

Proposed subclause 999.5 for 100G BiDi

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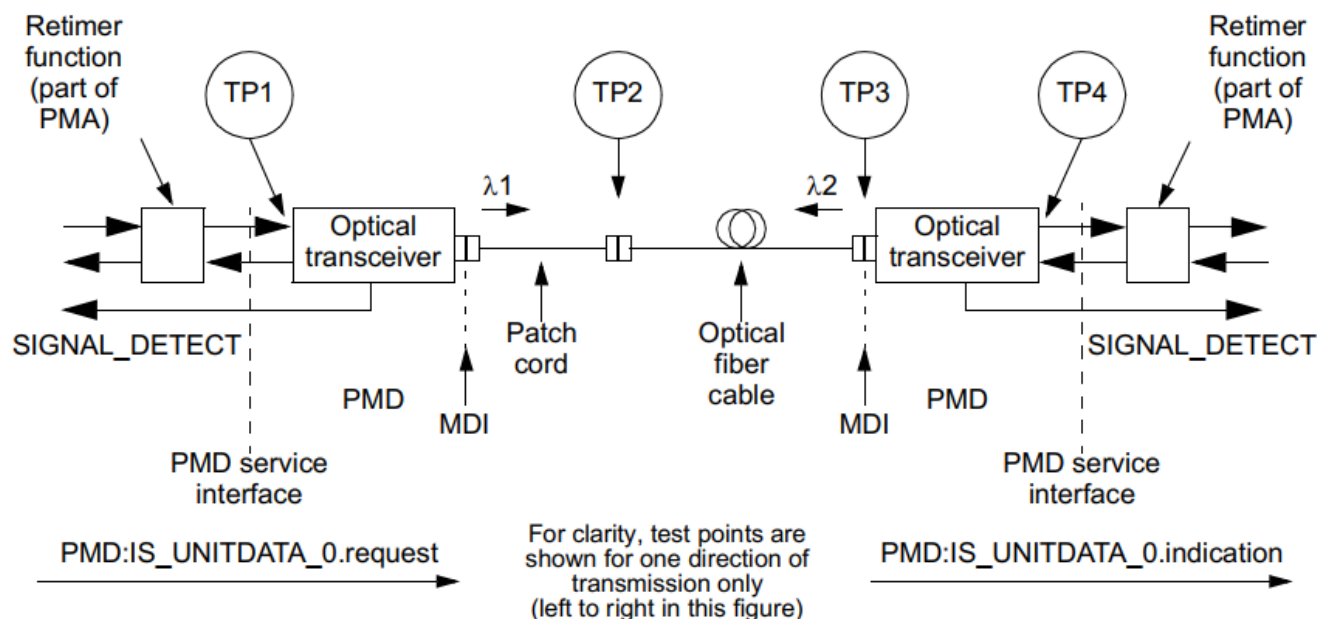
Proposed subclause 999.5 (references: subclauses 140.5 and 160.5)

999.5 PMD functional specifications

The 100GBASE-BRx PMDs perform the Transmit and Receive functions, which convey data between the PMD service interface and the MDI.

999.5.1 PMD block diagram

The PMD block diagram is shown in Figure 999–2. For purposes of system conformance, the PMD sublayer is standardized at the points described in this subclause. The optical transmit signal is defined at the output end of a single-mode fiber patch cord (TP2), between 2 m and 5 m in length. Unless specified otherwise, all transmitter measurements and tests defined in 999.7 are made at TP2. The optical receive signal is defined at the output of the fiber optic cabling (TP3) at the MDI (see 999.10.3). Unless specified otherwise, all receiver measurements and tests defined in 999.7 are made at TP3. **TP1 and TP4 are informative reference points that may be useful to implementers for testing components (these test points are not typically be accessible in an implemented system).**



Blue text is additional content from 160.5

Figure 999–2—Block diagram for 100GBASE-BRx transmit/receive paths

Proposed subclause 999.5 (references: subclauses 140.5 and 160.5)

999.5.2 PMD transmit function

The PMD Transmit function shall convert the symbol stream requested by the PMD service interface messages PMD:IS_UNITDATA_0.request into an optical signal. The optical signal shall then be delivered to the MDI, according to the transmit optical specifications in this clause. The four optical power levels in the signal in order from lowest to highest shall correspond to tx_symbols zero, one, two, and three, respectively.

999.5.3 PMD receive function

The PMD receive function shall convert the optical signal received from the MDI into a symbol stream for delivery to the PMD service interface using the message PMD:IS_UNITDATA_0.indication, all according to the receive optical specifications in this clause. The four optical power levels in each signal in order from lowest to highest shall correspond to rx_symbols zero, one, two, and three, respectively.

Proposed subclause 999.5 (references: subclauses 140.5 and 160.5)

999.5.4 PMD global signal detect function

The PMD global signal detect function shall report the state of SIGNAL_DETECT via the PMD service interface. The SIGNAL_DETECT parameter is signaled continuously, while the PMD:IS_SIGNAL.indication message is generated when a change in the value of SIGNAL_DETECT occurs. The SIGNAL_DETECT parameter defined in this clause maps to the SIGNAL_OK parameter in the inter-sublayer service interface primitives defined in 131.3.

SIGNAL_DETECT shall be a global indicator of the presence of the optical signal. The value of the SIGNAL_DETECT parameter shall be generated according to the conditions defined in Table 999–4. The PMD receiver is not required to verify whether a compliant 100GBASE-BRx signal is being received. This standard imposes no response time requirements on the generation of the SIGNAL_DETECT parameter.

As an unavoidable consequence of the requirements for the setting of the SIGNAL_DETECT parameter, implementations must provide adequate margin between the input optical power level at which the SIGNAL_DETECT parameter is set to OK, and the inherent noise level of the PMD including the effects of crosstalk, power supply noise, etc.

Various implementations of the Signal Detect function are permitted by this standard, including implementations that generate the SIGNAL_DETECT parameter values in response to the amplitude of the modulation of the optical signal and implementations that respond to the average optical power of the modulated optical signal.

Table 999–4—SIGNAL_DETECT value definition

Receive conditions	SIGNAL_DETECT value
Average optical power at TP3 \leq -15 dBm	FAIL
(Optical power at TP3 \geq average receive power (min) Table 999–7) AND (compliant 100GBASE–BRx signal input)	OK
All other conditions	Unspecified

Clause 160:
Average optical power at TP3 \leq -20 dBm
Clause 140:
Average optical power at TP3 \leq -15 dBm

Proposed subclause 999.5 (references: subclauses 140.5 and 160.5)

999.5.5 PMD reset function

If the MDIO interface is implemented, and if PMD_reset is asserted, the PMD shall be reset as defined in 45.2.1.1.1.

999.5.6 PMD global transmit disable function (Optional in Clause 140, not in Clause 160)

PMDs compliant with this clause shall include the PMD global transmit disable function that allows the optical transmitter to be disabled.

When the PMD_global_transmit_disable variable is set to one, this function shall turn off the optical transmitter so that it meets the requirements of the average launch power of the OFF transmitter in Table 999–6.

If a PMD_fault is detected, then the PMD may set the PMD_global_transmit_disable variable to one, turning off the optical transmitter.

999.5.7 PMD fault function (optional)

If the PMD has detected a local fault on any of the transmit or receive paths, the PMD shall set PMD_fault to one.

If the MDIO interface is implemented, PMD_fault shall be mapped to the fault bit as specified in 45.2.1.2.3.

999.5.8 PMD transmit fault function (optional)

If the PMD has detected a local fault on the transmitter, the PMD shall set the PMD_transmit_fault variable to one.

If the MDIO interface is implemented, PMD_transmit_fault shall be mapped to the transmit fault bit as specified in 45.2.1.7.4.

999.5.9 PMD receive fault function (Optional in Clause 140, not in Clause 160)

The 100GBASE-BRx-U PMD shall include the PMD_receive_fault function, in the 100GBASE-BRx-D PMD this function is optional. If the PMD has detected a local fault on the receiver, the PMD shall set the PMD_receive_fault variable to one.

← Additional content from 160.5

If the MDIO interface is implemented, PMD_receive_fault shall be mapped to the receive fault bit as specified in 45.2.1.7.5.

999.5.10 ONU silent start Additional content from 160.5

Silent start shall be provided by 100GBASE-BR10-U, 100GBASE-BR20-U, and 100GBASE-BR40-U PHYs. See 157.5.

Thank you

Any questions?