



Loopback modes proposal

Rubén Pérez-Aranda, KDPOF

Loopback modes already introduced in D1.1

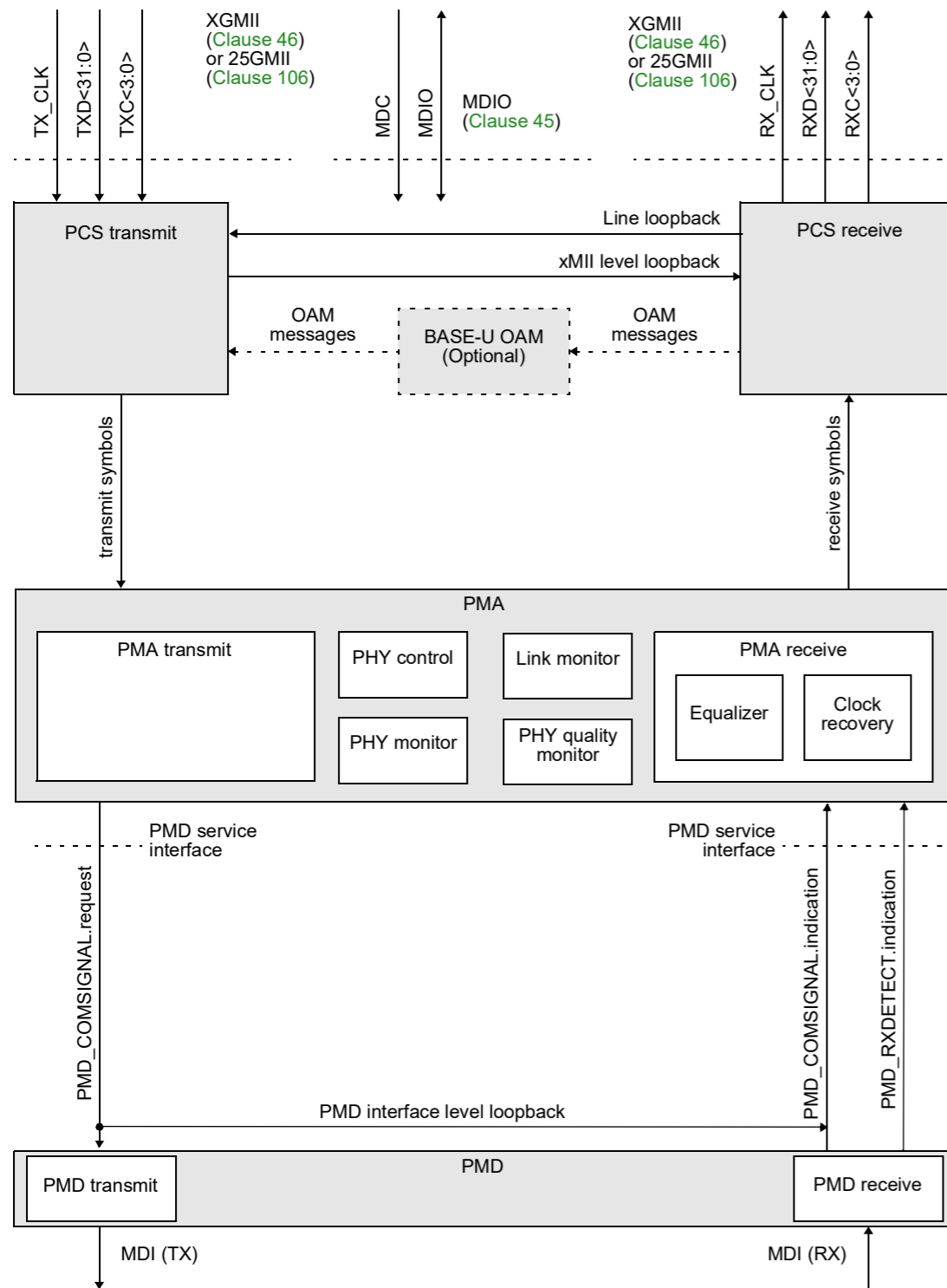


Figure 166-3—BASE-AU PHY functional block diagram

Table 45-244ec—BASE-U PCS control register bit definitions

Bit(s)	Name	Description	R/W ^a
3.2348.15:13	Operation mode	15 14 13	
		0 0 0	= Normal operation
		0 0 1	= BER test mode
		0 1 x	= Reserved
		1 x x	= Reserved
3.2348.12:10	Loopback mode	12 11 10	
		0 0 0	= No loopback
		0 0 1	= xMII level loopback
		0 1 0	= PMD interface level loopback
		0 1 1	= Line loopback
		1 x x	= Reserved
3.2348.9:2	Reserved	Value always 0	RO
3.2348.1	BASE-U OAM enable	1 = Enable BASE-U OAM functionality 0 = Disable BASE-U OAM functionality	R/W
3.2348.0	EEE enable	1 = Enable LPI mode 0 = Disable LPI mode	R/W

^aR/W = Read/Write, RO = Read only

Loopback modes baseline proposal



- BASE-U loopback modes shall be selected using bits 3.2348.12:10. Loopback modes support a MAC transmit-to-self that includes selected portions of the local PHY or the local and the remote PHYs.
- The default value and value upon reset (bit 1.0.15 = 1) shall be no loopback (3.2348.12:10 = 000).
- When xMII level loopback mode is selected (3.2348.12:10 = 001), the BASE-U PCS shall accept data on the transmit data path from the xMII, looping the data back to the receive path of the xMII. In this mode, the PCS transmitter and receiver are not part of the communication path, and the loopback functionality is provided independent of a link having been established with the link partner. Operations of PCS, PMA, and PMD sublayers are not specified in this loopback mode.
- When PMD interface level loopback mode is selected (3.2348.12:10=010), the loopback shall be implemented near the PMD service interface, completely exercising the PCS and PMA as in normal operation, although the PMA receiver ignores signals from the PMD receive function. PMD operation is not specified in this loopback mode.
- When line loopback mode is selected (3.2348.12:10 = 011), received data shall be processed and looped back near the xMII interface toward the link partner with data going back through the PCS and PMA transmit path. Received signal is processed and decoded by the PMA and PCS sublayers. Then the received data stream is forwarded to the xMII receive interface as well as to the PCS transmitter. The xMII transmit interface signals are ignored during line loopback operation. The line loopback is only operative when a bidirectional link has been established. The PCS, PMA, and PMD functions work as in normal operation. The data loopback is implemented between the output of the PCS 64B/65B decoder and the input of the PCS 64B/65B encoder.



Thank you!