Abstracts

A Heterodyne Receiver for 40-GHz-Modulated 1.3-µm Optical Signals Using a Multi-Tasked InP-Based HEMT

C. Rauscher and K.J. Williams. "A Heterodyne Receiver for 40-GHz-Modulated 1.3-µm Optical Signals Using a Multi-Tasked InP-Based HEMT." 1992 MTT-S International Microwave Symposium Digest 92.3 (1992 Vol. III [MWSYM]): 1413-1416.

Heterodyne reception of a millimeter-wave modulated 1.3-µm optical carrier signal is achieved with an InP-based HEMT that performs four simultaneous functions all in one. The functions comprise carrier demodulation, generation of a local oscillation signal, frequency multiplication thereof, and transistor-internal down-conversion of the modulation signal to a lower intermediate frequency band. The measured performance characteristics of the heterodyne receiver are reported together with results derived from a systematic study of optical detection and mixing properties of a HEMT by itself, observed as functions of modulation signal frequencies up through 40 GHz and bias conditions.

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