



EXECUTIVE

Howard T. La Zare
Editorial Vice-President
Frederick M. Remley
Chairman/Board of Editors
Lynette Robinson
Executive Director

EDITORIAL STAFF

Jeffrey Friedman
Editor
Joyce R. Hurwitz
Associate Editor
Elizabeth L. Ghaffari
Assistant Editor
John Varrasi
Staff Writer
Mathew V. Kuriakose
Graphics/Production Supervisor
MaryAnn Fruscianta
Production Coordinator
Dollie Hamlin
Editorial/Program Coordinator

ADVERTISING

Janice Baio
Advertising Manager

EXHIBITS

Anne Cocchia
Exhibits Manager

ENGINEERING

Sherwin H. Becker
Manager of Engineering
Barry C. Detwiler
Television Engineer
John T. Lolis
Test Materials Quality Control Engineer

MEMBERSHIP

Mary V. Connolly
Manager, Membership Services

SMPTE Journal®

VOL. 95, NO. 11

NOVEMBER 1986

ARTICLES

The BTSC Multi-Channel Television Sound System	1134
<i>Carl G. Eilers</i>	
The User Requirements for the 4:2:2 Component Digital VTR	1139
<i>William C. Nicholls</i>	
The SMPTE Type D-1 Digital Television Tape Recorder — Error Control	1144
<i>J. H. Wilkinson</i>	
Differential Gain and Differential Phase in Satellite TV Transmission	1150
<i>D. Chakraborty and A. F. Elrefale</i>	
Recent Development of a Broadcast-Quality CCD Camera	1158
<i>S. Ikeda, S. Yamamoto, A. Kohno, T. Kamata, M. Shimizu, and R. Dienhart</i>	
Graphic Scaling of Qualitative Terms	1166
<i>Bronwen L. Jones and Pamela R. McManus</i>	

SMPTE REPORTS

21st Annual SMPTE Television Conference, February 6–7, 1987, San Francisco	1174
---	------

SMPTE NEWS AND DEPARTMENTS

Calendar	1132
Highlights	1133
Section Meetings	1178
News	1180
Obituaries	1184
Books, Booklets, Brochures	1186
New Products	1190
Advertisers Index	1194
Classified	1194
Application for Membership	1195
Professional Services	1197

STANDARDS AND RECOMMENDED PRACTICES

Approved American National Standards	1199
Approved SMPTE Recommended Practices	1200

SMPTE Journal (ISSN: 0036-1682) published monthly by the Society of Motion Pictures and Television Engineers, 595 West Hartsdale Avenue, White Plains, NY 10607. Second-class postage paid at White Plains, N.Y., and at additional mailing office. Copyright © 1986 by the Society of Motion Picture and Television Engineers, Inc. All rights reserved. Printed in the U.S.A. No part of this issue may be reproduced without written permission of the publisher. Statements and opinions expressed in articles or editorials in the *SMPTE Journal* are expressions of contributors and do not necessarily represent the policies or opinions of the Society. Advertisements appearing in this publication are the sole responsibility of the advertiser. MEMBERSHIP in the Society is open to any individual according to that person's qualifications. The Society's Headquarters welcomes inquiries from individuals who may apply for these grades: Active (annual dues \$50.00), Associate (annual dues \$50.00), and Student (annual dues \$15.00). All members receive the *SMPTE Journal*. Subscriptions are available to nonmembers. Annual rates \$55.00 United States; \$55.00 plus \$10.00 postage elsewhere. Single issues, \$6.00. Subscription rates to students, \$17.00 United States; \$17.00 plus \$10.00 postage elsewhere. *Journals* will be mailed overseas by airmail printed matter to subscribers at a surcharge of \$50.00 to Europe and \$65.00 to Asia (in addition to the subscription rates listed above). **POSTMASTER:** Send change of address to *SMPTE Journal*, 595 West Hartsdale Avenue, White Plains, NY 10607-1824.