

Press Release on SMPTE's Engineering Working and Study Groups

By **ROLAND J. ZAVADA***

Nashville, Tenn., February 4, 1982 — Many of the Society's Engineering Working and Study Groups are meeting in conjunction with this Television Conference. A diligent effort by the dedicated volunteer technical experts has contributed toward progress in documentation of technology which will have a long term benefit to the television industry.

Previously you were exposed to an interpretation of the 1980's as the digital decade. Digital technology is having a profound influence on many aspects of our lives, and will continue to penetrate all phases of television broadcasting. Some of the more important applications of digital techniques in broadcasting are:

- Digital logic circuits
- Digital control of equipment
- Microprocessor-programmed equipment functions
- Computer-controlled program switching
- Computer-controlled program editing
- Computer-generated graphics
- Teletext and other ancillary signals
- Digital video
- Digital audio

These applications of digital technology play a significant part in today's and tomorrow's broadcast and equipment operations. The Society has committees working on three of the topics, the EIA on teletext and the AES on digital audio. Brief progress reports of activities include:

Digital Control of TV Equipment,
R. McAll, Chairman

Progress toward acceptable documentation has gained significance by improved

liaison with EBU. Three areas are being considered by the Committee; a mechanical and electrical specification, a communications protocol specification, and a comprehensive control language to be communicated by means of the protocol.

Electrical and mechanical specifications have been completed by the working group and are in the administrative phase of the standardization process. The document on a communications protocol specification is in the balloting process. Testing under field conditions has shown that the proposals of the working group will perform positively and reliably. The remaining task of the group is to specify the bus language or machine dependent control codes themselves. Industry and broadcast support is strong, and the committee is meeting at six week intervals to complete its task.

SMPTE Working Group on Digital Video Standards, K. Davies, Chairman

The Working Group is now entering the practical phase of its effort to develop a workable standard for the studio interface since completing its theoretical and conceptual studies. Based on this work and in conjunction with similar work in EBU and elsewhere, the Society was able to recommend through United States Study Group III to CCIR, the now accepted proposal for a worldwide standard based on a 13.5 MHz sampling frequency and a 4:2 luminance/color difference relationship.

The Committee is now reviewing current technology in high-speed data transmission using both conductive and optical media, and is considering an interface proposal based on using eight parallel data channels and one clock channel for the transmission of the multiplexed video signals (luminance and two color difference signals) and auxiliary signals in pocket format. Such an arrangement is economically achievable now and is readily adaptable to optical fiber transmission in parallel or fully serial form in the future.



Roland J. Zavada, SMPTE Engineering Vice-President, 1982-83.

The work will be pursued further at the next meeting of the Group in San Francisco, March 16th.

The SMPTE Subgroup on Digital Studio Implementation was established in September in September 1981 with Frank Davidoff as Chairman, to examine the needs of users in the employment of a component-coded digital television equipment interface.

The primary charge of the Subgroup is to study the transition from analog equipment to component coded digital equipment in television production, post-production and broadcasting. Other areas to be investigated include operating practices, equipment arrangements, interconnection methods and monitoring procedures. The Subgroup is to report its findings to the SMPTE Working Group on Digital Video Standards and to suggest areas for further study as required.

To initiate its work, the Subgroup has prepared diagrams of three digital television facilities:

- 1) Digital Post-production Suite
- 2) Digital Production Studio
- 3) Digital Television Station

* Prepared by SMPTE Engineering Vice President Roland J. Zavada, Eastman Kodak Co., as contributed by the various committees, for release to the news media attending the press briefing at the 16th Annual Television Conference in Nashville, February 4, 1982.

These diagrams represent the informed estimates of the members as to what typical digital facilities might be after the transition period has effectively been completed. The diagrams, of course, cannot represent all aspects of the vast variety of arrangements in use by North American broadcasters, but rather they contain all major elements involved in digital operation.

With these "aim" diagrams, the Subgroup will compare them with the current analog equivalents and study the different paths that could be followed by a transition from analog to digital equipment operation.

Working Group on Editing Procedures, R. Lund, Chairman

For the past three years, this group has been studying the problem of edit decision list (EDL) interchange. Early in its work, the parameters of the editing process were divided into two categories with format consistent with familiar industry practice and additional "special data" that might be transmitted to special effects devices, variable-speed motion controllers, audio consoles and the like. The special data format of the EDL will be modeled after the language specified by the Digital Control Working Group mentioned above. The two documents specifying parameters of flexible magnetic discs are being submitted to the balloting procedures of the standards process.

The original *Digital Study Group*, Chaired by Charles Ginsberg, is now directing special attention to the bandwidth constraints of the hierarchy of digital transmission channels already established by the Post Offices, PTT's and common carriers of various countries. As program production and exchange becomes more international, a digital television signal should be capable of being converted into any of the worlds transmission hierarchies by the conversion of various studio bit rates into transmission bit rates.

The Society is making its contribution to digital technology while work is con-

tinuing by many organizations on additional parameters and their practical implementation.

Outside of the digital domain and of recent high interest is the work of the *Study Group on High Definition Television*, chaired by Donald Fink. Detailed studies are presently being conducted by SMPTE members on the technical feasibility and characteristics of new television systems having superior picture quality and greatly enhanced entertainment values. These new video systems are generally grouped under the broad title of "high definition television" — however, they may differ significantly from standard NTSC television in many important ways. Since the objective is to create in the viewer a powerful impression of presence and realism, the new systems will probably employ more detailed pictures displayed on large screen with a wider aspect ratio and high quality stereophonic sound.

Participating in the SMPTE discussions are experts from research laboratories around the world. Specialists in motion picture technology, motion picture and television production, as well as television engineers, are studying the new medium for applications in electronic cinematography, satellite broadcasting, and improved cable and home recorded video entertainment.

In the current meeting, members will report on recent technical progress in Japan (the Japan Broadcasting Co. NHK), and in Europe (BBC and IBA). In addition, the first experimental theatrical and television programming ever produced in a true high-definition video, just completed in the United States in January, will be discussed.

The recently formed *Working Group for Standards for 1/2-inch Cassette Video Recorder for Broadcast Application*, chaired by B. L. Dickens, has completed sub-group activity to document broadcast user requirements.

In some areas our efforts to achieve documentation are less fruitful, but very significant communications objectives are accomplished. The *Study Group on Video Disc*, chaired by Robert Paulson in such a case.

Organized in 1977, the group held its tenth meeting this afternoon. Its agenda included considerations of re-directing, splitting and establishing sub-groups to focus on the many enigmas about the future of the video disc.

Original charter of the Group was to study and report to the membership on developments of the various video disc formats intended for consumer and business/education-market playback use. In 1980 a task force was established to study image and sound quality levels achievable in applied discs. It has now been elevated to a full committee on Image and Sound Presentation, filling broader needs within the Society for development of specifications on picture and sound quality.

Members of the Video Disc Study Group represent a broad cross section of business, industry, education and government potential and actual users of playback only systems, suppliers of software (programming) and manufacturers and service suppliers. While the desirability of standardization of hardware designs is obvious, there will continue to be great reluctance of the various format developers to abandon or modify their original designs.

Therefore attention in the recent meetings has focused on two critical problems, (1) associated with assembling material, frame coding and mastering videotapes which are to be converted to quantities of video discs by competing services organization. Need for a "Working Group on Vertical Interval Line Standardization for Video Discs" was one agenda item in this afternoon's meeting.

The other problem, (2) is the growing interest among broadcasters, production house and business and government organizations in the development of recordable video disc systems. Applications will include automated cable and broadcast operations, "off-line" editing of film and videotape productions and archival storage of television programs, sound recordings and digital data. A second agenda item was the establishment of a separate study group on professional applications of optical video disc recording and playback systems in these areas.

Deadline for News Releases

Releases and other material intended for use in any of the columns of the *JOURNAL* must arrive at SMPTE Headquarters at least eight weeks before the month of the issue in which the material is to appear. For example, announcements for the March 1982 issue must reach the SMPTE Editorial Office no later than 1 January; for the April issue, no later than 1 February.

It is especially important that information for the Calendar reach us before the deadline. We regret that we cannot publish announcements of potential interest to our readers when the information arrives too late. — *Edit.*