

Recommended EPOC Objectives

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Outline

- Recommended EPOC Objectives
- Elaboration on EPOC Objectives

Recommended EPOC Objectives

- Support the following Subscriber Access Network Topologies
 - Point-to-Multipoint Coaxial Cable Plants
 - Active Cable Plants
 - Passive Cable Plants
- Specify a Radio Frequency PHY on Coaxial Cable
 - Support an FDD Mode and a TDD Mode
 - Support Effective PHY Layer Spectral Efficiencies ranging from (at least) 6 b/s/Hz to 10 b/s/Hz
 - 1-5 Gb/s on FDD Downstream and 1 Gb/s on FDD Upstream
 - 1-5 Gb/s on TDD (with flexible downstream/upstream partitioning)
 - Support channel bonding of wideband channels for data rates greater than 1 Gb/s
 - Support joint time/frequency multiplexing to and from CNUs on both downstream and upstream traffic
 - Support a BER of better than or equal to 10^{-12} at the PHY Service Interface
 - Out-of-band emissions 50dB lower than in-band transmission to avoid interference to services in other bands
- Strive for maximal reuse of EPON MAC
 - Enhancements to MPCP and OAM as needed to support RF PHY

Elaboration on EPOC Objectives

- Network Topology
 - The point-to-multipoint network consists of a coax line terminal (CLT) connected to multiple coax network units (CNU)s
- PHY
 - The standard should support a range of effective PHY spectral efficiencies. The low end of the range should be 6 b/s/Hz or lower. The high end should be 10 b/s/Hz or higher.
 - The effective PHY spectral efficiency is the PHY rate once the PHY overhead has been taken into consideration
 - The PHY rates depend on the available spectrum. The standard should support at least the rates specified in the objectives, provided that sufficient spectrum is available

Elaboration on EPOC Objectives

- PHY
 - If a very large bandwidth of spectrum is available then the PHY can bond together multiple wideband channels, where each of these wideband channels supports at least 1 Gb/s
 - The PHY should support joint time/frequency multiplexing
 - On the downstream the CLT can send a PHY packet that encapsulates multiple MAC protocol data units (MPDUs) to multiple CNUs using frequency multiplexing
 - On the upstream multiple CNUs can send multiple MPDUs encapsulated in a single PHY packet to the CLT, using frequency multiplexing
- MAC
 - Reuse MPCP and OAM for backward compatibility
 - Extend MPCP and OAM when needed to support the unique characteristics of the RF PHY