

**ISO/IEC JTC 1 N 9251**  
**ISO/IEC JTC 1**  
**Information Technology**

2008-08-22

**Document Type:** Proposed NP

**Document Title:** SC 37 Proposal for a New Work Item on Testing Level of Difficulty of Fingerprint Database for Technology Evaluation

**Document Source:** SC 37 Secretariat

**Reference:**

**Document Status:** This document is circulated to JTC 1 National Bodies for concurrent review. If the JTC 1 Secretariat receives no objections to this proposal by the due date indicated, we will so inform the SC 37 Secretariat.

**Action ID:** ACT

**Due Date:** 2008-11-22

**No. of Pages:** 8

**ISO/IEC JTC 1/SC 37 N 2779**

2008-08-22

**ISO/IEC JTC 1/SC 37  
Biometrics**

**Document Type:** NP for ballot

**Document Title:** Proposal for a New Work Item on Testing Level of Difficulty of Fingerprint Database for Technology Evaluation

**Source:** National Body of Korea

**Document Status:** This document is circulated to SC 37 National for a three month NP letter ballot.

**Action ID:** vote

**Due Date:** 2008-11-23

**No. of Pages:** 7

## New Work Item Proposal

### PROPOSAL FOR A NEW WORK ITEM

|   |                            |
|---|----------------------------|
| Date of presentation of proposal:<br>2008-07-08             | Proposer: KATS/Korea       |
| Secretariat of JTC1/SC37 and JTC1: ANSI<br>National Body US | <b>ISO/IEC JTC 1 N2779</b> |

**A proposal for a new work item** shall be submitted to the secretariat of the ISO/IEC joint technical committee concerned with a copy to the ISO Central Secretariat.

**Presentation of the proposal** - to be completed by the proposer. .

#### Title

Testing Level of Difficulty of Fingerprint Database for Technology Evaluation

#### Scope (and field of application)

This Technical Report will provide guidance on assessing the relative Level of Difficulty of fingerprint databases that are collected for technology evaluation of fingerprint recognition algorithms. This Technical Report will address such issues as:

- Defining quantitative measures for representing the Level of Difficulty of fingerprint databases based on the aggregated quality of fingerprint images in the database,
- Defining and quantifying the factors causing the genuine matching errors due to the difference between a pair of fingerprints acquired from the same finger,
- Comparing the relative Level of Difficulty of different fingerprint databases without applying matching algorithms,
- Defining procedures for testing and reporting the Level of Difficulty of fingerprint databases collected for technology evaluation.

The Level of Difficulty for a fingerprint database is a relative grade representing collective characteristics of the database which will affect the genuine matching performance. These characteristics will be defined on the basis of not only image quality but also other relative factors between a genuine pair of fingerprints such as quality difference, common area, or rotation.

This Technical Report is intended to provide a guideline for comparing the relative Level of Difficulty of fingerprint databases collected by different organizations or vendors without applying a matching algorithm to the databases.

#### Purpose and justification

The purpose of this Technical Report is to provide guidance on assessing the relative Level of Difficulty of various fingerprint databases that are built by different organizations or vendors for technology evaluation of fingerprint recognition algorithms.

Recently, there have been worldwidely increasing activities in testing and evaluating the performance of fingerprint recognition systems or algorithms. These activities are made independently in governmental organizations, academia, or even manufactures with their own fingerprint databases.

Since there is no guideline for comparing the relative level of difficulty of each database, the results of technology evaluation performed over various databases in different organizations cannot be compared.

Following the guidance in this TR, users and system evaluators in different organizations will be able to adjust the performance results of the other organization according to the level of difficulty of its databases.

**Programme of work**

If the proposed new work item is approved, which of the following document(s) is (are) expected to be developed?

☐ a single International Standard

☐ more than one International Standard (expected number: ..... )

☐ a multi-part International Standard consisting of ..... parts

☐ an amendment or amendments to the following International Standard(s) .....

☒ a technical report

And which standard development track is recommended for the approved new work item?

☒ a. Default Timeframe

☐ b. Accelerated Timeframe

☐ c. Extended Timeframe

**Relevant documents to be considered**

ISO/IEC 19795-1, 29794-1 and 29794-4

**Co-operation and liaison**

ISO/IEC SC37 WG3

**Preparatory work offered with target date(s)**

Base Draft Document To Be submitted upon approval of this New Work Item

**Signature:** In-suk Nam, KATS

Will the service of a maintenance agency or registration authority be required? .....No.....

- If yes, have you identified a potential candidate? .....

- If yes, indicate name .....

Are there any known requirements for coding? ....No.....

-If yes, please specify on a separate page

Does the proposed standard concern known patented items? ...No.....

- If yes, please provide full information in an annex

Are there any known accessibility requirements and/or dependencies (see:

<http://www.jtc1access.org>)?....No.....

-If yes, please specify on a separate page

Are there any known requirements for cultural and linguistic adaptability?.....No.....

-If yes, please specify on a separate page

**Comments and recommendations of the JTC 1 or SC 37 Secretariat** - attach a separate page as an annex, if necessary

**Comments with respect to the proposal in general, and recommendations thereon:**

It is proposed to assign this new item to JTC 1/SC 37/WG 5

**Voting on the proposal** - Each P-member of the ISO/IEC joint technical committee has an obligation to vote within the time limits laid down (normally three months after the date of circulation).

**Date of circulation:**  
2008-08-22

**Closing date for voting:**  
2008-11-23

**Signature of Secretary:**  
Lisa A. Rajchel

|   |   |  |
|---|---|--|
| <b>NEW WORK ITEM PROPOSAL -<br/>PROJECT ACCEPTANCE CRITERIA</b> |   |  |
| <b>Criterion</b>  | <b>Validity</b>   | <b>Explanation</b>   |
| <b>A. Business Requirement</b>                                  |   |  |
| A.1 Market Requirement  | Essential ____<br>Desirable _ X ____<br>Supportive ____                           | Essential to create learning materials available for multiple distribution channels. |
| A.2 Regulatory Context  | Essential ____<br>Desirable ____<br>Supportive _ ____<br>Not Relevant ____<br>X _ |  |
| <b>B. Related Work</b>  |   |  |
| B.1 Completion/Maintenance of current standards                 | Yes ____<br>No _X__   |  |
| B.2 Commitment to other organisation                            | Yes ____<br>No _X__   |  |
| B.3 Other Source of standards                                   | Yes _ X ____<br>No ____   | 19795-1, 29794-1, 29794-2  |
| <b>C. Technical Status</b>                                      |   |  |
| C.1 Mature Technology   | Yes _X__<br>No ____   |  |
| C.2 Prospective Technology                                      | Yes ____<br>No _X__   |  |
| C.3 Models/Tools  | Yes _ ____<br>No _ X ____   |  |
| <b>D. Conformity Assessment and Interoperability</b>            |   |  |
| D.1 Conformity Assessment                                       | Yes ____<br>No _X__   |  |
| D.2 Interoperability  | Yes ____<br>No _ X ____   |  |

|   |                       |  |
|---|-----------------------|--|
| <b>E. Adaptability to Culture, Language, Human Functioning and Context of Use</b> |                       |  |
| E.1 Cultural and Linguistic Adaptability  | Yes_____<br>No___X___ |  |
| E.2 Adaptability to Human Functioning and Context of Use                          | Yes_____<br>No___X___ |  |
| <b>F. Other Justification</b>   |                       |  |

## **Notes to Proforma**

**A. Business Relevance.** That which identifies market place relevance in terms of what problem is being solved and or need being addressed.

A.1 Market Requirement. When submitting a NP, the proposer shall identify the nature of the Market Requirement, assessing the extent to which it is essential, desirable or merely supportive of some other project.

A.2 Technical Regulation. If a Regulatory requirement is deemed to exist - e.g. for an area of public concern e.g. Information Security, Data protection, potentially leading to regulatory/public interest action based on the use of this voluntary international standard - the proposer shall identify this here.

**B. Related Work.** Aspects of the relationship of this NP to other areas of standardisation work shall be identified in this section.

B.1 Competition/Maintenance. If this NP is concerned with completing or maintaining existing standards, those concerned shall be identified here.

B.2 External Commitment. Groups, bodies, or for external to JTC 1 to which a commitment has been made by JTC for Co-operation and or collaboration on this NP shall be identified here.

B.3 External Std/Specification. If other activities creating standards or specifications in this topic area are known to exist or be planned, and which might be available to JTC 1 as PAS, they shall be identified here.

**C. Technical Status.** The proposer shall indicate here an assessment of the extent to which the proposed standard is supported by current technology.

C.1 Mature Technology. Indicate here the extent to which the technology is reasonably stable and ripe for standardisation.

C.2 Prospective Technology. If the NP is anticipatory in nature based on expected or forecasted need, this shall be indicated here.

C.3 Models/Tools. If the NP relates to the creation of supportive reference models or tools, this shall be indicated here.

**D. Conformity Assessment and Interoperability** Any other aspects of background information justifying this NP shall be indicated here.

D.1 Indicate here if Conformity Assessment is relevant to your project. If so, indicate how it is addressed in your project plan.

D.2 Indicate here if Interoperability is relevant to your project. If so, indicate how it is addressed in your project plan

**E. Adaptability to Culture, Language, Human Functioning and Context of Use**

NOTE: The following criteria do not mandate any feature for adaptability to culture, language, human functioning or context of use. The following criteria require that if any features are provided for adapting to culture, language, human

functioning or context of use by the new Work Item proposal, then the proposer is required to identify these features.

**E.1 Cultural and Linguistic Adaptability.** Indicate here if cultural and natural language adaptability is applicable to your project. If so, indicate how it is addressed in your project plan.

**E.2 Adaptability to Human Functioning and Context of Use.** Indicate here whether the proposed standard takes into account diverse human functioning and diverse contexts of use. If so, indicate how it is addressed in your project plan.

**F. Other Justification** Any other aspects of background information justifying this NP shall be indicated here.