

Proposed changes to 75.7.10 to define the channel requirements for the TDP test to be used for 10 Gb/s transmitters in Clause 75 as per comment submitted against Draft D2.0 of the P802.3bx revision.

Pete Anslow, Ciena.

75.7.10 Transmitter and dispersion penalty (TDP)

TDP measurement tests transmitter impairments, including chromatic dispersion effects, due to signal propagation in SMF used in PON. Possible causes of impairment include intersymbol interference, jitter, and RIN. Meeting the separate requirements (e.g., eye mask, spectral characteristics) does not in itself guarantee the TDP. The TDP limit shall be met. See 58.7.9 for details of the measurement for 1 Gb/s PHYs and 52.9.10 for 10 Gb/s PHYs. TDP is measured as defined in 52.9.10 with an optical channel that meets the requirements listed in Table 75–13.

Table 75–13—10 Gb/s transmitter compliance channel specifications

PMD type	Max reach L (km)	Dispersion ^a (ps/nm)		Insertion loss	Optical return loss (dB)
		Minimum	Maximum		
10GBASE-PR-D1 10/1GBASE-PRX-D1	10	0	$0.2325L\lambda[1-(1300/\lambda)^4]$	Minimum ^b	15
10GBASE-PR-D2 10GBASE-PR-D3 10GBASE-PR-D4 10/1GBASE-PRX-D2 10/1GBASE-PRX-D3 10/1GBASE-PRX-D4	20				
10GBASE-PR-U1	10	$0.2325L\lambda[1-(1324/\lambda)^4]$	0		
10GBASE-PR-U3 10GBASE-PR-U4	20				

^aThe dispersion is measured for the wavelength of the device under test (λ in nm).

^bThere is no intent to stress the sensitivity of the BERT's optical receiver.

A 10 Gb/s transmitter is to be compliant with a total dispersion at least as negative as the “minimum dispersion” and at least as positive as the “maximum dispersion” columns specified in Table 75–13 for the wavelength of the device under test. This may be achieved with channels consisting of fibers with lengths chosen to meet the dispersion requirements.

75.7.11 Receive sensitivity

Receiver sensitivity is defined for the random pattern test frame, or test pattern 1, or test pattern 3, and an ideal input signal quality with the specified extinction ratio. The measurement procedure is described in 58.7.10 for 1 Gb/s PHYs and 52.9.8 for 10 Gb/s PHYs. The sensitivity shall be met for the bit error ratio defined in Table 75–6, Table 75–7, or Table 75–10 as appropriate.

75.7.12 Stressed receiver conformance test

Compliance with stressed receiver sensitivity is mandatory for the following PMDs: 10GBASE-PR-D1, 10GBASE-PR-D2, 10GBASE-PR-D3, 10GBASE-PR-D4, 10GBASE-PR-U1, 10GBASE-PR-U3, 10GBASE-PR-U4, 10/1GBASE-PRX-D3, 10/1GBASE-PRX-D4, 10/1GBASE-PRX-U1, 10/1GBASE-PRX-U2, 10/1GBASE-PRX-U3, and 10/1GBASE-PRX-U4. The stressed receiver conformance test is intended to screen against receivers with poor frequency response or timing characteristics that could cause errors when combined with a distorted but compliant signal. To be compliant with stressed receiver sensitivity, the receiver shall meet the specified bit error ratio at the power level and signal quality defined in