A YANG model to manage the optical interface parameters for an external transponder in a WDM network

draft-dharini-ccamp-dwdm-if-param-yang-01

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Document History

IETF 90: First Draft presented to netmod WG
IETF 91: Align yang model with SNMP draft
IETF 92: incorporate Yang doctor’s suggestions
IETF 93: Alignment with discussions at IETF 92
IETF 94: replaced draft-dharini-netmod-g-698-2-yang-04 by
draft-dharini-netmod-g-698-2-yang for a more generic approach
IETF 95: switched to draft-dharini-netmod-dwdm-if-yang, reducing dependency from progress in non-IETF standard bodies
IETF 96: deciding to go for experimental, given the lack of standards
IETF 96: presented draft-galimbe-ccamp-iv-yang, for Optical Parameters
IETF 97: Experimental draft in conjunction with a problem statement
IETF 98: Introducing mode parameters
External Transponder Model

Ss = reference point at the DWDM network element tributary output
Rs = reference point at the DWDM network element tributary input
Lx = Lambda x
OM = Optical Mux
OD = Optical Demux
OADM = Optical Add Drop Mux
Motivation & Problem statement

Problem:
• Coherent transceivers not covered by standards today → draft status is experimental
• Supporting several combinations of parameters with interdependency between each other
• Current YANG models do not support the planning aspect allowing to select the best parameter combination
• Yang models definition according to existing draft like: draft-ietf-ccamp-wson-iv-info, draft-martinelli-ccamp-wson-iv-encode and RFC6566

Motivation:
• Provide a consistent way to plan and operate wavelength Interfaces with netconf/yang
• More about the problem and motivation can be found in: draft-many-coherent-dwedm-if-control-01
Introduction into operation modes

**Mode**
Set of valid parameter combinations

**Current Mode**
Selected mode

**QAM16 Y-FEC limits**

**Operation**

1. **User configured parameters**
   i.e. Wavelength

2. **Check against mode limits**
3. **Notify mismatch**
4. **Input:**
   Measured data
Operation

Current Mode =
Selected mode

Mode =
Set of valid parameter combinations

```c
typedef opt-if-och-tca-types {
    type enumeration {
        enum min-tx-power-tca {
            description "The min tx power tca";
        }
        enum max-tx-power-tca {
            description "The min tx power tca";
        }
    }
};

module: ietf-ext-xponder-wdm-if
augment /if:interfaces/if:interface:
    +--rw optIfOChRssSs
        +--rw if-current-mode
            +--ro mode-id?

        +--rw current-opt-if-och-mode-params
            +--rw mode-id?
            +--ro osnr-margin?
            +--ro q-margin?
            +--rw central-frequency?
            +--rw output-power?
            +--ro input-power?
```
Status

• Yang Module draft-dharini-ccamp-dwdm-if-param-yang-01.txt defined as an extension to ietf interfaces.
• Yang module https://tools.ietf.org/html/draft-galimbe-ccamp-iv-yang-02 removed some parameters already present in the if-param-yang draft, cosmetic and typo modification
• Dropped intention to align with G.698.1. Details see draft-many-coherent-dwdm-if-control-01
• Changes since IETF97
  – Introduced the notion of potential and actual mode supported by transceivers
  – Introduced boundary conditions for proper functioning of the module
  – Adding threshold crossing notifications
  – Fixed typos

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Next Steps

• Keep alignment with related effort in CCAMP
• Keep focus on operational aspects