



**SLOVENSKI STANDARD**  
**SIST EN 14534:2004**

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Postal services - Quality of service - Measurement of the transit time of end-to-end services for bulk mail

Postalische Dienstleistungen - Dienstqualität - Laufzeitmessung 'end-to-end' für Massensendungen

Services postaux - Qualité de service - Mesure de la qualité de service de bout en bout pour courrier en nombre

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ICS 03.240

English version

## Postal services - Quality of service - Measurement of the transit time of end-to-end services for bulk mail

Services postaux - Qualité de service - Mesurage des délais d'acheminement des dépôts en nombre (mesure de bout en bout)

Postalische Dienstleistungen - Dienstqualität - Laufzeitmessung 'end-to-end' für Massensendungen

This European Standard was approved by CEN on 23 May 2003.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Management Centre or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Slovakia, Spain, Sweden, Switzerland and United Kingdom.

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EUROPEAN COMMITTEE FOR STANDARDIZATION  
COMITÉ EUROPÉEN DE NORMALISATION  
EUROPÄISCHES KOMITEE FÜR NORMUNG

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## Foreword

This document (EN 14534:2003) has been prepared by Technical Committee CEN/TC 331, "Postal services", the secretariat of which is held by NEN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by June 2004, and conflicting national standards shall be withdrawn at the latest by June 2004.

This bulk mail standard has been developed from the requirements of EN 13850 *Postal services - Quality of service - Measurement of the transit time of end-to-end services for single piece priority mail and first class mail*. Both European Standards consider methods using a representative end-to-end sample of all types of addressed letter mail appropriate for their coverage. A separate standard is required for the measurement of bulk mail for the following reasons.

- **Contract Services:** mail posted in bulk will often be mailed under a contract between the sender and the postal operator. Typically bulk services require customers to undertake a level of pre-sortation or to present mail in different ways according to the contract conditions.
- **Senders:** members of the public posting single items are replaced by companies, small in number, posting large volumes of mail; third party agents may also act on behalf of posting customers.
- **Volumes of mailings:** bulk mailings may contain thousands or millions of items.
- **Performance Measures:** on-time performance measures are expanded to provide additionally on, by or between specific dates performance depending on what is agreed with the customers or is specified for this service.
- **Discriminant Characteristics:** the range of characteristics varies by type of mail service and a wider set of potential characteristics should be considered.
- **Dates of deposit:** the rules and requirements for bulk mails are more complex and may be specific to the contract between customer and postal operator.

**Test items:** have to match the characteristics of customer mailings and where database seeding methods are used 'live' items of mail may be used in the survey. This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association.

Annexes A, B and C are normative. Annexes D, E and F are informative.

This document includes a Bibliography.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Slovakia, Spain, Sweden, Switzerland and the United Kingdom.

## Introduction

In the Green paper on postal services in 1992 the European Commission emphasised the need to establish common rules for the development of community postal services and the improvement of quality of service. The Commission identified requirements for quality of service measurement that include:

- independent end-to-end measurement capabilities;
- a focus on cross-border delivery service performance;
- a single, uniform and reliable system for monitoring delivery service performance within the Union.

The Commission acknowledged that the different postal traditions and cultures in Europe would not allow for the establishment of one common unified European measurement system and that national systems should have sufficient degrees of freedom to reflect national needs and peculiarities. On the other hand, they should fulfil a defined set of minimum requirements to satisfy the information interests of the national regulatory authority and postal customers and postal operators themselves.

The objective of the measurement is to estimate the quality of service given to the customer in each European country domestically and cross-border between European countries.

This European Standard refers to a number of principles and minimum requirements to be applied for the measurement of the transit time of national and cross-border mail.

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## 1 Scope

This European Standard specifies methods for measuring the end-to-end transit time of the domestic and cross-border, priority and non-priority, bulk mail, collected, processed and distributed by postal service operators. It considers methods using a representative end-to-end sample of addressed bulk mail. End-to-end is defined as from the point mail is placed into the collection/acceptance system under the responsibility of the postal operators, to the final delivery point under the responsibility of the postal operators.

For the purpose of this European Standard, bulk mail can include all types of addressed bulk mail: letter mail, direct mail, magazines, and newspapers, unless otherwise indicated.

The overall quality of service result should be expressed as the percentage of mail delivered within  $J + n$  days end-to-end according to the EC postal directive or the percentage of mail delivered by, on or between expected dates. The measurement should be in whole days and not be restricted by reference to a specific time of day for delivery.

This quality of service indicator does not measure the postal operator's overall performance in a way which provides direct comparison of postal service operators, and does not include other service performance indicators than those related to transit time. In particular this European Standard does not measure whether the timing of collections meets customers' requirements.

The European Standard can be used to assess the performance of postal operators for specific products or services at a national level or for an individual or a group of customers.

The European Standard should not be used to assess the overall performance of a group of products or services which have other service specifications in terms of transit time expectation.

It specifies a set of requirements for the design of a quality of service measurement system for bulk mail, involving the selection and distribution of test mail sent and received by selected panellists. The test mail sample design gives the specifications for the mail to be representative of real mail flows.

This European Standard relates to the measurement of services offered to businesses that have pick ups at their offices or give their mail to postal service operators. If a third party agent acts for the postal operator then the time the mail is handed over to the agent should form part of the measurement. Where a third party agent acts for the sending customer then the measurement should be from the point when mail is handed over to the postal operator.

For technical reasons the European Standard may not in all parts be suitable for the measuring of very small volumes of mail and for operators with limited coverage. It is not applicable for measuring the end-to-end transit time distribution of single piece mailings which require different measurement systems. The European Standard EN 13850 has been developed for single piece priority mail and EN 14508 for single piece non-priority mail.

This European standard includes specifications for the quality control and auditing of the measurement system.

In certain circumstances this European Standard allows a choice between alternatives or deviations to be made subject to the approval of the regulator. This approval is only necessary if the product or service is within the universal service obligation.

## 2 Normative references

This European Standard incorporates, by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text, and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

EN 13850		<i>Postal services - Quality of service - Measurement of the transit time of end-to-end services for single piece priority mail and first class mail.</i>
EN 30011-1		<i>Guidelines for auditing quality systems - Part 1: Auditing (ISO 10011-1:1990).</i>
EN ISO 9000	2000	<i>Quality management systems - Fundamentals and vocabulary (ISO 9000:2000).</i>
ISO 3534-1	1993	<i>Statistics - Vocabulary and symbols - Part 1: Probability and general statistical terms.</i>
ISO 3534-2	1993	<i>Statistics - Vocabulary and symbols - Part 2: Statistical quality control.</i>
ISO 11180		<i>Postal addressing.</i>
		<i>International Chamber of Commerce / ESOMAR International Code of Marketing and Social Research Practice<sup>1</sup></i>

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<sup>1</sup> The International Chamber of Commerce / ESOMAR International Code of Marketing and Social Research Practice is available from:

ESOMAR:  
Vondelstraat 172  
1054 GV AMSTERDAM  
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Tel: +31-20-664 21 41  
Fax: +31-20-664 29 22  
[www.esomar.org](http://www.esomar.org)

or

The International Chamber of Commerce:  
[www.iccwbo.org](http://www.iccwbo.org)



### 3 Terms and definitions

For the purposes of this European Standard the following terms and definitions apply.

#### 3.1

##### **accuracy**

closeness of agreement between a test result and the accepted reference value

NOTE 1 The term accuracy, when applied to a set of test results, involves a combination of random components and a common systematic error or bias component. [ISO 3534-1:1993]

NOTE 2 In this standard the accuracy is given by the length  $2\epsilon$  of the confidence interval at the confidence level 95 % for the parameter being estimated, namely the probability of attaining the specification with respect to the transit time.

#### 3.2

##### **aggregation**

compounding of primary data into an aggregate for the purpose of expressing them in a summary form

#### 3.3

##### **audit**

systematic and independent examination to determine whether activities and related results comply with planned arrangements and whether these arrangements are implemented effectively and are suitable to achieve objectives

[EN ISO 9000:2000]

#### 3.4

##### **average (arithmetic mean)**

sum of values divided by the number of values [ISO 3534-1:1993]

#### 3.5

##### **bring service**

mail collection or mail delivery service specifically contracted by the customer

#### 3.6

##### **bulk mail**

large volume of mail having similar characteristics posted by a single sender at the same induction point

NOTE Customers typically share the outward processing of bulk mail by sorting or segregating the mail to enable the postal operator to by-pass the first sortation stages.

#### Cf sender

#### 3.7

##### **business**

bodies other than households that receive and send mail

#### 3.8

##### **characteristic**

property which helps to identify or differentiate between items of a given population

NOTE 1 The characteristics can be either quantitative - by variables, or qualitative - by attributes [ISO 3534-1:1993]

NOTE 2 In this European Standard the population is postal test items and the characteristics are related to type of senders, type of receivers, times and types of induction or delivery, physical aspects of test items, franking, etc.

#### 3.9

##### **city**

geographically defined area according to national classification systems

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### 3.10

#### **conformity**

fulfilment of specified requirements [EN ISO 9000:2000]

### 3.11

#### **corrective action**

action taken to eliminate the causes of an existing non-conformity, defect or other undesirable situation in order to prevent recurrence [EN ISO 9000:2000]

### 3.12

#### **correlation**

relationship between two or several random variables within a distribution of two or more random variables

NOTE Most statistical measures of correlation measure only the degree of linear relationship. [ISO 3534-1:1993]

### 3.13

#### **correlation coefficient**

ratio of the covariance of two random variables to the product of their standard deviations [ISO 3534-1:1993]

### 3.14

#### **country**

territory of a nation with its own government

### 3.15

#### **cross-border mail**

mail distributed from one country to another country

### 3.16

#### **customer**

natural or legal person having a business relationship with a postal operator

### 3.17

#### **date of delivery**

date on which a postal item is delivered to the address or to the addressee

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### 3.18

#### **date of deposit (J)**

date on which a postal item is posted, provided posting takes place before the last collection of that day

NOTE 1 The term date of deposit is used in relation to quality of service measurement. The definition is based on the Postal Directive 97/67/EC.

NOTE 2 Last collection refers to the advertised last time for collection (not the actual time) or to the contracted latest time for collection.

NOTE 3 If a postal item is posted after the last collection for that day's mail then the date of deposit is the next date on which there is a collection for that type of mail .

### 3.19

#### **date of posting**

calendar date on which a postal item is posted

### 3.20

#### **delivery point**

physical location at which delivery of postal items by a postal operator takes place and where they leave the operator's responsibility

### 3.21

#### **design factor**

ratio of the variance of the estimator in the given sample design by the variance of the estimator in an elementary sample design of the same size. The design factor is related to a given sample design and estimator.

**3.22****discriminant (characteristic)**

characteristic affecting the outcome

NOTE In this standard a characteristic is discriminant when transit time differs according to the different modes of the characteristic.

**3.23****distribution**

process from collecting mail at collecting points through sorting at the distribution centre to delivery of mail items to the addressee

**3.24****domestic mail**

mail items sent and received within one country

**3.25****end-to-end (transit time)**

from the point mail is placed into the collection/acceptance system under the responsibility of the collecting postal operator to the final delivery point under the responsibility of the delivering postal operator

**3.26****estimate**

value of an estimator obtained as a result of an estimation [ISO 3534-1:1993]

**3.27****estimator**

statistic used to estimate a population parameter [ISO 3534-1:1993]

NOTE In this European Standard, a function of the observed values of test item transit times allowing the estimation of the probability of attaining the specification with respect to the transit time.

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**3.28****expectation**

for a discrete random variable  $X$  taking the values  $x_i$ , with the probabilities  $p_i$ , the expectation if it exists, is:

$$\mu = E(X) = \sum p_i x_i$$

the sum being extended over all the values  $x_i$  which can be taken by  $X$  [ISO 3534-1:1993]

**3.29****field of study**

total mail flow of one product and service between defined postal areas as:

- Domestic - one operator in one country
- Domestic - one operator in one country for an individual or a group of customers
- Domestic - a group of operators in one country
- Cross-border - one operator to one country
- Cross-border - one operator to a group of countries
- Cross-border - one country to one country
- Cross-border - one country to a group of countries

**3.30****frequency**

number of occurrences of a given type of event or the number of observations falling into a special class [ISO 3534-1:1993]

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### 3.31

#### **geographical coverage**

spread of postal services within a pre-defined geographical area

### 3.32

#### **independent performance monitoring organisation**

body charged with the monitoring of the quality of service according to the methodology specified in this standard and which body is external to, and having no links of ownership or control with the postal service provider or customers thus monitored

### 3.33

#### **independence**

two random variables are independent if their distribution functions are related by

$$F(x,y) = F(x,\infty) \cdot F(\infty,y) = G(x) \cdot H(y)$$

where  $F(x, \infty) = G(x)$  and  $F(\infty, y) = H(y)$  are the marginal distribution functions of  $X$  and  $Y$ , respectively for all pairs  $(x, y)$  [ISO 3534-1:1993]

### 3.34

#### **induction**

deposition of mail into the postal network

### 3.35

#### **induction point**

physical location at which postal items are placed into the collection/acceptance system under the responsibility of the collecting postal operator

### 3.36

#### **inspection**

activity such as measuring, examining, testing or gauging one or more characteristics of an entity and comparing the results with specified requirements in order to establish whether conformity is achieved for each characteristic [EN ISO 9000:2000 and ISO 3534-2:1993]

### 3.37

#### **metered mail**

mail franked by franking machines

### 3.38

#### **national and regional holiday**

day with limited postal collection or delivery activities

### 3.39

#### **observed value**

value of a characteristic obtained as the result of a single observation [ISO 3534-1:1993]

### 3.40

#### **office of exchange**

place where a postal operator accepts cross-border mail from a postal operator of another country

### 3.41

#### **on-time probability**

probability of the event that the transit time  $T$  of a mail item meets the specifications, i.e. does not exceed the specified number  $s$  of days:

$$\Pr(T \leq s)$$

### 3.42

#### **on-time performance**

proportion of postal items within a given period of time  $t$  with transit times meeting the specification

Formal definition:  $\frac{1}{N(t)} \sum_{i=1}^{N(t)} X_i$  where  $N(t)$  is the total number of postal items inducted during the period, and  $X_i = 1$  if postal item  $i$  fulfils the specification and otherwise  $X_i = 0$

**3.43****performance indicator**

expression derived from postal transit time statistics and data used to characterise the performance of a postal operator

**3.44****postal catchment area**

postal area served by a domestic sorting centre or by an office of exchange for cross-border mail outbound or inbound. Catchment areas can be different for outbound and inbound mail, or for different fields of study

**3.45****postal area**

one of the parts into which a postal operator's whole territory is divided and which is suitable for characterising postal delivery peculiarities

**3.46****postal service**

services involving the clearance, sorting, transport and delivery of postal items

**3.47****priority item, first class item, A-class item**

letter post item sent with priority by air or by surface and receiving different processing compared to items classified as non-priority

**3.48****probability distribution**

function giving the probability that a random variable takes any given value or belongs to a given set of values [ISO 3534-1:1993]

**3.49****quality**

totality of characteristics of an entity that bear on its ability to satisfy stated and implied needs [EN ISO 9000:2000]

**3.50****quality assurance**

all the planned and systematic activities implemented within the quality system and demonstrated as needed, to provide adequate confidence that an entity will fulfil requirements for quality [EN ISO 9000:2000]

**3.51****quality control**

operational techniques and activities that are used to fulfil requirements for quality [EN ISO 9000:2000 and ISO 3534-2:1993]

**3.52****quality evaluation**

systematic examination of the extent to which an entity is capable of fulfilling specified requirements [EN ISO 9000:2000]

**3.53****random sample**

sample of  $n$  items taken from a population of  $N$  items in such a way that each item in the population has a strictly positive probability of being selected

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### 3.54

#### **random variable**

variable that may take any of the values of a specific set of values and with which is associated a probability distribution [ISO 3534-1:1993]

### 3.55

#### **real mail**

postal items sent by customers

### 3.56

#### **real mail flow**

number and types of postal items distributed end-to-end by postal operators

### 3.57

#### **real mail study**

studies on real mail flows or real mail characteristics

### 3.58

#### **rural**

cities and communes with less than a specified number of inhabitants

### 3.59

#### **sample**

one or more sampling units taken from a population and intended to provide information on the population [ISO 3534-1:1993]

### 3.60

#### **sender**

business sending bulk mail

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NOTE The sender can be a consolidator or a mailing house

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### 3.61

#### **service standard**

standard that specifies requirements to be fulfilled by a service, to establish its fitness for purpose

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### 3.62

#### **single piece mail**

postal items posted and processed individually

### 3.63

#### **sorting centre**

place where the main sorting of mail is done

### 3.64

#### **stamped mail**

postal items paid for with postage stamps

### 3.65

#### **standard**

document, established by consensus and approved by a recognised body, that provides, for common and repeated use, rules, guidelines or characteristics for activities or their results, aimed at the achievement of the optimum degree of order in a given context

NOTE Standards should be based on the consolidated results of science, technology and experience, and aimed at the promotion of optimum community benefits [EN 45020].

### 3.66

#### **stratification**

division of a population into mutually exclusive and exhaustive sub-populations (called strata) which are thought to be more homogeneous with respect to the characteristics investigated than the total population [ISO 3534-1:1993]

**3.67****study domain**

sub-populations for which separate results can be appropriate

NOTE Study domains could be defined for example by geographic segmentation or by sub-product

**3.68****test item**

postal item produced in the test measurement system for the purpose of measuring real mail performance. Test items should be representative of real mail. Test items can be either pre-fabricated by the survey operator specifically for the test measurement system or generated by a customer using an address list provided by the survey operator.

**3.69****test period**

period of time under which measurement has been carried out and for which the results are presented in a separate test report

**3.70****time of delivery**

time when a postal item is delivered at its delivery point

**3.71****transit time**

number of days elapsed between induction and delivery of mail item as calculated in 4.2.3

**3.72****transit time distribution**

transit time of a mail item is random and therefore it is modelled as a random variable; the set of probabilities of any event concerning the random variable transit time of a mail item forms its probability distribution

**3.73****urban**

cities, including their outskirts, with not less than a specified number of inhabitants

**3.74****variance**

measure of dispersion, which is the sum of the squared deviations of observations from their average divided by one less than the number of observations [ISO 3534-1:1993]

**3.75****weight**

value to compensate for the difference between the distribution of characteristics in the survey compared to real mail