Abstracts

Drive modulation in Kahn-technique transmitters

F.H. Raab. "Drive modulation in Kahn-technique transmitters." 1999 MTT-S International Microwave Symposium Digest 99.2 (1999 Vol. II [MWSYM]): 811-814 vol.2.

Kahn-technique (EER) transmitters are ideally 100-percent efficient regardless of peak-to-average ratio or operation in back-off. However, the classic Kahn architecture employs fixed-level drive to the RF final amplifier, resulting in degraded efficiency when the peak-to-average ratio of a signal is high or the transmitter is operated in back-off. Because virtually all RF-power devices have low gain at low supply voltages, full modulation of the drive causes signal drop-outs, hence intermodulation distortion. This paper describes a technique for partial drive modulation in which the drive amplitude is a minimum value added to the desired envelope. This technique greatly reduces average drive power while preserving highly linear operation, resulting in significantly improved efficiency for signals with high peak-to-average ratios and operation in back-off.

❑ Return to main document.