

[54] **ADAPTIVE DIGITAL PREDISTORTION FOR POWER AMPLIFIERS WITH REAL TIME MODELING OF MEMORYLESS COMPLEX GAINS**

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[52] U.S. Cl. **330/149; 332/103**

[58] Field of Search 330/149; 332/103, 332/107, 123, 159, 160; 375/297; 455/63, 126

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Primary Examiner—Robert Pascal

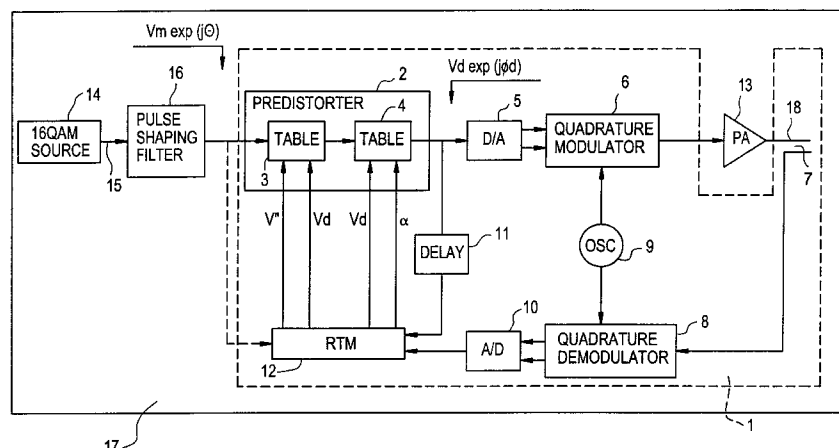
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[57] **ABSTRACT**

In an adaptive method and device for predistorting a signal to be transmitted, supplied by a signal source to an input of a power amplifier having a output for delivering an amplified output signal, the following steps are conducted: predistorting the signal to be transmitted by means of cascaded predistortion amplitude and phase look-up tables interposed between the signal source and the input of the power amplifier, producing a first feedback signal in response to the predistorted signal, producing a second feedback signal in response to the amplified output signal from the power amplifier, delaying the first feedback signal for eliminating any time lag between the first and second feedback signals, and real time modeling the predistortion amplitude and phase look-up tables in response to the first and second feedback signals in order to update these two tables. The position of the delay circuit (delaying step), that permits the use of the real time modeling procedure, eliminates the convergence time and the requirement for any iterative algorithms.

18 Claims, 4 Drawing Sheets



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FIG. 1

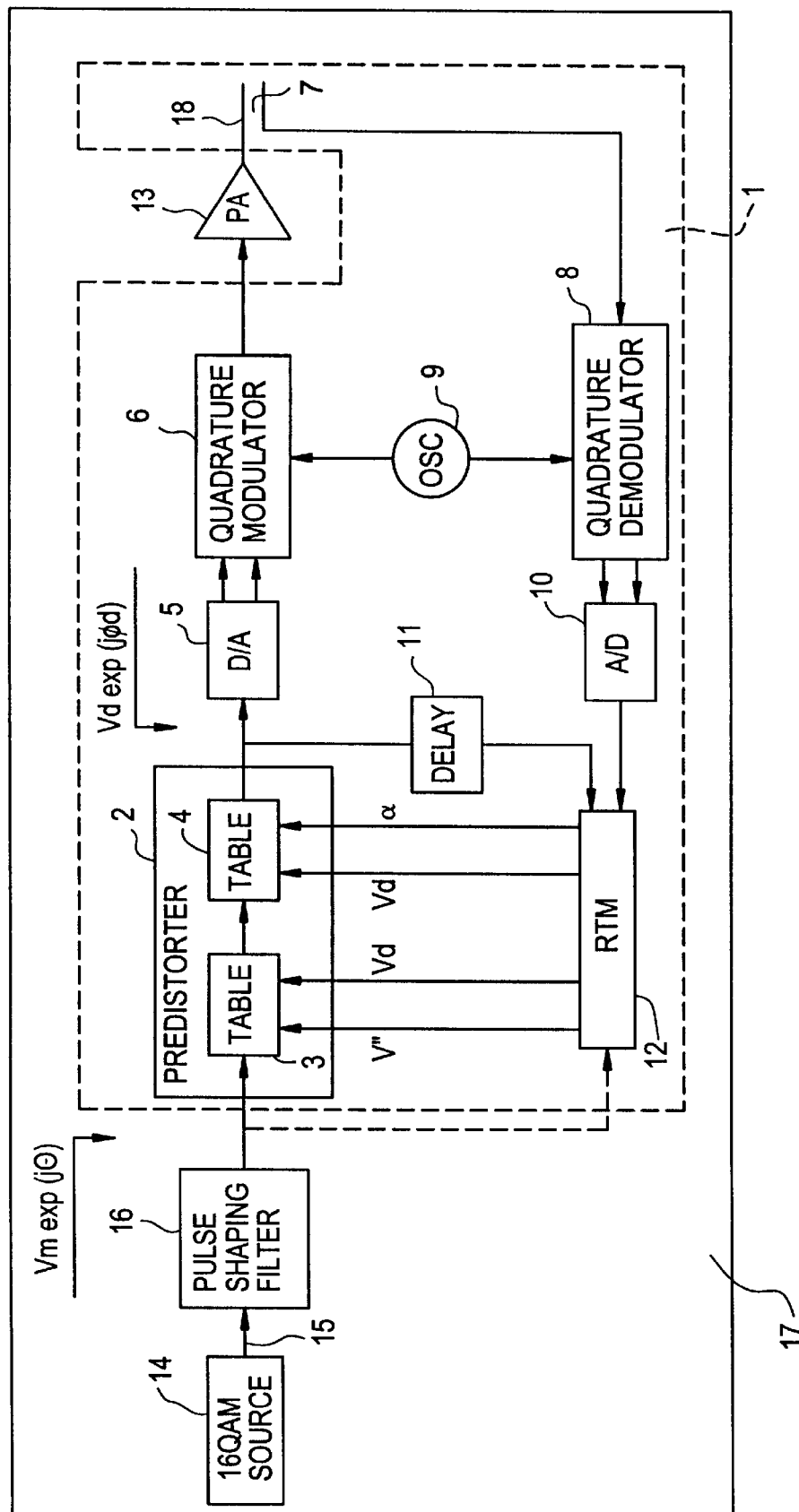


FIG.2a

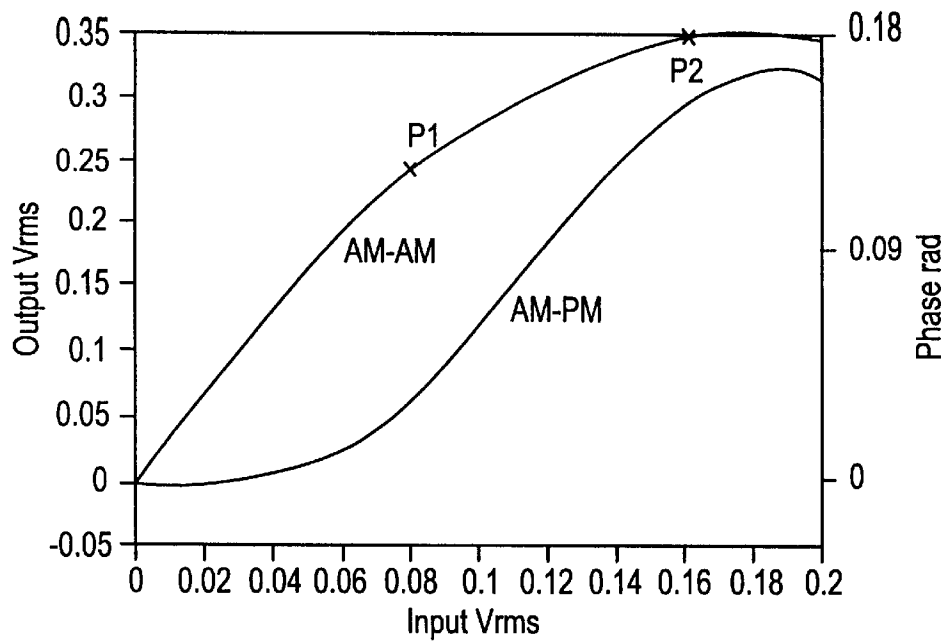


FIG.2b

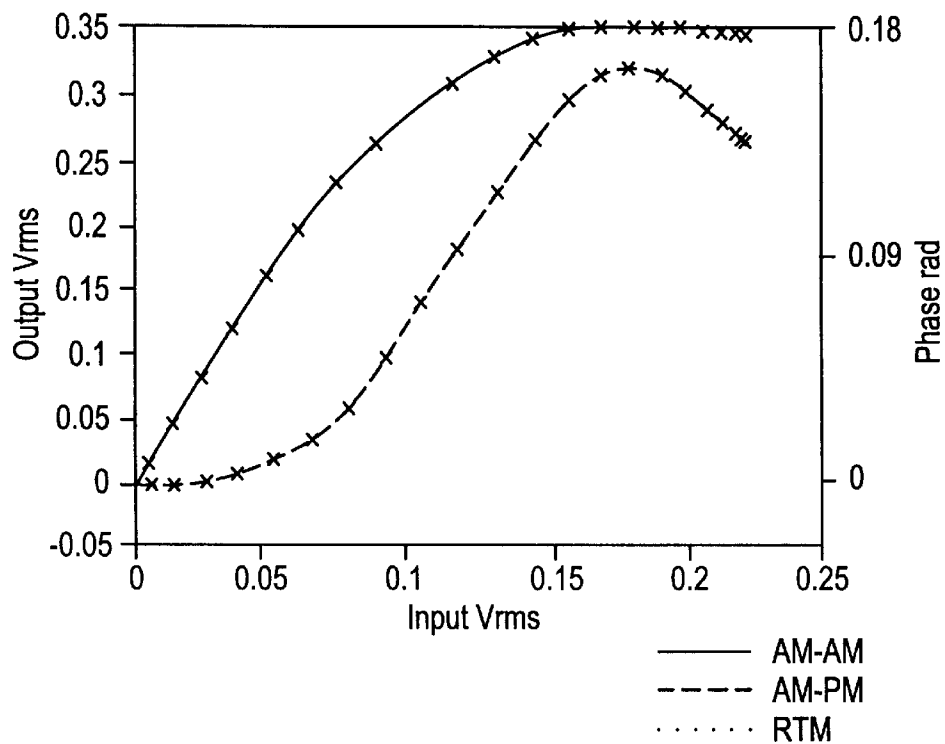


FIG. 3a

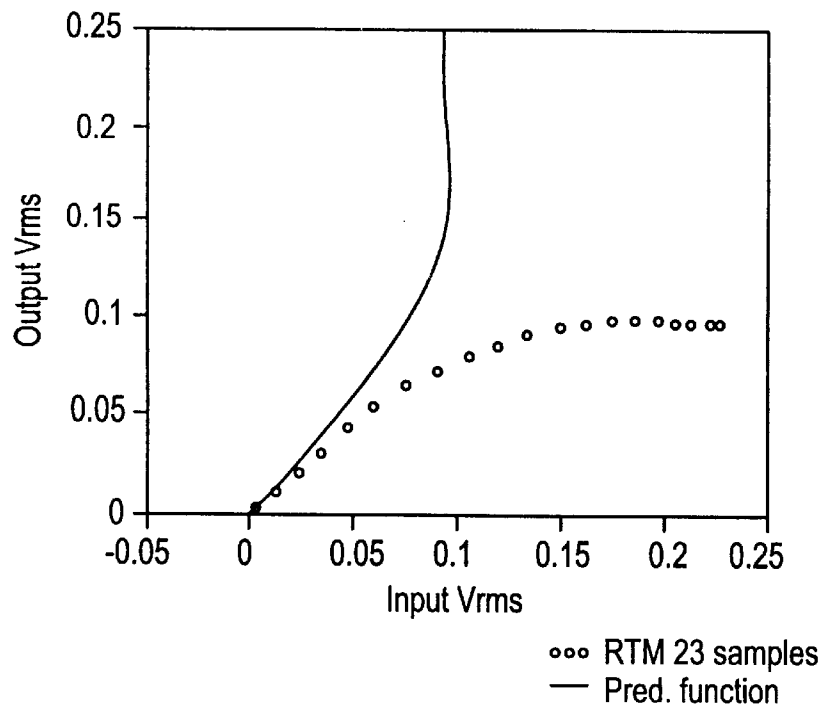
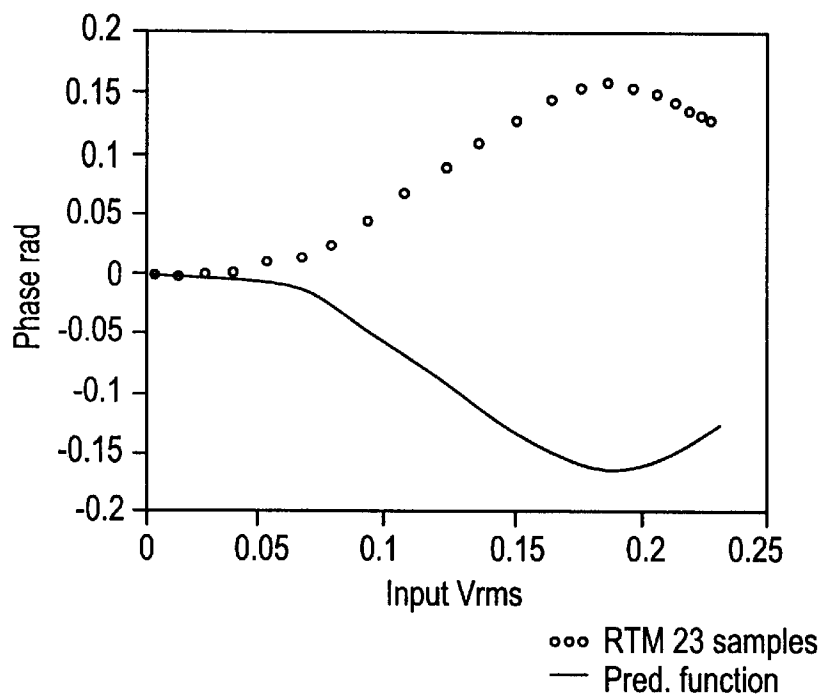


FIG. 3b



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