Technical Procedure for Path Finder Dust Mark Lifting Device

1.0 Purpose – This procedure is used in the preservation of questioned footwear impressions to use in comparison with known footwear impressions. This procedure may also be applicable for recording latent impressions.

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

3.0 Definitions – N/A

4.0 Equipment, Materials and Reagents

4.1 Equipment and Materials

- Path Finder Dusk Mark Lifting Device
- Mylar film
- Protective clothing

4.2 Reagents - N/A

5.0 Procedure

5.1 Application Procedure

5.1.1 Making lifts from surfaces which have insulating properties:

Note: Most lifts will be made from these types of surfaces (e.g., wooden window ledges, carpets, tiles, upholstery, newspapers, doors, etc.)

5.1.1.1 Place the earth plate within 50 mm (2") of the dust mark. If the mark is on a vertical surface, secure the earth plate with a piece of masking tape.

5.1.1.2 Place a sheet of Mylar film with the black side downwards on the mark, leaving a gap of at least 25 mm (1") between the earth plate and the film. If the mark is on a vertical surface, secure the film with a piece of masking tape at the top edge of the film.

5.1.1.3 While switched off (i.e., the control knob located on the top of the device is in the "OFF" position; the "Power ON" lamp should not be illuminated), place the Path Finder electrostatic lifting device onto the surface with the two earth electrodes touching the earth plate and the high voltage electrode in contact with the metallic side of the Mylar film.

5.1.1.4 Switch device on (turn the rotary control knob clockwise approximately 45E; the "Power On" knob and the green lamp should illuminate. If this fails to happen, check/replace the battery housed in the rear of the case. The red "High Voltage ON" lamp should illuminate indicating the presence of high voltage at the high voltage electrode. Should this not illuminate, ensure that the Path Finder is correctly positioned on the earth plate (i.e., the two earth electrodes are in good contact with the earth plate).

5.1.1.5 Adjust the voltage control knob clockwise and increase the voltage on the base of the Path Finder and on the Mylar film, which will visibly be attracted to the surface it is on, until the maximum electrostatic adhesion of the film is achieved. If arcing or sparks are seen,

reduce (turn control knob counterclockwise) the high voltage output. Remove any trapped air under the Mylar film using a suitably insulated roller which you shall have in hand before commencing the lift.

5.1.1.6 Remove the Path Finder from the earth plate and the film. Lifting it away from the earth plate will cause the high voltage supply to be switched off and the red "High Voltage On" lamp will be extinguished.

Warning: Although removing the Path Finder from the earth plate will cut the high voltage supply, the high voltage output electrode will remain charged for approximately 20 seconds; therefore, the Path Finder unit shall be placed in a safe position after removal from the earth plate. Switch off the Path Finder (turn the control knob fully counterclockwise to the "OFF" position). The "Power On" lamp will be extinguished.

5.1.1.7 Store the lifted impression either in a flat box (not cardboard) or folder and secure it with masking tape.

5.1.2 Making lifts from surfaces which have conductive properties:

5.1.2.1 Prior to placing the earth plate, place a polycarbonate sheet (shoe lift backing sheet) on the surface about 50 mm (2") away from the dust mark.

5.1.2.2 Place the earth plate on top of the polycarbonate sheet with the edge of the earth plate about 6 mm (0.25") away from the edge of the polycarbonate sheet.

5.1.2.3 Place the Mylar film onto the mark leaving at least a 25 mm (1") gap between the film and the edge of the earth plate.

5.1.2.4 Proceed to lift the mark as directed in **5.1.1.3** through **5.1.1.6**.

Note: Lifts should not be attempted without first insulating the earth plate. For vertical surfaces, fix the polycarbonate sheet, earth plate and Mylar film with masking tape as directed above, before positioning the device to make a lift.

5.1.2.5 Preserve the developed impression through photography with the appropriate Techniques used (see photographic equipment procedures) or by electronic recording (see Section Image Processing Procedure). See the above Processing Procedures for additional preservation information.

Note: All standards, lifts, photographs and casts created during the examination process shall be entered into FA as an item/sub-item of evidence.

5.2 Standards and Controls – N/A

5.3 Calibration – N/A

5.4 Sampling - N/A

5.5 Calculations – N/A

5.6 Uncertainty of Measurement – N/A

6.0 Limitations

6.1 Cover the unit and store in a dry area.

6.2 To prolong battery life, the battery shall be removed from the device when not in use.

7.0 Safety – Extreme caution shall be exercised when using this unit. The output from the unit is potentially lethal and the unit shall only be used after adequate training. Never use this unit in or near water. Protective clothing shall be worn when using this unit.

8.0 References

Brandenburg Manufacturers Specifications and Operations Manual. Document Part Number Acc125-000, West Midlands, DY5UT (United Kingdom).

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
04/07/2017	3	Header Update – Removed Digital reference.
02/01/2019	4	Corrected issuer in header Changed number references for measurements to be numerals only instead of spelled out throughout document