Print Compliance Verification

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Abstract

As print providers seek to comply with printing standards, this article discusses the current certification development and existing certification programs. It defines what is a print compliance verification and describes the type of standards used in a print compliance verification. It reasons why printing standard or print compliance verification is important and discusses what printers can do to achieve print certification status. It also discusses trends in printing certification at the international level.

What is Print Compliance Verification?

Print compliance verification is a process for assessing how well graphic arts workflows and printed products conform to nationally or internationally recognized standards. When the verification is carried by a competent, impartial, third-party in the form of audit and the results pass, the printing organization earns the distinction of being certified.

Printing Standards and Print Compliance Programs

There are three types of printing standards: industry, national, and international. G7 is an example of an industry standard and print qualification program, developed by IDEAlliance to address the ‘press calibration’ standardization of the North American printing industry (Note: An industry standard is more of a guideline than a document that has been voted and approved by a standardization body). A print qualification program is less stringent and rigorous than a print certification program. In this instance, anyone can download a G7 How-To manual from the IDEAlliance web site (www. IDEAlliance.org); a G7 Expert or Professional is required to submit printed sheet on behalf of a printing company for assessment; if the results pass, the printer receive the distinction as a G7 Mater Printer. There are more than 800 Master Printers in the U.S. and internationally.

CGATS stands for Committee for Graphic Arts Technology Standards and is the graphic arts standardization body, accredited by ANSI, in the U.S. CGATS TR006 is a U.S. sanctioned standard characterization data set for GRACoL proofing and printing; and CGATS TR016 (2009) is a U.S. sanctioned standard on printing tolerance and conformity assessment. RIT (Rochester Institute of Technology) is developing a printing certification program, PSA or Printing Standards Audit, to award printing companies who can demonstrate conformance to characterization data set, such as CGATS/GRACoL TR006 according to CGATS TR016.
The acronym, ISO, stands for International Standards Organization. The acronym, TC, stands for Technical Committee. ISO TC130 is responsible for developing international printing standards, e.g., ISO 12647-2, ISO 15339-1, etc.

There are a number of European certification bodies, e.g., Fogra and Ugra, who have been granting certifications, known as PSO (Process Standards Offset), to printing companies who demonstrated conformance to printing aims according to ISO 12647-2 and related standards. RIT offers PSA certification according to ISO 15339-1 to printers worldwide.

It is important to recognize that ISO does not sanction what standards should be included in the certification requirements. Thus, certification schemes are open and is the choice of the market. As such, Brazil offers NBR 15936-1, Italy offers cmyQ and CeriPrint, Japan offers JapanColor, Netherlands offers SCGM, Sweden offers CGP, and UK offers BPiF certification schemes to printers in their respective countries.

**Why is Standard or Print Compliance Verification Important?**

Printing standards, whether industry, national, or international, are inputs of a print compliance verification program. Assessment by a competent and impartial third-party auditor is the key activity of a print compliance verification. Being qualified or certified is the successful outcome of a print compliance verification program.

One may wonder why is standard or print compliance verification important. Standards and printing certification contribute to the printing industry by:

a) **Aligning quality expectations.** Printing standards replace subjective print quality judgments with measurable, objective criteria. When printers and print buyers agree to use printing standards to define their quality expectations, the waste associated with chasing subjective quality requirements is reduced.

b) **Enabling process control.** Standardizing quality criteria enables the use of common process aims. By printing to a single set of process aims (instead of trying to match new aims for different jobs), printers can standardize and optimize their processes. The result is enhanced process control, reduced color matching downtime, and more competitive production costs.

c) **Building Trust.** In today’s printing industry, international supply chains are becoming the norm. Printers and print buyers who used to build trust through frequent face-to-face meetings now find themselves on opposite sides of the world. When frequent meetings are no longer possible, a new basis for trust is required. Standards provide the basis for objective conformance assessment. Printing certification has become the new basis for building trust in global supply chains.
What Printers Can Do to Achieve Print Certification Status?

A printing company may be motivated by the benefits mentioned above. It is clearly a strategic issue and there are costs and efforts involved. Senior management must make a conscientious decision. After making the decision to become certified, a printer will go through the following five steps:

a) Select appropriate standards to be certified in your workflow

ISO 12647-2 (2004) is the established printing standard developed in the film-based workflow era. ISO/DIS 15339-1 (2011) is an emerging printing standard developed entirely based on printing from digital data. Many think the two standards are in conflict with each other. In fact, the two standards complement each other.

If we define a color-managed workflow from data reception, to prepress and color management, to printing, ISO 12647-2 only focuses on printing process control. ISO 12647-2 conformity assessment begins with a limited number of color patches (solid, tints); upon platemaking, printing, sampling, measurement, it ends with process control related parameters (color of solids, TVI, midtone spread). By calibrating the press and demonstrating conformance to process control aims, ISO 12647-2 ensures repeatable color. Thus, prepress and color management are outside the scope of ISO 12647-2.

The methodology of ISO/DIS 15339-1, similar to ISO 12647-5, 6, 7, and 8, is based on the use of characterization data to define printing. ISO/DIS 15339-1 recognizes characterization datasets and their associated ICC profiles as color exchange spaces. ISO/DIS 15339-1 also recognizes characterization dataset derived printing aims, but is silent on process control approaches and related tolerances. ISO/DIS 15339-1 conformity assessment begins with many color patches per ISO 12642 (IT8.7/4). By calibrating the press to substrate-corrected printing aims, and by utilizing color management in prepress, ISO/DIS 15339-1 ensures product color conformance.

ISO 12647-2 and ISO/DIS 15339-1 have different scopes. It is natural and reasonable to have a process control standard nested inside a product conformance workflow standard (Figure 1).

(Place Figure 1 Here)

As such, ISO 12647-2 process control standard addresses printer’s needs and ISO/DIS 15339-1 product conformance standard addresses print buyer’s needs. Printing aims from ISO 12647-2 may be slightly different than printing aims derived from ISO/DIS 15339-1 dataset, they are compatible as far as tolerances are concerned.
b) Prepare for the audit

The first step is to form a project team responsible for planning and executing the steps leading up to certification. Typically this team consists of a team leader plus representatives from prepress, platemaking, quality control, and printing. Shortly after being formed, the team must decide the standards and workflows which it intends to certify.

The project team should contact the certification body and request information on the scope of the audit, and details, e.g., hardware, software, concerning the anticipated audit. This process will result in an audit proposal. The certification body will send the team a pre-audit kit that contains comprehensive information for preparing for the audit.

Printers are encouraged to use supplied materials to dry run the audit process before the audit team arrives. With proper preparation the audit itself is just another print job run in conformance to the standard selected. The printer may desire to get expert advice to identify the gaps that exist in its workflow and to obtain help in closing them.

c) Host an on-site audit of the selected workflow

The audit process typically begins with an in-briefing for site management and the audit participants. The in-briefing establishes the schedule of audit activities, confirms the standard and scope selected, and initiates the audit by providing a set of test files for the printer to process.

Each of the areas identified in the scope of the audit will be assessed according to the schedule. The printer is expected to independently demonstrate its ability to operate a workflow conforming to the standard(s) selected.

At the end of the audit, the audit team will have collected a set of observations and a series of test forms, i.e., processed files and physical prints, which will be assessed according to the standards.

After all audit activities have been completed, the audit team will meet with site management and the audit participants for an out-briefing. The result of the audit will not be known until the test forms have been measured and assessed. Nevertheless, the audit team will confirm whether it was able to complete the full range of audit activities. It will also provide feedback on the work practices it observed during the audit, and establish a timeframe for completion of the full assessment.
d) Review the results of the audit

When the printed samples are received and measured, the certification body will complete the audit report and send it to the printer in written and electronic form.

e) Become certified

If the audit report demonstrates that the printer met or exceeded the level of performance required to achieve certification, a certificate will accompany the audit report. Certified companies are also recognized on the certification body’s website and authorized to use the certification logo.

If the workflow failed to demonstrate conformance, the certification body will request a call to review of the audit report with the printer. Analysis of the nonconformance will be discussed during the call.

Trends in Printing Certification

There have been a number of surveys conducted regarding printing certification activities worldwide. For example, findings, from the Printing Standards: A 2010 Survey Report (RIT, 2010), indicate that selected standards have regional preference. A case in point is that U.S. printers prefer G7 press calibration methodology and GRACoL characterization dataset and European printers prefer ISO 12647-2 process control standard and Fogra39 dataset. In addition, certification programs also differ in scope. For example, IDEAlliance only addresses press calibration conformance while Fogra and Ugra addresses both press calibration and production variation conformance.

To harmonize printing certification requirements and assessment activities, ISO TC130 at its 2010 plenary meeting in Sao Paulo, Brazil, established Working Group 13 to develop the standards, ISO 16761-1 Graphic technology — Conformity assessment and management system requirements for tone and color quality. This is a three-part ISO standard with part one addressing basic principles, part two addressing printing tolerance and conformity assessment, and part three addressing sector-specific management system requirements. The current status of the ISO 16761 is at the “New Work Item” stage. The projected time frame for Committee Draft (CD) and beyond is 2013.

When developing and drafting any ISO standard, ISO/IEC Directives state that there must be a separation between technical requirements (the responsibility of WG3 Process control standards) and conformity assessment requirement (the responsibility of WG13 Printing certification requirements). In terms of conformity requirements, the Directives articulate that the standard must adhere to the neutrality principle, i.e., write for 1st, 2nd, and 3rd party. In terms of management system requirements, the Directives further articulate that a justification study must be submitted and approved before the work of ISO 16761-3 could begin.
References


ANSI CGATS/GRACoL TR 006 (2007), Graphic technology — Color characterization data for GRACoL® proofing and printing on U.S. Grade 1 coated paper

ANSI CGATS TR 016 (2012), Graphic technology — Printing Tolerance and Conformity Assessment

Additional Readings and URLs

ISO 12647-2 (2004), Graphic technology — Process control for the production of half-tone colour separations, proof and production prints — Part 2: Offset lithographic processes


printlab.rit.edu

http://www.ideallliance.org/

http://www.fogra.org

http://www.pso-insider.de

http://www.urga.ch
Figure 1. Color-managed workflow and printing standards