OSAC 2024-S-0021
Method for Estimating the Angle of Impact of Spatter Stains

Bloodstain Pattern Analysis Subcommittee
Physics/Pattern Interpretation Scientific Area Committee (SAC)
Organization of Scientific Area Committees (OSAC) for Forensic Science

OSAC Proposed Standard

DRAFT OSAC 2024-S-0021 Method for Estimating the Angle of Impact of Spatter Stains

Prepared by
Bloodstain Pattern Analysis Subcommittee
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Table of Contents

Method for Estimating the Angle of Impact of Spatter Stains

1 Scope

Spatter stains are created when airborne blood drops impact a surface. The angle of impact (α angle) is the acute angle at which a blood drop impacts a surface. Estimating the angle of impact of these stains is used to determine the area within which the blood source originated and can therefore be used in event reconstruction or interpretation. This document provides the method for estimating this angle after determining the major axis, which is required to determine bloodstain directionality.

2 Normative References

Insert Citation to Stain Measurement Document

Insert Citation to Directionality Document

3 Terms and Definitions

3.1
angle of impact (AOI)
The angle (alpha), relative to the plane of a target, at which a blood drop strikes the target.

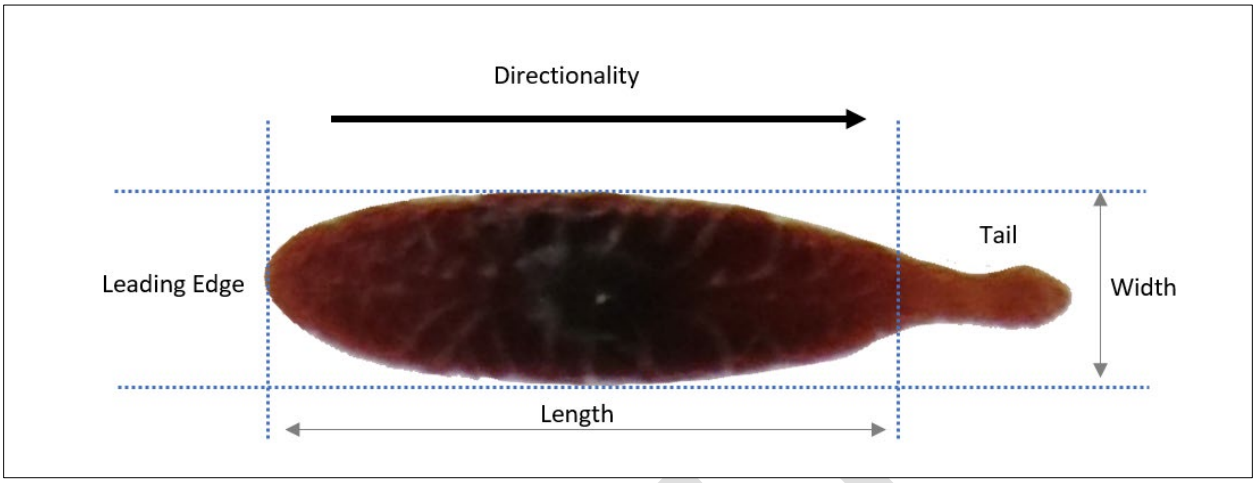
4 Estimating the Angle of Impact of Spatter Stains

The trigonometric relationship between the measurements of the major and minor axes of the deposited stain is used to determine the AOI. There are variables that influence these measurements to include stain selection, surface characteristics, gravity, and environmental factors.

The AOI is calculated using a trigonometric function of right triangles, the sine of angle (α) is determined by the following equation:

$$\text{alpha } (\alpha) = \arcsin(\text{stain width}/\text{stain length})$$

165



166

Annex A
(informative)

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