

## Standard for Routine Internal Evaluation of a Laboratory's DNA Interpretation and Comparison Protocol



### WHAT IS AN AAFS STANDARD FACTSHEET?

The AAFS produces clear, concise, and easy-to-understand factsheets to summarize the contents of technical and professional forensic science standards on the OSAC Registry. They are not intended to provide an interpretation for any portion of a published standard.

### WHAT IS THE PURPOSE OF THIS STANDARD?

This standard provides a method for the routine internal evaluation of a forensic science service provider's (FSSP) DNA interpretation and comparison protocol. It outlines the requirements for evaluating the consistent application of the developed, verified, and implemented protocol within an FSSP and between FSSPs.

The standard provides requirements for the technical leader or other appropriate personnel to assess whether the protocol is used appropriately and consistently to produce reliable and reproducible interpretations and comparisons of DNA profiles.

Compliance with this standard is separate from external proficiency test requirements.

### WHY IS THIS STANDARD IMPORTANT? WHAT ARE ITS BENEFITS?

Regular evaluation of an FSSP's DNA interpretation and comparison protocol is essential for maintaining protocol clarity, addressing variations among analysts, and ensuring consistency across different FSSPs. By complying with this standard, FSSPs can demonstrate reliable and reproducible DNA interpretation and reporting. It also helps FSSP leaders make improvements to protocols to address identified inconsistencies.

This standard can be broadly applied to evaluate the reliability and reproducibility of different types of testing methods that use either manual/binary or software-driven interpretation and comparison protocols.



### HOW IS THIS STANDARD USED, AND WHAT ARE THE KEY ELEMENTS?

This standard addresses the development of an internal evaluation system, including the proper format of data, types of data to use, frequency of evaluation, and how to assess results. This standard specifically applies to capillary electrophoresis-based Short Tandem Repeat (STR) DNA testing but can be used for any DNA testing method.

Key elements include the following:

- **Frequency of Evaluation:** The internal evaluation program must be performed annually, and all proficiency-tested individuals who perform mixed DNA data interpretation and/or comparisons must fulfill this standard's requirement at least once every two years.
- **DNA Data:** This standard provides specific criteria for the mixed DNA data under evaluation, including being of known origin and representative of DNA profiles encountered in real casework scenarios.
- **Assessment:** The standard directs the evaluation administrator to clearly define the acceptable range of variability in the interpretation of the data and acceptable outcomes. The administrator shall also ensure that the data are appropriately interpreted and that the assumptions and propositions made by the participants are consistent with the FSSP's protocol.
- **Documentation and Review:** The evaluation results must be documented, and any inconsistencies or deviations are reviewed to identify root causes and implement corrective actions.
- **Continuous Improvement:** Based on the evaluation results, FSSP leaders must implement necessary corrective actions depending on the root cause (e.g., training, protocol modification, audit of previous casework, etc.)

