

Table 60–8a—1000BASE-PX30-D and 1000BASE-PX30-U transmit characteristics

Description	1000BASE-PX30-D	1000BASE-PX30-U	Unit
Nominal transmitter type ^a	Longwave Laser	Longwave Laser	
Signaling speed (range)	1.25 ± 100 ppm	1.25 ± 100 ppm	GBd
Wavelength ^b (range)	1480 to 1500	1260 to 1360	nm
Side Mode Suppression Ratio ^c	30		dB
RMS spectral width (max)	see Table 60–8b		nm
Average launch power (max)	7	5.62	dBm
Average launch power (min)	3	0.62	dBm
Average launch power of OFF transmitter (max)	–39	–45	dBm
Extinction ratio (min)	6	6	dB
RIN ₁₅ OMA (max)	–115	–115	dB/Hz
Launch OMA (min)	3.78 (2.39)	1.4 (1.38)	dBm (mW)
Transmitter eye mask definition {X1, X2, Y1, Y2, Y3}	{0.22, 0.375, 0.2, 0.2, 0.3}	{0.22, 0.375, 0.2, 0.2, 0.3}	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)	1	1.4	dB
Decision timing offset for transmitter and dispersion penalty (min)	±0.1	±0.125	UI

^aThe nominal transmitter 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 transmitter type.

^bThis represents the range of centre wavelength ±1σ of the rms spectral width.

^cIf 1000BASE-PX30-U PMD employs a DFB laser, Side Mode Suppression Ratio is mandatory. If it employs a Fabry-Pérot laser, RMS spectral width requirement is mandatory.

Table 60–8a—1000BASE-PX30-D and 1000BASE-PX30-U transmit characteristics

Description	1000BASE-PX30-D	1000BASE-PX30-U	Unit
Nominal transmitter type ^a	Longwave Laser	Longwave Laser	
Signaling speed (range)	1.25 ± 100 ppm	1.25 ± 100 ppm	GBd
Wavelength ^b (range)	1480 to 1500	1260 to 1360	nm
Side Mode Suppression Ratio ^c	30		dB
RMS spectral width (max) ^c	N/A	see Table 60–8b	nm
Average launch power (max)	7	5.62	dBm
Average launch power (min)	3	0.62	dBm
Average launch power of OFF transmitter (max)	–39	–45	dBm
Extinction ratio (min)	6	6	dB
RIN ₁₅ OMA (max)	–115	–115	dB/Hz
Launch OMA (min)	3.78 (2.39)	1.4 (1.38)	dBm (mW)

Table 60–8a—1000BASE-PX30-D and 1000BASE-PX30-U transmit characteristics (continued)

Description	1000BASE-PX30-D	1000BASE-PX30-U	Unit
Transmitter eye mask definition {X1, X2, Y1, Y2, Y3}	{0.22, 0.375, 0.2, 0.2, 0.3}	{0.22, 0.375, 0.2, 0.2, 0.3}	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)	1	1.4	dB
Decision timing offset for transmitter and dispersion penalty (min)	±0.1	±0.125	UI

^aThe nominal transmitter 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 transmitter type.

^bThis represents the range of centre wavelength $\pm 1\sigma$ of the rms spectral width.

^cIf 1000BASE-PX30-U PMD employs a DFB laser, Side Mode Suppression Ratio is mandatory. If it employs a Fabry-Perot laser, RMS spectral width requirement is mandatory.

The maximum RMS spectral width vs. wavelength for 1000BASE-PX30 is shown in Table 60–8b and for 1000BASE-PX30-U in Figure 60–4a. 1000BASE-PX30-D transmitter uses DFB laser, but 1000BASE-PX30-U transmitter can use either DFB or Fabry-Perot laser. If 1000BASE-PX30-U PMD employs a DFB laser, Side Mode Suppression Ratio of over 30 dB is mandatory. If it employs a Fabry-Perot laser, RMS spectral width requirement shown in Table 60-8b and Figure 60-4a is mandatory. The equation used to generate these values is included in 60.7.2. The central column values are normative, the right hand column is informative.

Table 60–8b—1000BASE-PX30-D and 1000BASE-PX30-U transmitter spectral limits

Center Wavelength	RMS spectral width (max) ^a	RMS spectral width to achieve epsilon $\epsilon \leq 0.08$ (informative)
nm	nm	nm
1260	0.59	0.5
1270	0.7	0.59
1280	0.87	0.74
1290	1.14	0.97
1300	1.64	1.39
1304	1.98	1.67
1305	2.09	1.77
1308	2.4	2
1317	2.4	2
1320	2.07	1.75
1321	1.98	1.67
1330	1.4	1.18
1340	1.06	0.89
1350	0.86	0.72

Table 60–8b—1000BASE-PX30-D and 1000BASE-PX30-U transmitter spectral limits (continued)

1360	0.72	0.61
1480 to 1500	0.25	0.21

^aThese limits for the 1000BASE–PX30–U transmitter are illustrated in Figure 60–4a. The equation used to calculate these values is detailed in 60.7.2. Limits at intermediate wavelengths may be found by interpolation.

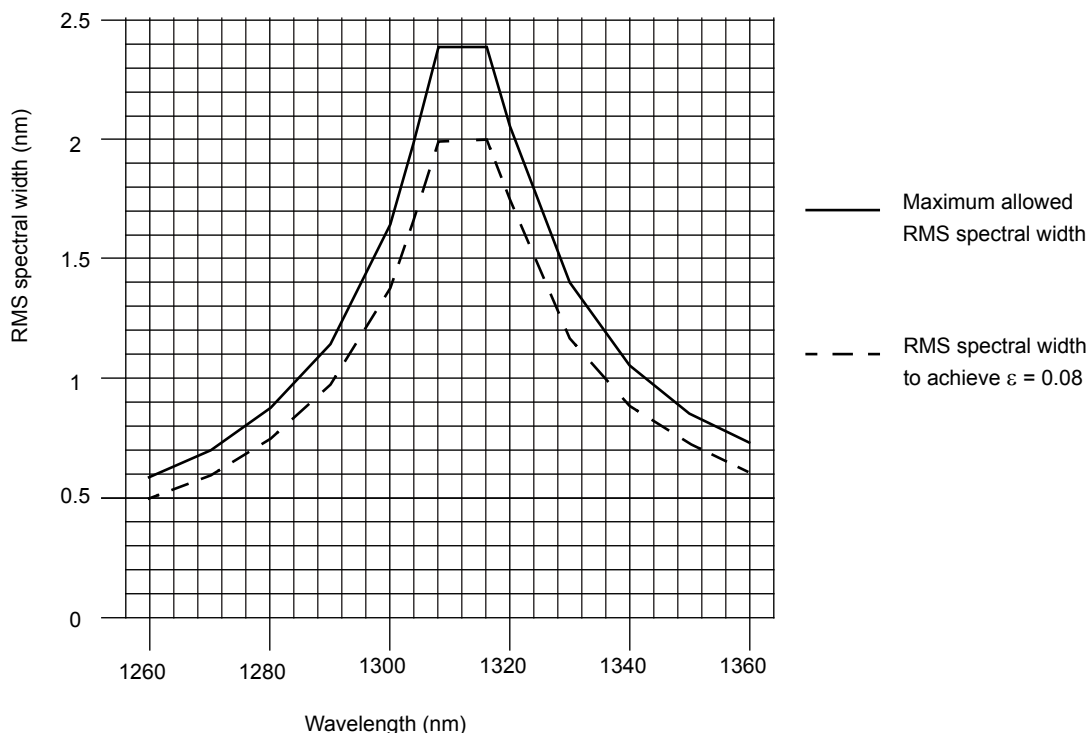


Figure 60–4a–1000BASE-PX30-U transmitter spectral limits

60.4a.2 Receiver optical specifications

The 1000BASE-PX30-D and 1000BASE-PX30-U receiver shall meet the specifications defined in Table 60–8c per measurement techniques defined in 60.7.10 with the following exceptions. The stressed receive sensitivity OMA (max) should meet the value listed in Table 60–8c per measurement techniques described in 60.7.11. Either the damage threshold included in Table 60–8c shall be met, or, the receiver shall be labeled to indicate the maximum optical input power level to which it can be continuously exposed without damage. The vertical eye-closure penalty, the stressed eye jitter, the jitter corner frequency, and the sinusoidal jitter limits are test conditions for measuring stressed receiver sensitivity and are not required characteristics of the receiver.