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## **Procedure for the Use of an Alternate Light Source**

- 1.0 Purpose** - This procedure specifies the methods for using an alternate light source in forensic casework to observe body fluids.
- 2.0 Scope** - This procedure applies to those Forensic Scientists who have been released to use an alternate light source in forensic casework.
- 3.0 Definitions** – Alternate Light source (ALS) – an instrument that uses wavelengths of light that are not visible to the naked eye to enhance potential stains on evidence.
- 4.0 Equipment, Materials and Reagents**
- Crime-Lite 82S, Blue 420nm-470 nm, Blue-green 445 nm-510 nm and Crime-Lite 82S IR or equivalent light
  - Surface Pro Tablet or equivalent (for the Crime-Lite IR)
  - Goggles (Orange OG 550 AG or Yellow GG 495 AG or equivalent)
  - Permanent marker

## **5.0 Procedure**

**5.1** The evidence shall be viewed with the ALS under normal lighting.

**5.1.1** The blue and blue-green ALS lights may be used to examine articles with suspected semen and/or saliva stains.

**5.1.2** The Infrared (IR) light may be used to visualize dark and/or patterned clothes for potential bloodstains.

## **5.2 Visualizing Stains with Blue and Blue Green Lights**

**5.2.1** Put on the applicable goggles for visualizing stains using the blue and blue green ALS lights.

**5.2.1.1** The yellow goggles shall be used with the blue light (420nm – 470 nm).

**5.2.1.2** The orange goggles shall be used with the blue-green light (445nm – 510nm).

**5.2.2** Power on the ALS.

**5.2.3** Scan the evidence using the ALS. The optimal light can depend on the surface material and the stain itself. The blue and blue-green lights can be interchanged to best visualize the stain.

**5.2.4** Mark the areas that fluoresce with a permanent marker according to the Forensic Biology Section Procedure for Semen and Sperm Analysis.

**5.2.5** When the analysis is complete, turn off the light and remove goggles. Clean the goggles by wiping with alcohol.

### 5.3 Visualizing Stains with (IR) Light

- 5.3.1 The tablet computer will be needed to visualize stains using the IR light.
- 5.3.2 Power on the ALS.
- 5.3.3 Turn on the tablet and open the software for use with the IR light
- 5.3.4 Scan the evidence using the ALS. The optimal light can depend on the surface material and the stain itself.
- 5.3.5 Mark the areas that absorb light with a permanent marker.
- 5.3.6 When the analysis is complete, turn off the light and tablet after closing the software.

### 5.4 Reporting Guidelines

- 5.4.1 This phrase shall be used when only a visual examination is performed for semen and/or saliva, no stains of interest are observed, and no chemical analysis is performed.

A visual examination (with an alternate light source, if used) of \_\_\_\_\_ (Item(s) \_\_\_\_\_) failed to reveal the presence of semen like and/or saliva like stains.

- 5.4.2 This phrase shall be used when a visual examination is performed using an ALS for semen, no stains of interest are observed, and chemical analysis is performed.

A visual examination with an alternate light source of \_\_\_\_\_ (Item(s) \_\_\_\_\_) failed to reveal the presence of semen like stains; however, sample(s) were taken for further analysis.

- 5.4.3 This phrase shall be used when only a visual examination is performed for semen and stains of interest are observed; however, no further chemical analysis is performed.

A visual examination (with an alternate light source, if used) of \_\_\_\_\_ (Item(s) \_\_\_\_\_) revealed areas of interest; however, no further chemical analysis was performed.

- 5.4.4 This phrase will be used when a visual examination with the alternate light source causes the entire item to fluoresce due to interference from the substrate.

A visual examination with an alternate light source of \_\_\_\_\_ (Item(s) \_\_\_\_\_) was performed. Due to possible interference of the substrate, no interpretable results were obtained.

- 5.5 **Standards and Controls** – Prior to using an alternate light source a quality control check shall be performed and the results recorded.

- 5.5.1 Blue and Blue-green lights – The ALS shall be checked using both a swatch of cloth with a known semen stain and a swatch of cloth with no stain to verify fluorescence.

- 5.5.2 IR light – The ALS shall be checked on a both a swatch of dark cloth (black or similar) with a known blood stain and a swatch of dark cloth with no blood stain to verify absorption.

**5.6 Calibration – N/A**

**5.7 Maintenance – N/A**

**5.8 Sampling** – No sampling is performed using this procedure. Areas that were marked with a permanent marker during the examination may be further evaluated by additional body fluid testing.

**5.9 Calculations - NA**

**5.10 Uncertainty of Measurement – N/A**

**6.0 Limitations** – Many items/ substances other than body fluids will fluoresce/absorb light using the ALS.

**7.0 Safety** – Protective goggles shall be worn when operating the ALS with the blue and blue green lights.

**8.0 References**

Crime-Lite 82S manual

**9.0 Records – N/A**

**10.0 Attachments - N/A**

Revision History		
Effective Date	Version Number	Reason
04/06/2016	1	Original Document
11/02/2017	2	Add like to reporting guideline for 5.4.2. Add reporting statement for interference from substrate
01/25/2019	3	5.5 add ALS QC check