

(12) **United States Patent**
Persson

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(54) **ADAPTIVE LINEARIZATION OF POWER AMPLIFIERS**

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(52) U.S. Cl. **330/149; 330/136; 375/296; 455/126**

(58) Field of Search **330/149, 136; 375/296, 297; 455/126, 127**

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Primary Examiner—Robert Pascal

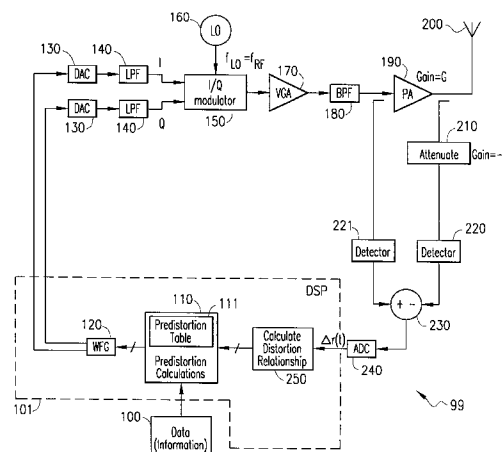
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(57) **ABSTRACT**

A method and apparatus adaptively compensates for nonlinearities of a power amplifier by measuring a distortion characteristic across the power amplifier during amplification of a distortion detection signal. The distortion detection signal has a well-defined input power versus time relationship, such as ramp-up signal or ramp-down signal. Due to this well-defined relationship, the distortion characteristic can be calculated as a function of the input power level. This calculated function is then utilized to update a predistortion lookup table.

33 Claims, 10 Drawing Sheets



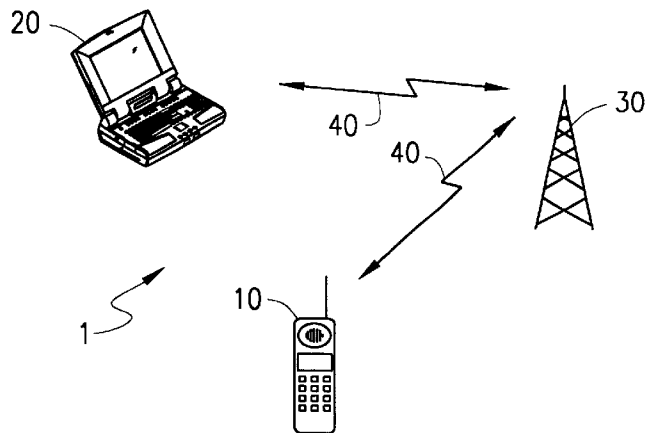


FIG. 1

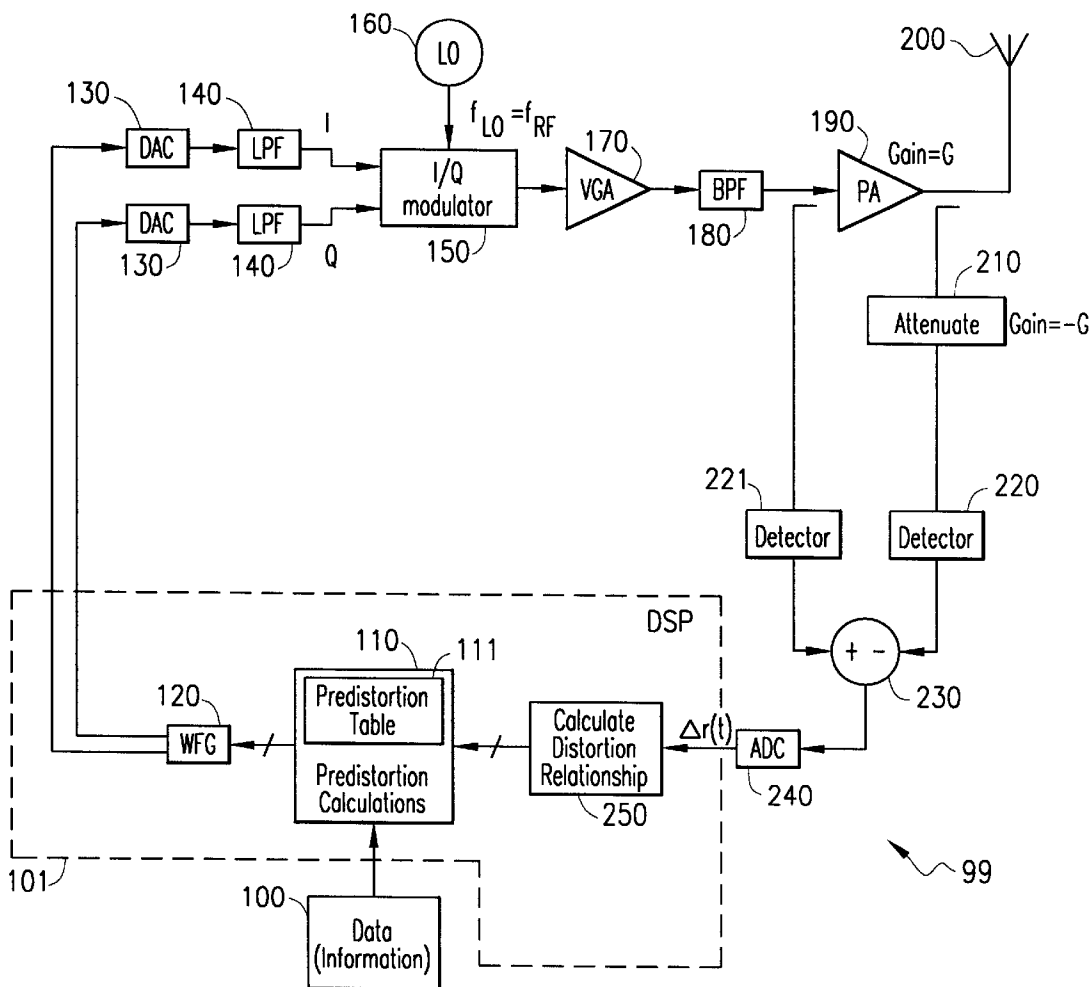
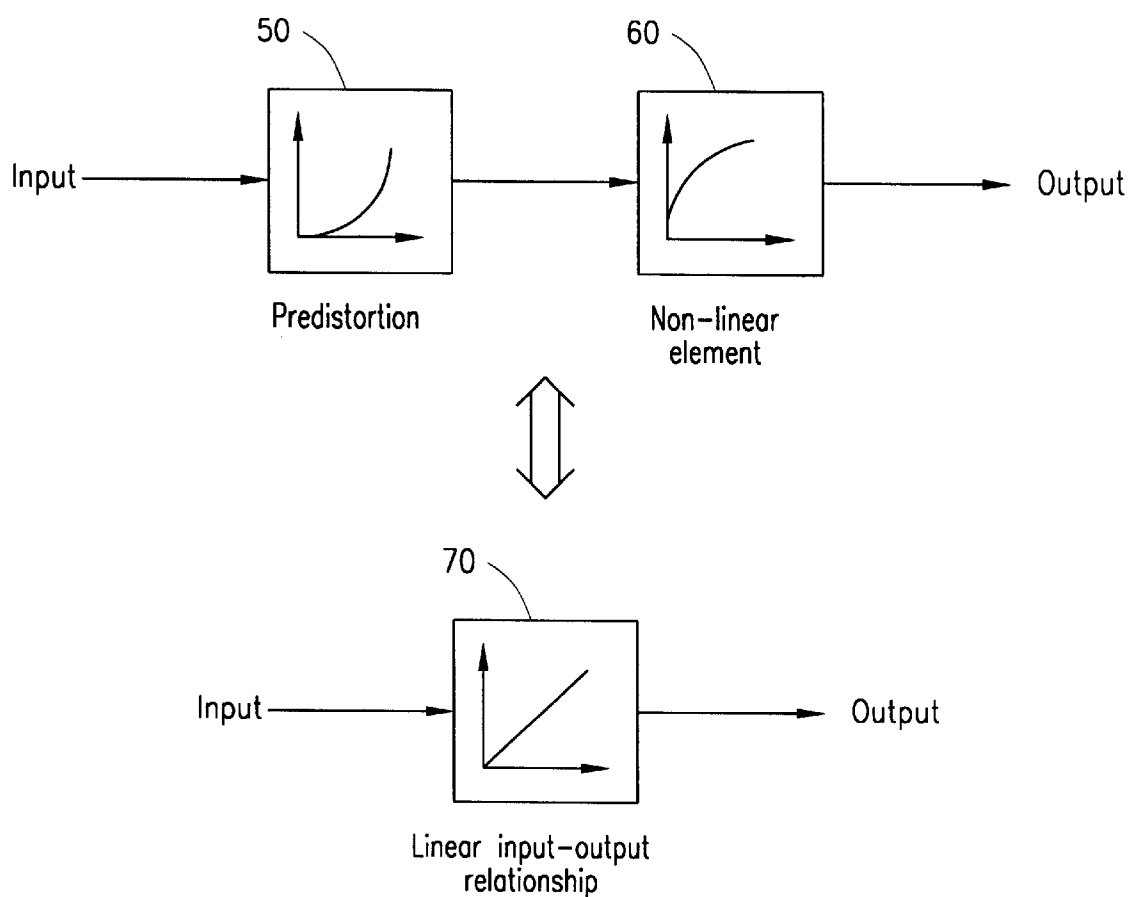


FIG. 2

*FIG. 3*

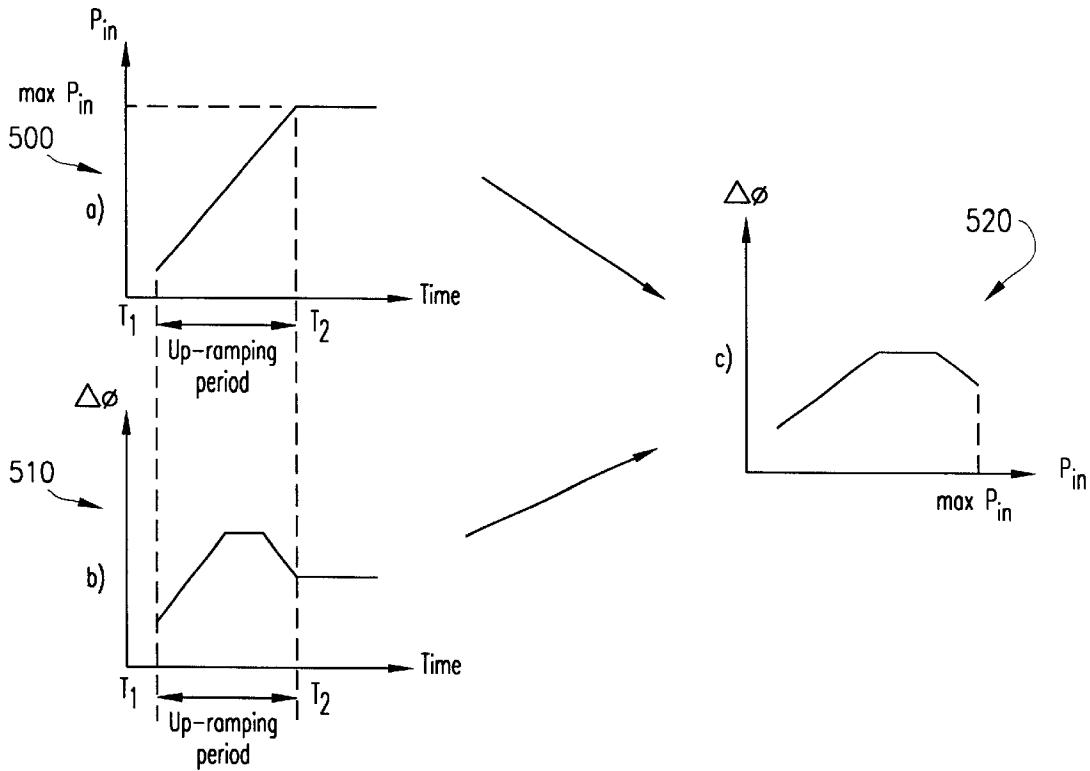


FIG. 4

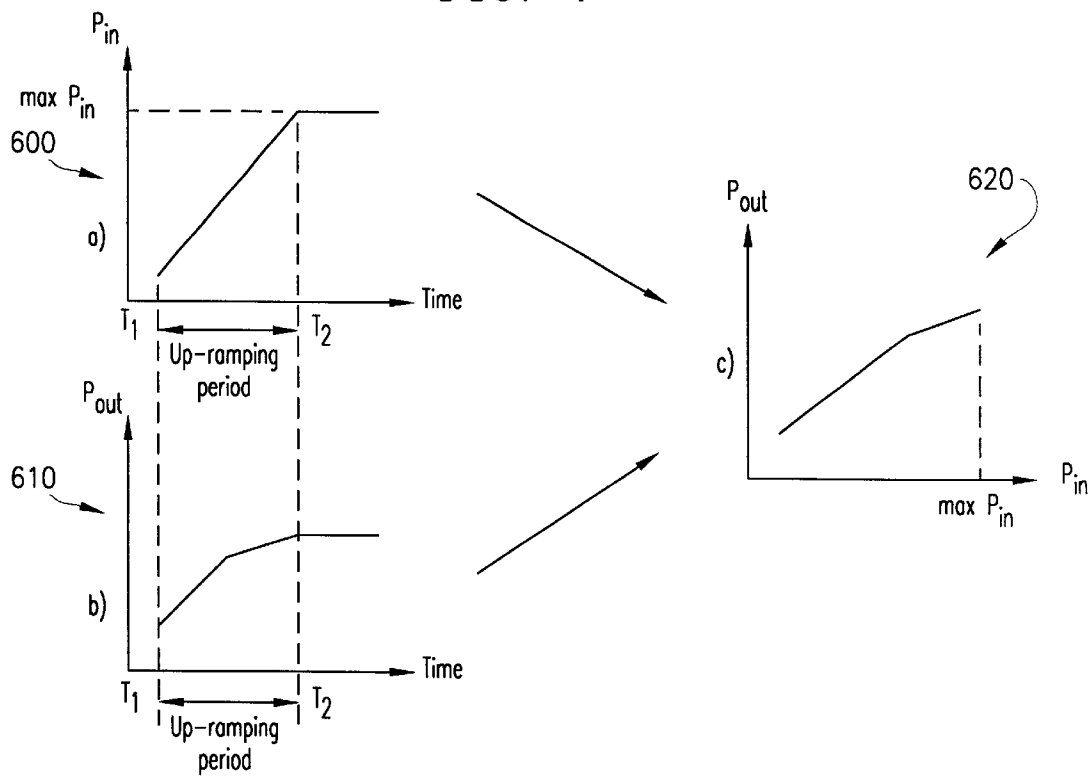


FIG. 5

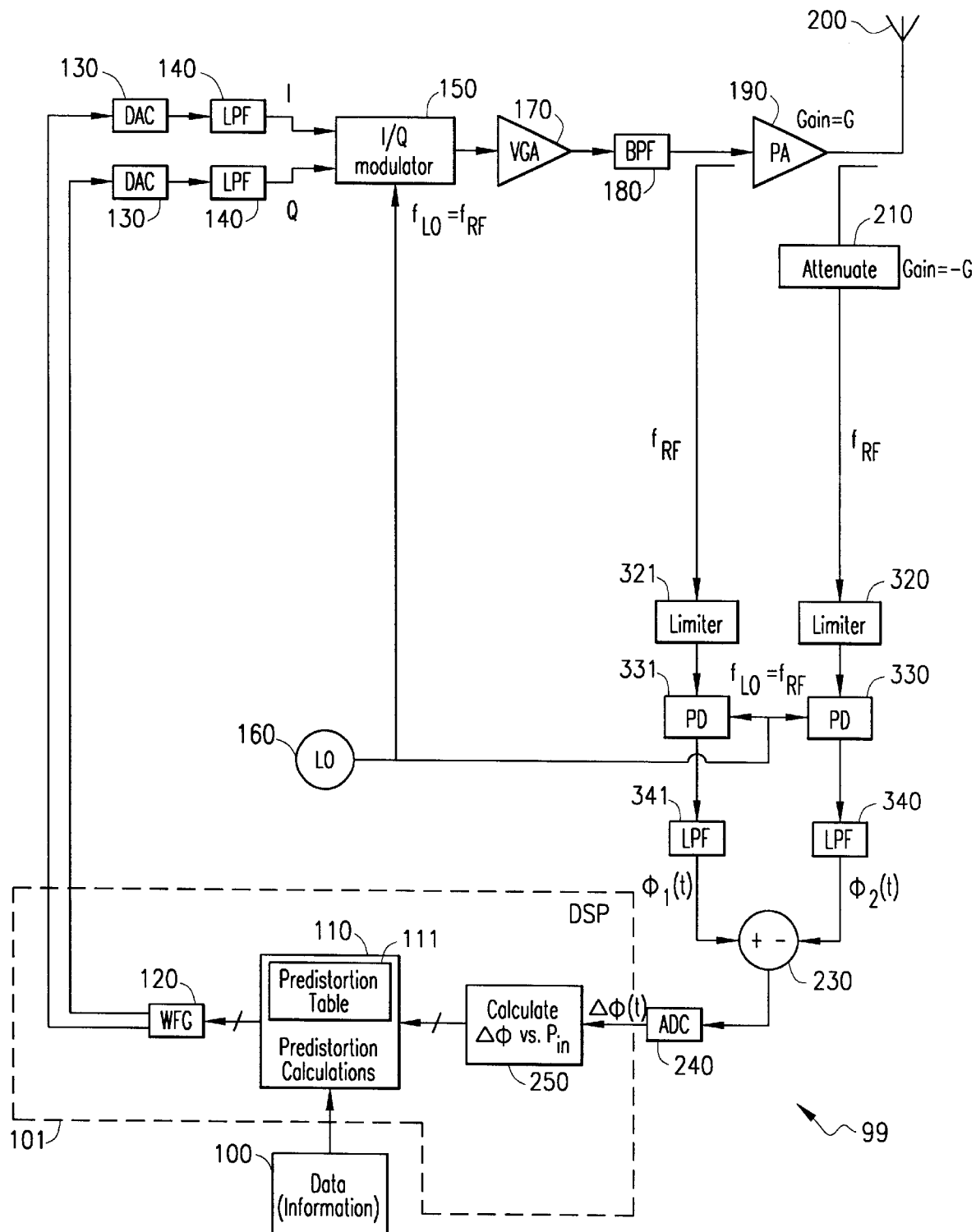


FIG. 6

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