

G7 Pre Qualification Test Form User's Guide



Sheetfed

Version 3.2



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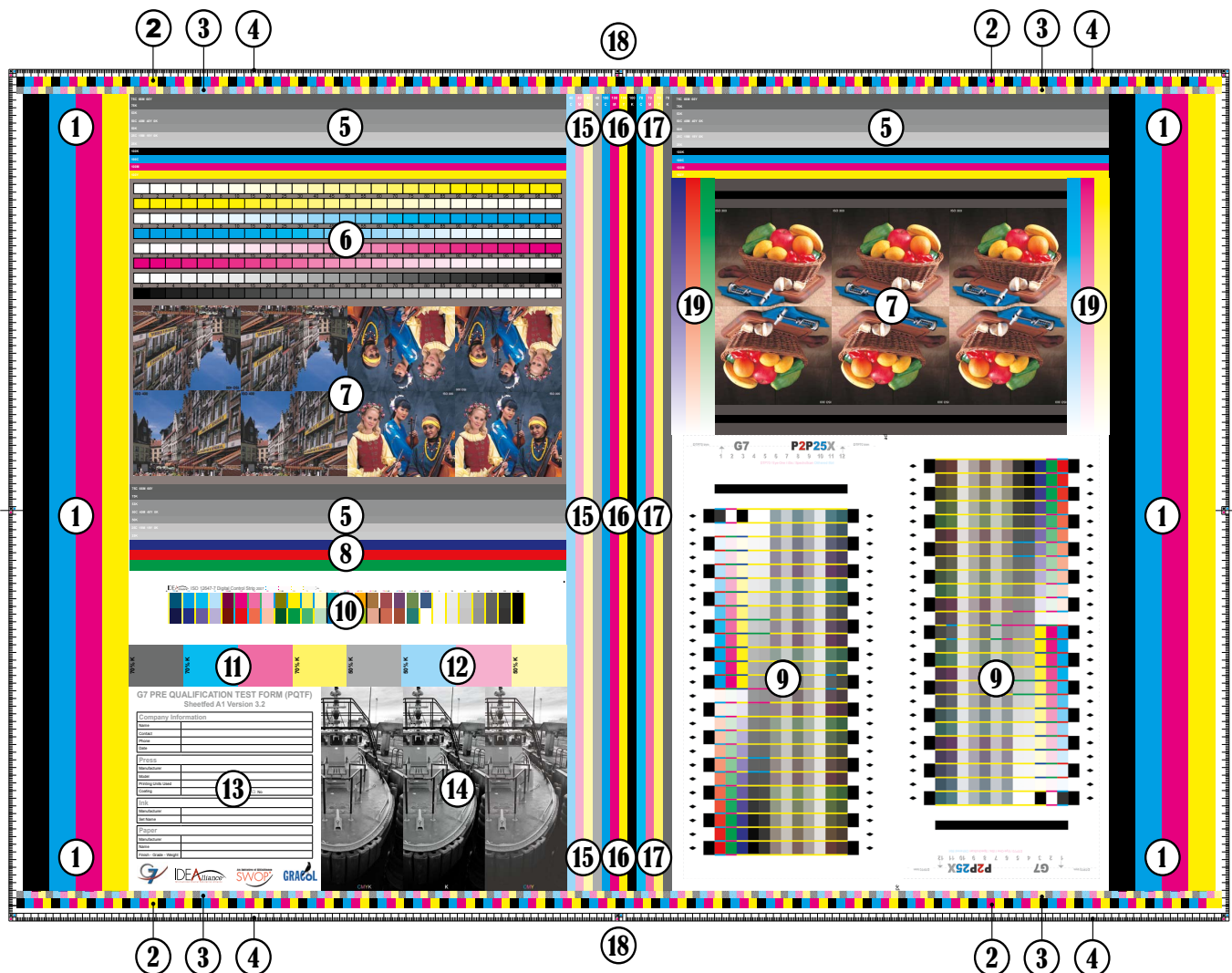
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1. Test Form Legend



1. Ladder Targets.
2. Solid Density Color Bars
3. Star Targets
4. Registration Grid
5. Gray Balance Bars.
6. Gray Scale Patches
7. ISO SCID Images
8. RGB Overprint Bars
9. G7 P2P25X3
10. IDEAlliance ISO 12647-7 Control Strip
11. CMYK 70% Mottle Blocks
12. CMYK 50% Measurement Blocks
13. Press Run Information Block
14. Hutch Color Gray Boat
15. CMYK 40% Bars
16. CMYK Solid Bars
17. CMYK 70% Bars
18. Open Space for House Color Bar
19. RGB, and CMY Gradient Bars

2. PURPOSE OF TEST FORM

Fingerprinting and characterizing a printing press takes time, money and effort. It also requires planning, execution, documentation as well as knowledge and experience. To prevent any unexpected errors in subsequent measurement and analysis, it's important to first know the press sheet samples are acceptable and free from obvious problems. If not, those samples are useless and the testing must be redone. This is what we are trying to avoid.

The test form should be printed prior to any press calibration or color management characterization efforts. The form is intended to pre qualify the printing to insure the print quality is acceptable and no major mechanical and/or consumable issues or concerns are present. If none are present, the same test form can be used as the calibration run since it includes the P2P targets necessary for G7 calibration.

If you suspect there is a mechanical and/or consumable problem, immediately consult with your supplier's technical representative for advice. They are the experts in their domain. Obviously, no single test form can provide every and all aspects of press and consumable behavior and performance. Our intent is to provide the most basic information for decision making, either the printing is or is not acceptable for subsequent fingerprinting and calibration.

3. TEST FORM PRINTING

Before the test form is printed, the associated "G7 Pre Qualification Check List" should be completed to document important printing conditions. These conditions define the reference baseline or "stake in the ground" target for process control and standardization. Also, the test form contains a press run information block so basic information is quickly available.

The first requirement for printing this test form is to achieve uniform and even solid ink densities across the sheet. Ink fountain keys or zones provide lateral color adjustment about every 1.25 inches. Your house color bar, added to the test form, should have a solid patch for every ink key zone. Ideally, ink density should be within +/- 0.05 of your targets. CIP4 ink key presets, scanning measurement devices, and closed-loop color control technology make this a simple and efficient task. If trade-off compromises must be made, favor the areas where the P2P targets are located.

Next, check for density variation or fall-off around the cylinder, gripper to tail. The adjustment for ink doctor charge timing is usually related to vibrator oscillation. Check your press operator's manual for specific instructions on how to make this adjustment and what they recommend for the ink distribution curve shape. For example, a bell curve where you go from light-dark-light from gripper-center-tail is common. The high to low range or difference will depend on the size of the press, ink coverage or take off of the plate form, and inking and dampening design. A typical range should be less than 0.10 density units. The vertical inking adjustment is not as predictable or accurate as lateral ink adjustment.

Finally, if there is any evidence of dot distortion or deformation, such as a slur or a double, stop the testing and investigate the obvious causes. If after reasonable investigation, the cause is unknown, immediately uncorrectable, or if for technical or business reasons decided as acceptable by management, note so in writing. We caution progressing any further with any calibration or characterization activities because with this condition present the problem may not be predictable or stable in its frequency and severity. This uncertainty is a moving target and difficult to hit.

4. TEST FORM ELEMENTS

4.1 Ladder Targets

The ladder target indicates if any directional distortion or deformation is occurring. It is often included in test forms during press testing and diagnostics, fingerprinting for CtP curving, and color management characterization for ICC profiling.

The desired expectation is that both halves visually appear the same and blend together as one. If so, no directional distortion or deformation is present. If you do see a significant difference between the two adjacent and butting edges of the image, then unfortunately some type of directional distortion or deformation is present.

The half with the darker appearance has the distortion. However, the direction of the distortion is at a right angle to it.

Visual presence or absence of the defect (double or slur) is attribute or qualitative, yes or no. To further quantify the amount of distortion, each half of the target can be compared using Delta E, density, tone value or dot area measurements.

The indication of a distorted target does not mean the press is the sole or only cause or source of the distortion. It may also be raw materials, such as substrate (wavy edge, fan out) or blankets (loose), or a combination of several factors (dirty or loose impression or transfer cylinder grippers and pads). For press evaluation to be accurate, the targets must first look correct on the plate.

4.2 Solid Density Color Bars

A color bar composed of repeating 6x6 mm solid CMYK patches from gear to operator side at both gripper and tail. Patches are large enough to be read by most measurement devices.

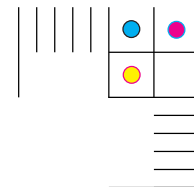
Typically, the bar should be used to check solid ink $L^*a^*b^*$ and density tolerances specified in “The G7 How To Guide” and “The G7 Pressmen’s Guide.”

4.3 Star Targets

Star targets of black, cyan, magenta, and yellow are repeated, running from gear to operator side of press sheet located at both gripper and tail. The center of the star will visually show excessive press slur.

4.4 Registration Grid

The registration grid is designed to check press register and fit. Grid is composed of vertical and horizontal lines .07 mm (.198 pt) thick repeating every millimeter running along all four sides of the press sheet. Inserted at all four corners including top center, bottom center, left center and right center of grid are three small circular fills with stroked outlines corresponding to proper ink sequence of black to cyan, cyan to magenta, and magenta to yellow for quick visual identification of registration.



4.5 Gray Balance Bars

Gray bars composed of cyan, magenta, and yellow combinations (c,m,y triplets) and the adjacent black equivalent to check gray balance at key points of the G7 Neutral Print Density Curve (NPDC). A supplemental 53% black bar is also positioned adjacent to the 50c, 40m, 40y for visual comparison only since it is a closer visual match than the more common 50% black tint.

4.6 Grayscale Bars

Grayscale patches of CMYK doubled and placed 180° opposite each other horizontally.

4.7 ISO SCID Images

Three different ISO images are arranged and positioned strategically to enhance even ink levels across the sheet especially near critical targets like the G7 P2P25X3, and the IDEAlliance ISO 12647-7 Control Strip.



IDEAlliance provides the GRACoL Pre Qualification Test Form free of charge if you have purchased the ISO SCID images used for visual appearance comparisons. These standard industry images are the property of ISO (International Standards Organization) and IDEAlliance may not redistribute these images. Therefore you must own rights to print these ISO images before you download our standard press form that contains them.

4.8 RGB Overprint Bars

Horizontal bars to measure and visually inspect quality of Red (Magenta to Yellow) Green (Cyan + Yellow), and Blue (Cyan + Magenta) overprints.

4.9 G7 P2P25X3 Target



Two P2P25X3 targets have been arranged 180° from each other to collect more accurate and concise average of data to develop G7 Neutral Print Density Curves.

The P2P25X3 target image can be read in X-Rite ColorPort on the DTP70 and EyeOne, or in MeasureTool on the SpectroScan, Eye-One and Eye-One iO. The P2P25X target is slightly larger than the P2P25, but has the advantage of being compatible with five automated measuring devices; Eye-One iSis (MeasureTool), DTP70 (ColorPort), Eye-One iO (both), Eye-One Pro (both) and SpectroScan (MeasureTool).



When measuring in ColorPort or MeasureTool, be sure to load the reference file. Different files are provided for both targets, with the instrument and target version (P2P25 or P2P25X) identified in the reference file name.

Note: iSis will not measure the P2P25X in ColorPort but it will work in MeasureTool in demo mode (no dongle required).

4.10 IDEAlliance ISO 12647-7 Control Strip

The target is intended primarily as a control device for pre-press proofs. It may also be used to monitor and control production printers or printing presses where there is room outside the live image area. The target must pass through exactly the same imaging process as a live image, including RIP curves, color management, screening, etc. The target must also be included on all proofs submitted for IDEAlliance Proofing System certification. Values measured from the target will be used as part of the IDEAlliance proofing system certification process.

4.11 CMYK 70% Mottle Blocks

Primarily used to check mottling due to non-uniform stock surface, improper ink/water balance, printing pressures, or worn form rollers or blankets.

4.12 CMYK 50% Measurement Blocks

Large 50% tints blocks of C,M,Y, and K for quick and easy measurement.



4.13 Press Run Information Block

Basic information to identify, track, and organize pre qualification and calibration run.

4.14 Hutch Color Gray Boat

Image designed by Don Hutchenson inventor of the G7 process. It is composed of CMY, K, and CMYK side-by-side to easily identify gray balance.

4.15 CMYK 40% Tint Bars

Vertical 40% tint bars of CMYK to check for horizontal streaking and commonly used in Europe for TVI measurements at mid-tone.

4.16 Solid CMYK Bars

Vertical solid CMYK bars run vertically from gripper to tail at center of sheet to check solid ink density variation around the press cylinder. A similar bar is positioned horizontally at left-center of sheet to check horizontal density variation near center of press cylinder.

4.17 CMYK 80% Tint Bars

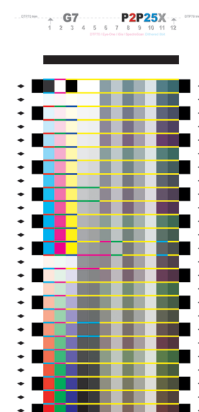
Vertical 80% tint bars of CMYK commonly used in Europe for TVI measurement at 3/4 tone.

4.18 Open Space for House Color Bar.

Open area on press form at gripper and tail to easily place custom house or proprietary color bars used in close looped scanning devices.

4.19 RGB and CMY Gradient Bars

Vertical gradients of 0-100 percent of RGB overprints, and CMY primaries. Gradients can identify problems with screening, banding, or print quality.



5. Summary

The IDEAlliance G7 Pre-Qualification Kit consists of three items, the checklist, the press test form, and the test form user's guide. Prior to performing a press calibration, the checklist should be completed and the pre qualification test form should be printed to determine the readiness of your process for an actual calibration run. The intent is to minimize expensive resources such as press time and paper, and minimize errors or mistakes by being proactive and preventative with thoughtful planning. Documentation of conditions is important for standardization and process control.

If you like, you can modify and change the checklist and press test form to satisfy your unique

custom needs or personal preferences. At any time, please send us your suggestions and feedback about the kit. If you feel uncomfortable about implementing the check list and/or press test form, contact a G7 Expert for technical assistance. G7 Experts can be found at www.g7.org