

Flatness investigation of multiwavelength SOA fiber laser based on intensity-dependent transmission mechanism

ABSTRACT

We investigate an influence of intensity to the flatness of multiwavelength fiber laser based on a mechanism of intensity dependent transmission. This mechanism is induced by nonlinear polarization rotation from a semiconductor optical amplifier and its combination with polarization devices. Due to the mechanism, a flatter multiwavelength spectrum can be achieved by reducing the bias current. The use of lower throughput port of an optical coupler can also increase the flatness of the multiwavelength spectrum. The flat multiwavelength spectrum has 153 lines within 3 dB bandwidth at current setting of 125 mA. This multiwavelength laser is stable within 60 min at power fluctuation of less than 0.2 dB.

Keyword: Multiwavelength, semiconductor optical amplifier