

ABSTRACT

SYSTEMS AND METHODS FOR A RADIO FREQUENCY TRANSMITTER WITH IMPROVED LINEARITY AND POWER OUT UTILIZING PRE-DISTORTION AND A GAN (GALLIUM NITRIDE) POWER AMPLIFIER DEVICE

Various embodiments provide for systems and methods for increased linear output power of a transmitter. An exemplary wireless communications system for transmitting an input signal comprises a predistorter module, a GaN power amplifier, a coupler, and an antenna. The predistorter module is configured to detect existing distortion by comparing the input signal to a feedback signal and generate a correction signal. The predistorter may adaptively adjust its operation to minimize the existing distortion due to GaN power amplifier nonlinear characteristics. The result is that the GaN power amplifier may send a power signal of improved linearity to the antenna. The coupler is configured to sample the amplified signal from the GaN power amplifier to generate the feedback signal. The antenna is configured to transmit the amplified signal.

[FIG. 2]