Abstracts

Novel DC-offset cancellation techniques for even-harmonic direct conversion receivers

B. Matinpour, S. Chakraborty and J. Laskar. "Novel DC-offset cancellation techniques for even-harmonic direct conversion receivers." 2000 Transactions on Microwave Theory and Techniques 48.12 (Dec. 2000 [T-MTT] (Special Issue on 2000 International Microwave Symposium)): 2554-2559.

We present two novel dc-offset cancellation techniques for antiparallel diode pair even-harmonic mixers in a direct conversion receiver. Using fundamental equations, we describe the contribution of diode mismatch to dc offset and present an intrinsic mechanism of dc-offset cancellation. Similarly, we describe an extrinsic method of cancellation utilizing the second harmonic of the local oscillator. The cancellation techniques are successfully incorporated in fully monolithic C-band direct conversion receivers and mixers. Measurements confirm the equations and verify complete cancellation using the proposed methods. This works provides a solid foundation for the design and development of fully monolithic and high-performance direct conversion receivers.

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