

Information technology — Personal identification — ISO-compliant driving licence —

Part 2: Machine-readable technologies

ICS 35.240.15

National foreword

This British Standard is the UK implementation of ISO/IEC 18013-2:2008, incorporating corrigendum December 2011.

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

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

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Information technology — Personal identification — ISO-compliant driving licence

Part 2: Machine-readable technologies

*Technologies de l'information — Identification des personnes — Permis
de conduire conforme à l'ISO*

Partie 2: Technologies lisibles par une machine

Reference number
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Contents

Page

Foreword	iv
Introduction.....	v
1 Scope	1
2 Conformance	1
3 Normative references	2
4 Terms, definitions and abbreviations.....	2
5 Machine-readable functionality of IDLs	5
5.1 General principles	5
5.2 Mandatory functions	6
5.3 Optional functions.....	6
6 Machine-readable technologies supported	6
7 Organization of data	7
7.1 Mandatory data	7
7.2 Optional data.....	7
8 Data structure	7
8.1 Data Group 1: Mandatory text data elements	8
8.2 Data Group 2: Optional licence holder details	9
8.3 Data Group 3: Optional issuing authority details	10
8.4 Data Group 4: Optional portrait image	10
8.5 Data Group 5: Optional signature / usual mark image	11
8.6 Data groups 6, 7, 8 and 9: Optional facial, fingerprint, iris and other biometric templates.....	11
8.7 Data Group 10: Reserved for future use	13
8.8 Data Group 11: Optional domestic data.....	13
9 Application identifiers.....	14
Annex A (normative) Assembly rules for categories of vehicles/restrictions/conditions field	15
Annex B (normative) Compact encoding	26
Annex C (normative) Standard encoding for ICCs with contacts and for PICCs.....	38
Annex D (normative) Standard Encoding for Optical Memory Cards	71
Annex E (normative) Images	80
Bibliography.....	88

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. In the field of information technology, ISO and IEC have established a joint technical committee, ISO/IEC JTC 1.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of the joint technical committee is to prepare International Standards. Draft International Standards adopted by the joint technical committee are circulated to national bodies for voting. Publication as an International Standard requires approval by at least 75 % of the national bodies casting a vote.

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.

ISO/IEC 18013-2 was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 17, *Cards and personal identification*.

ISO/IEC 18013 consists of the following parts, under the general title *Information technology — Personal identification — ISO-compliant driving licence*:

- *Part 1: Physical characteristics and basic data set.* Part 1 defines the basic terms for ISO/IEC 18013, including physical characteristics, basic data element set, visual layout, and physical security features.
- *Part 2: Machine-readable technologies.* Part 2 defines the technologies that may be used for ISO/IEC 18013, including the logical data structure and data mapping for each technology.
- *Part 3: Access control, authentication and integrity validation.* Part 3 defines the electronic security features that may be incorporated under ISO/IEC 18013, including mechanisms for controlling access to data, verifying the origin of an ISO-compliant driving licence, and confirming data integrity.

Introduction

This part of ISO/IEC 18013 prescribes requirements for the implementation of machine-readable technology on an ISO-compliant driving licence (IDL).

One of the functions of an IDL is to facilitate international interchange. Storing IDL data in machine-readable form supports this function by speeding up data input and eliminating transcription errors. Consequently, the automation and productivity of traffic law enforcement and other traffic safety processes can be improved.

This part of ISO/IEC 18013 allows issuing authorities to customise machine-readable data for domestic use. Apart from international interchange, the use of an IDL as a domestic driving licence thus provides for domestic standardisation and creates a domestic infrastructure capable of processing IDLs issued by other issuing authorities.

Information technology — Personal identification — ISO-compliant driving licence

Part 2: Machine-readable technologies

1 Scope

ISO/IEC 18013 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), ISO 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 in applying their privacy rules and national/community/regional motor vehicle authorities in taking care of their specific needs.

The purpose of storing IDL data on machine-readable media on the IDL is to

- increase productivity (of data and IDL use),
- facilitate electronic data exchange, and
- assist in authenticity and integrity validation.

This part of ISO/IEC 18013 thus specifies the following:

- mandatory and optional machine-readable data;
- the logical data structure;
- encoding rules for the machine-readable technologies currently supported.

To prevent unauthorised access to the data contained on a contactless IC (e.g. by eavesdropping), provision is made to protect the privacy of the licence holder via basic access protection [requiring a human-readable and/or machine-readable key/password on the IDL to access the data on the PIC (via protected-channel communication)]. The implementation details of this function however are defined in ISO/IEC 18013-3.

Provision is made for issuing authorities to validate the authenticity and integrity of the mandatory and optional data. In addition, the option of protecting access to optional data (beyond basic access protection) is provided for. The exact mechanism used to achieve such protection (e.g. encryption and/or additional access control) is specified in ISO/IEC 18013-3.

2 Conformance

A driving licence is in conformance with this part of ISO/IEC 18013 if it meets all mandatory requirements specified directly or by reference herein. Compliance with ISO/IEC 18013-1 is not required for compliance with this part of ISO/IEC 18013, except for those parts of ISO/IEC 18013-1 directly referenced in this part of ISO/IEC 18013 outside of Clause 3. Conversely, the incorporation of a machine-readable technology which is

not compliant with this part of ISO/IEC 18013 does not necessarily render the IDL non-compliant with ISO/IEC 18013-1.

3 Normative references

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

ISO 3166-1:2006, *Codes for the representation of names of countries and their subdivisions — Part 1: Country codes*

ISO/IEC 5218:2004, *Information technology — Codes for the representation of human sexes*

ISO/IEC 7812-1:2006, *Identification cards — Identification of issuers — Part 1: Numbering system*

ISO/IEC 7816-5:2004, *Identification cards — Integrated circuit cards — Part 5: Registration of application providers*

ISO/IEC 7816-11:2004, *Identification cards — Integrated circuit cards — Part 11: Personal verification through biometric methods*

ISO/IEC 8859-1:1998, *Information technology — 8-bit single-byte coded graphic character sets — Part 1: Latin alphabet No. 1*

ISO/IEC 18013-1, *Information technology — Personal identification — ISO-compliant driving licence — Part 1: Physical characteristics and basic data set*

ISO/IEC 19785-1:2006, *Information technology — Common Biometric Exchange Formats Framework — Part 1: Data element specification*

ISO/IEC 19785-3:2007, *Information technology — Common Biometric Exchange Formats Framework — Part 3: Patron format specifications*

ISO/IEC 19794-2:2005, *Information technology — Biometric data interchange formats — Part 2: Finger minutiae data*

ISO/IEC 19794-4:2005, *Information technology — Biometric data interchange formats — Part 4: Finger image data*

ANSI D20-2003, *Data Element Dictionary For Traffic Records Systems* (April 2003)

IAFIS-IC-0110(V3), *WSQ Gray-scale Fingerprint Image Compression Specification*, Federal Bureau of Investigation, Criminal Justice Information Services Division (1997)

4 Terms, definitions and abbreviations

For the purposes of this document, the terms and definitions given in ISO/IEC 18013-1 and the following apply.

4.1 basic access protection BAP

requiring a human-readable and/or machine-readable key/password on the IDL to access the data on the secure IC via protected-channel communication

4.2 binary coded decimal BCD

binary coding of a sequence of integers using 4 bits for each integer (where the bit weights are 8421) and encoding two integers per byte, and where a 0 digit is appended to the left of an integer sequence containing an uneven number of digits before encoding

NOTE 1 Only unsigned BCD is used in this part of ISO/IEC 18013.

NOTE 2 For purposes of this part of ISO/IEC 18013, the definition of numeric characters in ISO/IEC 18013-1 in terms of ISO/IEC 8859-1 is deemed to be for identification purposes of the numeric characters only, and does not pertain to the manner in which numeric characters have to be encoded. Encoding rules are explicitly specified in this part of ISO/IEC 18013.

EXAMPLE

Integer	BCD
5	0000 0101
20	0010 0000
387	0000 0011 1000 0111

4.3 Biometric Data Block BDB

block of data with a defined format that contains one or more biometric samples or biometric templates

4.4 Biometric Information Record BIR

BioAPI Consortium Patron Format biometric record header

4.5 biometric template

biometric sample (i.e. information obtained from a biometric device, either directly or after further processing) or combination of biometric samples that is suitable for storage as a reference for future comparison

NOTE This definition is an expansion of a definition in ISO/IEC 19785-1.

4.6 card holder

person using an IDL, who is not necessarily the legitimate licence holder

4.7 Common Biometric Exchange File Format CBEFF

file format that promotes interoperability of biometric-based applications and systems by specifying a standard structure for a BIR and a set of abstract data elements and values that can be used to create the header part of a CBEFF-compliant BIR

NOTE This definition is based on descriptive language in ISO/IEC 19785-1.

4.8 compact encoding

encoding method when the memory capacity available for the IDL application does not exceed 5 kB, typically applicable to 2D barcode symbologies, high-coercivity high-density magnetic stripe and limited memory-capacity ICs (PICs and ICs with contacts)

NOTE 1 Compact encoding generates one constructed data object containing all data groups. Selective reading is not possible and the read device reads all data at the same time, whereafter the data is parsed. Using this method for machine-readable technologies with large memory capacity is not recommended as it can result in prolonged reading time.

NOTE 2 Compact encoding may also be used where the total memory capacity exceeds 5 kB (e.g. ICs with contacts and PICs) but where the capacity available to the IDL application is limited due to capacity being reserved for other applications.

4.9

Data Group

DG

collection of related data elements

4.10

dedicated file

DF

4.11

delimiter

D

character used to separate data elements in a machine-readable data stream

4.11.1

data group delimiter

multiplication sign "×" (character D7 of ISO/IEC 8859-1)

4.11.2

field delimiter

division sign "÷" (character F7 of ISO/IEC 8859-1)

4.11.3

sub-field delimiter

sub-delimiter

semicolon ";" (character 3B of ISO/IEC 8859-1)

4.11.4

end of file delimiter

pilcrow "¶" (character B6 of ISO/IEC 8859-1)

4.12

digital signature

data appended to, or cryptographic transformation of, a data string that proves the origin and the integrity of the data string and protects against forgery, e.g. by the recipient of the data string

[ISO/IEC 7816-4]

4.13

elementary file

EF

4.14

integrated circuit

IC

4.15

integrated circuit card

ICC

4.16
logical data structure
LDS

4.17
master file
MF

4.18
proximity integrated circuit
PIC

4.19
proximity integrated circuit card
PICC

4.20
standard encoding

encoding method when the memory capacity available for the IDL application exceeds 5 kB, typically applicable to ICs (PICs and ICs with contacts) and optical memory

5 Machine-readable functionality of IDLs

The sub-paragraphs that follow specify the functions (mandatory and optional) to be supported by any machine-readable data elements used on an IDL. The optional domestic data elements incorporated at the discretion of an issuing authority may support additional functions than those specified below.

5.1 General principles

The use of machine-readable functionality in IDLs is optional. If used, all the data elements identified in ISO/IEC 18013-1 as mandatory for international interchange, except for the signature and portrait of the licence holder, shall be included in the machine-readable data. The machine-readable data elements may also include any other data / information that appears visually on the IDL (such as the identification of the issuing country), as well as additional data elements not reflected visually on the IDL. No machine-readable data / information shall conflict with the human-readable data / information. Machine-readable data elements shall, except for optional domestic data (see clause 8.8), have the exact same meaning as the human-readable data elements on the IDL.

NOTE A conflict between human-readable data elements and machine-readable data elements may cast suspicion upon the licence holder.

Rewriting, updating, and appending functions may be supported to the extent allowed by the technology (or technologies) used. If implemented, such functions shall comply with the principles set out herein. Security options are established to support authenticity and integrity of machine-readable data.

It shall be possible to read mandatory data without restriction (with the exception of basic access protection in the case of a PIC IDL). Optional data may be protected, in which case the protection mechanism (and associated parameters) shall be noted or referenced. The various protection mechanisms are specified in ISO/IEC 18013-3. The optional domestic data may be protected in any manner without restriction.

Changes to machine-readable data elements by the issuing authority are allowed only to data-elements that do not appear in human-readable format on the IDL. Issuing authorities shall uniquely identify each new version (see clause 8.3) of optional machine-readable data (typically after changing the originally recorded optional data). Issuing authorities shall issue a new IDL when changes to machine-readable data elements will lead to inconsistencies with human-readable data elements on the IDL.

5.2 Mandatory functions

Machine-readable data elements included on an IDL shall support/enable the functions described in the sub-paragraphs that follow below.

5.2.1 Privilege to drive at time of licensing

Using the IDL to determine (from machine-readable data elements) the driving privileges (and associated restrictions, conditions and validity period(s)) granted to the licence holder by the issuing authority identified on the IDL. It is recognized that this information does not confirm that the issuing authority presently (i.e. at the time when the machine-readable data on an IDL is read by an entity trying to establish a licence holder's driving privileges) considers the licence holder's driving privileges to be valid.

5.2.2 Reference to driving privilege database

Using the machine-readable data elements (such as the licence number) on the IDL to reference records of driving privileges maintained by the issuing authority.

5.2.3 Age verification

Using the machine-readable data elements on the IDL to assure that the licence holder meets various age thresholds for certain products and services, including driving privileges (in the case where the age threshold to drive a particular category of vehicle domestically in the issuing country is lower than the age permitted internationally).

5.3 Optional functions

5.3.1 Identity verification

Using the machine-readable data elements on the IDL to confirm, by way of a visual comparison of the portrait image, that the card holder is the licence holder.

5.3.2 Biographical data verification

Using the machine-readable data elements on the IDL to confirm, by way of visual inspection of the biographical data printed on the portrait side of the card that such data have not been altered.

5.3.3 Evidence of residence

Ability to use the IDL as evidence that the licence holder resided at a specific location at the time the IDL was issued. It is recognized that this information does not confirm that the issuing authority presently considers the licence holder's residential information to be correct.

5.3.4 Biometric authentication

Ability to use a machine-readable biometric template or templates on the IDL to determine whether the card holder is the licence holder by means of a machine-assisted biometric verification process (i.e. a one-to-one match).

5.3.5 Reciprocity of driving privileges

Ability for a country other than the issuing country to use the machine-readable data elements on the IDL to establish whether a mutual recognition agreement (or agreements) exists with the issuing authority.

5.3.6 Document authentication and validation

Ability to reference items on or qualities about the IDL to verify the document is authentic (i.e. produced by the issuing authority reflected both in the human- and machine-readable data) and that no data has been altered since issuing.

6 Machine-readable technologies supported

Technologies suitable for both compact encoding and standard encoding are supported.

For compact encoding, a typical minimum capacity of 300 usable bytes is required.

Given the minimum data capacity needed to support the mandatory data requirements, the IDL may contain any or a combination of the following machine-readable technologies:

- High coercivity high density Magnetic Stripe – Compact encoding, see Annex B.
- Two-dimensional Barcode – Compact encoding, see Annex B.
- IC with contacts – Standard encoding, see Annex C (failing which, compact encoding only if limited memory capacity is available for the IDL application, see Annex B).
- PIC – Standard encoding, see Annex C (failing which, compact encoding only if limited memory capacity is available for the IDL application, see Annex B).
- Optical memory – Standard encoding, see Annex D.

7 Organization of data

Data is organized into eleven data groups, of which each contains data pertaining to a similar function. One data group is mandatory and the others are optional. One data group is reserved for future use.

NOTE Whether or not each group (or individual data element) can be accessed individually depends on the machine-readable technology used.

7.1 Mandatory data

Mandatory data is comprised of the minimum set of data elements required for international interchange (as defined in ISO/IEC 18013-1), with the exception of the signature and portrait.

7.2 Optional data

Optional data is organized into the following groups – licence holder details (DG 2), issuing authority details (DG 3), portrait image (DG 4), signature / usual mark image (DG 5), facial biometric template (DG 6), fingerprint biometric template (DG 7), iris biometric template (DG 8), and domestic data (DG 11). Provision is also made for another as yet undefined biometric template (DG 9), and an additional group reserved for future use (DG 10).

8 Data structure

Details of the data structure will vary depending upon the storage technology(s) used. Conceptually the structure can be visualized as depicted in Figure 1.

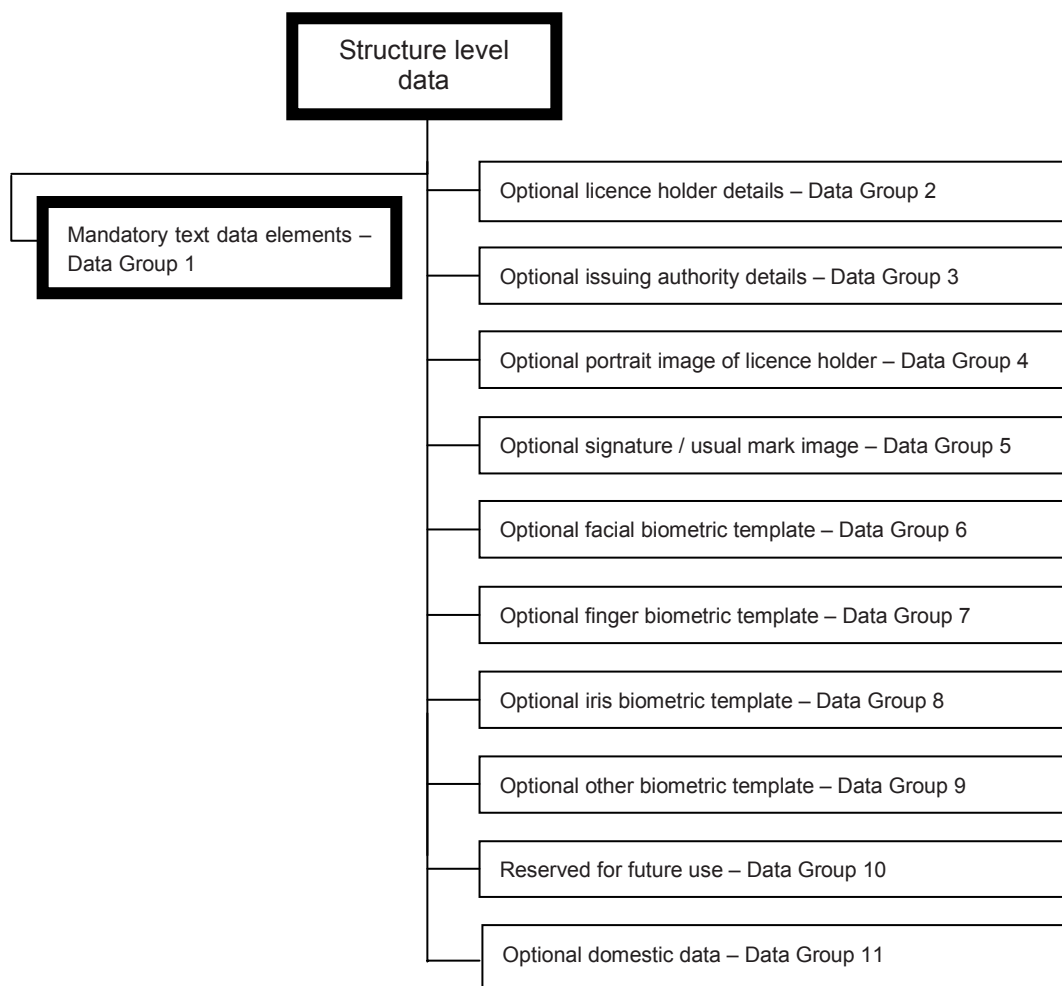


Figure 1 — Conceptual data structure

NOTE This is only a graphical representation. The actual data mapping for each of the machine-readable technologies is specified in the Annexes.

Additional data groups and data elements that are applicable specifically to access control, authentication and integrity validation are specified in ISO/IEC 18013-3.

8.1 Data Group 1: Mandatory text data elements

Data Group 1 consists of nine mandatory elements – demographic data and endorsement/restriction information.

Table 1 — Data Group 1, mandatory text data elements

Name	Fixed or Variable	Field format/length/type	Example
Family name	V	36AS	Smithe-Williams
Given ^a names	V	36AS	Alexander George Thomas
Date of birth (yyyymmdd)	F	8N	19700301
Date of issue (same format as Date of Birth)	F	8N	20020915
Date of expiry (same format as Date of Birth)	F	8N	20070930
Issuing country (per ISO 3166-1)	F	3A	JPN
Issuing authority	V	65ANS	 HOKKAIDO PREFECTURAL PUBLIC SAFETY COMMISSION 
Licence number	V	25AN	A290654395164273X
Categories of vehicles/restrictions/conditions (refer to Annex A for field assembly rules)	V	ADNS (also refer to Annex A)	C1;20000315;20100314;93;<=;8000
NOTE Note the difference between the issuing country code specified in ISO 3166-1, and the issuing country code appearing in Zone 1 of an IDL as specified in Appendix F of ISO/IEC 18013-1.			
^a No titles and/or suffixes shall be included.			

The assembly of the categories of vehicles/restrictions/conditions field is defined in Annex A. Encoding specifics vary slightly depending upon the technology mapping employed and is defined in Annexes B, C and D in accordance with the machine-readable medium included on the card. The following general format (repeated as necessary) is adhered to:

[category] ; [issue date] ; [expiry date] ; [restriction/condition code] ; [restriction/condition sign] ;
[restriction/condition value]

NOTE Spaces (periods) have been inserted before and after the sub-field delimiter above for ease of reading only.

8.2 Data Group 2: Optional licence holder details

Data Group 2 consists of seven optional data elements that provide supplemental descriptive information. Any or all data elements may be present for a particular implementation.

Table 2 — Data Group 2, Optional licence holder details

Name	Fixed or Variable	Field format/ length/type	Example
Gender (per ISO/IEC 5218)	F	1N	1 (Male = 1, Female = 2)
Height (cm)	F	3N	172
Weight (kg)	F	3N	082
Eye colour (per ANSI D20-2003)	F	3A	BLU
Hair colour (per ANSI D20-2003)	F	3A	AC1 BAL AC1
Place of birth	V	35ADNS ^a	Frozen Foot;Minnesota;USA
Normal place of residence	V	113ADNS ^b	471 Monica Road;201 Delta Building;Lynnwood;Gauteng;0186;South Africa
NOTE ISO/IEC 18013-1 allows non-metric units to be used for the height and weight values that may appear in Zone II of an IDL.			
^a Three fields delimited by the sub-field delimiter - City; State/Province or District; Country. Addresses that cannot be expressed in the defined character set shall be transliterated. ^b Six fields delimited by the sub-field delimiter - Street address line 1 (e.g. street name and number); Street address line 2 (e.g. apartment number); City; State/Province or District; Postal Code; Country. Addresses that cannot be expressed in the defined character set shall be transliterated.			

8.3 Data Group 3: Optional issuing authority details

Data Group 3 consists of four optional data elements that can provide additional details about the IDL or issuing authority. None or all data elements need to be present for a given implementation.

Table 3 — Data Group 3, Optional issuing authority details

Name	Fixed or Variable	Field format/ length/type	Example
Administrative number	V	25ANS	123456789B
Document discriminator ^a	F	2N	01
Data discriminator ^b	F	2N	01
ISO issuer ID number ^c (per ISO/IEC 7812-1)	F	6N	636000
^a Number assigned by the issuing authority to differentiate between additional licences (documents) or duplicate documents issued bearing the same licence number as the original, that is 01 for the original licence, 02 for the first duplicate, 03 for the second duplicate and nn for the (nn-1)th duplicate. ^b Number assigned by the issuing authority to differentiate between machine-readable data sets on the same physical document where updates have been made to machine-readable data, that is 01 for the original data set, 02 for the first update, 03 for the second update and nn for the (nn-1)th update. The data discriminator is mandatory when any change is made to the machine-readable data (see 5.1). ^c ISO number assigned to issuing country or licensing authority, as the case may be.			

8.4 Data Group 4: Optional portrait image

Data Group 4 is comprised of one or more portrait images of the licence holder (see Annex E). An image visually similar to the image printed on the portrait side of the IDL shall be included.

Table 4 — Data Group 4, Portrait image

Name	Fixed or Variable	Field format/length/type
Portrait image timestamp ^a	F	14N yyyymmddhhmmss where yyyy=year, mm=month, dd=day, hh=hour, mm=minute, ss=second If hour, minute, and second are not available, 00 shall be used for each value.
Type of image	F	1N 2 = WSQ; 3 = JPEG; 4 = JPEG2000 (as per ISO/IEC 19794-4)
Portrait image	V	JPEG per ISO/IEC 10918-1, JPEG-2000 per ISO/IEC 15444-1, WSQ per IAFIS-IC-0110v3, as specified in Annex E.
NOTE 1 Issuing authorities may include a portrait image in a facial biometric data block in lieu of including such image in DG4 (in standard encoding). Consequently, card-reading applications should test for the presence of a portrait image in DG6.		
NOTE 2 Image length may be specified by the encoding scheme.		
^a Used to date the appearance of the licence holder (as reflected on the portrait image). The timestamp reflects the date and time the picture was taken (which is not necessarily the same as the time and date that the physical image data file was created). Mandatory if more than one portrait image is included.		

8.5 Data Group 5: Optional signature / usual mark image

Data Group 5 specifies encoding of the licence holder's signature or usual mark (see Annex E). Since it is an image, signatures or usual marks using non-Latin characters are possible.

Table 5 — Data Group 5, Optional signature / usual mark image

Name	Fixed or Variable	Field format/ length/type
Type of image	F	1N 2 = WSQ; 3 = JPEG; 4 = JPEG2000 (as per ISO/IEC 19794-4)
Image of signature or mark	V	JPEG per ISO/IEC 10918-1, JPEG-2000 per ISO/IEC 15444-1, WSQ per IAFIS-IC-0110v3, as specified in Annex E.
NOTE Image length may be specified by the encoding scheme.		

8.6 Data groups 6, 7, 8 and 9: Optional facial, fingerprint, iris and other biometric templates

Any biometric template is encoded based on the "ISO/IEC JTC 1/SC37 TLV-encoded patron format, for use with smartcards or other tokens" patron format as specified in clause 11 of ISO/IEC 19785-3:2007, specifically the off-card matching implementation specified in clause 11.11.2, as amended in Table 6 below. This format uses the CBEFF structure.

Multiple biometric templates may be stored. If more than one is stored, the most recent biometric must be identified as such by supplying the BDB creation date and time.

NOTE Although the use of the CBEFF format allows individual BDBs to be signed and/or encrypted, it falls outside the scope of this Part of ISO/IEC 18013, and it is therefore recommended to refer to ISO/IEC 18013-3 and use the access control and authentication features defined there as a preference.

Table 6 — Data Group 6 - 9, Optional biometric information

Name	Fixed or Variable	Type of Encoding	Presence	Example
Entry count	V	N	Mandatory when more than one BDB is present	1 for the first entry, 2 for the second entry, the highest numbered entry being the most recent.
For each entry				
Name	Fixed or Variable	Field format / length / type / encoding	Presence	Example
Patron header version	F	2 bytes, '01 01'	Mandatory (if absent, the default value applies)	'01 01'
Biometric type	V	1-3 bytes Refer to ISO/IEC 19785-3:2007, Table 11.5	Optional	Facial = '02' Finger = '08' Iris = '10'
Biometric subtype	F	1 byte Refer to ISO/IEC 19785-3:2007, Table 11.6	Mandatory when biometric subtype is applicable but not specified in BDB	binary xx100101 for right hand thumb (given a biometric type of '08') binary xx100010 for left eye (given a biometric type of '10')
Biometric data creation date and time (yyyymmddhhmmss) ^a	F	14N	Mandatory when more than one BDB is present	20031215173530, representing December 15, 2003, 5:35:30 PM. Using BCD representation this is coded using 7 bytes as follows: '20 03 12 15 17 35 30'
BIR creator	V	ANS	Optional	 Hokkaido Prefectural Public Safety Commission 
BDB validity period (yyyymmddyyyymmdd) ^b	F	16N	Optional	2003121520081214, representing a validity period from December 15, 2003 to December 14, 2008. Using BCD representation this is coded using 8 bytes as follows: '20 31 12 15 20 08 12 14'.
BDB product owner, product type	F	4 bytes (a concatenation of two 16 bit positive integers of value 1 to 65,535) Refer to ISO/IEC 19785-1:2006, Clauses 6.5.12 and 6.5.13, and Table 11.4 in ISO/IEC 19785-3:2007	Optional	'00 01 00 82'

For each entry					
	Name	Fixed or Variable	Field format / length / type / encoding	Presence	Example
	BDB format owner	F	2 byte non-negative integer of value 1 to 65,535 Refer to ISO/IEC 19785-1:2006, Clause 6.5.1	Mandatory	'01 01' for ISO/IEC JTC1 SC37 - Biometrics
	BDB format type	F	2 byte non-negative integer of value 1 to 65,535 Refer to ISO/IEC 19785-1:2006, Clause 6.5.2	Mandatory	'00 09' for ISO/IEC JTC1 SC37's iris image format
	BIR index (unique identifier used to reference the biometric data set in an application context outside the IDL)	V	Free format	Optional	RecId_1952686A67
	Biometric data block	V	Format and encoding as specified by BDB format owner and type.	Mandatory	Finger minutia record as specified in ISO/IEC 19794-2:2005, Clause 7
	BIR payload	V	Refer to ISO/IEC 19785-1:2006, Clause 6.5.22	Optional	Arbitrary domestic data
^a If hour, minute, second are not available, 00 shall be used for each value. ^b Two concatenated dates where the first date is the "from date" (not after), and the second date is the "to date" (not before).					

8.7 Data Group 10: Reserved for future use

The contents of Data Group 10 have not been defined.

8.8 Data Group 11: Optional domestic data

Since Data Group 11 is dedicated for domestic (or regional) use, the contents shall be defined by the issuing authority (or supranational entity) consistent with the structure, format and principles embodied in the definition of the other data groups.

9 Application identifiers

All applications specified in this Part of ISO/IEC 18013 (including other parts of ISO/IEC 18013) are identified by a seven byte Application Identifier (AID). The AID consists of a five byte Registered Application Identifier (RID) and a two byte Proprietary Application Identifier Extension (PIX).

The RID for the *International Interchange Driving Licence Application* is 'A0 00 00 02 48'.

NOTE 1 The RID was assigned by ISO/IEC JTC1/SC17/WG5 in accordance with ISO/IEC 7816-5.

NOTE 2 Pairs of single apostrophes are used to indicate hexadecimal notation, and are not encoded.

The PIX for each of the applications involved is shown in Table 7.

Table 7 — Proprietary Application Identifier Extensions

Application	PIX
Application 1: Compact encoding (all technologies excluding ICs)	'01 00'
Application 2: Standard encoding for ICs	'02 00'
Application 3: Compact encoding for ICs	'03 00'

NOTE A PIX for optical memory is not defined since optical memory does not use version numbers.

Issuing authorities may add additional applications to the IDL. Issuing authorities may either use the range of proprietary application identifier extensions allocated for this purpose ('05 00' to '05 FF') or obtain separate RIDs from the Registration Management Group of SC17/WG5 according to the procedures defined in ISO/IEC 7816-5 for such applications.

Annex A (normative)

Assembly rules for categories of vehicles/restrictions/conditions field

A.1 Introduction

This Annex contains the assembly rules for the categories of vehicles/restrictions/conditions field as defined in Table 1. The assembly rules include coding systems for vehicle categories (as defined in ISO/IEC 18013-1) and vehicle and driver restrictions and conditions. The use of codes facilitates language-independent implementation.

A.2 Scope

In addition to specifying the logical record format for the electronic storage of the categories of vehicles/restrictions/conditions field, this Annex also defines the codes necessary for international interchange (machine-readable data corresponds to human-readable data) in respect of the following:

- Any vehicle subcategory defined in accordance with B.4.2 of ISO/IEC 18013-1:2005.
- Supplementation of defined vehicle subcategories in accordance with B.4.3 of ISO/IEC 18013-1:2005.
- Vehicle restriction definitions in B.5 of ISO/IEC 18013-1:2005.
- Driver restriction definitions in B.5 of ISO/IEC 18013-1:2005.

The above-mentioned definitions may be expanded upon for domestic purposes by adding the following optional restrictions in Data Group 11:

- Vehicle restrictions in addition to the mandatory definitions in B.5 of ISO/IEC 18013-1:2005.
- Driver restrictions in addition to the mandatory definitions in B.5 of ISO/IEC 18013-1:2005.

A.3 Normative references

The following International Standards contain provisions, which through reference herein, constitute provisions of this Annex.

European Union Council Directive 91/439/EEC of 29 July 1991 O.J. EC No. L 237/1, as amended by:

European Union Council Directive 96/47/EC of 23 July 1996 O.J. EC No. L 235/1

European Union Council Directive 97/26/EC of 2 June 1997 O.J. EC No. L 150/41

European Commission Directive 2000/56/EC of 14 September 2000 O.J. EC No L 237/45

European Commission Directive 2006/126/EC of 20 December 2006 O.J. EC No L 403/18

UN Convention on Road Traffic, Geneva, 19 September 1949.

UN Convention on Road Traffic, Vienna, 8 November 1968.

A.4 Logical record format

The categories of vehicles/restrictions/conditions field consists of one or more instances of the category of vehicle/restriction/condition data object. The category of vehicle/restriction/condition data object is assembled as illustrated in Figure A.1.

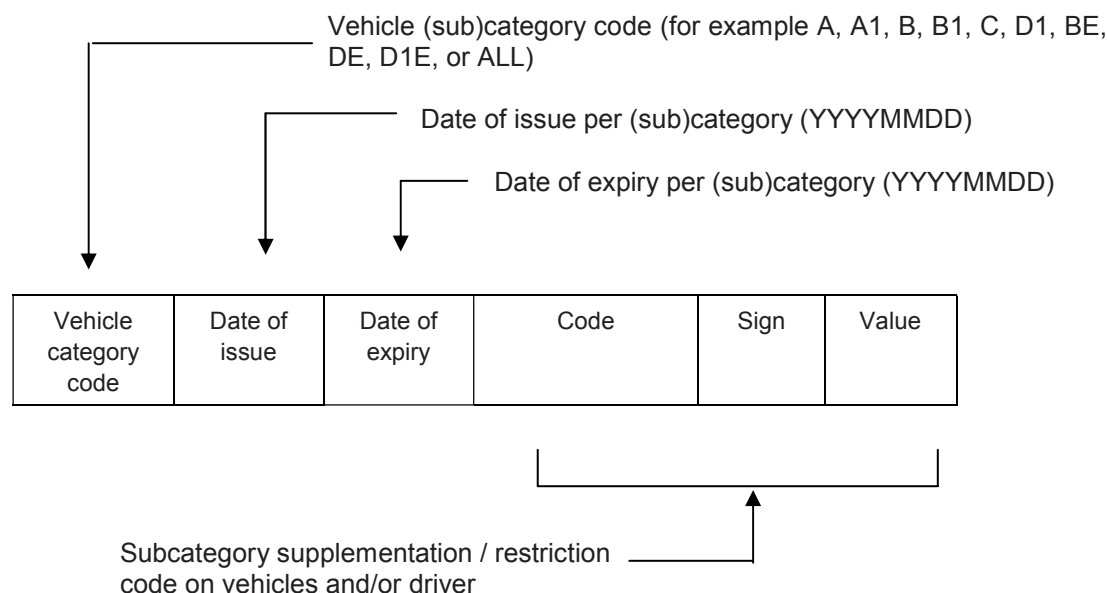


Figure A.1 — Structure of the category of vehicle/restriction/condition data object

Each data block in Figure A.1 is separated by a sub-field delimiter. Each instance of a vehicle category is followed by 5 data fields.

NOTE The number of sub-fields in the categories of vehicles/restrictions/conditions field thus always will be a multiple of 6.

The category of vehicle/restriction/condition data object is repeated as necessary to explain all the categories of vehicles/restrictions/conditions applicable to the licence holder. The manner in which multiple instances of the category of vehicle/restriction/condition data object is encoded is specified in the referring specification (i.e. Annex B, C or D).

For encoding purposes, the formatting of the fields comprising the categories of vehicles/restrictions/conditions field is as follows:

Table A.1 — Field formatting

Field	Fixed or Variable	Field format/length/type (before encoding)
Vehicle category code	V	AC₁ AN AC₁
Date of issue	F	8N
Date of expiry	F	8N
Code	V	AC₁ ANS AC₁
Sign	V	AC₁ S AC₁
Value	V	AC₁ ANS AC₁

When a category of vehicle/restriction/condition data object is encoded (e.g. in accordance with Annex C), each field making up the data object shall be encoded individually as specified in the referring specification (i.e. Annex B, C or D).

EXAMPLE For compact encoding (as specified in Annex B), the various fields (and the delimiters) will be encoded as follows:

Field	Encoding method
Vehicle category code	As per ISO/IEC 8859-1
Date of issue	BCD
Date of expiry	BCD
Code	As per ISO/IEC 8859-1
Sign	As per ISO/IEC 8859-1
Value AC1	As per ISO/IEC 8859-1 AC1
Delimiters	As per ISO/IEC 8859-1

A.5 Codes

A.5.1 International interchange

The codes defined below in this clause shall be used for international interchange (in DG 1).

AC1 *Text deleted* AC1

The codes defined in this Annex are used in the following manner:

- On its own, i.e. the code definition alone fully specifies the supplementation / restriction / condition applicable to the vehicle and/or driver.
- In association with a sign (i.e. "<", "=", ">" or a valid combination thereof) and a value. The unit in which the value is expressed is included in either the definition of:
 - Vehicle subcategory (i.e. cm³, kW, kg or seats) as defined in ISO/IEC 18013-1:2005, Annex B, or
 - Code description.

The grammar used in the code definition makes it clear if the code can be read on its own, or if it has to be interpreted with additional information. The code can apply to either a driver (licence holder) or to a vehicle, as applicable.

The following list defines the description for each code.

Code	Description	Code	Description
01	Licence holder requires eye sight correction and/or protection	S02	The vehicle's authorized passenger seats, excluding the driver's seat, shall be
03	Licence holder requires prosthetic device for the limbs	S03	The vehicle's cylinder capacity (cm ³) shall be
78	Licence holder restricted to vehicles with automatic transmission	S04	The vehicle's power (kW) shall be
S01	The vehicle's maximum authorized mass (kg) shall be	S05	Licence holder restricted to vehicles adapted for physically disabled

EXAMPLE 1

The licence holder may drive category B vehicles, the licence category was issued 2003/MAY/31 and its expiry date is 2013/JUN/15. There are no restrictions.

B	20030531	20130615	Blank	Blank	Blank
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EXAMPLE 2

The licence holder may drive category CE vehicles, the licence category was issued 2003/MAY/31 and its expiry date is 2013/JUN/15. Driver requires eyesight correction for this category of vehicle only and is restricted to vehicles with automatic transmission.

CE	20030531	20130615	78	Blank	Blank
CE	Blank	Blank	01	Blank	Blank

EXAMPLE 3

The licence holder may drive category BE vehicles, the licence category was issued 2003/MAY/31 and its expiry date is 2013/JUN/15. Driver requires eyesight correction when driving any category of vehicle and is restricted to vehicles with automatic transmission.

BE	20030531	20130615	78	Blank	Blank
ALL	Blank	Blank	01	Blank	Blank

EXAMPLE 4

The licence holder may drive category A1 and C1 vehicles. The licence categories were issued on 1990/NOV/23 and 2003/MAY/31 respectively. The expiry date is 2013/JUN/15 for both categories. The driver requires eyesight correction for both categories, and the following supplementation details and restrictions are applicable to each of the subcategories:

Category A1: Maximum cylinder capacity of 250 cm³

Category C1: Maximum authorized mass less than 8 000 kg, and restricted to vehicles with automatic transmission

Since the eyesight correction is applicable to the driver rather than associated with a particular category and to make it clear that the restriction to automatic transmission is only applicable to category C1, the information is rendered as follows:

A1	19901123	20130615	S03	<=	250
C1	20030531	20130615	S01	<	8000
C1	Blank	Blank	78	Blank	Blank
ALL	Blank	Blank	01	Blank	Blank

A.5.2 Domestic use

If an issuing authority wishes to expand on the codes for international interchange to restrict a particular driving privilege, it is recommended that the codes specified in this Clause be used. Such expanded codes are applicable to domestic use only and hence limited to Data Group 11.

NOTE Depending on whether codes are used for law enforcement or driving licence administration, some of the codes in this Clause have the potential to be interpreted as being in conflict with human-readable information. Each issuing authority should determine procedures to clarify the domestic use of these codes.

Each code is of the format nn.xx where "n" and "x" are numerics, and ".xx" is optional for codes without sub-codes or with non-mandatory sub-codes.

The codes defined in this Annex can be used in the following manners:

- On its own, i.e. the code definition alone fully specifies the supplementation / restriction / condition applicable to the vehicle and/or driver.
- In association with a sign "S" (i.e. "<", "=", ">" or a valid combination thereof) and a value "V". The unit in which the value is expressed is included in either the definition of:
 - Vehicle subcategory (i.e. cm³, kW, kg or seats) as defined in ISO/IEC 18013-1:2005, Annex B, or
 - Code description.

The grammar used in the code definition makes it clear if the code can be read on its own, or if it has to be interpreted with additional information. The code can apply to either a licence holder or to a vehicle, as applicable.

The list that follows identifies the code description for each code identified. Codes in this clause may be used in addition to the codes in clause A.5.1, but shall not be used in lieu of the codes in clause A.5.1.

EXAMPLE If code 72 is used (in Data Group 11), subcategory A1 with the necessary supplementations (S03<=125, S04<=11) shall also be used (in Data Group 1).

Code	Description	Code	Description
01.	Sight correction and/or protection (sub code use obligatory)	10.	Modified transmission
01.01	Glasses	10.01	Manual transmission
01.02	Contact lens(es)	10.02	Automatic transmission
01.03	Protective glass	10.03	Electronically operated transmission
01.04	Opaque lens	10.04	Adjusted gearshift lever
01.05	Eye cover	10.05	Without secondary gearbox
01.06	Glasses or contact lenses	15.	Modified clutch
01.07	Eyesight correction when driving at night	15.01	Adjusted clutch pedal
02.	Hearing aid/communication aid	15.02	Manual clutch
02.01	Hearing aid for one ear	15.03	Automatic clutch
02.02	Hearing aid for two ears	15.04	Partitioning in front of / fold away / detached clutch pedal
03.	Prosthesis/orthosis for the limbs	20.	Modified braking systems
03.01	Upper limb prosthesis/orthosis	20.01	Adjusted brake pedal
03.02	Lower limb prosthesis/orthosis	20.02	Enlarged brake pedal
05.	Limited use (sub code use obligatory, driving subject to restrictions for medical reasons)	20.03	Brake pedal suitable for use by left foot
05.01	Limited to daytime journeys (for example: one hour after sunrise and one hour before sunset)	20.04	Brake pedal by sole
05.02	Limited to journeys within a radius of ...km from holder's place of residence or only inside city/region ...	20.05	Tilted brake pedal
05.03	Driving without passengers	20.06	Manual (adapted) service brake
05.04	Limited to journeys with a speed (km/h) that shall be	20.07	Maximum use of reinforced service brake
05.05	Driving authorised solely when accompanied by a holder of a driving licence	20.08	Maximum use of emergency brake integrated in the service brake
05.06	Without trailer	20.09	Adjusted parking brake
05.07	No driving on motorways	20.10	Electrically operated parking brake
05.08	No alcohol	20.11	(Adjusted) foot operated parking brake
		20.12	Partitioning in front of / fold away / detached brake pedal
		20.13	Brake operated by knee
		20.14	Electrically operated service brake

25.	Modified accelerator systems	35.01	Control devices operable without negative influence on the steering and handling
25.01	Adjusted accelerator pedal		
25.02	Accelerator pedal by sole	35.02	Control devices operable without releasing the steering wheel and accessories (knob, fork, etc.)
25.03	Tilted accelerator pedal		
25.04	Manual accelerator	35.03	Control devices operable without releasing the steering wheel and accessories (knob, fork, etc.) with the left hand
25.05	Accelerator at knee		
25.06	Servo accelerator (electronic, pneumatic, etc.)	35.04	Control devices operable without releasing the steering wheel and accessories (knob, fork, etc.) with the right hand
25.07	Accelerator pedal on the left of brake pedal		
25.08	Accelerator pedal on the left	35.05	Control devices operable without releasing the steering wheel and accessories (knob, fork, etc.) and the combined accelerator and braking mechanisms
25.09	Partitioning in front of / fold away / detached accelerator pedal		
30.	Modified combined braking and accelerator systems	40.	Modified steering
30.01	Parallel pedals	40.01	Standard assisted steering
30.02	Pedals at (or almost at) the same level	40.02	Reinforced assisted steering
30.03	Accelerator and brake with sliding	40.03	Steering with backup system
30.04	Accelerator and brake with sliding and orthesis	40.04	Lengthened steering column
30.05	Fold away/detached accelerator and brake pedals	40.05	Adjusted steering wheel (Larger and/or thicker steering wheel section, reduced diameter steering wheel, etc.)
30.06	Raised floor	40.06	Tilted steering wheel
30.07	Partitioning on the side of the brake pedal	40.07	Vertical steering wheel
30.08	Partitioning for prosthesis on the side of the brake pedal	40.08	Horizontal steering wheel
30.09	Partitioning in front of the accelerator and brake pedals	40.09	Foot operated driving
30.10	Heel/leg support	40.10	Alternative adjusted steering (joy-stick, etc.)
30.11	Electrically operated accelerator and brake	40.11	Knob on the steering wheel
		40.12	Hand orthesis on the steering wheel
		40.13	With orthesis tenodese
35.	Modified control layouts (Lights switches, windscreen wiper/washer, horn, direction indicators, etc.)	42.	Modified rear view mirror(s)
		42.01	External (left or) right-side rear-view mirror

42.02	External rear-view mirror set on the wing	50.	Restricted to vehicle with the specific vehicle/chassis number (vehicle identification number, VIN)
42.03	Additional inside rear-view mirror permitting view of traffic	51.	Restricted to vehicle with the specific vehicle/registration plate (vehicle registration number, VRN)
42.04	Panoramic inside rear-view mirror	70.	Exchange of licence No ...issued by ... (Value "V" shall consist of a concatenation of the licence number and the 2-digit country code as specified in ISO 3166-1, separated by a period.) EXAMPLE The value "V" for licence number 70.A0123456789 issued by the Netherlands shall be 70.A0123456789.NL. The preceding sign field shall be empty.
42.05	Blind spot rear-view mirror	71.	Duplicate of licence No ... (Value "V" shall consist of a concatenation of the licence number and the 2-digit country code as specified in ISO 3166-1, separated by a period.)
42.06	Electrically operated outside rear-view mirror(s)	72.	Restricted to category A vehicles having a maximum cylinder capacity of 125 cc and maximum power of 11 KW (A1) ¹
43.	Modified driver seat	73.	Restricted to category B vehicles of the motor tricycle or quadricycle type (B1)
43.01	Driver seat at a good viewing height and in normal distance from the steering wheel and the pedal	74.	Restricted to category C vehicles the maximum authorised mass of which does not exceed 7 500 kg (C1) ²
43.02	Driver seat adjusted to body shape	75.	Restricted to category D vehicles with not more than 16 seats, excluding the driver's seat (D1) ³
43.03	Driver seat with lateral support for good sitting stability	76.	Restricted to category C vehicles the maximum authorised mass of which does not exceed 7 500 kg (C1), attached to a trailer the maximum authorised mass of which exceeds 750 kg, provided that the maximum authorised mass of the vehicle train thus formed does not exceed 12 000 kg, and that the maximum authorised mass of the trailer
43.04	Driver seat with armrest		
43.05	Lengthening of sliding driver's seat		
43.06	Seat-belt adjustment		
43.07	Harness-type seat-belt		
44.	Modifications to motorcycles (subcode use obligatory)		
44.01	Single operated brake		
44.02	(Adjusted) hand operated brake (front wheel)		
44.03	(Adjusted) foot operated brake (back wheel)		
44.04	(Adjusted) accelerator handle		
44.05	(Adjusted) manual transmission and manual clutch		
44.06	(Adjusted) rear-view mirror(s)		
44.07	(Adjusted) commands (direction indicators, braking light, etc)		
44.08	Seat height allowing the driver, in sitting position, to have two feet on the road at the same time		
45.	Motorcycle with sidecar only		

¹ Note that code 72 is equivalent to subcategory A1 with the supplementations 95<=125, 96<=11.

² Note that code 74 is equivalent to subcategory C1 with the supplementation 93<=7500.

³ Note that code 75 is equivalent to subcategory D1 with the supplementation 94<=16.