Scientific & Technical Review Panel Final Report for 2022-S-0012 Standard for Proficiency Testing in Friction Ridge Examination

Organization of Scientific Area Committees (OSAC) for Forensic Science

Organization of Scientific Area Committees (OSAC) for Forensics Science
March 9, 2022

Disclaimer:

This report was produced by an independent Scientific and Technical Review Panel (STRP). The views expressed in the report do not necessarily reflect the views or policies of the U.S. Government. Visit the OSAC website for more information on OSAC's STRP process.

Scientific & Technical Review Panel Members

- Stephen Henderson, University of Oklahoma
- Kenneth Martin, Bevel, Gardner and Associates, Inc.
- Derrick Morisawa, California Department of Justice
- Katherine Richert, Forensic Assurance
- David Stoney, Stoney Forensic, Inc
- Alicia Wilcox, Thomas College

Report Summary:

The Scientific and Technical Review Panel (STRP) for "Standard for Proficiency Testing in Friction Ridge Examination" is an independent panel appointed by the National Institute of Standards and Technology (NIST). A STRP is established with a range of experts to consider how well a standard meets the needs of the forensic science, law enforcement, and legal communities, and to recommend improvements to the standards under review. The STRP appreciates the efforts of Henry Swofford, Friction Ridge Subcommittee chair, while serving as the subcommittee liaison to this STRP during the review process.

The STRP began its review process with a kickoff meeting on October 27, 2021 and concluded with this STRP final report. The panel reviewed the draft standard and prepared comments for the [Friction Ridge Subcommittee](#).

Report Components:

The STRP reviewed this draft standard against OSAC's *STRP Instructions for Review* which include the following content areas: scientific and technical merit, human factors, quality assurance, scope and purpose, terminology, method description and reporting results. The details below contain a brief description of each reviewed content area and the STRP's assessment of how that content was addressed in the Draft OSAC Proposed Standard.

1. **Scientific and Technical Merit:** OSAC-approved standards must have strong scientific foundations so that the methods practitioners employ are scientifically valid, and the resulting claims are trustworthy. In addition, standards for methods or interpretation of results must include the expression and communication of the uncertainties in measurements or other results.

    1.1 Consensus View – The STRP finds this standard to be technically sound and sets up robust standards for proficiency testing in the friction ridge community. The STRP made several suggested wording and structural changes to the standards that the subcommittee incorporated into this draft.

    1.2 Minority View – None

2. **Human Factors:** All forensic science methods rely on human performance in acquiring, examining, reporting, and testifying to the results. In the examination phase, some standards rely heavily on human judgment, whereas others rely more on properly maintained and calibrated instruments and statistical analysis of data.

    2.1. Consensus View – The STRP suggested modifications to the standard, which were incorporated, to ensure that the terms and procedures outlined in the document would be clear to the end user.

2.2. Consensus View – The STRP believes the standard is sensitive to issues of task-irrelevant information and contextual bias, clearly articulating restrictions on information beyond the physical and digital evidence submitted for examination, specifically

      2.2.1. 4.2.7 non-disclosure of ground truth or assigned values for test specimens until after the test is administrated.

      2.2.2. 4.4.6 non-exposure to cues or hints regarding expected results, whether explicit, subtle or through the test design.

      2.2.3. 4.4.7 accommodation of both blind and non-blind designs, but with explicit distinctions to be made.

2.3. Consensus View – The STRP believes the standard is sensitive to human factors relating to the conditions under which the test is administrated, specifically

      2.3.1. 4.4.4 Requiring tests under conditions reflecting casework and in accordance with Forensic Service Provider (FSP) policies and procedures.

      2.3.2. 4.4.5 Requiring administration that ensures individual FSP personnel produce their results prior to quality assurance steps that involve others (Consultation, Verification and Technical Review).

      2.3.3. 4.5.1.3 Note 2 clarifying the relationship of FSP quality control steps to testing individual FSP personnel as well as the overall FSP quality system.

      2.3.4. 4.6.1.13 Requiring documentation of the conditions under which the test was administrated.

      2.3.5. 4.6.1.14 Requiring documentation of a blind or non-blind test format.

2.4. Consensus View – The STRP believes the standard is sensitive to differences in skill levels, specifically

      2.4.1. 4.4.3 Requiring that the testing be administered only to those who have been approved to perform independent casework.

2.5. Minority View – None

3. **Quality Assurance:** Quality assurance covers a broad range of topics. For example, a method must include quality assurance procedures to ensure that sufficiently similar results

will be obtained when the methodology is properly followed by different users in different facilities.

   3.1. Consensus View – The STRP believes that proficiency testing is an important component of any FSP's quality assurance program. The standard details the essential elements of a proficiency testing program that should be considered, evaluated, and documented to ensure the robustness of the proficiency test. Quality assurance measures are included throughout the standard to ensure that sufficiently similar results will be obtained and documented from different users in different facilities. In addition, proficiency tests are to reflect casework and all major job functions that are performed. Finally, proficiency tests shall be developed and validated according to specified requirements (4.2, 4.3).

   3.2. Minority View – None

4. **Scope and Purpose:** Standards should have a short statement of their scope and purpose. They should list the topics that they address and the related topics that they do not address. Requirements, recommendations, or statements of what is permitted or prohibited do not belong in this section.

   4.1. Consensus View – The Scope and Purpose is consistent with the title of the document, addresses the topics covered and indicates the related topics not covered within the document. The STRP determined that the topics addressed in this document are concurrent with the stated scope and purpose. The scope and purpose require that this standard be utilized for a proficiency test generated internally by a FSP or obtained from external sources.

   4.2. Minority View – None

5. **Terminology:** Standards should define terms that have specialized meanings. Only rarely should they give a highly restricted or specialized meaning to a term in common use among the general public.

   5.1. Consensus View – The STRP believes the standard appropriately uses common language and defines terms having specialized meanings, including reliance upon and conformity with definitions promulgated by the International Organization for Standardization (ISO) and, most particularly, the OSAC Preferred Terms. There was discussion as to whether, based upon the OSAC Lexicon, the term ought to be 'Forensic Science Service Provider' instead of 'Forensic Service Provider'; ultimately, the STRP was satisfied with the subcommittee's reasoning and choice.

   5.2. Minority View – None

6. **Method Description:** There is no rule as to the necessary level of detail in the description of the method. Some parts of the method may be performed in alternative ways without

affecting the quality and consistency of the results. Standards should focus on standardizing steps that must be performed consistently across organizations to ensure equivalent results. Alternatively, standards can define specific performance criteria that are required to be demonstrated and met rather than specifying the exact way a task must be done. For example, it may be enough to specify the lower limit for detecting a substance without specifying the equipment or method for achieving this limit of detection.

> 6.1. Consensus View – The methods are described in detail with potential ambiguities addressed and with explanations when required.
>
> 6.2. Consensus View – The introduction emphasizes the focus on robustness, its dependencies, and the documentation necessary for third-party evaluation.
>
> 6.3. Consensus View – The body of the standard clearly articulates criteria for selection, development, validation, and administration of tests.
>
> 6.4. Consensus View – The required documentation ensures openness and sufficient data for third party evaluation.
>
> 6.5. Consensus View – The STRP believes this standard sufficiently details the proficiency testing criteria which should be considered and completed to assess the performance of FSP personnel and overall quality systems as it relates to friction ridge examinations. The elements of selection, development, validation, administration, evaluation, and documentation of proficiency tests included in this standard provide a way to ensure consistency across organizations. It also provides a way for a third-party to evaluate the performance and robustness of a proficiency test.
>
> 6.6. Minority View – None

7. **Reporting Results:** Methods must not only be well described, scientifically sound, and comprehensive but also lead to reported results that are within the scope of the standard, appropriately caveated, and not overreaching.

> 7.1. Consensus View – The STRP believes the statements for the Standard for Proficiency testing in Friction Ridge Examination are consistent with the scope and purpose of the draft standard. The methods and procedures outlined in the standard are well described and set forth clear expectations for developing scientifically sound proficiency tests.
>
> 7.2. Minority View – None