

ENHANCED S-BAND BRILLOUIN ERBIUM FIBER LASER WITH ADDITIONAL EDFA

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ABSTRACT

A short wavelength band Brillouin Erbium Fiber Laser (S-band BEFL) with enhanced characteristics using an additional erbium-doped fiber amplifier (EDFA) in the sub-loop of the BEFL system. Compared with the conventional BEFL without the additional EDFA, the enhanced BEFL has improved the number of channels as well as the flatness of the Brillouin Stoke's peak power. By incorporating a double-pass EDFA, a stable output laser comb up to 8 channels was obtained at 1503nm wavelength region with peak power variation for the first three Stokes is reduced from 30.9dB to 5.4dB. The incorporation of additional EDFA also increases the tuning range of the BEFL which the maximum tuning range of 1.8 nm was obtained with the single-pass scheme. The S-band BEFL has constant spacing of 0.09 nm or 11 GHz which has a potential application in dense wavelength division multiplexed system.

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