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**D4.2**  
**Working set of performance requirements and  
associated evaluation methodologies for the  
selected biometric case studies**

***EXECUTIVE PUBLISHABLE SUMMARY***

Fraunhofer IGD  
Morpho  
NPL

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Version:	1.0
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Responsible:	Fraunhofer IGD
Author(s):	Olaf Henniger, Olga Kähm (Fraunhofer IGD), Pierre Gacon (Morpho), Aruna Shenoy, Tony Mansfield (NPL)
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## Summary

HECTOS is an EU FP7 security research project exploring the issue that there are very few evaluation and certification procedures for physical security products that are mutually recognised by EU Member States. HECTOS intends to identify mechanisms to evaluate the performance of security products as well as to evaluate their compliance with interoperability requirements, regulatory requirements, ethical requirements, privacy requirements, and other requirements. The project intends to propose elements of a roadmap for the development of new harmonised product certification schemes.

To analyse, develop, enhance, and experimentally validate evaluation and certification schemes, HECTOS conducts case studies in two priority areas: Biometrics and detection of weapons and explosives. For the biometric case studies, the following topics have been selected:

1. Image quality of contactless fingerprint sensors,
2. Presentation attack (spoof) detection capability and presentation attack resistance of biometric systems, and
3. Products for secure biometric access control to critical infrastructure.

HECTOS deliverable D4.2 specifies for each of these topics

- Performance requirements to be evaluated and
- The test methodology to be used in the evaluation.

The performance requirements are based on a risk assessment for the selected applications. Some requirements and/or associated test methods are based on existing standards:

- For topic 1, on the established requirements and test methods associated with 2D fingerprint sensors,
- For topic 2, on Common Criteria guidance, published protection profiles for fingerprint spoof detection, output from the EU project BEAT, and related ISO/IEC standards under development,
- For topic 3, on a proposed CEN technical specification for biometric authentication for critical infrastructure access control (which itself was based on two similar national standards addressing biometric access control in critical infrastructure).

For certification of biometric recognition products, particular certification scheme issues are the development and agreement of certification criteria across multiple technologies (e.g., both legacy and new biometric technologies), as well as harmonisation of requirements between related applications. Moreover, it is recognised that for some key aspects of testing, such as testing of presentation attack resistance, methods of interlaboratory comparison need to be established to ensure/demonstrate broad equivalence of test results. In particular, the biometric case studies will include

- Inter/intra-laboratory repeatability tests carried out at NPL, Fraunhofer IGD, and Morpho to identify suitable procedures to ensure repeatability for adversarial tests (i.e., presentation attack resistance / presentation attack detection in the case of biometrics), as well as for image quality tests,
- Consideration of the possibility for certified evaluation (of biometric access control products) independent of quantified performance requirements or thresholds, and consideration of the requirements for accreditation (e.g. interlaboratory comparison, publication of test results) to enable re-use and mutual recognition of evaluation results.



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