

Using the SDT Scanning Densitometer for 3/C Gray Balance Bars in Newspaper Applications

Newspapers, unlike other web lithographic printers, cannot place standard color bars on their work. The solutions have been varied, but the most popular and effective is printing a three color gray balance bar somewhere on the page where it can be measured by a hand-held densitometer.

Many problems arise from this technique, not the least of them the internal political squabbles between Production and Editorial over the size (column inches) and aesthetic costs (fat, ugly, "rainbowed" gray bars). Other problems include accuracy and repeatability as hand-held densitometer readings can vary several points when taking adjacent readings in a 1/2" area of the bar. This variation, due to print mottle and pigment clumping, leads to a lack of confidence by the pressman in the readings.

Faced with these problems, some newspaper quality control people approached Tobias to adapt our SDT, which was designed to read a 1/16" colorbar on commercial web presses, for the newspaper industry. With some experimentation, Tobias developed a routine for the Scanning Densitometer that reads a 3/C, gray 1/16" balance bar accurately and repeatably.

The SDT reads a large area in the center of each ink column and processes the scan information to give the most representative density value for that column. This feature makes the SDT the most consistent densitometer for reading gray balance bars available today. Repeatability makes the SDT a tool that the pressman can rely upon, and a reliable color control tool is the foundation of consistent quality.

Best results for real time color control are obtained using screen values in the 20–30% range. The cyan screen is usually higher in value to preserve the neutral appearance of the bar. These screen values should produce densities in the 0.50–0.60D range, high enough density to show variation in print density but low enough to be relatively insensitive to the effects of dot gain.

A densitometer has a built-in variation of $\pm 0.01D$ due to digitization in the second decimal place. Also, any oscillation in the press fountains will cause slight density variations from impression to impression. For these reasons, the tolerance values for density deviation from the target values should not be set too tight.

Most newspapers with target densities around 0.55D use a tolerance of $\pm 0.05D$ with good, consistent results. Pressmen know not to bother with variations of less than 0.03D. This minimizes variations in print density due to pressmen overcompensating ink keys. The SDT clearly displays density differences and tolerances, enabling the pressman to see quickly which of the ink columns on each fountain needs to be adjusted.

The SDT scans and displays density readings on a typical broadsheet in less than 12 seconds. This gives the pressman all the color information he needs for one sheet in the time it would take him to read one ink column. The speed and accuracy of the SDT, along with its clear display, make it the benchmark for newspaper color control instruments.