499. Title:Characterization of an actively linearized ultrabroadband chirped laser with a fiber-laser optical frequency comb

Authors:Barber, Zeb W. (1); Giorgetta, Fabrizio R. (2); Roos, Peter A. (3); Coddington, Ian (2); Dahl, Jason R. (1); Reibel, Randy R. (3); Greenfield, Nathan (3); Newbury, Nathan R. (2)

Source title:Optics Letters
Volume:36
Issue:7
Issue date:April 1, 2011
Publication year:2011
Pages:1152-1154
Language:English
Document type:Journal article (JA)

Abstract:The optical frequency sweep of an actively linearized, ultrabroadband, chirped laser source is characterized through optical heterodyne detection against a fiber-laser frequency comb. Frequency sweeps were measured over approximately 5 THz bandwidths from 1530nm to 1570nm. The dominant deviation from linearity resulted from the nonzero dispersion of the fiber delay used as a reference for the sweep linearization. Removing the low-order dispersion effects, the residual sweep nonlinearity was less than 60 kHz rms, corresponding to a constant chirp with less than 15 ppb deviation across the 5 THz sweep.