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FRICITION RIDGE EXAMINATION METHODOLOGY FOR LATENT PRINT EXAMINERS

Goal

Describe a method for friction ridge examinations and the basis for conclusion.

Objectives

Establish principles by which examinations are conducted.

Establish a method for friction ridge examination.

Establish the conclusions that may result from an examination.

1 Fundamental Principles for Friction Ridge Examinations by a Latent Print Examiner, Trained to Competency [1]

1.1 The morphology of friction ridge skin is unique.

1.2 The arrangement of friction ridges is permanent barring trauma to the basal layer of the epidermis.

1.3 An impression of the unique details of friction ridge skin can be transferred during contact with a surface.

1.4 An impression that contains sufficient quality and quantity of friction ridge detail can be individualized to, or excluded from, a source.

1.5 Sufficiency is the examiner's determination that adequate unique details of the friction skin source area are revealed in the impression.

2 Levels and Uses of Friction Ridge Skin Detail for Examinations

2.1 Level 1 detail

2.1.1 Overall ridge flow

- 2.1.2 General morphology (e.g., presence of incipient ridges, overall size)
- 2.1.3 Can be used for pattern interpretation
- 2.1.4 Can be used to determine anatomical source (i.e., finger, palm, foot, and toe) and orientation
- 2.1.5 Cannot be used alone to individualize
- 2.1.6 Can be used to exclude under certain circumstances

2.2 Level 2 detail

2.2.1 Individual ridge path

2.2.1.1 Presence of ridge path deviation (e.g., ridge ending, bifurcation, and dot)

2.2.1.2 Absence of ridge path deviation (e.g., continuous ridge)

2.2.1.3 Ridge path morphology (e.g., size and shape)

2.2.2 Used in conjunction with level 1 detail to individualize

2.2.3 Used in conjunction with level 1 detail to exclude

2.3 Level 3 detail

2.3.1 Structure of individual ridges

2.3.1.1 Shape of the ridge

2.3.1.2 Relative pore position

2.3.2 Other specific friction skin morphology (i.e., secondary creases, ridge breaks, etc.)

2.3.3 Used in conjunction with level 1 and level 2 detail to individualize

2.3.4 Used in conjunction with level 1 and level 2 detail to exclude

2.4 Other features associated with friction ridge skin (e.g., creases, scars, warts, paper cuts, and blisters)

2.4.1 May be permanent or temporary

2.4.2 May exist as level 1, 2, and 3 detail

2.4.3 May be used in conjunction with friction ridge detail to individualize or exclude

3 Method of Friction Ridge Examinations

A recurring application of Analysis, Comparison, Evaluation, and Verification (ACE-V) in each of the following:

3.1 Analysis

Analysis is the assessment of a friction ridge impression to determine suitability for comparison. Factors considered include the following:

3.1.1 Quality (clarity) and quantity of detail

3.1.1.1 Level 1 detail

3.1.1.2 Level 2 detail

3.1.1.3 Level 3 detail

3.1.2 Anatomical source (i.e., finger, palm, foot, and toe)

3.1.3 Factors influencing quality include:

3.1.3.1 Residue (matrix)

3.1.3.2 Deposition

3.1.3.3 Surface (substrate)

3.1.3.4 Environment

3.1.3.5 Development medium

3.1.3.6 Preservation method

3.1.3.7 Condition of the friction skin

3.2 Comparison

Comparison is the direct or side-by-side observation of friction ridge detail to determine whether the detail in two impressions is in agreement based upon similarity, sequence, and spatial relationship.

3.3 Evaluation

Evaluation is the formulation of a conclusion based upon analysis and comparison of friction ridge impressions. Conclusions which can be reached are:

3.3.1 Individualization (Identification)

Individualization is the result of the comparison of two friction ridge impressions containing sufficient quality (clarity) and quantity of friction ridge detail in agreement.

Individualization occurs when a latent print examiner, trained to competency, determines that two friction ridge impressions originated from the same source, to the exclusion of all others [1].

3.3.2 Exclusion

Exclusion is the result of the comparison of two friction ridge impressions containing sufficient quality (clarity) and quantity of friction ridge detail which is not in agreement.

Exclusion occurs when a latent print examiner, trained to competency, determines that two friction ridge impressions originated from different sources [1].

3.3.3 Inconclusive

Inconclusive evaluation results when a latent print examiner, trained to competency, is unable to individualize or exclude the source of an impression [1].

Inconclusive evaluation results must not be construed as a statement of probability. Probable, possible or likely individualization (identification) conclusions are outside the acceptable limits of the friction ridge identification science.

3.4 Verification

Verification is the independent examination by another qualified examiner [1] resulting in the same conclusion.

3.4.1 All individualizations (identifications) must be verified.

3.4.2 Exclusion or inconclusive results may be verified.

4 References

1. SWGFAST, *Training to Competency for Latent Print Examiners*, 8/22/02, ver. 2.1.