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| Mapping FDM to IEEE 802 Technologies |
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Abstract

This document proposes updated text for the mapping to IEEE 802 technologies for function of fault diagnosis and maintenance.

1.

### Mapping to IEEE 802 Technologies

#### Overview

The following table provides an overview about the FDM functions and procedures of fault diagnostics and maintenance (FDM) supported by the various IEEE 802 technologies with some of the references to the related sections of the specifications.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | 802.3-2015 | 802.1ag-2007 | 802.11-2012 | 802.16-2012 | 802.22-2011 |
| Capability discovery | 57.3.2.1 OAM discovery | - | 4.5.3.3, 4.5.3.4 General description8.3.3.2, 8.3.3.5-8.3.3.10 Frame & IE & field10.23.3.2Procedures | 6.3.9.7procedures14.2.7primitives | 7.7.117.14.2Descriptions and messages |
| FDM registration and configuration | 30.3.6.2 OAM actions | Yes (MIB) | Annex C.3 (RM and WNM MIB) | 13.1.213.1.313.1.6MIB modules\* | 13.1.113.1.2.113.1.4MIB description |
| Fault isolation | - | Yes (maintenance domain, Loopback, Linktrace Continuity check) | - | - | - |
| Fault recovery | - | Yes (spanning tree) | - | Yes\* | - |
| Remote failure indication | 57.2.10 OAM events57.2.12 Unidirectional OAM operation | Yes (Continuity check) | 4.3.13.8 General description8.4.1.7Frame & IE & field | 13.1.213.1.3.113.1.6MIB modules | 13.1.113.1.2.113.1.4MIB description  |
| Link monitoring | 57.2.10 OAM events57.5.3 Link event TLVs | - | 4.3.8, 4.3.13General description10.11, 10.23Primitives | 6.3.2.3.336.3.16management messages8.4.12descriptions13.1.3.4MIB modules | 7.7.187.19Descriptions and messages13.1.2.4MIB description  |
| Testing | 57.2.11 OAM remote loopback5.2.2.2.4 19.2.3.2.2 Self-test | 20.1-20.3Connectivity Fault Management protocols | - | Yes\* | 7.14.2.1Descriptions and messages |
| Management information aggregation | - | Yes | - | Yes\* | - |

\* Process also defined in WiMAX Forum specification [B10].

The following table provides the mapping of FDM specific attributes, in form of examples of MIB objects, in the various IEEE 802 technologies.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | 802.3-2015 | 802.1ag-2007 | 802.11-2012 | 802.16-2012 | 802.22-2011 |
| Configurations | 30.3.6aOAMLocalConfiguration, aOAMRemoteConfiguration, aOAMMode, aOAMLocalPDUConfiguration, aOAMRemotePDUConfiguration | 17.5dot1agCfmMaNetCcmInterval, dot1agCfmDefaultMdTable, dot1agCfmMdTable | Annex C.3 dot11StationConfigTable, dot11RMBSSAvailableAdmissionCapacityActivated, dot11MACStateParameterTable, dot11OperationTabledot11EASImplemented | 13.1.2，13.1.6wmanIf2SsConfigurationTable, wmanIf2mSsConfigurationTable, wmanDevSsConfigFileEncodingTable, wmanDevCmnDeviceConfig | 13.1.1, 13,1,4wranIfCpeConfigurationTable, wranDevCpeConfigFileEncodingTable, wranDevCmnDeviceConfig |
| Device and communication status | 30.3.6aOAMDiscoveryState, aOAMLoopbackControlTx, aOAMLoopbackControlRx, aOAMAdminState | 17.5dot1agCfmMepDbInterfaceStatusTlv, dot1agCfmMepFngState, dot1agCfmMepDbRMepState, dot1agCfmConfigErrorListTable, dot1agCfmMepTransmitLbmStatus, dot1agCfmMepDbPortStatusTlv, dot1agCfmMepDbInterfaceStatusTlv | Annex C.3 dot11CountersTable, dot11DisassociateReason, dot11DeauthenticateReason | 13.1.2wmanDevBsSoftwareUpgradeTable | 13.1.1.1.1wranDevBsSoftwareUpgradeTable |
| Link monitoring parameters | 30.3.6aOAMLocalErrSymPeriodEvent, aOAMLocalErrFrameEvent, aOAMLocalErrFramePeriodEvent, aOAMLocalErrFrameSecsSummaryEvent, aOAMRemoteErrSymPeriodEvent, aOAMRemoteErrFrameEvent, aOAMRemoteErrFramePeriodEvent, aOAMRemoteErrFrameSecsSummaryEvent, aFramesLostDueToOAMError |  –  | Annex C.3 dot11RMRequest, dot11RMReport, dot11ChannelLoadReportTable, dot11NoiseHistogramReportTable, dot11BeaconReportTable, dot11STAStatisticsReport, dot11APChannelReportTable, dot11RMNeighborReportTable | 13.1.3.4wmanIf2BsPm | 13.1.2.4wranIfBsPm |
| Events | 30.3.6aOAMLocalFlagsField, aOAMRemoteFlagsField, aOAMUniqueEventNotificationTx, aOAMUniqueEventNotificationRx | 17.5dot1agCfmMepDefects, dot1agCfmMepErrorCcmLastFailure, dot1agCfmMepXconCcmLastFailure, dot1agCfmMepDbRdi | Annex C.3 dot11WNMRequest, dot11WNMReport, dot11WNMEventTransitReportTable, dot11WNMEventRsnaReportTable, dot11WNMEventPeerReportTable, dot11WNMEventWNMLogReportTable, dot11WNMBssTransitReportTable |  –  |  –  |
| Communication alarms | –  | 17.5dot1agCfmFaultAlarm, dot1agCfmMepHighestPrDefect, dot1agCfmMepLowPrDef, dot1agCfmConfigErrorListErrorType | Annex C.3 dot11AuthenticateFail, dot11AssociateFailed, dot11ReassociateFailed | 13.1.2, 13.1.3.1, 13.1.6wmanDevBsNotification, wmanDevSsNotification, wmanDevCmnEventLog, wmanDevCmnSnmpAgent, wmanIf2BsFm, wmanIf2SsTrapControl, wmanIf2SsTrapDefinitions | 13.1.1, 13.1.2.1, 13.1.4wranDevBsNotification, wranDevCpeNotification, wranDevCmnEventLog, wranDevCmnSnmpAgent, wranIfBsFm, wranIfCpeTrapControl, wranIfCpeTrapDefinitions |

#### IEEE 802.3 specifics

#### IEEE 802.11 specifics

#### IEEE 802.16 specifics

#### IEEE 802.22 specifics