

Switching power control for multimode multiband power amplifier

ABSTRACT

Driven by ever-increasing consumer demand for wireless devices capable of supporting multiple air standards and applications, the implementation of multimode multiband (MMMB) power amplifier (PA) has been steadily increasing. This paper presents a design of a MMMB PA based on an industry-standard 130nm CMOS process technology, capable of operating in three power modes and in three different bands. Multiple gated transistor technique (MTGR) has been designed whereby the output power from the PA is controlled by external switching control voltage. Series combining transformer has been adopted to achieve higher output power. The PA has 300MHz bandwidth starting from the frequency of 1.7GHz up to 2.0GHz, covering the LTE bands 1, 2 and 3, with output saturated power of 33dBm.

Keyword: Multimode; Multiband; Power amplifier; Power added efficiency (PAE); Long term evolution (LTE)