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INTERNATIONAL ELECTROTECHNICAL COMMISSION

Technical Committee No.3 Information Structures, documentation and graphical symbols

Principles for identification (Annex D of IEC 81714-2 Ed. 1)

IEC 81714-2, 1st edition, contains *Annex D (informative) Product identification*, with a description and an EXPRESS model concerning the identification of products.

This topic is considered to be of a more general nature and has therefore been removed from the proposed 2nd edition of 81714-2 (soon to be circulated as a CDV) with the intention to include it as a part of the foreseen publication "Principles for identification", presently as a project on "stage 0" (PWI 3-2).

Annex D of IEC 81714-2 1st edition is therefore made available in this document, in order to keep it for future reference until the intended publication has been published. The document is in its present form not intended for commenting.

The document presents the content of the annex in the form of a separate international standard.

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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Principles for identification

FOREWORD

1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
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International Standard IEC 8xxxx has been prepared by IEC technical committee 3: : Information Structures, Documentation and graphical symbols.

The text of this standard is based on the following documents of IEC:

FDIS	Report on voting
3/xxx/FDIS	3/xxx/RVD

Full information on the voting for the approval of this part of this standard can be found in the report on voting indicated in the above table.

IEC technical committee 3 in conjunction with ISO technical committee 10: Technical drawings, product definition and related documentation have decided to publish these common principles under a single common result.

The Technical Management Board of ISO and the Standardization Management Board of IEC have decided that, for each part of this series, one organization shall be chosen responsible.

The technical committees involved have agreed not to change any part of this International Standard without mutual agreement.

Annex A and Annex B form an integral part of this standard and are for information only.

Annex A contains an EXPRESS–G model of how to identify a product worldwide, and how to correlate the identified product with a specific functional representation of this product by means of graphical symbols.

Annex B contains a list of bibliographic references.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

The committee has decided that the contents of this publication will remain unchanged until <period of 5 years>. At this date, the publication will be

- reconfirmed;
- withdrawn;
- replaced by a revised edition, or
- amended.

INTERNATIONAL ELECTROTECHNICAL COMMISSION

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Principles for identification

1 Scope

This part of International Standard 8xxxxx specifies principle requirements for the identification of objects (products, items,...) including requirements for its application in a computer sensible form, and requirements for their interchange.

The specification of a physical file format required for the interchange is not included in this standard.

2 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 3166-1:1997, *Codes for the representation of names of countries and their subdivisions – Part 1: Country codes*

ISO 6523-1:1998, *Information technology – Structure for the identification of organizations and organization parts –Part 1: Identification of organization identification schemes*

ISO/IEC 646:1991, *Information technology – ISO 7-bit coded character set for information interchange*

3 Definitions

For the purpose of this standard the following definitions apply.

3.1
country code
Encoded name of a country

NOTE ISO 3166-1 specifies country codes.

3.2
organization code
Encoded name of a particular organization.

NOTE ISO 6523 provides methods on how a national authority may assign organization codes.

3.3
organization name
Identification of a particular organization

[ISO 10303-201]

3.4
address
Specification of the postal delivery or the geographical location of an organization

[ISO 10303–201]

3.5
product identifying number
Private code uniquely identifying a product within an organization

3.6
universal product code; international article number; EAN number
World-wide unambiguous product identification[3] , [4]

4 Product identification

4.1 General

Most of the organizations have their own product identifying numbering system. Each of these systems has its own structure based on the individual necessities of the specific organization. A product within an organization shall unambiguously be identified by at least one product identifying number.

As shown in Figure 1, a product identifying number is unique only within an organization. To achieve a global unambiguous identification of products, information about the organization that is the custodian of the product identifying number may be needed. In addition an indication of the country accommodating the custodian is also needed. The Universal Product Code (abbreviated UPC), also known as European Article Number (EAN) or International Article Number, includes this additional information [3] .

Within the industry several coding systems for the worldwide identification of products are used, e.g. for food, motor cars, electronics, etc.; care has to be taken to associate the universal product code with the related international coding system used in these branches in order to allow CAx–systems automatic processing.

Many products may be associated with one or more graphical symbols, each symbol representing one usable functionality of the product. It may, therefore, be necessary to require further information about the used functionality of the product in order to identify the correct symbol. Recommendations are given on how to build a unique hierarchical structure of a product identification system considering the needs for querying among products within an international market.

Figure 1 shows the different possibilities to address the specific representation of a product by a graphical symbol version.

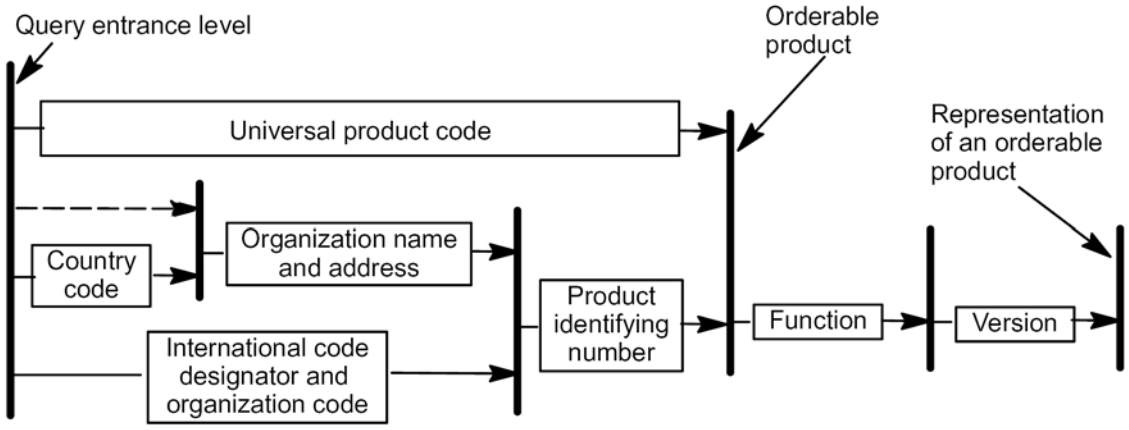

Figure 1 – Structured query tree for alphanumerical and graphical data

NOTE 1 The use of the product identifying number is strictly limited to a company's internal product identifying number.

NOTE 2 The coding system within the product identifying number is not part of this standard.

Annex A - EXPRESS–Model

This annex provides the application reference model for a product identification on a world-wide level and is given in figure x. The application reference model is a graphical representation of the structure and constraints of the application objects specified. The graphical form of the application reference model is presented in EXPRESS-G. The application reference model is independent from any implementation method.

EXPRESS-G is a graphical data modelling language specified in ISO 10303-11 [1] . The application reference model depicts the requirements set up in this international standard.

NOTE 1 For an introduction to EXPRESS–G, see [2] .

NOTE 2 Annex A is available in the English language only.

A.1 Description of entities

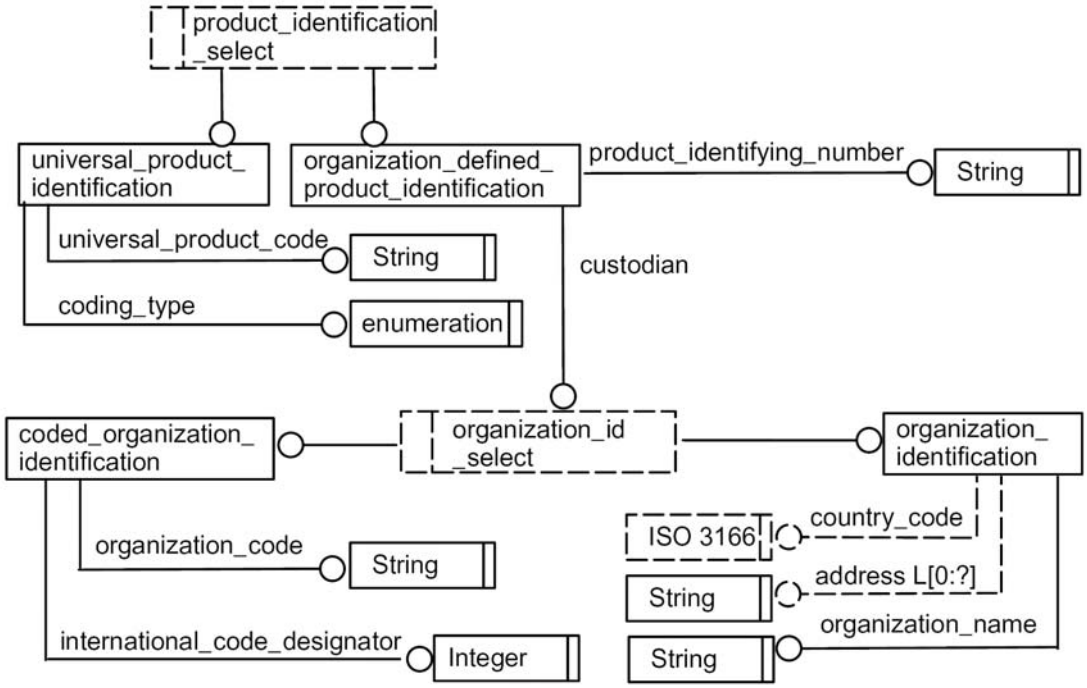

Figure A. 1 – Product identification part

A.1.1 Product_identification_select

The entity Product_identification_select gives the possibility to select between two different kinds of identification of a product. The data associated with a product_identification are the following:

– universal_product identification;

– organization_defined_product_identification.

A.1.2 Universal_product_identification

The entity Universal_product_identification supplies the data needed for an identification of a product on a worldwide level. The data associated with an Universal_product_identification are the following:

– universal product code;

– coding_type.

A.1.2.1 universal_product_code

Coded identification based on a defined world–wide product identification system including the country code, the company code within that country and the item code within that company. The code normally contains an additional check digit.

A.1.2.2 coding_type

Information on the identification system used.

NOTE 1 At present the following values of coding types are known: UPC–A (12 digits); EAN–8: EAN–13

NOTE 2 The other versions of the UPC as UPC–B (12 digits), UPC–C (14 digits) and UPC–D (14 +n digits) have been designed for very specific applications, but not got industrial relevance.

NOTE 3 Attention is given to fact expressed by the press release of EAN International and and the Uniform Code Council dated June 9,1997, stating that the UPC will be phased out by the year 2005. The reason is that the UPC–A (12 digits) will run out of numbers by then. Instead EAN–13 will be adopted [4] .

A.1.3 Organization_defined_product_identification

The entity Organization_defined_product_identification supplies the data for the identification of a product within an organization. The data associated with an Organization_defined_product_identification are the following:

– product_identifying_number;

– custodian.

A.1.3.1 product_identifying_number

Private code uniquely identifying a product within an organization.

NOTE Different terms are used throughout industrial branches, e.g. item code, product identification code, item identification, item_id, item code. They correspond to the term ”product identifying number”.

A.1.3.2 custodian

The relation custodian specifies the organisation which is the legal owner of the product identifying number.

A.1.4 Organization_defined_product_identification

Each Organization_defined_product_identification has, as a custodian, either an Organization_identification or a Coded_organization_identification.

A.1.5 Organization_id_select

The entity Organization_id_select gives the possibility to select between two different kinds of identification of an organization. The data associated with an Organization_id_select are the following:

– coded_organization_identification;

– organization_identification.

A.1.6 Coded_organization_identification

The entity Coded_organization_identification supplies the data for a worldwide identification of an organization in a coded form. The data associated with a Coded_organization_identification are the following:

– organization_code;

– international_code_designator.

A.1.6.1 organization_code

Coded name of a particular organization.

ISO 6523 provides a fourteen digit code. If the length of the organization code is less than 14 characters, it is left justified and pattied up by the charcter '_' (low line) to 14 characters.

NOTE ISO 6523 provides methods on how an authority may assign organization codes.

A.1.7 International_code designator (ICD)

Coded name of the authority issuing the organization code, assigned by a registration authority conforming to ISO 6523.

ISO 6523 provides a four digit code.

NOTE A list of assigned ICD can be obtained at the ISO General Secretariat.

A.1.8 Organization_identification

The entity Organization_identification is a number of persons or groups that has the responsibility to design, produce and supply products and services. The data associated with an organization_identification are the following:

– country_code;
– organization_name;
– address.

A.1.8.1 country_code

Coded name of a country according to the two–letter code of ISO 3166-1. The country code need not be specified for a particular organization.

The country code needs to be added, if the organization internal product identification system is country– bound; i.e. the internal product identification system is not unique within that company on a world-wide level. Then the additive use of the country code makes the existing product identification system applicable on a world-wide level.

The country code needs to be added, if the organization name is country–bound; i.e. the organisation name is not unique on a world-wide level. Then the additive use of the country code makes the organisation name applicable on a world-wide level.

NOTE ISO 3166-1 specifies country codes.

A.1.8.2 organization_name

Specification of the identification of a particular organization.

ISO 6523 provides a string of 250 characters.

A.1.8.3 address

Specification of the postal delivery or the geographical location of an organization. The address need not be specified for a particular organization.

The address needs to be added, if the organization internal product identification system is location– bound; i.e. the internal product identification system is not unique within that company on a world-wide nor country level. Then the additive use of the country code and the address (of a location) makes the existing product identification system applicable on a world-wide level.

Annex B - Bibliography

[1] ISO 10303-11:1994, Industrial automation systems and integration – Product data representation and exchange – Part 11: Description methods: The EXPRESS language reference manual

[2] Information modelling – Getting started with EXPRESS-G. This document is available as pdf file under (http://tc3.iec.ch)

[3] EAN Vade–mecum; International Article Numbering Association (EAN International), Rue Royale 29, B–1000 Brussels, Belgium

[4] WWW Homepages related to Universal Product Code and European Article Numbering (www.ean.be/html/UCC-EAN.html ; www.adams1.com/pub/russadam/upcode.html ; www.uc-council.org)