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Information technology — Telecommunications and information exchange between systems — NFC-SEC Test Methods

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Foreword

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The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of document should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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ISO/IEC 22425 was prepared by Ecma International (as ECMA-415) and was adopted, under a special "fast-track procedure", by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, in parallel with its approval by national bodies of ISO and IEC.

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Introduction

The NFC Security Test (NFC-SEC-TEST) standard specifies the definitions, rules and methods for the NFC-SEC-TEST standard and the necessary test apparatus. It corresponds to ISO/IEC 13157 series (ECMA-385, ECMA-386, ECMA-409, ECMA-410 and ECMA-411) of NFC-SEC standards which specify:

— NFC-SEC secure channel and shared secret services and protocol for NFCIP-1, and

— mechanisms for those services.

ISO/IEC 13157 series of NFC-SEC consist of the following standards:

— ISO/IEC 13157-1: *Information technology — Telecommunications and information exchange between systems — NFC Security — Part 1: NFC-SEC NFCIP-1 security services and protocol* (ECMA-385)

— ISO/IEC 13157-2: *Information technology — Telecommunications and information exchange between systems — NFC Security — Part 2: NFC-SEC cryptography standard using ECDH and AES* (NFC-SEC-01, ECMA-386)

— ISO/IEC 13157-3: *Information technology — Telecommunications and information exchange between systems — NFC Security — Part 3: NFC-SEC cryptography standard using ECDH-256 and AES-GCM* (NFC-SEC-02, ECMA-409)

— ISO/IEC 13157-4: *Information technology — Telecommunications and information exchange between systems — NFC Security — Part 4: NFC-SEC entity authentication and key agreement using asymmetric cryptography* (NFC-SEC-03, ECMA-410)

— ISO/IEC 13157-5: *Information technology — Telecommunications and information exchange between systems — NFC Security — Part 5: NFC-SEC entity authentication and key agreement using symmetric cryptography* (NFC-SEC-04, ECMA-411)

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Information technology — Telecommunications and information exchange between systems — NFC-SEC Test Methods

1 Scope

This International Standard specifies the definitions, rules and methods for the NFC-SEC-TEST standard and the necessary test apparatus. The test report templates are provided in Annexes A and B.

2 Conformance

In addition to conforming to ISO/IEC 22536 (ECMA-356) and ISO/IEC 23917 (ECMA-362), conforming implementations of ECMA-386, ECMA-409, ECMA-410 and ECMA-411 shall pass all respective normative test cases and requirements specified herein using the test apparatus and rules of this International Standard. Test results should be recorded using Annex A and Annex B of this International Standard.

3 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO/IEC 9646 (all parts), *Information technology — Open Systems Interconnection — Conformance Testing Methodology and Framework*

ISO/IEC 9798-1:2010, *Information technology — Security techniques — Entity authentication — Part 1: General*

ISO/IEC 13157-1:2014, *Information technology — Telecommunications and information exchange between systems — NFC Security — Part 1: NFC-SEC NFCIP-1 security services and protocol (ECMA-385)*

ISO/IEC 13157-2:2016, *Information technology — Telecommunications and information exchange between systems — NFC Security — Part 2: NFC-SEC cryptography standard using ECDH and AES (ECMA-386)*

ISO/IEC 13157-3:2016, *Information technology — Telecommunications and information exchange between systems — NFC Security — Part 3: NFC-SEC cryptography standard using ECDH-256 and AES-GCM (ECMA-409)*

ISO/IEC 13157-4:2016, *Information technology — Telecommunications and information exchange between systems — NFC Security — Part 4: NFC-SEC entity authentication and key agreement using asymmetric cryptography (ECMA-410)*

ISO/IEC 13157-5:2016, *Information technology — Telecommunications and information exchange between systems — NFC Security — Part 5: NFC-SEC entity authentication and key agreement using symmetric cryptography (ECMA-411)*

ISO/IEC 18092, *Information technology — Telecommunications and information exchange between systems — Near Field Communication — Interface and Protocol (NFCIP-1) (ECMA-340)*

ISO/IEC 22536, *Information technology — Telecommunications and information exchange between systems — Near Field Communication Interface and Protocol (NFCIP-1) — RF Interface Test Methods (ECMA-356)*

ISO/IEC 23917, *Information technology — Telecommunications and information exchange between systems — NFCIP-1 — Protocol Test Methods (ECMA-362)*

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4 Terms and definitions

For the purposes of this International Standard, the following terms and definitions apply.

4.1
digital certificate (certificate)
public key information of an entity signed by the certification authority and thereby rendered unforgeable

[SOURCE: ISO/IEC 9798-1]

4.2
name
the names of basic elements for test case, e.g. specific fields that are written with a capital initial letter

4.3
recipient
NFC-SEC entity that receives ACT_REQ

[SOURCE: ISO/IEC 13157-1]

4.4
sender
NFC-SEC entity that sends ACT_REQ

[SOURCE: ISO/IEC 13157-1]

4.5
test report
report for the test, that includes amongst other information: supplier, device ID, test suite, test name, test result, the number of passed tests versus the total number of tests, the number of different samples and the date of the tests, see Annexes A and B

5 Conventions and notations

Clause 5 of ISO/IEC 13157-2 (ECMA-386) applies.

6 Acronyms

For the purposes of this International Standard, the following acronyms following apply.

A106	Active communication mode at 106 kbps
A212	Active communication mode at 212 kbps
A424	Active communication mode at 424 kbps
IUT	Implementation Under Test
I/O	Input and Output
LT	Lower Tester
NEAU	NFC Entity Authentication
NEAU-A	NEAU using Asymmetric Cryptography
NEAU-S	NEAU using Symmetric Cryptography

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