

**Purpose:**

The methods and procedures presented in this outline address the areas which should be focused upon to assist the examiner in the proper examination and processing of video, digital and multimedia related evidence. The examination pathway followed by the examiner to achieve proper evidentiary results is further augmented and directed by the General Laboratory Standard Operating Procedures and the appropriate technical references maintained within the Multimedia and Image Enhancement Section.

**Responsibility:**

Forensic Science Examiners assigned to the Section

**Procedure:**

The following outline should be used for all persons newly assigned to the Multimedia and Image Enhancement section:

~~1. Introduction to the Laboratory~~

~~Upon completion, the examiner will be familiar with the forensic laboratory's daily operation,  
Justice Trax/LIMS system and individual responsibilities~~

~~1. Orientation to the Laboratory facility and personnel~~

~~2. Instruction of the organizational structure, code of ethics and chain of command~~

~~3. Security and confidentiality requirements~~

~~4. Introduction to quality control and quality assurance that includes required documentation~~

~~5. Safety procedures—chemical and biohazard, incident reports, fire/emergency procedures as  
indicated in GL-2.~~

~~2. Evidence Handling~~

~~Upon completion, the examiner will be familiar with handling of evidence, documentation of  
evidence and processing of evidence in the Justice Trax/LIMS system.~~

~~1. To handle evidence in a manner appropriate for the Section and to preserve evidence that may be analyzed by other sections of the Laboratory.~~

~~2. To learn the operation of the LIMS (Laboratory Information Management System), item assignment and the maintenance of chain of evidence for submissions and items.~~

~~3. To demonstrate proficiency in the basic tasks necessary to complete evidence transfer functions and create a chain of evidence.~~

~~3. Applied Technical Knowledge (Video/Audio)~~

~~Upon completion, the examiner will have the technical knowledge of the fundamentals of Video/Digital evidence.~~

~~1. Exhibits an understanding of how analog and digital video is recorded~~

~~2. Exhibits an understanding on properly protecting video evidence from erasure or damage~~

~~3. Exhibits an understanding of the various types of surveillance systems and their operation including: switcher, quad and multiplexed recording systems~~

~~4. Exhibits an understanding of proprietary software/systems and how to overcome the limitations of these systems.~~

~~5. Exhibits the knowledge and ability to overcome for the following: time lapse, motion blur, underexposure, double exposure and poor audio~~

~~6. Exhibits an understanding of the difference between fields, frames, interlaced video and progressive scanning~~

~~7. Understands the difference between linear and non-linear editing~~

~~8. Exhibits an understanding of the various Video/Digital and Audio Enhancement systems/software in the multimedia field.~~

~~9. Exhibits a working knowledge of the use and basic repair of video (VHS, Hi 8mm, digital 8mm) cassette recorders/players, digital video recorders/players, audio cassette recorders/players.~~

~~10. Exhibits a working knowledge of the wiring/connections between monitors, player/recorders, computers and other applicable devices.~~

~~4. Applied Technical Knowledge (Image Enhancement)~~

~~1. Exhibits an understanding of exposure techniques and values and the use of filtering techniques~~

~~2. Exhibits an understanding of digital photography, compression rates and file formats~~

~~3. Exhibits an understanding of the various photo editing/enhancement software packages available including, but not limited to: Adobe Photoshop, CorelDraw, Lucis Pro~~

~~4. Exhibits a basic understanding of the various types of photographic techniques such as (but not limited to) IR, UV, time-lapse, existing light, oblique lighting, painting with light and their proper application.~~

~~5. Exhibits working knowledge of the various types of printing hardware available and its proper use. Equipment knowledge of use includes: inkjet, laser, dye-sublimation and the Nortis QSS-3211/QSS-3501 RA-4 printers.~~

~~5. Applied Technical Knowledge (Forensic Photography and Image Processing)~~

~~1. Exhibits an understanding of photographic principles and the various types of photographic media (film and digital)~~

~~2. Exhibits an understanding of exposure techniques and values and the use of filtering techniques~~

~~3. Exhibits an understanding of digital photography, compression rates and file formats~~

~~4. Exhibits an understanding of the various types of photography including but not limited to Crime Scene, Aerial, Public Relations, Surveillance, and Evidence~~

~~5. Exhibits a basic understanding of the various types of photographic techniques such as (but not limited to) IR, UV, time-lapse, existing light, oblique lighting, painting with light and their proper application~~

~~6. Exhibits knowledge of use with the various types of printing hardware available and its proper use. Equipment knowledge of use includes: inkjet, laser, and the Nortis~~

~~QSS 3211/QSS 3501 and RA-4 printers.~~

~~7. Exhibits an understanding of the Microsoft Access computer database and image filing system~~

~~6. Report Writing~~

~~1. To assure that the examiner understands and utilizes the laboratory protocols established for report writing, technical and administrative review and LIMS procedures for completion of a case. (Refer to SOP-GL-18)~~

~~2. Demonstrate proficiency in report writing, case file organization and required initials/documentation~~

~~7. Legal Issues~~

~~1. To assure that the examiner is familiar with the legal requirements for testimony in the State of Connecticut~~

~~2. The examiner will receive instruction on the following requirements and testimony related to witness qualifications, technical testimony, courtroom dress and demeanor, ethical responsibilities of the expert witnesses, court monitoring procedures and reports, presentation of evidence and rules of evidence. SOP-GL-17.~~

~~8. Retraining~~

~~In the event it is identified that an examiner has failed a proficiency or technical and administrative reviews have identified an issue in the casework, the employee shall complete a retraining and competency period as detailed in SOP-GL-14 and SOP-GL-1.~~

~~1. Overview of Laboratory~~

- ~~A. General Laboratory Tour~~
- ~~B. Safety Tour~~
- ~~C. General Laboratory SOPs~~
- ~~D. Introduction to LIMS~~
- ~~E. Introduction to Evidence Receiving~~
- ~~F. Read all Section SOPs~~

2. Forensic Photography (Refer to MMIE SOP-18, 19, 20, 21 and 22)
  - A. Background of Forensic Photography and Law Enforcement Photography
  - B. Overview of analog photography (negatives, etc.)
  - C. Evidentiary Photography
  - D. File formats (JPEG, TIFF, RAW)
  - E. Use of scales
  - F. Lighting Methods and enhancement via lighting
  - G. Producing a 1:1 image
  - H. Image processing
  - I. Storage
3. Analog Video Analysis (Refer to MMIE SOP-02, 03, 04, 05 and 07)
  - A. Overview of analog video
  - B. Types of analog video/audio
  - C. Introduction to equipment used for analog video
  - D. Repairing analog video/audio
  - E. Types of analysis of analog video
  - F. Introduction to worksheet and wording used for analog video
  - G. Sub-items and derivatives for analog video/audio
4. Digital Image Analysis (Refer to MMIE SOP-02, 03, 04, 05, 06, 08, 09, 12, 13, 14 and 28)
  - A. Overview of still images and image analysis
  - B. Different ways of acquiring/extracting still images
  - C. Methods of analysis of still images
  - D. Introduction to software programs used in analysis
  - E. Introduction to printing of images

- F. Sub-items and derivatives for image analysis
  - G. Worksheets and reports for image analysis
5. Digital Video Analysis (Refer to MMIE SOP-02, 03, 04, 06, 08, 09, 12, 14, 16, and 28)
- A. Overview of digital video, compression and codecs
  - B. Software programs used for analysis
  - C. Proper methods for video analysis
  - D. Acquiring still images and other types of analysis
  - E. Converting video to different formats
  - F. Redactions
  - G. Sub-items and derivatives for video analysis
  - H. Worksheets and reports for video analysis
6. Audio Analysis (Refer to SOP-02, 03, 04, 07, 08, 10 and 11)
- A. Overview of audio
  - B. Introduction to software programs used for analysis
  - C. Proper methods for analysis
  - D. Converting audio formats
  - E. Types of audio analysis
  - F. Redactions
  - G. Sub-items and derivatives for audio analysis
  - H. Worksheets and reports for audio analysis
7. DVR Analysis (Refer to MMIE SOP-02, 03, 04, 09 and 16)
- A. Overview of DVRs
  - B. Types of DVRs (including manufacturers, etc.)

- C. Important considerations of DVRs (overwriting, date/time, etc.)
- D. Proper methods of DVR analysis (including seizing)
- E. Photographing DVRs
- F. Navigating a DVR
- G. Export methods of DVRs (CD/DVD, USB, analog, etc.)
- H. Sub-items and derivatives for DVRs
- I. Worksheets and reports for DVRs

8. Video Retrievals (Refer to MMIE SOP-16)

- A. Taking calls/emails pertaining to retrievals
- B. Information needed from agencies
- C. Considerations of DVRs and scheduling for agencies
- D. Equipment needed
- E. Arrival at scene
- F. Documenting retrieval process while at scene
- G. DVR retrieval process
- H. Submitting to Lab as a case
- I. Sub-items and derivatives for video retrievals
- J. Worksheets and reports for video retrievals

9. Comparative Analysis (Refer to MMIE SOP-02, 03, 04, 06, 12 and 13)

- A. Overview of types of comparisons
- B. Review of image analysis
- C. Setting up a comparison
- D. Software used in comparisons
- E. Charting – Digital and Hard Copy/Poster
- F. Sub-items and derivatives for comparisons

F. Worksheets and reports

10. Court (Refer to SOP-GL-17)

- A. Qualifications and ethical responsibilities
- B. Technical Testimony
- C. Dress and Demeanor
- D. Court Monitoring Procedures
- E. Moot Court

11. Retraining

In the event it is identified that an examiner has failed a proficiency or technical and administrative reviews have identified an issue in the casework, the employee shall complete a retraining and competency period as detailed in SOP-GL-14 and SOP-GL-1.

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