

Section I	Spectrum 9000 Alternate Light Source	Subsection 4
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Name of Procedure:

Spectrum 9000 Alternate Light Source

Suggested Uses:

This procedure is used to examine items of evidence for the presence of latent fingerprints, palmprints, footprints, impressions, footprints and footwear impressions. The Spectrum 9000 Alternate Light Source will often be a useful tool in discovering latent impressions which have compounds or residues which will fluoresce under the influence of a directed light. The use of laser dyes and other processing techniques in conjunction with the light source can be one of the most successful means of developing latent impressions on items of evidence. The Spectrum 9000 will also detect serological and trace evidence which may not be visible to the naked eye.

Equipment Needed to Perform Procedures:

A - Spectrum 9000 Alternate Light Source

B- Camera Equipment

Chemicals Needed For Preparation of Chemical Solution(s):

Not Applicable

Formula/Directions for Preparation of Chemical Solution(s):

Not Applicable

Processing Procedures for Application to Item(s) of Evidence:

Items of evidence should be subjected to the light source prior to applying processing techniques in an attempt to detect any latent impressions. Numerous other processing techniques should be utilized and the Spectrum 9000 used where applicable to develop and photograph any latent impressions. The use of florescent dyes has been found to be one of the most effective ways of developing latent impressions and should be utilized to develop latent impressions as often as possible.

Start Up Procedures:

The Spectrum 9000 system should be used only in a laboratory setting and all setups should be in place when the system is needed.

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1. Turn the power rocker marked "Line" to the "on" position. This will activate the fan system of the unit (the fan sound will be evident in a few seconds).
2. Allow the fan system to run for a few minutes prior to continuing.
3. Turn the power rocker marked "Lamp" to the "on" position. This will activate the lamp switch and in a few second the system will activate.

Shut Down Procedures:

1. Turn power rocker for the "Lamp" to the "off" position.
2. Allow the unit to cool with the fan on for approximately ten (10) to fifteen (15) minutes.
3. After the unit has cooled, turn the "Line" rocker switch to the "off" position.

Wavelength and Filter Selections:

1. To select a particular wavelength, turn the knob marked "Select."
2. The system has a variety of wavelengths. The one in use will be designated with an indicator light on the left side of the unit's front panel.
3. Wavelength and Filter selections may be attempted on various surfaces to determine which is the most appropriate (See Appendix A for further operating instructions).

Note: For lamp replacement and general maintenance consult the manufacturers operating manual or Appendix B).

Examination of Evidence:

1. Wearing safety goggles with the appropriate filter, scan the item of evidence with the light beam (a strong hand held magnifier may be utilized to enhance visualization of the latent impressions).
2. If a latent impression is noted, immediately note the location and direct the light

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beam away from the area.

3. Place the area noted under the appropriate camera and place the laser filter over the lens of the camera.
4. Direct the light beam over the area to be photographed and begin photography (a number of photographs may be taken at various times and F-stops to record the latent impression).
5. After each photograph is taken it is advisable to direct the light beam away from the impression to avoid destruction of the area or surface (Prolonged exposure to the beam will cause the latent impression to photo degenerate over a short period of time until eventually the impression may disappear.)

Steps to Preserve Developed Impressions:

The most appropriate methods of preserving developed impressions is through photography, using the appropriate techniques (See Photographic Equipment/Procedures), and electronic recording (See Image Processing). The utilization of a 35 mm, 2 1/4, MP-4, or CU5 camera will suffice for developed impressions prints; however, all impressions must be photographed using a laser filter to be recorded on the film.

Negatives produced from Polaroid film are the most effective manner to accurately reproduce the developed impressions (See Photographs/Negatives Preservation).

Safety Concerns:

Never look directly into the light beam as this may cause eye damage.

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

Eye protection should be worn at all times and this includes any other individual(s) who may also be in the same room or area. This is particularly important when examining reflective surfaces as the beam may be reflected and result in eye damage.

Storage and Location of Chemicals and Solutions:

Not Applicable

Shelf Life:

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Not Applicable

Other Information:

The alternate light source should always be used as one of the first steps in analyzing items of evidence. This will serve to detect any inherent latent impressions and to show the color and the intensity of the surface's background. This will allow the analyst to determine which florescent dye will be appropriate to use in the sequence of processing evidence.

The Spectrum 9000 should be utilized only in the laboratory.