OAM Scope and Requirements

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Loopback Requirements

LB1. EFM OAM must support a ping test

LB2. EFM PHYs should support a frame level loopback mode. Issues of asymmetric data rates and P2MP must be addressed.

LB3. All loopback functions must be controllable both locally and remotely.

LB4. All looopback functions must prevent user data from being echoed back to the user.

LB5. EFM OAM must include mechanisms to prevent a station from staying in loopback mode indefinitely.

* LB3-LB5 are dependent on LB2.

Link Monitoring Requirements

LM1. EFM OAM must support the asynchronous reporting of a minimal set of variables.

LM2. It must be possible to extend the report to include other 802.3 defined variables.

LM3. EFM OAM must support event notification with that permits the inclusion of diagnostic data.

LM4. EFM MACs should be able to sense imminent power failure and use event notification to indicate imminent failure to a peer.

RFI Requirements

RF1. EFM PHYs must support limited unidirectional operation.

RF2. When operating unidirectionally, only OAM can be transmitted (no user data), and no received data will be passed to thru the MAC interface as user data.

RF3. EFM OAM must include a mechanism to indicate to a peer that the receive path of the local device is broken.

Miscellaneous/Other Reqts

MO1. EFM OAM must provide a general communications mechanism for EFM OAM purposes, and one that can be made available to higher layer management applications. EFM OAM must provide a multiplexing capability to support multiple higher level applications.

MO2. Implementing EFM OAM in EFM MAC/PHYs is required. Activating EFM OAM is not required.

MO3. EFM OAM must support both peer-to-peer and master-slave models.

MO4. A procedure is required which (at a minimum) (a) performs capability discovery, and (b) authorizes OAM communications between endpoints.

Non-Requirements

NR1. Anything outside of a single link (station management, monitoring of CPE-sided links, etc.) is not part of EFM OAM. Note that such functions could be addressed within vendor specific extensions running above the generic communications channel (MO1).

NR2. Anything required for the operation of the link should not be part of OAM (including EPON bandwidth allocation, copper rate adaptation, speed/duplex negotiations, etc.).

Major Contention

- What are allowable effects of OAM on the link, especially in terms of user data traffic vs OAM on the wire?
  - OAM can have no impact on user data rates
  - OAM can have limited impact on user data rates