

Flattening effect of four wave mixing on multiwavelength Brillouin-erbium fiber laser.

ABSTRACT

A multiwavelength Brillouin-erbium fiber laser with enhanced output uniformity is demonstrated and its performance with and without the assistance of four wave mixing (FWM) is compared. The presence of FWM effect is proven by the generation of anti-Stokes wave and higher-order Stokes wave. This scheme is successful in flattening the multiwavelength output. At Brillouin pump wavelength of 1,550 nm, between the first and the last output channel, peak power differences of 4.59 and 8.32 dB are recorded for the scheme with and without the assistance of FWM, respectively. This represents 3.73 dB improvement in the multiwavelength output power uniformity.

Keyword: Brillouin EDF