

Attribute	Direct	Interferometric	Coherent
Maximum degrees of freedom per polarization	1	1	2
Signal-to-noise requirement for binary modulation (relative to 2-PAM with direct detection)	0 dB (2-PAM)	-2.8 dB (2-DPSK)	-3.2 dB (2-PSK)
Signal-to-noise requirement for quaternary modulation (relative to 2-PAM with direct detection)	+5.5 dB (4-PAM)	-0.9 dB (4-DPSK)	-3.2 dB (4-PSK)
Electrical filtering can select wavelength-division-multiplexed channel	No	No	Yes
Chromatic dispersion is linear distortion, making electrical compensation more effective	No	No	Yes
Local oscillator laser required at receiver	No	No	Yes
Polarization control or diversity required	No	No	Yes