

**FBI Approved Standards for Scientific Testimony and Report Language for  
Firearms/Toolmarks Discipline**

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## 1 INTRODUCTION

This document provides examples of the scientifically-supported conclusions and opinions approved for reporting examination results and conveying expert opinion statements during testimony by qualified Examiners within the Firearms/Toolmarks Discipline (FTD). It should be noted that these examples are not intended to be all-inclusive and may be dependent upon a precedent set by the judge or locality in which a testimony is provided. Further, these standards are not intended to serve as requirements for other forensic laboratories and do not imply that statements by other forensic laboratories are incorrect, indefensible, or erroneous.

## 2 SCOPE

These standards apply to qualified Examiners within the FTD who conduct examinations, issue FBI Laboratory Reports, and provide court testimony.

## 3 RESPONSIBILITIES

- A. FTD personnel providing expert testimony must provide testimony such that:
  - 1. Testimony is consistent with FBI Laboratory procedures regarding testimony about the forensic analysis and any associated interpretations.
  - 2. Testimonial opinions, conclusions, and statements regarding case-specific facts or data are properly qualified and do not exceed the limitations of any relevant method or discipline and/or subdiscipline.
  - 3. Testimonial opinions, conclusions, and statements are in conformity with the applicable ASSTR document(s), which are in accordance with the applicable Department of Justice approved ULTR.
- B. FTD personnel providing expert testimony will review the FBI FTD ASSTR prior to testimony and record the review as a comment on the appropriate entry in the eDiscovery or Testimony Tracker.
  - 1. Example: FBI FTD ASSTR reviewed on 00/00/00, (initials)

## 4 APPROVED STATEMENTS FOR PATTERN AND FRACTURE EXAMINATIONS, REPORTS, AND TESTIMONY

### 4.1 Pattern Examination Conclusions

#### 4.1.1 Source Exclusion

- A. Source Exclusion is an Examiner's conclusion that two toolmarks did not originate from the same source.
- B. An Examiner may state or imply the examination result as a source exclusion when the observed class characteristics provide extremely strong support for the proposition that the two toolmarks came from different sources and extremely weak or no support for the proposition that the two toolmarks came from the same

source<sup>1</sup>. A source exclusion is reached when there is a discernible or measurable difference in class characteristics.

#### 4.1.2 Source Identification

- A. Source Identification is an Examiner's conclusion that two toolmarks originated from the same source.
- B. An Examiner may state or imply the examination result as a source identification when the observed class characteristics and corresponding individual characteristics provide extremely strong support for the proposition that the two toolmarks originated from the same source and extremely weak support for the proposition that the two toolmarks originated from different sources. A source identification is reached when the comparison of the microscopic marks are in sufficient agreement.
- C. 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. Agreement is significant when the agreement in the microscopic marks exceeds the best agreement demonstrated between toolmarks known to have been produced by different tools and consistent with agreement demonstrated by toolmarks known to have been produced by the same tool. Significance is determined by the comparative examination of two or more sets of surface contour patterns composed 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 contours.
- D. A source identification is the statement of an Examiner's opinion (an inductive inference<sup>2</sup>) that the probability that the two toolmarks were made by different sources is so small that it is negligible.

#### 4.1.3 Inconclusive

- A. An Examiner may state or imply the examination result as an inconclusive when there is an insufficient quality and/or quantity of corresponding individual characteristics to identify or exclude.
- B. Reasons for an inconclusive conclusion include the presence of microscopic similarity that is insufficient to form the conclusion of source identification; a lack of

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<sup>1</sup> The Department of Justice Uniform Language for Testimony and Reports for the Forensic Firearms/Toolmarks Discipline – Pattern Examination allows for a source exclusion to be based upon differences in individual characteristics. A source exclusion based upon differences in individual characteristics is not approved by the FBI Laboratory Firearms/Toolmarks Discipline. This determination is based on the observations that indicate individual characteristics may not significantly duplicate or be permanent.

<sup>2</sup> Inductive reasoning (inferential reasoning): A mode or process of thinking that is part of the scientific method and complements deductive reasoning and logic. Inductive reasoning starts with a large body of evidence or data obtained by experiment or observation and extrapolates it to new situations. By the process of induction or inference, predictions about new situations are inferred or induced from the existing body of knowledge. In other words, and inference is a generalization, but one that is made in a logical and scientifically defensible manner. OXFORD DICTIONARY OF FORENSIC SCIENCE 130 (Oxford Univ. Press 2012).

any observed microscopic similarity; or microscopic dissimilarity that is insufficient to form the conclusion of source exclusion.

- C. An inconclusive conclusion indicates that the microscopic marks in question may or may not have originated from the same or known source.

## 4.2 Fracture Examination Conclusions

### 4.2.1 Exclusion

- A. Exclusion is an Examiner's conclusion that two or more fractured items were not joined together.
- B. An Examiner may state or imply the examination result as an exclusion when the observed class characteristics and/or corresponding individual characteristics of the two or more fractured items provide extremely strong support for the proposition that the fractured items do not physically fit together and extremely weak or no support for the proposition that the fractured items physically fit together<sup>1</sup>. When an exclusion decision is reached between fractured items from the same object, it is based on a one-to-one comparison of those fractured items.

### 4.2.2 Fracture Fit

- A. Fracture fit is an Examiner's conclusion that two or more fractured items were once joined together.
- B. An Examiner may state or imply the examination result as a fracture fit when the observed class characteristics and corresponding individual characteristics of the two or more fractured items provide extremely strong support for the proposition that they were once joined together and extremely weak support for the proposition that the fractured items originated from different objects. This conclusion can only be reached when two or more fractured items physically fit together or when a comparison of the corresponding surfaces of the fractured items reveals a fit.
- C. A fracture fit conclusion is the statement of an Examiner's opinion (an inductive inference<sup>2</sup>) that the probability that two or more fractured items were not joined together is so small that it is negligible.

### 4.2.3 Inconclusive

- A. An Examiner may state or imply the examination result as an inconclusive when there is an insufficient quantity and/or quality of observed characteristics to determine whether two or more fractured items could have originated from the same object. Reasons for an inconclusive conclusion include the presence of physical or microscopic similarity that is insufficient to form the conclusion of fracture fit; or a lack of any observed similarity. An inconclusive conclusion indicates that no determination can be reached as to whether two or more fractured items could have originated from the same object.

## 5 UNAPPROVED STATEMENTS FOR PATTERN AND FRACTURE EXAMINATIONS, REPORTS, AND TESTIMONY

### 5.1 Absolute Certainty

A conclusion provided in a report or during testimony is ultimately an Examiner's decision and is not based on a statistically-derived or verified measurement or comparison to all other firearms, toolmarks, or fractured items.

An Examiner will:

- A. Not assert that a pattern or fracture examination conclusion is based on the 'uniqueness'<sup>3</sup> of an item of evidence.
- B. Not use the terms 'individualize' or 'individualization'<sup>4</sup> when describing a pattern or fracture examination conclusions.
- C. Not assert that two toolmarks originated from the same source to the exclusion of all other sources.
- D. Not use the statement 'to the exclusion of all other tools in the world.'
- E. Not assert that two toolmarks originated from the same source with absolute certainty.
- F. Not assert that two or more fractured items originated from the same source to the exclusion of all other sources.
- G. Not assert that two or more fractured items originated from the same source with absolute certainty.
- H. Not assert that two or more fractured items were once joined together unless they physically fit together or when a microscopic comparison of the corresponding surfaces of the fractured items reveals a fit.

### 5.2 Numerical Certainty

An Examiner will:

- B. Not assert that examinations conducted in the forensic firearms/toolmarks discipline are infallible or have a zero error rate.
- C. Not provide a conclusion that includes a statistic or numerical degree of probability except when based on relevant and appropriate data.
- D. Not assert that two toolmarks originated from the same source with 100% certainty.
- E. Not assert that two or more fractured items originated from the same source with 100% certainty.

### 5.3 Measure of Accuracy

An Examiner will:

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<sup>3</sup> As used in this document, the term 'uniqueness' means having the quality of being the only one of its kind. OXFORD ENGLISH DICTIONARY 804 (Oxford Univ. Press 2012).

<sup>4</sup> As used in this document, the term 'individualize' or 'individualization' is equivalent to the assertion of uniqueness. David H. Kaye (2009). [Identification, individualization and uniqueness: What's the difference?](#) [Online].

- A. Not cite the number of examinations conducted in the forensic firearms/toolmarks discipline performed in his or her career as a direct measure for the accuracy of a conclusion provided.
  - 1. An Examiner may cite the number of examinations conducted in the forensic firearms/toolmarks discipline performed in his or her career for the purpose of establishing, defending, or describing his or her qualifications or experience.
- B. Not use the expressions ‘reasonable degree of scientific certainty,’ ‘reasonable scientific certainty,’ or similar assertions of reasonable certainty in either reports or testimony unless required to do so by a judge or applicable law.<sup>5</sup>

**6 LABORATORY REPORT REVIEWS**

Laboratory Reports will be reviewed following the [FTD quality documents](#) to ensure compliance with the approved statements in this document.

**7 TESTIMONY REVIEWS**

Testimony records will be reviewed following the [FBI Laboratory Operations Manual](#). The review will ensure compliance with the approved statements in this document.

**8 REFERENCES**

United States. Department of Justice. Office of Legal Policy. Forensic Science. (2023, August) United States Department of Justice Uniform Language for Testimony and Reports for the Forensic Firearms/Toolmarks Discipline – Fracture Examination. Retrieved from the Department of Justice Web site: [https://www.justice.gov/d9/2023-05/firearms\\_pattern\\_examination\\_ultr\\_5.18.23.pdf](https://www.justice.gov/d9/2023-05/firearms_pattern_examination_ultr_5.18.23.pdf)

United States. Department of Justice. Office of Legal Policy. Forensic Science. (2023, August) United States Department of Justice Uniform Language for Testimony and Reports for the Forensic Firearms/Toolmarks Discipline – Pattern Examination. Retrieved from the Department of Justice Web site: [https://www.justice.gov/d9/2023-05/firearms\\_fracture\\_examination\\_ultr\\_5.18.23.pdf](https://www.justice.gov/d9/2023-05/firearms_fracture_examination_ultr_5.18.23.pdf)

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<sup>5</sup> See Memorandum from the Attorney General to Heads of Department Components (Sept. 9. 2016), <https://www.justice.gov/opa/file/891366/download>.

## 9 REVISION HISTORY

Revision	Issued	Changes
05	02/18/2022	Reformatted to meet template requirements. Section 4.1.2.C - Clarified the use of the term significance and updated the first footnote. Section 5.1.A - Merged previous sections to simplify pattern and fracture conclusions. Section 5.1.B - Added a fourth footnote to explain the terms individualize and individualization.
06	08/16/2023	Section 1 – Updated title Section 3 – Clarified responsibilities for FTD personnel. Added eDiscovery. Section 4 – Reformatted and simplified titles Section 4.2.2 - Replaced ‘from the same object’ with ‘joined together.’ Section 5 – Reformatted unapproved statements Updated based on issuance of pattern and fracture examination ULTRs.