

DIN EN 13850:2013-04 (E)

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

Contents		Page
Foreword		6
0	Introduction	7
0.1	General	7
0.2	Regulatory background	7
1	Scope	8
2	Normative references	8
3	Terms and definitions	9
4	Symbols and abbreviations	15
5	Transit time as a Quality-of-Service indicator	16
5.1	General	16
5.2	Transit time calculation	17
5.2.1	Measurement unit	17
5.2.2	Continuity of measurement	17
5.2.3	Calculation of the transit time	17
5.3	Service performance indicators	18
6	Methodology	18
6.1	Representative sample design	18
6.2	Minimum Sample Size (MSS)	19
6.2.1	Domestic measurement systems	19
6.2.2	Cross-border measurement systems	19
6.3	Determination of the design basis	20
6.3.1	General	20
6.3.2	Estimation of real mail flows	20
6.3.3	Design basis	21
6.4	Discriminant Mail Characteristics (DMC)	21
6.4.1	General	21
6.4.2	Determination of the discriminant mail characteristics	21
6.4.3	Geographical stratification	22
6.5	Geographical distribution of the panel	23
6.5.1	General	23
6.5.2	Small panels up to 90 panellists	23
6.5.3	Bigger panels over 90 panellists	24
6.6	Integrity of the measurement	25
6.7	Unbiased sample design	26
7	Report	26
7.1	Measurement results	26
7.2	Estimators	27
7.2.1	Accuracy	27
7.2.2	Panel turnover in relation to accuracy	27
7.3	Weighting of the results	28
7.3.1	Reasons for implementing a weighting system	28
7.3.2	Weighting caps	28
7.3.3	Design changes due to annual mail characteristic and postal flow changes	29

7.4	Content and timing	29
8	Quality control and auditing	30
9	The annexes	31
Annex A (normative) Accuracy calculation		32
A.1	Scope	32
A.1.1	General	32
A.1.2	Two stage sampling approach	32
A.1.3	Covariance / Stratification / Accuracy calculation	32
A.1.4	The design factor	32
A.2	Symbols	33
A.3	Variance calculation for one stratum	33
A.3.1	General calculation method	33
A.3.2	Relation-to-total variation	34
A.3.3	Intra-relation variation	34
A.4	Variance calculation for a stratified sample	35
A.4.1	Variance of a weighted sample design	35
A.4.2	Final weight of the individual item	35
A.4.3	Weighting basis	36
A.4.4	Combination of weighting and covariance	36
A.5	Calculation of the confidence interval	37
A.5.1	General	37
A.5.2	Normal approximation	37
A.5.3	Agresti-Coull approximation	39
A.5.4	Inverse Beta approximation	40
Annex B (normative) Transit Time Calculation Rule		41
B.1	Working week transit time calculation rule / domestic and cross-border mail	41
B.2	Calculation rules	42
B.2.1	Rule 1: Collection Monday-Friday / Delivery Monday-Friday	42
B.2.2	Rule 2: Collection Monday-Friday / Delivery Tuesday-Saturday	43
B.2.3	Rule 3: Collection Monday-Friday / Delivery Monday-Saturday	44
B.2.4	Rule 4: Collection Monday-Saturday / Delivery Monday-Friday	45
B.2.5	Rule 5: Collection Sunday-Friday / Delivery Monday-Friday	46
B.2.6	Rule 6: Collection Monday-Saturday / Delivery Monday-Saturday	47
B.2.7	Rule 7: Collection Sunday-Friday / Delivery Monday-Saturday	48
Annex C (normative) Quality control and auditing		49
C.1	Quality Control	49
C.1.1	Statistical design	49
C.1.2	Test item production	49
C.1.3	Provision of test items to the sender panellists	49
C.1.4	Sending test items	50
C.1.5	Receiving test items	50
C.1.6	Data collection	50
C.1.7	Data analysis and reporting	50
C.1.8	Archiving	51
C.1.9	Quality control and Information Technology (IT)	51
C.2	Auditing - general remarks	51
C.3	Audit of the design basis	52
C.3.1	General	52
C.3.2	Methodological audit	52
C.3.3	Results	52
C.4	Audit of the Quality-of-Service measurement system	53
C.4.1	Panel audit	53
C.4.2	Stability of the parameters	53
C.4.3	Instructions given to the panellists	53

C.4.4	General Audit of the system	53
Annex D (normative) Relaxation related to flows with small real mail volumes		54
D.1	General	54
D.1.1	Scope	54
D.1.2	Measurement period	54
D.1.3	Minimum Sample Size (MSS)	54
D.2	Domestic mail flows	55
D.3	Cross-border mail flows	56
Annex E (informative) Purpose of postal Quality of Service standards		58
E.1	General	58
E.2	Benefits of QoS standards	58
E.3	Use of the survey results for quality improvement	59
E.3.1	Detailed analysis	59
E.3.2	Other / broader concepts	59
F.2	Responsibilities	60
F.2.1	General	60
F.2.2	Regulatory authority	61
F.2.3	Postal operator	61
F.2.4	Independent Performance monitoring organisation	62
F.2.5	Auditor	62
F.3	Design of the measurement system	63
F.3.1	Design parameters	63
F.3.2	Field of study	64
F.3.3	Geographical coverage	65
F.3.4	Design requirements due to national peculiarities	66
F.4	Small mail volumes	66
F.4.1	General	66
F.4.2	Domestic	66
F.4.3	Cross border	66
F.5	Measurement organisation	67
F.5.1	Role of the contractor	67
F.5.2	Independence	67
F.5.3	Tender process	67
Annex G (informative) Design basis		68
G.1	Discriminant characteristics	68
G.1.1	Representative sample design	68
G.1.2	Studies for the evaluation of possible candidates	69
G.1.3	Connection between Design Basis and Sample Design	71
G.2	Design basis	72
G.2.1	Real mail studies for domestic mail	72
G.2.2	Real mail studies for cross border mail	75
G.2.3	Alternative design bases	75
G.3	Frequency of update	76
H.1	Stages of the survey	77
H.1.1	Preparation	77
H.1.2	Set-up	77
H.1.3	Pilot (testing phase)	77
H.1.4	Faster implementation	78
H.1.5	Measurement period	78
H.2	Panellists	79
H.2.1	Representativeness	79
H.2.2	Risk of panellist identification	79
H.2.3	Induction and delivery	80
H.2.4	Panel turnover	82

H.3	Validation and transit time calculation	82
H.3.1	Data validation	82
H.3.2	Service standard	84
H.3.3	Transit-time calculation rule	85
H.3.4	Loss	86
H.3.5	Force majeure	86
H.4	Weighting	88
H.4.1	Weighting and stratification	88
H.4.2	Weighting caps	93
H.5	Reporting of results	95
H.5.1	Reporting	95
H.5.2	Archiving	97
H.6	Audit	98
H.6.1	General	98
H.6.2	Position of the auditor	98
H.6.3	Audit report	98
H.6.4	Selection of the auditor	99
H.6.5	Frequency of audit	99
H.7	Implementation timetables	99
Annex I (informative) Application of the accuracy calculation		103
I.1	Limitations of the accuracy calculation methods provided	103
I.1.1	Participants with high mail loads	103
I.1.2	Disproportional models beyond the capping system	103
I.2	Recommendations for the application of the rules	104
I.2.1	Unstratified end-to-end sample	104
I.2.2	Stratified simple random sample	104
I.2.3	Approximation of the Binomial distribution	105
I.2.4	Accuracy	105
I.2.5	Accuracy application	105
I.3	The sample size	107
I.4	General Example for a national yearly result	107
I.4.1	Introduction	107
I.4.2	Design factor for an unstratified end-to-end sample	109
I.4.3	Design factor for a stratified random sample	110
I.4.4	Accuracy calculation	111
I.5	Simplified scenarios	113
I.5.1	General	113
I.5.2	Transit time results up to 96 %	113
I.5.3	Fully proportional sample	113
I.5.4	Single induction / delivery point	114
I.5.5	Induction / delivery point with only one letter	114
J.1	Methodology	115
J.1.1	Accuracy and Minimum Sample Size (MSS)	115
J.1.2	MSS for flows with small real mail volumes	115
J.2	Transit-time calculation rule	116
J.3	Accuracy calculation method	116
J.3.1	Improved applicability	116
J.3.2	Reduced bias in calculation	116