OPTIMIZING DOHERTY POWER AMPLIFIERS WITH IOT INTEGRATION FOR ENHANCED PERFORMANCE

Sachin G V, K.M.Sudharshan, Prashant.V.Joshi, Venkateshappa
Department of Electronics and Communication
REVA University, Yelahanka, Bangalore, India

The challenge stems from the requirement for RF power amplifiers that are compatible with 5G and can boost power gain without compromising linearity as wireless networks advance. To increase power gain and make sure the power amplifier is appropriate for 5G low-power communications, this study looked into advanced CMOS RF Doherty power amplifier topologies from IOT. A DPA using the 180nm CMOS technology from Cadence Virtuoso through the tool has been designed and characterized to experimentally demonstrate the suggested approach. The DPA is designed with 5G applications in mind and is tuned for 70.85 dBm efficiency at 2.5 GHz, respectively. The prototype performs competitively when compared to the present service-oriented architecture at similar frequencies, achieving saturated output power of over 70 dBm and PAE of the order from 70.85 dB with the obtained power gain of 6 dB. The results of models and measurements show a very neat demonstration of the validity of the design.

 ISBN 978-8-19688-984-5