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Latent Evidence Section
Technical Procedure for Image Processing

1.0 Purpose - This procedure outlines how to use the (Image Processing Systems) IPS available to Latent Evidence Section.

2.0 Scope - This procedure applies to the capturing, storing, processing and printing of digital Image/ Latent Images.

3.0 Definitions

- **Image -** Digital information imported into the IPS.
- **Master Case File –** All-encompassing documentation stored in RMS, image/data drives and hard case file for case documents, images, charts and supportive data cross referenced by master case number.

4.0 Equipment, Materials and Reagents

    4.1 Equipment and Materials

- Image processing computers
- Image and text printers
- Flatbed scanner
- Digital camera
- Associated hardware
- Live digital camera
- CSIpix Software
- Photoshop
- UIS Spex
- Imaquest
- ALS (Alternate Light Sources)

    4.2 Reagents - N/A

5.0 Procedure

    5.1 Sign On/Sign Off Computer Terminal

        5.1.1 Turn on the computer to be used.

        5.1.2 Log on with user name and unique issued password.

        5.1.3 All Work shall be saved in accordance with the procedure for Recording of All Analytical Data.

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5.2 Acquiring Image

5.2.1 Select the location from which to import (scanner, camera folder, etc.). You may also use the toolbar of CSIpix, Imaquest or Photoshop to select the source.

5.2.2 Import or capture image. Save original/primary image in accordance with technical procedure for Recording of All Analytical Data. Open saved image in selected software to be used.

5.2.3 Photoshop, Imaquest and CSIpix Software track and record all applications to the selected image. The Examiner shall ensure that documentation is recorded. (Do Not Flatten Photoshop Images without saving a copy with notation of "Enhanced").

5.2.4 All images processed shall be documented in accordance with technical procedure for Recording of All Analytical Data. All enhancements must be saved.

5.2.5 Add the processing information for each image (e.g., filters used, lighting, etc.) in case notes. Image process tracking obtained from selected processing software shall be retained in master case file in digital/or printed format.

5.3 Calibrating/Zooming/Rotating/enhancing Images in CSIpix or Adobe Photoshop

5.3.1 Open either CSIpix, Imaquest or Photoshop by clicking on the appropriate ICON.

5.3.2 Import the Image and follow the program manuals to calibrate if necessary, compare, enhance or compose Charts.

5.4 Image Enhancement

5.4.1 Load or open image in selected software.

5.4.2 If the image(s) is open in Photoshop, enhance the image(s) using Photoshop tools. Each image is unique and the analyst shall determine the best processing based on training and experience. It is recommended to begin with the color channel selection. Convert the image to Grayscale prior to using tools such as Burn/Dodge, Shadow/Highlight and Levels.

5.4.3 If the image(s) is opened in CSIpix or Imaquest enhance the image(s) using each software's tools. Each image is unique and the analyst shall determine the best processing based on training and experience.

5.4.3 Save Image with nomenclature describe above with notation of enhancement in accordance with technical procedure for Recording of All Analytical Data and to the location on server Identified for that case. All enhanced images shall be saved.

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5.5 Archiving

5.5.1 All original/primary and enhanced images shall be saved and documented in accordance with the procedure for Recording of All Analytical Data.

5.5.2 Images saved shall be downloaded to CD/DVD and kept in case file.

5.7 Standards and Controls - N/A

5.8 Calibration - N/A

5.9 Sampling - N/A

5.10 Calculations - N/A

5.11 Uncertainty of Measurement - N/A

6.0 Limitations - N/A

7.0 Safety - N/A

8.0 References

Berg, E. "The Digital Future of Investigations."*Law Enforcement Technology*.(1995): 38-40.

Carrick, M. "Latent Print Color Reversal."*Journal of Forensic Identification.*Vol. 44, 1: 22-25 (1994).
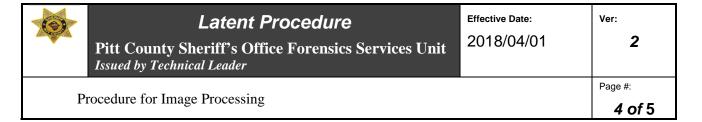
Johnson, A. and C. Pruitt. "Physical Evidence: Home Run in the Ninth Inning." *Journal of Forensic Identification.* Vol. 44, 3: 270-275 (1994).

Kaymaz, E. and S.Mitra."A Novel Approach to Fourier spectral Enhancement of Laser-Luminescent Fingerprint Images."*Journal of Forensic Sciences.*Vol. 38, 3: 530-541 (1993).

Lehar, A. F. "Image Analysis and Pattern Recognition Techniques in Fingerprints."*International Forensic Symposium on Latent Prints.*(July 1987): 61 -67.

Osborn, S. and K. Wilson."Digital Enhancement of Latent Prints using Adobe Photoshop Black & White Adjustments."*Journal of Forensic Identification*. Vol. 59, 4: 373 – 389 (2009).

Reis, G."How to Set Up Digital Imaging for the Forensic Unit."*Law Enforcement Technology*.(1996): 46-51.

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Watling, W.J. "Using the FFT in Forensic Digital Image Enhancement."*Journal of Forensic Identification.*Vol. 43, 6: 573- 584(December 1993).

Watling, W.J. "Using Color in Forensic Digital Image Enhancement."*Journal of Forensic Identification.* Vol. 44, 4: 357-363 (1994).

9.0   Records - N/A

10.0   Attachments - N/A

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REVISION HISTORY		
CURRENT VERSION	**EFFECTIVE DATE**	**SUMMARY OF CHANGES**
1	2016/07/01	Original Version
2	2018/04/01	Added references to appropriate procedure. Removed text that explained procedure not pertinent to this procedure. Added some material used. Change Revision History table. Issue Date to Effective Date, Rev# to Ver#. Added text to include all available means and systems to accomplish Image processing