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Acceptance testing new part of SNAP program

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The Specifications for Newspaper Advertising Production addresses many production parameters associated with quality coldset printing, including aim point solid ink densities (SID), tone value increase (TVI) values, color profiles, screen rulings, and more.

As the team worked on these specifications, SNAP members realized that another big gap in coldset process standardization pertained to press acceptance testing, which is often linked to achieving SNAP aim points as a criterion for success.

Recognizing that press testing is an important adjunct to the prepress and printing specifications, SNAP members also determined that the testing process did not fit logically as part of the SNAP document and required a distinct publication.

Developed by a SNAP sub-team that included newspapers, printers and suppliers, the resulting specification is entitled Lithographic Offset Press Acceptance Testing and Criteria for Acceptance and is available without charge from the SNAP website (www.snapquality.com).

The document is divided into four sections: Testing and Acceptance Conditions; Description of Acceptance Testing; Suggested Aim Points and Tolerances, and Forms and Testing Procedure.

Section 1: Testing and Acceptance Conditions

Test conditions are rigorous since assuring the printing press is performing as represented demands a robust, planned process. The press test should be scheduled to:

- Start after the complete installation of all press mechanical, electrical, and control sub systems.
- Start after successful completion of all commissioning tasks.
- Adhere to schedules agreed upon by the press manufacturer and printing site at the time of contract.
- Statistical analysis should be used for all evaluations, with all values reported as an average (mean) followed by the variation from the mean.

Example 1: SNAP recommends that density variation not exceed ± 0.05 units. In this document, we express the same information statistically by stating that the standard deviation should not exceed 0.025. Under these conditions 95 percent of all samples will meet the SNAP specification.

Example 2: SNAP recommends register be kept at ± 0.012 inches. In this document we express the same information statistically by stating that the standard deviation is 0.006. Under these conditions 95 percent of all samples will meet the SNAP specification.

Acceptance testing should be performed through three separate press runs:

- The first test run is performed without dampening solution to evaluate the uniformity and consistency of ink application.
- The second test run is performed with both ink and dampening solution to evaluate the uniformity and consistency of dampening solution.
- The third test run is performed with both ink and dampening solution to evaluate pressline system presets, density, register, dot gain, starvation/ghosting and slur.

Two selected press units from the four or more units on the pressline shall be used for print quality acceptance testing. More units would be tested only in the case of unacceptable results.

All acceptance testing procedures and qualitative criteria should conform to the SNAP guidelines.

The quantitative criteria for acceptance are strictly press related. Attainment will therefore be dependent on the:

- Quality, weight, condition and characteristics of the newsprint.
- Accuracy and image placement on the printing plate.
- Accuracy of the plate bends relative to the plate location punched slots in the plates.
- Quality of the ink and dampening solution.
- Environmental conditions such as humidity and temperature.
- Tolerance figures cited are strictly press-related and do not include variation resulting from any measuring device.

Density tolerances

Density tolerances reflect variation associated with a typical inking system fitted with digital inking. Open fountain inking systems may allow more density variation. If the press being evaluated employs an open fountain inking system then these tolerances should be discussed and written in the contract.

All plates shall come from the same plate processor line and meet the strict geometric criteria defined by the equipment manufacturer. The accuracy of the lay-down of the printing image on the plate and the squareness accuracy of the leading edge plate bend relative to the plate-to-press location slots shall be within ±0.025 millimeters.

All newsprint rolls used for the acceptance testing should:

- Have a moisture content not less than 8 percent.

- Be wound evenly and in a concentric manner.
- Be free from mill splices and edge damage.

The equipment satisfies the criteria for acceptance when it is shown to be capable of substantially (95 percent of the samples) meeting the SNAP recommendation.

The difference in the newsprint color between the non-image area of the plate and the blanket gap shall be 0.03 optical density units or less. This criteria does not apply to gapless presses.

The press must reach a typical operating temperature before sampling.

The temperature in the pressroom should be between 68 and 83 degrees Fahrenheit and relative humidity between 50 percent and 65 percent.

If possible, all test sample copies for a particular test should be collected from one roll of paper.

Densities shall be reported as absolute, which means that paper density shall be included in these density measurements.

Dryback is caused by ink penetration into the paper. It's defined as the shift in ink density that occurs as the ink dries and moves from being "wet" — when first printed — to setting and eventually drying on the printed sheet over the following hours. SNAP data reveals a typical dryback value of 0.05 for offset lithography. In accordance with the SNAP recommendations, dryback density values must be added back to any measurements to understand the actual printed density at the time the paper was printed.

Testing shall be performed for each press acceptance test at make-ready speed, mid-production speed and production speed. These three speeds should be agreed upon by the press manufacturer and the printer.

The test should use clean blankets verified for thickness, correctly torqued and run-in.

The press should be set to manufacturer specifications.

Budgeting of testing time and material will have to be factored in at the beginning of the project.

Section 2: Acceptance Testing Procedures

As noted in Item 3 above, the document outlines test procedures for the inking system, dampening system, and the inking + dampening (printing) system. The printing system test is subsequently sub-divided into 14 distinct tests to allow evaluation of:

- Ink and register presetting.
- Density repeatability.
- Register repeatability.
- Density stability on press deceleration.
- Register stability on press deceleration.
- Density stability and accuracy at production speed.
- Register stability and accuracy at production speed.
- Density stability on press acceleration.
- Register stability on press acceleration.
- Dot Gain.
- Starvation.
- Ghosting.
- Slur and doubling.
- Tinting and toning.

For each test the document outlines information about:

- The test purpose.
- Plate requirements.
- Press speed requirements.
- Test conditions.
- Test sampling.
- Samples measurement.
- Samples evaluation.
- Acceptance criteria.

Section 3: Suggested Aim Points and Tolerances

The document defines aim points and tolerances for all 14 tests associated with the printing unit, as well as the inking system-only and dampening system-only tests.

Section 4: Forms and Testing Procedure

The document concludes with reference information about statistical variation and the recommended SNAP test form for press testing purposes.

As the cliché notes, rather than reinvent the wheel, newspapers and coldset printers who want to qualify a new press, qualify a rebuilt press, or even verify optimal print reproduction results can now use an agreed-upon SNAP approach. It provides a thorough test plan for every key press system, making the test process a lot easier to discuss, plan and complete. ▲

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Industry members interested in participating in this discussion or joining SNAP (no registration fees or membership dues required) should contact either John Dreisbach at Evergreen Printing (jdreisbach@egpp.com) or Dennis Cheeseman (dennis.cheeseman@usink.com).