

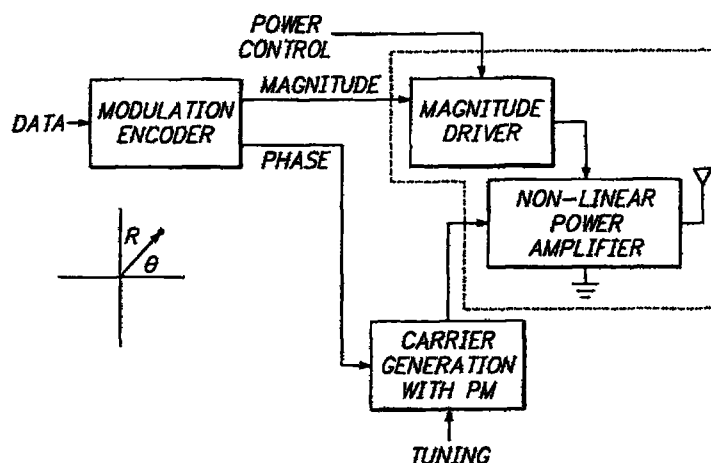
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(54) Title: HIGH-EFFICIENCY MODULATING RF AMPLIFIER



(57) Abstract: The present invention provides for high-efficiency power control of a high-efficiency (e.g. hard-limiting or switch-mode) power amplifier. The spread between a maximum frequency of the desired modulation and the operating frequency of a switch-mode DC-DC converter is reduced by following the switch-mode converter with an active linear regulator. The linear regulator controls the operating voltage of the power amplifier with sufficient bandwidth to reproduce the desired amplitude modulation waveform. The linear regulator rejects variations on its input voltage even while the output voltage is changed in response to an applied control signal. Amplitude modulation is achieved by varying the operating voltage on the power amplifier. High efficiency is enhanced by allowing the switch-mode DC-to-DC converter to also vary its output voltage such that the voltage drop across the linear regulator is kept at a low and relatively constant level.