
Technical Procedure for Inherent Luminescence Examinations

1.0 Purpose - This procedure describes how to examine evidence for inherent luminescence of latent prints.

2.0 Scope - This procedure applies to all evidence that is examined for inherent luminescence. Palmar sweat contains a variety of compounds such as amino acids, lipids, and riboflavin. Some of these compounds may fluoresce naturally when exposed to a laser or an alternate light source. In addition, other compounds such as paint residue, certain inks, makeups and some body fluids will fluoresce under the appropriate light sources.

3.0 Definitions - N/A

4.0 Equipment, Materials and Reagents

4.1 Equipment and Materials

- CrimeScope
- Mini-CrimeScope
- Coherent TracER Laser
- Camera equipment
- Filter goggles (red/orange/yellow)

4.2 Reagents

- N/A

5.0 Procedure

5.1 Items of evidence shall be subjected to the laser and/or alternate light source prior to using processing techniques to detect any inherent latent impressions and to reveal the color and the intensity of any background fluorescence. The background fluorescence will allow the Forensic Scientist to determine which fluorescent dye will be appropriate to use in the sequence of processing evidence.

5.2 Examination of Evidence

- 5.2.1** While wearing goggles, scan the item of evidence with the light source (follow the technical procedure for the particular light source that is used). A strong hand held magnifier may be used to enhance visualization of the latent impressions.
- 5.2.2** The Forensic Scientist shall view the evidence under available light sources to detect latent impressions which may fluoresce inherently. Various wavelengths shall be used on items of evidence as certain substances fluoresce under different wavelengths.
- 5.2.3** If a latent impression is detected, immediately note the location and direct the light source away from the area.
- 5.2.4** Position the area of interest under the camera and place the appropriate filter over the lens of the camera (see technical procedure for the camera used).
- 5.2.5** Direct the light source over the area to be photographed and begin photography.

5.2.6 After each photograph is taken, direct the light source away from the impression to avoid destruction of the area or surface. Prolonged exposure to the beam may cause the latent impression to photo-degrade over a short period of time until eventually the impression disappears.

5.2.7 After the impression is photographed, further image enhancement techniques shall be applied to enhance or develop additional impressions (see Section Technical Procedure for Image Processing).

5.3 Standards and Controls - N/A

5.4 Calibration - N/A

5.5 Sampling - N/A

5.6 Calculations - N/A

5.7 Uncertainty of Measurement - N/A

6.0 Limitations - N/A

7.0 Safety - Eye protection shall be worn when a laser and/or alternate light source is being used. This applies to any other individual who may be in the same room or area. This is particularly important when examining reflective surfaces as the light source may be reflected and result in eye damage.

7.1 Never look directly into any light source as this will cause eye damage.

7.2 Do not expose the light source to the skin; it will not immediately cause harm, but may have long term effects with prolonged exposure.

8.0 References

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9.0 Records - N/A

10.0 Attachments - N/A

Revision History		
Effective Date	Version Number	Reason
09/17/2012	1	Original Document
10/31/2013	2	Added issuing authority to header
04/07/2017	3	Header Update – Removed Digital reference.
02/01/2019	4	4.1: Listed out alternate light sources; corrected spelling of TracER; removed UV light source and UltraLite ALS 5.2.6: changed "photo-degenerate" to "photo-degrade" Updated issuing authority