Abstracts

High-efficiency push-pull power amplifier integrated with quasi-Yagi antenna

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This paper presents a C-band push-pull power amplifier integrated with a modified uniplanar quasi-Yagi antenna. In this circuit, corrugation is added to the truncated ground plane of the antenna so that it can be used for both out-of-phase power combining and second harmonic tuning. By using the active integrated antenna concept, this novel circuit eliminates the usage of an ordinary 180/spl deg/ hybrid at the power-amplifier output stage, therefore eliminating the losses associated with the hybrid, resulting in a compact and high-efficiency power-amplifier design with intrinsic second harmonic suppression. At an operating frequency of 4.15 GHz, a maximum measured power-added efficiency (PAE) of 60.9% at an output power of 28.2 dBm has been achieved. The measured PAE is above 50% over a 260-MHz bandwidth. Additionally, the second harmonic radiation is found to be 30 dB below the fundamental in both E- and H-planes. When the circuit is subjected to a two-tone test, the measured third-order intercept point is 37 dBm, about 10 dB above the P/sub 1 dB/ point.

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