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Tunable microwave photonic frequencies generation based on stimulated Brillouin scattering operating in the L-band region (Article)

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Abstract

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A tunable up frequencies of microwave photonics based on stimulated Brillouin scattering (SBS) for application in radio over fiber is demonstrated. The experimental setup consists of 7.7 km dispersion compensated fiber, which acts as the nonlinear medium for generating the SBS and is pumped by a narrow linewidth (0.015 nm) tunable laser operating in L-band region. The input-modulated RF at 2 GHz is upshifted to new frequencies of 7.71, 7.68, 7.65, 7.62, 7.58, and 7.56 GHz at Brillouin pump wavelengths of 1580, 1585, 1590, 1595, 1600, and 1605 nm, respectively. This system allows certain tunability in the upshifted frequencies by using a tunable laser source. © 2011 Wiley Periodicals, Inc.

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Author keywords

Fiber laser L-band region Microwave photonics Stimulated Brillouin scattering

Indexed keywords

Engineering uncontrolled terms

Brillouin pump Experimental setup L-band region Microwave photonics
Narrow-line width Nonlinear medium Radio over fiber Stimulated Brillouin
Tunabilities Tunable laser sources Tunable microwave

Engineering controlled terms:

Fiber lasers Laser tuning Light polarization Pumping (laser) Scattering Ultrasonics

Engineering main heading:

Stimulated Brillouin scattering

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