Annex 64A

(normative)

Multipoint MAC Control definitions for 1 Gb/s EPONs

64A.1 Introduction

64A.2 Multipoint Control Protocol (MPCP)

This section introduces extensions to MultiPoint Control Protocol (MPCP) required for proper operation of 1000 Mb/s EPON systems.

64A.2.1 Multipoint transmission control, Control Parser, and Control Multiplexer

64A.2.1.1 Functions

FEC_Overhead(length)
> This function calculates the size of additional overhead to be added by the FEC encoder while encoding a frame of size length. Parameter length represents the size of an entire frame including preamble, SFD, DA, SA, Length/Type, and FCS. As specified in 65.2.3, FEC encoder adds 16 parity octets for each block of 239 data octets. Additionally, 26 code–groups are required to accommodate IPG and longer start–of–frame and end–of–frame sequences, which are used to allow reliable packet boundary detection in presence of high bit error ratio. The function returns the value of FEC overhead in the units of time_quanta. The following formula is used to calculate the overhead:

$$FEC\_Overhead \ = \ 13 + \left\lceil \frac{length}{239} \right\rceil \times 8$$

> NOTE–The notation $\lceil x \rceil$ represents a *ceiling* function, which returns the value of its argument x rounded up to the nearest integer.

tqSize
> In 1000 Mb/s EPONs, this function always returns the value of 0x02.

64A.2.2 Discovery Processing

64A.2.2.1 Variables

syncTime
> During the synchronization time, an ONU sends a pattern composed of a series of IDLE characters.

64A.2.2.2 Functions

GetLaserTime(data)
> In 1000 Mb/s EPONs, this function always returns the value of 0x20.

53

64A.2.3 Gate Processing

64A.2.3.1 Functions

confirmDiscovery(data)
> This functon is used to check whether the current Discovery Window is open for the given ONU (returns TRUE) or not (returns FALSE). For 1000 Mb/s ONUs, this function always returns TRUE.

64A.3 MPCPDU structure and encoding

This subclause provides the definitions of the MPCPDUs specific for 1000 Mb/s EPONs.

64A.3.1 GATE description

The internal structure of the 16 bit wide Discovery Information field is presented in Table 64A–1.

Table 64A–1—GATE MPCPDU Discovery Information Fields

Bit	Flag Field	Values
0 - 15	reserved	All 16 bits set to 0. Ignored on reception.

64A.3.2 REGISTER_REQ description

The internal structure of the 16 bit wide Discovery Information field is presented in Table 64A–2.

Table 64A–2—GATE MPCPDU Discovery Information Fields

Bit	Flag Field	Values
0 - 15	reserved	All 16 bits set to 0. Ignored on reception.

The Laser On Time and the Laser Off Time values shall be equal to 0, when transmitted by a 1000 Mb/s ONU.

64A.3.3 REGISTER description

The Echoed Laser On Time and the Echoed Laser Off Time values shall be equal to 0, when transmitted to a 1000 Mb/s ONU.

54