ORGANISATION INTERNATIONALE

DE MÉTROLOGIE LÉGALE

OIML

INTERNATIONAL RECOMMENDATION

Automatic catchweighing instruments
Part 2: Test report format

Instruments de pesage trieurs-étiqueteurs à fonctionnement automatique
Partie 2: Format du rapport d'essai

OIML R 51-2

Edition 1996 (E)

CONTENTS

FOREWORD

The International Organization of Legal Metrology (OIML) is a worldwide, intergovernmental organization whose primary aim is to harmonize the regulations and metrological controls applied by the national metrological services, or related organizations, of its Member States.

The two main categories of OIML publications are:

1) **International Recommendations (OIML R)**, which are model regulations that establish the metrological characteristics required of certain measuring instruments and which specify methods and equipment for checking their conformity; the OIML Member States shall implement these Recommendations to the greatest possible extent;

2) **International Documents (OIML D)**, which are informative in nature and intended to improve the work of the metrological services.

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INTRODUCTION

This "test report format" aims at presenting, in a standardized format, the results of the various tests and examinations to which a pattern of an automatic catchweighing instrument shall be submitted with a view to its approval.

The test report format consists of two parts, a "checklist" and the "test report" itself.

The checklist is a summary of the examinations carried out on the instrument. It includes the conclusions of the results of the test performed, experimental or visual checks based on the requirements of Part 1. The words or condensed sentences aim at reminding the examiner of the requirements in R 51-1 without reproducing them.

The test report is a record of the results of the tests carried out on the instrument. The "test report" forms have been produced based on the tests detailed in R 51-1.

All metrology services or laboratories evaluating patterns of automatic catchweighing instruments accordingly to R 51 or to national or regional regulations based on this OIML Recommendation are strongly advised to use this test report format, directly or after translation into a language other than English or French. Its direct use in English or in French, or in both languages, is even more strongly recommended whenever test results may be transmitted by the country performing these tests to the approving authorities of another country, under bi- or multilateral cooperation agreements. In the framework of the *OIML Certificate System for measuring instruments*, use of this test report format is mandatory.

The "information concerning the test equipment used for pattern evaluation" shall cover all test equipment which has been used in determining the test results given in a report. The information may be a short list containing only essential data (name, type, reference number for purpose of traceability). For example:

- Verification standards (accuracy, or accuracy class, and No.)
- Simulator for testing of modules (name, type, traceability and No.)
- Climatic test and static temperature chamber (name, type and No.)
- Electrical tests, bursts (name of the instrument, type and No.)
- Description of the procedure of field calibration for the test of immunity to radiated electromagnetic fields

Note concerning the numbering of the following pages

In addition to a sequential numbering: "R 51-2 page .." at the bottom of the pages of this publication, a special place is left at the top of each page (starting with the following page) for numbering the pages of reports established following this model; in particular, some tests (e.g. metrological performance tests) shall be repeated several times, each test being reported individually on a separate page following the relevant format; in the same way, a multiple range instrument shall be tested separately for each range and a separate form (including the general information form) shall be filled out for each range. For a given report, it is advisable to complete the sequential numbering of each page by the indication of the total number of pages of the report.

IDENTIFICATION OF THE INSTRUMENT

Application No: ....

Report date: ....

Pattern designation: ....

Manufacturer: ....

Serial No: ....

Manufacturing Documentation

(Record as necessary to identify the equipment under test)

System or module name	Drawing number or software reference	Issue level	Serial No.
....	....	....	....
....	....	....	....
....	....	....	....
....	....	....	....
....	....	....	....
....	....	....	....
....	....	....	....

Simulator documentation

System or module name	Drawing number or software reference	Issue level	Serial No.
....	....	....	....
....	....	....	....
....	....	....	....

Simulator function (summary)

Simulator description and drawings, block diagram etc should be attached to the report if available.

IDENTIFICATION OF THE INSTRUMENT (continued)

Application No: ....

Report date: ....

Pattern designation: ....

Manufacturer: ....

Description or other information pertaining to identification of the instrument:
(attach photograph here if available)

GENERAL INFORMATION CONCERNING THE PATTERN

Application No: ....

Pattern designation: ....

Manufacturer: ....

Applicant: ....

Instrument category: ....

Testing on:

☐ Complete instrument   ☐ Module(*)

Accuracy class | X ( ) | | Y ( ) |

Minimum capacity | | Maximum capacity | |

$T = +$ [ ] $T = -$ [ ] $e =$ [ ]

$U_{nom}(**) =$ [ ] V $U_{min} =$ [ ] V $U_{max} =$ [ ] V $f =$ [ ] Hz   Battery, $U =$ [ ] V

Zero-setting device:

☐ Nonautomatic

☐ Semi-automatic

☐ Automatic zero-setting

☐ Initial zero-setting

Initial zero-setting range [ ] %   Temperature range [ ] °C

Zero-tracking device: ....

Printer: ☐ Built in   ☐ Connected   ☐ Not present but connectable   ☐ No Connection

_____

(*)   The test equipment (simulator or part of a complete instrument) connected to the module shall be defined in the test form(s) used.

(**)   The voltage U_{nom} shall be as defined at IEC 1000-4-11 (1994) section 5.

GENERAL INFORMATION CONCERNING THE PATTERN (continued)

Instrument submitted:	....	Loadcell:	....
Identification No:	....	Manufacturer:	....
Connected equipment:	....	Type:	....
Remarks:		Capacity:	....
		Number:	....
Interfaces: (number, nature)	....	Classification symbol:	....
Remarks:	see following page		
Date of report:	....	Evaluation period:	....
Observer:	....		

GENERAL INFORMATION CONCERNING THE PATTERN (continued)

Use this space to indicate additional remarks and/or information: other connected equipment, interfaces and load cells, choice of the manufacturer regarding protection against disturbances, etc.

SUMMARY OF PATTERN EVALUATION & CHECKLIST

	Passed	Failed
The "SUMMARY OF PATTERN EVALUATION" and the "CHECKLIST" shall be completed according to this example:		
when the instrument has passed the test:	X	
when the instrument has failed the test:		X
when the test is not applicable:	/	/

SUMMARY OF PATTERN EVALUATION

Requirements:	Passed	Failed	Remarks
Metrological requirements			
Technical requirements			
Requirements for electronic instruments			
Metrological controls			
Test Report			
OVERALL RESULT			

Use this space to detail remarks from the summary of the pattern evaluation.

SUMMARY OF PATTERN EVALUATION (continued)

Use this page to detail remarks from the summary of the pattern evaluation.

Application No:	....

Pattern designation:	....

Requirement (R 51-1)	Test procedure	Catchweigher checklist	Passed	Failed	Remarks
2		Metrological requirements			
2.2		Maximum permissible errors for Class X( )			
	A.6.1.1	Maximum permissible mean (systematic) error for automatic operation			
	A.6.1.1	Maximum permissible standard deviation of errors for automatic operation			
2.3	A.6.1.1	Maximum permissible errors for Class Y(a) and Y(b)			
2.4		Maximum and minimum capacities			
		Maximum capacity			
		Minimum capacity			
2.5		Maximum permissible errors for influence factor tests			
2.5.1	A.6.1.1	Class X(x) automatic operation			
	A.6.1.2	Class X(x) static weighing			
2.5.2	A.6.1.1	Class Y(y) automatic operation			
	A.6.1.2	Class Y(y) static weighing			
2.6		Indication or printout of weight for test purposes			
		For Class X( ) scale interval e, is not greater than appropriate limit for Table 2			
		For Class X( ) alternative means are used to comply with Tables 1 and 2			
		For Class Y( ) practical means provided for demonstrating compliance with Table 1 and Table 3			
2.7		Units of measurement: t, kg, g or mg			
2.8	A.6.7	Effect of eccentric loading			
		Maximum permissible errors in 2.5 are not exceeded			
2.9		Influence factors			
2.9.1	A.7.1	Static temperature tests			
	A.7.2	Temperature effect on no load indication			
2.9.2	A.7.4	Power voltage variation			
2.9.3	A.7.5	Tilting			
	A.7.5	Instruments not permanently installed no level indicator			
		Instruments not permanently installed with level indicator, can be set to 1 % or less			
3		Technical Requirements			
3.1	A.3.3	Suitability for use			
		Instrument suits the method of operation and the loads for which it is intended			

Requirement (R 51-1)	Test procedure	Catchweigher checklist	Passed	Failed	Remarks
3.1 cont.	A.3.3 cont.	Robust construction			
3.2	A.3.4	Security of operation			
3.2.1		Accidental maladjustment			
		Effect of accidental breakdown or maladjustment is evident			
3.2.2		Static adjustment			
		External influence on this device is practically impossible after securing			
3.2.3		Dynamic setting			
		Maximum permissible errors are not exceeded			
		Operation inhibited outside range where permissible errors not exceeded			
		Means available to automatically record access to setting facility or, for Class X( ) a static span adjustment device that can be sealed			
3.2.4	A.3.5	Controls			
		Come to rest in intended positions			
		Unambiguously marked keys			
3.3		Zeroing and tare devices			
3.3.1	A.6.4	Zero-setting			
	A.6.4.2	Range of adjustment not greater than 4 % Max			
		Automatic zero-setting operates only when:			
	A.6.5	Stability criteria are fulfilled			
	A.6.4.3	Sets zero to within 0.25 e			
	A.6.5	At a frequency such that the zero is maintained within 0.5 e			
		Nonautomatic zero-setting device is not operable during automatic operation			
		Semi-automatic zero-setting device functions only when stability criteria are fulfilled			
3.3.2		Zero-tracking device operates only when:			
		Indication is at zero, or at a negative net zero value equivalent to gross zero			
		Stability criteria are fulfilled			
		Corrections are not more than 0.5 e/second			
		When zero is indicated after a tare operation, zero-tracking may operate within a range of 4 % of Max around actual zero value			
3.3.3	A.6.6	Tare device			
		Has accuracy better than ± 0.25 e			
		Operation is clearly visible			
		Is independent of the zero-setting function			
		Scale interval is same as that of instrument			
		Operates only when stability criteria are fulfilled			

Requirement (R 51-1)	Test procedure	Catchweigher checklist	Passed	Failed	Remarks
3.3.3 cont.	A.6.6 cont.	Not operable during automatic operation			
3.3.4	A.6.6.2	Preset tare device			
		Resolution better than e, in which case the instrument is inhibited from automatically modifying the entered value to correspond with the verification scale interval			
		Tare weight values are clearly designated when indicated or printed			
		Clearly indicated and identified at least temporarily			
3.4	A.3.6	Indication of weighing results			
3.4.1		Quality of reading			
		Reliable, easy and unambiguous			
		Overall inaccuracy of an analogue device shall not exceed 0.2 e			
		Figures forming the results shall be of a size, shape and clarity for reading to be easy			
		Scales, numbering and printing shall permit the figures to be read by simple juxtaposition			
3.4.2		Form of the indication			
		Results contain names and symbols of the units of mass			
		Scale interval in the form 1×10^k, 2×10^k or 5×10^k units (k being a positive or negative whole number or zero)			
		Digital indication displays at least one figure beginning at extreme right			
		Decimal sign used to separate integer and decimal fraction			
3.4.3		Zero may be displayed by one zero to the extreme right without a decimal sign			
		Unit of mass is such that there is not more than one non-significant zero to the right			
		Limits of indication			
		For Class X( ) instruments: no indication above Max + 9 e or Max + 3 times the mps as specified in Table 2, whichever is the greater			
		For Class Y( ) instruments: no indication above Max + 9 e			
3.4.4		Indication or printout of weight for normal operation			
		Scale interval of indications or printouts is not less than the verification scale interval e			
3.5		Printing device			
		Clear and permanent			
		At least 2 mm high			
		Name or symbol of unit is to the right of the value or above a column of values			
		Printing below minimum capacity is not possible			

Requirement (R 51-1)	Test procedure	Catchweigher checklist	Passed	Failed	Remarks
3.5 cont.		The same data is not able to be printed twice on the ticket or label			
3.6	A.3.7	Price computing instrument			
		Price is calculated and rounded to the nearest scale interval of price to pay			
		The interval of price to pay, and the monetary symbols complies with national regulations			
		Unit price is either Price/100 g or Price/kg			
3.7	A.3.8	Weigh or weigh-price labelling instruments			
		At least one display for the weight			
		Actual values of unit price can be verified during automatic operation			
		Actual values of preset tare can be verified during automatic operation			
		Total values of totalised weight and price data are identified by a special word or symbol and are algebraic sums of all the values printed			
3.8	A.3.2	Descriptive markings			
3.8.1		Markings shown in full:			
		Identification mark of the manufacturer			
		Identification mark of the importer (if applicable)			
		Serial number and type designation of the instrument			
		Maximum rate of operation			
		Maximum speed of load transport system (if applicable)			
		Electrical supply voltage			
		Electrical supply frequency			
		Working fluid pressure (if applicable)			
		Adjustment range (referred to set point) (if applicable)			
3.8.2		Markings shown in code:			
		Pattern approval sign			
		Indication of the class of accuracy X( ) or Y( )			
		Verification scale interval			
		Scale interval			
		Maximum capacity			
		Minimum capacity			
		Maximum tare additive			
		Maximum tare subtractive			
3.8.3		Supplementary markings			
		Are required	enter in remarks		
3.8.4		Presentation of descriptive markings			
		Indelible			
		Size, shape and clarity that allows easy reading			

Requirement (R 51-1)	Test procedure	Catchweigher checklist	Passed	Failed	Remarks
3.8.4 cont.		Grouped together in a clearly visible place			
		Shown on a programmable display, access automatically and non-erasably recorded			
		Plate to contain type, designation of instrument, manufacturer, pattern approval number, electrical supply voltage, electrical supply frequency, pneumatic pressure			
3.9		Verification marks			
3.9.1		Position			
		Place where verification marks are located cannot be removed without damaging the marks			
		Allows easy application of marks			
		Visible without the instrument or its protective covers having to be removed			
3.9.2		Mounting			
		Verification mark support to ensure conservation of the marks			
		Support is of the correct construction			
4		REQUIREMENTS FOR ELECTRONIC INSTRUMENTS			
4.1		General requirements			
4.1.1		Rated operated conditions			
		Maximum permissible errors are not exceeded			
4.1.2		Influence factors			
	A.6.7	Complies with the requirements of 2.8			
	A.7.3	Damp heat steady state			
4.1.3	A.8	Disturbances			
	A.8.1	Short time power reduction			
	A.8.2	Electrical bursts			
	A.8.3	Electrostatic discharge			
	A.8.4	Electromagnetic susceptibility			
4.1.4		Evaluation for compliance			
		Complies with specified requirements			
4.2		Functional requirements			
4.2.1		Switch on procedure / indicator test			
4.2.2		Acting upon a significant fault			
		Either the instrument is made inoperative automatically, or			
		A visual or audible indication is provided automatically and continues until the user takes action or the fault disappears			
4.2.3	A.6.2	Warm-up time			
		No indication or transmission of weighing results			
		Automatic operation is inhibited			
		During first 30 minutes of operation:			
		zero error			
		span error			

Requirement (R 51-1)	Test procedure	Catchweigher checklist	Passed	Failed	Remarks
4.2.4		Interface:			
		Instrument continues to function correctly when interfaces are used.			
		Metrological functions are not influenced			
4.2.5		Battery power supply			
		Continues to function correctly whenever the voltage drops below the manufacturers specified minimum value, or			
		Is automatically put out of service			
4.3		Examination and tests			
4.3.1		Examinations:			
		General appraisal of design and construction			
4.3.2		Instrument meets the requirements of the following tests:			
	A.7.1	Static temperatures			
	A.7.2	Temperature effect on no load indication			
	A.7.3	Damp heat, steady state			
	A.7.4	Power voltage variations			
	A.7.5	Tilting			
	A.8.1	Short time power reduction			
	A.8.2	Bursts			
	A.8.3	Electrostatic discharge			
	A.8.4	Electromagnetic susceptibility			
4.3.3	A.9	Span stability			
		Performance tests and span stability			
4.3.4		Continually updated weight indication			
		Is present when it is not possible for the instrument to be fully operational during the influence factor tests			
5		METROLOGICAL CONTROLS			
5.2		Pattern approval			
5.2.1		Documentation includes:			
		Metrological characteristics of the instrument			
		A standard set of specifications for the instrument			
		A functional description of the components and devices			
		Drawings, diagrams and general software information (if applicable), explaining the construction and operation, and			
		Any document or other evidence that the design and construction of the instrument complies with the requirements of the recommendation			

Requirement (R 51-1)	Test procedure	Catchweigher checklist	Passed	Failed	Remarks
5.2.3.1		Operational tests carried out as follows:			
		In accordance with the descriptive markings (subclause 3.8) under the normal conditions of use for which the instrument is intended, and			
		In accordance with the test methods in clause 6			
5.3		Initial verification and in-service inspection			
5.3.1		Tests			
		Are carried out to verify compliance with the requirements in clause 2 (excluding 2.8) and clause 3 (where applicable)			
6		TEST METHODS			
6.5	A.6.1.2	Static test loads for approval testing			
6.5.3		Influence factor testing			
	A.4.4	Use of static test loads in nonautomatic mode for influence factor testing			
	A.6.1.2	Instrument weighs statically in normal operation			
	A.6.1.2	Random errors not significant in normal operation			
	A.6.1.2	Influence factor tests done in non-auto mode			

Use this space to detail remarks from the checklist

Use this page to detail remarks from the checklist (continued)

INFORMATION CONCERNING THE TEST EQUIPMENT USED FOR PATTERN EVALUATION

TEST EQUIPMENT

Application No: ....

Report date: ....

Pattern designation: ....

Manufacturer: ....

List all test equipment used in this report

Equipment name	Manufacturer	Type No	Serial No:	Used for: (test references)
....	....	....	....	
....	....	....	....	
....	....	....	....	

CONFIGURATION FOR TEST

Application No: ....

Report date: ....

Pattern designation: ....

Manufacturer: ....

Use this space for additional information relating to equipment configuration, interfaces, data rates, load cells EMC protection options etc, for the instrument and/or simulator.

EXPLANATORY NOTES

Meaning of symbols:

I   =   Indication
I_n = n^{th} indication
L   =   Load
ΔL   =   Additional load to next changeover point
P   = $I + ½ e - ΔL$ = Indication prior to rounding (digital indication)
E   = $I - L$ or $P - L$ = Error
mpme   =   Maximum permissible mean (systematic) error for automatic operation
mps   =   Maximum permissible standard deviation of the error for automatic operation
mpe   =   Maximum permissible error
EUT   =   Equipment under test

The name(s) or symbol(s) of the unit(s) used to express test results shall be specified in each form.

The white spaces in boxes in the headings of the report should always be filled according to the following example:

	At start	At end	
Temp:	20.5	21.1	°C
Rel. h:			%
Date:	96:01:29	96:01:30	yy:mm:dd
Time:	16:00:05	16:30:25	hh:mm:ss

where:
Temp   = temperature
Rel. h   = relative humidity

"Date" in the test reports refers to the date that the test was performed.

In the disturbance tests, faults greater than e are acceptable provided that they are detected and acted upon, or that they result from circumstances such that these faults shall not be considered as significant; an appropriate explanation shall be given in the column "Yes (remarks)".

Section numbers in brackets refer to the corresponding subclauses of R 51-1.

SUMMARY OF TEST REPORT

Application No: ....

Pattern designation: ....

	Tests	Test Completed	Report page
1	Warm-up time test		
2	Dynamic setting		
3	Zero-setting		
4	Tare		
5	Eccentric loading		
6	Speed of operation		
7	Influence factors		
7.1	Pre-test for instruments that weigh statically		
7.2	Static temperatures		
7.3	Temperature effect on no load indication		
7.4	Damp heat, steady state		
7.5	Power voltage variation		
7.6	Tilting		
8	Disturbances		
8.1	Short time power reductions		
8.2	Electrical bursts		
8.3	Electrostatic discharges		
8.4	Electromagnetic susceptibility		
9	Span stability		

Note: A "sample test report" sheet for including weight indication for each pass of load (up to 60 passes) is included at the end of this document. These sheets are not included in each section as they are not required for all instrument types.

1 WARM-UP TIME (4.2.3, A.6.2)

Application No: ....

Pattern designation: ....

Observer: ....

	At start	At end	
Temp:			°C
Rel. h:			%
Date:			yy:mm:dd
Time:			hh:mm:ss

Verification
scale interval e: ....

Resolution during test
(smaller than e): ....

Duration of disconnection
before test: ....

Automatic zero-setting and zero-tracking device is:

☐ Non-existent   ☐ Not in operation   ☐ Out of working range   ☐ In operation

$E = I + \frac{1}{2} e - \Delta L - L$
E_0 = error calculated at zero or near zero (unloaded)
E_L = error calculated at load (loaded)

	time (*)	Load L	Indication I	Add load ΔL	Error	$E_L - E_0$
Unloaded	0 min				$E_{0I}=$	
Loaded					$E_L=$	
Unloaded	5 min				$E_0=$	
Loaded					$E_L=$	
Unloaded	15 min				$E_0=$	
Loaded					$E_L=$	
Unloaded	30 min				$E_0=$	
Loaded					$E_L=$	

(*) Counted from the moment an indication has first appeared.

Initial zero-setting error	E_{0I}	
Maximum value of error unloaded	E_0	
Maximum value of error loaded	$E_L - E_0$	

Remarks:

2 RANGE OF DYNAMIC SETTING (3.2.3, A.6.3)

Application No: ....

Pattern designation: ....

Observer: ....

	At start	At end	
Temp:			°C
Rel. h:			%
Date:			yy:mm:dd
Time:			hh:mm:ss

Verification
 scale interval e: ....

Resolution during test
(smaller than e): ....

Load nominal value: ....

Load setting range min value: ....

          max value: ....

Rate of operation (max): ....

INSIDE SET RANGE

LOAD VALUE	NUMBER OF PASSES	MEAN $\overline{x}$	STANDARD DEVIATION (s)
Min			
Max			

OUTSIDE SET RANGE

LOAD VALUE	OPERATION INHIBITED	PRINTING INHIBITED
Min		
Max		

Remarks:

3   ZERO-SETTING (3.3.1, A.6.4)

Application No: ....

Pattern designation: ....

Observer: ....

	At start	At end	
Temp:			°C
Rel. h:			%
Date:			yy:mm:dd
Time:			hh:mm:ss

Verification
   scale interval e: ....

Resolution during test
(smaller than e):   ....

3.1   Modes of zero-setting (A.6.4.1)

	PRESENT	RANGE TESTED	ACCURACY TESTED
Nonautomatic			
Semi-automatic			
Auto-zero at switch on			
Auto-zero at start of automatic operation			
Auto-zero as part of weighing cycle			
Auto-zero after fixed interval			

3.2   Range of zero-setting (A.6.4.2)

Positive range L_1		Negative range L_2		Range $L_1 + L_2$	% of Max load
Weight added	Zero yes/no	Weight added	Zero yes/no		

Remarks:

3.3   Accuracy of zero-setting:

3.3.1   Static test method (A.6.4.3.1)

ΔL	$E = \frac{1}{2}\,e - \Delta L$

Remarks:

3.3.2 Dynamic test method (A.6.4.3.2)

Verification scale interval e	
Number of weighings n	60
Mean of the indications $\overline{x}$	
Standard deviation of the indications s	
0.25 e – 0.167 s	

Results confirm $\overline{x} \le (0.25\ e - 0.167\ s)$	
or 0.25 e > $\overline{x}$ > (0.25 e – 0.167 s)	
or $\overline{x}$ > 0.25 e	

FURTHER TEST WITH n > 60

Verification scale interval e	
Number of weighings n	
Mean of the indications $\overline{x}$	
Standard deviation of the indications s	
$0.25\ e - 1.296\ s/\sqrt{n}$	

Results confirm $\overline{x} \le (0.25\ e - 1.296\ s/\sqrt{n}\ )$	
or 0.25 e > $\overline{x}$ > (0.25 e – 1.296 s/$\sqrt{n}$)	
or $\overline{x}$ > 0.25 e	

3.3.3 Alternative dynamic test method

Details of method:

Result for true mean **μ**	

Remarks:

3.4   Stability of zero and frequency of automatic zero-setting (A.6.5)

Approximate maximum interval between automatic zero-setting	

3.4.1   Static test method (A.6.4.3.1)

ΔL	$E = \frac{1}{2}\,e - \Delta L$

Remarks:

3.4.2   Dynamic test method (A.6.4.3.2)

Verification scale interval	e	
Number of weighings	n	60
Mean of the indications	$\overline{x}$	
Standard deviation of the indications	s	
$0.25\,e - 0.167\,s$		

Results confirm $\overline{x} \leq (0.25\,e - 0.167\,s)$	
or $0.25\,e > \overline{x} > (0.25\,e - 0.167\,s)$	
or $\overline{x} > 0.25\,e$	

FURTHER TEST WITH n > 60

Verification scale interval	e	
Number of weighings	n	
Mean of the indications	$\overline{x}$	
Standard deviation of the indications	s	
$0.25\,e - 1.296\,s/\sqrt{n}$		

Results confirm $\overline{x} \leq (0.25\,e - 1.296\,s/\sqrt{n}\ )$	
or $0.25\,e > \overline{x} > (0.25\,e - 1.296\,s/\sqrt{n}\ )$	
or $\overline{x} > 0.25\,e$	

3.4.3   Alternative dynamic test method

        Details of Method: ....

Result for true mean	μ	

Remarks:

3.5   Test of additional zero-setting modes (A.6.4)

Zero-setting mode	

3.5.1   Accuracy of zero-setting (A.6.4.3.1)

Positive range L_1		Negative range L_2		Range $L_1 + L_2$	% of Max load
Weight added	Zero yes/no	Weight added	Zero yes/no		

Remarks:

3.5.2.1 Accuracy of zero-setting: static test method (A.6.4.3.1)

ΔL	$E = \tfrac{1}{2} e - \Delta L$

Remarks:

3.5.2.2 Accuracy of zero-setting: dynamic test method (A.6.4.3.2)

Verification scale interval	e	
Number of weighings	n	60
Mean of the indications	$\bar{x}$	
Standard deviation of the indications	s	
$0.25\,e - 0.167\,s$		

Results confirm $\bar{x} \leq (0.25\,e - 0.167\,s)$	
or $0.25\,e > \bar{x} > (0.25\,e - 0.167\,s)$	
or $\bar{x} > 0.25\,e$	

FURTHER TEST WITH n > 60

Verification scale interval	e	
Number of weighings	n	
Mean of the indications	$\bar{x}$	
Standard deviation of the indications	s	
$0.25\,e - 1.296\,s/\sqrt{n}$		

3.5   Test of additional zero-setting modes (continued)

3.5.2.2 Accuracy of zero-setting (continued)

Results confirm $\overline{x} \leq (0.25\ e - 1.296\ s/\sqrt{n}\ )$	
or $0.25\ e > \overline{x} > (0.25\ e - 1.296\ s/\sqrt{n}\ )$	
or $\overline{x} > 0.25\ e$	

3.5.2.3 Alternative dynamic test method

Details of method:

Result for true mean **μ**	

Remarks:

4   TARE DEVICE (Accuracy) (3.3.3, A.6.6)

Application No: ....

Pattern designation: ....

Observer: ....

	At start	At end	
Temp:			°C
Rel. h:			%
Date:			yy:mm:dd
Time:			hh:mm:ss

Verification
  scale interval e: ....

Resolution during test
(smaller than e):   ....

Automatic zero-setting and zero-tracking device is:

☐ Non-existent   ☐ Not in operation   ☐ Out of working range   ☐ In operation

4.1   Automatic and semi-automatic tare (A.6.6.1)

4.1.1   Accuracy of tare: static test method (A.6.6.1.1)

Tare load	

ΔL	$E = \frac{1}{2}\,e - \Delta L$

Remarks:

4.1.2   Accuracy of tare: dynamic test method (A.6.6.1.2)

Tare load		
Verification scale interval	e	
Number of weighings	n	60
Mean of the indications	$\overline{x}$	
Standard deviation of the indications	s	
$0.25\,e - 0.167\,s$		

4.1.2 Accuracy of tare: dynamic test method (continued)

Results confirm $\overline{x} \le (0.25\ e - 0.167\ s)$	
or $0.25\ e > \overline{x} > (0.25\ e - 0.167\ s)$	
or $\overline{x} > 0.25\ e$	

FURTHER TEST WITH $n > 60$

Verification scale interval	e	
Number of weighings	n	
Mean of the indications	$\overline{x}$	
Standard deviation of the indications	s	
$0.25\ e - 1.296\ s/\sqrt{n}$		

Results confirm $\overline{x} \le (0.25\ e - 1.296\ s/\sqrt{n}\ )$	
or $0.25\ e > \overline{x} > (0.25\ e - 1.296\ s/\sqrt{n}\ )$	
or $\overline{x} > 0.25\ e$	

4.1.3 Alternative dynamic test method

Details of method:

Result for true mean	μ	

4.2 Preset tare (A.6.6.2)

4.2.1 Accuracy of tare: static test method (A.6.6.2)

Tare load	

ΔL	$E = \frac{1}{2}\ e - \Delta L$

Remarks:

4.2.2   Accuracy of tare: dynamic test method (A.6.6.2)

Tare load		
Verification scale interval	e	
Number of weighings	n	60
Mean of the indications	$\bar{x}$	
Standard deviation of the indications	s	
$0.25\,e - 0.167\,s$		

Results confirm $\bar{x} \le (0.25\,e - 0.167\,s)$	
or $0.25\,e > \bar{x} > (0.25\,e - 0.167\,s)$	
or $\bar{x} > 0.25\,e$	

FURTHER TEST WITH n > 60

Verification scale interval	e	
Number of weighings	n	
Mean of the indications	$\bar{x}$	
Standard deviation of the indications	s	
$0.25\,e - 1.296\,s/\sqrt{n}$		

Results confirm $\bar{x} \le (0.25\,e - 1.296\,s/\sqrt{n}\;)$	
or $0.25\,e > \bar{x} > (0.25\,e - 1.296\,s/\sqrt{n}\;)$	
or $\bar{x} > 0.25\,e$	

4.2.3   Alternative dynamic test method

Details of method:

Result for true mean	μ	

5 ECCENTRIC LOADING (2.8, 6.2, A.6.7)

5.1 Eccentric test for instruments that weigh in motion (6.2, A.6.7.1)

Application No: ....

Pattern designation: ....

Observer: ....

	At start	At end	
Temp:			°C
Rel. h:			%
Date:			yy:mm:dd
Time:			hh:mm:ss

Verification
 scale interval e: ....

Resolution during test
(smaller than e): ....

Load ($^1/_3$ Max): ....

Location of test loads for instruments that weigh dynamically:

Band 1   1/2 W   W   Band 2   W   1/2 W

Rate of operation (max): ....

CLASS X( )

Number of weighings	

Position	Mean $\overline{x}$	Standard deviation s
Band 1		
Band 2		

CLASS Y( )

Number of weighings	

Position	Maximum error
Band 1	
Band 2	

5.2   Eccentric test for instruments that weigh statically (6.3, A.6.7.2)

Application No   ....

Pattern designation: ....

Observer: ....

	At start	At end	
Temp:			°C
Rel. h:			%
Date:			yy:mm:dd
Time:			hh:mm:ss

Verification
  scale interval e: ....

Resolution during test
(smaller than e):   ....

Load ($^1/_3$ Max)   ....

```
┌─────┬─────┐
│  b  │  c  │
├──── a ────┤
│  e  │  d  │
└─────┴─────┘
```
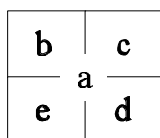
Location of test loads for instruments that weigh statically

Position	Indication	Error
a		
b		
c		
d		
e		

Remarks:

6   ALTERNATIVE OPERATING SPEEDS (6.1.4, A.6.8)

(Max speed, max load)

Application No: ....

Pattern designation: ....

Observer: ....

	At start	At end	
Temp:			°C
Rel. h:			%
Date:			yy:mm:dd
Time:			hh:mm:ss

Verification
  scale interval e: ....

Resolution during test
(smaller than e):   ....

  Speed   ....

Automatic zero-setting device is:

☐ Non-existent   ☐ Not in operation   ☐ Out of working range   ☐ In operation

Belt speed	Load	Mean $\overline{x}$	Standard deviation s
Max	Max		
Max	Min		
Alternative	Max		
Alternative	Min		

Remarks:

7   INFLUENCE FACTORS (2.8 and 6.5.3)

7.1   Pre-test for instruments that weigh statically (6.5.3, A.4.4)

7.1.1   Pre-test for instruments that weigh statically - Test 1
(Use this test sheet for max. speed, max. load)

Application No: ....

Pattern designation: ....

Observer: ....

	At start	At end	
Temp:			°C
Rel. h:			%
Date:			yy:mm:dd
Time:			hh:mm:ss

Verification
  scale interval e: ....

Resolution during test
(smaller than e):   ....

Load: (see 6.1.6)   ....

Speed: ....   Permitted error: ....

Automatic zero-setting device is:

☐ Non-existent   ☐ Not in operation   ☐ Out of working range   ☐ In operation

Test	Indication	Error	Test	Indication	Error	Test	Indication	Error
1			21			41		
2			22			42		
3			23			43		
4			24			44		
5			25			45		
6			26			46		
7			27			47		
8			28			48		
9			29			49		
10			30			50		
11			31			51		
12			32			52		
13			33			53		
14			34			54		
15			35			55		
16			36			56		
17			37			57		
18			38			58		
19			39			59		
20			40			60		

7.1.1   Pre-test for instruments that weigh statically - Test 1 (continued)

Maximum error =

Remarks:

7.1.1   Pre-test for instruments that weigh statically - Test 1 (continued)

Maximum error =

Remarks:

7.1.2 Pre-test for instruments that weigh statically - Test 2
  (Use this test sheet for max. speed, min. load)

Application No: ....

Pattern designation: ....

Observer: ....

	At start	At end	
Temp:			°C
Rel. h:			%
Date:			yy:mm:dd
Time:			hh:mm:ss

Verification
  scale interval e: ....

Resolution during test
(smaller than e): ....

Load: (see 6.1.6) ....

Speed: .... Permitted error: ....

Automatic zero-setting device is:

☐ Non-existent   ☐ Not in operation   ☐ Out of working range   ☐ In operation

Test	Indication	Error	Test	Indication	Error	Test	Indication	Error
1			21			41		
2			22			42		
3			23			43		
4			24			44		
5			25			45		
6			26			46		
7			27			47		
8			28			48		
9			29			49		
10			30			50		
11			31			51		
12			32			52		
13			33			53		
14			34			54		
15			35			55		
16			36			56		
17			37			57		
18			38			58		
19			39			59		
20			40			60		

7.1.2   Pre-test for instruments that weigh statically - Test 2 (continued)

Maximum error =

Remarks:

7.1.3   Pre-test for instruments that weigh statically - Test 3
        (Use this test sheet for alternative speed, max. load)

Application No: ....

Pattern designation: ....

Observer: ....

	At start	At end	
Temp:			°C
Rel. h:			%
Date:			yy:mm:dd
Time:			hh:mm:ss

Verification
   scale interval e: ....

Resolution during test
(smaller than e):   ....

Load: (see 6.1.6) ....

Speed: ....   Permitted error: ....

Automatic zero-setting device is:

☐ Non-existent   ☐ Not in operation   ☐ Out of working range   ☐ In operation

Test	Indication	Error	Test	Indication	Error	Test	Indication	Error
1			21			41		
2			22			42		
3			23			43		
4			24			44		
5			25			45		
6			26			46		
7			27			47		
8			28			48		
9			29			49		
10			30			50		
11			31			51		
12			32			52		
13			33			53		
14			34			54		
15			35			55		
16			36			56		
17			37			57		
18			38			58		
19			39			59		
20			40			60		

7.1.3   Pre-test for instruments that weigh statically - Test 3 (continued)

Maximum error =

Remarks:

7.1.3   Pre-test for instruments that weigh statically - Test 3 (continued)

7.1.4 Pre-test for instruments that weigh statically - Test 4
(Use this test sheet for alternative speed, min. load)

Application No: ....

Pattern designation: ....

Observer: ....

	At start	At end	
Temp:			°C
Rel. h:			%
Date:			yy:mm:dd
Time:			hh:mm:ss

Verification
  scale interval e: ....

Resolution during test
(smaller than e):   ....

Load: (see 6.1.6) ....

Speed: ....   Permitted error: ....

Automatic zero-setting device is:

☐ Non-existent   ☐ Not in operation   ☐ Out of working range   ☐ In operation

Test	Indication	Error	Test	Indication	Error	Test	Indication	Error
1			21			41		
2			22			42		
3			23			43		
4			24			44		
5			25			45		
6			26			46		
7			27			47		
8			28			48		
9			29			49		
10			30			50		
11			31			51		
12			32			52		
13			33			53		
14			34			54		
15			35			55		
16			36			56		
17			37			57		
18			38			58		
19			39			59		
20			40			60		

7.1.4   Pre-test for instruments that weigh statically - Test 4 (continued)

Maximum error =

Remarks:

7.1.4   Pre-test for instruments that weigh statically - Test 4 (continued)

7.2   Static temperatures (2.9.1, A.7.1)

7.2.1   Static temperature (20 °C)

Application No: ....

Pattern designation: ....

Observer: ....

	At start	At end	
Temp:			°C
Rel. h:			%
Date:			yy:mm:dd
Time:			hh:mm:ss

Verification
 scale interval e: ....

Resolution during test
(smaller than e): ....

Automatic zero-setting device is:

☐ Non-existent   ☐ Not in operation   ☐ Out of working range   ☐ In operation

Rate of operation (max) if applicable   ....   Static load ☐

CLASS X( )

This table to be used for summary of automatic mode dynamic test results

	Load L	Mean of indicated readings $\overline{x}$	Mean error $(\overline{x} - L)$	Standard deviation s
Close to Min				
Critical point 1				
Critical point 2				
Close to Max				

This table to be used for nonautomatic single load static test results

	Load L	Indication I	Error E
Close to Min			
Critical point 1			
Critical point 2			
Close to Max			

7.2.1   Static temperature (20 °C) (continued)

<u>CLASS Y( )</u>

This table to be used for summary of automatic mode dynamic or nonautomatic single load static test results

	Load L	Number of weighings	Maximum error
Close to Max			
Critical point 1			
Critical point 2			
Close to Min			

Note: For Class Y( ) instruments for weighing loose material the number of weighings will equal 1 and the error will be the actual error E.

Remarks:

7.2.2 Static temperature (specified high: °C)

Application No: ....

Pattern designation: ....

Observer: ....

	At start	At end	
Temp:			°C
Rel. h:			%
Date:			yy:mm:dd
Time:			hh:mm:ss

Verification
scale interval e: ....

Resolution during test
(smaller than e):   ....

Automatic zero-setting device is:

☐ Non-existent   ☐ Not in operation   ☐ Out of working range   ☐ In operation

Rate of operation (max) if applicable   ....   Static load ☐

CLASS X( )

This table to be used for summary of automatic mode dynamic test results

	Load L	Mean of indicated readings $\overline{X}$	Mean error $(\overline{X} - L)$	Standard deviation s
Close to Min				
Critical point 1				
Critical point 2				
Close to Max				

This table to be used for nonautomatic single load static test results

	Load L	Indication I	Error E
Close to Min			
Critical point 1			
Critical point 2			
Close to Max			

7.2.2   Static temperature (specified high: °C) (continued)

<u>CLASS Y( )</u>

This table to be used for summary of automatic mode dynamic or nonautomatic single load static test results

	Load L	Number of weighings	Maximum error
Close to Max			
Critical point 1			
Critical point 2			
Close to Min			

Note: For Class Y( ) instruments for weighing loose material the number of weighings will equal 1 and the error will be the actual error E.

Remarks:

7.2.2   Static temperature (specified high: °C) (continued)

<u>CLASS Y( )</u>

7.2.3 Static temperature (specified low: °C)

Application No: ....

Pattern designation: ....

Observer: ....

	At start	At end	
Temp:			°C
Rel. h:			%
Date:			yy:mm:dd
Time:			hh:mm:ss

Verification
 scale interval e: ....

Resolution during test
(smaller than e):   ....

Automatic zero-setting device is:

☐ Non-existent   ☐ Not in operation   ☐ Out of working range   ☐ In operation

Rate of operation (max) if applicable   ....   Static load ☐

CLASS X( )

This table to be used for summary of automatic mode dynamic test results

	Load L	Mean of indicated readings $\overline{x}$	Mean error $(\overline{x} - L)$	Standard deviation s
Close to Min				
Critical point 1				
Critical point 2				
Close to Max				

This table to be used for static test results

	Load L	Indication I	Error E
Close to Min			
Critical point 1			
Critical point 2			
Close to Max			

7.2.3 Static temperature (specified low: °C) (continued)

CLASS Y( )

This table to be used for summary of automatic mode dynamic or nonautomatic single load static test results

	Load L	Number of weighings	Maximum error
Close to Max			
Critical point 1			
Critical point 2			
Close to Min			

Note: For Class Y( ) instruments for weighing loose material the number of weighings will equal 1 and the error will be the actual error E.

Remarks:

CLASS Y( )

7.2.3   Static temperature (5 °C)

Application No: ....

Pattern designation: ....

Observer: ....

	At start	At end	
Temp:			°C
Rel. h:			%
Date:			yy:mm:dd
Time:			hh:mm:ss

Verification
  scale interval e: ....

Resolution during test
(smaller than e):   ....

Automatic zero-setting device is:

☐ Non-existent   ☐ Not in operation   ☐ Out of working range   ☐ In operation

Rate of operation (max) if applicable   ....   Static load ☐

<u>CLASS X( )</u>

This table to be used for summary of automatic mode dynamic test results

	Load L	Mean of indicated readings $\overline{x}$	Mean error $(\overline{x} - L)$	Standard deviation s
Close to Min				
Critical point 1				
Critical point 2				
Close to Max				

This table to be used for nonautomatic single load static test results

	Load L	Indication I	Error E
Close to Min			
Critical point 1			
Critical point 2			
Close to Max			

7.2.3   Static temperature (5 °C) (continued)

<u>CLASS Y( )</u>

This table to be used for summary of automatic mode dynamic or nonautomatic single load static test results

	Load L	Number of weighings	Maximum error
Close to Max			
Critical point 1			
Critical point 2			
Close to Min			

Note: For Class Y( ) instruments for weighing loose material the number of weighings will equal 1 and the error will be the actual error E.

Remarks:

7.2.4   Static temperature (20 °C)

Application No: ....

Pattern designation: ....

Observer: ....

	At start	At end	
Temp:			°C
Rel. h:			%
Date:			yy:mm:dd
Time:			hh:mm:ss

Verification
  scale interval e: ....

Resolution during test
(smaller than e):   ....

Automatic zero-setting device is:

☐ Non-existent   ☐ Not in operation   ☐ Out of working range   ☐ In operation

Rate of operation (max) if applicable   ....   Static load ☐

CLASS X( )

This table to be used for summary of automatic mode dynamic test results

	Load L	Mean of indicated readings $\overline{x}$	Mean error $(\overline{x} - L)$	Standard deviation s
Close to Min				
Critical point 1				
Critical point 2				
Close to Max				

This table to be used for nonautomatic single load static test results

	Load L	Indication I	Error E
Close to Min			
Critical point 1			
Critical point 2			
Close to Max			

7.2.4   Static temperature (20 °C) (continued)

CLASS Y( )

This table to be used for summary of automatic mode dynamic or nonautomatic single load static test results

	Load L	Number of weighings	Maximum error
Close to Max			
Critical point 1			
Critical point 2			
Close to Min			

Note: For Class Y( ) instruments for weighing loose material the number of weighings will equal 1 and the error will be the actual error E.

Remarks:

7.3   Temperature effect on no-load indication (A.7.2)

Application No: ....

Pattern designation: ....

Observer: ....

Verification
  scale interval e: ....

Resolution during test
(smaller than e):   ....

Automatic zero-setting device is:

☐   Non-existent

Report page (*)	Date	Time	Temp (°C)	Zero indication I	Add load	P	ΔP	ΔTemp	Zero-change per 5 °C

ΔP = difference of P for two consecutive tests at different temperatures

ΔTemp = difference of temp. for two consecutive tests at different temperatures

Remarks:

(*)   Give the report page of the relevant weighing test where weighing tests and temperature effect on no-load indication test are conducted together.

7.4   Damp heat, steady state (4.1.2, A.7.3)

Application No: ....

Pattern designation: ....

Observer: ....

	At start	At end	
Temp:			°C
Rel. h:			%
Date:			yy:mm:dd
Time:			hh:mm:ss

Verification
  scale interval e: ....

Resolution during test
(smaller than e):   ....

Automatic zero-setting device is:

☐ Non-existent   ☐ Not in operation   ☐ Out of working range   ☐ In operation

Temperature	Load L	Indication	Error
Reference and 50 % relative humidity			
High and 85 % relative humidity			

Remarks:

7.5   Power voltage variation (2.9.2, A.7.4)

Application No: ....

Pattern designation: ....

Observer: ....

	At start	At end	
Temp:			°C
Rel. h:			%
Date:			yy:mm:dd
Time:			hh:mm:ss

Verification
  scale interval e: ....

Resolution during test
(smaller than e):   ....

Automatic zero-setting device is:

☐ Non-existent   ☐ Not in operation   ☐ Out of working range   ☐ In operation

Marked nominal voltage or voltage range: [   ] V

Test supply voltage [   ] V   Test supply frequency [   ] Hz

Rate of operation (max) if applicable ....

Static load [   ]   Selected dynamic load [   ]

CLASS X( )

This table to be used for summary of automatic mode dynamic test results

Voltage	Mean of indicated readings $\overline{x}$	Mean error $(\overline{x} - L)$	Standard deviation s
Reference			
0.1			
– 15 %			
Reference			

Note(*)

_____

(*) The reference voltage shall be as defined in IEC 1000-4-11(1994) section 5.

7.5   Power voltage variation (continued)

This table to be used for nonautomatic single load static test results (when appropriate)

Voltage	Indication I	Error E
Reference		
+ 10 %		
– 15 %		
Reference		

Remarks:

CLASS Y( )

This table to be used for summary of automatic mode dynamic test results

Voltage	Load	Number of weighings n	Maximum error
Reference			
+ 10 %			
– 15 %			
Reference			

Note: For Class Y( ) instruments for weighing loose material the number of weighings will equal 1 and the error will be the actual error E.

This table to be used for nonautomatic single load static test results (when appropriate)

Voltage	Indication I	Add load ΔL	Error E
Reference			
+ 10 %			
– 15 %			
Reference			

Note(*)

Remarks:

(*) The reference voltage shall be as defined in IEC 1000-4-11(1994) section 5.

7.6   Tilting (2.6.3)

Application No: ....

Pattern designation: ....

Observer: ....

	At start	At end	
Temp:			°C
Rel. h:			%
Date:			yy:mm:dd
Time:			hh:mm:ss

Verification
 scale interval e: ....

Resolution during test
(smaller than e):   ....

☐   Tilting 5 % not required for fixed installation

☐   Tilting 5 % not required, can be adjusted to 1 % or less

<u>CLASS X( )</u>

The following two tables are to be used for summary of automatic mode dynamic test results.

Load close to Min

Tilting position	Mean of indicated readings $\overline{x}$	Mean error $(\overline{x} - L)$	Standard deviation s
Reference			
Longitudinally forward			
Longitudinally backwards			
Transversely forward			
Transversely backwards			
Reference			

Load close to Max

Tilting position	Mean of indicated readings $\overline{x}$	Mean error $(\overline{x} - L)$	Standard deviation s
Reference			
Longitudinally forward			
Longitudinally backwards			
Transversely forward			
Transversely backwards			
Reference			

7.6   Tilting (continued)

The following two tables are to be used for nonautomatic single load static test results.

Load close to Max

Tilting position	Indication I	Error
Reference		
Longitudinally forward		
Longitudinally backwards		
Transversely forward		
Transversely backwards		
Reference		

Load close to Min

Tilting position	Indication I	Error
Reference		
Longitudinally forward		
Longitudinally backwards		
Transversely forward		
Transversely backwards		
Reference		

7.6   Tilting (continued)

CLASS Y( )

These two tables to be used for summary of automatic mode dynamic or nonautomatic single load static test results.

Tilting position	Number of weighings	Maximum error
Reference		
Longitudinally forward		
Longitudinally backwards		
Transversely forward		
Transversely backwards		
Reference		

Load close to Max

Tilting position	Number of weighings	Maximum error
Reference		
Longitudinally forward		
Longitudinally backwards		
Transversely forward		
Transversely backwards		
Reference		

Note: For Class Y( ) instruments for weighing loose material the number of weighings will equal 1 and the error will be the actual error E.

Give (if appropriate on a separate sheet) a sketch of the load receptor showing the location of the level indicator if provided.

8 DISTURBANCES (4.1.3, A.8)

8.1 Short time power reductions (A.8.1)

Application No: ....

Pattern designation: ....

Observer: ....

	At start	At end	
Temp:			°C
Rel. h:			%
Date:			yy:mm:dd
Time:			hh:mm:ss

Verification
 scale interval e: ....

Resolution during test
(smaller than e): ....

| | V
|---|

Load	Disturbance				Result		
	Amplitude % of U_n	Duration cycles	Number of disturbances	Repetition interval (s)	Indication I	Significant fault (> e)	
						No	Yes (remarks)
	without disturbance						
	0	0.5	10				
	50	1	10				

Note(*)

Remarks:

(*) The reference voltage shall be as defined in IEC 1000-4-11 (1994) section 5.

8.2   Electrical bursts (4.1.3)

8.2.1   Power supply lines

Application No: ....

Pattern designation: ....

Observer: ....

	At start	At end	
Temp:			°C
Rel. h:			%
Date:			yy:mm:dd
Time:			hh:mm:ss

Verification
  scale interval e: ....

Resolution during test
(smaller than e):   ....

Power supply lines: test voltage 1 kV, duration of the test 1 min at each polarity

Load	Connection			Polarity	Result		
	L	N	PE		Indication I	Significant fault (> e)	
	ground	ground	ground			No	Yes (remarks)
	without disturbance						
	X			pos			
	X			neg			
	without disturbance						
10 e =		X		pos			
		X		neg			
	without disturbance						
			X	pos			
			X	neg			

Note(*)

L = phase, N = neutral, PE = protective earth

Remarks:

_____

(*)   The reference voltage shall be as defined in IEC 1000-4-11(1994) section 5.

8.2   Electrical bursts (continued)

8.2.2   I/O circuits and communication lines

Application No: ....

Pattern designation: ....

Observer: ....

	At start	At end	
Temp:			°C
Rel. h:			%
Date:			yy:mm:dd
Time:			hh:mm:ss

Verification
  scale interval e: ....

Resolution during test
(smaller than e):   ....

I/O signals, data and control lines: test voltage 0.5 kV, duration of the test
1 min at each polarity

Load	Cable/Interface	Polarity	Result			
			Indication I	Significant fault (> e)		
				No	Yes (remarks)	
	without disturbance					
10 e =		pos				
		neg				
	without disturbance					
10 e =		pos				
		neg				
	without disturbance					
10 e =		pos				
		neg				
	without disturbance					
10 e =		pos				
		neg				
	without disturbance					
10 e =		pos				
		neg				
	without disturbance					
10 e =		pos				
		neg				

Note(*)

Explain or make a sketch indicating where the clamp is located on the cable; if necessary, add additional page.

Remarks:

_____

(*)   The reference voltage shall be as defined in IEC 1000-4-11 (1994) section 5.

8.3   Electrostatic discharges (4.1.3, A.8.3)

8.3.1   Direct application

Application No: ....

Pattern designation: ....

Observer: ....

	At start	At end	
Temp:			°C
Rel. h:			%
Date:			yy:mm:dd
Time:			hh:mm:ss

Verification
  scale interval e: ....

Resolution during test
(smaller than e):   ....

☐ Contact discharges   ☐ Paint penetration

☐ Air discharges   Polarity(*): ☐ pos   ☐ neg

Load	Discharges			Result		
	Test Voltage (kV)	Number of discharges 10	Repetition interval (s)	Indication I	Significant fault (> e)	
					No	Yes (remarks,test points)
	without disturbance					
	2					
	4					
	6					
	8 (air discharges)					

Remarks:

(*)   IEC 801-2 specifies that the test shall be conducted with the most sensitive polarity.

8.3   Electrostatic discharges (cont.)

8.3.2   Indirect application (contact discharges only)

Application No: ....

Pattern designation: ....

Observer: ....

	At start	At end	
Temp:			°C
Rel. h:			%
Date:			yy:mm:dd
Time:			hh:mm:ss

Verification
 scale interval e: ....

Resolution during test
(smaller than e):   ....

Polarity(*):   [   ] pos   [   ] neg

Horizontal coupling plane

Load	Discharges			Result		
	Test voltage (kV)	Number of discharges ≥ 10	Repetition interval (s)	Indication I	Significant fault (> e)	
					No	Yes (remarks)
	without disturbance					
	2					
	4					
10 e =	6					

Vertical coupling plane

Load	Discharges			Result		
	Test voltage (kV)	Number of discharges ≥ 10	Repetition interval (s)	Indication I	Significant fault (> e)	
					No	Yes (remarks)
	without disturbance					
	2					
	4					
10 e =	6					

Remarks:

(*)   IEC 801-2 specifies that the test shall be conducted with the most sensitive polarity.

8.3   Electrostatic discharges (cont.)

Specification of test points of EUT (direct application), e.g. by photos or sketches

a)   Direct application

Contact discharges:

Air discharges:

b)   Indirect application

8.4 Electromagnetic susceptibility (4.1.3, A.8.4)

Application No: ....

Pattern designation: ....

Observer: ....

	At start	At end	
Temp:			°C
Rel. h:			%
Date:			yy:mm:dd
Time:			hh:mm:ss

Verification
scale interval e: ....

Resolution during test
(smaller than e): ....

Rate of sweep:

Load: Material load:

Disturbances				Result		
Antenna	Frequency range (MHz)	Polarization	Facing EUT	Indication I	No	Significant fault Yes (remarks)
without disturbance						
		Vertical	Front			
			Right			
			Left			
			Rear			
		Horizontal	Front			
			Right			
			Left			
			Rear			
		Vertical	Front			
			Right			
			Left			
			Rear			
		Horizontal	Front			
			Right			
			Left			
			Rear			

Frequency range: 26 - 1000 MHz
Field strength: 3 V/m
Modulation: 80 % AM, 1 kHz sine wave

Remarks:

8.4   Electromagnetic susceptibility (continued)

Include a description of the set-up of EUT, e.g. by photos or sketches.

Note: If EUT fails, the frequency and field strength at which this occurs must be recorded.

9 SPAN STABILITY (6.5.1, A.9)

Application No: ....

Pattern designation: ....

Observer: ....

Verification
  scale interval e: ....

Resolution during test
(smaller than e):   ....

Automatic zero-setting device is:

☐ Non-existent   ☐ Not in operation   ☐ Out of working range

Test load =

Measurement No 1: Initial measurement

Observer: ....

Location: ....

	At start	At end	
Temp:			°C
Rel. h:			%
Date:			yy:mm:dd
Time:			hh:mm:ss

$E_0 = I_0 + \tfrac{1}{2} e - \Delta L_0 - L_0 \qquad E_L = I_L + \tfrac{1}{2} e - \Delta L - L$

	Indication of zero (I_0)	Add. load (ΔL_0)	E_0	Indication of load (I_L)	Add. load (ΔL)	E_L	$E_L - E_0$	Corrected value (*)
1								
2								
3								
4								
5								

(*)   When applicable, necessary corrections resulting from variations of temperature, pressure, etc. See remarks.

Average error = average ($E_L - E_0$)   ☐

$(E_L - E_0)_{max} - (E_L - E_0)_{min} =$ ☐

0.1 e =   ☐

If *$(E_L - E_0)_{max} - (E_L - E_0)_{min}$* ≤ 0.1 e, the loading and reading will be sufficient for each of the subsequent measurements.

Remarks:

9   Span stability (continued)

Subsequent measurements

For each of the subsequent measurements (at least 7), indicate on the "conditions of the measurement", as appropriate, if the measurement has been performed:

-         after the temperature test, the EUT having been stabilized for at least 16 h;

-         after the humidity test, the EUT having been stabilized for at least 16 h;

-         after the EUT has been disconnected from the mains for at least 8 h and then stabilized for at least 5 h;

-         after any change in the test location;

-         under any other specific condition.

Measurement No 2:

	At start	At end	
Temp:			°C
Rel. h:			%
Date:			yy:mm:dd
Time:			hh:mm:ss

Observer: ....

Location: ....

Conditions of the measurement:

$$E_0 = I_0 + \tfrac{1}{2}\,e - \Delta L_0 - L_0 \qquad E_L = I_L + \tfrac{1}{2}\,e - \Delta L - L$$

	Indication of zero (I_0)	Add. load (ΔL_0)	E_0	Indication of load (I_L)	Add. load (ΔL)	E_L	$E_L - E_0$	Corrected value (*)
1								
2								
3								
4								
5								

(*)   When applicable, necessary corrections resulting from variations of temperature, pressure, etc. See remarks.

If five loadings and readings have been performed:

Average error = average ($E_L - E_0$)   [   ]

Remarks:

9   Span stability (continued)

Measurement No 3:

	At start	At end	
Observer:			
Temp:			°C
Rel. h:			%
Location:			
Date:			yy:mm:dd
Time:			hh:mm:ss

Conditions of the measurement:

$$E_0 = I_0 + \tfrac{1}{2}\,e - \Delta L_0 - L_0 \qquad E_L = I_L + \tfrac{1}{2}\,e - \Delta L - L$$

	Indication of zero (I_0)	Add. load (ΔL_0)	E_0	Indication of load (I_L)	Add. load (ΔL)	E_L	$E_L - E_0$	Corrected value (*)
1								
2								
3								
4								
5								

(*)   When applicable, necessary corrections resulting from variations of temperature, pressure, etc. See remarks.

If five loadings and readings have been performed:

Average error = average ($E_L - E_0$) [　　　　]

Remarks:

9   Span stability (continued)

Measurement No 4:

	At start	At end	
Observer:	Temp:		°C
	Rel. h:		%
Location:	Date:		yy:mm:dd
	Time:		hh:mm:ss

Conditions of the measurement:

$$E_0 = I_0 + \tfrac{1}{2}\,e - \Delta L_0 - L_0 \qquad E_L = I_L + \tfrac{1}{2}\,e - \Delta L - L$$

	Indication of zero (I_0)	Add. load (ΔL_0)	E_0	Indication of load (I_L)	Add. load (ΔL)	E_L	$E_L - E_0$	Corrected value (*)
1								
2								
3								
4								
5								

(*)   When applicable, necessary corrections resulting from variations of temperature, pressure, etc. See remarks.

If five loadings and readings have been performed:

Average error = average ($E_L - E_0$)

Remarks:

9   Span stability (continued)

Measurement No 5:

	At start	At end	
Observer:	Temp:		°C
	Rel. h:		%
Location:	Date:		yy:mm:dd
	Time:		hh:mm:ss

Conditions of the measurement:

$$E_0 = I_0 + \tfrac{1}{2}\, e - \Delta L_0 - L_0 \qquad E_L = I_L + \tfrac{1}{2}\, e - \Delta L - L$$

	Indication of zero (I_0)	Add. load (ΔL_0)	E_0	Indication of load (I_L)	Add. load (ΔL)	E_L	$E_L - E_0$	Corrected value (*)
1								
2								
3								
4								
5								

(*)   When applicable, necessary corrections resulting from variations of temperature, pressure, etc. See remarks.

If five loadings and readings have been performed:

Average error = average ($E_L - E_0$)   [   ]

Remarks:

9 Span stability (continued)

Measurement No 6:

	At start	At end	
Observer:			
Temp:			°C
Rel. h:			%
Location:			
Date:			yy:mm:dd
Time:			hh:mm:ss

Conditions of the measurement:

$E_0 = I_0 + \frac{1}{2} e - \Delta L_0 - L_0$ $E_L = I_L + \frac{1}{2} e - \Delta L - L$

	Indication of zero (I_0)	Add. load (ΔL_0)	E_0	Indication of load (I_L)	Add. load (ΔL)	E_L	$E_L - E_0$	Corrected value (*)
1								
2								
3								
4								
5								

(*) When applicable, necessary corrections resulting from variations of temperature, pressure, etc. See remarks.

If five loadings and readings have been performed:

Average error = average ($E_L - E_0$)

Remarks:

9   Span stability (cont.)

Measurement No 7:

	At start	At end	
Temp:			°C
Rel. h:			%
Date:			yy:mm:dd
Time:			hh:mm:ss

Observer: ....

Location: ....

Conditions of the measurement:

$E_0 = I_0 + \frac{1}{2}\,e - \Delta L_0 - L_0 \qquad E_L = I_L + \frac{1}{2}\,e - \Delta L - L$

	Indication of zero (I_0)	Add. load (ΔL_0)	E_0	Indication of load (I_L)	Add. load (ΔL)	E_L	$E_L - E_0$	Corrected value (*)
1								
2								
3								
4								
5								

(*)   When applicable, necessary corrections resulting from variations of temperature, pressure, etc. See remarks.

If five loadings and readings have been performed:

Average error = average ($E_L - E_0$)   [   ]

Remarks:

9   Span stability (cont.)

Measurement No 8:

	At start	At end	
Temp:			°C
Rel. h:			%
Date:			yy:mm:dd
Time:			hh:mm:ss

Observer: ....

Location: ....

Conditions of the measurement:

$E_0 = I_0 + \frac{1}{2} e - \Delta L_0 - L_0$ $E_L = I_L + \frac{1}{2} e - \Delta L - L$

	Indication of zero (I_0)	Add. load (ΔL_0)	E_0	Indication of load (I_L)	Add. load (ΔL)	E_L	$E_L - E_0$	Corrected value (*)
1								
2								
3								
4								
5								

(*)   When applicable, necessary corrections resulting from variations of temperature, pressure, etc. See remarks.

If five loadings and readings have been performed:

Average error = average ($E_L - E_0$)   [   ]

Remarks:

9   **Span stability (continued)**

Application No: ....

Pattern designation: ....

Plot on the diagram the indication of temperature test (T), damp heat test (D) and disconnections from the mains power supply (P)
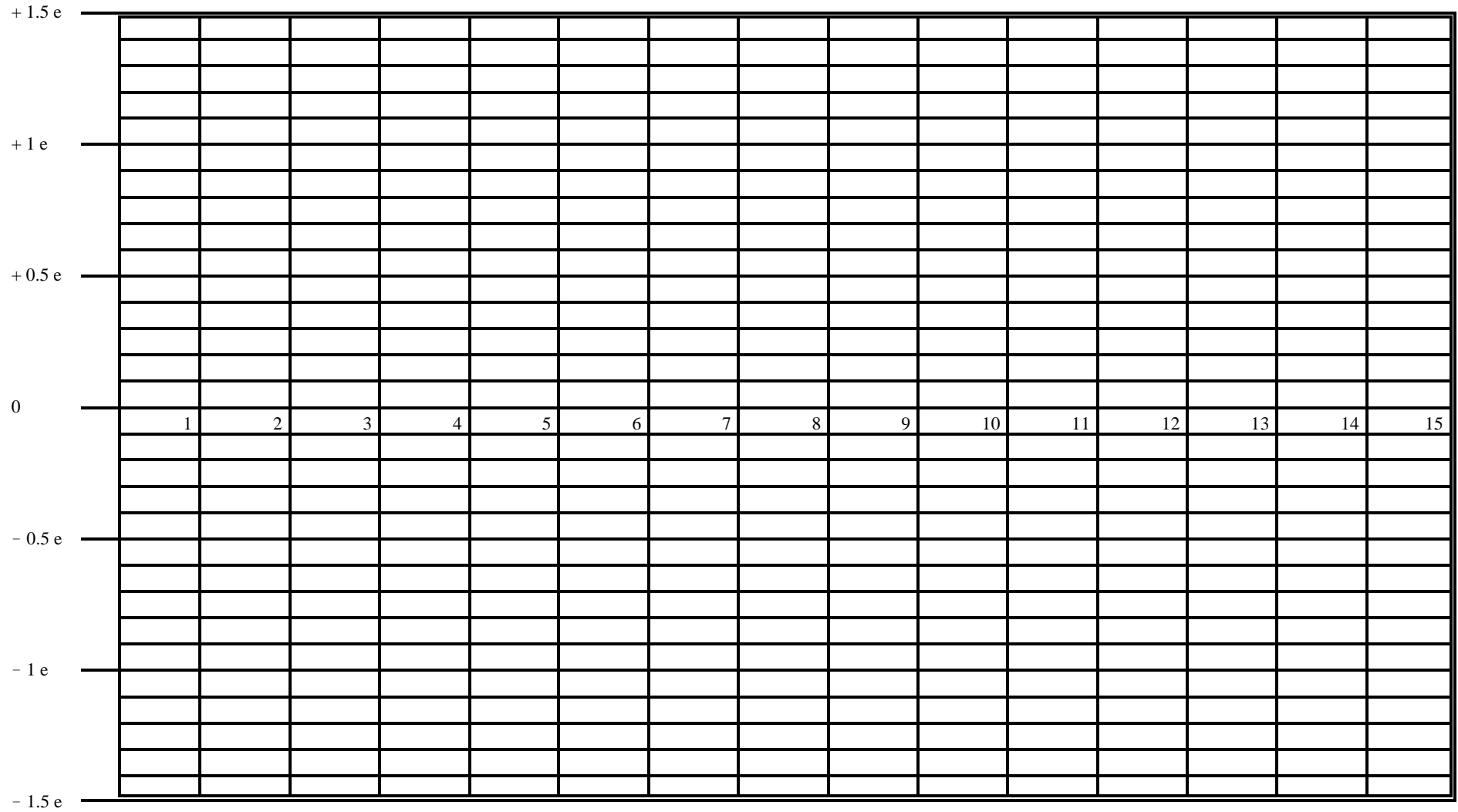
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15

+ 1.5 e
+ 1 e
+ 0.5 e
0
– 0.5 e
– 1 e
– 1.5 e

SAMPLE TEST REPORT FOR RECORDING INDIVIDUAL WEIGHTS WHERE APPLICABLE

TEST TYPE: ....

Test section: ....

Relevant section of Part 1: ....

Relevant section of test procedure: ....

Application No: ....

Pattern designation: ....

Observer: ....

	At start	At end	
Temp:			°C
Rel. h:			%
Date:			yy:mm:dd
Time:			hh:mm:ss

Record only data relevant to test

Verification
scale interval e: ....

Resolution during test
(smaller than e): ....

Load: ....   Static load [   ]

Eccentricity band: ....
(if applicable)

Rate of operation: ....

Automatic zero-setting device is:

[ ] Non-existent   [ ] Not in operation   [ ] Out of working range   [ ] In operation

Test	Indication	Error	Test	Indication	Error
1			16		
2			17		
3			18		
4			19		
5			20		
6			21		
7			22		
8			23		
9			24		
10			25		
11			26		
12			27		
13			28		
14			29		
15			30		

SAMPLE TEST REPORT FOR RECORDING INDIVIDUAL WEIGHTS WHERE APPLICABLE (continued)

Test	Indication	Error	Test	Indication	Error
31			46		
32			47		
33			48		
34			49		
35			50		
36			51		
37			52		
38			53		
39			54		
40			55		
41			56		
42			57		
43			58		
44			59		
45			60		

$$\text{mpme} = \frac{\sum x}{n} = \qquad\qquad \text{mps} = \sqrt{\frac{\sum (\overline{x} - x)^2}{n - 1}} =$$

SAMPLE TEST REPORT FOR RECORDING INDIVIDUAL WEIGHTS WHERE APPLICABLE

TEST TYPE: ....

Test section: ....

Relevant section of Part 1:   ....

Relevant section of test procedure: ....

The following table is to be used for Class (Y) nonautomatic single load static test results (when appropriate)

Test	Indication	Add load	Error
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			
21			
22			
23			
24			
25			
26			
27			
28			
29			
30			

Remarks: