Technical Procedure for Footwear Impression Examinations

1.0 Purpose - This procedure describes the method of comparing a questioned footwear impression to a known footwear impression and the conclusions that may be drawn as a result of the examination.

2.0 Scope - This procedure applies to items of evidence that are to be examined for the presence of footwear impressions.

3.0 Definitions

- **Class characteristics** - An intentional or unavoidable characteristic imparted to an outsole during the manufacturing process. These characteristics repeat and are shared by more than one (1) shoe. These characteristics include, size, shape, outsole design, pre-determined nail holes, and any mold characteristics that appear in more than one (1) outsole.

- **Individual characteristics** - Cuts, wear, tears, holes, randomly placed nails, and other characteristics that are imparted to an outsole as a result of general wear. These characteristics, also called accidental characteristics, are unique to a particular outsole.

- **General wear characteristics** - Change of an outsole as a result of general wear and tear acquired as an outsole interacts with the walking surface.

4.0 Equipment, Materials and Reagents

4.1 Equipment and Materials

- Known footwear and/or known footwear standards
- Ruler

4.2 Reagents - N/A

5.0 Procedure

5.1 Conduct a visual examination using the clear acetate overlay of the known footwear (footwear standard), the known footwear and the questioned impression. If the impression is of a different outsole design than the known footwear, the known footwear can be eliminated as the source of the questioned impression and the examination is complete. Correspondence of this class characteristic (outsole design) dictates that the examination continues.

5.2 The footwear standard is then placed directly over the questioned impression (cast, photograph, or lift of a hard surface footwear impression) and visually compared to determine if the size, outsole elements, and general wear characteristics correspond to the known footwear standards.

**Note:** When the questioned footwear impression is submitted as a cast, a gelatin lifter, or an electrostatic dust lift, any photographs of the impressions or the known footwear standards must be reversed in order to compensate for the lifted orientation of the evidence.

5.3 If the class and general wear characteristics correspond, an in-depth examination of the questioned footwear impression is conducted to locate any unique, identifying characteristics that may be present within the impression. The known footwear, footwear standard and questioned impression are also examined for the presence of any unique characteristics. The unique characteristics present are then compared.
5.4 The Forensic Scientist shall then determine if the unique identifying characteristics present in both the questioned footwear impression and the known footwear are significant and sufficient to effect a positive identification. Identification indicates that the questioned footwear impression was made by a particular shoe to the exclusion of all others.

Note: A lack of unique identifying characteristics or insufficient characteristic significance does not eliminate the known footwear from having made a questioned footwear impression. A conclusion of could have made will then be rendered. The Forensic Scientist shall include the following statement in the report: due to the lack of detail within the questioned footwear impression a more positive association could not be made (See Section Technical Procedure for Writing Results Statements 5.2.5).

5.5 A copy of the questioned footwear impression(s) and the known footwear standards shall be retained in the object repository.

5.6 Standards and Controls - N/A

5.7 Calibration - N/A

5.8 Sampling - N/A

5.9 Calculations - N/A

5.10 Uncertainty of Measurement - N/A

6.0 Limitations - N/A

7.0 Safety - N/A

8.0 References


Bodziak, W.J. Casting a Footwear or Tire Impression with Dental Stone. 1-3.


DeHaan, J.D. Footwear Evidence – An Update. BATF Forensic Lab.


Doller, D.W. Interpretations of Shoe and Tire Impressions at the Crime Scene. Suffolk County Crime Laboratory, 1-16.

Drexler, S.G. Test Impressions of Footwear Outsoles Using Biofoam.


Freels, R.H. Improved Test Impressions and Prints. Kentucky State Police.


German, E.R. “A Microscopic Footwear Identification on Cloth.” *Fingerprint Whorld.*


Heafner, H.J. *Demonstrative Evidence Preparation, Use and Effectiveness of Trial Exhibits for Courtroom Presentation.* 1-12.


*Plaster Casting.* Northern Illinois Police Crime Laboratory.

*Preservation and Identification of Shoe and Tire Impressions.* North Carolina State Bureau of Investigation.1-5.


Stone, R.S. *Mathematical Probabilities in Footwear Comparisons.* Albuquerque Police Department. 1-4.


Vanhoven, H. *A Correlation Between Shoeprint Measurements and Actual Sneaker Size.* Monroe County Public Safety Laboratory. 1-12.


9.0 Records - N/A

10.0 Attachments - N/A

| Revision History |
|------------------|--------|----------|
| Effective Date   | Version Number | Reason              |
| 09/17/2012       | 1       | Original Document |
| 10/31/2013       | 2       | Added issuing authority to header |
|