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**Information technology - Evaluation methodology for  
environmental influence in biometric system performance**

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### foreword

This document is in accordance with the provisions of GB/T 1.1-2020 "Guidelines for Standardization Work Part 1. Structure and Drafting Rules of Standardization Documents" drafted.

This document is equivalent to ISO /IEC 29197.2015 "Methods for evaluating the environmental impact of the performance of information technology biometric identification systems".

Compared with ISO /IEC 29197.2015, this document has the following structural adjustments.

--- Chapter 2 corresponds to Chapter 3 of ISO /IEC 29197.2015;

--- Chapter 3 corresponds to Chapter 4 of ISO /IEC 29197.2015;

--- Chapter 4 corresponds to Chapter 2 of ISO /IEC 29197.2015.

Please note that some content of this document may be patented. The issuing agency of this document assumes no responsibility for identifying patents.

### Introduction

The performance of the biometric identification system can vary according to environmental conditions (see C.2.6 in GB/T 29268.1-2012, GB/T 29268.3-

Table 4 in.2012). Environmental conditions may affect the ease and comfort of the subject's use of the system, the subject's biometric characteristics, and

A device for taking biometric samples.

This document provides a general approach to analyze the impact of environmental conditions on the performance of biometric systems.

NOTE. Environmental conditions may affect several elements involved in the identification

process. However, the evaluation method presented in this document does not distinguish which elements are affected by

influence. The purpose of this method is to quantify the overall impact of biometric system performance.

For the purpose of this document, environmental conditions are understood as all atmospheric parameters (such as temperature

temperature, humidity) and other physical and chemical phenomena (e.g. illuminance, noise). Certain environmental conditions, such as vibration, are not addressed in this document.

These evaluations include performance evaluations that perform similar "end-to-end" biometrics in one or more predefined environments.

The environment can be real (naturally occurring) or simulated (human-controlled).

There are two possible ways to perform "end-to-end" biometric performance evaluation. perform scene evaluation or action evaluation. Comment on the scene

Considering real-world target applications and populations, biometric systems are evaluated in a simulated environment. These reviews are assigned

A special case of scene evaluation based on ISO /IEC 19795-2. Unlike in operating environments where uncontrolled parameters can affect the system, in

Evaluations performed in a controlled environment are reproducible. In operational evaluation, the target population is used to analyze the biometric system in the real environment

system. These evaluations are designated as a special case of operational evaluations based on ISO /IEC 19795-6. Operational testing may lack scenario testing

Accuracy (at the level of environmental parameters), but its advantage lies in operational realism. For the environmental tests of these two evaluations, this paper

The software provides specific test requirements.

This method addresses how to test for some environmental factors; however, evaluations consistent with this document may consider only a single environmental parameter. evaluation and

All test parameters of control were determined in advance by the participating evaluators.

The goals of this evaluation include.

--- analyze how one or more combined environmental factors affect the system performance of biometric identification, and quantify this effect;

- analyze how the biometric identification system works in a specific controlled environment, compared to the same system in a reference evaluation environment;
- Analyze the behavior of the biometric system in the real environment, the same system working in an environmental model that simulates the operating environment system compared.

The results of these evaluations can inform suppliers and users so that they can evaluate which environmental conditions may affect biometric identification

The performance of the system under expected conditions. The results can also indicate whether a particular biometric identification mode and implementation method meets the intended use of the system.

Use conditions. In addition, the method can be used to detect environmental parameters in the case of poor performance of biometric systems.

Information Technology Biometric System Performance

Environmental Impact Assessment Methods

## 1 Scope

This document specifies.

- Basic for planning and executing environmental assessment of biometric system performance based on scenario test methods and operational test methods

Require;

- Specifications for defining, establishing and measuring specific conditions for evaluation, including requirements for equipment;
- establish provisions for benchmark performance to compare the effects of environmental parameters;
- Specifications for the evaluation of biometric identification systems, including requirements for test populations, test protocols, recorded data and test results;
- Steps to conduct a comprehensive evaluation.

This document does not apply to.

- For a specific biometric identification modality, the determination of analysis parameters (included in GB/T 29268.3-2012);
- Specify requirements for performing vulnerability analysis, modifying environmental factors (already included in ISO /IEC 19792);
- classify biometric identification systems according to their performance under different

environmental conditions;

---Specify to determine the functional impact of environmental conditions on the hardware components of the biometric identification system (such as corrosion, electrical interference, damage, etc.)

Require.

## 2 Normative references

The contents of the following documents constitute essential provisions of this document through normative references in the text. Among them, dated citations

documents, only the version corresponding to that date applies to this document; for undated references, the latest edition (including all amendments) applies to this document.

GB/T 29268.1-2012 Information Technology Biometrics Performance Testing and Reporting Part 1.Principles and Framework (ISO /

IEC 19795-1.2006, IDT)

ISO /IEC 19795-2 Information technology biometric performance testing and reporting - Part 2.Test methods for technology and scenario evaluation

Note. GB/T 29268.2-2012 Information Technology Biometric Recognition Performance Testing and Reporting Part 2.Test Methods for Technology and Scenario Evaluation (ISO /IEC 19795-2.2007, IDT)

ISO /IEC 19795-6 Information technology biometric performance testing and reporting - Part 6.Test methods for operational evaluation

## 3 Terms and Definitions

The terms and definitions defined in GB/T 29268.1-2012 and the following apply to this document.