
DESCRIPTION
    "The lowest optical power monitored at the output during the
    current 15-minute interval."
::= { optIfOTSnSinkCurrentEntry 8 }
```

optIfOTSnSinkCurrentHighOutputPower OBJECT-TYPE

```
SYNTAX Integer32
UNITS "0.1 dbm"
MAX-ACCESS read-only
STATUS current
DESCRIPTION
    "The highest optical power monitored at the output during the
    current 15-minute interval."
```

```
::= { optIfOTSnSinkCurrentEntry 9 }
```

optIfOTSnSinkCurrentLowerOutputPowerThreshold OBJECT-TYPE

SYNTAX Integer32

UNITS "0.1 dbm"

MAX-ACCESS read-write

STATUS current

DESCRIPTION

"The lower limit threshold on output power. If
optIfOTSnSinkCurrentOutputPower drops to this value or below,
a Threshold Crossing Alert (TCA) should be sent."

```
::= { optIfOTSnSinkCurrentEntry 10 }
```

optIfOTSnSinkCurrentUpperOutputPowerThreshold OBJECT-TYPE

SYNTAX Integer32

UNITS "0.1 dbm"

MAX-ACCESS read-write

STATUS current

DESCRIPTION

"The upper limit threshold on output power. If
optIfOTSnSinkCurrentOutputPower reaches or exceeds this value,
a Threshold Crossing Alert (TCA) should be sent."

```
::= { optIfOTSnSinkCurrentEntry 11 }
```

-- OTSn sink interval table

-- Contains data for previous 15-minute performance monitoring

-- intervals.

optIfOTSnSinkIntervalTable OBJECT-TYPE

SYNTAX SEQUENCE OF OptIfOTSnSinkIntervalEntry

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"A table of historical OTSn sink performance monitoring
information."

```
::= { optIfOTSn 3 }
```

optIfOTSnSinkIntervalEntry OBJECT-TYPE

SYNTAX OptIfOTSnSinkIntervalEntry

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"A conceptual row that contains OTSn sink performance
monitoring information of an interface during a particular
historical interval."

INDEX { ifIndex, optIfOTSnSinkIntervalNumber }

```
::= { optIfOTSnSinkIntervalTable 1 }
```

OptIfOTSnSinkIntervalEntry ::=

```
SEQUENCE {
    optIfOTSnSinkIntervalNumber          OptIfIntervalNumber,
    optIfOTSnSinkIntervalSuspectedFlag   TruthValue,
    optIfOTSnSinkIntervalLastInputPower Integer32,
    optIfOTSnSinkIntervalLowInputPower  Integer32,
    optIfOTSnSinkIntervalHighInputPower Integer32,
    optIfOTSnSinkIntervalLastOutputPower Integer32,
    optIfOTSnSinkIntervalLowOutputPower Integer32,
    optIfOTSnSinkIntervalHighOutputPower Integer32
}
```

optIfOTSnSinkIntervalNumber OBJECT-TYPE

```
SYNTAX      OptIfIntervalNumber
MAX-ACCESS  not-accessible
STATUS      current
DESCRIPTION
    "Uniquely identifies the interval."
 ::= { optIfOTSnSinkIntervalEntry 1 }
```

optIfOTSnSinkIntervalSuspectedFlag OBJECT-TYPE

```
SYNTAX      TruthValue
MAX-ACCESS  read-only
STATUS      current
DESCRIPTION
    "If true, the data in this entry may be unreliable."
 ::= { optIfOTSnSinkIntervalEntry 2 }
```

optIfOTSnSinkIntervalLastInputPower OBJECT-TYPE

```
SYNTAX      Integer32
UNITS       "0.1 dbm"
MAX-ACCESS  read-only
STATUS      current
DESCRIPTION
    "The last optical power monitored at the input during the
    interval."
 ::= { optIfOTSnSinkIntervalEntry 3 }
```

optIfOTSnSinkIntervalLowInputPower OBJECT-TYPE

```
SYNTAX      Integer32
UNITS       "0.1 dbm"
MAX-ACCESS  read-only
STATUS      current
DESCRIPTION
    "The lowest optical power monitored at the input during the
    interval."
 ::= { optIfOTSnSinkIntervalEntry 4 }
```

```
optIfOTSnSinkIntervalHighInputPower OBJECT-TYPE
    SYNTAX  Integer32
    UNITS   "0.1 dbm"
    MAX-ACCESS  read-only
    STATUS   current
    DESCRIPTION
        "The highest optical power monitored at the input during the
        interval."
    ::= { optIfOTSnSinkIntervalEntry 5 }

optIfOTSnSinkIntervalLastOutputPower OBJECT-TYPE
    SYNTAX  Integer32
    UNITS   "0.1 dbm"
    MAX-ACCESS  read-only
    STATUS   current
    DESCRIPTION
        "The last optical power monitored at the output during the
        interval."
    ::= { optIfOTSnSinkIntervalEntry 6 }

optIfOTSnSinkIntervalLowOutputPower OBJECT-TYPE
    SYNTAX  Integer32
    UNITS   "0.1 dbm"
    MAX-ACCESS  read-only
    STATUS   current
    DESCRIPTION
        "The lowest optical power monitored at the output during the
        interval."
    ::= { optIfOTSnSinkIntervalEntry 7 }

optIfOTSnSinkIntervalHighOutputPower OBJECT-TYPE
    SYNTAX  Integer32
    UNITS   "0.1 dbm"
    MAX-ACCESS  read-only
    STATUS   current
    DESCRIPTION
        "The highest optical power monitored at the output during the
        interval."
    ::= { optIfOTSnSinkIntervalEntry 8 }

-- OTSn sink current day table
-- Contains data for the current 24-hour performance
-- monitoring interval.

optIfOTSnSinkCurDayTable OBJECT-TYPE
    SYNTAX  SEQUENCE OF OptIfOTSnSinkCurDayEntry
    MAX-ACCESS  not-accessible
    STATUS   current
```

DESCRIPTION

"A table of OTSn sink performance monitoring information for the current 24-hour interval."

::= { optIfOTSn 4 }

optIfOTSnSinkCurDayEntry OBJECT-TYPE

SYNTAX OptIfOTSnSinkCurDayEntry

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"A conceptual row that contains OTSn sink performance monitoring information of an interface for the current 24-hour interval."

INDEX { ifIndex }

::= { optIfOTSnSinkCurDayTable 1 }

OptIfOTSnSinkCurDayEntry ::=

SEQUENCE {

| | |
|------------------------------------|-------------|
| optIfOTSnSinkCurDaySuspectedFlag | TruthValue, |
| optIfOTSnSinkCurDayLowInputPower | Integer32, |
| optIfOTSnSinkCurDayHighInputPower | Integer32, |
| optIfOTSnSinkCurDayLowOutputPower | Integer32, |
| optIfOTSnSinkCurDayHighOutputPower | Integer32 |

}

optIfOTSnSinkCurDaySuspectedFlag OBJECT-TYPE

SYNTAX TruthValue

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"If true, the data in this entry may be unreliable."

::= { optIfOTSnSinkCurDayEntry 1 }

optIfOTSnSinkCurDayLowInputPower OBJECT-TYPE

SYNTAX Integer32

UNITS "0.1 dbm"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The lowest optical power monitored at the input during the current 24-hour interval."

::= { optIfOTSnSinkCurDayEntry 2 }

optIfOTSnSinkCurDayHighInputPower OBJECT-TYPE

SYNTAX Integer32

UNITS "0.1 dbm"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The highest optical power monitored at the input during the current 24-hour interval."

::= { optIfOTSnSinkCurDayEntry 3 }

optIfOTSnSinkCurDayLowOutputPower OBJECT-TYPE

SYNTAX Integer32

UNITS "0.1 dbm"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The lowest optical power monitored at the output during the current 24-hour interval."

::= { optIfOTSnSinkCurDayEntry 4 }

optIfOTSnSinkCurDayHighOutputPower OBJECT-TYPE

SYNTAX Integer32

UNITS "0.1 dbm"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The highest optical power monitored at the output during the current 24-hour interval."

::= { optIfOTSnSinkCurDayEntry 5 }

-- OTSn sink previous day table

-- Contains data for the previous 24-hour performance

-- monitoring interval.

optIfOTSnSinkPrevDayTable OBJECT-TYPE

SYNTAX SEQUENCE OF OptIfOTSnSinkPrevDayEntry

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"A table of OTSn sink performance monitoring information for the previous 24-hour interval."

::= { optIfOTSn 5 }

optIfOTSnSinkPrevDayEntry OBJECT-TYPE

SYNTAX OptIfOTSnSinkPrevDayEntry

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"A conceptual row that contains OTSn sink performance monitoring information of an interface for the previous 24-hour interval."

INDEX { ifIndex }

::= { optIfOTSnSinkPrevDayTable 1 }

```
OptIfOTSnSinkPrevDayEntry ::=
    SEQUENCE {
        optIfOTSnSinkPrevDaySuspectedFlag      TruthValue,
        optIfOTSnSinkPrevDayLastInputPower      Integer32,
        optIfOTSnSinkPrevDayLowInputPower       Integer32,
        optIfOTSnSinkPrevDayHighInputPower      Integer32,
        optIfOTSnSinkPrevDayLastOutputPower     Integer32,
        optIfOTSnSinkPrevDayLowOutputPower      Integer32,
        optIfOTSnSinkPrevDayHighOutputPower     Integer32
    }

optIfOTSnSinkPrevDaySuspectedFlag OBJECT-TYPE
    SYNTAX      TruthValue
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "If true, the data in this entry may be unreliable."
    ::= { optIfOTSnSinkPrevDayEntry 1 }

optIfOTSnSinkPrevDayLastInputPower OBJECT-TYPE
    SYNTAX      Integer32
    UNITS       "0.1 dbm"
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "The last optical power monitored at the input during the
         previous 24-hour interval."
    ::= { optIfOTSnSinkPrevDayEntry 2 }

optIfOTSnSinkPrevDayLowInputPower OBJECT-TYPE
    SYNTAX      Integer32
    UNITS       "0.1 dbm"
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "The lowest optical power monitored at the input during the
         previous 24-hour interval."
    ::= { optIfOTSnSinkPrevDayEntry 3 }

optIfOTSnSinkPrevDayHighInputPower OBJECT-TYPE
    SYNTAX      Integer32
    UNITS       "0.1 dbm"
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "The highest optical power monitored at the input during the
         previous 24-hour interval."
    ::= { optIfOTSnSinkPrevDayEntry 4 }
```

```
optIfOTSnSinkPrevDayLastOutputPower OBJECT-TYPE
    SYNTAX  Integer32
    UNITS   "0.1 dbm"
    MAX-ACCESS  read-only
    STATUS   current
    DESCRIPTION
        "The last optical power monitored at the output during the
        previous 24-hour interval."
    ::= { optIfOTSnSinkPrevDayEntry 5 }

optIfOTSnSinkPrevDayLowOutputPower OBJECT-TYPE
    SYNTAX  Integer32
    UNITS   "0.1 dbm"
    MAX-ACCESS  read-only
    STATUS   current
    DESCRIPTION
        "The lowest optical power monitored at the output during the
        previous 24-hour interval."
    ::= { optIfOTSnSinkPrevDayEntry 6 }

optIfOTSnSinkPrevDayHighOutputPower OBJECT-TYPE
    SYNTAX  Integer32
    UNITS   "0.1 dbm"
    MAX-ACCESS  read-only
    STATUS   current
    DESCRIPTION
        "The highest optical power monitored at the output during the
        previous 24-hour interval."
    ::= { optIfOTSnSinkPrevDayEntry 7 }

-- OTSn source current table
-- Contains data for the current 15-minute performance monitoring
-- interval.

optIfOTSnSrcCurrentTable OBJECT-TYPE
    SYNTAX  SEQUENCE OF OptIfOTSnSrcCurrentEntry
    MAX-ACCESS  not-accessible
    STATUS   current
    DESCRIPTION
        "A table of OTSn source performance monitoring information for
        the current 15-minute interval."
    ::= { optIfOTSn 6 }

optIfOTSnSrcCurrentEntry OBJECT-TYPE
    SYNTAX  OptIfOTSnSrcCurrentEntry
    MAX-ACCESS  not-accessible
    STATUS   current
    DESCRIPTION
```

"A conceptual row that contains OTSn source performance monitoring information of an interface for the current 15-minute interval."

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

OptIfOTSnSrcCurrentEntry ::=

```
SEQUENCE {
    optIfOTSnSrcCurrentSuspectedFlag          TruthValue,
    optIfOTSnSrcCurrentOutputPower            Integer32,
    optIfOTSnSrcCurrentLowOutputPower         Integer32,
    optIfOTSnSrcCurrentHighOutputPower        Integer32,
    optIfOTSnSrcCurrentLowerOutputPowerThreshold Integer32,
    optIfOTSnSrcCurrentUpperOutputPowerThreshold Integer32,
    optIfOTSnSrcCurrentInputPower             Integer32,
    optIfOTSnSrcCurrentLowInputPower           Integer32,
    optIfOTSnSrcCurrentHighInputPower          Integer32,
    optIfOTSnSrcCurrentLowerInputPowerThreshold Integer32,
    optIfOTSnSrcCurrentUpperInputPowerThreshold Integer32
}
```

optIfOTSnSrcCurrentSuspectedFlag OBJECT-TYPE

SYNTAX TruthValue

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"If true, the data in this entry may be unreliable."

```
::= { optIfOTSnSrcCurrentEntry 1 }
```

optIfOTSnSrcCurrentOutputPower OBJECT-TYPE

SYNTAX Integer32

UNITS "0.1 dbm"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The optical power monitored at the output."

```
::= { optIfOTSnSrcCurrentEntry 2 }
```

optIfOTSnSrcCurrentLowOutputPower OBJECT-TYPE

SYNTAX Integer32

UNITS "0.1 dbm"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The lowest optical power monitored at the output during the current 15-minute interval."

```
::= { optIfOTSnSrcCurrentEntry 3 }
```

optIfOTSnSrcCurrentHighOutputPower OBJECT-TYPE

SYNTAX Integer32

UNITS "0.1 dbm"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The highest optical power monitored at the output during the current 15-minute interval."

::= { optIfOTSnSrcCurrentEntry 4 }

optIfOTSnSrcCurrentLowerOutputPowerThreshold OBJECT-TYPE

SYNTAX Integer32

UNITS "0.1 dbm"

MAX-ACCESS read-write

STATUS current

DESCRIPTION

"The lower limit threshold on output power. If optIfOTSnSrcCurrentOutputPower drops to this value or below, a Threshold Crossing Alert (TCA) should be sent."

::= { optIfOTSnSrcCurrentEntry 5 }

optIfOTSnSrcCurrentUpperOutputPowerThreshold OBJECT-TYPE

SYNTAX Integer32

UNITS "0.1 dbm"

MAX-ACCESS read-write

STATUS current

DESCRIPTION

"The upper limit threshold on output power. If optIfOTSnSrcCurrentOutputPower reaches or exceeds this value, a Threshold Crossing Alert (TCA) should be sent."

::= { optIfOTSnSrcCurrentEntry 6 }

optIfOTSnSrcCurrentInputPower OBJECT-TYPE

SYNTAX Integer32

UNITS "0.1 dbm"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The optical power monitored at the input."

::= { optIfOTSnSrcCurrentEntry 7 }

optIfOTSnSrcCurrentLowInputPower OBJECT-TYPE

SYNTAX Integer32

UNITS "0.1 dbm"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The lowest optical power monitored at the input during the current 15-minute interval."

::= { optIfOTSnSrcCurrentEntry 8 }

optIfOTSnSrcCurrentHighInputPower OBJECT-TYPE

SYNTAX Integer32

UNITS "0.1 dbm"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The highest optical power monitored at the input during the current 15-minute interval."

::= { optIfOTSnSrcCurrentEntry 9 }

optIfOTSnSrcCurrentLowerInputPowerThreshold OBJECT-TYPE

SYNTAX Integer32

UNITS "0.1 dbm"

MAX-ACCESS read-write

STATUS current

DESCRIPTION

"The lower limit threshold on input power. If optIfOTSnSrcCurrentInputPower drops to this value or below, a Threshold Crossing Alert (TCA) should be sent."

::= { optIfOTSnSrcCurrentEntry 10 }

optIfOTSnSrcCurrentUpperInputPowerThreshold OBJECT-TYPE

SYNTAX Integer32

UNITS "0.1 dbm"

MAX-ACCESS read-write

STATUS current

DESCRIPTION

"The upper limit threshold on input power. If optIfOTSnSrcCurrentInputPower reaches or exceeds this value, a Threshold Crossing Alert (TCA) should be sent."

::= { optIfOTSnSrcCurrentEntry 11 }

-- OTSn source interval table

-- Contains data for previous 15-minute performance monitoring intervals.

optIfOTSnSrcIntervalTable OBJECT-TYPE

SYNTAX SEQUENCE OF OptIfOTSnSrcIntervalEntry

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"A table of historical OTSn source performance monitoring information."

::= { optIfOTSn 7 }

optIfOTSnSrcIntervalEntry OBJECT-TYPE

SYNTAX OptIfOTSnSrcIntervalEntry

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"A conceptual row that contains OTSn source performance monitoring information of an interface during a particular historical interval."

INDEX { ifIndex, optIfOTSnSrcIntervalNumber }

::= { optIfOTSnSrcIntervalTable 1 }

OptIfOTSnSrcIntervalEntry ::=

SEQUENCE {

| | |
|-------------------------------------|----------------------|
| optIfOTSnSrcIntervalNumber | OptIfIntervalNumber, |
| optIfOTSnSrcIntervalSuspectedFlag | TruthValue, |
| optIfOTSnSrcIntervalLastOutputPower | Integer32, |
| optIfOTSnSrcIntervalLowOutputPower | Integer32, |
| optIfOTSnSrcIntervalHighOutputPower | Integer32, |
| optIfOTSnSrcIntervalLastInputPower | Integer32, |
| optIfOTSnSrcIntervalLowInputPower | Integer32, |
| optIfOTSnSrcIntervalHighInputPower | Integer32 |

}

optIfOTSnSrcIntervalNumber OBJECT-TYPE

SYNTAX OptIfIntervalNumber

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"Uniquely identifies the interval."

::= { optIfOTSnSrcIntervalEntry 1 }

optIfOTSnSrcIntervalSuspectedFlag OBJECT-TYPE

SYNTAX TruthValue

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"If true, the data in this entry may be unreliable."

::= { optIfOTSnSrcIntervalEntry 2 }

optIfOTSnSrcIntervalLastOutputPower OBJECT-TYPE

SYNTAX Integer32

UNITS "0.1 dbm"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The last optical power monitored at the output during the interval."

::= { optIfOTSnSrcIntervalEntry 3 }

optIfOTSnSrcIntervalLowOutputPower OBJECT-TYPE
SYNTAX Integer32
UNITS "0.1 dbm"
MAX-ACCESS read-only
STATUS current
DESCRIPTION
 "The lowest optical power monitored at the output during the
 interval."
::= { optIfOTSnSrcIntervalEntry 4 }

optIfOTSnSrcIntervalHighOutputPower OBJECT-TYPE
SYNTAX Integer32
UNITS "0.1 dbm"
MAX-ACCESS read-only
STATUS current
DESCRIPTION
 "The highest optical power monitored at the output during the
 interval."
::= { optIfOTSnSrcIntervalEntry 5 }

optIfOTSnSrcIntervalLastInputPower OBJECT-TYPE
SYNTAX Integer32
UNITS "0.1 dbm"
MAX-ACCESS read-only
STATUS current
DESCRIPTION
 "The last optical power monitored at the input during the
 interval."
::= { optIfOTSnSrcIntervalEntry 6 }

optIfOTSnSrcIntervalLowInputPower OBJECT-TYPE
SYNTAX Integer32
UNITS "0.1 dbm"
MAX-ACCESS read-only
STATUS current
DESCRIPTION
 "The lowest optical power monitored at the input during the
 interval."
::= { optIfOTSnSrcIntervalEntry 7 }

optIfOTSnSrcIntervalHighInputPower OBJECT-TYPE
SYNTAX Integer32
UNITS "0.1 dbm"
MAX-ACCESS read-only
STATUS current
DESCRIPTION
 "The highest optical power monitored at the input during the
 interval."


```

 ::= { optIfOTSnSrcIntervalEntry 8 }

-- OTSn source current day table
-- Contains data for the current 24-hour performance
-- monitoring interval.

optIfOTSnSrcCurDayTable OBJECT-TYPE
    SYNTAX  SEQUENCE OF OptIfOTSnSrcCurDayEntry
    MAX-ACCESS not-accessible
    STATUS   current
    DESCRIPTION
        "A table of OTSn source performance monitoring information for
         the current 24-hour interval."
    ::= { optIfOTSn 8 }

optIfOTSnSrcCurDayEntry OBJECT-TYPE
    SYNTAX  OptIfOTSnSrcCurDayEntry
    MAX-ACCESS not-accessible
    STATUS   current
    DESCRIPTION
        "A conceptual row that contains OTSn source performance
         monitoring information of an interface for the current
         24-hour interval."
    INDEX   { ifIndex }
    ::= { optIfOTSnSrcCurDayTable 1 }

OptIfOTSnSrcCurDayEntry ::=
    SEQUENCE {
        optIfOTSnSrcCurDaySuspectedFlag      TruthValue,
        optIfOTSnSrcCurDayLowOutputPower     Integer32,
        optIfOTSnSrcCurDayHighOutputPower    Integer32,
        optIfOTSnSrcCurDayLowInputPower      Integer32,
        optIfOTSnSrcCurDayHighInputPower     Integer32
    }

optIfOTSnSrcCurDaySuspectedFlag OBJECT-TYPE
    SYNTAX  TruthValue
    MAX-ACCESS read-only
    STATUS   current
    DESCRIPTION
        "If true, the data in this entry may be unreliable."
    ::= { optIfOTSnSrcCurDayEntry 1 }

optIfOTSnSrcCurDayLowOutputPower OBJECT-TYPE
    SYNTAX  Integer32
    UNITS   "0.1 dbm"
    MAX-ACCESS read-only

```

STATUS current

DESCRIPTION

"The lowest optical power monitored at the output during the current 24-hour interval."

::= { optIfOTSnSrcCurDayEntry 2 }

optIfOTSnSrcCurDayHighOutputPower OBJECT-TYPE

SYNTAX Integer32

UNITS "0.1 dbm"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The highest optical power monitored at the output during the current 24-hour interval."

::= { optIfOTSnSrcCurDayEntry 3 }

optIfOTSnSrcCurDayLowInputPower OBJECT-TYPE

SYNTAX Integer32

UNITS "0.1 dbm"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The lowest optical power monitored at the input during the current 24-hour interval."

::= { optIfOTSnSrcCurDayEntry 4 }

optIfOTSnSrcCurDayHighInputPower OBJECT-TYPE

SYNTAX Integer32

UNITS "0.1 dbm"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The highest optical power monitored at the input during the current 24-hour interval."

::= { optIfOTSnSrcCurDayEntry 5 }

-- OTSn source previous day table

-- Contains data for the previous 24-hour performance

-- monitoring interval.

optIfOTSnSrcPrevDayTable OBJECT-TYPE

SYNTAX SEQUENCE OF OptIfOTSnSrcPrevDayEntry

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"A table of OTSn source performance monitoring information for the previous 24-hour interval."

::= { optIfOTSn 9 }

optIfOTSnSrcPrevDayEntry OBJECT-TYPE

SYNTAX OptIfOTSnSrcPrevDayEntry

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"A conceptual row that contains OTSn source performance monitoring information of an interface for the previous 24-hour interval."

INDEX { ifIndex }

::= { optIfOTSnSrcPrevDayTable 1 }

OptIfOTSnSrcPrevDayEntry ::=

SEQUENCE {

optIfOTSnSrcPrevDaySuspectedFlag TruthValue,

optIfOTSnSrcPrevDayLastOutputPower Integer32,

optIfOTSnSrcPrevDayLowOutputPower Integer32,

optIfOTSnSrcPrevDayHighOutputPower Integer32,

optIfOTSnSrcPrevDayLastInputPower Integer32,

optIfOTSnSrcPrevDayLowInputPower Integer32,

optIfOTSnSrcPrevDayHighInputPower Integer32

}

optIfOTSnSrcPrevDaySuspectedFlag OBJECT-TYPE

SYNTAX TruthValue

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"If true, the data in this entry may be unreliable."

::= { optIfOTSnSrcPrevDayEntry 1 }

optIfOTSnSrcPrevDayLastOutputPower OBJECT-TYPE

SYNTAX Integer32

UNITS "0.1 dbm"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The last optical power monitored at the output during the previous 24-hour interval."

::= { optIfOTSnSrcPrevDayEntry 2 }

optIfOTSnSrcPrevDayLowOutputPower OBJECT-TYPE

SYNTAX Integer32

UNITS "0.1 dbm"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The lowest optical power monitored at the output during the previous 24-hour interval."

```
::= { optIfOTSnSrcPrevDayEntry 3 }
```

```
optIfOTSnSrcPrevDayHighOutputPower OBJECT-TYPE
```

```
SYNTAX Integer32
```

```
UNITS "0.1 dbm"
```

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

```
STATUS current
```

```
DESCRIPTION
```

```
"The highest optical power monitored at the output during the  
previous 24-hour interval."
```

```
::= { optIfOTSnSrcPrevDayEntry 4 }
```

```
optIfOTSnSrcPrevDayLastInputPower OBJECT-TYPE
```

```
SYNTAX Integer32
```

```
UNITS "0.1 dbm"
```

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

```
STATUS current
```

```
DESCRIPTION
```

```
"The last optical power monitored at the input during the  
previous 24-hour interval."
```

```
::= { optIfOTSnSrcPrevDayEntry 5 }
```

```
optIfOTSnSrcPrevDayLowInputPower OBJECT-TYPE
```

```
SYNTAX Integer32
```

```
UNITS "0.1 dbm"
```

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

```
STATUS current
```

```
DESCRIPTION
```

```
"The lowest optical power monitored at the input during the  
previous 24-hour interval."
```

```
::= { optIfOTSnSrcPrevDayEntry 6 }
```

```
optIfOTSnSrcPrevDayHighInputPower OBJECT-TYPE
```

```
SYNTAX Integer32
```

```
UNITS "0.1 dbm"
```

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

```
STATUS current
```

```
DESCRIPTION
```

```
"The highest optical power monitored at the input during the  
previous 24-hour interval."
```

```
::= { optIfOTSnSrcPrevDayEntry 7 }
```

```
-- the optIfOMSn group
```

```
-- This group handles the configuration and performance monitoring  
-- information for OMS layers.
```

```
-- OMSn config table
```

```
optIfOMSnConfigTable OBJECT-TYPE
    SYNTAX  SEQUENCE OF OptIfOMSnConfigEntry
    MAX-ACCESS not-accessible
    STATUS   current
    DESCRIPTION
        "A table of OMSn configuration information."
    ::= { optIfOMSn 1 }

optIfOMSnConfigEntry OBJECT-TYPE
    SYNTAX  OptIfOMSnConfigEntry
    MAX-ACCESS not-accessible
    STATUS   current
    DESCRIPTION
        "A conceptual row that contains OMSn configuration
        information of an interface."
    INDEX   { ifIndex }
    ::= { optIfOMSnConfigTable 1 }

OptIfOMSnConfigEntry ::=
    SEQUENCE {
        optIfOMSnDirectionality OptIfDirectionality,
        optIfOMSnCurrentStatus   BITS
    }

optIfOMSnDirectionality OBJECT-TYPE
    SYNTAX  OptIfDirectionality
    MAX-ACCESS read-only
    STATUS   current
    DESCRIPTION
        "Indicates the directionality of the entity."
    ::= { optIfOMSnConfigEntry 1 }

optIfOMSnCurrentStatus OBJECT-TYPE
    SYNTAX  BITS {
        ssfP(0),
        ssfO(1),
        ssf(2),
        bdiP(3),
        bdiO(4),
        bdi(5),
        losP(6)
    }
    MAX-ACCESS read-only
    STATUS   current
    DESCRIPTION
        "Indicates the defect condition of the entity, if any.
        This object is applicable only to full capability
        systems whose interface type is IaDI and for which
```

```

    optIfOMSnDirectionality has the value sink(1) or
    bidirectional(3)."
 ::= { optIfOMSnConfigEntry 2 }

-- OMSn sink current table
-- Contains data for the current 15-minute performance monitoring
-- interval.

optIfOMSnSinkCurrentTable OBJECT-TYPE
    SYNTAX  SEQUENCE OF OptIfOMSnSinkCurrentEntry
    MAX-ACCESS not-accessible
    STATUS   current
    DESCRIPTION
        "A table of OMSn sink performance monitoring information for
        the current 15-minute interval."
    ::= { optIfOMSn 2 }

optIfOMSnSinkCurrentEntry OBJECT-TYPE
    SYNTAX  OptIfOMSnSinkCurrentEntry
    MAX-ACCESS not-accessible
    STATUS   current
    DESCRIPTION
        "A conceptual row that contains OMSn sink performance
        monitoring information of an interface for the current
        15-minute interval."
    INDEX   { ifIndex }
    ::= { optIfOMSnSinkCurrentTable 1 }

OptIfOMSnSinkCurrentEntry ::=
    SEQUENCE {
        optIfOMSnSinkCurrentSuspectedFlag          TruthValue,
        optIfOMSnSinkCurrentAggregatedInputPower    Integer32,
        optIfOMSnSinkCurrentLowAggregatedInputPower Integer32,
        optIfOMSnSinkCurrentHighAggregatedInputPower Integer32,
        optIfOMSnSinkCurrentLowerInputPowerThreshold Integer32,
        optIfOMSnSinkCurrentUpperInputPowerThreshold Integer32,
        optIfOMSnSinkCurrentOutputPower             Integer32,
        optIfOMSnSinkCurrentLowOutputPower           Integer32,
        optIfOMSnSinkCurrentHighOutputPower          Integer32,
        optIfOMSnSinkCurrentLowerOutputPowerThreshold Integer32,
        optIfOMSnSinkCurrentUpperOutputPowerThreshold Integer32
    }

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

```

"If true, the data in this entry may be unreliable."
 ::= { optIfOMSnSinkCurrentEntry 1 }

optIfOMSnSinkCurrentAggregatedInputPower OBJECT-TYPE

SYNTAX Integer32
UNITS "0.1 dbm"
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"The aggregated optical power of all the DWDM input
channels."
 ::= { optIfOMSnSinkCurrentEntry 2 }

optIfOMSnSinkCurrentLowAggregatedInputPower OBJECT-TYPE

SYNTAX Integer32
UNITS "0.1 dbm"
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"The lowest aggregated optical power of all the DWDM input
channels during the current 15-minute interval."
 ::= { optIfOMSnSinkCurrentEntry 3 }

optIfOMSnSinkCurrentHighAggregatedInputPower OBJECT-TYPE

SYNTAX Integer32
UNITS "0.1 dbm"
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"The highest aggregated optical power of all the DWDM input
channels during the current 15-minute interval."
 ::= { optIfOMSnSinkCurrentEntry 4 }

optIfOMSnSinkCurrentLowerInputPowerThreshold OBJECT-TYPE

SYNTAX Integer32
UNITS "0.1 dbm"
MAX-ACCESS read-write
STATUS current
DESCRIPTION
"The lower limit threshold on aggregated input power. If
optIfOMSnSinkCurrentAggregatedInputPower drops to this value
or below, a Threshold Crossing Alert (TCA) should be sent."
 ::= { optIfOMSnSinkCurrentEntry 5 }

optIfOMSnSinkCurrentUpperInputPowerThreshold OBJECT-TYPE

SYNTAX Integer32
UNITS "0.1 dbm"
MAX-ACCESS read-write

STATUS current
DESCRIPTION
"The upper limit threshold on aggregated input power. If
optIfOMSnSinkCurrentAggregatedInputPower reaches or exceeds
this value, a Threshold Crossing Alert (TCA) should be sent."
::= { optIfOMSnSinkCurrentEntry 6 }

optIfOMSnSinkCurrentOutputPower OBJECT-TYPE
SYNTAX Integer32
UNITS "0.1 dbm"
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"The optical power monitored at the output."
::= { optIfOMSnSinkCurrentEntry 7 }

optIfOMSnSinkCurrentLowOutputPower OBJECT-TYPE
SYNTAX Integer32
UNITS "0.1 dbm"
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"The lowest optical power monitored at the output
during the current 15-minute interval."
::= { optIfOMSnSinkCurrentEntry 8 }

optIfOMSnSinkCurrentHighOutputPower OBJECT-TYPE
SYNTAX Integer32
UNITS "0.1 dbm"
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"The highest optical power monitored at the output
during the current 15-minute interval."
::= { optIfOMSnSinkCurrentEntry 9 }

optIfOMSnSinkCurrentLowerOutputPowerThreshold OBJECT-TYPE
SYNTAX Integer32
UNITS "0.1 dbm"
MAX-ACCESS read-write
STATUS current
DESCRIPTION
"The lower limit threshold on output power. If
optIfOMSnSinkCurrentOutputPower drops to this value
or below, a Threshold Crossing Alert (TCA) should be sent."
::= { optIfOMSnSinkCurrentEntry 10 }

optIfOMSnSinkCurrentUpperOutputPowerThreshold OBJECT-TYPE


```

SYNTAX  Integer32
UNITS   "0.1 dbm"
MAX-ACCESS  read-write
STATUS   current
DESCRIPTION
    "The upper limit threshold on output power.  If
     optIfOMSnSinkCurrentOutputPower reaches or exceeds
     this value, a Threshold Crossing Alert (TCA) should be sent."
 ::= { optIfOMSnSinkCurrentEntry 11 }

```

```

-- OMSn sink interval table
-- Contains data for previous 15-minute performance monitoring
-- intervals.

```

```

optIfOMSnSinkIntervalTable OBJECT-TYPE
    SYNTAX  SEQUENCE OF OptIfOMSnSinkIntervalEntry
    MAX-ACCESS  not-accessible
    STATUS   current
    DESCRIPTION
        "A table of historical OMSn sink performance monitoring
         information."
    ::= { optIfOMSn 3 }

```

```

optIfOMSnSinkIntervalEntry OBJECT-TYPE
    SYNTAX  OptIfOMSnSinkIntervalEntry
    MAX-ACCESS  not-accessible
    STATUS   current
    DESCRIPTION
        "A conceptual row that contains OMSn sink performance
         monitoring information of an interface during a particular
         historical interval."
    INDEX   { ifIndex, optIfOMSnSinkIntervalNumber }
    ::= { optIfOMSnSinkIntervalTable 1 }

```

```

OptIfOMSnSinkIntervalEntry ::=
    SEQUENCE {
        optIfOMSnSinkIntervalNumber          OptIfIntervalNumber,
        optIfOMSnSinkIntervalSuspectedFlag    TruthValue,
        optIfOMSnSinkIntervalLastAggregatedInputPower  Integer32,
        optIfOMSnSinkIntervalLowAggregatedInputPower   Integer32,
        optIfOMSnSinkIntervalHighAggregatedInputPower  Integer32,
        optIfOMSnSinkIntervalLastOutputPower   Integer32,
        optIfOMSnSinkIntervalLowOutputPower     Integer32,
        optIfOMSnSinkIntervalHighOutputPower    Integer32
    }

```

```

optIfOMSnSinkIntervalNumber OBJECT-TYPE
    SYNTAX  OptIfIntervalNumber

```

MAX-ACCESS not-accessible
STATUS current
DESCRIPTION
"Uniquely identifies the interval."
::= { optIfOMSnSinkIntervalEntry 1 }

optIfOMSnSinkIntervalSuspectedFlag OBJECT-TYPE
SYNTAX TruthValue
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"If true, the data in this entry may be unreliable."
::= { optIfOMSnSinkIntervalEntry 2 }

optIfOMSnSinkIntervalLastAggregatedInputPower OBJECT-TYPE
SYNTAX Integer32
UNITS "0.1 dbm"
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"The last aggregated optical power of all the DWDM input
channels during the interval."
::= { optIfOMSnSinkIntervalEntry 3 }

optIfOMSnSinkIntervalLowAggregatedInputPower OBJECT-TYPE
SYNTAX Integer32
UNITS "0.1 dbm"
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"The lowest aggregated optical power of all the DWDM input
channels during the interval."
::= { optIfOMSnSinkIntervalEntry 4 }

optIfOMSnSinkIntervalHighAggregatedInputPower OBJECT-TYPE
SYNTAX Integer32
UNITS "0.1 dbm"
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"The highest aggregated optical power of all the DWDM input
channels during the interval."
::= { optIfOMSnSinkIntervalEntry 5 }

optIfOMSnSinkIntervalLastOutputPower OBJECT-TYPE
SYNTAX Integer32
UNITS "0.1 dbm"
MAX-ACCESS read-only

```
STATUS    current
DESCRIPTION
    "The last optical power at the output
    during the interval."
 ::= { optIfOMSnSinkIntervalEntry 6 }
```

```
optIfOMSnSinkIntervalLowOutputPower OBJECT-TYPE
SYNTAX    Integer32
UNITS     "0.1 dbm"
MAX-ACCESS read-only
STATUS    current
DESCRIPTION
    "The lowest optical power at the output
    during the interval."
 ::= { optIfOMSnSinkIntervalEntry 7 }
```

```
optIfOMSnSinkIntervalHighOutputPower OBJECT-TYPE
SYNTAX    Integer32
UNITS     "0.1 dbm"
MAX-ACCESS read-only
STATUS    current
DESCRIPTION
    "The highest optical power at the output
    during the interval."
 ::= { optIfOMSnSinkIntervalEntry 8 }
```

```
-- OMSn sink current day table
-- Contains data for the current 24-hour performance
-- monitoring interval.
```

```
optIfOMSnSinkCurDayTable OBJECT-TYPE
SYNTAX    SEQUENCE OF OptIfOMSnSinkCurDayEntry
MAX-ACCESS not-accessible
STATUS    current
DESCRIPTION
    "A table of OMSn sink performance monitoring information for
    the current 24-hour interval."
 ::= { optIfOMSn 4 }
```

```
optIfOMSnSinkCurDayEntry OBJECT-TYPE
SYNTAX    OptIfOMSnSinkCurDayEntry
MAX-ACCESS not-accessible
STATUS    current
DESCRIPTION
    "A conceptual row that contains OMSn sink performance
    monitoring information of an interface for the current
    24-hour interval."
INDEX     { ifIndex }
```

```
::= { optIfOMSnSinkCurDayTable 1 }
```

```
OptIfOMSnSinkCurDayEntry ::=
```

```
SEQUENCE {  
    optIfOMSnSinkCurDaySuspectedFlag          TruthValue,  
    optIfOMSnSinkCurDayLowAggregatedInputPower Integer32,  
    optIfOMSnSinkCurDayHighAggregatedInputPower Integer32,  
    optIfOMSnSinkCurDayLowOutputPower         Integer32,  
    optIfOMSnSinkCurDayHighOutputPower        Integer32  
}
```

```
optIfOMSnSinkCurDaySuspectedFlag OBJECT-TYPE
```

```
SYNTAX TruthValue
```

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

```
STATUS current
```

```
DESCRIPTION
```

```
"If true, the data in this entry may be unreliable."
```

```
::= { optIfOMSnSinkCurDayEntry 1 }
```

```
optIfOMSnSinkCurDayLowAggregatedInputPower OBJECT-TYPE
```

```
SYNTAX Integer32
```

```
UNITS "0.1 dbm"
```

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

```
STATUS current
```

```
DESCRIPTION
```

```
"The lowest aggregated optical power of all the DWDM input  
channels during the current 24-hour interval."
```

```
::= { optIfOMSnSinkCurDayEntry 2 }
```

```
optIfOMSnSinkCurDayHighAggregatedInputPower OBJECT-TYPE
```

```
SYNTAX Integer32
```

```
UNITS "0.1 dbm"
```

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

```
STATUS current
```

```
DESCRIPTION
```

```
"The highest aggregated optical power of all the DWDM input  
channels during the current 24-hour interval."
```

```
::= { optIfOMSnSinkCurDayEntry 3 }
```

```
optIfOMSnSinkCurDayLowOutputPower OBJECT-TYPE
```

```
SYNTAX Integer32
```

```
UNITS "0.1 dbm"
```

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

```
STATUS current
```

```
DESCRIPTION
```

```
"The lowest optical power at the output  
during the current 24-hour interval."
```

```
::= { optIfOMSnSinkCurDayEntry 4 }
```

```

optIfOMSnSinkCurDayHighOutputPower OBJECT-TYPE
    SYNTAX  Integer32
    UNITS   "0.1 dbm"
    MAX-ACCESS  read-only
    STATUS   current
    DESCRIPTION
        "The highest optical power at the output
         during the current 24-hour interval."
    ::= { optIfOMSnSinkCurDayEntry 5 }

-- OMSn sink previous day table
-- Contains data for the previous 24-hour performance
-- monitoring interval.

optIfOMSnSinkPrevDayTable OBJECT-TYPE
    SYNTAX  SEQUENCE OF OptIfOMSnSinkPrevDayEntry
    MAX-ACCESS  not-accessible
    STATUS   current
    DESCRIPTION
        "A table of OMSn sink performance monitoring information for
         the previous 24-hour interval."
    ::= { optIfOMSn 5 }

optIfOMSnSinkPrevDayEntry OBJECT-TYPE
    SYNTAX  OptIfOMSnSinkPrevDayEntry
    MAX-ACCESS  not-accessible
    STATUS   current
    DESCRIPTION
        "A conceptual row that contains OMSn sink performance
         monitoring information of an interface for the previous
         24-hour interval."
    INDEX   { ifIndex }
    ::= { optIfOMSnSinkPrevDayTable 1 }

OptIfOMSnSinkPrevDayEntry ::=
    SEQUENCE {
        optIfOMSnSinkPrevDaySuspectedFlag          TruthValue,
        optIfOMSnSinkPrevDayLastAggregatedInputPower  Integer32,
        optIfOMSnSinkPrevDayLowAggregatedInputPower   Integer32,
        optIfOMSnSinkPrevDayHighAggregatedInputPower  Integer32,
        optIfOMSnSinkPrevDayLastOutputPower           Integer32,
        optIfOMSnSinkPrevDayLowOutputPower            Integer32,
        optIfOMSnSinkPrevDayHighOutputPower           Integer32
    }

optIfOMSnSinkPrevDaySuspectedFlag OBJECT-TYPE
    SYNTAX  TruthValue
    MAX-ACCESS  read-only

```

STATUS current
DESCRIPTION
"If true, the data in this entry may be unreliable."
::= { optIfOMSnSinkPrevDayEntry 1 }

optIfOMSnSinkPrevDayLastAggregatedInputPower OBJECT-TYPE
SYNTAX Integer32
UNITS "0.1 dbm"
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"The last aggregated optical power of all the DWDM input
channels during the previous 24-hour interval."
::= { optIfOMSnSinkPrevDayEntry 2 }

optIfOMSnSinkPrevDayLowAggregatedInputPower OBJECT-TYPE
SYNTAX Integer32
UNITS "0.1 dbm"
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"The lowest aggregated optical power of all the DWDM input
channels during the previous 24-hour interval."
::= { optIfOMSnSinkPrevDayEntry 3 }

optIfOMSnSinkPrevDayHighAggregatedInputPower OBJECT-TYPE
SYNTAX Integer32
UNITS "0.1 dbm"
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"The highest aggregated optical power of all the DWDM input
channels during the previous 24-hour interval."
::= { optIfOMSnSinkPrevDayEntry 4 }

optIfOMSnSinkPrevDayLastOutputPower OBJECT-TYPE
SYNTAX Integer32
UNITS "0.1 dbm"
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"The last optical power at the output
during the previous 24-hour interval."
::= { optIfOMSnSinkPrevDayEntry 5 }

optIfOMSnSinkPrevDayLowOutputPower OBJECT-TYPE
SYNTAX Integer32
UNITS "0.1 dbm"

```

MAX-ACCESS read-only
STATUS current
DESCRIPTION
    "The lowest optical power at the output
    during the previous 24-hour interval."
 ::= { optIfOMSnSinkPrevDayEntry 6 }

```

```

optIfOMSnSinkPrevDayHighOutputPower OBJECT-TYPE
SYNTAX Integer32
UNITS "0.1 dbm"
MAX-ACCESS read-only
STATUS current
DESCRIPTION
    "The highest optical power at the output
    during the previous 24-hour interval."
 ::= { optIfOMSnSinkPrevDayEntry 7 }

```

```

-- OMSn source current table
-- Contains data for the current 15-minute performance monitoring
-- interval.

```

```

optIfOMSnSrcCurrentTable OBJECT-TYPE
SYNTAX SEQUENCE OF OptIfOMSnSrcCurrentEntry
MAX-ACCESS not-accessible
STATUS current
DESCRIPTION
    "A table of OMSn source performance monitoring information for
    the current 15-minute interval."
 ::= { optIfOMSn 6 }

```

```

optIfOMSnSrcCurrentEntry OBJECT-TYPE
SYNTAX OptIfOMSnSrcCurrentEntry
MAX-ACCESS not-accessible
STATUS current
DESCRIPTION
    "A conceptual row that contains OMSn source performance
    monitoring information of an interface for the current
    15-minute interval."
INDEX { ifIndex }
 ::= { optIfOMSnSrcCurrentTable 1 }

```

```

OptIfOMSnSrcCurrentEntry ::=
SEQUENCE {
    optIfOMSnSrcCurrentSuspectedFlag          TruthValue,
    optIfOMSnSrcCurrentOutputPower            Integer32,
    optIfOMSnSrcCurrentLowOutputPower         Integer32,
    optIfOMSnSrcCurrentHighOutputPower        Integer32,
    optIfOMSnSrcCurrentLowerOutputPowerThreshold Integer32,

```

```
    optIfOMSnSrcCurrentUpperOutputPowerThreshold Integer32,  
    optIfOMSnSrcCurrentAggregatedInputPower      Integer32,  
    optIfOMSnSrcCurrentLowAggregatedInputPower    Integer32,  
    optIfOMSnSrcCurrentHighAggregatedInputPower   Integer32,  
    optIfOMSnSrcCurrentLowerInputPowerThreshold   Integer32,  
    optIfOMSnSrcCurrentUpperInputPowerThreshold   Integer32  
  }
```

optIfOMSnSrcCurrentSuspectedFlag OBJECT-TYPE

SYNTAX TruthValue

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"If true, the data in this entry may be unreliable."

::= { optIfOMSnSrcCurrentEntry 1 }

optIfOMSnSrcCurrentOutputPower OBJECT-TYPE

SYNTAX Integer32

UNITS "0.1 dbm"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The optical power monitored at the output."

::= { optIfOMSnSrcCurrentEntry 2 }

optIfOMSnSrcCurrentLowOutputPower OBJECT-TYPE

SYNTAX Integer32

UNITS "0.1 dbm"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The lowest optical power monitored at the output during the
current 15-minute interval."

::= { optIfOMSnSrcCurrentEntry 3 }

optIfOMSnSrcCurrentHighOutputPower OBJECT-TYPE

SYNTAX Integer32

UNITS "0.1 dbm"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The highest optical power monitored at the output during the
current 15-minute interval."

::= { optIfOMSnSrcCurrentEntry 4 }

optIfOMSnSrcCurrentLowerOutputPowerThreshold OBJECT-TYPE

SYNTAX Integer32

UNITS "0.1 dbm"

MAX-ACCESS read-write
STATUS current
DESCRIPTION

"The lower limit threshold on output power. If
optIfOMSnSrcCurrentOutputPower drops to this value or below,
a Threshold Crossing Alert (TCA) should be sent."

::= { optIfOMSnSrcCurrentEntry 5 }

optIfOMSnSrcCurrentUpperOutputPowerThreshold OBJECT-TYPE

SYNTAX Integer32
UNITS "0.1 dbm"
MAX-ACCESS read-write
STATUS current
DESCRIPTION

"The upper limit threshold on output power. If
optIfOMSnSrcCurrentOutputPower reaches or exceeds this value,
a Threshold Crossing Alert (TCA) should be sent."

::= { optIfOMSnSrcCurrentEntry 6 }

optIfOMSnSrcCurrentAggregatedInputPower OBJECT-TYPE

SYNTAX Integer32
UNITS "0.1 dbm"
MAX-ACCESS read-only
STATUS current
DESCRIPTION

"The aggregated optical power at the input."

::= { optIfOMSnSrcCurrentEntry 7 }

optIfOMSnSrcCurrentLowAggregatedInputPower OBJECT-TYPE

SYNTAX Integer32
UNITS "0.1 dbm"
MAX-ACCESS read-only
STATUS current
DESCRIPTION

"The lowest aggregated optical power at the input
during the current 15-minute interval."

::= { optIfOMSnSrcCurrentEntry 8 }

optIfOMSnSrcCurrentHighAggregatedInputPower OBJECT-TYPE

SYNTAX Integer32
UNITS "0.1 dbm"
MAX-ACCESS read-only
STATUS current
DESCRIPTION

"The highest aggregated optical power at the input
during the current 15-minute interval."

::= { optIfOMSnSrcCurrentEntry 9 }

```

optIfOMSnSrcCurrentLowerInputPowerThreshold OBJECT-TYPE
    SYNTAX  Integer32
    UNITS   "0.1 dbm"
    MAX-ACCESS  read-write
    STATUS   current
    DESCRIPTION
        "The lower limit threshold on aggregated input power.  If
         optIfOMSnSrcCurrentAggregatedInputPower drops to this value
         or below, a Threshold Crossing Alert (TCA) should be sent."
    ::= { optIfOMSnSrcCurrentEntry 10 }

optIfOMSnSrcCurrentUpperInputPowerThreshold OBJECT-TYPE
    SYNTAX  Integer32
    UNITS   "0.1 dbm"
    MAX-ACCESS  read-write
    STATUS   current
    DESCRIPTION
        "The upper limit threshold on aggregated input power.  If
         optIfOMSnSrcCurrentAggregatedInputPower reaches or exceeds
         this value, a Threshold Crossing Alert (TCA) should be sent."
    ::= { optIfOMSnSrcCurrentEntry 11 }

-- OMSn source interval table
-- Contains data for previous 15-minute performance monitoring
-- intervals.

optIfOMSnSrcIntervalTable OBJECT-TYPE
    SYNTAX  SEQUENCE OF OptIfOMSnSrcIntervalEntry
    MAX-ACCESS  not-accessible
    STATUS   current
    DESCRIPTION
        "A table of historical OMSn source performance monitoring
         information."
    ::= { optIfOMSn 7 }

optIfOMSnSrcIntervalEntry OBJECT-TYPE
    SYNTAX  OptIfOMSnSrcIntervalEntry
    MAX-ACCESS  not-accessible
    STATUS   current
    DESCRIPTION
        "A conceptual row that contains OMSn source performance
         monitoring information of an interface during a particular
         historical interval."
    INDEX   { ifIndex, optIfOMSnSrcIntervalNumber }
    ::= { optIfOMSnSrcIntervalTable 1 }

OptIfOMSnSrcIntervalEntry ::=

```

```

SEQUENCE {
    optIfOMSnSrcIntervalNumber          OptIfIntervalNumber,
    optIfOMSnSrcIntervalSuspectedFlag   TruthValue,
    optIfOMSnSrcIntervalLastOutputPower Integer32,
    optIfOMSnSrcIntervalLowOutputPower  Integer32,
    optIfOMSnSrcIntervalHighOutputPower Integer32,
    optIfOMSnSrcIntervalLastAggregatedInputPower Integer32,
    optIfOMSnSrcIntervalLowAggregatedInputPower Integer32,
    optIfOMSnSrcIntervalHighAggregatedInputPower Integer32
}

```

optIfOMSnSrcIntervalNumber OBJECT-TYPE

SYNTAX OptIfIntervalNumber

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"Uniquely identifies the interval."

::= { optIfOMSnSrcIntervalEntry 1 }

optIfOMSnSrcIntervalSuspectedFlag OBJECT-TYPE

SYNTAX TruthValue

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"If true, the data in this entry may be unreliable."

::= { optIfOMSnSrcIntervalEntry 2 }

optIfOMSnSrcIntervalLastOutputPower OBJECT-TYPE

SYNTAX Integer32

UNITS "0.1 dbm"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The last optical power monitored at the output during the interval."

::= { optIfOMSnSrcIntervalEntry 3 }

optIfOMSnSrcIntervalLowOutputPower OBJECT-TYPE

SYNTAX Integer32

UNITS "0.1 dbm"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The lowest optical power monitored at the output during the interval."

::= { optIfOMSnSrcIntervalEntry 4 }

optIfOMSnSrcIntervalHighOutputPower OBJECT-TYPE

```
SYNTAX   Integer32
UNITS    "0.1 dbm"
MAX-ACCESS  read-only
STATUS   current
DESCRIPTION
    "The highest optical power monitored at the output during the
    interval."
 ::= { optIfOMSnSrcIntervalEntry 5 }
```

optIfOMSnSrcIntervalLastAggregatedInputPower OBJECT-TYPE

```
SYNTAX   Integer32
UNITS    "0.1 dbm"
MAX-ACCESS  read-only
STATUS   current
DESCRIPTION
    "The last aggregated optical power at the input
    during the interval."
 ::= { optIfOMSnSrcIntervalEntry 6 }
```

optIfOMSnSrcIntervalLowAggregatedInputPower OBJECT-TYPE

```
SYNTAX   Integer32
UNITS    "0.1 dbm"
MAX-ACCESS  read-only
STATUS   current
DESCRIPTION
    "The lowest aggregated optical power at the input
    during the interval."
 ::= { optIfOMSnSrcIntervalEntry 7 }
```

optIfOMSnSrcIntervalHighAggregatedInputPower OBJECT-TYPE

```
SYNTAX   Integer32
UNITS    "0.1 dbm"
MAX-ACCESS  read-only
STATUS   current
DESCRIPTION
    "The highest aggregated optical power at the input
    during the interval."
 ::= { optIfOMSnSrcIntervalEntry 8 }
```

```
-- OMSn source current day table
-- Contains data for the current 24-hour performance
-- monitoring interval.
```

optIfOMSnSrcCurDayTable OBJECT-TYPE

```
SYNTAX   SEQUENCE OF OptIfOMSnSrcCurDayEntry
MAX-ACCESS  not-accessible
STATUS   current
DESCRIPTION
```

"A table of OMSn source performance monitoring information for the current 24-hour interval."

::= { optIfOMSn 8 }

optIfOMSnSrcCurDayEntry OBJECT-TYPE

SYNTAX OptIfOMSnSrcCurDayEntry

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"A conceptual row that contains OMSn source performance monitoring information of an interface for the current 24-hour interval."

INDEX { ifIndex }

::= { optIfOMSnSrcCurDayTable 1 }

OptIfOMSnSrcCurDayEntry ::=

SEQUENCE {

| | |
|--------------------------------------------|-------------|
| optIfOMSnSrcCurDaySuspectedFlag | TruthValue, |
| optIfOMSnSrcCurDayLowOutputPower | Integer32, |
| optIfOMSnSrcCurDayHighOutputPower | Integer32, |
| optIfOMSnSrcCurDayLowAggregatedInputPower | Integer32, |
| optIfOMSnSrcCurDayHighAggregatedInputPower | Integer32 |

}

optIfOMSnSrcCurDaySuspectedFlag OBJECT-TYPE

SYNTAX TruthValue

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"If true, the data in this entry may be unreliable."

::= { optIfOMSnSrcCurDayEntry 1 }

optIfOMSnSrcCurDayLowOutputPower OBJECT-TYPE

SYNTAX Integer32

UNITS "0.1 dbm"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The lowest optical power monitored at the output during the current 24-hour interval."

::= { optIfOMSnSrcCurDayEntry 2 }

optIfOMSnSrcCurDayHighOutputPower OBJECT-TYPE

SYNTAX Integer32

UNITS "0.1 dbm"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The highest optical power monitored at the output during the current 24-hour interval."

::= { optIfOMSnSrcCurDayEntry 3 }

optIfOMSnSrcCurDayLowAggregatedInputPower OBJECT-TYPE

SYNTAX Integer32

UNITS "0.1 dbm"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The lowest aggregated optical power at the input during the current 24-hour interval."

::= { optIfOMSnSrcCurDayEntry 4 }

optIfOMSnSrcCurDayHighAggregatedInputPower OBJECT-TYPE

SYNTAX Integer32

UNITS "0.1 dbm"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The highest aggregated optical power at the input during the current 24-hour interval."

::= { optIfOMSnSrcCurDayEntry 5 }

-- OMSn source previous day table

-- Contains data for the previous 24-hour performance

-- monitoring interval.

optIfOMSnSrcPrevDayTable OBJECT-TYPE

SYNTAX SEQUENCE OF OptIfOMSnSrcPrevDayEntry

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"A table of OMSn source performance monitoring information for the previous 24-hour interval."

::= { optIfOMSn 9 }

optIfOMSnSrcPrevDayEntry OBJECT-TYPE

SYNTAX OptIfOMSnSrcPrevDayEntry

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"A conceptual row that contains OMSn source performance monitoring information of an interface for the previous 24-hour interval."

INDEX { ifIndex }

::= { optIfOMSnSrcPrevDayTable 1 }

OptIfOMSnSrcPrevDayEntry ::=

```
SEQUENCE {
    optIfOMSnSrcPrevDaySuspectedFlag      TruthValue,
    optIfOMSnSrcPrevDayLastOutputPower    Integer32,
    optIfOMSnSrcPrevDayLowOutputPower     Integer32,
    optIfOMSnSrcPrevDayHighOutputPower    Integer32,
    optIfOMSnSrcPrevDayLastAggregatedInputPower Integer32,
    optIfOMSnSrcPrevDayLowAggregatedInputPower Integer32,
    optIfOMSnSrcPrevDayHighAggregatedInputPower Integer32
}
```

optIfOMSnSrcPrevDaySuspectedFlag OBJECT-TYPE

SYNTAX TruthValue

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"If true, the data in this entry may be unreliable."

::= { optIfOMSnSrcPrevDayEntry 1 }

optIfOMSnSrcPrevDayLastOutputPower OBJECT-TYPE

SYNTAX Integer32

UNITS "0.1 dbm"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The last optical power monitored at the output during the
previous 24-hour interval."

::= { optIfOMSnSrcPrevDayEntry 2 }

optIfOMSnSrcPrevDayLowOutputPower OBJECT-TYPE

SYNTAX Integer32

UNITS "0.1 dbm"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The lowest optical power monitored at the output during the
previous 24-hour interval."

::= { optIfOMSnSrcPrevDayEntry 3 }

optIfOMSnSrcPrevDayHighOutputPower OBJECT-TYPE

SYNTAX Integer32

UNITS "0.1 dbm"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The highest optical power monitored at the output during the
previous 24-hour interval."

::= { optIfOMSnSrcPrevDayEntry 4 }

```
optIfOMSnSrcPrevDayLastAggregatedInputPower OBJECT-TYPE
    SYNTAX      Integer32
    UNITS       "0.1 dbm"
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "The last aggregated optical power at the input during the
         previous 24-hour interval."
    ::= { optIfOMSnSrcPrevDayEntry 5 }

optIfOMSnSrcPrevDayLowAggregatedInputPower OBJECT-TYPE
    SYNTAX      Integer32
    UNITS       "0.1 dbm"
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "The lowest aggregated optical power at the input during the
         previous 24-hour interval."
    ::= { optIfOMSnSrcPrevDayEntry 6 }

optIfOMSnSrcPrevDayHighAggregatedInputPower OBJECT-TYPE
    SYNTAX      Integer32
    UNITS       "0.1 dbm"
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "The highest aggregated optical power at the input during the
         previous 24-hour interval."
    ::= { optIfOMSnSrcPrevDayEntry 7 }

-- the optIfOChGroup group
-- This group handles the configuration and performance monitoring
-- information for OChGroup layers.

-- OChGroup config table

optIfOChGroupConfigTable OBJECT-TYPE
    SYNTAX      SEQUENCE OF OptIfOChGroupConfigEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "A table of OChGroup configuration information."
    ::= { optIfOChGroup 1 }

optIfOChGroupConfigEntry OBJECT-TYPE
    SYNTAX      OptIfOChGroupConfigEntry
    MAX-ACCESS  not-accessible
    STATUS      current
```


DESCRIPTION

"A conceptual row that contains OChGroup configuration information of an interface."

INDEX { ifIndex }

::= { optIfOChGroupConfigTable 1 }

OptIfOChGroupConfigEntry ::=

```
SEQUENCE {
    optIfOChGroupDirectionality OptIfDirectionality
}
```

optIfOChGroupDirectionality OBJECT-TYPE

SYNTAX OptIfDirectionality

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"Indicates the directionality of the entity."

::= { optIfOChGroupConfigEntry 1 }

-- OChGroup sink current table

-- Contains data for the current 15-minute performance monitoring

-- interval.

optIfOChGroupSinkCurrentTable OBJECT-TYPE

SYNTAX SEQUENCE OF OptIfOChGroupSinkCurrentEntry

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"A table of OChGroup sink performance monitoring information for the current 15-minute interval."

::= { optIfOChGroup 2 }

optIfOChGroupSinkCurrentEntry OBJECT-TYPE

SYNTAX OptIfOChGroupSinkCurrentEntry

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"A conceptual row that contains OChGroup sink performance monitoring information of an interface for the current 15-minute interval."

INDEX { ifIndex }

::= { optIfOChGroupSinkCurrentTable 1 }

OptIfOChGroupSinkCurrentEntry ::=

```
SEQUENCE {
    optIfOChGroupSinkCurrentSuspectedFlag          TruthValue,
    optIfOChGroupSinkCurrentAggregatedInputPower   Integer32,
    optIfOChGroupSinkCurrentLowAggregatedInputPower Integer32,
```

```

optIfOChGroupSinkCurrentHighAggregatedInputPower Integer32,
optIfOChGroupSinkCurrentLowerInputPowerThreshold Integer32,
optIfOChGroupSinkCurrentUpperInputPowerThreshold Integer32,
optIfOChGroupSinkCurrentOutputPower Integer32,
optIfOChGroupSinkCurrentLowOutputPower Integer32,
optIfOChGroupSinkCurrentHighOutputPower Integer32,
optIfOChGroupSinkCurrentLowerOutputPowerThreshold Integer32,
optIfOChGroupSinkCurrentUpperOutputPowerThreshold Integer32
}

```

optIfOChGroupSinkCurrentSuspectedFlag OBJECT-TYPE

SYNTAX TruthValue

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"If true, the data in this entry may be unreliable."

::= { optIfOChGroupSinkCurrentEntry 1 }

optIfOChGroupSinkCurrentAggregatedInputPower OBJECT-TYPE

SYNTAX Integer32

UNITS "0.1 dbm"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The aggregated optical power of all the DWDM input channels in the OChGroup."

::= { optIfOChGroupSinkCurrentEntry 2 }

optIfOChGroupSinkCurrentLowAggregatedInputPower OBJECT-TYPE

SYNTAX Integer32

UNITS "0.1 dbm"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The lowest aggregated optical power of all the DWDM input channels in the OChGroup during the current 15-minute interval."

::= { optIfOChGroupSinkCurrentEntry 3 }

optIfOChGroupSinkCurrentHighAggregatedInputPower OBJECT-TYPE

SYNTAX Integer32

UNITS "0.1 dbm"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The highest aggregated optical power of all the DWDM input channels in the OChGroup during the current 15-minute interval."

::= { optIfOChGroupSinkCurrentEntry 4 }

optIfOChGroupSinkCurrentLowerInputPowerThreshold OBJECT-TYPE
SYNTAX Integer32
UNITS "0.1 dbm"
MAX-ACCESS read-write
STATUS current
DESCRIPTION
 "The lower limit threshold on aggregated input power. If
 optIfOChGroupSinkCurrentAggregatedInputPower drops to this value
 or below, a Threshold Crossing Alert (TCA) should be sent."
::= { optIfOChGroupSinkCurrentEntry 5 }

optIfOChGroupSinkCurrentUpperInputPowerThreshold OBJECT-TYPE
SYNTAX Integer32
UNITS "0.1 dbm"
MAX-ACCESS read-write
STATUS current
DESCRIPTION
 "The upper limit threshold on aggregated input power. If
 optIfOChGroupSinkCurrentAggregatedInputPower reaches or exceeds
 this value, a Threshold Crossing Alert (TCA) should be sent."
::= { optIfOChGroupSinkCurrentEntry 6 }

optIfOChGroupSinkCurrentOutputPower OBJECT-TYPE
SYNTAX Integer32
UNITS "0.1 dbm"
MAX-ACCESS read-only
STATUS current
DESCRIPTION
 "The optical power monitored at the output
 in the OChGroup."
::= { optIfOChGroupSinkCurrentEntry 7 }

optIfOChGroupSinkCurrentLowOutputPower OBJECT-TYPE
SYNTAX Integer32
UNITS "0.1 dbm"
MAX-ACCESS read-only
STATUS current
DESCRIPTION
 "The lowest optical power monitored at the output
 in the OChGroup during the current 15-minute interval."
::= { optIfOChGroupSinkCurrentEntry 8 }

optIfOChGroupSinkCurrentHighOutputPower OBJECT-TYPE
SYNTAX Integer32
UNITS "0.1 dbm"
MAX-ACCESS read-only
STATUS current
DESCRIPTION

"The highest optical power monitored at the output
in the OChGroup during the current 15-minute interval."
::= { optIfOChGroupSinkCurrentEntry 9 }

optIfOChGroupSinkCurrentLowerOutputPowerThreshold OBJECT-TYPE

SYNTAX Integer32

UNITS "0.1 dbm"

MAX-ACCESS read-write

STATUS current

DESCRIPTION

"The lower limit threshold on the output power. If
optIfOChGroupSinkCurrentOutputPower drops to this value
or below, a Threshold Crossing Alert (TCA) should be sent."

::= { optIfOChGroupSinkCurrentEntry 10 }

optIfOChGroupSinkCurrentUpperOutputPowerThreshold OBJECT-TYPE

SYNTAX Integer32

UNITS "0.1 dbm"

MAX-ACCESS read-write

STATUS current

DESCRIPTION

"The upper limit threshold on the output power. If
optIfOChGroupSinkCurrentOutputPower reaches or exceeds
this value, a Threshold Crossing Alert (TCA) should be sent."

::= { optIfOChGroupSinkCurrentEntry 11 }

-- OChGroup sink interval table

-- Contains data for previous 15-minute performance monitoring

-- intervals.

optIfOChGroupSinkIntervalTable OBJECT-TYPE

SYNTAX SEQUENCE OF OptIfOChGroupSinkIntervalEntry

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"A table of historical OChGroup sink performance monitoring
information."

::= { optIfOChGroup 3 }

optIfOChGroupSinkIntervalEntry OBJECT-TYPE

SYNTAX OptIfOChGroupSinkIntervalEntry

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"A conceptual row that contains OChGroup sink performance
monitoring information of an interface during a particular
historical interval."

INDEX { ifIndex, optIfOChGroupSinkIntervalNumber }

```
::= { optIfOChGroupSinkIntervalTable 1 }
```

```
OptIfOChGroupSinkIntervalEntry ::=
```

```
SEQUENCE {
    optIfOChGroupSinkIntervalNumber          OptIfIntervalNumber,
    optIfOChGroupSinkIntervalSuspectedFlag    TruthValue,
    optIfOChGroupSinkIntervalLastAggregatedInputPower Integer32,
    optIfOChGroupSinkIntervalLowAggregatedInputPower Integer32,
    optIfOChGroupSinkIntervalHighAggregatedInputPower Integer32,
    optIfOChGroupSinkIntervalLastOutputPower Integer32,
    optIfOChGroupSinkIntervalLowOutputPower Integer32,
    optIfOChGroupSinkIntervalHighOutputPower Integer32
}
```

```
optIfOChGroupSinkIntervalNumber OBJECT-TYPE
```

```
SYNTAX OptIfIntervalNumber
```

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

```
STATUS current
```

```
DESCRIPTION
```

```
"Uniquely identifies the interval."
```

```
::= { optIfOChGroupSinkIntervalEntry 1 }
```

```
optIfOChGroupSinkIntervalSuspectedFlag OBJECT-TYPE
```

```
SYNTAX TruthValue
```

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

```
STATUS current
```

```
DESCRIPTION
```

```
"If true, the data in this entry may be unreliable."
```

```
::= { optIfOChGroupSinkIntervalEntry 2 }
```

```
optIfOChGroupSinkIntervalLastAggregatedInputPower OBJECT-TYPE
```

```
SYNTAX Integer32
```

```
UNITS "0.1 dbm"
```

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

```
STATUS current
```

```
DESCRIPTION
```

```
"The last aggregated optical power of all the DWDM input
channels in the OChGroup during the interval."
```

```
::= { optIfOChGroupSinkIntervalEntry 3 }
```

```
optIfOChGroupSinkIntervalLowAggregatedInputPower OBJECT-TYPE
```

```
SYNTAX Integer32
```

```
UNITS "0.1 dbm"
```

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

```
STATUS current
```

```
DESCRIPTION
```

```
"The lowest aggregated optical power of all the DWDM input
channels in the OChGroup during the interval."
```

```
::= { optIfOChGroupSinkIntervalEntry 4 }
```

```
optIfOChGroupSinkIntervalHighAggregatedInputPower OBJECT-TYPE
```

```
SYNTAX Integer32
```

```
UNITS "0.1 dbm"
```

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

```
STATUS current
```

```
DESCRIPTION
```

```
"The highest aggregated optical power of all the DWDM input  
channels in the OChGroup during the interval."
```

```
::= { optIfOChGroupSinkIntervalEntry 5 }
```

```
optIfOChGroupSinkIntervalLastOutputPower OBJECT-TYPE
```

```
SYNTAX Integer32
```

```
UNITS "0.1 dbm"
```

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

```
STATUS current
```

```
DESCRIPTION
```

```
"The last optical power monitored at the output  
in the OChGroup during the interval."
```

```
::= { optIfOChGroupSinkIntervalEntry 6 }
```

```
optIfOChGroupSinkIntervalLowOutputPower OBJECT-TYPE
```

```
SYNTAX Integer32
```

```
UNITS "0.1 dbm"
```

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

```
STATUS current
```

```
DESCRIPTION
```

```
"The lowest optical power monitored at the output  
in the OChGroup during the interval."
```

```
::= { optIfOChGroupSinkIntervalEntry 7 }
```

```
optIfOChGroupSinkIntervalHighOutputPower OBJECT-TYPE
```

```
SYNTAX Integer32
```

```
UNITS "0.1 dbm"
```

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

```
STATUS current
```

```
DESCRIPTION
```

```
"The highest optical power monitored at the output  
in the OChGroup during the interval."
```

```
::= { optIfOChGroupSinkIntervalEntry 8 }
```

```
-- OChGroup sink current day table  
-- Contains data for the current 24-hour performance  
-- monitoring interval.
```

```
optIfOChGroupSinkCurDayTable OBJECT-TYPE
```

```
SYNTAX SEQUENCE OF OptIfOChGroupSinkCurDayEntry
```

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"A table of OChGroup sink performance monitoring information for the current 24-hour interval."

::= { optIfOChGroup 4 }

optIfOChGroupSinkCurDayEntry OBJECT-TYPE

SYNTAX OptIfOChGroupSinkCurDayEntry

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"A conceptual row that contains OChGroup sink performance monitoring information of an interface for the current 24-hour interval."

INDEX { ifIndex }

::= { optIfOChGroupSinkCurDayTable 1 }

OptIfOChGroupSinkCurDayEntry ::=

SEQUENCE {

| | |
|-------------------------------------------------|-------------|
| optIfOChGroupSinkCurDaySuspectedFlag | TruthValue, |
| optIfOChGroupSinkCurDayLowAggregatedInputPower | Integer32, |
| optIfOChGroupSinkCurDayHighAggregatedInputPower | Integer32, |
| optIfOChGroupSinkCurDayLowOutputPower | Integer32, |
| optIfOChGroupSinkCurDayHighOutputPower | Integer32 |

}

optIfOChGroupSinkCurDaySuspectedFlag OBJECT-TYPE

SYNTAX TruthValue

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"If true, the data in this entry may be unreliable."

::= { optIfOChGroupSinkCurDayEntry 1 }

optIfOChGroupSinkCurDayLowAggregatedInputPower OBJECT-TYPE

SYNTAX Integer32

UNITS "0.1 dbm"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The lowest aggregated optical power of all the DWDM input channels in the OChGroup during the current 24-hour interval."

::= { optIfOChGroupSinkCurDayEntry 2 }

optIfOChGroupSinkCurDayHighAggregatedInputPower OBJECT-TYPE

SYNTAX Integer32

UNITS "0.1 dbm"

MAX-ACCESS read-only
STATUS current
DESCRIPTION
 "The highest aggregated optical power of all the DWDM input
 channels in the OChGroup during the current 24-hour interval."
::= { optIfOChGroupSinkCurDayEntry 3 }

optIfOChGroupSinkCurDayLowOutputPower OBJECT-TYPE
SYNTAX Integer32
UNITS "0.1 dbm"
MAX-ACCESS read-only
STATUS current
DESCRIPTION
 "The lowest optical power monitored at the output
 in the OChGroup during the current 24-hour interval."
::= { optIfOChGroupSinkCurDayEntry 4 }

optIfOChGroupSinkCurDayHighOutputPower OBJECT-TYPE
SYNTAX Integer32
UNITS "0.1 dbm"
MAX-ACCESS read-only
STATUS current
DESCRIPTION
 "The highest optical power monitored at the output
 in the OChGroup during the current 24-hour interval."
::= { optIfOChGroupSinkCurDayEntry 5 }

-- OChGroup sink previous day table
-- Contains data for the previous 24-hour performance
-- monitoring interval.

optIfOChGroupSinkPrevDayTable OBJECT-TYPE
SYNTAX SEQUENCE OF OptIfOChGroupSinkPrevDayEntry
MAX-ACCESS not-accessible
STATUS current
DESCRIPTION
 "A table of OChGroup sink performance monitoring information for
 the previous 24-hour interval."
::= { optIfOChGroup 5 }

optIfOChGroupSinkPrevDayEntry OBJECT-TYPE
SYNTAX OptIfOChGroupSinkPrevDayEntry
MAX-ACCESS not-accessible
STATUS current
DESCRIPTION
 "A conceptual row that contains OChGroup sink performance
 monitoring information of an interface for the previous
 24-hour interval."


```

INDEX { ifIndex }
 ::= { optIfOChGroupSinkPrevDayTable 1 }

```

```

OptIfOChGroupSinkPrevDayEntry ::=
SEQUENCE {
    optIfOChGroupSinkPrevDaySuspectedFlag          TruthValue,
    optIfOChGroupSinkPrevDayLastAggregatedInputPower Integer32,
    optIfOChGroupSinkPrevDayLowAggregatedInputPower Integer32,
    optIfOChGroupSinkPrevDayHighAggregatedInputPower Integer32,
    optIfOChGroupSinkPrevDayLastOutputPower        Integer32,
    optIfOChGroupSinkPrevDayLowOutputPower          Integer32,
    optIfOChGroupSinkPrevDayHighOutputPower         Integer32
}

```

```

optIfOChGroupSinkPrevDaySuspectedFlag OBJECT-TYPE
SYNTAX TruthValue
MAX-ACCESS read-only
STATUS current
DESCRIPTION
    "If true, the data in this entry may be unreliable."
 ::= { optIfOChGroupSinkPrevDayEntry 1 }

```

```

optIfOChGroupSinkPrevDayLastAggregatedInputPower OBJECT-TYPE
SYNTAX Integer32
UNITS "0.1 dbm"
MAX-ACCESS read-only
STATUS current
DESCRIPTION
    "The last aggregated optical power of all the DWDM input
     channels in the OChGroup during the previous 24-hour interval."
 ::= { optIfOChGroupSinkPrevDayEntry 2 }

```

```

optIfOChGroupSinkPrevDayLowAggregatedInputPower OBJECT-TYPE
SYNTAX Integer32
UNITS "0.1 dbm"
MAX-ACCESS read-only
STATUS current
DESCRIPTION
    "The lowest aggregated optical power of all the DWDM input
     channels in the OChGroup during the previous 24-hour interval."
 ::= { optIfOChGroupSinkPrevDayEntry 3 }

```

```

optIfOChGroupSinkPrevDayHighAggregatedInputPower OBJECT-TYPE
SYNTAX Integer32
UNITS "0.1 dbm"
MAX-ACCESS read-only
STATUS current
DESCRIPTION

```

"The highest aggregated optical power of all the DWDM input channels in the OChGroup during the previous 24-hour interval."
 ::= { optIfOChGroupSinkPrevDayEntry 4 }

optIfOChGroupSinkPrevDayLastOutputPower OBJECT-TYPE

SYNTAX Integer32

UNITS "0.1 dbm"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The last optical power monitored at the output in the OChGroup during the previous 24-hour interval."

::= { optIfOChGroupSinkPrevDayEntry 5 }

optIfOChGroupSinkPrevDayLowOutputPower OBJECT-TYPE

SYNTAX Integer32

UNITS "0.1 dbm"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The lowest optical power monitored at the output in the OChGroup during the previous 24-hour interval."

::= { optIfOChGroupSinkPrevDayEntry 6 }

optIfOChGroupSinkPrevDayHighOutputPower OBJECT-TYPE

SYNTAX Integer32

UNITS "0.1 dbm"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The highest optical power monitored at the output in the OChGroup during the previous 24-hour interval."

::= { optIfOChGroupSinkPrevDayEntry 7 }

-- OChGroup source current table

-- Contains data for the current 15-minute performance monitoring

-- interval.

optIfOChGroupSrcCurrentTable OBJECT-TYPE

SYNTAX SEQUENCE OF OptIfOChGroupSrcCurrentEntry

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"A table of OChGroup source performance monitoring information for the current 15-minute interval."

::= { optIfOChGroup 6 }

optIfOChGroupSrcCurrentEntry OBJECT-TYPE

SYNTAX OptIfOChGroupSrcCurrentEntry

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"A conceptual row that contains OChGroup source performance monitoring information of an interface for the current 15-minute interval."

INDEX { ifIndex }

::= { optIfOChGroupSrcCurrentTable 1 }

OptIfOChGroupSrcCurrentEntry ::=

SEQUENCE {

| | |
|--------------------------------------------------|-------------|
| optIfOChGroupSrcCurrentSuspectedFlag | TruthValue, |
| optIfOChGroupSrcCurrentOutputPower | Integer32, |
| optIfOChGroupSrcCurrentLowOutputPower | Integer32, |
| optIfOChGroupSrcCurrentHighOutputPower | Integer32, |
| optIfOChGroupSrcCurrentLowerOutputPowerThreshold | Integer32, |
| optIfOChGroupSrcCurrentUpperOutputPowerThreshold | Integer32, |
| optIfOChGroupSrcCurrentAggregatedInputPower | Integer32, |
| optIfOChGroupSrcCurrentLowAggregatedInputPower | Integer32, |
| optIfOChGroupSrcCurrentHighAggregatedInputPower | Integer32, |
| optIfOChGroupSrcCurrentLowerInputPowerThreshold | Integer32, |
| optIfOChGroupSrcCurrentUpperInputPowerThreshold | Integer32 |

}

optIfOChGroupSrcCurrentSuspectedFlag OBJECT-TYPE

SYNTAX TruthValue

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"If true, the data in this entry may be unreliable."

::= { optIfOChGroupSrcCurrentEntry 1 }

optIfOChGroupSrcCurrentOutputPower OBJECT-TYPE

SYNTAX Integer32

UNITS "0.1 dbm"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The optical power monitored at the output."

::= { optIfOChGroupSrcCurrentEntry 2 }

optIfOChGroupSrcCurrentLowOutputPower OBJECT-TYPE

SYNTAX Integer32

UNITS "0.1 dbm"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The lowest optical power monitored at the output during the current 15-minute interval."

::= { optIfOChGroupSrcCurrentEntry 3 }

optIfOChGroupSrcCurrentHighOutputPower OBJECT-TYPE

SYNTAX Integer32

UNITS "0.1 dbm"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The highest optical power monitored at the output during the current 15-minute interval."

::= { optIfOChGroupSrcCurrentEntry 4 }

optIfOChGroupSrcCurrentLowerOutputPowerThreshold OBJECT-TYPE

SYNTAX Integer32

UNITS "0.1 dbm"

MAX-ACCESS read-write

STATUS current

DESCRIPTION

"The lower limit threshold on output power. If optIfOChGroupSrcCurrentOutputPower drops to this value or below, a Threshold Crossing Alert (TCA) should be sent."

::= { optIfOChGroupSrcCurrentEntry 5 }

optIfOChGroupSrcCurrentUpperOutputPowerThreshold OBJECT-TYPE

SYNTAX Integer32

UNITS "0.1 dbm"

MAX-ACCESS read-write

STATUS current

DESCRIPTION

"The upper limit threshold on output power. If optIfOChGroupSrcCurrentOutputPower reaches or exceeds this value, a Threshold Crossing Alert (TCA) should be sent."

::= { optIfOChGroupSrcCurrentEntry 6 }

optIfOChGroupSrcCurrentAggregatedInputPower OBJECT-TYPE

SYNTAX Integer32

UNITS "0.1 dbm"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The aggregated optical power monitored at the input."

::= { optIfOChGroupSrcCurrentEntry 7 }

optIfOChGroupSrcCurrentLowAggregatedInputPower OBJECT-TYPE

SYNTAX Integer32

UNITS "0.1 dbm"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The lowest aggregated optical power monitored at the input during the current 15-minute interval."

::= { optIfOChGroupSrcCurrentEntry 8 }

optIfOChGroupSrcCurrentHighAggregatedInputPower OBJECT-TYPE

SYNTAX Integer32

UNITS "0.1 dbm"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The highest aggregated optical power monitored at the input during the current 15-minute interval."

::= { optIfOChGroupSrcCurrentEntry 9 }

optIfOChGroupSrcCurrentLowerInputPowerThreshold OBJECT-TYPE

SYNTAX Integer32

UNITS "0.1 dbm"

MAX-ACCESS read-write

STATUS current

DESCRIPTION

"The lower limit threshold on input power. If optIfOChGroupSrcCurrentAggregatedInputPower drops to this value or below, a Threshold Crossing Alert (TCA) should be sent."

::= { optIfOChGroupSrcCurrentEntry 10 }

optIfOChGroupSrcCurrentUpperInputPowerThreshold OBJECT-TYPE

SYNTAX Integer32

UNITS "0.1 dbm"

MAX-ACCESS read-write

STATUS current

DESCRIPTION

"The upper limit threshold on input power. If optIfOChGroupSrcCurrentAggregatedInputPower reaches or exceeds this value, a Threshold Crossing Alert (TCA) should be sent."

::= { optIfOChGroupSrcCurrentEntry 11 }

-- OChGroup source interval table

-- Contains data for previous 15-minute performance monitoring

-- intervals.

optIfOChGroupSrcIntervalTable OBJECT-TYPE

SYNTAX SEQUENCE OF OptIfOChGroupSrcIntervalEntry

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"A table of historical OChGroup source performance monitoring information."

::= { optIfOChGroup 7 }

optIfOChGroupSrcIntervalEntry OBJECT-TYPE

SYNTAX OptIfOChGroupSrcIntervalEntry

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"A conceptual row that contains OChGroup source performance monitoring information of an interface during a particular historical interval."

INDEX { ifIndex, optIfOChGroupSrcIntervalNumber }

::= { optIfOChGroupSrcIntervalTable 1 }

OptIfOChGroupSrcIntervalEntry ::=

SEQUENCE {

| | |
|--------------------------------------------------|----------------------|
| optIfOChGroupSrcIntervalNumber | OptIfIntervalNumber, |
| optIfOChGroupSrcIntervalSuspectedFlag | TruthValue, |
| optIfOChGroupSrcIntervalLastOutputPower | Integer32, |
| optIfOChGroupSrcIntervalLowOutputPower | Integer32, |
| optIfOChGroupSrcIntervalHighOutputPower | Integer32, |
| optIfOChGroupSrcIntervalLastAggregatedInputPower | Integer32, |
| optIfOChGroupSrcIntervalLowAggregatedInputPower | Integer32, |
| optIfOChGroupSrcIntervalHighAggregatedInputPower | Integer32 |

}

optIfOChGroupSrcIntervalNumber OBJECT-TYPE

SYNTAX OptIfIntervalNumber

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"Uniquely identifies the interval."

::= { optIfOChGroupSrcIntervalEntry 1 }

optIfOChGroupSrcIntervalSuspectedFlag OBJECT-TYPE

SYNTAX TruthValue

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"If true, the data in this entry may be unreliable."

::= { optIfOChGroupSrcIntervalEntry 2 }

optIfOChGroupSrcIntervalLastOutputPower OBJECT-TYPE

SYNTAX Integer32

UNITS "0.1 dbm"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The last optical power monitored at the output during the interval."

::= { optIfOChGroupSrcIntervalEntry 3 }

optIfOChGroupSrcIntervalLowOutputPower OBJECT-TYPE

SYNTAX Integer32

UNITS "0.1 dbm"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The lowest optical power monitored at the output during the interval."

::= { optIfOChGroupSrcIntervalEntry 4 }

optIfOChGroupSrcIntervalHighOutputPower OBJECT-TYPE

SYNTAX Integer32

UNITS "0.1 dbm"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The highest optical power monitored at the output during the interval."

::= { optIfOChGroupSrcIntervalEntry 5 }

optIfOChGroupSrcIntervalLastAggregatedInputPower OBJECT-TYPE

SYNTAX Integer32

UNITS "0.1 dbm"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The last aggregated optical power monitored at the input during the interval."

::= { optIfOChGroupSrcIntervalEntry 6 }

optIfOChGroupSrcIntervalLowAggregatedInputPower OBJECT-TYPE

SYNTAX Integer32

UNITS "0.1 dbm"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The lowest aggregated optical power monitored at the input during the interval."

::= { optIfOChGroupSrcIntervalEntry 7 }

optIfOChGroupSrcIntervalHighAggregatedInputPower OBJECT-TYPE

SYNTAX Integer32

UNITS "0.1 dbm"

```

MAX-ACCESS read-only
STATUS current
DESCRIPTION
    "The highest aggregated optical power monitored at the input
    during the interval."
 ::= { optIfOChGroupSrcIntervalEntry 8 }

```

```

-- OChGroup source current day table
-- Contains data for the current 24-hour performance
-- monitoring interval.

```

```

optIfOChGroupSrcCurDayTable OBJECT-TYPE
    SYNTAX SEQUENCE OF OptIfOChGroupSrcCurDayEntry
    MAX-ACCESS not-accessible
    STATUS current
    DESCRIPTION
        "A table of OChGroup source performance monitoring information for
        the current 24-hour interval."
    ::= { optIfOChGroup 8 }

```

```

optIfOChGroupSrcCurDayEntry OBJECT-TYPE
    SYNTAX OptIfOChGroupSrcCurDayEntry
    MAX-ACCESS not-accessible
    STATUS current
    DESCRIPTION
        "A conceptual row that contains OChGroup source performance
        monitoring information of an interface for the current
        24-hour interval."
    INDEX { ifIndex }
    ::= { optIfOChGroupSrcCurDayTable 1 }

```

```

OptIfOChGroupSrcCurDayEntry ::=
    SEQUENCE {
        optIfOChGroupSrcCurDaySuspectedFlag          TruthValue,
        optIfOChGroupSrcCurDayLowOutputPower         Integer32,
        optIfOChGroupSrcCurDayHighOutputPower        Integer32,
        optIfOChGroupSrcCurDayLowAggregatedInputPower Integer32,
        optIfOChGroupSrcCurDayHighAggregatedInputPower Integer32
    }

```

```

optIfOChGroupSrcCurDaySuspectedFlag OBJECT-TYPE
    SYNTAX TruthValue
    MAX-ACCESS read-only
    STATUS current
    DESCRIPTION
        "If true, the data in this entry may be unreliable."
    ::= { optIfOChGroupSrcCurDayEntry 1 }

```



```
optIfOChGroupSrcCurDayLowOutputPower OBJECT-TYPE
    SYNTAX  Integer32
    UNITS   "0.1 dbm"
    MAX-ACCESS  read-only
    STATUS   current
    DESCRIPTION
        "The lowest optical power monitored at the output during the
         current 24-hour interval."
    ::= { optIfOChGroupSrcCurDayEntry 2 }

optIfOChGroupSrcCurDayHighOutputPower OBJECT-TYPE
    SYNTAX  Integer32
    UNITS   "0.1 dbm"
    MAX-ACCESS  read-only
    STATUS   current
    DESCRIPTION
        "The highest optical power monitored at the output during the
         current 24-hour interval."
    ::= { optIfOChGroupSrcCurDayEntry 3 }

optIfOChGroupSrcCurDayLowAggregatedInputPower OBJECT-TYPE
    SYNTAX  Integer32
    UNITS   "0.1 dbm"
    MAX-ACCESS  read-only
    STATUS   current
    DESCRIPTION
        "The lowest aggregated optical power monitored at the input
         during the current 24-hour interval."
    ::= { optIfOChGroupSrcCurDayEntry 4 }

optIfOChGroupSrcCurDayHighAggregatedInputPower OBJECT-TYPE
    SYNTAX  Integer32
    UNITS   "0.1 dbm"
    MAX-ACCESS  read-only
    STATUS   current
    DESCRIPTION
        "The highest aggregated optical power monitored at the input
         during the current 24-hour interval."
    ::= { optIfOChGroupSrcCurDayEntry 5 }

-- OChGroup source previous day table
-- Contains data for the previous 24-hour performance
-- monitoring interval.

optIfOChGroupSrcPrevDayTable OBJECT-TYPE
    SYNTAX  SEQUENCE OF OptIfOChGroupSrcPrevDayEntry
    MAX-ACCESS  not-accessible
    STATUS   current
```

DESCRIPTION

"A table of OChGroup source performance monitoring information for the previous 24-hour interval."

::= { optIfOChGroup 9 }

optIfOChGroupSrcPrevDayEntry OBJECT-TYPE

SYNTAX OptIfOChGroupSrcPrevDayEntry

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"A conceptual row that contains OChGroup source performance monitoring information of an interface for the previous 24-hour interval."

INDEX { ifIndex }

::= { optIfOChGroupSrcPrevDayTable 1 }

OptIfOChGroupSrcPrevDayEntry ::=

SEQUENCE {

| | |
|-------------------------------------------------|-------------|
| optIfOChGroupSrcPrevDaySuspectedFlag | TruthValue, |
| optIfOChGroupSrcPrevDayLastOutputPower | Integer32, |
| optIfOChGroupSrcPrevDayLowOutputPower | Integer32, |
| optIfOChGroupSrcPrevDayHighOutputPower | Integer32, |
| optIfOChGroupSrcPrevDayLastAggregatedInputPower | Integer32, |
| optIfOChGroupSrcPrevDayLowAggregatedInputPower | Integer32, |
| optIfOChGroupSrcPrevDayHighAggregatedInputPower | Integer32 |
| } | |

optIfOChGroupSrcPrevDaySuspectedFlag OBJECT-TYPE

SYNTAX TruthValue

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"If true, the data in this entry may be unreliable."

::= { optIfOChGroupSrcPrevDayEntry 1 }

optIfOChGroupSrcPrevDayLastOutputPower OBJECT-TYPE

SYNTAX Integer32

UNITS "0.1 dbm"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The last optical power monitored at the output during the previous 24-hour interval."

::= { optIfOChGroupSrcPrevDayEntry 2 }

optIfOChGroupSrcPrevDayLowOutputPower OBJECT-TYPE

SYNTAX Integer32

UNITS "0.1 dbm"

MAX-ACCESS read-only
STATUS current
DESCRIPTION
 "The lowest optical power monitored at the output during the
 previous 24-hour interval."
 ::= { optIfOChGroupSrcPrevDayEntry 3 }

optIfOChGroupSrcPrevDayHighOutputPower OBJECT-TYPE
SYNTAX Integer32
UNITS "0.1 dbm"
MAX-ACCESS read-only
STATUS current
DESCRIPTION
 "The highest optical power monitored at the output during the
 previous 24-hour interval."
 ::= { optIfOChGroupSrcPrevDayEntry 4 }

optIfOChGroupSrcPrevDayLastAggregatedInputPower OBJECT-TYPE
SYNTAX Integer32
UNITS "0.1 dbm"
MAX-ACCESS read-only
STATUS current
DESCRIPTION
 "The last aggregated optical power monitored at the input
 during the previous 24-hour interval."
 ::= { optIfOChGroupSrcPrevDayEntry 5 }

optIfOChGroupSrcPrevDayLowAggregatedInputPower OBJECT-TYPE
SYNTAX Integer32
UNITS "0.1 dbm"
MAX-ACCESS read-only
STATUS current
DESCRIPTION
 "The lowest aggregated optical power monitored at the input
 during the previous 24-hour interval."
 ::= { optIfOChGroupSrcPrevDayEntry 6 }

optIfOChGroupSrcPrevDayHighAggregatedInputPower OBJECT-TYPE
SYNTAX Integer32
UNITS "0.1 dbm"
MAX-ACCESS read-only
STATUS current
DESCRIPTION
 "The highest aggregated optical power monitored at the input
 during the previous 24-hour interval."
 ::= { optIfOChGroupSrcPrevDayEntry 7 }

-- the optIfOCh group

-- This group handles the configuration and
-- performance monitoring information for OCh layers.

-- OCh config table

optIfOChConfigTable OBJECT-TYPE
SYNTAX SEQUENCE OF OptIfOChConfigEntry
MAX-ACCESS not-accessible
STATUS current
DESCRIPTION
"A table of OCh configuration information."
::= { optIfOCh 1 }

optIfOChConfigEntry OBJECT-TYPE
SYNTAX OptIfOChConfigEntry
MAX-ACCESS not-accessible
STATUS current
DESCRIPTION
"A conceptual row that contains OCh configuration
information of an interface."
INDEX { ifIndex }
::= { optIfOChConfigTable 1 }

OptIfOChConfigEntry ::=
SEQUENCE {
 optIfOChDirectionality OptIfDirectionality,
 optIfOChCurrentStatus BITS
}

optIfOChDirectionality OBJECT-TYPE
SYNTAX OptIfDirectionality
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"Indicates the directionality of the entity."
::= { optIfOChConfigEntry 1 }

optIfOChCurrentStatus OBJECT-TYPE
SYNTAX BITS {
 losP(0),
 los(1),
 oci(2),
 ssfP(3),
 ssfO(4),
 ssf(5)
}
MAX-ACCESS read-only
STATUS current

DESCRIPTION

"Indicates the defect condition of the entity, if any.
 This object is applicable when optIfOChDirectionality
 has the value sink(1) or bidirectional(3).
 In full-capability systems the bit position los(1) is not used.
 In reduced-capability systems or at IrDI interfaces only
 the bit positions los(1) and ssfP(3) are used."

::= { optIfOChConfigEntry 2 }

-- OCh sink current table
 -- Contains data for the current 15-minute performance monitoring
 -- interval.

optIfOChSinkCurrentTable OBJECT-TYPE

SYNTAX SEQUENCE OF OptIfOChSinkCurrentEntry

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"A table of OCh sink performance monitoring information for
 the current 15-minute interval."

::= { optIfOCh 2 }

optIfOChSinkCurrentEntry OBJECT-TYPE

SYNTAX OptIfOChSinkCurrentEntry

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"A conceptual row that contains OCh sink performance
 monitoring information for an interface for the current
 15-minute interval."

INDEX { ifIndex }

::= { optIfOChSinkCurrentTable 1 }

OptIfOChSinkCurrentEntry ::=

SEQUENCE {

| | |
|---------------------------------------------|-------------|
| optIfOChSinkCurrentSuspectedFlag | TruthValue, |
| optIfOChSinkCurrentInputPower | Integer32, |
| optIfOChSinkCurrentLowInputPower | Integer32, |
| optIfOChSinkCurrentHighInputPower | Integer32, |
| optIfOChSinkCurrentLowerInputPowerThreshold | Integer32, |
| optIfOChSinkCurrentUpperInputPowerThreshold | Integer32 |

}

optIfOChSinkCurrentSuspectedFlag OBJECT-TYPE

SYNTAX TruthValue

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"If true, the data in this entry may be unreliable."
 ::= { optIfOChSinkCurrentEntry 1 }

optIfOChSinkCurrentInputPower OBJECT-TYPE

SYNTAX Integer32
UNITS "0.1 dbm"
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"The optical power monitored at the input."
 ::= { optIfOChSinkCurrentEntry 2 }

optIfOChSinkCurrentLowInputPower OBJECT-TYPE

SYNTAX Integer32
UNITS "0.1 dbm"
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"The lowest optical power monitored at the input during the
current 15-minute interval."
 ::= { optIfOChSinkCurrentEntry 3 }

optIfOChSinkCurrentHighInputPower OBJECT-TYPE

SYNTAX Integer32
UNITS "0.1 dbm"
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"The highest optical power monitored at the input during the
current 15-minute interval."
 ::= { optIfOChSinkCurrentEntry 4 }

optIfOChSinkCurrentLowerInputPowerThreshold OBJECT-TYPE

SYNTAX Integer32
UNITS "0.1 dbm"
MAX-ACCESS read-write
STATUS current
DESCRIPTION
"The lower limit threshold on input power. If
optIfOChSinkCurrentInputPower drops to this value or below,
a Threshold Crossing Alert (TCA) should be sent."
 ::= { optIfOChSinkCurrentEntry 5 }

optIfOChSinkCurrentUpperInputPowerThreshold OBJECT-TYPE

SYNTAX Integer32
UNITS "0.1 dbm"
MAX-ACCESS read-write
STATUS current

DESCRIPTION

"The upper limit threshold on input power. If
 optIfOChSinkCurrentInputPower reaches or exceeds this value,
 a Threshold Crossing Alert (TCA) should be sent."

::= { optIfOChSinkCurrentEntry 6 }

-- OCh sink interval table
 -- Contains data for previous 15-minute performance monitoring
 -- intervals.

optIfOChSinkIntervalTable OBJECT-TYPE

SYNTAX SEQUENCE OF OptIfOChSinkIntervalEntry

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"A table of historical OCh sink performance monitoring
 information."

::= { optIfOCh 3 }

optIfOChSinkIntervalEntry OBJECT-TYPE

SYNTAX OptIfOChSinkIntervalEntry

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"A conceptual row that contains OCh sink performance
 monitoring information of an interface during a particular
 historical interval."

INDEX { ifIndex, optIfOChSinkIntervalNumber }

::= { optIfOChSinkIntervalTable 1 }

OptIfOChSinkIntervalEntry ::=

SEQUENCE {

| | |
|------------------------------------|----------------------|
| optIfOChSinkIntervalNumber | OptIfIntervalNumber, |
| optIfOChSinkIntervalSuspectedFlag | TruthValue, |
| optIfOChSinkIntervalLastInputPower | Integer32, |
| optIfOChSinkIntervalLowInputPower | Integer32, |
| optIfOChSinkIntervalHighInputPower | Integer32 |

}

optIfOChSinkIntervalNumber OBJECT-TYPE

SYNTAX OptIfIntervalNumber

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"Uniquely identifies the interval."

::= { optIfOChSinkIntervalEntry 1 }

optIfOChSinkIntervalSuspectedFlag OBJECT-TYPE

```
SYNTAX TruthValue
MAX-ACCESS read-only
STATUS current
DESCRIPTION
    "If true, the data in this entry may be unreliable."
 ::= { optIfOChSinkIntervalEntry 2 }
```

```
optIfOChSinkIntervalLastInputPower OBJECT-TYPE
SYNTAX Integer32
UNITS "0.1 dbm"
MAX-ACCESS read-only
STATUS current
DESCRIPTION
    "The last optical power monitored at the input during the
    interval."
 ::= { optIfOChSinkIntervalEntry 3 }
```

```
optIfOChSinkIntervalLowInputPower OBJECT-TYPE
SYNTAX Integer32
UNITS "0.1 dbm"
MAX-ACCESS read-only
STATUS current
DESCRIPTION
    "The lowest optical power monitored at the input during the
    interval."
 ::= { optIfOChSinkIntervalEntry 4 }
```

```
optIfOChSinkIntervalHighInputPower OBJECT-TYPE
SYNTAX Integer32
UNITS "0.1 dbm"
MAX-ACCESS read-only
STATUS current
DESCRIPTION
    "The highest optical power monitored at the input during the
    interval."
 ::= { optIfOChSinkIntervalEntry 5 }
```

```
-- OCh sink current day table
-- Contains data for the current 24-hour performance
-- monitoring interval.
```

```
optIfOChSinkCurDayTable OBJECT-TYPE
SYNTAX SEQUENCE OF OptIfOChSinkCurDayEntry
MAX-ACCESS not-accessible
STATUS current
DESCRIPTION
    "A table of OCh sink performance monitoring information for
    the current 24-hour interval."
```



```
::= { optIfOCh 4 }
```

optIfOChSinkCurDayEntry OBJECT-TYPE

SYNTAX OptIfOChSinkCurDayEntry

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"A conceptual row that contains OCh sink performance monitoring information of an interface for the current 24-hour interval."

INDEX { ifIndex }

```
::= { optIfOChSinkCurDayTable 1 }
```

OptIfOChSinkCurDayEntry ::=

SEQUENCE {

optIfOChSinkCurDaySuspectedFlag TruthValue,

optIfOChSinkCurDayLowInputPower Integer32,

optIfOChSinkCurDayHighInputPower Integer32

}

optIfOChSinkCurDaySuspectedFlag OBJECT-TYPE

SYNTAX TruthValue

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"If true, the data in this entry may be unreliable."

```
::= { optIfOChSinkCurDayEntry 1 }
```

optIfOChSinkCurDayLowInputPower OBJECT-TYPE

SYNTAX Integer32

UNITS "0.1 dbm"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The lowest optical power monitored at the input during the current 24-hour interval."

```
::= { optIfOChSinkCurDayEntry 2 }
```

optIfOChSinkCurDayHighInputPower OBJECT-TYPE

SYNTAX Integer32

UNITS "0.1 dbm"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The highest optical power monitored at the input during the current 24-hour interval."

```
::= { optIfOChSinkCurDayEntry 3 }
```

```
-- OCh sink previous day table
-- Contains data for the previous 24-hour performance
-- monitoring interval.
```

```
optIfOChSinkPrevDayTable OBJECT-TYPE
    SYNTAX SEQUENCE OF OptIfOChSinkPrevDayEntry
    MAX-ACCESS not-accessible
    STATUS current
    DESCRIPTION
        "A table of OCh sink performance monitoring information for
        the previous 24-hour interval."
    ::= { optIfOCh 5 }
```

```
optIfOChSinkPrevDayEntry OBJECT-TYPE
    SYNTAX OptIfOChSinkPrevDayEntry
    MAX-ACCESS not-accessible
    STATUS current
    DESCRIPTION
        "A conceptual row that contains OCh sink performance
        monitoring information of an interface for the previous
        24-hour interval."
    INDEX { ifIndex }
    ::= { optIfOChSinkPrevDayTable 1 }
```

```
OptIfOChSinkPrevDayEntry ::=
    SEQUENCE {
        optIfOChSinkPrevDaySuspectedFlag TruthValue,
        optIfOChSinkPrevDayLastInputPower Integer32,
        optIfOChSinkPrevDayLowInputPower Integer32,
        optIfOChSinkPrevDayHighInputPower Integer32
    }
```

```
optIfOChSinkPrevDaySuspectedFlag OBJECT-TYPE
    SYNTAX TruthValue
    MAX-ACCESS read-only
    STATUS current
    DESCRIPTION
        "If true, the data in this entry may be unreliable."
    ::= { optIfOChSinkPrevDayEntry 1 }
```

```
optIfOChSinkPrevDayLastInputPower OBJECT-TYPE
    SYNTAX Integer32
    UNITS "0.1 dbm"
    MAX-ACCESS read-only
    STATUS current
    DESCRIPTION
        "The last optical power monitored at the input during the
        previous 24-hour interval."
```

```
::= { optIfOChSinkPrevDayEntry 2 }
```

```
optIfOChSinkPrevDayLowInputPower OBJECT-TYPE
```

```
SYNTAX Integer32
```

```
UNITS "0.1 dbm"
```

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

```
STATUS current
```

```
DESCRIPTION
```

```
"The lowest optical power monitored at the input during the
previous 24-hour interval."
```

```
::= { optIfOChSinkPrevDayEntry 3 }
```

```
optIfOChSinkPrevDayHighInputPower OBJECT-TYPE
```

```
SYNTAX Integer32
```

```
UNITS "0.1 dbm"
```

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

```
STATUS current
```

```
DESCRIPTION
```

```
"The highest optical power monitored at the input during the
previous 24-hour interval."
```

```
::= { optIfOChSinkPrevDayEntry 4 }
```

```
-- OCh source current table
```

```
-- Contains data for the current 15-minute performance monitoring
```

```
-- interval.
```

```
optIfOChSrcCurrentTable OBJECT-TYPE
```

```
SYNTAX SEQUENCE OF OptIfOChSrcCurrentEntry
```

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

```
STATUS current
```

```
DESCRIPTION
```

```
"A table of OCh source performance monitoring information for
the current 15-minute interval."
```

```
::= { optIfOCh 6 }
```

```
optIfOChSrcCurrentEntry OBJECT-TYPE
```

```
SYNTAX OptIfOChSrcCurrentEntry
```

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

```
STATUS current
```

```
DESCRIPTION
```

```
"A conceptual row that contains OCh source performance
monitoring information of an interface for the current
15-minute interval."
```

```
INDEX { ifIndex }
```

```
::= { optIfOChSrcCurrentTable 1 }
```

```
OptIfOChSrcCurrentEntry ::=
```

```
SEQUENCE {
```

```
    optIfOChSrcCurrentSuspectedFlag          TruthValue,
    optIfOChSrcCurrentOutputPower            Integer32,
    optIfOChSrcCurrentLowOutputPower          Integer32,
    optIfOChSrcCurrentHighOutputPower         Integer32,
    optIfOChSrcCurrentLowerOutputPowerThreshold Integer32,
    optIfOChSrcCurrentUpperOutputPowerThreshold Integer32
  }
```

optIfOChSrcCurrentSuspectedFlag OBJECT-TYPE

SYNTAX TruthValue

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"If true, the data in this entry may be unreliable."

::= { optIfOChSrcCurrentEntry 1 }

optIfOChSrcCurrentOutputPower OBJECT-TYPE

SYNTAX Integer32

UNITS "0.1 dbm"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The optical power monitored at the output."

::= { optIfOChSrcCurrentEntry 2 }

optIfOChSrcCurrentLowOutputPower OBJECT-TYPE

SYNTAX Integer32

UNITS "0.1 dbm"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The lowest optical power monitored at the output during the
current 15-minute interval."

::= { optIfOChSrcCurrentEntry 3 }

optIfOChSrcCurrentHighOutputPower OBJECT-TYPE

SYNTAX Integer32

UNITS "0.1 dbm"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The highest optical power monitored at the output during the
current 15-minute interval."

::= { optIfOChSrcCurrentEntry 4 }

optIfOChSrcCurrentLowerOutputPowerThreshold OBJECT-TYPE

SYNTAX Integer32

UNITS "0.1 dbm"

MAX-ACCESS read-write
 STATUS current
 DESCRIPTION

"The lower limit threshold on output power. If
 optIfOChSrcCurrentOutputPower drops to this value or below,
 a Threshold Crossing Alert (TCA) should be sent."

::= { optIfOChSrcCurrentEntry 5 }

optIfOChSrcCurrentUpperOutputPowerThreshold OBJECT-TYPE

SYNTAX Integer32
 UNITS "0.1 dbm"
 MAX-ACCESS read-write
 STATUS current
 DESCRIPTION

"The upper limit threshold on output power. If
 optIfOChSrcCurrentOutputPower reaches or exceeds this value,
 a Threshold Crossing Alert (TCA) should be sent."

::= { optIfOChSrcCurrentEntry 6 }

-- OCh source interval table
 -- Contains data for previous 15-minute performance monitoring
 -- intervals.

optIfOChSrcIntervalTable OBJECT-TYPE

SYNTAX SEQUENCE OF OptIfOChSrcIntervalEntry
 MAX-ACCESS not-accessible
 STATUS current
 DESCRIPTION

"A table of historical OCh source performance monitoring
 information."

::= { optIfOCh 7 }

optIfOChSrcIntervalEntry OBJECT-TYPE

SYNTAX OptIfOChSrcIntervalEntry
 MAX-ACCESS not-accessible
 STATUS current
 DESCRIPTION

"A conceptual row that contains OCh source performance
 monitoring information of an interface during a particular
 historical interval."

INDEX { ifIndex, optIfOChSrcIntervalNumber }

::= { optIfOChSrcIntervalTable 1 }

OptIfOChSrcIntervalEntry ::=

SEQUENCE {
 optIfOChSrcIntervalNumber OptIfIntervalNumber,
 optIfOChSrcIntervalSuspectedFlag TruthValue,
 optIfOChSrcIntervalLastOutputPower Integer32,

```
    optIfOChSrcIntervalLowOutputPower    Integer32,  
    optIfOChSrcIntervalHighOutputPower   Integer32  
}
```

optIfOChSrcIntervalNumber OBJECT-TYPE

SYNTAX OptIfIntervalNumber

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"Uniquely identifies the interval."

::= { optIfOChSrcIntervalEntry 1 }

optIfOChSrcIntervalSuspectedFlag OBJECT-TYPE

SYNTAX TruthValue

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"If true, the data in this entry may be unreliable."

::= { optIfOChSrcIntervalEntry 2 }

optIfOChSrcIntervalLastOutputPower OBJECT-TYPE

SYNTAX Integer32

UNITS "0.1 dbm"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The last optical power monitored at the output during the interval."

::= { optIfOChSrcIntervalEntry 3 }

optIfOChSrcIntervalLowOutputPower OBJECT-TYPE

SYNTAX Integer32

UNITS "0.1 dbm"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The lowest optical power monitored at the output during the interval."

::= { optIfOChSrcIntervalEntry 4 }

optIfOChSrcIntervalHighOutputPower OBJECT-TYPE

SYNTAX Integer32

UNITS "0.1 dbm"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The highest optical power monitored at the output during the interval."

```
::= { optIfOChSrcIntervalEntry 5 }
```

```
-- OCh source current day table
-- Contains data for the current 24-hour performance
-- monitoring interval.
```

```
optIfOChSrcCurDayTable OBJECT-TYPE
```

```
SYNTAX SEQUENCE OF OptIfOChSrcCurDayEntry
```

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

```
STATUS current
```

```
DESCRIPTION
```

```
"A table of OCh source performance monitoring information for
the current 24-hour interval."
```

```
::= { optIfOCh 8 }
```

```
optIfOChSrcCurDayEntry OBJECT-TYPE
```

```
SYNTAX OptIfOChSrcCurDayEntry
```

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

```
STATUS current
```

```
DESCRIPTION
```

```
"A conceptual row that contains OCh source performance
monitoring information of an interface for the current
24-hour interval."
```

```
INDEX { ifIndex }
```

```
::= { optIfOChSrcCurDayTable 1 }
```

```
OptIfOChSrcCurDayEntry ::=
```

```
SEQUENCE {
```

```
    optIfOChSrcCurDaySuspectedFlag      TruthValue,
```

```
    optIfOChSrcCurDayLowOutputPower     Integer32,
```

```
    optIfOChSrcCurDayHighOutputPower    Integer32
```

```
}
```

```
optIfOChSrcCurDaySuspectedFlag OBJECT-TYPE
```

```
SYNTAX TruthValue
```

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

```
STATUS current
```

```
DESCRIPTION
```

```
"If true, the data in this entry may be unreliable."
```

```
::= { optIfOChSrcCurDayEntry 1 }
```

```
optIfOChSrcCurDayLowOutputPower OBJECT-TYPE
```

```
SYNTAX Integer32
```

```
UNITS "0.1 dbm"
```

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

```
STATUS current
```

```
DESCRIPTION
```

```
"The lowest optical power monitored at the output during the
```

```

        current 24-hour interval."
 ::= { optIfOChSrcCurDayEntry 2 }

optIfOChSrcCurDayHighOutputPower OBJECT-TYPE
    SYNTAX      Integer32
    UNITS       "0.1 dbm"
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "The highest optical power monitored at the output during the
         current 24-hour interval."
 ::= { optIfOChSrcCurDayEntry 3 }

-- OCh source previous day table
-- Contains data for the previous 24-hour performance
-- monitoring interval.

optIfOChSrcPrevDayTable OBJECT-TYPE
    SYNTAX      SEQUENCE OF OptIfOChSrcPrevDayEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "A table of OCh source performance monitoring information for
         the previous 24-hour interval."
 ::= { optIfOCh 9 }

optIfOChSrcPrevDayEntry OBJECT-TYPE
    SYNTAX      OptIfOChSrcPrevDayEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "A conceptual row that contains OCh source performance
         monitoring information of an interface for the previous
         24-hour interval."
    INDEX       { ifIndex }
 ::= { optIfOChSrcPrevDayTable 1 }

OptIfOChSrcPrevDayEntry ::=
    SEQUENCE {
        optIfOChSrcPrevDaySuspectedFlag      TruthValue,
        optIfOChSrcPrevDayLastOutputPower    Integer32,
        optIfOChSrcPrevDayLowOutputPower     Integer32,
        optIfOChSrcPrevDayHighOutputPower    Integer32
    }

optIfOChSrcPrevDaySuspectedFlag OBJECT-TYPE
    SYNTAX      TruthValue
    MAX-ACCESS  read-only

```



```
STATUS    current
DESCRIPTION
    "If true, the data in this entry may be unreliable."
 ::= { optIfOChSrcPrevDayEntry 1 }
```

```
optIfOChSrcPrevDayLastOutputPower OBJECT-TYPE
SYNTAX    Integer32
UNITS     "0.1 dbm"
MAX-ACCESS read-only
STATUS    current
DESCRIPTION
    "The last optical power monitored at the output during the
     previous 24-hour interval."
 ::= { optIfOChSrcPrevDayEntry 2 }
```

```
optIfOChSrcPrevDayLowOutputPower OBJECT-TYPE
SYNTAX    Integer32
UNITS     "0.1 dbm"
MAX-ACCESS read-only
STATUS    current
DESCRIPTION
    "The lowest optical power monitored at the output during the
     previous 24-hour interval."
 ::= { optIfOChSrcPrevDayEntry 3 }
```

```
optIfOChSrcPrevDayHighOutputPower OBJECT-TYPE
SYNTAX    Integer32
UNITS     "0.1 dbm"
MAX-ACCESS read-only
STATUS    current
DESCRIPTION
    "The highest optical power monitored at the output during the
     previous 24-hour interval."
 ::= { optIfOChSrcPrevDayEntry 4 }
```

```
-- the optIfOTUk group
-- This group handles the configuration
-- information for OTUk layers.
```

```
-- OTUk config table
```

```
optIfOTUkConfigTable OBJECT-TYPE
SYNTAX    SEQUENCE OF OptIfOTUkConfigEntry
MAX-ACCESS not-accessible
STATUS    current
DESCRIPTION
    "A table of OTUk configuration information."
 ::= { optIfOTUk 1 }
```

optIfOTUkConfigEntry OBJECT-TYPE

SYNTAX OptIfOTUkConfigEntry

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"A conceptual row that contains OTUk configuration information of an interface."

INDEX { ifIndex }

::= { optIfOTUkConfigTable 1 }

OptIfOTUkConfigEntry ::=

SEQUENCE {

| | |
|-------------------------------------|----------------------|
| optIfOTUkDirectionality | OptIfDirectionality, |
| optIfOTUkBitRateK | OptIfBitRateK, |
| optIfOTUkTraceIdentifierTransmitted | OptIfTxTI, |
| optIfOTUkDAPIExpected | OptIfExDAPI, |
| optIfOTUkSAPIExpected | OptIfExSAPI, |
| optIfOTUkTraceIdentifierAccepted | OptIfAcTI, |
| optIfOTUkTIMDetMode | OptIfTIMDetMode, |
| optIfOTUkTIMActEnabled | TruthValue, |
| optIfOTUkDEGThr | OptIfDEGThr, |
| optIfOTUkDEGM | OptIfDEGM, |
| optIfOTUkSinkAdaptActive | TruthValue, |
| optIfOTUkSourceAdaptActive | TruthValue, |
| optIfOTUkSinkFECEnabled | TruthValue, |
| optIfOTUkCurrentStatus | BITS |

}

optIfOTUkDirectionality OBJECT-TYPE

SYNTAX OptIfDirectionality

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"Indicates the directionality of the entity."

::= { optIfOTUkConfigEntry 1 }

optIfOTUkBitRateK OBJECT-TYPE

SYNTAX OptIfBitRateK

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"Indicates the bit rate of the entity."

::= { optIfOTUkConfigEntry 2 }

optIfOTUkTraceIdentifierTransmitted OBJECT-TYPE

SYNTAX OptIfTxTI

MAX-ACCESS read-write

STATUS current

DESCRIPTION

"The trace identifier transmitted.

This object is applicable when optIfOTUkDirectionality has the value source(2) or bidirectional(3). It must not be instantiated in rows where optIfOTUkDirectionality has the value sink(1).

If no value is ever set by a management entity for this object, system-specific default value will be used.

Any implementation that instantiates this object must document the system-specific default value or how it is derived."

::= { optIfOTUkConfigEntry 3 }

optIfOTUkDAPIExpected OBJECT-TYPE

SYNTAX OptIfExDAPI

MAX-ACCESS read-write

STATUS current

DESCRIPTION

"The DAPI expected by the receiver.

This object is only applicable to the sink function, i.e., only when optIfOTUkDirectionality has the value sink(1) or bidirectional(3). It must not be instantiated in rows where optIfOTUkDirectionality has the value source(2).

This object has no effect when optIfOTUkTIMDetMode has the value off(1)."

::= { optIfOTUkConfigEntry 4 }

optIfOTUkSAPIExpected OBJECT-TYPE

SYNTAX OptIfExSAPI

MAX-ACCESS read-write

STATUS current

DESCRIPTION

"The SAPI expected by the receiver.

This object is only applicable to the sink function, i.e., only when optIfOTUkDirectionality has the value sink(1) or bidirectional(3). It must not be instantiated in rows where optIfOTUkDirectionality has the value source(2).

This object has no effect when optIfOTUkTIMDetMode has the value off(1)."

::= { optIfOTUkConfigEntry 5 }

optIfOTUkTraceIdentifierAccepted OBJECT-TYPE

SYNTAX OptIfActI

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The actual trace identifier accepted.

This object is only applicable to the sink function, i.e.,

only when optIfOTUkDirectionality has the value sink(1) or bidirectional(3). It must not be instantiated in rows where optIfOTUkDirectionality has the value source(2). The value of this object is unspecified when optIfOTUkCurrentStatus indicates a near-end defect (i.e., ssf(3), lof(4), ais(5), lom(6)) that prevents extraction of the trace message."

::= { optIfOTUkConfigEntry 6 }

optIfOTUkTIMDetMode OBJECT-TYPE

SYNTAX OptIfTIMDetMode

MAX-ACCESS read-write

STATUS current

DESCRIPTION

"Indicates the mode of the Trace Identifier Mismatch (TIM) Detection function.

This object is only applicable to the sink function, i.e., only when optIfOTUkDirectionality has the value sink(1) or bidirectional(3). It must not be instantiated in rows where optIfOTUkDirectionality has the value source(2).

The default value of this object is off(1)."

::= { optIfOTUkConfigEntry 7 }

optIfOTUkTIMActEnabled OBJECT-TYPE

SYNTAX TruthValue

MAX-ACCESS read-write

STATUS current

DESCRIPTION

"Indicates whether the Trace Identifier Mismatch (TIM) Consequent Action function is enabled.

This object is only applicable to the sink function, i.e., only when optIfOTUkDirectionality has the value sink(1) or bidirectional(3). It must not be instantiated in rows where optIfOTUkDirectionality has the value source(2).

This object has no effect when optIfOTUkTIMDetMode has the value off(1).

The default value of this object is false(2)."

::= { optIfOTUkConfigEntry 8 }

optIfOTUkDEGThr OBJECT-TYPE

SYNTAX OptIfDEGThr

UNITS "percentage"

MAX-ACCESS read-write

STATUS current

DESCRIPTION

"Indicates the threshold level for declaring a performance monitoring (PM) Second to be bad. A PM Second is declared bad if the percentage of detected errored blocks in that second is

greater than or equal to optIfOTUkDEGThr.
This object is only applicable to the sink function, i.e., only when optIfOTUkDirectionality has the value sink(1) or bidirectional(3). It must not be instantiated in rows where optIfOTUkDirectionality has the value source(2). The default value of this object is Severely Errored Second (SES) Estimator (See ITU-T G.7710)."

::= { optIfOTUkConfigEntry 9 }

optIfOTUkDEGM OBJECT-TYPE

SYNTAX OptIfDEGM

MAX-ACCESS read-write

STATUS current

DESCRIPTION

"Indicates the threshold level for declaring a Degraded Signal defect (dDEG). A dDEG shall be declared if optIfOTUkDEGM consecutive bad PM Seconds are detected.

This object is only applicable to the sink function, i.e., only when optIfOTUkDirectionality has the value sink(1) or bidirectional(3). It must not be instantiated in rows where optIfOTUkDirectionality has the value source(2).

The default value of this object is 7 (See ITU-T G.7710)."

::= { optIfOTUkConfigEntry 10 }

optIfOTUkSinkAdaptActive OBJECT-TYPE

SYNTAX TruthValue

MAX-ACCESS read-write

STATUS current

DESCRIPTION

"Indicates whether the sink adaptation function is activated or not.

This object is only applicable to the sink function, i.e., only when optIfOTUkDirectionality has the value sink(1) or bidirectional(3). It must not be instantiated in rows where optIfOTUkDirectionality has the value source(2).

The default value of this object is false(2)."

::= { optIfOTUkConfigEntry 11 }

optIfOTUkSourceAdaptActive OBJECT-TYPE

SYNTAX TruthValue

MAX-ACCESS read-write

STATUS current

DESCRIPTION

"Indicates whether the source adaptation function is activated or not.

This object is only applicable to the source function, i.e., only when optIfOTUkDirectionality has the value source(2) or bidirectional(3). It must not be instantiated in rows

where optIfOTUkDirectionality has the value sink(1).

The default value of this object is false(2)."

::= { optIfOTUkConfigEntry 12 }

optIfOTUkSinkFECEnabled OBJECT-TYPE

SYNTAX TruthValue

MAX-ACCESS read-write

STATUS current

DESCRIPTION

"If Forward Error Correction (FEC) is supported, this object indicates whether FEC at the OTUk sink adaptation function is enabled or not.

This object is only applicable to the sink function, i.e., only when optIfOTUkDirectionality has the value sink(1) or bidirectional(3). It must not be instantiated in rows where optIfOTUkDirectionality has the value source(2).

The default value of this object is true(1)."

::= { optIfOTUkConfigEntry 13 }

optIfOTUkCurrentStatus OBJECT-TYPE

SYNTAX BITS {

tim(0),

deg(1),

bdi(2),

ssf(3),

lof(4),

ais(5),

lom(6)

}

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"Indicates the defect condition of the entity, if any.

This object is only applicable to the sink function, i.e., only when optIfOTUkDirectionality has the value sink(1) or bidirectional(3). It must not be instantiated in rows where optIfOTUkDirectionality has the value source(2)."

::= { optIfOTUkConfigEntry 14 }

-- GCC0 config table

optIfGCC0ConfigTable OBJECT-TYPE

SYNTAX SEQUENCE OF OptIfGCC0ConfigEntry

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"A table of GCC0 configuration information."

::= { optIfOTUk 2 }

optIfGCC0ConfigEntry OBJECT-TYPE

SYNTAX OptIfGCC0ConfigEntry

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"A conceptual row that contains GCC0 configuration information of an interface. Each instance must correspond to an instance of optIfOTUkConfigEntry. Separate source and/or sink instances may exist for a given ifIndex value, or a single bidirectional instance may exist, but a bidirectional instance may not coexist with a source or sink instance. Instances of this conceptual row persist across agent restarts."

INDEX { ifIndex, optIfGCC0Directionality }

::= { optIfGCC0ConfigTable 1 }

OptIfGCC0ConfigEntry ::=

SEQUENCE {

optIfGCC0Directionality

optIfGCC0Application

optIfGCC0RowStatus

}

OptIfDirectionality,

SnmpAdminString,

RowStatus

optIfGCC0Directionality OBJECT-TYPE

SYNTAX OptIfDirectionality

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"Indicates the directionality of the entity. The values source(2) and bidirectional(3) are not allowed if the corresponding instance of optIfOTUkDirectionality has the value sink(1). The values sink(1) and bidirectional(3) are not allowed if the corresponding instance of optIfOTUkDirectionality has the value source(2)."

::= { optIfGCC0ConfigEntry 1 }

optIfGCC0Application OBJECT-TYPE

SYNTAX SnmpAdminString

MAX-ACCESS read-create

STATUS current

DESCRIPTION

"Indicates the application transported by the GCC0 entity. Example applications are ECC, User data channel."

The value of this object may not be changed when optIfGCC0RowStatus has the value active(1)."

```
::= { optIfGCC0ConfigEntry 2 }
```

```
optIfGCC0RowStatus OBJECT-TYPE
```

```
SYNTAX RowStatus
```

```
MAX-ACCESS read-create
```

```
STATUS current
```

```
DESCRIPTION
```

"This columnar object is used for creating and deleting a conceptual row of the optIfGCC0 config table. It is used to model the addGCC0Access and removeGCC0Access operations of an OTUk_TTP for GCC0 access control as defined in G.874.1. Setting RowStatus to createAndGo or createAndWait implies addGCC0Access. Setting RowStatus to destroy implies removeGCC0Access."

```
::= { optIfGCC0ConfigEntry 3 }
```

```
-- the optIfODUk group
```

```
-- This group handles the configuration information
```

```
-- for the ODUk layers.
```

```
-- ODUk config table
```

```
optIfODUkConfigTable OBJECT-TYPE
```

```
SYNTAX SEQUENCE OF OptIfODUkConfigEntry
```

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

```
STATUS current
```

```
DESCRIPTION
```

"A table of ODUk configuration information."

```
::= { optIfODUk 1 }
```

```
optIfODUkConfigEntry OBJECT-TYPE
```

```
SYNTAX OptIfODUkConfigEntry
```

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

```
STATUS current
```

```
DESCRIPTION
```

"A conceptual row that contains ODUk configuration information of an interface."

```
INDEX { ifIndex }
```

```
::= { optIfODUkConfigTable 1 }
```

```
OptIfODUkConfigEntry ::=
```

```
SEQUENCE {
```

```
    optIfODUkDirectionality
```

```
    OptIfDirectionality,
```

```
    optIfODUkBitRateK
```

```
    OptIfBitRateK,
```

```
    optIfODUkTcmFieldsInUse
```

```
    BITS,
```

```
    optIfODUkPositionSeqCurrentSize
```

```
    Unsigned32,
```

```
    optIfODUkTtpPresent
```

```
    TruthValue
```

```
}
```


optIfODUkDirectionality OBJECT-TYPE
SYNTAX OptIfDirectionality
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"Indicates the directionality of the entity."
::= { optIfODUkConfigEntry 1 }

optIfODUkBitRateK OBJECT-TYPE
SYNTAX OptIfBitRateK
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"Indicates the bit rate of the entity."
::= { optIfODUkConfigEntry 2 }

optIfODUkTcmFieldsInUse OBJECT-TYPE
SYNTAX BITS {
tcmField1(0),
tcmField2(1),
tcmField3(2),
tcmField4(3),
tcmField5(4),
tcmField6(5)
}
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"Indicates the TCM field(s) that are currently in use.
The positions of the bits correspond to the TCM fields.
A bit that is set to 1 means that the corresponding TCM
field is used. This object will be updated when rows are
created in or deleted from the optIfODUkTConfigTable, or
the optIfODUkTNimConfigTable."
::= { optIfODUkConfigEntry 3 }

optIfODUkPositionSeqCurrentSize OBJECT-TYPE
SYNTAX Unsigned32
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"This variable indicates the current size of the position
sequence (i.e., number of TCM function and/or GCC12
access that have been created in the ODUk interface).
When the value of this variable is greater than zero,
it means that one or more TCM function and/or GCC12
access have been created in the ODUk interface. In this
case, there will be as many rows in the

optIfODUKPositionSeqTable as the value of
 optIfODUKPositionSeqCurrentSize corresponding to this
 ODUK interface, one row for each TCM function or GCC12
 access. The position of the TCM function and/or
 GCC12 access within the sequence is indicated by the
 optIfODUKPositionSeqPosition variable in
 optIfODUKPositionSeqTable.

The optIfODUKPositionSeqTable also provides pointers
 to the corresponding TCM function (optIfODUKT) and
 GCC12 access (optIfGCC12) entities."

```
::= { optIfODUKConfigEntry 4 }
```

optIfODUKTtpPresent OBJECT-TYPE

SYNTAX TruthValue

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"This object has the value true(1) if the ifEntry under which
 it is instantiated contains an ODUK Trail Termination Point,
 i.e., is the endpoint of an ODUK path. In that case there
 will be a corresponding row in the ODUK TTP config table and
 it will not be possible to create corresponding rows in the
 ODUK NIM config table. This object has the value false(2)
 if the ifEntry under which it is instantiated contains an
 intermediate ODUK Connection Termination Point. In that case
 there is no corresponding row in the ODUK TTP config table,
 but it will be possible to create corresponding rows in the
 ODUK NIM config table. This object also affects the allowable
 options in rows created in the GCC12 config table and in the
 ODUKT config table, as specified in the DESCRIPTION clauses
 of the columns in those tables."

```
::= { optIfODUKConfigEntry 5 }
```

-- ODUK Trail Termination Point (TTP) config table

optIfODUKTtpConfigTable OBJECT-TYPE

SYNTAX SEQUENCE OF OptIfODUKTtpConfigEntry

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"A table of ODUK TTP configuration information."

```
::= { optIfODUK 2 }
```

optIfODUKTtpConfigEntry OBJECT-TYPE

SYNTAX OptIfODUKTtpConfigEntry

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"A conceptual row that contains ODUk TTP configuration information of an interface."

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

```
OptIfODUKTtpConfigEntry ::=
SEQUENCE {
    optIfODUKTtpTraceIdentifierTransmitted  OptIfTxTI,
    optIfODUKTtpDAPIExpected                OptIfExDAPI,
    optIfODUKTtpSAPIExpected                OptIfExSAPI,
    optIfODUKTtpTraceIdentifierAccepted      OptIfActI,
    optIfODUKTtpTIMDetMode                  OptIfTIMDetMode,
    optIfODUKTtpTIMActEnabled                TruthValue,
    optIfODUKTtpDEGThr                      OptIfDEGThr,
    optIfODUKTtpDEGM                        OptIfDEGM,
    optIfODUKTtpCurrentStatus                BITS
}
```

optIfODUKTtpTraceIdentifierTransmitted OBJECT-TYPE

```
SYNTAX  OptIfTxTI
MAX-ACCESS  read-write
STATUS  current
DESCRIPTION
```

"The trace identifier transmitted.
This object is applicable when optIfODUKDirectionality has the value source(2) or bidirectional(3). It must not be instantiated in rows where optIfODUKDirectionality has the value sink(1).
If no value is ever set by a management entity for this object, system-specific default value will be used.
Any implementation that instantiates this object must document the system-specific default value or how it is derived."

```
::= { optIfODUKTtpConfigEntry 1 }
```

optIfODUKTtpDAPIExpected OBJECT-TYPE

```
SYNTAX  OptIfExDAPI
MAX-ACCESS  read-write
STATUS  current
DESCRIPTION
```

"The DAPI expected by the receiver.
This object is only applicable to the sink function, i.e., only when optIfODUKDirectionality has the value sink(1) or bidirectional(3). It must not be instantiated in rows where optIfODUKDirectionality has the value source(2).
This object has no effect when optIfODUKTtpTIMDetMode has the value off(1)."

```
::= { optIfODUKTtpConfigEntry 2 }
```

optIfODUKTtpSAPIExpected OBJECT-TYPE

SYNTAX OptIfExSAPI

MAX-ACCESS read-write

STATUS current

DESCRIPTION

"The SAPI expected by the receiver.

This object is only applicable to the sink function, i.e., only when optIfODUKDirectionality has the value sink(1) or bidirectional(3). It must not be instantiated in rows where optIfODUKDirectionality has the value source(2).

This object has no effect when optIfODUKTtpTIMDetMode has the value off(1)."

::= { optIfODUKTtpConfigEntry 3 }

optIfODUKTtpTraceIdentifierAccepted OBJECT-TYPE

SYNTAX OptIfActTI

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The actual trace identifier accepted.

This object is only applicable to the sink function, i.e., only when optIfODUKDirectionality has the value sink(1) or bidirectional(3). It must not be instantiated in rows where optIfODUKDirectionality has the value source(2).

The value of this object is unspecified when optIfODUKTtpCurrentStatus indicates a near-end defect (i.e., oci(0), lck(1), ssf(5)) that prevents extraction of the trace message."

::= { optIfODUKTtpConfigEntry 4 }

optIfODUKTtpTIMDetMode OBJECT-TYPE

SYNTAX OptIfTIMDetMode

MAX-ACCESS read-write

STATUS current

DESCRIPTION

"Indicates the mode of the Trace Identifier Mismatch (TIM) Detection function.

This object is only applicable to the sink function, i.e., only when optIfODUKDirectionality has the value sink(1) or bidirectional(3). It must not be instantiated in rows where optIfODUKDirectionality has the value source(2).

The default value of this object is off(1)."

::= { optIfODUKTtpConfigEntry 5 }

optIfODUKTtpTIMActEnabled OBJECT-TYPE

SYNTAX TruthValue

MAX-ACCESS read-write

STATUS current

DESCRIPTION

"Indicates whether the Trace Identifier Mismatch (TIM) Consequent Action function is enabled.
 This object is only applicable to the sink function, i.e., only when optIfODUKDirectionality has the value sink(1) or bidirectional(3). It must not be instantiated in rows where optIfODUKDirectionality has the value source(2).
 This object has no effect when optIfODUKTtpTIMDetMode has the value off(1).
 The default value of this object is false(2)."

```
::= { optIfODUKTtpConfigEntry 6 }
```

optIfODUKTtpDEGThr OBJECT-TYPE

```
SYNTAX  OptIfDEGThr
UNITS    "percentage"
MAX-ACCESS  read-write
STATUS   current
```

DESCRIPTION

"Indicates the threshold level for declaring a performance monitoring (PM) Second to be bad. A PM Second is declared bad if the percentage of detected errored blocks in that second is greater than or equal to optIfODUKDEGThr.
 This object is only applicable to the sink function, i.e., only when optIfODUKDirectionality has the value sink(1) or bidirectional(3). It must not be instantiated in rows where optIfODUKDirectionality has the value source(2).
 The default value of this object is Severely Errored Second (SES) Estimator (See ITU-T G.7710)."

```
::= { optIfODUKTtpConfigEntry 7 }
```

optIfODUKTtpDEGM OBJECT-TYPE

```
SYNTAX  OptIfDEGM
MAX-ACCESS  read-write
STATUS   current
```

DESCRIPTION

"Indicates the threshold level for declaring a Degraded Signal defect (dDEG). A dDEG shall be declared if optIfODUKDEGM consecutive bad PM Seconds are detected.
 This object is only applicable to the sink function, i.e., only when optIfODUKDirectionality has the value sink(1) or bidirectional(3). It must not be instantiated in rows where optIfODUKDirectionality has the value source(2).
 The default value of this object is 7 (See ITU-T G.7710)."

```
::= { optIfODUKTtpConfigEntry 8 }
```

optIfODUKTtpCurrentStatus OBJECT-TYPE

```
SYNTAX  BITS {
    oci(0),
```

```

    lck(1),
    tim(2),
    deg(3),
    bdi(4),
    ssf(5)
  }
MAX-ACCESS read-only
STATUS current
DESCRIPTION
  "Indicates the defect condition of the entity, if any.
  This object is only applicable to the sink function, i.e.,
  only when optIfODUKDirectionality has the value sink(1)
  or bidirectional(3). It must not be instantiated in rows
  where optIfODUKDirectionality has the value source(2)."
```

::= { optIfODUKTtpConfigEntry 9 }

-- ODUK Position Sequence table

```

optIfODUKPositionSeqTable OBJECT-TYPE
  SYNTAX SEQUENCE OF OptIfODUKPositionSeqEntry
  MAX-ACCESS not-accessible
  STATUS current
  DESCRIPTION
    "A table of ODUK Position Sequence information."
  ::= { optIfODUK 3 }
```

```

optIfODUKPositionSeqEntry OBJECT-TYPE
  SYNTAX OptIfODUKPositionSeqEntry
  MAX-ACCESS not-accessible
  STATUS current
  DESCRIPTION
    "A conceptual row that contains ODUK position sequence
    information of an ODUK interface. The ODUK interface
    is identified by the ifIndex. Associated with each
    ODUK interface there may be one or more conceptual
    rows in the optIfODUKPositionSeqTable. Each row
    represents a TCM or GCC12 access function within the
    associated ODUK interface. Rows of the
    optIfODUKPositionSeqTable table are created/deleted
    as the result of the creation/deletion of the optIfODUKT
    or optIfGCC12 entities."
  INDEX { ifIndex, optIfODUKPositionSeqIndex }
  ::= { optIfODUKPositionSeqTable 1 }
```

```

OptIfODUKPositionSeqEntry ::=
  SEQUENCE {
    optIfODUKPositionSeqIndex      Unsigned32,
    optIfODUKPositionSeqPosition  Unsigned32,
```

```
    optIfODukPositionSeqPointer      RowPointer
  }
```

optIfODukPositionSeqIndex OBJECT-TYPE

SYNTAX Unsigned32 (1..4294967295)

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"This variable identifies a row in the
optIfODukPositionSeqTable Table.

Each row of the optIfODukPositionSeqTable Table
represents a TCM or GCC12 access function within the
associated ODUk interface."

::= { optIfODukPositionSeqEntry 1 }

optIfODukPositionSeqPosition OBJECT-TYPE

SYNTAX Unsigned32

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"This variable indicates the position of the TCM or
GCC12 access function within the sequence of TCMS &
GCC12 access functions of the associated ODUk
interface. The TCM or GCC12 presented by this row is
referenced by the optIfODukPositionSeqPointer variable."

::= { optIfODukPositionSeqEntry 2 }

optIfODukPositionSeqPointer OBJECT-TYPE

SYNTAX RowPointer

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"This variable identifies the TCM or GCC12 access function
by pointing to the corresponding optIfODukT or optIfGCC12
entity."

::= { optIfODukPositionSeqEntry 3 }

-- ODUk Non-intrusive monitoring (Nim) config table

optIfODukNimConfigTable OBJECT-TYPE

SYNTAX SEQUENCE OF OptIfODukNimConfigEntry

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"A table of ODUkNim configuration information."

::= { optIfODUK 4 }

optIfODukNimConfigEntry OBJECT-TYPE

SYNTAX OptIfODUKNimConfigEntry
 MAX-ACCESS not-accessible
 STATUS current
 DESCRIPTION

"A conceptual row that contains ODUKnim configuration information of an interface. Each instance must correspond to an instance of optIfODUKConfigEntry for which optIfODUKTtpPresent has the value false(2).

Instances of this conceptual row persist across agent restarts, and read-create columns other than the status column may be modified while the row is active."

INDEX { ifIndex, optIfODUKNimDirectionality }
 ::= { optIfODUKNimConfigTable 1 }

OptIfODUKNimConfigEntry ::=

```
SEQUENCE {
    optIfODUKNimDirectionality          OptIfSinkOrSource,
    optIfODUKNimDAPIExpected             OptIfExDAPI,
    optIfODUKNimSAPIExpected             OptIfExSAPI,
    optIfODUKNimTraceIdentifierAccepted  OptIfActI,
    optIfODUKNimTIMDetMode               OptIfTIMDetMode,
    optIfODUKNimTIMActEnabled            TruthValue,
    optIfODUKNimDEGThr                   OptIfDEGThr,
    optIfODUKNimDEGM                     OptIfDEGM,
    optIfODUKNimCurrentStatus            BITS,
    optIfODUKNimRowStatus                 RowStatus
}
```

optIfODUKNimDirectionality OBJECT-TYPE

SYNTAX OptIfSinkOrSource
 MAX-ACCESS not-accessible
 STATUS current
 DESCRIPTION

"Specifies the monitor point for the ODUK Path non-intrusive monitoring function. The value source(2) is not allowed if the corresponding instance of optIfODUKDirectionality has the value sink(1), and the value sink(1) is not allowed if the corresponding instance of optIfODUKDirectionality has the value source(2). Either the value sink(1) or source(2) is allowed if the corresponding instance of optIfODUKDirectionality has the value bidirectional(3).

The value sink(1) means monitoring at the sink direction path signal of the ODUK CTP.

The value source(2) means monitoring at the source direction

path signal of the ODUk CTP. Monitoring the source direction of an ODUk CTP is necessary in those cases where the ODUk CTP is at an SNCP (Subnetwork Connection Protection) end (e.g., see Figure I.1.2/G.874.1). If one would like to get the performance of the protected connection, one cannot use the NIM function at both ODUk CTP sinks (before the matrix), instead one should monitor the signal at the source ODUk CTP after the matrix."

```
::= { optIfODUkNimConfigEntry 1 }
```

optIfODUkNimDAPIExpected OBJECT-TYPE

SYNTAX OptIfExDAPI

MAX-ACCESS read-create

STATUS current

DESCRIPTION

"The DAPI expected by the receiver.

This object has no effect if optIfODUkNimTIMDetMode has the value off(1) or sapi(3)."

```
::= { optIfODUkNimConfigEntry 2 }
```

optIfODUkNimSAPIExpected OBJECT-TYPE

SYNTAX OptIfExSAPI

MAX-ACCESS read-create

STATUS current

DESCRIPTION

"The SAPI expected by the receiver.

This object has no effect if optIfODUkNimTIMDetMode has the value off(1) or dapi(2)."

```
::= { optIfODUkNimConfigEntry 3 }
```

optIfODUkNimTraceIdentifierAccepted OBJECT-TYPE

SYNTAX OptIfActI

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The actual trace identifier accepted. The value of this object is unspecified if optIfODUkNimCurrentStatus has any of the bit positions oci(0), lck(1), or ssf(5) set or if optIfODUkNimRowStatus has any value other than active(1)."

```
::= { optIfODUkNimConfigEntry 4 }
```

optIfODUkNimTIMDetMode OBJECT-TYPE

SYNTAX OptIfTIMDetMode

MAX-ACCESS read-create

STATUS current

DESCRIPTION

"Indicates the mode of the Trace Identifier Mismatch (TIM) Detection function."

```
::= { optIfODUKNimConfigEntry 5 }
```

optIfODUKNimTIMActEnabled OBJECT-TYPE

SYNTAX TruthValue

MAX-ACCESS read-create

STATUS current

DESCRIPTION

"Indicates whether the Trace Identifier Mismatch (TIM)
Consequent Action function is enabled."

```
::= { optIfODUKNimConfigEntry 6 }
```

optIfODUKNimDEGThr OBJECT-TYPE

SYNTAX OptIfDEGThr

UNITS "percentage"

MAX-ACCESS read-create

STATUS current

DESCRIPTION

"Indicates the threshold level for declaring a performance
monitoring (PM) Second to be bad. A PM Second is declared bad
if the percentage of detected errored blocks in that second is
greater than or equal to optIfODUKNimDEGThr."

```
::= { optIfODUKNimConfigEntry 7 }
```

optIfODUKNimDEGM OBJECT-TYPE

SYNTAX OptIfDEGM

MAX-ACCESS read-create

STATUS current

DESCRIPTION

"Indicates the threshold level for declaring a Degraded Signal
defect (dDEG). A dDEG shall be declared if optIfODUKNimDEGM
consecutive bad PM Seconds are detected."

```
::= { optIfODUKNimConfigEntry 8 }
```

optIfODUKNimCurrentStatus OBJECT-TYPE

SYNTAX BITS {

oci(0),

lck(1),

tim(2),

deg(3),

bdi(4),

ssf(5)

}

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"Indicates the defect condition of the entity, if
any. The value of this object is unspecified if
optIfODUKNimRowStatus has any value other than

```

        active(1)."
```

::= { optIfODUKNimConfigEntry 9 }

optIfODUKNimRowStatus OBJECT-TYPE

SYNTAX RowStatus

MAX-ACCESS read-create

STATUS current

DESCRIPTION

"This columnar object is used for creating and deleting a conceptual row of the optIfODUKNim config table. It is used to model the activateNim and deactivateNim operations of an OTUk_CTP for non-intrusive monitoring control as defined in G.874.1. Setting RowStatus to createAndGo or createAndWait implies activateNim. Setting RowStatus to destroy implies deactivateNim."

::= { optIfODUKNimConfigEntry 10 }

-- GCC12 config table

optIfGCC12ConfigTable OBJECT-TYPE

SYNTAX SEQUENCE OF OptIfGCC12ConfigEntry

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"A table of GCC12 configuration information. The GCC function processes the GCC overhead bytes passing through them but leave the remainder of the ODUk overhead and payload data alone."

::= { optIfODUK 5 }

optIfGCC12ConfigEntry OBJECT-TYPE

SYNTAX OptIfGCC12ConfigEntry

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"A conceptual row that contains GCC12 configuration information of an interface. Each instance must correspond to an instance of optIfODUKConfigEntry. Separate instances providing GCC1-only access and GCC2-only access may exist for a given ifIndex value, or a single instance providing GCC1 + GCC2 may exist, but a GCC1 + GCC2 instance may not coexist with a GCC1-only or GCC2-only instance.

Instances of this conceptual row persist across agent restarts."

INDEX { ifIndex, optIfGCC12Codirectional, optIfGCC12GCCAccess }

::= { optIfGCC12ConfigTable 1 }

OptIfGCC12ConfigEntry ::=

```
SEQUENCE {
    optIfGCC12Codirectional      TruthValue,
    optIfGCC12GCCAccess         INTEGER,
    optIfGCC12GCCPassThrough    TruthValue,
    optIfGCC12Application       SnmpAdminString,
    optIfGCC12RowStatus         RowStatus
}
```

optIfGCC12Codirectional OBJECT-TYPE

SYNTAX TruthValue

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"Indicates the directionality of the GCC12 termination with respect to the associated ODUk CTP. The value true(1) means that the sink part of the GCC12 extracts COMMS data from the signal at the input to the ODUk CTP sink and the source part of the GCC12 inserts COMMS data into the signal at the output of the ODUk CTP source. The value false(2) means that the sink part of the GCC12 extracts COMMS data from the signal at the output of the ODUk CTP source and the source part of the GCC12 inserts COMMS data into the signal at the input of the ODUk CTP sink. This attribute may assume either value when the corresponding instance of optIfODUkTtpPresent has the value false(2). When the value of the corresponding instance of optIfODUkTtpPresent is true(1) then the only value allowed for this attribute is true(1)."

::= { optIfGCC12ConfigEntry 1 }

optIfGCC12GCCAccess OBJECT-TYPE

SYNTAX INTEGER {

gcc1 (1),

gcc2 (2),

gccland2 (3)

}

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"Indicates the GCC access represented by the entity."

::= { optIfGCC12ConfigEntry 2 }

optIfGCC12GCCPassThrough OBJECT-TYPE

SYNTAX TruthValue

MAX-ACCESS read-create

STATUS current

DESCRIPTION

"Controls whether the selected GCC overhead bytes are passed

through or modified. The value true(1) means that the selected GCC overhead bytes are passed through unmodified from the ODUk CTP input to the ODUk CTP output. The value false(2) means that the selected GCC overhead bytes are set to zero at the ODUk CTP output after the extraction of the COMMS data. This object has no effect if the corresponding instance of optIfODUkTtpPresent has the value true(1).

The value of this object may not be changed when optIfGCC12RowStatus has the value active(1)."

```
::= { optIfGCC12ConfigEntry 3 }
```

optIfGCC12Application OBJECT-TYPE

SYNTAX SnmpAdminString

MAX-ACCESS read-create

STATUS current

DESCRIPTION

"Indicates the application transported by the GCC12 entity. Example applications are ECC, User data channel.

The value of this object may not be changed when optIfGCC12RowStatus has the value active(1)."

```
::= { optIfGCC12ConfigEntry 4 }
```

optIfGCC12RowStatus OBJECT-TYPE

SYNTAX RowStatus

MAX-ACCESS read-create

STATUS current

DESCRIPTION

"This columnar object is used for creating and deleting a conceptual row of the optIfGCC12 config table. It is used to model the addGCC12Access and removeGCC12Access operations of an ODUk_CTP or ODUk_TTP for GCC12 access control as defined in G.874.1. Setting RowStatus to createAndGo or createAndWait implies addGCC12Access. Setting RowStatus to destroy implies removeGCC12Access. Successful addition/removal of the GCC12 access function will result in updating the optIfODUkPositionSeqCurrentSize variable and the optIfODUkPositionSeqTable table of the associated ODUk entry in the optIfODUkConfigTable."

```
::= { optIfGCC12ConfigEntry 5 }
```

```
-- the optIfODUkT group
```

```
-- This group handles the configuration information
```

```
-- for the ODUkT layers.
```

```
-- ODUkT config table
```

optIfODUKTConfigTable OBJECT-TYPE

SYNTAX SEQUENCE OF OptIfODUKTConfigEntry

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"A table of ODUkT configuration information."

::= { optIfODUKT 1 }

optIfODUKTConfigEntry OBJECT-TYPE

SYNTAX OptIfODUKTConfigEntry

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"A conceptual row that contains ODUkT configuration information of an interface. Each instance must correspond to an instance of optIfODUKConfigEntry. Rows in this table are mutually exclusive with rows in the ODUkT NIM config table -- in other words, this row object may not be instantiated for a given pair of ifIndex and TCM field values if a corresponding instance of optIfODUKTNimConfigEntry already exists.

Instances of this conceptual row persist across agent restarts. Except where noted otherwise, read-create columns other than the status column may be modified while the row is active."

INDEX { ifIndex, optIfODUKTTcmField, optIfODUKTCodirectional }

::= { optIfODUKTConfigTable 1 }

OptIfODUKTConfigEntry ::=

SEQUENCE {

| | |
|--------------------------------------|------------------|
| optIfODUKTTcmField | Unsigned32, |
| optIfODUKTCodirectional | TruthValue, |
| optIfODUKTTraceIdentifierTransmitted | OptIfTxTI, |
| optIfODUKTDAPIExpected | OptIfExDAPI, |
| optIfODUKTSAPIExpected | OptIfExSAPI, |
| optIfODUKTTraceIdentifierAccepted | OptIfAcTI, |
| optIfODUKTTIMDetMode | OptIfTIMDetMode, |
| optIfODUKTTIMActEnabled | TruthValue, |
| optIfODUKTDEGThr | OptIfDEGThr, |
| optIfODUKTDEGM | OptIfDEGM, |
| optIfODUKTSinkMode | INTEGER, |
| optIfODUKTSinkLockSignalAdminState | INTEGER, |
| optIfODUKTSourceLockSignalAdminState | INTEGER, |
| optIfODUKTCurrentStatus | BITS, |
| optIfODUKTRowStatus | RowStatus |

}

optIfODUkTTcmField OBJECT-TYPE

SYNTAX Unsigned32 (1..6)
MAX-ACCESS not-accessible
STATUS current
DESCRIPTION

"Indicates the tandem connection monitoring field of the ODUk OH. Valid values are integers from 1 to 6."

::= { optIfODUkTConfigEntry 1 }

optIfODUkTCodirectional OBJECT-TYPE

SYNTAX TruthValue
MAX-ACCESS not-accessible
STATUS current
DESCRIPTION

"Indicates the directionality of the ODUkT termination point with respect to the associated ODUk CTP. The value true(1) means that the sink part of the ODUkT TP extracts TCM data from the signal at the input to the ODUk CTP sink and the source part of the ODUkT TP inserts TCM data into the signal at the output of the ODUk CTP source. The value false(2) means that the sink part of the ODUkT TP extracts TCM data from the signal at the output of the ODUk CTP source and the source part of the ODUkT TP inserts TCM data into the signal at the input of the ODUk CTP sink. This attribute may assume either value when the corresponding instance of optIfODUkTtpPresent has the value false(2). When the value of the corresponding instance of optIfODUkTtpPresent is true(1) then the only value allowed for this attribute is true(1)."

::= { optIfODUkTConfigEntry 2 }

optIfODUkTTraceIdentifierTransmitted OBJECT-TYPE

SYNTAX OptIfTxTI
MAX-ACCESS read-create
STATUS current
DESCRIPTION

"The trace identifier transmitted.

This object is applicable only to the following three cases.

- (i) optIfODUkDirectionality has the value bidirectional(3), or
- (ii) optIfODUkDirectionality has the value sink(1) and optIfODUkTCodirectional has the value false(2), or
- (iii) optIfODUkDirectionality has the value source(3) and optIfODUkTCodirectional has the value true(1).

It must not be instantiated in rows for all other cases."

::= { optIfODUkTConfigEntry 3 }

optIfODUkTDAPIExpected OBJECT-TYPE

SYNTAX OptIfExDAPI

MAX-ACCESS read-create
 STATUS current
 DESCRIPTION

"The DAPI expected by the receiver.

This object is applicable only to the following three cases.

- (i) optIfODUkDirectionality has the value bidirectional(3), or
- (ii) optIfODUkDirectionality has the value sink(1) and
 optIfODUkTCodirectionality has the value true(1), or
- (iii) optIfODUkDirectionality has the value source(3) and
 optIfODUkTCodirectionality has the value false(2).

It must not be instantiated in rows for all other cases.

This object has no effect when optIfODUkTTIMDetMode has
 the value off(1)."

::= { optIfODUkTConfigEntry 4 }

optIfODUkTSAPIExpected OBJECT-TYPE

SYNTAX OptIfExSAPI
 MAX-ACCESS read-create
 STATUS current
 DESCRIPTION

"The SAPI expected by the receiver.

This object is applicable only to the following three cases.

- (i) optIfODUkDirectionality has the value bidirectional(3), or
- (ii) optIfODUkDirectionality has the value sink(1) and
 optIfODUkTCodirectionality has the value true(1), or
- (iii) optIfODUkDirectionality has the value source(3) and
 optIfODUkTCodirectionality has the value false(2).

It must not be instantiated in rows for all other cases.

This object has no effect when optIfODUkTTIMDetMode has
 the value off(1)."

::= { optIfODUkTConfigEntry 5 }

optIfODUkTTraceIdentifierAccepted OBJECT-TYPE

SYNTAX OptIfActI
 MAX-ACCESS read-only
 STATUS current
 DESCRIPTION

"The actual trace identifier accepted.

This object is applicable only to the following three cases.

- (i) optIfODUkDirectionality has the value bidirectional(3), or
- (ii) optIfODUkDirectionality has the value sink(1) and
 optIfODUkTCodirectionality has the value true(1), or
- (iii) optIfODUkDirectionality has the value source(3) and
 optIfODUkTCodirectionality has the value false(2).

It must not be instantiated in rows for all other cases.

The value of this object is unspecified when
 optIfODUkTCurrentStatus indicates a near-end defect
 (i.e., oci(0), lck(1), ssf(5)) that prevents extraction

of the trace message."
 ::= { optIfODUKTConfigEntry 6 }

optIfODUKTTIMDetMode OBJECT-TYPE

SYNTAX OptIfTIMDetMode

MAX-ACCESS read-create

STATUS current

DESCRIPTION

"Indicates the mode of the Trace Identifier Mismatch (TIM) Detection function.

This object is applicable only to the following three cases.

(i) optIfODUKDirectionality has the value bidirectional(3), or

(ii) optIfODUKDirectionality has the value sink(1) and

optIfODUKTCodirectionality has the value true(1), or

(iii) optIfODUKDirectionality has the value source(3) and

optIfODUKTCodirectionality has the value false(2).

It must not be instantiated in rows for all other cases.

The default value of this object is off(1)."

::= { optIfODUKTConfigEntry 7 }

optIfODUKTTIMActEnabled OBJECT-TYPE

SYNTAX TruthValue

MAX-ACCESS read-create

STATUS current

DESCRIPTION

"Indicates whether the Trace Identifier Mismatch (TIM) Consequent Action function is enabled.

This object is applicable only to the following three cases.

(i) optIfODUKDirectionality has the value bidirectional(3), or

(ii) optIfODUKDirectionality has the value sink(1) and

optIfODUKTCodirectionality has the value true(1), or

(iii) optIfODUKDirectionality has the value source(3) and

optIfODUKTCodirectionality has the value false(2).

It must not be instantiated in rows for all other cases.

This object has no effect when optIfODUKTTIMDetMode has the value off(1).

The default value of this object is false(2)."

::= { optIfODUKTConfigEntry 8 }

optIfODUKTDEGThr OBJECT-TYPE

SYNTAX OptIfDEGThr

UNITS "percentage"

MAX-ACCESS read-create

STATUS current

DESCRIPTION

"Indicates the threshold level for declaring a performance monitoring (PM) Second to be bad. A PM Second is declared bad if the percentage of detected errored blocks in that second is

greater than or equal to optIfODUKTDEGThr.

This object is applicable only to the following three cases.

- (i) optIfODUKDirectionality has the value bidirectional(3), or
- (ii) optIfODUKDirectionality has the value sink(1) and
optIfODUKTCodirectional has the value true(1), or
- (iii) optIfODUKDirectionality has the value source(3) and
optIfODUKTCodirectional has the value false(2).

It must not be instantiated in rows for all other cases.

The default value of this object is Severely Errored Second (SES) Estimator (See ITU-T G.7710)."

::= { optIfODUKTConfigEntry 9 }

optIfODUKTDEGM OBJECT-TYPE

SYNTAX OptIfDEGM

MAX-ACCESS read-create

STATUS current

DESCRIPTION

"Indicates the threshold level for declaring a Degraded Signal defect (dDEG). A dDEG shall be declared if optIfODUKTDEGM consecutive bad PM Seconds are detected.

This object is applicable only to the following three cases.

- (i) optIfODUKDirectionality has the value bidirectional(3), or
- (ii) optIfODUKDirectionality has the value sink(1) and
optIfODUKTCodirectional has the value true(1), or
- (iii) optIfODUKDirectionality has the value source(3) and
optIfODUKTCodirectional has the value false(2).

It must not be instantiated in rows for all other cases.

The default value of this object is 7 (See ITU-T G.7710)."

::= { optIfODUKTConfigEntry 10 }

optIfODUKTSinkMode OBJECT-TYPE

SYNTAX INTEGER {

operational (1),

monitor (2)

}

MAX-ACCESS read-create

STATUS current

DESCRIPTION

"This variable specifies the TCM mode at the entity.

The value operational(1) means that TCM Overhead (TCMOH) processes (see ITU-T G.798) shall be performed and consequent actions for AIS, Trail Signal Fail (TSF), Trail Signal Degraded (TSD) shall be initiated in case of defects.

The value monitor(2) means that TCMOH processes shall be performed but consequent actions for AIS, Trail Server Failure (TSF), Trail Server Degraded (TSD) shall not be initiated in case of defects.

This object is applicable only when the value of optIfODUKTtpPresent is false(2) and also either one of the following three cases holds:

- (i) optIfODUKDirectionality has the value bidirectional(3), or
- (ii) optIfODUKDirectionality has the value sink(1) and optIfODUKTCodirectional has the value true(1), or
- (iii) optIfODUKDirectionality has the value source(3) and optIfODUKTCodirectional has the value false(2).

It must not be instantiated in rows for all other cases."

::= { optIfODUKTConfigEntry 11 }

optIfODUKTSinkLockSignalAdminState OBJECT-TYPE

```
SYNTAX  INTEGER {
    locked(1),
    normal(2)
}
```

MAX-ACCESS read-create

STATUS current

DESCRIPTION

"Provides the capability to provision the LOCK signal, which is one of the ODUK maintenance signals, at the ODUKT sink. When a Tandem Connection endpoint is set to admin state locked, it inserts the ODUK-LCK signal in the sink direction.

This object is applicable only when the value of optIfODUKTtpPresent is false(2) and also either one of the following three cases holds:

- (i) optIfODUKDirectionality has the value bidirectional(3), or
- (ii) optIfODUKDirectionality has the value sink(1) and optIfODUKTCodirectional has the value true(1), or
- (iii) optIfODUKDirectionality has the value source(3) and optIfODUKTCodirectional has the value false(2).

It must not be instantiated in rows for all other cases."

::= { optIfODUKTConfigEntry 12 }

optIfODUKTSourceLockSignalAdminState OBJECT-TYPE

```
SYNTAX  INTEGER {
    locked(1),
    normal(2)
}
```

MAX-ACCESS read-create

STATUS current

DESCRIPTION

"Provides the capability to provision the LOCK signal, which is one of the ODUK maintenance signals, at the source. When a Tandem Connection endpoint is set to admin state locked, it inserts the ODUK-LCK signal in the source direction.

This object is applicable only when either one of the following three cases holds:

- (i) optIfODUkDirectionality has the value bidirectional(3), or
- (ii) optIfODUkDirectionality has the value sink(1) and optIfODUkTCodirectionality has the value false(2), or
- (iii) optIfODUkDirectionality has the value source(3) and optIfODUkTCodirectionality has the value true(1).

It must not be instantiated in rows for all other cases."

::= { optIfODUkTConfigEntry 13 }

optIfODUkTCurrentStatus OBJECT-TYPE

SYNTAX BITS {

oci(0),
lck(1),
tim(2),
deg(3),
bdi(4),
ssf(5)
}

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"Indicates the defect condition of the entity, if any.

This object is applicable only when either one of the following three cases holds:

- (i) optIfODUkDirectionality has the value bidirectional(3), or
- (ii) optIfODUkDirectionality has the value sink(1) and optIfODUkTCodirectionality has the value true(1), or
- (iii) optIfODUkDirectionality has the value source(3) and optIfODUkTCodirectionality has the value false(2).

It must not be instantiated in rows for all other cases."

::= { optIfODUkTConfigEntry 14 }

optIfODUkTRowStatus OBJECT-TYPE

SYNTAX RowStatus

MAX-ACCESS read-create

STATUS current

DESCRIPTION

"This columnar object is used for creating and deleting a conceptual row of the optIfODUkT config table.

It is used to model the addTCM and removeTCM operations of an ODUk_CTP or ODUk_TTP for Tandem connection monitoring as defined in ITU-T G.874.1.

Setting RowStatus to createAndGo or createAndWait implies addTCM.

Setting RowStatus to destroy implies removeTCM.

Successful addition/removal of TCM will result in updating the optIfODUkTcmFieldsInUse and optIfODUkPositionSeqCurrentSize variables and the optIfODUkPositionSeqTable table of the

```

    associated ODUk entry in the optIfODUkConfigTable."
 ::= { optIfODUkTConfigEntry 15 }

-- ODUkT Non-intrusive monitoring (Nim) config table

optIfODUkTNimConfigTable OBJECT-TYPE
    SYNTAX SEQUENCE OF OptIfODUkTNimConfigEntry
    MAX-ACCESS not-accessible
    STATUS current
    DESCRIPTION
        "A table of ODUkTNim configuration information."
    ::= { optIfODUkT 2 }

optIfODUkTNimConfigEntry OBJECT-TYPE
    SYNTAX OptIfODUkTNimConfigEntry
    MAX-ACCESS not-accessible
    STATUS current
    DESCRIPTION
        "A conceptual row that contains ODUkTNim configuration
        information of an interface. Each instance must
        correspond to an instance of optIfODUkConfigEntry.
        Rows in this table are mutually exclusive with rows
        in the ODUkT config table -- in other words, this
        row object may not be instantiated for a given pair
        of ifIndex and TCM field values if a corresponding
        instance of optIfODUkTConfigEntry already exists.

        Instances of this conceptual row persist across
        agent restarts, and read-create columns other
        than the status column may be modified while the
        row is active."
    INDEX {ifIndex, optIfODUkTNimTcmField, optIfODUkTNimDirectionality}
    ::= { optIfODUkTNimConfigTable 1 }

OptIfODUkTNimConfigEntry ::=
    SEQUENCE {
        optIfODUkTNimTcmField                Unsigned32,
        optIfODUkTNimDirectionality          OptIfSinkOrSource,
        optIfODUkTNimDAPIExpected            OptIfExDAPI,
        optIfODUkTNimSAPIExpected            OptIfExSAPI,
        optIfODUkTNimTraceIdentifierAccepted OptIfAcTI,
        optIfODUkTNimTIMDetMode              OptIfTIMDetMode,
        optIfODUkTNimTIMActEnabled            TruthValue,
        optIfODUkTNimDEGThr                  OptIfDEGThr,
        optIfODUkTNimDEGM                    OptIfDEGM,
        optIfODUkTNimCurrentStatus            BITS,
        optIfODUkTNimRowStatus                RowStatus
    }

```

optIfODUKTNimTcmField OBJECT-TYPE

SYNTAX Unsigned32 (1..6)
MAX-ACCESS not-accessible
STATUS current
DESCRIPTION

"Indicates the tandem connection monitoring field of the ODUK OH on which non-intrusive monitoring is performed. Valid values are integers from 1 to 6."

::= { optIfODUKTNimConfigEntry 1 }

optIfODUKTNimDirectionality OBJECT-TYPE

SYNTAX OptIfSinkOrSource
MAX-ACCESS not-accessible
STATUS current
DESCRIPTION

"Specifies the monitor point for the ODUK TCM non-intrusive monitoring function. The value source(2) is not allowed if the corresponding instance of optIfODUKDirectionality has the value sink(1), and the value sink(1) is not allowed if the corresponding instance of optIfODUKDirectionality has the value source(2). Either the value sink(1) or source(2) is allowed if the corresponding instance of optIfODUKDirectionality has the value bidirectional(3). The value sink(1) means monitoring at the sink direction TCM signal of the ODUK CTP. The value source(2) means monitoring at the source direction path signal of the ODUK CTP."

::= { optIfODUKTNimConfigEntry 2 }

optIfODUKTNimDAPIExpected OBJECT-TYPE

SYNTAX OptIfExDAPI
MAX-ACCESS read-create
STATUS current
DESCRIPTION

"The DAPI expected by the receiver.
This object has no effect if optIfODUKTNimTIMDetMode has the value off(1) or sapi(3)."

::= { optIfODUKTNimConfigEntry 3 }

optIfODUKTNimSAPIExpected OBJECT-TYPE

SYNTAX OptIfExSAPI
MAX-ACCESS read-create
STATUS current
DESCRIPTION

"The SAPI expected by the receiver.
This object has no effect if optIfODUKTNimTIMDetMode has the value off(1) or dapi(2)."

```
::= { optIfODUKTNimConfigEntry 4 }
```

optIfODUKTNimTraceIdentifierAccepted OBJECT-TYPE

SYNTAX OptIfActTI

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The actual trace identifier accepted. The value of this object is unspecified if optIfODUKTNimCurrentStatus has any of the bit positions oci(0), lck(1), or ssf(5) set or if optIfODUKTNimRowStatus has any value other than active(1)."

```
::= { optIfODUKTNimConfigEntry 5 }
```

optIfODUKTNimTIMDetMode OBJECT-TYPE

SYNTAX OptIfTIMDetMode

MAX-ACCESS read-create

STATUS current

DESCRIPTION

"Indicates the mode of the Trace Identifier Mismatch (TIM) Detection function."

```
::= { optIfODUKTNimConfigEntry 6 }
```

optIfODUKTNimTIMActEnabled OBJECT-TYPE

SYNTAX TruthValue

MAX-ACCESS read-create

STATUS current

DESCRIPTION

"Indicates whether the Trace Identifier Mismatch (TIM) Consequent Action function is enabled."

```
::= { optIfODUKTNimConfigEntry 7 }
```

optIfODUKTNimDEGThr OBJECT-TYPE

SYNTAX OptIfDEGThr

UNITS "percentage"

MAX-ACCESS read-create

STATUS current

DESCRIPTION

"Indicates the threshold level for declaring a performance monitoring (PM) Second to be bad. A PM Second is declared bad if the percentage of detected errored blocks in that second is greater than or equal to optIfODUKTNimDEGThr."

```
::= { optIfODUKTNimConfigEntry 8 }
```

optIfODUKTNimDEGM OBJECT-TYPE

SYNTAX OptIfDEGM

MAX-ACCESS read-create

STATUS current

DESCRIPTION

"Indicates the threshold level for declaring a Degraded Signal defect (dDEG). A dDEG shall be declared if optIfODUkTNimDEGM consecutive bad PM Seconds are detected."

::= { optIfODUkTNimConfigEntry 9 }

optIfODUkTNimCurrentStatus OBJECT-TYPE

SYNTAX BITS {

oci(0),
lck(1),
tim(2),
deg(3),
bdi(4),
ssf(5)
}

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"Indicates the defect condition of the entity, if any.
The value of this object is unspecified if
optIfODUkTNimRowStatus has any value other than
active(1)."

::= { optIfODUkTNimConfigEntry 10 }

optIfODUkTNimRowStatus OBJECT-TYPE

SYNTAX RowStatus

MAX-ACCESS read-create

STATUS current

DESCRIPTION

"This columnar object is used for creating and deleting a conceptual row of the optIfODUkTNim config table.
It is used to model the addTCM and removeTCM operations of an ODUk_CTP or ODUk_TTP for non-intrusive Tandem connection monitoring as defined in ITU-T G.874.1.
Setting RowStatus to createAndGo or createAndWait implies addTCM.
Setting RowStatus to destroy implies removeTCM.
Successful addition/removal of Nim TCM will result in updating the optIfODUkPositionSeqCurrentSize variable and the optIfODUkPositionSeqTable table of the associated ODUk entry in the optIfODUkConfigTable."

::= { optIfODUkTNimConfigEntry 11 }

-- units of conformance

optIfOTMnGroup OBJECT-GROUP

OBJECTS {

optIfOTMnOrder,
optIfOTMnReduced,


```
    optIfOTMnBitRates,
    optIfOTMnInterfaceType,
    optIfOTMnTcmMax,
    optIfOTMnOpticalReach
  }
STATUS    current
DESCRIPTION
  "A collection of OTMn structure information objects."
 ::= { optIfGroups 1 }

optIfPerfMonGroup OBJECT-GROUP
OBJECTS {
    optIfPerfMonCurrentTimeElapsed,
    optIfPerfMonCurDayTimeElapsed,
    optIfPerfMonIntervalNumIntervals,
    optIfPerfMonIntervalNumInvalidIntervals
}
STATUS    current
DESCRIPTION
  "A collection of performance monitoring interval objects."
 ::= { optIfGroups 2 }

optIfOTSnCommonGroup OBJECT-GROUP
OBJECTS {
    optIfOTSnDirectionality
}
STATUS    current
DESCRIPTION
  "A collection of configuration objects
   applicable to all OTSn interfaces."
 ::= { optIfGroups 3 }

optIfOTSnSourceGroupFull OBJECT-GROUP
OBJECTS {
    optIfOTSnTraceIdentifierTransmitted
}
STATUS    current
DESCRIPTION
  "A collection of configuration objects
   applicable to full-functionality/IaDI OTSn
   interfaces that support source functions."
 ::= { optIfGroups 4 }

optIfOTSnAPRStatusGroup OBJECT-GROUP
OBJECTS {
    optIfOTSnAprStatus
}
STATUS    current
```

DESCRIPTION

"A collection of objects applicable to OTSn interfaces that support Automatic Power Reduction functions."

::= { optIfGroups 5 }

optIfOTSnAPRControlGroup OBJECT-GROUP

OBJECTS {
 optIfOTSnAprControl
}

STATUS current

DESCRIPTION

"A collection of objects applicable to OTSn interfaces that provide Automatic Power Reduction control functions."

::= { optIfGroups 6 }

optIfOTSnSinkGroupBasic OBJECT-GROUP

OBJECTS {
 optIfOTSnCurrentStatus
}

STATUS current

DESCRIPTION

"A collection of configuration objects applicable to all OTSn interfaces that support sink functions."

::= { optIfGroups 7 }

optIfOTSnSinkGroupFull OBJECT-GROUP

OBJECTS {
 optIfOTSnDAPIExpected,
 optIfOTSnSAPIExpected,
 optIfOTSnTraceIdentifierAccepted,
 optIfOTSnTIMDetMode,
 optIfOTSnTIMActEnabled
}

STATUS current

DESCRIPTION

"A collection of configuration objects applicable to full-functionality/IaDI OTSn interfaces that support sink functions."

::= { optIfGroups 8 }

optIfOTSnSinkPreOtnPMGroup OBJECT-GROUP

OBJECTS {
 optIfOTSnSinkCurrentSuspectedFlag,
 optIfOTSnSinkCurrentInputPower,
 optIfOTSnSinkCurrentLowInputPower,

```

optIfOTSnSinkCurrentHighInputPower,
optIfOTSnSinkCurrentOutputPower,
optIfOTSnSinkCurrentLowOutputPower,
optIfOTSnSinkCurrentHighOutputPower,
optIfOTSnSinkIntervalSuspectedFlag,
optIfOTSnSinkIntervalLastInputPower,
optIfOTSnSinkIntervalLowInputPower,
optIfOTSnSinkIntervalHighInputPower,
optIfOTSnSinkIntervalLastOutputPower,
optIfOTSnSinkIntervalLowOutputPower,
optIfOTSnSinkIntervalHighOutputPower,
optIfOTSnSinkCurDaySuspectedFlag,
optIfOTSnSinkCurDayLowInputPower,
optIfOTSnSinkCurDayHighInputPower,
optIfOTSnSinkCurDayLowOutputPower,
optIfOTSnSinkCurDayHighOutputPower,
optIfOTSnSinkPrevDaySuspectedFlag,
optIfOTSnSinkPrevDayLastInputPower,
optIfOTSnSinkPrevDayLowInputPower,
optIfOTSnSinkPrevDayHighInputPower,
optIfOTSnSinkPrevDayLastOutputPower,
optIfOTSnSinkPrevDayLowOutputPower,
optIfOTSnSinkPrevDayHighOutputPower
}

```

STATUS current

DESCRIPTION

"A collection of pre-OTN performance monitoring objects applicable to OTSn interfaces that support sink functions."

::= { optIfGroups 9 }

optIfOTSnSinkPreOtnPMThresholdGroup OBJECT-GROUP

```

OBJECTS {
    optIfOTSnSinkCurrentLowerInputPowerThreshold,
    optIfOTSnSinkCurrentUpperInputPowerThreshold,
    optIfOTSnSinkCurrentLowerOutputPowerThreshold,
    optIfOTSnSinkCurrentUpperOutputPowerThreshold
}

```

STATUS current

DESCRIPTION

"A collection of pre-OTN performance monitoring threshold objects applicable to OTSn interfaces that support sink functions."

::= { optIfGroups 10 }

optIfOTSnSourcePreOtnPMGroup OBJECT-GROUP

```

OBJECTS {
    optIfOTSnSrcCurrentSuspectedFlag,

```

```

optIfOTSnSrcCurrentOutputPower,
optIfOTSnSrcCurrentLowOutputPower,
optIfOTSnSrcCurrentHighOutputPower,
optIfOTSnSrcCurrentInputPower,
optIfOTSnSrcCurrentLowInputPower,
optIfOTSnSrcCurrentHighInputPower,
optIfOTSnSrcIntervalSuspectedFlag,
optIfOTSnSrcIntervalLastOutputPower,
optIfOTSnSrcIntervalLowOutputPower,
optIfOTSnSrcIntervalHighOutputPower,
optIfOTSnSrcIntervalLastInputPower,
optIfOTSnSrcIntervalLowInputPower,
optIfOTSnSrcIntervalHighInputPower,
optIfOTSnSrcCurDaySuspectedFlag,
optIfOTSnSrcCurDayLowOutputPower,
optIfOTSnSrcCurDayHighOutputPower,
optIfOTSnSrcCurDayLowInputPower,
optIfOTSnSrcCurDayHighInputPower,
optIfOTSnSrcPrevDaySuspectedFlag,
optIfOTSnSrcPrevDayLastOutputPower,
optIfOTSnSrcPrevDayLowOutputPower,
optIfOTSnSrcPrevDayHighOutputPower,
optIfOTSnSrcPrevDayLastInputPower,
optIfOTSnSrcPrevDayLowInputPower,
optIfOTSnSrcPrevDayHighInputPower
}

```

STATUS current

DESCRIPTION

"A collection of pre-OTN performance monitoring objects applicable to OTSn interfaces that support source functions."

::= { optIfGroups 11 }

optIfOTSnSourcePreOtnPMTresholdGroup OBJECT-GROUP

```

OBJECTS {
    optIfOTSnSrcCurrentLowerOutputPowerThreshold,
    optIfOTSnSrcCurrentUpperOutputPowerThreshold,
    optIfOTSnSrcCurrentLowerInputPowerThreshold,
    optIfOTSnSrcCurrentUpperInputPowerThreshold
}

```

STATUS current

DESCRIPTION

"A collection of pre-OTN performance monitoring threshold objects applicable to OTSn interfaces that support source functions."

::= { optIfGroups 12 }

optIfOMSnCommonGroup OBJECT-GROUP

```
OBJECTS {
    optIfOMSnDirectionality
}
STATUS current
DESCRIPTION
    "A collection of configuration objects
    applicable to all OMSn interfaces."
::= { optIfGroups 13 }

optIfOMSnSinkGroupBasic OBJECT-GROUP
OBJECTS {
    optIfOMSnCurrentStatus
}
STATUS current
DESCRIPTION
    "A collection of configuration objects
    applicable to all OMSn interfaces that
    support sink functions."
::= { optIfGroups 14 }

optIfOMSnSinkPreOtnPMGroup OBJECT-GROUP
OBJECTS {
    optIfOMSnSinkCurrentSuspectedFlag,
    optIfOMSnSinkCurrentAggregatedInputPower,
    optIfOMSnSinkCurrentLowAggregatedInputPower,
    optIfOMSnSinkCurrentHighAggregatedInputPower,
    optIfOMSnSinkCurrentOutputPower,
    optIfOMSnSinkCurrentLowOutputPower,
    optIfOMSnSinkCurrentHighOutputPower,
    optIfOMSnSinkIntervalSuspectedFlag,
    optIfOMSnSinkIntervalLastAggregatedInputPower,
    optIfOMSnSinkIntervalLowAggregatedInputPower,
    optIfOMSnSinkIntervalHighAggregatedInputPower,
    optIfOMSnSinkIntervalLastOutputPower,
    optIfOMSnSinkIntervalLowOutputPower,
    optIfOMSnSinkIntervalHighOutputPower,
    optIfOMSnSinkCurDaySuspectedFlag,
    optIfOMSnSinkCurDayLowAggregatedInputPower,
    optIfOMSnSinkCurDayHighAggregatedInputPower,
    optIfOMSnSinkCurDayLowOutputPower,
    optIfOMSnSinkCurDayHighOutputPower,
    optIfOMSnSinkPrevDaySuspectedFlag,
    optIfOMSnSinkPrevDayLastAggregatedInputPower,
    optIfOMSnSinkPrevDayLowAggregatedInputPower,
    optIfOMSnSinkPrevDayHighAggregatedInputPower,
    optIfOMSnSinkPrevDayLastOutputPower,
    optIfOMSnSinkPrevDayLowOutputPower,
    optIfOMSnSinkPrevDayHighOutputPower
}
```

```

    }
    STATUS current
    DESCRIPTION
        "A collection of pre-OTN performance monitoring
        objects applicable to OMSn interfaces that
        support sink functions."
    ::= { optIfGroups 15 }

optIfOMSnSinkPreOtnPMThresholdGroup OBJECT-GROUP
    OBJECTS {
        optIfOMSnSinkCurrentLowerInputPowerThreshold,
        optIfOMSnSinkCurrentUpperInputPowerThreshold,
        optIfOMSnSinkCurrentLowerOutputPowerThreshold,
        optIfOMSnSinkCurrentUpperOutputPowerThreshold
    }
    STATUS current
    DESCRIPTION
        "A collection of pre-OTN performance monitoring
        threshold objects applicable to OMSn interfaces
        that support sink functions."
    ::= { optIfGroups 16 }

optIfOMSnSourcePreOtnPMGroup OBJECT-GROUP
    OBJECTS {
        optIfOMSnSrcCurrentSuspectedFlag,
        optIfOMSnSrcCurrentOutputPower,
        optIfOMSnSrcCurrentLowOutputPower,
        optIfOMSnSrcCurrentHighOutputPower,
        optIfOMSnSrcCurrentAggregatedInputPower,
        optIfOMSnSrcCurrentLowAggregatedInputPower,
        optIfOMSnSrcCurrentHighAggregatedInputPower,
        optIfOMSnSrcIntervalSuspectedFlag,
        optIfOMSnSrcIntervalLastOutputPower,
        optIfOMSnSrcIntervalLowOutputPower,
        optIfOMSnSrcIntervalHighOutputPower,
        optIfOMSnSrcIntervalLastAggregatedInputPower,
        optIfOMSnSrcIntervalLowAggregatedInputPower,
        optIfOMSnSrcIntervalHighAggregatedInputPower,
        optIfOMSnSrcCurDaySuspectedFlag,
        optIfOMSnSrcCurDayLowOutputPower,
        optIfOMSnSrcCurDayHighOutputPower,
        optIfOMSnSrcCurDayLowAggregatedInputPower,
        optIfOMSnSrcCurDayHighAggregatedInputPower,
        optIfOMSnSrcPrevDaySuspectedFlag,
        optIfOMSnSrcPrevDayLastOutputPower,
        optIfOMSnSrcPrevDayLowOutputPower,
        optIfOMSnSrcPrevDayHighOutputPower,
        optIfOMSnSrcPrevDayLastAggregatedInputPower,
    }

```

```
    optIfOMSnSrcPrevDayLowAggregatedInputPower,
    optIfOMSnSrcPrevDayHighAggregatedInputPower
  }
STATUS    current
DESCRIPTION
  "A collection of pre-OTN performance monitoring
  objects applicable to OMSn interfaces that
  support source functions."
 ::= { optIfGroups 17 }

optIfOMSnSourcePreOtnPMThresholdGroup OBJECT-GROUP
OBJECTS {
    optIfOMSnSrcCurrentLowerOutputPowerThreshold,
    optIfOMSnSrcCurrentUpperOutputPowerThreshold,
    optIfOMSnSrcCurrentLowerInputPowerThreshold,
    optIfOMSnSrcCurrentUpperInputPowerThreshold
}
STATUS    current
DESCRIPTION
  "A collection of pre-OTN performance monitoring
  threshold objects applicable to OMSn interfaces that
  support source functions."
 ::= { optIfGroups 18 }

optIfOChGroupCommonGroup OBJECT-GROUP
OBJECTS {
    optIfOChGroupDirectionality
}
STATUS    current
DESCRIPTION
  "A collection of configuration objects
  applicable to all OChGroup interfaces."
 ::= { optIfGroups 19 }

optIfOChGroupSinkPreOtnPMGroup OBJECT-GROUP
OBJECTS {
    optIfOChGroupSinkCurrentSuspectedFlag,
    optIfOChGroupSinkCurrentAggregatedInputPower,
    optIfOChGroupSinkCurrentLowAggregatedInputPower,
    optIfOChGroupSinkCurrentHighAggregatedInputPower,
    optIfOChGroupSinkCurrentOutputPower,
    optIfOChGroupSinkCurrentLowOutputPower,
    optIfOChGroupSinkCurrentHighOutputPower,
    optIfOChGroupSinkIntervalSuspectedFlag,
    optIfOChGroupSinkIntervalLastAggregatedInputPower,
    optIfOChGroupSinkIntervalLowAggregatedInputPower,
    optIfOChGroupSinkIntervalHighAggregatedInputPower,
    optIfOChGroupSinkIntervalLastOutputPower,
```

```

optIfOChGroupSinkIntervalLowOutputPower,
optIfOChGroupSinkIntervalHighOutputPower,
optIfOChGroupSinkCurDaySuspectedFlag,
optIfOChGroupSinkCurDayLowAggregatedInputPower,
optIfOChGroupSinkCurDayHighAggregatedInputPower,
optIfOChGroupSinkCurDayLowOutputPower,
optIfOChGroupSinkCurDayHighOutputPower,
optIfOChGroupSinkPrevDaySuspectedFlag,
optIfOChGroupSinkPrevDayLastAggregatedInputPower,
optIfOChGroupSinkPrevDayLowAggregatedInputPower,
optIfOChGroupSinkPrevDayHighAggregatedInputPower,
optIfOChGroupSinkPrevDayLastOutputPower,
optIfOChGroupSinkPrevDayLowOutputPower,
optIfOChGroupSinkPrevDayHighOutputPower
}

```

STATUS current

DESCRIPTION

"A collection of pre-OTN performance monitoring objects applicable to OChGroup interfaces that support sink functions."

::= { optIfGroups 20 }

optIfOChGroupSinkPreOtnPMThresholdGroup OBJECT-GROUP

```

OBJECTS {
    optIfOChGroupSinkCurrentLowerInputPowerThreshold,
    optIfOChGroupSinkCurrentUpperInputPowerThreshold,
    optIfOChGroupSinkCurrentLowerOutputPowerThreshold,
    optIfOChGroupSinkCurrentUpperOutputPowerThreshold
}

```

STATUS current

DESCRIPTION

"A collection of pre-OTN performance monitoring threshold objects applicable to OChGroup interfaces that support sink functions."

::= { optIfGroups 21 }

optIfOChGroupSourcePreOtnPMGroup OBJECT-GROUP

```

OBJECTS {
    optIfOChGroupSrcCurrentSuspectedFlag,
    optIfOChGroupSrcCurrentOutputPower,
    optIfOChGroupSrcCurrentLowOutputPower,
    optIfOChGroupSrcCurrentHighOutputPower,
    optIfOChGroupSrcCurrentAggregatedInputPower,
    optIfOChGroupSrcCurrentLowAggregatedInputPower,
    optIfOChGroupSrcCurrentHighAggregatedInputPower,
    optIfOChGroupSrcIntervalSuspectedFlag,
    optIfOChGroupSrcIntervalLastOutputPower,
    optIfOChGroupSrcIntervalLowOutputPower,

```



```

optIfOChGroupSrcIntervalHighOutputPower,
optIfOChGroupSrcIntervalLastAggregatedInputPower,
optIfOChGroupSrcIntervalLowAggregatedInputPower,
optIfOChGroupSrcIntervalHighAggregatedInputPower,
optIfOChGroupSrcCurDaySuspectedFlag,
optIfOChGroupSrcCurDayLowOutputPower,
optIfOChGroupSrcCurDayHighOutputPower,
optIfOChGroupSrcCurDayLowAggregatedInputPower,
optIfOChGroupSrcCurDayHighAggregatedInputPower,
optIfOChGroupSrcPrevDaySuspectedFlag,
optIfOChGroupSrcPrevDayLastOutputPower,
optIfOChGroupSrcPrevDayLowOutputPower,
optIfOChGroupSrcPrevDayHighOutputPower,
optIfOChGroupSrcPrevDayLastAggregatedInputPower,
optIfOChGroupSrcPrevDayLowAggregatedInputPower,
optIfOChGroupSrcPrevDayHighAggregatedInputPower
}

```

STATUS current

DESCRIPTION

"A collection of pre-OTN performance monitoring objects applicable to OChGroup interfaces that support source functions."

::= { optIfGroups 22 }

optIfOChGroupSourcePreOtnPMThresholdGroup OBJECT-GROUP

```

OBJECTS {
    optIfOChGroupSrcCurrentLowerOutputPowerThreshold,
    optIfOChGroupSrcCurrentUpperOutputPowerThreshold,
    optIfOChGroupSrcCurrentLowerInputPowerThreshold,
    optIfOChGroupSrcCurrentUpperInputPowerThreshold
}

```

STATUS current

DESCRIPTION

"A collection of pre-OTN performance monitoring threshold objects applicable to OChGroup interfaces that support source functions."

::= { optIfGroups 23 }

optIfOChCommonGroup OBJECT-GROUP

```

OBJECTS {
    optIfOChDirectionality
}

```

STATUS current

DESCRIPTION

"A collection of configuration objects applicable to all OCh interfaces."

::= { optIfGroups 24 }

```
optIfOChSinkGroupBasic OBJECT-GROUP
  OBJECTS {
    optIfOChCurrentStatus
  }
  STATUS current
  DESCRIPTION
    "A collection of configuration objects
     applicable to all OCh interfaces that
     support sink functions."
  ::= { optIfGroups 25 }

optIfOChSinkPreOtnPMGroup OBJECT-GROUP
  OBJECTS {
    optIfOChSinkCurrentSuspectedFlag,
    optIfOChSinkCurrentInputPower,
    optIfOChSinkCurrentLowInputPower,
    optIfOChSinkCurrentHighInputPower,
    optIfOChSinkIntervalSuspectedFlag,
    optIfOChSinkIntervalLastInputPower,
    optIfOChSinkIntervalLowInputPower,
    optIfOChSinkIntervalHighInputPower,
    optIfOChSinkCurDaySuspectedFlag,
    optIfOChSinkCurDayLowInputPower,
    optIfOChSinkCurDayHighInputPower,
    optIfOChSinkPrevDaySuspectedFlag,
    optIfOChSinkPrevDayLastInputPower,
    optIfOChSinkPrevDayLowInputPower,
    optIfOChSinkPrevDayHighInputPower
  }
  STATUS current
  DESCRIPTION
    "A collection of pre-OTN performance monitoring
     objects applicable to OCh interfaces that
     support sink functions."
  ::= { optIfGroups 26 }

optIfOChSinkPreOtnPMThresholdGroup OBJECT-GROUP
  OBJECTS {
    optIfOChSinkCurrentLowerInputPowerThreshold,
    optIfOChSinkCurrentUpperInputPowerThreshold
  }
  STATUS current
  DESCRIPTION
    "A collection of pre-OTN performance monitoring
     threshold objects applicable to OCh interfaces
     that support sink functions."
  ::= { optIfGroups 27 }
```

```
optIfOChSourcePreOtnPMGroup OBJECT-GROUP
  OBJECTS {
    optIfOChSrcCurrentSuspectedFlag,
    optIfOChSrcCurrentOutputPower,
    optIfOChSrcCurrentLowOutputPower,
    optIfOChSrcCurrentHighOutputPower,
    optIfOChSrcIntervalSuspectedFlag,
    optIfOChSrcIntervalLastOutputPower,
    optIfOChSrcIntervalLowOutputPower,
    optIfOChSrcIntervalHighOutputPower,
    optIfOChSrcCurDaySuspectedFlag,
    optIfOChSrcCurDayLowOutputPower,
    optIfOChSrcCurDayHighOutputPower,
    optIfOChSrcPrevDaySuspectedFlag,
    optIfOChSrcPrevDayLastOutputPower,
    optIfOChSrcPrevDayLowOutputPower,
    optIfOChSrcPrevDayHighOutputPower
  }
  STATUS current
  DESCRIPTION
    "A collection of pre-OTN performance monitoring
    objects applicable to OCh interfaces that
    support source functions."
    ::= { optIfGroups 28 }

optIfOChSourcePreOtnPMThresholdGroup OBJECT-GROUP
  OBJECTS {
    optIfOChSrcCurrentLowerOutputPowerThreshold,
    optIfOChSrcCurrentUpperOutputPowerThreshold
  }
  STATUS current
  DESCRIPTION
    "A collection of pre-OTN performance monitoring
    threshold objects applicable to OCh interfaces
    that support source functions."
    ::= { optIfGroups 29 }

optIfOTUkCommonGroup OBJECT-GROUP
  OBJECTS {
    optIfOTUkDirectionality,
    optIfOTUkBitRateK
  }
  STATUS current
  DESCRIPTION
    "A collection of configuration objects
    applicable to all OTUk interfaces."
    ::= { optIfGroups 30 }
```

```
optIfOTUkSourceGroup OBJECT-GROUP
  OBJECTS {
    optIfOTUkTraceIdentifierTransmitted,
    optIfOTUkSourceAdaptActive
  }
  STATUS current
  DESCRIPTION
    "A collection of configuration objects
    applicable to OTUk interfaces that
    support source functions."
  ::= { optIfGroups 31 }

optIfOTUkSinkGroup OBJECT-GROUP
  OBJECTS {
    optIfOTUkDAPIExpected,
    optIfOTUkSAPIExpected,
    optIfOTUkTraceIdentifierAccepted,
    optIfOTUkTIMDetMode,
    optIfOTUkTIMActEnabled,
    optIfOTUkDEGThr,
    optIfOTUkDEGM,
    optIfOTUkSinkAdaptActive,
    optIfOTUkSinkFECEnabled,
    optIfOTUkCurrentStatus
  }
  STATUS current
  DESCRIPTION
    "A collection of configuration objects
    applicable to OTUk interfaces that
    support sink functions."
  ::= { optIfGroups 32 }

optIfGCC0Group OBJECT-GROUP
  OBJECTS {
    optIfGCC0Application,
    optIfGCC0RowStatus
  }
  STATUS current
  DESCRIPTION
    "A collection of GCC0 configuration objects."
  ::= { optIfGroups 33 }

optIfODUkGroup OBJECT-GROUP
  OBJECTS {
    optIfODUkDirectionality,
    optIfODUkBitRateK,
    optIfODUkTcmFieldsInUse,
    optIfODUkPositionSeqCurrentSize,
```

```
    optIfODUkPositionSeqPosition,  
    optIfODUkPositionSeqPointer,  
    optIfODUkTtpPresent  
  }  
  STATUS    current  
  DESCRIPTION  
    "A collection of configuration objects  
    applicable to all ODUk interfaces."  
  ::= { optIfGroups 34 }
```

```
optIfODUkTtpSourceGroup OBJECT-GROUP  
  OBJECTS {  
    optIfODUkTtpTraceIdentifierTransmitted  
  }  
  STATUS    current  
  DESCRIPTION  
    "A collection of configuration objects  
    applicable to all interfaces that support  
    ODUk trail termination source functions."  
  ::= { optIfGroups 35 }
```

```
optIfODUkTtpSinkGroup OBJECT-GROUP  
  OBJECTS {  
    optIfODUkTtpDAPIExpected,  
    optIfODUkTtpSAPIExpected,  
    optIfODUkTtpTraceIdentifierAccepted,  
    optIfODUkTtpTIMDetMode,  
    optIfODUkTtpTIMActEnabled,  
    optIfODUkTtpDEGThr,  
    optIfODUkTtpDEGM,  
    optIfODUkTtpCurrentStatus  
  }  
  STATUS    current  
  DESCRIPTION  
    "A collection of ODUk configuration objects  
    applicable to all interfaces that support  
    ODUk trail termination sink functions."  
  ::= { optIfGroups 36 }
```

```
optIfODUkNimGroup OBJECT-GROUP  
  OBJECTS {  
    optIfODUkNimDAPIExpected,  
    optIfODUkNimSAPIExpected,  
    optIfODUkNimTraceIdentifierAccepted,  
    optIfODUkNimTIMDetMode,  
    optIfODUkNimTIMActEnabled,  
    optIfODUkNimDEGThr,  
    optIfODUkNimDEGM,  
  }
```

```
    optIfODUkNimCurrentStatus,
    optIfODUkNimRowStatus
  }
STATUS    current
DESCRIPTION
  "A collection of ODUk Nim configuration objects."
 ::= { optIfGroups 37 }

optIfGCC12Group OBJECT-GROUP
OBJECTS {
    optIfGCC12GCCPassThrough,
    optIfGCC12Application,
    optIfGCC12RowStatus
}
STATUS    current
DESCRIPTION
  "A collection of GCC12 configuration objects."
 ::= { optIfGroups 38 }

optIfODUkTCommonGroup OBJECT-GROUP
OBJECTS {
    optIfODUkTRowStatus
}
STATUS    current
DESCRIPTION
  "A collection of configuration objects
   applicable to all ODUkT instances."
 ::= { optIfGroups 39 }

optIfODUkTSourceGroup OBJECT-GROUP
OBJECTS {
    optIfODUkTTraceIdentifierTransmitted,
    optIfODUkTSourceLockSignalAdminState
}
STATUS    current
DESCRIPTION
  "A collection of configuration objects
   applicable to all ODUkT instances
   that provide source functions."
 ::= { optIfGroups 40 }

optIfODUkTSinkGroup OBJECT-GROUP
OBJECTS {
    optIfODUkTDAPIExpected,
    optIfODUkTSAPIExpected,
    optIfODUkTTraceIdentifierAccepted,
    optIfODUkTTIMDetMode,
    optIfODUkTTIMActEnabled,
```

```

    optIfODUkTDEGThr,
    optIfODUkTDEGM,
    optIfODUkTCurrentStatus
    }
STATUS    current
DESCRIPTION
    "A collection of configuration objects
    applicable to all ODUkT instances
    that provide sink functions."
::= { optIfGroups 41 }

optIfODUkTSinkGroupCtp OBJECT-GROUP
OBJECTS   {
    optIfODUkTSinkMode,
    optIfODUkTSinkLockSignalAdminState
    }
STATUS    current
DESCRIPTION
    "A collection of configuration objects
    applicable to ODUkT instances not
    colocated with an ODUk TTP that
    provide sink functions."
::= { optIfGroups 42 }

optIfODUkTNimGroup OBJECT-GROUP
OBJECTS   {
    optIfODUkTNimDAPIExpected,
    optIfODUkTNimSAPIExpected,
    optIfODUkTNimTraceIdentifierAccepted,
    optIfODUkTNimTIMDetMode,
    optIfODUkTNimTIMActEnabled,
    optIfODUkTNimDEGThr,
    optIfODUkTNimDEGM,
    optIfODUkTNimCurrentStatus,
    optIfODUkTNimRowStatus
    }
STATUS    current
DESCRIPTION
    "A collection of ODUkT Nim configuration objects."
::= { optIfGroups 43 }

-- compliance specifications

optIfOtnConfigCompl MODULE-COMPLIANCE
STATUS    current
DESCRIPTION
    "Implementation requirements for the OTN configuration
    functions defined in this MIB module."

```

MODULE -- this module

```
MANDATORY-GROUPS {  
    optIfOTMnGroup,  
    optIfOTSnCommonGroup  
}
```

GROUP optIfOTSnSourceGroupFull

DESCRIPTION

"This group is mandatory for interfaces of ifType opticalTransport(196) for which the corresponding instance of optIfOTSnDirectionality has the value source(2) or bidirectional(3), the corresponding instance of optIfOTMnReduced has the value false(2), and the corresponding instance of optIfOTMnInterfaceType specifies an OTMn interface type of 'IaDI'."

GROUP optIfOTSnAPRStatusGroup

DESCRIPTION

"This group is mandatory for interfaces of ifType opticalTransport(196) that support Automatic Power Reduction functions."

GROUP optIfOTSnAPRControlGroup

DESCRIPTION

"This group is optional, but is recommended for interfaces of ifType opticalTransport(196) that provide Automatic Power Reduction control functions."

GROUP optIfOTSnSinkGroupBasic

DESCRIPTION

"This group is mandatory for interfaces of ifType opticalTransport(196) for which the corresponding instance of optIfOTSnDirectionality has the value sink(1) or bidirectional(3)."

GROUP optIfOTSnSinkGroupFull

DESCRIPTION

"This group is mandatory for interfaces of ifType opticalTransport(196) for which the corresponding instance of optIfOTSnDirectionality has the value sink(1) or bidirectional(3), the corresponding instance of optIfOTMnReduced has the value false(2), and the corresponding instance of optIfOTMnInterfaceType specifies an OTMn interface type of 'IaDI'."

GROUP optIfOMSnCommonGroup

DESCRIPTION

"This group is mandatory for interfaces of ifType opticalTransport(196) that support access to the OMS overhead information within the OTN Supervisory Channel."

GROUP optIfOMSnSinkGroupBasic

DESCRIPTION

"This group is mandatory for interfaces of ifType opticalTransport(196) that support access to the OMS Overhead information within the OSC (OTN Supervisory Channel) for which the corresponding instance of optIfOMSnDirectionality has the value sink(1) or bidirectional(3)."

GROUP optIfOChGroupCommonGroup

DESCRIPTION

"This group is mandatory for interfaces of ifType opticalChannelGroup(219)."

GROUP optIfOChCommonGroup

DESCRIPTION

"This group is mandatory for interfaces of ifType opticalTransport(195)."

GROUP optIfOChSinkGroupBasic

DESCRIPTION

"This group is mandatory for interfaces of ifType opticalChannel(195) for which the corresponding instance of optIfOChDirectionality has the value sink(1) or bidirectional(3)."

GROUP optIfOTUkCommonGroup

DESCRIPTION

"This group is mandatory for interfaces of ifType opticalChannel(195) that support OTUk layer functions."

GROUP optIfOTUkSourceGroup

DESCRIPTION

"This group is mandatory for interfaces of ifType opticalChannel(195) that support OTUk layer functions and for which the corresponding instance of optIfOTUkDirectionality has the value source(2) or bidirectional(3)."

GROUP optIfOTUkSinkGroup

DESCRIPTION

"This group is mandatory for interfaces of ifType opticalChannel(195) that support OTUk layer functions and for which the corresponding instance of

optIfOTUkDirectionality has the value sink(1) or bidirectional(3)."

GROUP optIfGCC0Group

DESCRIPTION

"This group is mandatory for interfaces of ifType opticalChannel(195) that support GCC0 access functions. It may be implemented only if the optIfOTUkCommonGroup is also implemented."

GROUP optIfODUkGroup

DESCRIPTION

"This group is mandatory for interfaces of ifType opticalChannel(195) that support ODUk layer functions."

GROUP optIfODUkTtpSourceGroup

DESCRIPTION

"This group is mandatory for interfaces of ifType opticalChannel(195) for which the corresponding instance of optIfODUkTtpPresent has the value true(1) and for which the corresponding instance of optIfODUkDirectionality has the value source(2) or bidirectional(3). It may be implemented only if the optIfODUkGroup is also implemented."

GROUP optIfODUkTtpSinkGroup

DESCRIPTION

"This group is mandatory for interfaces of ifType opticalChannel(195) for which the corresponding instance of optIfODUkTtpPresent has the value true(1) and for which the corresponding instance of optIfODUkDirectionality has the value sink(1) or bidirectional(3). It may be implemented only if the optIfODUkGroup is also implemented."

GROUP optIfODUkNimGroup

DESCRIPTION

"This group is mandatory for interfaces of ifType opticalChannel(195) for which the corresponding instance of optIfODUkTtpPresent has the value false(2). It may be implemented only if the optIfODUkGroup is also implemented."

GROUP optIfGCC12Group

DESCRIPTION

"This group is mandatory for interfaces of ifType opticalChannel(195) that support GCC12 access functions. It may be implemented only if the optIfODUkGroup

is also implemented."

GROUP optIfODUkTCommonGroup

DESCRIPTION

"This group is mandatory for interfaces of ifType opticalChannel(195) that support intrusive tandem connection monitoring. It may be implemented only if the optIfODUkGroup is also implemented."

GROUP optIfODUkTSourceGroup

DESCRIPTION

"This group is mandatory for interfaces of ifType opticalChannel(195) that support intrusive tandem connection monitoring and for which
(i) optIfODUkDirectionality has the value bidirectional(3), or
(ii) optIfODUkDirectionality has the value sink(1) and
 optIfODUkTCodirectional has the value false(2), or
(iii) optIfODUkDirectionality has the value source(3) and
 optIfODUkTCodirectional has the value true(1).
It may be implemented only if the optIfODUkGroup is also implemented."

GROUP optIfODUkTSinkGroup

DESCRIPTION

"This group is mandatory for interfaces of ifType opticalChannel(195) that support intrusive tandem connection monitoring and for which
(i) optIfODUkDirectionality has the value bidirectional(3), or
(ii) optIfODUkDirectionality has the value sink(1) and
 optIfODUkTCodirectional has the value true(1), or
(iii) optIfODUkDirectionality has the value source(3) and
 optIfODUkTCodirectional has the value false(2).
It may be implemented only if the optIfODUkGroup is also implemented."

GROUP optIfODUkTSinkGroupCtp

DESCRIPTION

"This group is mandatory for interfaces of ifType opticalChannel(195) that support intrusive tandem connection monitoring and for which
optIfODUkTtpPresent is false(2) and
(i) optIfODUkDirectionality has the value bidirectional(3), or
(ii) optIfODUkDirectionality has the value sink(1) and
 optIfODUkTCodirectional has the value true(1), or
(iii) optIfODUkDirectionality has the value source(3) and
 optIfODUkTCodirectional has the value false(2).
It may be implemented only if the optIfODUkGroup and optIfODUkTSinkGroup are also implemented."

GROUP optIfODUKTNimGroup

DESCRIPTION

"This group is mandatory for interfaces of ifType opticalChannel(195) that support non-intrusive tandem connection monitoring. It may be implemented only if the optIfODUKGroup is also implemented."

::= { optIfCompl 1 }

optIfPreOtnPMCompl MODULE-COMPLIANCE

STATUS current

DESCRIPTION

"Implementation requirements for Pre-OTN performance monitoring functions defined in this MIB module."

MODULE -- this module

MANDATORY-GROUPS {
 optIfPerfMonGroup
}

GROUP optIfOTSnSinkPreOtnPMGroup

DESCRIPTION

"This group is mandatory for interfaces of ifType opticalTransport(196) that support OTSn sink functions (i.e., for which the corresponding instance of optIfOTSnDirectionality -- if implemented -- has the value sink(1) or bidirectional(3))."

GROUP optIfOTSnSinkPreOtnPMThresholdGroup

DESCRIPTION

"This group is mandatory if and only if TCA notifications are implemented. If the objects of this group are instantiated then the implementation must also provide, in an enterprise MIB, suitable TCA notification definitions and notification control objects. Implementation of the optIfOTSnSinkPreOtnPMGroup is a prerequisite for implementing this group."

GROUP optIfOTSnSourcePreOtnPMGroup

DESCRIPTION

"This group is mandatory for interfaces of ifType opticalTransport(196) that support OTSn source functions (i.e., for which the corresponding instance of optIfOTSnDirectionality -- if implemented -- has the value source(2) or bidirectional(3))."

GROUP optIfOTSnSourcePreOtnPMThresholdGroup

DESCRIPTION

"This group is mandatory if and only if TCA notifications are implemented. If the objects of this group are instantiated then the implementation must also provide, in an enterprise MIB, suitable TCA notification definitions and notification control objects. Implementation of the optIfOTSnSourcePreOtnPMGroup is a prerequisite for implementing this group "

GROUP optIfOMSnSinkPreOtnPMGroup

DESCRIPTION

"This group is optional. It may be implemented by systems with the necessary instrumentation on interfaces of ifType opticalTransport(196) that support OMSn sink functions (i.e., for which the corresponding instance of optIfOMSnDirectionality -- if implemented -- has the value sink(1) or bidirectional(3))."

GROUP optIfOMSnSinkPreOtnPMThresholdGroup

DESCRIPTION

"This group is mandatory if and only if TCA notifications are implemented. If the objects of this group are instantiated then the implementation must also provide, in an enterprise MIB, suitable TCA notification definitions and notification control objects. Implementation of the optIfOMSnSinkPreOtnPMGroup is a prerequisite for implementing this group "

GROUP optIfOMSnSourcePreOtnPMGroup

DESCRIPTION

"This group is optional. It may be implemented by systems with the necessary instrumentation on interfaces of ifType opticalTransport(196) that support OMSn source functions (i.e., for which the corresponding instance of optIfOMSnDirectionality -- if implemented -- has the value source(2) or bidirectional(3))."

GROUP optIfOMSnSourcePreOtnPMThresholdGroup

DESCRIPTION

"This group is mandatory if and only if TCA notifications are implemented. If the objects of this group are instantiated then the implementation must also provide, in an enterprise MIB, suitable TCA notification definitions and notification control objects. Implementation of the optIfOMSnSourcePreOtnPMGroup is a prerequisite for implementing this group "

GROUP optIfOChGroupSinkPreOtnPMGroup

DESCRIPTION

"This group is optional. It may be implemented by systems with the necessary instrumentation on interfaces of ifType opticalChannelGroup(219) that support OChGroup sink functions (i.e., for which the corresponding instance of optIfOChGroupDirectionality -- if implemented -- has the value sink(1) or bidirectional(3))."

GROUP optIfOChGroupSinkPreOtnPMThresholdGroup

DESCRIPTION

"This group is mandatory if and only if TCA notifications are implemented. If the objects of this group are instantiated then the implementation must also provide, in an enterprise MIB, suitable TCA notification definitions and notification control objects. Implementation of the optIfOChGroupSinkPreOtnPMGroup is a prerequisite for implementing this group "

GROUP optIfOChGroupSourcePreOtnPMGroup

DESCRIPTION

"This group is optional. It may be implemented by systems with the necessary instrumentation on interfaces of ifType opticalChannelGroup(219) that support OChGroup source functions (i.e., for which the corresponding instance of optIfOChGroupDirectionality -- if implemented -- has the value source(2) or bidirectional(3))."

GROUP optIfOChGroupSourcePreOtnPMThresholdGroup

DESCRIPTION

"This group is mandatory if and only if TCA notifications are implemented. If the objects of this group are instantiated then the implementation must also provide, in an enterprise MIB, suitable TCA notification definitions and notification control objects. Implementation of the optIfOChGroupSourcePreOtnPMGroup is a prerequisite for implementing this group "

GROUP optIfOChSinkPreOtnPMGroup

DESCRIPTION

"This group is mandatory for interfaces of ifType opticalChannel(195) that support OCh sink functions (i.e., for which the corresponding instance of optIfOChDirectionality -- if implemented -- has the value sink(1) or bidirectional(3))."

GROUP optIfOChSinkPreOtnPMThresholdGroup

DESCRIPTION

"This group is mandatory if and only if TCA notifications

are implemented. If the objects of this group are instantiated then the implementation must also provide, in an enterprise MIB, suitable TCA notification definitions and notification control objects. Implementation of the optIfOChSinkPreOtnPMGroup is a prerequisite for implementing this group "

GROUP optIfOChSourcePreOtnPMGroup
DESCRIPTION

"This group is mandatory for interfaces of ifType opticalChannel(195) that support OCh source functions (i.e., for which the corresponding instance of optIfOChDirectionality -- if implemented -- has the value source(2) or bidirectional(3))."

GROUP optIfOChSourcePreOtnPMThresholdGroup
DESCRIPTION

"This group is mandatory if and only if TCA notifications are implemented. If the objects of this group are instantiated then the implementation must also provide, in an enterprise MIB, suitable TCA notification definitions and notification control objects. Implementation of the optIfOChSourcePreOtnPMGroup is a prerequisite for implementing this group "

::= { optIfCompl 2 }

END

5. Security Considerations

There are a number of management objects defined in this MIB module with a MAX-ACCESS clause of read-write and/or read-create. It is possible for writes to these objects to have disruptive effects on network operation that range from invalid performance data to traffic interruptions. Users of this MIB module must therefore be aware that support for SET operations in a non-secure environment without proper protection can have a negative effect on network operations. The most sensitive objects are the read-write and read-create objects listed in the optIfOtnConfigCompl compliance statement that control the maximum number of TCM levels allowed (optIfOTMnTcmMax), automatic power reduction (optIfOTSnaprControl), transmitted trail trace (optIfOTSnapTraceIdentifierTransmitted, optIfOTUkTraceIdentifierTransmitted, optIfODUkTtpTraceIdentifierTransmitted, optIfODUkTTraceIdentifierTransmitted), expected source/destination access point identifiers (optIfOTSnapDAPIExpected, optIfOTSnapSAPIExpected, optIfOTUkDAPIExpected, optIfOTUkSAPIExpected,

optIfODUKTtpDAPIExpected, optIfODUKTtpSAPIExpected, optIfODUKNimDAPIExpected, optIfODUKNimSAPIExpected, optIfODUKTDAPIExpected, optIfODUKTSAPIExpected, optIfODUKTNimDAPIExpected, optIfODUKTNimSAPIExpected), trace identifier mismatch detection mode (optIfOTSnTIMDetMode, optIfOTUkTIMDetMode, optIfODUKTtpTIMDetMode, optIfODUKNimTIMDetMode, optIfODUKTTIMDetMode, optIfODUKTNimTIMDetMode), trace identifier mismatch consequent action (optIfOTSnTIMActEnabled, optIfOTUkTIMActEnabled, optIfODUKTtpTIMActEnabled, optIfODUKNimTIMActEnabled, optIfODUKTTIMActEnabled, optIfODUKTNimTIMActEnabled), threshold level for declaring a PM Second to be bad (optIfOTUkDEGThr, optIfODUKTtpDEGThr, optIfODUKNimDEGThr, optIfODUKTDEGThr, optIfODUKTNimDEGThr), threshold level for declaring a Degraded Signal defect (optIfOTUkDEGM, optIfODUKTtpDEGM, optIfODUKNimDEGM, optIfODUKTDEGM, optIfODUKTNimDEGM), whether the sink/source adaptation function is activated (optIfOTUkSinkAdaptActive, optIfOTUkSourceAdaptActive), whether Forward Error Correction is supported (optIfOTUkSinkFECEnabled), the application transported by the GCC entities (optIfGCC0Application, optIfGCC12Application), creating and deleting a conceptual row of a config table (optIfGCC0RowStatus, optIfODUKNimRowStatus, optIfGCC12RowStatus, optIfODUKTRowStatus, optIfODUKTNimRowStatus), whether the selected GCC overhead bytes are passed through or modified (optIfGCC12GCCPassThrough), TCM mode (optIfODUKTSinkMode), and provisioning of the sink/source LOCK signal (optIfODUKTSinkLockSignalAdminState, optIfODUKTSourceLockSignalAdminState), as these may cause traffic interruptions if improperly set.

The readable objects in this MIB module (i.e., the objects with a MAX-ACCESS other than not-accessible) may be considered sensitive in some environments since, collectively, they provide information about the performance of interfaces in OTN equipment or networks and can reveal aspects of their configuration. In such environments it is important to control even GET and NOTIFY access to these objects and possibly to encrypt the values of these objects when sending them over the network via SNMP.

SNMP versions prior to SNMPv3 did not include adequate security. Even if the network itself is secure (for example by using IPsec), there is no control as to who on the secure network is allowed to access and GET/SET (read/change/create/delete) objects in this MIB module.

It is RECOMMENDED that implementers consider the security features provided by the SNMPv3 framework (see [RFC3410], section 8), including full support for the SNMPv3 cryptographic mechanisms (for authentication and privacy).

Further, deployment of SNMP versions prior to SNMPv3 is NOT RECOMMENDED. Instead, it is RECOMMENDED that SNMPv3 be deployed and cryptographic security be enabled. It is then a customer/operator responsibility to ensure that the SNMP entity giving access to an instance of this MIB module is properly configured to give access to the objects only to those principals (users) that have legitimate rights to indeed GET or SET (change/create/delete) them.

6. Acknowledgements

Nathan Kohn initiated the concept, then gathered and coordinated the team that led to the initial version of the MIB. Mark Stewart/Brian Teer wrote sections on use of interface tables, reviewed the MIB Object Definitions for SNMP SMIV2 compliance, and wrote the PM sections in working with G.7710/Y.1701. Anni Huynh wrote the initial MIB definitions for the OTN interface. Tom Rutt wrote the summary section on the Structure of the MIB. Rishi Grover contributed to the objects to monitor banded amplifiers. Kam Lam wrote the sections on Optical Networking Terminology and the OTN layers configuration parameters. He was the editor for the last several versions of this document.

Thanks to Maarten Vissers for providing insight into Optical Networking concepts. Thanks to Lakshmi Raman and Moshe Rozenblit for reviewing and commenting on a preliminary version of the document.

Special thanks to C. Mike Heard for providing a top notch doctor review and many helpful suggestions to improve the MIB.

7. References

7.1. Normative References

- [RFC1213] McCloghrie, K. and M. Rose, "Management Information Base for Network Management of TCP/IP-based internets: MIB-II", STD 17, RFC 1213, March 1991.
- [RFC2578] McCloghrie, K., Perkins, D., Schoenwaelder, J., Case, J., Rose, M. and S. Waldbusser, "Structure of Management Information Version 2 (SMIV2)", STD 58, RFC 2578, April 1999.
- [RFC2579] McCloghrie, K., Perkins, D., Schoenwaelder, J., Case, J., Rose, M. and S. Waldbusser, "Textual Conventions for SMIV2", STD 58, RFC 2579, April 1999.

- [RFC2580] McCloghrie, K., Perkins, D., Schoenwaelder, J., Case, J., Rose, M. and S. Waldbusser, "Conformance Statements for SMIV2", STD 58, RFC 2580, April 1999.
- [RFC2863] McCloghrie, K. and F. Kastenholz, "The Interfaces Group MIB", RFC 2863, June 2000.
- [RFC2864] McCloghrie, K. and G. Hanson, "The Inverted Stack Table Extension to the Interfaces Group MIB", RFC 2864, June 2000.
- [RFC3411] Harrington, D., Presuhn, R. and B. Wijnen, "An Architecture for Describing Simple Network Management Protocol (SNMP) Management Frameworks", STD 62, RFC 3411, December 2002.
- [RFC3418] Presuhn, R., "Management Information Base (MIB) for the Simple Network Management Protocol (SNMP)", STD 62, RFC 3418, December 2002.
- [ITU-T G.709] ITU-T Recommendation G.709/Y.1331, "Network Node Interface for the Optical Transport Network (OTN)", (2/2001).
- [ITU-T G.798] ITU-T Recommendation G.798, "Characteristics of Optical Transport Network Hierarchy Equipment Functional Blocks", (1/2002).
- [ITU-T G.872] ITU-T Recommendation G.872, "Architecture of optical transport networks", (11/2001).
- [ITU-T G.874] ITU-T Recommendation G.874, "Management aspects of the optical transport network element", (12/2001).
- [ITU-T G.874.1] ITU-T Recommendation G.874.1, "OTN Protocol-neutral Management Information Model for the NE View", (1/2002).
- [ITU-T G.7710] ITU-T Recommendation G.7710/Y.1701, "Common Equipment Management Function Requirements", (12/2001)
- [ITU-T G.806] ITU-T Recommendation G.806, "Characteristics of Transport Equipment - Description methodology and generic functionality", (10/2000).
- [ITU-T G.957] ITU-T Recommendation G.957, "Optical interfaces for equipments and systems relating to the synchronous digital hierarchy", (7/1999).

- [ITU-T G.691] ITU-T Recommendation G.691, "Optical interfaces for single-channel STM-64, STM-256 and other SDH systems with optical amplifiers", (10/200).

7.2. Informative References

- [RFC3410] Case, J., Mundy, R., Partain, D. and B. Stewart, "Introduction and Applicability Statements for Internet-Standard Management Framework", RFC 3410, December 2002.
- [RFC3433] Bierman, A., Romascanu, D. and K. C. Norseth, "Entity Sensor Management Information Base", RFC 3433, December 2002.

8. Intellectual Property Statement

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

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

9. Authors' Addresses

Mark A. Stewart
Senior Systems Analyst
Raleigh, NC
USA

EMail: mstewart1@nc.rr.com

An-ni Huynh
Cetus Networks
USA

EMail: a_n_huynh@yahoo.com

Hing-Kam Lam
Lucent Technologies
101 Crawfords Corner Road, Room 4C-616A
Holmdel, NJ 07733
USA

Phone: +1 732-949-8338
EMail: hklam@lucent.com

10. Full Copyright Statement

Copyright (C) The Internet Society (2003). All Rights Reserved.

This document and translations of it may be copied and furnished to others, and derivative works that comment on or otherwise explain it or assist in its implementation may be prepared, copied, published and distributed, in whole or in part, without restriction of any kind, provided that the above copyright notice and this paragraph are included on all such copies and derivative works. However, this document itself may not be modified in any way, such as by removing the copyright notice or references to the Internet Society or other Internet organizations, except as needed for the purpose of developing Internet standards in which case the procedures for copyrights defined in the Internet Standards process must be followed, or as required to translate it into languages other than English.

The limited permissions granted above are perpetual and will not be revoked by the Internet Society or its successors or assignees.

This document and the information contained herein is provided on an "AS IS" basis and THE INTERNET SOCIETY AND THE INTERNET ENGINEERING TASK FORCE DISCLAIMS ALL WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO ANY WARRANTY THAT THE USE OF THE INFORMATION HEREIN WILL NOT INFRINGE ANY RIGHTS OR ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

Acknowledgement

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

