

OFDM系统高效Doherty功率放大器设计

陈小群, 郭玉春, 史小卫

(西安电子科技大学 天线与微波技术重点实验, 陕西 西安 710071)

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摘要 针对OFDM信号的高峰均比(PAPR)特性, 提出了一种倒置结构的Doherty功率放大器. 使Doherty的输出结合点由峰值放大器的末端转换到载波放大器的末端, 提高了载波放大器的负载调制效率. 与传统的Doherty功率放大器相比, 其有效的负载调制使该功率放大器的功率附加效率提高了3%. 实测结果表明, 该放大器在功率回退10dB时仍维持27.8%的功率附加效率, 同时其三阶互调失真(IMD3)和邻道泄漏比(ACLR)分别有2.5dB和2dB的改进, 适用于OFDM通信.

关键词 [Doherty功率放大器](#) [峰均比](#) [功率附加效率](#)

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Design of a highly efficient Doherty power amplifier for the OFDM system

CHEN Xiao-qun, GUO Yu-chun, SHI Xiao-wei

(Key Lab. of Antennas and Microwave Technology, Xidian Univ., Xi'an 710071, China)

Abstract

An inverted Doherty power amplifier is proposed for the OFDM with the characteristic of high power to average power ratio (PAPR). The inverted structure changes its combining node from the end of the peak amplifier to the carrier amplifier, which improves the efficiency of load modulation in the carrier amplifier. Compared with the conventional Doherty power amplifier, the power added efficiency (PAE) of the proposed amplifier is improved by 3% due to its effective impedance modulation. Measurement results show that the PAE of the proposed amplifier remains about 27.8% with 10dB output power back-off. Its third-order intermodulation distortion (IMD3) and adjacent channel power ratio (ACPR) are improved by 2.5dB and 2dB respectively, which could be applied to OFDM communication well.

Key words [Doherty power amplifier](#) [power to average ratio](#) [power added efficiency](#)

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通讯作者 陈小群 xqchen@mail.xidian.edu.cn

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