

Investigation of multiwavelength performance utilizing an advanced mechanism bidirectional Lyot filter

Abstract

We investigate the performance of multiwavelength spectrum based on an advanced mechanism of a bidirectional Lyot filter. The generation and the variation of the multiwavelength spectrum are due to the effect of intensity dependent loss, which is induced from a semiconductor optical amplifier and its combination with a polarizer. By using the bidirectional configuration, a flat spectrum of 96 number of lines within 5 dB bandwidth is generated at current setting of 350 mA. The extinction ratio of the multiwavelength spectrum is high at 15 dB even though the line spacing is 0.1 nm. Multiwavelength flatness is better using the bidirectional Lyot filter configuration due to the effect of double interference. Additionally, different intensity and polarization angle are also found to be influencing the multiwavelength spectrum.

Keyword: Multiwavelength fiber ring laser; Bidirectional Lyot filter; Semiconductor optical amplifier; Intensity dependent loss