

National Audio Video Forensic Laboratory

Norman I. Perle, B.C.F.E., F.A.C.F.E.

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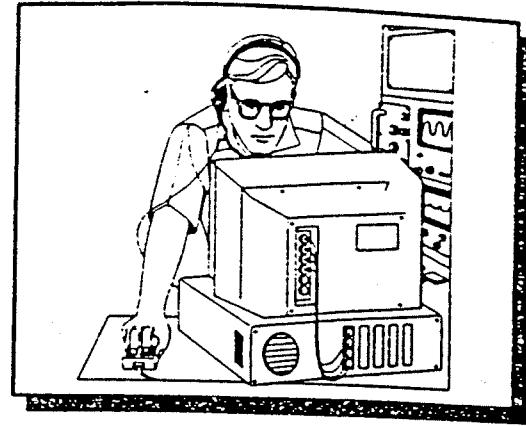
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September 22, 1997



ATTN : Mr. Harvey Mechanic, Esq.

TAPE ANALYSIS REPORT

On August 26, 1977 I received a standard analog tape recording from your office for examination. On the label of the cassette I affixed a tamper proof Security Seal Number 16959 for identification.

My assignment was to review and analyze the recording in order to determine if the content appears to be authentic, in that the words spoken are in context and appear to be all the words spoken at the moment in time the recorded event occurred. Additionally, there should be no signs of inappropriate stopping and restarting of the recorder as well as the other classifications of signs suggestive of falsification.

The analysis procedure included computer waveform analysis, spectrographic chart analysis, FFT spectrum frequency analysis and a critical aural review of the audio.

EXPLANATION OF ATTACHED SUPPORTIVE EXHIBITS

The attached exhibits are the results of Waveform and Spectrogram Analysis. The upper window is a Waveform of the acquired audio. This pattern represents audio relative to time and amplitude (volume). The large lower window is a Spectrogram. The Spectrogram represents audio relative to;

- 1) Time - as shown on the bottom scale, horizontal axis.
- 2) Amplitude - as shown as the varying shades of pattern, vertical axis.
- 3) Frequency - as shown in the horizontal axis.

Each exhibit is annotated with an explanation as to the area of audio acquisition, and that is located in the "title bar" on top of the Waveform.

BOARD CERTIFIED FORENSIC EXAMINER : American Board of Recorded Evidence,
FELLOW, AMERICAN COLLEGE OF FORENSIC EXAMINERS
COMPUTERIZED NOISE REMOVAL/SOUND ENHANCEMENT : VIDEO/AUDIO AUTHENTICATION : VIDEO ENHANCEMENTS : VOICE ID & COMPARISON
STATE OF THE ART, FULL SERVICE RECORDED EVIDENCE FORENSIC LABORATORY

A more detailed explanation of the spectrogram patterns is located in the "title bar" above each window.

EXPLANATION OF EXHIBITS AND CONCLUSIONS :

EXHIBIT #1 is a display of how the sound starts on this recording. Absent is the Recorder Start Signature. Examples of what a Start Signature looks like can be seen on *EXHIBIT # 3, #4, and #5*. This is consistent with a recording made from an edited Master recording.

EXHIBIT #2 is a display of the audio located approximately 10 seconds into the recording. The deficiencies revealed are audible, and are consistent with editing procedures wherein words are eliminated or rearranged to change the context of what is said.

EXHIBIT #3 is a display of the audio located approximately 11 minutes, 34 seconds into the recording. These deficiencies are audible and are significantly similar to what one would expect to hear and see should the Master recording be an edited version.

EXHIBIT #4 is a display of the audio located approximately 11 minutes, 37 seconds into the recording. This segment is located just after the area shown in *EXHIBIT #3*. This deficiency is audible and is significantly similar to what one would expect to hear and see should the Master recording be an edited version.

EXHIBIT #5 is a display of the audio located approximately 22 minutes, 33 seconds into the recording. This is at the end of the segment(s). One can hear, as well as see on the chart, representation strikingly similar to stop/re-start(s) signatures. There is a remanent of audio after these patterns.

EXHIBIT #6 is a display of the audio located at the end of sound on this recording. Similar to the beginning (*EXHIBIT #1*) there is an absence of the anticipated stop signature.

SUMMARY

In conclusion, this recording exhibits strong signs suggestive of falsification. I do not believe that these deficiencies might possibly be the product of some mechanical process or problem within the recording or duplication process and I believe that they exist at what is considered to be a higher degree than that of a coincidence.

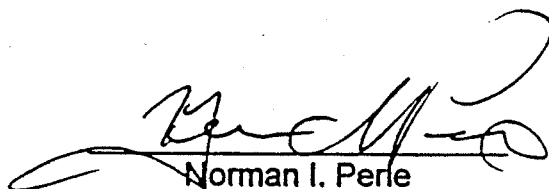
I strongly recommend that an independent Forensic Analysis be conducted on the Master

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recording in order to determine the authenticity and originality of the evidence. This analysis requires what is represented as the original recording and the original tape recorder upon which this recording was represented to be made. The forensic instrumental tests include computer analysis, FFT spectral analysis, spectrogram chart analysis, and microscopic photography of the magnetic field on the original recording. Additionally, the recordings will be compared for dissimilarities as a critical listening procedure is performed.

These tests are directed to discover (1) if the recording has been edited in any manner so as to effect the context of words (ie: erasures, inappropriate stopping and restarting of the recorder), (2) if, in fact, the audio material is an original source recording and not a re-recorded version. The testing would determine the cause of any deficiency within the audio track and is focused on establishing an opinion as to the integrity and authenticity of the evidence.

If you have any questions please don't hesitate to call me.



Norman I. Perie

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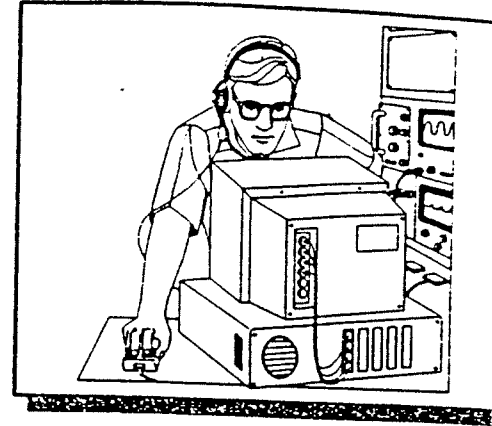
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PARTIAL CASE REFERENCE ROSTER

4/8,9/97 : Expert Witness Testimony

ATTORNEY : William Brown, Federal Public Defender
(619) 234-8467

CASE : U.S.A. v. Workman - Case #96CR1802RMB

Testimony Specifics : qualifying foundation for photographic and video imaging, background
/training/education/experience : detail in images relative to specific identifiers on Defendant and items in evidence :
Enhancements of photographs and video images : critique of F.B.I. presentation of enhancements and digital images.

3/24,25,26/97 : Expert Witness Testimony

ATTORNEY: Chris Cockrell, Esq.
(909)792-4144

CASE : SCAMIHORN V. FISHER : CASE #95PCI06706

Testimony Specifics regarding photographic imaging, process and procedures, qualifications and background. At issue was specific image details revealed with enhancement process directly affecting core issues.

10/31/96 : Expert Witness Testimony

ATTORNEY: Edi Faal, Esq.
(714) 502-1900

CASE : Geil v. Simpson #129770

Testimony Specifics regarding authenticity of video tape and technical presentation of video segment which was transferred to 3/4" professional cassette with time code/frame counter. Presentation for Jury focused on analysis of images in sequence and detail to determine the validity of personal injury claim.

10/25/96 : Expert Witness Testimony

ATTORNEY: Mark Werksman, Esq.
(213) 688-0460

CASE : Peo. v. RATHBURN #YA026602

Testimony Specifics regarding photographic image comparison. Specific identifying characteristics from video conversion of photographic enlargements compared to Coroner photographs for victim identification. Further testimony regarding procedures, process, training and background and experience.

10/23/96 : Expert Witness Testimony

ATTORNEY: Charles Boags, Esq.
(310) 532-8245

CASE : Peo. v. WOODS #TA033082-01

Testimony Specifics regarding Spectrographic Analysis of unknown voice on evidence recording relative to voice identification and comparison. Evidence Recording contained approximately 10 clear utterances taken from a telephone message and was technically insufficient to use for identification.

10/11/96 : Expert Witness Testimony

ATTORNEY: Darryl Mounger, Esq.
(818) 990-9393

CASE : Peo. v. SEOANE #GA 025505-03

Testimony regarding analysis of evidence recording, filtering and extracting literal transcript or utterances, process and procedures.

6/19/96 : Expert Witness Testimony

ATTORNEYS : Richard B. Mazer, Esq.
(415) 621-4100
Andrew Parnes, Esq.
(208) 726-1010

CASE : U.S.A. v. Choe #CR-94-20066-JW / Northern California Federal District (San Jose)

Testimony regarding Authenticity of evidence recording; specific testing and procedures with a broken tape recorder represented as the source recorder.

3/21/96 : Expert Witness Testimony

ATTORNEY : Alex Kessel
(818) 995-1422

CASE : Peo. v. Kearney #KA 025265

Testimony regarding attributes of surveillance video purported to show Defendant. Video Enhancement show perpetrator has different features. Testimony regarding process/procedures/qualifications, etc.

3/18/96 : Expert Witness Testimony

ATTORNEY : Edi Faal / Dan O'Sullivan
(714) 502-1900

CASE : Peo. v. Edu #FEH-0168

Testimony specifics regarding falsified evidence recording, supportive technical documentation of examination and analysis.

1/8/96 : Expert Witness Testimony

ATTORNEY : Larry Artis
(818) 915-6411

CASE : People v. Jason Goodbout #KA027551

Testimony Specifics regarding Spectrographic Analysis of unknown voice on evidence recording relative to voice identification and comparison. Recording contained approximately 10 clear utterances taken from a telephone message and was technically insufficient to use for identification.

11/30/95 : Expert Witness Testimony

ATTORNEY : Andrew Thorpe, Esq.
Deputy Public Defender
(310) 603-7271

CASE : People v. STEWART #TAO 32370 : SPECIAL CIRCUMSTANCES/MURDER

Testimony Specifics regarding audio track from surveillance video. Literal transcript/intelligibility processing/spectrographic analysis for interpretation of recorded words.

11/20/95 : Expert Witness Testimony

ATTORNEY : (1) Los Angeles City Attorney Office
Wilma Pinder, Esq.
(2) Mr. Skip Miller, Esq.
Christensed, White, Miller, Fink & Jacobs
(310) 553-3000

CASE : Beyda v. City of Los Angeles, et al. (Councilman Nate Holden)

Testimony specifics regarding falsified evidence recording, supportive technical documentation of examination and analysis.

6/6/95 : Expert Witness Testimony

ATTORNEY : Joan Whiteside Green
(213) 387-6628

CASE : Peo. v. Hawkins, et al. #A982891

Testimony specifics regarding technical aspects of evidence photographs. Accuracy of detail, color balance, and distortion were at issue.

5/19/95 : Expert Witness Testimony

ATTORNEY : Steven Berman
(310) 328-1234

CASE : Peo. v. Brown #YA021564

Testimony specifics regarding Voice Identification and Comparison using Spectrogram Charts, procedures, training, etc. (Kelly-Frye 402 Hearing)

5/15/95 : Expert Witness Testimony

ATTORNEY : Richard Millard
(310) 826-6608

CASE : Peo. v. Vanke #BA038270

Testimony specifics regarding falsified evidence recording, supportive technical documentation of examination and analysis.

2/14,15/95 : Expert Witness Testimony

ATTORNEY : Larry Easterwood, Esq.
(213) 388-7563

CASE : Peo. v. Richardson

Testimony regarding attributes of surveillance video purported to show Defendant touching a store clerks breast. Enhancements and technical presentation show, in fact, there was no touching. Prosecution presented edited time lapse version which created false perceptions. Defendant acquitted of Sexual Battery.

3/3/95 : Expert Witness Testimony

ATTORNEY : Herbert Weiss, Esq.
Alternate Defense Counsel
(818) 778-1000

CASE : Peo. v. Bolden #PA016240

Testimony regarding attributes of surveillance video purported to show Defendant. Video Enhancements show perpetrator has different features.

3/7/95 : Expert Witness Testimony

ATTORNEY : Ron Tudor, Esq.
El Paso, Texas
(915) 544-5039

CASE : MEDIAN v. Dept. of Army #DA-0752-95-0370-I-1

Testimony specifics regarding falsified evidence recording, supportive technical documentation of examination and analysis.

4/4/95 : Expert Witness Testimony

ATTORNEY : Marsha Fitzgerald
Victorville, Ca.
(619) 241-0783

CASE : Peo. v. Ross #FVI-02400

Testimony specifics regarding authenticity of evidence recordings containing erasures, supportive technical documentation of examination and analysis.

June 15, 1994 : Expert Witness Testimony

ATTORNEY : Ms. Kelly Aden, Esq.
Mr. Andre Jardini
(818) 547-5000

Case : Brown v. L.A. Mortuary : California Superior Court Case #TC003569/BC049549

Testimony specifics: Video Image Enhancements / Photographic exhibits from video evidence. Audio Enhancements.
Voice Identification.

April 20, 1994 : Expert Witness Testimony

ATTORNEY : Tracy Goldberg, Esq.
(909) 381-0527

CASE : Russell v. Goodner : California Superior Court Case #VCV-018456

Testimony specifics: Video Image Enhancements / Photographic exhibits from video evidence.

October 6, 12, 13, 1993 : Expert Witness Testimony

ATTORNEY: Mr. Steven Yagman, Esq.
(310) 452-3200

CASE: Oborn v. Gates, et al. Federal Case #88-401-JWC (GX)
Honorable Judge Mariana Pfaetzer

Testimony specifics: Authenticity of tape recorded evidence

September 22/23, 1993 : Expert Witness Testimony

ATTORNEY: Mr. Edi Faal, Esq.
Ms. Wilma Shanks, Esq.
(714) 999-2017

CASE : Peo. v. Williams, et al. (DENNY CASE) Cal.Sup.Case #BA-058116
Honorable Judge Ouder Kirk

Testimony specifics: Video Image Enhancements / Photographic exhibits from video evidence.

November 4/5, 1992 Expert Witness Testimony

ATTORNEY : Ms. Judith Fouladi, Deputy Public Defender - Laguna
(714) 249-5060

CASE : Peo. v. Robert Bell #92M70706

Testimony specifics: Analysis of recording showing insufficiency of technical audio standards which are necessary for
SPECTROGRAPHIC VOICE ANALYSIS FOR IDENTIFICATION THROUGH VOICE COMPARISON

March 20, 1992 Expert Witness Testimony

ATTORNEY : Mr. Darryl Mounger, Esq.
(818) 766-1000

CASE : Peo. v. Stacey Koon et. Al.
RODNEY KING TRIAL : Hon. Stanley Weisberg

Testimony relative to Noise Removal/Sound Enhancement procedures & Transcript of audio taken directly from original
"Holiday Video 8mm tape"

January 29 / 30, 1992 Expert Witness Testimony

ATTORNEY : Ms. Gayle A. Gutenkunst, Esq.
(209) 268-4021

CASE : PEOPLE v. Edward Woods : California Superior Court : CASE #8954

Testimony relative to Authenticity of Evidence Recording

July 11, 1991

Expert Witness Testimony

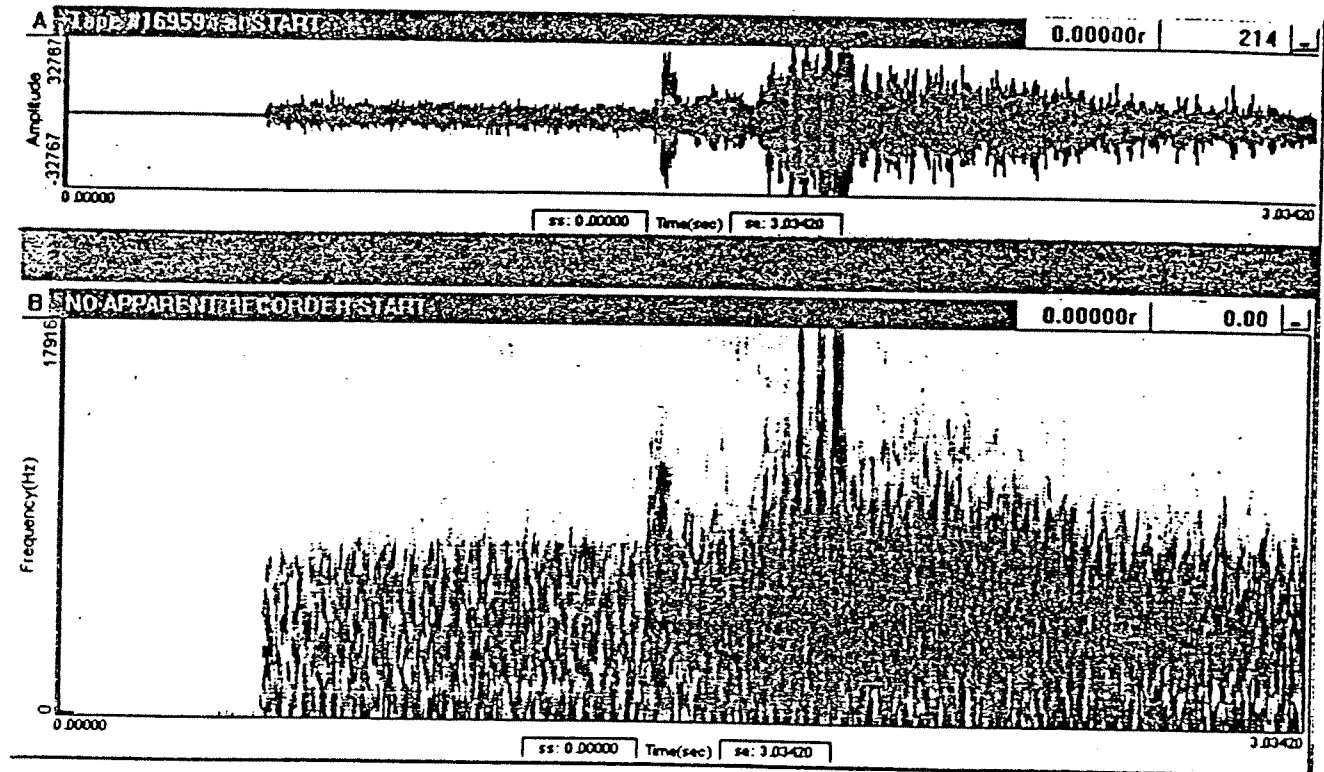
ATTORNEY : Mr. Mark Foster, Esq. Deputy Public Defender
(714) 275-6000

SUPERIOR COURT CASE #CR-38758 : People v. Wheeler

STIPULATION entered at trial RE: Testimony about Identification of Defendant
with Voiceprint Waveform/Spectrographic Analysis

WAVEFORM and SPECTROGRAM ANALYSIS

Exhibit #1

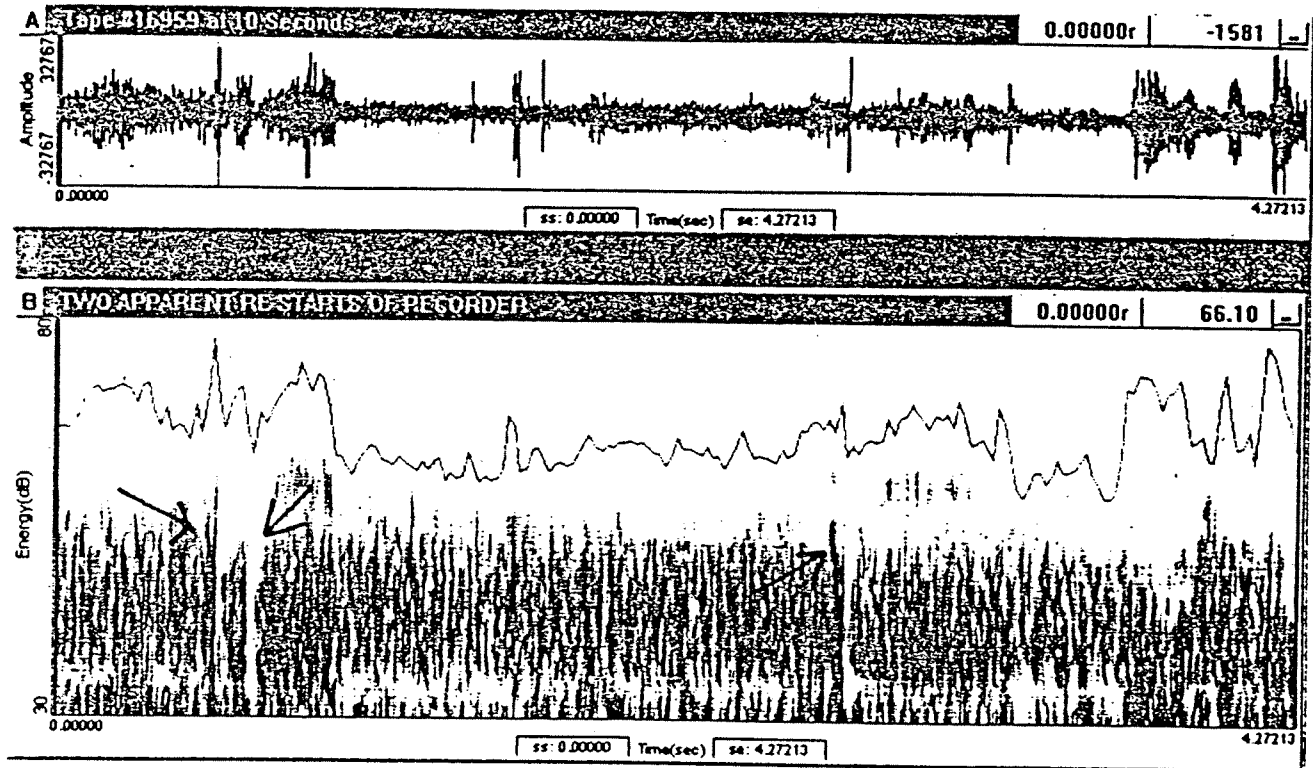


Patterns displayed are consistent with audio from an EDITED MASTER. The anticipated START signature from the tape recorder is absent and common to recordings that have been edited

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WAVEFORM and SPECTROGRAM ANALYSIS

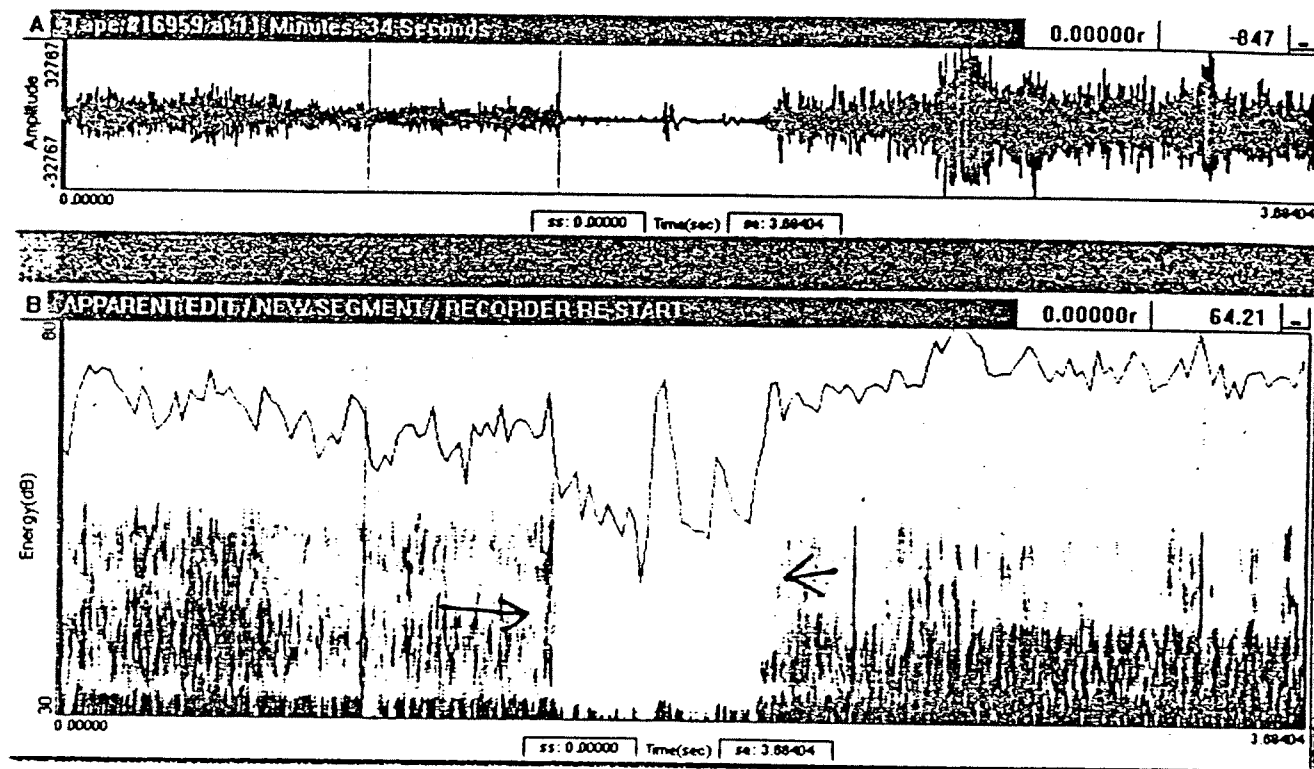
Exhibit #2



Patterns displayed are consistent with audio from an EDITED MASTER. There are two transient patterns common to recordings that have been edited and indicate stopping the recorder and possibly over-recording a segment.

WAVEFORM and SPECTROGRAM ANALYSIS

Exhibit #3

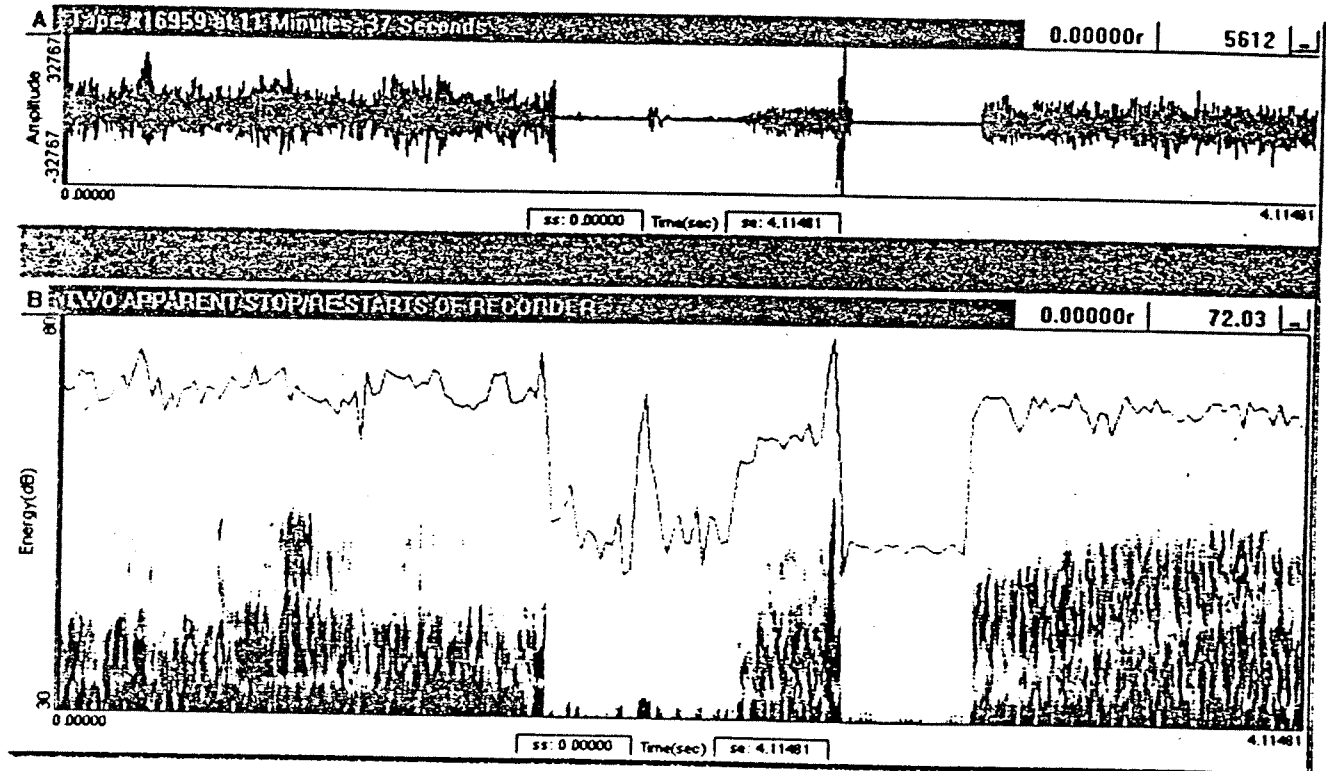


Patterns displayed are consistent with audio from an EDITED MASTER. There are two transient patterns common to recordings that have been edited and indicate stopping the recorder re-starting in this area at least twice.

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WAVEFORM and SPECTROGRAM ANALYSIS

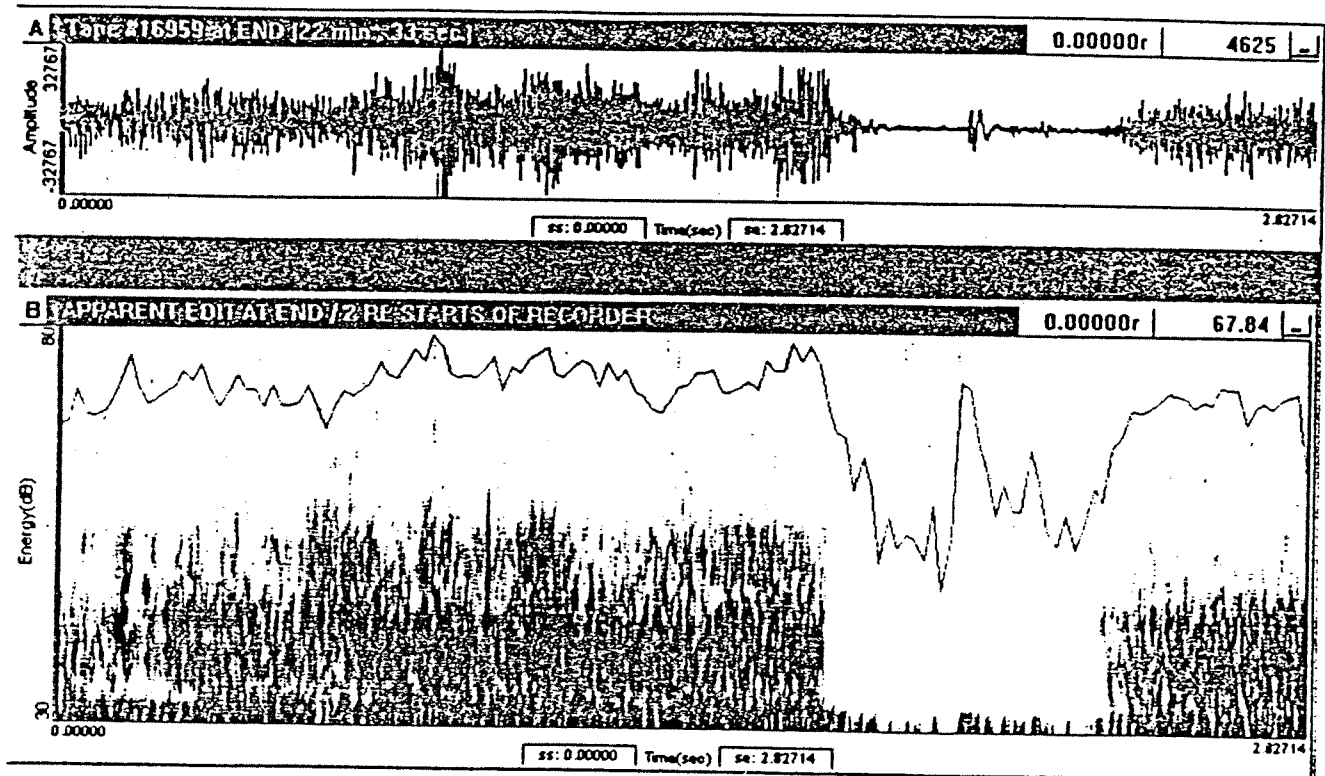
Exhibit #4



Patterns displayed are consistent with audio from an EDITED MASTER. There is a transient patterns common to recordings that have been edited present just after the area shown in EXHIBIT #3, and indicates stopping the recorder re-starting at least three times.

WAVEFORM and SPECTROGRAM ANALYSIS

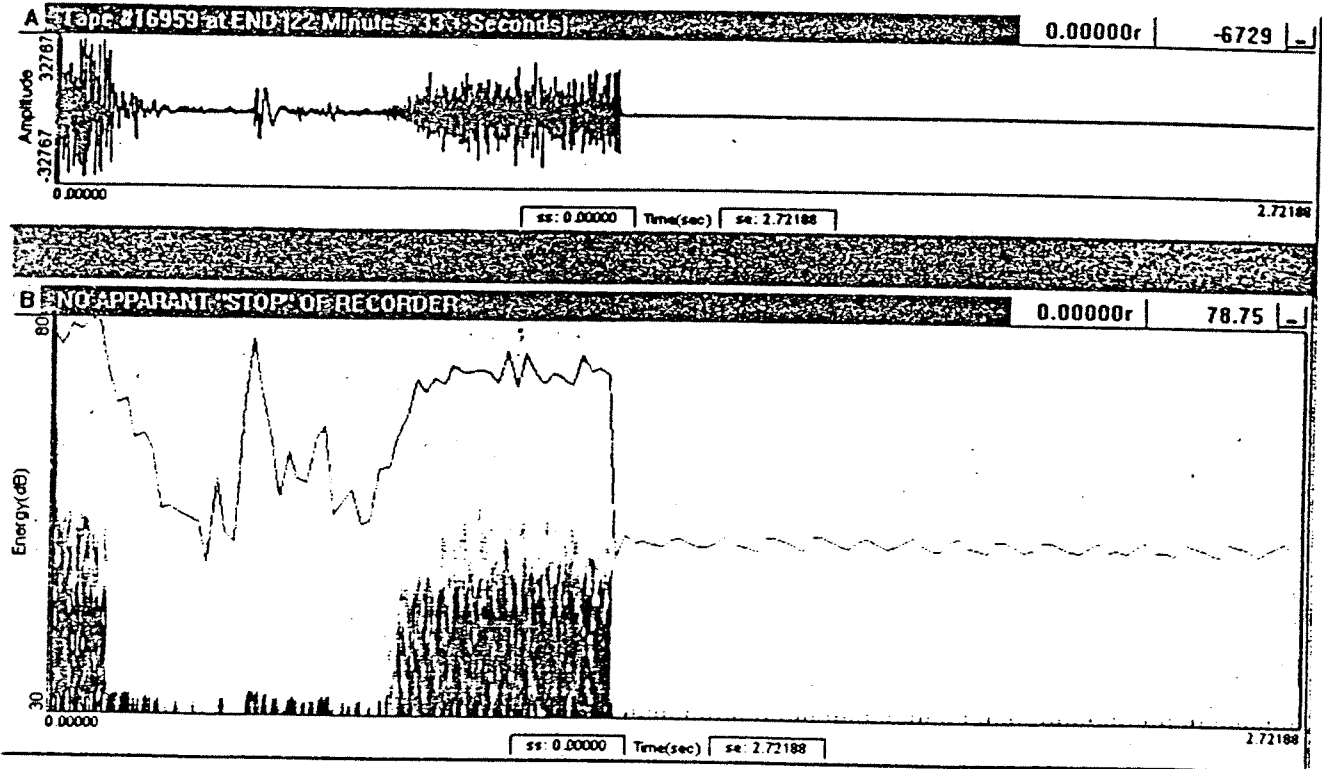
Exhibit #5



Patterns displayed are consistent with audio from an EDITED MASTER. There is transient patterns common to recordings that have been edited present just before the END of the segment showing at least 2 RE-STARTS of the recorder.

WAVEFORM and SPECTROGRAM ANALYSIS

Exhibit #6



Patterns displayed are consistent with audio from an EDITED MASTER. There are patterns common to recordings that have been edited present. Just after the area displayed in EXHIBIT #5, one can see the lack of the recorder STOP SIGNATURE at the end of the recorded segment.

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