Specification of probableCause strings

This document provides the standard Probable Cause strings to be used in MTOSI 3.0. Certain Probable Causes are specially highlighted:

- Probable Causes that were not present in the MTOSI 2.1 document that have been added to this MTOSI 3.0 document to align with TMF063[1] have a blank MTOSI 2.1 probableCause cell and are highlighted with **blue text** in the MTOSI 3.0 probableCause cell.
- Each row having a Probable Cause represented with different string(s) in MTOSI 3.0 compared to what was in MTOSI 2.1 (so as to align with TMF063 V1.0) is indicated with yellow highlight with **blue text** in the MTOSI 3.0 probableCause cell.
- Probable Causes supported in MTOSI 3.0 derived from MTOSI 2.1 but missing currently from TMF 063 are highlighted with red text in the MTOSI 3.0 probableCause cell. Note that there is ONLY "UAT" that is in this category. This probableCause will be removed from the next version of this document.
- Probable Causes represented with the same string in MTOSI 2.1 and TMF 063 (and hence that are unchanged in MTOSI 3.0) are presented in black text in the MTOSI 3.0 probableCause cell (and the row is NOT highlighted in any way).

Some Probable Causes have descriptions but most do not. To determine the meaning of a specific Probable Cause please consult the referenced "Source standard". Where the "Source standard" is MTOSI a description is normally provided.

Further information on Probable Causes is provided in TMF 063. It is proposed that a future MTOSI release this document will be replaced by TMF 063.

In some cases several Probable Causes from MTOSI 2.1 have been merged into a single Probable Cause for MTOSI 3. It is assumed that the MTOSI server will perform any merging necessary to ensure correct operation of the interface.

MTOSI 3.0 probableCause	MTOSI 2.1 probableCause	Description	Source standard	Technology
"A-bis to BTS interface failure"			3GPP	
"A-bis to TRX interface failure"			3GPP	
"Adapter Error"			X.7xx	
"airCompressorFailure"			M.3100	
"airConditioningFailure"			M.3100	

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[1] TMF 063 currently provides only limited description of the probableCauses. The descriptions from TMF 063 current at the time of publication of this document have been included here.

MTOSI 3.0 probableCause	MTOSI 2.1 probableCause	Description	Source standard	Technology
"airDryerFailure"			M.3100	
"AIS"[2,3]	"AIS"	Alarm indication signal	G.783 G.775 Y.1731 M.3100	SDH PDH Ethernet
	"AU-AIS"	AU alarm indication signal	G.783	SDH
	"MS-AIS"	MS alarm indication signal	G.783	SDH
	"TU-AIS"	TU alarm indication signal	G.783	SDH
	"VC-AIS"	VCL/VCC TP Alarm Indication Signal	I.751	ATM
	"VP-AIS"	VPL/VPC TP Alarm Indication Signal	I.751	ATM
"AIS-O"	"OSC-AIS"	Alarm Indication Signal -Overhead. Use for Optical Supervisory Channel AIS	MTOSI	OTN
"AMS"	"AMS"	Alternate modulation signal	MTOSI	
"antennaFailure "			M.3100	Wireless
"Antenna problem"			3GPP	Wireless
"applicationSubsystemFailure"			X.7xx M.3100	
"aTPCFail"	"ATPC_FAIL"	This indication should report the internal failures of the Automatic Transmitted Power Control function.	MTOSI	
"Authentication Failure"			X.7xx	
"backPlaneFailure"			M.3100	
"bandwidthReduced"			M.3100	
"Bandwidth Reduction"			X.7xx	
"Battery breakdown"			3GPP	Wireless

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[2] Generic AIS ProbableCause as defined in TMF063 used for mapping
[3] The layerRate in the alarm report will provide the necessary distinguishing quality to separate AU, TU, MS etc.

MTOSI 3.0 probableCause	MTOSI 2.1 probableCause	Description	Source standard	Technology
"batteryChargingFailure"			M.3100	
"Battery charging fault"			3GPP	Wireless
"batteryDischarging"			M.3100	
"batteryFailure "			M.3100	
"BDI"		Backward defect indication	G.798	OTN
"BDI-O"		Backward defect indication - Overhead	G.798	OTN
	"OSC_FERF"	Optical Supervisory Channel Far End Receive Failure	MTOSI	
"BDI-P"		Backward defect indication - Payload	G.798	OTN
"BER_SF"	"BER_SF"	Signal fail (includes receiver failure and excessive BER)	MTOSI	
	"TSF"	Trail signal fail	MTOSI	
"BER_SF-O"	**"OSC_BER_SF"**	signal fail (includes receiver failure and excessive BER) - Overhead Used for Optical Supervisory Channel BER_SF	MTOSI	OTN
"blockedFE"	"BLOCKED_FE"	When the FE reports that it is blocked. Note: Used in IMA Group FTP on LR_Fragment's adaptation function.	MTOSI	ATM
"Breach of Confidentiality"			X.7xx	
"broadcastChannelFailure"			M.3100 3GPP	Wireless
"Cable Tamper"			X.7xx	
"Call Establishment Error"			X.7xx	
"callSetupFailure"			M.3100	

Specification of probableCause strings

MTOSI 3.0 probableCause	MTOSI 2.1 probableCause	Description	Source standard	Technology
"cfgAbort"	"CFG_ABORT"	When the FE tries to use unacceptable configuration parameters. Note: Used in IMA Group FTP on LR_Fragment's adaptation function.	MTOSI	ATM
"cfgAbortFE"	"CFG_ABORT_FE"	When the FE reports unacceptable configuration parameters. Note: Used in IMA Group FTP on LR_Fragment's adaptation function.	MTOSI	ATM
"Clock synchronization problem"			3GPP	Wireless
"Combiner problem"			3GPP	Wireless
"commercialPowerFailure"			M.3100	
"Communication Protocol Error "			X.7xx	
"Communication Subsystem Failure"			X.7xx	
"Communications Receive Failure"			M.3100	
"Communications Transmit Failure"			M.3100	
"configurationorCustomizingError"			X.7xx M.3100	
"congestion"			X.7xx M.3100	
"connectionEstablishmentError"			M.3100 3GPP	
"coolingFanFailure"			M.3100	
"coolingSystemFailure"			M.3100 3GPP	Wireless
"corruptData"			X.7xx M.3100	
"CPU Cycles Limit Exceeded"			X.7xx	

MTOSI 3.0 probableCause	MTOSI 2.1 probableCause	Description	Source standard	Technology
"CSF"		Client Signal Failure	G.7041 G.798 G.8021	PDH GFP (Generic framing procedure) SDH GFP (Generic framing procedure) OTN Ethernet
"Data Set or Modem Error"			X.7xx	
"dataSetProblem"			M.3100	
"databaseInconsistency"			M.3100 3GPP	Wireless
"dCCFailure"	"DCC_FAILURE"	Data Communication Channel Failure		
"DEG"	"BER_SD"	Signal degrade (includes receiver degrade)	G.783 G.798 G.8021 G.8121.1 G.8121.2	SDH OTN Ethernet MPLS-TP PTN MPLS-TP PSN
	"TSD"	Trail signal degrade	MTOSI	
"Delayed Information"			X.7xx	
"demodulationFailure"	"DEMODULATION_FAIL"	This indication shall report the internal failures of the demodulation function affecting the demodulated signal.	M.3100	
"Denial of Service"			X.7xx	
"diskFailure"			M.3100	
"Disk problem"			3GPP	Wireless
"DTE-DCE Interface Error"			X.7xx	
"Duplicate Information"			X.7xx	
"Dying Gasp"		An unrecoverable local failure condition has occurred.	802.3ah	Ethernet

MTOSI 3.0 probableCause	MTOSI 2.1 probableCause	Description	Source standard	Technology
"enclosureDoorOpen"			X.7xx M.3100	
"Engine Failure"			M.3100	
"ENV"	"ENV"	Environmental/external cause This value can be used for telemetry interfaces, in cases where an EMS controls some devices which are able to monitor raw electrical contacts, e.g. properties of door contacts, fire detectors, batteries etc. Although these devices are not transmission related they report their states via particular (so called telemetry) interfaces of MEs to the EMS. To provide maximum information, a particular telemetry interface alarm may (optionally) be represented by an NT_ALARM notification with <u>objectName</u> = (("EMS",<EMSName>),("ME",<MEName>),("AID",<TIFName>)) <u>probableCause</u> = "ENV" <u>probableCauseQualifier</u> = <DeviceAlarm> where <MEName> is the ME with the telemetry interface, <TIFName> is the telemetry interface within that ME and <DeviceAlarm> is the ID of a single alarm which that interface may report.	MTOSI	
"EQPT"	"EQPT"	Equipment alarm	MTOSI	
"Equipment failure"			3GPP	Wireless
"equipmentIdentifierDuplication"			M.3100	
Equipment Malfunction			X.7xx	

Specification of probableCause strings

MTOSI 3.0 probableCause	MTOSI 2.1 probableCause	Description	Source standard	Technology
"EXC"	"BER"	Excessive Bit Error Ratio. Applicable when the BER is over a given threshold.	MTOSI (G.806)	
		Excessive BER	G.783	SDH
"excessiveErrorRate"			M.3100 3GPP	Wireless
"Excessive receiver temperature"			3GPP	Wireless
"excessiveResponseTime"			M.3100	
"excessiveRetransmissionRate"			M.3100	
"Excessive transmitter output power"			3GPP	Wireless
"Excessive transmitter temperature"			3GPP	Wireless
"Excessive Vibration"			X.7xx	
"EXM"		Extension header mismatch	G.8021 G.8121	Ethernet MPLS-TP
"explosiveGas"			M.3100	
"externalEquipmentFailure"			M.3100 3GPP	Wireless
"externalIFDeviceProblem"			M.3100	
"externalPointFailure"			M.3100	
"External power supply failure"			3GPP	Wireless
"External transmission device failure"			3GPP	Wireless
"failedAggregationPort"		Reception by a MEP of a CCM containing a Port Status TLV or Interface Status TLV indicating a failed aggregated port.	IEEE 802.1Q	Ethernet

MTOSI 3.0 probableCause	MTOSI 2.1 probableCause	Description	Source standard	Technology
"failedBridgePort"		Reception by a MEP of a CCM containing a Port Status TLV or Interface Status TLV indicating a failed Bridge Port or aggregated port.	IEEE 802.1Q	Ethernet
"Fan failure"			3GPP	Wireless
"FDI"		Forward Defect Indication	G.8021	Ethernet
"FF"	"FF"	Fragmentation fail	MTOSI	
"fileError"			X.7xx M.3100	
"File system call unsuccessful"			3GPP	Wireless
"fire"			M.3100	
"Fire Detected"			X.7xx	
"fireDetectorFailure"			M.3100	
"flood"			M.3100	
"Flood Detected"			X.7xx	
"FOP"	"FOP_APS"[4]	Failure of APS protocol. The FOP defect indicates a failure in the automatic protection switching protocol. This condition is determined by the sink function at the arrival of an unexpected (i.e., out of sequence) protocol message, after which the sink function declares a failure of protocol (FOP) defect.	G.783	SDH
"FOP-NR"		Failure Of Protocol No Response	G.798	OTN
"FOP-PM"		Failure of Protocol Provisioning Mismatch	G.798	OTN
"framingError"			M.3100	
"Frequency hopping degraded"			3GPP	Wireless

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[4] Mapped to generic ProbableCause FOP defined in TMF063 as it applies to other technologies/protocols

MTOSI 3.0 probableCause	MTOSI 2.1 probableCause	Description	Source standard	Technology
"frequencyHoppingFailure"			M.3100 3GPP	Wireless
"Frequency redefinition failed"			3GPP	Wireless
"fuseFailure"			M.3100	
"generatorFailure"			M.3100	
"Heating or Ventilation or Cooling System Problem"			X.7xx	
"highHumidity"			M.3100 3GPP	Wireless
"highTemperature"			M.3100 3GPP	Wireless
"highWind"			M.3100	
"Humidity Unacceptable			X.7xx	
"iceBuildUp"			M.3100	
"IncAIS"		Incoming AIS	G.783	SDH
"incorrectMAIDReceived"		Reception by a MEP of a CCM with an incorrect MAID, indicating a configuration error	IEEE 802.1Q	Ethernet
"incorrectMEPIDReceived"		Reception by a MEP of a CCM with an incorrect MEPID indicating a configuration error or a cross connect error;	IEEE 802.1Q	Ethernet
"incorrectTXIntervalDetected"		Reception by a MEP of a CCM with an incorrect transmission interval, indicating a configuration error;	IEEE 802.1Q	Ethernet
"Indeterminate"			M.3100	
"Information Missing"			X.7xx	
"Information Modification detected"			X.7xx	

Specification of probableCause strings

MTOSI 3.0 probableCause	MTOSI 2.1 probableCause	Description	Source standard	Technology
"Information out of Sequence"			X.7xx	
"Input Device Error"			X.7xx	
"Input parameter out of range"			3GPP	Wireless
"Input/Output Device Error"			X.7xx	
"insuffLinks"	"INSUFF_LINKS"	When less than PTx transmit or PRx receive links are Active (see "MinNumTxLinks" and "MinNumRxLinks"). Note: Used in IMA Group FTP on LR_Fragment's adaptation function.	MTOSI	
"insuffLinksFE"	"INSUFF_LINKS_FE"	When the FE reports that less than PTx transmit or less than PRx receive links are Active. Note: Used in IMA Group FTP on LR_Fragment's adaptation function.	MTOSI	
"Intrusion detected"			3GPP	Wireless
"intrusionDetection"			X.7xx M.3100	
"invalidMessageReceived"			M.3100 3GPP	Wireless
"Invalid MSU received"			3GPP	Wireless
"Invalid parameter"			3GPP	Wireless
"Invalid pointer"			3GPP	Wireless
"iODeviceError"			M.3100	
"Key Expired"			X.7xx	
"LAN Error"			X.7xx	
"LAPD link protocol failure"			3GPP	Wireless
"LCD"	"LCD"	Loss of cell delineation (from TC Adapter part of ATM NI)	I.751 I.761 G.798	ATM

MTOSI 3.0 probableCause	MTOSI 2.1 probableCause	Description	Source standard	Technology
"LCK"		Locked	G.798 G.8021 G.8121	OTN Ethernet MPLS-TP
"Leak Detection"			X.7xx	
"LFD"		Loss of Frame Delineation	G.8021 G.8121	Ethernet MPLS-TP
"LIF"	"LIF"	Persistence of a LIF (Loss of IMA Frame) defect at the NE. Note: Used in IMA Link CTP on physical layer (e.g., E1, DS1, VC-12, SHDSL).	I.761 G.8021	ATM
"lineCardProblem"			M.3100	
"Line interface failure"			3GPP	Wireless
"Link failure"			3GPP	Wireless
"Link Fault"		The PHY has determined a fault has occurred in the receive direction of the local DTE.	802.3ah	Ethernet
"linkDown"	**"LINK_DOWN"**	LAG Link Down	MTOSI	Ethernet
"LOA"	"LOA"	loss of alignment	G.806 G.783 G.798	SDH OTN
"LOC"	"LOC"	Loss of Continuity	G.8021 G.8121	Ethernet MPLS-TP
"Local Alarm Indication"			3GPP	Wireless
"localNodeTransmissionError"			X.7xx M.3100	
"LODS"	"LODS"	Persistence of a LODS (Link Out of Delay Synchronization) defect at the NE. Note: Used in IMA Link CTP on physical layer (e.g., E1, DS1, VC-12, SHDSL).	I.761 MTOSI	ATM

MTOSI 3.0 probableCause	MTOSI 2.1 probableCause	Description	Source standard	Technology
"LOF"	"LOF"	Loss of frame (when distinguished from LOS)	G.783 G.798	SDH OTN
"LOF-O"	OSC_LOF	Loss of Frame - Overhead. Used for Optical Supervisory Channel LOS	MTOSI	OTN
"LOFLOM"		Loss Of Frame and Loss Of Multiframe	G.798	OTN
"LOL"		Loss of Lane Alignment	G.783 Amd 2 G.798	SDH OTN
"LOM"	"LOM"	Loss of multiframe (SDH only, since not an alarm in GR-253)	G.783 G.798 G.705 G.781	SDH OTN PDH Sync
"LOOMFI"		Loss Of OPU Multiframe Indicator	G.798	OTN
"loopBackNotReceived"			IEEE 802.1Q	Ethernet
"loopBackReceivedInError"			IEEE 802.1Q	Ethernet
"LOP"	"LOP"	Loss of pointer	G.783	SDH
"LOPC"	"LOPC"	Loss of partial capacity	MTOSI	
"LOS"	"LOS"	Loss of signal	G.783 G.798 G.8021 G.775	SDH OTN Ethernet PDH
"LOS-O"	OSC_LOS	Loss Of Signal – Overhead	G.798 MTOSI	OTN
"LOS-P"		Loss Of Signal – Payload	G.798	OTN
"lossOfRealTime"			M.3100	
"lossOfRedundancy"			M.3100 3GPP	

MTOSI 3.0 probableCause	MTOSI 2.1 probableCause	Description	Source standard	Technology
"lossOfSynchronization"			M.3100 3GPP	Wireless
"LOTC"	"LOTC"	Loss of total capacity	MTOSI	
"lowBatteryThreshold"			M.3100	
"lowCablePressure"			M.3100	
"lowFuel"			M.3100	
"lowHumidity"			M.3100 3GPP	Wireless
"lowTemperature"			M.3100 3GPP	Wireless
"lowWater"			M.3100	
"lowerMDLevelReceived"		Reception by a MEP of a CCM with an MD Level lower than that of the MEP, indicating a configuration error or a cross connect error;	IEEE 802.1Q	Ethernet
"LSS"		Loss of Pseudo-Random Bit Sequence lock	G.798	OTN
"LTC"		Loss of Tandem Connection	G.783 G.798	SDH OTN
"LTI"		Loss of Timing	G.781	Sync
"ITRNotReceived"			IEEE 802.1Q	Ethernet
"mACStatusDefect"		Remote MEP is reporting a failure in the MAC Port Status or Interface Status	IEEE 802.1Q	Ethernet
"Mains breakdown with battery back-up"			3GPP	Wireless
"Mains breakdown without battery back-up"			3GPP	Wireless
"Material Supply Exhausted"			X.7xx	

MTOSI 3.0 probableCause	MTOSI 2.1 probableCause	Description	Source standard	Technology
"memoryMismatch"			M.3100	
"mEPConnectivityDown"		Inability of a MEP to receive three consecutive CCMs from any one of the other MEPs in its MA, indicating either a MEP failure or a network failure;	IEEE 802.1Q	Ethernet
"Message not expected"			3GPP	Wireless
"Message not initialized"			3GPP	Wireless
"Message out of sequence"			3GPP	Wireless
"MMG"		Mismerge	G.8021 G.8121	Ethernet MPLS-TP
"MND"		Member Not Deskewable.	G.783 G.798	SDH OTN
"modulationFailure "	"MODULATION_FAIL"	This indication shall report the internal failures of the modulation function affecting the modulated signal, and the loss of incoming data to the modulation function.	M.3100	
"MSIM"		Multiplex Structure Identifier Mismatch	G.798	OTN
"multiplexerProblem"			X.7xx M.3100	
"nEIdentifierDuplication"			M.3100	
"Non-Repudiation Failure"			X.7xx	
"OCI"		Open Connection Indication	G.798	OTN
"ODI"		Outgoing Defect Indication	G.783 G.806	SDH
"OS"	"EMS[5]"	EMS system alarm	MTOSI	
	"OS"	OS system alarm	MTOSI	

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[5] All MTOSI EMS Probable causes shall be mapped consistently to TMF063 OS probable causes

MTOSI 3.0 probableCause	MTOSI 2.1 probableCause	Description	Source standard	Technology
"oSAlmAndLifecycleLoss"	"EMS_ALM_AND_ LIFECYCLE_LOSS[6]"	The 1st notification that an EMS may supply after 1 or more notifications for protection switch, TCA, alarm, or file transfer status, and 1 or more events of type OC/OD/AVC/SC/RC have been discarded by the EMS.	MTOSI	
	"OS_ALM_AND_ LIFECYCLE_LOSS"	The 1st notification that an OS may supply after 1 or more notifications for protection switch, TCA, alarm, or file transfer status, and 1 or more events of type OC/OD/AVC/SC/RC have been discarded by the OS.	MTOSI	
"oSAlmLoss"	"EMS_ALM_LOSS[7]"	The 1st notification that the EMS may supply after 1 or more notifications for protection switch, TCA, alarm, or file transfer status have been discarded by the EMS while other events have not been discarded.	MTOSI	
	"OS_ALM_LOSS"	The 1st notification that the OS may supply after 1 or more notifications for protection switch, TCA, alarm, or file transfer status have been discarded by the OS while other events have not been discarded.	MTOSI	
"oSLifecycleLoss"	"EMS_LIFECYCLE_LOSS[8]"	The 1st notification that an EMS may supply after 1 or more events of type OC/OD/AVC/SC/RC have been discarded by the EMS.	MTOSI	
	"OS_LIFECYCLE_LOSS"	The 1st notification that an OS may supply after 1 or more events of type OC/OD/AVC/SC/RC have been discarded by the OS.	MTOSI	

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[6] All MTOSI EMS Probable causes shall be mapped consistently to TMF063 OS probable causes
[7] All MTOSI EMS Probable causes shall be mapped consistently to TMF063 OS probable causes
[8] All MTOSI EMS Probable causes shall be mapped consistently to TMF063 OS probable causes

MTOSI 3.0 probableCause	MTOSI 2.1 probableCause	Description	Source standard	Technology
"outOfCPUCycles"			M.3100	
"Out of Hours Activity"			X.7xx	
"outOfMemory"			X.7xx M.3100	
"Out of Service"			X.7xx	
"Output Device Error"			X.7xx	
"partialLinkDown"	**"PARTIAL_LINK_DOWN"**	LAG Partial Link Down	MTOSI	
"PLCR"		The Partial Loss of Capacity Receive in an LCAS-enabled VCG sink. Applies to LCAS-enabled virtual concatenated path . In case of OTN technology this fault condition applies to LCAS-capable virtual concatenated ODUk Path layer functions ODUkP-Xv-L (k = 1, 2, 3; X >=1)	G.806 G.798	OTN
"PLCT"		Partial Loss (PLCT) of Capacity Transmit in an LCAS-enabled VCG source	G.806	
"PLL"		Partial Link Loss	G.8021	Ethernet
"PLM"	"PLM"	Payload label mismatch (when reported as an alarm)	G.806 G.798	SDH OTN Ethernet MPLS-TP
"powerProblem"			X.7xx M.3100	
"powerSupplyFailure"			M.3100 3GPP	
"Pressure Unacceptable"			X.7xx	
"Procedural Error"			X.7xx	
"processorProblem"			X.7xx M.3100	
"protectingResourceFailure"			M.3100	

MTOSI 3.0 probableCause	MTOSI 2.1 probableCause	Description	Source standard	Technology
"protectionMechanismFailure"			M.3100	
"protectionPathFailure"			M.3100	
"pumpFailure"			X.7xx M.3100	
"Queue Size Exceeded"			X.7xx	
"RCOHM"		Resize Control Overhead Mismatch	G.798 Amd 2	OTN
"RDI"[9,10]	"RAI"	Remote alarm indication (also used to report RDI or RFI) RDI (Remote Defect Indication) used in IMA Link CTP on physical layer (e.g., E1, DS1, VC-12, SHDSL). RFI-IMA (Remote Failure Indication via IMA reported inside ICP cells) used in IMA Link CTP on LR_Fragment's termination function.	G.806 G.8021 G.8121 G.775	SDH Ethernet MPLS-TP PDH
	"VC-RDI"	VCL/VCC TP Remote Defect Indication	G.806 G.8021 G.8121 G.775	SDH Ethernet MPLS-TP PDH
	"VP-RDI"	VPL/VPC TP Remote Defect Indication	G.806 G.8021 G.8121 G.775	SDH Ethernet MPLS-TP PDH
"rDIMEPDefect"		At least one Remote MEP is receiving a CCM with RDI bit set	IEEE 802.1Q	Ethernet

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[9] All RAI/RDI MTOSI related ProbableCauses mapped to generic RDI in TMF063
[10] The layerRate in the alarm report will provide the necessary distinguishing quality to separate VC, VP etc.

MTOSI 3.0 probableCause	MTOSI 2.1 probableCause	Description	Source standard	Technology
"realTimeClockFailure"			M.3100	
"receiveFailure"			X.7xx M.3100	
"Receiver antenna fault"			3GPP	Wireless
"receiverFailure"		This indication should report the internal failures of the RX-function affecting the received signal.	X.7xx M.3100 3GPP	Wireless
"Receiver multicoupler failure"			3GPP	Wireless
"rectifierFailure"			M.3100	
"rectifierHighVoltage"			M.3100	
"rectifierLowVoltage"			M.3100	
"Reduced alarm reporting"			3GPP	Wireless
"Reduced event reporting"			3GPP	Wireless
"reducedLoggingCapability"			M.3100 3GPP	Wireless
"Reduced transmitter output power"			3GPP	Wireless
"reinitialized"			M.3100	
"remoteAlarmInterface"			3GPP	Wireless
"remoteCCMDefect"		At least one Remote MEP is not receiving valid CCM Messages from its remote MEP.	IEEE 802.1Q	Ethernet
"remoteNodeTransmissionError"			M.3100	
"replaceableUnitMissing"			M.3100	
"replaceableUnitProblem"			M.3100	
"Replaceable Unit Type Mismatch"			M.3100	
"Resource at or Nearing Capacity"			X.7xx	
"Response Time Excessive"			X.7xx	

Specification of probableCause strings

MTOSI 3.0 probableCause	MTOSI 2.1 probableCause	Description	Source standard	Technology
"Re-transmission Rate Excessive"			X.7xx	
"Routing Failure"			3GPP	Wireless
"rXFail "	"RX_FAIL"	This indication should report the internal failures of the RX-function affecting the received signal. Input Fail Detect	IEEE 802.3	Ethernet
"rXMisconnect"	"RX_MIS_CONNECT"	When the Rx link is detected as mis-connected. This is reported when the IMA unit has determined that the Rx link is not connected to the same FE IMA unit as the other Rx links in the group. The detection is implementation-specific. Note: Used in IMA Link CTP on LR_Fragment's termination function.	MTOSI	ATM
"rXunusableFE "	"RX_UNUSABLE_FE"	When the FE reports Rx-Unusable. Note: Used in IMA Link CTP on LR_Fragment's termination function.	MTOSI	ATM
"SD-O"	"OSC_SD"	Optical Supervisiory Channel signal degrade	MTOSI	OTN
"securityViolation"	"SECURITY_VIOLATION"	Security violation	MTOSI	
"signalQualityEvaluationFailure"			M.3100 3GPP	Wireless
"smoke"			M.3100	
"Smoke detected"			3GPP	Wireless
"sfwrDownloadFailure"			M.3100	
"sfwrEnvironmentProblem"			M.3100	
"softwareError"			X.7xx M.3100	
"Software Program Abnormally Terminated"			X.7xx	

MTOSI 3.0 probableCause	MTOSI 2.1 probableCause	Description	Source standard	Technology
"Software Program Error"			X.7xx	
"SQL"	"SQL"	Loss of sequence	MTOSI	
"SQM"		Sequence indicator Mismatch	G.783 G.806	SDH
"SS7 protocol failure"			3GPP	Wireless
"SSF"	"SSF"	Server signal fail	G.806 G.806 G.8021 G.8121	SDH OTN Ethernet MPLS-TP
"SSF-O"		Server Signal Fail - Overhead	G.798	OTN
"SSF-P"		Server Signal Fail - Payload	G.798	OTN
"startupFE"	"STARTUP_FE"	When the FE is starting-up (the declaration of this failure alarm may be delayed to ensure the FE remains in Start-up). Note: Used in IMA Group FTP on LR_Fragment's adaptation function.	MTOSI	ATM
"storageCapacityProblem"			X.7xx M.3100	
"synchronizationSourceMismatch"			M.3100	
"System call unsuccessful"			3GPP	Wireless
"systemResourcesOverload"			M.3100 3GPP	Wireless
"TCF"	"TCF"	Transport connection (e.g. subnetworkConnection or topologicalLink) failure of unknown origin	MTOSI	
"TCFE"	"TCFE"	External transport connection (e.g. subnetworkConnection or topologicalLink) failure	MTOSI	

MTOSI 3.0 probableCause	MTOSI 2.1 probableCause	Description	Source standard	Technology
"TCFI"	"TCFI"	Internal transport connection (e.g. subnetworkConnection or topologicalLink) failure	MTOSI	
"TCM-AIS"	"TCM-AIS"	Tandem Connection Sink - Incoming Alarm Indication Signal	MTOSI	
"TCM-LOS"	"TCM-LOS"	Tandem Connection Sink - Loss of Tandem Connection Signal	MTOSI	
"TCM-OAI"	"TCM-OAI"	Tandem Connection Sink - Outgoing Defect Indication (same / similar to Alarm Indication)	MTOSI	
"TCM-RAI"	"TCM-RAI"	Tandem Connection Sink - Remote Defect Indication (same / similar to Alarm Indication)	MTOSI	
"TCM-SD"	"TCM-SD"	Tandem Connection Sink - Signal Degrade	MTOSI	
"TCM-SSF"	"TCM-SSF"	Tandem Connection Sink - Server Signal Fail	MTOSI	
"TCM-TIM"	"TCM-TIM"	Tandem Connection Sink - Trace Identifier Mismatch	MTOSI	
"TCM-UNEQ"	"TCM-UNEQ"	Tandem Connection Sink - Unequipped	MTOSI	
"TCM_LEVEL<n>_LCK"	"TCM_LEVEL<n>_LCK"	Tandem Connection Level <n> - Locked	MTOSI	
"TCM_LEVEL<n>_LOS"	"TCM_LEVEL<n>_LOS"	Tandem Connection Level <n> - Loss of Tandem Connection	MTOSI	
"TCM_LEVEL<n>_OCI"	"TCM_LEVEL<n>_OCI"	Tandem Connection Level <n> - Open Connection Indication	MTOSI	
"TCM_LEVEL<n>_RAI"	"TCM_LEVEL<n>_RAI"	Tandem Connection Level <n> - Backward Defect Indication (Remote Alarm Indication)	MTOSI	SDH OTN
"TCM_LEVEL<n>_SD"	"TCM_LEVEL<n>_SD"	Tandem Connection Level <n> - Signal Degrade	MTOSI	

MTOSI 3.0 probableCause	MTOSI 2.1 probableCause	Description	Source standard	Technology
"TCM_LEVEL<n>_SSF"	"TCM_LEVEL<n>_SSF"	Tandem Connection Level <n> - Server Signal Fail	MTOSI	
"TCM_LEVEL<n>_TIM"	"TCM_LEVEL<n>_TIM"	Tandem Connection Level <n> - Trace Identifier Mismatch	MTOSI	
"Temperature Unacceptable"			X.7xx	
"terminalProblem"			M.3100	
"Threshold Crossed"			X.7xx	
"TIM"	"TIM"	Trace identifier mismatch (when reported as an alarm)	G.806 G.798	SDH OTN
"timeoutExpired"			M.3100 3GPP	Wireless
"Timeslot hardware failure"			3GPP	Wireless
"timingProblem"		When the FE transmit clock mode is different than the NE transmit clock mode. Note: Used in IMA Group FTP on LR_Fragment's adaptation function.	X.7xx M.3100	ATM
"timingSynch"	"TIMING_SYNCH"	When the FE transmit clock mode is different than the NE transmit clock mode. Note: Used in IMA Group FTP on LR_Fragment's adaptation function.	MTOSI	ATM
"TLCR"		Total Loss of Capacity Receive in LCAS-enabled virtual concatenated path . With OTN technology this fault condition applies to LCAS-capable virtual concatenated ODUk Path layer functions ODUkP-Xv-L (k = 1, 2, 3; X >=1)	G.806 G.798	OTN
"TLCT"		Total Loss of Capacity Transmit in an LCAS-enabled VCG source	G.806	
"TLL"		Total Link Loss	G.8021	Ethernet
"toxicGas"			M.3100	

MTOSI 3.0 probableCause	MTOSI 2.1 probableCause	Description	Source standard	Technology
"Toxic Leak Detected"			X.7xx	
"transceiverFailure"			M.3100	
"Transceiver problem"			3GPP	Wireless
"Transcoder or rate adapter problem"			3GPP	Wireless
"Transcoder problem"			3GPP	Wireless
"transmissionError"			M.3100 3GPP	Wireless
"transmitFailure"			X.7xx M.3100	
"Transmitter antenna failure"			3GPP	Wireless
"Transmitter antenna not adjusted"			3GPP	Wireless
"transmitterFailure"			X.7xx M.3100 3GPP	Wireless
"Transmitter low voltage or current"			3GPP	Wireless
"Transmitter off frequency"			3GPP	Wireless
"trunkCardProblem"			M.3100	
"tXDegrade"	"TX_DEGRADE"	transmitter degrade, including laser degrade	MTOSI	
"TxFail"	"TX_FAIL"	transmitter failure, including laser failure	MTOSI	
"tXMisConnect"	"TX_MIS_CONNECT"	When the Tx link is detected as mis-connected. This is reported when the IMA unit has determined that the Tx link is not connected to the same FE IMA unit as the other Tx links in the group. The detection is implementation-specific. Note: Used in IMA Link CTP on LR_Fragment's termination function.	MTOSI	ATM

MTOSI 3.0 probableCause	MTOSI 2.1 probableCause	Description	Source standard	Technology
"tXUnusableFE"	"TX_UNUSABLE_FE"	When the FE reports Tx-Unusable. Note: Used in IMA Link CTP on LR_Fragment's termination function.	MTOSI	ATM
"Unauthorised Access Attempt"			X.7xx	
"unavailable"			M.3100	
"UNC"		Unexpected Class of Service	G.8021	Ethernet
"underlyingResourceUnavailable"			X.7xx M.3100	
"UAT"	"UAT"	Unavailable Time	MTOSI	
"UNEQ"	"UNEQ"	Unequipped defect	G.806	SDH
"Unexpected Information"			X.7xx	
"unexpectedLTRReceived"			IEEE 802.1Q	Ethernet
"unidentified"	"UNIDENTIFIED"	For alarms that do not match any other string below. EMS shall in this case fill out the additional text field as much as possible.	MTOSI	
"UNL"		Unexpected Maintenance Entity Group Level	G.8021	Ethernet
"UNM"		Unexpected Maintenance Entity Group End Point	G.8021 G.8121	Ethernet MPLS-TP
"UNP"		Unexpected Period	G.8021 G.8121	Ethernet MPLS-TP
"UNPr"		Unexpected Priority	G.8021	Ethernet
"Unspecified Reason"			X.7xx	
"UPM"		User Payload Mismatch	G.8021 G.8121	Ethernet MPLS-TP
"Variable out of range"			3GPP	Wireless

MTOSI 3.0 probableCause	MTOSI 2.1 probableCause	Description	Source standard	Technology
"VcPLM"		Virtual concatenation Payload Mismatch	G.798 G.798 G.798	OTN Ethernet MPLS-TP
"ventilationSystemFailure"			M.3100	
"versionMismatch"			X.7xx M.3100	
"Watch dog timer expired"			3GPP	Wireless
"xPICFail"	"XPIC_FAIL"	This indication should report the internal failures of the Cross Polar Interference Canceller function.		

<n> = 1 | 2 | 3 | 4 | 5 | 6

Any extension to the list defined here will be agreed upon through a formal process.
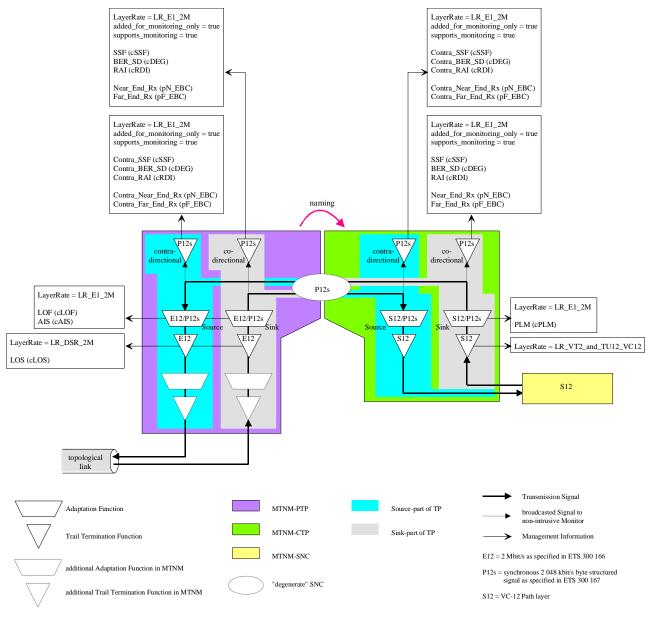
Note:
All probable causes defined in the table above identify alarms detected on the signal which is related to the **sink** atomic function. For alarms detected on the signal which is related to the **source** atomic function, the prefix "Contra_" has to be used in the Name of the probable cause.

e.g. SSF → **Contra**_SSF or TCM_AIS → **Contra**_TCM_AIS

See following diagram depicting a 2 Mbit/s port as an example:

Specification of probableCause strings

LayerRate = LR_E1_2M
added_for_monitoring_only = true
supports_monitoring = true

SSF (cSSF)
BER_SD (cDEG)
RAI (cRDI)

Near_End_Rx (pN_EBC)
Far_End_Rx (pF_EBC)

LayerRate = LR_E1_2M
added_for_monitoring_only = true
supports_monitoring = true

Contra_SSF (cSSF)
Contra_BER_SD (cDEG)
Contra_RAI (cRDI)

Contra_Near_End_Rx (pN_EBC)
Contra_Far_End_Rx (pF_EBC)

LayerRate = LR_E1_2M
added_for_monitoring_only = true
supports_monitoring = true

Contra_SSF (cSSF)
Contra_BER_SD (cDEG)
Contra_RAI (cRDI)

Contra_Near_End_Rx (pN_EBC)
Contra_Far_End_Rx (pF_EBC)

LayerRate = LR_E1_2M
added_for_monitoring_only = true
supports_monitoring = true

SSF (cSSF)
BER_SD (cDEG)
RAI (cRDI)

Near_End_Rx (pN_EBC)
Far_End_Rx (pF_EBC)

naming

LayerRate = LR_E1_2M

LOF (cLOF)
AIS (cAIS)

LayerRate = LR_DSR_2M

LOS (cLOS)

LayerRate = LR_E1_2M

PLM (cPLM)

LayerRate = LR_VT2_and_TU12_VC12

P12s

contra-directional   co-directional

E12/P12s   E12/P12s
Source   Sink
E12   E12

S12/P12s   S12/P12s
Source   Sink
S12   S12

S12

topological link

Adaptation Function

Trail Termination Function

additional Adaptation Function in MTNM

additional Trail Termination Function in MTNM

MTNM-PTP

MTNM-CTP

MTNM-SNC

"degenerate" SNC

Source-part of TP

Sink-part of TP

Transmission Signal

broadcasted Signal to non-intrusive Monitor

Management Information

E12 = 2 Mbit/s as specified in ETS 300 166

P12s = synchronous 2 048 kbit/s byte structured signal as specified in ETS 300 167

S12 = VC-12 Path layer

Specification of probableCause strings

In addition it is also possible, that **one** Termination Point is physically located in **two** distinct located network elements (refer to DSL modelling as an example). This TP may detect the same probable cause in the local and in the remote network element.

In order to differentiate these two probable causes, an additional prefix "RU_" (RU for Remote Unit) has to be used in the Name of the probable cause.

e.g. SSF → **RU**_SSF or Contra_TCM_AIS → **RU**_Contra_TCM_AIS

1 Administrative Appendix

1.1 Document History

Version	Date	Description of Change
4.0	April 2005	OS related Probable Causes added.
4.1	October 2006	• Columns "source standard" and "object" added. • Ethernet and LAG related Probable Causes added.
4.2	September 2012	Aligned with current version of TMF 063.
4.3	March 2013	Re-aligned with current version of TMF 063

1.2 Acknowledgments

FirstName	LastName	Company

1.3 How to comment on this document

Comments and requests for information must be in written form and addressed to the contact identified below:

Nigel	Davis	CIENA

Phone:	
Fax:	
e-mail:	ndavis@ciena.com

Please be specific, since your comments will be dealt with by the team evaluating numerous inputs and trying to produce a single text. Thus we appreciate significant specific input. We are looking for more input than wordsmith" items, however editing and structural help are greatly appreciated where better clarity is the result.