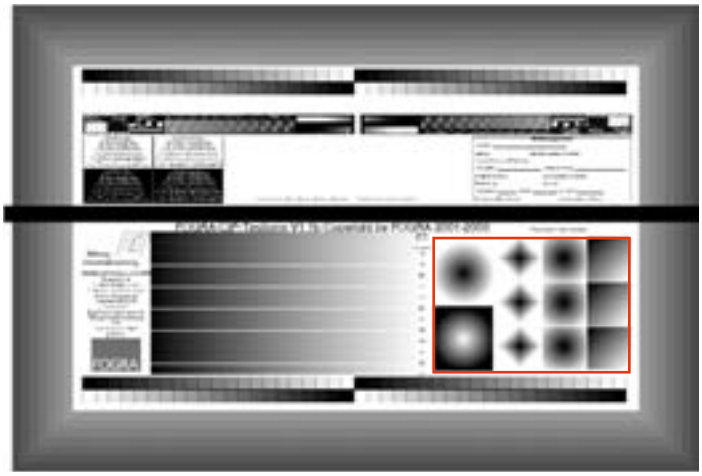
Tips & Tricks

AVOIDING GRADIENT FLAWS, PART II:

Applying Linearization Curves Correctly



Two-dimensional fields are particularly important for linearization curves (see area outlined in red).

During imaging of printing plates there are two main causes of gradient flaws. These are, on the one hand, loss of adjustment and dirt in the imaging unit (see Part I, HN 259), and, on the other, poorly calibrated linearization and color tone correction curves. This data, stored in the RIP of a CtP system, is needed to achieve the tone values in the print sheet that correspond to the standard specifications for the relevant printing condition.

The problem with "linearization curves"

The purpose of linearization curves is often to reproduce a desired tone value on a CtP plate, for instance to generate a 40 percent swatch of the data set with exactly 40 percent on the plate. Depending on the system configuration, what is needed first is to enter a correction of up to ±7 percent. As a result of this correction, it is not just on the plate that there is a shift in tone value, but in printing as well. Next, a color tone correction is stored in the RIP to compensate for the incorrect increase in tone value. In mathematical terms, the application of linearization and color tone correction curves represents an addition or subtraction in relation to the tone value (linearization) followed immediately by subtraction or addition in the RIP (color tone correction). Since there could easily be two different arithmetical operations performed in the RIP for these two steps, in unfavorable but frequently occurring cases this leads to rounding errors, resulting in gradient flaws. These flaws are not detected during technical measurement evaluations of the tone value swatches, as they rarely occur in step swatches (for instance a progress wedge in 5 percent steps).

Investigations by Fogra indicate that linearization curves are only useful in exceptional cases. This means that in an ideal case the measurement results which reproduce the tone values on the developed printing plate should be based on a mean value which is derived from a statistically reliable number of measurements (around ten measurement swatches on at least four printing plates). In addition, the measurement results may only serve as a basis for a "linearization curve" if a compensating function "smoothes" the curve gradient of the measurement result as well.

Basic recommendations

- Before applying linearization curves, check whether stable production cannot be achieved by another route as well – possibly via an adjustment.
- Carry out a test with the Fogra CtP test chart and the two-dimensional gradient swatches contained in that.
- Always perform visual comparative checks of the two-dimensional gradients on plates with and without linearization curve.
- If the gradients in the two imaged plates are perfect, then there should at least be a four-color check plot performed on initial application, prior to the linearization curve being used for production orders. ■

Facts & Figures

Ordering the Fogra CtP test chart
The Fogra CtP test chart can be ordered direct from Fogra (Magdalene Glatz, Tel. +49-(0)-89-4 31 82-160 or E-mail Glatz@fogra.org) or via the online shop (www.fogra.org).

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