Introduction

The following technical procedures apply primarily to the use of the PCAP II Forensic Audio System currently in use in the Documents and Digital Evidence Section. Detailed use of the PCAP II system is located elsewhere in this manual and should be the analysts primary guide when processing audio related evidence. Further, since current procedures utilize the AVID system in some aspects of the audio analysis, the user should refer to the Forensic Video Analysis Procedure Manual.

SWGDE

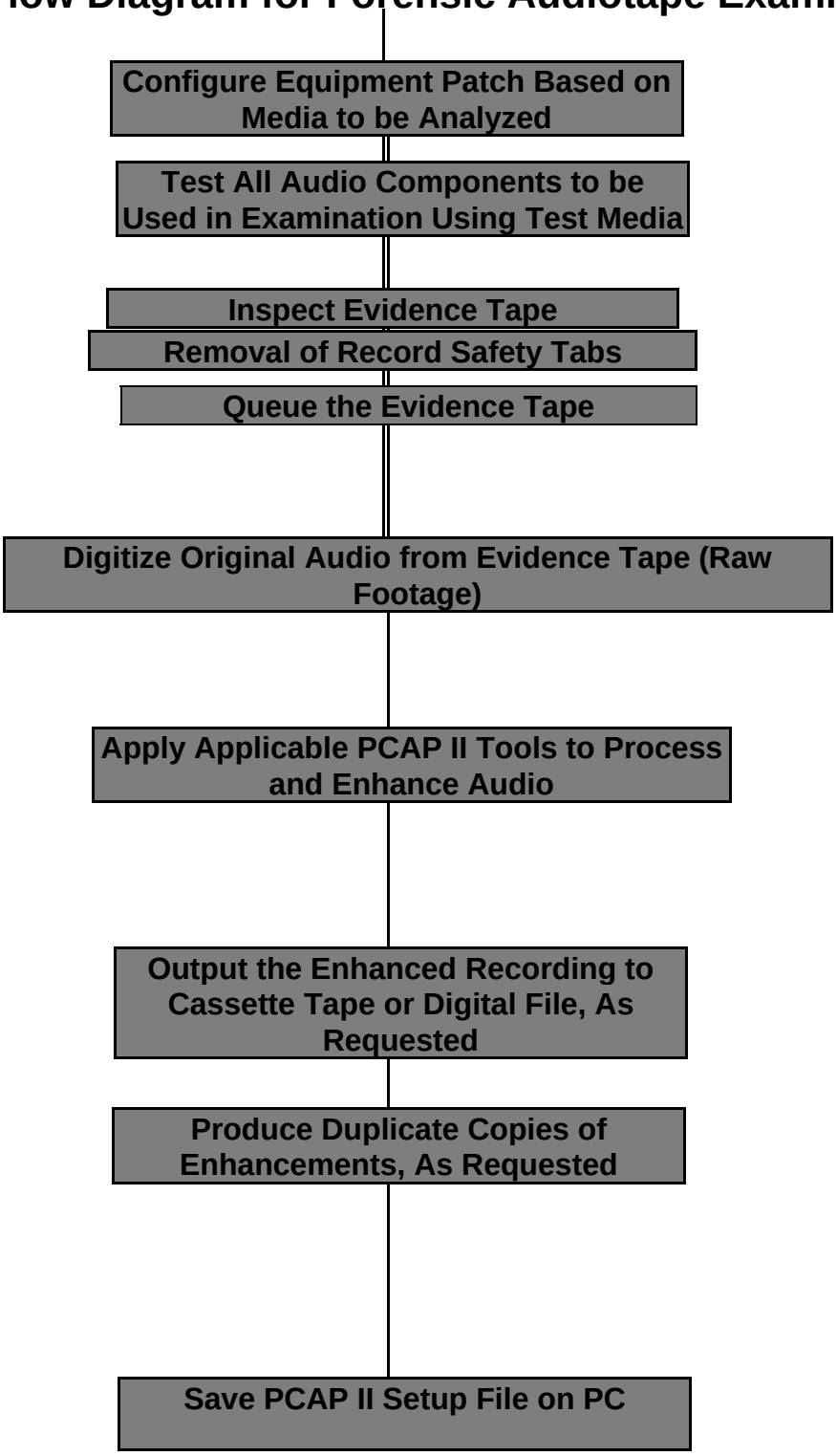
When conducting forensic video examinations, the standards developed by the Scientific Working Group on Digital Evidence (SWGDE) will be the general guide. Whenever possible and practical, these guidelines will be followed.

Appendix

Included in this document is the following appendix:

Appendix A- PCAP II Users Manual

General Flow Diagram for Forensic Audiotape Examination



Save PCAP II Settings on PC and Print for Notes

Inspection of Evidence Tape

The evidence tape should be inspected for damage. Any damage to the tape or the tape case should be noted. If the damage is significant, repairs should be undertaken; to include the replacement of the cassette case. See the Repairs section of the Video Forensics Technical Procedure manual for repairing the tape.

Record Safety Tabs

These tabs are located on either the side, end or front and back surfaces of the cassette housing, depending on the type of tape submitted. When in place, they allow the tape to be recorded to. To insure that the evidence tape is not inadvertently recorded to, these tabs must be removed (if not removed prior to the tape being submitted). The condition of these tabs and their removal should be noted. In addition, any copies made of the evidence tape should have the tab removed prior to return to the submitting agency so nothing can be added to the tape and the contents will be protected from deletion.

Special Note- When using high speed cassette duplicating equipment, the removal of cassette tape record protect tabs WILL NOT protect the tape from erasure. When using this equipment is essential that the master tape be placed in the proper slot (labeled ◘Original◘) to prevent accidental erasure.

Evaluation of the Evidence Tape

The listening to the evidence tape should be limited to an absolute minimum. Each time the tape is played, some degradation occurs. Generally, the entire tape should be digitized as outlined below, unless otherwise instructed by the submitting officer.

Digitizing the Evidence Tape

Prior to the digitizing of the evidence tape the analyst will need to open AVID and establish a new project. The name of the project should consist of the Laboratory Case Number. Within the project folder, a new bin should be created. This bin can also consist of the Laboratory Case Number or Item number. This bin will hold the various work files that are created as the case is being processed.

When digitizing an evidence tape, make sure that the digitize tool is setup correctly. The video can be de-selected, but select both audio channels. To digitize, play the tape through the appropriate play deck in the audio rack. Play a short segment and adjust the audio levels using the AVID audio tool. Re-queue the tape and press the record button on the digitize tool. The digitize process is halted when the audio has been captured in it◘s entirety. Once the clip is created, it should be named. The name can be ◘raw

footage□ or □original audio□. All of the analysis conducted and effects created will be based on this clip.

Once the digitization process is complete, it should not be necessary to conduct any additional analysis on the submitted tape again. The submitted tape can be secured in the evidence locker and returned to the submitting agency when the case is complete.

The digitized clip can now be played by double clicking on the file. This will play the clip through the AVID□s audio system.

Enhancement Process

The enhancement process will be based on the quality and conditions under which the original tape was recorded. Before listening to the audio clip, the output of the AVID should be patched to the input of the PCAP II. While listening to the audio clip, the various filters that are a part of the PCAP II system will be employed. Refer to Appendix A for specific instructions on the best use of the available filters for the conditions that exist on the evidence tape.

Recording to Cassette Tape

Once the filters are set for the best results, the final enhanced version can be recorded back to cassette tape. Be sure that the output of the PCAP II system is patched to the input of the record deck. Place a blank tape of the proper length in the record deck. Press [record] and [pause] then play a short segment of the audio clip to check for appropriate record levels. Once the levels are set, record the entire enhanced audio out to the cassette tape.

Exporting a Digital Audio File

Using AVID, an audio clip can be exported as a wave file so it can be written to a music CD format. Having the audio on a CD rather than tape may be beneficial in some investigations. The analyst should communicate with the requesting officer in these cases.

To export an audio clip as a wave file use AVID□s export tool. Set up the tool using the following settings: audio, mono, wave format and a sample rate of 44.1 khz. The resulting file (or files) can then be recorded to CD using the CD Creator software.

Producing Duplicate Cassette Tapes

Many times it will be necessary to produce duplicate tapes of an original submitted tape or duplicate copies of a recording that was enhanced. The Telex ACC 4000 cassette

duplicator is available and can copy at high speed, three tapes at a time. **Note the warning listed elsewhere in this manual about the correct placement of the master tape in the duplicator.**

When duplicate tapes are produced using the duplicator, they must be stamped as ◘COPY◘ to differentiate them from the original tape or the original enhanced tape that was produced.

LIMS

All evidence such as duplicates, enhanced copies, CD◘s, etc. produced during the audio analysis will be entered in LIMS with an item number or sub-item number and will be tracked through LIMS for chain of custody purposes.