

**AFTE Glossary – Range of Conclusions Possible When Comparing Toolmarks<sup>1</sup>**

1. IDENTIFICATIONS – Agreement of a combination of individual characteristics and all discernible class characteristics where the extent of agreement exceeds that which can occur in the comparison of toolmarks made by different tools and is consistent with the agreement demonstrated by toolmarks known to have been produced by the same tool.
2. INCONCLUSIVE –
  - A. Some agreement of individual characteristics and all discernible class characteristics, but insufficient for an identification.
  - B. Agreement of all discernible class characteristics without agreement or disagreement of individual characteristics due to an absence, insufficiency, or lack of reproducibility.
  - C. Agreement of all discernible class characteristics and disagreement of individual characteristics, but insufficient for an elimination.
3. ELIMINATION – Significant disagreement of discernible class characteristics and/or individual characteristics.
4. UNSUITABLE – Unsuitable for microscopic examination.

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**SWGgun: Criteria for Identification<sup>2</sup>**

**1.0 Objective**

The laboratory shall adopt a Criteria for Identification as it pertains to the firearm/toolmark discipline.

**2.0 Procedures**

**2.1**

The laboratory shall include in their protocol a Criteria for Identification that is generally accepted by members of the forensic firearms community.

**2.2**

SWGgun endorses the Association of Firearms and Tool Mark Examiners (AFTE) “Theory of Identification” definition as set forth in the AFTE Journal (July 1992 Volume 24, Number 3) to be the generally accepted Criteria for Identification:

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<sup>1</sup> [http://www.swggun.org/swg/index.php?option=com\\_content&view=article&id=33:elimination-factors-related-to-fatm-examinations&catid=10:guidelines-adopted&Itemid=6](http://www.swggun.org/swg/index.php?option=com_content&view=article&id=33:elimination-factors-related-to-fatm-examinations&catid=10:guidelines-adopted&Itemid=6)

<sup>2</sup> [http://www.swggun.org/swg/index.php?option=com\\_content&view=article&id=28:criteria-for-identification&catid=10:guidelines-adopted&Itemid=6](http://www.swggun.org/swg/index.php?option=com_content&view=article&id=28:criteria-for-identification&catid=10:guidelines-adopted&Itemid=6)

### **2.2.1**

The theory of identification as it pertains to the comparison of toolmarks enables opinions of common origin to be made when the unique surface contours of two toolmarks are in “sufficient agreement.”

### **2.2.2**

This “sufficient agreement” is related to the significant duplication of random toolmarks as evidenced by the correspondence of a pattern or combination of patterns of surface contours. Significance is determined by the comparative examination of two or more sets of surface contour patterns comprised of individual peaks, ridges and furrows. Specifically, the relative height or depth, width, curvature and spatial relationship of the individual peaks, ridges and furrows within one set of surface contours are defined and compared to the corresponding features in the second set of surface contours. Agreement is significant when it exceeds the best agreement demonstrated between toolmarks known to have been produced by different tools and is consistent with agreement demonstrated by toolmarks known to have been produced by the same tool. The statement that “sufficient agreement” exists between two toolmarks means that the agreement is of a quantity and quality that the likelihood another tool could have made the mark is so remote as to be considered a practical impossibility.

### **2.2.3**

Currently the interpretation of individualization/identification is subjective in nature, founded on scientific principles and based on the examiner’s training.