191. Physical Coding Sublayer (PCS), Physical Medium Attachment (PMA) sublayer, and baseband medium for MultiG+100M/100M+MultiGBASE-T1/V1

191.1 Overview

This clause defines a set of twelve distinct PHY types, see 191.1.1, that share the same PCS and PMA specifications. To aid in readability, the following terms are used:

MultiG: one of 2.5G, 5G, 10G.

T1: a single shielded balanced pair of conductors

V1: a single-ended coaxial cable

MultiG+100MBASE: PHY_S PCS

100M+MultiGBASE: PHY_D PCS

MultiG+100M/100M+MultiGBASE-T1/V1: the 12 PHYs

MultiG+100M/100M+MultiGBASE-T1:the subset of PHYs that communicate using a shielded, balanced, pair of conductors

MultiG+100M/100M+MultiGBASE-V1: the subset of PHYs that communicate using a coaxial cable

This clause defines the MultiG+100M/100M+MultiGBASE Physical Coding Sublayers (PCSs) as well as the MultiG+100M/100M+MultiGBASE-T1/V1 Physical Medium Attachment (PMA) sublayers. Together, the PCS and corresponding PMA sublayers comprise a MultiG+100M/100M+MultiGBASE-T1/V1 Physical Layer device (PHY). Provided in this clause are functional and electrical specifications for each of the twelve PHYs.

MultiG+100M/100M+MultiGBASE-T1 PHYs are intended to be operated over a single balanced pair of conductors. The link segment specifications defined in 191.9 were derived from automotive requirements but may also be used for non-automotive applications. The conductors supporting the operation of these PHYs are defined in terms of performance requirements between the Medium Dependent Interfaces (MDIs) (see 191.11) allowing implementers to provide their own conductors to operate these PHYs as long as the normative requirements included in 191.9 are met.

MultiG+100M/100M+MultiGBASE-V1 PHYs are intended to be operated over a single coaxial cable. The link segment specifications defined in 191.10 were derived from automotive requirements but may also be used for non-automotive applications. The conductors supporting the operation of these PHYs are defined in terms of performance requirements between the Medium Dependent Interfaces (MDIs) (see 191.12) allowing implementers to

provide their own conductors to operate these PHYs as long as the normative requirements included in 191.10 are met.

191.1.1 Nomenclature

The PHYs included within MultiG+100M/100M+MultiGBASE-T1/V1 (see Table 191–2 for more detail) are:

- 100M+2.5GBASE-T1
- 2.5G+100MBASE-T1
- 100M+5GBASE-T1
- 5G+100MBASE-T1
- 100M+10GBASE-T1
- 10G+100MBASE-T1
- 100M+2.5GBASE-V1
- 2.5G+100MBASE-V1
- 100M+5GBASE-V1
- 5G+100MBASE-V1
- 100M+10GBASE-V1
- 10G+100MBASE-V1

In order to efficiently describe the 12 PHYs, the following nomenclature is used. See Figure 191–1 for block diagram.

HS_PATH PHY_S HS_TX to PHY_D HS_RX

HS_RX High speed receiver

HS_TX High speed transmitter

LS_PATH PHY_D LS_TX to PHY_S LS_RX

LS_RX Low speed receiver

LS_TX Low speed transmitter

PHY_D Device containing LS_TX, HS_RX (100M+MultiGBASE-T1/V1)

PHY_S Device containing HS_TX, LS_RX (MultiG+100MBASE-T1/V1)