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Information technology — Biometric recognition of subjects in motion in access-related systems

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National foreword

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A list of organizations represented on this committee can be obtained on request to its committee manager.

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Contents

Page

Foreword ... **iv**
Introduction ... **v**
1 Scope ... **1**
2 Normative references ... **1**
3 Terms and definitions ... **1**
4 Biometric recognition in motion ... **2**
4.1 General ... 2
4.1.1 Purpose and constraints of in-motion biometric systems ... 2
4.1.2 Biometric performance and error rate ... 3
4.1.3 Quality/speed compromise ... 3
4.2 Biometric verification vs. biometric identification ... 4
4.2.1 Implementing an in-motion verification system ... 4
4.2.2 Implementing an in-motion identification system ... 5
4.3 Process flows in access-related systems ... 5
4.4 Applicable biometric modalities ... 5
4.4.1 General ... 5
4.4.2 Face modality ... 5
4.4.3 Iris modality ... 5
4.4.4 Fingerprint modality ... 6
4.4.5 Palm modality ... 6
4.4.6 Complementary modalities ... 6
4.5 Enrolment and quality ... 6
4.6 Ergonomics ... 6
4.6.1 Capture device physical placement ... 6
4.6.2 Catch attention ... 7
4.6.3 Feedback signal ... 7
4.7 Biometric information storage ... 7
5 Accessibility, usability and guidance ... **7**
5.1 General ... 7
5.2 Accessibility ... 8
5.3 Usability ... 8
5.4 Acceptable delay for a user for fluid passage ... 8
5.5 Guidance ... 9
6 Privacy and security considerations ... **9**
6.1 Data protection ... 9
6.2 Consent ... 9
6.3 Presentation attack detection ... 10
6.4 Security considerations ... 10
7 Examples of deployment ... **10**
7.1 General ... 10
7.2 Use cases ... 11
7.2.1 Example of system with fingerprint ... 11
7.2.2 Example of system with multimodal biometrics ... 11
Bibliography ... **15**

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Foreword

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This document was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 37, *Biometrics*.

This second edition cancels and replaces the first edition (ISO/IEC TS 22604:2023), which has been technically revised.

The main change is as follows:

— minor editorial modifications have been made in order to use more inclusive language.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html and www.iec.ch/national-committees.

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Introduction

The purpose of this document is to provide guidance on the use of in-motion biometric recognition technologies in access-related systems, where the management and prior enrolment of the identity of individuals needing access is required.

To satisfy increasing security demands, biometric recognition technologies are used in access-related systems to provide a more robust approach to identity authentication and to mitigate security risks. However, this can come at a cost of increased processing times and can lead to delays in user identification or verification.

Biometric identification and verification should be comprehensive and flexible for effective use in an access-related environment. Solutions should reduce user burden, be easy to manage and cost effective, maintain security requirements, and provide permission-based access and global interoperability as necessary. Biometric systems should effectively allow access to authorized users, incorporate mechanical and behavioural mechanisms to refer unenrolled persons to human personnel, and alert facilities to unauthorized users attempting to gain access. Systems should also provide a seamless, accurate and non-invasive user experience.

Considerable improvements in the performance of in-motion biometric recognition have resulted in applications that enable automated, convenient and non-intrusive face, iris or fingerprint recognition across a range of scenarios, including border control, passenger flow facilitation, access control and monitoring workplace time and attendance. This provides a positive and non-intrusive user experience, as the user does not need to carry anything or stop and stand still to be recognized and does not need to touch anything.

There are several considerations that are unique to in-motion biometric solutions for the design of contactless biometric recognition systems. Design considerations include:

— selection and placement of biometric data capturing devices (e.g. cameras);

— control of the flow of individuals requiring access to ensure that only those who are authorized gain access;

— proximity of capture devices to individuals seeking access for the contactless in-motion capture of the necessary information;

NOTE The proximity of the biometric capture devices can depend on the employed biometric modalities.

— management of exceptions;

— mutual placement of capture devices and equipment dedicated to physical access-control (e.g. door, barrier, turnstile).

A number of use cases involving in-motion biometrics address different scenarios, including those in which:

— access is based on the prior enrolment of all individuals well in advance of interacting with the biometric system (identification);

— access is based on credentials presented just prior to interacting with the biometric system (verification) [e.g. wireless technology, radio frequency identification (RFID) token or a vehicle number plate or any other token available without any interruption to the person's flow of movement].

These scenarios present different challenges to in-motion verification and identification processes.

Critical to the success of biometrics-based secure access is the implementation of state-of-the-art data protection technology and procedures (see ISO/IEC 20889 on privacy-enhancing data de-identification techniques, according to the privacy principles established in ISO/IEC 29100, taking into account legal, common practice, business, industry and privacy considerations).

An important factor in in-motion biometric recognition is the ability to sense/detect presentation attacks according to ISO/IEC 30107-3.

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