**3GPP TSG- Meeting # *961***

**, , - revision of S5-253372**

|  |
| --- |
| *CR-Form-v12.3* |
| **CHANGE REQUEST** |
|  |
|  |  | **CR** |  | **rev** | **1** | **Current version:** |  |  |
|  |
| *For* [***HE******LP***](http://www.3gpp.org/3G_Specs/CRs.htm#_blank)*on using this form: comprehensive instructions can be found at* [*http://www.3gpp.org/Change-Requests*](http://www.3gpp.org/Change-Requests)*.* |
|  |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| ***Proposed change affects:*** | UICC apps |  | ME |  | Radio Access Network | **X** | Core Network | **X** |

|  |
| --- |
|  |
| ***Title:***  |  |
|  |  |
| ***Source to WG:*** |  |
| ***Source to TSG:*** | S5 |
|  |  |
| ***Work item code:*** |  |  | ***Date:*** |  |
|  |  |  |  |  |
| ***Category:*** |  |  | ***Release:*** |  |
|  | *Use one of the following categories:****F*** *(correction)****A*** *(mirror corresponding to a change in an earlier release)****B*** *(addition of feature),* ***C*** *(functional modification of feature)****D*** *(editorial modification)*Detailed explanations of the above categories canbe found in 3GPP [TR 21.900](http://www.3gpp.org/ftp/Specs/html-info/21900.htm). | *Use one of the following releases:Rel-8 (Release 8)Rel-9 (Release 9)Rel-10 (Release 10)Rel-11 (Release 11)…Rel-17 (Release 17)Rel-18 (Release 18)Rel-19 (Release 19) Rel-20 (Release 20)* |
|  |  |
| ***Reason for change:*** | * Probable Cause (PC) value “Intrusion Detection” was defined by two different stadards: M.3100:126 - X.736:710 with different meanings. Already today the definition of probableCause states: *“The producer should choose the most specific probableCause applicable*.” This is ambigious, difficult if multiple definitions exist for the same string. It is proposed to changed the string value (for 710) to make the values unique.

Probable Cause (PC) values from Annex B are not captured in stage 3. Customers who use the string representation of probableCause complained that comparing probableCause strings supplied by different vendors don’t match. |
|  |  |
| ***Summary of change:*** | * PC “Intrusion Detection” (710) changed to “Intrusion Detected” (710)

PC values added as enumeration to stage 3, precisely defining the probableCause string values. |
|  |  |
| ***Consequences if not approved:*** | Duplicate PC value leads to confusion as these have separate semantics (environmental vs. physical violation); no defined stage 3 values for PC values defined at stage 2 leading to interoperability issues. |
|  |  |
| ***Clauses affected:*** | Annex B, Forge |
|  |  |
|  | **Y** | **N** |  |  |
| ***Other specs*** |  | **X** |  Other core specifications  | TS/TR ... CR ...  |
| ***affected:*** |  | **X** |  Test specifications | TS/TR ... CR ...  |
| ***(show related CRs)*** |  | **X** |  O&M Specifications | TS/TR ... CR ...  |
|  |  |
| ***Other comments:*** | YANG Forge MR link: <https://forge.3gpp.org/rep/sa5/MnS/-/merge_requests/1823> at commit 09bbd0b3efc127293fd7bf08d7fdfe96d13ab47eYAML Forge MR link: <https://forge.3gpp.org/rep/sa5/MnS/-/merge_requests/1825> at commit ef1f16c66e001ee88c560260c35dd50477c1eccd |
|  |  |
| ***This CR's revision history:*** |  |

***First change***

Annex B (informative):
Probable Causes

This annex lists probable causes.

Sources of these probable causes are ITU-T Recommendation M.3100 [7], ITU‑T Recommendation X.733 [8], and ITU-T Recommendation X.736 [13]. In addition, probable causes for wireless systems are listed in ETSI TS 101 251 V6.3.0 (1999-07) [3].

The listed probable cause strings (or alternatively integers) should be used. If none of them represents the real probable cause appropriately, probable cause strings (or alternatively integers) not listed below may be used as well.

**Table B.1: Probable Causes from ITU-T Recommendation M.3100 [7]**

| **M.3100 Probable cause (string)**  | **(integer)** | **alarmType** |
| --- | --- | --- |
| Indeterminate  | 0 | Other |
| Alarm Indication Signal (AIS)  | 1 | Communications |
| Call Setup Failure  | 2 | Communications |
| Degraded Signal  | 3 | Communications |
| Far End Receiver Failure (FERF)  | 4 | Communications |
| Framing Error  | 5 | Communications |
| Loss Of Frame (LOF) | 6 | Communications |
| Loss Of Pointer (LOP)  | 7 | Communications |
| Loss Of Signal (LOS)  | 8 | Communications |
| Payload Type Mismatch  | 9 | Communications |
| Reserved | 10 |  |
| Remote Alarm Interface  | 11 | Communications |
| Excessive Bit Error Rate (EBER)  | 12 | Communications |
| Path Trace Mismatch  | 13 | Communications |
| Unavailable  | 14 | Communications |
| Signal Label Mismatch  | 15 | Communications |
| Loss Of Multi Frame  | 16 | Communications |
| Communications Receive Failure | 17 | Communications |
| Communications Transmit Failure  | 18 | Communications |
| Modulation Failure | 19 | Communications |
| Demodulation Failure  | 20 | Communications |
| Reserved | 21-26 |  |
| Reserved for M.3100 potential future extensions. | 27-50 |  |
| Back Plane Failure | 51 | Equipment |
| Data Set Problem | 52 | Equipment |
| Equipment Identifier Duplication  | 53 | Equipment |
| External IF Device Problem  | 54 | Equipment |
| Line Card Problem  | 55 | Equipment |
| Multiplexer Problem  | 56 | Equipment |
| NE Identifier Duplication  | 57 | Equipment |
| Power Problem  | 58 | Equipment |
| Processor Problem  | 59 | Equipment |
| Protection Path Failure  | 60 | Equipment |
| Receiver Failure  | 61 | Equipment |
| Replaceable Unit Missing  | 62 | Equipment |
| Replaceable Unit Type Mismatch  | 63 | Equipment |
| Synchronization Source Mismatch  | 64 | Equipment |
| Terminal Problem  | 65 | Equipment |
| Timing Problem  | 66 | Equipment |
| Transmitter Failure  | 67 | Equipment |
| Trunk Card Problem | 68 | Equipment |
| Replaceable Unit Problem  | 69 | Equipment |
| Real Time Clock Failure | 70 | Equipment |
| Reserved | 71-80 |  |
| Protection Mechanism Failure | 81 | Equipment |
| Protecting Resource Failure | 82 | Equipment |
| Reserved for M.3100 potential future extensions. | 83-100 |  |
| Air Compressor Failure | 101 | Environmental |
| Air Conditioning Failure  | 102 | Environmental |
| Air Dryer Failure  | 103 | Environmental |
| Battery Discharging  | 104 | Environmental |
| Battery Failure  | 105 | Environmental |
| Commercial Power Failure  | 106 | Environmental |
| Cooling Fan Failure  | 107 | Environmental |
| Engine Failure  | 108 | Environmental |
| Fire Detector Failure  | 109 | Environmental |
| Fuse Failure  | 110 | Environmental |
| Generator Failure  | 111 | Environmental |
| Low Battery Threshold  | 112 | Environmental |
| Pump Failure  | 113 | Environmental |
| Rectifier Failure  | 114 | Environmental |
| Rectifier High Voltage  | 115 | Environmental |
| Rectifier Low F Voltage  | 116 | Environmental |
| Ventilation System Failure | 117 | Environmental |
| Enclosure Door Open  | 118 | Environmental |
| Explosive Gas  | 119 | Environmental |
| Fire  | 120 | Environmental |
| Flood  | 121 | Environmental |
| High Humidity  | 122 | Environmental |
| High Temperature  | 123 | Environmental |
| High Wind  | 124 | Environmental |
| Ice Build Up  | 125 | Environmental |
| Intrusion Detection  | 126 | Environmental |
| Low Fuel  | 127 | Environmental |
| Low Humidity  | 128 | Environmental |
| Low Cable Pressure  | 129 | Environmental |
| Low Temperature  | 130 | Environmental |
| Low Water  | 131 | Environmental |
| Smoke  | 132 | Environmental |
| Toxic Gas  | 133 | Environmental |
| Reserved for M.3100 potential future extensions. | 134-150 |  |
| Storage Capacity Problem | 151 | Processing Error |
| Memory Mismatch  | 152 | Processing Error |
| Corrupt Data  | 153 | Processing Error |
| Out Of CPU Cycles  | 154 | Processing Error |
| Software Environment Problem  | 155 | Processing Error |
| Software Download Failure | 156 | Processing Error |
| Loss of Real Time | 157 | Processing Error |
| Reinitialized | 158 | Processing Error |
| Reserved | 159-167 |  |
| Reserved for M.3100 potential future extensions. | 168-200 |  |
| Reserved | 201-202 |  |
| Excessive Error Rate | 203 | Quality of service |
| Reserved | 204-207 |  |
| Reserved for M.3100 potential future extensions. | 208-300 |  |

**Table B.2: Probable Causes from ITU-T Recommendation X.733 [8]**

| **X.733 Probable Cause (string)** | **(integer)** | **alarmType** |
| --- | --- | --- |
| Adapter Error | 301 | Equipment |
| Application Subsystem Failure  | 302 | Processing error |
| Bandwidth Reduction  | 303 | Security Service or Mechanism Violation |
| Reserved | 304 |  |
| Communication Protocol Error  | 305 | Communications |
| Communication Subsystem Failure  | 306 | Communications |
| Configuration or Customizing Error  | 307 | Processing error |
| Congestion  | 308 | Quality of service |
| Reserved | 309 |  |
| CPU Cycles Limit Exceeded  | 310 | Processing error |
| Data Set or Modem Error  | 311 | Equipment |
| Reserved | 312 |  |
| DTE-DCE Interface Error  | 313 | Communications |
| Reserved | 314 |  |
| Equipment Malfunction  | 315 | Communications |
| Excessive Vibration  | 316 | Integrity Violation |
| File Error  | 317 | Environmental |
| Reserved | 318-320 |  |
| Heating or Ventilation or Cooling System Problem | 321 | Environmental |
| Humidity Unacceptable  | 322 | Environmental |
| Input/Output Device Error  | 323 | Equipment |
| Input Device Error  | 324 | Environmental |
| LAN Error | 325 | Processing error |
| Leak Detection  | 326 | Environmental |
| Local Node Transmission Error  | 327 | Communications |
| Reserved | 328-329 |  |
| Material Supply Exhausted  | 330 | Environmental |
| Reserved | 331 |  |
| Out of Memory  | 332 | Processing error |
| Output Device Error  | 333 | Equipment |
| Performance Degraded  | 334 | Quality of service |
| Reserved | 335 |  |
| Pressure Unacceptable  | 336 | Operational Violation |
| Reserved | 337-338 |  |
| Queue Size Exceeded  | 339 | Quality of service |
| Receive Failure  | 340 | Equipment |
| Reserved | 341 |  |
| Remote Node Transmission Error | 342 | Communications |
| Resource at or Nearing Capacity  | 343 | Quality of service |
| Response Time Excessive  | 344 | Quality of service |
| Re-transmission Rate Excessive  | 345 | Quality of service |
| Software Error  | 346 | Processing error |
| Software Program Abnormally Terminated | 347 | Processing error  |
| Software Program Error  | 348 | Processing error |
| Reserved | 349 |  |
| Temperature Unacceptable  | 350 | Environmental |
| Threshold Crossed  | 351 | Quality of service |
| Reserved | 352 |  |
| Toxic Leak Detected  | 353 | Environmental |
| Transmit Failure  | 354 | Equipment |
| Reserved | 355 |  |
| Underlying Resource Unavailable  | 356 | Processing error |
| Version Mismatch  | 357 | Processing error |
| Reserved for potential future X.721/X.733 extensions | 358-500 |  |

**Table B.3: Probable Causes for Wireless Systems from ETSI TS 101 251 V6.3.0 (1999-07) [3]**

| **Wireless Systems (string)** | **(integer)** | **alarmType** |
| --- | --- | --- |
| A-bis to BTS interface failure | 501 | Equipment |
| A-bis to TRX interface failure | 502 | Equipment |
| Antenna problem | 503 | Equipment |
| Battery breakdown | 504 | Equipment |
| Battery charging fault  | 505 | Equipment |
| Clock synchronization problem | 506 | Equipment |
| Combiner problem  | 507 | Equipment |
| Disk problem | 508 | Equipment |
| Reserved | 509 |  |
| Excessive receiver temperature | 510 | Equipment |
| Excessive transmitter output power | 511 | Equipment |
| Excessive transmitter temperature | 512 | Equipment |
| Frequency hopping degraded | 513 | Equipment |
| Frequency hopping failure | 514 | Equipment |
| Frequency redefinition failed | 515 | Equipment |
| Line interface failure | 516 | Equipment |
| Link failure | 517 | Equipment |
| Loss of synchronization | 518 | Equipment |
| Lost redundancy | 519 | Equipment |
| Mains breakdown with battery back-up | 520 | Equipment |
| Mains breakdown without battery back-up | 521 | Equipment |
| Power supply failure | 522 | Equipment |
| Receiver antenna fault  | 523 | Equipment |
| Reserved | 524 |  |
| Receiver multicoupler failure | 525 | Equipment |
| Reduced transmitter output power | 526 | Equipment |
| Signal quality evaluation fault | 527 | Equipment |
| Timeslot hardware failure | 528 | Equipment |
| Transceiver problem | 529 | Equipment |
| Transcoder problem | 530 | Equipment |
| Transcoder or rate adapter problem  | 531 | Equipment |
| Transmitter antenna failure | 532 | Equipment |
| Transmitter antenna not adjusted | 533 | Equipment |
| Reserved | 534 |  |
| Transmitter low voltage or current | 535 | Equipment |
| Transmitter off frequency | 536 | Equipment |
| Database inconsistency | 537 | Processing error |
| File system call unsuccessful | 538 | Processing error |
| Input parameter out of range | 539 | Processing error |
| Invalid parameter | 540 | Processing error |
| Invalid pointer | 541 | Processing error |
| Message not expected | 542 | Processing error |
| Message not initialized | 543 | Processing error |
| Message out of sequence | 544 | Processing error |
| System call unsuccessful | 545 | Processing error |
| Timeout expired | 546 | Processing error |
| Variable out of range | 547 | Processing error |
| Watch dog timer expired | 548 | Processing error |
| Cooling system failure | 549 | Environmental |
| External equipment failure | 550 | Environmental |
| External power supply failure | 551 | Environmental |
| External transmission device failure | 552 | Environmental |
| Reserved | 553-560 |  |
| Reduced alarm reporting | 561 | Quality of service |
| Reduced event reporting | 562 | Quality of service |
| Reduced logging capability | 563 | Quality of service |
| System resources overload | 564 | Quality of service |
| Broadcast channel failure | 565 | Communications |
| Connection establishment error | 566 | Communications |
| Invalid message received | 567 | Communications |
| Invalid MSU received | 568 | Communications |
| LAPD link protocol failure | 569 | Communications |
| Local alarm indication | 570 | Communications |
| Remote alarm indication | 571 | Communications |
| Routing failure | 572 | Communications |
| SS7 protocol failure | 573 | Communications |
| Transmission error | 574 | Communications |
| Reserved  | 575 |  |
| Reserved for potential future ETSI extensions | 576-700 |  |

**Table B.4: Probable Causes for Security Alarm from X.736 [13]**

| **Wireless Systems (string)** | **(integer)** | **alarmType** |
| --- | --- | --- |
| Authentication Failure | 701 | security service or mechanism violation |
| Breach of Confidentiality | 702 | security service or mechanism violation |
| Cable Tamper | 703 | physical violation |
| Delayed Information | 704 | time domain violation |
| Denial of Service  | 705 | operational violation |
| Duplicate Information | 706 | integrity violation |
| Information Missing | 707 | integrity violation |
| Information Modification Detected | 708 | integrity violation |
| Information Out of Sequence | 709 | integrity violation |
| Intrusion Detected | 710 | physical violation |
| Key Expired | 711 | time domain violation |
| Non Repudiation Failure | 712 | security service or mechanism violation |
| Out of Hours Activity | 713 | time domain violation |
| Out of Service | 714 | operational violation |
| Procedural Error | 715 | operational violation |
| Unauthorised Access Attempt | 716 | security service or mechanism violation |
| Unexpected Information | 717 | integrity violation |
| Unspecified Reason | 718 | security service or mechanism violation |
| Reserved for X.736 potential future extensions. | 719-800 |  |

***End of changes***

Forge MR link: <https://forge.3gpp.org/rep/sa5/MnS/-/merge_requests/1823> at commit 09bbd0b3efc127293fd7bf08d7fdfe96d13ab47e

\*\*\* START OF CHANGE 1 \*\*\*

\*\*\* yang-models/\_3gpp-common-fm.yang \*\*\*

<CODE BEGINS>

module \_3gpp-common-fm {

 yang-version 1.1;

 namespace "urn:3gpp:sa5:\_3gpp-common-fm";

 prefix "fm3gpp";

 import ietf-yang-types { prefix yang; }

 import \_3gpp-common-top { prefix top3gpp; }

 import \_3gpp-common-yang-types { prefix types3gpp; }

 import \_3gpp-common-yang-extensions { prefix yext3gpp; }

 organization "3GPP SA5";

 contact "https://www.3gpp.org/DynaReport/TSG-WG--S5--officials.htm?Itemid=464";

 description "Defines a Fault Management model

 Copyright 2025, 3GPP Organizational Partners (ARIB, ATIS, CCSA, ETSI, TSDSI,

 TTA, TTC). All rights reserved.";

 reference "3GPP TS 28.111";

 revision 2025-08-13 { reference "CR-0053 CR-0054"; }

 revision 2025-05-01 { reference "CR-0042 CR-0043"; } // common for R18, R19

 revision 2025-03-25 { reference "CR-0025 CR-0026"; }

 revision 2024-05-12 {

 description "The definition of the module was from TS 28.623 to TS 28.111";

 reference CR-0008 ;

 }

 revision 2024-03-06 { reference CR-0333 ; }

 revision 2024-02-24 { reference CR-0346; }

 revision 2024-01-18 {

 description "The specification of the file is moved from 28.623 to 28.532";

 reference "28.623 CR-0315";

 }

 revision 2023-09-18 { reference CR-0271; }

 revision 2023-05-10 { reference CR-0250; }

 revision 2022-10-24 { reference CR-0196; }

 revision 2021-08-08 { reference "CR-0132"; }

 revision 2021-06-02 { reference "CR-0130"; }

 revision 2020-06-03 { reference "CR-0091"; }

 revision 2020-02-24 { reference "S5-201365"; }

 feature AcknowledgeByConsumer {

 description "Indicates whether alarm acknowledgement by the consumer is

 supported.";

 }

 typedef eventType {

 type enumeration {

 enum OTHER {

 value 1;

 }

 enum COMMUNICATIONS\_ALARM {

 value 2;

 }

 enum QUALITY\_OF\_SERVICE\_ALARM {

 value 3;

 }

 enum PROCESSING\_ERROR\_ALARM {

 value 4;

 }

 enum EQUIPMENT\_ALARM {

 value 5;

 }

 enum ENVIRONMENTAL\_ALARM {

 value 6;

 }

 enum INTEGRITY\_VIOLATION {

 value 7;

 }

 enum OPERATIONAL\_VIOLATION {

 value 8;

 }

 enum PHYSICAL\_VIOLATION {

 value 9;

 }

 enum SECURITY\_SERVICE\_OR\_MECHANISM\_VIOLATION {

 value 10;

 }

 enum TIME\_DOMAIN\_VIOLATION {

 value 11;

 }

 }

 description "General category for the alarm.";

 }

 typedef severity-level {

 type enumeration {

 enum CRITICAL { value 3; }

 enum MAJOR { value 4; }

 enum MINOR { value 5; }

 enum WARNING { value 6; }

 enum INDETERMINATE { value 7; }

 enum CLEARED { value 8; }

 }

 description "The possible alarm severities";

 }

 typedef probable-causes {

 type enumeration {

 enum INDETERMINATE { value 0; }

 enum ALARM\_INDICATION\_SIGNAL { value 1; }

 enum CALL\_SETUP\_FAILURE { value 2; }

 enum DEGRADED\_SIGNAL { value 3; }

 enum FAR\_END\_RECEIVER\_FAILURE { value 4; }

 enum FRAMING\_ERROR { value 5; }

 enum LOSS\_OF\_FRAME { value 6; }

 enum LOSS\_OF\_POINTER { value 7; }

 enum LOSS\_OF\_SIGNAL { value 8; }

 enum PAYLOAD\_TYPE\_MISMATCH { value 9; }

 enum REMOTE\_ALARM\_INTERFACE { value 11; }

 enum EXCESSIVE\_BIT\_ERROR\_RATE { value 12; }

 enum PATH\_TRACE\_MISMATCH { value 13; }

 enum UNAVAILABLE { value 14; }

 enum SIGNAL\_LABEL\_MISMATCH { value 15; }

 enum LOSS\_OF\_MULTI\_FRAME { value 16; }

 enum COMMUNICATIONS\_RECEIVE\_FAILURE { value 17; }

 enum COMMUNICATIONS\_TRANSMIT\_FAILURE { value 18; }

 enum MODULATION\_FAILURE { value 19; }

 enum DEMODULATION\_FAILURE { value 20; }

 enum BACK\_PLANE\_FAILURE { value 51; }

 enum DATA\_SET\_PROBLEM { value 52; }

 enum EQUIPMENT\_IDENTIFIER\_DUPLICATION { value 53; }

 enum EXTERNAL\_IF\_DEVICE\_PROBLEM { value 54; }

 enum LINE\_CARD\_PROBLEM { value 55; }

 enum MULTIPLEXER\_PROBLEM { value 56; }

 enum NE\_IDENTIFIER\_DUPLICATION { value 57; }

 enum POWER\_PROBLEM { value 58; }

 enum PROCESSOR\_PROBLEM { value 59; }

 enum PROTECTION\_PATH\_FAILURE { value 60; }

 enum RECEIVER\_FAILURE { value 61; }

 enum REPLACEABLE\_UNIT\_MISSING { value 62; }

 enum REPLACEABLE\_UNIT\_TYPE\_MISMATCH { value 63; }

 enum SYNCHRONIZATION\_SOURCE\_MISMATCH { value 64; }

 enum TERMINAL\_PROBLEM { value 65; }

 enum TIMING\_PROBLEM { value 66; }

 enum TRANSMITTER\_FAILURE { value 67; }

 enum TRUNK\_CARD\_PROBLEM { value 68; }

 enum REPLACEABLE\_UNIT\_PROBLEM { value 69; }

 enum REAL\_TIME\_CLOCK\_FAILURE { value 70; }

 enum PROTECTION\_MECHANISM\_FAILURE { value 81; }

 enum PROTECTING\_RESOURCE\_FAILURE { value 82; }

 enum AIR\_COMPRESSOR\_FAILURE { value 101; }

 enum AIR\_CONDITIONING\_FAILURE { value 102; }

 enum AIR\_DRYER\_FAILURE { value 103; }

 enum BATTERY\_DISCHARGING { value 104; }

 enum BATTERY\_FAILURE { value 105; }

 enum COMMERCIAL\_POWER\_FAILURE { value 106; }

 enum COOLING\_FAN\_FAILURE { value 107; }

 enum ENGINE\_FAILURE { value 108; }

 enum FIRE\_DETECTOR\_FAILURE { value 109; }

 enum FUSE\_FAILURE { value 110; }

 enum GENERATOR\_FAILURE { value 111; }

 enum LOW\_BATTERY\_THRESHOLD { value 112; }

 enum PUMP\_FAILURE { value 113; }

 enum RECTIFIER\_FAILURE { value 114; }

 enum RECTIFIER\_HIGH\_VOLTAGE { value 115; }

 enum RECTIFIER\_LOW\_F\_VOLTAGE { value 116; }

 enum VENTILATION\_SYSTEM\_FAILURE { value 117; }

 enum ENCLOSURE\_DOOR\_OPEN { value 118; }

 enum EXPLOSIVE\_GAS { value 119; }

 enum FIRE { value 120; }

 enum FLOOD { value 121; }

 enum HIGH\_HUMIDITY { value 122; }

 enum HIGH\_TEMPERATURE { value 123; }

 enum HIGH\_WIND { value 124; }

 enum ICE\_BUILD\_UP { value 125; }

 enum INTRUSION\_DETECTION { value 126; }

 enum LOW\_FUEL { value 127; }

 enum LOW\_HUMIDITY { value 128; }

 enum LOW\_CABLE\_PRESSURE { value 129; }

 enum LOW\_TEMPERATURE { value 130; }

 enum LOW\_WATER { value 131; }

 enum SMOKE { value 132; }

 enum TOXIC\_GAS { value 133; }

 enum EXTERNAL\_POINT\_FAILURE { value 136; }

 enum STORAGE\_CAPACITY\_PROBLEM { value 151; }

 enum MEMORY\_MISMATCH { value 152; }

 enum CORRUPT\_DATA { value 153; }

 enum OUT\_OF\_CPU\_CYCLES { value 154; }

 enum SOFTWARE\_ENVIRONMENT\_PROBLEM { value 155; }

 enum SOFTWARE\_DOWNLOAD\_FAILURE { value 156; }

 enum LOSS\_OF\_REAL\_TIME { value 157; }

 enum REINITIALIZED { value 158; }

 enum EXCESSIVE\_ERROR\_RATE { value 203; }

 enum ADAPTER\_ERROR { value 301; }

 enum APPLICATION\_SUBSYSTEM\_FAILURE { value 302; }

 enum BANDWIDTH\_REDUCED { value 303; }

 enum COMMUNICATIONS\_PROTOCOL\_ERROR { value 305; }

 enum COMMUNICATIONS\_SUBSYSTEM\_FAILURE { value 306; }

 enum CONFIGURATION\_OR\_CUSTOMIZATION\_ERROR { value 307; }

 enum CONGESTION { value 308; }

 enum CPU\_CYCLES\_LIMIT\_EXCEEDED { value 310; }

 enum DATA\_SET\_OR\_MODEM\_ERROR { value 311; }

 enum DTE\_DCE\_INTERFACE\_ERROR { value 313; }

 enum EQUIPMENT\_MALFUNCTION { value 315; }

 enum EXCESSIVE\_VIBRATION { value 316; }

 enum FILE\_ERROR { value 317; }

 enum HEATING\_OR\_VENTILATION\_OR\_COOLING\_SYSTEM\_PROBLEM { value 321; }

 enum HUMIDITY\_UNACCEPTABLE { value 322; }

 enum INPUT\_OUTPUT\_DEVICE\_ERROR { value 323; }

 enum INPUT\_DEVICE\_ERROR { value 324; }

 enum LAN\_ERROR { value 325; }

 enum LEAK\_DETECTED { value 326; }

 enum LOCAL\_NODE\_TRANSMISSION\_ERROR { value 327; }

 enum MATERIAL\_SUPPLY\_EXHAUSTED { value 330; }

 enum OUT\_OF\_MEMORY { value 332; }

 enum OUTPUT\_DEVICE\_ERROR { value 333; }

 enum PERFORMANCE\_DEGRADED { value 334; }

 enum PRESSURE\_UNACCEPTABLE { value 336; }

 enum QUEUE\_SIZE\_EXCEEDED { value 339; }

 enum RECEIVE\_FAILURE { value 340; }

 enum REMOTE\_NODE\_TRANSMISSION\_ERROR { value 342; }

 enum RESOURCE\_AT\_OR\_NEARING\_CAPACITY { value 343; }

 enum RESPONSE\_TIME\_EXCESSIVE { value 344; }

 enum RETRANSMISSION\_RATE\_EXCESSIVE { value 345; }

 enum SOFTWARE\_ERROR { value 346; }

 enum SOFTWARE\_PROGRAM\_ABNORMALLY\_TERMINATED { value 347; }

 enum SOFTWARE\_PROGRAM\_ERROR { value 348; }

 enum TEMPERATURE\_UNACCEPTABLE { value 350; }

 enum THRESHOLD\_CROSSED { value 351; }

 enum TOXIC\_LEAK\_DETECTED { value 353; }

 enum TRANSMIT\_FAILURE { value 354; }

 enum UNDERLYING\_RESOURCE\_UNAVAILABLE { value 356; }

 enum VERSION\_MISMATCH { value 357; }

 enum A\_BIS\_TO\_BTS\_INTERFACE\_FAILURE { value 501; }

 enum A\_BIS\_TO\_TRX\_INTERFACE\_FAILURE { value 502; }

 enum ANTENNA\_PROBLEM { value 503; }

 enum BATTERY\_BREAKDOWN { value 504; }

 enum BATTERY\_CHARGING\_FAULT { value 505; }

 enum CLOCK\_SYNCHRONIZATION\_PROBLEM { value 506; }

 enum COMBINER\_PROBLEM { value 507; }

 enum DISK\_PROBLEM { value 508; }

 enum EXCESSIVE\_RECEIVER\_TEMPERATURE { value 510; }

 enum EXCESSIVE\_TRANSMITTER\_OUTPUT\_POWER { value 511; }

 enum EXCESSIVE\_TRANSMITTER\_TEMPERATURE { value 512; }

 enum FREQUENCY\_HOPPING\_DEGRADED { value 513; }

 enum FREQUENCY\_HOPPING\_FAILURE { value 514; }

 enum FREQUENCY\_REDEFINITION\_FAILED { value 515; }

 enum LINE\_INTERFACE\_FAILURE { value 516; }

 enum LINK\_FAILURE { value 517; }

 enum LOSS\_OF\_SYNCHRONIZATION { value 518; }

 enum LOST\_REDUNDANCY { value 519; }

 enum MAINS\_BREAKDOWN\_WITH\_BATTERY\_BACKUP { value 520; }

 enum MAINS\_BREAKDOWN\_WITHOUT\_BATTERY\_BACKUP { value 521; }

 enum POWER\_SUPPLY\_FAILURE { value 522; }

 enum RECEIVER\_ANTENNA\_FAULT { value 523; }

 enum RECEIVER\_MULTICOUPLER\_FAILURE { value 525; }

 enum REDUCED\_TRANSMITTER\_OUTPUT\_POWER { value 526; }

 enum SIGNAL\_QUALITY\_EVALUATION\_FAULT { value 527; }

 enum TIMESLOT\_HARDWARE\_FAILURE { value 528; }

 enum TRANSCEIVER\_PROBLEM { value 529; }

 enum TRANSCODER\_PROBLEM { value 530; }

 enum TRANSCODER\_OR\_RATE\_ADAPTER\_PROBLEM { value 531; }

 enum TRANSMITTER\_ANTENNA\_FAILURE { value 532; }

 enum TRANSMITTER\_ANTENNA\_NOT\_ADJUSTED { value 533; }

 enum TRANSMITTER\_LOW\_VOLTAGE\_OR\_CURRENT { value 535; }

 enum TRANSMITTER\_OFF\_FREQUENCY { value 536; }

 enum DATABASE\_INCONSISTENCY { value 537; }

 enum FILE\_SYSTEM\_CALL\_UNSUCCESSFUL { value 538; }

 enum INPUT\_PARAMETER\_OUT\_OF\_RANGE { value 539; }

 enum INVALID\_PARAMETER { value 540; }

 enum INVALID\_POINTER { value 541; }

 enum MESSAGE\_NOT\_EXPECTED { value 542; }

 enum MESSAGE\_NOT\_INITIALIZED { value 543; }

 enum MESSAGE\_OUT\_OF\_SEQUENCE { value 544; }

 enum SYSTEM\_CALL\_UNSUCCESSFUL { value 545; }

 enum TIMEOUT\_EXPIRED { value 546; }

 enum VARIABLE\_OUT\_OF\_RANGE { value 547; }

 enum WATCH\_DOG\_TIMER\_EXPIRED { value 548; }

 enum COOLING\_SYSTEM\_FAILURE { value 549; }

 enum EXTERNAL\_EQUIPMENT\_FAILURE { value 550; }

 enum EXTERNAL\_POWER\_SUPPLY\_FAILURE { value 551; }

 enum EXTERNAL\_TRANSMISSION\_DEVICE\_FAILURE { value 552; }

 enum REDUCED\_ALARM\_REPORTING { value 561; }

 enum REDUCED\_EVENT\_REPORTING { value 562; }

 enum RECUCED\_LOGGING\_CAPABILITY { value 563; }

 enum SYSTEM\_RESOURCES\_OVERLOAD { value 564; }

 enum BROADCAST\_CHANNEL\_FAILURE { value 565; }

 enum CONNECTION\_ESTABLISHMENT\_ERROR { value 566; }

 enum INVALID\_MESSAGE\_RECEIVED { value 567; }

 enum INVALID\_MSU\_RECEIVED { value 568; }

 enum LAPD\_LINK\_PROTOCOL\_FAILURE { value 569; }

 enum LOCAL\_ALARM\_INDICATION { value 570; }

 enum REMOTE\_ALARM\_INDICATION { value 571; }

 enum ROUTING\_FAILURE { value 572; }

 enum SS7\_PROTOCOL\_FAILURE { value 573; }

 enum TRANSMISSION\_ERROR { value 574; }

 enum AUTHENTICATION\_FAILURE { value 701; }

 enum BREACH\_OF\_CONFIDENTIALITY { value 702; }

 enum CABLE\_TAMPER { value 703; }

 enum DELAYED\_INFORMATION { value 704; }

 enum DENIAL\_OF\_SERVICE { value 705; }

 enum DUPLICATE\_INFORMATION { value 706; }

 enum INFORMATION\_MISSING { value 707; }

 enum INFORMATION\_MODIFICATION\_DETECTED { value 708; }

 enum INFORMATION\_OUT\_OF\_SEQUENCE { value 709; }

 enum INTRUSION\_DETECTED { value 710; }

 enum KEY\_EXPIRED { value 711; }

 enum NON\_REPUDIATION\_FAILURE { value 712; }

 enum OUT\_OF\_HOURS\_ACTIVITY { value 713; }

 enum OUT\_OF\_SERVICE { value 714; }

 enum PROCEDURAL\_ERROR { value 715; }

 enum UNAUTHORISED\_ACCESS\_ATTEMPT { value 716; }

 enum UNEXPECTED\_INFORMATION { value 717; }

 enum UNSPECIFIED\_REASON { value 718; }

 }

 description "Values are from the (informative) Annex B of 3GPP TS 28.111.";

 }

 grouping AlarmCommentGrp {

 leaf commentTime {

 type yang:date-and-time;

 config false;

 mandatory true;

 yext3gpp:inVariant;

 description "Date and Time the comment was created.";

 }

 leaf commentUserId {

 type string;

 mandatory true;

 yext3gpp:inVariant;

 description "It carries the identification of the user who made the

 comment.";

 }

 leaf commentSystemId {

 type string;

 mandatory true;

 yext3gpp:inVariant;

 description "It carries the identification of the system (

 Management System) from which the comment is made. That system

 supports the user that made the comment.";

 }

 leaf commentText {

 type string;

 mandatory true;

 yext3gpp:inVariant;

 description "It carries the textual comment.";

 }

 }

 grouping ThresholdHysteresisGrp {

 description "The ThresholdHysteresis defines the threshold boundaries to

 control the hysteresis mechanism.

 The high attribute of ThresholdHysteresis identifies the higher value of

 a threshold with hysteris, the integer type is used for counter

 thresholds and the float type for gauge thresholds. The low attribute

 of ThresholdHysteresis identifies the lower value of a threshold with

 hysteresis, applicable only to gauge thresholds.";

 leaf high {

 type union {

 type int64;

 type decimal64 {

 fraction-digits 7;

 }

 }

 mandatory true;

 description "Higher value of a threshold with hysteris, the integer type

 is used for counter thresholds and the float type for gauge

 thresholds.";

 }

 leaf low {

 type decimal64 {

 fraction-digits 7;

 }

 description "Lower value of a threshold with hysteresis, applicable

 only to gauge thresholds.";

 }

 }

 grouping ThresholdLevelIndGrp {

 description "The up attribute indicates for counter and gauge thresholds

 that the threshold crossing occurred when going up. The down attribute

 only indicates for gauge thresholds that the threshold crossing occurred

 when going down, applicable only to gauge thresholds.";

 list up {

 description "Indicates for counter and gauge thresholds that the

 threshold crossing occurred when going up.";

 max-elements 1;

 key idx;

 leaf idx { type int32; }

 uses ThresholdHysteresisGrp;

 }

 list down {

 description "Indicates for gauge thresholds that the threshold crossing

 occurred when going down, applicable only to gauge thresholds.";

 max-elements 1;

 key idx;

 leaf idx { type int32; }

 uses ThresholdHysteresisGrp;

 }

 }

 grouping ThresholdCrossingGrp {

 description "The datatype indicates the crossed threshold

 information regardless of the gauge threshold, which represents an

 instantaneous value that changes over time, or the counter threshold,

 which represents monotonically increasing cumulative quantity.

 The observedMeasurement attribute of TheresholdInfo specifies the name

 of the monitored measurement that crossed the threshold and that

 caused the notification (Rec. ITU-T X. 733[8]). The observedValue

 attribute indicates the value of the gauge or counter which crossed

 the threshold. This may be different from the threshold value if, for

 example, the gauge may only take on discrete values. Integer values

 are used for counters and float values for gauges (Rec. ITU-T X. 733).

 Note that a 'number' type property can contain both integers and

 floating point numbers.

 For the thresholdLevel attribute, in the case of a gauge, it specifies

 a pair of threshold values, the first being the value of the crossed

 threshold and the second, its corresponding hysteresis; in the case of

 a counter, it specifies only the threshold value (Rec. ITU-T X. 733).

 For the armTime attribute, for a gauge threshold, it specifies the

 time at which the threshold was last re-armed, namely the time after

 the previous threshold crossing at which the hysteresis value of the

 threshold was exceeded thus again permitting generation of

 notifications when the threshold is crossed; for a counter threshold,

 the later of the time at which the threshold offset was last applied,

 or the time at which the counter was last initialized (for resettable

 counters) (Rec. ITU-T X. 733).";

 leaf observedMeasurement {

 type string;

 mandatory true;

 description "The name of the monitored measurement that crossed the

 threshold and that caused the notification (Rec. ITU-T X. 733 ";

 }

 leaf observedValue {

 type union {

 type int64;

 type decimal64 {

 fraction-digits 7;

 }

 }

 mandatory true;

 description "The value of the gauge or counter which crossed the

 threshold. This may be different from the threshold value if, for

 example, the gauge may only take on discrete values.

 Integer values are used for counters and float values for gauges

 (Rec. ITU-T X. 733). Note that a 'number' type property can contain

 both integers and floating point numbers.";

 }

 list thresholdLevel {

 description "In the case of a gauge the threshold level specifies

 a pair of threshold values, the first being the value of the crossed

 threshold and the second, its corresponding hysteresis; in the case

 of a counter the threshold level specifies only the threshold value

 (Rec. ITU-T X. 733).";

 max-elements 1;

 key idx;

 leaf idx { type int32; }

 uses ThresholdLevelIndGrp;

 }

 leaf armTime {

 type yang:date-and-time;

 description "For a gauge threshold, the time at which the threshold

 was last re-armed, namely the time after the previous threshold

 crossing at which the hysteresis value of the threshold was

 exceeded thus again permitting generation of notifications when the

 threshold is crossed. For a counter threshold, the later of the time

 at which the threshold offset was last applied, or the time at

 which the counter was last initialized (for resettable counters)

 (Rec. ITU-T X. 733)";

 }

 }

 grouping AlarmRecordGrp {

 description "Contains alarm information of an alarmed object instance.

 A new record is created in the alarm list when an alarmed object

 instance generates an alarm and no alarm record exists with the same

 values for objectInstance, alarmType, probableCause and specificProblem.

 When a new record is created the MnS producer creates an alarmId, that

 unambiguously identifies an alarm record in the AlarmList.

 Alarm records are maintained only for active alarms. Inactive alarms are

 automatically deleted by the MnS producer from the AlarmList.

 Active alarms are alarms whose

 a) perceivedSeverity is not CLEARED, or whose

 b) perceivedSeverity is CLEARED and its ackState is not ACKNOWLEDED.";

 leaf alarmId {

 type string;

 mandatory true;

 description "Identifies the alarmRecord";

 yext3gpp:notNotifyable;

 yext3gpp:inVariant;

 }

 leaf objectInstance {

 type types3gpp:DistinguishedName;

 config false ;

 mandatory true;

 yext3gpp:notNotifyable;

 yext3gpp:inVariant;

 }

 leaf notificationId {

 type int32;

 config false ;

 mandatory true;

 description "The Id of the last notification updating the AlarmRecord.";

 yext3gpp:notNotifyable;

 }

 leaf alarmRaisedTime {

 type yang:date-and-time ;

 mandatory true;

 config false ;

 yext3gpp:notNotifyable;

 }

 leaf alarmChangedTime {

 type yang:date-and-time ;

 config false ;

 description "not applicable if related alarm has not changed";

 yext3gpp:notNotifyable;

 }

 leaf alarmClearedTime {

 type yang:date-and-time ;

 config false ;

 description "not applicable if related alarm was not cleared";

 yext3gpp:notNotifyable;

 }

 leaf alarmType {

 type eventType;

 config false ;

 mandatory true;

 description "General category for the alarm.";

 yext3gpp:notNotifyable;

 yext3gpp:inVariant;

 }

 leaf probableCause {

 type union {

 type probable-causes;

 type int32;

 type string;

 }

 config false ;

 mandatory true;

 yext3gpp:notNotifyable;

 yext3gpp:inVariant;

 }

 leaf specificProblem {

 type union {

 type int32;

 type string;

 }

 config false ;

 reference "ITU-T Recommendation X.733 clause 8.1.2.2.";

 yext3gpp:notNotifyable;

 yext3gpp:inVariant;

 }

 leaf perceivedSeverity {

 type severity-level;

 mandatory true;

 description "This is Writable only if producer supports consumer

 to set perceivedSeverity to CLEARED";

 yext3gpp:notNotifyable;

 }

 leaf backedUpStatus {

 type boolean;

 config false ;

 description "Indicates if an object (the MonitoredEntity) has a back

 up. See definition in ITU-T Recommendation X.733 clause 8.1.2.4.";

 yext3gpp:notNotifyable;

 }

 leaf backUpObject {

 type types3gpp:DistinguishedName;

 config false ;

 description "Backup object of the alarmed object as defined in

 ITU-T Rec. X. 733";

 yext3gpp:notNotifyable;

 }

 leaf trendIndication {

 type enumeration {

 enum MORE\_SEVERE;

 enum NO\_CHANGE;

 enum LESS\_SEVERE;

 }

 config false ;

 description "Indicates if some observed condition is getting better,

 worse, or not changing. ";

 reference "ITU-T Recommendation X.733 clause 8.1.2.6.";

 yext3gpp:notNotifyable;

 }

 list thresholdInfo {

 config false ;

 yext3gpp:notNotifyable;

 description "Indicates the crossed threshold";

 key idx;

 leaf idx { type int32; }

 uses ThresholdCrossingGrp;

 }

 list stateChangeDefinition {

 key attributeName;

 config false ;

 description "Indicates MO attribute value changes associated with the

 alarm for state attributes of the monitored entity (state transitions).

 The change is reported with the name of the state attribute, the new

 value and an optional old value.

 See definition in ITU-T Recommendation X.733 [4] clause 8.1.2.10.";

 yext3gpp:notNotifyable;

 leaf attributeName {

 type string;

 }

 anydata newValue {

 mandatory true;

 description "The new value of the attribute. The content of this data

 node shall be in accordance with the data model for the attribute.";

 }

 anydata oldValue{

 description "The old value of the attribute. The content of this data

 node shall be in accordance with the data model for the attribute.";

 }

 }

 list monitoredAttributes {

 key attributeName;

 config false ;

 yext3gpp:notNotifyable;

 description "Attributes of the monitored entity and their

 values at the time the alarm occurred that are of interest for the

 alarm report.";

 reference "ITU-T Recommendation X.733 clause 8.1.2.11.";

 leaf attributeName {

 type string;

 }

 anydata value {

 mandatory true;

 description "The value of the attribute. The content of this data

 node shall be in accordance with the data model for the attribute.";

 }

 }

 leaf proposedRepairActions {

 type string;

 config false ;

 description "Indicates proposed repair actions. See definition in

 ITU-T Recommendation X.733 clause 8.1.2.12.";

 yext3gpp:notNotifyable;

 }

 leaf additionalText {

 type string;

 config false ;

 yext3gpp:notNotifyable;

 }

 list additionalInformation {

 key name;

 config false ;

 yext3gpp:notNotifyable;

 description "Vendor specific alarm information in the alarm.";

 uses types3gpp:nameValuePair;

 }

 leaf rootCauseIndicator {

 type boolean;

 default false;

 config false ;

 description "It indicates that this AlarmInformation is the root cause

 of the events captured by the notifications whose identifiers are in

 the related CorrelatedNotification instances.";

 yext3gpp:notNotifyable;

 }

 list comments {

 yext3gpp:notNotifyable;

 description "List of comments and data about the comments.";

 key idx;

 leaf idx { type uint32; }

 uses AlarmCommentGrp;

 }

 leaf ackTime {

 if-feature AcknowledgeByConsumer;

 type yang:date-and-time ;

 config false ;

 description "It identifies the time when the alarm has been

 acknowledged or unacknowledged the last time, i.e. it registers the

 time when ackState changes.";

 yext3gpp:notNotifyable;

 }

 leaf ackUserId {

 if-feature AcknowledgeByConsumer;

 type string;

 description "It identifies the last user who has changed the

 Acknowledgement State.";

 yext3gpp:notNotifyable;

 }

 leaf ackSystemId {

 if-feature AcknowledgeByConsumer;

 type string;

 description "It identifies the system (Management System) that last

 changed the ackState of an alarm, i.e. acknowledged or unacknowledged

 the alarm.";

 yext3gpp:notNotifyable;

 }

 leaf ackState {

 if-feature AcknowledgeByConsumer;

 type enumeration {

 enum ACKNOWLEDGED {

 description "The alarm has been acknowledged.";

 }

 enum UNACKNOWLEDGED {

 description "The alarm has unacknowledged or the alarm has never

 been acknowledged.";

 }

 }

 yext3gpp:notNotifyable;

 }

 leaf clearUserId {

 type string;

 description "Carries the identity of the user who invokes the

 clearAlarms operation.";

 yext3gpp:notNotifyable;

 }

 leaf clearSystemId {

 type string;

 yext3gpp:notNotifyable;

 }

 leaf serviceUser {

 type string;

 config false ;

 description "It identifies the service-user whose request for service

 provided by the serviceProvider led to the generation of the

 security alarm.";

 yext3gpp:notNotifyable;

 }

 leaf serviceProvider {

 type string;

 config false ;

 description "It identifies the service-provider whose service is

 requested by the serviceUser and the service request provokes the

 generation of the security alarm.";

 yext3gpp:notNotifyable;

 }

 leaf securityAlarmDetector {

 type string;

 config false ;

 yext3gpp:notNotifyable;

 }

 list correlatedNotifications {

 key sourceObjectInstance;

 description "List of correlated notifications";

 leaf sourceObjectInstance {

 type types3gpp:DistinguishedName;

 }

 leaf-list notificationIds {

 type int32;

 min-elements 1;

 }

 }

 }

 grouping AlarmListGrp {

 description "Represents the AlarmList IOC.";

 leaf administrativeState {

 type types3gpp:BasicAdministrativeState ;

 default LOCKED;

 description "When set to UNLOCKED, the alarm list is updated.

 When the set to LOCKED, the existing alarm records are not

 updated, and new alarm records are not added to the alarm list.";

 }

 leaf operationalState {

 type types3gpp:OperationalState ;

 default DISABLED;

 config false;

 description "The producer sets this attribute to ENABLED, indicating

 that it has the resource and ability to record alarm in AlarmList

 else, it sets the attribute to DISABLED.";

 }

 leaf numOfAlarmRecords {

 type uint32 ;

 config false;

 mandatory true;

 description "The number of alarm records in the AlarmList";

 yext3gpp:notNotifyable;

 }

 leaf lastModification {

 type yang:date-and-time ;

 config false;

 description "The last time when an alarm record was modified";

 yext3gpp:notNotifyable;

 }

 list alarmRecords {

 key alarmId;

 description "List of alarmRecords";

 yext3gpp:notNotifyable;

 uses AlarmRecordGrp;

 }

 leaf-list unreliableAlarmScope {

 type types3gpp:DistinguishedName;

 config false;

 yext3gpp:notNotifyable;

 description "Identifies, the part of the alarm scope that may not be

 reliable.

 If this parameter is equal to the instance carried in systemDN,

 then all AlarmRecord instances in the AlarmList may not be reliable.

 If this parameter is equal to some instance represented by

 MonitoredEntity, then only AlarmRecord related to this instance and

 its descendants may not be reliable.";

 }

 }

 grouping FmSubtree {

 description "Contains FM related classes.

 Should be used in all classes (or classes inheriting from)

 - SubNetwork

 - ManagedElement

 If some YAM wants to augment these classes/list/groupings they must

 augment all user classes!";

 list AlarmList {

 key id;

 max-elements 1;

 yext3gpp:only-system-created;

 description "The AlarmList represents the capability to store and manage

 alarm records. The management scope of an AlarmList is defined by all

 descendant objects of the base managed object, which is the object

 name-containing the AlarmList, and the base object itself.

 AlarmList instances are created by the system or are pre-installed.

 They cannot be created nor deleted by MnS consumers.

 When the alarm list is locked or disabled, the existing alarm records

 are not updated, and new alarm records are not added to the alarm list";

 uses top3gpp:Top\_Grp ;

 container attributes {

 uses AlarmListGrp ;

 }

 }

 }

}

<CODE ENDS>

\*\*\* END OF CHANGE 1 \*\*\*

Forge MR link: <https://forge.3gpp.org/rep/sa5/MnS/-/merge_requests/1825> at commit ef1f16c66e001ee88c560260c35dd50477c1eccd

\*\*\* START OF CHANGE 1 \*\*\*

\*\*\* OpenAPI/TS28111\_FaultNrm.yaml \*\*\*

<CODE BEGINS>

openapi: 3.0.1

info:

 title: Fault Management NRM

 version: 19.2.0

 description: >-

 OAS 3.0.1 definition of the Fault Supervision MnS

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externalDocs:

 description: 3GPP TS 28.111; Fault Management

 url: http://www.3gpp.org/ftp/Specs/archive/28\_series/28.111/

servers:

 - url: '{MnSRoot}/FaultSupervisionMnS/{MnSversion}'

 variables:

 MnSRoot:

 description: See subclause 4.4.3 of TS 32.158

 default: http://example.com/3GPPManagement

 MnSversion:

 description: Version number of the OpenAPI definition

 default: XXX

paths: {}

components:

 schemas:

 #---- Definition of AlarmRecord ----------------------------------------------------#

 AlarmId:

 type: string

 AlarmType:

 type: string

 enum:

 - COMMUNICATIONS\_ALARM

 - QUALITY\_OF\_SERVICE\_ALARM

 - PROCESSING\_ERROR\_ALARM

 - EQUIPMENT\_ALARM

 - ENVIRONMENTAL\_ALARM

 - INTEGRITY\_VIOLATION

 - OPERATIONAL\_VIOLATION

 - PHYSICAL\_VIOLATION

 - SECURITY\_SERVICE\_OR\_MECHANISM\_VIOLATION

 - TIME\_DOMAIN\_VIOLATION

 - OTHER

 readOnly: true

 ProbableCause:

 description: >-

 The value of the probable cause may be a specific standardized string, or any

 vendor provided string.

 The value of the probable cause may also be an integer. The mapping of integer

 values to probable causes is vendor specific.

 oneOf:

 - anyOf:

 - type: string

 description: Values are from the (informative) Annex B of 3GPP TS 28.111.

 enum:

 - INDETERMINATE

 - ALARM\_INDICATION\_SIGNAL

 - CALL\_SETUP\_FAILURE

 - DEGRADED\_SIGNAL

 - FAR\_END\_RECEIVER\_FAILURE

 - FRAMING\_ERROR

 - LOSS\_OF\_FRAME

 - LOSS\_OF\_POINTER

 - LOSS\_OF\_SIGNAL

 - PAYLOAD\_TYPE\_MISMATCH

 - REMOTE\_ALARM\_INTERFACE

 - EXCESSIVE\_BIT\_ERROR\_RATE

 - PATH\_TRACE\_MISMATCH

 - UNAVAILABLE

 - SIGNAL\_LABEL\_MISMATCH

 - LOSS\_OF\_MULTI\_FRAME

 - COMMUNICATIONS\_RECEIVE\_FAILURE

 - COMMUNICATIONS\_TRANSMIT\_FAILURE

 - MODULATION\_FAILURE

 - DEMODULATION\_FAILURE

 - BACK\_PLANE\_FAILURE

 - DATA\_SET\_PROBLEM

 - EQUIPMENT\_IDENTIFIER\_DUPLICATION

 - EXTERNAL\_IF\_DEVICE\_PROBLEM

 - LINE\_CARD\_PROBLEM

 - MULTIPLEXER\_PROBLEM

 - NE\_IDENTIFIER\_DUPLICATION

 - POWER\_PROBLEM

 - PROCESSOR\_PROBLEM

 - PROTECTION\_PATH\_FAILURE

 - RECEIVER\_FAILURE

 - REPLACEABLE\_UNIT\_MISSING

 - REPLACEABLE\_UNIT\_TYPE\_MISMATCH

 - SYNCHRONIZATION\_SOURCE\_MISMATCH

 - TERMINAL\_PROBLEM

 - TIMING\_PROBLEM

 - TRANSMITTER\_FAILURE

 - TRUNK\_CARD\_PROBLEM

 - REPLACEABLE\_UNIT\_PROBLEM

 - REAL\_TIME\_CLOCK\_FAILURE

 - PROTECTION\_MECHANISM\_FAILURE

 - PROTECTING\_RESOURCE\_FAILURE

 - AIR\_COMPRESSOR\_FAILURE

 - AIR\_CONDITIONING\_FAILURE

 - AIR\_DRYER\_FAILURE

 - BATTERY\_DISCHARGING

 - BATTERY\_FAILURE

 - COMMERCIAL\_POWER\_FAILURE

 - COOLING\_FAN\_FAILURE

 - ENGINE\_FAILURE

 - FIRE\_DETECTOR\_FAILURE

 - FUSE\_FAILURE

 - GENERATOR\_FAILURE

 - LOW\_BATTERY\_THRESHOLD

 - PUMP\_FAILURE

 - RECTIFIER\_FAILURE

 - RECTIFIER\_HIGH\_VOLTAGE

 - RECTIFIER\_LOW\_F\_VOLTAGE

 - VENTILATION\_SYSTEM\_FAILURE

 - ENCLOSURE\_DOOR\_OPEN

 - EXPLOSIVE\_GAS

 - FIRE

 - FLOOD

 - HIGH\_HUMIDITY

 - HIGH\_TEMPERATURE

 - HIGH\_WIND

 - ICE\_BUILD\_UP

 - INTRUSION\_DETECTION

 - LOW\_FUEL

 - LOW\_HUMIDITY

 - LOW\_CABLE\_PRESSURE

 - LOW\_TEMPERATURE

 - LOW\_WATER

 - SMOKE

 - TOXIC\_GAS

 - EXTERNAL\_POINT\_FAILURE

 - STORAGE\_CAPACITY\_PROBLEM

 - MEMORY\_MISMATCH

 - CORRUPT\_DATA

 - OUT\_OF\_CPU\_CYCLES

 - SOFTWARE\_ENVIRONMENT\_PROBLEM

 - SOFTWARE\_DOWNLOAD\_FAILURE

 - LOSS\_OF\_REAL\_TIME

 - REINITIALIZED

 - EXCESSIVE\_ERROR\_RATE

 - ADAPTER\_ERROR

 - APPLICATION\_SUBSYSTEM\_FAILURE

 - BANDWIDTH\_REDUCED

 - COMMUNICATIONS\_PROTOCOL\_ERROR

 - COMMUNICATIONS\_SUBSYSTEM\_FAILURE

 - CONFIGURATION\_OR\_CUSTOMIZATION\_ERROR

 - CONGESTION

 - CPU\_CYCLES\_LIMIT\_EXCEEDED

 - DATA\_SET\_OR\_MODEM\_ERROR

 - DTE\_DCE\_INTERFACE\_ERROR

 - EQUIPMENT\_MALFUNCTION

 - EXCESSIVE\_VIBRATION

 - FILE\_ERROR

 - HEATING\_OR\_VENTILATION\_OR\_COOLING\_SYSTEM\_PROBLEM

 - HUMIDITY\_UNACCEPTABLE

 - INPUT\_OUTPUT\_DEVICE\_ERROR

 - INPUT\_DEVICE\_ERROR

 - LAN\_ERROR

 - LEAK\_DETECTED

 - LOCAL\_NODE\_TRANSMISSION\_ERROR

 - MATERIAL\_SUPPLY\_EXHAUSTED

 - OUT\_OF\_MEMORY

 - OUTPUT\_DEVICE\_ERROR

 - PERFORMANCE\_DEGRADED

 - PRESSURE\_UNACCEPTABLE

 - QUEUE\_SIZE\_EXCEEDED

 - RECEIVE\_FAILURE

 - REMOTE\_NODE\_TRANSMISSION\_ERROR

 - RESOURCE\_AT\_OR\_NEARING\_CAPACITY

 - RESPONSE\_TIME\_EXCESSIVE

 - RETRANSMISSION\_RATE\_EXCESSIVE

 - SOFTWARE\_ERROR

 - SOFTWARE\_PROGRAM\_ABNORMALLY\_TERMINATED

 - SOFTWARE\_PROGRAM\_ERROR

 - TEMPERATURE\_UNACCEPTABLE

 - THRESHOLD\_CROSSED

 - TOXIC\_LEAK\_DETECTED

 - TRANSMIT\_FAILURE

 - UNDERLYING\_RESOURCE\_UNAVAILABLE

 - VERSION\_MISMATCH

 - A\_BIS\_TO\_BTS\_INTERFACE\_FAILURE

 - A\_BIS\_TO\_TRX\_INTERFACE\_FAILURE

 - ANTENNA\_PROBLEM

 - BATTERY\_BREAKDOWN

 - BATTERY\_CHARGING\_FAULT

 - CLOCK\_SYNCHRONIZATION\_PROBLEM

 - COMBINER\_PROBLEM

 - DISK\_PROBLEM

 - EXCESSIVE\_RECEIVER\_TEMPERATURE

 - EXCESSIVE\_TRANSMITTER\_OUTPUT\_POWER

 - EXCESSIVE\_TRANSMITTER\_TEMPERATURE

 - FREQUENCY\_HOPPING\_DEGRADED

 - FREQUENCY\_HOPPING\_FAILURE

 - FREQUENCY\_REDEFINITION\_FAILED

 - LINE\_INTERFACE\_FAILURE

 - LINK\_FAILURE

 - LOSS\_OF\_SYNCHRONIZATION

 - LOST\_REDUNDANCY

 - MAINS\_BREAKDOWN\_WITH\_BATTERY\_BACKUP

 - MAINS\_BREAKDOWN\_WITHOUT\_BATTERY\_BACKUP

 - POWER\_SUPPLY\_FAILURE

 - RECEIVER\_ANTENNA\_FAULT

 - RECEIVER\_MULTICOUPLER\_FAILURE

 - REDUCED\_TRANSMITTER\_OUTPUT\_POWER

 - SIGNAL\_QUALITY\_EVALUATION\_FAULT

 - TIMESLOT\_HARDWARE\_FAILURE

 - TRANSCEIVER\_PROBLEM

 - TRANSCODER\_PROBLEM

 - TRANSCODER\_OR\_RATE\_ADAPTER\_PROBLEM

 - TRANSMITTER\_ANTENNA\_FAILURE

 - TRANSMITTER\_ANTENNA\_NOT\_ADJUSTED

 - TRANSMITTER\_LOW\_VOLTAGE\_OR\_CURRENT

 - TRANSMITTER\_OFF\_FREQUENCY

 - DATABASE\_INCONSISTENCY

 - FILE\_SYSTEM\_CALL\_UNSUCCESSFUL

 - INPUT\_PARAMETER\_OUT\_OF\_RANGE

 - INVALID\_PARAMETER

 - INVALID\_POINTER

 - MESSAGE\_NOT\_EXPECTED

 - MESSAGE\_NOT\_INITIALIZED

 - MESSAGE\_OUT\_OF\_SEQUENCE

 - SYSTEM\_CALL\_UNSUCCESSFUL

 - TIMEOUT\_EXPIRED

 - VARIABLE\_OUT\_OF\_RANGE

 - WATCH\_DOG\_TIMER\_EXPIRED

 - COOLING\_SYSTEM\_FAILURE

 - EXTERNAL\_EQUIPMENT\_FAILURE

 - EXTERNAL\_POWER\_SUPPLY\_FAILURE

 - EXTERNAL\_TRANSMISSION\_DEVICE\_FAILURE

 - REDUCED\_ALARM\_REPORTING

 - REDUCED\_EVENT\_REPORTING

 - RECUCED\_LOGGING\_CAPABILITY

 - SYSTEM\_RESOURCES\_OVERLOAD

 - BROADCAST\_CHANNEL\_FAILURE

 - CONNECTION\_ESTABLISHMENT\_ERROR

 - INVALID\_MESSAGE\_RECEIVED

 - INVALID\_MSU\_RECEIVED

 - LAPD\_LINK\_PROTOCOL\_FAILURE

 - LOCAL\_ALARM\_INDICATION

 - REMOTE\_ALARM\_INDICATION

 - ROUTING\_FAILURE

 - SS7\_PROTOCOL\_FAILURE

 - TRANSMISSION\_ERROR

 - AUTHENTICATION\_FAILURE

 - BREACH\_OF\_CONFIDENTIALITY

 - CABLE\_TAMPER

 - DELAYED\_INFORMATION

 - DENIAL\_OF\_SERVICE

 - DUPLICATE\_INFORMATION

 - INFORMATION\_MISSING

 - INFORMATION\_MODIFICATION\_DETECTED

 - INFORMATION\_OUT\_OF\_SEQUENCE

 - INTRUSION\_DETECTED

 - KEY\_EXPIRED

 - NON\_REPUDIATION\_FAILURE

 - OUT\_OF\_HOURS\_ACTIVITY

 - OUT\_OF\_SERVICE

 - PROCEDURAL\_ERROR

 - UNAUTHORISED\_ACCESS\_ATTEMPT

 - UNEXPECTED\_INFORMATION

 - UNSPECIFIED\_REASON

 readOnly: true

 - type: string

 readOnly: true

 - type: integer

 readOnly: true

 SpecificProblem:

 oneOf:

 - type: string

 readOnly: true

 - type: integer

 readOnly: true

 PerceivedSeverity:

 type: string

 enum:

 - INDETERMINATE

 - CRITICAL

 - MAJOR

 - MINOR

 - WARNING

 - CLEARED

 TrendIndication:

 type: string

 readOnly: true

 enum:

 - MORE\_SEVERE

 - NO\_CHANGE

 - LESS\_SEVERE

 ThresholdHysteresis:

 type: object

 required:

 - high

 properties:

 high:

 oneOf:

 - type: integer

 - $ref: 'TS28623\_ComDefs.yaml#/components/schemas/FloatRo'

 low:

 $ref: 'TS28623\_ComDefs.yaml#/components/schemas/FloatRo'

 ThresholdLevelInd:

 oneOf:

 - type: object

 properties:

 up:

 $ref: '#/components/schemas/ThresholdHysteresis'

 - type: object

 properties:

 down:

 $ref: '#/components/schemas/ThresholdHysteresis'

 ThresholdCrossing:

 type: object

 properties:

 observedMeasurement:

 type: string

 readOnly: true

 observedValue:

 type: number

 readOnly: true

 thresholdLevel:

 $ref: '#/components/schemas/ThresholdLevelInd'

 armTime:

 $ref: 'TS28623\_ComDefs.yaml#/components/schemas/DateTimeRo'

 required:

 - observedMeasurement

 - observedValue

 CorrelatedNotification:

 type: object

 properties:

 sourceObjectInstance:

 $ref: 'TS28623\_ComDefs.yaml#/components/schemas/DnRo'

 notificationIds:

 type: array

 items:

 $ref: 'TS28623\_ComDefs.yaml#/components/schemas/NotificationId'

 required:

 - sourceObjectInstance

 - notificationIds

 CorrelatedNotifications:

 type: array

 items:

 $ref: '#/components/schemas/CorrelatedNotification'

 AckState:

 type: string

 enum:

 - ACKNOWLEDGED

 - UNACKNOWLEDGED

 AlarmRecord:

 description: >-

 The alarmId is not a property of an alarm record. It is used as key

 in the map of alarm records instead.

 type: object

 properties:

 # alarmId:

 # $ref: '#/components/schemas/AlarmId'

 objectInstance:

 $ref: 'TS28623\_ComDefs.yaml#/components/schemas/DnRo'

 notificationId:

 $ref: 'TS28623\_ComDefs.yaml#/components/schemas/NotificationId'

 alarmRaisedTime:

 $ref: 'TS28623\_ComDefs.yaml#/components/schemas/DateTimeRo'

 alarmChangedTime:

 $ref: 'TS28623\_ComDefs.yaml#/components/schemas/DateTimeRo'

 alarmClearedTime:

 $ref: 'TS28623\_ComDefs.yaml#/components/schemas/DateTimeRo'

 alarmType:

 $ref: '#/components/schemas/AlarmType'

 probableCause:

 $ref: '#/components/schemas/ProbableCause'

 specificProblem:

 $ref: '#/components/schemas/SpecificProblem'

 perceivedSeverity:

 $ref: '#/components/schemas/PerceivedSeverity'

 backedUpStatus:

 type: boolean

 backUpObject:

 $ref: 'TS28623\_ComDefs.yaml#/components/schemas/DnRo'

 trendIndication:

 $ref: '#/components/schemas/TrendIndication'

 thresholdinfo:

 $ref: '#/components/schemas/ThresholdCrossing'

 correlatedNotifications:

 $ref: '#/components/schemas/CorrelatedNotifications'

 stateChangeDefinition:

 $ref: 'TS28623\_ComDefs.yaml#/components/schemas/AttributeValueChangeSet'

 monitoredAttributes:

 $ref: 'TS28623\_ComDefs.yaml#/components/schemas/AttributeNameValuePairSet'

 proposedRepairActions:

 type: string

 readOnly: true

 additionalText:

 type: string

 readOnly: true

 additionalInformation:

 $ref: 'TS28623\_ComDefs.yaml#/components/schemas/AttributeNameValuePairSet'

 rootCauseIndicator:

 type: boolean

 readOnly: true

 ackTime:

 $ref: 'TS28623\_ComDefs.yaml#/components/schemas/DateTimeRo'

 ackUserId:

 type: string

 ackSystemId:

 type: string

 ackState:

 $ref: '#/components/schemas/AckState'

 clearUserId:

 type: string

 clearSystemId:

 type: string

 serviceUser:

 type: string

 readOnly: true

 serviceProvider:

 type: string

 readOnly: true

 securityAlarmDetector:

 type: string

 readOnly: true

 AlarmList-Single:

 allOf:

 - $ref: 'TS28623\_GenericNrm.yaml#/components/schemas/Top'

 - type: object

 properties:

 attributes:

 type: object

 properties:

 administrativeState:

 $ref: 'TS28623\_ComDefs.yaml#/components/schemas/AdministrativeState'

 operationalState:

 $ref: 'TS28623\_ComDefs.yaml#/components/schemas/OperationalState'

 numOfAlarmRecords:

 type: integer

 readOnly: true

 lastModification:

 $ref: 'TS28623\_ComDefs.yaml#/components/schemas/DateTimeRo'

 alarmRecords:

 description: >-

 This resource represents a map of alarm records.

 The alarmIds are used as keys in the map.

 type: object

 additionalProperties:

 $ref: '#/components/schemas/AlarmRecord'

 unreliableAlarmScope:

 $ref: 'TS28623\_ComDefs.yaml#/components/schemas/DnRo'

 #---- Definition of alarm notifications --------------------------------------------#

 AlarmNotificationTypes:

 type: string

 enum:

 - notifyNewAlarm

 - notifyChangedAlarm

 - notifyChangedAlarmGeneral

 - notifyAckStateChanged

 - notifyCorrelatedNotificationChanged

 - notifyComments

 - notifyClearedAlarm

 - notifyAlarmListRebuilt

 - notifyPotentialFaultyAlarmList

 AlarmListAlignmentRequirement:

 type: string

 enum:

 - ALIGNMENT\_REQUIRED

 - ALIGNMENT\_NOT\_REQUIRED

 NotifyNewAlarm:

 allOf:

 - $ref: 'TS28623\_ComDefs.yaml#/components/schemas/NotificationHeader'

 - type: object

 required:

 - alarmId

 - alarmType

 - probableCause

 - perceivedSeverity

 properties:

 alarmId:

 $ref: '#/components/schemas/AlarmId'

 alarmType:

 $ref: '#/components/schemas/AlarmType'

 probableCause:

 $ref: '#/components/schemas/ProbableCause'

 specificProblem:

 $ref: '#/components/schemas/SpecificProblem'

 perceivedSeverity:

 $ref: '#/components/schemas/PerceivedSeverity'

 backedUpStatus:

 type: boolean

 backUpObject:

 $ref: 'TS28623\_ComDefs.yaml#/components/schemas/Dn'

 trendIndication:

 $ref: '#/components/schemas/TrendIndication'

 thresholdInfo:

 $ref: '#/components/schemas/ThresholdCrossing'

 correlatedNotifications:

 $ref: '#/components/schemas/CorrelatedNotifications'

 stateChangeDefinition:

 $ref: 'TS28623\_ComDefs.yaml#/components/schemas/AttributeValueChangeSet'

 monitoredAttributes:

 $ref: 'TS28623\_ComDefs.yaml#/components/schemas/AttributeNameValuePairSet'

 proposedRepairActions:

 type: string

 additionalText:

 type: string

 additionalInformation:

 $ref: 'TS28623\_ComDefs.yaml#/components/schemas/AttributeNameValuePairSet'

 rootCauseIndicator:

 type: boolean

 NotifyNewSecAlarm:

 allOf:

 - $ref: 'TS28623\_ComDefs.yaml#/components/schemas/NotificationHeader'

 - type: object

 required:

 - alarmId

 - alarmType

 - probableCause

 - perceivedSeverity

 - serviceUser

 - serviceProvider

 - securityAlarmDetector

 properties:

 alarmId:

 $ref: '#/components/schemas/AlarmId'

 alarmType:

 $ref: '#/components/schemas/AlarmType'

 probableCause:

 $ref: '#/components/schemas/ProbableCause'

 specificProblem:

 $ref: '#/components/schemas/SpecificProblem'

 perceivedSeverity:

 $ref: '#/components/schemas/PerceivedSeverity'

 correlatedNotifications:

 $ref: '#/components/schemas/CorrelatedNotifications'

 additionalText:

 type: string

 additionalInformation:

 $ref: 'TS28623\_ComDefs.yaml#/components/schemas/AttributeNameValuePairSet'

 rootCauseIndicator:

 type: boolean

 serviceUser:

 type: string

 serviceProvider:

 type: string

 securityAlarmDetector:

 type: string

 NotifyClearedAlarm:

 allOf:

 - $ref: 'TS28623\_ComDefs.yaml#/components/schemas/NotificationHeader'

 - type: object

 required:

 - alarmId

 - alarmType

 - probableCause

 - perceivedSeverity

 properties:

 alarmId:

 $ref: '#/components/schemas/AlarmId'

 alarmType:

 $ref: '#/components/schemas/AlarmType'

 probableCause:

 $ref: '#/components/schemas/ProbableCause'

 specificProblem:

 $ref: '#/components/schemas/SpecificProblem'

 perceivedSeverity:

 $ref: '#/components/schemas/PerceivedSeverity'

 correlatedNotifications:

 $ref: '#/components/schemas/CorrelatedNotifications'

 clearUserId:

 type: string

 clearSystemId:

 type: string

 NotifyChangedAlarm:

 allOf:

 - $ref: 'TS28623\_ComDefs.yaml#/components/schemas/NotificationHeader'

 - type: object

 required:

 - alarmId

 - alarmType

 - probableCause

 - perceivedSeverity

 properties:

 alarmId:

 $ref: '#/components/schemas/AlarmId'

 alarmType:

 $ref: '#/components/schemas/AlarmType'

 probableCause:

 $ref: '#/components/schemas/ProbableCause'

 specificProblem:

 $ref: '#/components/schemas/SpecificProblem'

 perceivedSeverity:

 $ref: '#/components/schemas/PerceivedSeverity'

 NotifyChangedAlarmGeneral:

 allOf:

 - $ref: 'TS28623\_ComDefs.yaml#/components/schemas/NotificationHeader'

 - type: object

 required:

 - alarmId

 - alarmType

 - probableCause

 properties:

 alarmId:

 $ref: '#/components/schemas/AlarmId'

 alarmType:

 $ref: '#/components/schemas/AlarmType'

 probableCause:

 $ref: '#/components/schemas/ProbableCause'

 specificProblem:

 $ref: '#/components/schemas/SpecificProblem'

 perceivedSeverity:

 $ref: '#/components/schemas/PerceivedSeverity'

 correlatedNotifications:

 $ref: '#/components/schemas/CorrelatedNotifications'

 backedUpStatus:

 type: boolean

 backUpObject:

 $ref: 'TS28623\_ComDefs.yaml#/components/schemas/Dn'

 trendIndication:

 $ref: '#/components/schemas/TrendIndication'

 thresholdInfo:

 $ref: '#/components/schemas/ThresholdCrossing'

 stateChangeDefinition:

 $ref: 'TS28623\_ComDefs.yaml#/components/schemas/AttributeValueChangeSet'

 monitoredAttributes:

 $ref: 'TS28623\_ComDefs.yaml#/components/schemas/AttributeNameValuePairSet'

 proposedRepairActions:

 type: string

 additionalText:

 type: string

 additionalInformation:

 $ref: 'TS28623\_ComDefs.yaml#/components/schemas/AttributeNameValuePairSet'

 rootCauseIndicator:

 type: boolean

 changedAlarmAttributes:

 $ref: 'TS28623\_ComDefs.yaml#/components/schemas/AttributeNameValuePairSet'

 NotifyChangedSecAlarmGeneral:

 allOf:

 - $ref: 'TS28623\_ComDefs.yaml#/components/schemas/NotificationHeader'

 - type: object

 required:

 - alarmId

 - alarmType

 - probableCause

 - serviceUser

 - serviceProvider

 - securityAlarmDetector

 properties:

 alarmId:

 $ref: '#/components/schemas/AlarmId'

 alarmType:

 $ref: '#/components/schemas/AlarmType'

 probableCause:

 $ref: '#/components/schemas/ProbableCause'

 specificProblem:

 $ref: '#/components/schemas/SpecificProblem'

 perceivedSeverity:

 $ref: '#/components/schemas/PerceivedSeverity'

 correlatedNotifications:

 $ref: '#/components/schemas/CorrelatedNotifications'

 additionalText:

 type: string

 additionalInformation:

 $ref: 'TS28623\_ComDefs.yaml#/components/schemas/AttributeNameValuePairSet'

 rootCauseIndicator:

 type: boolean

 serviceUser:

 type: string

 serviceProvider:

 type: string

 securityAlarmDetector:

 type: string

 changedAlarmAttributes:

 $ref: 'TS28623\_ComDefs.yaml#/components/schemas/AttributeNameValuePairSet'

 NotifyCorrelatedNotificationChanged:

 allOf:

 - $ref: 'TS28623\_ComDefs.yaml#/components/schemas/NotificationHeader'

 - type: object

 required:

 - alarmId

 - correlatedNotifications

 - alarmType

 - probableCause

 properties:

 alarmId:

 $ref: '#/components/schemas/AlarmId'

 alarmType:

 $ref: '#/components/schemas/AlarmType'

 probableCause:

 $ref: '#/components/schemas/ProbableCause'

 specificProblem:

 $ref: '#/components/schemas/SpecificProblem'

 correlatedNotifications:

 $ref: '#/components/schemas/CorrelatedNotifications'

 rootCauseIndicator:

 type: boolean

 NotifyAckStateChanged:

 allOf:

 - $ref: 'TS28623\_ComDefs.yaml#/components/schemas/NotificationHeader'

 - type: object

 required:

 - alarmId

 - alarmType

 - probableCause

 - perceivedSeverity

 - ackState

 - ackUserId

 properties:

 alarmId:

 $ref: '#/components/schemas/AlarmId'

 alarmType:

 $ref: '#/components/schemas/AlarmType'

 probableCause:

 $ref: '#/components/schemas/ProbableCause'

 specificProblem:

 $ref: '#/components/schemas/SpecificProblem'

 perceivedSeverity:

 $ref: '#/components/schemas/PerceivedSeverity'

 ackState:

 $ref: '#/components/schemas/AckState'

 ackUserId:

 type: string

 ackSystemId:

 type: string

 NotifyComments:

 allOf:

 - $ref: 'TS28623\_ComDefs.yaml#/components/schemas/NotificationHeader'

 - type: object

 required:

 - alarmId

 - alarmType

 - probableCause

 - perceivedSeverity

 - comments

 properties:

 alarmId:

 $ref: '#/components/schemas/AlarmId'

 alarmType:

 $ref: '#/components/schemas/AlarmType'

 probableCause:

 $ref: '#/components/schemas/ProbableCause'

 specificProblem:

 $ref: '#/components/schemas/SpecificProblem'

 perceivedSeverity:

 $ref: '#/components/schemas/PerceivedSeverity'

 comments:

 $ref: '#/components/schemas/Comments'

 NotifyPotentialFaultyAlarmList:

 allOf:

 - $ref: 'TS28623\_ComDefs.yaml#/components/schemas/NotificationHeader'

 - type: object

 required:

 - reason

 properties:

 reason:

 type: string

 NotifyAlarmListRebuilt:

 allOf:

 - $ref: 'TS28623\_ComDefs.yaml#/components/schemas/NotificationHeader'

 - type: object

 required:

 - reason

 properties:

 reason:

 type: string

 alarmListAlignmentRequirement:

 $ref: '#/components/schemas/AlarmListAlignmentRequirement'

 #---- Definition of resources ------------------------------------------------------#

 Comment:

 type: object

 properties:

 commentTime:

 $ref: 'TS28623\_ComDefs.yaml#/components/schemas/DateTimeRo'

 commentUserId:

 type: string

 commentSystemId:

 type: string

 commentText:

 type: string

 Comments:

 description: >-

 Collection of comments. The comment identifiers are allocated by the

 MnS producer and used as key in the map.

 type: object

 additionalProperties:

 $ref: '#/components/schemas/Comment'

 #----- Definitions in TS 28.111 for TS 28.532 --------------------------#

 resources-faultNrm:

 oneOf:

 - $ref: '#/components/schemas/AlarmList-Single'

 #----- Definitions in TS 28.111 for TS 28.532 --------------------------#

<CODE ENDS>

\*\*\* END OF CHANGE 1 \*\*\*