Abstracts

CW injection locking of a mode-locked semiconductor laser as a local oscillator comb for channelizing broad-band RF signals

T. Jung, Ji-Lin Shen, D.T.K. Tong, S. Murthy, M.C. Wu, T. Tanbun-Ek, Wenshen Wang, R. Lodenkamper, R. Davis, L.J. Lembo and J.C. Brock. "CW injection locking of a mode-locked semiconductor laser as a local oscillator comb for channelizing broad-band RF signals." 1999 Transactions on Microwave Theory and Techniques 47.7 (Jul. 1999, Part II [T-MTT] (Special Issue on Microwave and Millimeter-Wave Photonics)): 1225-1233.

CW injection locking of mode-locked semiconductor lasers has been experimentally demonstrated. The phases of the mode-locked frequency comb are shown to be coherent with that of the master CW laser. The pulsewidth of the mode-locked laser remains almost unchanged (<2 ps) for a broad range of injection power (-28 to -12 dBm). Pulling of the entire mode-locked frequency comb by 400 MHz has been demonstrated. The coherent multifrequency source can be used as a local oscillator comb for coherent optical channelizers for ultrawide-band RF signals.

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