Abstracts

Analytic design of high efficiency harmonic loading oscillator using harmonic two signal method

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A 61% DC-to-RF conversion efficiency oscillator with very low bias of 2.0 V is designed in 1.86 GHz. To obtain maximum DC-to-RF conversion efficiency, DC operating point is chosen in class AB with the second harmonic loading. The maximum efficiency and output power are analyzed and predicted very fast through a novel HTSM (Harmonic Two Signal Method) under class AB or B bias condition. Harmonic components effects on the oscillators, self-oscillating condition, and DC current change as the RF drive level are also analyzed through HTSM.

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