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**Proposal for the Creation of
Standard Methods of
Measuring and Reporting
Biometric Algorithm
Performance Metrics**

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Motivation

- Enhance credibility of biometric application providers by calibrating consumer expectations of biometric applications
- Facilitate design of biometric-based systems with predictable performance

Proposed Scope

- Standardized definitions of biometric “system” performance metrics
- Standardized biometric “system” performance measurement methodologies
- Standardized biometric “system” performance metrics reporting

Standardized Definitions

- False Non-Match Rate
- False Match Rate
- Failure to Enroll Rate

Standardized Measurement Methodologies

- Standard, shared data set(s)
- Standardized test procedures
- Different procedures for different problem domains
- Testing performed by neutral group(s)

Standard, Shared Data Set(s)

- Known sources, image sizes, resolutions
- Subdivided to reflect common problem domains (subject population, sensor type, environmental conditions) and data quality
- 'File' data sets available to all
- Data maintained by technology- & vendor-neutral agency
- 'Search' data sets remain confidential

Standardized test procedures

- Training of test subjects (extent, timing)
- Coaching test subjects (extent, frequency)
- Number of retries allowed ('trial' definition)
- Interpretation of results ('match' definition)

Standardized Metrics Reporting

- Statement of compliance with measurement methodology standard
- Identification of group conducting test
- Identification of test type (1:1 or 1:N)
- Identification of test subtype (examples for fingerprints)
 - Rolled vs rolled (verification vs enrollment)
 - Rolled vs flat
 - Flat vs rolled
 - Flat vs flat

Standardized Metrics Reporting

(continued)

- Identification of data set(s) used and population size
- Identification of device(s) used to acquire both enrollment & search data by technology, brand, model
- Identification of 'search' data source(s) (live or previously captured)
- Identification of image processing & feature extraction software used to prepare enrollment and search data
- Identification of security setting(s) used, if applicable

Reference Documents

- **Biometric Evaluation Methodology Working Group**
 - Common Methodology for Information Technology Security Evaluation, Version 1.0, August 2002

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