Abstracts

Simultaneous modulation and fiber-optic transmission of 10-Gb/s baseband and 60-GHz-band radio signals on a single wavelength

T. Kamisaka, T. Kuri and K. Kitayama. "Simultaneous modulation and fiber-optic transmission of 10-Gb/s baseband and 60-GHz-band radio signals on a single wavelength." 2001 Transactions on Microwave Theory and Techniques 49.10 (Oct. 2001, Part II [T-MTT] (Special Issue on Microwave and Millimeter-Wave Photonics)): 2013-2017.

A simultaneous modulation and fiber-optic transmission of a 10-Gb/s baseband signal and a 60-GHz RF signal with 155-Mb/s differential-phase-shift-keying (DPSK) data on a single wavelength is investigated. To the authors' knowledge, it is experimentally demonstrated for the first time that both a 10-Gb/s on-off-keying baseband signal and a 60-GHz RF signal with 155-Mb/s DPSK data are simultaneously modulated with a single optical modulator and transmitted over 40-km-long dispersion-shifted fiber (DSF). There exists the received optical power capable of achieving a bit error rate of 10/sup -9/ simultaneously for both the RF and baseband signals. The degradations due to the nonlinearity of the electroabsorption modulator for the baseband and RF signals are also investigated theoretically and clarified numerically.

❑ Return to main document.