## Color codes:

| | | |
|---|---|---|
| **Content mapped into Alarm/TCA parameters carried by Notification/Streaming mechanisms.** | **Content NOT mapped into Alarm/TCA parameters but useful for documentation and/or formal specification** | **Content which requires further analysis** |

## Notes:

**An *alarm instance* (or better a detector of a specific condition) is unambiguosly identified by:**
**1) Alarm Name**
**2) target-object-identifier (global class) plus target-object-name (local class)**
**- Note that target-object-type is associated to unique UUID**
**3) Alarm qualifier**

**Examples of Alarm qualifiers:**

**For Connectivity Alarm Category in case same CEP instance may include both OTS and OMS monitoring levels.**
**For Equipment and Processing Alarm Category, e.g. the local id of the ActualNonFieldReplaceableModule which identifies more precisely/uniquely/unambiguously the alarm source.**
**For Environment Alarm Category, e.g. on the same Device instance may appear more Environmental alarm notifications with same Alarn Name.**

**A TCA instance (or better a detector of the specific condition) is unambigously identified by:**
**1) PM Pararameter Name**
**2) target-object-identifier (global class) plus target-object-name (local class)**
**- Note that target-object-type is associated to unique UUID**
**3) Referenced OAM Job instance**
**4) TCA Qualifier**
**5) Granularity Period, only in case there is no OAM job related to the TCA detection**

**OTUk layers not supported in 2.1.3**
**OTU2E not supported by ITU-T**

**The severity column specifies the alarm severity as defined by the default ASAP (Alarm Severity Assignment Profile) object (not yet explicitly modeled by TAPI)**

**TAPI 2.3.x merges Alarm and TCA data types, which augments both Notification and Streaming objects.**

**This version of the spreadsheet does not include the following G.874 specified atomic functions:**
**- OTUkV/ODUk_A_Sk**
**- FlexO_TT_Sk**
**- FlexO-x_TT_Sk**
**- FlexO-x_CTT_Sk**


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| Index | Probable Cause / Alarm Condition Name | Alarm Qualifier | Additional Info | Description (text, in yang comment, not a data node) | Alarm Category | Target Object Type | Layer Protocol Name of Target Object | Layer Protocol Qualifier of Target Object | Perceived Severity | ITU-T G.798, G.874<br>ITU-T 7041 - Generic framing procedure<br>ITU-T G.806 - Characteristics of transport equipment – Description methodology and generic functionality | Other Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | NATIVE | | | | All | All | All | All | All | | When there is no standard alarm name corresponding to the native alarm name |
| 2 | AIRCOND | | | Air conditioning failure | Enviroment | Device | na | na | Critical | | |
| 3 | AIRDRYR | | | Air dryer failure | Enviroment | Device | na | na | Critical | | |
| 4 | BATTERY | | | Battery failure | Enviroment | Device | na | na | Critical | | |
| 5 | CLFAN | | | Cooling fan failure | Enviroment | Device | na | na | Critical | | |
| 6 | FIRE | | | Fire | Enviroment | Device | na | na | Critical | | |
| 7 | HIHUM | | | High humidity | Enviroment | Device | na | na | Critical | | |
| 8 | HITEMP | | | High temperature | Enviroment | Device | na | na | Critical | | |
| 9 | INTRUSION | | | Intrusion | Enviroment | Device | na | na | Critical | | |
| 10 | EQPT_TEMP_HI | | | High temperature | Equipment | Device | na | na | Minor | | |
| 11 | EQPT_TEMP_LOW | | | Low temperature | Equipment | Device | na | na | Minor | | |
| 12 | OPENDR | | | Open door | Enviroment | Device | na | na | Critical | | |
| 13 | SHELF_ID_CONFLICT | | | Shelf ID conflict | Equipment | Device | na | na | Critical | | |
| 14 | SHELF_ID_MISMATCH | | | Shelf ID mismatch | Equipment | Device | na | na | Major | | |
| 15 | LOWBAT | | | Low battery voltage | Enviroment | Device | na | na | Critical | | |
| 16 | POWER_OUTAGE | | | Commercial power failure | Enviroment | Device | na | na | Critical | | |
| 17 | CFG_DATASAVE_FAIL | | | Failure to save configuration data | Processing | Device/Equipment | na | na | Major | | |
| 18 | COMMIT_FAIL | | | Commit failure | Processing | Device/Equipment | na | na | Minor | | |
| 19 | COMMIT_TIMEOUT | | | Software not committed | Processing | Device/Equipment | na | na | Critical | | |
| 20 | DB_ERR | | | Database error | Processing | Device/Equipment | na | na | Major | | |
| 21 | DB_RESTORE_FAIL | | | Database restoration failed | Processing | Device/Equipment | na | na | Major | | |
| 22 | DBMS_DELETE | | | The NE database is deleted | Processing | Device/Equipment | na | na | Critical | | |
| 23 | DB_SYNC_FAIL | | | Database synchronization failed | Processing | Device/Equipment | na | na | Minor | | |
| 24 | LCS_EXPIRED | | | License expired | Processing | Device/Equipment | na | na | Critical | | |
| 25 | LCS_LOST | | | License is lost or uninstalled | Processing | Device/Equipment | na | na | Critical | | |
| 26 | NTP_SYNC_FAIL | | | NTP synchronization failure | Processing | Device/Equipment | na | na | Minor | | |
| 27 | SERVCAP_EXCEED | | | Service Capacity Exceed License | Processing | Device/Equipment | na | na | Major | | |
| 28 | SHELF_TYPE_MISMATCH | | | Shelf type mismatch | Processing | Device/Equipment | na | na | Critical | | |
| 29 | SWDL_BD_NOT_MATCH | | | Board software mismatched | Processing | Device/Equipment | na | na | Minor | | |
| 30 | COMM_FAIL | | | Internal communication failure | Equipment | Equipment | na | na | Major | | |
| 31 | EQPT_MT | | | Equipment is in maintenance. | Equipment | Equipment | na | na | Not alarmed | | |
| 32 | MOD_CC_HIGH | | | Module cooling current too high | Equipment | Equipment | na | na | Minor | | |
| 33 | MOD_CC_LOW | | | Module cooling current too low | Equipment | Equipment | na | na | Minor | | |
| 34 | MOD_TEMP_HIGH | | | Module working temperature too high | Equipment | Equipment | na | na | Minor | | |
| 35 | MOD_TEMP_LOW | | | Module working temperature too low | Equipment | Equipment | na | na | Minor | | |
| 36 | FAN_FAIL | | | FAN unit failed | Equipment | Equipment | na | na | Major | | |
| 37 | PLUGM_RMV | | | Pluggable module offline or uninstalled | Equipment | Equipment | na | na | Major | | |
| 38 | PSU_FAIL | | | Power supply unit failure | Equipment | Equipment | na | na | Major | | |
| 39 | EQPT_MISMATCH | | | The equipment is not proper because the functional board is not supported. | Equipment | Holder | na | na | Major | | |
| 40 | LPBKFACILITY | | | Loopback, facility | Equipment, Connectivity | CEP, NEP, ACCESS_PORT | any | any | Not alarmed | | External / Line Loopback / LOOPBACK_FACILITY |
| 41 | LPBKTERM | | | Loopback, terminal | Equipment, Connectivity | CEP, NEP, ACCESS_PORT | any | any | Not alarmed | | Internal / Device Loopback /LOOPBACK_TERMINAL |
| 42 | BDI | OSC | OSC_BDI | Backward Defect indication | Connectivity | CEP/MEP/MIP | PHOTONIC_MEDIA | UNSPECIFIED | Not reported | G.798 - As the specific format of the OSC is outside the scope of G.709, no specific defects, except for dLOS-O, are defined in this Recommendation either. | |
| 43 | DEG | OSC | OSC_DEG | Signal degrade | Connectivity | CEP/MEP/MIP | PHOTONIC_MEDIA | UNSPECIFIED | Not reported | G.798 - As the specific format of the OSC is outside the scope of G.709, no specific defects, except for dLOS-O, are defined in this Recommendation either. | |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| 44 | **RAI** | OSC | OSC_RAI | Remote alarm indication | Connectivity | CEP/MEP/MIP | PHOTONIC_MEDIA | UNSPECIFIED | Not reported | G.798 - As the specific format of the OSC is outside the scope of G.709, no specific defects, except for dLOS-O, are defined in this Recommendation either. | |
| 45 | **LOS_O** | OSC | OSC_LOS_O | Loss of input optical power on the OSC. This alarm is generated when the input optical power of the OSC board exceeds the LOS threshold. | Connectivity | CEP/MEP/MIP | PHOTONIC_MEDIA | OCH, OTSi | Critical | **LOS-O**<br>OTSi to OSC adaptation sink function (OTSi/OSC_A_Sk)<br>cLOS-O <- dLOS-O<br>**The OTSi is the optical carrier supporting the OSC function.** | |
| 46 | **GAIN_LOW** | Band (e.g. C/L) and other possible necessary qualifier due to internal structure of ROADM/ILA equipment | OTS_GAIN_LOW | OA gain insufficient | Connectivity | CEP/MEP/MIP | PHOTONIC_MEDIA | OTS | Critical | | Mapped to an OTS transmission function<br>Physical Route information shall increase alarm precision |
| 47 | **GAIN_HIGH** | Band (e.g. C/L) and other possible necessary qualifier due to internal structure of ROADM/ILA equipment | OTS_GAIN_HIGH | OA gain is higher than standard level | Connectivity | CEP/MEP/MIP | PHOTONIC_MEDIA | OTS | Critical | | Mapped to an OTS transmission function<br>Physical Route information shall increase alarm precision |
| 48 | **IN_PWR_HIGH** | Physical | | Input optical power too high. The alarm arises when the input optical power is higher than the upper limit (saturation) of the optical receiver. | Connectivity | CEP/MEP/MIP | PHOTONIC_MEDIA, DIGITAL_OTN, DSR, ETH | OTS, OMS, OTS_OMS, UNSPECIFIED, DSR qualifiers, ETH | Minor | | OTS/OMS model, this alarm applies to the physical aspect, which is common to e.g. C/L/S Bands.<br>The Photonic CEP may have distinct instances per Band.<br><br>This alarm can be raised by CEP which "main" layer rate is DSR/ETH but the alarm is referring to the not modeled encapsulated optical transmission functions. |
| 49 | **IN_PWR_LOW** | Physical | | Input optical power too low. The alarm arises when the input optical power is below the lower limit (sensitivity) of the optical receiver. | Connectivity | CEP/MEP/MIP | PHOTONIC_MEDIA, DIGITAL_OTN, DSR, ETH | OTS, OMS, OTS_OMS, UNSPECIFIED, DSR qualifiers, ETH | Minor | | OTS/OMS model, this alarm applies to the physical aspect, which is common to e.g. C/L/S Bands.<br>The Photonic CEP may have distinct instances per Band.<br><br>This alarm can be raised by CEP which "main" layer rate is DSR/ETH but the alarm is referring to the not modeled encapsulated optical transmission functions. |
| 50 | **OUT_PWR_HIGH** | Physical | | Output optical power too high. This alarm occurs when the laser output optical power crosses or reaches its upper working limit. | Connectivity | CEP/MEP/MIP | PHOTONIC_MEDIA, DIGITAL_OTN, DSR, ETH | OTS, OMS, OTS_OMS, UNSPECIFIED, DSR qualifiers, ETH | Major | | OTS/OMS model, this alarm applies to the physical aspect, which is common to e.g. C/L/S Bands.<br>The Photonic CEP may have distinct instances per Band.<br><br>This alarm can be raised by CEP which "main" layer rate is DSR/ETH but the alarm is referring to the not modeled encapsulated optical transmission functions. |
| 51 | **OUT_PWR_LOW** | Physical | | Output optical power too low. The laser output optical power is too low. | Connectivity | CEP/MEP/MIP | PHOTONIC_MEDIA, DIGITAL_OTN, DSR, ETH | OTS, OMS, OTS_OMS, UNSPECIFIED, DSR qualifiers, ETH | Major | | OTS/OMS model, this alarm applies to the physical aspect, which is common to e.g. C/L/S Bands.<br>The Photonic CEP may have distinct instances per Band.<br><br>This alarm can be raised by CEP which "main" layer rate is DSR/ETH but the alarm is referring to the not modeled encapsulated optical transmission functions. |
| 52 | **LASER_SHUT_DOWN** | | | The laser of the board is shut down<br>maybe better definition is "the signal transmission (implying laser on) is down" | Connectivity | CEP | PHOTONIC_MEDIA, ODU / DIGITAL_OTN, DSR, ETH | OTS, OMS, OTS_OMS, UNSPECIFIED, DSR qualifiers, ETH | Major | | Photonic_Media CEP but in general to any CEP where photonic is encapsulated.<br>Not only OCH and OTSi, but also DSR/ETH layer protocol qualifiers (laser shutdown on client/UNI ports).<br>Note that seems not applicable to MEP/MIP. |
| 53 | **BDI_P** | OTS<br>E.g. in case of OTS_OMS CEP | OTS_BDI_P | OTS Backward defect indication (payload). This alarm is generated when the local site receives the OTS_BDI_P signal inserted back by the downstream site. | Connectivity | CEP/MEP/MIP | PHOTONIC_MEDIA | OTS, OTS_OMS | Not reported | **BDI-P**<br>cBDI-P <- dBDI-P and (not CI_SSF) and (not (dTIM and (not TIMActDis))) and (not dBDI-O)<br>OTS-O trail termination sink function (OTS-O_TT_Sk) | |
| 54 | **BDI_P** | OMS<br>E.g. in case of OTS_OMS CEP | OMS_BDI_P | OMS backward defect indication (payload) | Connectivity | CEP/MEP/MIP | PHOTONIC_MEDIA | OMS, OTS_OMS | Not reported | **BDI-P**<br>cBDI-P <- (dBDI-P and (not dFDI-O)) and (not cBDI)<br>OMS-O trail termination sink function (OMS-O_TT_Sk) | |
| 55 | **BDI_P** | | OTSi_BDI_P | OTSi backward defect indication (payload) | Connectivity | CEP/MEP/MIP | PHOTONIC_MEDIA | OCH, OTSi | Not reported | **BDI-P**<br>cBDI-P <- dBDI-P and (not CI_SSF) and (not (dTIM and (not TIMActDis))) and (not dBDI-O)<br>OTSiG-O trail termination sink function (OTSiG-O_TT_Sk) | |
| 56 | **BDI_O** | OTS<br>E.g. in case of OTS_OMS CEP | OTS_BDI_O | OTS Backward defect indication (overhead). This alarm is generated when the local site receives the OTS_BDI_O signal inserted by the upstream site. | Connectivity | CEP/MEP/MIP | PHOTONIC_MEDIA | OTS, OTS_OMS | Not reported | **BDI-O**<br>cBDI-O <- dBDI-O and (not CI_SSF) and (not (dTIM and (not TIMActDis))) and (not dBDI-P)<br>OTS-O trail termination sink function (OTS-O_TT_Sk) | |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| 57 | **BDI_O** | OMS<br>E.g. in case of OTS_OMS CEP | OMS_BDI_O | OMS backward defect indication (overhead) | Connectivity | CEP/MEP/MIP | PHOTONIC_MEDIA | OMS, OTS_OMS | Not reported | **BDI-O**<br>cBDI-O <- (dBDI-O and (not dFDI-O)) and (not cBDI)<br>OMS-O trail termination sink function (OMS-O_TT_Sk) | |
| 58 | **BDI_O** | | OTSi_BDI_O | OTSi backward defect indication (overhead) | Connectivity | CEP/MEP/MIP | PHOTONIC_MEDIA | OCH, OTSi | Not reported | **BDI-O**<br>cBDI-O <- dBDI-O and (not CI_SSF) and (not (dTIM and (not TIMActDis))) and (not dBDI-P)<br>OTSiG-O trail termination sink function (OTSiG-O_TT_Sk) | |
| 59 | **BDI** | OTS<br>E.g. in case of OTS_OMS CEP | OTS_BDI | OTS backward defect indication. This alarm is generated to suppress the OTS_BDI_P and OTS_BDI_O alarms when the two alarms coexist. | Connectivity | CEP/MEP/MIP | PHOTONIC_MEDIA | OTS, OTS_OMS | Not reported | **BDI**<br>cBDI <- dBDI-P and dBDI-O and (not CI_SSF) and (not dTIM)<br>OTS-O trail termination sink function (OTS-O_TT_Sk) | |
| 60 | **BDI** | OMS<br>E.g. in case of OTS_OMS CEP | OMS_BDI | OMS backward defect indication | Connectivity | CEP/MEP/MIP | PHOTONIC_MEDIA | OMS, OTS_OMS | Not reported | **BDI**<br>cBDI <- (dBDI-P and (not dFDI-O)) and (dBDI-O and (not dFDI-O))<br>OMS-O trail termination sink function (OMS-O_TT_Sk) | |
| 61 | **BDI** | | OTSi_BDI | OTSi backward defect indication | Connectivity | CEP/MEP/MIP | PHOTONIC_MEDIA | OCH, OTSi | Not reported | **BDI**<br>cBDI <- dBDI-P and dBDI-O and (not CI_SSF) and (not dTIM)<br>OTSiG-O trail termination sink function (OTSiG-O_TT_Sk) | |
| 62 | **LOS** | | OS_LOS | | Connectivity | CEP/MEP/MIP | PHOTONIC_MEDIA | OTS, OTS_OMS | Critical | **LOS**<br>OSx trail termination sink function (OSx_TT_Sk) (x = 2G5, 10G, 40G, FC-y)<br>Note: The OSx layer function is not part of the OTN. | |
| 63 | **LOS** | OTS<br>E.g. in case of OTS_OMS CEP | OTS_LOS | OTS loss of signal.<br>When the OTS_LOS_P and OTS_LOS_O alarms coexist, this alarm is generated. | Connectivity | CEP/MEP/MIP | PHOTONIC_MEDIA | OTS, OTS_OMS | Critical | **ITU-T: Not defined** | |
| 64 | **LOS_P** | OTS<br>E.g. in case of OTS_OMS CEP | OTS_LOS_P | OTS loss of signal - Payload, This alarm is generated when there is no Optical Signal coming from the OUT port of the OA. | Connectivity | CEP/MEP/MIP | PHOTONIC_MEDIA | OTS, OTS_OMS | Critical | **LOS-P**<br>cLOS-P <- dLOS-P and (not dPMI) and (not CI_SSF)<br>OTS-O trail termination sink function (OTS-O_TT_Sk) | |
| 65 | **LOS_P** | OMS<br>E.g. in case of OTS_OMS CEP | OMS_LOS_P | OMS loss of signal - Payload. This alarm is generated when the OTU board detects the LOS alarm but there is no OTS_LOS_P alarm at the OTS layer. | Connectivity | CEP/MEP/MIP | PHOTONIC_MEDIA | OMS, OTS_OMS | Critical | **LOS-P**<br>cLOS-P <- dLOS-P and (not dPMI) and (not CI_SSF)<br>OMS-O trail termination sink function (OMS-O_TT_Sk) | |
| 66 | **LOS_O** | OTS<br>E.g. in case of OTS_OMS CEP | OTS_LOS_O | OTS loss of signal - Overhead. This alarm is generated when the OS detects LOS signal. | Connectivity | CEP/MEP/MIP | PHOTONIC_MEDIA | OTS, OTS_OMS | Major | **ITU-T: Not defined** | |
| 67 | **SSF** | OMS<br>E.g. in case of OTS_OMS CEP | OMS_FDI, OMS_SSF | OMS forward defect indication | Connectivity | CEP/MEP/MIP | PHOTONIC_MEDIA | OMS, OTS_OMS | Not reported | **SSF**<br>cSSF <- (CI_SSF-P or dFDI-P) and (CI_SSF-O or dFDI-O)<br>OMS-O trail termination sink function (OMS-O_TT_Sk) | |
| 68 | **SSF-O** | OMS<br>E.g. in case of OTS_OMS CEP | OMS_FDI_O, OMS_SSF_O | OMS forward defect indication - overhead | Connectivity | CEP/MEP/MIP | PHOTONIC_MEDIA | OMS, OTS_OMS | Not reported | **SSF-O**<br>cSSF-O <- (CI_SSF-O or dFDI-O) and (not cSSF)<br>OMS-O trail termination sink function (OMS-O_TT_Sk) | |
| 69 | **SSF-P** | OMS<br>E.g. in case of OTS_OMS CEP | OMS_FDI_P, OMS_SSF_P | OMS forward defect indication - payload | Connectivity | CEP/MEP/MIP | PHOTONIC_MEDIA | OMS, OTS_OMS | Not reported | **SSF-P**<br>cSSF-P <- (CI_SSF-P or dFDI-P) and (not cSSF)<br>OMS-O trail termination sink function (OMS-O_TT_Sk) | |
| 70 | **PMI** | OTS<br>E.g. in case of OTS_OMS CEP | OTS_PMI | OTS-layer payload loss alarm | Connectivity | CEP/MEP/MIP | PHOTONIC_MEDIA | OTS, OTS_OMS | Not reported | **G.798 - Payload missing indication defect (dPMI)**<br>**The defect PMI will not result in a fault cause**. It is used to suppress LOS-P defects-related consequent actions, defect correlations and performance monitoring data at the OTS-O and OMS-O trail termination sink in case of an already missing payload at the trail termination source.<br>**OTS**: cLOS-P <- dLOS-P and (not dPMI) and (not CI_SSF) | |
| 71 | **PMI** | OMS<br>E.g. in case of OTS_OMS CEP | OMS_PMI | OMS-layer payload loss alarm | Connectivity | CEP/MEP/MIP | PHOTONIC_MEDIA | OMS, OTS_OMS | Not reported | **G.798 - Payload missing indication defect (dPMI)**<br>**The defect PMI will not result in a fault cause**. It is used to suppress LOS-P defects-related consequent actions, defect correlations and performance monitoring data at the OTS-O and OMS-O trail termination sink in case of an already missing payload at the trail termination source.<br>**OMS**: cLOS-P <- dLOS-P and (not dPMI) and (not dFDI-P) and (not CI_SSF-P) | |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| 72 | **TIM** | OTS<br>E.g. in case of OTS_OMS CEP | OTS_TIM | OTS trace identifier mismatch | Connectivity | CEP/MEP/MIP | PHOTONIC_MEDIA | OTS, OTS_OMS | Minor | **TIM**<br>cTIM <- dTIM and (not CI_SSF)<br>OTS-O trail termination sink function (OTS-O_TT_Sk) | |
| 73 | **TIM** | | OTSi_TIM | OTSiG trace identifier mismatch | Connectivity | CEP/MEP/MIP | PHOTONIC_MEDIA | OCH, OTSi | Minor | **TIM**<br>cTIM <- dTIM and (not CI_SSF)<br>OTSiG-O trail termination sink function (OTSiG-O_TT_Sk) | |
| 74 | **LOS_P** | | OCH_LOS_P, OTSi_LOS_P | OCH/OTSi loss of signal - Payload. Detected by OTU adaptation. | Connectivity | CEP/MEP/MIP | PHOTONIC_MEDIA, ODU / DIGITAL_OTN | **TAPI 2.1.3**: OCH, OTSi<br>**TAPI 2.3.x**: OTU1, OTU2, OTU3, OTU4, OTU_CN<br>FlexO for further analysis | Critical | **LOS-P**<br>G.798 OCH-O does not foresee LOS-P<br>Note that G.798 defines only OCH-O, payload is only OTSi.<br>Loss of signal payload defect (dLOS-P)<br>cLOS-P <- dLOS-P and (not AI_TSF-P)<br>cLOS <- ∑dLOS-P[i] (for OTSiG and FlexO)<br>The purpose of monitoring this parameter is to indicate either:<br>i) OTSi transmitter failure; or<br>ii) OTSi optical path break (this could be a result of misconfigured or broken media elements in the optical path).<br>OTSi to OTUk adaptation sink function (OTSi/OTUk_A_Sk)<br>OTSi to OTUkV adaptation sink function (OTSi/OTUkV_A_Sk)<br>OTSi to OTUk-RS adaptation sink function (OTSi/OTUk-RS_A_Sk; k=25u,25,50u,50)<br>OTSiG to OTUk adaptation sink function (OTSiG/OTUk_A_Sk)<br>OTSiG to OTUkV adaptation sink function (OTSiG/OTUkV_A_Sk)<br>OTSi to OTUCn adaptation sink function (OTSi/OTUCn_A_Sk)<br>OTSiG to OTUCn adaptation sink function (OTSiG/OTUCn_A_Sk)<br>OTSi to FlexO-1-SC adaptation sink function (OTSi/FlexO-1-SC_A_Sk)<br>OTSiG to FlexO adaptation sink function (OTSiG/FlexO_A_Sk) | |
| 75 | **LOS** | | OCH_LOS, OTSi_LOS | OCH/OTSi Loss of signal<br>This alarm likely applies when the hw does not support the correlation (i.e. SSF) with server layer alarms. | Connectivity | CEP/MEP/MIP | PHOTONIC_MEDIA, ODU / DIGITAL_OTN | **TAPI 2.1.3**: OCH, OTSi<br>**TAPI 2.3.x**: OTU1, OTU2, OTU3, OTU4, OTU_CN | Critical | **ITU-T: Not defined** | |
| 76 | **SSF** | | OCH_FDI, OCH_SSF, OTSi_FDI, OTSi_SSF | OCH/OTSi forward defect indication.<br>This alarm is generated to suppress the OCH_FDI_P and OCH_FDI_O alarms when the two alarms coexist. | Connectivity | CEP/MEP/MIP | PHOTONIC_MEDIA | OCH, OTSi | Not reported | **SSF**<br>cSSF <- (CI_SSF-P or dFDI-P) and (CI_SSF-O or dFDI-O)<br>OTSiG-O trail termination sink function (OTSiG-O_TT_Sk)<br>OCh-O trail termination sink function (OCh-O_TT_Sk) | |
| 77 | **SSF_O** | | OCH_FDI_O, OCH_SSF_O, OTSi_FDI_O, OTSi_SSF_O | OCH/OTSi forward defect indication - Overhead<br>This alarm is generated when the downstream station receives the OCH_FDI_O signal inserted by the OTS layer after the OTS layer detects the OTS_LOS_O signal. | Connectivity | CEP/MEP/MIP | PHOTONIC_MEDIA | OCH, OTSi | Not reported | **SSF-O**<br>cSSF-O <- (CI_SSF-O or dFDI-O) and (not cSSF)<br>OTSiG-O trail termination sink function (OTSiG-O_TT_Sk)<br>OCh-O trail termination sink function (OCh-O_TT_Sk) | |
| 78 | **SSF_P** | | OCH_FDI_P, OCH_SSF_P, OTSi_FDI_P, OTSi_SSF_P | OCH/OTSi forward defect indication - Payload.<br>This alarm is generated when the downstream station receives the OCH_FDI_P signal inserted by the OMS layer after the OMS layer detects a payload LOS signal. | Connectivity | CEP/MEP/MIP | PHOTONIC_MEDIA | OCH, OTSi | Not reported | **SSF-P**<br>cSSF-P <- (CI_SSF-P or dFDI-P) and (not cSSF)<br>OTSiG-O trail termination sink function (OTSiG-O_TT_Sk)<br>OCh-O trail termination sink function (OCh-O_TT_Sk) | |
| 79 | **OCI** | | OCH_OCI, OTSi_OCI | OCH/OTSi open connection indication.<br>This alarm is generated when the optical termination node in the downstream receives the OCI signal inserted to the downstream if no optical cross-connections are configured on the upstream service link or no logical fiber connection is configured from the OTU board to the multiplexer board. | Connectivity | CEP/MEP/MIP | PHOTONIC_MEDIA | OCH, OTSi | Major | **OCI**<br>cOCI <- dOCI and (not CI_SSF-P) and (not CI_SSF-O) and (not FDI-O) and (not FDI P)<br>OTSiG-O trail termination sink function (OTSiG-O_TT_Sk)<br>OCh-O trail termination sink function (OCh-O_TT_Sk) | |

| Index | Probable Cause / Alarm Condition Name | Alarm Qualifier | Additional Info | Description (text, in yang comment, not a data node) | Alarm Category | Target Object Type | Layer Protocol Name of Target Object | Layer Protocol Qualifier of Target Object | Perceived Severity | ITU-T G.798, G.874<br>ITU-T 7041 - Generic framing procedure<br>ITU-T G.806 - Characteristics of transport equipment – Description methodology and generic functionality | Other Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 80 | **BEFFEC_EXC** | | OTU_BEFFEC_EXC | Excessive error defect before FEC | Connectivity | CEP/MEP/MIP | PHOTONIC_MEDIA, ODU / DIGITAL_OTN | **TAPI 2.1.3**: OCH, OTSi<br>**TAPI 2.3.x**: OTU1, OTU2, OTU3, OTU4, OTU_CN | Major | **This is Pre-FEC BER Monitoring, not defined by ITU-T**<br>**The G.874 functions supporting pFECcorrErr are listed in the TCA sheet.** | pre-fec-ber "counter: bit error rate before correction by FEC"<br>post-fec-ber "counter: bit error rate after correction by FEC"<br>corrected-bytes "Bytes corrected between those that were received corrupted"<br>corrected-bits "Bits corrected between those that were received corrupted"<br>uncorrectable-bytes "Bytes that could not be corrected by FEC"<br>uncorrectable-bits "Bits that could not be corrected by FEC" |
| 81 | **LFA** | | DSR_LFA | Loss of FEC word Alignment | Connectivity | CEP/MEP/MIP | DSR | For further definition | Major | **LFA**<br>OSx to CBRx adaptation sink function for 64B/66B encoded clients with optional FEC (OSx/CBRx-b_A_Sk) (x = FC-y)<br>OSx to CBRx adaptation sink function for 64B/66B encoded clients with mandatory FEC (OSx/CBRx-c_A_Sk) (x = FC-y) | **OSx/CBRx-b_A_Sk**<br>cLFA <- dLFA and FECEn and (not AI_TSF)<br><br>**OSx/CBRx-c_A_Sk**<br>cLFA <- dLFA and (not AI_TSF) |
| 82 | **SSF** | | OTU_AIS, OTU_SSF | OTUk alarm indication signal | Connectivity | CEP/MEP/MIP | PHOTONIC_MEDIA, ODU / DIGITAL_OTN | **TAPI 2.1.3**: OCH, OTSi<br>**TAPI 2.3.x**: OTU1, OTU2, OTU3, OTU4, OTU_CN | Not reported | **SSF**<br>cSSF <- CI_SSF or dAIS<br>OTU trail termination sink function (OTU_TT_Sk)<br>OTUkV trail termination sink function (OTUkV_TT_Sk) | |
| 83 | **SSF** | | ODU_AIS, ODU_SSF | ODUkP alarm indication signal | Connectivity | CEP/MEP/MIP | ODU / DIGITAL_OTN | ODU_FLEX, ODU0, ODU1, ODU2, ODU2E, ODU3, ODU4, ODU_CN | Not reported | **SSF**<br>cSSF <- CI_SSF or dAIS<br>ODUP trail termination sink function (ODUP_TT_Sk) | |
| 84 | **SSF** | | ODU_TCM_AIS, ODU_TCM_SSF | ODUkT alarm indication signal | Connectivity | (CEP)<br>TCM-MEP/MIP | ODU / DIGITAL_OTN | ODU_FLEX, ODU0, ODU1, ODU2, ODU2E, ODU3, ODU4, ODU_CN | Not reported | **SSF**<br>cSSF <- CI_SSF or dAIS<br>ODUT trail termination sink function (ODUT_TT_Sk)<br>ODUT non-intrusive monitoring function (ODUTm_TT_Sk) | |
| 85 | **BDI** | | OTU_BDI | OTUk backward defect indication | Connectivity | CEP/MEP/MIP | PHOTONIC_MEDIA, ODU / DIGITAL_OTN | **TAPI 2.1.3**: OCH, OTSi<br>**TAPI 2.3.x**: OTU1, OTU2, OTU3, OTU4, OTU_CN | Not reported | **BDI**<br>cBDI <- dBDI and (not CI_SSF) and (not dAIS) and (not (dTIM and (not TIMActDis)))<br>OTU trail termination sink function (OTU_TT_Sk)<br>OTUkV trail termination sink function (OTUkV_TT_Sk) | |
| 86 | **BDI** | | ODU_BDI | ODUkP backward defect indication | Connectivity | CEP/MEP/MIP | ODU / DIGITAL_OTN | ODU_FLEX, ODU0, ODU1, ODU2, ODU2E, ODU3, ODU4, ODU_CN | Not reported | **BDI**<br>cBDI <- dBDI and (not CI_SSF) and (not dAIS) and (not dOCI) and (not dLCK) and (not (dTIM and (not TIMActDis)))<br>ODUP trail termination sink function (ODUP_TT_Sk) | |
| 87 | **BDI** | | ODU_TCM_BDI | ODUkT backward defect indication | Connectivity | (CEP)<br>TCM-MEP/MIP | ODU / DIGITAL_OTN | ODU_FLEX, ODU0, ODU1, ODU2, ODU2E, ODU3, ODU4, ODU_CN | Not reported | **BDI**<br>cBDI <- dBDI and (not CI_SSF) and (not dAIS) and (not dLTC) and (not dOCI) and (not dLCK) and (not (dTIM and (not TIMActDis)))<br>ODUT trail termination sink function (ODUT_TT_Sk)<br>ODUT non-intrusive monitoring function (ODUTm_TT_Sk) | |
| 88 | **LCK** | | ODU_LCK | ODUkP locked signal | Connectivity | CEP/MEP/MIP | ODU / DIGITAL_OTN | ODU_FLEX, ODU0, ODU1, ODU2, ODU2E, ODU3, ODU4, ODU_CN | Major | **LCK**<br>cLCK <- dLCK and (not CI_SSF)<br>ODUP trail termination sink function (ODUP_TT_Sk) | |
| 89 | **LCK** | | ODU_TCM_LCK | ODUkT locked signal | Connectivity | (CEP)<br>TCM-MEP/MIP | ODU / DIGITAL_OTN | ODU_FLEX, ODU0, ODU1, ODU2, ODU2E, ODU3, ODU4, ODU_CN | Minor | **LCK**<br>cLCK <- dLCK and (not CI_SSF)<br>ODUT trail termination sink function (ODUT_TT_Sk)<br>ODUT non-intrusive monitoring function (ODUTm_TT_Sk) | |
| 90 | **LOF** | | OTU_LOF | OTUk loss of frame | Connectivity | CEP/MEP/MIP | PHOTONIC_MEDIA, ODU / DIGITAL_OTN | **TAPI 2.1.3**: OCH, OTSi<br>**TAPI 2.3.x**: OTU1, OTU2, OTU3, OTU4, OTU_CN | Critical | **LOF**<br>OTSi to OTUk adaptation sink function (OTSi/OTUk_A_Sk)<br>OTSi to OTUkV adaptation sink function (OTSi/OTUkV_A_Sk)<br>OTSiG to OTUk adaptation sink function (OTSiG/OTUk_A_Sk)<br>OTSiG to OTUkV adaptation sink function (OTSiG/OTUkV_A_Sk)<br>OTSi to OTUCn adaptation sink function (OTSi/OTUCn_A_Sk)<br>OTSiG to OTUCn adaptation sink function (OTSiG/OTUCn_A_Sk) | **OTSi/OTUk_A_Sk, OTSi/OTUkV_A_Sk, OTSiG/OTUkV_A_Sk**<br>cLOF <- dLOF and (not dLOS-P) and (not dAIS) and (not AI_TSF P)<br><br>**OTSiG/OTUk_A_Sk**<br>dLOF: If the optional frame alignment process is present:<br>- "If the frame alignment process is in the out-of-frame (OOF) state for 3 ms, dLOF shall be declared.", otherwise:<br>- dLOF <- ∑dLOFLANE[i]<br><br>**OTSi/OTUCn_A_Sk, OTSiG/OTUCn_A_Sk**<br>cLOF <- dLOF and (not ∑dLOS-P[i]) and (not AI_TSF-P) |
| 91 | **LOM** | | OTU_LOM | OTUk loss of multiframe | Connectivity | CEP/MEP/MIP | PHOTONIC_MEDIA, ODU / DIGITAL_OTN | **TAPI 2.1.3**: OCH, OTSi<br>**TAPI 2.3.x**: OTU1, OTU2, OTU3, OTU4, OTU_CN | Major | **LOM**<br>OTSi to OTUk adaptation sink function (OTSi/OTUk_A_Sk)<br>OTSi to OTUkV adaptation sink function (OTSi/OTUkV_A_Sk)<br>OTSiG to OTUk adaptation sink function (OTSiG/OTUk_A_Sk)<br>OTSiG to OTUkV adaptation sink function (OTSiG/OTUkV_A_Sk)<br>OTSi to OTUCn adaptation sink function (OTSi/OTUCn_A_Sk)<br>OTSiG to OTUCn adaptation sink function (OTSiG/OTUCn_A_Sk) | **OTSi/OTUk_A_Sk, OTSi/OTUkV_A_Sk, OTSiG/OTUkV_A_Sk**<br>cLOM <- dLOM and (not dLOS-P) and (not dLOF) and (not dAIS) and (not AI_TSF P)<br><br>**OTSiG/OTUk_A_Sk**<br>cLOM <- dLOM and (not dLOF) and (not ∑dLOS-P[i])<br><br>**OTSi/OTUCn_A_Sk, OTSiG/OTUCn_A_S**<br>cLOM <- dLOM and (not ∑dLOS-P[i]) and (not dLOF) and (not AI_TSF-P) |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| **92** | **LOM** | | FLEX_O_LOM | FlexO loss of multiframe | Connectivity | CEP/MEP/MIP | ODU / DIGITAL_OTN | For further definition | Major | **LOM**<br>OTSi/FlexO-1-SC_A_Sk<br>OTSiG/FlexO_A_Sk | |
| **93** | **LOFLOM** | | OTU_LOFLOM | Loss of frame and multiframe | Connectivity | CEP/MEP/MIP | PHOTONIC_MEDIA, ODU / DIGITAL_OTN | **TAPI 2.1.3**: OCH, OTSi<br>**TAPI 2.3.x**: OTU1, OTU2, OTU3, OTU4, OTU_CN | | **LOFLOM**<br>cLOFLOM <- dLOFLOM and (not dLOL) and (not dLOS-P) and (not AI_TSF P)<br>OTSi to OTUk-RS adaptation sink function (OTSi/OTUk-RS_A_Sk; k=25u,25,50u,50) | |
| **94** | **LOFLOM** | | OTU_FLEX_O_LOFLOM | Loss of frame and multiframe | Connectivity | CEP/MEP/MIP | ODU / DIGITAL_OTN | For further definition | | **LOFLOM[i]**<br>FlexO-n/OTUCni_A_Sk<br>**LOFLOM**<br>FlexO-n/OTUCn_A_Sk | |
| **95** | **LOFLOM** | | ODU_LOFLOM | Loss of frame and multiframe | Connectivity | CEP/MEP/MIP | ODU / DIGITAL_OTN | ODU_FLEX, ODU0, ODU1, ODU2, ODU2E, ODU3, ODU4, ODU_CN | | **LOFLOM (p)**<br>ODUkP to ODU[i]j adaptation sink function (ODUkP/ODU[i]j_A_Sk)<br>ODUkP to ODUj payload type 21 adaptation sink function (ODUkP/ODUj-21_A_Sk)<br>HAO-capable ODUkP to ODUj payload type 21 adaptation sink function (HAO-capable ODUkP-h/ODUj-21_A_Sk)<br>ODUCnP to ODUk adaptation sink function (ODUCnP/ODUk_A_Sk) | **ODUkP/ODU[i]j_A_Sk**<br>For each ODUj[/i] tributary port #p:<br>cLOFLOM[p] <- dLOFLOM[p] and (not dPLM) and (not AI_TSF)<br><br>**ODUkP/ODUj-21_A_Sk**<br>For each ODUj[/i] tributary port #p:<br>cLOFLOM[p] <- dLOFLOM[p] and (not dPLM) and (not dLOOMFI) and (not AI_TSF)<br><br>**ODUkP-h/ODUj-21_A_Sk**<br>For each ODUj tributary port #p:<br>cLOFLOM[p] <- dLOFLOM[p] and (not dPLM) and (not dLOOMFI) and (not AI_TSF)<br><br>**ODUCnP/ODUk_A_Sk**<br>For each ODUk tributary port #p:<br>cLOFLOM[p] <- dLOFLOM[p] and (not dPLM) and (not dLOOMFI) and (not AI_TSF) |
| **96** | **LOOMFI** | | ODU_LOOMFI | Loss of OPU Multiframe Indication | Connectivity | CEP/MEP/MIP | ODU / DIGITAL_OTN | ODU_FLEX, ODU0, ODU1, ODU2, ODU2E, ODU3, ODU4, ODU_CN | | **LOOMFI**<br>ODUkP to ODUj payload type 21 adaptation sink function (ODUkP/ODUj-21_A_Sk)<br>HAO-capable ODUkP to ODUj payload type 21 adaptation sink function (HAO-capable ODUkP-h/ODUj-21_A_Sk)<br>ODUCnP to ODUk adaptation sink function (ODUCnP/ODUk_A_Sk) | **ODUkP/ODUj-21_A_Sk, ODUkP-h/ODUj-21_A_Sk**<br>For ODUk with k=4, 25(u), 50(u):<br>cLOOMFI <- dLOOMFI and (not AI_TSF)<br><br>**ODUCnP/ODUk_A_Sk**<br>cLOOMFI <- dLOOMFI and (not AI_TSF) |
| **97** | **RCOHM** | | ODU_RCOHM | Resize Control Overhead Mismatch | Connectivity | CEP/MEP/MIP | ODU / DIGITAL_OTN | ODU_FLEX, ODU0, ODU1, ODU2, ODU2E, ODU3 | | **RCOHM**<br>cRCOHM <- dRCOHM and (not AI_TSF)<br>HAO-capable ODUkP to ODUj payload type 21 adaptation sink function (HAO capable ODUkP-h/ODUj-21_A_Sk) | |
| **98** | **LOL** | | FLEX_O_LOL | Loss Of Lane | Connectivity | CEP/MEP/MIP | ODU / DIGITAL_OTN | For further analysis | Major | **LOL**<br>OTSi to FlexO-1-SC adaptation sink function (OTSi/FlexO-1-SC_A_Sk)<br>OTSiG to FlexO adaptation sink function (OTSiG/FlexO_A_Sk) | **OTSi/FlexO-1-SC_A_Sk**<br>cLOL <- dLOL and (not ∑dLOS-P[i])<br><br>**OTSiG/FlexO_A_Sk**<br>cLOL <- dLOL and (not ∑dLOS-P[i]) and (not AI_TSF P) |
| **99** | **LOL** | | OTU_LOL | Loss Of Lane | Connectivity | CEP/MEP/MIP | PHOTONIC_MEDIA, ODU / DIGITAL_OTN | **TAPI 2.1.3**: OCH, OTSi<br>**TAPI 2.3.x**: OTU1, OTU2, OTU3, OTU4, OTU_CN<br>FlexO for further analysis | Major | **LOL**<br>[OTSi to OTUk-RS adaptation sink function (OTSi/OTUk-RS_A_Sk; k=25u,25,50u,50)]?<br>OTSiG to OTUk adaptation sink function (OTSiG/OTUk_A_Sk)<br>OTSi to OTUCn adaptation sink function (OTSi/OTUCn_A_Sk)<br>OTSiG to OTUCn adaptation sink function (OTSiG/OTUCn_A_Sk)<br>FlexO-n to OTUCn adaptation sink function (FlexO-n/OTUCn_A_Sk)<br>FlexO-n to OTUCni adaptation sink function (FlexO-n/OTUCni_A_Sk) | **[OTSi/OTUk-RS_A_Sk; k=25u,25,50u,50**<br>cLOL <- dLOL and (not dLOS-P) and (not AI_TSF P)]?<br><br>**OTSiG/OTUk_A_Sk**<br>cLOL <- (dLOL or ∑dLOFLANE[i]) and (not ∑dLOS-P[i])<br><br>**OTSi/OTUCn_A_Sk - Foreseen by G.874, not foreseen by G.798**<br><br>**OTSiG/OTUCn_A_Sk - Foreseen by G.874, not foreseen by G.798**<br><br>**FlexO-n/OTUCn_A_Sk**<br>cLOL <- dLOL and (not (∑(dLOFLOM[i] and (not AI_TSF[i])))))<br><br>**FlexO-n/OTUCni_A_Sk**<br>cLOL[i] <- dLOL[i] and (not dGIDM) and (not dFMM) and (not dPLM) and (not (∑j(dLOFLOM[i,j] and (not AI_TSF[i,j])))) |

| Index | Probable Cause / Alarm Condition Name | Alarm Qualifier | Additional Info | Description (text, in yang comment, not a data node) | Alarm Category | Target Object Type | Layer Protocol Name of Target Object | Layer Protocol Qualifier of Target Object | Perceived Severity | ITU-T G.798, G.874<br>ITU-T 7041 - Generic framing procedure<br>ITU-T G.806 - Characteristics of transport equipment – Description methodology and generic functionality | Other Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **100** | **MSIM** | | ODU_MSIM | Multiplex Structure Identifier Mismatch | Connectivity | CEP/MEP/MIP | ODU / DIGITAL_OTN | ODU_FLEX, ODU0, ODU1, ODU2, ODU2E, ODU3, ODU4, ODU_CN | | **MSIM**<br>ODUkP to ODU[i]j adaptation sink function (ODUkP/ODU[i]j_A_Sk)<br>ODUkP to ODUj payload type 21 adaptation sink function (ODUkP/ODUj-21_A_Sk)<br>HAO-capable ODUkP to ODUj payload type 21 adaptation sink function (HAO-capable ODUkP-h/ODUj-21_A_Sk)<br>ODUCnP to ODUk adaptation sink function (ODUCnP/ODUk_A_Sk) | **ODUkP/ODU[i]j_A_Sk**<br>For each ODUj[/i] tributary port #p:<br>cMSIM[p] <- dMSIM[p] and (not dPLM) and (not AI_TSF)<br><br>**ODUkP/ODUj-21_A_Sk**<br>For each ODUj tributary port #p:<br>cMSIM[p] <- dMSIM[p] and (not dPLM) and (not dLOOMFI) and (not AI_TSF)<br><br>**ODUkP-h/ODUj-21_A_Sk**<br>For each ODUj tributary port #p:<br>cMSIM[p] <- dMSIM[p] and (not dPLM) and (not dLOOMFI) and (not AI_TSF)<br><br>**ODUCnP/ODUk_A_Sk**<br>For each ODUk tributary port #p:<br>cMSIM[p] <- dMSIM[p] and (not dPLM) and (not dLOOMFI) and (not AI_TSF) |
| **101** | **MSIM** | | OTSi_MSIM, OCH_MSIM | Multiplex Structure Identifier Mismatch | Connectivity | CEP/MEP/MIP | PHOTONIC_MEDIA | OCH, OTSi | | **MSIM**<br>OMS-O/OTSiG(OCh-O_A_Sk | |
| **102** | **OCI** | | ODU_OCI | ODUkP open connection indication.<br>Indication for an ODUk PM open connection. This alarm is generated when the output port is not connected to the input port and the STAT byte value is "110". | Connectivity | CEP/MEP/MIP | ODU / DIGITAL_OTN | ODU_FLEX, ODU0, ODU1, ODU2, ODU2E, ODU3, ODU4, ODU_CN | Major | **OCI**<br>cOCI <- dOCI and (not CI_SSF)<br>ODUP trail termination sink function (ODUP_TT_Sk) | |
| **103** | **OCI** | | ODU_TCM_OCI | ODUkT open connection indication | Connectivity | (CEP)<br>TCM-MEP/MIP | ODU / DIGITAL_OTN | ODU_FLEX, ODU0, ODU1, ODU2, ODU2E, ODU3, ODU4, ODU_CN | Minor | **OCI**<br>cOCI <- dOCI and (not CI_SSF)<br>ODUT trail termination sink function (ODUT_TT_Sk)<br>ODUT non-intrusive monitoring function (ODUTm_TT_Sk) | |
| **104** | **DEG** | | OTU_DEG | signal degrade | Connectivity | CEP/MEP/MIP | PHOTONIC_MEDIA, ODU / DIGITAL_OTN | **TAPI 2.1.3**: OCH, OTSi<br>**TAPI 2.3.x**: OTU1, OTU2, OTU3, OTU4, OTU_CN | Minor | **DEG**<br>OTU trail termination sink function (OTU_TT_Sk)<br>OTUkV trail termination sink function (OTUkV_TT_Sk) | **OTU_TT_Sk**<br>cDEG <- dDEG and (not CI_SSF) and (not dAIS) and (not (dTIM and (not TIMActDis)))<br><br>**OTUkV_TT_Sk**<br>cDEG <- dDEG and (not CI_SSF) and (not (dTIM and (not TIMActDis))) |
| **105** | **DEG** | | ODU_DEG | signal degrade | Connectivity | CEP/MEP/MIP | ODU / DIGITAL_OTN | ODU_FLEX, ODU0, ODU1, ODU2, ODU2E, ODU3, ODU4, ODU_CN | Minor | **DEG**<br>cDEG <- dDEG and (not CI_SSF) and (not dAIS) and (not dOCI) and (not dLCK) and (not (dTIM and (not TIMActDis)))<br>ODUP trail termination sink function (ODUP_TT_Sk) | |
| **106** | **DEG** | | ODU_TCM_DEG | signal degrade | Connectivity | (CEP)<br>TCM-MEP/MIP | ODU / DIGITAL_OTN | ODU_FLEX, ODU0, ODU1, ODU2, ODU2E, ODU3, ODU4, ODU_CN | Minor | **DEG**<br>cDEG <- dDEG and (not CI_SSF) and (not dAIS) and (not dLTC) and (not dOCI) and (not dLCK) and (not (dTIM and (not TIMActDis)))<br>ODUT trail termination sink function (ODUT_TT_Sk)<br>ODUT non-intrusive monitoring function (ODUTm_TT_Sk) | |
| **107** | **PLM** | | ODU_PLM | ODUk payload mismatch | Connectivity | CEP/MEP/MIP | ODU / DIGITAL_OTN | ODU_FLEX, ODU0, ODU1, ODU2, ODU2E, ODU3, ODU4, ODU_CN | Major | **PLM**<br>cPLM <- dPLM and (not AI_TSF)<br>ODUkP to ODU[i]j adaptation sink function (ODUkP/ODU[i]j_A_Sk)<br>ODUkP to ODUj payload type 21 adaptation sink function (ODUkP/ODUj-21_A_Sk)<br>HAO-capable ODUkP to ODUj payload type 21 adaptation sink function (ODUkP-h/ODUj-21_A_Sk)<br>ODUCnP to ODUk adaptation sink function (ODUCnP/ODUk_A_Sk) | |
| **108** | **PLM** | | OTU_FLEX_O_PLM | | Connectivity | CEP/MEP/MIP | ODU / DIGITAL_OTN | For further definition | Major | **PLM**<br>cPLM <- dPLM and (not dGIDM) and (not dFMM)<br>FlexO-n to OTUCni adaptation sink function (FlexO-n/OTUCni_A_Sk) | |
| **109** | **TIM** | | OTU_TIM | OTUk trail trace identifier mismatch | Connectivity | CEP/MEP/MIP | PHOTONIC_MEDIA, ODU / DIGITAL_OTN | **TAPI 2.1.3**: OCH, OTSi<br>**TAPI 2.3.x**: OTU1, OTU2, OTU3, OTU4, OTU_CN | Minor | **TIM**<br>OTU trail termination sink function (OTU_TT_Sk)<br>OTUkV trail termination sink function (OTUkV_TT_Sk) | **OTU_TT_Sk**<br>cTIM <- dTIM and (not CI_SSF) and (not dAIS)<br><br>**OTUkV_TT_Sk**<br>cTIM <- dTIM and (not CI_SSF) |
| **110** | **TIM** | | ODU_TIM | ODUkP trail trace identifier mismatch.<br>This alarm occurs when the received TTI value of the PM section is not consistent with the TTI value to receive. | Connectivity | CEP/MEP/MIP | ODU / DIGITAL_OTN | ODU_FLEX, ODU0, ODU1, ODU2, ODU2E, ODU3, ODU4, ODU_CN | Minor | **TIM**<br>cTIM <- dTIM and (not CI_SSF) and (not dAIS) and (not dOCI) and (not dLCK)<br>ODUP trail termination sink function (ODUP_TT_Sk) | |

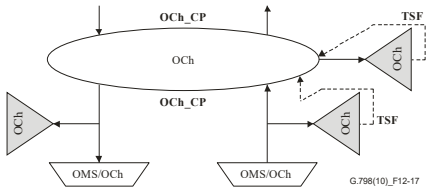
| Index | Probable Cause / Alarm Condition Name | Alarm Qualifier | Additional Info | Description (text, in yang comment, not a data node) | Alarm Category | Target Object Type | Layer Protocol Name of Target Object | Layer Protocol Qualifier of Target Object | Perceived Severity | ITU-T G.798, G.874<br>ITU-T 7041 - Generic framing procedure<br>ITU-T G.806 - Characteristics of transport equipment – Description methodology and generic functionality | Other Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 111 | **TIM** | | ODU_TCM_TIM | ODUkT trace identifier mismatch | Connectivity | (CEP)<br>TCM-MEP/MIP | ODU / DIGITAL_OTN | ODU_FLEX, ODU0, ODU1, ODU2, ODU2E, ODU3, ODU4, ODU_CN | Minor | **TIM**<br>cTIM <- dTIM and (not CI_SSF) and (not dAIS) and (not dLTC) and (not dOCI) and (not dLCK)<br>ODUT trail termination sink function (ODUT_TT_Sk)<br>ODUT non-intrusive monitoring function (ODUTm_TT_Sk) | |
| 112 | **LTC** | | ODU_TCM_LTC | ODUkT loss of tandem connection | Connectivity | (CEP)<br>TCM-MEP/MIP | ODU / DIGITAL_OTN | ODU_FLEX, ODU0, ODU1, ODU2, ODU2E, ODU3, ODU4, ODU_CN | Minor | **LTC**<br>cLTC <- dLTC and (not CI_SSF)<br>ODUT trail termination sink function (ODUT_TT_Sk)<br>ODUT non-intrusive monitoring function (ODUTm_TT_Sk) | |
| 113 | **FOP_PM** | | ODU_FOP_PM | ODU linear protection failure of protocol provisioning mismatch | Connectivity | Switch or CEP | ODU / DIGITAL_OTN | ODU_FLEX, ODU0, ODU1, ODU2, ODU2E, ODU3, ODU4 | Minor | **FOP-PM**<br>cFOP-PM <- dFOP-PM and (not CI_SSF/TSF)<br>ODUk connection function (ODU_C) | Note that ODU_C function means ODUk connection function (ODUk_C), ODUCn is excluded from the ODU_C function. |
| 114 | **FOP_NR** | | ODU_FOP_NR | ODU linear protection failure of protocol no response defect | Connectivity | Switch or CEP | ODU / DIGITAL_OTN | ODU_FLEX, ODU0, ODU1, ODU2, ODU2E, ODU3, ODU4 | Minor | **FOP-NR**<br>cFOP-NR <- dFOP-NR and (not CI_SSF/TSF)<br>ODUk connection function (ODU_C) | Note that ODU_C function means ODUk connection function (ODUk_C), ODUCn is excluded from the ODU_C function. |
| 115 | **FCS_ERR_EXC** | | | Frame-check sequence error. | Connectivity | CEP/MEP/MIP | DSR, ETH | GBE, 10_GBE_WAN, 10_GBE_LAN, 100_GBE | Major | ITU-T G.806<br>Client-specific GFP-F / GFP-T sink processes<br>p_FCSError ← ∑ n_FCSError | Added "EXC" to clarify that is an excessive number of FCS errors |
| 116 | **LFD** | | | GFP Loss of Frame Delineation. | Connectivity | CEP/MEP/MIP | DSR, ETH | GBE, 10_GBE_WAN, 10_GBE_LAN, 100_GBE, FC_1200, FLEX_E (for further study) | Major | ODU2P to 10G Ethernet Reconciliation Sublayer adaptation sink function (ODU2P/ERS10G_A_Sk)<br>ODUkP to ETH adaptation sink function (ODUkP/ETH_A_Sk)<br>HAO-capable ODUk to ETH adaptation sink function (ODUkP-h/ETH_A_Sk)<br>ODU2eP to FC-1200 client adaptation sink function (ODU2eP/FC-1200_A_Sk)<br>**ITU-T G.806 / G.7041**<br>Server layer-specific GFP sink processes<br>cLFD (Loss of Frame Delineation) | |
| 117 | **UPM** | | | GFP user payload mismatch | Connectivity | CEP/MEP/MIP | DSR, ETH | GBE, 10_GBE_WAN, 10_GBE_LAN, 100_GBE FLEX_E (for further study) | Major | ODU2P to 10G Ethernet Reconciliation Sublayer adaptation sink function (ODU2P/ERS10G_A_Sk)<br>ODUkP to ETH adaptation sink function (ODUkP/ETH_A_Sk)<br>HAO-capable ODUk to ETH adaptation sink function (ODUkP-h/ETH_A_Sk)<br>**ITU-T G.806**<br>GFP Payload type supervision<br>dUPM (User Payload Mismatch) | |
| 118 | **EXM** | | | GFP extension header mismatch defect | Connectivity | CEP/MEP/MIP | DSR, ETH | GBE, 10_GBE_WAN, 10_GBE_LAN, 100_GBE FLEX_E (for further study) | Major | ODU2P to 10G Ethernet Reconciliation Sublayer adaptation sink function (ODU2P/ERS10G_A_Sk)<br>ODUkP to ETH adaptation sink function (ODUkP/ETH_A_Sk)<br>HAO-capable ODUk to ETH adaptation sink function (ODUkP-h/ETH_A_Sk)<br>ITU-T G.806<br>GFP Payload type supervision<br>dEXM (Extension Header Mismatch) | |
| 119 | **LOF** | | DSR_LOF | Loss of frame | Connectivity | CEP/MEP/MIP | DSR | STM_1, STM_4, STM_16, STM_64, STM_256, OC_3, OC_12, OC_48, OC_192, OC_768, FLEX_E (for further study) | Critical | **LOF**<br>OSM256.4 to CBRx adaptation source function (OSM256.4/CBRx_So)<br>ODUkP to RSn adaptation sink function (ODUkP/RSn_A_Sk)<br>OTSi to RSn adaptation sink function (OTSi/RSn_A_Sk)<br>ODUflexP to FlexE sub-group adaptation sink function using BGMP (ODUflexP/FlexESG_A_Sk) | **OSM256.4/CBRx_So**<br>cLOF <- dLOF<br><br>**ODUkP/RSn_A_Sk**<br>cLOF <- dLOF and (not dAIS) and (not dPLM) and (not AI_TSF)<br><br>**ODUflexP/FlexESG_A_Sk**<br>cLOF <- dLOF and (not dLCS) and (not dCSACM) and (not dCSF) and (not dPLM) and (not AI_TSF)<br><br>**OTSi/RSn_A_Sk**<br>cLOF <- dLOF and (not dLOS-P) and (not dAIS) and (not AI_TSF-P) |
| 120 | **LOM** | | DSR-LOM | Loss Of Multiframe | Connectivity | CEP/MEP/MIP | DSR | FLEX_E (for further study) | Critical | **LOM**<br>cLOM <- dLOM and (not dLOF) and (not dLCS) and (not dCSACM) and (not dCSF) and (not dPLM) and (not AI_TSF)<br>ODUflexP to FlexE sub-group adaptation sink function using BGMP (ODUflexP/FlexESG_A_Sk) | |
| 121 | **LOL** | | DSR_LOL | Loss Of Lane | Connectivity | CEP/MEP/MIP | ODU / DIGITAL_OTN | For further analysis | Major | **LOL**<br>ODUflexP/FlexESG_A_So | |

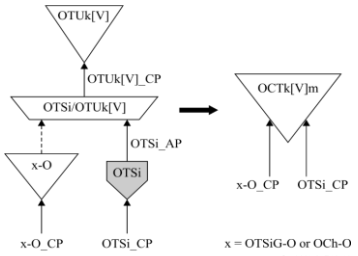
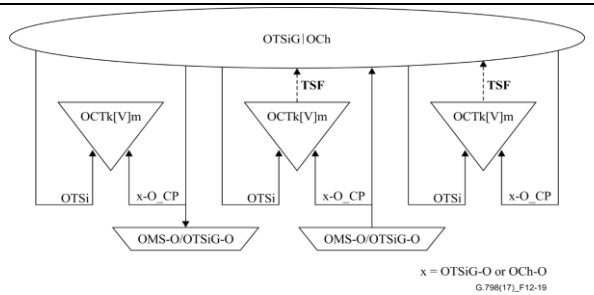
| Index | Probable Cause / Alarm Condition Name | Alarm Qualifier | Additional Info | Description (text, in yang comment, not a data node) | Alarm Category | Target Object Type | Layer Protocol Name of Target Object | Layer Protocol Qualifier of Target Object | Perceived Severity | ITU-T G.798, G.874<br>ITU-T 7041 - Generic framing procedure<br>ITU-T G.806 - Characteristics of transport equipment – Description methodology and generic functionality | Other Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 122 | **PLM** | | DSR_PLM | DSR payload mismatch | Connectivity | CEP/MEP/MIP | DSR, ETH | STM_1, STM_4, STM_16, STM_64, STM_256, OC_3, OC_12, OC_48, OC_192, OC_768, GBE, 10_GBE_WAN, 10_GBE_LAN, 40_GigE, 100_GBE, FC_1200, FLEX_E (for further study) | Major | **PLM**<br>cPLM <- dPLM and (not AI_TSF)<br>ODUkP to CBRx adaptation function using AMP and BMP - sink (ODUkP/CBRx_A_Sk)<br>ODUkP to CBRx adaptation sink function using GMP (ODUkP/CBRx-g_A_Sk)<br>ODUP to NULL adaptation sink function (ODUP/NULL_A_Sk)<br>ODUP to PRBS adaptation sink function (ODUP/PRBS_A_Sk)<br>ODUkP to RSn adaptation sink function (ODUkP/RSn_A_Sk)<br>ODUkP to ETH adaptation sink function (ODUkP/ETH_A_Sk)<br>HAO-capable ODUk to ETH adaptation sink function (ODUkP-h/ETH_A_Sk)<br>ODU2P to 10G Ethernet Reconciliation Sublayer adaptation sink function (ODU2P/ERS10G_A_Sk)<br>ODU2eP to FC-1200 client adaptation sink function (ODU2eP/FC-1200_A_Sk)<br>ODUflexP to FlexE client adaptation sink function using IMP (ODUflexP/FlexEC_A_Sk)<br>ODUflexP to FlexE sub-group adaptation sink function using BGMP (ODUflexP/FlexESG_A_Sk)<br>ODUflexP to ETCy adaptation sink function using BMP (ODUflexP/ETCy_A_Sk) | |
| 123 | **LCS** | | DSR_LCS | Loss of Character Synchronization | Connectivity | CEP/MEP/MIP | DSR | For further analysis | Major | **LCS**<br>ODUkP to CBRx adaptation sink function using GMP (ODUkP/CBRx-g_A_Sk)<br>ODUflexP to FlexE client adaptation sink function using IMP (ODUflexP/FlexEC_A_Sk)<br>ODUflexP to FlexE sub-group adaptation sink function using BGMP (ODUflexP/FlexESG_A_Sk)<br>ODUflexP to ETCy adaptation sink function using BMP (ODUflexP/ETCy_A_Sk) | **ODUkP/CBRx-g_A_Sk**<br>cLCS <- dLCS and (not dCSF) and (not dPLM) and (not AI_TSF)<br><br>**ODUflexP/FlexEC_A_Sk**<br>cLCS <- dLCS and (not dPLM) and (not AI_TSF)<br><br>**ODUflexP/FlexESG_A_Sk**<br>cLCS <- dLCS and (not dCSACM) and (not dCSF) and (not dPLM) and (not AI_TSF)<br><br>**ODUflexP/ETCy_A_Sk**<br>cLCS <- dLCS and (not dPLM) and (not AI_TSF) |
| 124 | **LRC** | | DSR_LRC | Loss of Rate Compensation (RC) blocks | Connectivity | CEP/MEP/MIP | DSR | For further analysis | Major | **LRC**<br>cLRC <- dLRC and (not dLCS) and (not dPLM) and (not AI_TSF)<br>ODUflexP to ETCy adaptation sink function using BMP (ODUflexP/ETCy_A_Sk) | |
| 125 | **LSS** | | DSR_LSS | Loss of pseudo-random bit Sequence lock | Connectivity | CEP/MEP/MIP | DSR | For further analysis | Major | **LSS**<br>cLSS <- dLSS and (not AI_TSF) and (not dPLM)<br>ODUP to PRBS adaptation sink function (ODUP/PRBS_A_Sk) | |
| 126 | **CSACM** | | DSR_CSACM | Calendar Slot Availability Count Mismatch | Connectivity | CEP/MEP/MIP | DSR | For further analysis | Major | **CSACM**<br>cCSACM <- dCSACM and (not dCSF) and (not dPLM) and (not AI_TSF)<br>ODUflexP to FlexE sub-group adaptation sink function using BGMP (ODUflexP/FlexESG_A_Sk) | |
| 127 | **CSUM** | | DSR_CSUM | Calendar Slot Unavailability Mismatch | Connectivity | CEP/MEP/MIP | DSR | For further analysis | Major | **CSUM**<br>cCSUM <- dCSUM and (not dLOL) and (not dFMM) and (not dGIDM) and (not CI_SSF)<br>ODUflexP to FlexE sub-group adaptation source function using BGMP (ODUflexP/FlexESG_A_So) | |
| 128 | **GIDM** | | DSR_GIDM | Group Identification Mismatch | Connectivity | CEP/MEP/MIP | DSR | For further analysis | Major | **GIDM**<br>cGIDM <- dGIDM and (not CI_SSF)<br>ODUflexP to FlexE sub-group adaptation source function using BGMP (ODUflexP/FlexESG_A_So) | |
| 129 | **GIDM** | | OTU_FLEX_O_GIDM | Group Identification Mismatch | Connectivity | CEP/MEP/MIP | DSR | For further analysis | Major | **GIDM**<br>cGIDM <- dGIDM<br>FlexO-n to OTUCn adaptation sink function (FlexO-n/OTUCn_A_Sk)<br>FlexO-n to OTUCni adaptation sink function (FlexO-n/OTUCni_A_Sk) | |
| 130 | **FMM** | | DSR_FMM | FlexE Map Mismatch | Connectivity | CEP/MEP/MIP | DSR | For further analysis | Major | **FMM**<br>cFMM <- dFMM and (not dGIDM) and (not CI_SSF)<br>ODUflexP to FlexE sub-group adaptation source function using BGMP (ODUflexP/FlexESG_A_So) | |
| 131 | **FMM** | | OTU_FLEX_O_FMM | FlexO Map Mismatch | Connectivity | CEP/MEP/MIP | DSR | For further analysis | Major | **FMM**<br>cFMM <- dFMM and (not dGIDM)<br>FlexO-n to OTUCn adaptation sink function (FlexO-n/OTUCn_A_Sk)<br>FlexO-n to OTUCni adaptation sink function (FlexO-n/OTUCni_A_Sk) | |
| 132 | **MSIM** | | OTU_FLEX_O_MSIM | Multiplex Structure Identifier Mismatch | Connectivity | CEP/MEP/MIP | DSR | For further analysis | Major | **MSIM**<br>Per OTUCni tributary port #i (i = 1..N):<br>cMSIM[i] <- dMSIM[i] and (not dGIDM) and (not dFMM) and (not dPLM)<br>FlexO-n to OTUCni adaptation sink function (FlexO-n/OTUCni_A_Sk) | |
| 133 | **CSF** | | DSR-CSF | Client-side signal failure | Connectivity | CEP/MEP/MIP | DSR | GBE, 10_GBE_WAN, 10_GBE_LAN, 40_GigE, 100_GBE, FC_1200, FLEX_E (for further study) | Minor | **CSF**<br>ODUkP to CBRx adaptation function using AMP and BMP - sink (ODUkP/CBRx_A_Sk)<br>ODUkP to CBRx adaptation sink function using GMP (ODUkP/CBRx-g_A_Sk)<br>ODUflexP to FlexE client adaptation sink function using IMP (ODUflexP/FlexEC_A_Sk)<br>ODUflexP to FlexE sub-group adaptation sink function using BGMP (ODUflexP/FlexESG_A_Sk)<br>ODUflexP to ETCy adaptation sink function using BMP (ODUflexP/ETCy_A_Sk)<br>ODU2eP to FC-1200 client adaptation sink function (ODU2eP/FC-1200_A_Sk)<br>ODU2P to 10G Ethernet Reconciliation Sublayer adaptation sink function (ODU2P/ERS10G_A_Sk)<br>ODUkP to ETH adaptation sink function (ODUkP/ETH_A_Sk)<br>HAO-capable ODUk to ETH adaptation sink function (ODUkP-h/ETH_A_Sk) | **ODU2P/ERS10G_A_Sk**<br>cCSF <- (dCSF-LOS or dCSF-OPU) and (not dEXM) and (not dUPM) and (not dPLM) and (not dLFD) and (not AI_TSF) and CSF_Reported.<br><br>**ODUkP/ETH_A_Sk, ODUkP-h/ETH_A_Sk**<br>cCSF <- (dCSF-LOS or dCSF-OPU or dCSF-FDI) and (not dEXM) and (not dUPM) and (not dPLM) and (not dLFD) and (not AI_TSF) and CSF_Reported<br><br>**All others**<br>cCSF <- dCSF and (not dPLM) and (not AI_TSF) |

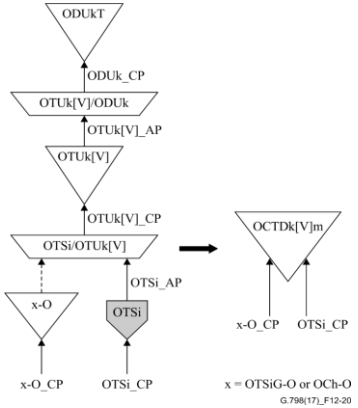
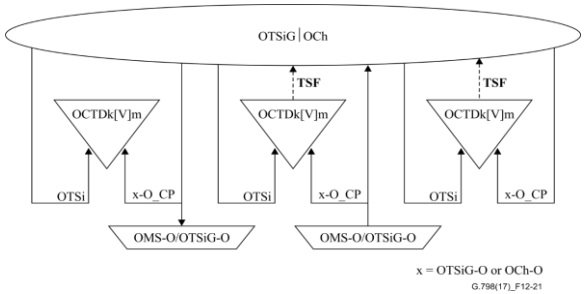
| Index | Probable Cause / Alarm Condition Name | Alarm Qualifier | Additional Info | Description (text, in yang comment, not a data node) | Alarm Category | Target Object Type | Layer Protocol Name of Target Object | Layer Protocol Qualifier of Target Object | Perceived Severity | ITU-T G.798, G.874<br>ITU-T 7041 - Generic framing procedure<br>ITU-T G.806 - Characteristics of transport equipment – Description methodology and generic functionality | Other Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 134 | LOSS_OF_GFP_SYNC | "Gigabit Ethernet 8B/10B loss of synchronization", or "Fibre channel 8B/10B loss of synchronization" | | Loss of synchronization | Connectivity | CEP/MEP/MIP | DSR | For further study | Critical | ITU-T G.7041 - Generic framing procedure<br>Fibre channel 8B/10B loss of synchronization<br>Gigabit Ethernet 8B/10B loss of synchronization | |
| 135 | REM_CLIENT_SF | | | Remote client signal failure. This alarm occurs when the client side of the unit at the opposite station fails to receive signals (for example, when there is a LOS or LOF alarm). | Connectivity | CEP/MEP/MIP | DSR | Any applicable L1 qualifier or only Ethernet.<br>For further study | Minor | **dCSF-RDI**<br>G.8021 - ETH-specific GFP-F sink process:<br>cCSF <- (dCSF-RDI or dCSF-FDI or dCSF-LOS) and (not dUPM) and (not GFP_SF) and CSF_Reported. | G.8021: Reception of a CSF frame that indicates a client reverse defect indication |

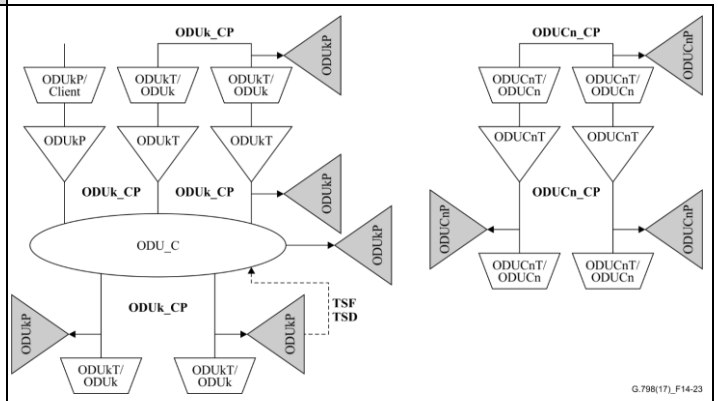
| Index | Threshold Parameter / Threshold Indicator Name | TCA Qualifier | Additional Info | Description (text, in yang comment, not a data node) | TCA Category | Target Object Type | Layer Protocol Name of Target Object | Layer Protocol Qualifier of Target Object | Perceived Severity | ITU-T G.798, G.874<br>ITU-T 7041 - Generic framing procedure<br>ITU-T G.806 - Characteristics of transport equipment – Description methodology and generic functionality | Other Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | **NATIVE** | | | | All | All | All | All | All | | When there is no standard PM parameter name corresponding to the native PM parameter name |
| 2 | **FEC_CORRECTED_ERROR** | | | Error corrected by FEC | Connectivity | CEP/MEP/MIP/Current Data | ODU / DIGITAL_OTN | OTU1, OTU2, OTU3, OTU4, OTU_CN<br>FLEX_O, DSR for further definition | Warning | **pFECcorrErr**<br>OTSi to OTUk adaptation sink function (OTSi/OTUk_A_Sk)<br>OTSi to OTUkV adaptation sink function (OTSi/OTUkV_A_Sk)<br>OTSi to OTUk-RS adaptation sink function (OTSi/OTUk-RS_A_Sk; k=25u,25,50u,50)<br>OTSiG to OTUk adaptation sink function (OTSiG/OTUk_A_Sk)<br>OTSiG to OTUkV adaptation sink function (OTSiG/OTUkV_A_Sk)<br>OTSi to OTUCn adaptation sink function (OTSi/OTUCn_A_Sk)<br>OTSiG to OTUCn adaptation sink function (OTSiG/OTUCn_A_Sk)<br>OTSi to FlexO-1-SC adaptation sink function (OTSi/FlexO-1-SC_A_Sk)<br>OTSiG to FlexO adaptation sink function (OTSiG/FlexO_A_Sk)<br>OSx to CBRx adaptation sink function for 64B/66B encoded clients with optional FEC (OSx/CBRx-b_A_Sk) (x = FC-y)<br>OSx to CBRx adaptation sink function for 64B/66B encoded clients with mandatory FEC (OSx/CBRx-c_A_Sk) (x = FC-y) | pFECcorrErr <- ∑ nFECcorrErr |
| 3 | **BBE** | NE, FE, BID,<br>NE_CODIR,<br>NE_CONTRADIR<br>FE_CODIR,<br>FE_CONTRADIR | | TCA-ODUk/OTUk PM Background Block Error | Connectivity | CEP/MEP/MIP/Current Data | PHOTONIC_MEDIA,<br>ODU / DIGITAL_OTN | OTSi,<br>ODU_FLEX, ODU0, ODU1, ODU2, ODU2E, ODU3, ODU4, ODU_CN,<br>OTU1, OTU2, OTU3, OTU4, OTU_CN | Warning | **BBE**<br>OTSiG-O trail termination sink function (OTSiG-O_TT_Sk)<br>OTU trail termination sink function (OTU_TT_Sk)<br>ODUP trail termination sink function (ODUP_TT_Sk)<br>ODUT trail termination sink function (ODUT_TT_Sk)<br>ODUT non-intrusive monitoring function (ODUTm_TT_Sk) | |
| 4 | **SES** | NE, FE, BID,<br>NE_CODIR,<br>NE_CONTRADIR<br>FE_CODIR,<br>FE_CONTRADIR | | TCA-ODUk/OTUk PM Severely Errored Second | Connectivity | CEP/MEP/MIP/Current Data | PHOTONIC_MEDIA,<br>ODU / DIGITAL_OTN | OTS, OMS, OTS_OMS,<br>OTSi,<br>ODU_FLEX, ODU0, ODU1, ODU2, ODU2E, ODU3, ODU4, ODU_CN<br>OTU1, OTU2, OTU3, OTU4, OTU_CN | Warning | **SES**<br>OTS-O trail termination sink function (OTS-O_TT_Sk<br>OMS-O trail termination sink function (OMS-O_TT_Sk)<br>OSx trail termination sink function (OSx_TT_Sk) (x = 2G5, 10G, 40G, FC-y)<br>OTSi to OSC adaptation sink function (OTSi/OSC_A_Sk)<br>OTSiG-O trail termination sink function (OTSiG-O_TT_Sk)<br>OTU trail termination sink function (OTU_TT_Sk)<br>ODUP trail termination sink function (ODUP_TT_Sk)<br>ODUT trail termination sink function (ODUT_TT_Sk)<br>ODUT non-intrusive monitoring function (ODUTm_TT_Sk) | |
| 5 | **UAS** | NE, FE, BID,<br>NE_CODIR,<br>NE_CONTRADIR<br>FE_CODIR,<br>FE_CONTRADIR | | TCA-ODUk/OTUk PM Unavailable Seconds | Connectivity | CEP/MEP/MIP/Current Data | PHOTONIC_MEDIA,<br>ODU / DIGITAL_OTN | OTS, OMS, OTS_OMS,<br>OTSi,<br>ODU_FLEX, ODU0, ODU1, ODU2, ODU2E, ODU3, ODU4, ODU_CN<br>OTU1, OTU2, OTU3, OTU4, OTU_CN | Warning | **UAS**<br>OTS-O trail termination sink function (OTS-O_TT_Sk<br>OMS-O trail termination sink function (OMS-O_TT_Sk)<br>OSx trail termination sink function (OSx_TT_Sk) (x = 2G5, 10G, 40G, FC-y)<br>OTSi to OSC adaptation sink function (OTSi/OSC_A_Sk)<br>OTSiG-O trail termination sink function (OTSiG-O_TT_Sk)<br>OTU trail termination sink function (OTU_TT_Sk)<br>ODUP trail termination sink function (ODUP_TT_Sk)<br>ODUT trail termination sink function (ODUT_TT_Sk)<br>ODUT non-intrusive monitoring function (ODUTm_TT_Sk) | |
| 6 | **DELAY** | | | ∑ number of frames between the DMValue toggle event and the received DMp signal value toggle event | Connectivity | CEP/MEP/MIP/Current Data | ODU / DIGITAL_OTN | ODU_FLEX, ODU0, ODU1, ODU2, ODU2E, ODU3, ODU4, ODU_CN | Warning | **N_Delay**<br>ODUP trail termination sink function (ODUP_TT_Sk)<br>ODUT trail termination sink function (ODUT_TT_Sk) | |

| Index | Probable Cause / Alarm Condition Name | Threshold Parameter / Threshold Indicator Name | Qualifier | Additional Info | Description (text, in yang comment, not a data node) | Category | Target Object Type | Layer Protocol Name of Target Object | Layer Protocol Qualifier of Target Object | Perceived Severity | ITU-T G.798, G.874<br>ITU-T 7041 - Generic framing procedure<br>ITU-T G.806 - Characteristics of transport equipment – Description methodology and generic functionality | Other Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | INSERTION-LOSS-HIGH | INSERTION-LOSS | | | Insertion loss between the TX and RX is beyond threshold.<br>Insufficient input power for the OA to work correctly. | Connectivity | CEP | PHOTONIC_MEDIA | OTS, OMS, OTS_OMS, UNSPECIFIED | Major | This alarm can be raised by various functional entities.<br>It is assumed it is raised on the CEP which is nearest to the actual detection point. | For further analysis, as it may apply to Access Port - where the anomaly is detected.<br>Note that also OTDR related alarms are detected on a "point", even if the mechanism is localizing the failure along the fibre. |
| 2 | LOCAL-FAULT<br>maybe this is the signalling | | | | Local Ethernet fault.<br>The local interface has received a local-fault signal from the NE at the far end of the fiber, indicating that no Ethernet<br>signal is being transmitted upstream of (and toward) the local NE. | Connectivity | CEP/MEP/MIP | DSR, ETH | GBE, 10_GBE_WAN, 10_GBE_LAN, 100_GBE | Minor | For further clarification, check IEEE | |
| 3 | REMOTE-ETHERNET-FAULT<br>maybe this is the alarm raised when local-fault signal is received | | | | Local Ethernet fault.<br>The local interface has received a local-fault signal from the NE at the far end of the fiber, indicating that no Ethernet<br>signal is being transmitted upstream of (and toward) the local NE. | Connectivity | CEP/MEP/MIP | DSR, ETH | GBE, 10_GBE_WAN, 10_GBE_LAN, 100_GBE | Minor | For further clarification, check IEEE | |
| 4 | LASER-TEMP-HIGH | | | | Laser temperature too high | Equipment | Equipment | na | na | Minor | | Is it assumed that cannot be related to a specific OTSi CEP? |
| 5 | LASER-TEMP-LOW | | | | Laser temperature too low | Equipment | Equipment | na | na | Minor | | Is it assumed that cannot be related to a specific OTSi CEP? |
| 6 | OA-OUT-PWR-ABN | | | | OA out power abnormal alarm | Equipment | Access Port | na | na | Minor | | For further clarification |
| 7 | OPR-ABN | | | | Abnormal optical power received | Equipment | Access Port | na | na | Critical | | For further clarification |
| 8 | REMOTE-FAULT | | | | Remote Ethernet fault.The alarm is indicating a defect in XGE services at the remote end. | Connectivity | CEP/MEP/MIP | DSR | GBE, 10_GBE_WAN, 10_GBE_LAN, 100_GBE | Minor | | For further clarification<br>IEEE? |
| 9 | RL-CRITICAL-HI | | | | Critical high return loss alarm | Equipment | Access Port | na | na | Critical | Likely Applicable to OTS CEP | |
| 10 | RL-CRITICAL-LOW | | | | Critical low return loss alarm | Equipment | Access Port | na | na | Critical | Likely Applicable to OTS CEP | |
| 11 | ETH_LOS | | | | ETH Trib Port Loss Of Signal | Connectivity | CEP/MEP/MIP | ETH | GBE, 10_GBE_WAN, 10_GBE_LAN, 100_GBE | Critical | Not found in ITU-T, check 802.3 | Which is the difference with respect to other UNI LOS? |
| 12 | R_LOS | | | | OTN Client Port Loss Of Signal | Connectivity | CEP/MEP/MIP | DSR | GBE, 10_GBE_WAN, 10_GBE_LAN, 100_GBE, FC_100, FC_200, FC_400, FC_800, FC_1200, FC_1600, FC_3200, STM_1, STM_4, STM_16, STM_64, STM_256, OC_3, OC_12, OC_48, OC_192, OC_768, OTU_1, OTU_2, OTU_2E, OTU_3, OTU_4, GPON, XGPON | Critical | **CSF-LOS?**<br>ODU2P to 10G Ethernet Reconciliation Sublayer adaptation sink function (ODU2P/ERS10G_A_Sk)<br>ODUkP to ETH adaptation sink function (ODUkP/ETH_A_Sk)<br>HAO-capable ODUk to ETH adaptation sink function (ODUkP-h/ETH_A_Sk) | For further clarification |

| OTSiG\|OCh non-intrusive monitor function | |
|---|---|
| As the functionality of the OTSiG and OCh non-intrusive monitor functions is identical to the OTSiG-O_TT_Sk and OCh-O_TT_Sk functions (see clause 12.2.2.2), no dedicated OCh non-intrusive monitoring functions OTSiGm_TT_Sk are OChm_TT_Sk are defined. |  |

| Combined OTSiG\|OCh and OTUk[V] non-intrusive monitor function (OCTk[V]m) | | |
|---|---|---|
| As the OCh and OTUk[V] termination are always collocated in an OTN network, a combined OCh and OTUk[V] non-intrusive monitor is defined as a compound function OCTk[V]m. The OCTk[V]m compound function is the combination of a OTSiG-O\|OCh-O_TT_Sk (see clause 12.2.1.2 or 12.2.2.2), OTSi/OTUk[V]_A_Sk (see clauses 16.1.2 and 16.2.2) and OTUk[V]_TT_Sk (see clauses 13.2.1.2 and 13.2.2.2) |  |  |

| Combined OTSiG\|OCh, OTUk[V] and ODUkT non-intrusive monitor function (OCTDk[V]m) | | |
|---|---|---|
| To support detection of bit errors in a serial compound ODUk link connection carried through an OCh domain with 3R regeneration, it is necessary to deploy ODUk tandem connection monitoring between the ODUk connection points at the endpoints of the ODUk serial compound link connection. For this purpose, a combined OCh, OTUk[V] and ODUkT non-intrusive monitor is defined as a compound function OCTDk[V]m. The OCTDk[V]m compound function is the combination of OTSiG-O\|OCh-O_TT_Sk (see clause 12.2.1.2 or 12.2.2.2), OTSi/OTUk[V]_A_Sk (see clauses 16.1.2 and 16.2.2), OTUk[V]_TT_Sk (see clauses 13.2.1.2 and 13.2.2.2), OTUk[V]/ODUk_A (see clauses 13.3.1 and 13.3.2) and ODUkT_TT (see clause 14.5.1.1) |  |  |

| ODUP non-intrusive monitor function | |
|---|---|
| As the functionality of the ODUkP non-intrusive monitor function is identical to the ODUP_TT_Sk function (see clause 14.2.1.2), no dedicated ODUP non-intrusive monitoring function ODUPm_TT_Sk is defined. |  |

OTU_TT_Sk - Including both OTUk TT_Sk and OTUCn_TT_Sk
ODUP_TT_Sk - Including both ODUkP_TT_Sk (k=0,1,2,2e,3,4,flex) and ODUCn_TT_Sk
ODUT_TT_Sk - Including ODUkT_TT_Sk and ODUCnT_TT_Sk