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Standard**

ISO/IEC 18013-4

**Personal identification — ISO-
compliant driving licence —**

Part 4:
Test methods

AMENDMENT 1: Test methods for
compact encoding

**Second edition
2019-11**

**AMENDMENT 1
2024-01**



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ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Email: copyright@iso.org
Website: www.iso.org

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Personal identification — ISO-compliant driving licence —

Part 4: Test methods

AMENDMENT 1: Test methods for compact encoding

Clause 2 Normative references

Add the date of publication to the reference to ISO/IEC 18013-2 as follows:

ISO/IEC 18013-2:2020

Replace all the occurrences of ISO/IEC 18013-2 in the document to the dated version.

Clause 4

Add the following abbreviated term after CA

| | |
|-----------|------------------|
| CE | compact encoding |
|-----------|------------------|

Subclause 6.2.2.1

Replace

"One IUT is defined as an IDL with SE for SIC (see ISO/IEC 18013-2:—, Annex C)"

by

"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) "

Subclause 6.3.1.3

Replace the full text by

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

Subclause 7.1

Replace the second sentence by

"Test requirements for Commands and LDS tests conformity are defined in Annexes A to D."

Subclause 7.3

Add the following subclause:

"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."

Subclause A.3.2.19

In row "References", replace

"ISO/IEC 18013-2:—, A.5.1"

by "ISO/IEC 18013-2: 2020, A.4.1".

Subclause A.3.2.20

In row "References", replace

ISO/IEC 18013-2:—, A.5.1

by

ISO/IEC 18013-2: 2020, A.4.1

Subclause A.3.2.21

In row "References", replace " ISO/IEC 18013-2:—, A.5.1"

by

"ISO/IEC 18013-2: 2020, A.4.1

Add following new Annex D after Annex C.

Annex D (normative)

Test case specification for Compact Encoding (CE)

D.1 General

This annex specifies the test cases for CE.

D.2 General test requirements

D.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.

D.2.2 Test setup

For setting up these tests, any read device able to read all data at the same time can be used.

D.2.3 Implementation conformance statement

In order to set up the tests properly, Tables D.1 and D.2 shall be completed.

The ISO/IEC 18013-2 and ISO/IEC 18013-3 specifications define several optional elements that an IDL can support.

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.

Table D.1 — Implementation conformance statement

| Profile | Information for test setup | Applicable (YES or NO) |
|---------|---|---------------------------|
| SIC | Contact ICC or PICC storage media | |
| BAP | Basic Access Protection | |
| PACE | Password Authenticated Connection Establishment | |
| NO-SIC | All technologies excluding ICs | |
| DG2 | IDL contains Data Group 2 | |
| DG3 | IDL contains Data Group 3 | |
| DG4 | IDL contains Data Group 4 | |
| DG7 | IDL contains Data Group 7 | |
| DG11 | IDL contains Data Group 11 | |
| SOD | IDL contains SOD | |

Table D.1 (continued)

| Profile | Information for test setup | Applicable (YES or NO) |
|---------|--|------------------------|
| SOD2 | IDL contains DG.SOD.2, but no DG.SOD.3 | |
| SOD23 | IDL contains DG.SOD.2 and DG.SOD.3 | |
| NMA | IDL contains Data Group 12 | |

Table D.2 — Configuration information

| Supported profile | Configuration information |
|--|---|
| DG11 | Indicate whether DG11 is a type 1 or type 2 data group. If DG11 is a type 2 data group, indicate the length in bytes of the data group. |
| SOD, SOD2 not supported, SOD23 not supported | Provide the public key value and the curve identifier for the verification of the signature in the SOD. For allowed values for the curve identifier, see ISO/IEC 18013-3:2017, Table 3. |
| SOD, SOD2, SOD23 not supported | Provide the curve identifier for the verification of the signature in the SOD. For allowed values for the curve identifier, see ISO/IEC 18013-3:2017, Table 3. |

D.3 Test layer CE

D.3.1 Test unit CE_FILE — Compact encoding (CE) file structure tests

D.3.1.1 Test case CE_FILE_001

| | |
|------------------|---|
| Test Case-ID | CE_FILE_001 |
| Purpose | This test checks the template tag of the encoded LDS element. |
| Version | 0.2 |
| References | ISO/IEC 18013-2:2020, Annex B |
| Profile | SIC |
| Preconditions | 1. Encoded EF.CE object in binary format (as read from the IDL) |
| Test scenario | 1. Check the very first byte of the EF.CE element |
| Expected results | 1. First byte shall be '53' |

D.3.1.2 Test case CE_FILE_002

| | |
|------------------|---|
| Test Case-ID | CE_FILE_002 |
| Purpose | This test checks the absence of EF.COM for CE |
| Version | 0.2 |
| References | ISO/IEC 18013-2:2020, Annex B |
| Profile | SIC |
| Preconditions | 1. Encoded LDS Data in binary format (as read from the IDL) |
| Test scenario | 1. Check the presence of EF.COM |
| Expected results | 1. EF.COM shall not be present |

D.3.1.3 Test case CE_FILE_003

| | |
|------------------|--|
| Test Case-ID | CE_FILE_003 |
| Purpose | This test checks the file structure for CE |
| Version | 0.2 |
| References | ISO/IEC 18013-2:2020, Annex B |
| Profile | |
| Preconditions | 1. Encoded CE Constructed Data Object in binary format (as read from the IDL; without the SIC template tag, if applicable) |
| Test scenario | 1. Check the first byte of the CE constructed data object 2. Check the last byte of the CE constructed data object |
| Expected results | 1. The first byte shall be 'A0' 2. The last byte shall be the End of File Delimiter 'B6' |

D.3.2 Test unit CE_HEADER — Compact encoding (CE) header tests

D.3.2.1 Test case CE_HEADER_001

| | |
|------------------|--|
| Test Case-ID | CE_HEADER_001 |
| Purpose | This test checks the Application Identifier referred by the header element |
| Version | 0.2 |
| References | ISO/IEC 18013-2:2020, Annex B |
| Profile | NO-SIC |
| Preconditions | 1. Encoded LDS Data in binary format (as read from the IDL) |
| Test scenario | 1. Check the AID bytes (first 7 bytes) of the Header element |
| Expected results | 1. AID shall be 'A0 00 00 02 48 01 00' |

D.3.2.2 Test Case CE_HEADER_002

| | |
|------------------|--|
| Test Case-ID | CE_HEADER_002 |
| Purpose | This test checks the Application Identifier referred by the header element |
| Version | 0.2 |
| References | ISO/IEC 18013-2:2020, Annex B |
| Profile | SIC |
| Preconditions | 1. Encoded LDS Data in binary format (as read from the IDL) |
| Test Scenario | 1. Check the AID bytes (first 7 bytes) of the Header element |
| Expected Results | 1. AID shall be 'A0 00 00 02 48 03 00' |

D.3.2.3 Test Case CE_HEADER_003

| | |
|--------------|---|
| Test Case-ID | CE_HEADER_003 |
| Purpose | This test checks the Version referred by the header element |
| Version | 0.2 |
| References | ISO/IEC 18013-2:2020, Annex B |
| Profile | |

ISO/IEC 18013-4:2019/Amd. 1:2024(en)

| | |
|------------------|--|
| Preconditions | 1. Encoded LDS Data in binary format (as read from the IDL) |
| Test Scenario | 1. Check the number of bytes of the Version 2. Check the first byte of the Version of the Header element 3. Check the second byte of the Version of the Header element |
| Expected Results | 1. The number of bytes is two 2. The first byte of the Version shall be '01' 3. The second byte of the Version shall contain a valid BCD encoded number |

D.3.2.4 Test Case CE_HEADER_004

| | |
|------------------|--|
| Test Case-ID | CE_HEADER_004 |
| Purpose | This test checks the Length encoded in the header element |
| Version | 0.2 |
| References | ISO/IEC 18013-2:2020, Annex B |
| Profile | |
| Preconditions | 1. Encoded LDS Data in binary format (as read from the IDL) |
| Test Scenario | 1. Analyze the encoding of the Length bytes in the Header Element 2. Verify the length of the data file |
| Expected Results | 1. The Length shall contain a valid length encoding according to ASN.1 encoding rules 2. The encoded length shall equal the total number of bytes from (and including) the data group delimiter between the header and Data Group 1, up to and including the last character of the LDS (i.e. the end of file delimiter) |

D.3.3 Test Unit CE_DG1 - Compact encoding (CE) DG1 tests

D.3.3.1 Test Case CE_DG1_001

| | |
|------------------|--|
| Test Case-ID | CE_DG1_001 |
| Purpose | This test checks the encoded DG1 for CE according to Type 1 Data Group encoding rules |
| Version | 0.2 |
| References | ISO/IEC 18013-2:2020, Annex B ISO/IEC 8859-1 |
| Profile | |
| Preconditions | 1. Encoded LDS Data in binary format (as read from the IDL) |
| Test Scenario | 1. Check the byte following the length encoding in the header, i.e. the byte preceding Data Group 1. |
| Expected Results | 1. The byte shall be 'D7' ("x") |

D.3.3.2 Test Case CE_DG1_002

| | |
|------------------|---|
| Test Case-ID | CE_DG1_002 |
| Purpose | This test checks the Field Delimiters of DG1 for CE according to Type 1 Data Group encoding rules |
| Version | 0.2 |
| References | ISO/IEC 18013-2:2020, Annex B ISO/IEC 8859-1 |
| Profile | |
| Preconditions | 1. Encoded LDS Data in binary format (as read from the IDL) |
| Test Scenario | 1. Check the number of Field Delimiters in DG1 |
| Expected Results | 1. The number of Field Delimiters shall be 8 |

D.3.3.3 Test Case CE_DG1_003

| | |
|------------------|---|
| Test Case-ID | CE_DG1_003 |
| Purpose | This test checks the encoding of the Family Name referred by the DG1 element |
| Version | 0.2 |
| References | ISO/IEC 18013-2:2020 ISO/IEC 8859-1 |
| Profile | |
| Preconditions | 1. Encoded LDS Data in binary format (as read from the IDL) |
| Test Scenario | 1. Search for DG1 2. Verify the Family Name field length 3. Verify the Family Name. |
| Expected Results | 1. DG1 shall be present. 2. The number of bytes shall not exceed 36 3. Family Name shall not contain numeric characters |

D.3.3.4 Test Case CE_DG1_004

| | |
|------------------|--|
| Test Case-ID | CE_DG1_004 |
| Purpose | This test checks the encoding of the Given Name referred by the DG1 element |
| Version | 0.2 |
| References | ISO/IEC 18013-2:2020 ISO/IEC 8859-1 |
| Profile | |
| Preconditions | 1. Encoded LDS Data in binary format (as read from the IDL) |
| Test Scenario | 1. Search for DG1 2. Verify the Given Name field length 3. Verify the Given Name. |
| Expected Results | 1. DG1 shall be present. 2. The number of bytes shall not exceed 36 3. Given Name shall not contain numeric characters |

D.3.3.5 Test Case CE_DG1_005

| | |
|------------------|---|
| Test Case-ID | CE_DG1_005 |
| Purpose | This test checks the encoding of the Date of Birth referred by the DG1 element |
| Version | 0.2 |
| References | ISO/IEC 18013-2:2020 |
| Profile | |
| Preconditions | 1. Encoded LDS Data in binary format (as read from the IDL) |
| Test Scenario | 1. Search for DG1 2. Verify the Date of Birth field length 3. Check the Date of Birth encoding 4. Check that the Date of Birth element contains a valid date. |
| Expected Results | 1. DG1 shall be present. 2. Date of Birth field length shall be 4 bytes long 3. Date of Birth shall be encoded in YYYYMMDD BCD format 4. The Date of Birth shall be reasonable. It shall specify an existing day and it should be in the past. |

D.3.3.6 Test Case CE_DG1_006

| | |
|------------------|---|
| Test Case-ID | CE_DG1_006 |
| Purpose | This test checks the encoding of the Date of Issue referred by the DG1 element |
| Version | 0.2 |
| References | ISO/IEC 18013-2:2020 |
| Profile | |
| Preconditions | 1. Encoded LDS Data in binary format (as read from the IDL) |
| Test Scenario | 1. Search for DG1 2. Verify the Date of Issue field length 3. Check the Date of Issue encoding 4. Check that the Date of Issue element contains a valid date. |
| Expected Results | 1. DG1 shall be present. 2. Date of Issue field length shall be 4 bytes long 3. Date of Issue shall be encoded in YYYYMMDD BCD format 4. The Date of Issue shall be reasonable. It shall specify an existing day and it should be in the past. |

D.3.3.7 Test Case CE_DG1_007

| | |
|--------------|---|
| Test Case-ID | CE_DG1_007 |
| Purpose | This test checks the encoding of the Date of Expiry referred by the DG1 element |
| Version | 0.2 |
| References | ISO/IEC 18013-2:2020 |
| Profile | |

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| | |
|------------------|---|
| Preconditions | 1. Encoded LDS Data in binary format (as read from the IDL) |
| Test Scenario | 1. Search for DG1 2. Verify the Date of Expiry field length 3. Check the Date of Expiry encoding 4. Check that the Date of Expiry element contains a valid date. |
| Expected Results | 1. DG1 shall be present. 2. Date of Expiry field length shall be 4 bytes long 3. Date of Expiry shall be encoded in YYYYMMDD BCD format 4. The Date of Expiry shall specify an existing day and shall be later than the Date of Issue. |

D.3.3.8 Test Case CE_DG1_008

| | |
|------------------|---|
| Test Case-ID | CE_DG1_008 |
| Purpose | This test checks the encoding of the Issuing Country referred by the DG1 element |
| Version | 0.2 |
| References | ISO/IEC 18013-2:2020 ISO/IEC 8859-1 ISO 3166-1 |
| Profile | |
| Preconditions | 1. Encoded LDS Data in binary format (as read from the IDL) |
| Test Scenario | 1. Search for DG1 2. Verify the Issuing Country field length 3. Check the Issuing Country encoding 4. Check Issuing Country |
| Expected Results | 1. DG1 shall be present. 2. Issuing Country field length shall be 3 bytes long 3. Issuing Country shall be encoded in Alpha characters only 4. Issuing Country shall be a valid value as defined in ISO 3166-1 |

D.3.3.9 Test Case CE_DG1_009

| | |
|------------------|---|
| Test Case-ID | CE_DG1_009 |
| Purpose | This test checks the encoding of the Issuing Authority referred by the DG1 element |
| Version | 0.2 |
| References | ISO/IEC 18013-2:2020 ISO/IEC 8859-1 |
| Profile | |
| Preconditions | 1. Encoded LDS Data in binary format (as read from the IDL) |
| Test Scenario | 1. Search for DG1 2. Verify the Issuing Authority field length 3. Check the Issuing Authority format |
| Expected Results | 1. DG1 shall be present. 2. The number of bytes shall not exceed 65 3. The Issuing Authority shall be coded according to ISO/IEC 8859-1 and contain only A, N, and S characters |

D.3.3.10 Test Case CE_DG1_010

| | |
|------------------|--|
| Test Case-ID | CE_DG1_010 |
| Purpose | This test checks the encoding of the Licence Number referred by the DG1 element |
| Version | 0.2 |
| References | ISO/IEC 18013-2:2020 ISO/IEC 8859-1 |
| Profile | |
| Preconditions | 1. Encoded LDS Data in binary format (as read from the IDL) |
| Test Scenario | 1. Search for DG1 2. Verify the Licence Number field length 3. Check Licence Number encoding |
| Expected Results | 1. DG1 shall be present. 2. The number of bytes shall not exceed 25 3. Licence Number shall not contain special characters |

D.3.3.11 Test Case CE_DG1_011

| | |
|------------------|---|
| Test Case-ID | CE_DG1_011 |
| Purpose | This test checks the number of sub-fields in the Categories of Vehicles/Restrictions/Conditions referred by the DG1 element. |
| Version | 0.3 |
| References | ISO/IEC 18013-2:2020 |
| Profile | |
| Preconditions | 1. Encoded LDS Data in binary format (as read from the IDL) |
| Test Scenario | 1. Search for DG1 2. Check the number of sub fields in the value of the Categories of Vehicles/Restrictions/Conditions field. |
| Expected Results | 1. DG1 shall be present. 2. The value of the Categories of Vehicles/Restrictions/Conditions field shall contain a multiple of 6 sub-fields ($n \cdot 6$ with $n \geq 1$) which may be empty; the sub-fields are separated by a ";" ('3B' hex). |

D.3.3.12 Test Case CE_DG1_012

| | |
|------------------|--|
| Test Case-ID | CE_DG1_012 |
| Purpose | This test checks the Vehicle Category Code of a single entry from the Categories of Vehicles/Restrictions/Conditions referred by the DG1 element |
| Version | 0.2 |
| References | ISO/IEC 18013-2:2020 |
| Profile | |
| Preconditions | 1. Encoded LDS Data in binary format (as read from the IDL) |
| Test Scenario | 1. Search for DG1 2. Check the Vehicle Category Code value for all entries |
| Expected Results | 1. DG1 shall be present. 2. The Vehicle Category Code contains Alpha-Numeric characters only |

D.3.3.13 Test Case CE_DG1_013

| | |
|------------------|--|
| Test Case-ID | CE_DG1_013 |
| Purpose | This test checks the Date of Issue (if present) of a single entry from the Categories of Vehicles/Restrictions/Conditions referred by the DG1 element |
| Version | 0.2 |
| References | ISO/IEC 18013-2:2020 |
| Profile | |
| Preconditions | 1. Encoded LDS Data in binary format (as read from the IDL) |
| Test Scenario | 1. Search for DG1 2. Check the encoding of the Date of Issue value for all entries 3. Check the Date of Issue value |
| Expected Results | 1. DG1 shall be present. 2. Date of Issue shall be 4 bytes long and shall be encoded in YYYYMMDD BCD format 3. The Date of Issue shall be reasonable. It shall specify an existing day and it should be in the past. |

D.3.3.14 Test Case CE_DG1_014

| | |
|------------------|--|
| Test Case-ID | CE_DG1_014 |
| Purpose | This test checks the Date of Expiry (if present) of a single entry from the Categories of Vehicles/Restrictions/Conditions referred by the DG1 element |
| Version | 0.2 |
| References | ISO/IEC 18013-2:2020 |
| Profile | |
| Preconditions | 1. Encoded LDS Data in binary format (as read from the IDL) |
| Test Scenario | 1. Search for DG1 2. Check the encoding of the Date of Expiry value for all entries 3. Check the Date of Expiry value |
| Expected Results | 1. DG1 shall be present. 2. Date of Expiry shall be 4 bytes long and shall be encoded in YYYYM-MDD BCD format 3. The Date of Expiry shall specify an existing day and shall be later than the Date of Issue. |

D.3.3.15 Test Case CE_DG1_015

| | |
|--------------|---|
| Test Case-ID | CE_DG1_015 |
| Purpose | This test checks the Code of a single entry from the Categories of Vehicles/Restrictions/Conditions referred by the DG1 element |
| Version | 0.2 |
| References | ISO/IEC 18013-2:2020 |
| Profile | |

ISO/IEC 18013-4:2019/Amd. 1:2024(en)

| | |
|------------------|---|
| Preconditions | 1. Encoded LDS Data in binary format (as read from the IDL) |
| Test Scenario | 1. Search for DG1 2. Check the encoding of the Code value for all entries 3. Check the Code value |
| Expected Results | 1. DG1 shall be present. 2. The length of the Code shall not exceed 5 bytes length 3. The value of the Code is one of the values specified in ISO/IEC 18013-2:2020, A.4.1 (i.e. "01", "03", "78", "S01", "S02", "S03", "S04" or "S05"). |

D.3.3.16 Test Case CE_DG1_016

| | |
|------------------|--|
| Test Case-ID | CE_DG1_016 |
| Purpose | This test checks the Sign (if present) of a single entry from the Categories of Vehicles/Restrictions/Conditions referred by the DG1 element |
| Version | 0.2 |
| References | ISO/IEC 18013-2:2020 |
| Profile | |
| Preconditions | 1. Encoded LDS Data in binary format (as read from the IDL) |
| Test Scenario | 1. Search for DG1 2. Check the format of the Sign 3. Check the value of the Sign 4. Check the Sign only occurs in combination with an applicable Code 5. Check the Sign only occurs in combination with a Value field |
| Expected Results | 1. DG1 shall be present 2. Sign shall be encoded in Special characters 3. The value of the Sign is one of the values specified in ISO/IEC 18013-2:2020, A.4.1 (i.e. "<", "=", ">", "<=", "=<", "<>", "><", ">=", "=>", "==") 4. The value of the Code is one of the following values specified in ISO/IEC 18013-2:2020, A.4.1 (i.e. "S01", "S02", "S03" or "S04") 5. The Value field is not empty |

D.3.3.17 Test Case CE_DG1_017

| | |
|------------------|---|
| Test Case-ID | CE_DG1_017 |
| Purpose | This test checks the Value (if present) of a single entry from the Categories of Vehicles/Restrictions/Conditions referred by the DG1 element |
| Version | 0.2 |
| References | ISO/IEC 18013-2:2020 |
| Profile | |
| Preconditions | 1. Encoded LDS Data in binary format (as read from the IDL) |
| Test Scenario | 1. Search for DG1 2. Check the format of the Value 3. Check the Value only occurs in combination with a Code 4. Check the Value only occurs in combination with a Sign |
| Expected Results | 1. DG1 shall be present. 2. The Value field shall be encoded in ANS format 3. The Code field is not empty 4. The Sign field is not empty |

D.3.4 Test Unit CE_DG2 – Compact encoding (CE) DG2 tests

D.3.4.1 Test Case CE_DG2_001

| | |
|------------------|--|
| Test Case-ID | CE_DG2_001 |
| Purpose | This test checks that the Data Group Delimiter preceding DG2 is present |
| Version | 0.2 |
| References | ISO/IEC 18013-2:2020, Annex B ISO/IEC 8859-1 |
| Profile | |
| Preconditions | 1. Encoded LDS Data in binary format (as read from the IDL) |
| Test Scenario | 1. Check the byte following the last byte of Data Group 1, i.e. the byte preceding Data Group 2. |
| Expected Results | 1. The byte shall be 'D7' ("x") |

D.3.4.2 Test Case CE_DG2_002

| | |
|------------------|---|
| Test Case-ID | CE_DG2_002 |
| Purpose | This test checks the Field Delimiters of DG2 for CE according to Type 1 Data Group encoding rules |
| Version | 0.2 |
| References | ISO/IEC 18013-2:2020, Annex B ISO/IEC 8859-1 |
| Profile | DG2 |
| Preconditions | 1. Encoded LDS Data in binary format (as read from the IDL) |
| Test Scenario | 1. Check the number of Field Delimiters in DG2 |
| Expected Results | 1. The number of Field Delimiters shall be 6 |

D.3.4.3 Test Case CE_DG2_003

| | |
|------------------|--|
| Test Case-ID | CE_DG2_003 |
| Purpose | This test checks the encoding of Gender referred by the DG2 element |
| Version | 0.2 |
| References | ISO/IEC 18013-2:2020 |
| Profile | DG2 |
| Preconditions | 1. Encoded LDS Data in binary format (as read from the IDL) |
| Test Scenario | 1. Search for the Gender element data in DG2 2. Verify the length of the Gender 3. Check the value of Gender |
| Expected Results | 1. The Gender element data may be present in DG2 2. If present, the length of Gender shall be 1 byte length 3. If present, the value of Gender shall be '00' (Unknown), '01' (Male), '02' (Female), or '09' (Not applicable) encoded in BCD format (as per ISO/IEC 5218) |

D.3.4.4 Test Case CE_DG2_004

| | |
|------------------|---|
| Test Case-ID | CE_DG2_004 |
| Purpose | This test checks the encoding of Height referred by the DG2 element |
| Version | 0.2 |
| References | ISO/IEC 18013-2:2020 |
| Profile | DG2 |
| Preconditions | 1. Encoded LDS Data in binary format (as read from the IDL) |
| Test Scenario | 1. Search for the Height element data in DG2 2. Verify the length of the Tag Height 3. Check the encoding of Height |
| Expected Results | 1. The Height element data may be present in DG2 2. If present, the length of Height shall be 2 byte length 3. If present, the value of Height shall be encoded in BCD format |

D.3.4.5 Test Case CE_DG2_005

| | |
|------------------|---|
| Test Case-ID | CE_DG2_005 |
| Purpose | This test checks the encoding of Weight referred by the DG2 element |
| Version | 0.2 |
| References | ISO/IEC 18013-2:2020 |
| Profile | DG2 |
| Preconditions | 1. Encoded LDS Data in binary format (as read from the IDL) |
| Test Scenario | 1. Search for the Weight element data in DG2 2. Verify the length of the Weight 3. Check the encoding of Weight |
| Expected Results | 1. The Weight element data may be present in DG2 2. If present, the length of Weight shall be 2 byte length 3. If present, the value of Weight shall be encoded in BCD format |

D.3.4.6 Test Case CE_DG2_006

| | |
|------------------|---|
| Test Case-ID | CE_DG2_006 |
| Purpose | This test checks the encoding of Eye Colour referred by the DG2 element |
| Version | 0.2 |
| References | ISO/IEC 18013-2:2020 |
| Profile | DG2 |
| Preconditions | 1. Encoded LDS Data in binary format (as read from the IDL) |
| Test Scenario | 1. Search for the Eye Colour element data in DG2 2. Verify the length of the Eye Colour 3. Check the encoding of Eye Colour |
| Expected Results | 1. The Eye Colour element data may be present in DG2 2. If present, the length of Eye Colour shall be 3 byte length 3. If present, the value of Eye Colour shall be defined per ISO/IEC 18013-2:2020, 8.3 (i.e. "BLK", "BLU", "BRO", "GRY", "GRN", "HAZ", "MAR", "PNK", "DIC", or "UNK"). |

D.3.4.7 Test Case CE_DG2_007

| | |
|------------------|---|
| Test Case-ID | CE_DG2_007 |
| Purpose | This test checks the encoding of Hair Colour referred by the DG2 element |
| Version | 0.2 |
| References | ISO/IEC 18013-2:2020 |
| Profile | DG2 |
| Preconditions | 1. Encoded LDS Data in binary format (as read from the IDL) |
| Test Scenario | 1. Search for the Hair Colour element data in DG2 2. Verify the length of the Hair Colour 3. Check the encoding of Hair Colour |
| Expected Results | 1. The Hair Colour element data may be present in DG2 2. If present, the length of Hair Colour shall be 3 byte length 3. If present, the value of Hair Colour shall be defined per ISO/IEC 18013-2:2020, 8.3 (i.e. "BAL", "BLK", "BLN", "BRO", "GRY", "RED", "SDY", "WHI", or "UNK"). |

D.3.4.8 Test Case CE_DG2_008

| | |
|------------------|---|
| Test Case-ID | CE_DG2_008 |
| Purpose | This test checks the encoding of Place of Birth referred by the DG2 element |
| Version | 0.2 |
| References | ISO/IEC 18013-2:2020 |
| Profile | DG2 |
| Preconditions | 1. Encoded LDS Data in binary format (as read from the IDL) |
| Test Scenario | 1. Search for the Place of Birth element data in DG2 2. Verify the length and format of the Place of Birth 3. Verify the content of Place of Birth |
| Expected Results | 1. The Place of Birth element data may be present in DG2 2. If present, the Place of Birth field shall be encoded as ADNS on 2 - 35 bytes. 3. If present, Place of Birth shall contain 3 sub-fields (City; State/Province or District; Country) that are that are separated with a sub-field delimiter (";"). |

D.3.4.9 Test Case CE_DG2_009

| | |
|--------------|--|
| Test Case-ID | CE_DG2_009 |
| Purpose | This test checks the encoding of Normal Place of Residence referred by the DG2 element |
| Version | 0.2 |
| References | ISO/IEC 18013-2:2020 |
| Profile | DG2 |

| | |
|------------------|--|
| Preconditions | 1. Encoded LDS Data in binary format (as read from the IDL) |
| Test Scenario | 1. Search for the Normal Place of Residence element data in DG2 2. Verify the length and format of the Normal Place of Residence 3. Verify the content of Normal Place of Residence |
| Expected Results | 1. The Normal Place of Residence element data may be present in DG2 2. If present, the Place of Residence field shall be encoded as ADNS on 5 - 113 bytes. 3. If present, Normal Place of Residence shall contain 6 sub-fields (Street Address Line 1; Street Address Line 2; City; State/Province or District; Postal Code; Country) that are separated with a sub-field delimiter (";"). |

D.3.5 Test Unit CE_DG3 – Compact encoding (CE) DG3 tests

D.3.5.1 Test Case CE_DG3_001

| | |
|------------------|--|
| Test Case-ID | CE_DG3_001 |
| Purpose | This test checks that the Data Group Delimiter preceding DG3 is present |
| Version | 0.3 |
| References | ISO/IEC 18013-2:2020, Annex B ISO/IEC 8859-1 |
| Profile | |
| Preconditions | 1. Encoded LDS Data in binary format (as read from the IDL) |
| Test Scenario | 1. If DG2 is present, check the byte following the last byte of Data Group 2 If DG2 is not supported, check the byte following the data group delimiter that precedes the empty DG2 |
| Expected Results | 1. The byte shall be 'D7' ("x") |

D.3.5.2 Test Case CE_DG3_002

| | |
|------------------|---|
| Test Case-ID | CE_DG3_002 |
| Purpose | This test checks the Field Delimiters of DG3 for CE according to Type 1 Data Group encoding rules |
| Version | 0.2 |
| References | ISO/IEC 18013-2:2020, Annex B ISO/IEC 8859-1 |
| Profile | DG3 |
| Preconditions | 1. Encoded LDS Data in binary format (as read from the IDL) |
| Test Scenario | 1. Check the number of Field Delimiters in DG3 |
| Expected Results | 1. The number of Field Delimiters shall be 3 |

D.3.5.3 Test Case CE_DG3_003

| | |
|------------------|---|
| Test Case-ID | CE_DG3_003 |
| Purpose | This test checks the encoding of Administrative Number referred by DG3 element |
| Version | 0.2 |
| References | ISO/IEC 18013-2:2020 ISO/IEC 8859-1 |
| Profile | DG3 |
| Preconditions | 1. Encoded LDS Data in binary format (as read from the IDL) |
| Test Scenario | 1. Search for the Administrative Number element data in DG3. 2. Verify the length of the Administrative Number 3. Verify the encoding of the Administrative Number |
| Expected Results | 1. The Administrative Number element data may be present. 2. If present, the length of Administrative Number shall not exceed 25 bytes length 3. If present, the Administrative Number shall be as coded as ANS |

D.3.5.4 Test Case CE_DG3_004

| | |
|------------------|---|
| Test Case-ID | CE_DG3_004 |
| Purpose | This test checks the encoding of Document Discriminator referred by DG3 element |
| Version | 0.2 |
| References | ISO/IEC 18013-2:2020 |
| Profile | DG3 |
| Preconditions | 1. Encoded LDS Data in binary format (as read from the IDL) |
| Test Scenario | 1. Search for the Document Discriminator element data in DG3. 2. Verify the length of the Document Discriminator 3. Verify the encoding of the Document Discriminator |
| Expected Results | 1. The Document Discriminator element data may be present. 2. If present, the length of Document Discriminator shall be one byte. 3. If present, the value of Document Discriminator shall be encoded in BCD format |

D.3.5.5 Test Case CE_DG3_005

| | |
|--------------|---|
| Test Case-ID | CE_DG3_005 |
| Purpose | This test checks the encoding of Data Discriminator referred by DG3 element |
| Version | 0.2 |
| References | ISO/IEC 18013-2:2020 |
| Profile | DG3 |

ISO/IEC 18013-4:2019/Amd. 1:2024(en)

| | |
|------------------|---|
| Preconditions | 1. Encoded LDS Data in binary format (as read from the IDL) |
| Test Scenario | 1. Search for the Data Discriminator element data in DG3. 2. Verify the length of the Data Discriminator 3. Verify the encoding of the Data Discriminator |
| Expected Results | 1. The Data Discriminator element data may be present. 2. If present, the length of Data Discriminator shall be one byte. 3. If present, the value of Data Discriminator shall be encoded in BCD format |

D.3.5.6 Test Case CE_DG3_006

| | |
|------------------|--|
| Test Case-ID | CE_DG3_006 |
| Purpose | This test checks the encoding of ISO Issuer ID Number referred by DG3 element |
| Version | 0.2 |
| References | ISO/IEC 18013-2:2020 |
| Profile | DG3 |
| Preconditions | 1. Encoded LDS Data in binary format (as read from the IDL) |
| Test Scenario | 1. Search for the Issuer ID Number element data in DG3. 2. Verify the length of the Issuer ID Number 3. Check the encoding of the Issuer ID Number |
| Expected Results | 1. The Issuer ID Number element data may be present. 2. If present, the length of Issuer ID Number shall be 4 bytes length 3. If present, the value of Issuer ID Number shall be encoded in BCD format |

D.3.6 Test Unit CE_DG4 – Compact Encoding (CE) DG4 tests

D.3.6.1 Test Case CE_DG4_001

| | |
|------------------|--|
| Test Case-ID | CE_DG4_001 |
| Purpose | This test checks that the Data Group Delimiter preceding DG4 is present |
| Version | 0.3 |
| References | ISO/IEC 18013-2:2020, Annex B ISO/IEC 8859-1 |
| Profile | |
| Preconditions | 1. Encoded LDS Data in binary format (as read from the IDL) |
| Test Scenario | 1. If DG3 is present, check the byte following the last byte of Data Group 3 If DG3 is not supported, check the byte following the data group delimiter that precedes the empty DG3 |
| Expected Results | 1. The byte shall be 'D7' ("x") |

D.3.6.2 Test Case CE_DG4_002

| | |
|------------------|---|
| Test Case-ID | CE_DG4_001 |
| Purpose | This test checks the encoded DG4 for CE according to Type 2 Data Group encoding rules |
| Version | 0.2 |
| References | ISO/IEC 18013-2:2020, Annex B ISO/IEC 8859-1 |
| Profile | DG4 |
| Preconditions | 1. Encoded LDS Data in binary format (as read from the IDL) |
| Test Scenario | 1. Check the first byte (Type of Image) after the Data Group Delimiter 2. Analyze the encoding of the bytes that follow the Type of Image 3. Verify the length of the Image object |
| Expected Results | 1. Value of Type of Image shall be a valid image type indicated in ISO/IEC 18013-2:2020, 8.5 (i.e. '03' or '04') 2. The bytes that follow the Type of Image shall contain a valid length encoding (according to ASN.1 encoding rules). 3. The encoded length shall match the size of the given Image object |

D.3.6.3 Test Case CE_DG4_003

| | |
|------------------|--|
| Test Case-ID | CE_DG4_003 |
| Purpose | This test checks that only 1 portrait image is encoded in DG4 for CE according to Type 2 Data Group encoding rules |
| Version | 0.2 |
| References | ISO/IEC 18013-2:2020, Annex B |
| Profile | DG4 |
| Preconditions | 1. Encoded LDS Data in binary format (as read from the IDL) |
| Test Scenario | 1. Check the number of portrait images in DG4 |
| Expected Results | 1. The number of portrait image encoded in DG4 shall be 1 |

D.3.7 Test Unit CE_DG7 – Compact Encoding (CE) DG7 tests

D.3.7.1 Test Case CE_DG7_001

| | |
|------------------|--|
| Test Case-ID | CE_DG7_001 |
| Purpose | This test checks that the Data Group Delimiter preceding DG7 is present |
| Version | 0.3 |
| References | ISO/IEC 18013-2:2020, Annex B ISO/IEC 8859-1 |
| Profile | |
| Preconditions | 1. Encoded LDS Data in binary format (as read from the IDL) |
| Test Scenario | 1. If DG4 is present, check the byte following the last byte of Data Group 4 If DG4 is not supported, check the byte following the data group delimiter that precedes the empty DG4 |
| Expected Results | 1. The byte shall be 'D7' ("x") |

D.3.7.2 Test Case CE_DG7_002

| | |
|------------------|--|
| Test Case-ID | CE_DG7_002 |
| Purpose | This test checks the structure of the encoded DG7 for CE according to Type 2 Data Group encoding rules |
| Version | 0.2 |
| References | ISO/IEC 18013-2:2020, Annex B ISO/IEC 8859-1 |
| Profile | DG7 |
| Preconditions | 1. Encoded LDS Data in binary format (as read from the IDL) |
| Test Scenario | 1. Check the presence of the BDB Format Owner and Format Type 2. Analyze the encoding of the bytes that follow the Format Type element 3. Verify the length of the Biometric Data Block object |
| Expected Results | 1. The Data Group Delimiter shall be followed by 4 BCD encoded bytes 2. The bytes that follow the BDB Format Type shall contain a valid length encoding (according to ASN.1 encoding rules). 3. The length of the Biometric Data Block object shall match the encoded length |

D.3.7.3 Test Case CE_DG7_003

| | |
|------------------|---|
| Test Case-ID | CE_DG7_003 |
| Purpose | This test checks the encoding of the CBEFF element BDB Format Owner in DG7 for CE |
| Version | 0.2 |
| References | ISO/IEC 18013-2:2020, Annex B |
| Profile | DG7 |
| Preconditions | 1. Encoded LDS Data in binary format (as read from the IDL) |
| Test Scenario | 1. Check the length of the BDB Format Owner value 2. Verify the BDB Format Owner value |
| Expected Results | 1. The length of the value field shall be 2 bytes 2. The value of the BDB Format Owner shall be a registered CBEFF format owner. It shall be '01 01' |

D.3.7.4 Test Case CE_DG7_004

| | |
|------------------|---|
| Test Case-ID | CE_DG7_004 |
| Purpose | This test checks the encoding of the CBEFF element BDB Format Type in DG7 for CE |
| Version | 0.2 |
| References | ISO/IEC 18013-2:2020, Annex B |
| Profile | DG7 |
| Preconditions | 1. Encoded LDS Data in binary format (as read from the IDL) |
| Test Scenario | 1. Check the length of the BDB Format Type value 2. Verify the BDB Format Type value |
| Expected Results | 1. The length of the value field shall be 2 bytes 2. The value of the "format type" shall be a registered CBEFF format type. It shall be one of the values '00 01', '00 02', '00 03', '00 04', '00 05', '00 06' or '00 0A' |

D.3.8 Test Unit CE_DG11 – Compact Encoding (CE) DG11 tests

D.3.8.1 Test Case CE_DG11_001

| | |
|------------------|--|
| Test Case-ID | CE_DG11_001 |
| Purpose | This test checks that the Data Group Delimiter preceding DG11 is present |
| Version | 0.3 |
| References | ISO/IEC 18013-2:2020, Annex B ISO/IEC 8859-1 |
| Profile | |
| Preconditions | 1. Encoded LDS Data in binary format (as read from the IDL) |
| Test Scenario | 1. If DG7 is present, check the byte following the last byte of Data Group 7 If DG7 is not supported, check the byte following the data group delimiter that precedes the empty DG7 |
| Expected Results | 1. The byte shall be 'D7' ("x") |

D.3.8.2 Test Case CE_DG11_002

Removed

D.3.8.3 Test Case CE_DG11_003

| | |
|------------------|---|
| Test Case-ID | CE_DG11_003 |
| Purpose | This test checks that the LDS data is correctly terminated by the end of file delimiter and that the length encoded in the header matches the length of the encoded LDS data. |
| Version | 0.3 |
| References | ISO/IEC 18013-2:2020, Annex B |
| Profile | DG11 NMA not supported, SOD not supported, SOD2 not supported, SOD23 not supported |
| Preconditions | 1. Encoded LDS Data in binary format (as read from the IDL) 2. The length has been extracted from the header |
| Test Scenario | 1. Verify that DG11 is followed by the end of file delimiter 2. Check that the length information extracted from the header matches the length of the LDS data up to this end of file delimiter. |
| Expected Results | 1. The last byte of DG11 is followed by the byte 'B6'. 2. The length of data from (and including) the data group delimiter between the header and the first data group, up to and including this end of file delimiter matches the length information extracted from the header. |

D.3.8.4 Test Case CE_DG11_004

| | |
|------------------|---|
| Test Case-ID | CE_DG11_004 |
| Purpose | This test checks that the LDS data is correctly terminated by the end of file delimiter and that the length encoded in the header matches the length of the encoded LDS data. |
| Version | 0.3 |
| References | ISO/IEC 18013-2:2020, Annex B |
| Profile | DG11 not supported NMA not supported, SOD not supported, SOD2 not supported, SOD23 not supported |
| Preconditions | 1. Encoded LDS Data in binary format (as read from the IDL) 2. The length has been extracted from the header |
| Test Scenario | 1. Verify that the data group delimiter preceding DG11 is followed by the end of file delimiter 2. Check that the length information extracted from the header matches the length of the LDS data up to this end of file delimiter. |
| Expected Results | 1. The data group delimiter preceding DG11 is followed by the byte 'B6'. 2. The length of data from (and including) the data group delimiter between the header and the first data group, up to and including this end of file delimiter matches the length information extracted from the header. |

D.3.9 Test Unit CE_DG12 – Compact Encoding (CE) DG12 tests

D.3.9.1 Test Case CE_DG12_001

| | |
|------------------|--|
| Test Case-ID | CE_DG12_001 |
| Purpose | This test checks that the Data Group Delimiter preceding DG12 is present |
| Version | 0.3 |
| References | ISO/IEC 18013-2:2020 ISO/IEC 18013-3:2017 ISO/IEC 8859-1 |
| Profile | NMA and / or SOD |
| Preconditions | 1. Encoded LDS Data in binary format (as read from the IDL) |
| Test Scenario | 1. If DG11 is present, check the byte following the last byte of Data Group 11 If DG11 is not supported, check the byte following the data group delimiter that precedes the empty DG11 |
| Expected Results | 1. The byte shall be 'D7' ("x") |

D.3.9.2 Test Case CE_DG12_002

| | |
|------------------|--|
| Test Case-ID | CE_DG12_002 |
| Purpose | This test checks the Field Delimiters of DG12 for CE according to Type 1 Data Group encoding rules |
| Version | 0.2 |
| References | ISO/IEC 18013-3:2017 ISO/IEC 8859-1 |
| Profile | NMA |
| Preconditions | 1. Encoded LDS Data in binary format (as read from the IDL) |
| Test Scenario | 1. Check the number of Field Delimiters in DG12 |
| Expected Results | 1. The number of Field Delimiters shall be 1 |

D.3.9.3 Test Case CE_DG12_003

Removed

D.3.9.4 Test Case CE_DG12_004

| | |
|------------------|---|
| Test Case-ID | CE_DG12_004 |
| Purpose | This test checks the encoding of SAI Reference String referred by DG12 element |
| Version | 0.3 |
| References | ISO/IEC 18013-3:2017 |
| Profile | NMA |
| Preconditions | 1. Encoded LDS Data in binary format (as read from the IDL) |
| Test Scenario | <ol style="list-style-type: none"> 1. Check the value of the SAI Reference String 2. If the SAI Reference String starts with '00', check the value of the subsequent bytes of the SAI Reference String 3. If the SAI Reference String starts with '01', check the value of the subsequent bytes of the SAI Reference String 4. If the SAI Reference String starts with '01', check the value of the subsequent bytes of the SAI Reference String 5. If the SAI Reference String starts with '01', check the value of the subsequent bytes of the SAI Reference String |
| Expected Results | <ol style="list-style-type: none"> 1. The first byte of the SAI Reference String shall be '00' or '01' 2. The subsequent bytes of the SAI Reference String shall be encoded in accordance with ISO/IEC 8859-1 3. The subsequent bytes of the SAI Reference String shall be 2 BCD encoded bytes 4. The second byte of the SAI Reference String shall refer to an existing Data Group in the IDL 5. The third byte of the SAI Reference String shall refer to a field in an existing Data Group in the IDL that is available outside the ICC (i.e. DG1 Field 1..9, DG2 Field 1..7), or DG3 Field 1..4) |