 <p style="text-align: center;"><b>Latent Procedure</b>  <b>Pitt County Sheriff's Office Forensics Services Unit</b>  <i>Issued by Technical Leader</i></p>	<b>Effective Date:</b> 2018/04/01	<b>Ver:</b> <b>2</b>
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<b>Procedure for Visual and Inherent Luminescence Examinations</b>		

### **Technical Procedure for Visual and Inherent Luminescence Examinations**

**1.0 Purpose** - This procedure outlines how to examine evidence for visible (patent) and Inherent Luminescence.

**2.0 Scope** - This procedure applies to all evidence that is examined for visible and 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 be visible under ambient light lighting, directional lighting or fluoresce under the appropriate light sources.

**3.0 Definitions –**

- **(ALS)Alternate light source:** Any of the multiple forensic light sources readily available in the Digital/Latent Evidence Section including, but not limited to, the CrimeScope, Mini Blue Maxx, Short and Long Wave lamps and Handscope Xenon (spex) ALS. ALS (Alternate Light Source) Equipment used to produce light at various wavelengths to enhance or visualize potential items of evidence.
- **Ambient light:** Light that is readily available in the office environment (i.e., natural light or light that emanates from an office lighting source).

**4.0 Equipment, Materials and Reagents**

**4.1 Equipment and Materials**

- Crime Scope alternate light source
- Mini Blue Max
- Shortwave and Longwave UV Lamp
- Camera equipment
- Filter goggles/plates (red/orange/yellow)
- Image processing systems/(UIS)
- Hand Scope Xenon(spex)

**4.2 Reagents - N/A**

**5.0 Procedure**

**5.1** Items of evidence shall be examined completely by ambient and directional lighting. The evidence shall also be subjected to an alternate light source or laser prior to using processing techniques to detect any inherent patent or latent impressions and to reveal the color and the intensity of any background fluorescence. The background fluorescence will allow the Examiner to determine which fluorescent dye will be appropriate to use in the sequence of processing evidence.

**5.2 Examination of Evidence**



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- 5.2.1 Scan the item of evidence with ambient light/directional lighting and the light source (follow manufacturer user instructions for the particular light source that is used). A strong hand held magnifier or other optical assistance tool may be used to enhance visualization of the latent impressions.
- 5.2.2 The Examiner 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 in accordance with the technical procedure for Latent Evidence Image Processing.
- 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-degenerate over a short period of time until eventually the impression disappears.
- 5.2.7 After the impression is photographed, further image enhancement techniques may 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** – Prolonged exposure to some sources of light may diminish the visualization of a latent impression.

**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

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reflective surfaces as the light source may be reflected and result in eye damage. Never look directly into any light source as this will cause eye damage.

**7.1** 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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