Abstracts

Techniques for multichannel data transmission using a multisection laser in millimeter-wave fiber-radio systems

C. Lim, A. Nirmalathas and D. Novak. "Techniques for multichannel data transmission using a multisection laser in millimeter-wave fiber-radio systems." 1999 Transactions on Microwave Theory and Techniques 47.7 (Jul. 1999, Part II [T-MTT] (Special Issue on Microwave and Millimeter-Wave Photonics)): 1351-1357.

We present two techniques for the transmission of multiple modulated millimeter-wave (MM-wave) frequencies using a multisection laser and demonstrate both methods in the upstream path of a MM-wave fiber-radio system. In these modulation schemes, the laser is stabilized separately from the data modulation. Stabilization of the laser is achieved using hybrid and synchronous mode-locking techniques while the MM-wave radio channels are applied directly to the laser gain section. We implement a fiber-radio system incorporating the multisection laser at the antenna base station and demonstrate error-free transmission of two radio channels at 37 GHz over 20 km of fiber using each stabilization scheme.

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