Simultaneous 60-GHz RoF Transmission of Lightwaves Emitted by ECL, DFB, and VCSEL

Simultaneous 60-GHz radio over fiber upconversion and fiber transmission of lightwaves produced by an external cavity laser, a distributed feedback laser, and a C-band vertical cavity surface emitting laser are demonstrated. The 1.25-Gb/s data are transmitted concurrently on each of the lightwaves attaining a bit error rate performance level. Carrier suppression of 20 dB is achieved for all three lightwaves placed in a wide wavelength range. The $10^{-9}$ receiver sensitivity level for detection of three lightwaves falls in a region. Reported close performance of the investigated techniques enables diversification of options for lightwave generation in millimeter-wave fiber-wireless networks.

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