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Code of Practice and Conduct

**Friction Ridge Detail (Fingerprint) Visualisation
and Imaging**

FSR-C-127

Issue 2

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Codes of Practice and Conduct

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1. Introduction

- 1.1.1 The purpose of this appendix to the Forensic Science Regulator's Codes of Practice and Conduct for Forensic Science Providers and Practitioners in the Criminal Justice System (the Codes) is to establish the specific requirements for fingerprint visualisation/development/enhancement laboratories (this equally applies to friction ridge detail other than fingerprints) to operate within the context of accreditation to BS EN ISO/IEC 17025 'General Requirements for the Competence of Testing and Calibration Laboratories' and the Codes.
- 1.1.2 Adherence to these requirements will promote higher standards within the fingerprint profession and enable the laboratories to provide a robust and reliable service to the criminal justice system and the public.

2. Scope

- 2.1.1 The scope of this appendix includes generic requirements relating to friction ridge detail visualisation processes as used within the laboratory (for example, ninhydrin, fluorescence examination, etc.) and the fingerprint image capture and image processing. It also includes activities relating to decision making prior to visualisation (i.e. what process should be selected and why) and post-visualisation (i.e. what area of friction ridge detail should be progressed for comparison and/or searching, usually conducted by the fingerprint bureau).
- 2.1.2 This appendix covers fingerprint visualisation and imaging work that is carried out in a Forensic Unit (FU) in a permanent laboratory environment. Such a unit is often referred to as a Fingerprint Enhancement Laboratory (FEL).
- 2.1.3 The term 'friction ridge detail' includes all areas of the friction ridge skin system on the fingers, palms, phalanges and feet (plantar).

3. Implementation

- 3.1.1 This appendix is available for incorporation into a provider's quality management system from the date of publication. Full compliance with the requirements set out in this appendix was expected by October 2018. These are ongoing requirements and changes should be implemented three months from publication of any revised document.

4. Modification

- 4.1.1 This is the second issue of this document. Parts of this document which have been significantly altered from the previous issue are highlighted in grey and are listed at 4.1.2. The nature of these changes is not detailed, but changes such as those required to correct spelling and grammar and to update references which are altered by the passage of time are not included.
- 4.1.2 The following paragraphs contain substantive changes from the previous issue of this document: Title; Copyright; Table of Contents; 1.1.1; 2.1.1,2; 3.1.1; 4 (whole section); 5.1.3,4; 6.1.1,5; 6.3.2; 7.1.4,5,7; 8.1.2,4,5,8,9; 9.1.2; 10.1.1,3,4; 10.2.1,2,4; 11.1.3; 12.1.1,2,4; 13.1.2; 14.1.5; 15.1.1,2; 16.1.1,3,4,5,8; 17.2.1; References; Abbreviations; Further Reading; Useful Websites.
- 4.1.3 The Regulator uses an identification system for all documents. In the normal sequence of documents this identifier is of the form 'FSR-#-###' where (a) the '#' indicates a letter to describe the type or document and (b) '###' indicates a numerical, or alphanumerical, code to identify the document. For example, this document is FSR-C-127. Combined with the issue number this ensures each document is uniquely identified.
- 4.1.4 If it is necessary to publish a modified version of a document (e.g. a version in a different language), then the modified version will have an additional letter at the end of the unique identifier. The identifier thus becoming FSR-#-####.
- 4.1.5 In all cases the normal document bearing the identifier FSR-#-###, is to be taken as the definitive version. In the event of any discrepancy between the normal version and a modified version then the text of the normal version shall prevail.

5. Terms And Definitions

- 5.1.1 The word 'shall' has been used in this document where there is a corresponding requirement in BS EN ISO/IEC 17025 or the Regulator's Codes; the word 'should' has been used to indicate generally accepted practice in fingerprint examinations.

- 5.1.2 For the purposes of this document, the term 'process' refers to the entire method/actions of recovering areas of friction ridge detail (i.e. multiple linked stages) whilst 'technique' refers to individual visualisation methods, for example, ninhydrin.
- 5.1.3 The term 'forensic unit' (FU) refers to all providers of forensic science, whether commercial, public sector or internal to a police service. FUs can be small teams in larger organisations, sole practitioners or large providers and can be instructed by the prosecution or the defence and will include Fingerprint Enhancement Laboratories. Since this document covers the whole fingerprint workflow, reference is made to the overarching organisation of which the FU is part, rather than just the FU.
- 5.1.4 For further definitions please refer to the primary glossary in the Codes, 'Friction Ridge Detail (Fingerprint) Examination – Terminology, Definitions and Acronyms FSR-C-126', 'Friction Ridge Detail (Fingerprint) Comparison, FSR-C-128', ILAC-G19:08/2014: 'Modules in a Forensic Science Process' and the 'Scientific Working Group on Digital Evidence (SWGDE) Digital and Multimedia Evidence Glossary'.

6. Organisational Responsibility

ISO/IEC 17025:2017 sec.4; Codes sec. 8, 9 and FSR-I-400

6.1 General

- 6.1.1 A nominated senior responsible person shall be identified, to support a quality standards environment for the FU. This person shall be accountable for ensuring that the requirements set out in this appendix are met. This individual would usually be at executive board or chief officer level within the organisation. A technical lead may also be identified who is knowledgeable and competent in fingermark visualisation and can provide a focal point for any technical issues.
- 6.1.2 The FU shall recognise the different areas of competence required for a range of tasks within the workflow, and to implement a training and competency programme to ensure the continual development of its practitioners.

- 6.1.3 The organisation shall recognise that fingermark visualisation processes involve elements of professional judgement and decision making that may be prone to cognitive bias. For example, when 'marking up' areas of ridge detail for comparison and/or searching the laboratory practitioners may be influenced in their decision making by extraneous factors and irrelevant information.
- 6.1.4 The FU shall have a policy that identifies the relevant cognitive bias risks and have procedures that implement control measures to safeguard against the risk of cognitive bias, see 'Cognitive Bias Effects Relevant to Forensic Science Examinations, FSR-G-217'. This may include a level of training in cognitive bias that is proportional to the laboratory practitioner's level of responsibility and exposure to situations that may be prone to bias, including the presentation of information to end users for downstream processing.
- 6.1.5 The FU should not operate in isolation. The organisation shall recognise that the laboratory practices and procedures are part of the fingerprint examination workflow and that the quality of the output from each stage is reliant upon the quality of the output from previous stages and staff communication and co-operation.

6.2 Professional Responsibility

- 6.2.1 All personnel have a legal duty to the court; part of this duty is defined in the Criminal Procedures Rules Part 19.
- 6.2.2 Practitioners shall understand the implications of the work they have undertaken as it relates to current law, legal obligations the FU's policies, operating procedures and guidelines that are relevant to:
- the evaluation of forensic materials within their area of examination;
 - health and safety, information and data handling, other related legislative requirements and the criminal justice system;
 - the level of authority required to access information, and where additional authority may be needed; and
 - maintaining effective communications with others.

6.3 Fingerprint Evidence and its Place in the Criminal Justice System

6.3.1 The practitioner shall provide accurate and relevant information to the end user(s).

6.3.2 The FU shall have competent practitioner(s) capable of providing supporting information (technical and observed) to end user(s) who are required to make informed decisions or formulate opinion(s) about the deposition of the developed mark. Images that show the relative position of the marks in situ on the exhibit shall be provided as required and shall be included in technical records.

7. Technical Records

ISO/IEC 17025:2017 sec.7.5; Codes sec. 16.2

7.1.1 The FU shall have procedures for the production of and the recording of changes to technical records; records may include photographs, images, hard copy or electronic records of any documentation. If electronic record keeping and/or case management systems are used they shall be capable of recording examination notes contemporaneously in a format that is clear and auditable.

7.1.2 The method(s) used for the electronic capture, storage and transfer of images shall maintain the identity, security and integrity of the data.

7.1.3 Documented procedures shall define and reference the documentation (also referred to as case notes) associated with the fingerprint visualisation process and image capture.

7.1.4 In the rare event where an applied process falls outside defined parameters or requires special considerations or conditions in order to achieve the best results in a particular case, for example, where an item is too large to fit into a chamber, oven or tank, or the process needs to be applied in an uncontrolled environment outside the laboratory area, then this deviation shall be documented within the examination notes to assist in reproducing the process. Records shall be made of the appropriate varied environmental conditions and circumstances and the steps taken to ensure, where possible, the process has

been controlled. This should also include any factors that have not or could not be controlled and what steps and decisions were made surrounding these. The decision made to deviate from the normal process shall be made by an appropriate competent individual. If it becomes apparent that a previously rare event, such as the use of specialist techniques or particular conditions becomes more common place, then accreditation should be sought.

- 7.1.5 Common strategies shall be recorded within the procedures. If a practitioner deviates from documented strategies to develop case specific fingerprint recovery plans they shall, prior to carrying out those plans, document their decision to select particular techniques, as well as the order and priority of techniques applied within the parameters of the case.
- 7.1.6 The strategy and plans may need to be reviewed and revised accordingly as the case progresses, for example, if more information comes to light. The level of detail in the documentation shall be sufficient to allow for an audit trail.
- 7.1.7 All records shall include:
- a. exhibit reference and description of the item to be treated;
 - b. a rationale for enhancements and techniques to be carried out (see 7.1.5) where a practitioner deviates from the documented procedure, or where a bespoke specific case strategy is agreed and implemented on a case by case basis;
 - c. a chronological record of all enhancements and techniques carried out, including a record of the date and the practitioner carrying out the process;
 - d. a record of the friction ridge detail visualised and exhibits created as a result of each examination;
 - e. a record of any enhancements made to the image of the friction ridge detail; and
 - f. a full record of the continuity of the movement and storage of original exhibits and movement of any developed laboratory created / derived exhibits.
- 7.1.8 The FU shall have procedures that document:
- a. the actions a practitioner should take to record the results of a process; and

- b. the actions a practitioner should take to recover the friction ridge detail for subsequent downstream processing.

8. Personnel

ISO/IEC 17025:2017 sec.6.2; Codes sec. 18.1 and 19.

8.1 Practitioner Competence

- 8.1.1 The **FU** shall establish a competency framework for all laboratory practitioners using criteria that have been **established** by the level of practitioner competence required for each job role.
- 8.1.2 The details of a structured training programme to attain initial competence and a programme of periodic assessment to demonstrate ongoing competence shall be documented.
- 8.1.3 This framework shall include the ongoing process of training, assessment and review to ensure the maintenance of practitioner competence.
- 8.1.4 This framework shall **define** when competence has lapsed and the process for managing an individual whose competence has lapsed.
- 8.1.5 There are many areas requiring competence based on different skill sets. These depend on the responsibilities of the practitioner and the scope of accreditation. This may include but is not limited to:
 - a. Receipt of exhibits and creation of records;
 - b. Initial decision making, for example, the production of fingerprint recovery plans;
 - c. Carrying out the techniques and processes within the plan, such as pre and post-visualisation techniques and imaging;
 - d. Selecting appropriate friction ridge detail for comparison and searching purposes; and
 - e. **Recognition and practices of other related forensic recovery techniques that may be impacted, or that may have an impact on fingerprint visualisation techniques.**
- 8.1.6 The training required to carry out techniques and processes may vary depending upon the following.

- a. The level of complexity of the technique. For example, 'powder suspension' is relatively simple, whilst 'multi-metal deposition' is considered more complex.
- b. The level of practitioner input based on observations and skill. For example, 'vacuum metal deposition' and 'physical developer' require close monitoring of development and a knowledge of when to stop further development; fluorescence examination requires a knowledge of which light sources to use and methodical search methods.

8.1.7 The practitioner shall have the appropriate level of training for the task being performed, and this shall reflect the level of complexity of the process/task.

8.1.8 Training and on-going competence assessment shall be determined by the FU and shall as a minimum include:

- a. Demonstrating knowledge of the health and safety aspects of all processes in use;
- b. Selecting and deciding the most appropriate technique or sequence of techniques;
- c. The correct application of the technique(s);
- d. Recognising deviations from the expected outcomes (including those related to reagents);
- e. Competence for deciding and selecting the appropriate areas of developed friction ridge detail to exhibit (marking up process) for downstream comparison and searching;
- f. An appreciation of the requirements for search and comparison by the fingerprint examiner;
- g. Awareness of the limitations of the process or the potential impact of processes could have on other evidence types, for example, DNA; and
- h. An awareness and understanding of the concept of image quality and the effects that light source and lighting, exposure, filters and post image enhancement can have on the captured image and managing the risk of poorly captured ridge detail, either from the user or equipment perspective.

8.1.9 All practitioners responsible for image capture shall demonstrate a clear understanding of the basic principles of photography (aperture, shutter speed and ISO) and post capture enhancement techniques as a minimum standard

and be deemed competent through demonstrated experience/method witness,
or by an appropriately qualified and competent individual

9. Accommodation and Environmental Conditions

ISO/IEC 17025:2017 sec.6.3; Codes sec. 20

9.1.1 The facilities shall be appropriate for the safe and effective implementation of the fingerprint visualisation techniques used within that laboratory. See chapter 3 of the Home Office Fingerprint Visualisation Manual.

9.1.2 The FU shall have at least the following.

- a. Space for managing items submitted for fingerprint evidence recovery, including secure storage and handling areas.
- b. Areas for carrying out the processes including:
 - i. dedicated areas for the optical techniques; and
 - ii. 'wet' and 'dry' areas for the preparation of chemical and physical techniques.
- c. Installed fixed equipment, for example, fume cupboards, wet benches.
- d. A range of general equipment, for example, measuring equipment.
- e. Specific equipment used to capture fingerprints for subsequent search and comparison purposes that have been demonstrated as fit for the required purpose.
- f. Suitable storage for equipment and chemical products.
- g. Controlled areas of access, for example, where there are health and safety precautions required to operate a technique or where secure areas of restricted access are required.

10. Test Methods and Method Validation

ISO/IEC 17025:2017 sec.7.2; Codes sec. 21

10.1 Fingerprint Visualisation

10.1.1 The FU shall demonstrate knowledge and understanding of the requirements for validation and the validation of their processes for friction ridge detail visualisation and the subsequent image capture process.

- 10.1.2 Validation shall be undertaken by the FU to ensure the reliability of examination outcomes.
- 10.1.3 Practitioners shall understand their data, limitations of their data and the relevance of their findings based on the validation of their methods and processes.
- 10.1.4 The information provided in this section is supplementary to the validation guidance provided in FSR-G-201.
- a. Processes and techniques described within the Fingerprint Visualisation Manual have varying amounts of testing and data supporting their use. The FUs shall review this data and ensure that it is sufficient to support the methods as used in their operational work. The Defence Science and Technology Laboratory (Dstl) has made documents available including the Fingerprint Source Book in order to assist with determining whether the Fingerprint Visualisation Manual validation data is sufficient for operational activities.
 - b. Validation shall be undertaken in all cases where the FU deviates from previously tested techniques and processes or wish to use a different treatment method/route they believe to be more effective from that set out within the Fingerprint Visualisation Manual. Validation studies should evaluate the performance of new or altered techniques, sequences and procedures against current methods in order to assess suitability for potential operational use, and they should be planned with reference to published guidelines and Appendix 2 in Fingerprint Visualisation Manual.
 - c. The FU shall ensure that where external validation studies have been used, for example, scientific journal publication, Fingerprint Visualisation Manual, Fingerprint Source Book, these have been reviewed by the FU and the strengths, weaknesses and any limitations are fully understood and addressed in-house to confirm suitability by verification.
 - d. If a technique is to be used on a substrate not tested within the validation plan, a competent practitioner shall determine if additional validation data is required. For example, the evaluation could be based upon the similarity of the substrate (porosity, colour, texture) to those previously tested. The

decision to conduct or not conduct further studies or to extend the scope of an existing study shall be documented with an appropriate rationale.

10.1.5 The **FU** shall hold documentation for each validation and/or verification exercise that it completes (see FSR-G-201). Documentation should include at least:

- a. the science behind the technique;
- b. a detailed process description;
- c. the effectiveness of the technique/process;
- d. the parameters (such as time, temperature, humidity);
- e. compatible surfaces;
- f. the use of the technique in sequence with other techniques/processes;
- g. acceptance criteria for the **FU** to utilise the technique/process;
- h. the formulation; and
- i. standard operating procedures used during comparative studies.

10.1.6 The **FU** shall determine whether any measures aimed at preventing contamination or cross-contamination, for example, the gloves worn by practitioners, are fit for purpose.

10.2 Image Capture

10.2.1 Images can be captured on many different devices using a multitude of storage media. Image capture shall be carried out by competent practitioners as described at 8.1.8g and 8.1.9.

10.2.2 Imaging should be optimised prior to capture by using appropriate lighting (these may be different to those used for examination), camera settings and optics rather than by post-capture image processing because in the latter some of the original fingerprint detail may be lost.

10.2.3 The **FU** shall ensure that the resulting product of image capture and processing is reproducible and that all processing records are auditable.

10.2.4 The image capture and transmission process shall be validated or verified and performance tests carried out to ensure the various elements within this process do not adversely affect the quality of the result for examination of friction ridge detail. Such testing shall include at least the following:

- a. Compression types and file formats used.

- b. Methods used in the resizing of images.
- c. The minimum optical resolution required as defined by the FU.
Consideration should be given to the requirement to be able to distinguish a minimum number of line pairs per millimetre (lppm) for a processed image, allowing for detailed analysis and comparison of friction ridge detail.
- d. Identification of digital artefacts.
- e. All capture, security, storage and transfer methods.
- f. Calibration or validation of any supporting equipment and the limitations of any hard copy images produced on that equipment, i.e. printers, scanners, printers and rulers.

11. Estimation of Uncertainty of Measurement

ISO/IEC 17025:2017 sec.7.6; Codes sec. 22; UKAS M3003

- 11.1.1 The recovery of fingerprint evidence relies on the retrieval of friction ridge detail of sufficient quality to enable a comparison or search. A calculation to provide an estimation of the uncertainty of measurement is therefore not possible. However, there are elements of uncertainty within the recovery process of friction ridge detail and its subsequent selection that may adversely affect the search and comparison processes downstream.
- 11.1.2 Many factors influence the effectiveness of fingerprint visualisation techniques, including those associated with the item (such as the fingerprint's constituents and the substrate) and implementation (such as chemical grades, equipment specification and staff competence).
- 11.1.3 The FU shall identify the components of uncertainty and minimise their effect, as far as possible through:
 - a. The specification of equipment, chemicals and consumables;
 - b. Anti-contamination procedures;
 - c. Staff training;
 - d. The practical validation or verification of methods;
 - e. The selection of appropriate recovery techniques for the case circumstances; and

- f. Image capture methods.

12. Control Of Data

ISO/IEC 17025:2017 sec.7.11; Codes sec. 23

- 12.1.1 Procedures shall be in place to protect and secure both the paper and electronic data generated by the FU. These may relate to:
 - a. Case management systems;
 - b. Digital image transfer and storage systems; and
 - c. Use of digital images and processing tools; and
 - d. Retention and archiving.
- 12.1.2 Policies and procedures shall be in place for the digital capture, storage, retrieval, display, transmission, retention and necessary destruction of images.
- 12.1.3 An audit trail shall be created at receipt and maintained with the image(s). The original image shall be retained securely and any image processing and enhancement shall be carried out on a duplicate.
- 12.1.4 The FU shall specify the responsibility for the handling of images provided through a third party. An un-enhanced copy of the master (original) image should be provided alongside the enhanced working copy image to allow the receiving unit to independently calibrate and enhance a working image. An audit trail of the master image shall be provided. This shall be the case whether the FU is providing or receiving the images.

13. Measurement Traceability

ISO/IEC 17025:2017 sec.6.5 and Codes sec. 25

- 13.1.1 Processes that utilise measuring equipment that have the potential to impact on the effectiveness of the process, for example, a hygrometer to measure humidity, can be purchased pre-calibrated or can be calibrated by a suitable relevant supplier to meet the required parameters/tolerances.
- 13.1.2 The FU shall have traceable records to demonstrate the calibration has been completed and reviewed and to confirm that the equipment is fit for purpose.

13.1.3 The **FU** shall produce evidence of continuing compliance of identified laboratory equipment through a schedule of re-calibration.

13.1.4 The **FU** shall maintain records that ensure any calibration or reference standards are traceable, for example, to an international system of units (SI).

14. Sampling

ISO/IEC 17025:2017 sec.7.3 and ILAC G19 sec. 4.3.3 and 4.7.6)

14.1.1 Sampling in this context relates to a case assessment leading to the selection of appropriate items (whole or part exhibits) and targeting specific fingerprint recovery processes to facilitate the expedient disclosure of results based on the needs of the investigation.

14.1.2 The sampling of items or exhibits required in the fingerprint retrieval process may be determined prior to the submission of items to the laboratory. This may be documented within a standard operating procedure determined by the **FU**, for example, a submission policy or a service level agreement (SLA).

14.1.3 When the **FU** needs to sample items within an exhibit, or within a submission that deviates from the documented sampling policy or agreed customer service agreement, the sampling strategy shall be agreed with the relevant parties and shall be clearly documented. A sample of the exhibit or forensic submission may be processed for a number of reasons, for example:

- a. to target or prioritise a particular item of higher evidential value;
- b. sampling of item(s) too numerous to process as a whole;
- c. to answer relevant questions by examination of a portion of the total;
- d. to minimise the amount of work required whilst assuring that all relevant legal and scientific requirements are met; and
- e. other specific reasons due to the context of the case.

14.1.4 Where only a sample of the developed friction ridge detail is progressed to the comparison and/or search processes, it shall be documented either:

- a. as part of the organisational procedures;
- b. in a policy document; or
- c. on a case by case basis and clearly evident for disclosure.

14.1.5 More guidance can be found in G19:08/2014 Modules in a Forensic Science Process.

15. Handling of Test Items

ISO/IEC 17025:2017 sec.7.4; Codes sec. 26

15.1.1 An audit trail shall be available to track the continuity of all case-related items. The origin of individual exhibits shall be traceable at all times during the process. For example, when treating multiple items from different cases simultaneously, a mechanism, for example unique labelling, shall be in place to distinguish between exhibits where this is required.

15.1.2 Exhibits shall be handled as little as possible and only touched where fingermarks are least probable in order to reduce the risk of damage to latent fingermarks. Similarly, exhibits shall be packaged in such a way to minimise damage caused by contact between the exhibit and packaging. Damage is most likely to occur on exhibits with non-porous surfaces where fingermarks can be particularly fragile.

16. Assuring the Quality of Test Results

ISO/IEC 17025:2017 sec.7.7; Codes sec. 27

16.1.1 The FU shall minimise accidental fingermark contamination of exhibits, for example, by wearing gloves approved for handling exhibits. Where the practitioner believes that the gloves have failed or they have accidentally touched the exhibit with bare hand(s) they shall inform the relevant personnel in the organisation (usually the fingerprint bureau) so that their fingerprint elimination prints can be checked against any fingermarks obtained for that exhibit.

16.1.2 The FU shall have in place documented procedures for quality assuring any friction ridge detail submitted for comparison or search, whether the product is recorded digitally or manually.

16.1.3 Where a technique has been applied, the FU shall provide documentation and evidence to demonstrate that it has worked satisfactorily. Test strips or control samples shall be appropriate to the technique and the required result to add

value to the quality assurance process. Test strips or test marks (control samples) are an example of a simple way to give an indication of the performance of a technique.

- 16.1.4 Where an FU uses filtering or vetting criteria, and/or relies on the practitioner's judgement to determine which areas of developed friction ridge detail should be forwarded to comparison and/or searching, there shall be procedures in place to monitor the practitioner's adherence to the vetting criteria. These tests shall explore the quality of both the submitted friction ridge detail for search and comparison and the discarded friction ridge detail and/or exhibits.
- 16.1.5 The FU shall devise a proportional and representative schedule of dip sampling of case files. This shall include cases where friction ridge detail has been recovered and cases where the techniques utilised have not produced any friction ridge detail, or where the friction ridge detail has not been recovered by a practitioner for comparison and/or search purposes.
- 16.1.6 The dip sample should be examined by a competent individual. Where the laboratory and fingerprint bureau are separate units this should be part of a collaborative documented process of mark quality assessment.
- 16.1.7 The FU shall participate in suitable proficiency test (PT) programmes and/or inter-laboratory comparisons (ILCs). A plan for the level and frequency of participation, and a process for the review of the resulting outcomes, shall be documented.
- 16.1.8 Process performance shall be continuously reviewed using data from dip sampling, quality control (such as test strips, commercially available or internal control samples), competency and proficiency tests. Caution should be exercised in the interpretation of results from test strips as they are typically a crude measure of technique performance. Casework results can be used to monitor overall outcomes; the use of trend analysis might indicate changes in performance, of practitioner or technique, that may require further investigation.

17. Reporting The Results

ISO/IEC 17025:2017 sec.7.8; LAB 13; Codes sec. 28; FSR-G- 200 and FSR-G- 225

17.1 General

- 17.1.1 The outcomes of any visualisation techniques shall be recorded. All processes applied and examinations carried out shall be documented, irrespective of the result.
- 17.1.2 The **FU** shall have competent practitioner(s) capable of providing supporting information (technical and observed) to end user(s) who are required to make informed decisions or formulate opinion(s) about the deposition of the developed mark. Images that show the relative position of the marks in situ on the exhibit shall be provided as required (and include images in technical records)
- 17.1.3 Where data or the result of the tests performed, for example, orientation of the fingerprint or ridge detail formed by blood or other obvious contaminant, are to be used by the customer (fingerprint bureau) in the interpretation and forming of opinions, these data or test results shall be recorded.
- 17.1.4 The results shall be communicated to the customer. It is acknowledged that this communication may not be in the form of a report or statement. Where applicable the results shall be updated/recorded on any organisational management system or communicated direct to the customer. This communication shall be retrievable if needed.

17.2 Communication and Collaborative Working

- 17.2.1 The **FU** should take a collaborative approach to the recovery of friction ridge detail and the search / comparison activities, acknowledging the laboratory work as part of the fingerprint examination workflow. It is important that those recovering and imaging fingerprints and those using them for comparison (assuming these are differently skilled practitioners) should have an understanding of each stage in the fingerprint examination workflow in order to use any information about potential evidence to its best advantage.

- 17.2.2 The **FU** shall have documented strategies, demonstrable as effective for communication and collaborative working when multiple evidence types are required. For example, determining whether or not the distribution of visible blood staining or the recovery of DNA from general contact stains (for example, smudged fingerprints) are relevant to the individual case prior to employing chemical treatments.
- 17.2.3 The **FU** should consider engaging with academia or other external stakeholders where this is a potential operational benefit.

18. Review

- 18.1.1 This document will form part of the review cycle as determined by the Forensic Science Regulator.
- 18.1.2 The Forensic Science Regulator welcomes comments. Please send them to the address as set out at: www.gov.uk/government/organisations/forensic-science-regulator, or email: FSREnquiries@homeoffice.gov.uk

19. References

BS EN ISO/IEC 17025 General Requirements for the Competence of Testing and Calibration Laboratories.

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20. Abbreviations

| Abbreviation | Meaning |
|--------------|--|
| BS | British Standard |
| DNA | Deoxyribonucleic acid |
| Dstl | Defence Science and Technology Laboratory |
| EN | European Norm |
| ENFSI | European Network of Forensic Science Institutes |
| FEL | Fingerprint enhancement laboratory |
| FU | Forensic Unit |
| FSR | Forensic Science Regulator |
| IEC | International Electrotechnical Commission |
| ILAC | International Laboratory Accreditation Cooperation |
| ILC | Inter-laboratory comparison |
| ISO | International Organisation for Standardization |
| lppm | Line pairs per millimetre |
| PT | Proficiency test |

| Abbreviation | Meaning |
|---------------------|--|
| SI | International system of units |
| SLA | Service level agreement |
| SWGDE | Scientific Working Group on Digital Evidence |
| UKAS | United Kingdom Accreditation Service |

21. Further Reading

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