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Part 1: Framework

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Partie 1: Cadre

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

This third edition cancels and replaces the second edition (ISO/IEC 29794-1:2016), which has been technically revised.

The main changes are as follows:

— the definitions of “quality”, “quality score”, and “utility” have been aligned with those in ISO/IEC 2382-37:2022;

— methods for evaluating the efficacy of quality assessment algorithms have been added;

— ASN.1 encoding as defined in ISO/IEC 39794-1 is supported.

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Quality measures are useful for several applications in the field of biometrics. While ISO/IEC 19784-1 specifies a structure and gives guidelines for quality score categorization, this document defines and specifies methodologies for objective and quantitative quality score expression, interpretation and interchange.

This document establishes a framework that facilitates the use of biometric sample quality assessment and scoring tools. The tools are intended to encourage innovation and performance improvements in, and interoperability of, biometric systems generally. The ISO/IEC 29794 series presents several biometric sample quality assessment and scoring tools, the use of which is generally optional but can be determined as mandatory by particular application profiles or specific implementations. The ISO/IEC 29794 series is prepared to accommodate additional parts that address the biometric modes specified by the ISO/IEC 19794 series and the ISO/IEC 39794 series, with part numbers and titles aligning appropriately. However, as this document is intended for use by all biometric modes, a mode does not necessarily need a mode-specific part to make use of quality scores.

Several applications can benefit from the use of biometric sample quality measures. An example is the use of real-time quality feedback as part of the biometric capture process to improve the operational efficiency and performance of a biometric system. Other examples include data fusion for which multiple samples or references are available in the comparison process, either from a single or multiple biometric mode, and hardening systems against presentation attacks using or targeting low quality biometric samples. The association of quality measures with biometric samples is an important component of quality measure standardization. Quality fields as specified in Clause 7 are included in biometric data interchange formats. If a CBEFF (Common Biometric Exchange Formats Framework) header is present, then CBEFF_BDB_quality may additionally be used to express quality measures. Useful analyses can be performed using quality measures along with other data to improve the performance of a biometric system. For example, correlating quality measures to other system metrics can be used to diagnose problems and highlight potential areas of performance improvement.