



BSI Standards Publication

Personal identification — ISO-compliant driving licence

Part 4: Test methods

National foreword

This British Standard is the UK implementation of ISO/IEC 18013-4:2019+A1:2024. It supersedes BS ISO/IEC 18013-4:2019, which is withdrawn.

The start and finish of text introduced or altered by amendment is indicated in the text by tags. Tags indicating changes to ISO/IEC text carry the number of the ISO/IEC amendment. For example, text altered by ISO/IEC amendment 1 is indicated by A1 A1.

The UK participation in its preparation was entrusted to Technical Committee IST/17, Cards and security devices for personal identification.

A list of organizations represented on this committee can be obtained on request to its committee manager.

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Published by BSI Standards Limited 2024

ISBN 978 0 539 22567 9

ICS 35.240.15

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This British Standard was published under the authority of the Standards Policy and Strategy Committee on 30 November 2019.

Amendments/corrigenda issued since publication

Date	Text affected
31 March 2024	Implementation of ISO/IEC amendment 1:2024

INTERNATIONAL STANDARD

ISO/IEC 18013-4 +A1

Second edition
2019-10

Amendment 1
2024-01

Personal identification — ISO- compliant driving licence —

Part 4: Test methods

*Identification des personnes — Permis de conduire conforme à l'ISO —
Partie 4: Méthodes d'essai*



Reference number
ISO/IEC 18013-4:2019(E)

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Published in Switzerland

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Foreword

ISO (the International Organization for Standardization) and IEC (the International Electrotechnical Commission) form the specialized system for worldwide standardization. National bodies that are members of ISO or IEC participate in the development of International Standards through technical committees established by the respective organization to deal with particular fields of technical activity. ISO and IEC technical committees collaborate in fields of mutual interest. Other international organizations, governmental and non-governmental, in liaison with ISO and IEC, also take part in the work.

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).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO and IEC shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents) or the IEC list of patent declarations received (see <http://patents.iec.ch>).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see www.iso.org/iso/foreword.html.

This document was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 17, *Cards and security devices for personal identification*.

This second edition cancels and replaces the first edition (ISO/IEC 18013-4:2011), which has been technically revised. It also incorporates the Technical Corrigendum ISO/IEC 18013-4:2011/Cor 1:2013.

The main changes compared to the previous edition are as follows:

- in the interest of interoperability of cards used for personal identification, the authentication protocols for the IDL are simplified; Active Authentication is harmonised with other ISO standards and thus BAP configurations 2, 3 and 4, as well as EAP are no longer supported by this document;
- replacing EAP, the optional EACv1 protocol is defined for the IDL, enabling access control to sensitive biometric data stored on an integrated circuit; EACv1 may be used in conjunction with either BAP configuration 1 or PACE;
- the optional PACE protocol enables access control to the data stored on an integrated circuit. The PACE protocol is a password authenticated Diffie Hellman key agreement protocol based on a (short) input string that provides secure communication between a secure integrated circuit on an IDL and a terminal and allows various implementation options (mappings, input strings, algorithms); the PACE protocol implementation for the IDL is restricted to Elliptic Curve Diffie Hellman (ECDH) generic mapping and can be used as a stand-alone protocol or in combination with the EACv1 protocol.

A list of all parts in the ISO/IEC 18013 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

The ISO/IEC 18013 series establishes guidelines for the design format and data content of an ISO-compliant driving licence (IDL) with regard to human-readable features (ISO/IEC 18013-1), machine-readable technologies (ISO/IEC 18013-2) and access control, authentication and integrity validation (ISO/IEC 18013-3). It creates a common basis for international use and mutual recognition of the IDL without impeding individual countries/states to apply their privacy rules and national/community/regional motor vehicle authorities in taking care of their specific needs.

This document prescribes requirements for testing of the compliance of the machine-readable data content and mechanisms to control access to data recorded in the machine-readable technology on an IDL with the requirements of ISO/IEC 18013-2 and ISO/IEC 18013-3 respectively.

Personal identification — ISO-compliant driving licence —

Part 4: Test methods

1 Scope

This document describes the test methods used for conformity testing, that is methods for determining whether a driving licence can be considered to comply with the requirements of the ISO/IEC 18013 series for:

- machine readable technologies (ISO/IEC 18013-2), and
- access control, authentication and integrity validation (ISO/IEC 18013-3).

The test methods described in this document are based on specifications defined in ISO/IEC 18013-2 and ISO/IEC 18013-3 and underlying normative specifications.

This document deals with test methods specific to IDL requirements. Test methods applicable to (smart) cards in general (e.g. those specified in the ISO/IEC 10373 series) are outside the scope of this document.

Hence the purpose of this document is to:

- provide IDL implementers with requirements for conformity evaluation,
- provide IDL issuing authorities with requirements for quality assurance, and
- provide test laboratories and test tool providers with test suite requirements.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 3166-1, *Codes for the representation of names of countries and their subdivisions — Part 1: Country codes*

ISO/IEC 8859-1, *Information technology — 8-bit single-byte coded graphic character sets — Part 1: Latin alphabet No. 1*

ISO/IEC 18013-2:2020 ^{A1}, *Personal identification — ISO-compliant driving licence — Part 2: Machine-readable technologies*

ISO/IEC 18013-3:2017, *Information technology — Personal identification — ISO-compliant driving licence — Part 3: Access control, authentication and integrity validation*

BSI TR-03105-3.2, *Advanced Security Mechanisms for Machine Readable Travel Documents — Extended Access Control (EACv1) — Tests for Security Implementation — Version 1.5*

BSI TR-03111, *Elliptic Curve Cryptography (ECC) — Version 2.0*

ICAO Doc 9303, *Machine Readable Travel Documents*, seventh edition, 2015

TRICA0, Part 3, RF Protocol and Application Test Standard for eMRTD — Part 3: Tests for Application Protocol and Logical Data Structure, version 2.11

RFC-3369 — *Cryptographic Message Syntax (CMS)*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in  ISO/IEC 18013-2:2020 , ISO/IEC 18013-3 and the following apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <http://www.electropedia.org/>

3.1

test case

description of test purpose, unique test case identifier, test inputs, test execution conditions, test steps, and the results required to pass the test

3.2

test case specification

collection of *test cases* ([3.1](#)) and general test data applicable to the test cases

4 Abbreviated terms

AA	active authentication
AKID	authority key identifier
AID	application identifier
APDU	application protocol data unit
BAP	basic access protection
BCD	binary coded decimal
CA	chip authentication
 CE	compact encoding 
DER	distinguished encoding rules dedicated
DF	file
DG	data group
DO	data object
EAC	extended access control
EF	elementary file
ECDSA	elliptic curve digital signature algorithm
FID	file identifier
ICS	implementation conformance statement
IDL	ISO-compliant driving licence

IUT	implementation under test
LDS	logical data structure
MAC	message authentication code
NMA	non-match alert
OID	object identifier
PA	passive authentication
PACE	Password Authenticated Connection Establishment
RF	radio frequency
SAI	scanning area identifier
SE	standard encoding
SIC	secure integrated circuit
SFI	short EF identifier
SMI	security mechanism indicator
SOD	document security object
TA	terminal authentication

5 Conformance

Test case specifications described in this document are intended to be performed separately and independently. A given driving licence document is not required to pass through all the tests sequentially. Also, not all tests may be applicable to a given implementation.

An IDL is considered to conform to the applicable requirements of  ISO/IEC 18013-2:2020  and ISO/IEC 18013-3 if it passes all associated tests in this document. However, passing all applicable tests in this document does not guarantee that no failures will occur under operational conditions.

6 Test design

6.1 General

This clause generally follows the concepts of the OSI Conformance Testing Methodology and Framework as specified in ISO/IEC 9646 (all parts). Several basic elements referred to in or by the individual test case specifications are explained.

NOTE These elements facilitate the synchronization of additional specifications written by different organizations with this document.

6.2 Test hierarchy

6.2.1 Structure

Test concepts used to describe the test design consist of the following elements:

- implementation under test (IUT);

- test layer;
- test unit;
- test case.

These elements have a hierarchical relationship as shown in [Figure 1](#).

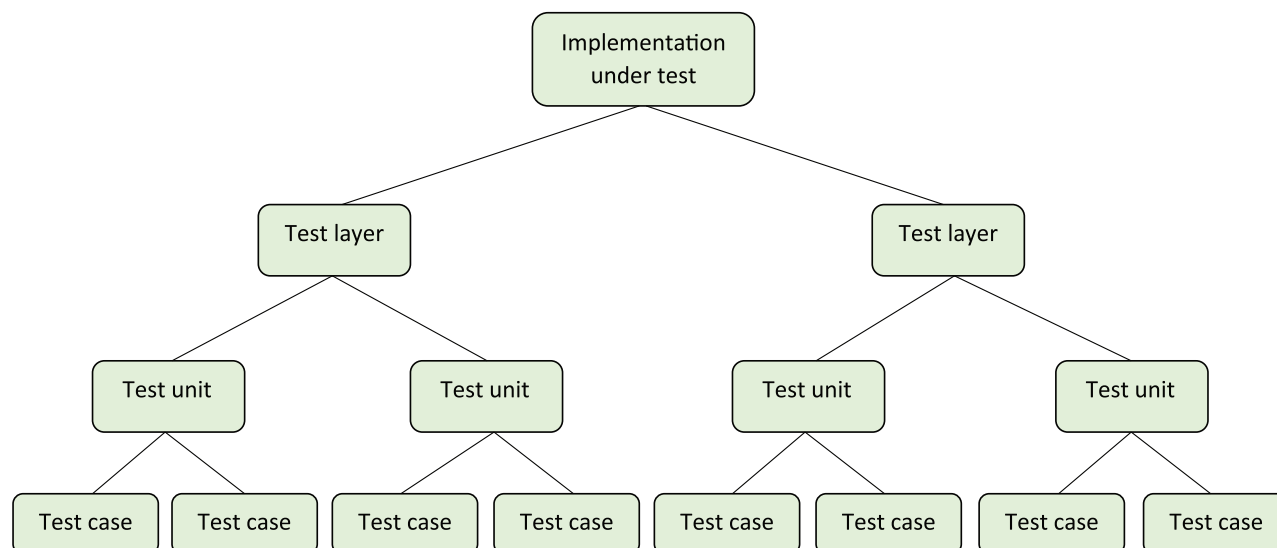


Figure 1 — Test element hierarchy

6.2.2 Implementation under test

6.2.2.1 Overview

[A1] One IUT is defined as an IDL with SE for SIC (see ISO/IEC 18013-2:2020, Annex C) or an IDL with CE (see ISO/IEC 18013-2:2020, Annex B). **[A1]**

6.2.2.2 Profile

Profiles are defined for identifying optional functionality in the IUT, which impacts the applicability of certain test layers, test units or test cases.

Profiles determine whether certain tests are applicable in the test layer, test unit or test case definitions. This enables the tester or test software to (automatically) select which tests should be executed to the IUT. Such selection is based upon the ICS filled out by the applicant or tester (also see [6.3.1](#)).

The Profile specification shall include:

- Profile-ID;
- Profile description.

6.2.3 Test layer

6.2.3.1 Overview

The following two of the seven layers in the OSI Basic Reference Model as defined in ISO/IEC 7498-1 are addressed in this document:

- layer 7 refers to the Application Layer, and
- layer 6 refers to the Presentation Layer.

The other layers are not applicable.

Each test layer comprises a number of test units.

6.2.3.2 Layer 7 — Logical data structure tests

Layer 7 tests cover LDS requirements. LDS requirements include:

- presence and availability of DGs;
- presence and formatting of fields in each DG;
- access to DGs (security mechanisms).

6.2.3.3 Layer 6 — Command tests

Layer 6 tests are applicable only to IDL implementations on SIC. Layer 6 on a SIC consists of Commands. Commands for an IDL are specified in [A1](#) ISO/IEC 18013-2:2020 [A1](#) and ISO/IEC 18013-3 and are applicable to the following IUT:

- SE.

6.2.4 Test unit

A test unit covers an individual topic inside a layer. Each test unit contains test cases that are related to the same type of functionality of the IUT. A test unit groups together test cases that address a common issue.

Each test unit is defined by the following information:

Test unit-ID	Uniquely identifies the test unit inside the test layer.
Purpose	Specifies the common issue addressed by test cases contained in this test unit.
References	Optionally identifies references applicable to all test cases in the test unit.

6.2.5 Test case

Each test case is defined by the following information:

Test case-ID	Uniquely identifies the test case within the test unit.
Purpose	Specifies the requirement addressed in this test case.
Version	Specifies the version number of this test case.
References	Identifies specific reference to the requirement addressed by this test case.
Profile	Defines the profiles for which the test case is applicable. If no profile is defined (empty field), the test applies to all configurations. If the IUT does not match with each of the defined profiles, the test is skipped and marked as "not applicable" in the test report.

Preconditions	Define the state in which the IUT needs to be before the test case can be executed, including test cases that shall have been successfully passed, if any. If these preconditions are not fulfilled, the test is skipped and marked as such in the test report.
Test scenario	<p>Defines the test steps that shall be taken.</p> <p>Each step covers a simple, exactly defined operation with a measurable result that can be included in the test report. The steps shall be performed in the order listed.</p> <p>Each test step is defined by the following information:</p> <ul style="list-style-type: none"> — Test Step-ID — a consecutive number, uniquely identifying each test step and the execution order in the test case. — Description — defining the operation that has to be executed for this step. — Configuration Data — optionally specifying input data required to perform this test step.
Expected result	The expected result defines pass criteria for each test step in the test scenario. The analysis of the observed result in comparison with the expected result leads to a "Pass" or a "Fail". The results of the individual test steps and the overall result of the test case are transferred to the overall test report.

6.3 Test administration

6.3.1 Preconditions for testing

6.3.1.1 IUT

The tests in this document require a fully personalized IDL. This means that all mandatory data groups shall be present as a minimum. In addition, the IUT shall be personalised with all data required to test the optional features declared in the ICS.

6.3.1.2 Test environment

Test execution takes place in indoor conditions and provides normal temperature. All test equipment shall be established properly.

6.3.1.3 Test apparatus

 All equipment described in Annexes A to D pertinent to the machine-readable technology supported by the IUT shall be available. 

6.3.2 Implementation conformance statement

For each IUT described, the applicant for conformity testing shall complete the ICS which is attached to the Test case Specification applicable to that specific IUT.

A completed ICS provides information about the Profile of the IUT (also see [6.2.2.2](#)). Based on the completed ICS, all tests that apply to this Profile (as indicated in the Profile element in each test case; see [6.2.5](#)) can be selected for test execution.

6.3.3 Test report

Detailed test results and ICS information shall be recorded for reference in a test report. The test report contains the test result of each

- test layer;
- test unit;

- test case;
- test step.

If a test is not applicable, this is noted.

If a test is applicable and the preconditions are fulfilled, the test result for a test step/case/unit/layer can be:

- Pass — if all actually obtained results from the IUT match the expected results declared for each test step/case/unit/layer AND if all post conditions are fulfilled; or
- Fail — if one or more of the actually obtained results from the IUT do not match the expected results declared for each test step/case/unit/layer or if one or more of the post conditions are NOT fulfilled. Optionally, additional information regarding the failure can be provided.

A Fail in one of the test steps leads to a Fail of the entire test case; a failed test case leads to a failed test unit; etc.

The ICS and detailed test results shall be logged and retrievable. Optionally, the test execution details, including detailed observed results for each test case, may be included in the test report.

7 IDL conformity test methods

7.1 Overview

Conformity testing of IDL implementations to [\[A1\]](#) ISO/IEC 18013-2:2020 [\[A1\]](#) and ISO/IEC 18013-3 is organised through the identification of a number of test cases.

[\[A1\]](#) Test requirements for Commands and LDS tests conformity are defined in Annexes A to D. [\[A1\]](#)

7.2 Profiles

Profiles are defined to identify whether certain optional functionality is supported by the IUT. Support of these optional functions and features depends on several factors:

- machine readable technologies supported;
- access control, authentication and integrity validation mechanisms supported;
- optional data groups supported;
- optional data elements supported within data groups.

Profiles for each IUT are defined in each annex.

7.3 IDL test case specifications

7.3.1 General

IDL test case specifications are attached in the annexes.

Test methods for driving licence interface devices are currently not included in this document.

7.3.2 Standard encoding on SIC

Test case specifications for SE on SIC cover are as follows:

- LDS tests for SE on SIC. The tests shall be carried out as specified in [Annex A](#).

- Commands tests (applicable to SE on SIC). The tests shall be carried out as specified in [Annex B](#).
- Tests for EACv1 protocol. The tests shall be carried out as specified in [Annex C](#).

A1 7.3.3 Compact encoding (CE)

Test case specifications for CE cover are as follows:

- Data structure tests for CE and commands tests (applicable to CE on SIC). The tests shall be carried out as specified in Annex D. **A1**

7.4 Conformance

An IUT is in conformance with the requirements of a particular layer if the IUT passes all applicable tests. All tests in a layer should be performed on the same IUT.

Annex A (normative)

Test case specification: LDS in SE on SIC

A.1 General

This annex specifies the test cases for the LDS in SE on SIC.

A.2 General test requirements

A.2.1 Preconditions for testing

The tests in this annex require a fully personalized IDL. This means that all mandatory data groups shall be present. This annex tests all mandatory and optional data groups.

All tests are mandatory unless marked as optional or conditional.

A.2.2 Test setup

For setting up these tests, any reader for communicating with SIC compliant with the ISO/IEC 7816 series or the ISO/IEC 14443 series can be used. The reader shall support extended length APDUs and command chaining.

If EAC is supported, a terminal authentication certificate chain and an IS private key are required as input for testing.

A.2.3 Implementation conformance statement

In order to set up the tests properly, [Tables A.1](#) and [A.2](#) shall be completed.

The [ISO/IEC 18013-2:2020](#) and [ISO/IEC 18013-3](#) specifications define several optional elements that an IDL can support. This includes security mechanisms like PACE, BAP, EAC and AA as well as additional data groups (DG 2 to DG 14).

Since these elements are optional, it is not possible to define the corresponding tests as mandatory for each IDL. Therefore, this document specifies a set of profiles. Each profile covers a specific optional element. A tested IDL shall be assigned to the supported profiles in the ICS, and a test shall only be performed if the IDL supports this profile.

NOTE No profile ID's are explicitly defined for DG 12 to DG14 because the EAC, AA and NMA profiles cover these data groups implicitly.

Table A.1 — Implementation conformance statement

Profile	Information for test setup	Applicable (YES or NO)	Protection level (Plain, BAP, PACE or EAC)
SMI	Security Mechanism Indicator		
DG2	IDL contains elementary file with LDS Data Group 2		
DG3	IDL contains elementary file with LDS Data Group 3		
DG4	IDL contains elementary file with LDS Data Group 4		
DG5	IDL contains elementary file with LDS Data Group 5		

Table A.1 (continued)

Profile	Information for test setup	Applicable (YES or NO)	Protection level (Plain, BAP, PACE or EAC)
DG6	IDL contains elementary file with LDS Data Group 6		
DG7	IDL contains elementary file with LDS Data Group 7		
DG8	IDL contains elementary file with LDS Data Group 8		
DG9	IDL contains elementary file with LDS Data Group 9		
DG11	IDL contains elementary file with LDS Data Group 11		
PA	Passive Authentication		
AA	Active Authentication		
AA-ECDSA	AA ECDSA algorithm		
AA-RSA	AA RSA algorithm		
NMA	Non-Match Alert		
EAC	Extended Access Control v1		
PACE	Password Authenticated Connection Establishment		
MRZ	Machine Readable Zone		

Table A.2 — Configuration information

Supported Profile	Configuration information
PA	Provide the country signing certificate name:
BAP	Provide the reference string provided with the samples:
EAC	Provide the name of the certificates and IS private key
DG11	Provide the template tag.

A.3 Test layer SE_LDS — logical data structure tests

A.3.1 Test unit SE_LDS_COM — tests for EF.Com

A.3.1.1 General

Test unit-ID	SE_LDS_COM (Standard Encoding — Common Data Elements)
Purpose	The test cases in this test unit verify the structure and content of EF.COM in the LDS of the IDL.
References	[A1] ISO/IEC 18013-2:2020 [A1] ISO/IEC 18013-3

A.3.1.2 Test case SE_LDS_COM_001

Test case-ID	SE_LDS_COM_001
Purpose	This test checks the template tag that the encoded EF.COM element starts with.
Version	1.0
References	[A1] ISO/IEC 18013-2:2020 [A1] , Annex C
Profile	
Preconditions	1) EF.COM has been retrieved from the IDL.
Test scenario	1) Check the very first byte of the EF.COM element.
Expected results	1) The first byte shall be '60'.

A.3.1.3 Test case SE_LDS_COM_002

Test case-ID	SE_LDS_COM_002
Purpose	This test checks the encoding of EF.COM element length.
Version	1.0
References	[A1] ISO/IEC 18013-2:2020 [A1] , Annex C
Profile	
Preconditions	1) EF.COM has been retrieved from the IDL.
Test scenario	1) Analyze the encoding of the bytes that follow the template tag. 2) Verify the length of the EF.COM object.
Expected results	1) The bytes that follow the template tag shall contain a valid length encoding (according to ASN.1 encoding rules). 2) The encoded length shall match the size of the given EF.COM object.

A.3.1.4 Test case SE_LDS_COM_003

Test case-ID	SE_LDS_COM_003
Purpose	This test checks the LDS version referred by the EF.COM element.
Version	1.0
References	[A1] ISO/IEC 18013-2:2020 [A1] , Annex C
Profile	
Preconditions	1) EF.COM has been retrieved from the IDL.
Test scenario	1) Search for the LDS version (Tag '5F01') inside EF.COM. 2) Verify the encoded length of the object with tag '5F01'. 3) Verify the LDS version.
Expected results	1) Tag '5F01' shall be present. 2) The encoded length shall be 02. 3) The specified LDS version shall be '01 XX'h (BCD encoded).

A.3.1.5 Test case SE_LDS_COM_004

Test case-ID	SE_LDS_COM_004
Purpose	This test checks the Data Group Tag List referred by the EF.COM element.

Version	1.0
References	[A1] ISO/IEC 18013-2:2020 [A1] , Annex C ISO/IEC 18013-3:2017, Clause 10
Profile	
Preconditions	1) EF.COM has been retrieved from the IDL.
Test scenario	1) Search for the Tag List (Tag '5C') inside EF.COM. 2) Verify the length of the object with tag '5C'. 3) Verify if mandatory data groups are present in the Data Group Tag List. 4) Verify the validity of the data group tags present in the Data Group Tag List.
Expected results	1) Tag '5C' shall be present. 2) The bytes that follow the tag shall contain a valid length encoding. 3) The Data Group Tag List shall at least contain the tags for the mandatory data groups '61'. 4) The list shall contain only valid data group tags as specified in [1] and [2] , i.e. '61', '6B', '6C', '65', '67', '75', '63', '76', '70', '71', '6F', and '6E'.

A.3.1.6 Test case SE_LDS_COM_005

Test case-ID	SE_LDS_COM_005
Purpose	This test checks the consistency of the Data Group Tag List with the actual data groups present.
Version	1.0
References	[A1] ISO/IEC 18013-2:2020 [A1] , Annex C ISO/IEC 18013-3:2017, Clause 10
Profile	
Preconditions	1) EF.COM has been retrieved from the IDL.
Test scenario	1) Check that all data groups that are indicated by the tag list in EF.COM are present.
Expected results	1) All data groups that are indicated by the tag list in EF.COM shall be present.

A.3.1.7 Test case SE_LDS_COM_006

Test case-ID	SE_LDS_COM_006
Purpose	This test checks the consistency of the actual data groups present with the Data Group Tag List.
Version	1.0
References	[A1] ISO/IEC 18013-2:2020 [A1] , Annex C ISO/IEC 18013-3:2017, Clause 10
Profile	
Preconditions	1) EF.COM has been retrieved from the IDL.
Test scenario	1) Check that all data groups that are NOT indicated by the tag list in EF.COM are absent.
Expected results	1) All data groups that are NOT indicated by the tag list in EF.COM shall be absent.

A.3.1.8 Test case SE_LDS_COM_007

Test case-ID	SE_LDS_COM_007
Purpose	This test checks the encoding of SMI (Tag '86') element length.
Version	1.0
References	[A1] ISO/IEC 18013-2:2020 [A1] , Annex C ISO/IEC 18013-3:2017, Clause 10
Profile	SMI
Preconditions	1) EF.COM has been retrieved from the IDL.
Test scenario	1) Search for the SMI (Tag '86') inside EF.COM. 2) Analyze the encoding of the bytes that follow the template tag. 3) Verify the encoded length of the Tag '86'.
Expected results	1) Tag '86' shall be present. 2) The bytes that follow the Tag '86' shall contain a valid length encoding (according to ASN.1 encoding rules). 3) The encoded length shall match the size of the given Tag '86'.

A.3.1.9 Test case SE_LDS_COM_008

Test case-ID	SE_LDS_COM_008
Purpose	This test checks the encoding of SMI (Tag '86').
Version	1.0
References	[A1] ISO/IEC 18013-2:2020 [A1] , Annex C ISO/IEC 18013-3:2017, Clause 9
Profile	SMI
Preconditions	1) EF.COM has been retrieved from the IDL. 2) The SMI has been retrieved from EF.COM.
Test scenario	1) Check the DER TLV encoding of the SMI. 2) Check the content of the object with Tag '86'.
Expected results	1) The SMI shall be encoded in a valid DER structure (according to ASN.1 encoding rules). 2) For each security mechanism indicated in the SMI, the data groups indicated shall exist in the IDL.

A.3.1.10 Test case SE_LDS_COM_009

Test case-ID	SE_LDS_COM_009
Purpose	This test checks the encoding of the AA Security Mechanism in the SMI.
Version	1.0
References	[A1] ISO/IEC 18013-2:2020 [A1] , Annex C ISO/IEC 18013-3:2017, Clause 8
Profile	SMI, AA

Preconditions	<ol style="list-style-type: none"> 1) EF.COM has been retrieved from the IDL. 2) The SMI has been retrieved from EF.COM. 3) The SMI has a valid DER TLV structure.
Test scenario	<p>Perform the following checks for the security mechanism in the SMI that specifies the AA security mechanism (if present):</p> <ol style="list-style-type: none"> 1) Check the encoding of the parameters for the mechanism id-sm-AA. 2) Check the version of the AA parameters. 3) Check the publicKeyDG of the AA parameters. 4) Check the consistency of publicKeyDG and the Tag List in EF.COM.
Expected results	<ol style="list-style-type: none"> 1) The parameters for the mechanism id-sm-AA shall be encoded as specified in ISO/IEC 18013-3:2017, 8.2.4.4. 2) The version shall be '00' (V1). 3) The publicKeyDG shall be 13 (hex '0D'). 4) The data group indicated by publicKeyDG shall occur in the Tag List.

A.3.1.11 Test case SE_LDS_COM_010

Test case-ID	SE_LDS_COM_010
Purpose	This test checks the encoding of the NMA mechanism in the SMI.
Version	1.0
References	<p>ISO/IEC 18013-2:2020 A1, Annex C</p> <p>ISO/IEC 18013-3:2017, Clause 8</p>
Profile	SMI, NMA
Preconditions	<ol style="list-style-type: none"> 1) EF.COM has been retrieved from the IDL. 2) The SMI has been retrieved from EF.COM. 3) The SMI has a valid DER TLV structure.
Test scenario	<p>Perform the following checks for the security mechanism in the SMI that specifies the NMA mechanism (if present):</p> <ol style="list-style-type: none"> 1) Check the encoding of the parameters for the mechanism id-sm-NMA. 2) Check the version of the NMA parameters. 3) Check the SAI_inputmethod of the NMA parameters. 4) Check the presence of the Tag for DG12 in the Tag List in EF.COM.

Expected results	<ol style="list-style-type: none"> 1) The parameters for the mechanism id-sm-NMA shall be encoded as specified in ISO/IEC 18013-3:2017, 8.4.4.3. 2) The version shall be '00' (V1). 3) The SAI_inputmethod field shall be set to the corresponding value in DG12) If the SAI_inputmethod field is not present in DG12, the field shall also not be included in EF.COM. 4) The tag '71' (DG12 tag) shall occur in the Tag List.
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A.3.1.12 Test case SE_LDS_COM_013

Test case-ID	SE_LDS_COM_013
Purpose	This test checks the encoding of the EAC mechanism in the SMI.
Version	1.2
References	[A1] ISO/IEC 18013-2:2020 [A1] , Annex C ISO/IEC 18013-3:2017, Clause 8
Profile	SMI, EAC
Preconditions	<ol style="list-style-type: none"> 1) EF.COM has been retrieved from the IDL. 2) The SMI has been retrieved from EF.COM. 3) The SMI has a valid DER TLV structure.
Test scenario	Perform the following checks for the security mechanism in the SMI that specifies the EAC mechanism: <ol style="list-style-type: none"> 1) Check the presence of the mechanism id-TA. 2) Check the encoding of the parameters for the mechanism id-TA. 3) Check the version of the EAC parameters. 4) Check the data groups.
Expected results	<ol style="list-style-type: none"> 1) The mechanism id-TA shall be present. 2) The parameters for the mechanism id-TA shall be encoded as specified in ISO/IEC 18013-3:2017, D.4. 3) The version shall be '01'. 4) The data groups shall only contain any combination of the following integers: '05', '06', '07', '08', '09', '0A', '0B'.

A.3.1.13 Test case SE_LDS_COM_014

Test case-ID	SE_LDS_COM_014
Purpose	This test checks the presence of the EAC mechanism in the SMI.
Version	1.2
References	[A1] ISO/IEC 18013-2:2020 [A1] , Annex C ISO/IEC 18013-3:2017, Clause 8
Profile	SMI, EAC NOT supported

Preconditions	1) EF.COM has been retrieved from the IDL. 2) The SMI has been retrieved from EF.COM. 3) The SMI has a valid DER TLV structure.
Test scenario	Perform the following checks for the security mechanism in the SMI that specifies the EAC mechanism: 1) Check the presence of the mechanism id-TA if EAC is NOT supported.
Expected results	1) The mechanism id-TA shall be absent.

A.3.2 Test unit SE_LDS_DG1 — Tests for EF.DG1

A.3.2.1 General

Test unit-ID	SE_LDS_DG1 (Standard Encoding — Data Group 1)
Purpose	The test cases in this test unit verify the structure and contents of the IDL LDS Data Group 1.
References	A1 ISO/IEC 18013-2:2020 A1 ISO/IEC 8859-1 ISO 3166-1

A.3.2.2 Test case SE_LDS_DG1_001

Test case-ID	SE_LDS_DG1_001
Purpose	This test checks the template tag that the encoded EF.DG1 element starts with.
Version	1.0
References	A1 ISO/IEC 18013-2:2020 A1 , Annex C
Profile	
Preconditions	1) EF.DG1 has been retrieved from the IDL.
Test scenario	1) Check the very first byte of the EF.DG1 element.
Expected results	1) The first byte shall be '61'.

A.3.2.3 Test case SE_LDS_DG1_002

Test case-ID	SE_LDS_DG1_002
Purpose	This test checks the encoding of EF.DG1 element length.
Version	1.0
References	A1 ISO/IEC 18013-2:2020 A1 , Annex C
Profile	
Preconditions	1) EF.DG1 has been retrieved from the IDL.
Test scenario	1) Analyze the encoding of the bytes that follow the template tag. 2) Verify the length of the EF.DG1 object.
Expected results	1) The bytes that follow the template tag shall contain a valid length encoding (according to ASN.1 encoding rules). 2) The encoded length shall match the size of the given EF.DG1 object.

A.3.2.4 Test case SE_LDS_DG1_003

Test case-ID	SE_LDS_DG1_003
Purpose	This test checks the encoding of Mandatory Demographic Data (Tag '5F1F') in EF.DG1.
Version	1.0
References	[A1] ISO/IEC 18013-2:2020 [A1] , Annex C
Profile	
Preconditions	1) EF.DG1 has been retrieved from the IDL.
Test scenario	1) Search for the Mandatory Demographic Data (Tag '5F1F') inside EF.DG1. 2) Analyze the encoding of the bytes that follow the template tag. 3) Verify the length of the DO with Tag '5F1F'.
Expected results	1) Tag '5F1F' shall be present. 2) The bytes that follow the Tag '5F1F' shall contain a valid length encoding (according to ASN.1 encoding rules). 3) The encoded length shall match the size of the DO with the Tag '5F1F'.

A.3.2.5 Test case SE_LDS_DG1_004

Test case-ID	SE_LDS_DG1_004
Purpose	This test checks the encoding of the Family Name referred by the Mandatory Demographic Data (Tag '5F1F') in EF.DG1.
Version	1.0
References	[A1] ISO/IEC 18013-2:2020 [A1] , Annex C
Profile	
Preconditions	1) EF.DG1 has been retrieved from the IDL.
Test scenario	1) Check the Family Name field length. 2) Check the Family Name format.
Expected results	1) The first byte of the Mandatory Data Elements object shall have a value in the range '00'h ... '24'h. 2) Family Name shall not contain numeric characters.

A.3.2.6 Test case SE_LDS_DG1_005

Test case-ID	SE_LDS_DG1_005
Purpose	This test checks the encoding of the Given Name referred by the Mandatory Demographic Data (Tag '5F1F') in EF.DG1.
Version	1.0
References	[A1] ISO/IEC 18013-2:2020 [A1] , Annex C
Profile	
Preconditions	1) EF.DG1 has been retrieved from the IDL. 2) The Mandatory Data Elements object has been retrieved from EF.DG1. 3) The Family Name has been retrieved from the Mandatory Data Elements object.

Test scenario	1) Check the Given Name field length. 2) Check the Given Name format.
Expected results	1) The first byte following the Family Name field in the Mandatory Data Elements object shall have a value in the range '00'h ... '24'h. 2) Given Name shall not contain numeric characters.

A.3.2.7 Test case SE_LDS_DG1_006

Test case-ID	SE_LDS_DG1_006
Purpose	This test checks the encoding of the Date of Birth referred by the Mandatory Demographic Data (Tag '5F1F) in EF.DG1.
Version	1.0
References	ISO/IEC 18013-2:2020 ^{A1} , Annex C
Profile	
Preconditions	1) EF.DG1 has been retrieved from the IDL. 2) The Mandatory Data Elements object has been retrieved from EF.DG1. 3) The Family Name has been retrieved from the Mandatory Data Elements object. 4) The Given Name has been retrieved from the Mandatory Data Elements object.
Test scenario	1) Check the Date of Birth field length. 2) Check the Date Of Birth encoding. 3) Check that the Date of Birth element contains a valid date.
Expected results	1) The Date Of Birth field shall be encoded on the 4 bytes following the Given Name field in the Mandatory Data Elements object. 2) Date of Birth shall be encoded in YYYYMMDD BCD format. 3) The Date of Birth shall be reasonable. It shall specify an existing day. 4) The Date of Birth shall be reasonable. It should be in the past.

A.3.2.8 Test case SE_LDS_DG1_007

Test case-ID	SE_LDS_DG1_007
Purpose	This test checks the encoding of the Date of Issue referred by the Mandatory Demographic Data (Tag '5F1F) in EF.DG1.
Version	1.0
References	ISO/IEC 18013-2:2020 ^{A1} , Annex C
Profile	

Preconditions	<ol style="list-style-type: none"> 1) EF.DG1 has been retrieved from the IDL. 2) The Mandatory Data Elements object has been retrieved from EF.DG1. 3) The Family Name has been retrieved from the Mandatory Data Elements object. 4) The Given Name has been retrieved from the Mandatory Data Elements object. 5) The Date of Birth has been retrieved from the Mandatory Data Elements object.
Test scenario	<ol style="list-style-type: none"> 1) Check the Date of Issue field length. 2) Check the Date Of Issue encoding. 3) Check that the Date of Issue element contains a valid date.
Expected results	<ol style="list-style-type: none"> 1) The Date Of Issue field shall be encoded on the 4 bytes following the Date of Birth field in the Mandatory Data Elements object. 2) Date of Issue shall be encoded in YYYYMMDD BCD format. 3) The Date of Issue shall be reasonable. It shall specify an existing day. 4) The Date of Issue shall be reasonable. It should be the current date or in the past.

A.3.2.9 Test case SE_LDS_DG1_008

Test case-ID	SE_LDS_DG1_008
Purpose	This test checks the encoding of the Date of Expiry referred by the Mandatory Demographic Data (Tag '5F1F') in EF.DG1.
Version	1.0
References	[A1] ISO/IEC 18013-2:2020 [A1] , Annex C
Profile	
Preconditions	<ol style="list-style-type: none"> 1) EF.DG1 has been retrieved from the IDL 2) The Mandatory Data Elements object has been retrieved from EF.DG1. 3) The Family Name has been retrieved from the Mandatory Data Elements object. 4) The Given Name has been retrieved from the Mandatory Data Elements object. 5) The Date of Birth has been retrieved from the Mandatory Data Elements object. 6) The Date of Issue has been retrieved from the Mandatory Data Elements object.
Test scenario	<ol style="list-style-type: none"> 1) Check the Date of Expiry field length. 2) Check the Date Of Expiry encoding. 3) Check that the Date of Expiry element contains a valid date.

Expected results	<ol style="list-style-type: none"> 1) The Date Of Expiry field shall be encoded on the 4 bytes following the Date of Issue field in the Mandatory Data Elements object. 2) Date of Expiry shall be encoded in YYYYMMDD BCD format. 3) The Date of Expiry shall be reasonable. It shall specify an existing day. 4) The Date of Expiry shall be reasonable. It shall specify a date after the Date of Issue.
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A.3.2.10 Test case SE_LDS_DG1_009

Test case-ID	SE_LDS_DG1_009
Purpose	This test checks the encoding of the Issuing Country referred by the Mandatory Demographic Data (Tag '5F1F') in EF.DG1.
Version	1.0
References	[A1] ISO/IEC 18013-2:2020 [A1] , Annex C ISO 3166-1
Profile	
Preconditions	<ol style="list-style-type: none"> 1) EF.DG1 has been retrieved from the IDL. 2) The Mandatory Data Elements object has been retrieved from EF.DG1. 3) The Family Name has been retrieved from the Mandatory Data Elements object. 4) The Given Name has been retrieved from the Mandatory Data Elements object. 5) The Date of Birth has been retrieved from the Mandatory Data Elements object. 6) The Date of Issue has been retrieved from the Mandatory Data Elements object. 7) The Date of Expiry has been retrieved from the Mandatory Data Elements object.
Test scenario	<ol style="list-style-type: none"> 1) Check the Issuing Country field length. 2) Check the Issuing Country encoding. 3) Check that the Issuing Country element is valid.
Expected results	<ol style="list-style-type: none"> 1) The Issuing Country field shall be encoded on the 3 bytes following the Date of Expiry field in the Mandatory Data Elements object. 2) The Issuing Country shall be encoded in Alpha characters only. 3) The Issuing Country shall be a valid value as defined in ISO 3166-1.

A.3.2.11 Test case SE_LDS_DG1_010

Test case-ID	SE_LDS_DG1_010
Purpose	This test checks the encoding of the Issuing Authority referred by the Mandatory Demographic Data (Tag '5F1F') in EF.DG1.
Version	1.0

References	A1 ISO/IEC 18013-2:2020 A1 , Annex C ISO/IEC 8859-1
Profile	
Preconditions	1) EF.DG1 has been retrieved from the IDL. 2) The Mandatory Data Elements object has been retrieved from EF.DG1. 3) The Family Name has been retrieved from the Mandatory Data Elements object. 4) The Given Name has been retrieved from the Mandatory Data Elements object. 5) The Date of Birth has been retrieved from the Mandatory Data Elements object. 6) The Date of Issue has been retrieved from the Mandatory Data Elements object. 7) The Date of Expiry has been retrieved from the Mandatory Data Elements object. 8) The Issuing Country has been retrieved from the Mandatory Data Elements object.
Test scenario	1) Check the Issuing Authority field length. 2) Check the Issuing Authority format.
Expected results	1) The first byte following the Issuing Country field in the Mandatory Data Elements object shall have a value in the range '00'h ... '41'h. 2) The Issuing Authority shall be coded according to ISO/IEC 8859-1.

A.3.2.12 Test case SE_LDS_DG1_011

Test case-ID	SE_LDS_DG1_011
Purpose	This test checks the encoding of the Licence Number referred by the Mandatory Demographic Data (Tag '5F1F') in EF.DG1.
Version	1.0
References	A1 ISO/IEC 18013-2:2020 A1 , Annex C
Profile	

Preconditions	<ol style="list-style-type: none"> 1) EF.DG1 has been retrieved from the IDL. 2) The Mandatory Data Elements object has been retrieved from EF.DG1. 3) The Family Name has been retrieved from the Mandatory Data Elements object. 4) The Given Name has been retrieved from the Mandatory Data Elements object. 5) The Date of Birth has been retrieved from the Mandatory Data Elements object. 6) The Date of Issue has been retrieved from the Mandatory Data Elements object. 7) The Date of Expiry has been retrieved from the Mandatory Data Elements object. 8) The Issuing Country has been retrieved from the Mandatory Data Elements object. 9) The Issuing Authority has been retrieved from the Mandatory Data Elements object.
Test scenario	<ol style="list-style-type: none"> 1) Check the Licence Number field length. 2) Check the Licence Number format.
Expected results	<ol style="list-style-type: none"> 1) The first byte following the Issuing Authority field in the Mandatory Data Elements object shall have a value in the range '00'h ... '19'h. 2) Licence Number shall be coded in Alpha-Numeric characters only.

A.3.2.13 Test case SE_LDS_DG1_012

Test case-ID	SE_LDS_DG1_012
Purpose	This test checks the encoding of Categories of Vehicles/Restrictions/Conditions (Tag '7F63') in EF.DG1.
Version	1.0
References	[A1] ISO/IEC 18013-2:2020 [A1] , Annex C
Profile	
Preconditions	<ol style="list-style-type: none"> 1) EF.DG1 has been retrieved from the IDL
Test scenario	<ol style="list-style-type: none"> 1) Search for the Categories of Vehicles/Restrictions/Conditions (Tag '7F63') inside EF.DG1. 2) Analyze the encoding of the bytes that follow the template tag. 3) Verify the length of the DO with Tag '7F63'.
Expected results	<ol style="list-style-type: none"> 1) Tag '7F63' shall be present. 2) The bytes that follow the Tag '7F63' shall contain a valid length encoding (according to ASN.1 encoding rules). 3) The encoded length shall match the size of the DO with the Tag '7F63'.

A.3.2.14 Test case SE_LDS_DG1_013

Test case-ID	SE_LDS_DG1_013
Purpose	This test checks the "Number of Entries" DO in the "Categories of Vehicles/Restrictions/Conditions" DO (Tag '7F63') in EF.DG1.
Version	1.0
References	<p>ISO/IEC 18013-2:2020 A1, A.4</p> <p>ISO/IEC 18013-2:2020 A1, Annex C</p>
Profile	
Preconditions	<ol style="list-style-type: none"> EF.DG1 has been retrieved from the IDL. The Categories of Vehicles/Restrictions/Conditions object has been retrieved from EF.DG1.
Test scenario	<ol style="list-style-type: none"> Search for the Number of Entries (Tag '02') inside Categories of Vehicles/Restrictions/Conditions object. Analyze the encoding of the length of the Number of Entries DO coded with tag '02'. Check the value encoded in the Number of Entries DO.
Expected results	<ol style="list-style-type: none"> Tag '02' shall be present. The length encoded in the Number of Entries DO shall be '01'h. The Number of Entries (01) shall match the number of occurrences of tag '87' in the Categories of Vehicles/Restrictions/Conditions object.

A.3.2.15 Test case SE_LDS_DG1_014

Test case-ID	SE_LDS_DG1_014
Purpose	This test checks the length of each "Category of Vehicle/Restriction/Condition" entry in the "Categories of Vehicles/Restrictions/Conditions" DO (Tag '7F63') in EF.DG1.
Version	1.0
References	<p>ISO/IEC 18013-2:2020 A1, A.4</p> <p>ISO/IEC 18013-2:2020 A1, Annex C</p>
Profile	
Preconditions	<ol style="list-style-type: none"> EF.DG1 has been retrieved from the IDL. The Categories of Vehicles/Restrictions/Conditions object has been retrieved from EF.DG1.
Test scenario	<p>Perform the following checks for each of the "Category of Vehicle/Restriction/Condition" entries:</p> <ol style="list-style-type: none"> Analyze the encoding of the bytes that follow the tag '87'. Verify the length of the DO with Tag '87'. Check the number of sub fields in the value of the DO with Tag '87'.

Expected results	<ol style="list-style-type: none"> 1) The bytes that follow the Tag '87' shall contain a valid length encoding (according to ASN.1 encoding rules). 2) The encoded length shall match the size of the DO with the Tag '87'. 3) The value of the DO with Tag '87' contains 6 sub-fields, separated by a sub-field delimiter ";"
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A.3.2.16 Test case SE_LDS_DG1_015

Test case-ID	SE_LDS_DG1_015
Purpose	This test checks the Vehicle Category Code of each "Category of Vehicle/Restriction/Condition" entry in the "Categories of Vehicles/Restrictions/Conditions" DO (Tag '7F63') in EF.DG1.
Version	1.1
References	<p>ISO/IEC 18013-2:2020 A.4</p> <p>ISO/IEC 18013-2:2020 A.1, Annex C</p>
Profile	
Preconditions	<ol style="list-style-type: none"> 1) EF.DG1 has been retrieved from the IDL. 2) The Categories of Vehicles/Restrictions/Conditions object has been retrieved from EF.DG1.
Test scenario	<p>Perform the following check for each of the "Category of Vehicle/Restriction/Condition" entries:</p> <ol style="list-style-type: none"> 1) Check the format of the Vehicle Category Code (sub-field #1).
Expected results	<ol style="list-style-type: none"> 1) The Vehicle Category Code contains Alpha-Numeric characters only.

A.3.2.17 Test case SE_LDS_DG1_016

Test case-ID	SE_LDS_DG1_016
Purpose	This test checks the Date of Issue (if present) of each "Category of Vehicle/Restriction/Condition" entry in the "Categories of Vehicles/Restrictions/Conditions" DO (Tag '7F63') in EF.DG1.
Version	1.0
References	<p>ISO/IEC 18013-2:2020 A.4</p> <p>ISO/IEC 18013-2:2020 A.1, Annex C</p>
Profile	
Preconditions	<ol style="list-style-type: none"> 1) EF.DG1 has been retrieved from the IDL. 2) The Categories of Vehicles/Restrictions/Conditions object has been retrieved from EF.DG1.
Test scenario	<p>Perform the following checks for each of the "Category of Vehicle/Restriction/Condition" entries:</p> <ol style="list-style-type: none"> 1) Check the length of the Date of Issue (sub-field #2). 2) Check the format of the Date of Issue. 3) Check that the Date of Issue field contains a valid date.

Expected results	<ol style="list-style-type: none"> 1) The Date of Issue has a length of 4 bytes. 2) Date of Issue shall be encoded in YYYYMMDD BCD format. 3) The Date of Issue shall be reasonable. It shall specify an existing date.
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A.3.2.18 Test case SE_LDS_DG1_017

Test case-ID	SE_LDS_DG1_017
Purpose	This test checks the Date of Expiry (if present) of each "Category of Vehicle/Restriction/Condition" entry in the "Categories of Vehicles/Restrictions/Conditions" DO (Tag '7F63') in EF.DG1.
Version	1.0
References	<p>ISO/IEC 18013-2:2020 A.4</p> <p>ISO/IEC 18013-2:2020 Annex C</p>
Profile	
Preconditions	<ol style="list-style-type: none"> 1) EF.DG1 has been retrieved from the IDL. 2) The Categories of Vehicles/Restrictions/Conditions object has been retrieved from EF.DG1.
Test scenario	<p>Perform the following checks for each of the "Category of Vehicle/Restriction/Condition" entries:</p> <ol style="list-style-type: none"> 1) Check the length of the Date of Expiry (sub-field #3). 2) Check the format of the Date of Expiry. 3) Check that the Date of Expiry field contains a valid date.
Expected results	<ol style="list-style-type: none"> 1) The Date of Expiry has a length of 4 bytes. 2) Date of Expiry shall be encoded in YYYYMMDD BCD format. 3) The Date of Expiry shall be reasonable. It shall specify an existing date.

A.3.2.19 Test case SE_LDS_DG1_018

Test case-ID	SE_LDS_DG1_018
Purpose	This test checks the Code field (if present) of each "Category of Vehicle/Restriction/Condition" entry in the "Categories of Vehicles/Restrictions/Conditions" DO (Tag '7F63') in EF.DG1.
Version	1.1
References	<p>ISO/IEC 18013-2:2020 A.4</p> <p>ISO/IEC 18013-2:2020, A.4.1</p> <p>ISO/IEC 18013-2:2020 Annex C</p>
Profile	
Preconditions	<ol style="list-style-type: none"> 1) EF.DG1 has been retrieved from the IDL. 2) The Categories of Vehicles/Restrictions/Conditions object has been retrieved from EF.DG1.

Test scenario	Perform the following checks for each of the "Category of Vehicle/Restriction/Condition" entries: 1) Check the format of the Code. 2) Check the value of the Code.
Expected results	1) Code shall be encoded in a maximum of 5 ANS characters. 2) The value of the Code is one of the values specified in ISO/IEC 18013-2:2020 A1 , A.5.1 (i.e. "01", "03", "78", "S01", "S02", "S03", "S04" or "S05").

A.3.2.20 Test case SE_LDS_DG1_019

Test case-ID	SE_LDS_DG1_019
Purpose	This test checks the Sign field (if present) of each "Category of Vehicle/Restriction/Condition" entry in the "Categories of Vehicles/Restrictions/Conditions" DO (Tag '7F63') in EF.DG1.
Version	1.1
References	ISO/IEC 18013-2:2020 A1 , A.4 ISO/IEC 18013-2:2020 , A.4.1 A1 ISO/IEC 18013-2:2020 A1 , Annex C
Profile	
Preconditions	1) EF.DG1 has been retrieved from the IDL. 2) The Categories of Vehicles/Restrictions/Conditions object has been retrieved from EF.DG1.
Test scenario	Perform the following checks for each of the "Category of Vehicle/Restriction/Condition" entries: 1) Check the format of the Sign. 2) Check the value of the Sign. 3) Check the Sign only occurs in combination with an applicable Code. 4) Check the Sign only occurs in combination with a Value field.
Expected results	1) Sign shall be encoded in a Special characters. 2) The value of the Sign is one of the values specified in ISO/IEC 18013-2:2020 A1 , A.5.1 (i.e. "<","=",">","<=","<","<>",">",">=",">",">="). 3) The value of the Code is one of the following values specified in ISO/IEC 18013-2:—, A.5.1 (i.e. "S01", "S02", "S03" or "S04"). 4) The Value field is not empty.

A.3.2.21 Test case SE_LDS_DG1_020

Test case-ID	SE_LDS_DG1_020
Purpose	This test checks the Value field (if present) of each "Category of Vehicle/Restriction/Condition" entry in the "Categories of Vehicles/Restrictions/Conditions" DO (Tag '7F63') in EF.DG1.
Version	1.1

References	<p>ISO/IEC 18013-2:2020 ^{A1}, A.4</p> <p>ISO/IEC 18013-2:2020, A.4.1 ^{A1}</p> <p>ISO/IEC 18013-2:2020 ^{A1}, Annex C</p>
Profile	
Preconditions	<p>1) EF.DG1 has been retrieved from the IDL.</p> <p>2) The Categories of Vehicles/Restrictions/Conditions object has been retrieved from EF.DG1.</p>
Test scenario	<p>Perform the following checks for each of the "Category of Vehicle/Restriction/Condition" entries:</p> <p>1) Check the format of the Value.</p> <p>2) Check the Value only occurs in combination with a Code.</p> <p>3) Check the Value only occurs in combination with a Sign.</p>
Expected results	<p>1) The Value field shall be encoded in ANS format.</p> <p>2) The Code field is not empty.</p> <p>3) The Sign field is not empty.</p>

A.3.3 Test unit SE_LDS_DG2 — Tests for EF.DG2

A.3.3.1 General

Test unit-ID	SE_LDS_DG2 (Standard Encoding — Data Group 2)
Purpose	The test cases in this test unit verify the structure and contents of the IDL LDS Data Group 2.
References	ISO/IEC 18013-2:2020 ^{A1}

A.3.3.2 Test case SE_LDS_DG2_001

Test case-ID	SE_LDS_DG2_001
Purpose	This test checks the template tag that the encoded EF.DG2 element starts with.
Version	1.0
References	ISO/IEC 18013-2:2020 ^{A1} , Annex C
Profile	DG2
Preconditions	1) EF.DG2 has been retrieved from the IDL.
Test scenario	1) Check the very first byte of the EF.DG2 element.
Expected results	1) The first byte shall be '6B'.

A.3.3.3 Test case SE_LDS_DG2_002

Test case-ID	SE_LDS_DG2_002
Purpose	This test checks the encoding of EF.DG2 element length.
Version	1.0
References	ISO/IEC 18013-2:2020 ^{A1} , Annex C
Profile	DG2

Preconditions	1) EF.DG2 has been retrieved from the IDL.
Test scenario	1) Analyze the encoding of the bytes that follow the template tag. 2) Verify the length of the EF.DG2 object.
Expected results	1) The bytes that follow the template tag shall contain a valid length encoding (according to ASN.1 encoding rules). 2) The encoded length shall match the size of the given EF.DG2 object.

A.3.3.4 Test case SE_LDS_DG2_003

Test case-ID	SE_LDS_DG2_003
Purpose	This test checks the encoding of the Tag List (Tag '5C') in EF.DG2.
Version	1.0
References	ISO/IEC 18013-2:2020 A1 , Annex C
Profile	DG2
Preconditions	1) EF.DG2 has been retrieved from the IDL.
Test scenario	1) Search for the Tag List (Tag '5C') inside EF.DG2. 2) Analyze the encoding of the bytes that follow the template tag. 3) Verify the length of the DO with Tag '5C'.
Expected results	1) Tag '5C' shall be present. 2) The bytes that follow the Tag '5C' shall contain a valid length encoding (according to ASN.1 encoding rules). 3) The encoded length shall match the size of the DO with the Tag '5C'.

A.3.3.5 Test case SE_LDS_DG2_004

Test case-ID	SE_LDS_DG2_004
Purpose	This test checks the consistency of the Tag List with the actual data tags present.
Version	1.0
References	ISO/IEC 18013-2:2020 A1 , Annex C
Profile	DG2
Preconditions	1) EF.DG2 has been retrieved from the IDL. 2) Tag List has been retrieved from the EF.DG2.
Test scenario	1) Check that all data elements that are indicated by the Tag List in EF.DG2 are present.
Expected results	1) All data elements that are indicated by the Tag List in EF.DG2 shall be present.

A.3.3.6 Test case SE_LDS_DG2_005

Test case-ID	SE_LDS_DG2_005
Purpose	This test checks the consistency of the Tag List with the actual present data tags.
Version	1.0
References	ISO/IEC 18013-2:2020 A1 , Annex C
Profile	DG2

Preconditions	1) EF.DG2 has been retrieved from the IDL. 2) Tag List has been retrieved from the EF.DG2.
Test scenario	1) Check that only data elements that are indicated by the Tag List in EF.DG2 are present.
Expected results	1) All data elements that are present shall be indicated in the Tag List in EF.DG2.

A.3.3.7 Test case SE_LDS_DG2_006

Test case-ID	SE_LDS_DG2_006
Purpose	This test checks the encoding of the Gender (Tag '5F35') in EF.DG2.
Version	1.0
References	[A1] ISO/IEC 18013-2:2020 [A1] , Annex C
Profile	DG2 Tag '5F35' is present in EF.DG2
Preconditions	1) EF.DG2 has been retrieved from the IDL.
Test scenario	1) Search for the Gender (Tag '5F35') inside EF.DG2. 2) Check the length of the DO with Tag '5F35'. 3) Check the value of Gender.
Expected results	1) Tag '5F35' shall be present. 2) The length of Gender shall be 1 byte. 3) The value of Gender shall be '00' (Unknown), '01' (Male), '02' (Female), or '09' (Not applicable) encoded in BCD format.

A.3.3.8 Test case SE_LDS_DG2_007

Test case-ID	SE_LDS_DG2_007
Purpose	This test checks the encoding of the Height (Tag '5F64') in EF.DG2.
Version	1.0
References	[A1] ISO/IEC 18013-2:2020 [A1] , Annex C
Profile	DG2 Tag '5F64' is present in EF.DG2
Preconditions	1) EF.DG2 has been retrieved from the IDL.
Test scenario	1) Search for the Height field (Tag '5F64') inside EF.DG2. 2) Check the length of the DO with Tag '5F64'. 3) Check the encoding of the Height field.
Expected results	1) Tag '5F64' shall be present. 2) The length of the Height field shall be 2 bytes. 3) The value of the Height field shall be encoded in BCD format.

A.3.3.9 Test case SE_LDS_DG2_008

Test case-ID	SE_LDS_DG2_008
Purpose	This test checks the encoding of the Weight (Tag '5F65') in EF.DG2.

Version	1.0
References	[A1] ISO/IEC 18013-2:2020 [A1] , Annex C
Profile	DG2 Tag '5F65' is present in EF.DG2
Preconditions	1) EF.DG2 has been retrieved from the IDL.
Test scenario	1) Search for the Weight (Tag '5F65') inside EF.DG2. 2) Check the length of the DO with Tag '5F65'. 3) Check the encoding of the Weight field.
Expected results	1) Tag '5F65' shall be present. 2) The length of the Weight field shall be 2 bytes. 3) The value of the Weight field shall be encoded in BCD format.

A.3.3.10 Test case SE_LDS_DG2_009

Test case-ID	SE_LDS_DG2_009
Purpose	This test checks the encoding of the Eye Colour (Tag '5F66') in EF.DG2.
Version	1.0
References	[A1] ISO/IEC 18013-2:2020 [A1] , Annex C
Profile	DG2 Tag '5F66' is present in EF.DG2
Preconditions	1) EF.DG2 has been retrieved from the IDL
Test scenario	1) Search for the Eye Colour (Tag '5F66') inside EF.DG2. 2) Check the length of the DO with Tag '5F66'. 3) Check the encoding of Eye Colour.
Expected results	1) Tag '5F66' shall be present. 2) The length of Eye Colour shall be 3 bytes. 3) The value of Eye Colour shall be as defined in [A1] ISO/IEC 18013-2:2020 [A1] (i.e. "BLK", "BLU", "BRO", "GRY", "GRN", "HAZ", "MAR", "PNK", "DIC", or "UNK").

A.3.3.11 Test case SE_LDS_DG2_010

Test case-ID	SE_LDS_DG2_010
Purpose	This test checks the encoding of the Hair Colour (Tag '5F67') in EF.DG2.
Version	1.0
References	[A1] ISO/IEC 18013-2:2020 [A1] , Annex C
Profile	DG2 Tag '5F67' is present in EF.DG2
Preconditions	1) EF.DG2 has been retrieved from the IDL.
Test scenario	1) Search for the Hair Colour (Tag '5F67') inside EF.DG2. 2) Check the length of the DO with Tag '5F67'. 3) Check the encoding of Hair Colour.

Expected results	<ol style="list-style-type: none"> 1) Tag '5F67' shall be present. 2) The length of Hair Colour shall be 3 bytes. 3) The value of Hair Colour shall be as defined in [A1] ISO/IEC 18013-2:2020 [A1] (i.e. "BAL", "BLK", "BLN", "BRO", "GRY", "RED", "SDY", "WHI", or "UNK").
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A.3.3.12 Test case SE_LDS_DG2_011

Test case-ID	SE_LDS_DG2_011
Purpose	This test checks the encoding of the Place of Birth (Tag '5F11') in EF.DG2.
Version	1.0
References	[A1] ISO/IEC 18013-2:2020 [A1] , Annex C
Profile	DG2 Tag '5F11' is present in EF.DG2
Preconditions	1) EF.DG2 has been retrieved from the IDL.
Test scenario	<ol style="list-style-type: none"> 1) Search for the Place Of Birth (Tag '5F11') inside EF.DG2. 2) Check the length of the DO with Tag '5F11'. 3) Check the length and format of the DO with Tag '5F11'. 4) Check the value of Place of Birth.
Expected results	<ol style="list-style-type: none"> 1) Tag '5F11' shall be present. 2) The bytes that follow the tag shall contain a valid (ASN.1) length encoding. 3) The Place of Birth field shall be encoded as ADNS on 2 - 35 bytes. 4) The value of Place of Birth shall consist of 3 fields that are separated with a sub-field delimiter (";").

A.3.3.13 Test case SE_LDS_DG2_012

Test case-ID	SE_LDS_DG2_012
Purpose	This test checks the encoding of the Place of Residence (Tag '5F42') in EF.DG2.
Version	1.0
References	[A1] ISO/IEC 18013-2:2020 [A1] , Annex C
Profile	DG2 Tag '5F42' is present in EF.DG2
Preconditions	1) EF.DG2 has been retrieved from the IDL.
Test scenario	<ol style="list-style-type: none"> 1) Search for the Place Of Residence (Tag '5F42') inside EF.DG2. 2) Check the length of the DO with Tag '5F42'. 3) Check the length and format of the DO with Tag '5F42'. 4) Check the value of Place of Residence.

Expected results	<ol style="list-style-type: none"> 1) Tag '5F42' shall be present. 2) The bytes that follow the tag shall contain a valid (ASN.1) length encoding. 3) The Place of Residence field shall be encoded as ADNS on 5 - 113 bytes. 4) The value of Place of Residence shall consist of 6 fields that are separated with a sub-field delimiter (";").
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A.3.4 Test unit SE_LDS_DG3 — Tests for EF.DG3

A.3.4.1 General

Test unit-ID	SE_LDS_DG3 (Standard Encoding — Data Group 3)
Purpose	The test cases in this test unit verify the structure and contents of the IDL LDS Data Group 3.
References	[A1] ISO/IEC 18013-2:2020 [A1]

A.3.4.2 Test case SE_LDS_DG3_001

Test case-ID	SE_LDS_DG3_001
Purpose	This test checks the template tag that the encoded EF.DG3 element starts with.
Version	1.0
References	[A1] ISO/IEC 18013-2:2020 [A1] , Annex C
Profile	DG3
Preconditions	1) EF.DG3 has been retrieved from the IDL.
Test scenario	1) Check the very first byte of the EF.DG3 element.
Expected results	1) The first byte shall be '6C'.

A.3.4.3 Test case SE_LDS_DG3_002

Test case-ID	SE_LDS_DG3_002
Purpose	This test checks the encoding of EF.DG3 element length.
Version	1.0
References	[A1] ISO/IEC 18013-2:2020 [A1] , Annex C
Profile	DG3
Preconditions	1) EF.DG3 has been retrieved from the IDL.
Test scenario	<ol style="list-style-type: none"> 1) Analyze the encoding of the bytes that follow the template tag. 2) Verify the length of the EF.DG3 object.
Expected results	<ol style="list-style-type: none"> 1) The bytes that follow the template tag shall contain a valid length encoding (according to ASN.1 encoding rules). 2) The encoded length shall match the size of the given EF.DG3 object.

A.3.4.4 Test case SE_LDS_DG3_003

Test case-ID	SE_LDS_DG3_003
Purpose	This test checks the encoding of the Tag List (Tag '5C') in EF.DG3.
Version	1.0

References	ISO/IEC 18013-2:2020 ^{A1} , Annex C
Profile	DG3
Preconditions	1) EF.DG3 has been retrieved from the IDL.
Test scenario	1) Search for the Tag List (Tag '5C') inside EF.DG3. 2) Analyze the encoding of the bytes that follow the template tag. 3) Verify the length of the DO with Tag '5C'. 4) Analyse the value of the data object with Tag '5C'.
Expected results	1) Tag '5C' shall be present. 2) The bytes that follow the Tag '5C' shall contain a valid length encoding (according to ASN.1 encoding rules). 3) The encoded length shall match the size of the DO with the Tag '5C'. 4) The encoded value shall only contain tags specified in ISO/IEC 18013-2:2020 ^{A1} , Table C.8.

A.3.4.5 Test case SE_LDS_DG3_004

Test case-ID	SE_LDS_DG3_004
Purpose	This test checks the consistency of the Tag List with the actual data tags present.
Version	1.0
References	ISO/IEC 18013-2:2020 ^{A1} , Annex C
Profile	DG3
Preconditions	1) EF.DG3 has been retrieved from the IDL. 2) Tag List has been retrieved from the EF.DG3.
Test scenario	1) Check that all data elements that are indicated by the Tag List in EF.DG3 are present.
Expected results	1) All data elements that are indicated by the Tag List in EF.DG3 shall be present.

A.3.4.6 Test case SE_LDS_DG3_005

Test case-ID	SE_LDS_DG3_005
Purpose	This test checks the consistency of the Tag List with the actual data tags present.
Version	1.0
References	ISO/IEC 18013-2:2020 ^{A1} , Annex C
Profile	DG3
Preconditions	1) EF.DG3 has been retrieved from the IDL. 2) Tag List has been retrieved from the EF.DG3.
Test scenario	1) Check that only data elements that are indicated by the Tag List in EF.DG3 are present.
Expected results	1) All data elements that are present shall be indicated in the Tag List in EF.DG3.

A.3.4.7 Test case SE_LDS_DG3_006

Test case-ID	SE_LDS_DG3_006
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Purpose	This test checks the encoding of the Administrative Number (Tag '5F68') in EF.DG3.
Version	1.0
References	[A1] ISO/IEC 18013-2:2020 [A1] , Annex C
Profile	DG3 Tag '5F68' is present in EF.DG3.
Preconditions	1) EF.DG3 has been retrieved from the IDL.
Test scenario	1) Search for the Administrative Number (Tag '5F68') inside EF.DG3. 2) Check the length of the DO with Tag '5F68'. 3) Check the encoding of Administrative Number.
Expected results	1) Tag '5F68' shall be present. 2) The bytes that follow the Tag '5F68' shall contain a valid length encoding (according to ASN.1 encoding rules). 3) The Administrative Number shall be as coded as ANS and shall not be longer than 25 bytes.

A.3.4.8 Test case SE_LDS_DG3_007

Test case-ID	SE_LDS_DG3_007
Purpose	This test checks the encoding of the Document Discriminator (Tag '5F69') in EF.DG3.
Version	1.0
References	[A1] ISO/IEC 18013-2:2020 [A1] , Annex C
Profile	DG3 Tag '5F69' is present in EF.DG3
Preconditions	1) EF.DG3 has been retrieved from the IDL.
Test scenario	1) Search for the Document Discriminator (Tag '5F69') inside EF.DG3. 2) Check the length of the DO with Tag '5F69'. 3) Check the encoding of Document Discriminator.
Expected results	1) Tag '5F69' shall be present. 2) The length of the DO with Tag '5F69' shall be 1 byte. 3) The Document Discriminator shall be as coded as BCD.

A.3.4.9 Test case SE_LDS_DG3_008

Test case-ID	SE_LDS_DG3_008
Purpose	This test checks the encoding of the Data Discriminator (Tag '5F6D') in EF.DG3.
Version	1.0
References	[A1] ISO/IEC 18013-2:2020 [A1] , Annex C
Profile	DG3 Tag '5F6D' is present in EF.DG3
Preconditions	1) EF.DG3 has been retrieved from the IDL.

Test scenario	<ol style="list-style-type: none"> 1) Search for the Data Discriminator (Tag '5F6D') inside EF.DG3. 2) Check the length of the DO with Tag '5F6D'. 3) Check the encoding of Data Discriminator.
Expected results	<ol style="list-style-type: none"> 1) Tag '5F6D' shall be present. 2) The length of the DO with Tag '5F6D' shall be 1 byte. 3) The Data Discriminator shall be as coded as BCD.

A.3.4.10 Test case SE_LDS_DG3_009

Test case-ID	SE_LDS_DG3_009
Purpose	This test checks the encoding of the ISO Issuer ID Number (Tag '5F6A') in EF.DG3.
Version	1.0
References	ISO/IEC 18013-2:2020 A1 , Annex C
Profile	DG3 Tag '5F6A' is present in EF.DG3
Preconditions	1) EF.DG3 has been retrieved from the IDL.
Test scenario	<ol style="list-style-type: none"> 1) Search for the ISO Issuer ID Number (Tag '5F6A') inside EF.DG3. 2) Check the length of the DO with Tag '5F6A'. 3) Check the encoding of ISO Issuer ID Number.
Expected results	<ol style="list-style-type: none"> 1) Tag '5F6A' shall be present. 2) The length of the DO with Tag '5F6A' shall be 3 bytes. 3) The ISO Issuer ID Number shall be as coded as BCD.

A.3.5 Test unit SE_LDS_DG4 — Tests for EF.DG4

A.3.5.1 General

Test unit-ID	SE_LDS_DG4 (Standard Encoding — Data Group 4)
Purpose	The test cases in this test unit verify the structure and contents of the IDL LDS Data Group 4.
References	ISO/IEC 18013-2:2020 A1

A.3.5.2 Test case SE_LDS_DG4_001

Test case-ID	SE_LDS_DG4_001
Purpose	This test checks the template tag; the encoded EF.DG4 element starts with.
Version	1.0
References	ISO/IEC 18013-2:2020 A1 , Annex C
Profile	DG4
Preconditions	1) EF.DG4 has been retrieved from the IDL.
Test scenario	1) Check the very first byte of the EF.DG4 element.
Expected results	1) The first byte shall be '65'.

A.3.5.3 Test case SE_LDS_DG4_002

Test case-ID	SE_LDS_DG4_002
Purpose	This test checks the encoding of EF.DG4 element length.
Version	1.0
References	[A1] ISO/IEC 18013-2:2020 [A1] , Annex C
Profile	DG4
Preconditions	1) EF.DG4 has been retrieved from the IDL.
Test scenario	1) Analyze the encoding of the bytes that follow the template tag. 2) Verify the length of the EF.DG4 object.
Expected results	1) The bytes that follow the template tag shall contain a valid length encoding (according to ASN.1 encoding rules). 2) The encoded length shall match the size of the given EF.DG4 object.

A.3.5.4 Test case SE_LDS_DG4_003

Test case-ID	SE_LDS_DG4_003
Purpose	This test checks the Number of Portraits (Tag '02') present in EF.DG4.
Version	1.0
References	[A1] ISO/IEC 18013-2:2020 [A1] , Annex C
Profile	DG4
Preconditions	1) EF.DG4 has been retrieved from the IDL
Test scenario	1) Search for the Number of Portraits (Tag '02') inside EF.DG4. 2) Check the length of the Number of Portraits data element. 3) Check the value of the Number of Portraits data element.
Expected results	1) Tag '02' shall be present. 2) The length of the Number of Portraits data element shall be 1 byte. 3) The Number of Portraits (01) shall match the number of occurrences of tag 'A2' in EF.DG4.

A.3.5.5 Test case SE_LDS_DG4_004

Test case-ID	SE_LDS_DG4_004
Purpose	This test checks the encoding of all Portrait Templates (Tag 'A2') in EF.DG4.
Version	1.0
References	[A1] ISO/IEC 18013-2:2020 [A1] , Annex C
Profile	DG4
Preconditions	1) EF.DG4 has been retrieved from the IDL.
Test scenario	1) Check the Portrait Template tag. 2) Analyze the encoding of the bytes that follow the template tag. 3) Verify the length of the DO with Tag 'A2'.

Expected results	<ol style="list-style-type: none"> 1) The Portrait Template tag shall be 'A2'. 2) The bytes that follow the Tag 'A2' shall contain a valid length encoding (according to ASN.1 encoding rules). 3) The encoded length shall match the size of the DO with the Tag 'A2'.
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A.3.5.6 Test case SE_LDS_DG4_005

Test case-ID	SE_LDS_DG4_005
Purpose	This test checks the encoding of the Image Time Stamp (Tag '88') in each Portrait Template in EF.DG4.
Version	1.0
References	[A1] ISO/IEC 18013-2:2020 [A1] , Annex C
Profile	DG4
Preconditions	1) EF.DG4 has been retrieved from the IDL.
Test scenario	<ol style="list-style-type: none"> 1) Search for the Image Time Stamp (Tag '88') inside the Portrait Template. 2) Check the length of the Image Time Stamp data element. 3) Check the encoding of the Image Time Stamp data element. 4) Check the value of the Image Time Stamp data element.
Expected results	<ol style="list-style-type: none"> 1) Tag '88' shall be present. 2) The length of the Image Time Stamp data element shall be 7 bytes. 3) The Image Time Stamp data element shall be BCD encoded. 4) The Image Time Stamp data element shall represent a valid date/time coded as YYYYMMDDhhmmss.

A.3.5.7 Test case SE_LDS_DG4_006

Test case-ID	SE_LDS_DG4_006
Purpose	This test checks the encoding of the Type of Image (Tag '89') in each Portrait Template in EF.DG4.
Version	1.0
References	[A1] ISO/IEC 18013-2:2020 [A1] , Annex C
Profile	DG4
Preconditions	1) EF.DG4 has been retrieved from the IDL.
Test scenario	<ol style="list-style-type: none"> 1) Search for the Type of Image (Tag '89') inside the Portrait Template. 2) Check the length of the Type of Image data element. 3) Check the value of the Type of Image data element.
Expected results	<ol style="list-style-type: none"> 1) Tag '89' shall be present. 2) The length of the Type of Image data element shall be 1 byte. 3) The Type of Image data element shall be one of the values indicated in [A1] ISO/IEC 18013-2:2020 [A1], 8.5 (i.e. '03' or '04').

A.3.5.8 Test case SE_LDS_DG4_007

Test case-ID	SE_LDS_DG4_007
Purpose	This test checks the encoding of the Image (Tag '5F40') in each Portrait Template in EF.DG4.
Version	1.0
References	ISO/IEC 18013-2:2020 A1 , Annex C and Annex E
Profile	DG4
Preconditions	1) EF.DG4 has been retrieved from the IDL
Test scenario	1) Search for the Image (Tag '5F40') inside the Portrait Template. 2) Check the encoded length of the Image data element. 3) Verify the length of the Image data element. 4) Verify the type of Image. 5) Verify consistency of Image type with encoded element.
Expected results	1) Tag '5F40' shall be present. 2) The bytes that follow the Tag '5F40' shall contain a valid length encoding (according to ASN.1 encoding rules). 3) The encoded length shall match the size of the data element with the Tag '5F40'. 4) The type of Image shall match one of the values in Table E.1 in ISO/IEC 18013-2:2020 A1 , Table E.1. 5) The encoded Image format shall match the image type stated in the Type of image field.

A.3.6 Test unit SE_LDS_DG5 — Tests for EF.DG5

A.3.6.1 General

Test unit-ID	SE_LDS_DG5 (Standard Encoding — Data Group 5)
Purpose	The test cases in this test unit verify the structure and contents of the IDL LDS Data Group 5.
References	ISO/IEC 18013-2:2020 A1

A.3.6.2 Test case SE_LDS_DG5_001

Test case-ID	SE_LDS_DG5_001
Purpose	This test checks the template tag that the encoded EF.DG5 element starts with.
Version	1.0
References	ISO/IEC 18013-2:2020 A1 , Annex C
Profile	DG5
Preconditions	1) EF.DG5 has been retrieved from the IDL.
Test scenario	1) Check the very first byte of the EF.DG5 element.
Expected results	1) The first byte shall be '67'.

A.3.6.3 Test case SE_LDS_DG5_002

Test case-ID	SE_LDS_DG5_002
Purpose	This test checks the encoding of EF.DG5 element length.
Version	1.2
References	[A1] ISO/IEC 18013-2:2020 [A1] , Annex C
Profile	DG5
Preconditions	1) EF.DG5 has been retrieved from the IDL.
Test scenario	1) Analyze the encoding of the bytes that follow the template tag 2) Verify the length of the EF.DG5 object.
Expected results	1) The bytes that follow the template tag shall contain a valid length encoding (according to ASN.1 encoding rules). 2) The encoded length shall match the size of the given EF.DG5 object.

A.3.6.4 Test case SE_LDS_DG5_003

Test case-ID	SE_LDS_DG5_003
Purpose	This test checks the Type of Image (Tag '89') present in EF.DG5.
Version	1.2
References	[A1] ISO/IEC 18013-2:2020 [A1] , Annex C
Profile	DG5
Preconditions	1) EF.DG5 has been retrieved from the IDL.
Test scenario	1) Search for the Type of Image (Tag '89') inside EF.DG5. 2) Check the length of the Type of Image data element. 3) Check the value of the Type of Image data element.
Expected results	1) Tag '89' shall be present. 2) The length of the Type of Image data element shall be 1 byte. 3) The Type of Image data element shall be one of the values indicated in [A1] ISO/IEC 18013-2:2020 [A1] , 8.6 (i.e. '03', '04', or '05').

A.3.6.5 Test case SE_LDS_DG5_004

Test case-ID	SE_LDS_DG5_004
Purpose	This test checks the Image of Signature or Mark (Tag '5F43') present in EF.DG5.
Version	1.2
References	[A1] ISO/IEC 18013-2:2020 [A1] , Annex C and Annex E
Profile	DG5
Preconditions	1) EF.DG5 has been retrieved from the IDL.
Test scenario	1) Search for the Image of Signature or Mark (Tag '5F43') inside EF.DG5. 2) Check the encoded length of the Image of Signature or Mark data element. 3) Check the length of the Image of Signature or Mark data element. 4) Verify the type of Image. 5) Verify consistency of Image type with encoded element.

Expected results	<ol style="list-style-type: none"> 1) Tag '5F43' shall be present. 2) The bytes that follow the Tag '5F43' shall contain a valid length encoding (according to ASN.1 encoding rules). 3) The encoded length shall match the size of the Image of Signature or Mark data element. 4) The type of Image shall match one of the values in Table E.1 in [A1] ISO/IEC 18013-2:2020 [A1], Table E.1. 5) The encoded Image format shall match the image type stated in the Type of image field.
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A.3.7 Test unit SE_LDS_DG6 — Tests for EF.DG6

A.3.7.1 General

Test unit-ID	SE_LDS_DG6 (Standard Encoding — Data Group 6)
Purpose	The test cases in this test unit verify the structure and contents of the IDL LDS Data Group 6.
References	[A1] ISO/IEC 18013-2:2020 [A1]

A.3.7.2 Test case SE_LDS_DG6_001

Test case-ID	SE_LDS_DG6_001
Purpose	This test checks the template tag that the encoded EF.DG6 element starts with.
Version	1.0
References	[A1] ISO/IEC 18013-2:2020 [A1] , Annex C
Profile	DG6
Preconditions	1) EF.DG6 has been retrieved from the IDL.
Test scenario	1) Check the very first byte of the EF.DG6 element.
Expected results	1) The first byte shall be '75'.

A.3.7.3 Test case SE_LDS_DG6_002

Test case-ID	SE_LDS_DG6_002
Purpose	This test checks the encoding of EF.DG6 element length.
Version	1.0
References	[A1] ISO/IEC 18013-2:2020 [A1] , Annex C
Profile	DG6
Preconditions	1) EF.DG6 has been retrieved from the IDL.
Test scenario	<ol style="list-style-type: none"> 1) Analyze the encoding of the bytes that follow the template tag. 2) Verify the length of the EF.DG6 object.
Expected results	<ol style="list-style-type: none"> 1) The bytes that follow the template tag shall contain a valid length encoding (according to ASN.1 encoding rules). 2) The encoded length shall match the size of the given EF.DG6 object.

A.3.7.4 Test case SE_LDS_DG6_003

Test case-ID	SE_LDS_DG6_003
Purpose	This test checks the encoding of the Biometric Group Template (Tag '7F61') present in EF.DG6.
Version	1.0
References	[A1] ISO/IEC 18013-2:2020 [A1] , Annex C
Profile	DG6
Preconditions	1) EF.DG6 has been retrieved from the IDL.
Test scenario	1) Search for the Biometric Group Template (Tag '7F61') inside EF.DG6. 2) Check the encoded length of the Biometric Group Template data element. 3) Check the length of the Biometric Group Template data element.
Expected results	1) Tag '7F61' shall be present. 2) The bytes that follow the Tag '7F61' shall contain a valid length encoding (according to ASN.1 encoding rules). 3) The encoded length shall match the size of the Biometric Group Template data element.

A.3.7.5 Test case SE_LDS_DG6_004

Test case-ID	SE_LDS_DG6_004
Purpose	This test checks the "Number of Biometric Templates" DO in the "Biometric Group Template" DO (Tag '7F61') in EF.DG6.
Version	1.0
References	[A1] ISO/IEC 18013-2:2020 [A1] , Annex C
Profile	DG6
Preconditions	1) EF.DG6 has been retrieved from the IDL. 2) The Biometric Group Template has been retrieved from EF.DG6.
Test scenario	1) Search for the Number of Biometric Templates (Tag '02') inside the Biometric Group Template. 2) Analyze the encoding of the length of the Number of Biometric Templates DO coded with tag '02'. 3) Check the value encoded in the Number of Biometric Templates DO.
Expected results	1) Tag '02' shall be present. 2) The length encoded in the Number of Biometric Templates DO shall be '01'h. 3) The value encoded in the Number of Biometric Templates DO matches the number of occurrences of a DO with tag '7F60' in the Biometric Group Template.

A.3.7.6 Test case SE_LDS_DG6_005

Test case-ID	SE_LDS_DG6_005
Purpose	This test checks the encoding of each "Biometric Template" DO in the "Biometric Group Template" in EF.DG6.
Version	1.0

References	A1 ISO/IEC 18013-2:2020 A1 , Annex C
Profile	DG6
Preconditions	1) EF.DG6 has been retrieved from the IDL. 2) The Biometric Group Template has been retrieved from EF.DG6.
Test scenario	Perform the following checks for each "Biometric Template": 1) Analyze the tag of the Biometric Template. 2) Analyze the encoding of the bytes that follow the tag '7F60'. 3) Verify the length of the DO with Tag '7F60'.
Expected results	1) The tag shall be '7F60'. 2) The bytes that follow the Tag '7F60' shall contain a valid length encoding (according to ASN.1 encoding rules). 3) The encoded length shall match the size of the DO with the Tag '7F60'.

A.3.7.7 Test case SE_LDS_DG6_006

Test case-ID	SE_LDS_DG6_006
Purpose	This test checks the encoding of the Biometric Header Template (Tag 'A1') in each "Biometric Template" in the "Biometric Group Template" in EF.DG6.
Version	1.0
References	A1 ISO/IEC 18013-2:2020 A1 , Annex C
Profile	DG6
Preconditions	1) EF.DG6 has been retrieved from the IDL. 2) The Biometric Group Template has been retrieved from EF.DG6.
Test scenario	Perform the following checks for each "Biometric Template": 1) Search for the Biometric Header Template (Tag 'A1') inside the Biometric Template. 2) Analyze the encoding of the bytes that follow the tag 'A1'. 3) Check the length of the Biometric Header Template.
Expected results	1) Tag 'A1' shall be present. 2) The bytes that follow the Tag 'A1' shall contain a valid length encoding (according to ASN.1 encoding rules). 3) The encoded length shall match the size of the Biometric Header Template.

A.3.7.8 Test case SE_LDS_DG6_008

Test case-ID	SE_LDS_DG6_008
Purpose	This test checks the encoding of the Patron Header Version (if present) in the Biometric Header Template (Tag 'A1') in each "Biometric Template" in the "Biometric Group Template" in EF.DG6.
Version	1.0
References	A1 ISO/IEC 18013-2:2020 A1 , Annex C
Profile	DG6