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

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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*.

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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 previous enrolment and management 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 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, cost effective, maintain the security requirements, and provide permission-based access and global interoperability as necessary. Biometric systems should effectively allow authorized users' access, 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 work place 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 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 that are authorized gain access.

— Proximity of capture devices to individuals seeking access for the contactless in-motion capture of the needed information. 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:

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

— where access is on the basis of credentials presented just prior to interacting with the biometric system (verification) (e.g. wireless technology, 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 implementation of state-of-the-art data protection technology and procedures (see ISO/IEC 20889[1] on privacy enhancing data de-identification techniques, according to the privacy principles established in ISO/IEC 29100,[3] taking into account legal, common practice, business, industry and privacy considerations).

An important factor in in-motion biometric recognition is its ability to sense/detect presentation attacks per ISO/IEC 30107-3.[5]

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1 Scope

This document establishes requirements for development of biometric solutions for verification and identification processes for secure access without physical contact with any device at any time. The solution acquires the biometric characteristics that are captured while the data subjects are in motion to verify or identify the individuals requiring access, and thus controlling access using contactless biometrics.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO/IEC 2382-37, *Information technology — Vocabulary — Part 37: Biometrics*

ISO/IEC 19795-1, *Information technology — Biometric performance testing and reporting — Part 1: Principles and framework*