



## **Fingerprint Quality Standards Specialist Group (FQSSG)**

Notes of the meeting held on 28 September 2016  
at Briefing Room B, Force Control Room, Hertfordshire Police Headquarters,  
Stanborough Road, Welwyn Garden City, Hertfordshire, AL8 6XF.

### **1.0 Welcome, Introduction and Apologies**

1.1 The Chair, Gary Pugh, welcomed all to the meeting, including Graham Camm from Home Office Biometrics (HOB) Programme and Helen Bandey from Home Office (HO) Centre for Applied Science and Technology (CAST) who were attending their first meeting. A full list of attendees and apologies is provided at Annex A.

The Chair thanked the members of the Fingerprints Quality Standards Specialist Group (FQSSG) for their work since the formation of the group. The group had been established with the purpose of delivering the fingerprint guidance and appendices for the Forensic Science Regulator's (FSR) Codes. The Chair suggested that there might be a wider role for the group given its expanded remit to take in finger mark image processing, fingerprint visualisation and AFIS systems.

### **2.0 Minutes of the last FQSSG meeting on 8 June 2016**

2.1 The previous FQSSG minutes were approved as an accurate reflection of the discussion held and the Secretariat was asked to publish the minutes.

**Action 1: Secretariat to publish the minutes of the FQSSG meeting held on 8 June 2016.**

### **3.0 Actions and Matters Arising**

3.1 The actions of the previous meeting were reviewed as follows:

3.2 Action 2: The information fingerprint court document had been sent to Neil Denison for feedback. No further feedback had been received and the group approved the latest version.

3.3 Action 4: The calibrated metric scales provided an efficient means of testing image quality and allowed very small distances to be measured. An update on the testing of the scales on live fingerprint casework was not available at the meeting and Karen Georgiou agreed to discuss progress with Neil Denison and provide an update to the group. Members understood that the scales were expensive but would provide an efficient mechanism to check

image quality. A scale could be placed alongside a latent mark to accurately show that the image of the mark was of sufficient definition. The group considered whether they should make a recommendation about the use of the calibrated metric scales but agreed more information was required on their use.

**Action 2: Karen Georgiou to request an update on the testing of the calibrated metric scales from Neil Denison and feed back the outcome of the exercise to the Secretariat.**

3.4 Actions 5 & 6: Related to the incident where corrupted files on the IDENT1 Automated Fingerprint Information System (AFIS) had resulted in errors and an investigation had been undertaken by the Home Office and the IDENT1 software company, Northrop Grumman. Whilst a report into the incident had been shared with some members of the FQSSG, there were concerns that the report did not provide reassurance that the errors would not occur again in the future. It was highlighted that end users and stakeholders need to have a monitoring process in place to deal with any future incidents. The FQSSG were specifically concerned about the risk to the Criminal Justice System (CJS), if such incidents resulted in loss of fingerprint evidence in criminal cases.

3.5 Members heard that a more detailed report into the incident had been shared with the Home Office but had not been circulated widely due to confidentiality concerns. It was suggested that the newly re-constituted DNA and Fingerprint Strategy Board might be an appropriate body to investigate these incidents and it was suggested that the Chair and June Guinness explore with the Home Office what information could be shared with the Strategy Board, what process might exist for the issue to be escalated to the Regulator, and who would ensure that all fingerprint bureaux and police forces were aware of the incident.

**Action 3: Gary Pugh and June Guinness to approach the Home Office for an escalation report to be submitted to the DNA and Fingerprints Strategy board, which sets out the error that occurred to the IDENT1 AFIS because of corrupted files, how the issue was dealt with and rectified, and the risks to the Criminal Justice System.**

3.6 Action 9: The coordinated approach for fingerprint bureaux to achieve accreditation to International Standards Organisation (ISO) 170125 was discussed. Concerns were raised that no schedule of achievement of accreditation had been developed and this work needed to progress rapidly in order for police forces to achieve accreditation to ISO 17025 by the October 2018 deadline. It was noted that a practitioner group had been set up with the view of creating a standard approach to gain accreditation to ISO 17025.

**Action 4: Gary Pugh to discuss with Richard Small as to how a schedule could be established for achieving ISO 17025 accreditation.**

**Action 5: Karen Georgiou to discuss with Richard Small, as NPCC Fingerprint lead, on providing transparency data to the Performance and Standards group, on fingerprint bureaux progress to achieve accreditation to ISO 17025. The information may potentially form part of the matrix performance measures being redeveloped for that oversight group.**

3.7 Action 11: Members heard that the Regulator had decided that the AFIS system would fall within the scope of accreditation for ISO 17025. This decision had been agreed by the Home Office Biometrics Board and Debbie Simpson, the NPCC lead for forensics. The United Kingdom Accreditation Service (UKAS) had taken a pragmatic approach to the provision of accreditation of the IDENT1 AFIS system to ISO 17025 and had sought validation of the operation of the IDENT1 system. It was noted that bureaux would have to put considerable work into gaining accreditation for the current AFIS system only for this system to be replaced in the near future. It would be desirable if the new AFIS structure could have the validation and quality requirements built into it and the Home Office representatives assured the group that they were aware of the validation requirements for the new AFIS system and that there was no resistance from within the Home Office to delivering a system which could be centrally validated.

#### **4.0 Home Office Biometrics Programme update**

4.1 The group heard a presentation on the Home Office Biometrics (HOB) programme. The presentation included details of the full range of biometrics which would be included in the programme, including fingerprints, facial images and DNA. Details were provided on the proposals for an improved AFIS, and its procurement to replace the current IDENT1 AFIS in 2019.

4.2 The priorities of the HOB programme were business continuity and convergence of data sets (including the automated fingerprint identification system (IDENT1) and the Immigration and Asylum Biometric System (IABS)) to provide new functionality, economies of scale and to enable users to interact more effectively, with the ability to search between immigration and law enforcement databases. The Home Office would retain responsibility for the type of products which would be developed. However, they would be engaging with the FQSSG and other groups to ensure the most appropriate products were developed. Considerable investment had already been put into the IDENT1 and IABS systems and for each service being transitioned, HOB was considering the options of keeping the service in its existing form, or improving the service during the transition. The initial stage for the programme would be to transition over simple services from IDENT1 followed by more specialist services. The aim would be to build confidence in the HOB programme and a good track record.

4.3 The group heard about plans to develop a mobile fingerprint capture device which would allow fingerprints from potential suspects to be captured anywhere and would attempt to reduce the number of people held in custody. Police forces currently had the capabilities to capture fingerprints on mobile

laptop devices but not yet using handheld devices. The HOB system would be built to enable handheld devices to be used for fingerprints capture; however there was not currently a handheld device which the Home Office had approved for use. Members highlighted that police forces were coming under increasing pressure to reduce the number of people held in custody and fears were held that the fingerprint database would rapidly shrink in size without the introduction of handheld devices.

4.4 It was explained that the Home Secretary had announced that the UK would rejoin Prüm and a pilot would begin next year to allow for fingerprints to be exchanged with Germany. Considerations for wider sharing of DNA and fingerprints under Prüm was also being considered.

4.5 The Home Office was aware that fingerprint bureaux needed to gain accreditation to ISO 17025 by October 2018 and that once the tools which fall within HOB were used in live case work, everything within HOB would need to be validated. It was clarified that the FSR's standards would only need to be applied to the tools used within the Criminal Justice System (CJS), and decisions would need to be made about whether tools for non-CJS use would need to be accredited.

4.6 It was recognised that police forces needed to be given a body of knowledge in order for them to gain accreditation and consideration was currently being given to the creation of HOB knowledge packs for police forces that would help forces to gain accreditation of their system. The packs would contain information such as developmental life cycles, the HOB test strategy, process documentation, performance definition and competency. Members suggested that discussion should be held about how tools within HOB would be tested, for example, would ground-truth data sets be used for validation, and would the boundaries and the core processes be tested.

4.7 Suggestions were put forward as to functionalities which could be included in the HOB programme. It was suggested that HOB should have the capability to allow notes to be taken to record the rationale for decisions which had been made. It was also suggested that HOB could be used to generate blind trials to be used for quality checks. It was agreed that this would be a good idea from a technical point of view and could be cost effective if a central solution was provided, however it was unclear who would collate the resulting data.

4.8 Consideration was given to how the dialogue between those running the HOB programme and the FSR could continue, and June Guinness and Gary Pugh agreed to discuss with officials from the HOB programme how the Regulator's requirements for fingerprints could be included in the HOB programme.

**Action 6: Gary Pugh and June Guinness to meet with officials from the HOB programme to determine a mechanism to discuss and input the Regulator's requirements for fingerprints to be included in the HOB programme.**

## **5.0 Home Office Biometrics Validation of Fingerprints**

5.1 The FSR had written to Home Office officials working on the HOB programme explaining in detail the requirements for quality standards and accreditation for the planned new AFIS and had received a reply. This was preparatory work to ensure that the new AFIS would be suitable for accredited fingerprints work in UK police forces meeting the FSR's standards. A reply had been received from Brendan Crean at HOB.

## **6.0 FSR-C-127 Enhancement / Image Capture Consultation**

6.1 Following the public consultation on the Forensic Science Regulator's draft Enhancement/Image Capture guidance FSR-C-127 which closed in September 16, responses from police force fingerprint bureaux and FSPs had been collated for consideration. Additional sets of responses from UKAS and the College of Policing needed to be incorporated into the consultation documents.

**Action 7: Secretariat to collate additional responses for the fingerprint enhancement and image capture guidance.**

6.2 It was agreed that the feedback would be reviewed by a technical group prior to changes being made to the Enhancement /Image Capture guidance and a technical group would be convened to undertake this review.

**Action 8: June Guinness to coordinate a technical review meeting to discuss the feedback received to the Fingerprint Enhancement and Image Capture guidance and to produce the next version.**

## **7.0 FSR-C-128 – Fingerprints - Comparison – Revision**

7.1 Members had been provided with an updated version of the Fingerprint Comparison Appendix . A correction was needed to the description of the fingerprint review panel process to clarify that the panel would consist of three colleagues, each employed by a separate FSP.

7.2 Further sections would be added to the fingerprint enhancement document to clarify the procedures in relation to vetting of crime scene fingerprints, and their submission for comparison on AFIS. It was noted that it was imperative to ensure that the wording within the Enhancement/Image capture and the Fingerprint Comparison standards were concordant with each other. Therefore, once the wording in the Enhancement/Image capture document had been finalised, where relevant it would be copied into this document to ensure concordance. The Fingerprint Comparisons document would not go out for consultation and the Regulator would make a decision whether it was circulated wider than the FQSSG prior to publication.

7.3 The fingerprint imaging and enhancing laboratories which developed latent fingerprints from crime scene material, and the fingerprint bureaux

which marked up and compared fingerprints and identified matches, needed to integrate their work to ensure the best results for correct fingerprint matches.

**Action 9: June Guinness to update the Fingerprint Comparison document and ensure concordance between the Fingerprint Comparison standard and the Enhancement Image Capture standard.**

## **8.0 Scottish Police Authority reflections on gaining accreditation to ISO 17025**

8.1 The Scottish Police Authority (SPA) had recently gained UKAS accreditation for their fingerprint enhancement and comparison processes. FQSSG heard a presentation reflecting on the SPA process to enable lessons to be learnt for the fingerprint accreditation process.

8.2 It took the SPA four years to gain accreditation to ISO 17025 despite the favourable circumstances of a limited workload for the fingerprints specialists and motivation from police force senior leadership to achieving accreditation. Given this, it was suggested that the accreditation deadline of October 2018 for the other UK police forces to achieve accreditation to ISO 17025 would be challenging.

8.3 Scientific leadership was introduced for fingerprinting with the SPA, and as with other scientific areas, intelligence and evidence which would be used in courts were treated separately. In addition, an operations manager was employed who had experience in gaining accreditation to ISO 17025. During the accreditation, the forensics staff were all engaged in the process of reviewing note-taking, verification, validation, competency-testing and court forensic reports to ensure high standards.

8.4 A meeting was held with Professor Niamh Nic Daéid to discuss the size needed for a statistically significant sample of ground truth fingerprint data. Consideration was also given to the risk of both false negatives and positives, with a focus specifically on reducing false positives, and acceptable levels of tolerance determined for false negatives.

8.5 They focussed on a quality standard which was based on the risks to fingerprint evidence. They needed to complete a comprehensive validation of their fingerprints methods, and could not rely on the validation carried out by any other police force. The validation was based on their own particular casework and on "ground truth" fingerprint data.

8.6 The SPA opted to seek accreditation for their four sites in one step. They made use of pre-assessment visits to identify gaps in their accreditation process and used these to ensure that quality procedures were embedded prior to the UKAS assessment. The result was a recommendation for the relevant extension to their accreditation scope, although there were caveats which were subject to a further assessment visit. The SPA completed the

necessary actions and accordingly were awarded UKAS fingerprints ISO 17025 accreditation.

8.7 When reflecting on lessons learnt, the SPA highlighted the necessity to work in partnership with UKAS, experts in academia and with experts in other types of evidence besides fingerprints. Further, engagement was needed in particular from police senior management, and a cultural change in the police force was important. Colleagues were held to account for the deadlines in the accreditation process.

8.8 The fingerprints accreditation proved very different from DNA accreditation because it focussed on the opinions of individual practitioners instead of on a standardised process. Competence of practitioners needed assessing and so competency tests including blind tests were established. The improved processes increased workloads for their fingerprints staff, so they needed to increase staffing levels, streamline other processes and adjust service level agreements for fingerprints work.

8.9 Discussions were held about the accreditation of IDENT1 AFIS and members highlighted the importance of accrediting the new AFIS system in the future. The SPA noted that they had to manage the risk of the results produced by IDENT1 and their approach was to treat IDENT1 as a screening tool and follow up its matches with manual comparisons of the fingerprints.

8.10 The group discussed the new AFIS system and the importance of having validation data which showed the number of false negatives which were not identified by the system. Further discussions were held about whether all the fingerprint bureaux would gain accreditation to ISO 17025 by the October 2018 deadline, the progress which they had made to date, and whether there was a clear understanding of what needed to be included in their scope of accreditation for fingerprints. It was suggested that a national picture of progress which the bureaux are making to gain accreditation to ISO 17025 should be gathered by the fingerprint expert network.

## **9.0 National Police Chief's Council and Fingerprint Strategic Network update**

9.1 No update from the National Police Chiefs' Council (NPCC) and Fingerprint Strategic Network (FSN) was available.

## **10.0 Update from United Kingdom Accreditation Service**

10.1 An update was provided by the United Kingdom Accreditation Service (UKAS) on their work in relation to the accreditation of fingerprint bureaux to ISO 17025. UKAS had undertaken some pre-assessments visits of fingerprint bureaux and had consequently re-assessed their view on the level of detail required in the Enhancement/Image Capture guidance FSR-C-127. Whilst the level of detail should not be too prescriptive so that it required constant revision, the UKAS representative thought that a sufficient level of detail was required to ensure that bureaux could adequately prepare themselves for

accreditation and to understand the fundamental processes of quality control and the risks, checks and balances required. In addition, bureaux needed to be aware of the importance of validating systems using ground-truth data and for staff to be able to show objective evidence of competencies. Validation to ISO 17025 would require fundamental adjustments in mindsets of the staff working within the fingerprint bureaux and practitioners would need to become involved in the audit cycle.

10.2 A discussion was held about whether UKAS could provide anonymous feedback as to the progress bureaux were making in gaining accreditation. It was suggested that this was not the responsibility of UKAS and neither was it ideal, as feedback would be provided too late in the accreditation process. It was important to establish a mechanism for providing guidance and feedback to bureaux at an early stage of their accreditation process. It was decided that the FQSSG could collate a guidance document for bureaux working with the UKAS Technical Assessors.

10.3 It was suggested that forensic colleagues within police forces should also assist with drafting this guidance document. Karen Georgiou and Richard Small agreed to deal with this liaison with the police forces, through their positions on the fingerprints standards groups.

**Action 10: June Guinness and the Secretariat to review material previously provided to develop the comparison codes, and consider its suitability to develop a non-prescriptive guidance document, to assist police force fingerprint bureaux to gain accreditation to ISO 17025.**

**Action 11: Karen Georgiou and Richard Small to liaise with police forces to identify several forces that could provide examples of lessons learnt on fingerprints comparison accreditation.**

10.4 UKAS indicated that they required additional technical assessors for both fingerprint comparison and development. Technical assessors would be expected to commit ten days a year to the role and training would be received. FQSSG members were invited to provide names of colleagues as suitable candidates for these roles. June Guinness would coordinate the process of identifying new assessors and UKAS would provide a brief for the assessors.

**Action 12: Katherine Monnery to provide briefing for technical assessors' responsibilities and commitment for fingermark development and comparison to the Secretariat. FQSSG members to then submit nominations and paperwork for UKAS technical assessors to June Guinness, for co-ordination and processing, with Katherine Monnery.**

10.5 Members heard that revisions were being made to the ISO 17025 standard and the standard would be re-issued in Autumn 2017. After this date forces would have a transition period before they needed to adhere to the changed standard for their accreditations.



## **11.0 Metropolitan Police Force Ninhydrin and CNA (Superglue) Chemical Development issues**

11.1 The Metropolitan Police Force (MPS) processes for fingerprint development using Ninhydrin and Cyano-Acrylate (CNA) (Superglue) had recently been suspended from accreditation by UKAS.

11.2 Following these suspensions the MPS had written to the FSR explaining their justification for their processes in place. The MPS had commissioned a report by HO CAST on Ninhydrin and CNA fingerprint development and enhancement processes. With the move towards a statutory regulation environment for the FSR, such suspensions of accreditation needed to consider the risk to the CJS.

11.3 The group considered possible alternative approaches to dealing with apparent departures from the agreed accredited procedures during assessments of police force fingerprint bureaux. It was suggested that a Scientific Reference Group and committees could be established, chaired by the FSR and representatives from CAST, UKAS and policing lead.

**Action 13: Gary Pugh to draft terms of reference for a Scientific Reference Group to consider scientific technical issues in fingerprint examination that require common agreement and clarity, for progressing technical assessment and accreditation activities within the fingerprint profession, when the need arises.**

## **12.0 AOB**

### *PCAST Report to USA President*

12.1 A report had been submitted to the US President by the President's Council of Advisors on Science and Technology (PCAST) on forensic science in US criminal courts. The report expressed a favourable opinion on some forensic techniques while criticising others. The Federal Bureau of Investigations (FBI) had responded robustly to it as had the forensic community in the US.

12.2 It was noted that many of the issues described in the PCAST report were not relevant in the UK because alternative procedures were in use in UK forensic fingerprint bureaux. The FSR was reviewing whether the US conclusions on bite mark evidence might have an impact in the UK.

### *Expert Performance / Decision Making paper*

12.3 A research paper entitled "A hierarchy of expert performance" by Itiel E Dror in the Journal of Applied Research in Memory and Cognition had been provided to FQSSG. It described methods which could be used to validate expert decision making and the application of these to the process of fingerprint comparison. FQSSG members considered whether the paper

should be cited by the FSR as a reference paper. Members were invited to read the paper and submit further comments.

**Action 14: FQSSG members to read the paper circulated from Itiel E Dror and submit comments for the Regulator's consideration, and thoughts on its suitability as a relevant reference document.**

### **13.0 Dates of next FQSSG meetings**

13.1 The dates for the next two FQSSG meetings were confirmed as 15 December 2016 and 23 March 2017.

Annex A

**Present:**

Gary Pugh, Chair	Director of Forensic Services, Metropolitan Police Service
Helen Bandey	Centre for Applied Science and Technology
Duncan Brown	College of Policing
Emma Burton-Graham	Science Secretariat, Home Office
Graham Camm	Home Office Biometrics
Christophe Champod	Lausanne University
Karen Georgiou	Bedfordshire Police
June Guinness	Scientific Lead, Forensic Science Regulation Unit, Home Office
Lisa Hall	Metropolitan Police Service
Gary Holcroft	Scottish Police Authority
Katherine Monnery	United Kingdom Accreditation Service
Mike Taylor	Science Secretariat, Home Office

**Apologies:**

Apologies were received from:

Mark Bishop	Crown Prosecution Service
Iain Borthwick	Greater Manchester Police, Forensic Services Branch
Neil Denison	West Yorkshire Police
Richard Small	West Midlands Police