

¹ANSI used to be called the American Standards Association (ASA).

What is a standard? Something that everyone uses because it is so innately useful? A set of conventions used to facilitate the passage of data between computers? The result of a study by color scientists? An imposed data requirement regulated by an institution like the government? A list of suggestions for formatting data? Or maybe even some product that just sells really well? In fact, since it could be any of these things we'll look at a range of standards ranging from formal to de facto. Let's start with the work of some standards committees that are accredited by the American National Standards Institute (ANSI).¹

ANSI

ANSI accredits standards developers, committees, and organizations for a wide range of topics, but there are three ANSI accredited standards groups that deal specifically with graphic arts issues: B65, IT8, and CGATS.

- **B65** will be less well-known among those involved in prepress work because it covers safety issues related to printing presses, binding equipment, and finishing machinery.
- **IT8** (IT stands for Image Technology) is responsible for the development of digital data exchange standards (DDES) in graphic arts applications. IT8 subcommittees are involved with page imaging models, scanned file formats, data structures, and color calibration and communication tools.

While much of the recent standards activity has been focused on the work of IT8 and its subcommittees, other "IT" committees have done significant standards work as well. One of these is IT2, which was involved with the development of the Status T standards for reflection densitometry. This committee began as part of the PH2 committee which worked on lighting and photographic standards.

- **CGATS** (Committee for Graphic Arts Technology Standards) has a broader focus involving the entire range of graphic arts technology in an effort to develop national standards that takes existing standards into account.

A full listing of the activities of these ANSI accredited committees is included in an article by David McDowell called Graphic Arts Standards: An Update. It has appeared in a number of magazines, including: the September/October 1992 issue of the IPA Prepress Bulletin. (IPA is the International Prepress Association, they may be reached at 1-612-896-1908.)

In addition to its activities in the United States, ANSI also accredits a Technical Advisory Group (TAG) which works in conjunction with the International Standards Organization (ISO) Technical Committee 130. The ISO/TC130 TAG looks at the international implications of graphic arts standards.

ANSI accredited graphic arts committees work on standards that range from printing plate sizes and thickness to digital file formats. They can even help move a popular 'de facto' standard into official status. This is the case with some current work involving TIFF (Tag Image File Format) which was developed by Aldus Corporation and is now being made into an ANSI accredited standard.

Some of the better known ANSI accredited standards include one for viewing conditions (PH2.30), Fiber Distributed Data Interface (FDDI), and the Initial Graphics Exchange Specification (IGES). Publishing Interchange Language (PIL) is also an ANSI accredited project.

NIST

²NIST used to be called the National Bureau of Standards (NBS).

Another United States standards organization is the National Institute of Standards and Technology (NIST)². NIST and ANSI play somewhat different roles in the standards world. While ANSI is involved in the accreditation of written standards, NIST is involved with the consistent replication of reference standard materials. For example whereas ANSI might accredit a standard regarding the measurement of length, NIST might create a standard reference inch that was constructed from a material that would not change in length and could be used as a guideline for creating rulers.

ISO

In the international standards arena, the International Standards Organization (ISO) is comprised of ninety-one standards organizations from different countries. ANSI represents the United States on the ISO. Input on specific projects comes from technical advisory groups like ISO/TC 130.

One ISO standard that may be familiar to you is ISO 9000. ISO 9000 is a set of five quality management and quality assurance standards that may be used by both manufacturing and service companies to improve quality and increase customer confidence in your organization. ASQC, the American Society for Quality Control, administers ISO 9000 in the United States on behalf of ANSI. ASQC provides training, registers ISO 9000 companies, and performs audits to see that the standards are being upheld. For more information on ISO 9000, please contact ASQC at 1-414-272-8575.

Industry organizations

Some other industry organizations, while not strictly speaking standards organizations, still play an indispensable role in the creation of standards. In some cases, the standards developed by these organizations have been adopted by the official standards groups. Here are some examples:

³CCITT is a communications standards committee of the International Telecommunications Union (ITU).

CCITT – Color image data compression techniques have been studied by a joint committee of the Consultative Committee for International Telephony & Telegraphy³ (CCITT) and the ISO. This committee is called the Joint Photographic Experts Group (JPEG).

EIA – SCSI, the Small Computer System Interface, is an EIA (Electronic Industries Association) standard that was accredited by ANSI.

⁴T-Ref was developed based on the ANSI Status T standard for reflection densitometers. It gives you the ability to compare measurements from different reflection densitometers.

GCA – The Graphic Communications Association (GCA) has been at the forefront of the issue of the electronic mechanical with their Electronic Mechanical Specification (EMS) and (Electronic Front-End Exchange) EFEX specifications. They have also done work in the area of standard reference strips for calibrating various measurement devices. This work has resulted in the T-Ref⁴. Dot-Ref, and Lab-Ref standard references. T-Ref is for reflection densitometers, Dot-Ref is for transmission densitometers, and Lab-Ref is for colorimeters, spectrophotometers, and hybrid color measurement devices.

Color

Color has been the focus of a number of standardization efforts:

Color – CMYK (Cyan, Magenta, Yellow, and Black) and RGB (Red, Green, and Blue) are standards for the simple reason that RGB is used in virtually every monitor and scanner, and CMY or CMYK is used in most color printing processes. Whether one monitor's RGB will match another monitor's RGB is another story entirely. This is where the CIE (Commission International de l'Eclairage) color spaces come in, they include: CIELAB, CIELCH, CIELUV, and CIEXYZ. The CIE color spaces are not standards, so to speak, but are

widely used in numerous color management systems and therefore have taken on a de facto status. (For more information on the CIE color spaces, please refer to the following articles from the 1992 Linotype-Hell Technical Information notebook: *Color Spaces and PostScript Level 2*, *Color Space Conversion*, and *Color Management*.) In the very near future, Standard Color Image Data (SCID) will be an ISO standard containing a series of color images in electronic form to be used as a reference for testing purposes.

A wide range of methods exist for specifying spot color, including systems produced by Pantone, TruMatch, Focoltone, and Toyo. (For more information on this topic, refer to the May/June 1993 issue of GATFWorld which includes an article by Richard Adams entitled *Spot Color Specification Systems*.)

Color TV – There are three well-known color TV standards:

- Phase Alternating Line system (PAL) – The PAL standard is used in many European countries as well as in Britain.
- SEquential Couleur A'Memorie (SECAM) – SECAM is used in France, eastern Europe and parts of the Middle East.
- National Television Systems Committee (NTSC) – NTSC is used in the United States, Canada, Japan, Korea, and South America.

In addition, High Definition Television (HDTV) is the much talked about high resolution color TV system for which there has been considerable recent high-level discussion over proposed standards.

Color printing and proofing – There are number of color printing and proofing standards, including Specification for Non-heat Advertising Printing (SNAP), Specifications for Web Offset Publications (SWOP), EuroSWOP (the European version of SWOP), Specifications for European Offset Printing of Periodicals (sometimes called FIPP), and Digital Distribution of Advertising for Print (DDAP). For more information on any of these standards, please see the list of references at the end of this document.

Government

The United States government is also involved in some standards initiatives. For example, Computer-aided Acquisition and Logistic Support (CALs) is a department of defense initiative regarding electronically submitted documents. Standard Generalized Markup Language (SGML), while not a U.S. government standard, is required by CALs. SGML is used in technical document publishing and is both an ANSI and an ISO standard.

Linotype-Hell

Linotype-Hell is actively involved in the ANSI IT8 committee as well as the DIN NDR-2 prepress committee. The Deutsches Institut für Normung (DIN) is the German national standards group that is the equivalent of ANSI in the United States. The Normenausschuß Druck- und Reproduktionstechnik (NDR-2) committee is involved in workflow issues for filmless reproduction.

Another standards project that is of great importance to Linotype-Hell is the Intercompany File Exchange Network (IFEN). IFEN is a high speed fiber optic LAN (local area network) that was commonly specified by Crosfield, Linotype-Hell, and Scitex. The motivation for this combined effort was the desire to specify an FDDI network that could transmit the immense color images created by scanners. This specification has not been officially endorsed by any standards group, but IFEN has been made available to any manufacturer who wishes to implement it.

Linotype-Hell has also played a role in the establishment of one of the industry's most popular de facto standards: the PostScript™ page description language. Linotronic® imagesetters were the first high resolution output devices to support PostScript. These devices fostered the use of PostScript throughout the graphic arts industry.

Acronyms

The standards world is a regular mire of acronyms. To help you navigate, Linotype-Hell offers a self-running, Macintosh® program that is a compendium of prepress, computer, and printing acronyms. If you would like a free copy, call the Linotype-Hell Information Center at 1-800-842-9721.

Conclusion

Many official and de facto standards exist within the computer, prepress, and printing worlds. If you would like more information about some of the standards mentioned in this article, please look to the following sources:

ANSI – American National Standards Institute, 11 West 42nd Street, New York, NY, 10036. Telephone 1-212-642-4900.

ASQC – American Society of Quality Control, 611 East Wisconsin Avenue, PO Box 3005, Milwaukee, WI, 53201-3005. Telephone 1-800-248-1946.

DDAP – Digital Distribution of Advertising for Print. For more information contact: DDAP Association, 1855 E. Vista Way, Suite 16, Vista, CA, 92084.

EIA – Electronic Industries Association, 2001 I (Eye) Street N.W., Washington, DC, 20006. Telephone 1-202-457-4900.

IEEE – Institute of Electrical and Electronic Engineers, 345 East 47th Street, New York, NY 10017. Telephone 1-212-705-7900.

FIPP – The International Federation of the Periodical Press has produced Specifications for European Offset Printing of Periodicals. For more information, write FIPP, Suite 19, Grosvenor Gardens House, 35-37 Grosvenor Gardens, London, SW1W 0BS, England.

GATF – Graphic Arts Technical Foundation, 4615 Forbes Avenue, Pittsburgh, PA, 15213. Telephone 1-412-621-6941.

GCA – Graphic Communications Association, 100 Daingerfield Road, Alexandria, VA, 22314. Telephone 1-703-519-8160.

IPA – International Prepress Association, 7200 France Avenue South, #327, Edina, MN, 55435. Telephone 1-612-896-1908.

NPES – The Association for Suppliers of Printing & Publishing Technologies, 1899 Preston White Drive, Reston, VA, 22091-4367. Telephone 1-703-264-7200. IT8 and CGATS documents as well as information on ISO/TC 130 TAG are available from NPES.

SCID – Open Systems Color Association (OSCA) can provide information on SCID: 1855 E. Vista Way, Suite 16, Vista, CA, 92084. Tel. 1-619-758-5331.

SNAP – The Specification for Non-heat Advertising Printing is available through Printing Industries of America, Non-Heatset Web Unit, 100 Daingerfield Road, Alexandria, VA, 22314. Telephone 1-703-519-8100.

SWOP – (revised) Specifications for Web Offset Publications. To order copies of the 1993 updated version, call SWOP Inc. at 1-212-983-6042, or write them at 60 East 42nd Street, Suite 721, New York, NY, 10165-0015.

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Please direct any questions or comments to:

Jim Hamilton, Marketing Department, Linotype-Hell Company, 425 Oser Avenue, Hauppauge, NY 11788
(For subscription information on the Linotype-Hell technical information series, please call 1-800-842-9721.)

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 - PostScript is a trademark of Adobe Systems Inc. which may be registered in certain jurisdictions.
 - T-Ref, Dot-Ref, and Lab-Ref are trademarks of the Graphic Communications Association.
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