WELMEC

European Cooperation in Legal Metrology

Measuring Instruments Directive 2014/32/EU
Discontinuous Totalisers
Corresponding Tables
OIML R 107-1 2007 – MID Annex VIII, Chapter IV

WELMEC

European Cooperation in Legal Metrology

WELMEC is a cooperation between the legal metrology authorities of the Member States of the European Union and EFTA.

This document is one of a number of Guides published by WELMEC to provide guidance to manufacturers of measuring instruments and to Notified Bodies responsible for conformity assessment of their products.

The Guides are purely advisory and do not themselves impose any restrictions or additional technical requirements beyond those contained in relevant EU Directives.

Alternative approaches may be acceptable, but the guidance provided in this document represents the considered view of WELMEC as to the best practice to be followed.

Published by:
WELMEC Secretariat

E-mail: secretary@welmec.org
Website: www.welmec.org

Discontinuous Totalisers

Corresponding Table 2014/32/EU vs. OIML R 107-1:2007 (E)

Notes:

1. The column “Comments” indicates if necessary the relevant text of OIML R 107-1 and related explanations concerning the compliance with the relevant requirements in Directive 2014/32/EU.

2. The column “Conclusion” gives the conclusion on the compliance between OIML R 107-1 and the relevant requirements in Directive 2014/32/EU.

   The indication “Covered” means that:
   - the requirement of OIML R 107-1 is identical to the one of Directive 2014/32/EU; or
   - the requirement of OIML R 107-1 is more severe than the one of Directive 2014/32/EU; or
   - all the requirements of OIML R 107-1 fulfil requirements in Directive 2014/32/EU (even when Directive 2014/32/EU allows other alternatives),
   - the indication “Partially covered” means that the requirement is not fully covered or R 51 allows possibilities which are not foreseen in the directive.

   The indication “Not Covered” means that the requirement in Directive 2014/32/EU is either not compatible with the relevant OIML R 107-1 requirement or not included in OIML R 107-1.

   The indication “Not Relevant” means that the requirement in Annex I of Directive 2014/32/EU is not relevant for discontinuous totalisers.

The text in *italic* is an extract from the relevant clause of the OIML Recommendation.

	Directive 2014/32/EU Essential requirements of Annex I and Annex VIII Automatic Weighing Instruments (MI-006)	OIML R 107-1:2007(E)	Comments	Conclusion
	ANNEX I			
1.	**Allowable Errors**			
1.1	Under rated operation conditions and in absence of a disturbance, the error of measurement shall not exceed the maximum permissible error (MPE) value as laid down in the appropriate instrument-specific requirements. Unless stated otherwise in the instrument-specific annexes, MPE is expressed as a bilateral value of the deviation from the true measurement value.	T.5.2, T.4.5.8, 2.2 & 4.1.1		Covered
1.2	Under rated operating conditions and in presence of a disturbance, the performance requirement shall be as laid down in the appropriate instrument-specific requirements. Where the instrument is intended to be used in a specified permanent continuous electromagnetic field the permitted performance during the radiated electromagnetic field-amplitude modulated test shall be within MPE.	4.1.2, 4.2.1 & 4.2.4	Covered except for permanent continuous electromagnetic field	Partially covered
1.3	The manufacturer shall specify the climatic, mechanical and electromagnetic environments in which the instrument is intended to be used, power supply and other influence quantities likely to affect its accuracy, taking into account of the requirements laid down in the appropriate instrument-specific annexes.	5.1.1		Covered

<table>
<tr><th colspan="2">Directive 2014/32/EU
Essential requirements of Annex I and Annex VIII
Automatic Weighing Instruments (MI-006)</th><th>OIML R 107-1:2007(E)</th><th>Comments</th><th>Conclusion</th></tr>
<tr><td>1.3.1</td><td>Climatic environments
The manufacturer shall specify the upper temperature limit and the lower temperature limit from any of the values in Table 1 unless otherwise specified in the Annexes III to XII, and indicate whether the instrument is designed for condensing or non-condensing humidity as well as the intended location for the instrument, i.e. open or closed.
<table>
<tr><td colspan="5">Temperature limits:</td></tr>
<tr><td>Upper temperature limit</td><td>30 °C</td><td>40 °C</td><td>55 °C</td><td>70 °C</td></tr>
<tr><td>Lower temperature limit</td><td>5 °C</td><td>-10 °C</td><td>-25 °C</td><td>-40 °C</td></tr>
</table></td><td>2.7.1.1

4.2.3</td><td>Covered except for condensing humidity or intended location</td><td>Partially covered</td></tr>
<tr><td>1.3.2</td><td>(a) Mechanical environments are classified into classes M1 to M3 as described below

M1: This class applies to instruments used in locations with vibration and shocks of low significance, e.g. for instruments fastened to light structures subject to negligible vibrations and shocks transmitted from local blasting or pile-driving activities, slamming doors, etc.
M2: This class applies to instruments used in locations with significant or high levels of vibration and shock, e.g. transmitted from machines and passing vehicles in the vicinity or adjacent to heavy machines, conveyor belts, etc.</td><td></td><td>Not relevant according to Annex VIII Chapter I point 1.3 § 2.</td><td>Not relevant</td></tr>
</table>

	Directive 2014/32/EU Essential requirements of Annex I and Annex VIII Automatic Weighing Instruments (MI-006)	OIML R 107-1:2007(E)	Comments	Conclusion
	M3: This class applies to instruments used in locations where the level of vibration and shock is high and very high, e.g. for instruments mounted directly on machines, conveyor belts, etc. (b) The following influence quantities shall be considered in relation with mechanical environments: - Vibration - Mechanical shock			
1.3.3	(a) Electromagnetic environments are classified into E1, E2 or E3 as described below, unless otherwise laid down in the appropriate instrument-specific annexes. E1: This class applies to instruments used in locations with electromagnetic disturbances corresponding to those likely to be found in residential, commercial and light industrial buildings.		Definitions of E1, E2 & E3 are not mentioned in the recommendation	Not covered
	E2: This class applies to instruments used in locations with electromagnetic disturbances corresponding to those likely to be found in other industrial buildings.		Definitions of E1, E2 & E3 are not mentioned in the recommendation	Not covered
	E3: This class applies to instruments supplied by the battery of a vehicle. Such instruments shall comply with the requirements of E2 and the following additional requirements:		Definitions of E1, E2 & E3 are not mentioned in the recommendation	Partially covered

Directive 2014/32/EU Essential requirements of Annex I and Annex VIII Automatic Weighing Instruments (MI-006)	OIML R 107-1:2007(E)	Comments	Conclusion
- voltage reductions caused by energizing the starter-motor circuits of internal combustion engines, - load dump transients occurring in the event of a discharged battery being disconnected while the engine is running	A.7.4.6	Covered except for load dump requirement (R107 does not cover load dump requirement but it is in D11:2013) Battery voltage variations when starting up a vehicle engine: OIML D11:2013 (14.2, Table 40) “Load dump” test: OIML D11:2013 (14.2, Table 41) Tests and severity levels in 1.3.3 (b) below shall be applied for E3, plus tests specified in	Partially covered
(b) The following influence quantities shall be considered in relation with electromagnetic environments	4.1.2	Not all quantities are covered	Partially covered
- voltage interruptions	A.7.4.1 A.7.4.6	Covered for E1 & E2 AC mains Covered for E3 Covered on the provision that the relevant severity level specified in OIML D11:2013 is used OIML D11:2013 (12.3, Table 23). For E1 use severity level 1. For E2 use severity level 2	Partially covered
- short voltage reductions	A.7.4.1	Covered for E1 & E2 AC mains Covered for E3 Covered on the provision that the relevant severity level specified in OIML D11:2013 is used OIML D11:2013 (12.3, Table 23). For E1 use severity level 1. For E2 use severity level 2	Partially covered

Directive 2014/32/EU Essential requirements of Annex I and Annex VIII Automatic Weighing Instruments (MI-006)	OIML R 107-1:2007(E)	Comments	Conclusion
- voltage transients on supply lines and/or signal lines	A.7.4.2	Covered for E1 & E3 Covered on the provision that the relevant severity level specified in OIML D11:2013 is used OIML D 11 (12.3 Table 26). For E1 use severity level 2. For E2 use severity level 3. OIML D 11 (12.4 Table 28). For E1 use severity level 2. For E2 use severity level 3.	Partially covered
- electrostatic discharges	A.7.4.4		Covered
- radio frequency electromagnetic fields	A.7.4.5.1	Partially covered for E1 & E2& E3; the range from 2 GHz to 3 GHz is not covered. Covered on the provision that the relevant severity level specified in OIML D11:2013 is used OIML D 11 (13.2 Table 32, 33 and 34). For E1 use severity level 2. For E2 use severity level 3. * limit frequency range in Table 34 to 3 GHz	Partially covered
- conducted radio frequency electromagnetic fields on supply lines and/or signal lines	A.7.4.5.2	R 107 is more severe than MID	Covered
- surges on supply lines and/or signal lines	A.7.4.3 A.7.4.6.1	Covered for E3. Test levels are not sufficient for E1/E2. Covered on the provision that the relevant severity level specified in OIML D11:2013 is used OIML D 11 (12.3, Table 27). For E1 use severity level 2 and for E2 use severity level 3. OIML D 11 (12.4 Table 29). For E1 use severity level 2 and for E2 use severity level 3.	Partially covered

Directive 2014/32/EU Essential requirements of Annex I and Annex VIII Automatic Weighing Instruments (MI-006)		OIML R 107-1:2007(E)	Comments	Conclusion
1.3.4	Other influence quantities to be considered, where appropriate, are:		See comments below	Partially covered
	- voltage variation	2.7.2 4.2.7 4.2.8 A.7.3.4 A.7.3.5 A.7.3.6 A.7.3.7		Covered
	- mains frequency variation		Not covered by R107-1 but in OIML D11:2013 OIML D 11 (12.2, Table 21)	Not covered
	- power frequency magnetic fields		Not covered by R107-1 but in OIML D11:2013 OIML D 11 (13.1, Table 30)	Not covered
	- any other quantity likely to influence in a significant way the accuracy of the instrument.	4.2.5, A.5.3	4.2.5 Warm-up time	Covered
1.4	When carrying out the tests as envisaged in this Directive, the following points shall apply:			

Directive 2014/32/EU Essential requirements of Annex I and Annex VIII Automatic Weighing Instruments (MI-006)	OIML R 107-1:2007(E)	Comments	Conclusion
1.4.1 *Basic rules for testing and the determination of errors* Essential requirements specified in 1.1 and 1.2 shall be verified for each relevant influence quantity. Unless otherwise specified in the appropriate instrument-specific annex, these essential requirements apply when each influence quantity is applied and its effect evaluated separately, all other influence quantities being kept relatively constant at their reference value. Metrological tests shall be carried out during or after the application of the influence quantity, whichever condition corresponds to the normal operational status of the instrument when that influence quantity is likely to occur.	A.7.1 Annex A		Covered
1.4.2 *Ambient humidity* (a) According to the climatic operating environment in which the instrument is intended to be used either the damp heat-steady state (non-condensing) or damp heat cyclic (condensing) test may be appropriate. (b) The damp heat cyclic test is appropriate where condensation is important or when penetration of vapour will be accelerated by the effect of breathing. In conditions where non-condensing humidity is a factor the damp-heat steady state is appropriate.	A.7.3.3 & 4.2.3	Covered except for the damp heat condensing test	Partially covered
2 Reproducibility The application of the same measurand in a different location or by different user, all other conditions being the same, shall result in the close agreement of successive measurements. The difference between the measurement results shall be small when compared with the MPE.	R 107	Covered provided all requirements and tests should be performed and in accordance with R 107.	Partially covered
3 Repeatability The application of the same measurand under the same conditions of measurement shall result in the close agreement of successive measurements. The difference between the measurement results shall be small when compared with the MPE.	R 107	Covered provided all requirements and tests should be performed and in accordance with R 107.	Partially covered

	Directive 2014/32/EU Essential requirements of Annex I and Annex VIII Automatic Weighing Instruments (MI-006)	OIML R 107-1:2007(E)	Comments	Conclusion
4	Discrimination and sensitivity A measuring instrument shall be sufficiently sensitive and the discrimination threshold shall be sufficiently low for the intended measurement task.	R 107	Covered provided all requirements and tests should be performed and in accordance with R 107.	Partially covered
5	Durability A measuring instrument shall be designed to maintain an adequate stability of its metrological characteristics over a period of time estimated by the manufacturer's instruction when in the environmental conditions for which it is intended.	4.1.3, 6.7.3 & A.8		Covered
6	Reliability A measuring instrument shall be designed to reduce as far as possible the effect of a defect that would lead to an inaccurate measurement result, unless the presence of such a defect is obvious.	3.2.2 – 3.2.5, 3.4.1 4.1.2, 4.2.1 & 4.2.4		Covered
7	Suitability			
7.1	A measuring instrument shall have no feature likely to facilitate fraudulent use, whereas possibilities for unintentional misuse shall be minimal.	2.6,3.2.1,3.2.2,3.2.3 &3.2.9		Covered
7.2	A measuring instrument shall be suitable for its intended use taking account of the practical working conditions and shall not require unreasonable demands of the user in order to obtain a correct measurement result.	3.1, 3.2.4, 3.2.5, 3.2.7 & 3.2.11		Covered
7.3	The errors of a utility measuring instrument at flows or currents outside the controlled range shall not be unduly biased.			Not relevant
7.4	Where a measuring instrument is designed for the measurement of values of the measurand that are constant over time, the measuring instrument shall be insensitive to small fluctuations of the value of the measurand, or shall take appropriate action.			Not relevant

Directive 2014/32/EU Essential requirements of Annex I and Annex VIII Automatic Weighing Instruments (MI-006)		OIML R 107-1:2007(E)	Comments	Conclusion
7.5	A measuring instrument shall be robust and its materials of construction shall be suitable for the conditions in which it is intended to be used.	3.1		Covered
7.6	A measuring instrument shall be designed so as to allow the control of the measuring tasks after the instrument has been placed on the market and put into use. If necessary, special equipment or software for this control shall be part of the instrument. The test procedure shall be described in the operation manual. When a measuring instrument has associated software which provides other functions besides the measuring function, the software that is critical for the metrological characteristics shall be identifiable and shall not be inadmissibly influenced by the associated software.	3.7, 5.1.2.2, 5.2.2, 3.6.2, 5.1.1 & 3.6		Covered
8	Protection against corruption			
8.1	The metrological characteristics of a measuring instrument shall not be influenced in any inadmissible way by the connection to it of another device, by any feature of the connected device itself or by any remote device that communicates with the measuring instrument.	4.2.6 3.3.2		Covered
8.2	A hardware component that is critical for metrological characteristics shall be designed so that it can be secured. Security measures foreseen shall provide for evidence of an intervention.	3.3		Covered
8.3	Software that is critical for metrological characteristics shall be identified as such and shall be secured. Software identification shall be easily provided by the measuring instrument. Evidence of an intervention shall be available for a reasonable period of time.	3.6, 3.3	Covered except for “identification shall be easily provided…” and “evidence of an intervention…..”	Partially covered

Directive 2014/32/EU Essential requirements of Annex I and Annex VIII Automatic Weighing Instruments (MI-006)		OIML R 107-1:2007(E)	Comments	Conclusion
8.4	Measurement data, software that is critical for measurement characteristics and metrologically important parameters stored or transmitted shall be adequately protected against accidental or intentional corruption.	3.5 & 3.6		Covered
8.5	For utility measuring instruments the display of the total quantity supplied or the displays from which the total quantity supplied can be derived, whole or partial reference to which is the basis for payment, shall not be able to be reset during use.			Not relevant
9	Information to be borne by and to accompany the instrument			
9.1	A measuring instrument shall bear the following inscriptions: (a) manufacturer's name, registered trade name or registered trade mark; (b) information in respect of its accuracy; and, where applicable (c) information in respect of the conditions of use (d) measuring capacity (e) measuring range (f) identity marking (g) number of EU-type examination certificate or the EU design examination certificate (h) information whether or not additional devices providing metrological results comply with the provisions of this Directive on legal metrological control.	3.9	Covered except for the indication of the presence of additional devices.	Partially covered
9.2	An instrument of dimensions too small or of too sensitive a composition to allow it to bear the relevant information shall have its packaging, if any, and the accompanying documents required by the provisions of this Directive suitably marked.			Not relevant

	Directive 2014/32/EU Essential requirements of Annex I and Annex VIII Automatic Weighing Instruments (MI-006)	OIML R 107-1:2007(E)	Comments	Conclusion
9.3	The instrument shall be accompanied by information on its operation, unless the simplicity of the measuring instrument makes this unnecessary. Information shall be easily understandable and shall include where relevant: (a) rated operating conditions (b) mechanical and electromagnetic environment classes (c) the upper and lower temperature limit, whether condensation is possible or not, open or closed location (d) instructions for installation, maintenance, repairs, permissible adjustments (e) instructions for correct operation and any special conditions use (f) conditions for compatibility with interfaces, sub-assemblies or measuring instruments.	5.1.1		Covered
9.4	Groups of identical measuring instruments used in the same location or used for utility measurements do not necessarily require individual instruction manuals.			Not relevant
9.5	Unless specified otherwise in an instrument-specific annex, the scale interval for a measured value shall be in the form $1x10^n$, $2x10^n$, or $5x10^n$, where n is any integer or zero. The unit of measurement or its symbol shall be shown close to the numerical value.	2.3 3.4.2.1		Covered
9.6	A material measure shall be marked with a nominal value or a scale, accompanied by the unit of measurement used.			Not relevant
9.7	The units of measurement used and their symbols shall be in accordance with the provisions of Union legislation on units of measurement and their symbols.	2.8 & 3.9	▪	Covered
9.8	All marks and inscriptions required under any requirement shall be clear, non-erasable, unambiguous and non-transferable.	3.9.4 & 3.10		Covered
10	Indication of result			

Directive 2014/32/EU Essential requirements of Annex I and Annex VIII Automatic Weighing Instruments (MI-006)		OIML R 107-1:2007(E)	Comments	Conclusion
10.1	Indication of the result shall be by means of a display or a hard copy.	2.6 & 3.4		Covered
10.2	The indication of any result shall be clear and unambiguous and accompanied by such marks and inscriptions necessary to inform the user of the significance of the result. Easy reading of the present result shall be permitted under normal conditions of use. Additional indications may be shown provided they cannot be confused with the metrologically controlled indications.	2.6, 3.4.1, 3.4.2, 3.4.3 & 3.4.4		Covered
10.3	In the case of hard copy the print or record shall also be easily legible and non-erasable.	3.5, 3.4.3	Covered except for printing	Partially covered
10.4	A measuring instrument for direct sales trading transactions shall be designed to present the measurement result to both parties in the transaction when installed as intended. When critical in case of direct sales, any ticket provided to the consumer by an ancillary device not complying with the appropriate requirements of this Directive shall bear an appropriate restrictive information.			Not relevant
10.5	Whether or not a measuring instrument intended for utility measurement purposes can be remotely read it shall in any case be fitted with a metrologically controlled display accessible without tools to the customer. The reading of this display is the measurement result that serves as the basis for the price to pay.			Not relevant
11	Further processing of data to conclude the trading transaction			

Directive 2014/32/EU Essential requirements of Annex I and Annex VIII Automatic Weighing Instruments (MI-006)		OIML R 107-1:2007(E)	Comments	Conclusion
11.1	A measuring instrument other than a utility measuring instrument shall record by a durable means the measurement result accompanied by information to identify the particular transaction, when: (a) the measurement is non-repeatable (b) the measuring instrument is normally intended for use in the absence of one of the trading parties.	3.4 & 3.5		Covered
11.2	Additionally, a durable proof of the measurement result and the information to identify the transaction shall be available on request at the time the measurement is concluded.	3.4 & 3.5		Covered
12	Conformity evaluation A measuring instrument shall be designed so as to allow ready evaluation of its conformity with the appropriate requirements of this Directive.	R 107	Covered provided all requirements and tests should be performed and in accordance with R 107.	Partially covered
ANNEXVIIIAUTOMATIC WEIGHING INSTRUMENTS				
DEFINITIONS				
	Automatic weighing instrument An instrument that determines the mass of a product without the intervention of an operator and follows a predetermined programme of automatic processes characteristic of the instrument.	T.1.2		Covered
	Automatic catchweigher An automatic weighing instrument that determines the mass of pre-assembled discrete loads (for example prepackages) or single loads of loose material.			Not relevant

Directive 2014/32/EU Essential requirements of Annex I and Annex VIII Automatic Weighing Instruments (MI-006)	OIML R 107-1:2007(E)	Comments	Conclusion
Automatic checkweigher An automatic catchweigher that subdivides articles of different mass into two or more subgroups according to the value of the difference of their mass and a nominal set-point.			Not relevant
Weight labeller An automatic catchweigher that labels individual articles with the weight value.			Not relevant
Weight/price labeller An automatic catchweigher that labels individual articles with the weight value, and price information.			Not relevant
Automatic gravimetric filling instrument An automatic weighing instrument that fills containers with a predetermined and virtually constant mass of product from bulk.			Not relevant
Discontinuous totaliser(totalising hopper weigher) An automatic weighing instrument that determines the mass of a bulk product by dividing it into discrete loads. The mass of each discrete load is determined in sequence and summed. Each discrete load is then delivered to bulk.	T.1.4		Covered
Continuous totaliser An automatic weighing instrument that continuously determines the mass of a bulk product on a conveyor belt, without systematic subdivision of the product and without interrupting the movement of the conveyor belt.			Not relevant

Directive 2014/32/EU Essential requirements of Annex I and Annex VIII Automatic Weighing Instruments (MI-006)	OIML R 107-1:2007(E)	Comments	Conclusion
Rail-weighbridge An automatic weighing instrument having a load receptor inclusive of rails for conveying railway vehicles.			Not relevant

Directive 2014/32/EU Essential requirements of Annex I and Annex VIII Automatic Weighing Instruments (MI-006)		OIML R 107-1:2007(E)	Comments	Conclusion
SPECIFIC REQUIREMENTS				
Chapter I – Requirements common to all types of automatic weighing instruments				
1	*Rated Operating Conditions* The manufacturer shall specify the rated operating conditions for the instrument as follows:			
1.1	For the measurand: The measuring range in terms of its maximum and minimum capacity.	5.1.1 3.9.2, 3.9.4	For the presentation of the descriptive markings, see 3.9.4	Covered
1.2	For the electrical supply influence quantities: In case of AC voltage supply: the nominal AC voltage supply, or the AC voltage limits. In case of DC voltage supply: the nominal and minimum DC voltage supply, or the DC voltage limits.	5.1.1 3.9.13.9.4	For the presentation of the descriptive markings, see 3.9.4	Covered
1.3	For the mechanical and climatic influence quantities: The minimum temperature range is 30°C unless specified otherwise in the following chapters of this Annex. The mechanical environment classes according to Annex I, paragraph 1.3.2 are not applicable. For instruments which are used under special mechanical strain, e.g. instruments incorporated into vehicles, the manufacturer shall define the mechanical conditions of use.	2.7.1.1		Covered
1.4	For other influence quantities (if applicable): The rate(s) of operation. The characteristics of the product(s) to be weighed.	5.1.1		Covered

Directive 2014/32/EU Essential requirements of Annex I and Annex VIII Automatic Weighing Instruments (MI-006)		OIML R 107-1:2007(E)	Comments	Conclusion
2	*Permissible effect of disturbances – Electromagnetic environment* The required performance and the critical change value are given in the relevant Chapter of this Annex for each type of instrument.			
3	*Suitability*			
3.1	Means shall be provided to limit the effects of tilt, loading and rate of operation such that maximum permissible errors (MPEs) are not exceeded in normal operation.	3.1 & 3.2		Covered
3.2	Adequate material handling facilities shall be provided to enable the instrument to respect the MPEs during normal operation.	3.2.3 & 3.2.9		Covered
3.3	Any operator control interface shall be clear and effective.	3.4.1	Covered for the indication device	Partially covered
3.4	The integrity of the display (where present) shall be verifiable by the operator.	4.2.2		Covered
3.5	Adequate zero setting capability shall be provided to enable the instrument to respect the MPEs during normal operation.	3.8		Covered
3.6	Any result outside the measurement range shall be identified as such, where a printout is possible.	3.2.5		Covered
4	Conformity assessment The conformity assessment procedures referred to in Article 17 that the manufacturer can choose between are: For mechanical systems: B+D or B+E or B+F or D1 or F1 or G or H1. For electromechanical instruments: B+D or B+E or B+F or G or H1. For electronic systems or systems containing software: B+D or B+F or G or H1.			Not covered

<table>
<tr><th colspan="2">Directive 2014/32/EU
Essential requirements of Annex I and Annex VIII
Automatic Weighing Instruments (MI-006)</th><th>OIML R 107-1:2007(E)</th><th>Comments</th><th>Conclusion</th></tr>
<tr><td colspan="2">Chapter IV – Discontinuous Totalisers</td><td></td><td></td><td></td></tr>
<tr><td>1</td><td>Accuracy Classes
Instruments are divided into four accuracy classes as follows: 0,2; 0,5; 1; 2.</td><td>2.1</td><td></td><td>Covered</td></tr>
<tr><td>2</td><td>MPEs<table><tr><th>Accuracy class</th><th>MPE of totalized load</th></tr><tr><td>0.2</td><td>± 0.10 %</td></tr><tr><td>0.5</td><td>± 0.25 %</td></tr><tr><td>1</td><td>± 0.50 %</td></tr><tr><td>2</td><td>± 1.00 %</td></tr></table></td><td>2.2.1 Table 1</td><td></td><td>Covered</td></tr>
<tr><td>3</td><td>Totalisation scale interval
The totalisation scale interval (d_t) shall be in the range:
0,01 % Max ≤ d_t ≤ 0,2 % Max</td><td>2.4</td><td></td><td>Covered</td></tr>
<tr><td>4</td><td>Minimum Totalised Load (Σ_{min})
The minimum totalised load (Σ_{min}) shall be not less than the load at which the MPE is equal to the totalisation scale interval (d_t) and not less than the minimum load as specified by the manufacturer.</td><td>2.5</td><td></td><td>Covered</td></tr>
<tr><td>5</td><td>Zero Setting
Instruments that do not tare weigh after each discharge shall have a zero setting device. Automatic operation shall be inhibited if zero indication varies by:
— 1 d_t on instruments with automatic zero setting device;
— 0,5 d_t on instruments with a semi-automatic, or non-automatic, zero setting device.</td><td>3.8

3.8.3</td><td></td><td>Covered</td></tr>
<tr><td>6</td><td>Operator Interface
Operator adjustments and reset function shall be inhibited during automatic operation.</td><td>3.2.7</td><td></td><td>Covered</td></tr>
</table>

<table>
<tr><td>7</td><td>Printout
On instruments equipped with a printing device, the reset of the total shall be inhibited until the total is printed.
The printout of the total shall occur if automatic operation is interrupted.</td><td>3.4.3, 3.2.5</td><td>Covered only in the case that printing of results takes place with a clear warning.</td><td>Partially covered</td></tr>
<tr><td>8</td><td>Performance under influence factors and electromagnetic disturbances</td><td></td><td></td><td></td></tr>
<tr><td>8.1</td><td>The MPEs due to influence factors shall be as specified in Table 7.
<table><tr><th>Load (m) in totalisation scale intervals (d_t)</th><th>MPE</th></tr><tr><td>0 < m ≤ 500</td><td>± 0,5 d_t</td></tr><tr><td>500 < m ≤ 2 000</td><td>± 1,0 d_t</td></tr><tr><td>2 000 < m ≤ 10 000</td><td>± 1,5 d_t</td></tr></table></td><td>2.2.2 Table 2</td><td></td><td>Covered</td></tr>
<tr><td>8.2</td><td>The critical change value due to a disturbance is one totalisation scale interval for any weight indication and any stored total.</td><td>T.4.5.6, 4.1.2 & 4.2.4.a</td><td></td><td>Covered</td></tr>
</table>