



# The SMPTE Standards Program

By Peter Symes

**SMPTE has been creating standards for the motion imaging industry since 1917. This is the first of a series of articles planned to describe and explain the standards activities of the Society, the committee structure that performs the work, and how to participate. For standards to be meaningful they must come from an organization that is recognized as fair and competent. This article discusses some of the fundamental underpinnings of that recognition for SMPTE.**

## Accreditation—What Makes a Standards Body?

The Society of Motion Picture and Television Engineers is the primary world organization for the creation of standards for the motion imaging industry. Its work spans a large number of technologies in many application areas, ranging from motion picture film to a system for ultra high-definition television planned for availability in 15 to 20 years.

The credibility of a Standards Development Organization (SDO), and of the standards it creates, is based on fairness and competence. Fairness requires a set of rules and procedures that ensure both that the work is accessible to all who may be impacted by it, and that the process cannot be dominated by one interest group. The Society is accredited for its work by the American National Standards Institute (ANSI). This organization must approve SMPTE's rules and procedures to ensure that standards are created in an open environment with no unreasonable barriers to participation, and that there is a clear definition of the way standards are created and any objections resolved.

Fairness is determined by rules and procedures and can be judged by an organization such as ANSI that oversees standards creation in many different areas. Competence, however, can be judged only by experts in the field, and this judgment is dependent on a good track record! SMPTE has long been recognized as the world authority in areas associated with film. SMPTE standards form the basis for the film industry, and many have been adopted by other organizations such as TC36, the committee within the International Standards Organization (ISO) responsible for cinematography. This recognition extends into new technology, and TC36 is currently voting on adoption of a number of SMPTE documents defining digital cinema.

In the television world, SMPTE has liaisons with, and is recognized as a standards organization by a number of international organizations, including the International Telecommunications Union (ITU), a United Nations organization. An agreement negotiated in 2001 provides for reciprocal cooperation between SMPTE and ITU-R, and for the adoption of SMPTE Standards as ITU-R Recommendations.

The European Broadcasting Union (EBU), which represents all the public broadcasters of an extended Europe, has a long-standing association with SMPTE. In the past, EBU published its own standards, but now relies on SMPTE for this work, in which it participates actively. EBU and SMPTE have cooperated successfully in a number of Joint Task Forces addressing major shifts in technology for television. (A new Task Force created in November is studying requirements for synchronization and timing for the future, and expects to outline new standards work by the end of 2008.)

Recognition was also received recently from the JTC1/SC29 subcommittee of the ISO and the International Electrotechnical Commission (IEC). This committee is responsible for "Coding of Audio, Picture, Multimedia, and Hypermedia Information" and is the home of the well-known JPEG and MPEG committees. SC29 recognized SMPTE as an Approved Reference Organization (ARO), meaning that SMPTE Standards may be used as normative references in its work.

SMPTE has close associations with a number of other organizations around the world. A few examples are:

- ARIB is the Association of Radio Industries and Businesses in Japan, an organization supported by the ministry of Public Management, Home Affairs, Posts and Telecommunications (MPHPT) under the provisions of the Radio Law in Japan. SMPTE and ARIB concluded a Memorandum of Understanding in 2007, committing to continued cooperation in standards development.
- ATSC, the Advanced Television Systems Committee, was founded by SMPTE and other industry bodies in the U.S., and SMPTE has a place on the ATSC Board of Directors. Together with ATSC and organizations such as the National Association of Broadcasters (NAB) and the Consumer Electronics Association (CEA), SMPTE can provide essential elements of systems that must work throughout the broadcast chain.
- DVB, Digital Video Broadcast, is the creator of the digital transmission standards for television used in Europe and in other areas of the world. DVB and SMPTE established a liaison in 2003.
- FreeTV is a trade association of the Australian commercial television broadcasters. It creates recommended practices

and is a focus for much of the Australian contributions to international television standards activity. FreeTV is a Sustaining Member of SMPTE, and frequently invites SMPTE representatives to present to its community.

- The Commission Supérieure Technique de l'image et du Son (CST) is the French association for cinema, broadcast, audio and multimedia professionals and an official partner of the Cannes Festival. It provides technical expertise, legal conformity verification, and other services to the industry in France. SMPTE and CST concluded a Memorandum of Understanding in 2007, providing for exchange of information, regular meetings of organization leaders, and cooperation in the development of standards.

As discussed above, SDOs need both accreditation and recognition to be effective. Successful standards work also needs a great deal of active cooperation with other organizations around the world, to ensure that all interests are represented, and conflicting work is avoided. SMPTE is widely recognized as the definitive organization for standardization in film, television, and digital cinema, and represents an ever-increasing international community of manufacturers and users in all aspects of motion imaging.

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## HD Image Acquisition

HD video image acquisition has recently broadened to accommodate a wide spectrum of production genres that support the industry's accelerating transition to high definition (HD) television. A hierarchy of professional HD cameras and camcorders has emerged. Such diversity suggests an equivalent wide range in HD image quality. Confusion surrounds the multiple technological compromises in optics, sensors, DSP, and recording bit rate reduction strategies that circumscribe the cost-performance ranking of each acquisition system.

This SMPTE PDA Now event emphasizes the intimate relationship between an HD lens and camera in terms of image format size, image sensor count, and related expectations in key performance parameters that include sensitivity, depth of field, resolution, contrast ratio, and dynamic range.

Guest Speaker: Larry Thorpe, Broadcast & Communications Division, Canon U.S.A. Inc.

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