

AES recommended practice for forensic purposes — Managing recorded audio materials intended for examination

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Abstract

This document specifies recommended practices for safekeeping, conveyance, inspection, description, and labeling of audio recordings offered as evidence in criminal investigations, in criminal or civil proceedings, or in other forensic applications. It does not cover analysis of magnetic tapes or other recording media for the purposes of authenticity determination, talker identification, copyright violation, enhancement of oral conversations or other signals, or otherwise characterizing signals recorded on such tapes.

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Foreword

[This foreword is not a part of *AES recommended practice for forensic purposes — Managing recorded audio materials intended for examination*, AES27-1996.]

This document was developed by a writing group of the WG-12 Working Group on Forensic Audio of the Audio Engineering Society Standards Committee. It is the result of a call for comment by the entire AES membership published in the 1994-12 issue of the *Journal of the Audio Engineering Society*. Thus it results from an international consensus and is not intended to reflect the practice of any single nation. As an AES standard, it is an international professional society's statement of technical good practice, but its use is entirely voluntary and it does not have the status of a governmental regulation. Nevertheless, any claim to voluntary compliance with the standard implies acceptance of its mandatory clauses.

In 1991, WG-12 was organized at the request of a community of engineers from the AES, the Acoustical Society of America, various law enforcement agencies, and groups concerned with testimony. The group concerns itself with the handling, authentication, and enhancement of audio recorded materials basing itself on methodologies such as developed from those described in Bolt, Cooper, Flanagan, McKnight, Stockham, and Weiss, *Report on a Technical Investigation Conducted for the U.S. District Court for the District of Columbia by the Advisory Panel on the White House Tapes. May 31, 1974*.

At its first meeting in New York on 1991-10-05, individuals from industry, private engineering firms, law enforcement agencies, and several manufacturers were in attendance. A scope was defined, as well as subgroups being appointed, including the writing group for this document. Several writing group meetings to discuss this document were held according to AESSC rules and procedures in addition to the working group meetings at AES Conventions in North America and Europe. The first draft of the document was compiled by M. Chial of the University of Wisconsin from the proceedings of these meetings.

Tom Owen, chairman
WG-12 Working Group on Forensic Audio
1995-08

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1 Scope

This standard specifies recommended practices for safekeeping, conveyance, inspection, description, and labeling of audio recordings offered as evidence in criminal investigations, in criminal or civil proceedings, or in other forensic applications. For the purposes of this document, magnetic tapes include audio recordings and video recordings based upon magnetic transcription principles, regardless of the physical size, packaging, recording format, recording type (such as analog, digital, frequency-modulation), or recording speed of the tapes. Special practices for nonaudio portions of such recordings are beyond the scope of this standard.

This document does not cover analysis of magnetic tapes or other recording media for the purposes of authenticity determination, talker identification, copyright violation, enhancement of oral conversations or other signals, or otherwise characterizing signals recorded on such tapes.

This standard is intended for use by audio engineers, public and private investigation agencies, attorneys, and others who wish to safeguard the integrity of recordings used in forensic applications. The goals of the practices described are

- a) to insure the chain of custody of audio evidence which may be the subject of examination for forensic purposes;
- b) to properly identify such evidence;
- c) to maintain the physical integrity of such evidence;
- d) to document all technical and non-technical actions taken with such evidence.

This standard is intended as a guide based on good engineering practice for handling tape that may be used in evidence. It is not intended to be a document binding on law enforcement agencies. Persons handling evidence tapes should first obtain and follow the rules of the legal jurisdiction or jurisdictions involved. When a jurisdiction provides instructions, those should be followed. Only in the absence of such instructions should the recommendations of this standard be followed with the approval of the jurisdiction.

2 Normative references

The following standards contain provisions that, through reference in this text, constitute provisions of this document. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this document are encouraged to investigate the possibility of applying the most recent editions of the indicated standards.

1) IEC 94-1, *Magnetic tape sound recording and reproducing systems — Part 1: General conditions and requirements*. Geneva, Switzerland: International Electrotechnical Commission, 1981.

2) IEC 94-7, *Magnetic tape sound recording and reproducing systems — Part 7: Cassette for commercial tape records and domestic use*. Geneva, Switzerland: International Electrotechnical Commission, 1978.

3) IEC 712, *Helical-scan video-tape cassette system using 19 mm (3/4 in) magnetic tape, known as U-format*. Geneva, Switzerland: International Electrotechnical Commission, 1993.

4) IEC 767, *Helical-scan video tape cassette system using 12.65 mm (0.5 in) magnetic tape on type beta format*. Geneva, Switzerland: International Electrotechnical Commission, 1983.

5) IEC 774, *Helical-scan video tape cassette system using 12.65 mm (0.5 in) magnetic tape on type VHS*. Geneva, Switzerland: International Electrotechnical Commission, 1983.

6) IEC 1119-1, *Digital audio tape cassette system (DAT) — Part 1: Dimensions and characteristics*. Geneva, Switzerland: International Electrotechnical Commission, 1992.

3 Definitions

3.1 accurate recording: As applied to audio recordings, an original recording (or a copy of an original recording) of acoustic events that is, consistent with the limitations of the recording method, fully, exactly, and completely faithful to the original events with respect to time-varying amplitude, sequence, and completeness of program material.

3.2 authentic recording: As applied to audio recordings, a recording made simultaneously with the acoustic events it purports to have recorded, and in a manner fully and completely consistent with the method of recording claimed by the party who produced the recording; a recording free from unexplained artifacts, alterations, additions, deletions, or edits.

3.3 authenticity analysis: An examination, usually for forensic purposes, that seeks to determine whether a given recording was made of the acoustic events asserted by the parties who produced the recording, and in the manner claimed by the parties who produced the recording, and whether it is an original or a copy.

3.4 chain of custody: A time history of possession and control of physical evidence, from when it was created (or seized) to when it was offered as evidence in a court of law.

NOTE — An unbroken chain of custody fully accounts for the location, security, and integrity of evidence during the entire elapsed time between creation (or seizure) and presentation to the court. Chain of custody influences the weight of evidence in legal proceedings, not the admissibility of evidence.

3.5 class characteristics (of evidence): Physical characteristics common to more than one member of a set of samples of the same type of evidence, for example, the model number of an audio tape recorder or the displacement between record and erase heads of a tape recorder.

3.6 contributor: The person who makes the evidence available.

3.7 enhancement: As applied to audio recordings, processing of existing unintelligible or noisy recordings for the purpose of increased signal intelligibility, attenuation of noise, improvement of understanding the recorded material, and improvement of the quality or the ease of hearing the signal of interest.

3.8 forensic: Anything pertaining to courts of justice or to the criminal justice system.

3.9 individual characteristics (of evidence): Physical characteristics particular to a specific member of a set of samples of the same type of evidence, for example, the serial number of an audio tape recorder, accidental marks on an audio tape cassette, or speed irregularities of a tape recorder.

3.10 known recording: As applied to audio recordings, one known to be authentic; also one for which the identify of a talker is known.