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## ***STANDARD FOR FRICTION RIDGE AUTOMATION TRAINING (LATENT/TENPRINT)***

(To Replace: Friction Ridge Automation Training Guidelines, ver. 1.1)

### **Preamble**

Prior to automation training, friction ridge examiners must possess knowledge, skills and the ability to recognize identifiable friction ridge detail.

This standard addresses the minimum training required for examiners working with friction ridge automation technology. Examiners shall receive training that provides the necessary skills and ability to operate friction ridge automation technology. The examiner must demonstrate knowledge of required objectives by passing written tests and/or practical exercises, and by communicating an understanding of the objectives and underlying principles.

The required learning objectives are:

### **1 History of Automation Technology and Theory of Operation**

This section details the history of AFIS technology and the theory upon which that technology is based.

**1.1** History of the development of friction ridge automation technology.

**1.2** Theory of operation of friction ridge automation technology.

**1.2.1** Distortion that may occur when three dimensional friction ridge skin is captured as a two dimensional image.

### **2 Image Capture**

This section details the function and use of Livescan, card scan, and import/export technology.

**2.1** Types of friction ridge recordings (e.g., rolled, flat, simultaneous and palm impressions).

**2.2** Methods of friction ridge capture (e.g., ink, Livescan).

**2.3** Types of capture devices (e.g., Livescan, flatbed, camera).

**2.4** Point of capture variables (e.g., condition of fingers, condition of platen, rolling speed and movement).

**2.5** Control measures needed to achieve quality friction ridge images (e.g., scan resolution, compression rate, equipment maintenance and calibration).

**2.6** Procedures for addressing amputations, temporary injuries, skin conditions and rescans.

**2.7** Individual agency Livescan operator training policies.

### **3 Automated Fingerprint Identification System (AFIS)**

This section details the function and use of AFIS. The term AFIS as used herein includes automated systems for any friction ridge area.

**3.1** AFIS processes related to acquisition, classification, searching, storage, retrieval, identification and final reporting of friction ridge records.

**3.2** Friction ridge search criteria (e.g., designated finger search, how many fingers, palm areas).

**3.3** Importance that quality assurance has on maintaining the integrity of friction ridge data.

**3.4** Quality controls, which ensure completeness, image quality and data integrity.

**3.5** Individual agency's system and component maintenance and calibration policies.

**3.6** System requirements and limitations including text data fields, finger or palm print (image) quality, finger sequence and image replacement, image rotation, and tolerance for pattern interpretation.

**3.7** Minutiae recognition, placement, rotation, ridge counts and other minutiae factors related to searching and matching.

**3.8** Limitations of system interoperability.

**3.9** Integration of friction ridge image, mugshot, scars, marks, tattoos, minutiae, other biometrics, as well as personal descriptors, and criminal history information.

**3.10** Search parameters, pattern classification and referencing, minutiae extraction, search algorithms, the significance of the range of candidate scores, threshold scoring, candidate list comparison and matching.

**3.11** AFIS search capabilities in regard to latent print v. tenprint, tenprint v. latent print, latent print v. latent print, tenprint v. tenprint, and palm print v. palm print.

**3.12** "Lights out" processing of searches (e.g., mobile search capabilities).

**3.13** Logical search progression (i.e., local AFIS first, then state, regional, national and international).

**3.14** Filtering criteria used to establish logical candidates (e.g., finger position, sex, classification, race, offense, geographic location, etc...).

**3.15** Search result contents (e.g., ranked order, unique identifier, finger or palm position).

**3.16** Differences between AFIS digital images and original friction ridge impressions (e.g., potential loss of quality due to compression of image, monitor resolution and capture resolution).

**3.17** Printer technology limitations versus examinations from original friction ridge documents (e.g., paper quality, inked fingerprint cards).

**3.18** AFIS processes related to latent print searches.

**3.18.1** Various search options among databases within a system (e.g., image, feature).

**3.18.2** Manual and automatic encoding of minutiae for latent print searches.

**3.18.3** File penetration benefits and liabilities of partial versus full database searches.

**3.18.4** Record authentication processes (e.g., correct association of name, unique identifier, friction ridge images and criminal history record).