101 RECONCILIATION SUBLAYER, PHYSICAL CODING SUBLAYER, AND PHYSICAL MEDIA ATTACHMENT FOR EPOC 2

101 Reconciliation Sublayer, Physical Coding Sublayer, and Physical Media Attachment for EPoC

Unless otherwise stated, each subclause will be modelled after Clause 76 for 10G-EPON

It is unclear at this time whether we need any elements of the auto-negotiation function to be also embedded in

101.1 Overview

101.1.1 Conventions

101.1.2 Constraints for delay through RS, PCS, and PMA

101.2 Reconciliation Sublayer (RS) for EPoC

101.2.1 Overview of RS operation

101.2.2 Summary of major concepts

101.2.3 10 Gbps Media Independent Interface (XGMII)

101.2.3.1 XGMII structure

101.2.3.2 XGMII operation

101.2.3.3 Mapping of XGMII signals to PLS service primitives

101.2.3.3.1 Functional specifications for multiple MACs

101.2.3.3.2 Variables

101.2.3.3.3 RS Transmit function

101.2.3.3.4 RS Receive function

101.2.3.3.5 SLD

101.2.3.3.6 LLID

101.2.3.3.7 CRC-8

101.3 Physical Coding Sublayer (PCS) for EPoC

101.3.1 Overview

101.3.1.1 EPoc_PMD_Name PCS

101.3.2 PCS transmit function

101.3.2.1 Idle control character deletion

Part of the data rate adaptation mechanism

Constants, Variable, Functions, Counters and State Diagram sub-clauses below are typical sections included for each function (i.e., under each Level4 header.

101.3.2.1.1 Constants

101.3.2.1.2 Variables

101.3.2.1.3 Functions

101.3.2.1.4 Counters

101.3.2.1.5 State Diagrams

101.3.2.2 TheChosenLineCode Encode

At this time, TBD

101.3.2.3 Scrambler / Time Interleaver

At this time, TBD which one will be used and whether it will be used at all

101.3.2.4 FEC encoding process

At this time, TBD – need to define what FEC is used, whether we use stream based or frame based FEC, what family FEC is used etc.

101.3.2.5 Data Detector

For CLT and CNU

101.3.2.6 Gearbox

Any data rate adaptation is further done in here to adapt it to the PMA rate

101.3.3 PCS receive function

101.3.3.1 CLT synchronizer

At this time, unclear whether CLT and CNU synchronizers will be the same or not

101.3.3.2 CNU Synchronizer

At this time, unclear whether CLT and CNU synchronizers will be the same or not

101.3.3.3 FEC decoding process

At this time, TBD – need to define what FEC is used, whether we use stream based or frame based FEC, what family FEC is used etc.

101.3.3.4 BER monitor

101.3.3.5 Descrambler / Interleaver

At this time, TBD which one will be used and whether it will be used at all

101.3.3.6 TheChosenLineCode Decode

At this time, TBD.

101.3.3.7 Idle Insertion

101.4 EPoc_PMD_Name PMA

Will be largely derived from the 10GBASE-R PMA defined in Clause 51. Only specific changes will be listed in this subclause

101.5 EEE capability

This subclause might contain summary of the EEE capabilities for this PMD type. Given that it is a new PMD design, the suggestion is to in-build EEE capability from day one, rather than add it in a fashion similar to P802.3az project

This material would be all new in P802.3bn

101.6 TimeSync capability

This subclause might contain summary of the TimeSync capabilities for this PMD type. Given that it is a new PMD design, we can embed TimeSync capability from day one. This involves primarily guaranteeing repeatable and stable delay as well as support for specific capability registers. See Clause 90 for more details.

This material would be all new in P802.3bn

101.7 Protocol implementation conformance statement (PICS) proforma for Clause 96, Reconciliation Sublayer, Physical Coding Sublayer, and Physical Media Attachment for EPoC