

INTERNATIONAL STANDARDS DEVELOPMENT AND THE U.S. TECHNICAL ADVISORY GROUP PROCESS

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As industry becomes increasingly global the importance of international standards increases, as well. How can U.S. companies, government agencies, and other organizations ensure that their voices are heard and their interests are protected? The U.S. Technical Advisory Group (U.S. TAG) is the only avenue for U.S. stakeholders to provide input to technical committees in the International Organization for Standardization and the International Electrotechnical Commission. The Acoustical Society of America (ASA) administers nine of these U.S. TAGs.

This paper presents an overview of the process by which international standards are developed and explains how U.S. stakeholders, working through the American National Standards Institute and the ASA, can participate in the development of standards on acoustics; bioacoustics; electroacoustics; noise; mechanical vibration, shock and condition monitoring; and most recently, underwater acoustics.

Although there are many organizations that develop standards that are used worldwide—Institute of Electrical and Electronic Engineers (IEEE), ASTM International, ASME, and others—this discussion is limited to standards developed under the auspices of either the International Organization for Standardization (ISO) or the International Electrotechnical Commission (IEC). These two non-governmental and non-treaty organizations are located in Geneva, Switzerland. Although they are separate organizations, they have converged over the years in many ways so that today they follow a common set of operating procedures that are set out in the two Parts of the ISO/IEC Directives,^{1,2} which were most recently revised in 2011. However there are still some differences in procedures, so each organization also maintains a Supplement setting out those unique points.^{3,4}

The IEC is the older of the two organizations, having been formed in 1906. Its scope of work is limited to electrical and electronic technologies. The ISO was founded in 1947 and its scope encompasses virtually everything that is not covered by the IEC. This distinction is increasingly difficult to define as more and more products and processes are both electronic and mechanical and as ISO ventures into areas that were formerly outside its scope such as customer services, training and qualification of personnel, social responsibility, and others.

What are international standards?

ISO and IEC standards are referred to as “voluntary consensus standards.” The use of a standard is generally volun-

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tary; in most cases a user can decide to apply a standard or not to do so. If there is more than one applicable standard, the user may generally elect to choose one over the other. Standards are not laws. However, some standards are referenced in law and may therefore be required for that particular application. The use of a particular standard also

may be required by contract or some other agreement.

In ISO and IEC, the term “consensus” is defined in the ISO/IEC Guide 2:2004 as “General agreement, characterized by the absence of sustained opposition to substantial issues by any important part of the concerned interests and by a process that involves seeking to take into account the views of all parties concerned and to reconcile any conflicting arguments. NOTE Consensus need not imply unanimity.”⁵ In the ISO/IEC process there are many opportunities for stakeholder input and for resolution of objections.

Together, ISO and IEC comprise hundreds of technical committees and subcommittees (TCs and SCs) whose members are countries represented by the national standards body of each country. (The members are referred to as “national member bodies” in ISO and “national committees” in IEC. For convenience, we will use “national member bodies.”) There is no opportunity for individuals, corporations, or organizations to participate directly in ISO or IEC.

Each national member body may elect to become a P-member (Participating) or to become an O-member (Observing) of a TC or SC, or may not follow that TC or SC at all. Since P-members have an obligation to participate they are expected to set up a national committee to follow the work of that TC or SC. These are often referred to as “mirror committees.” In the U.S. the national mirror committees are called U.S. TAGs.

The role of the American National Standards Institute (ANSI)

Both ISO and IEC operate on a model similar to that of the United Nations—one country, one vote. ANSI is the sole U.S. member body of ISO. The U.S. National Committee (USNC) to the IEC is a division of ANSI.

ANSI contracts with U.S. stakeholders to organize U.S. Technical Advisory Groups for each subject. Those U.S. TAGs tell ANSI or the USNC how to vote.

Participation in the U.S. TAG for a particular ISO or IEC committee is the only avenue for U.S. stakeholders to have a voice in the development of ISO or IEC standards in that committee. All U.S. TAGs are formed in ANSI’s name but

they are organized, managed and funded by the stakeholder organization.

How does ASA fit in?

Compared to other organizations of its size, ASA has an unusually large role in international standards. ASA administers nine U.S. TAGs:

- Electroacoustics (IEC/TC 29)
- Acoustics (ISO/TC 43)
- Noise (ISO/TC 43/SC 1)
- Underwater acoustics (ISO/TC 43/SC 3)
- Mechanical vibration, shock and condition monitoring (ISO/TC 108)
- Measurement and evaluation of mechanical vibration and shock as applied to machines, vehicles and structures (ISO/TC 108/SC 2)
- Use and calibration of vibration and shock measuring instruments (ISO/TC 108/SC 3)
- Human exposure to mechanical vibration and shock (ISO/TC 108/SC 4)
- Condition monitoring and diagnostics of machines (ISO/TC 108/SC 5)

In addition to organizing and administering these nine U.S. TAGs, ASA also provides the international secretariat for three of the ISO committees:

- Mechanical vibration, shock and condition monitoring (ISO/TC 108)
- Condition monitoring and diagnostics of machines (ISO/TC 108/SC 5)
- Underwater acoustics (ISO/TC 43/SC 3)

Steps in the ISO/IEC standards development process

ISO standards are developed in a series of steps, each strictly limited in regard to the time allocated to complete it. (The longest possible timeframe is 4 years, which is the timeframe referenced in the text below.) By their nature, standards are very practical documents. They are prepared to address a specific issue or problem identified by the people working in the trenches. So every standards development project starts when someone identifies a need.

Figure 1 shows a simplified version of the ISO steps and also the points where the members of the U.S. TAG have input at each step. Figure 2 shows the process used to acquire the U.S. TAG input.

The first step in the ISO process is the “New work item proposal” (NP). The proposal may come from various sources such as any P-member country or from within the committee itself. The key factor is that the idea almost always comes directly from the stakeholder community rather than

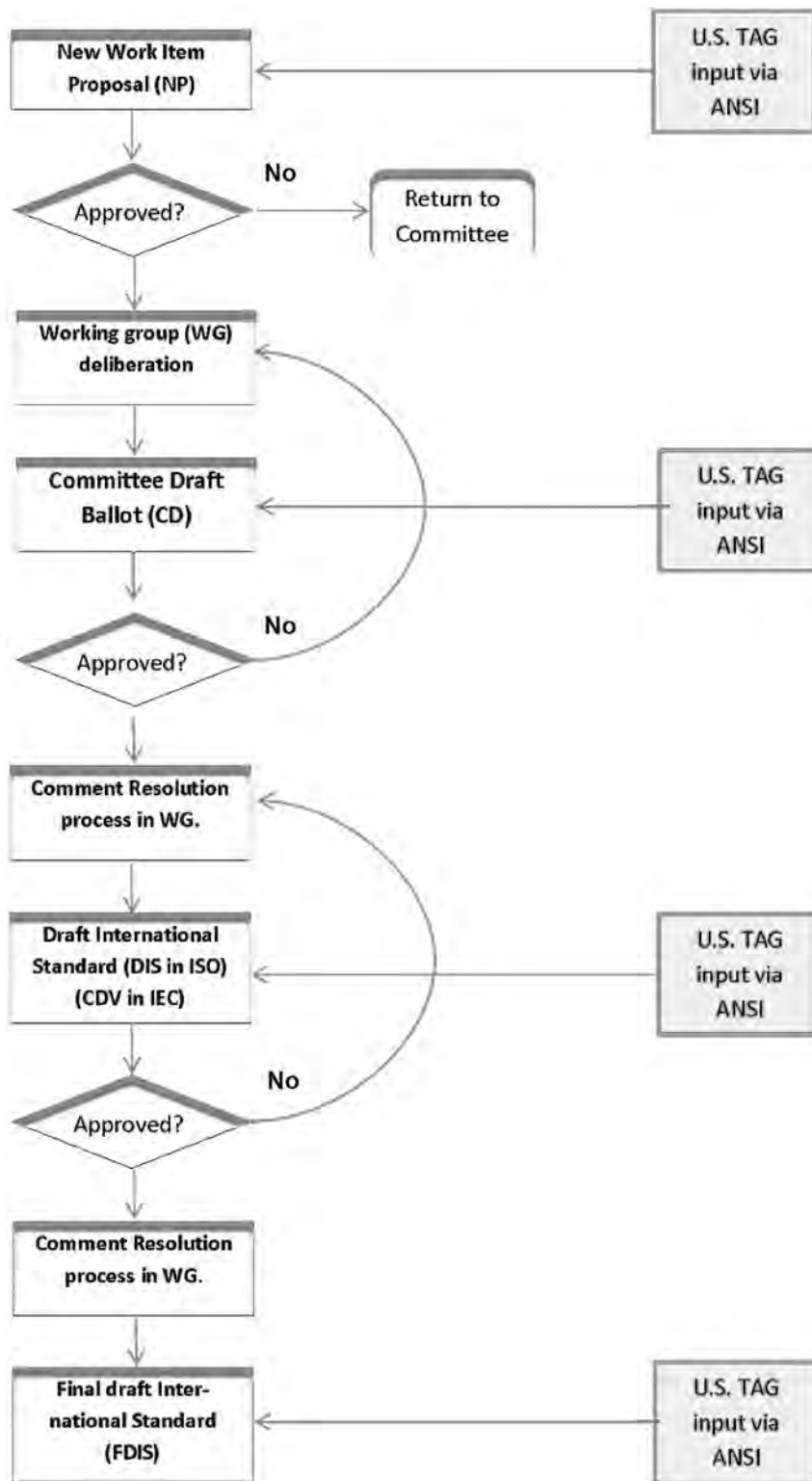


Fig. 1. International Standards Organization/International Electrotechnical Commission (ISO/IEC) standards development process (simplified).

being imposed “from above” by an outside authority. Whatever the source, the person wishing to make the proposal must complete a form explaining the scope of the project and justifying the need. Issues such as conflict or duplication of pre-existing standards and the potential to develop a “globally relevant solution” to the identified problem are

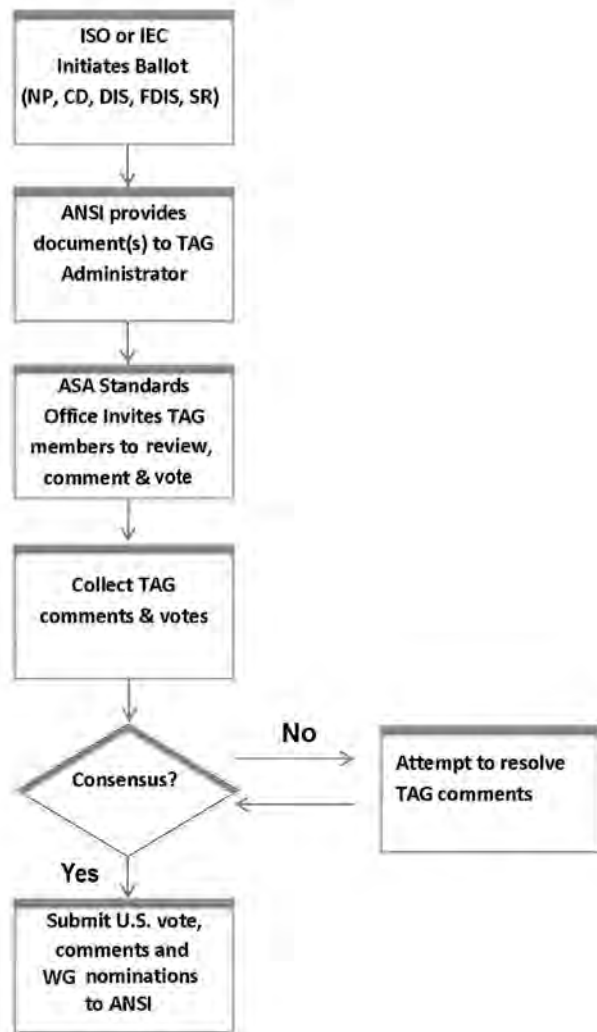


Fig. 2. Process for developing the U.S. position on the International Standards Organization (ISO) or International Electrotechnical Commission (IEC) draft.

addressed. The proposal usually includes a draft, or at the least, an outline of the proposed project. The proposal is balloted, for a three-month voting period, among the national member bodies that participate in or observe that particular technical committee or subcommittee. During this period, each member body conducts national consultations to determine its national vote. At this point, members of the U.S. TAG will be contacted by the ASA Standards office and invited to review and comment on this proposal. Although it is often overlooked, this is a good time for TAG members to submit comments. It is easiest to have a big impact on the final document by making your needs known at the outset—before too many decisions have been made. Approval of the NP requires that it be approved by a simple majority of the members voting and that five of the members agree to participate actively by naming at least one expert to work on the project. These experts form the working group (WG) that will see the project through to the end. Approval of the NP ballot starts the ISO time clock.

Working within the defined scope, the WG iterates a working draft (WD) and continues to work on it until they are satisfied. There is no formal voting in a WG and no

requirement for consensus, although failing to achieve consensus in the WG would not bode well for the draft standard when it progresses to the Committee Draft (CD) stage.

When the WG believes the draft is ready for input from a larger audience, it is circulated for voting by the national member bodies of that specific committee or subcommittee as a CD. The CD must be registered for ballot within twelve months from the approval of the new work item proposal. The CD ballot lasts three months. Once again, during this period, each member body conducts national consultations to determine its national vote. The ASA Standards office contacts the members of the U.S. TAG to invite them to review and comment on the draft. You can see that being a member of the TAG allows U.S. stakeholders—even those who cannot participate on the WG directly because of constraints on time or travel—to have a voice in the voting. This is the best time for TAG members to submit substantive comments—the document is mature but still malleable. The CD is approved when, in the judgment of the TC or SC chair, consensus has been achieved. (This is usually considered to require approval by at least 2/3 of the P-members voting, but other factors may also be weighed by the chair.)

The comments that arise from the CD ballot are collated and returned to the WG for consideration. The WG discusses and provides a written response to each comment. (Depending upon the number and nature of the comments, this comment resolution process may be accomplished at a face-to-face meeting, a web or teleconference meeting, or by e-mail.) If a comment is accepted changes usually are made in the draft to address it. The revised draft is prepared for circulation to a wider audience at the Enquiry Stage—called Draft International Standard (DIS) in ISO and Committee Draft for Vote (CDV) in IEC—when it is presented for voting to the entire membership of ISO or IEC for a five-month voting period. The DIS or CDV must be registered within 24 months after approval of the new work item proposal. National consultations are conducted and U.S. TAG members are invited to review and comment. (At this stage, many of the national member bodies will trans-

HOW TO SUCCEED IN STANDARDS WORK

- Know your goals. Focus on what is most important.
- Be willing to compromise where you can. Listen carefully to make sure you understand what is important to others in the group.
- Propose work items that have value to you. Don't wait and hope that someone else will do it.
- Be willing to serve on the Working Group (WG)—better yet volunteer to chair it.
- Attend WG meetings—wherever they are.
- Offer to write text or provide graphics.
- Provide constructive and specific comments and input.
- Provide input at the beginning of the process.

late the draft into their native language to facilitate their national consultations.) TAG members may still submit technical comments but it is much harder to make major changes at this point. Approval requires affirmative votes by 2/3 of the P-members voting and that less than 25% of the total votes cast are negative.

Comments are again collated and returned to the WG for consideration. Comment resolution follows the same pattern as at the CD stage—each comment is reviewed and corresponding changes may be made to the document. It is unlikely that any major changes will be accepted at this point.

The revised Final Draft International Standard (FDIS) is prepared and submitted to ISO for the Approval Stage. This is a two-month ballot conducted among the full ISO or IEC membership. National consultations are conducted again and, once again, the U.S. TAG members are invited to review the final draft. Unless a country is casting a negative vote, no more technical comments may be submitted—only minor editorial comments can be addressed. This is a straight “yes or no” vote and approval requires affirmative votes by 2/3 of the P-members voting and that less than 25% of the total votes cast are negative. The FDIS must be registered within 43 months after approval of the new work item proposal. As soon as possible after the completion of the voting, the document is published.

Every five years after publication, each standard is subjected to Systematic Review (SR), whereby the national member bodies review the document and assess its market penetration and continued relevance. The standard may be confirmed for another five-year period or the committee may decide to revise or withdraw it.

The role of the U.S. TAG is an important one for U.S. parties with an interest in the standards under development. At each voting stage, the availability of the document is announced to the U.S. TAG members so that they can review the document, discuss it with colleagues and co-workers, assess its potential impact on their business, and submit their comments. The benefits are obvious for TAG members who are not active on the WG. However TAG members who are on the international WG are encouraged to participate in forming the U.S. position so that their input is part of the official U.S. position. (See Fig. 2.)

U.S. TAG membership and benefits

For the U.S. TAGs administered by ASA, the TAG members are organizations (companies, government agencies, associations and professional societies, academic groups, etc.). The U.S. TAGs strive to be diversified and represent all stakeholders. Membership is open to all organizations with “direct and material interest.” The U.S. TAG members pay a fee to ASA that helps offset about one-half of ASA’s costs to administer the U.S. TAG. (Members of the U.S. TAG to

IEC/TC 29 will also be assessed an additional fee by the USNC to the IEC.) The ASA has a sliding-scale fee schedule that varies by the type and size of the organization and the number of TAGs (or national standards committees) it joins. Membership in a U.S. TAG is unrelated to any person’s individual membership in ASA.

Each U.S. TAG member organization appoints a person to vote and comment on its behalf. On any given U.S. TAG action, each member should submit one unified set of comments and one vote. The voting representative may consult with other experts in that company or organization to decide how to vote, but they have only one vote. Another important function of the U.S. TAG is that it provides the pool of experts who may be appointed to ISO/IEC WGs.

Summary

It is clear that there are many benefits gained from U.S. TAG membership and active participation in the development of international standards.

- U.S. TAG members have multiple opportunities to influence the content of a standard that they will use.
- U.S. TAG members are able to monitor the activity of the committee to gain advance intelligence about plans for future changes to a standard. It is always better to be proactive than reactive.
- Participation allows U.S. TAG members to ensure that their products can be exported worldwide.
- International Standards are often used in support of, or in place of, government regulation. Particularly in the case of foreign governments, U.S. TAG members would not generally have any voice in shaping these regulations.
- Participation in the U.S. TAG shows that your company or organization is a leader in your field.
- And, of course, participation offers a great opportunity to network with other experts in your field.

Visit www.standardsboostbusiness.org to see case studies and learn more about the value of direct participation in the development of International Standards that affect your business or organization.**AT**

References

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- ² ISO/IEC Directives, Part 2: Rules for the structure and drafting of International Standards, 6th Edition, Geneva, 2011.
- ³ ISO/IEC Directives Supplement—Procedures specific to ISO, 2nd Edition, Geneva, 2011.
- ⁴ ISO/IEC Directives Supplement—Procedures specific to IEC, 6th Edition, Geneva, 2011.
- ⁵ ISO/IEC Guide 2: 2004 Standardization and related activities—General vocabulary.



Susan Blaeser has served as Standards Manager of the Acoustical Society of America since 2001. In this capacity, she is the Secretary to four American National Standards Institute (ANSI) ANSI-Accredited Standards Committees (ASC)—ASC S1 Acoustics; ASC S2 Mechanical Vibration and Shock, ASC S3 Bioacoustics, including its sub-committee (SC)—SC 1, Animal Bioacoustics; and S12 Noise. She is also Secretary to three International Standards committees in the International Organization for Standardization (ISO)—ISO/TC 108 Mechanical vibration and shock; ISO/TC 108/SC 5 Condition monitoring and diagnostics of machines and the newly-formed ISO/TC 43/SC 3, Underwater acoustics. Finally, she administers eight ANSI-Accredited U.S. Technical Advisory Groups (U.S. TAGs) to ISO committees and one U.S. TAG for

the International Electrotechnical Commission (IEC). The ASA national standards program involves the participation of approximately 500 volunteers, while the international committees include nearly 200 volunteers. As Standards Manager, Susan is actively involved in the work of the committees, supports some 100 working groups, edits the standards produced by these committees, manages the office staff, and oversees the publication and sales program for American National Standards developed by these committees. Prior to working for ASA, she spent many years in non-profit management positions including serving as Managing Director for a regional charity and as Village Clerk-Treasurer for a New York State municipality. She is a summa cum laude graduate of Stony Brook University.