

Technical Program

132nd Technical Conference

Theme: Film and Television — One World?

The papers listed below are in the correct sessions but not in the final order of presentation. The sessions are firm as of July 13, 1990. However, changes are possible between the time of printing and the conference. For up-to-the-minute program information, call or write SMPTE Program Coordinator Marilyn Waldman, 595 W. Hartsdale Ave., White Plains, NY 10607. Phone: (914) 761-1100; Fax: (914) 761-3115; Telex: 4995348.

Saturday Morning Opening Session

Introduction: Program Chairman Kerns Powers

Welcoming Address: SMPTE President Maurice L. French, CBC

Engineering Report: SMPTE Engineering Vice-President Stanley N. Baron, NBC

Keynote Address: George Vradenburg III, CBS

Session A: Film Production Technology

Grandeur: A History, 1927-1930, John Belton, Rutgers University, New Brunswick, N.J.

Improved Strength Eastman 35mm Motion Picture B H Perforations, Peter E. Pylipow, Eastman Kodak Co., Rochester, N.Y.

Fujicolor Negative Film F-Series Update, Kozo Noguchi, Fuji Photo Film Co., Ltd., Minami-Ashigara, Kanagawa, Japan

Electronics in the New Generation of ARRIFLEX Cameras, Hans-Dieter Jacoby and Anh Nguyen-Nhu, Arri, Arnold & Richter Cine Technik GmbH & Co. KG, Munich, Germany

Eastman EXR Color Negative Films: Selection and Use, F. C. Franzwa, C. B. Hart, D. L. Strine, G. L. Whittier, and R. C. Sehlin, Eastman Kodak Co., Rochester, N.Y.

Eastman EXR Color Negative Films 5248 and 7296: Trade Experience, Charles Hagmaier, Alan J. Masson, and Geoffrey L. Whittier, Eastman Kodak Co., Rochester, N.Y.

Motion Control Applications of VISION III Autostereoscopic Imaging Methods, Christopher A. Mayhew, VISION III Imaging, Inc., Vienna, Va.

Humidity Dependence of Deterioration in Acetate and Nitrate-Base Films, P. Z.

Adelstein, J. M. Reilly, D. W. Nishimura, and C. Erbland, Rochester Institute of Technology, Rochester, N.Y.

Session B: Digital TV Processing

Picot: Picture Computer, Kazuo Fukui, Kazumasa Enami, and Nobuyuki Yagi, NHK Science and Technical Research Laboratories; Maximilian Ott, University of Tokyo, and Nobuyuki Sasaki, Komukai Works, Toshiba Co., Tokyo, Japan

On the Sampling Rate Conversion of Digital Video Signals, Ajay Luthra and Ganesh Rajan, Tektronix, Beaverton, Ore.

Median Filtering of Video Signals — A Powerful Alternative, Gerhard Wischermann, BTS Broadcast Television Systems GmbH, Darmstadt, Germany

Fourier on Spreadsheets as an Engineering Analysis Tool, Bob Jorgenson, DYNAIR Electronics, Inc., San Diego, Calif.

The Reference NTSC/PAL Encoder for Today's Digital Environment, Luigi Gallo and Sohei Takemoto, Accom, Inc., Menlo Park, Calif.

A Flexible Codec for Digital Transmission of HDTV Signals, Roberto Maestri and Luigi Ronchetti, Telettra, SPA, Vimercate, Milan, Italy

Video and Audio Signal Compression for Satellite and Wired Transmission, Stevan Vigneaux, Sony Corp., Teaneck, N.J.

Television Broadcast Applications for Direct Digital Synthesis, Robert J. Zavrel, Jr., Stanford Telecom, Santa Clara, Calif.

Sunday Morning

Session A: Film Presentation Technology

Improving Screen Image Resolution: Lens and Film vs. Jump, Glenn M. Berggren, Optical Radiation Corp. & Century Projector, Azusa, Calif.

Cinema Digital Sound — A Demonstration, Howard J. Flemming, Optical Radiation Corp.; and Jerry Kramer, Visualize Productions

Cinema Digital Sound — System Overview, Ronald E. Uhlig, Eastman Kodak Co., Rochester, N.Y.; and Howard J. Flemming, Optical Radiation Corp., Azusa, Calif.

Digital Optical Sound on 35mm Motion-Picture Film, Syd Wiles, Barringer Research Ltd., Rexdale, Ont.; Frederick Gasoi and Ed Zwaneveld, National Film Board of Canada, Saint-Laurent, Que., Canada

The Design of a Very High Performance Motion Picture Screening Room, R. Ev-

ans Wetmore, Gerald Nash, and Glenn Berggren, Sigma Design Group, Santa Monica, Calif.

Pin-Point Screen Reflections: Computer Concave Curves, Gerald Nash and Glenn Berggren, Sigma Design Group, Santa Monica, Calif.

Session B: The Digital TV Studio

Video Interference — Causes and Cures, Jack R. Baird and David A. Dykstra, Video Accessory Corp., Boulder, Colo.

Design Considerations for Digital Television Studios — The Transition Phase, Michael M. Guess, Grass Valley Group, Inc., Grass Valley, Calif.

An Open-Architecture Approach to a Facility-Wide Control System, David P. Bird, BTS Broadcast Television Systems, Salt Lake City, Ut.

Application of Emerging Technologies to the Next Generation of Master Control Automation Systems, Robert Odell, Utah Scientific, Inc., Salt Lake City, Ut.

News Applications of Cart Machines, Raymond K. Baldock, Timothy Crabtree, and David E. Lewis, Odetics Broadcast, Wayne, N.J.

Studio Video Standards: An Update, Peter D. Symes, Grass Valley Group, Grass Valley, Calif.

Future Directions in Station Master Control Switching Panels, Jon Hammarstrom, Utah Scientific, Inc., Salt Lake City, Ut.

Design Considerations of a Composite Digital Videotape Automation System, William F. Carpenter, Ampex Corp., Redwood City, Calif.

Sunday Afternoon

Session A: TV Production — Recorders and Cameras

A Novel High-Performance, Low-Cost Dropout Counter for Videotapes, Franz G. Pavuza and Manfred Wawra, Technical University of Vienna, Vienna, Austria

New Format Composite Digital VTR Using 1/2-Inch Tape, T. Nakayama, T. Uehara, H. Minaguchi, H. Shibaya, T. Sekiguchi, and Y. Oba, Japan Broadcasting Corp., Tokyo, Japan

Drum and Heads for D-2 Digital VTR, H. Ono, T. Okamoto, N. Kaku, K. Ogiro, S. Ozaki, and F. Scott, Consumer Products Research Center, Hitachi, Ltd., Yokohama, Kanagawa-ken, Japan

Diagnostic Support Within a Digital Tape Recorder, A. J. Magliocco and R. Fach,

BTS Broadcast Television Systems, Inc., Sherman Oaks, Calif.

The Operational Aspects of a New Frame Transfer CCD Studio Camera, J. G. M. van Oeffelen, *BTS Broadcast Television Systems, Salt Lake City, Ut.*

Measurement and Testing of CCD Sensors and Cameras, James Kutzner and Lionel Hightower, *Public Broadcasting Service, Alexandria, Va.*

Adaptive Highlight Compression in Today's CCD Cameras, H. Blom, F. J. van Roessel and J. van Rooy, *BTS Broadcast Television Systems, Breda, The Netherlands*

State-of-the-Art Camera Control System, L. Visser and P. Boeders, *BTS Broadcast Television Systems, Breda, The Netherlands*

New Registration Error Detecting System for 3-Tube HDTV Camera, Itaru Mimura, Naoto Tomura, and Nobuo Murata, *Central Research Laboratory, Hitachi, Ltd., Kokubunji, Tokyo, Japan*

Session B: Digital TV Distribution

Film and Television — One World? Yes! If Digitized and Fibered Together, C. Robert Paulson, *AVP Communication, Westborough, Mass.*

The National Video DS3 Network, Howard Meiseles, *VYVX National Video Network, Tulsa, Okla.*

Advances in Routing Switcher Technology, Leon Stanger, *Utah Scientific, Inc., Salt Lake City, Ut.*

Routing Digital Serial Video and Audio Signals, Steven Dirksmeier, *Sony Corp., Teaneck, N.J.*

Fiber Optics Transmission in Today's Television Plants, Don Reynolds and Jonathan King, *DYN AIR Electronics, San Diego, Calif.*

Multistage Distribution Switching Systems, Clos and Beyond, Marc S. Walker, *BTS Broadcast Television Systems, Inc., Salt Lake City, Ut.*

Real-Time Control of Switching Hardware in a Distributed Network Environment, Mike Lakey, *Utah Scientific, Inc., Salt Lake City, Ut.*

Experiments of Point-to-Multipoint Digital Transmission of HDTV Signals Via Satellite During the 1990 World Cup in Italy, Gianfranco Barbieri and Mario Cominetti, *RAI — Radiotelevisione Italiana, Centro Ricerche, Turin, Italy*

Monday Morning Session A: Laboratory Technology

12000-ft Feed and Take-up Units for Use with Existing High-Speed Printers, John

Seabourne, Sigma Film Equipment Ltd., Storrington, England

KeyCode™ Numbers: Status Report, John C. Norris and Ronald E. Uhlig, *Eastman Kodak Co., Rochester, N.Y.*

KeyCode™ Film Edge Numbers in Vertical Interval Time Code — A New Way to Automate the Electronic Post Production of Film Originated Material, Alan Lambhead, *Evertz Microsystems Ltd., Burlington, Ont., Canada*

The DigiSync II: An Advanced Intelligent KeyCode™ Reader, Michael Lazaridis, Dale K. Brubacher-Cressman, *Research in Motion, Waterloo, Ont.*; Frederick Gasso and Ed H. Zwaneveld, *National Film Board of Canada, Saint-Laurent, Que., Canada.*

Optimizing Performance Characteristics of Eastman Color Intermediate Film, Margaret O'Malley, John P. Pytlak, and Randy Cook, *Eastman Kodak Co., Rochester, N.Y.*

The Spin Off From Low Cost Robotics Technology Applied to the Film Laboratory Business — What Can It Offer and Where Are the Benefits?, Nigel Varian, *FilmLab Systems International Ltd., High Wycombe, Bucks, England*

Particle Transfer Roller (PTR): Film Cleaning Experience, John P. Pytlak and Dale R. Morrison, *Eastman Kodak Co., Rochester, N.Y.*

Agfa Print CP1 and Its Performance Under Various Treatment Conditions, H. Olbrechts, K. Brems, M. Ailliet, and G. Van Schil, *Agfa-Gevaert N.V., Mortsel, Belgium*

Computerization in the Film Lab — What Do We Really Need?, Michael V. Chewey, *Computer Systems Consultant, Woodland Hills, Calif.*

Session B: TV Post-Production I

One World — Many Languages, David Hirst, *Quantel Ltd., Newbury, Berkshire, England*

Digital and Fiber Create a Post House Without Walls, William Lorenz, *Capitol Video Communications, Washington, D.C.*; and C. Robert Paulson, *AVP Communication, Westborough, Mass.*

Video Workstations: The Next Generation, Ajay Chopra, *Pinnacle Systems, Inc., Santa Clara, Calif.*

Concurrent Processing for Multimedia Workstations, John P. Stautner, *Digital Multimedia Associates, Palo Alto, Calif.*

The X Window System in the Post-Production Environment, Stanley D. Becker, *CMX Corp., Santa Clara, Calif.*

Effective Use of Electroluminescence Display and Touch Screen in On-Line Production Control Methods, Douglas P. Akers, *Utah Scientific, Inc., Salt Lake City, Ut.*

Film — A Special Case for Standards Conversion, R. Snell, G. Caplin, and D. Lyon, *Snell & Wilcox, Ltd., Waterlooville, Hants, England*

The Electric-Film Format Acid Test, the Ultimate Format Comparison, Joshua Wallace, *Force of Habit Productions, San Francisco, Calif.*

Monday Afternoon Session A: Sound Technology

Determining Noise Criteria for Recording Facilities, Elizabeth A. Cohen, *Charles M. Salter Assoc.*; and Louis Fielder, *Dolby Laboratories, San Francisco, Calif.*

Application of Automatic Techniques to Audio Consoles, Dan Dugan, *Dan Dugan Sound Design, San Francisco, Calif.*

Film Dubbing Console — A Breed Apart, B. Morgan Martin, *Lambda, Unlimited, Los Angeles, Calif.*

Employing Specific Loudspeaker Designs Which Can Substantially Reduce Motion Picture Screen Interference and Losses, John F. Allen, *High Performance Stereo, Newton Centre, Mass.*; and James Hunter, Kerry Geist, and Roy Delgado, *Klipsch & Assoc., Hope, Ark.*

Total Distortion in Modern Theatre Woofer Systems, John F. Allen, *High Performance Stereo, Newton Centre, Mass.*; and James Hunter, Kerry Geist and Roy Delgado, *Klipsch & Assoc., Hope, Ark.*

A Digital Audio Recording System Using Optical Disk Technology, William Elswick, *Ediflex Systems, Glendale, Calif.*

Cinema Digital Sound — The Technology, Howard J. Flemming, *Optical Radiation Corp., Azusa, Calif.*; and Ronald E. Uhlig, *Eastman Kodak Co., Rochester, N.Y.*

Session B: TV Post-Production II

Import: Motion Tracking Applications for Kaleidoscope, Robert Yourd, *Grass Valley Group, Grass Valley, Calif.*

VUES Editing System, Y. Ushiyama, H. Koyama, T. Tanno, and T. Yamaoka, *NEC Corp., Tokyo, Japan*

Extended TBC and Frame Synchronization Capabilities in Post-Production Systems, David E. Acker, *FOR.A Corp. of America, Newton, Mass.*

Design Considerations for the All-Digital Teleproduction System, Peter Darc, *Sony Communications Products Co., Teaneck, N.J.*

A Unified Approach for a TV Graphics Animation Suite, Bob Pank, *Quantel Ltd., Newbury, Berkshire, England*

Edit Suite Design Consideration: Preview Switcher or E-E Switching?, Jay Coley and Doug Tao, *Grass Valley Group, Inc., Grass Valley, Calif.*

Editing in a High-Definition Environment, David Scammell, *Quantel Ltd., Newbury, Berkshire, England*

3-D Special Effects System for HDTV, Yutaka Tanaka, Tomoaki Sugiyama, Kazuho Morikawa, and Shuji Hirakawa, *Toshiba Corp. (Komukai Works), Kawasaki, Japan*

Tuesday Morning Session A: Film/Electronic Interface I

Television Graphics for Film — Dreams or Reality?, D. Peter Owen, *Quantel Ltd., Newbury, Berkshire, England*

Development of the High-Resolution Electronic Intermediate System, Glenn Kennel and C. Bradley Hunt, *Eastman Kodak Co., Rochester, N.Y.*

HDTV and Film — Issues of Video Signal Dynamic Range, Laurence J. Thorpe, *Sony Advanced Systems, Teaneck, N.J.*

35mm Laser Film Picture Recording by Doubling the Scanning Lines of NTSC, Shu Saeki, Susumu Naito, and Kazutake Matsuo, *Yokohama Cinema Laboratories, Inc., Yokohama, Japan*

Digital Component Video Special Effects and Compositing Techniques Using Film, Michael Taylor, *Editel Chicago, Chicago, Ill.*

Creating Filmless Motion-Picture Mattes on the LaserMatte System, Craig Witty, *Panatrope, Inc., Highland Park, Ill.*

35mm VistaVision: A Link Between Formats, Martin S. Mueller, *MSM Design, Inc., Hayden Lake, Ida.*; and K. Koyama, *Imagica Corp., Tokyo, Japan*

The Use of Logarithmic and Density Units for Pixels, Glenn Kennel, *Eastman Kodak Co., Rochester, N.Y.*; and Gary Demos, *DemonGraFX, Culver City, Calif.*

Session B: TV Sound and Ancillary Services

Integrating Digital Audio Distribution into TV Production, Bill Rorden and Merv Graham, *Graham-Patten Systems, Inc., Grass Valley, Calif.*

Digital Audio Mixer for the Teleproduction Editing Environment, Karl Kusmaul, *Sony Communication Products Co., Teaneck, N.J.*

DREAM™: Digital Real-Time Editing for Audio Mastering, Neil B. Feldman, *Video Post & Transfer, Inc., Dallas, Tex.*

3-D Sound in the Future HDTV Projection Systems, Tomislav Stanojevic, *Sava Centre, Belgrade, Yugoslavia*

The Animated Satellite Map: Window to Reality, Robert F. Brammer, Lisa R. Branham, and Thomas P. Stephenson, *TASC, Reading, Mass.*

Advanced Commercial Message Transmission System in TV Station, Yuichi Ki-

tano, Hisayoshi Sozaki, Toshiki Isozima, and Etsuzo Ishihara, *Chubu Nippon Broadcasting Co., Ltd., Nagoya, Japan*

Tuesday Afternoon Session A: Film/Electronic Interface II

Accurate vs. Acceptable Logic for Conformable Film Negative and Sound for Electronically Edited Motion Pictures, Arthur Boudine, *Computer Arts Corp., Dobbs Ferry, N.Y.*

Film-Video-Back to Film, Jean-Pierre Beauviala, *Aaton, Burbank, Calif.*

Editing Film (Transfers) on a Videotape Editing System, Jerry M. Lewis, *Grass Valley Group, Inc., Grass Valley, Calif.*

Interactive Multimedia Editing, Seth Haberman and Chester L. Schuler, *Montage Group Ltd., New York, N.Y.*

A Low-Cost CCD Digital Telecine for Transferring Negative Direct to Video for Off-Line Editing Purposes, Nigel Varian, *FilmLab Systems International Ltd., Bucks, England*

Electronic Editing of Film Product — What is the Best Way?, Panel Discussion, above authors.

Session B: Advanced Television I

An Introduction to Television Echo Cancellation Technology, Koichi Sadashige, *Koichi Sadashige & Associates, Berlin, N.J.*

Implementation of a Novel TV Ghost Canceller, Li Fengheng and Wang Tsunghai, *Department of Radio-Electronics, Shanghai University of Science and Technology, Shanghai, P.R. China*

Two-Dimensional Adaptive Comb Filter for IDTV with Constant Peak Amplitude Response, Carl P. Markhauser, *University Simon Bolivar, Caracas, Venezuela*

Evolution of Multi-Dimensional Filtering Techniques for Composite Video Applications, Chon Tam Le Dinh, Andre Vincent, and Christian Tremblay, *Miranda Technologies, Inc., Verdun, Que., Canada*

Using the 2-D Image Spectrum to Compress Television Bandwidth, Robert Dhein and Irwin Abrahams, *New York Institute of Technology, Science and Technology Research Center, Dania, Fla.*

Source Adaptive Processing for ATV System Design, Peter Monta and Jae S. Lim, *M.I.T., EECS Department, Cambridge, Mass.*

Motion Adaptive Pro-Scan Converter with Contour Enhancer, Carl P. Markhauser, *University Simon Bolivar, Caracas, Venezuela*

Measuring 3-D Filter Characteristics in ATV Systems, Jose Alvarez, Jorg Bohmert,

Bob Conroy, Barbara Roeder, and Detlef Teichner, *Philips Laboratories, North American Philips, Briarcliff Manor, N.Y.*

Wednesday Morning Session A: High-Definition Electronic Production Standards

HDTV Mobile Teleproduction Studio, A. E. Bigras and M. Beck, *TELESAT Canada, Gloucester, Ont., Canada*

Work in Progress on the Development of the Digital Representation of the 1125/60 HDTV Studio Video Signal, Hugo Gaggioni, *Sony Advanced Systems, Teaneck, N.J.*

A Possible Optimum Approach To An HDTV Production Standard, J. L. Tejerina and D. Wood, *European Broadcasting Union, Brussels, Belgium*

Image Coding with Progressive Scanning as an Alternative to Interlaced Scanning, Ibrahim Hajjahmad and Jae S. Lim, *Research Laboratory of Electronics, M.I.T., Cambridge, Mass.*

Reproducible Color Gamut of TV System, Junji Kumada and Taiji Nishizawa, *NHK Japan Broadcasting Corp., Tokyo, Japan*

Logarithmic A/D Converters Used in Video Signal Processing Systems, William E. Glenn, Karen Glenn, and Terry L. Glatt, *Florida Atlantic University, Imaging Systems Laboratory, Boca Raton, Fla.*

HDTV Closed Captioning: A Call for the Early Standardization of Program-Related Data Formats, Carl Armon and Dan B. Glisson, *WGBH Caption Center, Boston, Mass.*

Session B: Advanced Television II

A Wide-Aspect NTSC-Compatible EDTV System, Minoru Ashibe and Hideki Honma, *NEC Corp., Kawasaki, Kanagawa, Japan*

A Receiver-Compatible System for Channel Noise Reduction, Matthew M. Bace and Jae S. Lim, *M.I.T., EECS Dept., Cambridge, Mass.*

A Study of 2nd Generation EDTV, T. Morita, A. Takahashi, H. Inoue, and H. Nakashima, *Tokyo Broadcasting System Inc.*; and K. Kashigi, T. Tachibana, and H. Makita, *NEC Corp., Tokyo, Japan*

Experimental Hardware for Proposed Letter-Box Wide-Aspect EDTV, Norihiro Suzuki, Masahiro Kageyama, Kazuo Ishikura, Yasuhiro Hirano, Hiroshi Yoshigi, and Takhiko Fukinuki, *Central Research Laboratory, Hitachi, Ltd., Tokyo, Japan*

Subjective Testing of the HDS-NA Satellite Signal in the Ku-Band, Carlo Basile, Robert McFarlane, and Claudio Ciacci, *Philips Laboratories, Briarcliff Manor, N.Y.*

An Advanced High-Resolution, High-Brightness LCD Color Video Projector, Masahiko Tsuruta, *Victor Co. of Japan*; and Neil Neubert, *JVC Professional Products Co., Elmwood Park, N.J.*

Metal-Halide Lamp Technology for High-Resolution LDC Projection, Keith SanGiacomo, Juergen Maier, and Manfred Pilsak, *OSRAM Corp., Montgomery, N.Y.*

**Wednesday Afternoon
Session B: Advanced Television
III**

The Future of Satellite Television in Europe: The Major Way Towards High-Definition TV, Philippe-Olivier Rousseau, *Eutelsat, Paris, France*

MBS New Broadcast Center Introducing a New Concept for the Next Generation, O. Hashimoto, T. Matunami, K. Tsukada, and K. Ueno, *Mainichi Broadcasting System, Inc., Osaka, Japan*

Developments of Practical-Use Devices for Clearvision Broadcasting, Masayuki Ishida, Yosai Araki, Tadao Kurasaki, Joji Urano, Toshiya Troh, and Keita Fujiwara, *Nippon Television Network Corp., Tokyo, Japan*

The Technology of Widescreen 525: Behind the Economics, S. Merrill Weiss, *National Broadcasting Co., New York, N.Y.*

Taking the Fear Out of HDTV: A Positive Approach for the Future, James Kutzner, Howard Miller, Mark Richer, and Wil-

liam Zou, *Public Broadcasting Service, Alexandria, Va.*

The Digital Hierarchy — A Blueprint for Television in the 21st Century, G. Reitmeier and C. Carlson, *David Sarnoff Research Center, Princeton, N.J.*; E. Geiger and D. Westerkamp, *Thomson Electronics, Villengen, Germany*

Proper Viewing Environment, Joseph J. Kane, *Joe Kane Productions, No. Hollywood, Calif.*, and Fred Benedikt, *Canadian Broadcasting Corp., Toronto, Ont., Canada*

A New High-Definition Monitor, Dan Desmet and Nick Fielibert, *BARCO, Inc., Kennesaw, Ga.*



The Jacob K. Javits Convention Center, site of the 132nd SMPTE Technical Conference and Equipment Exhibit.