

TENNESSEE BUREAU OF INVESTIGATION

Forensic Services Division



Forensic Imaging Standard Operating Procedures Imaging of Friction Ridge Detail

2. Imaging of Friction Ridge Detail

2.1. Scope

This section provides a general guideline for the imaging of items with friction ridge detail. This procedure can include photography and flatbed scanning. This section is subject to modification based on the evidence and the needs of the examiner.

2.2. Instruments and Equipment

- Camera equipment
- Tripod or monopod
- Digital technology or silver based film
- Lighting equipment (i.e. photographic lights, flash, tungsten, fluorescent, flashlight, ambient, sunlight, RUVIS, ALS)
- Scale
- Contrast or color filters
- Flatbed scanner
- Computer system
- Imaging software
- Digital printer
- High quality printing paper
- Storage media (i.e. flash cards, CD/DVD, thumb drive, hard drive)

2.3. Evidence Types

Examples of Evidence may include paper items, plastics, glass, metal or latent lifts. Evidence can be imaged at any point during a Forensic Scientist's request.

2.4. Procedural and Chemical Precautions

Due to the fact that lights can become very hot and could melt or burn evidence, extra care should be taken when leaving lights on for an extended time period.

RUVIS and ALS lighting emit light waves that may be harmful to human eyes and skin. Therefore, proper eye protection should be utilized when using these types of lighting.

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If a flatbed scanner is used to scan biohazardous or soiled evidence the scanner should be cleaned afterwards with a 10% bleach solution to avoid contamination of future evidence.

2.5. Imaging Procedure

2.5.1. Lighting

The Latent Print Examiner or Forensic Imaging Specialist will determine which type of lighting will be used. Depending on the characteristics and surface, a variety of lighting types are available for capturing the best image. Examples of lighting methods used include:

- 45 degree lighting
- Reflector
- Spot
- Fiber optic
- Dark Field
- Light Field
- Transillumination
- Axial
- Spectral Highlight
- Reflected or Bounce
- Ambient
- Side or Oblique
- ALS
- RUVIS

2.5.2. Photographing Evidence

Items of evidence will be photographed using either a RAW format or a suitable high quality resolution. Whenever possible, the camera should be mounted on a sturdy tripod or monopod to prevent excess camera movement. To record proper detail, place the camera close to the subject and adjust the size of the image to fill the viewfinder. The image plane should be centered over and parallel to the scale (see 2.5.5 of this section for scale placement) and the area being recorded. A photograph is then taken, evaluated and adjustments are made as necessary. These steps will be repeated until a suitable image is recorded.

2.5.3. Scanning Evidence

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Evidence is placed on the scanner and a preview scan of the image is obtained. The image is then cropped as necessary. The image is then captured for optimum quality at a minimum resolution of 1000ppi. The image will then be evaluated and adjustments made as necessary. These steps will be repeated until a suitable image is recorded.

2.5.4. Labeling the area to be recorded

Specific areas to be imaged should be marked by the requesting examiner. The requesting examiner must also include the unique laboratory number and his or her initials near the marked area.

- 2.5.4.1. In the event the examiner determines labeling the evidence could be destructive, it is permitted that the examiner not mark the evidence prior to imaging.

2.5.5. Placement of the Scale

The use of a scale, such as a ruler, is necessary in digital photography for converting an image to 1:1 and should be visible in the image. The scale must be placed in the same plane as the detail that is being recorded, insofar as possible, in order to perform a proper conversion. A scale is not necessary in an image made with a flatbed scanner as the scanner is capable of scanning at a desired number of pixels per inch.

2.6. Reference Materials

SWGIT Manual (SWGIT Version 3.3 2010.6.11 Section 8) for a set of guidelines in photographing latent prints.

SWGIT Manual (SWGIT Version 3.3 2010.6.11 Section 19) for information on compression of images.