SLOVENSKI STANDARD
SIST EN 13850:2004+A1:2007

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Poštne storitve - Kakovost storitev - Merjenje časa prenosa od sprejema do vročitve za posamične pošiljke prednostne pošte in pošte prvega razreda

Postal service - Quality of service - Measurement of the transit time of end-to end-services for single piece priority mail and first class mail

Postalische Dienstleistungen - Dienstqualität - Laufzeitmessung end-to-end für Vorrangssendungen und Sendungen erster Klasse

Services postaux - Qualité de service - Mesure du délai d´acheminement des services de bout en bout pour le courrier prioritaire égrené et de premiere classe

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English Version

Postal service - Quality of service - Measurement of the transit time of end-to end-services for single piece priority mail and first class mail

Services postaux - Qualité de service - Mesure du délai d´acheminement des services de bout en bout pour le courrier prioritaire égrené et de première classe

Postalische Dienstleistungen - Dienstqualität - Laufzeitmessung end-to-end für Vorrangssendungen und Sendungen erster Klasse

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Contents

Foreword

This document (EN 13850:2002+A1:2007) has been prepared by Technical Committee CEN/TC 331 "Postal services", the secretariat of which is held by NEN.

This document shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by September 2007 and conflicting national standards shall be withdrawn at the latest by September 2007.

This document includes Amendment 1, approved by CEN on 2007-02-04.

This document supersedes EN 13850:2002.

The start and finish of text introduced or altered by amendment is indicated in the text by tags ⟨A1⟩ ⟨A1⟩.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s).

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, 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 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, postal customers and postal operators themselves.

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

〈A1〉 When EN 13850 was developed it was decided to base it on existing measuring systems already in use among the European Union member states. Since the publication of EN 13850 in 2002 more countries have joined the European Union which have increased the number of cross-border mail flows significantly and therefore made it necessary to adapt the standard accordingly.

Amendment 1 to this European Standard has been developed to make it possible to economically measure a larger number of mail flows from a wider range of countries than the original versions of the standard were made for.

Amendment 1 to this European Standard gives information on how to categorize mail flows for measuring purposes and explain how required accuracy for small and medium sized mail flows can be obtained by measuring under a consecutive number of years. 〈A1〉

1 Scope

This European Standard specifies methods for measuring the end-to-end transit time of the domestic and cross-border priority single piece letter mail, collected, processed and distributed by postal service operators. It considers methods using a representative end-to-end sample of all types of single piece addressed letter 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.

The overall transit time quality-of-service result is to be expressed as percentage of mail delivered within $J + n$ days end-to-end according to the EC postal directive.

This quality of service indicator does not measure the postal operator's overall performance in a way that 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 the last collection of the day meets customer's requirements.

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

This European Standard relates to the measurement of the so-called "normal" services given to private persons / households and businesses that post mail at street letter boxes, over the counter at post offices, have pick ups at their offices or give their mail directly at postal service operators sorting centres.

For technical reasons this European Standard may not in all parts be suitable for the measuring of very small volumes of mail and for operators with limited coverage.

This European Standard is not applicable for measuring the end-to-end transit time distribution of large bulk mailers' services and hybrid mail, which require different measurement systems and methodologies.

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

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 ISO 9000, *Quality management systems – Fundamentals and vocabulary (ISO 9000:2000).*

EN ISO 9001, *Quality management systems – Requirements (ISO 9001:2000).*

EN ISO 9004, *Quality management systems – Guidelines for performance improvements (ISO 9004:2000).*

ISO 3534-1:1993, *Statistics - Vocabulary and symbols - Part 1: Probability and general statistical terms.*

ISO 3534-2, *Statistics - Vocabulary and symbols - Part 2: Statistical quality control.*

ISO 10005, *Quality management - Guidelines for quality plans.*

ISO 10007,*Quality management - Guidelines for configuration management.*

ISO 10011-1, *Guidelines for auditing quality systems – Part 1: Auditing.*

ISO 10011-2, *Guidelines for auditing quality systems – Part 2: Qualification criteria for quality systems auditors.*

ISO 10011-3, *Guidelines for auditing quality systems – Part 3: Management of audit programmes.*

[A1⟩ *deleted text* ⟨A1]

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]

NOTE 2 In this standard the accuracy is given by the length 2ε 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]

3.4
average (arithmetic mean)
sum of values divided by the number of values [ISO 3534-1]

3.5
bring service
mail collection or mail delivery service specifically contracted by the customer

3.6
business
bodies other than households that receive and send mail

3.7
characteristic
property which helps to identify or differentiate between items of a given population

NOTE 1 The characteristics may be either quantitative - by variables, or qualitative - by attributes [ISO 3534-1].

NOTE 2 In this 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.

3.8
city
geographically defined area according to national classification systems

3.9
conformity
fulfilment of specified requirements [EN ISO 9000]

3.10
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]

3.11
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].

3.12
correlation coefficient
ratio of the covariance of two random variables to the product of their standard deviations [ISO 3534-1]

3.13
country
territory of a nation with its own government

3.14
cross-border mail
mail distributed from one country to another country

3.15
customer
natural or legal person having a business relation with a postal operator

3.16
date of delivery
date on which a postal item is delivered to the address or to the addressee

3.17
date of deposit (*J*)
day 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).

3.18
delivery point
physical location at which delivery of postal items by a postal operator takes place and where they leave the operator's responsibility

3.19
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

3.20
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.

3.21
distribution
process from collecting mail at collecting points through sorting at the distribution centre to delivery of mail items to the addressee

3.22
domestic mail
mail items sent and received within one country

3.23
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 operators

3.24
estimate
value of an estimator obtained as a result of an estimation [ISO 3534-1]

3.25
estimator
statistic used to estimate a population parameter [ISO 3534-1]

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.

3.26
expectation
for a discrete random variable X taking the values x_i, with the probabilities p_i, the expectation if it exists, is:

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

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

3.27
field of study
total mail flow between defined postal areas

NOTE 1 Field of study could be defined for example as:

— Domestic – one operator in one country

- Domestic – one operator in one part of a country
- 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

NOTE 2 Some mail flows between postal operators may not meet the technical requirements in this standard to qualify as fields of study

3.28
frequency
the number of occurrences of a given type of event or the number of observations falling into a specified class [ISO 3534-1]

3.29
geographical coverage
spread of postal services within a pre-defined geographical area

3.30
independent performance monitoring organisation
body charged with the monitoring of the QoS 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 thus monitored

3.31
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]

3.32
induction
deposition of mail into the postal network

3.33
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 and ISO 3534-2]

3.34
metered mail
mail franked by franking machines

3.35
national and regional holiday
day with limited postal collection or delivery activities

3.36
observed value
value of a characteristic obtained as the result of a single observation [ISO 3534-1]

3.37
office of exchange
place where a postal operator accepts cross-border mail from a postal operator of another country

3.38
on-time performance
proportion of postal items within a given period of time *t* with transit times meeting the specification

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

3.39
on-time probability
probability of the event that the transit time T of a mail item meets the specification *s*, i.e. does not exceed the specified number *s* of days:

$\Pr(T \le s)$

3.40
performance indicator
expression derived from postal transit time statistics and data used to characterise the performance of a postal operator

3.41
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 may be different for outbound and inbound mail, or for different fields of study

3.42
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

3.43
postal service
services involving the clearance, sorting, transport and delivery of postal items

3.44
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

3.45
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]

3.46
quality
totality of characteristics of an entity that bear on its ability to satisfy stated and implied needs [EN ISO 9000]

3.47
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]

3.48
quality control
operational techniques and activities that are used to fulfil requirements for quality [EN ISO 9000 and ISO 3534-2]

3.49
quality evaluation
systematic examination of the extent to which an entity is capable of fulfilling specified requirements [EN ISO 9000]

3.50
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

3.51
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]

3.52
real mail
postal items sent by customers

3.53
real mail flow
number and types of postal items distributed end-to-end by postal operators

3.54
real mail study
studies on real mail flows or real mail characteristics

3.55
rural
cities and communes with less than a specified number of inhabitants

3.56
sample
one or more sampling units taken from a population and intended to provide information on the population [ISO 3534-1]

3.57
service standard
standard that specifies requirements to be fulfilled by a service, to establish its fitness for purpose

3.58
single piece mail
postal items posted and distributed individually

3.59
sorting centre
place where the main sorting of mail is done

3.60
stamped mail
postal items paid for with postage stamps

3.61
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].

3.62
stratification
division of a population into mutually exclusive and exhaustive subpopulations (called strata) which are thought to be more homogeneous with respect to the characteristics investigated than the total population [ISO 3534-1]

3.63
study domain
subpopulations for which separate results can be appropriate

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

3.64
test item
postal item produced in the test measurement system for the purpose of measuring real mail performances. Test items shall be representative of real mail

3.65
test period
period of time under which measurement has been carried out and for which the results are presented in a separate test report

3.66
time of delivery
time when a postal item is delivered at its delivery point

3.67
transit time
number of days elapsed between induction and delivery of mail item as calculated in 4.2.3

3.68
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

3.69
urban
cities, including their outskirts, with not less than a specified number of inhabitants

3.70
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]

3.71
weight
value to compensate for the difference between the distribution of characteristics in the measurement system compared to real mail

4 Transit time as a quality of service indicator

4.1 General

The system for measuring the distribution of the end-to-end transit time of mail items shall be robust and shall give statistical measures at a defined level of accuracy.

All measurements shall refer to the end-to-end transit time.

The sample design shall be representative of real mail flows.

The measuring system shall provide one annual figure for each relevant field of study [A1] using a test period of 1, 2 or 3 years according to Annex F.

NOTE For cross border mail flows in categories 2 or 3 according to Annex F it will take 2 or 3 years, respectively to reach the required accuracy for the particular size of mail flow [A1].

The measuring methodology shall be objective and shall be audited.

There shall be consistency between cross-border and domestic measuring methods.

If the field of study is composed of several study domains, it is the overall quality of service measurement for the field that shall comply with the requirements of this European Standard.

The field of study shall be used consistently throughout the measuring.

[A1] A field of study shall not be modified during a yearly test period or over the full period of the years needed for full accuracy. [A1]

If for a field of study an operator is defined as one operator or a group of co-operating operators, this group should be used consistently.

When the field of study is a group of countries, this group should be used consistently in the measurement.

4.2 Calculation and presentation of transit time

4.2.1 Measurement unit

The transit time of a postal item shall be measured in units of days and expressed as (J + n) days. J is the date of deposit provided posting takes place before the published last collection time at the point of induction of the mail.

4.2.2 Continuity of measurement

The measurement system shall be continuous. It shall cover all months, weeks and days of the year in accordance with the definition of the measurement unit. All periods of the year shall be included as well as Christmas, Easter and summer holiday periods.

Non-functioning of the postal operator and days of strikes or industrial disputes shall not be discounted. However in case of “force majeure” events, deduction of corresponding period may be considered in agreement with the national regulatory authority, and shall be indicated in the reporting.

Test items shall be posted on all seven days of the week, in proportion to real mail. Either Saturday or Sunday posting can be excluded if there is no collection by the operator on these days.

[A1] In the cross-border case it shall be continuous for a field of study over the full period of the years needed for full accuracy. This does not necessarily mean that for cross-border mail flows all dates in a year need to be covered. For example, it may be sufficient to select three out of five possible induction days randomly or according to a systematic rotation plan in each week of the year. [A1]

4.2.3 Calculation of the transit time

For the purpose of this European Standard, transit times for domestic and cross-border mail shall be calculated according to a five-day working week calculation rule; whereby Saturdays, Sundays, and national holidays in the country of delivery are subtracted, in accordance with B.1.

For domestic mail, the transit times may, in addition, be calculated according to the weekend collection and delivery pattern provided, in accordance with one of the calculation rules of B.2, if required by the national regulatory authority.

Test mail items with imprecise dates of deposit or delivery shall always be excluded from the calculations.

Published regional holidays may be subtracted in the calculation of transit time, by agreement with the national regulatory authority.

For purposes other than this European Standard, the operator can apply any other calculation rule. In this case no references shall be made to this European Standard.

4.2.4 Service performance indicators

The following indicators shall be used in the presentation of the service performance result:

4.2.4.1 On-time performance

The percentage of postal items delivered within the defined service standard. The result shall be presented as the percentage of postal items arriving by $J + n$, whereby J represents the day of deposit and n the number of qualifying days for the service standard.

All reports shall state the level of on-time performance accuracy achieved in the test period.

4.2.4.2 Cumulative distribution of delivery days

The cumulative percentage of mail delivered within a given period, from $J + 1$ to $J + 10$. All postal items delivered up to $J + 30$ shall be considered in the calculations. Postal items not delivered by $J + 30$ can be excluded.

5 Methodology

5.1 General

The methodology shall be based on test mail representative of the real mail and shall provide indicators that are representative of the real mail transit time quality of service in the period measured.

The test mail method shall consist of a process in which panellists acting as senders post test items into the postal operators' mail network and register date and time of posting, to the destination of panellists acting as receivers who register the day of delivery.

The use of test items shall allow for precise end-to-end measurement. These test items may - but do not have to - contain electronic chips or other advanced technology that can be monitored throughout the whole journey of each test item to allow for more detailed diagnostic analysis of the transit time. The organisation operating the measuring system shall take steps to ensure that the diagnostic system does not introduce biases in the end-to-end measurement system.

Senders and receivers shall be spread all over the field of study in order to fulfil the specifications of stratification and geographical coverage. The sending and receiving process shall be organised in order to fulfil the specifications of the sample design and the test mail shall be manufactured in order to fulfil the specifications of mail characteristics.

The panel of senders and receivers shall be independent of postal service operators and shall be managed according to the International Chamber of Commerce / ESOMAR International Code of Marketing and Social Research Practice including its attachment. Measurement shall be carried out by an independent performance-monitoring organisation.

5.2 Representative sample design

The sample design shall be representative of the postal flows and of the discriminant characteristics of the real mail. This can be realised either by a strict proportionality of the test mail flows with respect to the real mail flows, or by an over-representation or an under-representation of some strata or flows, in return for weighting a posteriori, allowing to restore the proportionality.