



CABINET OF MINISTERS OF UKRAINE

DECREE

No 190 dated 11 March 2009

Kyiv

On Approval of the Technical Regulation on Non-Automatic Measuring Apparatus

In accordance with Article 14 of the Law of Ukraine “On Standards, Technical Regulations and Procedures for the Evaluation of Compliance” the Cabinet of Ministers of Ukraine hereby **decides**:

1. To approve the enclosed Technical regulation on Non-Automatic Measuring Apparatus.
2. That the State Committee on issues of technical regulation and consumer policy shall ensure the application of the Technical Regulation as approved by this Decree, and control of regulatory compliance with the requirements thereof.

Prime Minister of Ukraine

Yu. TYMOSHENKO

Ind. 33

APPROVED

by Decree of the Cabinet of Ministers of Ukraine
No 190 dated 11 March 2009

TECHNICAL REGULATION
on Non-Automatic Measuring Apparatus

General Provisions

1. This Technical Regulation identifies the requirements to non-automatic measuring apparatus, the procedure of the compliance of non-automatic measuring apparatus with these requirements and the procedure of application thereof.
2. The terminology of this Technical Regulation shall be used in the meaning as provided in the Laws of Ukraine “On Standards, Technical Regulations and Procedures for the Evaluation of Compliance”, “On Metrology and Metrological Activities”, “On Verification of Compliance”, “On Standardisation”.
3. A non-automatic measuring apparatus (hereinafter referred to as “scales”) is a measuring device designated to determine the mass of a body under the conditions of gravitational forces applied to it, which can be used to determine other mass-sensitive quantities, values, parameters or characteristics thereof, and requires the involvement of the operator in the weighing process.
4. Scales may be used for:
 - 1) commercial operations;
 - 2) weighing products, as required to calculate the amount of customs duty, tariff, tax, bonus, fine, reward, compensation or similar payments;
 - 3) verifying the findings of experts submitted during a court investigation;
 - 4) weighing patients in medical practices;
 - 5) for preparing medicines for prescriptions in pharmacology, and for determining the weight of a substance to undergo analysis in a medical or pharmaceutical laboratory;
 - 6) determining the price of products based on the weight thereof during pre-packaging and packing in case of direct sale;
 - 7) other instances.
5. Scales shall meet the metrological requirements set out in this Technical Regulation.
6. When labelling scales that meet the requirements of other technical regulations data regarding compliance with the specified requirements shall be stated.
7. The assessment of scales’ compliance with the requirements of this Technical Regulation shall be performed by the authorities in charge of the compliance assessment, designated in accordance with the legislation.
8. The state metrological supervision of the compliance with the requirements of this Technical Regulation shall be implemented in accordance with the legislation.
9. Should the scales be equipped with several indicating or printing devices, the requirements of this Technical Regulation shall only apply to devices that may affect the accuracy of the results of weighing, provided that both parties involved have access to these results. If the scales for direct sales of products to the customer are used, the indicating and printing devices shall meet the requirements of this Technical Regulation.

Metrological Requirements

10. The units of weight are used that comply with the International system of units (SI): kilogramme, microgramme, milligramme, gramme, as well as others: metric carat (for weighing precious stones), troy ounce, and tonne.

11. The following scales accuracy ratings have been established: 1st - special; 2nd - high; 3rd - medium; 4th - regular.

Performance specifications of the ratings are provided in Table 1.

Table 1

Scales accuracy rating	Inspection point value (e)	Lower weighing limit (Min), minimum value	Number of inspection points n = Max / e	
			minimum value	maximum value
1 st	0,001 g ≤ e	100 e	50000	
2 nd	0,001 g ≤ e ≤ 0,05 g	20 e	100	100000
	0,1 g ≤ e	50 e	5000	- " -
3 rd	0,1 g ≤ e ≤ 2 g	20 e	100	10000
	5 g ≤ e	20 e	500	- " -
4 th	5 g ≤ e	10 e	100	1000

For 2nd and 3rd rating scales, the value of the lower weighing limit to identify the tariff of shipping the cargo may be decreased by 5 e.

12. The value of a scale point (measurement resolution (d) and the value of inspection point (e) shall be as follows:

$$1 \cdot 10^k, 2 \cdot 10^k \text{ or } 5 \cdot 10^k \text{ units of weight,}$$

where “k” stands for an integer, including zero.

Scales equipped with auxiliary indicating devices shall meet the following requirements:

$$e = 1 \cdot 10^k \text{ g;}$$

$$d < e \leq 10 d, \text{ except } 1^{\text{st}} \text{ rating scales with } d < 10^{-4} \text{ g, for which } e = 10^{-3} \text{ g.}$$

For all other scales $d = e$.

13. Scales with a single weighing range equipped with an auxiliary indicating device shall belong to the 1st or 2nd rating. For scales of the above ratings the maximum allowable value of the lower weighing limit shall be determined in accordance with Table 1 by replacing the inspection point value (e) with scale point (d).

If $d < 10^{-4}$ g, the upper weighing limit for 1st rating scales may be less than 50 000 e.

14. The use of scales with several weighing ranges (scales with different scale point value) shall be allowed, provided these are clearly indicated on the scales. Each weighing range shall be classified in accordance with paragraph 13 of this Technical Regulation.

Scales that have weighing ranges which correspond to different accuracy ratings shall, as far as possible, meet the requirements of the accuracy ratings to which such ranges belong. In this case, the scales shall not be equipped with an auxiliary indicating device.

15. Scales with a single weighing range may have several parts of weighing ranges (scales with different scale point value). Such scales shall not be equipped with an auxiliary indicating device.

16. The following is established for each part of weighing range and for scales with different scale point value:

1) calibrating point value e_i ,

where $e_{(i+1)} > e_i$;

2) upper weighing limit Max_i ,

where $Max_i = Max$;

3) lower weighing limit Min_i provided $Min_i = Max_{(i-1)}$, $Min_i = Min$ and $i = 1, 2, \dots, r$,

where “i” is the number of the weighing range part,

“r” is the total number of the weighing range parts.

The weighing limit value shall correspond to the value of the net weight load, irrespective of the weight of the tare used.

17. Parts of weighing ranges shall be classified according to Table 2. All parts of weighing ranges shall belong to the same accuracy rating as that of the scales.

Table 2

Rating	Inspection point value	Lower weighing limit (Min), minimum value	Number of inspection points	
			minimum value* ¹ $n = Max_i / e_{(i+1)}$	maximum value $n = Max_i / e_i$
1 st	$0.001 \text{ g} \leq e_i$	$100 e_i$	50000	
2 nd	$0.001 \text{ g} \leq e_i \leq 0,05 \text{ g}$	$20 e_i$	5000	100000

¹ If $i = r$, the relevant column of Table 1 shall apply, in which e shall be replaced with e_r .

$i = 1, 2, \dots, r$,

	$0.1 \text{ g} \leq e_i$	$50 e_i$	5000	100000
3 rd	$0.1 \text{ g} \leq e_i$	$20 e_i$	500	10000
4 th	$5 \text{ g} \leq e_i$	$10 e_i$	50	1000

where “i” is the number of the weighing range part,

“r” is the total number of the weighing range parts.

18. During the compliance assessment procedure the scales error shall not exceed the limit of the scales tolerated error, as indicated in Table 3. In case of digital indication the scales error shall be adjusted according to rounding the error off.

Maximum tolerated errors shall be used to determine the net weight and the weight of the tare for any load, except for the preliminary determined value of the tare weight.

Table 3

Load for accuracy rating				Limit of tolerated error
1 st	2 nd	3 rd	4 th	
$0 \leq m \leq 50000 e$	$0 \leq m \leq 5000 e$	$0 \leq m \leq 500 e$	$0 \leq m \leq 50 e$	0.5 e
$50000 e < m \leq 200000 e$	$5000 e < m \leq 20000 e$	$500 e < m \leq 2000 e$	$50 e < m \leq 200 e$	1.0 e
$200000 e < m$	$20000 e < m \leq 100000 e$	$2000 e < m \leq 10000 e$	$200 e < m \leq 1000 e$	1.5 e

The limit of tolerated error during operations may be twice as large as the limit of tolerate errors as specified in Table 3.

19. Scales shall not be sensitive to changes in load position on the receptacle.

Scales shall respond to changing the weight of the load.

20. Deviations from the horizontal position of 2nd, 3rd, and 4th rating scales when operating them shall not affect the results of weighing.

21. Scales shall meet the metrological requirements under the condition of their use within the operating temperature range established by the manufacturer. The operating temperature range shall be no less than:

5°C for 1st rating scales;

15°C for 2nd rating scales;

30°C for 3rd and 4th rating scales.

If no such range is established by the manufacturer, the operating temperature range of minus 10° to 40°C shall be applied.

22. Scales powered by AC mains shall meet the metrological requirements under the condition that the mains voltage meets the requirements set out in the regulatory documents.

Battery powered scales shall meet the metrological requirements under the condition that the voltage is no less than that established by the manufacturer for the scales operation.

In the event that the voltage is lower than that established by the manufacturer, the scales shall switch off automatically.

23. Electronic scales with point value of $e < 1$ g, except those belonging to 1st and 2nd ratings, shall meet the metrological requirements provided they are operated as specified in the regulatory documents.

24. Loads on the 2nd, 3rd and 4th rating scales during the service life as established by the manufacturer shall not affect the weighing results and readings (returning to zero value) immediately after load removal.

Scales Design and Manufacture

25. Failures that occur in electronic scales due to interference noise shall be determined and displayed by the indicating device automatically. At the same time, the scales shall send a visual or acoustic warning signal, which will last until the user takes corrective action or the failure disappears independently.

26. Digital electronic scales shall meet the requirements of ensuring proper control of weighing accuracy and indicating device operation, as well as data preserving and transferring.

In the event that a maximum tolerated error value related to long-term operation is detected automatically, the electronic scales shall produce a visual or acoustic warning signal that will last until the user takes corrective action or the failure disappears independently.

27. Connecting external equipment to electronic scales via the interface shall not affect the metrological specifications thereof.

28. Metrological specifications of the scales shall meet the requirements that make improper use of the scales impossible. Scales components that are not subject to disassembly or adjustment shall be protected against such actions.

29. The scales design shall ensure performance of mandatory control as stipulated in this Technical Regulation.

30. The indication of weighing results and other parameters of the scales shall be accurate and unequivocal, and the indicating device shall enable easy scanning of readings in operating conditions.

Names and denotations of weight units shall meet the requirements of regulatory documents.

Readings shall not exceed the values of upper weighing limit (Max) increased by 9e.

An auxiliary indicating device shall be located to the right of the decimal mark. An expanded auxiliary indicating device may only be used during weighing. The use of a printing device during the operation of the expanded indicating device is prohibited.

31. Printed weighing results shall be reliable, properly marked and unequivocal, and the text shall be legible, easy to read and not erasable.

32. If required, scales shall be equipped with a balancing device and a tare button for setting the device to zero.

33. Operation of the device determining a set tare weight shall make it possible to accurately calculate the net weight value.

34. Scales may be equipped with one or more devices for preliminary weighing of the tare and a device for compensating its weight. Operation of the tare weight compensating device shall ensure

that the scales are accurately set to zero and that the net weight is accurately measured. The device for preliminary weighing of the tare shall make it possible to deduct the gross or net weight and show the result of the calculation.

35. For the direct sale of products, scales with a maximum weighing limit not exceeding 100 kilogrammes shall be used that shall meet the following requirements:

equipped with an indicating device displaying essential information relative to the weighing process. Scales equipped with an indicating device shall legibly show the result of merchandise price calculation;

indicate exact (without rounding) due amount;

data indication period sufficient for the data to be read (for scales with price calculation).

Scales that calculate the price of products and print out calculation results on cheques or receipts shall meet the requirements set out in paragraph 31 of this Technical Regulation.

Use of auxiliary indicating devices shall only be allowed where this is proven to be necessary.

36. Scales that print out labels indicating the price of products shall meet the requirements specified in paragraph 35 of this Technical Regulation, in so far as they are relevant. If the weight shown is lower than the lower weighing limit, no printing on cheques or receipts indicating the price of the products is allowed.

Compliance Evaluation Procedure

37. Evaluation of the compliance of scales with the requirements of this Technical Regulation (hereinafter referred to as Compliance Evaluation) shall be carried out by the authorities in charge of compliance evaluation designated and authorised in accordance with the legislation, by implementing the procedure as stipulated by the technical regulation for compliance evaluation modules and the requirements on marking with the national conformity mark that are stipulated in technical regulations, as approved by Decree No 1585 of the Cabinet of Ministers of Ukraine of 7 October 2003 (Official Bulletin of Ukraine, 2003, No 41, Article 2175; 2007, No 1, Article 31).

38. One of the following modules or one of the combinations thereof shall be applied to carry out the evaluation of the compliance of the scales with the requirements of this Technical Regulation, as chosen by the manufacturer or its authorised representative: B, G, B and F, G and F.

39. The combination of modules B and F shall be applied taking into account the results of state acceptance tests and approval of the type of measuring apparatus, inspection tests in accordance with DSTU (*State standard of Ukraine*) 3400, "Metrology. State measuring apparatus tests. Basic provisions, organisation, procedure of implementation and review of results", primary inspection after manufacture in accordance with DSTU 2708 "Metrology. Inspection of measuring apparatus. Organisation and implementation procedure", and periodic inspection, if required.

Based on the results of applying the combination of modules B and F the type of scales shall be registered in the State Register of Measuring Apparatus. The manufacturer or its authorised representative shall be issued a type approval certificate (if required, the certificate of conformity of the scales of the approved type in accordance with the requirements of DSTU 3400), inspection certificate in accordance with DSTU 2708 or an imprint of the inspection mark in accordance with DSTU 3968 "Metrology. Marks of inspection and calibration. Regulations on manufacture, use and storage".

40. Module G shall be applied taking into account the results of the state metrological certification of the scales in accordance with DSTU 3215 "Metrology. Metrological certification of measuring apparatus. Organisation and implementation procedure".

In case of applying module G, the manufacturer or its authorised representative shall be issued a certificate in accordance with DSTU 3215 for each set of scales.

41. The combination of modules G and F shall be applied taking into account the results of state metrological certification of the scales in accordance with DSTU 3215 and, if required, periodic inspection in accordance with DSTU 2708.

In case of applying the combination of modules G and F, the manufacturer or its authorised representative shall be issued the inspection certificate in accordance with DSTU 2708, or if the scales are sold within the term that exceeds half of the inspection interval, the scales shall be marked with an imprint of the mark of inspection in accordance with DSTU 3968.

42. Module B shall be applied in the event of execution of the relevant international agreements of Ukraine, after recognition of the results of state acceptance tests and approval of the type of scales, which shall be registered with the State Register of Measuring Apparatus. The manufacturer shall be issued with a certificate of recognition of measuring apparatus type approval.

43. If evaluation reveals that scales are compliant with the requirements of this Technical Regulation, the manufacturer or its authorised representative shall fill out the conformity declaration as described in the annex and mark all scales and/or accompanying documents thereof with the mark of scales type approval in accordance with DSTU 3400 and with the national conformity mark.

The procedure for affixing the national conformity mark shall be applied according to Decree No 1599 of the Cabinet of Ministers of Ukraine of 29 November 2001 "On approval of the list and regulations on the use of the national conformity mark" (Official Bulletin of Ukraine, 2001, No 49, Article 2188).

44. Evaluation of the compliance of scales component parts that are supplied or may be procured separately shall be carried out according to an individual procedure.

45. Scales may be operated on condition that the seller holds an inspection certificate for them. The scales shall also carry an imprint of the inspection mark.

46. The manufacturer shall keep the declaration of conformity, certificates of type approval and compliance of scales for 10 years after the manufacture of the last item.

Technical Documents

47. Technical documents shall ensure the possibility of implementing the evaluation of the compliance of scales with the requirements of this Technical Regulation, and reveal their design, technology of manufacture and functioning features.

The technical documents shall contain:

a general description of the scales;

a description of the design, shop drawings, layouts of components, units, circuits, etc.

descriptions of drawings and explanations thereof, layouts;

list of standards from among national standards, voluntary use of which confirms the conformity of the scales with the requirements of this Technical Regulation, and a description of decisions made to meet the requirements of this Technical Regulation should the above standards not be used;

results of design calculations, tests, etc.;

certificates of type approval and the results of scales components testing (if required).

Labelling of Scales

48. The following shall be labelled on the scales that have been verified for compliance with the requirements of this Technical Regulation in accordance with an applicable procedure:

- 1) sign of the type approval of measuring apparatus in accordance with the Law of Ukraine “On metrology and metrological activity”;
- 2) national conformity mark that has its description and rules of use approved by Decree No 1599 of the Cabinet of Ministers of Ukraine of 29 November 2001 (Official Bulletin of Ukraine, 2001, No 49, Article 2188);
- 3) labelling in accordance with the regulatory documents, which contains the following data in particular:

manufacturer's name or trademark;

accuracy rating;

upper weighing limit appearing as Max...;

lower weighing limit appearing as Min...;

inspection point value appearing as $e=...$

49. Labelling may contain:

- 1) production serial number; for scales that have individual but dependent units of measurement, the production serial number shall be labelled on every unit;
- 2) scale point value should it be different from “e”, appearing as $d=...$;
- 3) maximum allowable increase of the tare weight appearing as $T = + ...$;
- 4) maximum allowable decrease of the tare weight, should it differ from “Max”, appearing as $T = - ...$;
- 5) interval of setting the tare weight, should it differ from “d”, appearing as $d_T = ...$;
- 6) maximum allowable safe load on the scales, should it differ from “Max”, appearing as Lim...;
- 7) temperature range, should it differ from those specified in relevant standards, appearing as $...^{\circ}\text{C}/...^{\circ}\text{C}$;
- 8) ratio of overall dimensions of the receptacle and the load.

50. The measuring apparatus type approval sign, national conformity mark and other marking shall be legible, easy to read and not erasable.

51. Labelling the scales with signs that may be perceived as the type approval sign or national conformity mark is prohibited. Other labelling of scales is allowed provided it does not deteriorate the visibility and legibility of the labelling of the type approval sign and national conformity mark.

Should any violation of the legislative requirements be revealed during issuance of documents on compliance evaluation or during labelling, the manufacturer or its authorised representative shall eliminate any such violation.

52. The inscriptions "Max", "Min", "e" and "d" shall be located near the indicating device.

53. Scales that are connected or can be connected to one or several load receptacles shall have appropriate inscriptions.

54. Scales specified in paragraph 4(7) of this Technical Regulation shall bear the manufacturer's trademark or name. Labelling specified in paragraphs 48-49 of this Technical Regulation is not applied.

55. Should the scales be equipped with devices that did not undergo compliance evaluation, or be connected to the above devices, each of these scales shall carry a mark in the form of a diagonally crossed square, with side length of 25 millimetres, with a black imprint of a capital letter "M" on a red background.

Annex to Technical Regulations

DECLARATION of Conformity

(name of manufacturer or its authorised representative,

location thereof, EDRPOU code (*Unified National Registry of Ukrainian Enterprises and Organisations*) (if applicable)

represented by _____

(title, surname, given name and patronymic of the authorised person)

confirms that _____

(name of measuring apparatus identifying the

_____,

type, make, model)

fabricated in accordance with _____

(specify regulatory documents verifying

_____,

the apparatus' conformity with the requirements of Technical Regulation)

meets the requirements of the Technical Regulation on Non-Automatic Measuring Apparatus.

Document verifying the performance of the compliance evaluation _____

(document number, date of its registration, validity period, name and location of the

_____,

authorised agency)

This declaration has been filed under the responsibility of _____

(identify of the manufacturer or

_____,

its authorised representative)

(title of the person filling in the declaration)

(signature)

(initials and surname)

seal here

_____ 200_ .

Place for conformity declaration
registration mark

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