Abstracts

Signal-to-Noise Performance of a Fiber Optic Subcarrier Link Using an HBT Optoelectronic Up-Converter

E. Suematsu and N. Imai. "Signal-to-Noise Performance of a Fiber Optic Subcarrier Link Using an HBT Optoelectronic Up-Converter." 1994 MTT-S International Microwave Symposium Digest 94.3 (1994 Vol. III [MWSYM]): 1501-1504.

The signal-to-noise performance of a fiber optic microwave subcarrier link using an HBT as an optoelectronic up-converter in the millimeter-wave band has been experimentally investigated for the first time. This paper shows that the HBT not only has a high photodetection ability in direct photodetection but also has a high conversion ratio between a microwave subcarrier of an optical signal and a millimeter-wave carrier. The link signal-to-noise ratio of an HBT up-converter at IF=3.2GHz /RF=30GHz is 11 dB and 21 dB higher than that of a HBT direct photodetector and a PIN photodetector at 30 GHz, respectively. The HBT optoelectronic up-converter has the function of a photodetector, an IF amplifier and a mixer.

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