BixeLab

Standards-based testing and certification of biometric, identity and AI solutions to assure accuracy, security and fairness.

ISO/IEC 30106-aligned Evaluation covering Template diversity, Irreversibility, and Unlinkability

ZeroBiometrics ZeroFace Version: V1.0.0

FACE

ISO/IEC 30106

TESTED 2024

Letter of Confirmation

Issued to ZeroBiometrics

for test report issued on the 10th of October 2024 for

ISO/IEC 30136 compliance evaluation of,

ZeroBiometrics' ZeroFace v1.0.0 technology - Item under test (IUT)

To whom it may concern,

BixeLab is a biometric testing laboratory accredited by National Institute of Standards and Technology (NIST) under the National Voluntary Laboratory Accreditation Program (NVLAP) with testing Lab code: 600301-0 (certificate and scope may be downloaded from the NVLAP website). BixeLab also conforms to the requirements of ISO/IEC 17025:2017 (General Requirements for Competence of Testing and Calibration laboratories). As an internationally recognised and accredited biometric testing laboratory, BixeLab leverages experience, expertise, and accredited testing methodologies to conduct all of its evaluations, and prides itself in delivering trustworthy, high-calibre, and insightful results.

BixeLab shall not be held liable for any interpretations, decisions, or actions based on the information contained in this confirmation letter. BixeLab does not certify or make any claims regarding the performance of the IUT outside of the described context in this letter. It's important to note the time period for testing as attacks are constantly evolving.

In September 2024, BixeLab conducted a compliance evaluation of the Item Under Test (IUT) against the applicable specifications of the ISO/IEC 30136 standard.

The evaluation consisted of a theoretical audit of ZeroBiometrics to the generalised architecture and requirements of the ISO/IEC 30136 standard and an empirical audit involving a dataset of facial images from 53 subjects. Analysis was conducted on the derived data produced by ZeroFace to determine the extent to which it adheres to the privacy and security aspects of the standard, specifically those focussing on irreversibility, unlinkability and diversity.

Theoretical Evaluation:

- **Specification Conformance:** The evaluation identified that ZeroFace aligns with the architectures defined in ISO/IEC 30136 and ISO/IEC 24745:2022.
- **Irreversibility and Unlinkability:** The evaluation identified that ZeroFace satisfies the irreversibility aspect along with the unlinkability criteria as specified in the ISO/IEC 30136 standard.

Empirical Evaluation:

- **Template Diversity:** The "ZeroHash" produced by ZeroFace exhibited high entropy of 7.89 bits per byte, indicating a high level of randomness and unpredictability, suggesting strong diversity across the tested ethnic groups.
- **Irreversibility:** Mutual information analysis between each PI and unsaved precursor code yielded a score of zero, ensuring that reversibility of biometric data is infeasible.
- **Unlinkability:** No correlation was observed between the PI generated from the same user's biometric data in difference instances of ZeroFace.

The results of the conducted evaluation indicate that ZeroBiometrics' ZeroFace v1.0.0 adheres to the privacy and security aspects of the ISO/IEC 30136 standard, specifically those focussing on irreversibility, unlinkability and diversity.

This letter confirms that the IUT – ZeroFace v1.0.0 - Item under test (IUT) was tested according to the applicable ISO/IEC 30136 specifications and was found to compliant with the standard.

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