

**Table 60–6—1000BASE-PX20-D and 1000BASE-PX20-U transmit characteristics**

Description	1000BASE-PX20-D	1000BASE-PX20-U	Unit
Nominal transmitter type <sup>a</sup>	Longwave Laser	Longwave Laser	
Signaling speed (range)	1.25 ± 100 ppm	1.25 ± 100 ppm	GBd
Wavelength <sup>b</sup> (range)	1480 to 1500	1260 to 1360	nm
RMS spectral width (max)	see Table 60–7		nm
Average launch power (max)	+7	+4	dBm
Average launch power (min)	+2	–1	dBm
Average launch power of OFF transmitter (max)	–39	–45	dBm
Extinction ratio (min)	6	6	dB
RIN <sub>15</sub> OMA (max)	–115	–115	dB/Hz
Launch OMA (min)	2.8 (1.9)	–0.22 (0.95)	dBm (mW)
Transmitter eye mask definition {X1, X2, Y1, Y2, Y3}	{0.22, 0.375, 0.20, 0.20, 0.30}	{0.22, 0.375, 0.20, 0.20, 0.30}	UI
Ton (max)	N.A.	512	ns
Toff (max)	N.A.	512	ns
Optical return loss tolerance (max)	15	15	dB
Optical return loss of ODN (min)	20	20	dB
Transmitter reflectance (max)	–10	–10	dB
Transmitter and dispersion penalty (max)	2.3	1.8	dB
Decision timing offset for transmitter and dispersion penalty (min)	± 0.1	± 0.125	UI

<sup>a</sup>The nominal device type is not intended to be a requirement on the source type, and any device meeting the transmitter characteristics specified may be substituted for the nominal device type.

<sup>b</sup>This represents the range of centre wavelength ±1σ of the rms spectral width.

**Table 60–8—1000BASE-PX20-D and 1000BASE-PX20-U receive characteristics**

Description	1000BASE-PX20-D	1000BASE-PX20-U	Unit
Signaling speed (range)	1.25 ± 100 ppm	1.25 ± 100 ppm	GBd
Wavelength (range)	1260 to 1360	1480 to 1500	nm
Bit error ratio (max)	$10^{-12}$		
Average receive power (max)	−6	−3	dBm
Damage threshold (max)	+4	+7	dBm
Receive sensitivity (max)	−27	−24	dBm
Receiver sensitivity OMA (max)	−26.2 (2.4)	−23.2 (5)	dBm ( $\mu$ W)
Signal detect threshold (min)	−45	−44	dBm
Receiver reflectance (max)	−12	−12	dB
Stressed receive sensitivity (max) <sup>a</sup>	−24.4	−22.1	dBm
Stressed receive sensitivity OMA (max)	−23.6 (4.3)	−21.3 (7.4)	dBm ( $\mu$ W)
Vertical eye-closure penalty (min) <sup>b</sup>	2.2	1.5	dB
Treceiver_settling <sup>c</sup> (max)	400	N.A.	ns
Stressed eye jitter (min)	0.28	0.25	UI pk to pk
Jitter corner frequency	637	637	kHz
Sinusoidal jitter limits for stressed receiver conformance test (min, max)	0.05, 0.15	0.05, 0.15	UI

<sup>a</sup>The stressed receiver sensitivity recommendation is optional.

<sup>b</sup>Vertical eye closure penalty and the jitter specifications are test conditions for measuring stressed receiver sensitivity. They are not required characteristics of the receiver.

<sup>c</sup>Treceiver\_settling is informative. The combined Treceiver\_settling and CDR lock time is normative. See 65.3 for CDR lock times.