

English version

**Postal services - Automatic identification of receptacles and
containers - Receptacle asset numbering**

Postalische Dienstleistungen - Automatische
Kennzeichnung von Behältern und Containern -
Assetnummerierung auf Behältern

This Technical Specification (CEN/TS) was approved by CEN on 11 October 2004 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 14631:2005) has been prepared by Technical Committee CEN/TC 331 "Postal Services", the secretariat of which is held by NEN, in collaboration with the UPU.

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 14631:2005), is the CEN equivalent of UPU¹⁾ standard S37-5. 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.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association.

The UPU's contribution to the document was made, by the UPU Standards Board²⁾ and its sub-groups, in accordance with the rules given in Part V of the "General information on UPU standards".

This document is the second version of the Technical Specification, but corresponds to the fifth version (S37-5) of UPU standard S37. The revisions were primarily developed to ensure alignment between S37 and CEN/TS 14631. Substantive changes to the first version, TS 14631:2003, are:

- modification of the Foreword, to make it consistent with that in S37-5;
- use of the term 'specification' rather than 'standard' to retain consistency between the CEN document, which is classed as a Technical Specification, and the UPU one, which is classed as a standard;
- update of the reference to ANSI MH10.8.2 and removal of the note concerning the draft version for trial use;
- 5.5.1 now refers to the possibility of other numeric prefixes being defined, in UPU code list³⁾ 156, without the need to update the main specification;
- update of 7.2 to reflect the usage of the GIN segment for reporting of container identifiers in UPU standard M34.

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).

3) UPU code lists define the interpretation to be given to codes used in the context of UPU standards. They are managed by the UPU Data and Code Definition Group and its Code Allocation and Maintenance sub-group, to which requests for the allocation of new code values may be submitted. The code lists are published on the UPU world-wide web site (www.upu.int) and are freely downloadable.

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Annex A is informative.

This document includes a Bibliography.

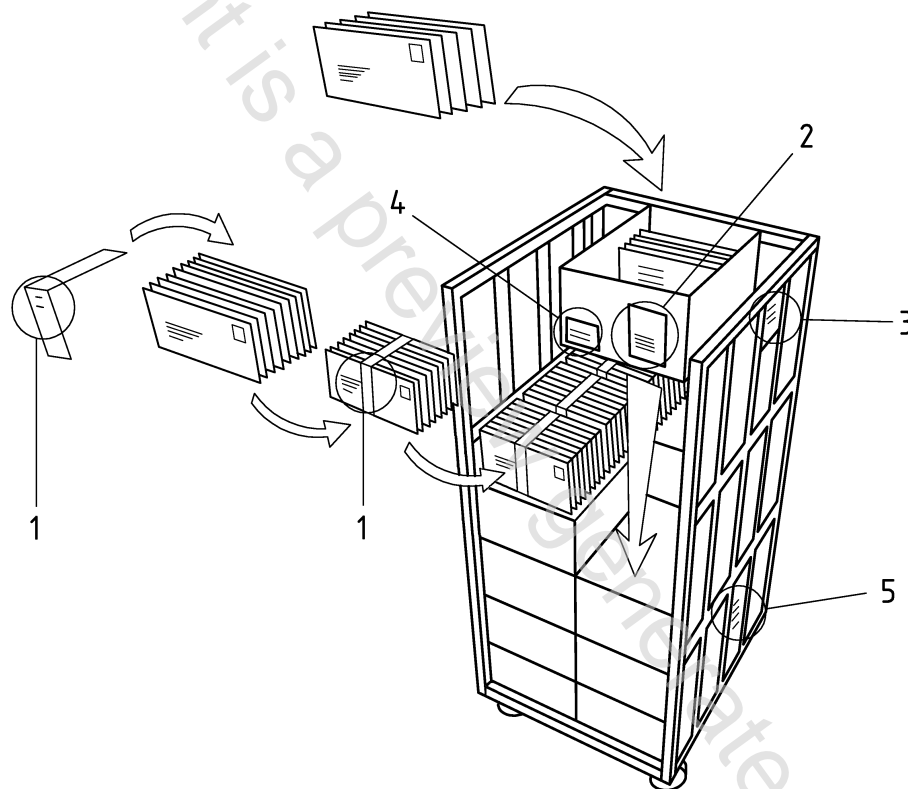
According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to announce this CEN Technical Specification: Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia,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

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Introduction

It is often useful, for both processing and transportation purposes, to be able to treat a group of postal items with common handling requirements as a single unit called a mail aggregate. This can be thought of as any set of postal items which has been physically grouped so as to permit such common handling. Examples include bundles, consignments and the content of a particular sorting machine output stacker or of a postal receptacle, such as a mailbag, tray or roller cage.

As shown in Figure 1, mail aggregates can occur at several nested levels. For example, the mail aggregate consisting of the set of postal items addressed to a particular delivery point can form part of a bundle of postal items destined for the same delivery postcode area, which can in turn be part of a mail aggregate, such as the content of a bag, to be delivered by a particular delivery agent, which in its turn can be part of a mail aggregate to be transported, in a roller cage, to the delivery office concerned.



Key

- 1 Aggregate (bundle) identifier - removable label
- 2 Aggregate (tray content) identifier - removable label
- 3 Aggregate (cage content) identifier - removable label
- 4 Receptacle (tray) Asset Number - fixed to receptacle
- 5 Receptacle (roller cage) Asset Number - fixed to receptacle

Figure 1 - Mail aggregate nesting; aggregate identifiers and receptacle asset numbers

NOTE 1 Figure 1 shows a roller cage containing both trays and bundles of individual items. The bundles have mail aggregate identifiers on the strap or wrapping which holds them together; each tray carries both a mail aggregate identifier, printed on a removable tray label, and a fixed tray identifier (a receptacle asset number). Similarly, the roller cage carries both a removable label with a content identifier and a fixed receptacle asset number. Note that bundles may be loose or placed in bags but, except in the case of explicit bilateral agreement, should **not** be placed in trays.

Although this is not strictly required, it can simplify handling if mail aggregates are physically constrained to form a unit. Thus:

- low level mail aggregates are frequently constrained by bands or by poly-wrapping;
- intermediate level mail aggregates can be housed in trays or mailbags;
- these can in turn be housed in roller cages, or stacked on pallets.

In postal terminology, such physical housings are collectively referred to as (postal) receptacles. A postal receptacle is thus any device or container which can be used to physically constrain a mail aggregate in order to simplify its handling as a unit. Examples include mailbags, trays, wheeled containers (roller cages), pallets, pallet-based containers and airfreight containers (ULDs). Road, rail and sea vehicles and containers can also be regarded as receptacles if appropriate.

Postal receptacles are often handled by and exchanged between several parties, for example one or more postal operators, customers, carriers, delivery agents, customs authorities, etc. Though they represent a significant capital asset for postal operators around the world, there is currently no adequate system for tracking their exchange between parties and significant losses occur.

NOTE 2 It is estimated that European posts have acquired some 1,5 million roller cages. Some posts are able to account for only 60 % to 70 % of these. The 'missing' roller cages represent a total investment of more than 100 million euro! By reducing asset loss from non-repatriated postal receptacles, and by minimising the permanent loss of postal receptacles from the pipeline, the number of units in service (including stocks in reserve) could be more closely aligned to actual operational requirements. Ultimately this could enable postal operators to reduce the number of receptacles in circulation, thus reducing capital asset costs.

A coherent asset management and control system that identified and tracked postal receptacles could thus offer many potential benefits, including significant cost reductions.

This would require the receptacles concerned to carry individual identifiers and for these to be used, by all parties, in communications about the receptacles and their contents.

NOTE 3 The need for identification can arise for a variety of reasons, including the requirement to track individual receptacles and the need to exchange service and/or service quality data, about a postal receptacle, between postal operators, their customers and service providers.

NOTE 4 Communications about a postal receptacle can include delivery information, transport instructions, content and other customs information, invoicing instructions, handling constraints, etc.

Given the increasing extent to which receptacles are exchanged between organisations, the identifiers used need to be globally unique. This specification fulfils that requirement. It defines an open system of identification, accessible by any user of a receptacle. Its use is expected to:

- provide the basis for an audit trail for postal receptacles;
- allow postal operators to reap operational benefits;
- permit improvements in postal service quality.

Subject to bilateral agreement on the use of receptacle asset numbers in association with the electronic transmission of mail aggregate data, adoption of the specification will also simplify receptacle labelling procedures and the introduction of RFID-based tracking of receptacles and their contents.

It is not anticipated that the specification will be applied to all types of receptacles, since different types of receptacle have different intrinsic values:

- for all practical purposes, bands and poly-wrap material can be regarded as having no value. Either they are used only once (e.g. poly-wrap) or, if they are re-usable, they have an extremely low replacement value (a few cents) and are therefore treated as consumables;

- mailbags and trays have a somewhat higher value (a few dollars or euro), but are extensively re-used and, because of the numbers involved, have a significant total value;
- some types of receptacle (e.g. roller cages, ULDs) have a much more significant value and are normally treated as capital assets.

Receptacles falling into the second and third of the above value classes are normally subject to some level of asset or inventory control. For lower value items, this might be a statistical exercise only, but items of higher value are often subject to control on an individual receptacle basis. It is these higher value receptacles to which the specification is expected to apply.

This specification defines a receptacle asset number for application to postal receptacles. It does so under six main headings, together with an informative annex:

5. *Definition and allocation of receptacle asset numbers*: introduces the concept of receptacle asset numbers; defines their field of application; specifies how their allocation is controlled to ensure uniqueness and defines the constraints applicable to receptacle asset numbers issued under the authority of the UPU.
6. *Representation of receptacle asset numbers on receptacles*: specifies that receptacle asset numbers shall be represented on receptacles, both in linear bar coded and human-readable form, and defines the manner of representation, including the required bar code symbology parameters, placement location, etc. Also identifies other permitted forms of representation.
7. *References to receptacle asset numbers in messages*: introduces the distinction between a receptacle asset number, attached to the receptacle it identifies, and a receptacle asset number reference, being a message-based reference to a receptacle; defines representation rules for such references.
8. *Data capture and use of receptacle asset numbers*: addresses the issue of data capture of receptacle asset numbers and receptacle asset number references and describes the extraction of data components from a complete receptacle asset number.
9. *Postal receptacle attributes*: identifies, but does *not* define, a number of postal receptacle attributes which might usefully be either encoded on the receptacle, along with the receptacle asset number, or exchanged in messages which use a receptacle asset number reference as access key.
10. *Representation of receptacle attributes*: specifies how the various attributes defined in the previous clause should be represented, in particular in the case in which they are encoded on a label affixed to the receptacle.

Annex A: *Examples of bar codes*: provides illustrative examples of receptacle asset number bar codes which are compliant with this specification.

1 Scope

This document defines a mechanism for the unique identification of individual receptacles. It specifies the method of construction of the identifier, referred to as the receptacle asset number, and defines one required and a number of optional methods by which this identifier can be associated with (affixed to) the receptacle itself.

The receptacle asset number is defined in accordance with the specification of ISO/IEC 15418 data identifier number *5B*, which defines a Receptacle Asset Number or container identifier constructed in accordance with the hierarchical principles defined in ISO/IEC 15459.

The specification also identifies a number of receptacle attributes, or characteristics, which it might be useful to communicate between parties making use of the receptacle concerned.

A coded representation of one of these attributes – equipment qualifier – is integrated into the structure of the receptacle asset number. The others are *not* defined in detail in this document. Precise definitions and encoding formats for them will be developed over time, as a result of practical experience of use of the specification. The definitions will be included in an appropriate reference specification, such as UPU standards S25 [17] and M82 [10], which serve as baseline definition documents for attributes used in postal industry communications about postal items, mail aggregates and receptacles.

The application of this specification is voluntary in the sense that receptacles are not required to be individually identified.

NOTE 1 Not all receptacles need to have a receptacle identifier. In particular, in today's environment, mailbags and disposable trays are not normally identified explicitly – rather their contents are. Many posts are, however, starting to individually identify more valuable receptacles and this practice is expected to spread, including to trays, as the advantages of being able to individually track and control receptacle movement become more apparent.

However, for postal receptacles which do carry an individual identifier, the application of this specification is strongly recommended.

NOTE 2 Individual postal operators could define proprietary approaches for use domestically, if they so wished. However, this would almost certainly lead to increased development and maintenance costs both for the posts and their customers and service providers. It might also be difficult to guarantee that postal receptacles, identified in accordance with the (closed) proprietary system, are segregated from postal receptacles which are exchanged with other postal operators in accordance with the open system described here.

The receptacle asset number, defined in accordance with this specification, is primarily intended for use in asset management applications, which include receptacle tracking. It is not intended that it be used to replace the mail aggregate identifier, defined in UPU standard S9 [11], for the process management and tracking of the content of the receptacle. However, users of the specification may agree to its use for this purpose on a bilateral basis.

NOTE 3 A companion to this specification, covering the allocation of aggregate identifiers in accordance with the ISO licence plate standard, is under development. It is envisaged that the resulting aggregate licence plate will, in time, replace the use of UPU standard S9.

Many of the examples given in this document relate to receptacle asset numbers issued under the UPU issuing agency code (IAC). The use of this IAC is subject to registration as an issuer under UPU standard S31. The use of the examples concerned is in no way intended to pre-empt or prejudice such registration.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, or references to a version number, only the edition cited applies. For undated references and where there is no reference to a version number, the latest edition of the referenced document (including any amendments) applies.

EN ISO/IEC 15416, *Information technology – Automatic identification and data capture techniques – Bar code print quality test specification – Linear symbols (ISO/IEC 15416:2000)*.

ISO 15394, *Packaging – Bar code and two-dimensional symbols for shipping, transport and receiving labels*.

ISO/IEC 15417, *Information technology – Automatic identification and data capture techniques – Bar code symbology specification – Code 128*.

ISO/IEC 15418, *Information technology -- EAN/UCC Application Identifiers and Fact Data Identifiers and Maintenance*

NOTE 1 See application identifier and data identifier in 3: Terms and definitions. ISO/IEC 15418 relies on and cannot be used without reference to ANSI MH10.8.2 (see [22]).

UPU Standards glossary⁴⁾

UPU S31, *UPU issuing agency – Assignment of issuer codes*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in the UPU Standards glossary and the following apply.

3.1

aggregate licence plate

licence plate applied to a mail aggregate

3.2

equipment qualifier

coded value indicating the type of the receptacle with which it is associated

NOTE See also 9: Postal receptacle attributes.

3.3

receptacle asset number reference

reference to a specific receptacle, made by quoting the receptacle's receptacle asset number

3.4

serial number

component of an identifier, allocated by the lowest level organisation in the hierarchy of allocation domains under which the identifier has been generated, which uniquely identifies the entity concerned within that organisation's allocation domain

NOTE Serial numbers are not necessarily numeric: they can be composed of a combination of numeric and/or upper case alphabetic characters.

4) UPU Standards are obtainable from the UPU International Bureau, whose contact details are given in the Bibliography; the UPU Standards glossary is freely accessible on URL <http://www.upu.int>.