# Abstracts

## A Ka-band monolithic single-chip transceiver using sub-harmonic mixer (1998 Vol. I [MWSYM])

*Yon-Lin Kok, M. Ahmadi, Huei Wang, B.R. Allen and T. Lin. "A Ka-band monolithic single-chip transceiver using sub-harmonic mixer (1998 Vol. I [MWSYM])." 1998 MTT-S International Microwave Symposium Digest 98.1 (1998 Vol. I [MWSYM]): 309-311.*

This paper presents development of a Ka-band (38 GHz) single-chip transceiver based on GaAs HEMT MMIC technology. The transceiver chip utilizes a sub-harmonic mixer in receiving chain such that LO-to-RF port isolation can be improved by more than 20 dB without sacrificing chip compactness. In addition the DC power consumption can be reduced to about one-half of the conventional transceiver with a direct mixer receiver. To date this single-chip transceiver chip has demonstrated a measured LO-to-RF input port isolation of 62 dB, LO-to-RF transmitter port isolation of 52 dB and a power consumption of 1.0 and 3.4 watt in receive and transmit modes respectively. The receiver noise figure achieves 9 dB across the RF band from 38.0 to 38.6 GHz with an IF of 2.38 GHz under 4 dBm LO drive. The conversion gain was measured to be greater than 17 dB.

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