

## Utilization of stimulated Raman Scattering as secondary pump on hybrid remotely-pump L-band Raman/erbium-doped fiber amplifier.

### ABSTRACT

An L-band remotely-pumped erbium-doped fiber amplifier incorporating a secondary pumping scheme utilizing stimulated Raman Scattering (SRS) was demonstrated. 1423 nm Raman laser was employed to generate SRS which became the secondary pump source. The amplifier displayed excellent gain of up to 27.3 dB at 1570 nm for  $-30$  dBm input. Noise figures were also kept to a minimum, with the highest figure measured at 11 dB which was influenced by imperfection of the C/L coupler utilized in this architecture. Overall transmission performance was measured as well and demonstrated an encouraging outcome with gain as high as 24 dB while the noise figure was maintained at about 11 dB. The L-band signal amplification was also contributed by the stimulated Raman scattering along the transmission fiber. The outcome of this study emphasized the feasibility of secondary pumping scheme using SRS in L-band gain enhancement.

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