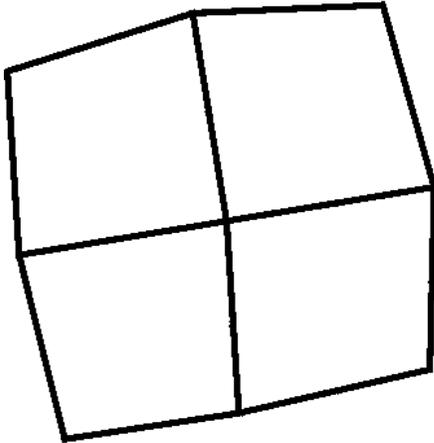


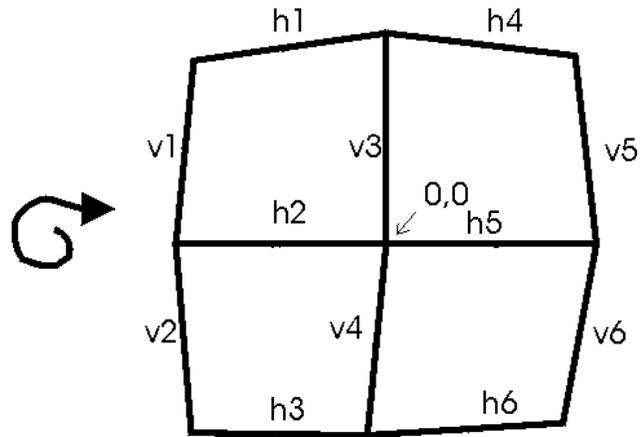
Geometry Data Report

RAW DATA

ROWS = 3
COLS = 3



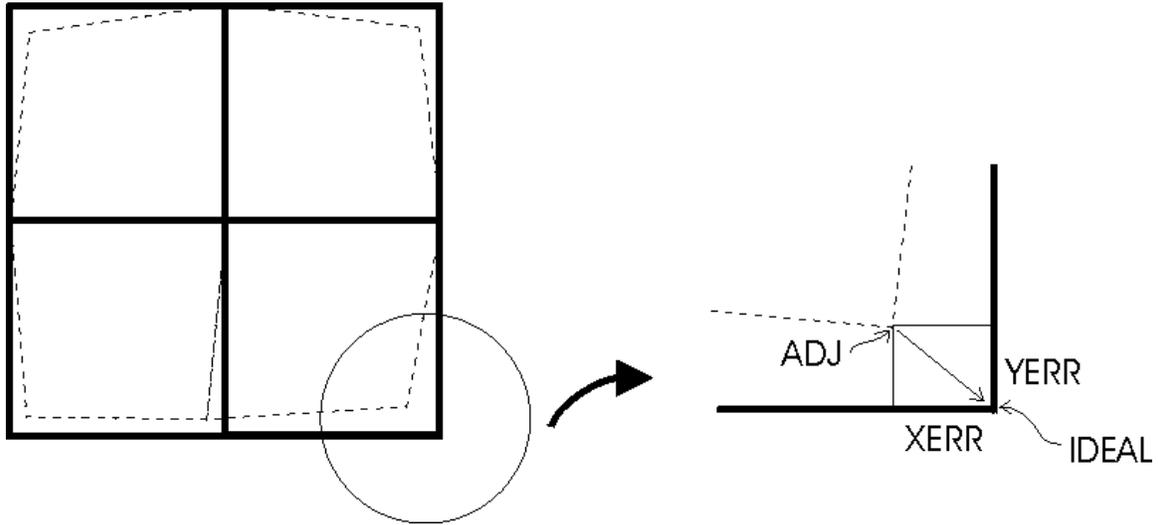
DE-ROTATED DATA / RE-CENTERED



Raw Data - The coordinates of each grid intersection/pixel location as it is collected. These are the actual data points as collected by the SS200 series system.

De-rotated and re-centered- The raw data is then de-rotated. The rotation angle used is the average of all the individual pixel rotation angles. It is important to rotate the data before geometry calculations are made because the rotation will effect the geometry calculations. i.e. a monitor with perfect geometry may have a rotation error. The rotation errors must be removed before the data can be compared to the Ideal data. The data is also re-centered. i.e. the center pixel is defined as the origin.

IDEAL DATA WITH DE-ROTATED / RE-CENTERED DATA SUPERIMPOSED



Ideal Data - The ideal data shows the locations where the pixels should have been. The grid spacing is computed based on the averages of all the grid spaces collected. The center pixel (odd rows/cols) is assumed to have a coordinate of 0,0. All of the other pixels are then referenced to this location.

Adjusted Data - The adjusted coordinates are the locations of the pixels expressed in Ideal Data coordinate space. After the de-rotated/re-centered data is superimposed onto the ideal data space, the coordinates of the data is adjusted (ADJ) into ideal space coordinates.

Error - The error calculations are the differences between the ideal data locations and the adjusted data locations as shown.

Report Calculations

Size Report:

Horizontal and vertical size are calculated by taking an average of all the horizontal or vertical grid segments and then using this average to measure the size.

$$Hsize = (h1 + h2 + h3 + h4 + h5 + h6) / ROWS$$

$$Vsize = (v1 + v2 + v3 + v4 + v5 + v6) / COLS$$

Parallelogram Report:

Parallelogram distortion is the difference between the upper-left to lower-right length compared to the lower-left to upper-right length. Using the example:

$$L1 = \text{distance from } (1,1) \text{ to } (6,6)$$

$$L2 = \text{distance from } (3,2) \text{ to } (4,5)$$

$$\text{Parallelogram Distortion} = 100\% * (\max(L1,L2) - \min(L1,L2)) / (\max(L1,L2) + \min(L1,L2)) / 2$$

Trapezoidal Report:

Trapezoidal distortion is a measure of the percent change in the width/height of the display. The width at the top of the grid is compared to the bottom as well as the left side compared to the right. The distortion is then reported as the maximum of these two errors.

$$\text{Top} = \text{distance from } (1,1) \text{ to } (4,5)$$

$$\text{Bottom} = \text{distance from } (3,2) \text{ to } (6,6)$$

$$\text{Left} = \text{distance from } (1,1) \text{ to } (3,2)$$

$$\text{Right} = \text{distance from } (4,5) \text{ to } (6,6)$$

$$\text{Trap_TB} = 100\% * (\max(\text{Top},\text{Bottom}) - \min(\text{Top},\text{Bottom})) / ((\max(\text{Top},\text{Bottom}) + \min(\text{Top},\text{Bottom})) / 2)$$

$$\text{Trap_LR} = 100\% * (\max(\text{Left},\text{Right}) - \min(\text{Left},\text{Right})) / ((\max(\text{Left},\text{Right}) + \min(\text{Left},\text{Right})) / 2)$$

$$\text{Trapezoidal Distortion} = \max(\text{Trap_TB}, \text{Trap_LR})$$

Linearity Report:

Linearity errors are a measure of the change in either horizontal or vertical segment lengths across the monitor.

$$\text{Max X Delta} = \max(h1, h2, h3, h4, h5, h6)$$

$$\text{Min X Delta} = \min(h1, h2, h3, h4, h5, h6)$$

$$\text{Max Y Delta} = \max(v1, v2, v3, v4, v5, v6)$$

$$\text{Min Y Delta} = \min(v1, v2, v3, v4, v5, v6)$$

$$\text{Linearity X Error} = 100\% * (\text{xmax} - \text{xmin}) / ((\text{xmax} + \text{xmin}) / 2)$$

$$\text{Linearity Y Error} = 100\% * (\text{ymax} - \text{ymin}) / ((\text{ymax} + \text{ymin}) / 2)$$

Pincushion / Barrel Report: