Abstracts

Efficient optoelectronic mixing at Ka-band using a mode-locked laser

A.S. Daryoush, K. Sato, K. Horikawa and H. Ogawa. "Efficient optoelectronic mixing at Ka-band using a mode-locked laser." 1999 Microwave and Guided Wave Letters 9.8 (Aug. 1999 [MGWL]): 317-319.

The authors present optoelectronic mixing of data signals with a carrier signal in a mode-locked semiconductor laser diode. A long Fabry-Perot (FP) laser at 1.5 /spl mu/m, which is monolithically integrated with an electro-absorption modulator, is mode-locked at 19.3 GHz through loss modulation. The gain section of the mode-locked laser is modulated by S-band signals. Modulation sidebands are observed in the optical domain as a result of mixing between the mode-locking and S-band communication signals. Optical up-conversion loss of 2.7 and 1.4 dB is measured for the LSB and USB. The measured spurious-free dynamic range is as high as 89 dB.Hz/sup 2/3/.

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