Abstracts

60 GHz GaAs MMIC Technology for a High Data Rate Mobile Broadband Demonstrator

U. Guttich, A. Plattner, W. Schwab, I. Telliez, S. Tranchant, P. Savary, P. Bourne-Yaonaba, B. Byzery, E. Delhaye, C. Cordier and M. Chelouche. "60 GHz GaAs MMIC Technology for a High Data Rate Mobile Broadband Demonstrator." 1996 MTT-S International Microwave Symposium Digest 96.2 (1996 Vol. II [MWSYM]): 495-498.

A millimeter-wave front end demonstrator for broadband pico-cell networks has been developed using 60 GHz GaAs MMIC technology. The following sub-assemblies are integrated in the demonstrator a 56.8 GHz phase locked LO, an upconverter from 5.2 - 6.2 GHz IF to a 62 - 63 GHz band, a double-channel low noise downconverter from the 62 - 63 GHz band to an IF of 5.2 - 6.2 GHz, and a power amplifier for the 62 GHz to 66 GHz band. For a duplex operation a second upconverter module operating at 65-66 GHz (IF 8.2 - 9.2 GHz) is used. All monolithic HFET and PHFET circuits are realised using subquarter micron technologies. For the fully assembled receivers overall noise figures of less than 10 dB have been measured. Field tests have proven the ability to transmit data nearly error free over a distance of 200m.

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