

## **Analysis of Advanced Modulation Format Using Gain and Loss Spectrum for Long Range Radio over Fiber System**

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**Abstract :** In this work, all optical Stimulated Brillouin Scattering (SBS) generated single sideband with suppressed carrier is presented to provide better efficiency. The generation of single sideband and enhanced carrier power signal using the SBS technique is further used to strengthen the low shifted sideband and to suppress the upshifted sideband. These generated single sideband signals are able to work at high frequency ranges. Also, generated single sideband is validated over 90 km transmission using single mode fiber with acceptable bit error rate. The results for an equivalent are then compared so that the acceptable technique is chosen and also the required quality for the optimum performance of the system is reported.

**Keywords :** stimulated Brillouin scattering, radio over fiber, upper side band, quality factor

**Conference Title :** ICCSE 2017 : International Conference on Communication Systems and Engineering

**Conference Location :** Toronto, Canada

**Conference Dates :** June 15-16, 2017