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(54) Title: MULTI-STAGE, REGRESSION-BASED PCR ANALYSIS SYSTEM

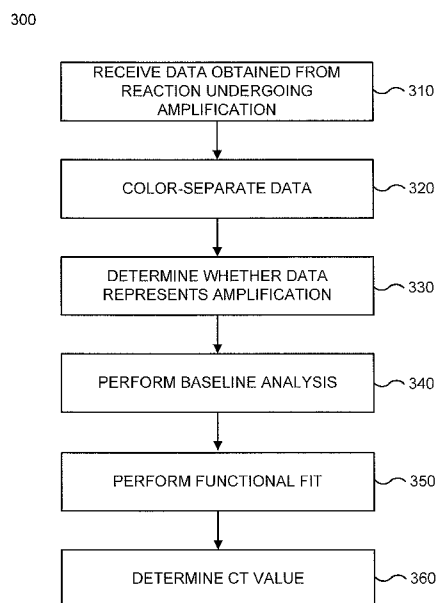


FIG. 3

(57) Abstract: Systems and methods are provided for analyzing data to determine properties of a PCR process or other process exhibiting amplification or growth. Data representing an amplification can be distinguished from data representing a jump or other error. A modified sigmoid function containing a drift term may be used in determining the properties. A multi stage functional fit of the amplification data can provide increased accuracy and consistency of one or more of the properties. A baseline of the amplification data can be determined by analyzing an integrated area of a first derivative function of the data. A reference quantitation value can also be determined from locations of maxima of different derivative functions of the amplification data, e.g., a weighted average of the maxima locations for the second and third derivatives may be used.