

142088



IN THE CIRCUIT COURT OF THE FIRST JUDICIAL CIRCUIT IN AND FOR THE COUNTY OF DADE, FLORIDA

Case No. 14-10001

FILED

NATIONAL CENTER FOR STATE COURTS

Officers

<i>President</i>	LOUIS H. BURKE, Associate Justice, Supreme Court of California
<i>Vice President</i>	JAMES A. FINCH, JR., Justice, Supreme Court of Missouri
<i>Secretary-Treasurer</i>	ALICE O'DONNELL, Federal Judicial Center, Washington, D.C.
<i>Assistant Secretary-Treasurer</i>	DON F. BELL, National Center for State Courts, Denver, Colorado
<i>Chairman, Advisory Council</i>	C. A. CARSON III, Esq., Phoenix, Arizona

Board of Directors

LINDSAY G. ARTHUR, Judge, District Court, Juvenile Division, Minneapolis, Minnesota
LOUIS H. BURKE, Associate Justice, Supreme Court of California
JAMES A. FINCH, JR., Justice, Supreme Court of Missouri
M. MICHAEL GORDON, Judge, Municipal Court of Houston, Texas
HOWELL T. HEFLIN, Chief Justice, Supreme Court of Alabama
D. DONALD JAMIESON, President Judge, Court of Common Pleas, Philadelphia, Pennsylvania
E. LEO MILONAS, Judge, Criminal Court of the City of New York
EDWARD E. PRINGLE, Chief Justice, Supreme Court of Colorado
JOHN T. REARDON, Chief Judge, Eighth Judicial Circuit of Illinois
PAUL C. REARDON, Associate Justice, Supreme Judicial Court of Massachusetts
WILLIAM S. RICHARDSON, Chief Justice, Supreme Court of Hawaii
CURTIS V. TILLMAN, Judge, Superior Courts of the Stone Mountain
Judicial Circuit, Decatur, Georgia

* * *

EDWARD B. MCCONNELL, Director
ARNE L. SCHOELLER, Associate Director

142088

VIDEO SUPPORT IN THE CRIMINAL COURTS

EXECUTIVE SUMMARY

A Publication of

National Center for State Courts
1660 Lincoln Street - Suite 200
Denver, Colorado 80203

Prepared by

Francis J. Taillefer
Ernest H. Short
J. Michael Greenwood
R. Grant Brady

NCJRS

MAY 18 1993

ACQUISITIONS

Publication No. R0008

May, 1974

This project was supported by Grant Number 72-NI-99-0033-G awarded by the National Institute of Law Enforcement and Criminal Justice of the Law Enforcement Assistance Administration, U. S. Department of Justice, under the Omnibus Crime Control and Safe Streets Act of 1968. Points of view reflected in this document do not necessarily represent the position of the U. S. Department of Justice.

142088

**U.S. Department of Justice
National Institute of Justice**

This document has been reproduced exactly as received from the person or organization originating it. Points of view or opinions stated in this document are those of the authors and do not necessarily represent the official position or policies of the National Institute of Justice.

Permission to reproduce this ~~copyrighted~~ material has been
granted by
Public Domain/NIJ/LEAA

U.S. Department of Justice

to the National Criminal Justice Reference Service (NCJRS).

Further reproduction outside of the NCJRS system requires permission of the ~~owner~~ owner.

CONTENTS

	<u>PAGE</u>
ABSTRACT	1
I. EXECUTIVE SUMMARY	2
A. Volume I: Project Summary	2
1. Overview	2
2. Recommendations & Key Points on Video Applications	3
a. Guides and Standards	3
b. Priorities for Use	4
c. Procedural Rules	5
d. Further Study	7
3. Legal Issues, Procedural Problems, and Impacts	8
a. Record of Deposition/Testimony	8
i. Right to Confrontation	8
ii. Right to Effective Counsel	9
iii. Availability of Witness	10
iv. Witness Right to Privacy	10
v. Definition of a Deposition	11
vi. Request for Video Testimony	11
b. Record of Evidence	12
i. Self-Incrimination	12
ii. Admissibility of Video Evidence	12
iii. Right to Counsel	13
iv. Right to Confrontation at Trial	14
v. Procedural Issues	14
c. Pre-Record Trial	15
i. Right to Effective Counsel	16
ii. Right to Confrontation	17
iii. Right to Public Trial	17
iv. Objectivity of Video Recording	18
v. Procedural Issues	18
d. Record of Proceedings	19
e. Other Application Areas	19

f.	Future Research on Video Applications . .	21
B.	Volume II: User Guide to Performance Standards and Equipment Costs	23
1.	Overview	23
2.	Key Points and Recommendations	23
a.	Performance Requirements	23
b.	Recommended Features	25
c.	System Costs and Configuration Examples .	26
C.	Volume III: List of Case and Reference Material . .	27
D.	Volume IV: Equipment Technical Analysis and User Experience	28
1.	Overview	28
2.	Key Points and Recommendations for Equipment .	29
a.	Audio	29
i.	Recommendations	29
ii.	Observations	29
b.	Cameras	30
i.	Recommendations	30
c.	Lighting	31
i.	Recommendations	31
ii.	Observation	31
d.	Monitor	
i.	Recommendations	31
ii.	Observations	31
e.	Special Components	31
i.	Recommendations	31
ii.	Observations	32
f.	VTR	32
i.	Recommendations	32
ii.	Observation	33
g.	Video Systems	
i.	Recommendations	33
ii.	Observations	33
3.	Method of Deletions of Pre-Recorded Material .	34
II.	CONTENTS - FULL REPORT	37
III.	GLOSSARY OF TABLES	40

LIST OF TABLES

<u>TABLE</u>		<u>PAGE</u>
1	Summary of Video Recording by National Center for State Courts	41
2	Vendor Recording Services: Range of Rates	61
3	Vendor Equipment: Range of Rental Charges	62
4	Pre-Recorded Depositions/Testimony: Single Camera, Single Microphone System (on Location or Studio) . .	63
5	Pre-Recorded Depositions/Testimony: Multicamera, Multi-Microphone System (Studio)	63
6	Pre-Recorded Evidence: Single Camera, Single Microphone System (Portable)	64
7	System for Editing Pre-Recorded Videotape Prior to Trial	64
8	RF Playback of Pre-Recorded Videotape	64
9	Courtroom Recording System: Without Special Effects	65
10	Courtroom Recording System: With Special Effects .	65
11	Courtroom Recording System: Without Special Effects, But With Playback Capabilities	66
12	Commercial Discounts Available For 1/2 Inch, EIAJ-1 Videotape	67
13	Government Contract Price For 1/2 Inch, EIAJ-1 Videotape	67

ABSTRACT

This executive summary is a volume by volume synopsis of Video Support in the Criminal Courts, a report in which video technology has been examined for its potential to improve the quality of the adjudicative process for both trial and appellate courts and to help alleviate court delay problems.

The two principal objectives of this project were: first, to extensively analyze the technical feasibility of video technology in the criminal process; and secondly, to clarify legal and procedural issues affecting the implementation of video technology.

As a consequence of these efforts, the project was able to identify video equipment commercially available, and recommend performance requirements and standards necessary for implementing video systems in the adjudicative process.

The four volume report is comprised of: VOLUME I: Project Summary, which discusses more than 25 videotape applications in eight states; identifies relevant legal and procedural issues concerning court-related video applications, and offers recommendations for video use; VOLUME II: Users Guide to Performance Standards and Equipment Costs, which summarizes video equipment configurations for specific legal applications, and recommends performance requirements and equipment features for potential users; VOLUME III: List of Case and Reference Material Abstracts, which summarizes references including case citations relevant to video technology in courts; and VOLUME IV: Equipment Technical Analysis and User Experience, which contains a detailed technical discussion on the operation of video recording for court applications.

I. EXECUTIVE SUMMARY

A. VOLUME I: PROJECT SUMMARY

1. OVERVIEW

A national advisory committee composed of leading jurists, lawyers, and court administrators was formed to aid project staff in both identifying and demonstrating video applications throughout the United States. Cases were selected which might result in appellate review to establish legal precedent for specific video applications and to help resolve legal and procedural issues.

The project concentrated on criminal cases, and resulted in more than 25 video applications in eight states. Video applications included: recording of witness testimony/deposition; recording of evidence, e.g., lineups; pre-recording of trial for presentation to jury; and official record of court proceedings.

Listed in Table I (see Glossary of Tables) is a summary of each case which involved a videotape application in this project.

This volume reviews relevant legal and procedural issues concerning the impact of video technology on the judicial process, and contains recommendations pertaining to video applications, statutes and court rules, and technical standards. This volume is intended to be used in conjunction with technical recommendations and observations found in Volumes II and IV.

2. RECOMMENDATIONS AND KEY POINTS ON VIDEO APPLICATIONS

Presented below are recommendations concerning the use of video technology in criminal courts. Attention is focused on guides and standards, priorities for court-related uses of the medium, equipment requirements, and areas identified for further study. It is anticipated that these recommendations will provide the potential user with a better perspective from which to evaluate the utility of the video medium and the considerations necessary in planning and implementing its use.

(a) GUIDES AND STANDARDS

It is recommended that:

- * Additional case law be accumulated concerning legal issues raised by various criminal court applications of this technology, thereby gaining judicial approbation that constitutional rights are preserved. Several project cases, notably the appeals in Hutchins v. Florida and Moffitt v. Vermont, have initiated this process of resolving specific legal issues.
- * States desiring to use video technology in their criminal courts adopt Canon 3A of the American Bar Association's newly recommended Code of Judicial Conduct. This expressly allows a judge to authorize electronic or photographic means of recording for the presentation of evidence, for perpetuating the record, for purposes of judicial administration, and for educational uses by educational institutions.
- * Courts be provided with authority to allow any court reporting medium to be selected to produce a record. States desiring use of video recording should modify statutes or court rules governing the recording of proceedings and depositions to authorize court records to be prepared by electronic means, including audio and video recording.
- * Video recording, when used, should replace, not supplement other record media such as a transcript. Generally, it is unnecessary to duplicate the video recording process and create extra expenses

by also providing another reporting technique--such as stenotyping--to operate in parallel.

- * Video recording be examined as a new form or method of presenting testimony and evidence. Video recording being a new medium requires examining the appropriateness of traditional rules and procedures.
- * Procedural standards be developed to insure the accuracy, integrity, and quality of the video record; and to assign responsibility and costs of video recording.
- * Procedures be developed which outline and specify production techniques and equipment to meet required standards. To provide uniform standards, it is recommended that:
 - The video system performance requirements and equipment features recommended in Volume II of this report be adopted.
 - The video system configurations described in Volume II of this report be used as a guide when selecting specific systems for each type of application.
 - Consideration be given to development of a lighting standard for court-related recording to insure clear identification of participants.
 - Operational guidelines include recommended camera views; for example, a requirement that close-ups stop at a view of the whole head or hand and shoulders when showing facial expressions and demeanor.
- * Procedural guidelines and standards be implemented and controlled through the use of judicial discretion. Video recording for judicial applications is in its infancy. Standards and guidelines should be general in nature to provide the court flexibility to develop and evaluate potential applications, including the review of appeals on the basis of the video record. Judicial discretion offers the best available mechanism for regulating this flexibility during development.

(b) PRIORITIES FOR USE

The utility of video recording in a given instance should depend upon the user's evaluation of: 1) availability of reporters;

2) the nature of testimony and case; 3) case scheduling and backlog, and 4) costs. However, certain uses suggest themselves more than others, and appear to offer the greatest immediate advantage to the judicial system. Identified by project experience and discussions with members of the Video Advisory Committee and the legal community as a whole, these uses are listed below and are recommended as prime areas in which to concentrate initial efforts:

- * Recording of testimony of unavailable witnesses, noncontroversial expert witnesses, and substantially inconvenienced witnesses.
- * Recording of confessions, statements, lineups, and constitutional rights notices.
- * Recording of proceedings as the official record for criminal trials and taking of pleas.
- * Sharing with educational institutions videotapes of actual court proceedings, and recording educational videotapes, e.g., model jury instructions for judges, model juror duty explanations for jurors, and model explanations of defendant rights and obligations for defendants and police.

(c) PROCEDURAL RULES

In many states, the use of the video medium to serve as a record of testimony or record of trial proceedings may require a re-draft of statutes and court rules. To insure proper use of the medium, it may be necessary to define and elaborate legal, technical, and financial procedures. Implementing statutes and rules should address at least the following, as pertinent to the application being considered:

- (1) Statements of who is authorized to order, record and edit a video recording of testimony which is to be used for trial, or an official video record of proceedings.
- (2) Definition of equipment and operating standards of video system components to insure: faithful

and accurate reproduction, safeguards against tampering, standardization and compatability with other video componenets; and sufficient maintenance procedures, and component control features to assure system operation.

- (3) Definition of the proper method of indexing the videotape for uniform and rapid referencing of objections and events;
- (4) Guidelines for camera placement and focus, camera microphone control and accessibility, and the control of video equipment.
- (5) Standards for placement of the video equipment control center for courtroom recording. The video medium offers the flexibility of remote operation; therefore, the operator/court reporter can be remotely located in another room, viewing and hearing courtroom activity through this control center's monitors.
- (6) Rules for the proper manner of preserving, editing--such as electronic versus manual editing--filing, safe-guarding, storing and re-using the video recordings; i.e, the court must exercise supervision of the integrity and preservation of unedited and edited tapes. The availability of the video record immediately after recording would dispense with the need of having the court reporter hold the public record until transcribed. This shift in responsibility for the record from the court reporter to the court can be accomplished by simply turning the video record over to the clerk upon completion of the proceedings.
- (7) Requirements for administration of oaths to witnesses; by either the video operator making the video record, or an officer of the court (who may be the video operator).
- (8) Description of a procedure for verification of the videotape by the recorded witness, and certification by the equipment operator, and officer of the court. The court might require certification on the tape or in writing within an established time prior to filing the video record.
- (9) Procedure to allow counsel's objections to be recorded, ruled on, and if deemed objectionable, excluded from presentation to the jury.

- (10) Explanation of the procedure and equipment to be used for courtroom playback for trial by jury or by judge (e.g., the number, size, and location of monitors).
- (11) Rules to protect Sixth Amendment rights to a public trial and a public record.
- (12) Rules to permit the videotape to be the official record of proceedings; i.e., video recording becomes an advanced method of court reporting replacing other alternatives.
- (13) Rules for allocation of cost to parties, including provision for indigent defendant.
- (14) Procedures for presenting the videotape on appeal.

(d) FURTHER STUDY

As this report describes, much ground work has been laid for the use of video technology in many areas in criminal courts. Yet, all areas require additional work: 1) completion of the process of resolving legal issues; 2) resolving operational and procedural problems associated with video recording medium; and 3) the cost effectiveness of video recording in relationship to other media. With this in mind, it is recommended that future studies evaluate:

- * Specific operational procedures for use with each video application; i.e., record of proceedings; record for trial testimony, record of evidence.
- * Cost effectiveness of video recording for each video application.
- * Capability of video recording to resolve case scheduling; backlog of cases; and appellate delay.
- * Influence of video recording on attitudes and behavior of participants (judge, counsel, witnesses; defendants, and jurors) and related users (appellate courts, district attorney and public defender agencies).
- * Review of appeals on the basis of the video record, when available.

3. LEGAL ISSUES, PROCEDURAL PROBLEMS, AND IMPACTS

The use of the video medium in criminal courts raises many issues and questions which are yet to be resolved. Currently, proponents and detractors can only speculate as to the legal effect of many applications of the video medium in criminal courts. The following is a general discussion of some relevant constitutional issues and procedural problems requiring resolution. In addition, the type of rules and procedures which need to be promulgated by courts are outlined.

(a) RECORD OF DEPOSITIONS/TESTIMONY

(i) Right to Confrontation

The central constitutional issue concerning a video record of testimony is the Sixth Amendment right of the accused to confront witnesses against him. The principal concern is whether this constitutional right is upheld even when the defendant is present during the video recording of witness testimony prior to trial and at its subsequent playback at trial.

The United States Supreme Court has held confrontation to be a fundamental trial right essential to fair trial. Without confrontation, the accused would be deprived of the right to due process of law, as guaranteed by the Fourteenth Amendment. Pointer v. Texas, 380 U. S. 400, 85 S. Ct. 1065 (U. S. Supreme Court, 1965). Included in the confrontation clause are the rights of the accused to be present at every stage of the trial, to have witnesses placed under oath, to have the opportunity for cross-examination, and to allow the trier of fact to observe demeanor while the witness is testifying. Of these, the opportunity for cross-examination has been held by the United States Supreme Court to be the essential element. Barber v. Page, 390 U. S. 719 (U.S. Supreme Court, 1968).

Key to the use of the video medium is the determination of whether this right to confrontation requires physical face-to-face confrontation at trial.

(ii) Right to Effective Counsel

Another constitutional question raised when examining video recording of testimony for trial use is its effect on the accused's Sixth Amendment right to counsel, particularly the effective assistance of that counsel. Live questioning of witnesses at trial may bring up questions which should have been asked of a video witness in a previously video recorded deposition. Because it can be argued that discovery may take place at trial in criminal cases,¹ the liberal use of videotape might preclude effective cross-examination of witnesses (also see Executive Summary, Section IA3c; Pre-record Trial).

A procedural problem related to this constitutional question is recalling a witness whose testimony has been presented on videotape at trial. This situation is similar to a live witness who has been permitted by the court to testify out of sequence and allowed to leave the courtroom. Exercising its discretion, the trial court might grant a continuance to recall a video recorded witness, or a mistrial upon demonstration that the need for recall was genuine but a continuance would be impractical. The witness may be recalled to testify live, or a videotape of his additional testimony could be prepared and presented at trial, with the court limiting the area of further inquiry if deemed necessary.

1. "The Use of Discovery is Changing". See ABA Standards, "Approved Final Draft, 1970", Discovery & Procedure Before Trial.

Another procedural issue concerns how the court can issue timely court rulings on pre-recorded objections which pertain to the form of the questions (e.g., leading questions). Unless both counsel exercise restraint, prejudicial questioning may occur which will require an immediate ruling before taping can resume.

(iii) Unavailability of Witness

The unavailability of a witness, a common trial problem and a significant factor in case backlog, could be remedied by recording testimony prior to trial for use at trial.

The capability of using the video medium to preserve testimony and present demeanor can raise questions with respect to the definition of witness unavailability. Most current statutes and court rules narrowly define unavailability; it is applied only to those witnesses who cannot be obtained through compulsory process despite continuances. Requiring users of the video medium to adhere to the traditional concept of absolute unavailability would frustrate use of the medium for recording most testimony; and, in particular, its potential for decreasing continuances. If video recording can meet constitutional requirements, and add requirements for good evidence, consideration should be given to liberalizing the definition of unavailability to permit more frequent use of video recorded testimony.

(iv) Witness Right to Privacy

In regard to the rights of witnesses, it is not likely that their Fourth Amendment right to privacy would be violated by a video pre-recording of testimony so long as the testimony was secured in accordance with regular court procedure.

(v) Definition of a Deposition

If video depositions are found to meet constitutional requirements, then ancillary procedural issues must also be resolved to insure that the maximum potential of this medium is realized. One such issue is whether the video medium should be construed to fit within the present concept of a deposition, thus requiring adherence to current statutes and rules for deposition usage.

In most states court rules governing depositions were not prepared with video recording as an alternative. Court rules and procedures may have to be changed incorporating unique qualities of the video medium. The key determinant is whether video medium offers a new method of presentation of testimony.

(vi) Request for Video Testimony

Involved in the use of video recorded testimony is the question of who is entitled to order or ask for a video recording and under what circumstances, particularly if such recording is construed to be within the present concept of a deposition. Should it be only upon motion of the defendant, or should the state also be authorized to move for video testimony? Should the court also be allowed to direct the taking of video testimony? Rule 15(a) of the Federal Rules of Criminal Procedure permits a deposition upon motion of the defendant. The Organized Crime Control Act of 1970 [18 U.S.C. Section 3503 (a)] permits a deposition upon motion by the government. In Hutchins v. Florida, (see Table 1) the court, upon its own motion, ordered the video recording. The Florida Rules of Criminal Procedure [Cr PR 3 190(L) (1)] limit the taking of depositions to those taken upon motion of the defendant, although it does not specifically

exclude the court from such action. The Florida Third District Court of Appeals opinion in the Hutchins appeal suggests that the Florida Rules did not intend to so limit the procedure.²

(b) RECORD OF EVIDENCE

In recording demonstrative or real evidence, the video medium acts as the vehicle through which fact is presented. Contrasted to testimonial evidence, which only describes what occurred, videotaped evidence actually depicts what occurred. The legal acceptability of video technology for this application has been largely established. Four legal issues which could serve as obstacles to the utilization of videotape to record demonstrative evidence have been resolved by case law.

(i) Self-Incrimination

The first legal barrier dealt with was the question of the accused's Fifth Amendment privilege against self-incrimination. Precedent has been established that this right is not impaired or waived by appearance on the videotape. Use of video recorded evidence at trial does not limit the defendant's free choice in deciding whether or not to take the stand. Hendricks v. Swenson, 456 F. 2d 503 (CA 8th CIRC, 1972), People v. Ardella, 276 NE 2d 302 (Illinois, 1971), People v. Heading, 197 NW 2d 325 (Michigan, 1972), State v. Lusk, 452 SW 2d 219 (Missouri, 1970).

(ii) Admissibility of Video Evidence

Secondly, admissibility into trial of real evidence videotapes has been established predominantly under standards for rules

2. This case is currently on appeal to the Florida Supreme Court.

of evidence used for photographs and moving pictures, rather than the more stringent requirements for admission of an audio tape recording. The tapes have been admitted on the condition that some witness authenticate them by testifying as to the circumstances of the recording and to the accuracy and relevancy of the events portrayed. Hendricks v. Swenson, supra, People v. Mines, 270 NE 2d 265 (Illinois, 1971), State v. Lusk, supra, State v. Newman, 484 P.2d 473 (Washington, 1971), State v. Thurman, 498 P.2d 697 (New Mexico, 1972). Precedent also exists to the effect that the admissibility of the audio portion of videotapes must meet the requirements of electronic sound recordings. People v. Heading, supra. Videotape confessions must meet not only the requirement of accuracy, but must otherwise meet standards for admissibility, e.g., the voluntariness of the statement must be established. Paramore v. State, 229 So. 2d 855 (Florida, 1969), State v. Lusk, supra.

Legal procedures should be developed which establish uniform standards of admissibility. Either the rules of evidence governing photographs, or those governing sound recordings, or as People v. Heading, supra, suggests, a combination of the two should be procedurally established for admissibility of videotape evidence. Such standards would resolve the existing uncertainty surrounding the proper foundation for the admissibility of videotape evidence.

(iii) Right to Counsel

Thirdly precedent has been forthcoming dealing with the Sixth Amendment right to counsel during pre-trial proceedings. This limited issue deals with the accused's right to counsel while being videotaped for identification proceedings. It has been determined that the defendant does not have an absolute right to counsel while being videotaped

for identification purposes. However, if the accused exercises his right to counsel at the time of his arrest, he is entitled to have counsel present when the videotape is shown to a victim, or other witness, as a substitute for a lineup or other confrontation. Cox v. State, 219 S. 2d 762 (Florida, 1969).

(iv) Right to Confrontation at Trial

Finally, case law has clarified the question of the accused's right to confrontation during trial presentations of videotaped lineup proceedings. This issue concerns the necessity of the witness or victim repeating his identification of the defendant at the trial, even though the witness or victim previously identified the accused while viewing the videotape. It has been decided that a videotape of a lineup does not replace in-court testimony. If the identifier does not testify at the trial and thereby offer the defense the opportunity for cross-examination, the tape is hearsay evidence and denies the accused his right to confrontation. People v. Heading, supra.

(v) Procedural Issues

In addition to these four legal issues, there are several procedural issues which must be reconciled. Procedural guides are necessary for police and prosecutorial officers conducting videotaping sessions of confessions, lineups, coordination and breath-analyzer tests, etc., to insure the accused's constitutional rights are not violated. For instance, one procedural requisite for such recording might be the inclusion on the tape of the police or prosecutorial officer while he reads the accused the preliminary Constitutional Rights Notice and Miranda warnings along with a notice that the events are being video recorded and could be used against him at trial.

As long as procedural steps are taken to insure that individual rights are not violated and the rules of evidence are followed, the only impairments to full utilization of tapes of video recorded evidence would be an operator-controlled production shortcoming or a mechanical failure so prejudicial as to cause the videotape to lose its probative value.

Procedures must be developed to assign responsibility for the control and operation of video equipment used to record evidence, and to outline the circumstances under which video evidence is to be taken. Procedures must detail the type and format of event log or written record the operator must keep, the equipment standards which must be used, and the taping method deemed acceptable in taping evidentiary proceedings. In essence, the quality and comprehensiveness of the recording will depend entirely upon how well the equipment is handled by its operator and how well he adheres to production procedures. Proper use of the equipment will insure an impartial videotape devoid of operator bias.

The impact of wide-scale use of the video medium to record evidence, particularly lineups, confessions, and drunk driving tests is that the videotape will act as a tool which will serve to protect defendant rights rather than impinge upon them, while reducing specious appeals. Based upon staff observations made during project recording in this application area, the real difficulty lies in providing proper training within user agencies.

(c) PRE-RECORD TRIAL

Video pre-recording all trial testimony raises many of the same legal issues involved in pre-recording single witness testimony; hence, much of the prior discussion in Section 3(a) applies here. Assuming

admissibility of video recording of witness testimony in criminal actions when the accused is present and represented by counsel in cross-examination, a video recording of all evidence and witness testimony for trial is a logical extension.³

(i) Right to Effective Counsel

In addition to the Sixth Amendment's confrontation and assistance of counsel requirements, discussed previously in Section 3(a), the video pre-recording of all evidence and testimony for trial also raises additional issues concerning the accused's Sixth Amendment right to effective counsel. A major concern is the effectiveness of counsel's cross-examination, opening and closing arguments when all of these are on videotape and counsel must address a jury which he cannot see or know the composition. An approach to this problem is to video record only testimony and evidence, leaving opening and closing arguments and jury selection to be done live. Although the ability to adjust the line of questioning to juror reactions is lost through this process, counsel has the ability to tell the jury at the outset what the case will show, and to modify closing argument based on juror reactions to the videotape.

The capability to impeach or confront a witness with testimony of other witnesses would be preserved when pre-recording all testimony. Procedurally, this may require additional recording sessions and insertion of the resultant testimony in appropriate sequence prior to trial. However, some defense attorneys fear that the video medium might be used by the state to unfairly manipulate the order of presentation of witnesses, or unduly prolong the process so as to defeat defense cross-

3. See Vermont v. Moffitt in Table 1: Case Summary of Video Recordings. For full discussion of this case, see Volume I: Project Results.

examination. An approach to alleviate this problem is to implement statutory or court rule language clearly specifying that both the state and defense have the right to present their witnesses testimony in the order which would most strongly support their case, with the court being empowered to resolve disagreements as to order and final termination of testimony. Court procedures must be established to cope with objections which pertain to the form of the question, similar to video recording individual testimony [Section 3(a)]. This may require a procedure for temporarily stopping the recording until a court ruling is obtained.

(ii) Right of Confrontation

The defendant's Sixth Amendment right to be present at every stage of the trial raises a practical problem for the pre-recorded trial. This right would seem to require examination of the state's witnesses in the presence of the accused and his counsel. Obvious difficulties arise in transportation of the incarcerated defendant to many different locations or even to a fixed location at many different times. When felony charges exist and the accused has a known record of violent behavior, this problem is compounded. A voluntary waiver of this right, with representation by counsel in lieu of the presence of the accused, would simplify the recording procedure; however, whether such a procedure would become generally acceptable is uncertain.

(iii) Right to Public Trial

The Sixth Amendment right to a public trial by an impartial jury also raises legal issues for this video application. The primary issue here is the resolution of what constitutes public trial.

It must be determined if video pre-recording of testimony and evidence at different times and places violates the integrity of the

courtroom, the effectiveness of counsel, and the integrity of the trial itself. To preserve due process, the public should have the opportunity to view the video pre-recorded testimony at the time of trial as it is presented to the jury. The crucial test is the appellate court's view of the video medium's capacity to be used for perpetuating testimony for trial versus the requirements at trial. Procedural standards need to be delineated.

(iv) Objectivity of Video Recording

The operator controlling the video recording and the type of equipment used has great potential to influence juror or judicial perceptions of the testimony. Objective recording requires rules on the use of special effects (split-screen, corner insert, close-ups) to enhance presentation but remove distortions.

Based on project experience, important camera views are a frontal view of the witness, showing facial expression and body movements, a view of the defendant while witness interrogation occurs, and a view of counsel conducting examination.

(v) Procedural Issues

Video recording an entire trial raises the possibility of allowing appellate court review of allegations of error prior to presentation of the videotape for jury trial; jury decisions would then be final.

The video recording of all witnesses, even those otherwise available to testify live, may incur costs which are not warranted by savings in juror and court resources. On the other hand, video recording may dramatically reduce additional costs for re-trials and provide the capability for improved court scheduling.

(d) RECORD OF PROCEEDINGS

Statutory and court rule limitations, as well as costs are the greatest obstacles to the use of the video medium for recording court proceedings as the record for appeal. Currently, most statutes and court rules require court proceedings to be recorded by a particular method in the presence of the official court reporter. Most of these statutes and court rules were adopted before the development of new electronic recording technologies.

Canon 3A (7) of the American Bar Association's newly recommended Code of Judicial Conduct overcomes the obstacles presented by former Canon 35, which prohibited cameras in the courtroom. The only impediment to local application of this technological tool is state adoption of the new American Bar Association Code, and the adoption of statutes or rules which permit a videotape transcript to replace the typed transcript as the official record for appeal purposes.

Appellate rules need to be established for use of video record on appeal. One potential difficulty is whether the ability of a video record to capture the demeanor of a witness should allow the appellate court to go beyond its judicial role as a reviewer of questions of law. The appellate court might be inclined to "re-try" cases, relying on evaluation of videotaped trial events, thereby infringing upon traditional trial court and jury prerogative.

(e) OTHER APPLICATION AREAS

Potential use of video in the areas of education, broadcast, two-way communication, (two individuals communicating from different locations) and courtroom security will create legal and procedural issues which must be resolved.

The broadcasting of court proceedings, both for public and educational institution purposes, has been prohibited by Canon 35 of the American Bar Association's old Canons of Judicial Ethics. Canon 3A of the ABA's new Code of Judicial Conduct modifies this ban to allow cameras in the courtroom, so long as the resulting production is used for educational purposes within educational institutions. However, Canon 3A still does not lift the ban on public broadcast of live trials, or even broadcast of a live trial over a public educational television network.

Utilization of the video medium for two-way communication and courtroom security, such as between counsel and defendant when defendant is removed from the courtroom faces legal issues similar to those examined for video recorded deposition/testimony. Central to the use of either application is a favorable resolution of questions concerning possible violation of Sixth Amendment rights. A video hook-up enables the defendant and jury to see and hear live, remote testimony, and also provides the means for an isolated defendant to communicate with his counsel at trial. There are possibilities for video hook-up between: 1) the court and geographically distant witnesses; 2) between the court and remote defendant; 3) between the court and counsel.

Questions arise as to whether or not these uses of the video medium violate the accused's rights to public trial, confrontation and effective assistance of counsel. If the Sixth Amendment right to a public trial and confrontation requires a physical, face-to-face confrontation in a public place, then these uses of the video medium would violate those rights both for pre-trial discovery and at-trial issues. The right to effective assistance of counsel would also be violated if appellate decisions conclude that the physical presence of counsel is required for all motions

and trial proceedings, so that the defendant can avail himself of instant and private communication with his counsel. For two-way communication the determination of which state has jurisdiction for perjury committed by a witness in a distant location needs to be resolved.

As in other uses of this new medium, procedural guidelines need to be established to insure that the rights of the accused are not violated and that high caliber audio/video transmissions are produced. Legal clarification of the constitutional issues surrounding video two-way communication and courtroom security is of paramount importance. Also, equipment and operational standards must be established to insure production suitable for the purposes of court participants.

(f) FUTURE RESEARCH ON VIDEO APPLICATIONS

More experience is needed to truly evaluate the impact of video recorded testimony or evidence. Comparative cost benefit analysis--in terms of dollars, time, and quality of record--have yet to be fully ascertained. Video recordings may save a substantial amount of juror and witness time, and help to alleviate court scheduling problems. However, to truly evaluate such savings, time and cost statistics also need to be developed for judges, attorneys and court staff.

Although the operational procedures developed through studies in recording single testimony or evidence for use at trial may be simply extended for full video trials, video pre-recording of all testimony and evidence for trial does have unique circumstances which call for more elaborate evaluation. Video recording witnesses who would be available to testify live may incur costs which are not warranted by savings in juror and witness time and capability of more precise trial scheduling.

The special qualities of a full video trial requires comparative cost effectiveness studies and behavioral impact research. The impact of the video medium upon a jury's perceptions and decision making process compared with live trial needs to be extensively studied. Studies should be conducted to evaluate the effect of video recording on counsel, witness and defendant behavior and attitudes.

Further study is needed to measure the impact of the video-tape record on the appellate process. Time, accuracy (quality of record) and cost comparisons should be made between different media which can be used for preparation and presentation of an official court record--audio, video, and written; operational procedures should be developed to expedite work with each medium; and the comparative effect of the video record upon the attitudes and decision making process of the appellate courts should be examined.

B. VOLUME II: USERS GUIDE TO PERFORMANCE STANDARDS AND EQUIPMENT COSTS

1. OVERVIEW

This volume offers the potential court user recommendations concerning video system performance requirements and equipment features. This volume is especially useful to courts promulgating video recording rules and procedures, and court administrators involved in equipment selection. It summarizes video system components, their relationships, and availability. Discussion includes recommended maintenance, storage, and handling procedures, and the effects of environment on system selection. This volume analyzes available vendor services, gives examples of recommended video system configurations for specific legal recording applications, and lists specific brands of equipment likely to be considered when selecting a video system.

2. KEY POINTS AND RECOMMENDATIONS

(a) PERFORMANCE REQUIREMENTS

For a video system to have value, after it has met the legal requirement of not interfering with an individual's rights by its use, it must be able to produce a true and accurate reproduction of what occurred. This becomes the objective of video recording in the legal environment. This objective can be achieved through development of a series of performance requirements for video equipment used in legal applications. Such performance requirements must not only take cognizance of the technical aspects of achieving a true and accurate recording, but must also encourage development of a practical and cost-effective implementation mechanism for transfer of videotapes and equipment between users.

Recommended performance requirements are:

- * Equipment Standardization/Compatibility. A tape produced on one system must be able to be played back on other systems, even other manufacturer's systems, and system components must have a degree of interchangeability between systems. This approach allows practical and cost-effective transfer of videotapes and equipment between users.
- * Assurance of System Operation. The equipment must provide assurance to the operator that what is occurring is being preserved on videotape. This offers an ongoing measure of system reliability and accuracy.
- * Easy Recognition of Tampering. The system must produce a videotape in which unauthorized changes are easily recognized. This provides security for the medium, and preserves its integrity.
- * Faithful, Clear, and Easily Understandable Video and Audio Reproduction. The system must faithfully record and play back an event at a quality level that assures production of a videotape with clear and easily understandable video and audio information. This is a measure of the trueness of the produced videotape.

(b) RECOMMENDED FEATURES

For reference, each recommended equipment feature is listed under the relevant recommended equipment performance requirement. This list is intended as a guide for the user when selecting system components:

<u>Performance Requirement</u>	<u>Recommended Feature</u>
a) Equipment Standardization/ Compatibility	1) 1/2 Inch EIAJ-1 Format 2) Black and White Reproduction
b) Assurance of System Operation	1) Video Signal Strength Meter on VTR 2) Audio Mixer Signal Strength Meter, Individual Microphones, Level Controls, and Headphone Output (for multi-microphone operation) 3) Audio Signal Strength Meter on VTR
c) Easy Recognition of Tampering	1) Internal (on videotape) Timing Device
d) Faithful, Clear, and Easily Understandable Video and Audio Reproduction	1) 2:1 Interlace, Common Sync Source 2) Manual override for Video AGC on VTR 3) VTR with Capstan Servo Control 4) Low Impedance, Balanced Line Microphone (for cable lengths over 20 feet) 5) Balanced Line Termination prior to entering VTR. 6) Impedance Matching Transformer (for high impedance input to VTR) 7) Manual Audio Level Control or Manual Override for Audio AGC on VTR.

Amplifying on the above recommended features, the evaluation of available videotape recorders leads to the following conclusions:

- * Evaluating existing VTRs in terms of their ability to meet recommended performance requirement through possession of the above features, it becomes necessary to disqualify 3/4 inch cassette VTRs from selection consideration because of their lack of: individual video signal strength meter, individual audio signal strength meter, manual override for video AGC, capstan servo control, and manual audio level control or manual override for audio AGC.
- * Several 1/2 inch EIAJ-1 VTRs meet most of the needed features, but to date none includes all the features recommended.
- * The most commonly lacking features on existing VTRs are level meters for audio and video, and manual override for automatic gain control for audio and video.

(c) SYSTEM COSTS AND CONFIGURATION EXAMPLES

- * Shown at Table 2 (see Glossary of Tables) are the normal video services offered to court-related users and the low to high charges for each. Rates shown are average composites derived from rate structures of video vendors from around the country.
- * Reflected in Table 3 are specific video components a user might rent, and the average composite low to high dollar charges he is likely to encounter for each.
- * Listed at Tables 4 through 11 are examples of the types and purchase costs of video components necessary to complete specific legal-oriented applications. For each given application, the system illustrated is designed for one-man operation, meets the aforementioned performance requirements, and gives an overall view of system costs. Brands listed in each example are used only to illustrate a coordinated set of components which meets performance requirements; specific brand/model selection is left to the user.
- * Shown at Tables 12 and 13 are examples of the range in volume discounts that can be obtained when purchasing videotape. Table 12 reflects purchase from a commercial source, while Table 13 indicates typical costs if qualified to buy as a government user.

C. VOLUME III: LIST OF CASE AND REFERENCE MATERIAL

This volume contains an abstracted list of video recording related cases and reference material, which were collected during the Video Demonstration Project. The information includes: cases which pertain to video technology; articles and other references from legal publications, newspapers, and magazines on video or related electronic technologies; and case and article material from video recording applications done during the Video Demonstration Project. These extracts have been developed for the interested reader to use in familiarizing himself with nationwide, criminal court related video activity to date. It is also designed to be used as a comprehensive reference guide which shows where to look for more detailed information.

Part A contains cases which have used video recording or which have established authority for the use of video and other electronic recording technologies in criminal (and civil) courts. Cases are listed alphabetically.

Part B contains a list of abstracts of articles and other reference material, including existing court rules, which deal with video and other electronic recording in criminal (and civil) courts. Articles and other references are alphabetically listed, by author.

D. VOLUME IV: EQUIPMENT TECHNICAL ANALYSIS AND USER EXPERIENCE

1. OVERVIEW

The intent of this volume is to make available to potential court users a comprehensive discussion and analysis of video recording systems, as they pertain to legal applications. The discussion is oriented toward providing extensive technical information and experience-based recommendations to the user who intends to design, select and operate video systems for particular legal applications.

Discussion within this volume is confined to recording in the legal environment using 1/2 inch videotape recording equipment, consistent with recommendations for standardization found in Volume II, Users Guide to Performance Standards and Equipment Costs. This volume presents a technical discussion of the operation of video system components, describes equipment features, and includes analyses of individual equipment models for major system components (cameras, monitors, and videotape recorders). Single camera and multi-camera video recording system design and use are developed, as is design and selection of the audio subsystem. Video distribution systems as well as lighting and installation considerations are also addressed.

As an aid to the non-technical reader, an index of key terms has been prepared for use with this volume. Key technical terms are listed alphabetically and page-referenced to the discussion by the primary explanatory page(s) relating to each key term. Finally, a list of key points and recommendations is presented below:

2. KEY POINTS AND RECOMMENDATIONS FOR EQUIPMENT

(a) AUDIO

(i) Recommendations

- * The video operator should be provided with some form of audio monitor, either speaker or headphones, to enable him to determine the quality of the incoming audio signal. A VU meter can only indicate the presence and magnitude of the audio signal; only listening can determine the quality.
- * Use low impedance microphones. If cables are two conductor shielded, high impedance microphones may be successfully used in cable lengths longer than 20 feet.
- * Generally, for pre-recording depositions/testimony where close contact scenes are involved, use omnidirectional microphones, preferably lavalier. High directional microphones are suitable only if extreme care is used to assure that the selected acoustical design permits full coverage of participants.
- * Generally, for courtrooms, use omnidirectional microphones. Highly directional microphones, particularly for the witness, are suitable only if microphone placement and courtroom procedure combine to assure full coverage of participants and their working areas (bench, witness box, jury box, counsel tables, podium, attorney forum area).
- * All microphones and their stands should be non-reflective.

(ii) Observations

- * With proper acoustical design and microphone placement, clear and faithful audio reproduction can be obtained from recording onto a one-audio-track videotape.
- * A room with plaster walls and ceiling has an empty, deep well sound; it has audio brilliance because of its tendency to reflect higher frequencies. A room with wood-paneled or textured walls will produce a flatter, less brilliant sound, and a room with heavy drapes, carpet, and absorptive furniture will produce a "dead" or quiet sound. Recording in a "dead" acoustic environment produces the clearest, purest sound.

The better microphone mixers are designed to blend audio signals from four or more microphones; four input microphone mixers appear most cost effective, even if two are "stacked" together to obtain additional input capacity.

- * In courtroom installations an intercom circuit between the judge and video operator may be of value when it is desired to replay previously recorded testimony or to issue special instructions to the operator.

(b) CAMERAS

(i) Recommendations

- * The 12.5 mm lens in 2/3" Vidicon cameras or its equivalent in 1" Vidicon cameras is the best all-around wide angle lens; it optimizes trade-off between subject recognition and field of view.
- * For single camera systems, unless in a fixed location and fixed view application, best versatility obtains from use of zoom lens which is fairly fast.
- * For multicamera systems, unless in a permanently fixed and well-lit location, best versatility obtains from use of a zoom lens which is fairly fast. Cameras selected should be able to satisfactorily operate in marginally low light levels.
- * For courtroom recording, adequate exposure is more important than depth of field. Also, the 8.5 mm lens in 2/3" Vidicon cameras or its equivalent in 1" Vidicon cameras is the widest usable angle for obtaining an overall scene of acceptable detail.
- * Specific technical discussion is provided for the following camera models; the models selected for evaluation are those considered likely to be of most interest for court-related applications:

Manual Operation

Concord TCM50; TCM55
GBC VF 302
JVC TK210
Panasonic WV341P, WV361P
Sanyo VCM2000
Sony AVC 3200, AVC 3210

Remote Operation

Concord CTC33, CTC36
GBC CTC 5000
General Electric TE33D
Javelin VC110
Panasonic WV240P, WV250P
Sony AVC 3200, AVC 3210
Telemation TMC 1100

(c) LIGHTING

(i) Recommendations

- * Best solution to lighting problems is to add as much lighting as practical and then obtain cameras which can satisfactorily operate in the new light level.
- * Light level of 100 footcandles evenly distributed will minimize lag and usually provide adequate light for good video recording. Ceilings should be low and white for good reflection.
- * Incandescent lighting is least desirable because of low efficacy.
- * Use heavy, lined drapes to prevent penetration of sunlight and subsequent blooming while recording.
- * All tables, desk tops, and metal fixtures should be non-reflective.

(ii) Observation

- * Black subjects in a scene require considerably more lighting than white subjects in order to obtain good facial detail.

(d) MONITOR

(i) Recommendations

- * The resolution of a monitor should be selected relative to the component supplying the video signal.
- * Use a program monitor to help assure system operation; this checks the input signal to the VTR at a point just before the record heads.

(ii) Observation

- * Resolution on all available monitors is of sufficient quality to faithfully display on playback a scene recorded with EIAJ-1 video equipment.

(e) SPECIAL COMPONENTS

(i) Recommendations

- * Use common source, 2:1 interlace sync pulses for multicamera operations.

- * The simple mechanical switcher is usually the most practical and cost-effective for legal applications.
- * Use a time-date generator or other internal (on the videotape itself) timing method to prevent and detect tape tampering.
- * When using an SEG with different makes of cameras, careful component matching should be executed to insure that camera inputs are synchronous and matched in signal strength and ALC.

(ii) Observations

- * Use of an SEG with a sync lock feature enables switching and blending of two signals (such as live scenes and pre-recorded material) without vertical roll or picture instability.
- * Pan and Tilt unit operating speeds and noise effects should be considered during selection; an indoor, silent running light duty unit is most suitable if the unit is within hearing of participants, particularly in courtrooms.
- * Remote controlled lens adjustment is a helpful addition to a remote controlled pan and tilt unit; usually this will be an electrically operated zoom lens. The lens found to be most practical for courtroom use is a 15-90 mm unit.
- * Most Special Effects Generators (SEG) produce their own 2:1 EIA sync or will accept external sync drive and usually handle up to four cameras. The better SEGs allow an operator to set up and preview a special effect before it is switched into the recording system, a necessary feature to take the guess work out of setting up a split screen or corner insert.

(f) VTR

(i) Recommendations

- * The EIAJ-1 1/2 inch format VTRs are the type most useful for legal applications.
- * No 1/2 inch format VTR is suited for simultaneous record and playback (input and output) monitoring.
- * Capstan servo control is needed on a VTR to obtain edited tapes free of glitches and roll at edit points.

- * Assemble editing is the form most applicable to legal applications because it is non-destructive.
- * Specific technical discussion is provided for the following VTR models; the models selected for evaluation are those considered likely to be of most interest for court-related applications:

Concord VTR 820, VTR 1120
 Javelin X400
 JVC KV360
 Panasonic NV3020SD, NV3130
 Sanyo VTR 1200
 Shibaden SV510DU
 Sony AV3650

(ii) Observation

- * Practically all editing VTRs evaluated produced good quality recording and usable edits. Exceptions were non-capstan servo controlled edit machines, which are considered last choice.

(g) VIDEO SYSTEMS

(i) Recommendations

- * Standardize to brands that possess both electronic and physical compatibility.
- * The system design goal should be one operator for the system.
- * The average courtroom scene can be adequately covered by three cameras.
- * Single camera systems are best used for pre-recording depositions, testimony, and evidence; they are not recommended for recording courtroom proceedings.
- * Control center layout patterns should conform to either an "L" or a "U" shape.

(ii) Observations

- * Location of the control center should be in a remote room adjacent to the scene.
- * Use of a third VTR in courtroom recording must be weighed against the extra cost.

3. METHODS OF DELETION OF PRE-RECORDED MATERIAL

Deletion of legal argument, objectionable material, and references to objections from a tape of pre-recorded testimony prior to jury presentation may be done in several ways: material may be manually skipped over (fast forwarded) during playback; the audio track may be turned off during playback; the jury and public monitor(s) may be switched out of the system during playback, or a second, electronically edited tape free of all unacceptable material may be produced for jury playback.

Manually skipping material is a means by which extra tape and editing costs are saved (only the original tape is needed), by simply putting the VTR into the PAUSE or STOP mode at the end of the last acceptable material and then FAST-FORWARDING to the point where the next acceptable material begins. Keying to an internal, to-the-second, timing device and having a precise instruction index (to show the stopping phrase, the restart phrase, and their times) is imperative with this method. Since audio is not engaged in the fast-forward mode, the jury will hear nothing and see only a blurred screen during the skip. Despite the opportunity to cut tape costs by one-half and more, the method has the serious disadvantage of being only as accurate as the operator's concentration on upcoming skip points and his mechanical dexterity with the mode lever. This method may also contribute to juror distraction during the lapse times.

Turning off the audio volume control is another manual means of deletion. It can be done at the point where unacceptable material appears; this leaves the video intact, but eliminates all objectionable audio. This approach can be done either live when played back to a jury, or a duplicate tape may be made with the objectionable audio removed.

However, if a duplicate tape is made the strongest argument for using this method is taken away--namely, a savings through reduced tape and editing costs. Further, audio removal allows the economy of using non-edit type VTRs, but has two fatal disadvantages. First, a considerable burden is placed on the operator on live playback to turn the audio down at the proper time; even if he controls all monitor audio levels from a central control, the playback is fraught with the same chance of error as in manual skip editing. Secondly, viewing peoples lips moving with no sound is disturbing to viewers, particularly when lengthy legal argument is involved, and can lead to charges that the jury was able to lip-read the material.

Switching the jury and public monitor(s) out of the system (by operator central control) during material to be deleted also succeeds in bypassing unacceptable material and saving tape and editing costs. Like the earlier methods, it has serious disadvantages. Specifically, control still relies on operator response, with the result that editing errors are possible. Also, considerable court and jury time would be wasted unless this method was combined with the fast-forward technique. Otherwise there would be long periods in front of a blank, distracting screen.

Producing a second, electronically edited tape requires special internal circuitry in a VTR to accomplish clean edits. A VTR with this feature will cost about \$400 more than non-edit machines. Tape costs are doubled, and an edit cost is incurred for production of the second tape. One major advantage to this method is that operator errors during playback manual edits are ruled out. These may still occur during the edit production of the second tape, but at least the original would

be preserved for the record along with the second tape. Another advantage is the time saved in the courtroom, since all objections are disposed of prior to trial.

In addition to added cost for the edit feature and for a second, non-edit VTR (needed for any method that requires tape duplication), there are time expenses to consider for all forms of editing. First, taped testimony must be viewed by the judge, to rule on objections, when counsel can not reach agreement. This places an added burden on judge and counsel time. If electronic edit or audio deletion methods are used, a second tape must then be made based on counsel stipulation and the judge's rulings. Experience has shown that the time needed to perform this editing can take up to 2 1/2 times the length of the original recording, for highly contested cases. Even for deletion forms where a second tape is not used, it is likely that counsel and judge review time will still be incurred. Thus, a given tape could be recorded and played back twice prior to jury playback.

III. CONTENTS - FULL REPORT

A. Volume I - CONTENTS

	<u>Page</u>
I. Introduction	1
II. Project Design	3
III. Effectiveness of Video Technology	8
A. Legal Issues, Procedural Problems, and Impacts	8
B. Problem Solving Potential	27
IV. Recommendations	30
A. Guides and Standards	30
B. Priorities for Use	31
C. Video System Performance, Features and Configurations	32
D. Further Study	32
V. Project Results	34
A. Record of Depositions/Testimony	34
B. Record of Evidence	54
C. Pre-record Trial	62
D. Record of Proceedings	83
E. Other Activity	104

B. Volume II - CONTENTS

Abstract	
Preface	i
I. Introduction	1
II. Performance Requirements/Equipment Features	3
A. Recommended Performance Requirements	3
B. Recommended Equipment Features	5
1. Equipment Standardization/Compatibility	5
2. Assurance of System Operation	7
3. Easy Recognition of Tampering	9
4. Faithful, Clear, and Easily Understandable Video and Audio Reproduction	11
5. Summary of Recommended Equipment Features	18
III. Video System Costs and Vendor Services	21
A. Vendor Recording and Rental Charges	21
B. Video System Configuration Examples	23
C. Video Equipment Purchase Prices	32
1. Videotape (1/2 Inch, EIAJ-1)	32
2. Video System Components	37
IV. Description of Video System Equipment	48
A. Equipment Characteristics	48
1. Video Cameras and Accessories	48
2. Lenses	51
3. Monitors and Receiver/Monitors	53

4.	Video Tape Recorders	54
5.	Special Purpose Video Components	61
6.	Microphone and Mixer	64
7.	Production Control Console	66
B.	Effect of Application/Environment on System Selection	67
C.	Maintenance Procedures	69
D.	Storage and Shipping of Videotape	71

C. Volume III - CONTENTS

Introduction

Part A--Case Abstracts	A-1 to A-29
Part B--Article and Reference Abstracts	B-1 to B-29

D. Volume IV - CONTENTS

List of Key Points and Recommendations	i
I. Introduction	1
II. General Description	3
A. System Concept	3
B. The Television Camera	5
1. Signal Conversion and Processing	5
2. Control of the Camera Signal	9
3. Lenses	12
4. Viewfinders	18
5. Performance Characteristics	18
6. Video Camera Analysis and Evaluation	30
C. The Monitor	50
1. Receiver vs. Monitor	50
2. Signal Conversion	51
3. Operating Features	55
4. Monitor Analysis and Evaluation	58
D. The Video Tape Recorder	58
1. Signal Processing and Conversion	62
2. Operating Features	65
3. Methods of Deleting Pre-recorded Material	73
4. Video Recorder Analysis and Evaluation	76
E. Videotape	93
F. Special Purpose Video Components	94
1. Multicamera Operation	94
2. Remote Controls	101
3. Security	103
III. Lighting	105
A. Lighting Conditions	105
B. Lighting Maintenance	109
IV. Audio	110
A. Importance of Impedance Matching	110
B. Microphones	111
1. Characteristics	111
2. Selection Considerations	115
3. Selecting Types for Court Uses	116
4. Placement	119
5. Microphone Mixers	121
6. Precautions	123

C.	Using Existing Audio Systems	124
1.	Using the Public Address System	124
2.	Installing a New Public Address System	125
D.	Acoustical Considerations	126
E.	Special Features for an Audio System	127
V.	Single Camera System	128
A.	Design Criteria	128
1.	Compatibility	128
2.	Versatility	130
3.	Portability	134
B.	Applications	137
1.	Depositions and Pre-recorded Testimony	138
2.	Pre-recorded Evidence	139
VI.	Multicamera System	142
A.	Design Criteria	142
1.	Synchronization	142
2.	Versatility	143
3.	Control of System	143
B.	Applications	146
1.	Depositions and Pre-recorded Testimony	146
2.	Courtroom Installations	147
C.	Location of Control Center	155
VII.	Installation Considerations	160
A.	Power System Voltage Drops	160
B.	Lighting and Voltage Transients	161
C.	Interference and Noise	162
VIII.	Distribution Systems	165
A.	Methods of Distribution	165
1.	Discrete Signal	165
2.	Radio Frequency	167
B.	Size and Placement of Monitors	169
	INDEX	173

GLOSSARY OF TABLES

TABLE 1

Summary of Video Recording by NCSC

Application	State & Trial Jurisdiction	Case & Annotation	Type of Trial	Charge	Verdict
Record of Testimony	Colorado District Court, City & County of Denver	<u>Colorado v. Martinez</u> Case No: 68010 Trial Date: 3/12-19/73	Criminal (Jury)	Assault to Murder; Assault with a Deadly Weapon (2 counts)	Guilty (to two counts of Assault with a Deadly Weapon)
Record of Testimony	Florida Circuit Court of the Eleventh Judicial Circuit, Dade County (formerly Criminal Court of Record	<u>Florida v. Hutchins</u> Case No: 72-4966 Trial Date: 12/8/72 Appeal No: 44877	Criminal (Jury)	Possession of Narcotic Drug (Heroin)	Guilty
Record of Testimony	Kentucky Franklin County Circuit Court, Frankfort	<u>Kentucky v. Null</u> Case No: 7605 Trial Date: 6/27/73	Criminal (Jury)	Auto Theft	Not Guilty

TABLE 1

Summary of Video Recording by NCSC

Status	Nature of Recording/Significance
On appeal in Colorado Supreme Court (Case No: 26136); not yet perfected.	<u>Recorded Testimony:</u> Deposition of John H. Folks. Witness unable to leave hospital bed and respirator device to attend court. Videotaped in lieu of a written record by a shorthand reporter./ First Colorado use of video to pre-record deposition testimony and present it at criminal trial.
Appealed to Third District Court of Appeal of Florida (Case No: 72-1493); trial judgment affirmed on 11/6/73. Currently on appeal to Florida Supreme Court (Case No: 44877); pending.	<u>Recorded Testimony:</u> Expert testimony of Police Criminologist, Melvin Brewer. / Establishes criminal case law precedent for accepting or rejecting use of video tape to perpetuate trial testimony by means of pre-recording. Particularly pertinent for unavailable expert witness testimony.
N/A	<u>Recorded Testimony:</u> testimony of victim, Gerald A. Morano, establishing ownership and circumstances of recovery of auto. Taped in parallel with court reporter./ First Kentucky use of video tape to pre-record lay testimony and present it at criminal trial

TABLE 1

Summary of Video Recording by NCSC

Application	State & Trial Jurisdiction	Case & Annotation	Type of Trial	Charge	Verdict
Record of Evidence	Georgia Fulton County Superior Court, Atlanta	<u>Georgia v. Webb-Roe</u> Case No: A-17193 Trial Date: 7/23-24/73	Criminal (Jury)	17 counts: Rape, Armed Robbery, Burglary, Aggravated Assault (multiple counts on 5 sets of victims)	Guilty
Record of Evidence	Missouri Circuit Court, Division 6, Kansas City	<u>Missouri v. Henderson</u> Case No: C-43795 Trial Date: 6/26/73	Criminal (Bench)	Second Degree Murder	Plead Guilty to lesser charge
Record of Evidence	New York Supreme Court of New York City	New York: No action to date. (Del Hoyo) Investiga- tion File No: 49-11325	N/A	Robbery	N/A

TABLE 1

Summary of Video Recording by NCSC

Status	Nature of Recording/Significance
<p>N/A (Video tape of line-up not used at trial)</p>	<p><u>Record of Evidence:</u> Line-up identification of suspect, George Webb-Roe./ First Atlanta Police use of video technology for pre-recording evidence.</p>
<p>N/A (Video tape not used at trial)</p>	<p><u>Record of Evidence:</u> Statement of suspect, Lionel Henderson, to police Detective, Gary Buskirk./ First Kansas City Police use of video technology for pre-recording evidence.</p>
<p>Investigation continuing</p>	<p><u>Record of Evidence:</u> Lineup of suspect, Alexander Del Hoyo; three lineups recorded./ During Wade Hearings in Supreme Court of New York City, the court can review these videotapes to help establish the fairness of the identification process used by the District Attorney's Office.</p>

TABLE 7

Summary of Video Recording by NCSC

Application	State & Trial Jurisdiction	Case & Annotation	Type of Trial	Charge	Verdict
Record of Evidence	New York Supreme Court of New York City	New York v. <u>Lopez</u> Indictment Nos: 2851, 3652, 3654 Trial Date: Concluded	Criminal	Rape Robbery	Guilty
Record of Evidence	New York Supreme Court of New York City	New York v. <u>Hill</u> Indictment No.: 3394/73	Criminal	Rape	N/A
Record of Evidence	New York County Court, Nassau County	New York v. <u>Kalamis</u>	Criminal	Robbery	N/A

TABLE 1

Summary of Video Recording by NCSC

Status	Nature of Recording/Significance
No appeal. 10/9/73 sentenced as youthful offender on all charges.	Record of Evidence: Lineup of suspect, Juan Lopez, Jr.; eight lineups recorded three positive identifications. / During Wade Hearings in Supreme Court of New York City, the court can review these videotapes to help establish the fairness of the identification process used by the District Attorney's Office.
Trial Pending.	Record of Evidence: Lineup of suspect, Carl Hill; five lineups were recorded, two positive identifications. / During Wade Hearings in Supreme Court of New York City, the court can review these videotapes to help establish the fairness of the identification process used by the District Attorney's Office.
Pending Trial	Record of Evidence: Lineup of suspect, Babis Kalamis; two lineups were recorded, both positive identifications. / During Wade Hearings in Supreme Court of New York City, the court can review these videotapes to help establish the fairness of the identification process used by the District Attorney's Office.

TABLE 1

Summary of Video Recording by NCSC

Application	State & Trial Jurisdiction	Case & Annotation	Type of Trial	Charge	Verdict
Record of Evidence	New York Supreme Court of New York City	New York: No case. (Leaper) Investigation File No.: 49-11304	N/A	Robbery	No case.
Record of Evidence	New York Supreme Court of New York City	New York v. <u>Smith and Johnson</u> Indictment Nos: 2885 Trial Date: Pending	Criminal	Robbery	N/A
Record of Evidence	New York Supreme Court of New York City	New York v. <u>Venezia</u> Indictment No.: 3472/73 Trial Date: Pending	Criminal	Kidnapping	Plead Guilty

TABLE 1

Summary of Video Recording by NCSC

Status	Nature of Recording/Significance
N/A	Record of Evidence: Lineup of suspect, Lee Leaper; one lineup was recorded, no identification. / During Wade Hearings in Supreme Court of New York City, the court can review these videotapes to help establish the fairness of the identification process used by the District Attorney's Office.
<u>Johnson</u> pending trial.	Record of Evidence: Lineup of suspects, Carl Smith and Glen Johnson, five lineups recorded, three positive identifications. / During Wade Hearings in Supreme Court of New York City, the court can review these videotapes to help establish the fairness of the identification process used by the District Attorney's Office.
N/A	Record of Evidence: Lineup of suspect, Louis Venezia; one lineup was recorded, no identification. / During Wade Hearings in Supreme Court of New York City, the court can review these videotapes to help establish the fairness of the identification process used by the District Attorney's Office.

TABLE 1

Summary of Video Recording by NCSC

Application	State & Trial Jurisdiction	Case & Annotation	Type of Trial	Charge	Verdict
Pre-record Trial	California Superior Court, City and County of San Francisco	<u>Liggon v. Hanisko</u> Case No.: 637-707 Trial Date: 9/17-19/73	Civil (Jury)	Damages for Personal Injuries (Auto accident)	Verdict for the defendant; no damages awarded.
Pre-record Trial	Vermont District Court, Unit One, Bennington Circuit	<u>Vermont v. Moffitt</u> Case No.: 322-73 Trial Date: 6/20/73 Appeal No.: 179-73	Criminal (Jury)	Driving While Intoxicated	Guilty

TABLE 1

Summary of Video Recording by NCSC

Status	Nature of Recording/Significance
Case completed; no appeal.	<u>Pre-record Trial:</u> All testimony for later presentation to jury. Both counsel stipulated to videotape as the recording medium./ First use in California of videotape to pre-record trial testimony in its entirety, for later presentation to a jury.
8/27/73, Court granted request for appeal, In Forma Pauperis; currently on appeal to Vermont Supreme Court (Case No.: 179-73), not yet perfected.	<u>Pre-record Trial:</u> All testimony and evidence for later presentation to jury./ First Vermont use of videotape to pre-record all testimony and evidence for later presentation to a jury in a criminal trial. Raises before appellate court the issue of the legality of such procedure, and raises issue of use of video tape as record on appeal.

TABLE 1

Summary of Video Recording by NCSC

Application	State & Trial Jurisdiction	Case & Annotation	Type of Trial	Charge	Verdict
Record of Proceedings	Georgia Fulton County Superior Court, Atlanta	<u>Georgia v. Brockway</u> Case No.: A-16454 Trial Date: 4/17/73	Criminal (Bench)	Aggravated Assault with Intent to Rape	Plead Guilty (Accepted)
Record of Proceedings	Georgia Fulton County Superior Court, Atlanta	<u>Georgia v. Gough</u> Case Nos.: A-16412, A-16054, A-16055. Trial Date: 4/18/73 Appeal No.: 28557	Criminal (Jury)	Burglary: Motor Vehicle Theft; Armed Robbery	Guilty
Record of Proceedings	Georgia Fulton County Superior Court, Atlanta	<u>Georgia v. James Hamilton</u> Case No.: A-15664 Trial Date: 5/9-10/73 Appeal No.: 48813	Criminal (Jury)	Rape	Guilty

TABLE 1

Summary of Video Recording by NCSC

Status	Nature of Recording/Significance
No Appeal	<p><u>Trial Proceedings:</u> In parallel with official court reporter. / Instantly available record of proceedings. Tapes can be recycled when no appeal is taken, as in this case. Reviewed by Judge Williams to evaluate his own courtroom procedure.</p>
<p>Appealed to Georgia Supreme Court (Case No.: 28557); docketed 9/21/73; pending.</p>	<p><u>Trial Proceedings:</u> In parallel with official court reporter. / Appellate court may view and comment on acceptability of and required procedures for using videotape as the official record on appeal, or as a supplement to a written transcript.</p>
<p>Motion for new trial on 8/17/73; motion denied. Pending in Georgia Court of Appeals, docketed 1/7/74 (Case No.: 48813).</p>	<p><u>Trial Proceedings:</u> In parallel with official court reporter. / Appellate court may view and comment on acceptability of and required procedures for using video tape as the official record on appeal, or as a supplement to a written transcript.</p>

TABLE 1

Summary of Video Recording by NCSC

Application	State & Trial Jurisdiction	Case & Annotation	Type of Trial	Charge	Verdict
Record of Proceedings	Georgia Fulton County Superior Court, Atlanta	Georgia v. John Hamilton Case Nos.: A-15406 A-15407 Trial Date: 2/12/73	Criminal (Jury)	Armed Robbery Misdemeanor Pistol	Not Guilty
Record of Proceedings	Georgia Fulton County Superior Court, Atlanta	Georgia v. Harrell Case No.: A-16101 Trial Date: 4/16 & 23/73	Criminal (Bench)	Robbery	Plead Guilty (Accepted)
Record of Proceedings	Georgia Fulton County Superior Court, Atlanta	Georgia v. Hart Case No.: A-16492 Trial Date: 5/7-8/73	Criminal (Jury)	Involuntary Manslaughter	Guilty

TABLE 1

Summary of Video Recording by NCSC

Status	Nature of Recording/Significance
N/A	<u>Trial Proceedings:</u> In parallel with official court reporter./ Explores the feasibility of the use of videotape for a record of proceedings. Tape may be recycled when no appeal is taken, as in this case.
8/3/73, Motion for new trial granted. Plead guilty at new trial. No appeal taken.	<u>Trial Proceedings:</u> In parallel with official court reporter./ Appellate court may view and comment on acceptability of and required procedures for using video tape as the official record on appeal, or as a supplement to a written transcript.
Motion for new trial denied 10/30/73; no appeal to date.	<u>Trial Proceedings:</u> In parallel with official court reporter./ Appellate court may view and comment on acceptability of and required procedures for using videotape as the official record on appeal, or as a supplement to a written transcript.

TABLE 1

Summary of Video Recording by NCSC

Application	State & Trial Jurisdiction	Case & Annotation	Type of Trial	Charge	Verdict
Record of Proceedings	Georgia Fulton County Superior Court, Atlanta	<u>Georgia v. Latham</u> Case No.: A-16172 Trial Date: 5/16-17/73	Criminal (Jury)	Involuntary Manslaughter	Not Guilty
Record of Proceedings	Georgia Fulton County Superior Court, Atlanta	<u>Georgia v. Laudermilk</u> Case No.: A-13496 Trial Date: 3/19/73	Criminal (Jury)	Burglary	Hung Jury
Record of Proceedings	Georgia Fulton County Superior Court, Atlanta	<u>Georgia v. Reynolds</u> Case Nos.: A-15759 A-15760 Trial Date: 5/14-16/73 Appeal No.: 28411	Criminal (Jury)	Armed Robbery (Three counts) Misdemeanor Pistol	Guilty

TABLE 1

Summary of Video Recording by NCSC

Status	Nature of Recording/Significance
N/A	<u>Trial Proceedings:</u> In parallel with official court reporter./ Explores the feasibility of the use of video tape for a record of proceedings.
Mistrial, retrial pending.	<u>Trial Proceedings:</u> In parallel with official court reporter. / Explores the feasibility of the use of video tape for a record of proceedings.
Appealed to Georgia Supreme Court (Case No.: 28411); docketed 9/21/73. Judgment affirmed 1/9/74 (videotape not submitted with record).	<u>Trial Proceedings:</u> In parallel with official court reporter./ N/A.

TABLE 1

Summary of Video Recording by NCSC

Application	State & Trial Jurisdiction	Case & Annotation	Type of Trial	Charge	Verdict
Record of Proceedings	Georgia Fulton County Superior Court, Atlanta	<u>Georgia v. Sturgis</u> Case Nos.: A-9673 A-9681 Trial Date: 4/9/73	Criminal (Jury)	Violation of Unlawful Drug Act	Not Guilty
Record of Proceedings	Kentucky Franklin County Circuit Court, Frankfort	<u>Kentucky v. Null, Jr.</u> Case No.: 7605 Trial Date: 6/27/73	Criminal (Jury)	Auto Theft	Not Guilty
Record of Proceedings	Missouri Jackson County Circuit Court, Kansas City	<u>Missouri v. Eley</u> Case Nos.: C-40293 C-40294 Trial Date: 4/11/73	Criminal (Jury)	Rape	Guilty

TABLE 1

Summary of Video Recording by NCSC

Status	Nature of Recording/Significance
A-9673 - Not Guilty	<u>Trial Proceedings:</u> In parallel with official court reporter./ Instantly available record of proceedings. Explores the feasibility of the use of video tape for a record of proceedings.
N/A	<u>Trial Proceedings:</u> In parallel with official court reporter. / First Kentucky use of video tape to explore feasibility for record of proceedings.
N/A	<u>Trial Proceedings:</u> In parallel with official court reporter./ Explores the feasibility of producing a video taped record of proceedings.

TABLE 1

Summary of Video Recording by NCSC

Application	State & Trial Jurisdiction	Case & Annotation	Type of Trial	Charge	Verdict
Record of Proceedings	Missouri Jackson County Circuit Court, Kansas City	<u>Missouri v. Moore</u> Case No.: C-43993 Trial Date: 4/16/73	Criminal (Jury)	Rape	Hung Jury
Record of Proceedings	Missouri Jackson County Circuit Court, Kansas City	<u>Missouri v. Walker</u> Case No.: C-43234 Trial Date: 4/18/73 Appeal No.: KCD 26820	Criminal (Jury)	Theft by Misrepresentation (Con Game)	Guilty
Record of Proceedings	Vermont District Court, St. Johnsbury	<u>Vermont v. Leigh and Dunham</u> Case No.: 962-72 Trial Date: 3/1-2/73	Criminal (Jury)	Possession of Marijuana	Guilty
Record of Proceedings	Vermont District Court, St. Johnsbury	<u>Vermont v. Sibley</u> Case No.: Unknown Trial Date: 2/28/73	Criminal (Jury)	Leaving the Scene of an Accident	Not Guilty

TABLE 1

Summary of Video Recording by NCSC

Status	Nature of Recording/Significance
N/A	<u>Trial Proceedings:</u> In parallel with official court reporter./ Instantly available record of proceedings. Explores the feasibility of the use of video tape for a record of proceedings. Tape can be recycled, as in this case.
Notice of appeal filed with Missouri Court of Appeals; appeal not yet perfected (Case No.: KCD 26820).	<u>Trial Proceedings:</u> In parallel with official court reporter./ Appellate court may view and comment on acceptability of and required procedures for using video tape as the official record on appeal, or as a supplement to a written transcript.
<u>Leigh</u> was appealed. Notice of Appeal filed 3/15/72. On 5/24/73 <u>Leigh's</u> counsel sent letter stating no transcript was filed, and agreed to a statement of facts for appeal purposes. Appeal withdrawn by stipulation of parties in September, 1973.	<u>Trial Proceedings:</u> As official record of proceedings. / Appellate court could view and comment on acceptability of and required procedures for using video tape as the official record of proceedings and the record on appeal.
N/A	<u>Trial Proceedings:</u> As official record of proceedings./ Demonstrates capability to immediately recycle video tapes, as in this case.

TABLE 2

VENDOR RECORDING SERVICES: RANGE OF RATESa) Recording Rate (local, includes equipment, personnel)

1) Studio (does not include video tape):

<u>First Hour</u>	<u>Each additional 1/2 hour</u>	<u>Per day (8 hours)</u>
\$35-\$250	\$15-\$75	\$280-\$1200

2) On Location (does not include travel expenses or video tape):

<u>First Hour</u>	<u>Each additional 1/2 hour</u>	<u>Per day (8 hours)</u>
\$90-\$150	\$25-\$87	\$360-\$580

b) Playback Rate (includes equipment, personnel)

\$35 per hour

\$50-\$100 per day

c) Dubbing Rate (includes equipment, personnel, not video tape)

\$20-\$30 per hour

d) Editing Rate (includes equipment, personnel, not video tape)

1) Studio:

\$25-\$35 per hour

2) On Location:

\$75-\$100 per hour

*Note: Varying rates may reflect differences in quantity and quality of equipment or personnel.

TABLE 3

*VENDOR EQUIPMENT: RANGE OF RENTAL CHARGES

<u>ITEM</u>	<u>1 DAY</u>	<u>2 DAYS</u>	<u>3 DAYS</u>	<u>4 DAYS</u>	<u>5 DAYS</u>	<u>6 DAYS</u>	<u>1 WEEK</u>
1/2 inch VTR without edit	\$40-\$60	\$60-\$103	\$80-\$111	\$100-\$120	\$100-\$124	\$100-\$130	\$100-\$180
1/2 inch VTR with edit	40-87	60-149	80-191	100-174	100-187	100-210	100-261
3/4 inch Cassette VTR	60-105	90-180	180-225	180-225	180-225	180-240	180-255
3/4 inch Color Recorder/Player	75-107	112-182	150-198	187-213	187-228	187-262	187-321
Camera, B&W, with viewfinder, lens/tripod	35-58	52-99	70-107	87-116	87-124	87-138	87-174
B&W Receiver/Monitor 19-23 inch	15-21	22-36	30-39	42-42	42-45	42-49	42-62
Color Receiver/Monitor 19-23 inch	20-59	30-102	40-110	50-119	50-127	50-146	50-170

*Note: Charges vary in accordance with actual component cost and any special features included therein.
Charges do not include tape cost or labor.

TABLE 4 ^aPRE-RECORDED DEPOSITIONS/TESTIMONY: SINGLE CAMERA,SINGLE MICROPHONE SYSTEM (ON LOCATION OR STUDIO)

<u>Quantity</u>	<u>Item</u>	<u>Unit Cost</u>	<u>Total Cost</u>
1	Sony AVC 3200DX Unit (includes tripod, viewfinder, zoom lens, microphone, and camera.	\$ 830	\$ 830
1	Odetics VTG-33 Video Timer with year, month, day, min., second, variable positioning	850	850
1	Sony AV3650 Video Tape Recorder	1245	1245
1	Sony PVM920U, 9 inch Portable Monitor/Receiver	225	225
TOTAL			<u>\$3150</u>

TABLE 5 ^aPRE-RECORDED DEPOSITIONS/TESTIMONY: MULTICAMERA,MULTI-MICROPHONE SYSTEM (STUDIO)

<u>Quantity</u>	<u>Item</u>	<u>Unit Cost</u>	<u>Total Cost</u>
1	Sony AV3650 Video Tape Recorder	\$1245	\$1245
2	Sony AVC3200 Cameras	425	850
1	Sony AVF3200 Viewfinder	216	216
2	Quick-Set 4-73010-7 tripod	105	210
2	Quick-Set 4-72011-6 friction head	40	80
2	Sony VCL1206 Zoom Lens 12.5 - 75mm, f1.8	245	490
1	Sony VCS-31 Camera Switcher	55	55
2	Sony CVM112 11 inch Monitor/Receiver	275	550
1	Odetics VTG-33 Video Timer with year, month, day, hour, second, and variable positioning.	850	850
1	Shure M-67 Microphone Mixer	162	162
3	Electrovoice 635A omni-directional low impedance Microphones with balanced line	46	168
3	Shure S55P Isolation Desk Stands	29	87
TOTAL			<u>\$4963</u>

a. Brands listed are for illustrative purposes only.

TABLE 6

PRE-RECORDED EVIDENCE: SINGLE CAMERA,
SINGLE MICROPHONE SYSTEM (PORTABLE) ^a

<u>Quantity</u>	<u>Item</u>	<u>Unit Cost</u>	<u>Total Cost</u>
1	Sony AV3650 Video Tape Recorder	\$1,245	\$1,245
1	Sony AVC3200 DX Unit (includes tripod, viewfinder, zoom lens, microphone, and camera)	830	830
1	Odetics VTG-33 Video Timer with year, month, day, hour, second, and variable positioning.	850	850
1	Sony PVM920U 9 inch portable Monitor/Receiver	225	225
TOTAL			<u>\$3,150</u>

TABLE 7

SYSTEM FOR EDITING PRE-RECORDED
VIDEOTAPE PRIOR TO TRIAL ^a

<u>Quantity</u>	<u>Item</u>	<u>Unit Cost</u>	<u>Total Cost</u>
2	Sony AV3650 Editing Video Tape Recorder	\$1,245	\$2,490
2	Sony CVM112 Monitor/Receiver	275	550
TOTAL			<u>\$3,040</u>

TABLE 8

RF PLAYBACK OF PRE-RECORDED VIDEOTAPE ^a

<u>Quantity</u>	<u>Item</u>	<u>Unit Cost</u>	<u>Total Cos</u>
1	Panasonic NV3010 EIAJ-1 Video Player	\$ 595	\$ 595
1	Sony CVM112 11 inch Monitor/Receiver	275	275
3	Magnavox 5916 23 inch Monitor/Receiver	335	1005
* 1	Panasonic NV-U72 RF Converter	50	50
1	Jerrald TAC-84 RF Amplifier	45	45
TOTAL			<u>\$1970</u>

*Note: Need channel selected for open channel in local area.

a. Brands listed are for illustrative purposes only.

TABLE 9

COURTROOM RECORDING SYSTEM: WITHOUT SPECIAL EFFECTS^a

<u>Quantity</u>	<u>Item</u>	<u>Unit Cost</u>	<u>Total Cost</u>
2	Sony AV3650 Video Tape Recorder	\$1,245	\$ 2,490
4	GBC CTC-5000 Low Light Level Camera	495	1,980
1	Pelco P-77-24 Silent Pan & Tilt Scanner	425	425
1	Pelco PT1524-M Modular/Joystick Pan & Tilt Control	125	125
* 1	Pelco TV-J8C 11.5 - 90mm F2.1 Motorized Zoom Lens	950	950
1	Odetics VTG-33 Video Timer with year, month, day, hour, second, and variable positioning	850	850
1	Pelco L25DT Motorized Zoom Lens Control Unit	125	125
* 1	Canon M-6C 16.5 - 92 F2.0 Manual Zoom Lens	550	550
* 2	Fujinon TV-CF 12.5A 12.5 F1.4 Wide Angle Lens	295	590
2	Sony VCS-31 Three Camera Switcher	50	100
1	Sony PVM-400 Monitor Assembly	750	750
1	Sony CVM 920U Portable Monitor/Receiver	225	225
* 6	Shure 579SB Microphones, Omni-Directional, Low impedance with on/off switch	45	270
2	Shure M67 Microphone Mixers	270	540
6	Shure S55P Isolation Desk Stands	29	174
1	Custom Console	150	150
TOTAL			<u>\$10,294</u>

TABLE 10

COURTROOM RECORDING SYSTEM: WITH SPECIAL EFFECTS^a

Same Equipment Listed in Table 9 Except:

<u>Quantity</u>	<u>Item</u>	<u>Unit Cost</u>	<u>Total Cost</u>
* 1	Canon M-6C 16.5 - 95 mm F2.0 Manual Zoom Lens \$550 (replaces Canon M-6C 16.5 - 92 mm listed in Table 9)		\$ 550
* 1	Sony SEG-11 Special Effects Generator with preview, corner insert (replaces 2 Sony VCS-31 three camera switcher listed in Table 9)	800	800
TOTAL			<u>\$10,994</u>

*Note: The number and type of microphones and lenses will vary with the size and design of a courtroom. Does not include installation cost, mounting, cabling, or discount.

a. Brands listed are for illustrative purposes only.

TABLE 11
COURTROOM RECORDING SYSTEM: WITHOUT SPECIAL EFFECTS, BUT
WITH PLAYBACK CAPABILITIES^a

<u>Quantity</u>	<u>Item</u>	<u>Unit Cost</u>	<u>Total Cost</u>
2	Sony AV3650 Video Tape Recorders	\$1245	\$2490
4	GBC CTC-5000 Low Light Level Cameras	495	1980
1	Pelco P-77-24 Silent Pan and Tilt Scanner	425	425
1	Pelco PT1524 Modular/Joystick Pan & Tilt Control	125	125
* 1	Pelco TV-J8C 11.5 - 90mm F2.1 Motorized Zoom Lens	950	950
1	Odetics VTG-33 Video Timer with year, month, day, hour, second, with variable positioning	850	850
1	Pelco L25DT Motorized Zoom Lens Control Unit	125	125
1	Canon M-6C 16.5 - 92 F2.0 Manual Zoom Lens	550	550
* 2	Fujinon TV-CF 12.5A 12.5 F1.4 Wide Angle Lens	295	590
2	Sony VCS-31 Three Camera Switcher	50	100
1	Sony PVM400 Monitor Assembly	750	750
1	Sony CVM920U Portable Monitor/Receiver	225	225
* 6	Shure 579SB Omni-directional, Low impedance with on/off switch	45	270
2	Shure M67 Microphone Mixers	270	540
1	Jerrold RF Amplifier	45	45
2	Magnavox 5916 23 inch Monitor/Receiver	335	670
1	Sony CVM112 11 inch Monitor/Receiver	275	275
1	Custom Console	150	150
** 2	Sony RFU-52W RF Adapters	60	120
TOTAL			<u>\$11,404</u>

*As in previous system the number and type of microphones and lenses will vary with the size and design of a courtroom. Does not include installation costs, mounting, cabling or discount.

**Need channel selected for open channel in local area.

a. Brands listed are for illustrative purposes only.

TABLE 12

COMMERCIAL DISCOUNTS AVAILABLEFOR 1/2 INCH, EIAJ-1 VIDEOTAPE

Playing Time (min.)	Reel Diameter	Quantity in Reels			
		1 - 5	6 - 11	12 - 23	24+
Videotape:					
60	7"	\$34.00	\$30.00	\$27.00	\$25.00
30	7"	18.00	16.50	15.50	14.50
30	5-1/8"	18.00	16.50	15.50	14.50
20	4-5/8"	15.00	14.00	13.00	12.00
10	4-5/8"	10.00	9.50	8.50	8.00

TABLE 13

*GOVERNMENT CONTRACT PRICEFOR 1/2 INCH, EIAJ-1 VIDEOTAPE

Playing Time (Min.)	Reel Diameter	Per Reel, Any Quantity
60	7"	\$18.38
45	7"	16.62
30	5-1/8"	10.10
30	4-5/8"	10.56
20	4-5/8"	6.88
10	4-5/8"	6.09

*Extracted from State of Georgia Contract No. 6-42700-A

NATIONAL CENTER FOR STATE COURTS

Council of State Court Representatives

Alabama Howell T. Heflin Chief Justice, Supreme Court	Maine Charles B. Rodway, Jr. Adm. Asst. to the Chief Justice	Oregon Loren D. Hicks State Court Administrator
Alaska Jay A. Rabinowitz Chief Justice, Supreme Court	Maryland William H. Adkins, II Dir., Adm. Office of the Courts	Pennsylvania A. Evans Kephart State Court Administrator
Arizona James Duke Cameron Vice Chief Justice, Supreme Court	Massachusetts Walter H. McLaughlin Chief Justice, Superior Court	Rhode Island Walter J. Kane Ct. Administrator, Supreme Court
Arkansas C. R. Huie, Exec. Secy. Judicial Dept., Supreme Court	Michigan Thomas M. Kavanagh Chief Justice, Supreme Court	South Carolina Joseph R. Moss Chief Justice, Supreme Court
California Donald R. Wright Chief Justice, Supreme Court	Minnesota Richard E. Klein State Court Administrator	South Dakota Fred R. Winans Associate Justice, Supreme Court
Colorado Harry O. Lawson Court Administrator, Jud. Dept.	Mississippi R. P. Sugg Associate Justice, Supreme Court	Tennessee T. Mack Blackburn Exec. Secy., Supreme Court
Connecticut John P. Cotter Associate Justice, Supreme Court	Missouri Fred L. Henley Judge, Supreme Court	Texas Thomas M. Reavley Associate Justice, Supreme Court
Delaware Daniel L. Herrmann Chief Justice, Supreme Court	Montana James T. Harrison Chief Justice, Supreme Court	Utah Allan E. Mecham Admstr. and Clerk, Supreme Court
Florida James B. Ueberhorst State Courts Administrator	Nebraska Paul W. White Chief Justice, Supreme Court	Vermont Lawrence J. Turgeon Ct. Administrator, Supreme Court
Georgia Benning M. Grice Chief Justice, Supreme Court	Nevada Howard W. Babcock Judge, District Court	Virginia Lawrence W. I'Anson Justice, Supreme Court
Hawaii Tom T. Okuda Adm. Ser. Dir., District Courts	New Hampshire John W. King Justice, Superior Court	Washington Orris L. Hamilton Justice, Supreme Court
Idaho Charles R. Donaldson Justice, Supreme Court	New Jersey Frederick W. Hall Justice, Supreme Court	West Virginia Charles H. Haden, II Justice, Supreme Ct. of Appeals
Illinois Joseph H. Goldenhersh Justice, Supreme Court	New Mexico John B. McManus, Jr. Chief Justice, Supreme Court	Wisconsin Horace W. Wilkie Justice, Supreme Court
Indiana Norman F. Arterburn Chief Justice, Supreme Court	New York Richard J. Bartlett State Adm. Judge	Wyoming Glenn Parker Chief Justice, Supreme Court
Iowa W. W. Reynoldson Justice, Supreme Court	North Carolina Bert M. Montague Dir., Adm. Office of the Courts	District of Columbia Gerard D. Reilly Chief Judge, Court of Appeals
Kansas David Prager Justice, Supreme Court	North Dakota Harvey B. Knudson Associate Justice, Supreme Court	Guam Joaquin C. Perez Chief Judge, Island Court
Kentucky James S. Chenault Judge, 25th Judicial District	Ohio C. William O'Neill Chief Justice, Supreme Court	Puerto Rico Jose Trias Monge Chief Justice, Supreme Court
Louisiana John A. Dixon, Jr. Associate Justice, Supreme Court	Oklahoma William A. Berry Justice, Supreme Court	Virgin Islands Cyril Michael Presiding Judge, Municipal Court