

Abstracts

Group velocity dispersion cancellation and additive group delays by cascaded fiber Bragg gratings in transmission

S. Wang, H. Erlic, H.R. Fetterman, E. Yablonovitch, V. Grubsky, D.S. Starodubov and J. Feinberg. "Group velocity dispersion cancellation and additive group delays by cascaded fiber Bragg gratings in transmission." 1998 Microwave and Guided Wave Letters 8.10 (Oct. 1998 [MGWL]): 327-329.

We have demonstrated that cascaded fiber Bragg gratings can provide delays of propagating pulses with minimal pulse reshaping. The grating pair used exhibited an overlap transmission region centered at 1551.05 nm, where both gratings contribute to the group delay and the group velocity dispersion (GVD) was canceled. Using wavelength tunable pulses spectrally sliced from a mode-locked fiber laser, the measurement was performed in the time domain with single picosecond resolution. Both gratings were 3 mm long and a maximum group delay of 15 ps was measured for the cascaded sequence. This compound grating configuration can be implemented as encoders and decoders in spread spectrum CDMA systems.

 [Return to main document.](#)