C7 Effects of Latent Print Processing on Evidence Prior to Digital Evidence Examination

Charlotte W. Ware, MSFS, PO Box 3000, Charlotte, NC 28228; Angela R. Pratt, MFS, US Postal Inspection Service, National Forensic Laboratory, 22433 Randolph Drive, Dulles, VA 20104; and Anna R. Fridley, MFS, US Postal Inspection Service, National Forensic Laboratory, 22433 Randolph Drive, Dulles, VA 20104*

The goal of this presentation is to provide attendees with an understanding of the effect of latent print processing of evidentiary items that will subsequently undergo digital evidence examination.

This presentation will impact the forensic science community by providing information that will assist laboratories in determining the proper order of examination when evidence items are received that will undergo both latent print processing and digital evidence examination. If latent print processing is found to interfere with successful digital evidence examination, the digital examination will have to be performed prior to the latent print processing.

An increasing number of evidence items are being submitted to forensic laboratories in which both latent fingerprint examinations and digital evidence examinations are requested. During one of these recent submissions in the forensic laboratory, the question arose as to whether latent print processing should occur before the digital evidence examination in order to preserve any possible latent prints deposited on the evidentiary items or if the latent print processing would impede the ability to retrieve digital evidence from the items when they were examined subsequent to the processing. When items of digital evidence are examined, they are required to be powered on or energized in some way, utilizing the delicate electronic connections within the items. It is theorized that these delicate connections could be affected by the chemicals and process that are encountered when they are processed for latent prints, using cyanoacrylate fuming and subsequent dye staining processes.

In order to get a sampling consistent with the different types of items that could be submitted for digital evidence examination, the research included Universal Serial Bus (USB) flash memory drives of different sizes, media cards of different sizes, optical media including compact discs and Digital Video Discs (DVDs), and bare internal hard drives. Each evidence item contained data and a hash value was obtained for each item before any processing was performed. The items were then processed with cyanoacrylate fuming and subsequently a hash value was obtained for each item again. They were then processed with a dye staining process. After the dye stain, a hash value of each item was obtained again. The hash values of the item before any processing, after cyanoacrylate fuming, and after fuming and dye staining will be compared. The effects of the processing will be discussed, including the numbers of successful hash value comparisons that were able to be made at the conclusion of testing.

Digital Evidence Examination, Latent Print Processing, Evidence Processing Order