

INTERNATIONAL
RECOMMENDATION

OIML R 76-3

Edition 202x (E)

Non-automatic weighing instruments

Part 3: Test report format

Instruments de pesage à fonctionnement non automatique

Partie 3: Format du rapport d'essais



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Foreword

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- **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. OIML Member States shall implement these Recommendations to the greatest possible extent;
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- **International Guides (OIML G)**, which are also informative in nature and which are intended to give guidelines for the application of certain requirements to legal metrology; and
- **International Basic Publications (OIML B)**, which define the operating rules of the various OIML structures and systems.

OIML Draft Recommendations, Documents and Guides are developed by Project Groups linked to Technical Committees or Subcommittees which comprise representatives from the Member States. Certain international and regional institutions also participate on a consultation basis. Cooperative agreements have been established between the OIML and certain institutions, such as ISO and the IEC, with the objective of avoiding contradictory requirements. Consequently, manufacturers and users of measuring instruments, test laboratories, etc. may simultaneously apply OIML publications and those of other institutions.

International Recommendations, Documents, Guides and Basic Publications are published in English (E) and translated into French (F) and are subject to periodic revision.

Additionally, the OIML publishes or participates in the publication of **Vocabularies (OIML V)** and periodically commissions legal metrology experts to write **Expert Reports (OIML E)**. Expert Reports are intended to provide information and advice, and are written solely from the viewpoint of their author, without the involvement of a Technical Committee or Subcommittee, nor that of the CIML. Thus, they do not necessarily represent the views of the OIML.

This publication - reference OIML R 76-3, Edition 202x - was developed by Project Group 2 of OIML TC 9/SC 1 *Non-automatic weighing instruments*. It was approved for final publication by the International Committee of Legal Metrology in 202x and supersedes the previous edition of R 76-2 (2007).

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Introduction

The “Test report format”, the subject of OIML R 76-3, aims at presenting, in a standardized format, the results of the various tests and examinations to which a type of a non-automatic weighing instrument shall be submitted with a view to its approval.

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 the performance test procedures (OIML R 76-2).

The “information concerning the test equipment used for type 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 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 electromagnetic susceptibility test.

All metrology services or laboratories evaluating types of non-automatic weighing instrument according to OIML R 76-1 and -2 or to national or regional regulations based on OIML R 76-1 and -2 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 multi-lateral cooperation agreements. In the framework of the OIML Certification System (OIML-CS), use of the “Test report format” is mandatory.

Note concerning the numbering of the following pages

In addition to a sequential numbering: “R 76-3 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. weighing performance) 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.

Test report

Explanatory notes

Meaning of symbols:

I	= Indication
I_n	= n th indication
L	= Load
ΔL	= Additional load to next changeover point
P	= $I + \frac{1}{2} e - \Delta L$ = Indication prior to rounding (digital indication)
E	= $I - L$ or $= P - L$ or $= I + \frac{1}{2} e - \Delta L - L$ = Error
E_c	= Corrected error
mpe	= Maximum permissible error (absolute value)
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 in according to the following example:

	At start	At max	At end	
Temp.:	20.5		21.2	°C
Rel. h.:				%
Time:				
Bar. pres.:				hPa

where:

Temp. = temperature

Rel. h. = relative humidity

Bar. pres. = barometric pressure (barometric pressure is necessary for the span stability test and when specified by IEC test provisions; in other cases it may be necessary only for class I instruments).

“Date” in the test report refers to the date on which the test was performed.

In the disturbance tests (R 76-2, 8.3.1 - 8.3.7), 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 (see R 76-1, 3.5.5.6); an appropriate explanation shall be given in the column “Yes (remarks)”.

Numbers in brackets refer to the corresponding subclauses of OIML R 76-2.

Identification of the instrument

Application no.:	Type designation:
Identification no.:	Manufacturer:
Software version:		
Report date:		

Documentation from the manufacturer

(Record as necessary to identify the equipment under test)

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

Simulator documentation (if applicable)

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

Identification of the instrument (continued)

Application no.:	Type designation:
Identification no.:	Manufacturer:
Software version:		
Report date:		

Simulator function (summary) (if applicable)

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

Identification of the instrument (continued)

Application no.:	Type designation:
Identification no.:	Manufacturer:
Software version:		
Report date:		

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

General information concerning the type

Application no.: _____ Manufacturer: _____
 Type designation: _____ Applicant: _____
 Instrument category: _____

☐ Complete instrument ☐ Module¹ with error fraction $p_i =$ ☐

Accuracy class²: ☐ I ☐ II ☐ III ☐ IIII

☐ Self-indicating ☐ Semi-self-indicating ☐ Non-self-indicating

Min =

$e =$ $Max =$ $d =$ $n =$

$e_1 =$ <input type="text"/>	$Max_1 =$ <input type="text"/>	$d_1 =$ <input type="text"/>	$n_1 =$ <input type="text"/>
$e_2 =$ <input type="text"/>	$Max_2 =$ <input type="text"/>	$d_2 =$ <input type="text"/>	$n_2 =$ <input type="text"/>
$e_3 =$ <input type="text"/>	$Max_3 =$ <input type="text"/>	$d_3 =$ <input type="text"/>	$n_3 =$ <input type="text"/>

$T = +$ $T = -$

$U_{nom} =$ V $U_{min} =$ V $U_{max} =$ V $f =$ Hz Battery, $U_{nom} =$ V

Zero-setting device:

Tare device:

<input type="checkbox"/> Non-automatic	<input type="checkbox"/> Tare balancing	<input type="checkbox"/> Combined zero/tare device
<input type="checkbox"/> Semi-automatic	<input type="checkbox"/> Tare weighing	
<input type="checkbox"/> Automatic zero-setting	<input type="checkbox"/> Preset tare device	
<input type="checkbox"/> Initial zero-setting	<input type="checkbox"/> Subtractive tare	
<input type="checkbox"/> Zero-tracking	<input type="checkbox"/> Additive tare	

Initial zero-setting range = % of Max Temperature range: °C

Printer: ☐ Built-in ☐ Connected ☐ Not present but connectable ☐ No connection

¹ The test equipment (simulator or a part of a complete instrument) connected to the module shall be defined in the test form(s) used.

² Please note that the class denominations used hereafter in this Recommendation do not include the oval around the number for improved clarity of the Test Report Format's text.

General information concerning the type (continued)

Instrument submitted:	Load cell:
Identification no.:	Manufacturer:
Software version:	Type:
Connected equipment:	Capacity:
	Number:
Interfaces (number, nature):	Classification symbol:
		
	Remarks:
Evaluation period:
Date of report:
Observer:

Use this space to indicate additional remarks and/or information: connecting equipment, interfaces and load cells, choice of the manufacturer regarding protection against disturbances (R 76-1, 6.1.3 a or 6.1.3 b), etc.

Information concerning the test equipment used for type evaluation

Application no.:

Type designation:

Report date: _____

Manufacturer:

List all test equipment used in this report (including descriptions of the equipment used for testing)

[illegible]

Configuration for test

Application no.:

Type designation:

Report date:

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.

Adjustments or modifications

Application no.:

Type designation:

Report date:

Manufacturer:

Use this space for additional information relating to the identification of any authorized and agreed upon adjustments or modifications made to the sample or samples during the evaluation.

Summary of type evaluation tests

Application no.:

Type designation:

Report date:

Manufacturer:

	Tests	Report page	PASSED	FAILED	Remarks
1	Weighing performance Initial °C °C °C °C °C °C				
2	Temperature effect on no-load indication				
3.1	Eccentricity using weights				
3.2	Eccentricity using a rolling load				
4.1	Discrimination				
4.2	Sensitivity				
5	Repeatability				
6.1	Zero return				
6.2	Creep				
7	Stability of equilibrium <u>Printing, storage</u> <u>Zero-setting, tare balancing</u>				
8	Tilting				
9	Tare				
10	Warm-up time				
11	Voltage variations				
12.1	AC mains voltage dips and short interruptions				
12.2	Electrical bursts a) Mains power supply lines b) I/O circuits and communication lines				
12.3	Surges a) AC mains power supply b) Any other kind of power supply lines				
12.4	Electrostatic discharges a) Direct application b) Indirect application (contact discharges only)				
12.5	Immunity to radiated electromagnetic fields				
12.6	Immunity to conducted radio-frequency fields				
12.7	Electrical transients on instruments powered from a road vehicle power supply a) Conduction along supply lines of external 12 V and 24 V batteries b) Capacitive and inductive coupling via lines other than supply lines				
13	Damp heat, steady state a) Initial test (at reference temperature) b) Test at high temperature and 85 % relative humidity c) Final test (at reference temperature)				
14	Span stability				
15	Endurance a) Initial test c) Final test				

(Calculation of the error)

	At start	At max	At end	
Temp.:				°C
Rel. h.:				%
Time:				
Bar. pres.:				hPa

(only class I)

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

Initial zero-setting > 20 % of Max: ☐ Yes ☐ No (see R 76-2, 5.2.1)

$E_c = E - E_0$ with E_0 = error calculated at or near zero*

[illegible]

☐ Passed ☐ Failed

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2 TEMPERATURE EFFECT ON NO-LOAD INDICATION (R 76-2, 6.3.2)

Application no.:
 Type designation:
 Date:
 Observer:
 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

$$P = I + \frac{1}{2} e - \Delta L$$

Report page*	Date	Time	Temp (°C)	Zero indication, I	Add. load, ΔL	P	ΔP	Δ Temp.	Zero-change per ... °C

 ΔP = difference of P for two consecutive tests at different temperatures Δ Temp. = difference of Temp. for two consecutive tests at different temperaturesCheck if the zero-change per 5 °C is smaller than e (class II, III or IIII)Check if the zero-change per 1 °C is smaller than e (class I)

☐ Passed ☐ Failed

Remarks:

* Give the report page of the relevant weighing test where weighing tests and temperature effect on no-load indication test are conducted together (see R 76-2, Figure 11).

3 ECCENTRICITY (R 76-2, 5.7)**3.1 Eccentricity using weights (R 76-2, 5.7.1, 5.7.2 and 5.7.3)**

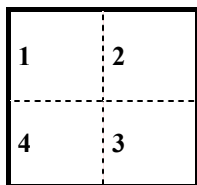
Application no.:
 Type designation:
 Date:
 Observer:
 Verification
 scale interval, e :
 Resolution during test
 (smaller than e):

	At start	At max	At end	
Temp.:				°C
Rel. h.:				%
Time:				
Bar. pres.:				hPa

(only class I)

- 1) Test(s) performed on a mobile instrument (R 76-2, 5.7.5): ☐ Yes ☐ No
 2) In case of "Yes" to 1): R 76-2, 5.7 and R 76-2, 5.7.1 to 5.7.4 have been applied: ☐ Yes ☐ No
 3) In case of "No" to 2): Description of eccentricity test(s) (see R 76-2, 5.7.5) under "Remarks"

Location of test loads: mark on a sketch (see example below) the successive locations of test loads, using numbers which shall be repeated in the table below.



Also indicate in the sketch the location of the display or of another perceptible part of the instrument.

Automatic zero-setting and zero-tracking device is:

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

$$E = I + \frac{1}{2}e - \Delta L - L$$

$E_c = E - E_0$ with E_0 = error calculated at or near zero* determined prior to each measurement

Location	Load, L	Indication, I	Add. load, ΔL	Error, E	Corrected error, E_c	mpe
	*			*		
1						
	*			*		
2						
	*			*		
3						
	*			*		
4						

Check if $|E_c| \leq |mpe|$

☐ Passed ☐ Failed

Remarks:

3.2 Eccentricity using a rolling load (R 76-2, 5.7.4)

Application no.:
 Type designation:
 Date:
 Observer:
 Verification
 scale interval, e :
 Resolution during test
 (smaller than e):

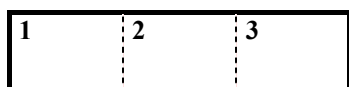
	At start	At max	At end	
Temp.:				°C
Rel. h.:				%
Time:				
Bar. pres.:				hPa

(only class I)

Number of sections of the divided load receptor

☐ Undivided load receptor

Location of test loads for each section of the load receptor: mark on a sketch (see example below) the successive locations of test loads, using numbers which shall be repeated in the table below. Also indicate in the sketch the location of the display or of another perceptible part of the instrument.



Automatic zero-setting and zero-tracking device is:

☐ Non-existent

☐ Not in operation

☐ Out of working range

$$E = I + \frac{1}{2} e - \Delta L - L$$

$$E_c = E - E_0 \text{ with } E_0 = \text{error calculated at or near zero}^*$$

Section	Direction (← / →)	Location	Load, L	Indication, I	Add. load, ΔL	Error, E	Corrected error, E_c	mpe
			*			*		
			*			*		
			*			*		
			*			*		

Check if $|E_c| \leq |mpe|$

☐ Passed

☐ Failed

Remarks:

4 DISCRIMINATION AND SENSITIVITY

4.1 Discrimination

4.1.1 Digital indication (R 76-2, 5.8.2)

Application no.:				
Type designation:				
Date:	Temp.:	At start	At max	At end
Observer:	Rel. h.:			°C
Verification scale interval, e :	Time:			%
Scale interval, d :	Bar. pres.:			hPa

Load, L	Indication, I_1	Removed load ΔL	Add 1/10 d	Extra load, $= 1.4 d$	Indication, I_2	$I_2 - I_1$

Check if $I_2 - I_1 \geq d$
☐ Passed ☐ Failed

Remarks:

4.1.2 Analogue indication (R 76-2, 5.8.1)

Application no.:				
Type designation:				
Date:	Temp.:	At start	At max	At end
Observer:	Rel. h.:			°C
Verification scale interval, e :	Time:			%
Scale interval, d :	Bar. pres.:			hPa

Load, L	Indication, I_1	Extra load $= mpe $	Indication, I_2	$I_2 - I_1$

Check if $I_2 - I_1 \geq 0.7 mpe$
☐ Passed ☐ Failed

Remarks:

4.1.3 Non-self-indicating instrument (R 76-2, 5.8.1)

Application no.:
Type designation:
Date:
Observer:

.....
.....
.....
.....
.....
.....

Temp.:
Rel. h.:
Time:
Bar. pres.:

At start	At max	At end	
			°C
			%
			hPa

Load, <i>L</i>	Indication, <i>I</i>	Extra load, = 0.4 mpe	Visible displacement*

* Mark a visible displacement by “+”

Check if there is a visible displacement

☐ Passed

☐ Failed

Remarks:

4.2 Sensitivity (non-self-indicating instrument) (R 76-2, 5.9)

Application No.:

Type designation:

Date:

Observer:

	At start	At max	At end	
Temp:				°C
Rel. h:				%
Time:				
Bar. pres:				hPa

Load L	Extra load = mpe	Permanent displacement of indicating element
		mm
		mm
		mm

Check if the permanent displacement is equal to or greater than:

1 mm for an instrument of accuracy class I or II

2 mm for an instrument of accuracy class III or IIII with $\text{Max} \leq 30 \text{ kg}$ 5 mm for an instrument of accuracy class III or IIII with $\text{Max} > 30 \text{ kg}$ ☐

Passed

☐

Failed

Remarks:

5 REPEATABILITY (R 76-2, 5.10)

Application no.:
 Type designation:
 Date:
 Observer:
 Verification
 scale interval, e :
 Resolution during test
 (smaller than e):

	At start	At max	At end	
Temp.:				°C
Rel. h.:				%
Time:				
Bar. pres.:				hPa

(only class I)

Automatic zero-setting and zero-tracking device is:

☐ Non-existent ☐ In operation

Load (weighing 1-10)

Load (weighing 11-20)

$$E = I + 1/2 e - \Delta L - L$$

	Indication of load, I	Add. load, ΔL	E
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			

	Indication of load, I	Add. load, ΔL	E
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			

$E_{\max} - E_{\min}$ (weighing 1-10)

$E_{\max} - E_{\min}$ (weighing 11-20)

mpe

mpe

Check if a) $E \leq \text{mpe}$ (5.5.3 of R 76-1)

b) $E_{\max} - E_{\min} \leq \text{absolute value of mpe}$ (5.5.4 of R 76-1)

☐ Passed

☐ Failed

Remarks:

6 TIME-DEPENDENCE**6.1 Zero return (R 76-2, 5.11.2)**

Application no.:
 Type designation:
 Date:
 Observer:
 Verification
 scale interval, e :
 Resolution during test
 (smaller than e):

Temp:

Rel. h:

Time:

Bar. pres:

(only class I)

At start	At max	At end	
			°C
			%
			hPa

Automatic zero-setting and zero-tracking device is:

☐

Non-existent

☐

Not in operation

☐

Out of working range

$$P = I + \frac{1}{2} e - \Delta L$$

Time of reading	Load, L_0	Indication of zero, I_0	Add. load, ΔL	P
0 min				$P_0 =$

 Load during 30 minutes
 =

30 min

 $P_{30} =$

Change after 30 minutes:

 $|\Delta(P_{30} - P_0)| =$

For multiple range instruments keep instrument unloaded for further 5 minutes:

35 min

 $P_{35} =$

Change 5 minutes later:

 $|\Delta(P_{35} - P_{30})| =$ Check if a) $|\Delta(P_{30} - P_0)| \leq 0.5 e$ b) $|\Delta(P_{35} - P_{30})| \leq e_1$ (for multiple range instruments only)☐

Passed

☐

Failed

Remarks:

6.2 Creep (R 76-2, 5.11.1)

Application no.:
 Type designation:
 Date:
 Observer:
 Verification
 scale interval, e :
 Resolution during test
 (smaller than e):

	At start	At max	At end	
Temp:				°C
Rel. h:				%
Time:				
Bar. pres:				hPa

(only class I)

$$P = I + \frac{1}{2} e - \Delta L$$

Time of reading		Load, L	Indication, I	Add. load, ΔL	P	ΔP
	0 min					
	5 min					
	15 min					
	30 min*					

	1 h					
	2 h					
	3 h					
	4 h					

ΔP = difference between P at the start (0 min) and P at a given time.

* If condition a) is met, the test is terminated. If not, the test shall be continued for the next 3.5 hours and condition b) shall be met.

Condition a): $\Delta P \leq 0.5 e$ after 30 minutes; and

$\Delta P \leq 0.2 e$ between the indication obtained at 15 minutes and that at 30 minutes

Condition b): $\Delta P \leq$ absolute value of mpe during the period of 4 hours

Check if condition a) or b) is fulfilled

☐ Passed ☐ Failed

Remarks:

7 STABILITY OF EQUILIBRIUM (R 76-2, 5.12)

Application no.:

Type designation:

Date:

Observer:

Verification

scale interval, e :

Resolution during test

(smaller than e):

	At start	At max	At end	
Temp:				°C
Rel. h:				%
Time:				
Bar. pres:				hPa

(only class I)

Automatic zero-setting and zero-tracking device is:

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

In the case of printing or data storage:

No.	Load (about 50 % of Max)	First printed or stored weight value after disturbance and command	Reading during 5 s after print-out or storage	
			minimum value	maximum value
1				
2				
3				
4				
5				

Check if the first printed or stored weight value does not deviate more than $1 e$ from the readings during 5 seconds after print-out or storage (only two adjacent values allowed)☐ Passed ☐ Failed

In the case of zero-setting or tare balancing:

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

No.*	Zero-load ($< 4\%$ of Max)	Load, L_0^{**} ($10 e$)	Indication, I_0 after zero-setting	Add. load, ΔL	Error, E_0
1					
2					
3					
4					
5					

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

No.*	Tare load (about 30 % of Max)	Load, L_0^{**} ($10 e$)	Indication, I_0 , after tare balancing	Add. load, ΔL	Error, E_0
1					
2					
3					
4					
5					

* Apply the zero or tare load, disturb the equilibrium and immediately release zero-setting or tare, apply L_0 if necessary and calculate the error according to 5.2.3/5.6.2 of R 76-2. Perform this five times.** L_0 ($10 e$) shall be applied only if an automatic zero-setting or zero-tracking device is in operation. L_0 shall be applied after releasing tare or zero-setting, immediately after zero is displayed the first time.Check if $E_0 \leq 0.25 e$ ☐ Passed ☐ Failed

Remarks:

8 TILTING (R 76-2, 6.1, 6.1.1-6.1.3)

Application no.:
 Type designation:
 Date:
 Observer:
 Verification
 scale interval, e :
 Resolution during test
 (smaller than e):

	At start	At max	At end	
Temp.:				°C
Rel. h.:				%
Time:				
Bar. pres.:				hPa

(only class I)

- ☐ Instrument with leveling device and level indicator
☐ Instrument with automatic tilt sensor
☐ Instrument without level indicator or automatic tilt sensor
☐ Mobile instrument with automatic tilt sensor
☐ Mobile instrument with Cardanic suspension

Limiting value of tilting = _____

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

Automatic zero-setting and zero-tracking device is:

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

$E_v = I_v + \frac{1}{2} e - \Delta L_v - L$ ($v = 1, 2, 3, 4, 5$), I_v = Indication, ΔL_v = additional load

$E_{c\ v} = E_v - E_{v\ 0}$ with $E_{v\ 0}$ = error calculated at or near zero

Load, L	Reference position	Tilted position with the limiting value of tilting				
	1	2	3	4	5	

unloaded	$I_v =$	_____	_____	$2\ e =$	_____	
	$\Delta L_v =$	_____	_____		$ E_{1\ 0} - E_{v\ 0} _{\max} =$	_____
	$E_{v\ 0} =$	_____	_____			

$L =$	$I_v =$	_____	$mpe =$
	$\Delta L_v =$	_____	
	$E_v =$	_____	
	$E_{c\ v} =$	_____	
			$ E_{c\ 1} - E_{c\ v} _{\max} =$

(Max)	$I_v =$	_____	$mpe =$
	$\Delta L_v =$	_____	
	$E_v =$	_____	
	$E_{c\ v} =$	_____	
			$ E_{c\ 1} - E_{c\ v} _{\max} =$

Check if the differences are

- a) $\leq 2\ e$ for the unloaded instrument (not valid for class II instruments, if they are not used for direct sales to the public)
 b) \leq absolute value of mpe for the loaded instrument

☐ Passed ☐ Failed

Remarks:

9 TARE (WEIGHING TEST) (R 76-2, 5.6.1)

Application no.:
 Type designation:
 Date:
 Observer:
 Verification
 scale interval, e :
 Resolution during test
 (smaller than e):

	At start	At max	At end	
Temp.:				°C
Rel. h.:				%
Time:				
Bar. pres.:				hPa

(only class I)

Automatic zero-setting and zero-tracking device is:

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

$$E = I + \frac{1}{2}e - \Delta L - L$$

 $E_c = E - E_0$ with E_0 = error calculated at or near zero*

	Load, L	Indication, I		Add. load, ΔL		Error, E		Corrected error, E_c		mpe
		↓	↑	↓	↑	↓	↑	↓	↑	
First tare load <div></div>		*				*				

Second tare load <div></div>		*				*				

Check if $|E_c| \leq |mpe|$ ☐ Passed☐ Failed

Remarks:

10 WARM-UP TIME (R 76-2, 6.2)

Application no.:
 Type designation:
 Date:
 Observer:
 Verification
 scale interval, e :
 Resolution during test
 (smaller than e):

	At start	At max	At end	
Temp.:				°C
Rel. h.:				%
Time:				
Bar. pres.:				hPa

(only class I)

Automatic zero-setting and zero-tracking device is:

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

Duration of disconnection before test: hours

$$E = I + \frac{1}{2} e - \Delta L - L$$

E_0 = error calculated prior to each measurement at or near zero (unloaded)

E_L = error calculated at load (loaded)

	Time*	Load, L	Indication, I	Add. load, ΔL	Error, E	$E_L - E_0$	mpe =
Unloaded	0 min						
Loaded							
Unloaded	5 min						
Loaded							
Unloaded	15 min						
Loaded							
Unloaded	30 min						
Loaded							

* counted from the moment an indication has first appeared.

Check if $|E_L - E_0| \leq |mpe|$

☐ Passed
 ☐ Failed

Remarks:

11 VOLTAGE VARIATIONS (R 76-2, 6.4)

Application no.:
 Type designation:
 Date:
 Observer:
 Verification
 scale interval, e :
 Resolution during test
 (smaller than e):

	At start	At max	At end	
Temp.:				°C
Rel. h.:				%
Time:				
Bar. pres.:				hPa

(only class I)

- ☐ Mains power supply (AC), R 76-2, 6.4.1
☐ External or plug-in power supply device (AC or DC), R 76-2, 6.4.2
☐ Rechargeable battery power supply, (re)charge during the operation of the instrument is possible, R 76-2, 6.4.2
☐ Non-rechargeable and rechargeable battery power supply, (re)charge during the operation of the instrument is not possible, R 76-2, 6.4.3
☐ 12 V or 24 V road vehicle battery power supply, R 76-2, 6.4.4

$U_{\text{nom}} =$ V $U_{\text{min}} =$ V $U_{\text{max}} =$ V

Calculate lower and upper limits of applied voltages according to R 76-2, 6.4.4. If a voltage-range ($U_{\text{min}} / U_{\text{max}}$) is marked, use the average value as reference value.

Automatic zero-setting and zero-tracking device is:

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

Category of power supply (if an instrument has more than one power supply):

$E = I + \frac{1}{2} e - \Delta L - L$ $E_c = E - E_0$ with $E_0 =$ error calculated at or near zero

Voltage	U , (V)	Load, L	Indication, I	Add. load, ΔL	Error, E	Corrected error, E_c	mpe
Reference value		10 $e =$					
Lower limit		10 $e =$					
Upper limit		10 $e =$					

Category of power supply (if an instrument has more than one power supply):

$E = I + \frac{1}{2} e - \Delta L - L$ $E_c = E - E_0$ with $E_0 =$ error calculated at or near zero

Voltage	U , (V)	Load, L	Indication, I	Add. load, ΔL	Error, E	Corrected error, E_c	mpe
Reference value		10 $e =$					
Lower limit		10 $e =$					
Upper limit		10 $e =$					

Check if $|E_c| \leq |mpe|$

☐ Passed ☐ Failed

Remarks:

12 ELECTRICAL DISTURBANCES**12.1 AC mains voltage dips and short interruptions (R 76-2, 8.3.1)**

Application no.:

Type designation:

Date:

Observer:

Verification

scale interval, e :

Resolution during test

(smaller than e):

	At start	At max	At end	
Temp.:				°C
Rel. h.:				%
Time:				
Bar. pres.:				hPa

Mains power supply voltage: U_{nom} U_{min} U_{max} Power supply voltage for the test: U_{test} = U_{nom} or the average value of U_{min} and U_{max}

Load	Disturbance				Result		
	Amplitude of U_{test}	Duration / number of cycles	Number of disturbances ≥ 10	Repetition interval (s) ≥ 10 s	Indication, I	Significant fault ($> e$) or detection and reaction	
						No	Yes (see remarks)
	Without disturbance						
	0 %	0.5					
	0 %	1					
	40 %	10					
	70 %	25					
	80 %	250					
	0 %	250					

Check if a significant fault occurred

☐ Passed ☐ Failed

Remarks:

12.2 Electrical bursts (R 76-2, 8.3.2)

a) Mains power supply lines

Application no.:

Type designation:

Date:

Observer:

Verification:

scale interval, e :

Resolution during test:

(smaller than e):

	At start	At max	At end	
Temp.:				°C
Rel. h.:				%
Time:				
Bar. pres.:				hPa

Mains power supply voltage: U_{nom} U_{min} U_{max} Power supply voltage for the test: U_{test} = U_{nom} or the average value of U_{min} and U_{max}

Test voltage (bursts) on each connection of the mains power supply lines: 1 kV

Duration of the test at connection and each polarity: 1 min

Load	Disturbance				Result		
	Bursts on connection			Polarity	Indication, <i>I</i>	Significant fault ($> e$) or detection and reaction	
	L ↓ ground	N ↓ ground	PE ↓ ground				
	No	Yes (see remarks)					
	Without disturbance						
	X			positive			
				negative			
	Without disturbance						
		X		positive			
				negative			
	Without disturbance						
			X	positive			
				negative			

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

Check if a significant fault occurred

☐ Passed
 ☐ Failed

Remarks:

b) I/O circuits and communication lines

Application no.:

Type designation:

Date:

Observer:

Verification

scale interval, e :

Resolution during test

(smaller than e):

	At start	At max	At end	
Temp.:				°C
Rel. h.:				%
Time:				
Bar. pres.:				hPa

Test voltage (bursts) on each cable/interface (I/O signals, data and control lines): 0.5 kV

Duration of the test at each cable/interface and each polarity: 1 min

Disturbance			Result	
Load	Bursts on cable/interface (Type, nature)	Polarity/ disturbance	Indication, I	Significant fault ($> e$) or detection and reaction
				No Yes (see remarks)
1		Without disturbance		
		positive		
2		Without disturbance		
		positive		
3		Without disturbance		
		positive		
4		Without disturbance		
		positive		
5		Without disturbance		
		positive		
6		Without disturbance		
		positive		
7		Without disturbance		
		positive		
8		Without disturbance		
		positive		
9		Without disturbance		
		positive		
		negative		

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

Check if a significant fault occurred

☐ Passed ☐ Failed

Remarks:

12.3 Surges (R 76-2, 8.3.3)**a) AC mains power supply**

Application no.:

Type designation:

Date:

Observer:

Verification

scale interval, e :Resolution during test
(smaller than e):

	At start	At max	At end	
Temp.:				°C
Rel. h.:				%
Time:				
Bar. pres.:				hPa

Surges on AC mains power supply lines

Load	Disturbance						Result			
	3 positive and 3 negative surges synchronously with AC supply voltage					Polarity	Indication, <i>I</i>	Significant fault (> <i>e</i>) or detection and reaction		
	amplitude/ apply on	angle						No	Yes (see remarks)	
		0°	90°	180°	270°					
	0.5 kV L ↓ N	Without disturbance								
		X				pos				
							neg			
			X			pos				
							neg			
				X		pos				
							neg			
					X	pos				
							neg			
	1 kV L ↓ PE	Without disturbance								
		X				pos				
							neg			
			X			pos				
							neg			
				X		pos				
							neg			
					X	pos				
							neg			
	1 kV N ↓ PE	Without disturbance								
		X				pos				
							neg			
			X			pos				
							neg			
				X		pos				
							neg			
					X	pos				
							neg			

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

Check if a significant fault occurred

☐ Passed ☐ Failed

Remarks:

b) Any other kind of power supply

Application no.:

Type designation:

Date:

Observer:

Verification

scale interval, e :

Resolution during test

(smaller than e):

	At start	At max	At end	
Temp.:				°C
Rel. h.:				%
Time:				
Bar. pres.:				hPa

Kind or type of power supply

DC

☐ Other form

Voltage

Surges on other power supply lines

Surges on other power supply lines						
Load	Disturbance			Result		
	3 positive and 3 negative surges		Polarity	Indication, <i>I</i>	Significant fault (> <i>e</i>) or detection and reaction	
	apply on	amplitude			No	Yes (see remarks)
	L ↓ N	Without disturbance				
		0.5 kV	pos			
			neg			
	L ↓ PE	Without disturbance				
		1 kV	pos			
			neg			
	N ↓ PE	Without disturbance				
		1 kV	pos			
			neg			

L = positive conductor, N = negative or neutral conductor, PE = protective earth

Check if a significant fault occurred

☐ Passed ☐ Failed

Remarks:

12.4 Electrostatic discharges (R 76-2, 8.3.4)**a) Direct application**

Application no.:

Type designation:

Date:

Observer:

Verification

scale interval, e :

Resolution during test

(smaller than e):

	At start	At max	At end	
Temp.:				°C
Rel. h.:				%
Time:				
Bar. pres.:				hPa

☐ Contact discharge☐ Paint penetration☐ Air discharges

Load	Discharges				Result		
	Test voltage (kV)	Polarity	Number of discharges ≥ 10	Repetition interval ≥ 10 s	Indication, I	Significant fault ($> e$) or detection and reaction	
						No	Yes (remarks, test points)
	Without disturbance						
	2	pos.					
	4	pos.					
	6	pos.					
	8 (air discharges)	pos.					
	Without disturbance						
	2	neg.					
	4	neg.					
	6	neg.					
	8 (air discharges)	neg.					

Check if a significant fault occurred

☐ Passed☐ Failed*Note:* If the EUT fails, the test point at which this occurs shall be recorded.

Remarks:

b) Indirect application (contact discharges only)

Application no.:

Type designation:

Date:

Observer:

Verification

scale interval, e :

Resolution during test

(smaller than e):

	At start	At max	At end	
Temp.:				°C
Rel. h.:				%
Time:				
Bar. pres.:				hPa

Horizontal coupling plane

Horizontal coupling plane							
Load	Discharges				Result		
	Test voltage (kV)	Polarity	Number of discharges ≥ 10	Repetition interval ≥ 10 s	Indication, I	Significant fault ($> e$) or detection and reaction	
						No	Yes (remarks, test points)
	Without disturbance						
	2	pos.					
	4	pos.					
	6	pos.					
	Without disturbance						
	2	neg.					
	4	neg.					
	6	neg.					

Vertical coupling plane

Vertical coupling plane							
Load	Discharges				Result		
	Test voltage (kV)	Polarity	Number of discharges ≥ 10	Repetition interval ≥ 10 s	Indication, I	Significant fault ($> e$) or detection and reaction	
						No	Yes (remarks, test points)
	Without disturbance						
	2	pos.					
	4	pos.					
	6	pos.					
	Without disturbance						
	2	neg.					
	4	neg.					
	6	neg.					

Check if a significant fault occurred

☐ Passed☐ Failed*Note:* If the EUT fails, the test point at which this occurs shall be recorded.

Remarks:

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

a) Direct application

Contact discharges:

Air discharges:

b) Indirect application

12.5 Immunity to radiated electromagnetic fields (R 76-2, 8.3.5)

Application no.:

Type designation:

Date:

Observer:

Verification

scale interval, e :

Resolution during test

(smaller than e):

	At start	At max	At end	
Temp.:				°C
Rel. h.:				%
Time:				
Bar. pres.:				hPa

☐ Frequency range 26-2000 MHz if the test according to R 76-2, 8.3.6 cannot be applied (no mains or I/O ports available)

☐ Frequency range 80-2000 MHz if the test according to R 76-2, 8.3.6 is performed (see form no. 12.6)
Rate of sweep: Material of load:

Load	Disturbance				Result		
	Antenna	Frequency range (MHz)	Polarization	Facing EUT	Indication, <i>I</i>	Significant fault (> <i>e</i>) or detection and reaction	
						No	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: 26-2000 MHz or 80-2000 MHz

Field strength: 10 V/m

Modulation: 80 % AM, 1 kHz, sine wave

Note: If EUT fails, the frequency at which this occurs shall be recorded

Check if a significant fault occurred

☐ Passed ☐ Failed

Remarks:

Description of the set-up of EUT, e.g. by photos or sketches:

12.6 Immunity to conducted radio-frequency fields (R 76-2, 8.3.6)

Application no.:

Type designation:

Date:

Observer:

Verification

scale interval, *e*:

Resolution during test

(smaller than *e*):

	At start	At max	At end	
Temp.:				°C
Rel. h.:				%
Time:				
Bar. pres.:				hPa

Rate of sweep: Load: Material of load:

Cable / Interface	Frequency range (MHz)	Result		
		Indication, <i>I</i>	Significant fault (> <i>e</i>) or detection and reaction	
			No	Yes (remarks)
	without disturbance			
	without disturbance			
	without disturbance			
	without disturbance			
	without disturbance			
	without disturbance			
	without disturbance			
	without disturbance			
	without disturbance			
	without disturbance			

Frequency range: 0.15-80 MHz RF amplitude (50 ohms): 10 V (e.m.f.) Modulation: 80 % AM, 1 kHz, sine wave

Check if a significant fault occurred.

Note: If the EUT fails, the frequency at which this occurs shall be recorded☐ Passed ☐ Failed

Remarks:

12.7 Electrical transients on instruments powered from a road vehicle power supply (R 76-2, 8.3.7)**a) Conduction along supply lines of external 12 V and 24 V batteries**

Application no.:

Type designation:

Date:

Observer:

Verification

scale interval, e :

Resolution during test

(smaller than e):

	At start	At max	At end	
Temp.:				°C
Rel. h.:				%
Time:				
Bar. pres.:				hPa

☐ 12 V battery voltage☐ 24 V battery voltage

12 V battery voltage					
Load	Disturbance		Result		
	Test pulse	Conducted voltage	Indication, I	Significant fault ($> e$) or detection and reaction	
				No	Yes (remarks)
	Without disturbance				
	2a	+50 V			
	2b*	+10 V			
	3a	−150 V			
	3b	+100 V			
	4	−7 V			

24 V battery voltage					
Load	Disturbance		Result		
	Test pulse	Conducted voltage	Indication, I	Significant fault ($> e$) or detection and reaction	
				No	Yes (remarks)
	Without disturbance				
	2a	+50 V			
	2b*	+20 V			
	3a	−200 V			
	3b	+200 V			
	4	−16 V			

* Test pulse 2b is only applicable if the measuring instrument may be connected to the battery via the main (ignition) switch of the car, i.e. if the manufacturer of the measuring instrument has **not** specified that the instrument is to be connected directly (or by its own main switch) to the battery.

Check if a significant fault occurred

☐ Passed ☐ Failed

Remarks:

b) Capacitive and inductive coupling via lines other than supply lines

Application no.:

Type designation:

Date:

Observer:

Verification

scale interval, e :

Resolution during test

(smaller than e):

	At start	At max	At end	
Temp.:				°C
Rel. h.:				%
Time:				
Bar. pres.:				hPa

☐ 12 V battery voltage☐ 24 V battery voltage

12 V battery voltage						
Kind or type of other lines (no power supply lines)	Disturbance			Result		
	Load	Test pulse	Conducted voltage	Indication, <i>I</i>	Significant fault (> <i>e</i>) or detection and reaction	
					No	Yes (remarks)
		Without disturbance				
		a	−60 V			
		b	+40 V			
		Without disturbance				
		a	−60 V			
		b	+40 V			
		Without disturbance				
		a	−60 V			
		b	+40 V			

24 V battery voltage						
Kind or type of other lines (no power supply lines)	Disturbance			Result		
	Load	Test pulse	Conducted voltage	Indication, <i>I</i>	Significant fault (> <i>e</i>) or detection and reaction	
					No	Yes (remarks)
		Without disturbance				
		a	−80 V			
		b	+80 V			
		Without disturbance				
		a	−80 V			
		b	+80 V			
		Without disturbance				
		a	−80 V			
		b	+80 V			

Check if a significant fault occurred.

Note: If EUT fails, the frequency at which this occurs shall be recorded

☐ Passed ☐ Failed

Remarks:

Application no.:	
Type designation:	
Date:	
Observer:	T
Verification		R
scale interval, e :	T
Resolution during test		B
(smaller than e):	

	At start	At max	At end	
Temp.:				°C
Rel. h.:				%
Time:				
Bar. pres.:				hPa

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

$E_c = E - E_0$ with E_0 = error calculated at or near zero *

[illegible]

☐ Passed ☐ Failed

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14 SPAN STABILITY (R 76-2, 8.4)

Application no.:
 Type designation:
 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

Zero load = Test load =

Automatic span adjustment device:

☐ Existent ☐ Non-existent

Measurement no. 1: Initial measurement

Date:
 Observer:
 Location:

	At start	At max	At end	
Temp.:				°C
Rel. h.:				%
Time:				
Bar. pres.:				hPa

☐ Automatic span adjustment device activated (if existent)

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

	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.

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

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

$0.1 e =$

If $|(E_L - E_0)_{\max} - (E_L - E_0)_{\min}| \leq 0.1 e$, the loading and reading will be sufficient for each of the subsequent measurements; if not, five loadings and readings shall be performed at each measurement.

Remarks:

Subsequent measurements

Measurement no. 2:

Date:
 Observer:
 Location:

	At start	At max	At end	
Temp.:				°C
Rel. h.:				%
Time:				
Bar. pres.:				hPa

- ☐ Measurement after the temperature test ☐ Measurement after the damp heat test
☐ Measurement after disconnection from the mains ☐ Measurement after change in test location
☐ Other condition:

☐ Automatic span adjustment device activated (if existent)

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

	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:

Measurement no. 3:

Date:
 Observer:
 Location:

	At start	At max	At end	
Temp.:				°C
Rel. h.:				%
Time:				
Bar. pres.:				hPa

- ☐ Measurement after the temperature test ☐ Measurement after the damp heat test
☐ Measurement after disconnection from the mains ☐ Measurement after change in test location
☐ Other condition:

☐ Automatic span adjustment device activated (if existent)

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

	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:

Subsequent measurements

Measurement no. 4:

Date:

Observer:

Location:

	At start	At max	At end	
Temp.:				°C
Rel. h.:				%
Time:				
Bar. pres.:				hPa

- | | |
|---|--|
| <input type="checkbox"/> Measurement after the temperature test | <input type="checkbox"/> Measurement after the damp heat test |
| <input type="checkbox"/> Measurement after disconnection from the mains | <input type="checkbox"/> Measurement after change in test location |
| <input type="checkbox"/> Other condition: | |

☐ Automatic span adjustment device activated (if existent)

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

	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:

Measurement no. 5:

Date:

Observer:

Location:

	At start	At max	At end	
Temp.:				°C
Rel. h.:				%
Time:				
Bar. pres.:				hPa

- | | |
|---|--|
| <input type="checkbox"/> Measurement after the temperature test | <input type="checkbox"/> Measurement after the damp heat test |
| <input type="checkbox"/> Measurement after disconnection from the mains | <input type="checkbox"/> Measurement after change in test location |
| <input type="checkbox"/> Other condition: | |

☐ Automatic span adjustment device activated (if existent)

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

	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:

Subsequent measurements

Measurement no. 6:

Date:
 Observer:
 Location:

	At start	At max	At end	
Temp:				°C
Rel. h:				%
Time:				
Bar. pres:				hPa

- | | |
|---|--|
| <input type="checkbox"/> Measurement after the temperature test | <input type="checkbox"/> Measurement after the damp heat test |
| <input type="checkbox"/> Measurement after disconnection from the mains | <input type="checkbox"/> Measurement after change in test location |
| <input type="checkbox"/> Other condition: | |

☐ Automatic span adjustment device activated (if existent)

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

	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:

Measurement no. 7:

Date:
 Observer:
 Location:

	At start	At max	At end	
Temp:				°C
Rel. h:				%
Time:				
Bar. pres:				hPa

- | | |
|---|--|
| <input type="checkbox"/> Measurement after the temperature test | <input type="checkbox"/> Measurement after the damp heat test |
| <input type="checkbox"/> Measurement after disconnection from the mains | <input type="checkbox"/> Measurement after change in test location |
| <input type="checkbox"/> Other condition: | |

☐ Automatic span adjustment device activated (if existent)

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

	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:

Subsequent measurements

Measurement no. :

Date:

Observer:

Location:

	At start	At max	At end	
Temp.:				°C
Rel. h.:				%
Time:				
Bar. pres.:				hPa

- | | |
|---|--|
| <input type="checkbox"/> Measurement after the temperature test | <input type="checkbox"/> Measurement after the damp heat test |
| <input type="checkbox"/> Measurement after disconnection from the mains | <input type="checkbox"/> Measurement after change in test location |
| <input type="checkbox"/> Other condition: | |

☐ Automatic span adjustment device activated (if existent)

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

	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:

Measurement no. :

Date:

Observer:

Location:

	At start	At max	At end	
Temp.:				°C
Rel. h.:				%
Time:				
Bar. pres.:				hPa

- | | |
|---|--|
| <input type="checkbox"/> Measurement after the temperature test | <input type="checkbox"/> Measurement after the damp heat test |
| <input type="checkbox"/> Measurement after disconnection from the mains | <input type="checkbox"/> Measurement after change in test location |
| <input type="checkbox"/> Other condition: | |

☐ Automatic span adjustment device activated (if existent)

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

	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:

14 SPAN STABILITY (R 76-2, 8.4)

Application no.:

Type designation:

Plot on the diagram the indication of temperature test (T) damp heat test (D) and disconnections from the mains power supply (P)

Maximum allowable variation

1

Failed

10

