

Insert a new subclause, 60.4a, after 60.4.2, as shown below

60.4a PMD to MDI optical specifications for 1000BASE-PX30-D and 1000BASE-PX30-U

The operating range for 1000BASE-PX30 is defined in Table 60–1. A 1000BASE-PX30 compliant transceiver supports all media types listed in Table 75–14 according to the specifications described in 75.9. A transceiver which exceeds the operational range requirement while meeting all other optical specifications is considered compliant (e.g., a single-mode solution operating at 20.5 km meets the minimum range requirement of 0.5 m to 20 km for 1000BASE-PX30).

NOTE—The specifications for OMA have been derived from extinction ratio and average launch power (minimum) or receiver sensitivity (maximum). The calculation is defined in 58.7.6.

60.4a.1 Transmitter optical specifications

The 1000BASE-PX30-D and 1000BASE-PX30-U transmitter's specifications described in Table 60–8a are normative requirements, per measurement techniques described in 60.7, with the exception of $RIN_{15}OMA$ which is an optional requirement, per measurement techniques described in 60.7.7.

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 a DFB laser, and 1000BASE-PX30-U transmitter can use either a DFB or Fabry-Perot laser. If 1000BASE-PX30-U PMD employs a DFB laser, Side Mode Suppression Ratio requirement shown in Table 60–8a is mandatory. If 1000BASE-PX30-U PMD 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 60–8a—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	30	30	dB
RMS spectral width (max)	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)
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
T_{on} (max)	N/A	512	ns
T_{off} (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

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

Description	1000BASE-PX30-D	1000BASE-PX30-U	Unit
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.

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
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.

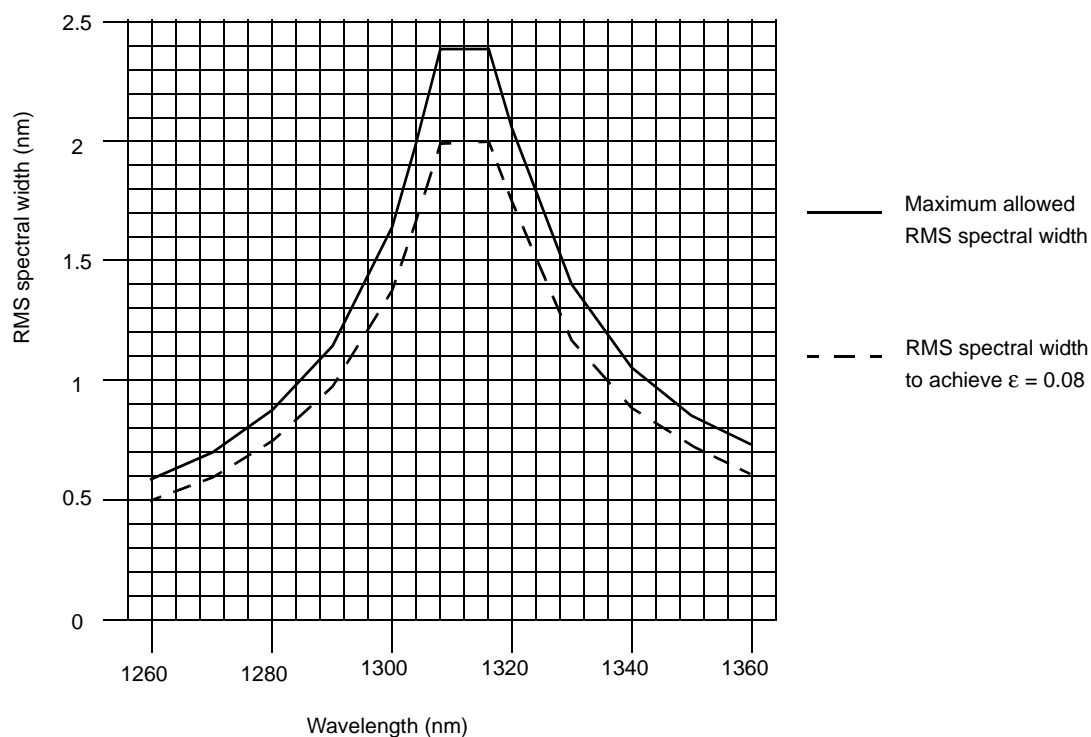


Figure 60-4a-1000BASE-PX30-U transmitter spectral limits

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