Abstracts

A Novel Sub-Harmonic Pumping Direct Conversion Receiver with High Instantaneous Dynamic Range

M. Shimozawa, K. Kawakami, K. Itoh, A. Iida and O. Ishida. "A Novel Sub-Harmonic Pumping Direct Conversion Receiver with High Instantaneous Dynamic Range." 1996 MTT-S International Microwave Symposium Digest 96.2 (1996 Vol. II [MWSYM]): 819-822.

A novel sub-harmonic pumping direct conversion receiver (SHP-DCR) employing antiparallel diode pair (APDP) is proposed for high instantaneous dynamic range receivers used in mobile communications. The proposed SHP-DCR can suppress even harmonic mixing products, such as second order intermodulation (IM2) and LO noise that interfere a desired baseband signal. Moreover, the design condition of load resistance is indicated by analytical and experimental approaches for improving diode mixer disadvantages of lower conversion gain and higher LO power. A developed L-band SHP-DCR without a low noise amplifier achieves NF of 18.5dB, IP3 at input port of 3dBm and IM2 is below -90dB in the actual input range.

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