

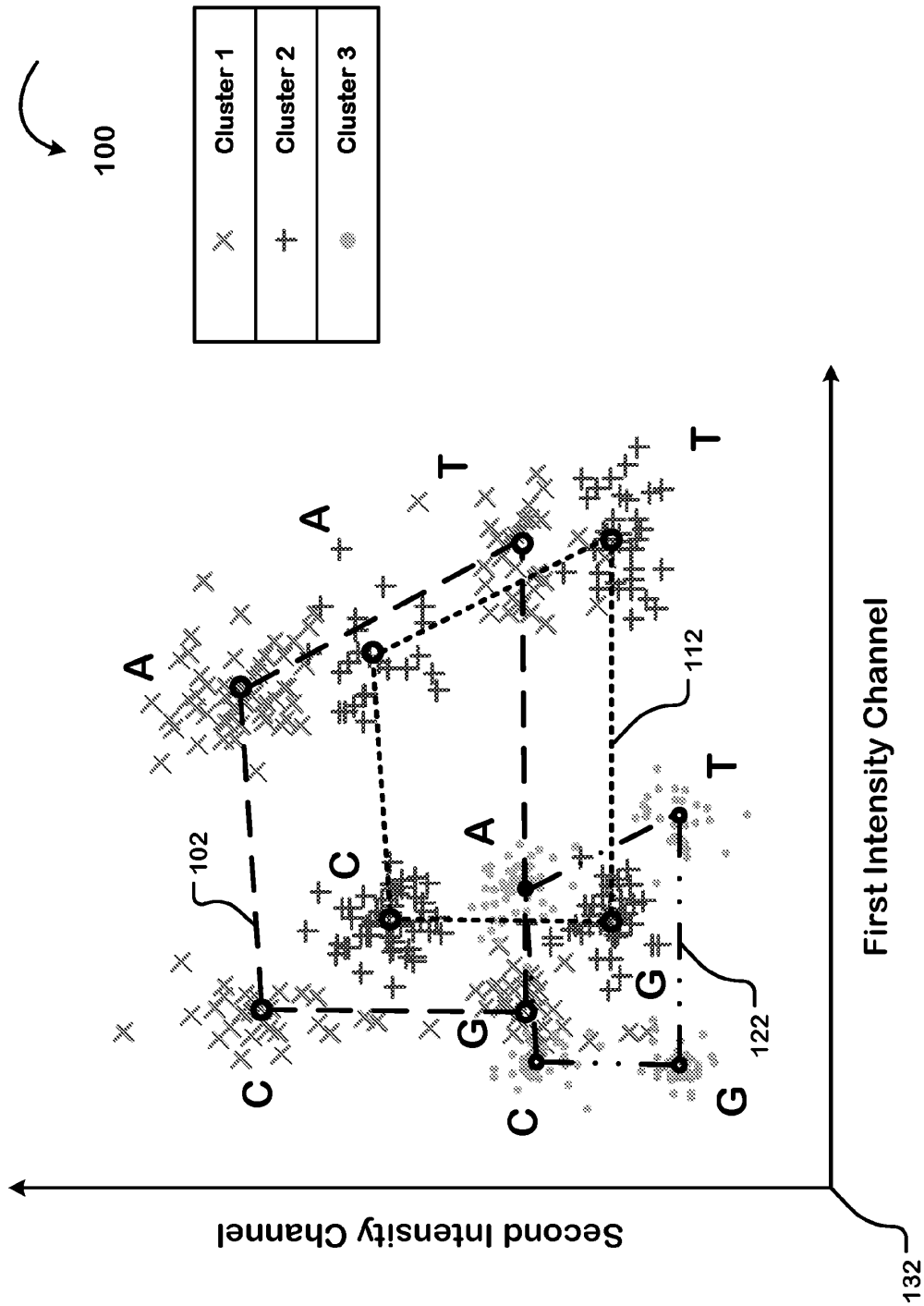


Figure 1

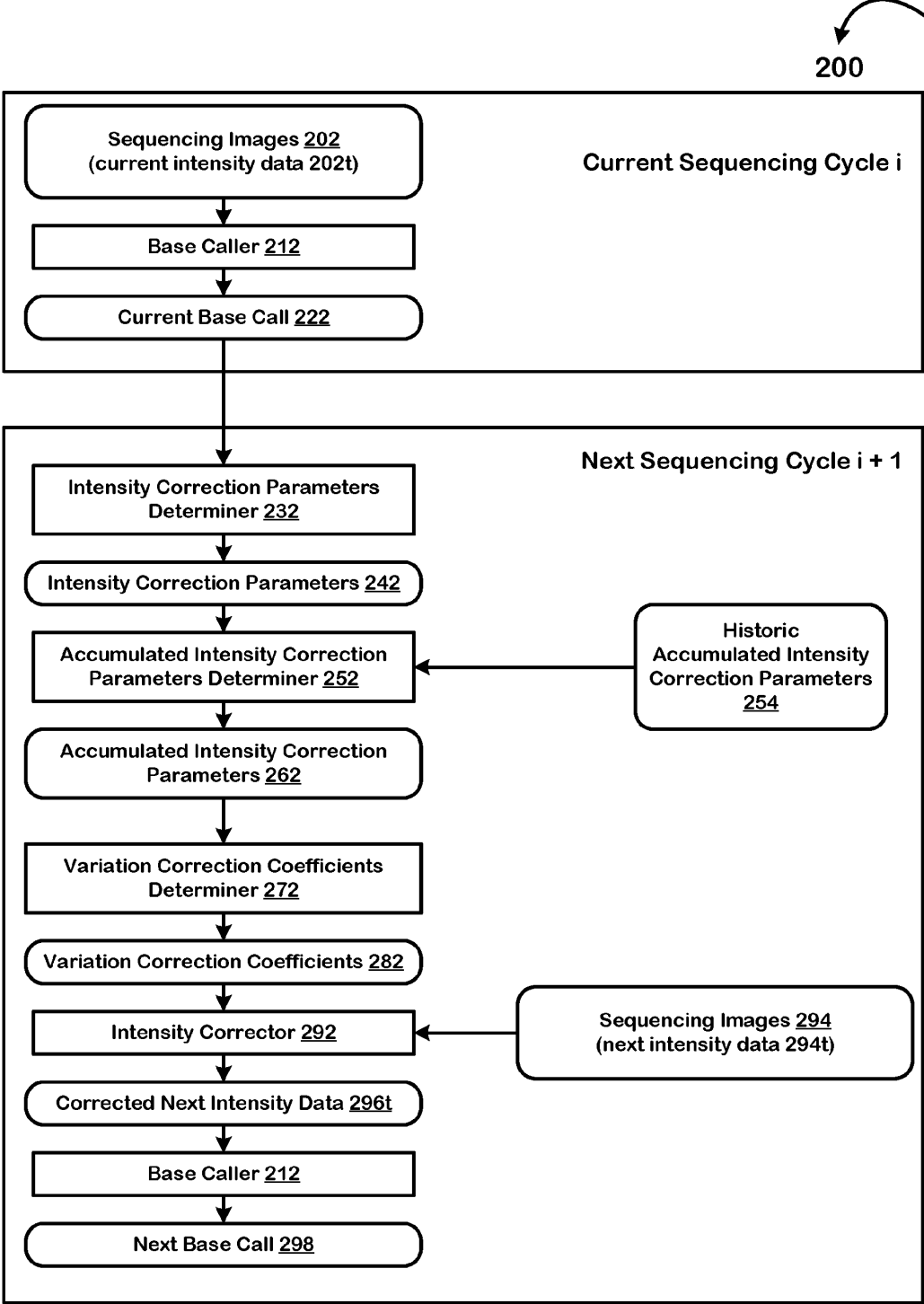


Figure 2

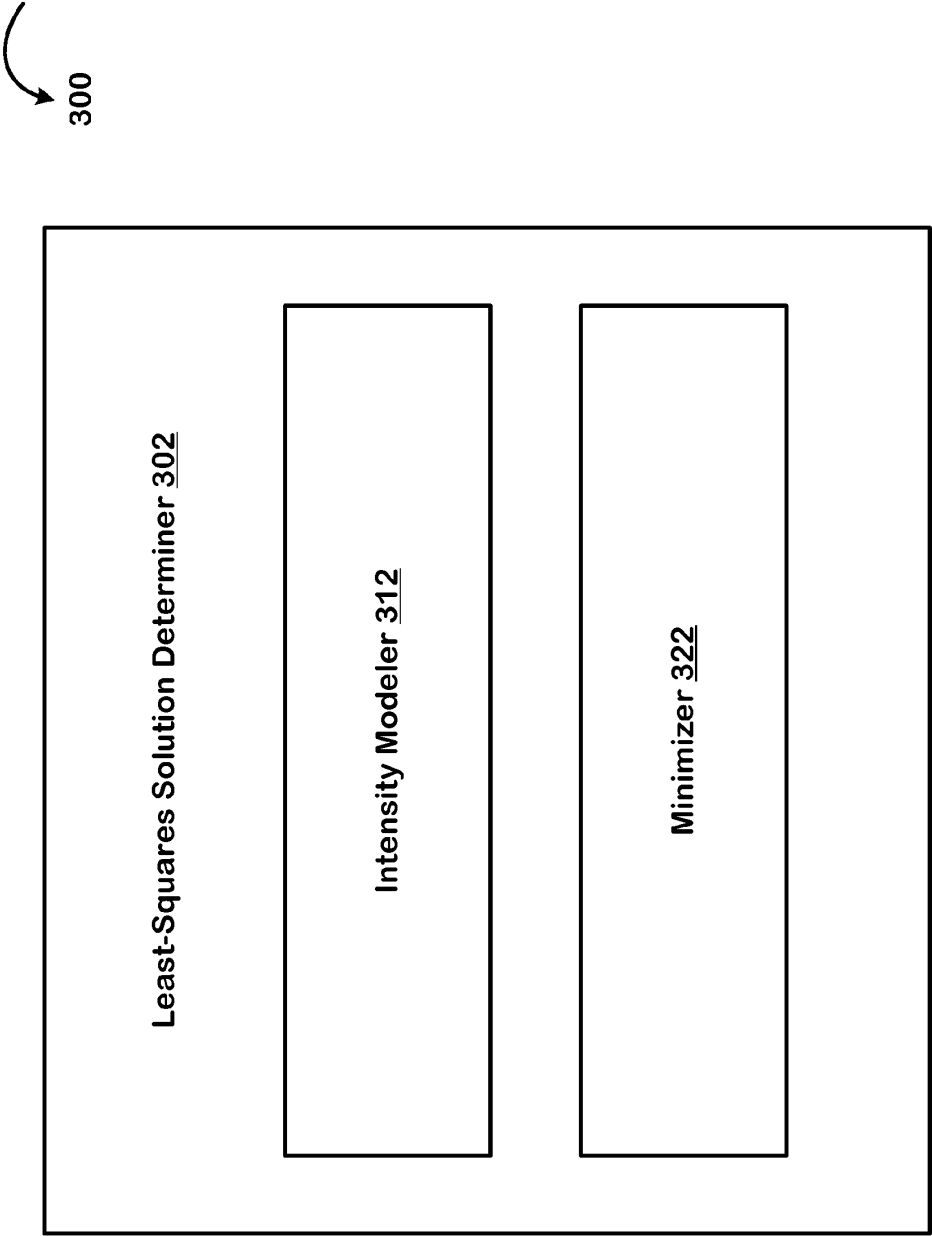


Figure 3

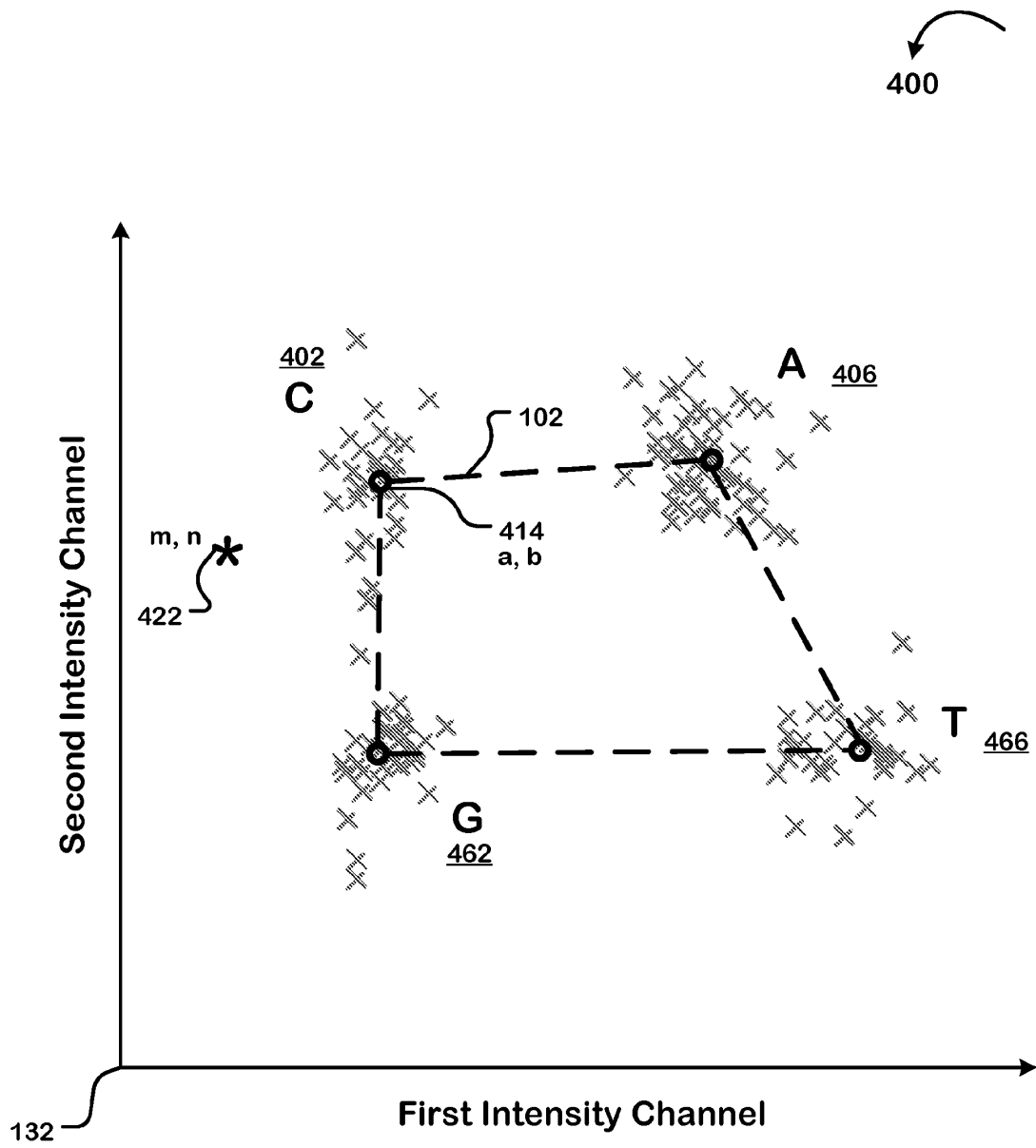


Figure 4

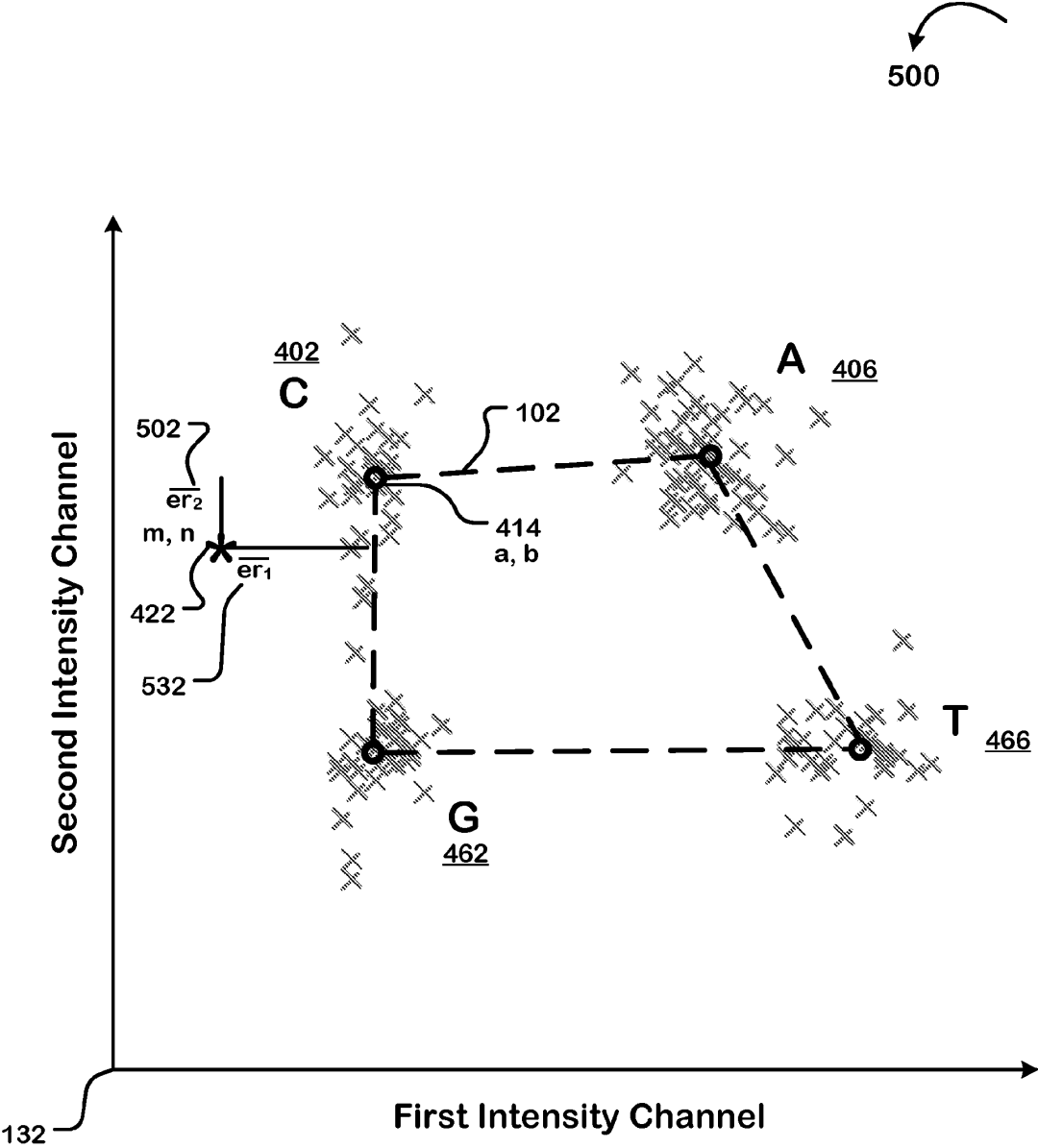


Figure 5

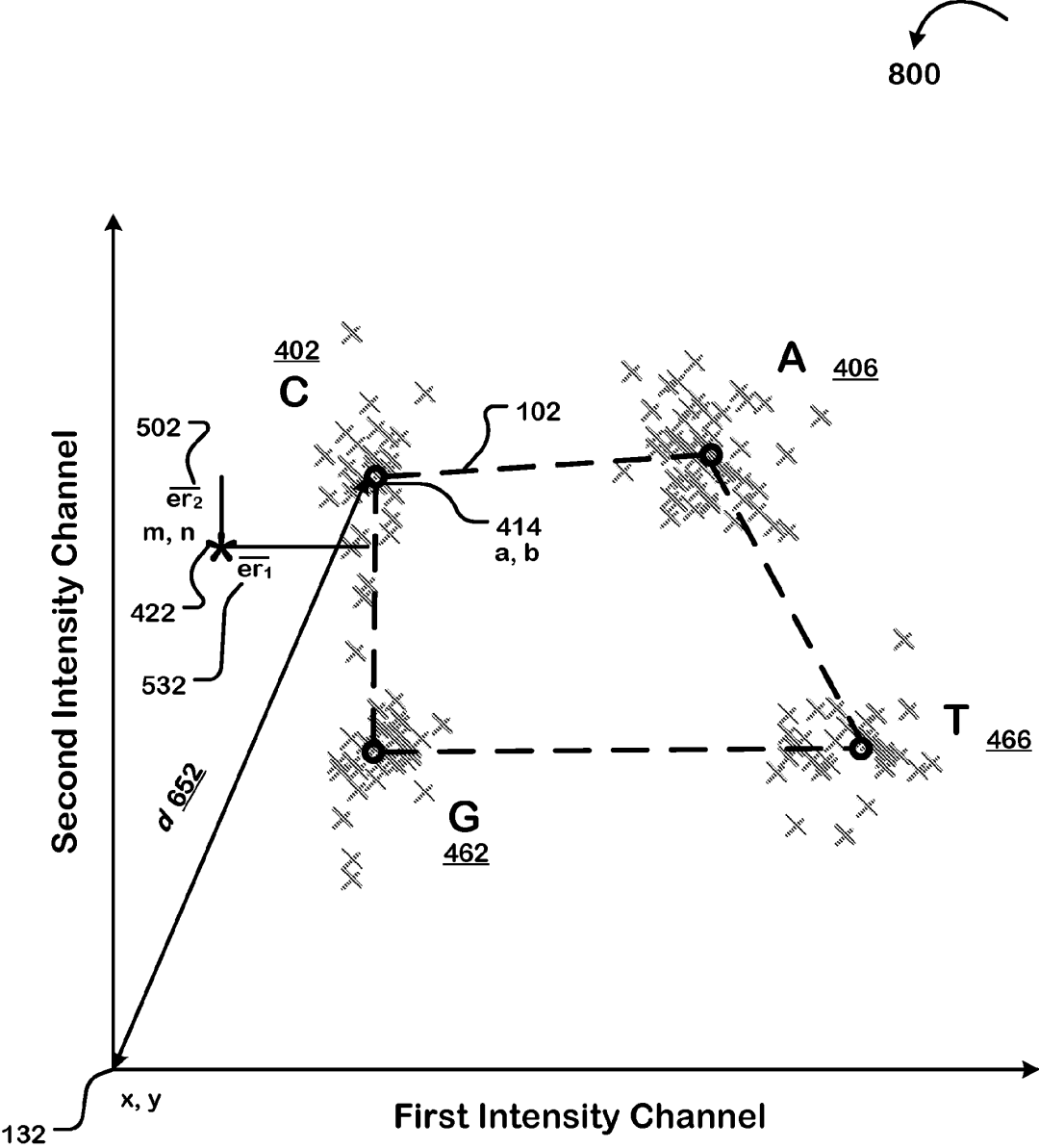


Figure 6

Preceding Sequencing Cycle $i - 1$

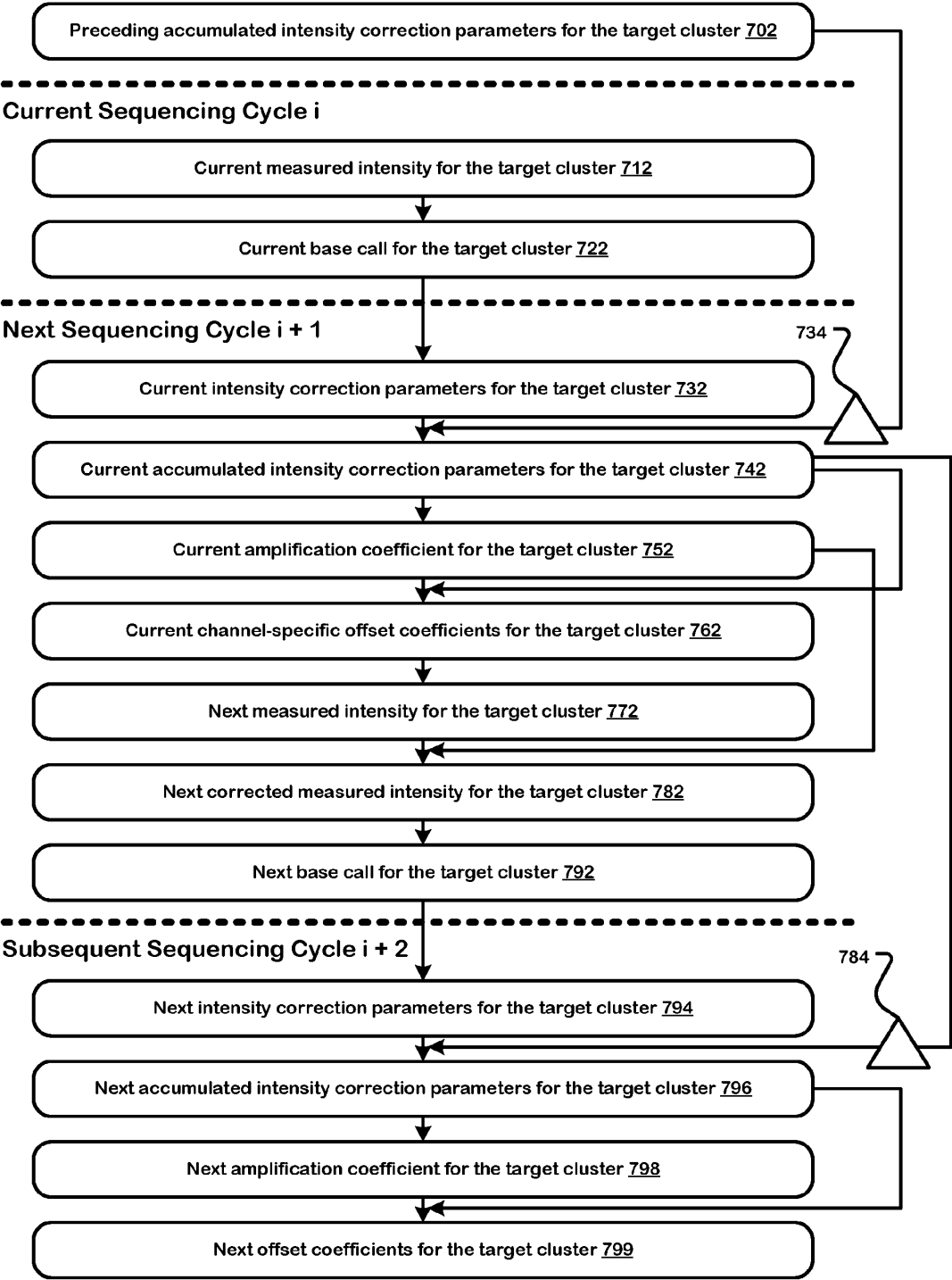


Figure 7

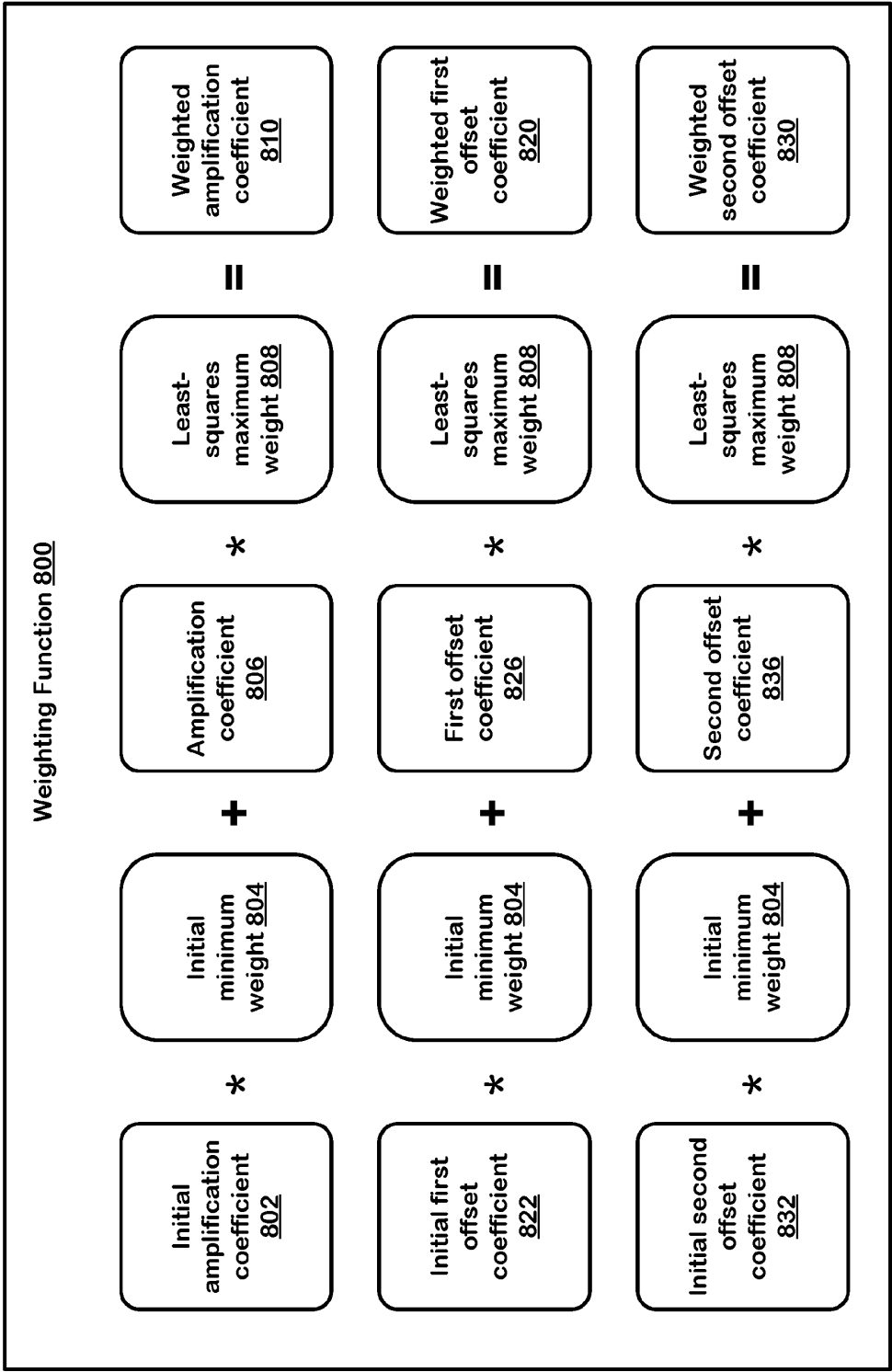


Figure 8

If a, d_1, d_2 , and $n_{c,l}$ have prior probability distributions $a \sim N(1, \sigma_a^2)$, $d_1 \sim N(0, \sigma_{d_1}^2)$, $d_2 \sim N(0, \sigma_{d_2}^2)$, $n_{c,l} \sim N(0, \sigma_n^2)$, then we can find the maximum likelihood solution:

Let $e_{c,l} = y_{c,l} - x_{c,l}$

$$\bar{x}_1 \triangleq \frac{1}{C} \sum_{c=1}^C x_{c,1}$$
$$\bar{e}_1 \triangleq \frac{1}{C} \sum_{c=1}^C e_{c,1}$$

$$\bar{x}_2 \triangleq \frac{1}{C} \sum_{c=1}^C x_{c,2}$$
$$\bar{e}_2 \triangleq \frac{1}{C} \sum_{c=1}^C e_{c,2}$$

$$\overline{xx} \triangleq \frac{1}{C} \sum_{c=1}^C (x_{c,1}^2 + x_{c,2}^2)$$
$$\overline{xe} \triangleq \frac{1}{C} \sum_{c=1}^C (x_{c,1}e_{c,1} + x_{c,2}e_{c,2})$$

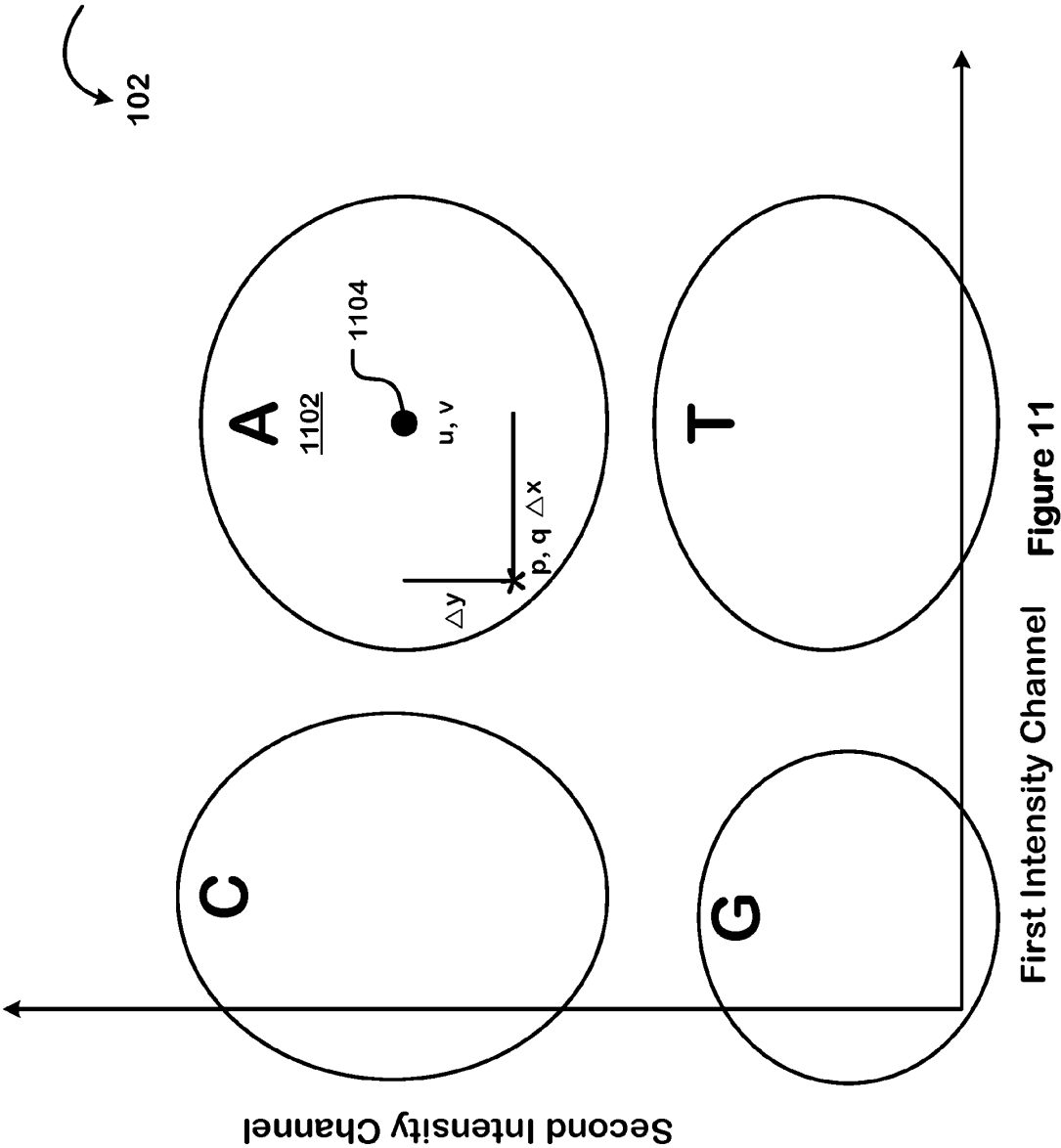
$$k_n(C) = \frac{\sigma_n^2}{C\sigma_a^2}, \quad k_{d_1}(C) = \frac{C\sigma_{d_1}^2}{C\sigma_{d_1}^2 + \sigma_n^2}, \quad k_{d_2}(C) = \frac{C\sigma_{d_2}^2}{C\sigma_{d_2}^2 + \sigma_n^2}$$
$$\hat{a} = 1 + \frac{\overline{xe} - \bar{x}_1\bar{e}_1k_{d_1}(C) - \bar{x}_2\bar{e}_2k_{d_2}(C)}{\overline{xx} + k_n(C) - \bar{x}_1^2k_{d_1}(C) - \bar{x}_2^2k_{d_1}(C)}$$
$$\hat{d}_1 = (\bar{e}_1 + \bar{x}_1(1 - \hat{a}))k_{d_1}(C)$$
$$\hat{d}_2 = (\bar{e}_2 + \bar{x}_2(1 - \hat{a}))k_{d_2}(C)$$

$$\text{As } C \rightarrow \infty, \text{ this approaches the least-squares solution}$$

Figure 9



Figure 10



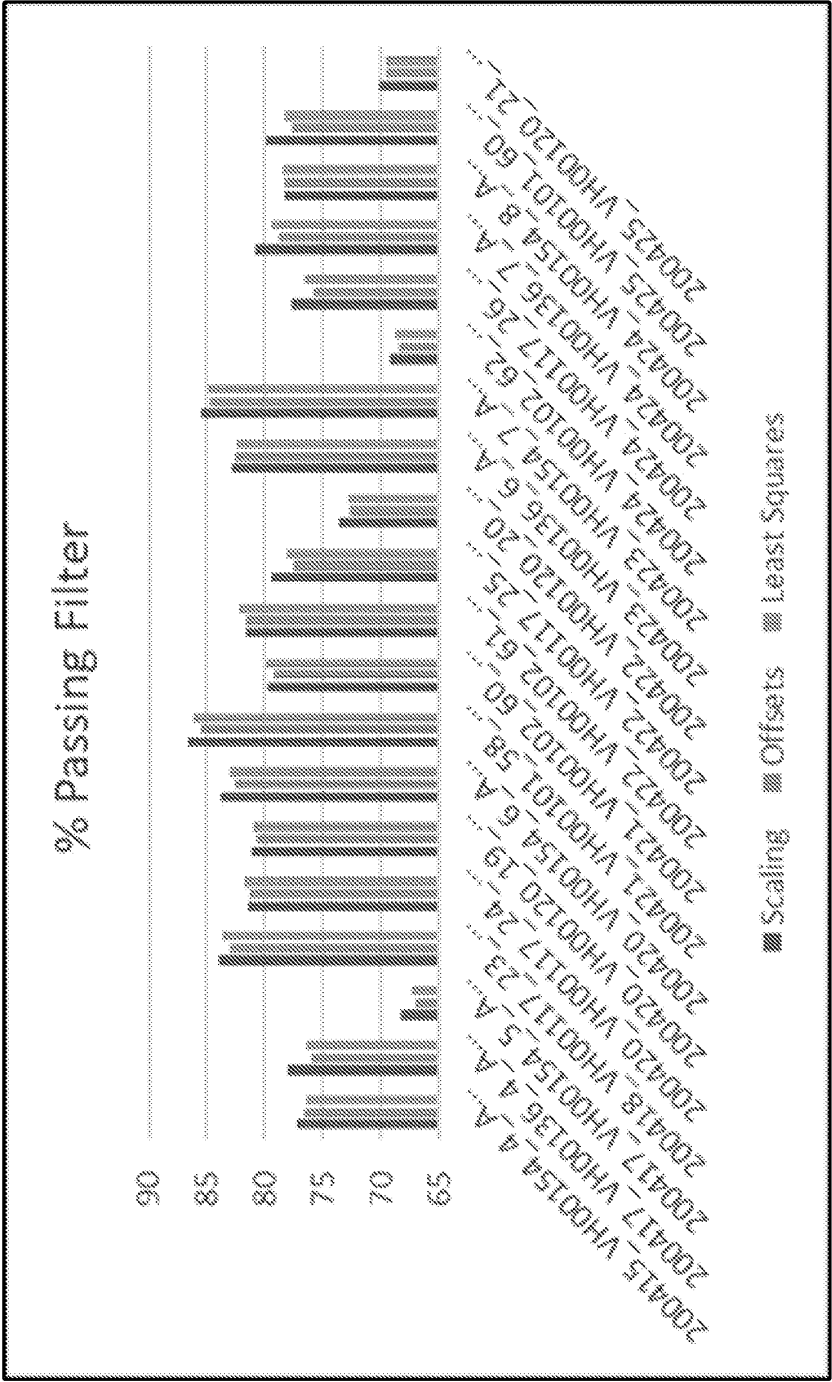


Figure 12

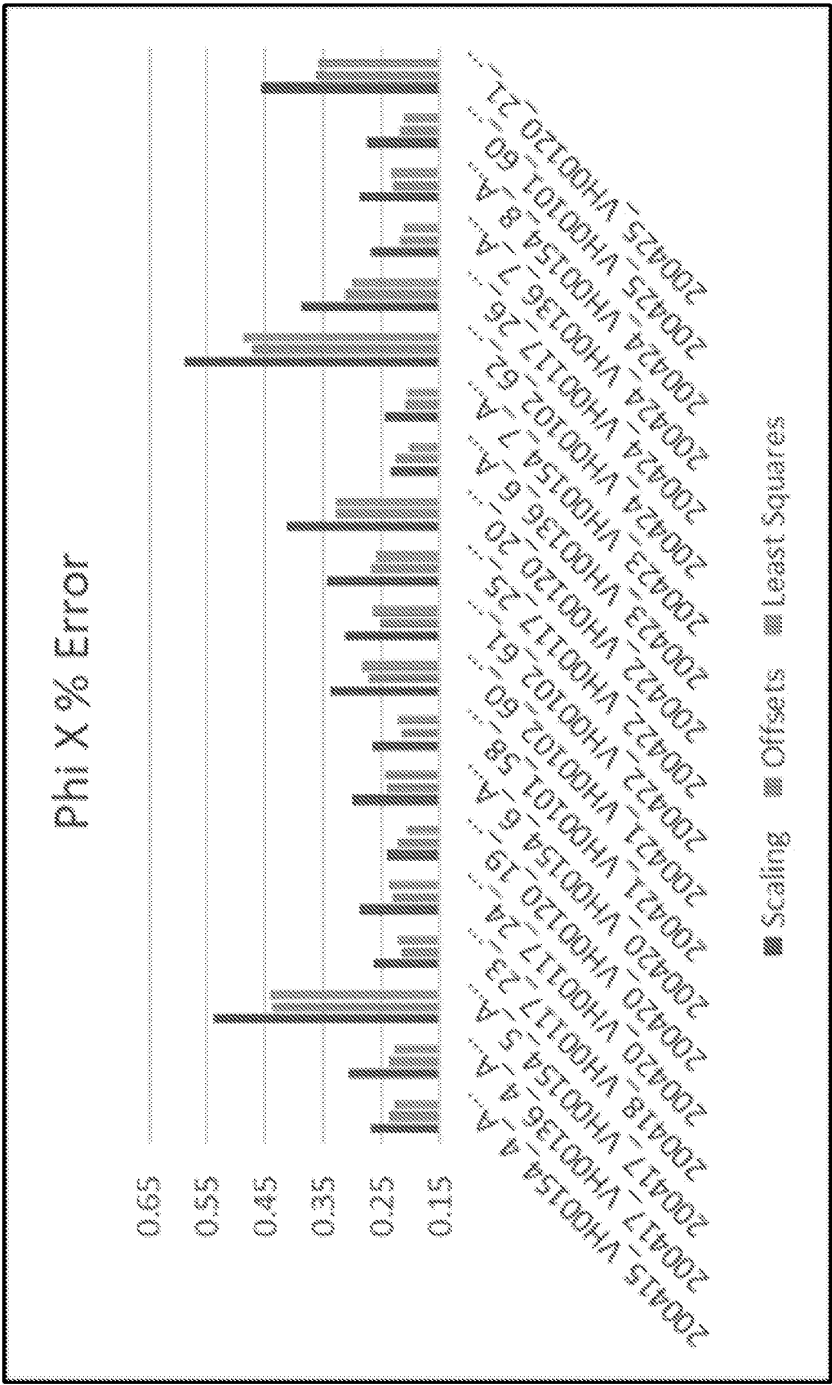


Figure 13

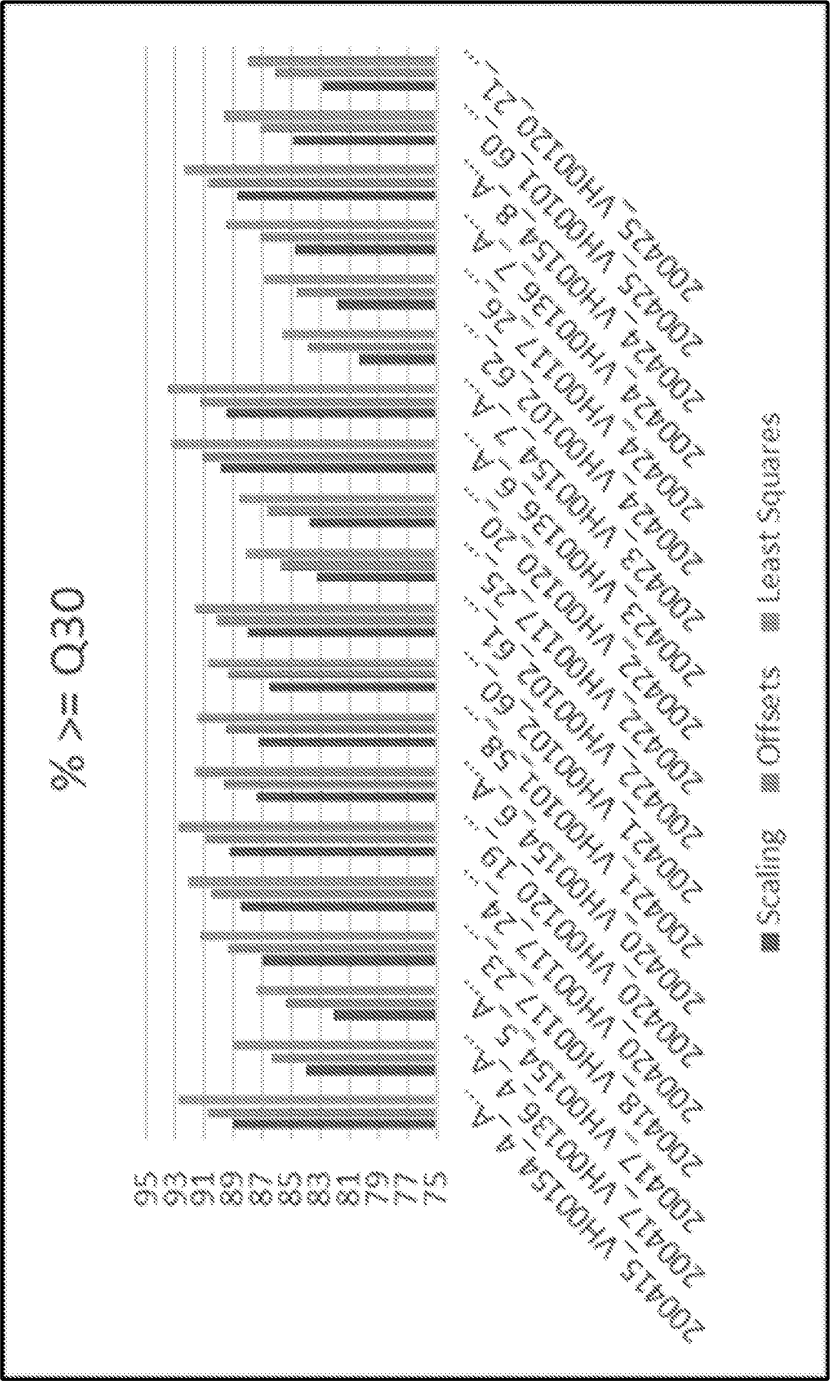


Figure 14

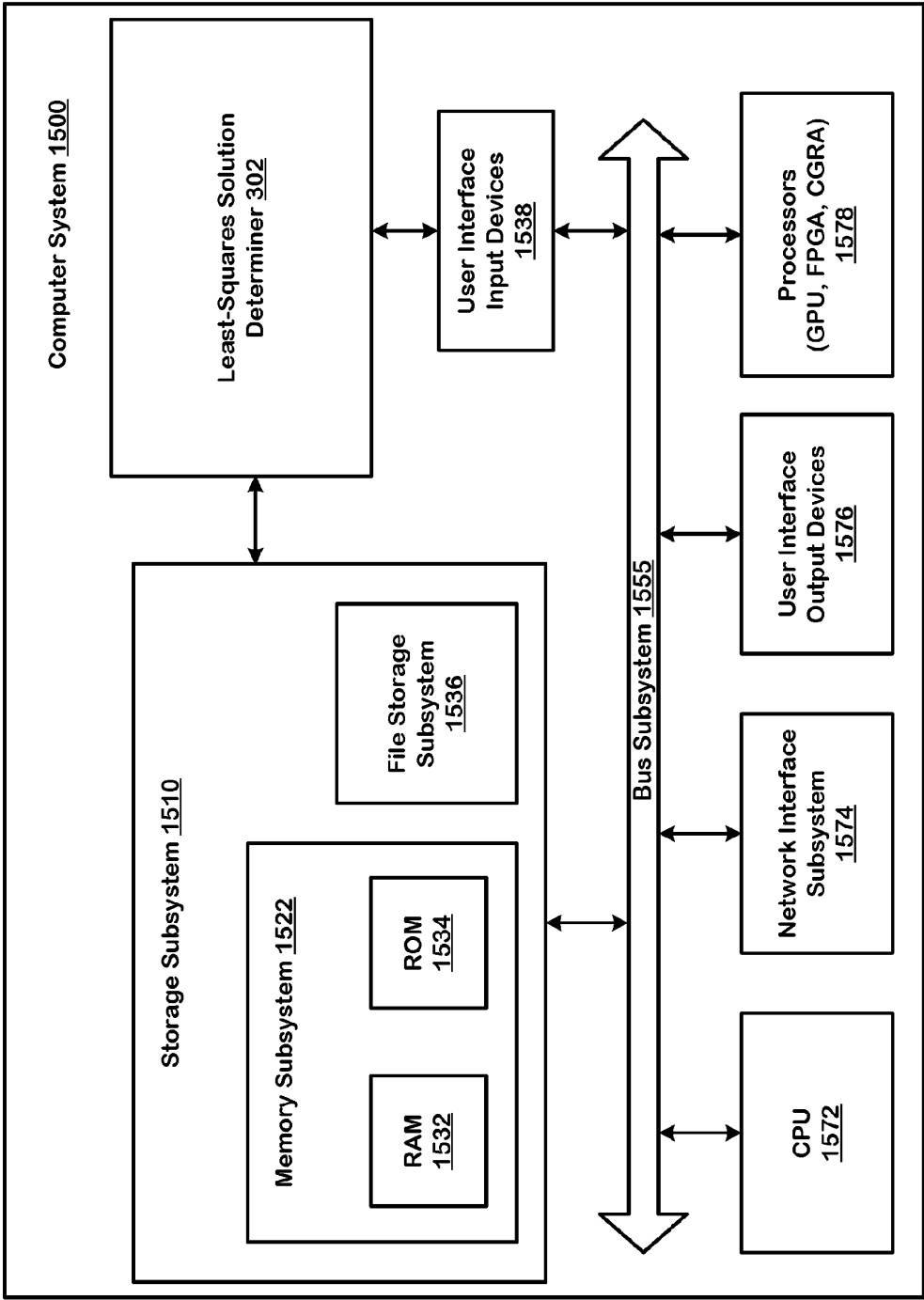


Figure 15