



TAPI UML Model

PHOTONIC MEDIA

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Document History

| Version | Date | Description of Change |
|---------|---------------|---|
| 2.3 | May 27, 2021 | <p>Model Dump</p> <p><i>Gendoc generates documentation from Eclipse Modeling Framework (EMF) models using document templates in formats such as OpenOffice Writer (.odt), Microsoft Word (.docx), Microsoft Excel (.xlsx) and Microsoft Powerpoint (.pptx).</i></p> |
| 2.4.0 | December 2022 | See high level diff document in Github |
| 2.4.1 | March 2023 | See high level diff document in Github |
| 2.5.0 | October 2023 | See high level diff document in Github |

1 Photonic Model

Comments: Note that also Booster/Preamplifier could be listed

Comments: Attribute which can be covered by termination type and node rule group

Comments: IETF model foresees a "list of optical impairments on a ROADM express/add/drop path for different frequency ranges". TAPI ConnectivityImpairmentProfile is defined per "frequency-range", because the functional model (of the ROADM) is not supported in TAPI.

Comments: Amplification configuration shall be allowed on OMS CEP base. For further development.

Comments: equalization-mode is defined in oms-general-optical-param. To be verified whether necessary or implicit in the choice of the PowerParams packages.

Comments: IETF model foresees a single amplifier-params grouping listing the "parallel amplifier elements within an amplifier used to amplify different frequency ranges." TAPI Amplifier Profile is defined per "frequency-range", because the functional model (of the amplifier) is not supported in TAPI. Note that the OMS CEP defines a frequency range which could include more frequency sub-ranges separately amplified.

Comments: ITU-T G.sup39 2016/02: NRZ-DPSK RZ-DPSK NRZ-DQPSK RZ-DQPSK DP-QPSK PDM-BPSK PDM-16QAM

Comments: IETF augments "/nw:networks/nw:network/nw:node" with - transponder list / transceiver list - regen-group, which is "List of 3R groups. Any 3R group represent a group of transponder in which an a an electrical connectivity is either in place or could be dynamically provided, to associated transponders used for 3R regeneration."

Comments: otsi-group is the "list of OTSi contained in 1 OTSiG", each one described by common-transceiver-configured-param: otsi-carrier-frequency, tx-channel-power, rx-channel-power, rx-total-power.

Comments: min-carrier-spacing has only the capability role, not provisioningable.

Comments: It is assumed that MC CEP does not appear on transponder side, hence no reference from MC CEP to OtsiTerminationPac.

Comments: GNPy Transceiver data type includes the tx_osnr, which represents the transceiver SNR penalty, in analogy with the ROADM add/drop OSNR.

Comments: oms-general-optical-params configuration shall be allowed on NEP base?

Comments: TapiDigitalOtn:OtsiaMep composed by OtuMep augmenting ConnectivityOamServicePoint. Define OtsiaMep also in TapiPhotonic, to directly augment ConnectivityOamServicePoint, and move the power thresholds there. This implies the import of TapiOam.

Comments: IETF model foresees a transponder grouping, which is the "list of transceiver related to a transponder". TAPI Transceiver Profile is defined to specify both the capabilities (PHOT/OTSi NEP) and the configuration/state (OTSi CSEP/CEP) of transceivers.

Comments: ITU-T G.694.1 For the flexible DWDM grid, the allowed frequency slots have a - nominal central frequency (in THz) defined by: $193.1 + n \times 0.00625$ where n is a positive or negative integer including 0 and 0.00625 is the nominal central frequency granularity in THz - and a slot width defined by: $12.5 \times m$ where m is a positive integer and 12.5 is the slot width granularity in GHz.

Comments: Evaluate adding "bit stuffing" to OtsiConfig.ietf-optical-impairment-topology.yang grouping 10-tunnel-attributes { description "Parameters for Layer0 (WSON or Flexi-Grid) Tunnels."; leaf fec-type { type identityref { base fec-type; } description "FEC type."; } leaf termination-type { type identityref { base term-type; } description "Termination type."; } leaf bit-stuffing { type boolean; description "Bit stuffing enabled/disabled."; } }

Comments: ietf-layer0-types-ext.yang grouping common-transceiver-configured-param { description "Capability of an optical transceiver"; leaf otsi-carrier-frequency { type frequency-thz; description "OTSi carrier frequency, equivalent to the actual configured transmitter frequency"; } leaf tx-channel-power { type dbm-t; description "The current channel transmit power"; } leaf rx-channel-power { type dbm-t; config false; description "The current channel received power"; } leaf rx-total-power { type dbm-t; config false; description "Current total received power"; } } // grouping for configured attributes out of mode

Comments: CCAMP rfc9093-bis identity modulation: DPSK (Differential Phase Shift Keying) modulation QPSK (Quadrature Phase Shift Keying) modulation DP-QPSK (Dual Polarization Quadrature Phase Shift Keying) modulation QAM8 (8-State Quadrature Amplitude Modulation) DP-QAM8 (8 symbols Dual Polarization Quadrature Amplitude Modulation) DC-DP-QAM8 (8 symbols Dual Carrier Dual Polarization Quadrature Amplitude Modulation) QAM16 (16 symbols Quadrature Amplitude Modulation) DP-QAM16 (16 symbols Dual Polarization Quadrature Amplitude Modulation) DC-DP-QAM16 (16 symbols Dual Carrier Dual Polarization Quadrature Amplitude Modulation) QAM32 (32 symbols Quadrature Amplitude Modulation) DP-QAM32 (32 symbols Dual Polarization Quadrature Amplitude Modulation) QAM64 (64 symbols Quadrature Amplitude Modulation) DP-QAM64 (64 symbols Dual Polarization Quadrature Amplitude Modulation)

Comments: IETF foresees a choice based on equalization-mode enum {power-spectral-density; carrier-power}. TAPI could simplify with just the applicable packages, which package is present indicates the equalization mode.

Comments: OtsiaConnectivityServiceEndPointSpec could augment a DSR CEP in case of direct photonic to DSR adaptation (i.e. no OTN layer network).

Comments: OTSiMCG CSEP is provisioned also in case OTSiMC layer is not explicitly represented on Resource side

Comments: Shall we consider also the "fiber impairments" between ROADM and its Booster/Preampli?

Comments: regen-metric can augment the OTSiMC NEP of transponders, meaningful in case the transponder node is used as 3R.

Comments: All the other OTSi relevant parameters are provisioned either - by reference to an instance of Transceiver Profile (the reference (by name) is defined in the CSEP) or - by explicit parameters ("integrated" provisioning), which can be useful when there is not an Transceiver Profile instance matching the intent. The server controller may or may not instantiate the equivalent Transceiver Profile as provisioning result.

Comments: media-channel-groups / delta-power (Deviation from the reference carrier power defined for the OMS) could be added to MC CEP. Note that 10-types:flexi-grid-frequency-slot (RFC 9093) is equivalent to "central frequency + width".

Comments: min/max central freq. and freq. step shall be mapped to SIP/CSEP/CEP spectrum/central freq.
Could we use the same datatype, i.e. SpectrumBand?

TapiPhotonicMedia: This module contains TAPI Photonic Media Model definitions. Source: TapiPhotonicMedia.uml Copyright (c) 2023 Open Networking Foundation (ONF). All rights reserved. License: This module is distributed under the Apache License 2.0

1.1 Diagrams

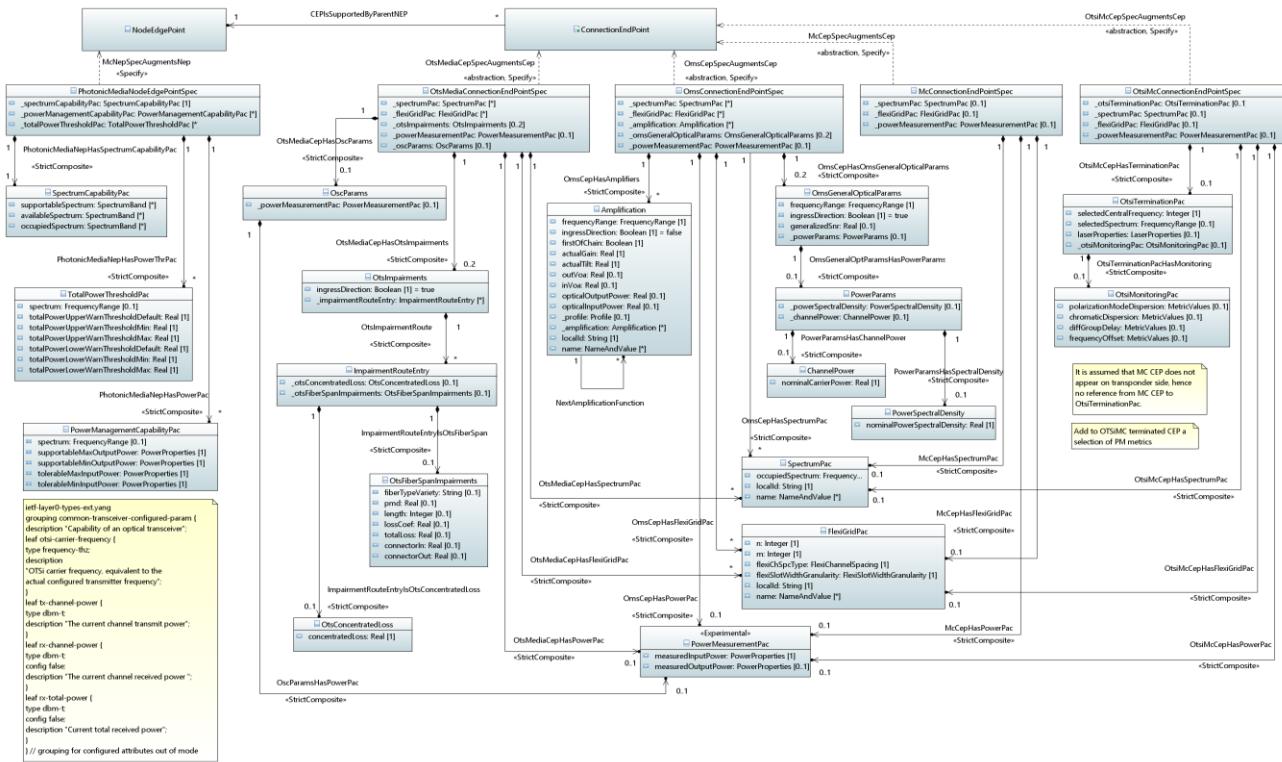
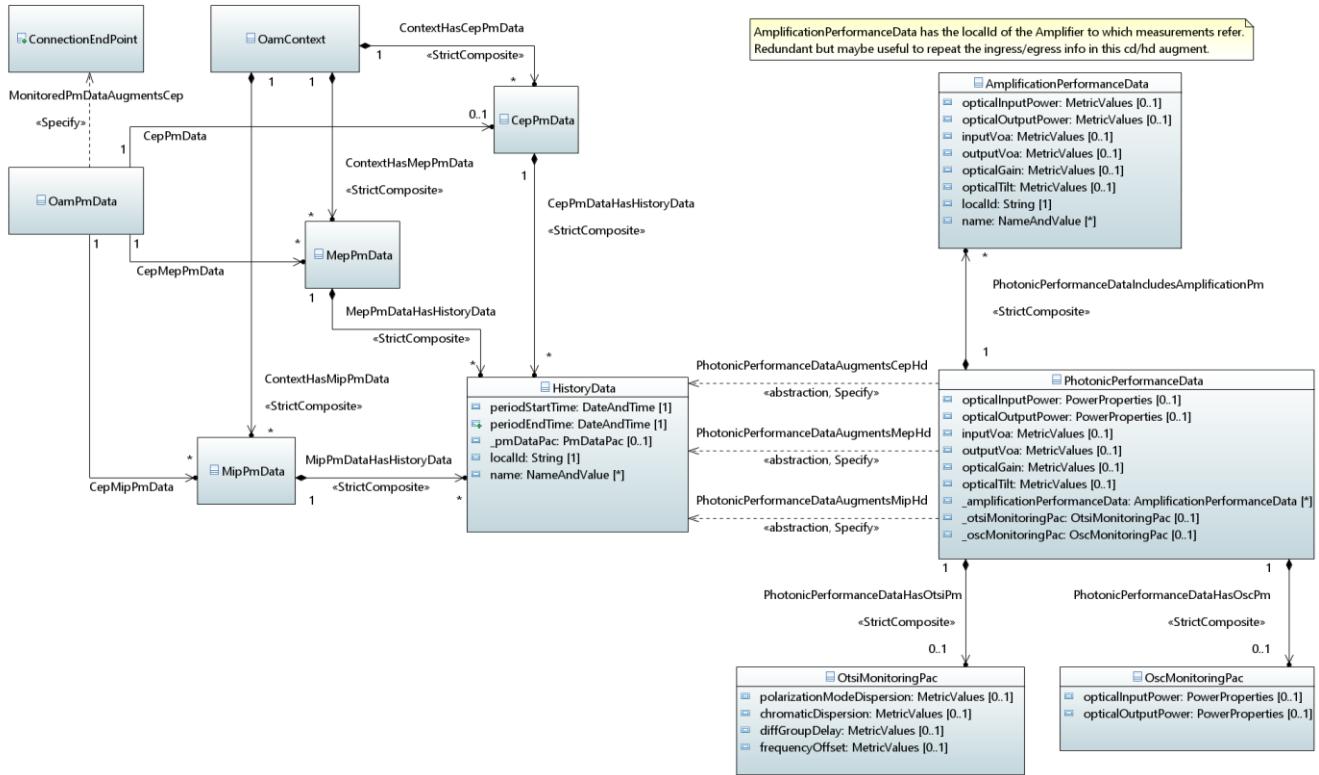


Figure 1 – Diagram *McResourceSpec*

Figure 2 – Diagram *PhotonicPm*

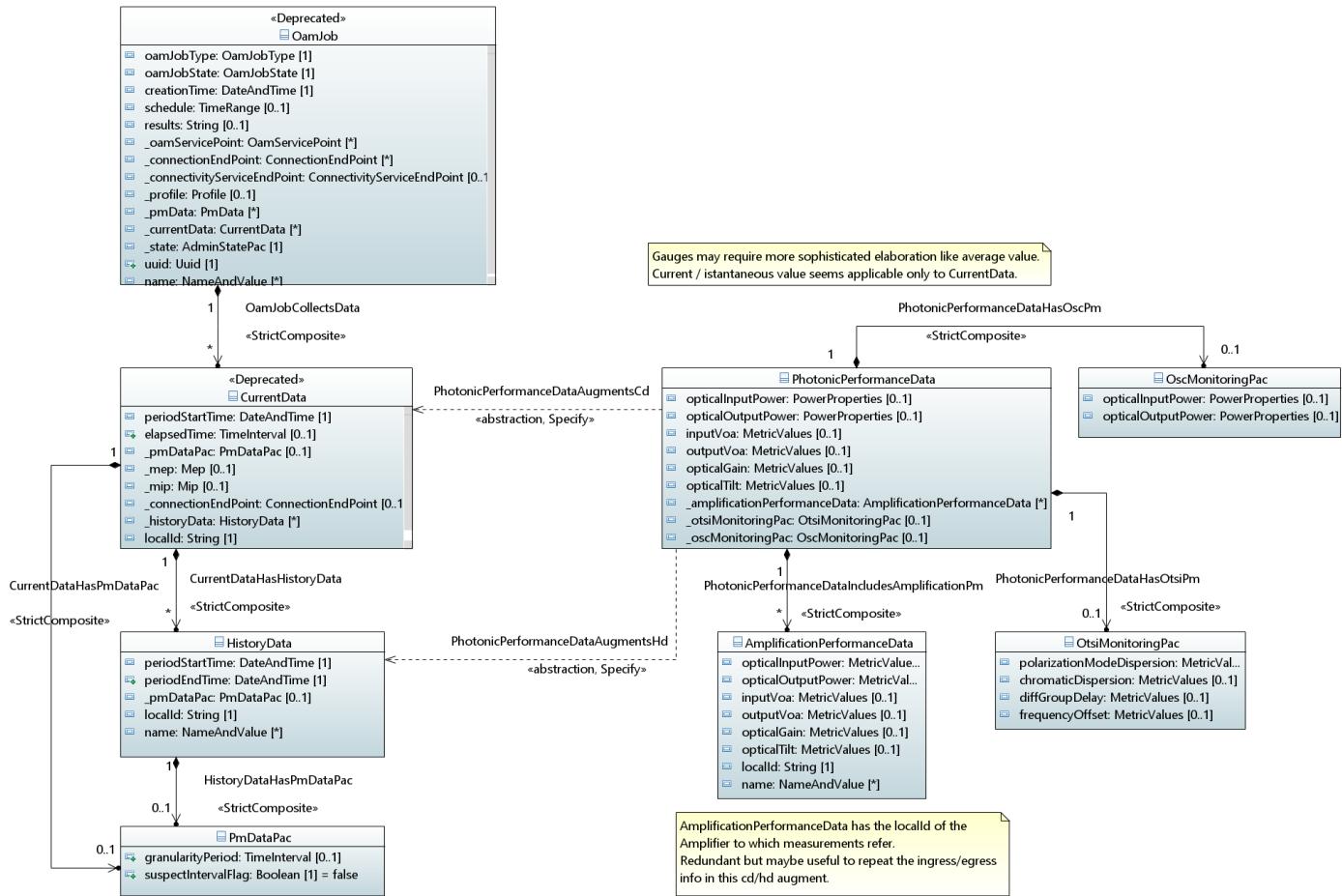


Figure 3 – Diagram *PhotonicPm_Deprecated*

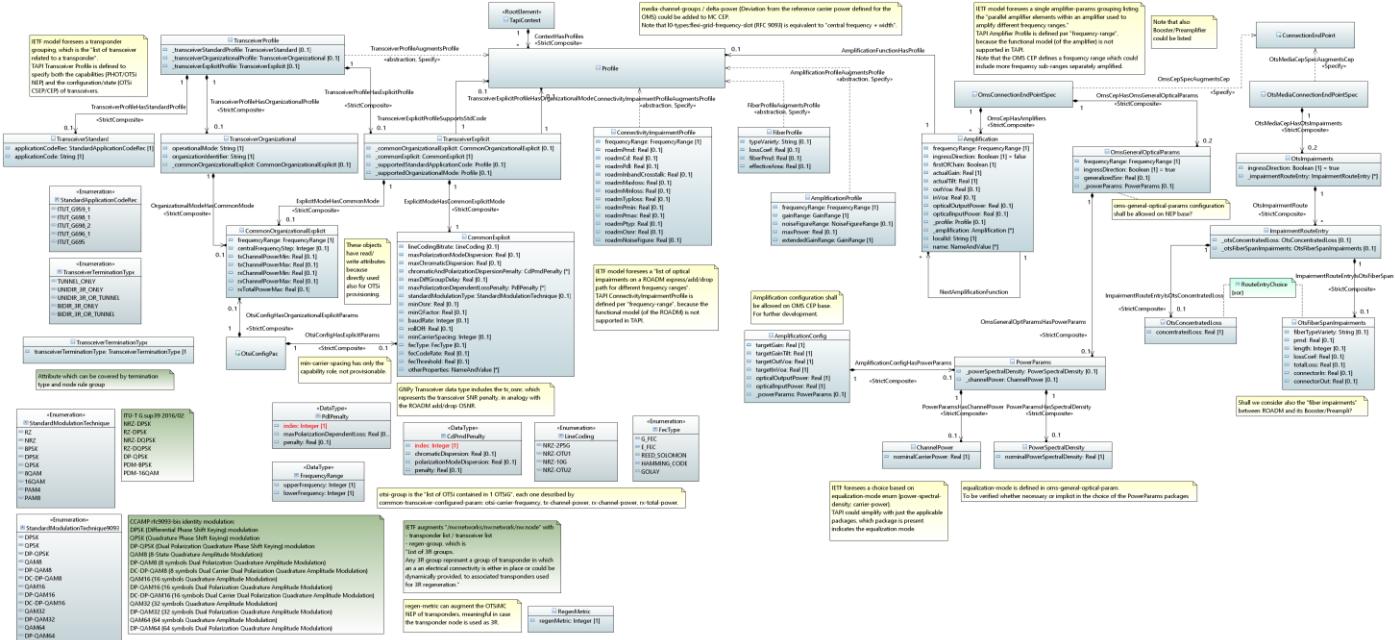


Figure 4 – Diagram *PhotonicProfiles*

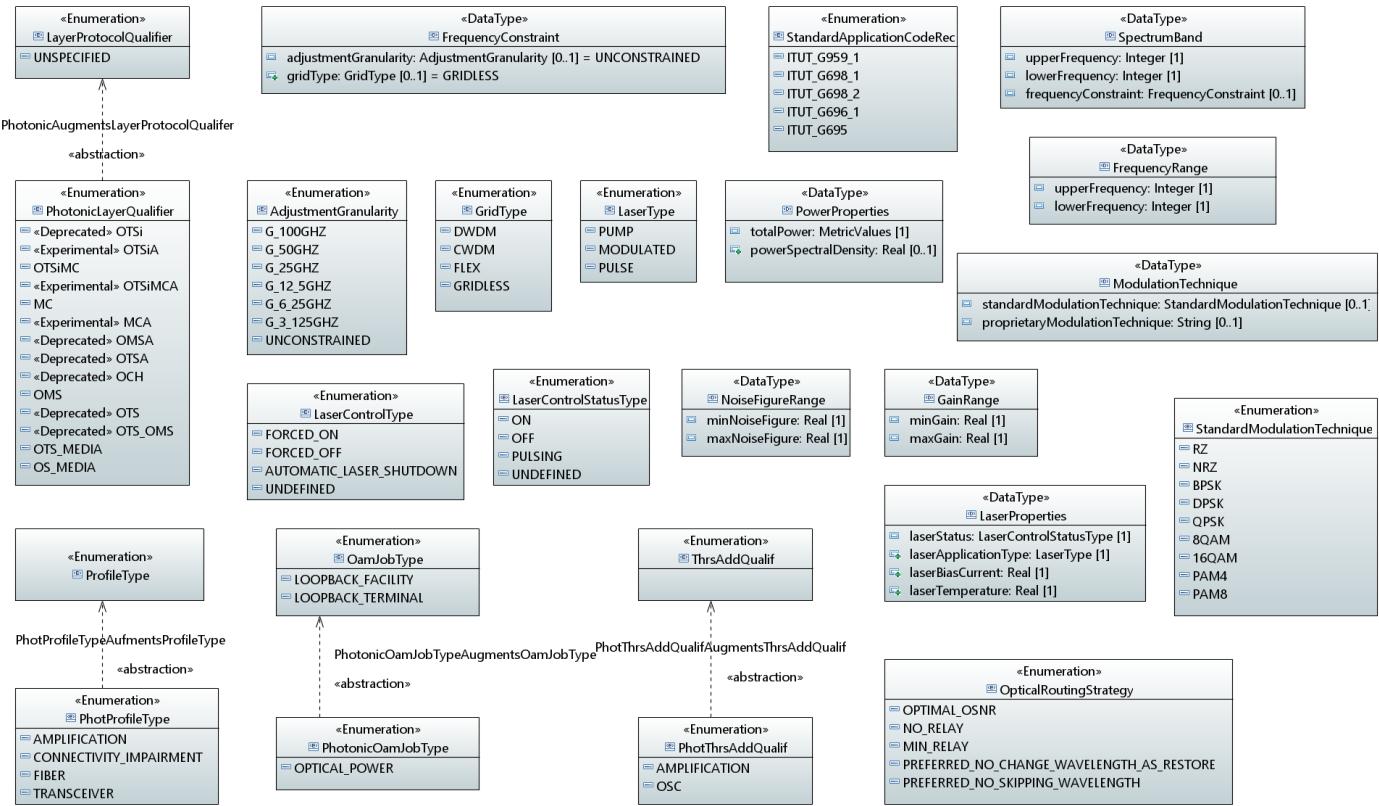


Figure 5 – Diagram *PhotonicTypes*

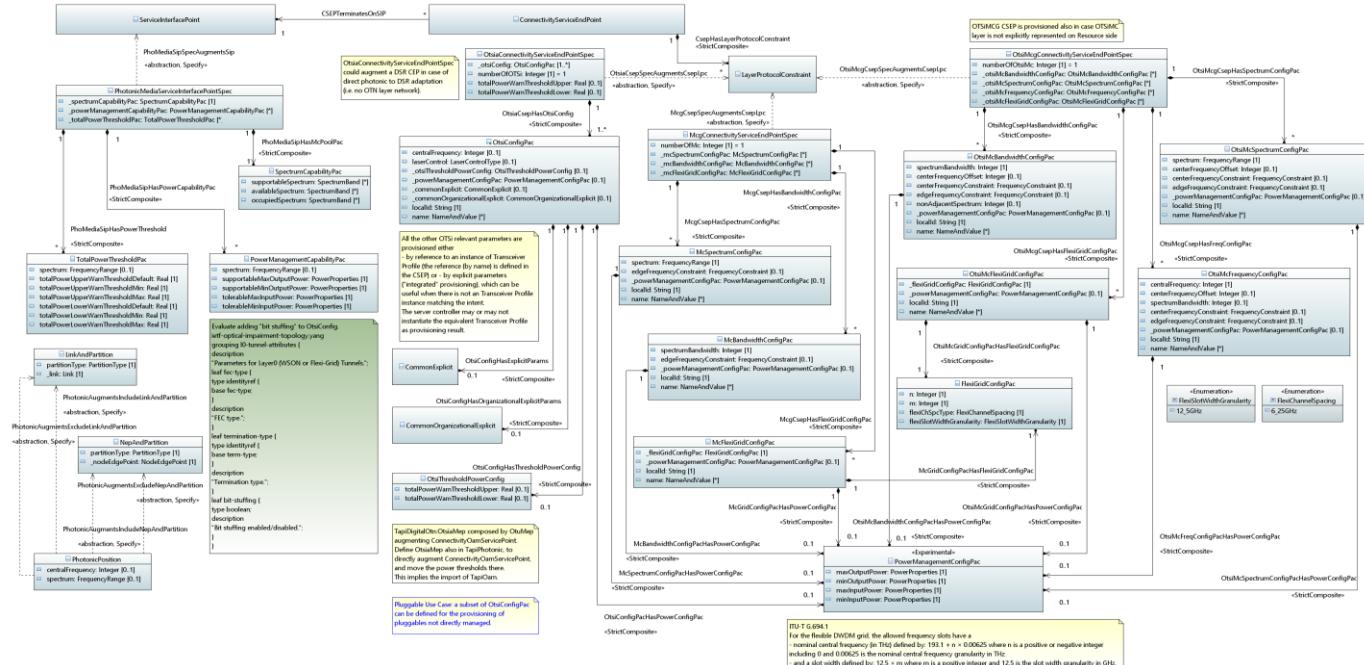


Figure 6 – Diagram *ServiceSpec*

1.2 Classes

1.2.1 Amplification

Description:

- The CEP which includes the Amplification impairments is the CEP which better approximates the output of the amplification function.

Applied stereotypes:

- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA
- OpenModelClass
 - support: MANDATORY

| Attribute Name | Type | Mult. | Access | Stereotypes |
|------------------|--|-------|--------|---|
| frequencyRange | FrequencyRange | 1 | R | OpenInterfaceModelAttribute <ul style="list-style-type: none"> AVC: NA OpenModelAttribute isKey: No isInvariant: false valueRange: no range constraint support: MANDATORY |
| | Description: | | | |
| ingressDirection | PrimitiveTypes::Boolean Default value: <i>false</i> | 1 | R | OpenInterfaceModelAttribute <ul style="list-style-type: none"> AVC: NA OpenModelAttribute isKey: No isInvariant: false valueRange: no range constraint support: MANDATORY |
| | Description: | | | |
| firstOfChain | PrimitiveTypes::Boolean | 1 | R | OpenInterfaceModelAttribute <ul style="list-style-type: none"> AVC: NA OpenModelAttribute isKey: No isInvariant: false valueRange: no range constraint support: MANDATORY |
| | Description: | | | |
| actualGain | PrimitiveTypes::Real | 1 | R | OpenInterfaceModelAttribute <ul style="list-style-type: none"> AVC: NA OpenModelAttribute isKey: No isInvariant: false valueRange: no range constraint support: MANDATORY |

| Attribute Name | Type | Mult. | Access | Stereotypes |
|--------------------|---|-------|--------|--|
| | Description: Actual gain in dB. | | | |
| actualTilt | PrimitiveTypes::Real | 1 | R | OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| | Description: Actual tilt in dB. | | | |
| outVoa | PrimitiveTypes::Real | 0..1 | R | OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| | Description: In dB. | | | |
| inVoa | PrimitiveTypes::Real | 0..1 | R | OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| | Description: In dB. | | | |
| opticalOutputPower | PrimitiveTypes::Real | 0..1 | R | OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| | Description: In dBm. | | | |
| opticalInputPower | PrimitiveTypes::Real | 0..1 | R | OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| | Description: In dBm. | | | |

| Attribute Name | Type | Mult. | Access | Stereotypes |
|--|--|-------|--------|---|
| _profile <i>Navigable association end of: AmplificationFunctionHasProfile</i> | TapiCommon::ObjectClasses::Profile | 0..1 | R | OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• OpenModelAttribute<ul style="list-style-type: none">• isKey: No• isInvariant: false• valueRange: no range constraint• support: MANDATORY |
| | Description: | | | |
| _amplification <i>Navigable association end of: NextAmplificationFunction</i> | Amplification | 0..* | R | OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• OpenModelAttribute<ul style="list-style-type: none">• isKey: No• isInvariant: false• valueRange: no range constraint• support: MANDATORY |
| | Description: | | | |
| localId Inherited: <i>TapiCommon::ObjectClasses::LocalClass::localId</i> | PrimitiveTypes::String | 1 | RW | OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• OpenModelAttribute<ul style="list-style-type: none">• isKey: yes – part: 1• isInvariant: true• valueRange: no range constraint• support: MANDATORY |
| | Description: | | | |
| | An identifier that is unique in the context of the GlobalClass from which it is inseparable. | | | |
| name Inherited: <i>TapiCommon::ObjectClasses::LocalClass::name</i> | TapiCommon::TypeDefinitions::NameAndValue | 0..* | RW | OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• OpenModelAttribute<ul style="list-style-type: none">• isKey: No• isInvariant: false• valueRange: no range constraint• support: MANDATORY |
| | Description: | | | |
| | List of names. This value is unique in some namespace but may change during the life of the entity. A name carries no semantics with respect to the purpose of the entity. | | | |

Table 1 – Attributes for class *Amplification*

1.2.2 AmplificationConfig

Description:

- This structure is for further development and is NOT used in this version.

Applied stereotypes:

- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA
- OpenModelClass
 - support: MANDATORY

| Attribute Name | Type | Mult. | Access | Stereotypes |
|--------------------|----------------------|-------|--------|--|
| targetGain | PrimitiveTypes::Real | 1 | RW | OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| | Description: | | | |
| targetGainTilt | PrimitiveTypes::Real | 1 | RW | OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| | Description: | | | |
| targetOutVoa | PrimitiveTypes::Real | 1 | RW | OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| | Description: | | | |
| targetInVoa | PrimitiveTypes::Real | 1 | RW | OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| | Description: | | | |
| opticalOutputPower | PrimitiveTypes::Real | 1 | RW | OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| | Description: | | | |

| Attribute Name | Type | Mult. | Access | Stereotypes |
|--|----------------------|-------|--------|--|
| opticalInputPower | PrimitiveTypes::Real | 1 | RW | OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| Description: | | | | |
| _powerParams <i>Navigable association end of: AmplificationConfigHasPowerParams</i> | <u>PowerParams</u> | 0..1 | RW | OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| Description: | | | | |

Table 2 – Attributes for class *AmplificationConfig*

1.2.3 AmplificationPerformanceData

Applied stereotypes:

- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA
- OpenModelClass
 - support: MANDATORY

| Attribute Name | Type | Mult. | Access | Stereotypes |
|---------------------|---|-------|--------|--|
| opticalInputPower | TapiCommon::TypeDefinitions::MetricValues | 0..1 | R | OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| Description: | | | | |
| opticalOutputPower | TapiCommon::TypeDefinitions::MetricValues | 0..1 | R | OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| Description: | | | | |

| Attribute Name | Type | Mult. | Access | Stereotypes |
|--|--|-------|--------|---|
| inputVoa | TapiCommon::TypeDefinitions::MetricValues | 0..1 | R | OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| | Description: | | | |
| outputVoa | TapiCommon::TypeDefinitions::MetricValues | 0..1 | R | OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| | Description: | | | |
| opticalGain | TapiCommon::TypeDefinitions::MetricValues | 0..1 | R | OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| | Description: | | | |
| opticalTilt | TapiCommon::TypeDefinitions::MetricValues | 0..1 | R | OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| | Description: | | | |
| localId Inherited: <i>TapiCommon::ObjectClasses::LocalClass::localId</i> | PrimitiveTypes::String | 1 | RW | OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • OpenModelAttribute • isKey: yes – part: 1 • isInvariant: true • valueRange: no range constraint • support: MANDATORY |
| | Description: | | | |
| | An identifier that is unique in the context of the GlobalClass from which it is inseparable. | | | |

| Attribute Name | Type | Mult. | Access | Stereotypes |
|--|---|-------|--------|--|
| name Inherited: <i>TapiCommon::ObjectClasses::LocalClass::name</i> | TapiCommon::TypeDefinitions::NameAndValue | 0..* | RW | OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY <p>Description:</p> <p>List of names. This value is unique in some namespace but may change during the life of the entity. A name carries no semantics with respect to the purpose of the entity.</p> |

Table 3 – Attributes for class *AmplificationPerformanceData*

1.2.4 AmplificationProfile

Applied stereotypes:

- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA
- OpenModelClass
 - support: MANDATORY

| Attribute Name | Type | Mult. | Access | Stereotypes |
|------------------|----------------------------------|-------|--------|--|
| frequencyRange | FrequencyRange | 1 | R | OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY <p>Description:</p> |
| gainRange | GainRange | 1 | R | OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY <p>Description:</p> |
| noiseFigureRange | NoiseFigureRange | 0..1 | R | OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY <p>Description:</p> <p>Noise figure range of the amplifier. Measured in dB.</p> |

| Attribute Name | Type | Mult. | Access | Stereotypes |
|---------------------|--|-------|--------|---|
| maxPower | PrimitiveTypes::Real | 0..1 | R | OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| Description: | | | | |
| | Maximum output power. Measured in dBm. | | | |
| extendedGainRange | GainRange | 1 | R | OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| Description: | | | | |

Table 4 – Attributes for class *AmplificationProfile*

1.2.5 ChannelPower

Applied stereotypes:

- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA
- OpenModelClass
 - support: MANDATORY

| Attribute Name | Type | Mult. | Access | Stereotypes |
|---------------------|--|-------|--------|---|
| nominalCarrierPower | PrimitiveTypes::Real | 1 | R | OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| Description: | | | | |
| | Reference channel power. OMS power after the ROADM (input of the OMS) or after the out-voa of each amplifier. Measured in dBm. | | | |

Table 5 – Attributes for class *ChannelPower*

1.2.6 CommonExplicit

Description:

- Attributes capabilities related to explicit mode of an optical transceiver.

Applied stereotypes:

- OpenInterfaceModelClass

- objectCreationNotification: NA
- objectDeletionNotification: NA
- OpenModelClass
 - support: MANDATORY

| Attribute Name | Type | Mult. | Access | Stereotypes |
|---|--|-------|--------|---|
| lineCodingBitrate | LineCoding | 0..1 | RW | OpenInterfaceModelAttribute <ul style="list-style-type: none"> ● AVC: NA ● OpenModelAttribute ● isKey: No ● isInvariant: false ● valueRange: no range constraint ● support: MANDATORY |
| | Description: Bit rate/line coding of optical tributary signal. | | | |
| maxPolarizationModeDispersion | PrimitiveTypes::Real | 0..1 | RW | OpenInterfaceModelAttribute <ul style="list-style-type: none"> ● AVC: NA ● OpenModelAttribute ● isKey: No ● isInvariant: false ● valueRange: no range constraint ● support: MANDATORY |
| | Description: Maximum acceptable accumulated polarization mode dispersion on the receiver. Measured in picoseconds per square root kilometer. | | | |
| maxChromaticDispersion | PrimitiveTypes::Real | 0..1 | RW | OpenInterfaceModelAttribute <ul style="list-style-type: none"> ● AVC: NA ● OpenModelAttribute ● isKey: No ● isInvariant: false ● valueRange: no range constraint ● support: MANDATORY |
| | Description: Maximum acceptable accumulated chromatic dispersion on the receiver. Measured in ps/nm (picoseconds per nanometer). | | | |
| chromaticAndPolarizationDispersionPenalty | CdPmdPenalty | 0..* | RW | OpenInterfaceModelAttribute <ul style="list-style-type: none"> ● AVC: NA ● OpenModelAttribute ● isKey: No ● isInvariant: false ● valueRange: no range constraint ● support: MANDATORY |
| | Description: Optional penalty associated with a given accumulated CD and PMD. This list of triplet cd, pmd, penalty can be used to sample the function $\text{penalty} = f(\text{CD}, \text{PMD})$. | | | |
| maxDiffGroupDelay | PrimitiveTypes::Real | 0..1 | RW | OpenInterfaceModelAttribute <ul style="list-style-type: none"> ● AVC: NA ● OpenModelAttribute ● isKey: No ● isInvariant: false ● valueRange: no range constraint ● support: MANDATORY |

| Attribute Name | Type | Mult. | Access | Stereotypes |
|-------------------------------------|--|-------|--------|--|
| | Description: Maximum Differential group delay of this mode for this lane. Measured in picoseconds. | | | |
| maxPolarizationDependentLossPenalty | PdlPenalty | 0..* | RW | OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| | Description: Optional penalty associated with the maximum acceptable accumulated polarization dependent loss. This list of pair pdl and penalty can be used to sample the function pdl = f(penalty). | | | |
| standardModulationType | StandardModulationTechnique | 0..1 | RW | OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| | Description: Modulation type this transceiver profile can support. | | | |
| minOsnr | PrimitiveTypes::Real | 0..1 | RW | OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| | Description: Min OSNR: if received OSNR at minimum Rx-power is lower than MIN-OSNR, an increased level of bit-errors post-FEC needs to be expected. Measured in dB@0.1nm (over 0.1 nm resolution bandwidth). | | | |
| minQFactor | PrimitiveTypes::Real | 0..1 | RW | OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| | Description: Min Qfactor at FEC threshold. Measured in dB. | | | |
| baudRate | PrimitiveTypes::Integer | 0..1 | RW | OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |

| Attribute Name | Type | Mult. | Access | Stereotypes |
|-------------------|---|-------|--------|---|
| | Description: Baud-rate the specific transceiver in the list can support. Baud-rate is the unit for symbol rate or modulation rate in symbols per second or pulses per second. It is the number of distinct symbol changes (signal events) made to the transmission medium per second in a digitally modulated signal or a line code. Measured in Bd. | | | |
| rollOff | PrimitiveTypes::Real | 0..1 | RW | OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA OpenModelAttribute <ul style="list-style-type: none"> • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| | Description: The roll-off factor (beta with values from 0 to 1) identifies how the real signal shape exceed the baud rate. If=0 it is exactly matching the baud rate. If=1 the signal exceeds the 50% of the baud rate at each side. | | | |
| minCarrierSpacing | PrimitiveTypes::Integer | 0..1 | RW | OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA OpenModelAttribute <ul style="list-style-type: none"> • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| | Description: This attribute specifies the minimum nominal difference between the carrier frequencies of two homogeneous OTSis (which have the same optical characteristics but the central frequencies) such that if they are placed next to each other the interference due to spectrum overlap between them can be considered negligible. In case of heterogeneous OTSi it is up to path computation engine to determine the minimum distance between the carrier frequency of the two adjacent OTSi. Measured in Hz. | | | |
| fecType | FecType | 0..1 | RW | OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA OpenModelAttribute <ul style="list-style-type: none"> • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| | Description: Available FEC. | | | |
| fecCodeRate | PrimitiveTypes::Real | 0..1 | RW | OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA OpenModelAttribute <ul style="list-style-type: none"> • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| | Description: FEC code rate. | | | |

| Attribute Name | Type | Mult. | Access | Stereotypes |
|--|---|-------|--------|--|
| fecThreshold | PrimitiveTypes::Real | 0..1 | RW | OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| Description: | | | | |
| Threshold on the BER, for which FEC is able to correct errors. | | | | |
| otherProperties | TapiCommon::TypeDefinitions::NameAndValue | 0..* | RW | OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| Description: | | | | |

Table 6 – Attributes for class *CommonExplicit*

1.2.7 CommonOrganizationalExplicit

Applied stereotypes:

- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA
- OpenModelClass
 - support: MANDATORY

| Attribute Name | Type | Mult. | Access | Stereotypes |
|--|--------------------------------|-------|--------|--|
| frequencyRange | FrequencyRange | 1 | RW | OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| Description: | | | | |
| This parameter indicates the minimum and maximum frequency for the transmitter tuning range. | | | | |
| centralFrequencyStep | PrimitiveTypes::Integer | 0..1 | RW | OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |

| Attribute Name | Type | Mult. | Access | Stereotypes |
|-------------------|---|-------|--------|---|
| | Description: This parameter indicates the transmitter tunability grid as the distance between two adjacent carrier frequencies of the transmitter tuning range. Measured in Hz. | | | |
| txChannelPowerMin | PrimitiveTypes::Real | 0..1 | RW | OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• isKey: No• isInvariant: false• valueRange: no range constraint• support: MANDATORY |
| | Description: The minimum output power. Measured in dBm. | | | |
| txChannelPowerMax | PrimitiveTypes::Real | 0..1 | RW | OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• isKey: No• isInvariant: false• valueRange: no range constraint• support: MANDATORY |
| | Description: The maximum output power. Measured in dBm. | | | |
| rxChannelPowerMin | PrimitiveTypes::Real | 0..1 | RW | OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• isKey: No• isInvariant: false• valueRange: no range constraint• support: MANDATORY |
| | Description: The minimum input power. Measured in dBm. | | | |
| rxChannelPowerMax | PrimitiveTypes::Real | 0..1 | RW | OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• isKey: No• isInvariant: false• valueRange: no range constraint• support: MANDATORY |
| | Description: The maximum input power. Measured in dBm. | | | |
| rxTotalPowerMax | PrimitiveTypes::Real | 0..1 | RW | OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• isKey: No• isInvariant: false• valueRange: no range constraint• support: MANDATORY |
| | Description: Maximum rx optical power for all the channels received at the interface. Measured in dBm. | | | |

Table 7 – Attributes for class *CommonOrganizationalExplicit*

1.2.8 ConnectivityImpairmentProfile

Description:

- This profile centralizes all the parameters of CCAMP ROADM add/drop/express path impairment profiles.

Applied stereotypes:

- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA
- OpenModelClass
 - support: MANDATORY

| Attribute Name | Type | Mult. | Access | Stereotypes |
|---|--------------------------------|-------|--------|---|
| frequencyRange | FrequencyRange | 1 | R | OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA OpenModelAttribute <ul style="list-style-type: none"> • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| Description: | | | | |
| roadmPmd | PrimitiveTypes::Real | 0..1 | R | OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA OpenModelAttribute <ul style="list-style-type: none"> • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| Description: | | | | |
| Polarization Mode Dispersion, in picoseconds per square root kilometer. | | | | |
| roadmCd | PrimitiveTypes::Real | 0..1 | R | OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA OpenModelAttribute <ul style="list-style-type: none"> • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| Description: | | | | |
| Chromatic Dispersion in ps/nm (picoseconds per nanometer). | | | | |
| roadmPdl | PrimitiveTypes::Real | 0..1 | R | OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA OpenModelAttribute <ul style="list-style-type: none"> • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| Description: | | | | |
| Polarization Dependent Loss, in dB. | | | | |

| Attribute Name | Type | Mult. | Access | Stereotypes |
|----------------------|----------------------|-------|--------|---|
| roADMInbandCrosstalk | PrimitiveTypes::Real | 0..1 | R | <p>OpenInterfaceModelAttribute</p> <ul style="list-style-type: none"> • AVC: NA • OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| | Description: | | | In-band crosstalk, or coherent crosstalk, can occur in components that can have multiple same wavelength inputs, with the inputs either routed to different output ports, or all but 1 blocked. In the case of drop path it is the total of the ingress to drop e.g. WSS and drop block crosstalk contributions. Measured in dB. |
| roADMMaxloss | PrimitiveTypes::Real | 0..1 | R | <p>OpenInterfaceModelAttribute</p> <ul style="list-style-type: none"> • AVC: NA • OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| | Description: | | | Add path / Sink direction: This is the maximum expected add path loss from the add/drop port input to the ROADM egress, assuming no additional add path loss is added. This is used to establish the minimum required transponder output power required to hit the ROADM egress target power levels and preventing to hit the WSS attenuation limits. If the add path contains an internal amplifier this loss value should be based on worst case expected amplifier gain due to ripple or gain uncertainty. Drop path / Source direction: The net loss from the ROADM input, to the output of the drop block. If ROADM ingress to drop path includes an amplifier, the amplifier gain reduces the net loss. This is before any additional drop path attenuation that may be required due to drop amplifier power constraints. The max value correspond to worst case expected loss, including amplifier gain ripple or uncertainty. It is the maximum output power of the drop amplifier. Measured in dB. |
| roADMMinloss | PrimitiveTypes::Real | 0..1 | R | <p>OpenInterfaceModelAttribute</p> <ul style="list-style-type: none"> • AVC: NA • OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| | Description: | | | The net loss from the ROADM input, to the output of the drop block. If this ROADM ingress to drop path includes an amplifier, the amplifier gain reduces the net loss. This is before any additional drop path attenuation that may be required due to drop amplifier power constraints. The min value correspond to best case expected loss, including amplifier gain ripple or uncertainty. Measured in dB. |
| roADMTyploss | PrimitiveTypes::Real | 0..1 | R | <p>OpenInterfaceModelAttribute</p> <ul style="list-style-type: none"> • AVC: NA • OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |

| Attribute Name | Type | Mult. | Access | Stereotypes |
|----------------|---|-------|--------|---|
| | Description: The net loss from the ROADM input, to the output of the drop block. If this ROADM ingress to drop path includes an amplifier, the amplifier gain reduces the net loss. This is before any additional drop path attenuation that may be required due to drop amplifier power contraints. The typ value correspond to typical case expected loss. Measured in dB. | | | |
| roadmPmin | PrimitiveTypes::Real | 0..1 | R | OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• isKey: No• isInvariant: false• valueRange: no range constraint• support: MANDATORY |
| | Description: If the drop path has additional loss that is added, for example, to hit target power levels into a drop path amplifier, or simply, to reduce the power of a strong carrier (due to ripple, for example), then the use of the ROADM input power levels and the above drop losses is not appropriate. This parameter corresponds to the min per carrier power levels expected at the output of the drop block. Measured in dBm. | | | |
| roadmPmax | PrimitiveTypes::Real | 0..1 | R | OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• isKey: No• isInvariant: false• valueRange: no range constraint• support: MANDATORY |
| | Description: Add path / Sink direction: This is the maximum (per carrier) power level permitted at the add block input ports, that can be handled by the ROADM node. This may reflect either add amplifier power contraints or WSS adjustment limits. Higher power transponders would need to have their launch power reduced to this value or lower. Drop pah / Source direction: If the drop path has additional loss that is added, for example, to hit target power levels into a drop path amplifier, or simply, to reduce the power of a strong carrier (due to ripple,for example), then the use of the ROADM input power levels and the above drop losses is not appropriate. This parameter corresponds to the best case per carrier power levels expected at the output of the drop block. Measured in dBm. | | | |
| roadmPtyp | PrimitiveTypes::Real | 0..1 | R | OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• isKey: No• isInvariant: false• valueRange: no range constraint• support: MANDATORY |
| | Description: If the drop path has additional loss that is added, for example, to hit target power levels into a drop path amplifier, or simply, to reduce the power of a strong carrier (due to ripple, for example), then the use of the ROADM input power levels and the above drop losses is not appropriate. This parameter corresponds to the typical case per carrier power levels expected at the output of the drop block. Measured in dBm. | | | |

| Attribute Name | Type | Mult. | Access | Stereotypes |
|---------------------|----------------------|-------|--------|---|
| roadmOsnr | PrimitiveTypes::Real | 0..1 | R | OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA OpenModelAttribute <ul style="list-style-type: none"> • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| Description: | | | | |
| | | | | Optical Signal-to-Noise Ratio (OSNR). Add path / Sink direction: If the add path contains the ability to adjust the carrier power levels into an add path amplifier (if present) to a target value, this reflects the OSNR contribution of the add amplifier assuming this target value is obtained. The worst case OSNR based on the input power and NF calculation method, and this value, should be used (if both are defined). Drop path / Source direction: Expected OSNR contribution of the drop path amplifier (if present) for the case of additional drop path loss (before this amplifier) in order to hit a target power level (per carrier). If both, - the OSNR based on the ROADM input power level ($P_{carrier} = Pref + 10\log(carrier-baudrate/ref-baud) + \text{delta-power}$) and the input inferred NF(NF.drop), and - this OSNR value, are defined, the minimum value between these two should be used. Measured in dB@0.1nm (over 0.1 nm resolution bandwidth). |
| roadmNoiseFigure | PrimitiveTypes::Real | 0..1 | R | OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA OpenModelAttribute <ul style="list-style-type: none"> • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| Description: | | | | |
| | | | | Add path / Sink direction: If the add path contains an amplifier, this is the noise figure of that amplifier inferred to the add port. This permits add path OSNR calculation based on the input power levels to the add block without knowing the ROADM path losses to the add amplifier. Drop path / Source direction: If the drop path contains an amplifier, this is the noise figure of that amplifier, inferred to the ROADM ingress port. This permits to determine amplifier OSNR contribution without having to specify the ROADM node's losses to that amplifier. This applies for the case of no additional drop path loss, before the amplifier, in order to reduce the power of the carriers to a target value. Measured in dB. |

Table 8 – Attributes for class *ConnectivityImpairmentProfile*

1.2.9 FiberProfile

Applied stereotypes:

- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA
- OpenModelClass
 - support: MANDATORY

| Attribute Name | Type | Mult. | Access | Stereotypes |
|----------------|---|-------|--------|--|
| typeVariety | PrimitiveTypes::String | 0..1 | R | OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| | Description: | | | |
| lossCoef | PrimitiveTypes::Real | 0..1 | R | OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| | Description: | | | |
| | Loss coefficient of the fiber in dB/Km. | | | |
| fiberPmd | PrimitiveTypes::Real | 0..1 | R | OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| | Description: | | | |
| | Polarization Mode Dispersion, in picoseconds per square root kilometer. | | | |
| effectiveArea | PrimitiveTypes::Real | 0..1 | R | OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| | Description: | | | |
| | Effective area of the fiber, in square meters. | | | |

Table 9 – Attributes for class *FiberProfile*

1.2.10 FlexiGridConfigPac

Applied stereotypes:

- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA
- OpenModelClass
 - support: MANDATORY

| Attribute Name | Type | Mult. | Access | Stereotypes |
|---------------------------|---|-------|--------|---|
| n | PrimitiveTypes::Integer | 1 | RW | OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| Description: | | | | |
| | | | | RFC 9093: The given value 'N' is used to determine the nominal central frequency. The nominal central frequency, 'f', is defined by: - $f = 193100.000 \text{ GHz} + N \times \text{channel spacing}$ (measured in GHz), where 193100.000 GHz (193.10000 THz) is the ITU-T 'anchor frequency' for transmission over the DWDM grid, and where 'channel spacing' is defined by the flexi-ch-spc-type. Note that the term 'channel spacing' can be substituted by the term 'nominal central frequency granularity' defined in clause 8 of ITU-T G.694.1. Signed. |
| m | PrimitiveTypes::Integer | 1 | RW | OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| Description: | | | | |
| | | | | RFC 9093: The given value 'M' is used to determine the slot width. A slot width is defined by: - slot width = M x SWG (measured in GHz), where SWG (Slot Width Granularity) is defined by the flexi-slot-width-granularity. |
| flexiChSpcType | FlexiChannelSpacing | 1 | RW | OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| Description: | | | | |
| flexiSlotWidthGranularity | FlexiSlotWidthGranularity | 1 | RW | OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| Description: | | | | |

Table 10 – Attributes for class *FlexiGridConfigPac*

1.2.11 FlexiGridPac

Applied stereotypes:

- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

- OpenModelClass
 - support: MANDATORY

| Attribute Name | Type | Mult. | Access | Stereotypes |
|---|---|-------|--------|---|
| n | PrimitiveTypes::Integer | 1 | R | OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| Description: | | | | |
| RFC 9093: The given value 'N' is used to determine the nominal central frequency. The nominal central frequency, 'f', is defined by: - $f = 193100.000 \text{ GHz} + N \times \text{channel spacing}$ (measured in GHz), where 193100.000 GHz (193.10000 THz) is the ITU-T 'anchor frequency' for transmission over the DWDM grid, and where 'channel spacing' is defined by the flexi-ch-spc-type. Note that the term 'channel spacing' can be substituted by the term 'nominal central frequency granularity' defined in clause 8 of ITU-T G.694.1. Signed. | | | | |
| m | PrimitiveTypes::Integer | 1 | R | OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| Description: | | | | |
| RFC 9093: The given value 'M' is used to determine the slot width. A slot width is defined by: - slot width = M x SWG (measured in GHz), where SWG (Slot Width Granularity) is defined by the flexi-slot-width-granularity. | | | | |
| flexiChSpcType | FlexiChannelSpacing | 1 | R | OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| Description: | | | | |
| flexiSlotWidthGranularity | FlexiSlotWidthGranularity | 1 | R | OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| Description: | | | | |

| Attribute Name | Type | Mult. | Access | Stereotypes |
|--|---|-------|--------|---|
| localId Inherited: <i>TapiCommon::ObjectClasses::LocalClass::localId</i> | PrimitiveTypes::String | 1 | RW | OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• OpenModelAttribute<ul style="list-style-type: none">• isKey: yes – part: 1• isInvariant: true• valueRange: no range constraint• support: MANDATORY |
| Description: | | | | An identifier that is unique in the context of the GlobalClass from which it is inseparable. |
| name Inherited: <i>TapiCommon::ObjectClasses::LocalClass::name</i> | TapiCommon::TypeDefinitions::NameAndValue | 0..* | RW | OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• OpenModelAttribute<ul style="list-style-type: none">• isKey: No• isInvariant: false• valueRange: no range constraint• support: MANDATORY |
| Description: | | | | List of names. This value is unique in some namespace but may change during the life of the entity. A name carries no semantics with respect to the purpose of the entity. |

Table 11 – Attributes for class *FlexiGridPac*

1.2.12 ImpairmentRouteEntry

Description:

- An ImpairmentRouteEntry can be exclusively either an OtsConcentratedLoss or an OtsFiberSpanImpairments.

Applied stereotypes:

- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA
- OpenModelClass
 - support: MANDATORY

| Attribute Name | Type | Mult. | Access | Stereotypes |
|---|-------------------------------------|-------|--------|---|
| _otsConcentratedLoss Navigable association end of: <i>ImpairmentRouteEntryIsOtsConcentratedLoss</i> | OtsConcentratedLoss | 0..1 | R | OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• OpenModelAttribute<ul style="list-style-type: none">• isKey: No• isInvariant: false• valueRange: no range constraint• support: MANDATORY |
| Description: | | | | |

| Attribute Name | Type | Mult. | Access | Stereotypes |
|---|---|-------|--------|---|
| _otsFiberSpanImpairments <i>Navigable association end of: ImpairmentRouteEntryIsOtsFiberSpan</i> | OtsFiberSpanImpairments | 0..1 | R | OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |

Table 12 – Attributes for class *ImpairmentRouteEntry*

1.2.13 McBandwidthConfigPac

Description:

- MC configuration based on bandwidth, with the actual position in the spectrum is delegated to the server controller.

Applied stereotypes:

- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA
- OpenModelClass
 - support: MANDATORY

| Attribute Name | Type | Mult. | Access | Stereotypes |
|---|--|-------|--------|---|
| spectrumBandwidth | PrimitiveTypes::Integer | 1 | RW | OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| edgeFrequencyConstraint | FrequencyConstraint | 0..1 | RW | OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| _powerManagementConfigPac <i>Navigable association end of: McBandwidthConfigPacHasPowerConfigPac</i> | PowerManagementConfigPac | 0..1 | RW | OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |

| Attribute Name | Type | Mult. | Access | Stereotypes |
|--|--|-------|--------|---|
| | Description: | | | |
| localId Inherited: <i>TapiCommon::ObjectClasses::LocalClass::localId</i> | PrimitiveTypes::String | 1 | RW | OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• isKey: yes – part: 1• isInvariant: true• valueRange: no range constraint• support: MANDATORY |
| | Description: | | | |
| | An identifier that is unique in the context of the GlobalClass from which it is inseparable. | | | |
| name Inherited: <i>TapiCommon::ObjectClasses::LocalClass::name</i> | TapiCommon::TypeDefinitions::NameAndValue | 0..* | RW | OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• isKey: No• isInvariant: false• valueRange: no range constraint• support: MANDATORY |
| | Description: | | | |
| | List of names. This value is unique in some namespace but may change during the life of the entity. A name carries no semantics with respect to the purpose of the entity. | | | |

Table 13 – Attributes for class *McBandwidthConfigPac*

1.2.14 McConnectionEndPointSpec

Applied stereotypes:

- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA
- OpenModelClass
 - support: MANDATORY

| Attribute Name | Type | Mult. | Access | Stereotypes |
|---|------------------------------|-------|--------|---|
| _spectrumPac Navigable association end of: <i>McCepHasSpectrumPac</i> | SpectrumPac | 0..1 | R | OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• isKey: No• isInvariant: false• valueRange: no range constraint• support: MANDATORY |
| | Description: | | | |
| _flexiGridPac Navigable association end of: <i>McCepHasFlexiGridPac</i> | FlexiGridPac | 0..1 | R | OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• isKey: No• isInvariant: false• valueRange: no range constraint• support: MANDATORY |
| | | | | |

| Attribute Name | Type | Mult. | Access | Stereotypes |
|---|-------------------------------------|-------|--------|--|
| | Description: | | | |
| _powerMeasurementPac <i>Navigable association end of: McCepHasPowerPac</i> | PowerMeasurementPac | 0..1 | R | OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• OpenModelAttribute• isKey: No• isInvariant: false• valueRange: no range constraint• support: MANDATORY |
| | Description: | | | |

Table 14 – Attributes for class *McConnectionEndPointSpec*

1.2.15 McFlexiGridConfigPac

Description:

- ITU-T G.694.1 Spectral grids for WDM applications: DWDM frequency grid. The flexi-grid-frequency-slot (RFC 9093) defines the nominal central frequency and its slot width in terms of N, M.

Applied stereotypes:

- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA
- OpenModelClass
 - support: MANDATORY

| Attribute Name | Type | Mult. | Access | Stereotypes |
|--|--|-------|--------|--|
| _flexiGridConfigPac <i>Navigable association end of: McGridConfigPacHasFlexiGridConfigPac</i> | FlexiGridConfigPac | 1 | RW | OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• OpenModelAttribute• isKey: No• isInvariant: false• valueRange: no range constraint• support: MANDATORY |
| | Description: | | | |
| _powerManagementConfigPac <i>Navigable association end of: McGridConfigPacHasPowerConfigPac</i> | PowerManagementConfigPac | 0..1 | RW | OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• OpenModelAttribute• isKey: No• isInvariant: false• valueRange: no range constraint• support: MANDATORY |
| | Description: | | | |

| Attribute Name | Type | Mult. | Access | Stereotypes |
|--|---|-------|--------|---|
| localId Inherited: <i>TapiCommon::ObjectClasses::LocalClass::localId</i> | PrimitiveTypes::String | 1 | RW | OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• isKey: yes – part: 1• isInvariant: true• valueRange: no range constraint• support: MANDATORY |
| Description: | | | | An identifier that is unique in the context of the GlobalClass from which it is inseparable. |
| name Inherited: <i>TapiCommon::ObjectClasses::LocalClass::name</i> | TapiCommon::TypeDefinitions::NameAndValue | 0..* | RW | OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• isKey: No• isInvariant: false• valueRange: no range constraint• support: MANDATORY |
| Description: | | | | List of names. This value is unique in some namespace but may change during the life of the entity. A name carries no semantics with respect to the purpose of the entity. |

Table 15 – Attributes for class *McFlexiGridConfigPac*

1.2.16 McSpectrumConfigPac

Description:

- MC configuration based on spectrum specification.

Applied stereotypes:

- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA
- OpenModelClass
 - support: MANDATORY

| Attribute Name | Type | Mult. | Access | Stereotypes |
|-------------------------|-------------------------------------|-------|--------|---|
| spectrum | FrequencyRange | 1 | RW | OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• isKey: No• isInvariant: false• valueRange: no range constraint• support: MANDATORY |
| Description: | | | | |
| edgeFrequencyConstraint | FrequencyConstraint | 0..1 | RW | OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• isKey: No• isInvariant: false• valueRange: no range constraint• support: MANDATORY |

| Attribute Name | Type | Mult. | Access | Stereotypes |
|---|---|-------|--------|---|
| | Description: | | | |
| <u>_powerManagementConfigPac</u> Navigable association end of: McSpectrumConfigPacHasPowerConfigPac | PowerManagementConfigPac | 0..1 | RW | OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| | | | | Description: |
| localId Inherited: <i>TapiCommon::ObjectClasses::LocalClass::localId</i> | PrimitiveTypes::String | 1 | RW | OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: yes – part: 1 • isInvariant: true • valueRange: no range constraint • support: MANDATORY |
| | | | | Description: An identifier that is unique in the context of the GlobalClass from which it is inseparable. |
| name Inherited: <i>TapiCommon::ObjectClasses::LocalClass::name</i> | TapiCommon::TypeDefinitions::NameAndValue | 0..* | RW | OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| | | | | Description: List of names. This value is unique in some namespace but may change during the life of the entity. A name carries no semantics with respect to the purpose of the entity. |

Table 16 – Attributes for class *McSpectrumConfigPac*

1.2.17 **McConnectivityServiceEndPointSpec**

Description:

- MCG provisioning scenarios: 1) In case of MCG provisioning based on multiple SIPs (e.g. more add/drop ports each one potentially supporting a single OTSi), then a unique/top CSEP instance (not referring to any SIP, with a MC LPC including McgConnectivityServiceEndPointSpec with specified only the number of MCs) refers to the CSEP instances (one per each MEDIA Link, each one referring to one SIP, each one with a MC LPC including McgConnectivityServiceEndPointSpec composing only one MC config pac), through the CSEPHasAssembledCSEPs association. 2) In case of MCG provisioning based on single SIP, then the model is compacted into only one CSEP instance, with a MC LPC including McgConnectivityServiceEndPointSpec, which composes one or more MC config pacs).

Applied stereotypes:

- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

- OpenModelClass
 - support: MANDATORY

| Attribute Name | Type | Mult. | Access | Stereotypes |
|---|---|-------|--------|---|
| numberOfMc | PrimitiveTypes::Integer Default value: 1 | 1 | RW | OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| | Description: | | | |
| _mcSpectrumConfigPac <i>Navigable association end of: McCsepHasSpectrumConfigPac</i> | McSpectrumConfigPac | 0..* | RW | OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| | Description: | | | |
| _mcBandwidthConfigPac <i>Navigable association end of: McCsepHasBandwidthConfigPac</i> | McBandwidthConfigPac | 0..* | RW | OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| | Description: | | | |
| _mcFlexiGridConfigPac <i>Navigable association end of: McCsepHasFlexiGridConfigPac</i> | McFlexiGridConfigPac | 0..* | RW | OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| | Description: | | | |

Table 17 – Attributes for class *McgConnectivityServiceEndPointSpec*

1.2.18 OmsConnectionEndPointSpec

Applied stereotypes:

- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA
- OpenModelClass
 - support: MANDATORY

| Attribute Name | Type | Mult. | Access | Stereotypes |
|---|---|-------|--------|---|
| _spectrumPac <i>Navigable association end of: OmsCepHasSpectrumPac</i> | SpectrumPac | 0..* | R | OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• isKey: No• isInvariant: false• valueRange: no range constraint• support: MANDATORY |
| | Description: | | | |
| _flexiGridPac <i>Navigable association end of: OmsCepHasFlexiGridPac</i> | FlexiGridPac | 0..* | R | OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• isKey: No• isInvariant: false• valueRange: no range constraint• support: MANDATORY |
| | Description: | | | |
| _amplification <i>Navigable association end of: OmsCepHasAmplifiers</i> | Amplification | 0..* | R | OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• isKey: No• isInvariant: false• valueRange: no range constraint• support: MANDATORY |
| | Description: | | | |
| _omsGeneralOpticalParams <i>Navigable association end of: OmsCepHasOmsGeneralOpticalParams</i> | OmsGeneralOpticalParams | 0..2 | R | OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• isKey: No• isInvariant: false• valueRange: no range constraint• support: MANDATORY |
| | Description: | | | |
| _powerMeasurementPac <i>Navigable association end of: OmsCepHasPowerPac</i> | PowerMeasurementPac | 0..1 | R | OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• isKey: No• isInvariant: false• valueRange: no range constraint• support: MANDATORY |
| | Description: | | | |

Table 18 – Attributes for class *OmsConnectionEndPointSpec*

1.2.19 OmsGeneralOpticalParams

Applied stereotypes:

- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA
- OpenModelClass
 - support: MANDATORY

| Attribute Name | Type | Mult. | Access | Stereotypes |
|--|--|-------|--------|---|
| frequencyRange | FrequencyRange | 1 | R | OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| | Description: | | | |
| ingressDirection | PrimitiveTypes::Boolean Default value: <i>true</i> | 1 | R | OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| | Description: | | | |
| | For unidirectional CEPs there may be at most one oms general optical params. The ingress direction is true for a SINK CEP and false for a SOURCE CEP. For bidirectional CEPs there may be at most two oms general optical parms. If there are two one must have the ingress direction set to true and the other must have the ingress direction set to false. If the ingress direction is true the params correspond to the SINK function of the CEP and if it is false they correspond to the SOURCE function of the CEP. | | | |
| generalizedSnr | PrimitiveTypes::Real | 0..1 | R | OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| | Description: | | | |
| | Generalized SNR. Measured in dB@0.1nm (over 0.1 nm resolution bandwidth). | | | |
| _powerParams <i>Navigable association end of: OmsGeneralOptParamsHasPowerParams</i> | PowerParams | 0..1 | R | OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| | Description: | | | |

Table 19 – Attributes for class *OmsGeneralOpticalParams***1.2.20 OscMonitoringPac**

Applied stereotypes:

- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA
- OpenModelClass
 - support: MANDATORY

| Attribute Name | Type | Mult. | Access | Stereotypes |
|---------------------|---------------------------------|-------|--------|---|
| opticalInputPower | PowerProperties | 0..1 | R | OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA OpenModelAttribute <ul style="list-style-type: none"> • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| Description: | | | | |
| opticalOutputPower | PowerProperties | 0..1 | R | OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA OpenModelAttribute <ul style="list-style-type: none"> • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| Description: | | | | |

Table 20 – Attributes for class *OscMonitoringPac***1.2.21 OscParams**

Applied stereotypes:

- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA
- OpenModelClass
 - support: MANDATORY

| Attribute Name | Type | Mult. | Access | Stereotypes |
|---|-------------------------------------|-------|--------|---|
| _powerMeasurementPac <i>Navigable association end of: OscParamsHasPowerPac</i> | PowerMeasurementPac | 0..1 | R | OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA OpenModelAttribute <ul style="list-style-type: none"> • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |

| Attribute Name | Type | Mult. | Access | Stereotypes |
|----------------|---------------------|-------|--------|-------------|
| | Description: | | | |

Table 21 – Attributes for class *OscParams***1.2.22 OtsConcentratedLoss**

Applied stereotypes:

- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA
- OpenModelClass
 - support: MANDATORY

| Attribute Name | Type | Mult. | Access | Stereotypes |
|------------------|--|-------|--------|---|
| concentratedLoss | PrimitiveTypes::Real | 1 | R | OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA OpenModelAttribute <ul style="list-style-type: none"> • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| | Description: Concentrated loss, in dB. | | | |

Table 22 – Attributes for class *OtsConcentratedLoss***1.2.23 OtsFiberSpanImpairments**

Applied stereotypes:

- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA
- OpenModelClass
 - support: MANDATORY

| Attribute Name | Type | Mult. | Access | Stereotypes |
|------------------|------------------------------------|-------|--------|---|
| fiberTypeVariety | PrimitiveTypes::String | 0..1 | R | OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA OpenModelAttribute <ul style="list-style-type: none"> • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| | Description: Fiber type. | | | |

| Attribute Name | Type | Mult. | Access | Stereotypes |
|----------------|---|-------|--------|--|
| pmd | PrimitiveTypes::Real | 0..1 | R | OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| | Description: | | | |
| length | PrimitiveTypes::Integer | 0..1 | R | OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| | Description: | | | |
| | Length of the fiber in Km. | | | |
| lossCoef | PrimitiveTypes::Real | 0..1 | R | OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| | Description: | | | |
| | Loss coefficient of the fiber in dB/Km. | | | |
| totalLoss | PrimitiveTypes::Real | 0..1 | R | OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| | Description: | | | |
| | Includes all losses: Fiber loss and connector in and connector out losses, in dB. | | | |
| connectorIn | PrimitiveTypes::Real | 0..1 | R | OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| | Description: | | | |
| | Loss by the input connector, in dB. | | | |

| Attribute Name | Type | Mult. | Access | Stereotypes |
|---------------------|----------------------|-------|--------|---|
| connectorOut | PrimitiveTypes::Real | 0..1 | R | OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| Description: | | | | Loss by the output connector, in dB. |

Table 23 – Attributes for class *OtsFiberSpanImpairments***1.2.24 OtsImpairments**

Applied stereotypes:

- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA
- OpenModelClass
 - support: MANDATORY

| Attribute Name | Type | Mult. | Access | Stereotypes |
|--|---|-------|--------|---|
| ingressDirection | PrimitiveTypes::Boolean Default value: <i>true</i> | 1 | R | OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| Description: | | | | For unidirectional CEPs there may be at most one ots impairments. The ingress direction is true for a SINK CEP and false for a SOURCE CEP. For bidirectional CEPs there may be at most two ots impairments. If there are two one must have the ingress direction set to true and the other must have the ingress direction set to false. If the ingress direction is true the params correspond to the SINK function of the CEP and if it is false they correspond to the SOURCE function of the CEP. |
| _impairmentRouteEntry <i>Navigable association end of: OtsImpairmentRoute</i> | ImpairmentRouteEntry | 0..* | R | OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| Description: | | | | |

Table 24 – Attributes for class *OtsImpairments***1.2.25 OtsMediaConnectionEndPointSpec**

Applied stereotypes:

- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA
- OpenModelClass
 - support: MANDATORY

| Attribute Name | Type | Mult. | Access | Stereotypes |
|--|-------------------------------------|-------|--------|---|
| _spectrumPac <i>Navigable association end of: OtsMediaCepHasSpectrumPac</i> | SpectrumPac | 0..* | R | OpenInterfaceModelAttribute <ul style="list-style-type: none"> ◦ AVC: NA ◦ OpenModelAttribute ◦ isKey: No ◦ isInvariant: false ◦ valueRange: no range constraint ◦ support: MANDATORY |
| | Description: | | | |
| _flexiGridPac <i>Navigable association end of: OtsMediaCepHasFlexiGridPac</i> | FlexiGridPac | 0..* | R | OpenInterfaceModelAttribute <ul style="list-style-type: none"> ◦ AVC: NA ◦ OpenModelAttribute ◦ isKey: No ◦ isInvariant: false ◦ valueRange: no range constraint ◦ support: MANDATORY |
| | Description: | | | |
| _otsImpairments <i>Navigable association end of: OtsMediaCepHasOtsImpairments</i> | OtsImpairments | 0..2 | R | OpenInterfaceModelAttribute <ul style="list-style-type: none"> ◦ AVC: NA ◦ OpenModelAttribute ◦ isKey: No ◦ isInvariant: false ◦ valueRange: no range constraint ◦ support: MANDATORY |
| | Description: | | | |
| _powerMeasurementPac <i>Navigable association end of: OtsMediaCepHasPowerPac</i> | PowerMeasurementPac | 0..1 | R | OpenInterfaceModelAttribute <ul style="list-style-type: none"> ◦ AVC: NA ◦ OpenModelAttribute ◦ isKey: No ◦ isInvariant: false ◦ valueRange: no range constraint ◦ support: MANDATORY |
| | Description: | | | |
| _oscParams <i>Navigable association end of: OtsMediaCepHasOscParams</i> | OscParams | 0..1 | R | OpenInterfaceModelAttribute <ul style="list-style-type: none"> ◦ AVC: NA ◦ OpenModelAttribute ◦ isKey: No ◦ isInvariant: false ◦ valueRange: no range constraint ◦ support: MANDATORY |

| Attribute Name | Type | Mult. | Access | Stereotypes |
|----------------|---------------------|-------|--------|-------------|
| | Description: | | | |

Table 25 – Attributes for class *OtsMediaConnectionEndPointSpec***1.2.26 OtsiConfigPac****Description:**

- Configuration parameters regarding the single O/E/O transmission function.

Applied stereotypes:

- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA
- OpenModelClass
 - support: MANDATORY

| Attribute Name | Type | Mult. | Access | Stereotypes |
|---|--|-------|--------|---|
| centralFrequency | PrimitiveTypes::Integer | 0..1 | RW | OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA OpenModelAttribute <ul style="list-style-type: none"> • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| Description: | | | | |
| | | | | The central frequency of the laser. It is the oscillation frequency of the corresponding electromagnetic wave. Measured in Hz. |
| laserControl | LaserControlType | 0..1 | RW | OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA OpenModelAttribute <ul style="list-style-type: none"> • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| Description: | | | | |
| _otsiThresholdPowerConfig <i>Navigable association end of: OtsiConfigHasThresholdPowerConfig</i> | OtsiThresholdPowerConfig | 0..1 | RW | OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA OpenModelAttribute <ul style="list-style-type: none"> • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| Description: | | | | |

| Attribute Name | Type | Mult. | Access | Stereotypes |
|---|--|-------|--------|---|
| _powerManagementConfigPac <i>Navigable association end of: OtsiConfigPacHasPowerConfigPac</i> | PowerManagementConfigPac | 0..1 | RW | OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• OpenModelAttribute<ul style="list-style-type: none">• isKey: No• isInvariant: false• valueRange: no range constraint• support: MANDATORY |
| | Description: | | | |
| _commonExplicit <i>Navigable association end of: OtsiConfigHasExplicitParams</i> | CommonExplicit | 0..1 | RW | OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• OpenModelAttribute<ul style="list-style-type: none">• isKey: No• isInvariant: false• valueRange: no range constraint• support: MANDATORY |
| | Description: | | | |
| _commonOrganizationalExplicit <i>Navigable association end of: OtsiConfigHasOrganizationalExplicitParams</i> | CommonOrganizationalExplicit | 0..1 | RW | OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• OpenModelAttribute<ul style="list-style-type: none">• isKey: No• isInvariant: false• valueRange: no range constraint• support: MANDATORY |
| | Description: | | | |
| localId Inherited: <i>TapiCommon::ObjectClasses::LocalClass::localId</i> | PrimitiveTypes::String | 1 | RW | OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• OpenModelAttribute<ul style="list-style-type: none">• isKey: yes – part: 1• isInvariant: true• valueRange: no range constraint• support: MANDATORY |
| | Description: | | | An identifier that is unique in the context of the GlobalClass from which it is inseparable. |
| name Inherited: <i>TapiCommon::ObjectClasses::LocalClass::name</i> | TapiCommon::TypeDefinitions::NameAndValue | 0..* | RW | OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• OpenModelAttribute<ul style="list-style-type: none">• isKey: No• isInvariant: false• valueRange: no range constraint• support: MANDATORY |
| | Description: | | | List of names. This value is unique in some namespace but may change during the life of the entity. A name carries no semantics with respect to the purpose of the entity. |

Table 26 – Attributes for class *OtsiConfigPac*

1.2.27 OtsiMcBandwidthConfigPac

Description:

- OTSiMC configuration based on bandwidth, with the actual position in the spectrum is delegated to the server controller.

Applied stereotypes:

- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA
- OpenModelClass
 - support: MANDATORY

| Attribute Name | Type | Mult. | Access | Stereotypes |
|---------------------------|-------------------------------------|-------|--------|---|
| spectrumBandwidth | PrimitiveTypes::Integer | 1 | RW | OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA OpenModelAttribute <ul style="list-style-type: none"> • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| Description: | | | | |
| | | | | Unidimensional in Hz. |
| | | | | |
| centerFrequencyOffset | PrimitiveTypes::Integer | 0..1 | RW | OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA OpenModelAttribute <ul style="list-style-type: none"> • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| Description: | | | | |
| | | | | Offset where it is expected to find the signal in the MC. (unidimensional in Hz). |
| | | | | |
| centerFrequencyConstraint | FrequencyConstraint | 0..1 | RW | OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA OpenModelAttribute <ul style="list-style-type: none"> • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| Description: | | | | |
| | | | | |
| edgeFrequencyConstraint | FrequencyConstraint | 0..1 | RW | OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA OpenModelAttribute <ul style="list-style-type: none"> • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| Description: | | | | |
| | | | | |

| Attribute Name | Type | Mult. | Access | Stereotypes |
|---|---|-------|--------|---|
| nonAdjacentSpectrum | PrimitiveTypes::Integer | 0..1 | RW | OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| | Description: | | | |
| _powerManagementConfigPac <i>Navigable association end of: OtsiMcBandwidthConfigPacHasPowerConfigPac</i> | <u>PowerManagementConfigPac</u> | 0..1 | RW | OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| | Description: | | | |
| localId <i>Inherited: TapiCommon::ObjectClasses::LocalClass::localId</i> | PrimitiveTypes::String | 1 | RW | OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • isKey: yes – part: 1 • isInvariant: true • valueRange: no range constraint • support: MANDATORY |
| | Description: | | | An identifier that is unique in the context of the GlobalClass from which it is inseparable. |
| name <i>Inherited: TapiCommon::ObjectClasses::LocalClass::name</i> | TapiCommon::TypeDefinitions::NameAndValue | 0..* | RW | OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| | Description: | | | List of names. This value is unique in some namespace but may change during the life of the entity. A name carries no semantics with respect to the purpose of the entity. |

Table 27 – Attributes for class *OtsiMcBandwidthConfigPac*

1.2.28 OtsiMcConnectionEndPointSpec

Applied stereotypes:

- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA
- OpenModelClass
 - support: MANDATORY

| Attribute Name | Type | Mult. | Access | Stereotypes |
|--|-------------------------------------|-------|--------|---|
| _otsiTerminationPac <i>Navigable association end of: OtsiMcCepHasTerminationPac</i> | OtsiTerminationPac | 0..1 | R | OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• isKey: No• isInvariant: false• valueRange: no range constraint• support: MANDATORY |
| | Description: | | | |
| _spectrumPac <i>Navigable association end of: OtsiMcCepHasSpectrumPac</i> | SpectrumPac | 0..1 | R | OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• isKey: No• isInvariant: false• valueRange: no range constraint• support: MANDATORY |
| | Description: | | | Mandatory if the CEP is not terminated, optional if terminated. |
| _flexiGridPac <i>Navigable association end of: OtsiMcCepHasFlexiGridPac</i> | FlexiGridPac | 0..1 | R | OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• isKey: No• isInvariant: false• valueRange: no range constraint• support: MANDATORY |
| | Description: | | | |
| _powerMeasurementPac <i>Navigable association end of: OtsiMcCepHasPowerPac</i> | PowerMeasurementPac | 0..1 | R | OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• isKey: No• isInvariant: false• valueRange: no range constraint• support: MANDATORY |
| | Description: | | | |

Table 28 – Attributes for class *OtsiMcConnectionEndPointSpec*

1.2.29 OtsiMcFlexiGridConfigPac

Description:

- ITU-T G.694.1 Spectral grids for WDM applications: DWDM frequency grid. The flexi-grid-frequency-slot (RFC 9093) defines the nominal central frequency and its slot width in terms of N, M.

Applied stereotypes:

- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA
- OpenModelClass

- support: MANDATORY

| Attribute Name | Type | Mult. | Access | Stereotypes |
|--|--|-------|--------|---|
| _flexiGridConfigPac <i>Navigable association end of: OtsiMcGridConfigPacHasFlexiGridConfigPac</i> | FlexiGridConfigPac | 1 | RW | OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| | Description: | | | |
| _powerManagementConfigPac <i>Navigable association end of: OtsiMcGridConfigPacHasPowerConfigPac</i> | PowerManagementConfigPac | 0..1 | RW | OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| | Description: | | | |
| localId <i>Inherited: TapiCommon::ObjectClasses::LocalClass::localId</i> | PrimitiveTypes::String | 1 | RW | OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • isKey: yes – part: 1 • isInvariant: true • valueRange: no range constraint • support: MANDATORY |
| | Description: | | | |
| | An identifier that is unique in the context of the GlobalClass from which it is inseparable. | | | |
| name <i>Inherited: TapiCommon::ObjectClasses::LocalClass::name</i> | TapiCommon::TypeDefinitions::NameAndValue | 0..* | RW | OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| | Description: | | | |
| | List of names. This value is unique in some namespace but may change during the life of the entity. A name carries no semantics with respect to the purpose of the entity. | | | |

Table 29 – Attributes for class *OtsiMcFlexiGridConfigPac*

1.2.30 OtsiMcFrequencyConfigPac

Description:

- OTSiMC configuration based on central frequency specification.

Applied stereotypes:

- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

- OpenModelClass
 - support: MANDATORY

| Attribute Name | Type | Mult. | Access | Stereotypes |
|---------------------------|-------------------------------------|-------|--------|---|
| centralFrequency | PrimitiveTypes::Integer | 1 | RW | OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| | Description: | | | |
| centerFrequencyOffset | PrimitiveTypes::Integer | 0..1 | RW | OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| | Description: | | | |
| spectrumBandwidth | PrimitiveTypes::Integer | 0..1 | RW | OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| | Description: | | | |
| | Unidimensional in Hz | | | |
| centerFrequencyConstraint | FrequencyConstraint | 0..1 | RW | OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| | Description: | | | |
| edgeFrequencyConstraint | FrequencyConstraint | 0..1 | RW | OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| | Description: | | | |

| Attribute Name | Type | Mult. | Access | Stereotypes |
|---|---|-------|--------|--|
| _powerManagementConfigPac Navigable association end of: <u>OtsiMcFreqConfigPacHasPowerConfigPac</u> | <u>PowerManagementConfigPac</u> | 0..1 | RW | OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• OpenModelAttribute• isKey: No• isInvariant: false• valueRange: no range constraint• support: MANDATORY |
| | Description: | | | |
| localId Inherited: <i>TapiCommon::ObjectClasses::LocalClass::localId</i> | PrimitiveTypes::String | 1 | RW | OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• OpenModelAttribute• isKey: yes – part: 1• isInvariant: true• valueRange: no range constraint• support: MANDATORY |
| | Description: An identifier that is unique in the context of the GlobalClass from which it is inseparable. | | | |
| name Inherited: <i>TapiCommon::ObjectClasses::LocalClass::name</i> | TapiCommon::TypeDefinitions::NameAndValue | 0..* | RW | OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• OpenModelAttribute• isKey: No• isInvariant: false• valueRange: no range constraint• support: MANDATORY |
| | Description: List of names. This value is unique in some namespace but may change during the life of the entity. A name carries no semantics with respect to the purpose of the entity. | | | |

Table 30 – Attributes for class *OtsiMcFrequencyConfigPac*

1.2.31 OtsiMcSpectrumConfigPac

Description:

- OTSiMC configuration based on spectrum specification.

Applied stereotypes:

- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA
- OpenModelClass
 - support: MANDATORY

| Attribute Name | Type | Mult. | Access | Stereotypes |
|----------------|---------------------------------------|-------|--------|--|
| spectrum | <u>FrequencyRange</u> | 1 | RW | OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• OpenModelAttribute• isKey: No• isInvariant: false• valueRange: no range constraint• support: MANDATORY |

| Attribute Name | Type | Mult. | Access | Stereotypes |
|--|--|-------|--------|---|
| | Description: | | | |
| centerFrequencyOffset | PrimitiveTypes::Integer | 0..1 | RW | OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| | Description: | | | |
| | Offset where it is expected to find the signal in the MC. (unidimensional in Hz). | | | |
| centerFrequencyConstraint | FrequencyConstraint | 0..1 | RW | OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| | Description: | | | |
| edgeFrequencyConstraint | FrequencyConstraint | 0..1 | RW | OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| | Description: | | | |
| _powerManagementConfigPac <i>Navigable association end of: OtsiMcSpectrumConfigPacHasPowerConfigPac</i> | PowerManagementConfigPac | 0..1 | RW | OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| | Description: | | | |
| localId <i>Inherited: TapiCommon::ObjectClasses::LocalClass::localId</i> | PrimitiveTypes::String | 1 | RW | OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • isKey: yes – part: 1 • isInvariant: true • valueRange: no range constraint • support: MANDATORY |
| | Description: | | | |
| | An identifier that is unique in the context of the GlobalClass from which it is inseparable. | | | |

| Attribute Name | Type | Mult. | Access | Stereotypes |
|--|---|-------|--------|---|
| name Inherited: <i>TapiCommon::ObjectClasses::LocalClass::name</i> | TapiCommon::TypeDefinitions::NameAndValue | 0..* | RW | OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |

Table 31 – Attributes for class *OtsiMcSpectrumConfigPac***1.2.32 OtsiMcConnectivityServiceEndPointSpec****Description:**

- OTSiMCG CSEP is provisioned also in case OTSiMC layer is not explicitly represented on Resource side, i.e. no OTSiMC Connections and CEPs are instantiated. OTSiMCG provisioning scenarios: are analogous to MCG provisioning scenarios. OtsiMcBandwidthConfigPac, OtsiMcSpectrumConfigPac and OtsiMcFrequencyConfigPac are mutually exclusive.

Applied stereotypes:

- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA
- OpenModelClass
 - support: MANDATORY

| Attribute Name | Type | Mult. | Access | Stereotypes |
|---|---|-------|--------|---|
| numberOfOtsiMc | PrimitiveTypes::Integer Default value: 1 | 1 | RW | OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| _otsiMcBandwidthConfigPac <i>Navigable association end of: OtsiMcCsepHasBandwidthConfigPac</i> | OtsiMcBandwidthConfigPac | 0..* | RW | OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |

| Attribute Name | Type | Mult. | Access | Stereotypes |
|--|--|-------|--------|---|
| _otsiMcSpectrumConfigPac <i>Navigable association end of: OtsiMcgCsepHasSpectrumConfigPac</i> | OtsiMcSpectrumConfigPac | 0..* | RW | OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• OpenModelAttribute<ul style="list-style-type: none">• isKey: No• isInvariant: false• valueRange: no range constraint• support: MANDATORY |
| | Description: | | | |
| _otsiMcFrequencyConfigPac <i>Navigable association end of: OtsiMcgCsepHasFreqConfigPac</i> | OtsiMcFrequencyConfigPac | 0..* | RW | OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• OpenModelAttribute<ul style="list-style-type: none">• isKey: No• isInvariant: false• valueRange: no range constraint• support: MANDATORY |
| | Description: | | | |
| _otsiMcFlexiGridConfigPac <i>Navigable association end of: OtsiMcgCsepHasFlexiGridConfigPac</i> | OtsiMcFlexiGridConfigPac | 0..* | RW | OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• OpenModelAttribute<ul style="list-style-type: none">• isKey: No• isInvariant: false• valueRange: no range constraint• support: MANDATORY |
| | Description: | | | |

Table 32 – Attributes for class *OtsiMcgConnectivityServiceEndPointSpec*

1.2.33 OtsiMonitoringPac

Applied stereotypes:

- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA
- OpenModelClass
 - support: MANDATORY

| Attribute Name | Type | Mult. | Access | Stereotypes |
|----------------------------|---|-------|--------|---|
| polarizationModeDispersion | TapiCommon::TypeDefinitions::MetricValues | 0..1 | R | OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• OpenModelAttribute<ul style="list-style-type: none">• isKey: No• isInvariant: false• valueRange: no range constraint• support: MANDATORY |
| | Description: | | | Polarization mode dispersion on the receiver. Measured in picoseconds per square root kilometer. |

| Attribute Name | Type | Mult. | Access | Stereotypes |
|---------------------|---|-------|--------|---|
| chromaticDispersion | TapiCommon::TypeDefinitions::MetricValues | 0..1 | R | OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY Description: Chromatic dispersion on the receiver. Measured in ps/nm (picoseconds per nanometer). |
| diffGroupDelay | TapiCommon::TypeDefinitions::MetricValues | 0..1 | R | OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY Description: Differential group delay of this mode for this lane. Measured in picoseconds. |
| frequencyOffset | TapiCommon::TypeDefinitions::MetricValues | 0..1 | R | OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY Description: Frequency offset measured in Hz. |

Table 33 – Attributes for class *OtsiMonitoringPac*

1.2.34 OtsiRoutingSpec

Description:

- This structure is for further development and is NOT used in this version.

Applied stereotypes:

- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA
- Experimental
- OpenModelClass
 - support: MANDATORY

| Attribute Name | Type | Mult. | Access | Stereotypes |
|------------------------|--|-------|--------|---|
| opticalRoutingStrategy | OpticalRoutingStrategy | 0..1 | RW | OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |

| Attribute Name | Type | Mult. | Access | Stereotypes |
|----------------|---------------------|-------|--------|-------------|
| | Description: | | | |

Table 34 – Attributes for class *OtsiRoutingSpec***1.2.35 OtsiTerminationPac****Description:**

- Present in case of terminated OTSiMC CEP, i.e. including O/E/O function.

Applied stereotypes:

- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA
- OpenModelClass
 - support: MANDATORY

| Attribute Name | Type | Mult. | Access | Stereotypes |
|--------------------------|---------------------------------|-------|--------|---|
| selectedCentralFrequency | PrimitiveTypes::Integer | 1 | R | OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA OpenModelAttribute <ul style="list-style-type: none"> • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| Description: | | | | |
| | | | | The central frequency of the laser. It is the oscillation frequency of the corresponding electromagnetic wave. Measured in Hz. |
| selectedSpectrum | FrequencyRange | 0..1 | R | OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA OpenModelAttribute <ul style="list-style-type: none"> • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| Description: | | | | |
| laserProperties | LaserProperties | 0..1 | R | OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA OpenModelAttribute <ul style="list-style-type: none"> • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| Description: | | | | |
| | | | | Laser properties. |

| Attribute Name | Type | Mult. | Access | Stereotypes |
|--|-----------------------------------|-------|--------|---|
| _otsiMonitoringPac <i>Navigable association end of: OtsiTerminationPacHasMonitoring</i> | OtsiMonitoringPac | 0..1 | R | OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• OpenModelAttribute<ul style="list-style-type: none">• isKey: No• isInvariant: false• valueRange: no range constraint• support: MANDATORY |

Table 35 – Attributes for class *OtsiTerminationPac***1.2.36 OtsiThresholdPowerConfig****Description:**

- This pac includes power management constraints.

Applied stereotypes:

- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA
- OpenModelClass
 - support: MANDATORY

| Attribute Name | Type | Mult. | Access | Stereotypes |
|------------------------------|----------------------|-------|--------|---|
| totalPowerWarnThresholdUpper | PrimitiveTypes::Real | 0..1 | RW | OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• OpenModelAttribute<ul style="list-style-type: none">• isKey: No• isInvariant: false• valueRange: no range constraint• support: MANDATORY |
| totalPowerWarnThresholdLower | PrimitiveTypes::Real | 0..1 | RW | OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• OpenModelAttribute<ul style="list-style-type: none">• isKey: No• isInvariant: false• valueRange: no range constraint• support: MANDATORY |

Table 36 – Attributes for class *OtsiThresholdPowerConfig***1.2.37 OtsiaConnectivityServiceEndPointSpec****Description:**

- OTU/OTSiG provisioning scenarios: 1) In case of ODU/OTU/OTSiG provisioning based on multiple SIPs (e.g. more line ports each one potentially supporting a single OTSi), then the unique/top CSEP instance (not referring to any SIP, with an OTSiMC LPC including OtsiaCsepTtpSpec with specified only the number of OTSis) refers to the CSEP instances (one per each MEDIA Link, each one referring to one SIP, each one with an OTSiMC LPC including OtsiaCsepTtpSpec composing only one OTSi config pac), through the CSEPHasAssembledCSEPs association. 2) In case of ODU/OTU/OTSiG provisioning based on single SIP, then the model is compacted into only one CSEP instance, with an OTSiMC LPC including OtsiaCsepTtpSpec which composes one or more OTSi config pacs).

Applied stereotypes:

- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA
- OpenModelClass
 - support: MANDATORY

| Attribute Name | Type | Mult. | Access | Stereotypes |
|---|---|-------|--------|---|
| _otsiConfig Navigable association end of: <i>OtsiaCsepHasOtsiConfig</i> | OtsiConfigPac | 1..* | RW | OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA OpenModelAttribute <ul style="list-style-type: none"> • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| | Description: | | | |
| numberOfOTSi | PrimitiveTypes::Integer Default value: 1 | 1 | RW | OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA OpenModelAttribute <ul style="list-style-type: none"> • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| | Description: | | | |
| totalPowerWarnThresholdUpper | PrimitiveTypes::Real | 0..1 | RW | OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA OpenModelAttribute <ul style="list-style-type: none"> • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| | Description: | | | Allows to configure the upper power threshold on whole Assembly scope. |

| Attribute Name | Type | Mult. | Access | Stereotypes |
|------------------------------|----------------------|-------|--------|---|
| totalPowerWarnThresholdLower | PrimitiveTypes::Real | 0..1 | RW | OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| Description: | | | | Allows to configure the lower power threshold on whole Assembly scope. |

Table 37 – Attributes for class *OtsiaConnectivityServiceEndPointSpec*

1.2.38 PhotonicMediaNodeEdgePointSpec

Applied stereotypes:

- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA
- OpenModelClass
 - support: CONDITIONAL_MANDATORY
 - condition: OTSiA

| Attribute Name | Type | Mult. | Access | Stereotypes |
|---|--|-------|--------|---|
| _spectrumCapabilityPac <i>Navigable association end of: PhotonicMediaNepHasSpectrumCapabilityPac</i> | SpectrumCapabilityPac | 1 | R | OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| Description: | | | | |
| _powerManagementCapabilityPac <i>Navigable association end of: PhotonicMediaNepHasPowerPac</i> | PowerManagementCapabilityPac | 0..* | R | OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| Description: | | | | |
| _totalPowerThresholdPac <i>Navigable association end of: PhotonicMediaNepHasPowerThrPac</i> | TotalPowerThresholdPac | 0..* | R | OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |

| Attribute Name | Type | Mult. | Access | Stereotypes | |
|----------------|---------------------|-------|--------|-------------|--|
| | Description: | | | | |

Table 38 – Attributes for class *PhotonicMediaNodeEdgePointSpec***1.2.39 PhotonicMediaServiceInterfacePointSpec**

Applied stereotypes:

- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA
- OpenModelClass
 - support: MANDATORY

| Attribute Name | Type | Mult. | Access | Stereotypes |
|--|--|-------|--------|---|
| _spectrumCapabilityPac <i>Navigable association end of: PhoMediaSipHasMcPoolPac</i> | SpectrumCapabilityPac | 1 | R | OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| Description: | | | | |
| _powerManagementCapabilityPac <i>Navigable association end of: PhoMediaSipHasPowerCapabilityPac</i> | PowerManagementCapabilityPac | 0..* | R | OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| Description: | | | | |
| _totalPowerThresholdPac <i>Navigable association end of: PhoMediaSipHasPowerThreshold</i> | TotalPowerThresholdPac | 0..* | R | OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| Description: | | | | |

Table 39 – Attributes for class *PhotonicMediaServiceInterfacePointSpec***1.2.40 PhotonicPerformanceData**

Applied stereotypes:

- OpenInterfaceModelClass

- objectCreationNotification: NA
- objectDeletionNotification: NA
- OpenModelClass
 - support: MANDATORY

| Attribute Name | Type | Mult. | Access | Stereotypes |
|--------------------|---|-------|--------|---|
| opticalInputPower | PowerProperties | 0..1 | R | OpenInterfaceModelAttribute <ul style="list-style-type: none"> ● AVC: NA ● OpenModelAttribute ● isKey: No ● isInvariant: false ● valueRange: no range constraint ● support: MANDATORY |
| | Description: | | | |
| opticalOutputPower | PowerProperties | 0..1 | R | OpenInterfaceModelAttribute <ul style="list-style-type: none"> ● AVC: NA ● OpenModelAttribute ● isKey: No ● isInvariant: false ● valueRange: no range constraint ● support: MANDATORY |
| | Description: | | | |
| inputVoa | TapiCommon::TypeDefinitions::MetricValues | 0..1 | R | OpenInterfaceModelAttribute <ul style="list-style-type: none"> ● AVC: NA ● OpenModelAttribute ● isKey: No ● isInvariant: false ● valueRange: no range constraint ● support: MANDATORY |
| | Description: | | | |
| outputVoa | TapiCommon::TypeDefinitions::MetricValues | 0..1 | R | OpenInterfaceModelAttribute <ul style="list-style-type: none"> ● AVC: NA ● OpenModelAttribute ● isKey: No ● isInvariant: false ● valueRange: no range constraint ● support: MANDATORY |
| | Description: | | | |
| opticalGain | TapiCommon::TypeDefinitions::MetricValues | 0..1 | R | OpenInterfaceModelAttribute <ul style="list-style-type: none"> ● AVC: NA ● OpenModelAttribute ● isKey: No ● isInvariant: false ● valueRange: no range constraint ● support: MANDATORY |
| | Description: | | | |

| Attribute Name | Type | Mult. | Access | Stereotypes |
|--|--|-------|--------|---|
| opticalTilt | TapiCommon::TypeDefinitions::MetricValues | 0..1 | R | OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| | Description: | | | |
| _amplificationPerformanceData <i>Navigable association end of: PhotonicPerformanceDataIncludesAmplificationPm</i> | AmplificationPerformanceData | 0..* | R | OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| | Description: | | | |
| _otsiMonitoringPac <i>Navigable association end of: PhotonicPerformanceDataHasOtsiPm</i> | OtsiMonitoringPac | 0..1 | R | OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| | Description: | | | |
| _oscMonitoringPac <i>Navigable association end of: PhotonicPerformanceDataHasOscPm</i> | OscMonitoringPac | 0..1 | RW | OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| | Description: | | | |

Table 40 – Attributes for class *PhotonicPerformanceData*

1.2.41 PhotonicPosition

Applied stereotypes:

- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA
- OpenModelClass
 - support: MANDATORY

| Attribute Name | Type | Mult. | Access | Stereotypes |
|---------------------|--------------------------------|-------|--------|--|
| centralFrequency | PrimitiveTypes::Integer | 0..1 | RW | OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| Description: | | | | |
| spectrum | FrequencyRange | 0..1 | RW | OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| Description: | | | | |

Table 41 – Attributes for class *PhotonicPosition*

1.2.42 PowerManagementCapabilityPac

Description:

- This pac includes power management capabilities.

Applied stereotypes:

- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA
- OpenModelClass
 - support: MANDATORY

| Attribute Name | Type | Mult. | Access | Stereotypes |
|---------------------------|---------------------------------|-------|--------|--|
| spectrum | FrequencyRange | 0..1 | R | OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| Description: | | | | |
| supportableMaxOutputPower | PowerProperties | 1 | R | OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |

| Attribute Name | Type | Mult. | Access | Stereotypes |
|---------------------------|---|-------|--------|--|
| | Description: This parameter exposes the maximum output power supported. | | | |
| supportableMinOutputPower | PowerProperties | 1 | R | OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| | | | | Description: This parameter exposes the minimum output power supported. |
| tolerableMaxInputPower | PowerProperties | 1 | R | OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| | | | | Description: This parameter exposes the maximum input power tolerated. |
| tolerableMinInputPower | PowerProperties | 1 | R | OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| | | | | Description: This parameter exposes the minimum input power tolerated. |

Table 42 – Attributes for class *PowerManagementCapabilityPac*

1.2.43 PowerManagementConfigPac

Description:

- This pac includes power management constraints.

Applied stereotypes:

- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA
- Experimental
- OpenModelClass
 - support: MANDATORY

| Attribute Name | Type | Mult. | Access | Stereotypes |
|----------------|---|-------|--------|---|
| maxOutputPower | PowerProperties | 1 | RW | OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| | Description: | | | |
| | Add/drop ROADM port: This parameter shall be used to specify the maximum power to be delivered to the local transceiver i.e., after the signal has crossed the amplification/attenuation of the optical line system. This specifies constraints related to power that the OLS should guarantee. Transceiver: the transceiver max launch (TX) power. This specifies constraints related to power that the transceiver should guarantee. | | | |
| minOutputPower | PowerProperties | 1 | RW | OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| | Description: | | | |
| | Add/drop ROADM port: This parameter shall be used to specify the minimum power to be delivered to the local transceiver i.e., after the signal has crossed the amplification/attenuation of the optical line system. This specifies constraints related to power that the OLS should guarantee. Transceiver: the transceiver min launch (TX) power. This specifies constraints related to power that the transceiver should guarantee. | | | |
| maxInputPower | PowerProperties | 1 | RW | OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| | Description: | | | |
| | Add/drop ROADM port: This parameter shall be used to specify the maximum power to be delivered to the local transceiver i.e., after the signal has crossed the amplification/attenuation of the optical line system. This specifies constraints related to power that the OLS should guarantee. Transceiver: the transceiver max launch (TX) power. This specifies constraints related to power that the transceiver should guarantee. This parameter conveys the attached transceiver max launch (TX) power (expected from the transceiver). This specifies constraints related to power tolerance at the input. | | | |
| minInputPower | PowerProperties | 1 | RW | OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |

| Attribute Name | Type | Mult. | Access | Stereotypes |
|----------------|---|-------|--------|-------------|
| | <p>Description:</p> <p>Add/drop ROADM port: This parameter shall be used to specify the minimum power to be delivered to the local transceiver i.e., after the signal has crossed the amplification/attenuation of the optical line system. This specifies constraints related to power that the OLS should guarantee. Transceiver: the transceiver min launch (TX) power. This specifies constraints related to power that the transceiver should guarantee. This parameter conveys the attached transceiver min launch (TX) power (expected from the transceiver). This specifies constraints related to power tolerance at the input.</p> | | | |

Table 43 – Attributes for class *PowerManagementConfigPac***1.2.44 PowerMeasurementPac**

Applied stereotypes:

- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA
- Experimental
- OpenModelClass
 - support: MANDATORY

| Attribute Name | Type | Mult. | Access | Stereotypes |
|----------------------------|---------------------------------|-------|--------|---|
| measuredInputPower | PowerProperties | 1 | R | OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA OpenModelAttribute <ul style="list-style-type: none"> • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| <p>Description:</p> | | | | |
| measuredOutputPower | PowerProperties | 0..1 | R | OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA OpenModelAttribute <ul style="list-style-type: none"> • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| <p>Description:</p> | | | | |

Table 44 – Attributes for class *PowerMeasurementPac***1.2.45 PowerParams**

Description:

- Optical power or PSD after the ROADM or after the out-voa.

Applied stereotypes:

- OpenInterfaceModelClass
 - objectCreationNotification: NA

- objectDeletionNotification: NA
- OpenModelClass
 - support: MANDATORY

| Attribute Name | Type | Mult. | Access | Stereotypes |
|---|--------------------------------------|-------|--------|---|
| _powerSpectralDensity <i>Navigable association end of: PowerParamsHasSpectralDensity</i> | PowerSpectralDensity | 0..1 | R | OpenInterfaceModelAttribute <ul style="list-style-type: none"> ● AVC: NA ● OpenModelAttribute ● isKey: No ● isInvariant: false ● valueRange: no range constraint ● support: MANDATORY |
| | Description: | | | |
| _channelPower <i>Navigable association end of: PowerParamsHasChannelPower</i> | ChannelPower | 0..1 | R | OpenInterfaceModelAttribute <ul style="list-style-type: none"> ● AVC: NA ● OpenModelAttribute ● isKey: No ● isInvariant: false ● valueRange: no range constraint ● support: MANDATORY |
| | Description: | | | |

Table 45 – Attributes for class *PowerParams*

1.2.46 PowerSpectralDensity

Applied stereotypes:

- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA
- OpenModelClass
 - support: MANDATORY

| Attribute Name | Type | Mult. | Access | Stereotypes |
|-----------------------------|---|-------|--------|---|
| nominalPowerSpectralDensity | PrimitiveTypes::Real | 1 | R | OpenInterfaceModelAttribute <ul style="list-style-type: none"> ● AVC: NA ● OpenModelAttribute ● isKey: No ● isInvariant: false ● valueRange: no range constraint ● support: MANDATORY |
| | Description: | | | |
| | Reference power spectral density after the ROADM or after the out-voa. Typical value : 3.9 E-14, resolution 0.1nW/MHz Measured in W/Hz. | | | |

Table 46 – Attributes for class *PowerSpectralDensity*

1.2.47 RegenMetric

Description:

- This structure is for further development and is NOT used in this version.

Applied stereotypes:

- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA
- OpenModelClass
 - support: MANDATORY

| Attribute Name | Type | Mult. | Access | Stereotypes |
|----------------|-------------------------|-------|--------|---|
| regenMetric | PrimitiveTypes::Integer | 1 | RW | OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |

Table 47 – Attributes for class *RegenMetric*

1.2.48 SpectrumCapabilityPac

Applied stereotypes:

- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA
- OpenModelClass
 - support: MANDATORY

| Attribute Name | Type | Mult. | Access | Stereotypes |
|---------------------|------------------------------|-------|--------|---|
| supportableSpectrum | SpectrumBand | 0..* | R | OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| availableSpectrum | SpectrumBand | 0..* | R | OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |

| Attribute Name | Type | Mult. | Access | Stereotypes |
|------------------|------------------------------|-------|--------|---|
| occupiedSpectrum | SpectrumBand | 0..* | R | OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY Description: |

Table 48 – Attributes for class *SpectrumCapabilityPac***1.2.49 SpectrumPac**

Applied stereotypes:

- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA
- OpenModelClass
 - support: MANDATORY

| Attribute Name | Type | Mult. | Access | Stereotypes |
|--|--|-------|--------|---|
| occupiedSpectrum | FrequencyRange | 1 | R | OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY Description: |
| localId Inherited: <i>TapiCommon::ObjectClasses::LocalClass::localId</i> | PrimitiveTypes::String | 1 | RW | OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • OpenModelAttribute • isKey: yes – part: 1 • isInvariant: true • valueRange: no range constraint • support: MANDATORY Description: An identifier that is unique in the context of the GlobalClass from which it is inseparable. |
| name Inherited: <i>TapiCommon::ObjectClasses::LocalClass::name</i> | <i>TapiCommon::TypeDefinitions::NameAndValue</i> | 0..* | RW | OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY Description: List of names. This value is unique in some namespace but may change during the life of the entity. A name carries no semantics with respect to the purpose of the entity. |

Table 49 – Attributes for class *SpectrumPac***1.2.50 TotalPowerThresholdPac****Description:**

- Indication with severity warning raised when a total power value measured is above the threshold.

Applied stereotypes:

- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA
- OpenModelClass
 - support: MANDATORY

| Attribute Name | Type | Mult. | Access | Stereotypes |
|--|--------------------------------|--------------|---------------|---|
| spectrum | FrequencyRange | 0..1 | R | OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA OpenModelAttribute <ul style="list-style-type: none"> • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| Description: | | | | |
| totalPowerUpperWarnThresholdDefault | PrimitiveTypes::Real | 1 | R | OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA OpenModelAttribute <ul style="list-style-type: none"> • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| Description: | | | | |
| Can read the value of the default threshold that was set | | | | |
| totalPowerUpperWarnThresholdMin | PrimitiveTypes::Real | 1 | R | OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA OpenModelAttribute <ul style="list-style-type: none"> • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| Description: | | | | |
| Can read the value of the lower threshold that was set | | | | |
| totalPowerUpperWarnThresholdMax | PrimitiveTypes::Real | 1 | R | OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA OpenModelAttribute <ul style="list-style-type: none"> • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| Description: | | | | |
| Can read the value of the upper threshold that was set | | | | |

| Attribute Name | Type | Mult. | Access | Stereotypes |
|-------------------------------------|----------------------|-------|--------|--|
| totalPowerLowerWarnThresholdDefault | PrimitiveTypes::Real | 1 | R | OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| | | | | Description: Can read the value of the default threshold that was set |
| totalPowerLowerWarnThresholdMin | PrimitiveTypes::Real | 1 | R | OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| | | | | Description: Can read the value of the lower threshold that was set |
| totalPowerLowerWarnThresholdMax | PrimitiveTypes::Real | 1 | R | OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| | | | | Description: Can read the value of the upper threshold that was set |

Table 50 – Attributes for class *TotalPowerThresholdPac***1.2.51 TransceiverExplicit**

Applied stereotypes:

- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA
- OpenModelClass
 - support: MANDATORY

| Attribute Name | Type | Mult. | Access | Stereotypes |
|---|--|-------|--------|--|
| _commonOrganizationalExplicit <i>Navigable association end of: ExplicitModeHasCommonMode</i> | CommonOrganizationalExplicit | 0..1 | R | OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| | | | | Description: |

| Attribute Name | Type | Mult. | Access | Stereotypes |
|---|------------------------------------|-------|--------|---|
| _commonExplicit <i>Navigable association end of: ExplicitModeHasCommonExplicitMode</i> | CommonExplicit | 1 | R | OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• OpenModelAttribute<ul style="list-style-type: none">• isKey: No• isInvariant: false• valueRange: no range constraint• support: MANDATORY |
| | Description: | | | |
| _supportedStandardApplicationCode <i>Navigable association end of: TransceiverExplicitProfileSupportsStdCode</i> | TapiCommon::ObjectClasses::Profile | 0..1 | R | OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• OpenModelAttribute<ul style="list-style-type: none">• isKey: No• isInvariant: false• valueRange: no range constraint• support: MANDATORY |
| | Description: | | | |
| _supportedOrganizationalMode <i>Navigable association end of: TransceiverExplicitProfileHasOrganizationMode</i> | TapiCommon::ObjectClasses::Profile | 0..1 | R | OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• OpenModelAttribute<ul style="list-style-type: none">• isKey: No• isInvariant: false• valueRange: no range constraint• support: MANDATORY |
| | Description: | | | |

Table 51 – Attributes for class *TransceiverExplicit*

1.2.52 TransceiverOrganizational

Applied stereotypes:

- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA
- OpenModelClass
 - support: MANDATORY

| Attribute Name | Type | Mult. | Access | Stereotypes |
|-----------------|------------------------|-------|--------|---|
| operationalMode | PrimitiveTypes::String | 1 | R | OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• OpenModelAttribute<ul style="list-style-type: none">• isKey: No• isInvariant: false• valueRange: no range constraint• support: MANDATORY |
| | Description: | | | Organization/vendor specific mode that guarantees interoperability, reference ITU-T G.698.2 (11/2018). |

| Attribute Name | Type | Mult. | Access | Stereotypes |
|---|--|-------|--------|---|
| organizationIdentifier | PrimitiveTypes::String | 1 | R | OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| Description: | | | | |
| | | | | Vendor/organization identifier that uses a private mode out of already defined in G.698.2 ITU-T application-code (RFC 7581). |
| _commonOrganizationalExplicit <i>Navigable association end of: OrganizationalModeHasCommonMode</i> | CommonOrganizationalExplicit | 0..1 | R | OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| Description: | | | | |

Table 52 – Attributes for class *TransceiverOrganizational*

1.2.53 TransceiverProfile

Description:

- The referenced specific profiles are mutually exclusive.

Applied stereotypes:

- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA
- OpenModelClass
 - support: MANDATORY

| Attribute Name | Type | Mult. | Access | Stereotypes |
|--|---|-------|--------|---|
| _transceiverStandardProfile <i>Navigable association end of: TransceiverProfileHasStandardProfile</i> | TransceiverStandard | 0..1 | R | OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| Description: | | | | |
| _transceiverOrganizationalProfile <i>Navigable association end of: TransceiverProfileHasOrganizationalProfile</i> | TransceiverOrganizational | 0..1 | R | OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| Description: | | | | |

| Attribute Name | Type | Mult. | Access | Stereotypes |
|--|-------------------------------------|-------|--------|---|
| | Description: | | | |
| _transceiverExplicitProfile <i>Navigable association end of: TransceiverProfileHasExplicitProfile</i> | TransceiverExplicit | 0..1 | R | OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| | Description: | | | |

Table 53 – Attributes for class *TransceiverProfile***1.2.54 TransceiverStandard****Description:**

- The standard application identifier.

Applied stereotypes:

- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA
- OpenModelClass
 - support: MANDATORY

| Attribute Name | Type | Mult. | Access | Stereotypes |
|--------------------|--|-------|--------|---|
| applicationCodeRec | StandardApplicationCodeRec | 1 | R | OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| | Description: | | | |
| | The ITU-T recommendation which defines the application code format. | | | |
| applicationCode | PrimitiveTypes::String | 1 | R | OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| | Description: | | | |
| | The standard application code as defined in the ITU-T Recommendation referenced in application code rec. | | | |

Table 54 – Attributes for class *TransceiverStandard*

1.2.55 TransceiverTerminationType

Description:

- Describes whether the transponder can be used in an Optical Tunnel termination configuration or in a 3R configuration (or both).

Applied stereotypes:

- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA
- OpenModelClass
 - support: MANDATORY

| Attribute Name | Type | Mult. | Access | Stereotypes |
|----------------------------|--|-------|--------|---|
| transceiverTerminationType | TransceiverTerminationType | 1 | RW | OpenInterfaceModelAttribute <ul style="list-style-type: none"> AVC: NA OpenModelAttribute <ul style="list-style-type: none"> isKey: No isInvariant: false valueRange: no range constraint support: MANDATORY |

Table 55 – Attributes for class *TransceiverTerminationType*

1.3 Signals

1.4 Associations

1.4.1 AmplificationConfigHasPowerParams

Applied stereotype:

- StrictComposite

| Association end role name | Aggreg. type | Navigable | Target Class | Mult. |
|---------------------------|--------------|-----------|-------------------------------------|-------|
| _powerParams | composite | Yes | PowerParams | 0..1 |
| amplificationconfig | none | No | AmplificationConfig | 1 |

Table 56 – Member ends for association *AmplificationConfigHasPowerParams*

1.4.2 AmplificationFunctionHasProfile

| Association end role name | Aggreg. type | Navigable | Target Class | Mult. |
|---------------------------|--------------|-----------|------------------------------------|-------|
| _profile | none | Yes | TapiCommon::ObjectClasses::Profile | 0..1 |
| amplification | none | No | Amplification | 1 |

Table 57 – Member ends for association *AmplificationFunctionHasProfile*

1.4.3 ExplicitModeHasCommonExplicitMode

Applied stereotype:

- StrictComposite

| Association end role name | Aggreg. type | Navigable | Target Class | Mult. |
|---------------------------|--------------|-----------|-------------------------------------|-------|
| _commonExplicit | composite | Yes | CommonExplicit | 1 |
| explicitmode | none | No | TransceiverExplicit | 1 |

Table 58 – Member ends for association *ExplicitModeHasCommonExplicitMode*

1.4.4 ExplicitModeHasCommonMode

Applied stereotype:

- StrictComposite

| Association end role name | Aggreg. type | Navigable | Target Class | Mult. |
|-------------------------------|--------------|-----------|--|-------|
| _commonOrganizationalExplicit | composite | Yes | CommonOrganizationalExplicit | 0..1 |
| explicitmode | none | No | TransceiverExplicit | 1 |

Table 59 – Member ends for association *ExplicitModeHasCommonMode*

1.4.5 ImpairmentRouteEntryIsOtsConcentratedLoss

Applied stereotype:

- StrictComposite

| Association end role name | Aggreg. type | Navigable | Target Class | Mult. |
|---------------------------|--------------|-----------|--------------------------------------|-------|
| _otsConcentratedLoss | composite | Yes | OtsConcentratedLoss | 0..1 |
| impairmentcontribution | none | No | ImpairmentRouteEntry | 1 |

Table 60 – Member ends for association *ImpairmentRouteEntryIsOtsConcentratedLoss*

1.4.6 ImpairmentRouteEntryIsOtsFiberSpan

Applied stereotype:

- StrictComposite

| Association end role name | Aggreg. type | Navigable | Target Class | Mult. |
|---------------------------|--------------|-----------|---|-------|
| _otsFiberSpanImpairments | composite | Yes | OtsFiberSpanImpairments | 0..1 |
| impairmentrouteentry | none | No | ImpairmentRouteEntry | 1 |

Table 61 – Member ends for association *ImpairmentRouteEntryIsOtsFiberSpan*

1.4.7 McBandwidthConfigPacHasPowerConfigPac

Applied stereotype:

- StrictComposite

| Association end role name | Aggreg. type | Navigable | Target Class | Mult. |
|---------------------------|--------------|-----------|--|-------|
| _powerManagementConfigPac | composite | Yes | PowerManagementConfigPac | 0..1 |
| mediachannelbwconfigpac | none | No | McBandwidthConfigPac | 1 |

Table 62 – Member ends for association *McBandwidthConfigPacHasPowerConfigPac*

1.4.8 McCepHasFlexiGridPac

Applied stereotype:

- StrictComposite

| Association end role name | Aggreg. type | Navigable | Target Class | Mult. |
|---------------------------|--------------|-----------|--|-------|
| _flexiGridPac | composite | Yes | FlexiGridPac | 0..1 |
| mcconnectionendpointspec | none | No | McConnectionEndPointSpec | 1 |

Table 63 – Member ends for association *McCepHasFlexiGridPac*

1.4.9 McCepHasPowerPac

Applied stereotype:

- StrictComposite

| Association end role name | Aggreg. type | Navigable | Target Class | Mult. |
|---------------------------|--------------|-----------|--|-------|
| _powerMeasurementPac | composite | Yes | PowerMeasurementPac | 0..1 |
| mcconnectionendpointspec | none | No | McConnectionEndPointSpec | 1 |

Table 64 – Member ends for association *McCepHasPowerPac*

1.4.10 McCepHasSpectrumPac

Applied stereotype:

- StrictComposite

| Association end role name | Aggreg. type | Navigable | Target Class | Mult. |
|---------------------------|--------------|-----------|--|-------|
| _spectrumPac | composite | Yes | SpectrumPac | 0..1 |
| mcconnectionendpointspec | none | No | McConnectionEndPointSpec | 1 |

Table 65 – Member ends for association *McCepHasSpectrumPac*

1.4.11 McGidConfigPacHasFlexiGridConfigPac

Applied stereotype:

- StrictComposite

| Association end role name | Aggreg. type | Navigable | Target Class | Mult. |
|---------------------------|--------------|-----------|--------------------------------------|-------|
| _flexiGridConfigPac | composite | Yes | FlexiGridConfigPac | 1 |
| mcgridconfigpac | none | No | McFlexiGridConfigPac | 1 |

Table 66 – Member ends for association *McGridConfigPacHasFlexiGridConfigPac***1.4.12 McGridConfigPacHasPowerConfigPac**

Applied stereotype:

- StrictComposite

| Association end role name | Aggreg. type | Navigable | Target Class | Mult. |
|---------------------------|--------------|-----------|--|-------|
| _powerManagementConfigPac | composite | Yes | PowerManagementConfigPac | 0..1 |
| mcgridconfigpac | none | No | McFlexiGridConfigPac | 1 |

Table 67 – Member ends for association *McGridConfigPacHasPowerConfigPac***1.4.13 McSpectrumConfigPacHasPowerConfigPac**

Applied stereotype:

- StrictComposite

| Association end role name | Aggreg. type | Navigable | Target Class | Mult. |
|---------------------------|--------------|-----------|--|-------|
| _powerManagementConfigPac | composite | Yes | PowerManagementConfigPac | 0..1 |
| mediachannelconfigpac | none | No | McSpectrumConfigPac | 1 |

Table 68 – Member ends for association *McSpectrumConfigPacHasPowerConfigPac***1.4.14 McgCsepHasBandwidthConfigPac**

Applied stereotype:

- StrictComposite

| Association end role name | Aggreg. type | Navigable | Target Class | Mult. |
|------------------------------------|--------------|-----------|--|-------|
| _mcBandwidthConfigPac | composite | Yes | McBandwidthConfigPac | 0..* |
| mcgconnectivityserviceendpointspec | none | No | McgConnectivityServiceEndPointSpec | 1 |

Table 69 – Member ends for association *McgCsepHasBandwidthConfigPac***1.4.15 McgCsepHasFlexiGridConfigPac**

Applied stereotype:

- StrictComposite

| Association end role name | Aggreg. type | Navigable | Target Class | Mult. |
|-----------------------------------|--------------|-----------|--|-------|
| _mcFlexiGridConfigPac | composite | Yes | McFlexiGridConfigPac | 0..* |
| mcconnectivityserviceendpointspec | none | No | McgConnectivityServiceEndPointSpec | 1 |

Table 70 – Member ends for association *McgCsepHasFlexiGridConfigPac***1.4.16 McgCsepHasSpectrumConfigPac**

Applied stereotype:

- StrictComposite

| Association end role name | Aggreg. type | Navigable | Target Class | Mult. |
|-----------------------------------|--------------|-----------|--|-------|
| _mcSpectrumConfigPac | composite | Yes | McSpectrumConfigPac | 0..* |
| mcconnectivityserviceendpointspec | none | No | McgConnectivityServiceEndPointSpec | 1 |

Table 71 – Member ends for association *McgCsepHasSpectrumConfigPac***1.4.17 NextAmplificationFunction**

| Association end role name | Aggreg. type | Navigable | Target Class | Mult. |
|---------------------------|--------------|-----------|-------------------------------|-------|
| _amplification | none | Yes | Amplification | 0..* |
| amplification | none | No | Amplification | 1 |

Table 72 – Member ends for association *NextAmplificationFunction***1.4.18 OmsCepHasAmplifiers**

Applied stereotype:

- StrictComposite

| Association end role name | Aggreg. type | Navigable | Target Class | Mult. |
|---------------------------|--------------|-----------|---|-------|
| _amplification | composite | Yes | Amplification | 0..* |
| omsconnectionendpointspec | none | No | OmsConnectionEndPointSpec | 1 |

Table 73 – Member ends for association *OmsCepHasAmplifiers***1.4.19 OmsCepHasFlexiGridPac**

Applied stereotype:

- StrictComposite

| Association end role name | Aggreg. type | Navigable | Target Class | Mult. |
|---------------------------|--------------|-----------|---|-------|
| _flexiGridPac | composite | Yes | FlexiGridPac | 0..* |
| omsconnectionendpointspec | none | No | OmsConnectionEndPointSpec | 1 |

Table 74 – Member ends for association *OmsCepHasFlexiGridPac***1.4.20 OmsCepHasOmsGeneralOpticalParams**

Applied stereotype:

- StrictComposite

| Association end role name | Aggreg. type | Navigable | Target Class | Mult. |
|---------------------------|--------------|-----------|---|-------|
| _omsGeneralOpticalParams | composite | Yes | OmsGeneralOpticalParams | 0..2 |
| omsconnectionendpointspec | none | No | OmsConnectionEndPointSpec | 1 |

Table 75 – Member ends for association *OmsCepHasOmsGeneralOpticalParams***1.4.21 OmsCepHasPowerPac**

Applied stereotype:

- StrictComposite

| Association end role name | Aggreg. type | Navigable | Target Class | Mult. |
|---------------------------|--------------|-----------|---|-------|
| _powerMeasurementPac | composite | Yes | PowerMeasurementPac | 0..1 |
| omsconnectionendpointspec | none | No | OmsConnectionEndPointSpec | 1 |

Table 76 – Member ends for association *OmsCepHasPowerPac***1.4.22 OmsCepHasSpectrumPac**

Applied stereotype:

- StrictComposite

| Association end role name | Aggreg. type | Navigable | Target Class | Mult. |
|---------------------------|--------------|-----------|---|-------|
| _spectrumPac | none | Yes | SpectrumPac | 0..* |
| omsconnectionendpointspec | none | No | OmsConnectionEndPointSpec | 1 |

Table 77 – Member ends for association *OmsCepHasSpectrumPac***1.4.23 OmsGeneralOptParamsHasPowerParams**

Applied stereotype:

- StrictComposite

| Association end role name | Aggreg. type | Navigable | Target Class | Mult. |
|---------------------------|--------------|-----------|---|-------|
| _powerParams | composite | Yes | PowerParams | 0..1 |
| omsgeneralopticalparams | none | No | OmsGeneralOpticalParams | 1 |

Table 78 – Member ends for association *OmsGeneralOptParamsHasPowerParams*

1.4.24 OrganizationalModeHasCommonMode

Applied stereotype:

- StrictComposite

| Association end role name | Aggreg. type | Navigable | Target Class | Mult. |
|-------------------------------|--------------|-----------|--|-------|
| _commonOrganizationalExplicit | composite | Yes | CommonOrganizationalExplicit | 0..1 |
| organizationalmode | none | No | TransceiverOrganizational | 1 |

Table 79 – Member ends for association *OrganizationalModeHasCommonMode*

1.4.25 OscParamsHasPowerPac

Applied stereotype:

- StrictComposite

| Association end role name | Aggreg. type | Navigable | Target Class | Mult. |
|---------------------------|--------------|-----------|-------------------------------------|-------|
| _powerMeasurementPac | composite | Yes | PowerMeasurementPac | 0..1 |
| oscparams | none | No | OscParams | 1 |

Table 80 – Member ends for association *OscParamsHasPowerPac*

1.4.26 OtsImpairmentRoute

Applied stereotype:

- StrictComposite

| Association end role name | Aggreg. type | Navigable | Target Class | Mult. |
|---------------------------|--------------|-----------|--------------------------------------|-------|
| _impairmentRouteEntry | composite | Yes | ImpairmentRouteEntry | 0..* |
| otsimpairments | none | No | OtsImpairments | 1 |

Table 81 – Member ends for association *OtsImpairmentRoute*

1.4.27 OtsMediaCepHasFlexiGridPac

Applied stereotype:

- StrictComposite

| Association end role name | Aggreg. type | Navigable | Target Class | Mult. |
|--------------------------------|--------------|-----------|--|-------|
| _flexiGridPac | composite | Yes | FlexiGridPac | 0..* |
| otsmediaconnectionendpointspec | none | No | OtsMediaConnectionEndPointSpec | 1 |

Table 82 – Member ends for association *OtsMediaCepHasFlexiGridPac*

1.4.28 OtsMediaCepHasOscParams

Applied stereotype:

- StrictComposite

| Association end role name | Aggreg. type | Navigable | Target Class | Mult. |
|--------------------------------|--------------|-----------|--|-------|
| _oscParams | composite | Yes | OscParams | 0..1 |
| otsmediaconnectionendpointspec | none | No | OtsMediaConnectionEndPointSpec | 1 |

Table 83 – Member ends for association *OtsMediaCepHasOscParams*

1.4.29 OtsMediaCepHasOtsImpairments

Applied stereotype:

- StrictComposite

| Association end role name | Aggreg. type | Navigable | Target Class | Mult. |
|--------------------------------|--------------|-----------|--|-------|
| _otsImpairments | composite | Yes | OtsImpairments | 0..2 |
| otsmediaconnectionendpointspec | none | No | OtsMediaConnectionEndPointSpec | 1 |

Table 84 – Member ends for association *OtsMediaCepHasOtsImpairments*

1.4.30 OtsMediaCepHasPowerPac

Applied stereotype:

- StrictComposite

| Association end role name | Aggreg. type | Navigable | Target Class | Mult. |
|--------------------------------|--------------|-----------|--|-------|
| _powerMeasurementPac | composite | Yes | PowerMeasurementPac | 0..1 |
| otsmediaconnectionendpointspec | none | No | OtsMediaConnectionEndPointSpec | 1 |

Table 85 – Member ends for association *OtsMediaCepHasPowerPac*

1.4.31 OtsMediaCepHasSpectrumPac

Applied stereotype:

- StrictComposite

| Association end role name | Aggreg. type | Navigable | Target Class | Mult. |
|--------------------------------|--------------|-----------|--|-------|
| _spectrumPac | composite | Yes | SpectrumPac | 0..* |
| otsmediaconnectionendpointspec | none | No | OtsMediaConnectionEndPointSpec | 1 |

Table 86 – Member ends for association *OtsMediaCepHasSpectrumPac*

1.4.32 OtsiConfigHasExplicitParams

Applied stereotype:

- StrictComposite

| Association end role name | Aggreg. type | Navigable | Target Class | Mult. |
|---------------------------|--------------|-----------|--------------------------------|-------|
| _commonExplicit | composite | Yes | CommonExplicit | 0..1 |
| otsiconfigpac | none | No | OtsiConfigPac | 1 |

Table 87 – Member ends for association *OtsiConfigHasExplicitParams***1.4.33 OtsiConfigHasOrganizationalExplicitParams**

Applied stereotype:

- StrictComposite

| Association end role name | Aggreg. type | Navigable | Target Class | Mult. |
|-------------------------------|--------------|-----------|--|-------|
| _commonOrganizationalExplicit | composite | Yes | CommonOrganizationalExplicit | 0..1 |
| otsiconfigpac | none | No | OtsiConfigPac | 1 |

Table 88 – Member ends for association *OtsiConfigHasOrganizationalExplicitParams***1.4.34 OtsiConfigHasThresholdPowerConfig**

Applied stereotype:

- StrictComposite

| Association end role name | Aggreg. type | Navigable | Target Class | Mult. |
|---------------------------|--------------|-----------|--|-------|
| _otsiThresholdPowerConfig | composite | Yes | OtsiThresholdPowerConfig | 0..1 |
| otsiconfig | none | No | OtsiConfigPac | 1 |

Table 89 – Member ends for association *OtsiConfigHasThresholdPowerConfig***1.4.35 OtsiConfigPacHasPowerConfigPac**

Applied stereotype:

- StrictComposite

| Association end role name | Aggreg. type | Navigable | Target Class | Mult. |
|---------------------------|--------------|-----------|--|-------|
| _powerManagementConfigPac | composite | Yes | PowerManagementConfigPac | 0..1 |
| otsiconfigpac | none | No | OtsiConfigPac | 1 |

Table 90 – Member ends for association *OtsiConfigPacHasPowerConfigPac***1.4.36 OtsiMcBandwidthConfigPacHasPowerConfigPac**

Applied stereotype:

- StrictComposite

| Association end role name | Aggreg. type | Navigable | Target Class | Mult. |
|---------------------------|--------------|-----------|--|-------|
| _powerManagementConfigPac | composite | Yes | PowerManagementConfigPac | 0..1 |
| otsimcbwconfigpac | none | No | OtsiMcBandwidthConfigPac | 1 |

Table 91 – Member ends for association *OtsiMcBandwidthConfigPacHasPowerConfigPac***1.4.37 OtsiMcCepHasFlexiGridPac**

Applied stereotype:

- StrictComposite

| Association end role name | Aggreg. type | Navigable | Target Class | Mult. |
|------------------------------|--------------|-----------|--|-------|
| _flexiGridPac | composite | Yes | FlexiGridPac | 0..1 |
| otsimcconnectionendpointspec | none | No | OtsiMcConnectionEndPointSpec | 1 |

Table 92 – Member ends for association *OtsiMcCepHasFlexiGridPac***1.4.38 OtsiMcCepHasPowerPac**

Applied stereotype:

- StrictComposite

| Association end role name | Aggreg. type | Navigable | Target Class | Mult. |
|------------------------------|--------------|-----------|--|-------|
| _powerMeasurementPac | composite | Yes | PowerMeasurementPac | 0..1 |
| otsimcconnectionendpointspec | none | No | OtsiMcConnectionEndPointSpec | 1 |

Table 93 – Member ends for association *OtsiMcCepHasPowerPac***1.4.39 OtsiMcCepHasSpectrumPac**

Applied stereotype:

- StrictComposite

| Association end role name | Aggreg. type | Navigable | Target Class | Mult. |
|------------------------------|--------------|-----------|--|-------|
| _spectrumPac | composite | Yes | SpectrumPac | 0..1 |
| otsimcconnectionendpointspec | none | No | OtsiMcConnectionEndPointSpec | 1 |

Table 94 – Member ends for association *OtsiMcCepHasSpectrumPac***1.4.40 OtsiMcCepHasTerminationPac**

Applied stereotype:

- StrictComposite

| Association end role name | Aggreg. type | Navigable | Target Class | Mult. |
|------------------------------|--------------|-----------|--|-------|
| _otsiTerminationPac | composite | Yes | OtsiTerminationPac | 0..1 |
| otsimcconnectionendpointspec | none | No | OtsiMcConnectionEndPointSpec | 1 |

Table 95 – Member ends for association *OtsiMcCepHasTerminationPac***1.4.41 OtsiMcFreqConfigPacHasPowerConfigPac**

Applied stereotype:

- StrictComposite

| Association end role name | Aggreg. type | Navigable | Target Class | Mult. |
|---------------------------|--------------|-----------|--|-------|
| _powerManagementConfigPac | composite | Yes | PowerManagementConfigPac | 0..1 |
| otsimcfreqconfigpac | none | No | OtsiMcFrequencyConfigPac | 1 |

Table 96 – Member ends for association *OtsiMcFreqConfigPacHasPowerConfigPac***1.4.42 OtsiMcGridConfigPacHasFlexiGridConfigPac**

Applied stereotype:

- StrictComposite

| Association end role name | Aggreg. type | Navigable | Target Class | Mult. |
|---------------------------|--------------|-----------|--|-------|
| _flexiGridConfigPac | composite | Yes | FlexiGridConfigPac | 1 |
| otsimcgridconfigpac | none | No | OtsiMcFlexiGridConfigPac | 1 |

Table 97 – Member ends for association *OtsiMcGridConfigPacHasFlexiGridConfigPac***1.4.43 OtsiMcGridConfigPacHasPowerConfigPac**

Applied stereotype:

- StrictComposite

| Association end role name | Aggreg. type | Navigable | Target Class | Mult. |
|---------------------------|--------------|-----------|--|-------|
| _powerManagementConfigPac | composite | Yes | PowerManagementConfigPac | 0..1 |
| otsimcgridconfigpac | none | No | OtsiMcFlexiGridConfigPac | 1 |

Table 98 – Member ends for association *OtsiMcGridConfigPacHasPowerConfigPac***1.4.44 OtsiMcSpectrumConfigPacHasPowerConfigPac**

Applied stereotype:

- StrictComposite

| Association end role name | Aggreg. type | Navigable | Target Class | Mult. |
|---------------------------|--------------|-----------|--|-------|
| _powerManagementConfigPac | composite | Yes | PowerManagementConfigPac | 0..1 |
| otsimcconfigpac | none | No | OtsiMcSpectrumConfigPac | 1 |

Table 99 – Member ends for association *OtsiMcSpectrumConfigPacHasPowerConfigPac***1.4.45 OtsiMcGcsepHasBandwidthConfigPac**

Applied stereotype:

- StrictComposite

| Association end role name | Aggreg. type | Navigable | Target Class | Mult. |
|--|--------------|-----------|--|-------|
| _otsiMcBandwidthConfigPac | composite | Yes | OtsiMcBandwidthConfigPac | 0..* |
| otsimcgconnectivityserviceendpointspec | none | No | OtsiMcgConnectivityServiceEndPointSpec | 1 |

Table 100 – Member ends for association *OtsiMcGcsepHasBandwidthConfigPac***1.4.46 OtsiMcGcsepHasFlexiGridConfigPac**

Applied stereotype:

- StrictComposite

| Association end role name | Aggreg. type | Navigable | Target Class | Mult. |
|--|--------------|-----------|--|-------|
| _otsiMcFlexiGridConfigPac | composite | Yes | OtsiMcFlexiGridConfigPac | 0..* |
| otsimcgconnectivityserviceendpointspec | none | No | OtsiMcgConnectivityServiceEndPointSpec | 1 |

Table 101 – Member ends for association *OtsiMcGcsepHasFlexiGridConfigPac***1.4.47 OtsiMcGcsepHasFreqConfigPac**

Applied stereotype:

- StrictComposite

| Association end role name | Aggreg. type | Navigable | Target Class | Mult. |
|--|--------------|-----------|--|-------|
| _otsiMcFrequencyConfigPac | composite | Yes | OtsiMcFrequencyConfigPac | 0..* |
| otsimcgconnectivityserviceendpointspec | none | No | OtsiMcgConnectivityServiceEndPointSpec | 1 |

Table 102 – Member ends for association *OtsiMcGcsepHasFreqConfigPac***1.4.48 OtsiMcGcsepHasSpectrumConfigPac**

Applied stereotype:

- StrictComposite

| Association end role name | Aggreg. type | Navigable | Target Class | Mult. |
|--|--------------|-----------|--|-------|
| _otsiMcSpectrumConfigPac | composite | Yes | OtsiMcSpectrumConfigPac | 0..* |
| otsimcgconnectivityserviceendpointspec | none | No | OtsiMcgConnectivityServiceEndPointSpec | 1 |

Table 103 – Member ends for association *OtsiMcgCsepHasSpectrumConfigPac***1.4.49 OtsiTerminationPacHasMonitoring**

Applied stereotype:

- StrictComposite

| Association end role name | Aggreg. type | Navigable | Target Class | Mult. |
|---------------------------|--------------|-----------|------------------------------------|-------|
| _otsiMonitoringPac | composite | Yes | OtsiMonitoringPac | 0..1 |
| otsiterminationpac | none | No | OtsiTerminationPac | 1 |

Table 104 – Member ends for association *OtsiTerminationPacHasMonitoring***1.4.50 OtsiaCsepHasOtsiConfig**

Applied stereotype:

- StrictComposite

| Association end role name | Aggreg. type | Navigable | Target Class | Mult. |
|---------------------------|--------------|-----------|--|-------|
| _otsiConfig | composite | Yes | OtsiConfigPac | 1..* |
| otsiacseptpppac | none | No | OtsiaConnectivityServiceEndPointSpec | 1 |

Table 105 – Member ends for association *OtsiaCsepHasOtsiConfig***1.4.51 PhoMediaSipHasMcPoolPac**

Applied stereotype:

- StrictComposite

| Association end role name | Aggreg. type | Navigable | Target Class | Mult. |
|---------------------------|--------------|-----------|--|-------|
| _spectrumCapabilityPac | composite | Yes | SpectrumCapabilityPac | 1 |
| smcbserviceinterfacepoint | none | No | PhotonicMediaServiceInterfacePointSpec | 1 |

Table 106 – Member ends for association *PhoMediaSipHasMcPoolPac***1.4.52 PhoMediaSipHasPowerCapabilityPac**

Applied stereotype:

- StrictComposite

| Association end role name | Aggreg. type | Navigable | Target Class | Mult. |
|-------------------------------|--------------|-----------|--|-------|
| _powerManagementCapabilityPac | composite | Yes | PowerManagementCapabilityPac | 0..* |
| mediachannelpoolcapabilitypac | none | No | PhotonicMediaServiceInterfacePointSpec | 1 |

Table 107 – Member ends for association *PhoMediaSipHasPowerCapabilityPac***1.4.53 PhoMediaSipHasPowerThreshold**

Applied stereotype:

- StrictComposite

| Association end role name | Aggreg. type | Navigable | Target Class | Mult. |
|--|--------------|-----------|--|-------|
| _totalPowerThresholdPac | composite | Yes | TotalPowerThresholdPac | 0..* |
| photonicmediaserviceinterfacepointspec | none | No | PhotonicMediaServiceInterfacePointSpec | 1 |

Table 108 – Member ends for association *PhoMediaSipHasPowerThreshold***1.4.54 PhotonicMediaNepHasPowerPac**

Applied stereotype:

- StrictComposite

| Association end role name | Aggreg. type | Navigable | Target Class | Mult. |
|--------------------------------|--------------|-----------|--|-------|
| _powerManagementCapabilityPac | composite | Yes | PowerManagementCapabilityPac | 0..* |
| photonicmedianodeedgepointspec | none | No | PhotonicMediaNodeEdgePointSpec | 1 |

Table 109 – Member ends for association *PhotonicMediaNepHasPowerPac***1.4.55 PhotonicMediaNepHasPowerThrPac**

Applied stereotype:

- StrictComposite

| Association end role name | Aggreg. type | Navigable | Target Class | Mult. |
|--------------------------------|--------------|-----------|--|-------|
| _totalPowerThresholdPac | composite | Yes | TotalPowerThresholdPac | 0..* |
| photonicmedianodeedgepointspec | none | No | PhotonicMediaNodeEdgePointSpec | 1 |

Table 110 – Member ends for association *PhotonicMediaNepHasPowerThrPac***1.4.56 PhotonicMediaNepHasSpectrumCapabilityPac**

Applied stereotype:

- StrictComposite

| Association end role name | Aggreg. type | Navigable | Target Class | Mult. |
|--------------------------------|--------------|-----------|--|-------|
| _spectrumCapabilityPac | composite | Yes | SpectrumCapabilityPac | 1 |
| photonicmedianodeedgepointspec | none | No | PhotonicMediaNodeEdgePointSpec | 1 |

Table 111 – Member ends for association *PhotonicMediaNepHasSpectrumCapabilityPac***1.4.57 PhotonicPerformanceDataHasOscPm**

Applied stereotype:

- StrictComposite

| Association end role name | Aggreg. type | Navigable | Target Class | Mult. |
|---------------------------|--------------|-----------|---|-------|
| _oscMonitoringPac | composite | Yes | OscMonitoringPac | 0..1 |
| photonicperformancedata | none | No | PhotonicPerformanceData | 1 |

Table 112 – Member ends for association *PhotonicPerformanceDataHasOscPm***1.4.58 PhotonicPerformanceDataHasOtsiPm**

Applied stereotype:

- StrictComposite

| Association end role name | Aggreg. type | Navigable | Target Class | Mult. |
|---------------------------|--------------|-----------|---|-------|
| _otsiMonitoringPac | composite | Yes | OtsiMonitoringPac | 0..1 |
| photonicperformancedata | none | No | PhotonicPerformanceData | 1 |

Table 113 – Member ends for association *PhotonicPerformanceDataHasOtsiPm***1.4.59 PhotonicPerformanceDataIncludesAmplificationPm**

Applied stereotype:

- StrictComposite

| Association end role name | Aggreg. type | Navigable | Target Class | Mult. |
|-------------------------------|--------------|-----------|--|-------|
| _amplificationPerformanceData | composite | Yes | AmplificationPerformanceData | 0..* |
| photonicperformancedata | none | No | PhotonicPerformanceData | 1 |

Table 114 – Member ends for association *PhotonicPerformanceDataIncludesAmplificationPm***1.4.60 PowerParamsHasChannelPower**

Applied stereotype:

- StrictComposite

| Association end role name | Aggreg. type | Navigable | Target Class | Mult. |
|---------------------------|--------------|-----------|------------------------------|-------|
| _channelPower | composite | Yes | ChannelPower | 0..1 |
| powerparams | none | No | PowerParams | 1 |

Table 115 – Member ends for association *PowerParamsHasChannelPower***1.4.61 PowerParamsHasSpectralDensity**

Applied stereotype:

- StrictComposite

| Association end role name | Aggreg. type | Navigable | Target Class | Mult. |
|---------------------------|--------------|-----------|--------------------------------------|-------|
| _powerSpectralDensity | composite | Yes | PowerSpectralDensity | 0..1 |
| powerparams | none | No | PowerParams | 1 |

Table 116 – Member ends for association *PowerParamsHasSpectralDensity***1.4.62 TransceiverExplicitProfileHasOrganizationalMode**

| Association end role name | Aggreg. type | Navigable | Target Class | Mult. |
|------------------------------|--------------|-----------|-------------------------------------|-------|
| _supportedOrganizationalMode | none | Yes | TapiCommon::ObjectClasses::Profile | 0..1 |
| transceiverexplicitprofile | none | No | TransceiverExplicit | 1 |

Table 117 – Member ends for association *TransceiverExplicitProfileHasOrganizationalMode***1.4.63 TransceiverExplicitProfileSupportsStdCode**

| Association end role name | Aggreg. type | Navigable | Target Class | Mult. |
|-----------------------------------|--------------|-----------|-------------------------------------|-------|
| _supportedStandardApplicationCode | none | Yes | TapiCommon::ObjectClasses::Profile | 0..1 |
| transceiverexplicitprofile | none | No | TransceiverExplicit | 1 |

Table 118 – Member ends for association *TransceiverExplicitProfileSupportsStdCode***1.4.64 TransceiverProfileHasExplicitProfile**

Applied stereotype:

- StrictComposite

| Association end role name | Aggreg. type | Navigable | Target Class | Mult. |
|-----------------------------|--------------|-----------|-------------------------------------|-------|
| _transceiverExplicitProfile | composite | Yes | TransceiverExplicit | 0..1 |
| transceiverprofile | none | No | TransceiverProfile | 1 |

Table 119 – Member ends for association *TransceiverProfileHasExplicitProfile***1.4.65 TransceiverProfileHasOrganizationalProfile**

Applied stereotype:

- StrictComposite

| Association end role name | Aggreg. type | Navigable | Target Class | Mult. |
|-----------------------------------|--------------|-----------|---|-------|
| _transceiverOrganizationalProfile | composite | Yes | TransceiverOrganizational | 0..1 |
| transceiverprofile | none | No | TransceiverProfile | 1 |

Table 120 – Member ends for association *TransceiverProfileHasOrganizationalProfile*

1.4.66 TransceiverProfileHasStandardProfile

Applied stereotype:

- StrictComposite

| Association end role name | Aggreg. type | Navigable | Target Class | Mult. |
|-----------------------------|--------------|-----------|-------------------------------------|-------|
| _transceiverStandardProfile | composite | Yes | TransceiverStandard | 0..1 |
| transceiverprofile | none | No | TransceiverProfile | 1 |

Table 121 – Member ends for association *TransceiverProfileHasStandardProfile*

1.5 Abstractions

1.5.1 AmplificationProfileAugmentsProfile

| Augmenting Class | Augmented Class | Comment |
|--|------------------------------------|---------|
| AmplificationProfile | TapiCommon::ObjectClasses::Profile | |
| target: "/TapiCommon:Context:_context/TapiCommon:Context:_profile" | | |

Table 122 – Member ends for class abstraction *AmplificationProfileAugmentsProfile*

1.5.2 ConnectivityImpairmentProfileAugmentsProfile

| Augmenting Class | Augmented Class | Comment |
|--|------------------------------------|---------|
| ConnectivityImpairmentProfile | TapiCommon::ObjectClasses::Profile | |
| target: "/TapiCommon:Context: context/TapiCommon:Context: profile" | | |

Table 123 – Member ends for class abstraction *ConnectivityImpairmentProfileAugmentsProfile*

1.5.3 FiberProfileAugmentsProfile

| Augmenting Class | Augmented Class | Comment |
|--|------------------------------------|---------|
| FiberProfile | TapiCommon::ObjectClasses::Profile | |
| target: "/TapiCommon:Context:_context/TapiCommon:Context:_profile" | | |

Table 124 – Member ends for class abstraction *FiberProfileAugmentsProfile*

1.5.4 McCepSpecAugmentsCep

| Augmenting Class | Augmented Class | Comment |
|--|---|--|
| McConnectionEndPointSpec | TapiConnectivity::ObjectClasses::ConnectionEndPoint | <p>target: "/TapiCommon:Context:_context/TapiTopology:TopologyContext:_topologyContext/TapiTopology:TopologyContext:_topology/TapiTopology:Topology:_node/TapiTopology:Node:_ownedNodeEdgePoint/TapiConnectivity:CepList:_cepList/TapiConnectivity:CepList:_connectionEndPoint"</p> |

Table 125 – Member ends for class abstraction *McCepSpecAugmentsCep*

1.5.5 McNepSpecAugmentsNep

| Augmenting Class | Augmented Class | Comment |
|--|--|---|
| PhotonicMediaNodeEdgePointSpec | TapiTopology::ObjectClasses::NodeEdgePoint | Augments the base NEP with MC specific information. |

Table 126 – Member ends for class abstraction *McNepSpecAugmentsNep*

1.5.6 McgCsepSpecAugmentsCsepLpc

| Augmenting Class | Augmented Class | Comment |
|--|--|---|
| McgConnectivityServiceEndPointSpec | TapiConnectivity::ObjectClasses::LayerProtocolConstraint | <p>target: "/TapiCommon:Context:_context/TapiConnectivity:ConnectivityContext:_connectivityContext/TapiConnectivity:ConnectivityContext:_connectivityService/TapiConnectivity:ConnectivityService:_endPoint/TapiConnectivity:ConnectivityServiceEndPoint:_layerProtocolConstraint"</p> |

Table 127 – Member ends for class abstraction *McgCsepSpecAugmentsCsepLpc*

1.5.7 OmsCepSpecAugmentsCep

| Augmenting Class | Augmented Class | Comment |
|---|---|--|
| OmsConnectionEndPointSpec | TapiConnectivity::ObjectClasses::ConnectionEndPoint | <p>target: "/TapiCommon:Context:_context/TapiTopology:TopologyContext:_topologyContext/TapiTopology:TopologyContext:_topology/TapiTopology:Topology:_node/TapiTopology:Node:_ownedNodeEdgePoint/TapiConnectivity:CepList:_cepList/TapiConnectivity:CepList:_connectionEndPoint"</p> |

Table 128 – Member ends for class abstraction *OmsCepSpecAugmentsCep*

1.5.8 OtsMediaCepSpecAugmentsCep

| Augmenting Class | Augmented Class | Comment |
|--|---|---------|
| OtsMediaConnectionEndPointSpec | TapiConnectivity::ObjectClasses::ConnectionEndPoint | |

target:
 "/TapiCommon:Context:_context/TapiTopology:TopologyContext:_topologyContext/TapiTopology:TopologyContext:_topology/TapiTopology:Topology:_node/TapiTopology:Node:_ownedNodeEdgePoint/TapiConnectivity:CepList:_cepList/TapiConnectivity:CepList:_connecti onEndPoint"

Table 129 – Member ends for class abstraction *OtsMediaCepSpecAugmentsCep***1.5.9 OtsiMcCepSpecAugmentsCep**

| Augmenting Class | Augmented Class | Comment |
|--|---|---|
| OtsiMcConnectionEndPointSpec | TapiConnectivity::ObjectClasses::ConnectionEndPoint | Augments the base CEP with OTSiMC specific information. |

target:
 "/TapiCommon:Context:_context/TapiTopology:TopologyContext:_topologyContext/TapiTopology:TopologyContext:_topology/TapiTopology:Topology:_node/TapiTopology:Node:_ownedNodeEdgePoint/TapiConnectivity:CepList:_cepList/TapiConnectivity:CepList:_connecti onEndPoint"

Table 130 – Member ends for class abstraction *OtsiMcCepSpecAugmentsCep***1.5.10 OtsiMcgCsepSpecAugmentsCsepLpc**

| Augmenting Class | Augmented Class | Comment |
|--|--|---------|
| OtsiMcgConnectivityServiceEndPointSpec | TapiConnectivity::ObjectClasses::LayerProtocolConstraint | |

target:
 "/TapiCommon:Context:_context/TapiConnectivity:ConnectivityContext:_connectivityContext/TapiConnectivity:ConnectivityContext:_con nectivityService/TapiConnectivity:ConnectivityService:_endPoint/TapiConnectivity:ConnectivityServiceEndPoint:_layerProtocolConstraint "

Table 131 – Member ends for class abstraction *OtsiMcgCsepSpecAugmentsCsepLpc***1.5.11 OtsiaCsepSpecAugmentsCsepLpc**

| Augmenting Class | Augmented Class | Comment |
|--|--|---------|
| OtsiaConnectivityServiceEndPointSpec | TapiConnectivity::ObjectClasses::LayerProtocolConstraint | |

target:
 "/TapiCommon:Context:_context/TapiConnectivity:ConnectivityContext:_connectivityContext/TapiConnectivity:ConnectivityContext:_con nectivityService/TapiConnectivity:ConnectivityService:_endPoint/TapiConnectivity:ConnectivityServiceEndPoint:_layerProtocolConstraint "

Table 132 – Member ends for class abstraction *OtsiaCsepSpecAugmentsCsepLpc***1.5.12 PhoMediaSipSpecAugmentsSip**

| Augmenting Class | Augmented Class | Comment |
|--|--|---------|
| PhotonicMediaServiceInterfacePointSpec | TapiCommon::ObjectClasses::ServiceInterfacePoint | |

target: "/TapiCommon:Context:_context/TapiCommon:Context:_serviceInterfacePoint"

Table 133 – Member ends for class abstraction *PhoMediaSipSpecAugmentsSip*

1.5.13 PhotProfileTypeAufmentsProfileType

| Augmenting Enumeration | Augmented Enumeration |
|---|-----------------------|
| PhotProfileType - AMPLIFICATION - CONNECTIVITY IMPAIRMENT - FIBER - TRANSCEIVER | ProfileType |
| Comment | |
| Enumeration Augment. | |

Table 134 – Member ends for enum abstraction *PhotProfileTypeAufmentsProfileType*

1.5.14 PhotThrsAddQualifAufgmentsThrsAddQualif

| Augmenting Enumeration | Augmented Enumeration |
|---|-----------------------|
| PhotThrsAddQualif - AMPLIFICATION - OSC | ThrsAddQualif |
| Comment | |
| Enumeration Augment. | |

Table 135 – Member ends for enum abstraction *PhotThrsAddQualifAufgmentsThrsAddQualif*

1.5.15 PhotonicAugmentsExcludeLinkAndPartition

| Augmenting Class | Augmented Class | Comment |
|---|--|---------|
| <u>PhotonicPosition</u> | TapiPathComputation::ObjectClasses::LinkAndPartition | |
| target: "/TapiCommon:Context:_context/TapiPathComputation:PathComputationContext:_pathComputationContext/TapiPathComputation:PathComputationContext:_pathCompService/TapiPathComputation:PathComputationService:_topologyConstraint/TapiPathComputation:TopologyConstraint:_excludeLinkAndPartition" | | |

Table 136 – Member ends for class abstraction *PhotonicAugmentsExcludeLinkAndPartition*

1.5.16 PhotonicAugmentsExcludeNepAndPartition

| Augmenting Class | Augmented Class | Comment |
|--|---|---------|
| <u>PhotonicPosition</u> | TapiPathComputation::ObjectClasses::NepAndPartition | |
| target: "/TapiCommon:Context:_context/TapiPathComputation:PathComputationContext:_pathComputationContext/TapiPathComputation:PathComputationContext:_pathCompService/TapiPathComputation:PathComputationService:_topologyConstraint/TapiPathComputation:TopologyConstraint:_excludeNepAndPartition" | | |

Table 137 – Member ends for class abstraction *PhotonicAugmentsExcludeNepAndPartition*

1.5.17 PhotonicAugmentsIncludeLinkAndPartition

| Augmenting Class | Augmented Class | Comment |
|--------------------------|--|--|
| Diagrams | TapiPathComputation::ObjectClasses::LinkAndPartition | <p>target: "/TapiCommon:Context:_context/TapiPathComputation:PathComputationContext:_pathComputationContext/TapiPathComputation:PathComputationContext:_pathCompService/TapiPathComputation:PathComputationService:_topologyConstraint/TapiPathComputation:TopologyConstraint:_includeLinkAndPartition"</p> |

Table 138 – Member ends for class abstraction *PhotonicAugmentsIncludeLinkAndPartition***1.5.18 PhotonicAugmentsIncludeNepAndPartition**

| Augmenting Class | Augmented Class | Comment |
|----------------------------------|---|---|
| PhotonicPosition | TapiPathComputation::ObjectClasses::NepAndPartition | <p>target: "/TapiCommon:Context:_context/TapiPathComputation:PathComputationContext:_pathComputationContext/TapiPathComputation:PathComputationContext:_pathCompService/TapiPathComputation:PathComputationService:_topologyConstraint/TapiPathComputation:TopologyConstraint:_includeNepAndPartition"</p> |

Table 139 – Member ends for class abstraction *PhotonicAugmentsIncludeNepAndPartition***1.5.19 PhotonicAugmentsLayerProtocolQualifer**

| Augmenting Enumeration | Augmented Enumeration |
|---|--|
| PhotonicLayerQualifier <ul style="list-style-type: none"> - MC - MCA - OCH - OMS - OMSA - OS_MEDIA - OTS - OTSA - OTS_MEDIA - OTS_OMS - OTSi - OTSiA - OTSiMC - OTSiMCA | LayerProtocolQualifier <ul style="list-style-type: none"> - UNSPECIFIED |
| Comment | |
| Enumeration Augment. | |

Table 140 – Member ends for enum abstraction *PhotonicAugmentsLayerProtocolQualifer***1.5.20 PhotonicOamJobTypeAugmentsOamJobType**

| Augmenting Enumeration | Augmented Enumeration |
|--|---|
| PhotonicOamJobType <ul style="list-style-type: none"> - OPTICAL_POWER | OamJobType <ul style="list-style-type: none"> - LOOPBACK_FACILITY - LOOPBACK_TERMINAL |
| Comment | |
| Enumeration Augment. | |

Table 141 – Member ends for enum abstraction *PhotonicOamJobTypeAugmentsOamJobType***1.5.21 PhotonicPerformanceDataAugmentsCd**

| Augmenting Class | Augmented Class | Comment |
|---|-------------------------------------|---------|
| PhotonicPerformanceData | TapiOam::ObjectClasses::CurrentData | |
| target: "/TapiCommon:Context:_context/TapiOam:OamContext:_oamContext/TapiOam:OamContext:_oamJob/TapiOam:OamJob:_currentData" | | |

Table 142 – Member ends for class abstraction *PhotonicPerformanceDataAugmentsCd***1.5.22 PhotonicPerformanceDataAugmentsCepHd**

| Augmenting Class | Augmented Class | Comment |
|---|-------------------------------------|---------|
| PhotonicPerformanceData | TapiOam::ObjectClasses::HistoryData | |
| target: "/TapiCommon:Context:_context/TapiOam:OamContext:_oamContext/TapiOam:OamContext:_cepPmData/TapiOam:CepPmData:_historyData" | | |

Table 143 – Member ends for class abstraction *PhotonicPerformanceDataAugmentsCepHd***1.5.23 PhotonicPerformanceDataAugmentsHd**

| Augmenting Class | Augmented Class | Comment |
|--|-------------------------------------|---------|
| PhotonicPerformanceData | TapiOam::ObjectClasses::HistoryData | |
| target: "/TapiCommon:Context:_context/TapiOam:OamContext:_oamContext/TapiOam:OamContext:_oamJob/TapiOam:OamJob:_currentData/TapiOam:CurrentData:_historyData" | | |

Table 144 – Member ends for class abstraction *PhotonicPerformanceDataAugmentsHd***1.5.24 PhotonicPerformanceDataAugmentsMepHd**

| Augmenting Class | Augmented Class | Comment |
|---|-------------------------------------|---------|
| PhotonicPerformanceData | TapiOam::ObjectClasses::HistoryData | |
| target: "/TapiCommon:Context:_context/TapiOam:OamContext:_oamContext/TapiOam:OamContext:_mepPmData/TapiOam:MepPmData:_historyData" | | |

Table 145 – Member ends for class abstraction *PhotonicPerformanceDataAugmentsMepHd***1.5.25 PhotonicPerformanceDataAugmentsMipHd**

| Augmenting Class | Augmented Class | Comment |
|---|-------------------------------------|---------|
| PhotonicPerformanceData | TapiOam::ObjectClasses::HistoryData | |
| target: "/TapiCommon:Context:_context/TapiOam:OamContext:_oamContext/TapiOam:OamContext:_mipPmData/TapiOam:MipPmData:_historyData" | | |

Table 146 – Member ends for class abstraction *PhotonicPerformanceDataAugmentsMipHd*

1.5.26 TransceiverProfileAugmentsProfile

| Augmenting Class | Augmented Class | Comment |
|--|------------------------------------|---------|
| TransceiverProfile | TapiCommon::ObjectClasses::Profile | |
| target: "/TapiCommon:Context:_context/TapiCommon:Context:_profile" | | |

Table 147 – Member ends for class abstraction *TransceiverProfileAugmentsProfile*

1.6 Data Types

1.6.1 CdPmdPenalty

Description:

- Entries of table; triplet chromatic dispersion, polarization mode dispersion and associated penalty.

| Attribute Name | Type | Mult. | Access | Stereotypes |
|---|-------------------------|-------|--------|--|
| index | PrimitiveTypes::Integer | 1 | RW | OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA OpenModelAttribute <ul style="list-style-type: none"> • isKey: yes – part: 1 • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| Description: | | | | |
| chromaticDispersion | PrimitiveTypes::Real | 0..1 | RW | OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| Description: Chromatic dispersion. Measured in ps/nm (picoseconds per nanometer). | | | | |
| polarizationModeDispersion | PrimitiveTypes::Real | 0..1 | RW | OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| Description: Polarization mode dispersion. Measured in picoseconds per square root kilometer. | | | | |
| penalty | PrimitiveTypes::Real | 0..1 | RW | OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |

| Attribute Name | Type | Mult. | Access | Stereotypes | |
|----------------|--|-------|--------|-------------|--|
| | Description: Associated penalty on the receiver. Measured in dB. | | | | |

Table 148 – Attributes for data type *CdPmdPenalty***1.6.2 FrequencyConstraint****Description:**

- This data-type holds the frequency constraint information in terms of GridType (FIXED grid (DWDM or CWDM) or FLEX grid) and AdjustmentGranularity.

| Attribute Name | Type | Mult. | Access | Stereotypes |
|--|--|-------|--------|---|
| adjustmentGranularity | AdjustmentGranularity Default value: <i>UNCONSTRAINED</i> | 0..1 | RW | OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| Description: Adjustment granularity in Gigahertz. As per ITU-T G.694.1, it is used to calculate nominal central frequency (in THz) | | | | |
| gridType | GridType Default value: <i>GRIDLESS</i> | 0..1 | RW | OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| Description: Specifies the frequency grid standard used to determine the nominal central frequency and frequency slot width | | | | |

Table 149 – Attributes for data type *FrequencyConstraint***1.6.3 FrequencyRange**

| Attribute Name | Type | Mult. | Access | Stereotypes |
|--|-------------------------|-------|--------|---|
| upperFrequency | PrimitiveTypes::Integer | 1 | RW | OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| Description: The upper frequency bound of the frequency range specified in Hz. | | | | |

| Attribute Name | Type | Mult. | Access | Stereotypes |
|---------------------|-------------------------|-------|--------|---|
| lowerFrequency | PrimitiveTypes::Integer | 1 | RW | OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| Description: | | | | The lower frequency bound of the frequency range specified in Hz. |

Table 150 – Attributes for data type *FrequencyRange***1.6.4 GainRange**

| Attribute Name | Type | Mult. | Access | Stereotypes |
|---------------------|----------------------|-------|--------|---|
| minGain | PrimitiveTypes::Real | 1 | RW | OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| Description: | | | | In dB. |
| maxGain | PrimitiveTypes::Real | 1 | RW | OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| Description: | | | | In dB. |

Table 151 – Attributes for data type *GainRange***1.6.5 LaserProperties**

| Attribute Name | Type | Mult. | Access | Stereotypes |
|---------------------|--|-------|--------|---|
| laserStatus | LaserControlStatusType | 1 | R | OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| Description: | | | | |

| Attribute Name | Type | Mult. | Access | Stereotypes |
|----------------------|---|-------|--------|--|
| laserApplicationType | LaserType | 1 | R | OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| | Description: The type of laser, its operational wavelengths, and its applications. String size 255. | | | |
| laserBiasCurrent | PrimitiveTypes::Real | 1 | R | OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • OpenModelAttribute • isKey:No • isInvariant: false • valueRange: • support: MANDATORY |
| | Description: The Bias current of the laser that is the medium polarization current of the laser. | | | |
| laserTemperature | PrimitiveTypes::Real | 1 | R | OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| | Description: The temperature of the laser | | | |

Table 152 – Attributes for data type *LaserProperties*

1.6.6 ModulationTechnique

Description:

- The standardModulationTechnique and proprietaryModulationTechnique attributes are mutually exclusive.

| Attribute Name | Type | Mult. | Access | Stereotypes |
|-----------------------------|---|-------|--------|--|
| standardModulationTechnique | StandardModulationTechnique | 0..1 | RW | OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| | Description: | | | |

| Attribute Name | Type | Mult. | Access | Stereotypes |
|--------------------------------|------------------------|-------|--------|---|
| proprietaryModulationTechnique | PrimitiveTypes::String | 0..1 | RW | OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| Description: | | | | |

Table 153 – Attributes for data type *ModulationTechnique***1.6.7 NoiseFigureRange**

| Attribute Name | Type | Mult. | Access | Stereotypes |
|---------------------|----------------------|-------|--------|---|
| minNoiseFigure | PrimitiveTypes::Real | 1 | RW | OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| Description: | | | | |
| maxNoiseFigure | PrimitiveTypes::Real | 1 | RW | OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| Description: | | | | |

Table 154 – Attributes for data type *NoiseFigureRange***1.6.8 PdlPenalty****Description:**

- Entries of table; pair of values polarization dependent loss and associated penalty.

| Attribute Name | Type | Mult. | Access | Stereotypes |
|----------------|-------------------------|-------|--------|---|
| index | PrimitiveTypes::Integer | 1 | RW | OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: yes – part: 1 • isInvariant: false • valueRange: no range constraint • support: MANDATORY |

| Attribute Name | Type | Mult. | Access | Stereotypes |
|------------------------------|--|-------|--------|---|
| | Description: | | | |
| maxPolarizationDependentLoss | PrimitiveTypes::Real | 0..1 | RW | OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| | Description: | | | |
| | Maximum acceptable accumulate polarization dependent loss. Measured in dB. | | | |
| penalty | PrimitiveTypes::Real | 0..1 | RW | OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| | Description: | | | |
| | Associated penalty on the receiver. Measured in dB. | | | |

Table 155 – Attributes for data type *PdlPenalty***1.6.9 PowerProperties**

| Attribute Name | Type | Mult. | Access | Stereotypes |
|----------------------|---|-------|--------|---|
| | Description: | | | |
| totalPower | TapiCommon::TypeDefinitions::MetricValues | 1 | RW | OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey:No • isInvariant: false • valueRange: • support: MANDATORY |
| | Description: | | | |
| | The total power at any point in a channel specified in dBm. | | | |
| powerSpectralDensity | PrimitiveTypes::Real | 0..1 | R | OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey:No • isInvariant: false • valueRange: • support: MANDATORY |
| | Description: | | | |
| | This describes how power of a signal is distributed over frequency specified in nW/MHz. Note that this parameter is not configurable. | | | |

Table 156 – Attributes for data type *PowerProperties***1.6.10 SpectrumBand**

Description:

- This data-type holds the spectrum information in terms of upper/lower frequency and optionally the information of frequency constraints.

| Attribute Name | Type | Mult. | Access | Stereotypes |
|--|-------------------------------------|-------|--------|--|
| upperFrequency | PrimitiveTypes::Integer | 1 | RW | OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • isKey: yes – part: 1 • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| Description: | | | | |
| The upper frequency bound of the spectrum specified in Hz. | | | | |
| lowerFrequency | PrimitiveTypes::Integer | 1 | RW | OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • isKey: yes – part: 2 • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| Description: | | | | |
| The lower frequency bound of the spectrum specified in Hz. | | | | |
| frequencyConstraint | FrequencyConstraint | 0..1 | RW | OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY |
| Description: | | | | |
| The combination of adjustment granularity and grid type informs about either ITU-T fixed or flexible grid capability. E.g. if grid type = DWDM then the adjustment granularity informs about the fixed slot width. E.g. if grid type = FLEX then the adjustment granularity informs about the minimum slot width (two times the adjustment granularity value). | | | | |

Table 157 – Attributes for data type *SpectrumBand*

1.7 Enumerations

1.7.1 AdjustmentGranularity

Description:

- Adjustment granularity in Gigahertz. As per ITU-T G.694.1, it is used to calculate nominal central frequency

Contains Enumeration Literals:

- G_100GHZ
 - 100000 MHz
- G_50GHZ
 - 50000 MHz
- G_25GHZ
 - 25000 MHz

- G_12_5GHZ
 - 12500 MHz
- G_6_25GHZ
 - 6250 MHz
- G_3_125GHZ
 - 3125 MHz
- UNCONSTRAINED

1.7.2 FecType

Contains Enumeration Literals:

- G_FEC
 - Generic FEC.
- E_FEC
 - Enhanced FEC.
- REED_SOLOMON
 - Reed-Solomon error correction.
- HAMMING_CODE
 - Hamming Code error correction.
- GOLAY
 - Golay error correction.

1.7.3 FlexiChannelSpacing

Contains Enumeration Literals:

- 6_25GHz

1.7.4 FlexiSlotWidthGranularity

Contains Enumeration Literals:

- 12_5GHz

1.7.5 GridType

Description:

- The frequency grid standard that specify reference set of frequencies used to denote allowed nominal central frequencies that may be used for defining applications.

Contains Enumeration Literals:

- DWDM
 - Fixed frequency grid in C & L bands as specified in ITU-T G.694.1
- CWDM
 - Fixed frequency grid as specified in ITU-T G.694.2
- FLEX
 - Flexible frequency grid as specified in ITU-T G.694.1. In this case, - the allowed frequency slots have a nominal central frequency (in THz) defined by: $193.1 + n \times 0.00625$ where n is a positive or negative integer including 0 and 0.00625 is the nominal central frequency

granularity in THz - and a slot width defined by: $12.5 \times m$ where m is a positive integer and 12.5 is the slot width granularity in GHz. Any combination of frequency slots is allowed as long as no two frequency slots overlap.

- GRIDLESS

1.7.6 LaserControlStatusType

Contains Enumeration Literals:

- ON
- OFF
- PULSING
- UNDEFINED

1.7.7 LaserControlType

Contains Enumeration Literals:

- FORCED_ON
- FORCED_OFF
- AUTOMATIC_LASER_SHUTDOWN
- UNDEFINED

1.7.8 LaserType

Contains Enumeration Literals:

- PUMP
- MODULATED
- PULSE

1.7.9 LineCoding

Description:

- ITU-T G.698.2-201811 section 7.

Contains Enumeration Literals:

- NRZ-2P5G
 - ITU-T G.698.2-201811 section 7 table 8-1
- NRZ-OTU1
 - ITU-T G.698.2-201811 section 7 table 8-2
- NRZ-10G
 - ITU-T G.698.2-201811 section 7 table 8-3/8-5
- NRZ-OTU2
 - ITU-T G.698.2-201811 section 7 table 8-4/8-6

1.7.10 OpticalRoutingStrategy

Contains Enumeration Literals:

- OPTIMAL_OSNR
- NO_RELAY
- MIN_RELAY
- PREFERRED_NO_CHANGE_WAVELENGTH_AS_RESTORE
- PREFERRED_NO_SKIPPING_WAVELENGTH

1.7.11 PhotProfileType

Contains Enumeration Literals:

- AMPLIFICATION
- CONNECTIVITY_IMPAIRMENT
- FIBER
- TRANSCEIVER

1.7.12 PhotThrsAddQualif

Contains Enumeration Literals:

- AMPLIFICATION
- OSC

1.7.13 PhotonicLayerQualifier

Contains Enumeration Literals:

- OTSi
 - Applied stereotype:
 - Deprecated
- OTSiA
 - Applied stereotype:
 - Experimental
- OTSiMC
 - OTSiMC represents the bw portion dedicated to an OTSi.
- OTSiMCA
 - OTSiMCA is the set of OTSiMC supporting an OTSiA.
- MC
 - The continuous optical spectrum between end points in the photonic layer obtained through optical filter configurations where it is expected one (or more – super channel case) OTSi(s).
- MCA
 - Media Channel Assembly: the set of one or more MCs supporting one (or more) OTSiA(s).
- OMSA
 - Applied stereotype:
 - Experimental

- Applied stereotype:
 - Deprecated
- OTSA
 - Applied stereotype:
 - Deprecated
- OCH
 - Applied stereotype:
 - Deprecated
- OMS
- OTS
 - Applied stereotype:
 - Deprecated
- OTS_OMS
 - Applied stereotype:
 - Deprecated
- OTS_MEDIA
- OS_MEDIA

1.7.14 PhotonicOamJobType

Contains Enumeration Literals:

- OPTICAL_POWER

1.7.15 StandardApplicationCodeRec

Description:

- The list of ITU-T Recommendations etc. that define application code format.

Contains Enumeration Literals:

- ITUT_G959_1
 - G959.1 Optical transport network physical layer interfaces Application code notation [PnWx-ytz] This Recommendation provides physical layer inter-domain interface (IrDI) specifications for optical networks that may employ wavelength division multiplexing (WDM). The IrDI may be realized as either a single-channel interface or a multichannel interface.
- ITUT_G698_1
 - G698.1 Multichannel DWDM applications with single-channel optical interfaces Application code notation [DScW-ytz(v)] This Recommendation defines and provides values for single-channel optical interface parameters of physical point-to-point and ring DWDM applications (with transmission distance in the range of about 30 km to about 80 km) on single-mode optical fibres through the use of the "black link" approach.
- ITUT_G698_2
 - G698.2 Amplified multichannel DWDM applications with single channel optical interfaces Application code notation [DScW-ytz(v)] This Recommendation defines and provides values for single-channel optical interface parameters of physical point-to-point and ring DWDM

applications on single-mode optical fibres through the use of the 'black link' approach. The black links covered by this Recommendation may contain optical amplifiers.

- ITUT_G696_1
 - G696.1 Longitudinally compatible intra-domain DWDM applications Application code notation [n.B-xWF(s)] This Recommendation provides physical layer specifications for intra-domain (IaD) DWDM optical networking applications. These specifications are provided for point-to-point, multichannel line systems with or without line amplifiers.
- ITUT_G695
 - G695 Optical interfaces for coarse wavelength division multiplexing applications Application code notation [CnWx-ytz] This Recommendation applies to optical interfaces for coarse wavelength division multiplexing (CWDM) optical line systems for network applications using single-mode optical fibres.

1.7.16 StandardModulationTechnique

Contains Enumeration Literals:

- RZ
- NRZ
- BPSK
- DPSK
- QPSK
- 8QAM
- 16QAM
- PAM4
- PAM8

1.7.17 StandardModulationTechnique9093

Contains Enumeration Literals:

- DPSK
 - DPSK (Differential Phase Shift Keying) modulation.
- QPSK
 - QPSK (Quadrature Phase Shift Keying) modulation.
- DP-QPSK
 - DP-QPSK (Dual Polarization Quadrature Phase Shift Keying) modulation.
- QAM8
 - QAM8 (8-State Quadrature Amplitude Modulation).
- DP-QAM8
 - DP-QAM8 (8 symbols Dual Polarization Quadrature Amplitude Modulation).
- DC-DP-QAM8
 - DC-DP-QAM8 (8 symbols Dual Carrier Dual Polarization Quadrature Amplitude Modulation).
- QAM16
 - QAM16 (16 symbols Quadrature Amplitude Modulation).
- DP-QAM16
 - DP-QAM16 (16 symbols Dual Polarization Quadrature Amplitude Modulation).
- DC-DP-QAM16

- DC-DP-QAM16 (16 symbols Dual Carrier Dual Polarization Quadrature Amplitude Modulation).
- QAM32
 - QAM32 (32 symbols Quadrature Amplitude Modulation).
- DP-QAM32
 - DP-QAM32 (32 symbols Dual Polarization Quadrature Amplitude Modulation).
- QAM64
 - QAM64 (64 symbols Quadrature Amplitude Modulation).
- DP-QAM64
 - DP-QAM64 (64 symbols Dual Polarization Quadrature Amplitude Modulation).

1.7.18 TransceiverTerminationType

Contains Enumeration Literals:

- TUNNEL_ONLY
 - The transponder can only be used in an Optical Tunnel termination configuration.
- UNIDIR_3R_ONLY
 - The transponder can only be used in a 3R configuration, unidirectional.
- UNIDIR_3R_OR_TUNNEL
 - The transponder can be configured to be used either in an Optical Tunnel termination configuration or in a 3R configuration, unidirectional.
- BIDIR_3R_ONLY
 - The transponder can only be used in a 3R configuration, bidirectional.
- BIDIR_3R_OR_TUNNEL
 - The transponder can be configured to be used either in an Optical Tunnel termination configuration or in a 3R configuration, bidirectional.

1.8 Primitives