Abstracts

High-efficiency class-A power amplifiers with a dual-bias-control scheme

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A new scheme for power amplifiers is proposed, which can provide both high efficiency and linearity. The proposed amplifier operates in a virtual class-A mode under dual-bias control to maximize the power-added efficiency along with its inherent class-A linearity. The dynamic dual-bias control involves controlling both bias current and voltage of the amplifier with a varying envelope of input RF signals. The efficiency of the proposed amplifier is theoretically evaluated and compared with that of other conventional amplifier schemes. Based on theoretical analyses, several promising schemes for dual analog and digital bias control are proposed and discussed.

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