SLOVENSKI STANDARD
SIST-TS CEN/TS 15844-5:2013

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Poštne storitve - Označevanje poštnih pošiljk z identifikacijsko številko - 5. del: Specifikacija 4-statusne črtne kode za navadna pisma

Postal services - ID-tagging of letter mail items - Part 5: 4-state encoding specification for small letters

Postalische Dienstleistungen - ID-Kennzeichnung von Briefsendungen - Teil 5: Spezifikation der 4-State-Codierung für Standardbriefe

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English Version

Postal services - ID-tagging of letter mail items - Part 5: 4-state encoding specification for small letters

Traitement automatisé des envois postaux - Chronomarquage des envois postaux - Partie 5: Spécification de codage en code 4 états pour les lettres

Postalische Dienstleistungen - ID-Kennzeichnung von Briefsendungen - Teil 5: Spezifikation der 4-State-Codierung für Standardbriefe

This Technical Specification (CEN/TS) was approved by CEN on 1 December 2008 for provisional application.

The period of validity of this CEN/TS is limited initially to three years. After two years the members of CEN will be requested to submit their comments, particularly on the question whether the CEN/TS can be converted into a European Standard.

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Foreword

This document (CEN/TS 15844-5:2010) has been prepared by Technical Committee CEN/TC 331 “Postal services”, the secretariat of which is held by NEN.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

NOTE This document has been prepared by experts coming from CEN/TC 331 and UPU, under the framework of the Memorandum of Understanding between the UPU and CEN.

This document, CEN/TS 15844-5, is the CEN equivalent of UPU [1)] standard S18e-5. It may be amended only after prior consultation, between CEN/TC 331 and the UPU Standards Board, in accordance with the Memorandum of Understanding between CEN and the UPU.

The UPU’s contribution to the document was made, by the UPU Standards Board [2)] and its sub-groups, in accordance with the rules given in Part V of the "General information on UPU standards".

This document forms Part 5 of a multi-part CEN/TS 15844, *Postal services — ID-tagging of letter-mail items*. It should be read in conjunction with the main body of the specification, CEN/TS 15844-1. It also relies heavily on Part 4 of the specification, CEN/TS 15844-4.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to announce this Technical Specification: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

1) The Universal Postal Union (UPU) is the specialized institution of the United Nations that regulates the universal postal service. The postal services of its 189 member countries form the largest physical distribution network in the world. Some 5 million postal employees working in over 660 000 post offices all over the world handle an annual total of 425 billion letters-post items in the domestic service and almost 6,7 billion in the international service. Some 4,5 billion parcels are sent by post annually. Keeping pace with the changing communications market, posts are increasingly using new communication and information technologies to move beyond what is traditionally regarded as their core postal business. They are meeting higher customer expectations with an expanded range of products and value-added services.

2) The UPU's Standards Board develops and maintains a growing number of standards to improve the exchange of postal-related information between posts, and promotes the compatibility of UPU and international postal initiatives. It works closely with posts, customers, suppliers and other partners, including various international organizations. The Standards Board ensures that coherent standards are developed in areas such as electronic data interchange (EDI), mail encoding, postal forms and meters. UPU standards are published in accordance with the rules given in Part VII of the General information on UPU standards, which may be freely downloaded from the UPU world-wide web site (www.upu.int).

Introduction

A general introduction to all parts of the specification is provided in CEN/TS 15844-1. This part deals only with the encoding of ID-tags in the form of a 4-state bar code printed on the front side of small letters. For consistency with Part -4 of the specification, on which it depends, it is arranged under six main headings:

Clause No. Description of content

5 *Usage limitations*: defines limitations on the use of the Postal-4i 4-state encoding of ID-tags specified in this document;

6 *Value range limitations*: defines limitations on the values of data elements used in ID-tags which are to be represented on small letters in the form of a Postal-4i bar code;

7 *Encoding specification*: specifies the construction of a 4-state bar code from ID-tag data elements;

8 *Printing of the bar code*: to allow the association of computer data with a physical item, the ID-tag is printed on the item itself. This clause defines required ink and printing parameters;

9 *Reading and interpretation of Postal-4i ID-tags*: specifies the validation and error correction requirements associated with the reading of ID-tags represented using Postal-4i symbology;

10 *Conversion to the message and binary representations*: describes the correspondence between 4-state bar coded representation and the binary and message interchange representations defined in CEN/TS 15844-1.

These are complemented by two informative annexes, the first providing references to an example implementation of the Postal-4i ID-tag generation algorithm and the second providing a number of example ID-tags, generated using this implementation.

1 Scope

This part of the Technical Specification defines the representation of ID-tags as a Postal-4i symbology 4-state bar code printed on the front side of small letters.

Postal-4i symbology 4-state encoding is the only encoding specification supported by this Technical Specification [3)] for the printing of ID-tags on the front of items.

NOTE Representation in the form of fluorescent BNB bar codes printed on the reverse side of small letters (not flats) is covered in CEN/TS 15844-2 and CEN/TS 15844-3.

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.

CEN/TS 15844-1:2010, *Postal services — ID-tagging of letter mail items — Part 1: ID-tag structure, message and binary*

UPU S48, *Postal-4i: 4-state symbology and its use for the encoding of data on postal items*

3 Terms and definitions

A number of common terms used in this document are defined in the UPU Standards glossary, in documents referred to in normative references and in the bibliography. Definition of frequently used or particularly important terms as well as other terms introduced in this document are given below.

See CEN/TS 15844-1:2010.

4 Symbols and abbreviations

See CEN/TS 15844-1:2010.

5 Usage limitations

The 4-state bar coded representation of ID-tags defined in this part of the specification is intended for use on the front side of small letters in area F1. Printing of ID-tags in this area is allowed only on domestic items and on items addressed to countries in which the delivery post has confirmed willingness to accept items with a 4-state ID-tag in that area.

NOTE 1 Many posts use area F1 for the encoding of routing data, used to support automated sorting of both domestic and incoming cross-border items. The printing of an ID-tag in area F1 on cross-border items to countries which require F1 to be kept clear for this purpose could cause serious disruption to such countries' automated processing systems and could result in misprocessing or substantial delay to the items concerned. It would also be in breach of the UPU letter post regulations. This Technical Specification therefore requires that postal administrations making use of area F1 for ID-tag encoding should take care to avoid such use of area F1 on items addressed to other countries that have not declared their willingness to accept items with an ID-tag in area F1 as standard items.

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3) References to "this Technical Specification" should be interpreted as references to CEN/TS 15844 as a whole, not only to Part 5.

The specification may be applied to the printing of ID-tags in other areas on the front of items. It shall not be used in area R1 on the reverse side.

NOTE 2 Usage in other areas on the front is permitted, but could result in interference with, or by, codes placed by other systems and is not recommended.

NOTE 3 Usage on the reverse side, and particularly usage in area R1, could seriously disturb the operation of older systems which are designed to work only with BNB encodings of ID-tags and is not permitted.

6 Value range limitations

The value range limitations defined in CEN/TS 15844-4 apply also to this part of the Technical Specification.

7 Encoding specification

The bar code shall be generated in compliance with UPU standard S48, using the following parameters:

a) format code (f) value: equal to bits 0-3 of the binary ID-tag value, as defined in CEN/TS 15844-1;

NOTE 1 This assists in distinguishing Postal-4i ID-tags from other bar codes which use Postal-4i symbology. See S48 for a definition of the symbology parameters f, l, r, c and n.

b) left synchronisation code (l) value: 010110 (22 decimal);

c) right synchronisation code (r) value: 100110 (38 decimal);

NOTE 2 This also assists in distinguishing Postal-4i ID-tags from other bar codes which use Postal-4i symbology.

d) number of variable data codewords (c) value: 13;

e) bar code length (n):

1) on domestic items: 57 or 75, with 75 being recommended unless the bar code is to be printed in area F1 and it is desired to leave space for the possible printing of a routing code in the same area;

NOTE 3 Either value can be used on domestic items, though only the short (57 bar) version leaves room for a routing code to be printed in the same area. The use of the 57 bar format is not recommended for use in areas other than F1 because its error correction capability is not considered sufficient to support an adequate read rate in positions which could include printing or writing in other inks.

2) on cross-border items, where the bar code is to be printed in area F1, either 57 or 75 as required by the delivery post concerned;

NOTE 4 On cross-border items it is permitted to print an ID-tag in area F1 only on items addressed to countries in which the delivery post has confirmed willingness to accept this. The bar code length used is required to correspond with the expressed preference of the delivery post concerned: those wishing to leave room for the possible printing of a routing code will require use of the 57 bar format; those not making use of area F1 for routing purposes might choose for either format.

3) on cross-border items, where the bar code is to be printed in a location other than F1: 75;

NOTE 5 Though the 75 bar format provides more error protection, the 57 bar format normally results in an adequate read rate in area F1 (where other printing is unlikely). The 57 bar format is not recommended for use in other areas because its error correction capability is not considered sufficient to support an adequate read rate in positions which could include printing or writing in other inks.

NOTE 6 Note that the data string, format code, left and right synchronisation codes and error correction data together add up to 150 bits or 25 6-bit codewords, but that, in the 57 bar version, only 19 codewords are actually

printed. If the bar code is a Postal-4i bar code constructed in accordance with this Technical Specification, the left synchronisation code, which is printed in the third codeword position, will be 010110 (22 decimal) and the right synchronisation code, printed in the third codeword position from the end, will be 100110 (38 decimal). The values of six codewords are recovered, during the reading process, using the error recovery capabilities of the Reed-Solomon decoding algorithm.

f) nominal height of a full bar (h): between 4,0 mm and 5,8 mm;

g) nominal pitch (p): between 1,1 mm and 1,2 mm;

h) a 62-bit input data string consisting of bits 4-53 of the binary ID-tag value, as defined in CEN/TS 15844-1, followed by the tracking indicator value, represented as two bits using the convention: *T = 00*; *F = 01*; *D = 10*; *N = 11*, in turn followed by the last ten bits (bits 54-63) of the binary ID-tag value.

EXAMPLE The ID-tag with message representation J18CUSA8E6N062315014880T is the 14 880th one issued by USPS (issuer USA) machine number 8E6 (2 278 decimal) with normal priority (N) on 23 June (0623) between 15:00 and 15:10 (150). Tracking is requested (T). This ID-tag has binary representation (separation points introduced every four bits to improve legibility): 0010.0010.0000.0111.0001.1000.1110.0110.0001.1100.1010.1110.1011.1010.0010.0000. The 62-bit value used in bar code generation is derived by dropping the first four bits and inserting the tracking code value 00 ten bits from the end:

0010.0000.0111.0001.1000.1110.0110.0001.1100.1010.1110.1011.100010.0010.0000

Conversion to 4-state form results in:

or, expressed in character notation with F representing a full bar, A an ascender, D a descender and T a timing bar. FDF.DFF.AAD.ATF.ADF.TDA.DFA.TFD.DTD.DTD.DFT.FTA.FDF.FAT.ATT.FAD.TFA.ATA.TAF.ATT.DDT.AFF.DAD.FDF.DFF

8 Printing of the bar code

8.1 General

The resulting bar code shall be printed on the item, in accordance with the specifications in UPU standard S48, except that horizontal skew shall be limited to ± 2°.

The specifications relate to the finished characteristics of production mail, 99 % of which is required to be within specification. To the extent possible and consistent with acceptable mis-read rates, reading systems should be designed to accommodate items on which the ID-tag does not meet all requirements and should not reject captured ID-tags merely because their specification is not in full compliance with printing specifications. For example, variations in transport speed might cause the pitch of a printed ID-tag to exceed the limit permitted by S48. This should not result in rejection of the ID-tag if the reader is reliably capable of capturing ID-tags with a greater variation in pitch.

8.2 Optical characteristics of the ink

The 4-state encoding of ID-tags shall be printed on small letters using fluorescent ink. It is recommended that this be in accordance with the specifications in the CEN/TS 15844-2 clause on Optical characteristics of the ink. The use of ink with an excitation wavelength of 310-360 nm (peak 315-325 nm) and an emission wavelength with peak at 610-620 nm is permitted as an alternative but its use for the printing of ID-tags in area F1 is not recommended.