Abstracts

A 0.9-2.6 GHz broadband RF front-end for direct conversion transceivers

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A broadband radio frequency (RF) front-end for direct conversion transceivers has been developed. The RF front-end consists of a broadband low-noise variable gain amplifier (LNVGA) and broadband quadrature mixers. The LNVGA achieves high linear characteristics by using a feedback circuit and broadband characteristics by not using reactance elements such as inductors or capacitors. The mixer achieves broadband characteristics through the incorporation of a in-phase power divider and a 45-degree power divider. The in-phase power divider achieves broadband characteristics through the addition of a compensation capacitor. The 45-degree power divider achieves broadband phase characteristics through the addition of capacity to increase the resonance point. From 0.9 GHz to 2.6 GHz, the LNVGA shows a noise figure of less than 2.1 dB and a gain of 28 /spl plusmn/ 1.6 dB. The mixer for a demodulator shows an amplitude error of less than 1.6 dB and a phase error of less than 3 degrees. The mixer for a modulator shows an image ratio of less than -30 dBc.

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