STANDARDS UPDATE

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I realized the other day that it has been a long time since we did a basic review of the standards process. For those of you actively involved in standards, or for those who have followed this column since its inception in 1990, this will be old hat. However, one of the mistakes made by most of us involved in standards is to assume that everyone else understands not only the basic process but all of the acronyms we use as well.

Therefore, in this issue of Standards Update I will go back to some of the earliest articles in this series and again review the basic ANSI and ISO standards process. I will also identify the key standards committees that impact the imaging industry and include definitions of many of the more common acronyms. It will be sort of a "standards 101".

The Top Level

Although much of this description will be US centric, it also applies in general terms to most other nations involved in standards for imaging technology.

There are three international standards organizations that provide the umbrella under which most imaging standards are created and maintained. These are the International Organization for Standardization (ISO), the International Electrotechnical Commission (IEC), and the International Telecommunications Union (ITU). ISO and IEC are federations of national standards bodies while ITU is an international treaty organization. An additional group that is part of both ISO and IEC is Joint Technical Committee 1 (JTC1), Information technology. JTC1 has many Sub-committees and effectively acts as a separate organization.

The other major international standards making organization that impacts the imaging community is the Commission Internationale de L'eclairage (CIE) which is better known as the International Commission on Illumination.

All of these organizations have internal structures focused around Technical Committees (TCs) with participation and balloting through national bodies and/or national body shadow committees. To look at this more closely we will focus on ISO (partially because that is what I am most familiar with, but also because much of the imaging standards activity is within ISO TCs). Later articles will focus on the other international standards organizations.

ISO Organization in More Detail

ISO is a network of the national standards institutes of 157 countries, on the basis of one member per country (which ISO refers to as National Bodies or NBs), with a Central Secretariat (ISOCS) in Geneva, Switzerland, that coordinates the system. In the United States, ANSI (American National Standards Institute) is the organization that represents the US in ISO.

ISO has a number of boards and councils. However, from the point of view of standards development, the ISO Technical Management Board (TMB) is the controlling group. Reporting to the TMB are Technical Committees (TCs) which are identified by both a number and a name. As with any such identification most of us simply use the number. A list of all ISO TCs can be found at www.iso.org.

The key imaging committees are:

- TC6, Paper, board and pulps
- TC36, Cinematography
- TC42, Photography
- TC 46, Information and documentation,
- TC133, Graphic technology
- TC171, Document management applications
- JTC1/SC24, Computer graphics, image processing and environmental data representation
- JTC1/SC28, Office equipment Functions
- JTC1/SC29, Coding of audio, picture, multimedia and hypermedia information

My apologies, if I have forgotten any imaging related TCs in this list.

Two internal structures are available to Technical Committees. These are Sub-Committees (SCs) and Working Groups (WGs). These may be used either independently or in combination. The key difference is that an SC is a semi-independent group and in many areas can operate independent of its parent TC. WGs on the other hand report to a TC or an SC and must operate through the parent group.

Both TCs and SCs are administered by something called a "Secretariat". This is a group that has a formal agreement with ISO to provide the administrative support of a TC or SC. This is always officially a NB, but often that responsibility is delegated to an industry group within the responsible NB.

For each TC and SC, individual NBs that are participants in ISO can elect to be Participating (P) Members, Observer (O) Members, or not be involved at all. For example, TC 130 has 15 P- members and 21 O-members out of the 157 national bodies that participate in ISO.

Within WGs each participant is a technical expert who participates as an individual, nominated by and responsible to his/her national body.

Each P-member (and some O-members) have some sort of national shadow committee that coordinates its participation in the work of the TCs and SCs in which it is involved. (There will be more discussion of this later under participation and voting)

ISO Standards Development

Work on any subject or project starts with a New Work Item Proposal (NP). This can originate either from within an SC, a TC, or a NB. The NWI must define the scope of the work and include a draft or outline of the intended International Standard, Technical Specification, or Technical Report. This NP is circulated to the P- and O-members of the ISO committee whose scope includes the subject matter of the NP for review and voting.

To become an ISO project two criteria must be met. 1) A simple majority of the P-members of the committee voting must agree and 2) at least 5 (or in some cases 4) NBs must agree to actively participate in the work.

For all practical purposes most standards development work is done in WGs reporting to either SCs or TCs. Once a NP is approved, it is generally assigned to a WG to be carried forward. The first task is to use the draft that accompanied the NP to create a Working Draft (WD) that can be circulated within the WG.

Once consensus is reached among the technical experts on a WD, the WG prepares a Committee Draft (CD) which is

circulated by the TC Secretariat to all P- and O-members of the TC for approval. This is the stage at which all technical issues are worked out and the NBs are expected to circulate the CD to "all affected groups" within their NB. Each NB has a single vote and any national body comments are expected to be resolved and submitted as a unified set representing the national body as a whole.

These comments are given to the WG to consolidate with the comments of other NBs and to review and resolve. The CD balloting period is 3-months and successive CDs may be used to achieve consensus.

Once consensus is achieved at the CD stage, the WG prepares a Draft International Standard (DIS). The DIS ballot period is 5 months and is circulated by the ISO Central Secretary (ISOCS) to all 157 countries that participate in ISO. Typically, only those who are P- or O-members of the committee involved respond, but any NB is permitted to do so.

The DIS ballot is the final opportunity to input technical comments. However. significant technical comments are discouraged at this stage because any significant changes will require a second DIS ballot. The general feeling is that significant technical changes should be introduced at the CD stage. Multiple DIS ballots are permitted, if required, to achieve consensus.

The requirements for approval are that a two-thirds majority of the votes cast by the P-members of the TC or SC are in favour, and not more than one-quarter of the total number of votes cast are negative.

If all votes cast are in favour, the document can go directly to publication after the editing team, with the help of the WG, has resolved all comments and made the changes necessary. If the document is approved, but there are negative votes, a Final Draft International Standard (FDIS) must be prepared and circulated to all NBs for a 2-month vote. No comments are permitted on an FDIS, simply a yes or no vote.

In either case the document goes to the ISOCS for processing and review to insure that it meets the ISO style and editing criteria. The ISOCS then returns a "proof" copy to the TC for review and concurrence. Publication follows.

The process of other international standards organizations (IEC, CIE, etc.), while not identical, follow similar steps. In addition, national bodies (ANSI, BSI, DIN, etc.) in general model their procedures, for national standards development, on those of ISO.

Joint Working Groups (JWGs)

There are increasingly situations where the subject matter of a standard overlaps the technical areas of two or more TCs. The ISO TMB has recently developed formal procedures for the operation of Joint Working Groups (JWGs) to facilitate the sharing, between multiple TCs, of the development of standards in such situations.

Each JWG is administratively assigned to a parent committee, usually the TC that initiated the work on the particular standard that is the subject of the JWG.

Guidelines for Participation

Although participation in ISO standards activities is open to all, there is a protocol that must be observed.

First, participation is through NBs. Any NB member of ISO may become either a P or O member of any ISO TC. Once an NB has established a relationship with a TC, it identifies the technical experts who will represent it in the various TC, SC, and WG activities. The working documents of the various TC projects are made available to these technical experts through the TC secretariat (usually via access to an ISO or NB secure web site).

Within the United States, although ANSI is the official US participant in ISO, it has delegated responsibility to various industry groups to monitor the US participation in each TC for which the US is either a P or O member. These groups are called Technical Advisory Groups (TAGs). Each national body is free to manage this process in its own way.

The US TAGs have the responsibility to recruit technical experts and endorse their participation to the TC Secretariat (through ANSI). Therefore, anyone in the US who wants to participate in the work of an ISO TC must contact the USTAG for that TC.

National Body Input

In the US, the USTAGs to each ISO TC also have the responsibility to co-ordinate the US review of each document that is sent out for ballot. This includes all New Work Item Proposals, CDs, DISs, and FDISs.

Typically the membership of a USTAG is made up of the technical experts that participate in the work of the TC, as well as other individuals who are interested in the work of the TC but are unable to participate at the international level. These may be members of an ANSI national standards committee in a similar area or simply concerned members of industry.

It is the USTAGs responsibility to ensure that any US company or organization, that may be materially affected by a standard under development, is given an opportunity to comment. This is accomplished by public announcements of the availability of documents for review as well as circulation of the documents to the members of the USTAG and to members of other trade, professional, and standards organizations at the discretion of chair and secretariat of the USTAG.

The USTAG is also responsible for recommending a US position on each ballot and consolidating and reconciling all comments to provide a unified set of US comments. The possible responses to a ballot are: Agree, Agree with comments, Disagree, or Abstain. Any ballot response that disagrees with the document provided must be accompanied by specific comments and recommendations for wording that would make the document acceptable. Although the USTAG prepares the ballot response it is officially returned through (by) ANSI.

More Information

This has been a very brief general overview of the standards process. More specific information is available at the following websites: www.iso.org, www.ansi.org, ww.iec.ch, and www.jtc1.org.

For suggestions for (or input to) future updates, or standards questions in general, please contact the author at mcdowell@npes.org or mcdowell@kodak.com