

ANTIGUA AND BARBUDA



THE METROLOGY REGULATIONS, 2017

STATUTORY INSTRUMENT

2017, No. 14

*[Published in the Official Gazette Vol. XXXVII No. 25
dated 6th April, 2017]*

Printed at the Government Printing Office, Antigua and Barbuda,
by Philip P. Ashterman, Acting Government Printer
— By Authority, 2017.

THE METROLOGY REGULATIONS, 2017

ARRANGEMENT

Regulations

PART I - INTERPRETATION

1. Short title.
2. Interpretation.

PART II – PATTERN APPROVAL

3. Assessment of instrument.
4. Exemptions.
5. Examination to be in accordance with these Regulations.

**PART III – WEIGHTS, MEASURES AND WEIGHING
AND MEASURING INSTRUMENTS**

6. Measures must be free of flaws.
7. Requirements for weights for general trade.
8. Adjusting hole.
9. Permissible limit of error.
10. Denomination marking and permissible limit of error.
11. Shape of precision weight.
12. Denomination.
13. Materials for measures.
14. Shape and form of liquid measures of volume.
15. Draining of liquid measures of volume.
16. Permissible limit of error.

17. Measures for dispensing medicine.
18. Denominations.
19. Materials for measures and types of measures.
20. Permissible limit of error.
21. Calliper measures.
22. Acceptable weighing instruments.
23. Classification of weighing instruments.
24. Verification scale interval etc.
25. Permissible limit of error.
26. Mandatory requirements for weighing instrument.
27. Graduation of weighing instruments.
28. Indication of balance positions.
29. Markings on weighing instruments.
30. Construction of weighing instruments.
31. Prohibitions regarding weighing instruments.
32. Compliance requirements for self- or semi-self-indicating instruments.
33. Electronic instruments – compliance.
34. Instruments with checking facilities.
35. Durability protection features.
36. Functional requirements.
37. Compliance requirements.
38. Equilibrium index.

39. Sealing.
40. Printing.
41. Sliding poise devices
42. Scale spacing.
43. Stops.
44. Reading index.
45. Accessible sliding poise devices
46. Equilibrium index.
47. Knives, bearing and friction plates.
48. Simple equal arm beams.
49. Simple $1/10$ ratio beam.
50. Simple sliding poise instrument (steelyard).
51. Roberval and Beranger instruments.
52. Instruments with ratio platforms.
53. Instrument with a load-measuring device with accessible sliding poses (of the steelyard type).
54. Requirements.
55. Compliance requirements – petrol pumps.
56. Compliance requirement – bulk meters.
57. Delivery from vehicle tanks.

**Part IV – Testing, Verification and Stamping of Weights,
Measures and Weighing and Measuring Instruments**

58. Fees.
59. Stamping etc.

60. Testing method-Testing of weights.
61. Place of stamping.
62. Testing method-Testing of liquid measures.
63. Place of stamping.
64. Testing method-Testing of length measures.
65. Testing method-Testing of weighing instruments
66. General.
67. Petrol pumps.
68. Bulk meters.
69. Method

**Part V -Licensing of Sellers, Manufacturers of Weights,
Measures and Weighing or Measuring Instruments**

70. Licence to sell, repair, etc. imperial weight etc.
71. Licence to sell, repair, etc. SI weight etc.
72. Loss, etc. of licence

Schedules

SCHEDULE 1 – Limits of error for weights for use in trade – SI units

SCHEDULE 2 – Limits of error for weights for use in trade – British Imperial system

SCHEDULE 3 – Limits of error for volume measures for use in trade – Metric system

SCHEDULE 4 – Limits of error for volume measures for use in trade – British Imperial system

SCHEDULE 5 – Limits of error for measures for dispensing medicine

SCHEDULE 6 – Limits of error for length measures for use in trade – Metric system

SCHEDULE 7 – Limits of error for length measures for use in trade – British Imperial system

SCHEDULE 8 – Accuracy classes and limits of error of weighing instruments

SCHEDULE 9 – Limits of error for net quantities declared in metric units of mass or volume

SCHEDULE 10 – Forms

SCHEDULE 11 – Fees

ANTIGUA AND BARBUDA

THE METROLOGY REGULATIONS, 2017

2017, No. 14

THE METROLOGY REGULATIONS made in exercise of the powers contained in section 47 of the Metrology Act, 2007, No 17 of 2007.

PART I

INTERPRETATION

1. Short title

These Regulations may be cited as the Metrology Regulations, 2017.

2. Interpretation

In these Regulations,

“automatic weighing machine” means a weighing instrument which does not require an operator for carrying out the weighing process and carries out an automatic feed of the load;

“beam scale” means an equal-arm oscillating weighing instrument with pans below the beam;

“bulk meter” means a measuring instrument designed to measure fuel for individual deliveries of 500 litres or more and includes a vehicle tank meter;

“counter machine” means an equal-arm oscillating weighing instrument with pans above the beam, or a self-indicating machine to be used on a counter for general trade, any of which having capacity of not more than 50 kg;

“crane machine” means a suspended self-indicating, electronic, hydraulic or spring-actuated weighing machine of a capacity of 1000 kg or greater;

“Director” means the Director of the Antigua and Barbuda Bureau of Standards;

“discrimination” means the ability of a weighing instrument to react to small variations of load specified in Sub-regulations 26(2) and (3);

“electronic weighing machine” means any self-indicating weighing machine in which the load produces electrical signals which are processed so as to indicate or record weight, or mass;

“error of weighing machine” means the difference, when the machine is loaded with standard weight, between the indicated mass and the mass value assigned to that standard weight;

“fuel” means liquid fuel, lubricants or any mixture of liquid fuel and lubricants;

“graduated measuring instrument” means an instrument allowing the direct reading of the complete or partial weighing result;

“load receptor” means the part of the weighing instrument on which goods being weighed are placed or hooked;

“maximum permissible error (of a measuring instrument)” means the extreme value of an error permitted for a given measuring instrument.

“non-graduated measuring instrument” means an instrument not fitted with a scale numbered in appropriate units;

“oscillating weighing instrument” means a weighing instrument with a beam or steelyard which oscillates about or returns to the position of equilibrium when disturbed from that position;

“petrol pump” means a measuring instrument for fuel which-

- (a) has a meter and one or more measuring chambers, and
- (b) is designed to measure individual deliveries of 500 litres or less;

“platform machine” means a weighing instrument other than a weighbridge with the load receptor being a platform 3m by 2m in size or less and a capacity of 5000 kg or less;

“price indicator”, in relation to a quantity being delivered, means an indicator showing the value in money of a unit of the quantity delivered;

“scale interval (a)” means the value expressed in appropriate units of-

- (a) the difference between the values corresponding to two consecutive scale marks, for analogue indication, or
- (b) the difference between two consecutive indicated values, for digital indication;

“self-indicating weighing machine” means a weighing instrument other than a spring balance on which the whole or part of the weight or mass of the goods being weighed is indicated by means of a printed record or by a pointer moving over—

- (a) a scale or chart graduated in units of mass,
- (b) a graduated chart moving in relation to a fixed pointer, or
- (c) a digital display;

in which the position of equilibrium is obtained without the intervention of the operator.

“sensitivity” in relation to a weighing instrument not equipped with digital indication means the displacement of the index produced by a small change of load specified in Sub-regulation 26(4);

“spring balance” means a mechanical weighing instrument in which the weight or mass is determined by the extension or compression of a spring, which is indicated by a pointer or a dial or by a moving graduated scale;

“steelyard” means an unequal-arm single-lever weighing instrument, the shorter arm of which carries a load hook suspended from knife-edges whilst the longer arm has a poise weight moving over a graduated scale to indicate the mass of the load, and includes an instrument that is part of a platform machine, weighbridge or other similar weighing instrument;

“tare device” means a device for setting the indication to zero when a load is on a load receptor;

“vehicle tank meter” means a bulk meter installed on a vehicle;

“verification scale interval (ϵ)” means the value, expressed in units of mass, used for the classification and verification of a weighing instrument;

“volume indicator “ means an indicator showing the volume of fuel delivered;

“weighbridge” means a weighing instrument for weighing a load carried by a vehicle where the load and vehicle are supported on rails or a platform either of which is linked to a system of levers or load-cells; and includes any similar instrument prescribed as a weighbridge by the Director;

“zero setting device” means a device for setting the indication to zero when there is no load on the load receptor.

PART II

PATTERN APPROVAL

3. Assessment of instrument

(1) Subject to Regulation 4, for the purpose of assessing suitability of a weighing or measuring instrument, the manufacturer or importer of the instrument shall deposit a model of that instrument with the Director.

(2) The Director shall inform the manufacturer or importer of the assessment not later than ninety days after the deposit of the model.

4. Exemptions

(1) The Director may exempt a manufacturer or importer of weighing and measuring instruments from the deposit of models under Regulation 3, after considering a request for exemption from the manufacturer or importer.

(2) A request for exemption must—

- (a) be in writing, and addressed to the Director; and
- (b) be accompanied by—
 - (i) all necessary technical data,
 - (ii) all necessary technical drawings, and
 - (iii) proof of the approval of the pattern by a national body of legal metrology of the country of manufacture or any other body approved by the Director.

5. Examination to be in accordance with these Regulations

The examination of a weight, measure or weighing or measuring instrument for the purposes of pattern approval must be carried out in accordance with requirements specified in these regulations as applicable.

PART III**WEIGHTS, MEASURES, AND WEIGHING AND MEASURING INSTRUMENTS****6. Measures must be free of flaws**

All weights and measures, and weighing and measuring instruments, described in these Regulations must be constructed so that they are free of flaws.

*Section I – Weights for general trade***7. Requirements for weights for general trade**

(1) Weights for general trade must be—

- (a) of a denomination specified in Table 1 of Schedule 1 or Table 1 of Schedule 2 and have that denomination marked on the top surface; and
- (b) made of iron, brass or bronze.

(2) Weights of a denomination of less than 1 gram ($m < 1g$) must be flat sheets or wires with appropriate shapes for easy handling and the shapes must indicate the denomination of the weight.

(3) Weights of denominations of 5 kilograms to 50 kilograms (5kg – 50kg) which are made of iron must be in the form of a rectangular parallelepiped shape with the corners rounded off and non-protruding handles.

(4) Weights of denominations of not more than 50 grams and not less than 1 gram ($1g < m < 50g$) may be cylindrical.

(5) Weights made of metal other than iron of denominations of not more than 10 kilograms and not less than 50 grams ($50g < m < 10kg$) must be cylindrical.

(6) Weights of a denomination of 2 kilograms to 100 grams ($100g \rightarrow 2kg$) made of iron must be hexagonal.

(7) Weights made of metal other than iron of a denomination not more than 50 grams and not less than 1 gram ($1g < m < 50g$) must be disc shaped.

(8) Weights of the disc type must be circular disc, the thickness, (t_d) of which is not less than one-sixth or more than one-third of the diameter $\left(\frac{1}{6} d_t < t_d < \frac{1}{3} d_t \right)$.

(9) Weights of denominations of not more than 500 milligrams and not less than 10 milligrams ($10\text{mg} < m < 500\text{mg}$) must be flat;

(10) In rectangular weights—

- (a) the difference in length of the weight at the top and at the bottom must not be more than 5 percent of the smaller length; and
- (b) the difference in width of the weight at the top and at the bottom must not be more than 5 percent of the smaller width.

(11) Weights which are cylindrical must be such that—

- (a) any horizontal section is circular; and
- (b) any vertical section through the axis is in the form of a cylinder with a flattened knob.

(12) Hexagonal weights must be such that—

- (a) any horizontal section is a regular hexagon;
- (b) all the sides are flat; and
- (c) in the case of weights made of iron of a particular set they are of proportional size and can nest (stack) with each other.

(13) Weights of denominations of 50 milligrams or less may be of wire.

(14) No weight of a denomination of 100g or less may be made of iron.

(15) Weights made of iron must be black leaded, oxidized or protected by galvanization or painted.

8. Adjusting hole

(1) No weight may be adjusted otherwise than by means of an adjusting hole, subject to the following conditions—

- (a) no weight of 10 grams or less may have an adjusting hole; and
- (b) no other weight may have more than one adjusting hole.

(2) The adjusting hole—

- (a) may be in an internal cavity in the weight or in the handle;
- (b) must be partly filled with lead permitting future adjustment; and
- (c) must be tapered so as to prevent the lead from being dislodged by shock or wear, or closed by a plug or disc made of brass or steel.

(3) Where an adjusting hole is closed with a plug or disc, the plug or disc must be secured by a lead pellet driven into an undercut recess or, if the cavity is threaded, into the thread.

(4) An adjusting hole which is on a plane surface of a weight must not extend to the opposite surface.

(5) The placement of the adjusting hole for weights made of iron must be as follows—

- (a) hexagonal and cylindrical weights must have the adjusting hole centred, and situated only on the bottom surface of the weight; and
- (b) rectangular weights may have the adjusting hold either in one of the uprights opening to the side or top surface of the weight or in the handle.

9. Permissible limit of error

The error of a weight for general trade must not be greater than the limit of error corresponding to the denomination, as specified in Table 1 of Schedule 1 or in Table 1 of Schedule 2.

Section 2 – Precision weights for trade with valuable goods

10. Denomination marking and permissible limit of error

(1) A precision weight for trade with valuable goods must be of a denomination specified in Table 2 of Schedule 1 or in Table 2 of Schedule 2 and must have its denomination marked on the top surface except for wire weights specified in Sub-regulation 11(a).

(2) The error of a weight for trade with valuable goods must not be greater than the limit of error corresponding to the denomination specified in Table 2 of Schedule 1 or Table 2 of Schedule 2.

(3) Subject to Sub-regulation (4), a precision weight for trade with valuable goods must be made of brass, bronze or stainless steel

(4) A precision weight for trade with valuable goods may be made of aluminum alloy if it is of a denomination 500 milligrams or less.

11. Shape of precision weight

A precision weight for trade with valuable goods—

- (a) in the case of a weight of a denomination of 500 milligrams or less ($m < 500\text{mg}$), must be a wire shaped into one, two or five segments, or must be a flat sheet; and
- (b) in the case of a weight of a denomination of more than 500 milligrams ($m > 500\text{mg}$), must be cylindrical in shape.

Section 3 – Measures of volume

12. Denominations

(1) Every measure of volume for trade must be of a denomination specified in Schedule 3 or Schedule 4 and have that denomination indelibly marked on the outside of it in legible figures or letters.

(2) In metric measures provided with sub-divisions, only intervals of sub-divisions corresponding to the figures 1, 2 or 5 divided or multiplied by 10 as appropriate are permitted.

(3) The denomination must be marked—

- (a) on a measure made of glass on which the value is defined by a line, at the line;
- (b) on a measure made of enamelled metal, in a distinctly different colour to that of the body of the measure; and
- (c) on a measure made of sheet metal, by means of embossing, engraving or impressing the denomination on the upper part of the body of the measure or on a metal plate permanently secured to the upper part of the body of the measure.

13. Materials for measures

(1) Every liquid measure of volume must be made of glass, aluminium, brass, bronze, copper, nickel, sheet iron, steel, stainless steel, tinsplate, tin alloys or white metal. The metal may be anodised, electroplated, enamelled, galvanised, tinned or otherwise protected.

(2) Every liquid measure of volume made of brass, bronze or copper must, unless otherwise coated, have the inside surface well tinned with pure tin.

(3) The coating of a coated liquid measure of volume must show no signs of peeling.

(4) Where any liquid measure of volume has strengthening bands or ribs, the bands or ribs must not take a form that may be mistaken for graduations.

14. Shape and form of liquid measures of volume

(1) A graduated glass measure must—

- (a) be conical or cylindrical; and
- (b) have a level base at right angles to the axis of the measure.

(2) The scale marks of a graduated glass measure must be—

- (a) parallel to the base of the measure; and
- (b) not less than 1.5 mm apart.

(3) The volume of a measure of volume other than a graduated glass measure must be defined by—

- (a) the bottom of lip or retaining edge of a measure having a lip or retaining edge;
- (b) the bottom of neck of a milk can;
- (c) brim of measure or indelible line of a glass measure; or
- (a) brim of measure of any other ungraduated type.

(4) The thickness of metal of measures of volume must be not less than the thickness specified in international recommendations and approved by the Bureau.

(5) A measure of volume must not have a false bottom.

(6) Every liquid measure of volume must be of a shape and form, specified in international recommendations and approved by the Bureau.

15. Draining of liquid measures of volume

(1) If the liquid measure of volume has no tap, it must drain completely when tilted to an angle of 30 degrees below the horizontal.

(2) If the liquid of volume has a tap, it must drain completely without a prolonged dribble when the tap is open and the measure is levelled.

16. Permissible limit of error

A measure of volume must have no greater error in excess or deficiency than the limit of error for its denomination or for the respective graduation as specified in Schedule 3 for metric measures and Schedule 4 for British – Imperial measures.

17. Measures for dispensing medicine

“Measures for dispensing of medicine must comply with such specifications, as set out in Schedule 5 and may be updated by the Director as needed by order published in the *Official Gazette*.

Section 4 – Measures of length**18. Denominations**

- (1) All measures of length must be denominated and graduated clearly and indelibly.
- (2) A metric measure of length must be sub-divided only in metres, centimetres or millimetres.
- (3) All marks and inscriptions on a measure of length must be so arranged so as not to interfere with the reading of lengths.

19. Materials for measures and types of measures

- (1) A measure of length other than a calliper for the use of trade must be made of brass, hardened steel, hardwood or woven tape.
- (2) A measure of length other than a measure made of woven tape or metal tape or chains made of metal must be made so that it cannot be easily bent.
- (3) A measure of length made of wood must have both its ends capped with metal.
- (4) The width of the ribbon of a tape measure of length must be at least 15 millimetres and its minimum thickness must be 0.4 millimetres.

20. Permissible limit of error

A measure of length must not have an error greater than the limit of error for its denomination, or any intermediate value of graduation as specified in Schedule 6 or Schedule 7.

21. Calliper measures

(1) A calliper measure used for the measurement of thickness or diameter must be made steel, steel alloy or an approved material.

(2) A calliper measure must—

- (a) not have errors greater than ± 0.2 mm for callipers measuring less than 200 mm; and
- (b) not have errors greater than ± 0.5 mm for callipers measuring 200 mm or greater but less than 500 mm.

Section 5 – Weighing Instruments – General requirements

22. Acceptable weighing instruments

(1) A weighing instrument for use in accordance with the Act must be—

- (a) an oscillating equal-arm beam scale, either suspended without arrestment device or otherwise supported with or without arrestment device;
- (b) a counter machine of Roberval or Beranger pattern designed for equal load on each load receptor, but not a counter machine with sliding or tare weights nor a machine with unstable position of equilibrium;
- (c) a steel-yard of a capacity exceeding 50 kg but not exceeding 1000 kg, for use only for weighing animals or bulk agricultural products;
- (a) if individually approved by the Director for a particular use, a spring balance or a crane machine; or
- (e) one of the following if it complies with the specifications prescribed by the Director—
 - (i) a platform machine,
 - (ii) a weighbridge,
 - (iii) a precision balance,
 - (iv) a self-indicating weighing instrument, including one that computes price or prints, and
 - (v) an automatic weighing machine,

23. Classification of weighing instruments

(1) The classification of weighing instruments into different classes of accuracy is to be based on

- (a) the value of the verification scale interval as defined in Table 1 of Schedule 8, which fixes a value of the minimum verification scale interval for each class;
- (b) the number of verification scale intervals as defined in Table 2 of Schedule 8; and
- (c) the minimum capacity which fixes a lower limit to the permissible range of weighing.

(2) In accordance with Sub-regulation (1), non-automatic weighing instruments are to be classified into the classes of accuracy and have the corresponding symbols as follows—

- (a) Special accuracy - Class 1 - Symbol I;
- (b) High accuracy - Class 2 - Symbol II;
- (c) Medium accuracy - Class 3 - Symbol III; and
- (a) Ordinary accuracy - Class 4 - Symbol IIII.

24. Verification scale interval etc.

The verification scale interval, number of verification scale intervals and minimum capacity, in relation to the accuracy class of an instrument, must be as specified in Table 1 and Table 2 of Schedule 8.

25. Permissible limit of error

(1) The maximum permissible error of a weighing instrument at initial verification is as specified in Table 3 of Schedule 7.

(2) The maximum permissible error of a weighing instrument at in-service verification is twice the maximum permissible error on initial verification.

26. Mandatory requirements for weighing instrument

(1) A weighing instrument must comply with the requirements of this Regulation at each verification.

(2) A weighing instrument not equipped with digital identification must show a clearly visible change of identification, when a load equal to half the maximum permissible error specified in Regulation 25 is applied at no load and at full load to the receptor without shock.

(3) A weighing instrument equipped with digital indication must change its indication at no load and at full load when an extra load of not more than one and a half scale intervals is applied on the load receptor without shock.

(4) A non-self-indicating weighing instrument must have a sensitivity such that, for any load, a change of load equal to the maximum permissible error specified in Regulation 25 shows a permanent displacement of the index of at least—

- (a) 2 mm for weighing instruments of class III or IIII with a maximum capacity of 30 kilograms or less;
- (b) 5 mm for a weighing instrument of class III or IIII with a maximum capacity greater than 30 kilograms.

(5) When the same load is weighed three or more times, the difference between the indications of any two weighings must not exceed the absolute value of the maximum permissible error specified in Regulation 25.

(6) When a load of one-third of the maximum capacity of the instrument is displaced from the centre of the load receptor to the extreme off-centre position on the load receptor, the indicated mass must remain within the maximum permissible error specified in Regulation 25.

(7) When, for a balanced equal-arm weighing instrument, the load and working standard weights are interchanged on the load receptors, the indicated weight must not change by more than twice the absolute value of the maximum permissible error specified in Regulation 25.

27. Graduation of weighing instruments

(1) The graduations of a weighing instrument must—

- (a) be distinct and clearly legible to the operator and the customer;
- (b) be uniformly spaced; and
- (c) in the case of instruments graduated in metric units, be expressed in permitted units of mass corresponding to figures 1, 2 or 5 divided or multiplied by 10 as appropriate.

(2) For self-indicating weighing machines, the scale intervals must not be greater than the limit of error on initial verification specified in Regulation 25. Greater scale intervals are permitted for

weighing machines used for animal weighing and weighing of bulk agricultural products, provided that the total number of scale intervals of the machine is not less than 500.

28. Indication of balance positions

(1) The balance position of a weighing instrument must be indicated as follows—

Type of Weighing Instrument	Indication of Balance
(a) Oscillating	Beam returns to position of equilibrium when disturbed from it
(b) Self-indicating by pointer or with graduated indicating plate or with difference chart	Pointer or plate comes to rest at the position of equilibrium or zero scale mark, the bubble of any spirit level being in its correct position
(c) Counter machine of Beranger pattern	Two pointers, each attached to a subsidiary beam, coming to rest directly opposite each other
(a) Indicating by digital display or printed statement	The figure zero (0) being indicated or printer at no load

(2) Any balance box or balance screw or gravity ball on a weighing instrument is to be adjustable only by the use of a mechanical appliance.

29. Markings on weighing instruments

(1) A weighing instrument must carry the following markings—

- (a) the manufacturer's name written in full;
- (b) the maximum capacity in the form "Max";
- (c) the minimum capacity in the form "Min"; and
- (a) the verification scale interval in the form "e = .."

(2) The following information must also be marked on an electronically or electrically operated weighing instrument—

- (a) the limits of temperature between which the instrument functions properly; and
- (b) the potential of the electricity supply.

(3) The markings must be indelible and of a size, shape and clarity allowing easy reading.

(4) The markings must be grouped together in a clearly visible position either on a descriptive plate fixed to an instrument or on a part of the instrument itself.

(5) All weighing instruments must have a permanent place for the application of verification marks that—

- (a) cannot be removed from the machine without destroying the impressions;
- (b) permit the easy application of the mark without altering the metrological qualities of the instrument; and
- (c) is easily visible to a person who wishes to check the verification marks.

30. Construction of weighing instruments

(1) A weighing instrument must be free from features that are liable to facilitate fraudulent use and must be constructed in such a manner that normal adjustments that disturb its proper operation cannot be accidentally made.

(2) A weighing instrument must be complete in itself and be strong enough to withstand the wear and tear of use.

(3) A weighing instrument must not bear a manufacturer's mark or other mark which might be mistaken for a verification stamp.

(4) A weighing instrument must not have interchangeable or reversible parts, unless interchange or reversal of the parts does not affect its accuracy.

(5) A weighing instrument must not have a load receptor of a size or shape which may cause incorrect weighing by fouling the housing of the instrument.

(6) A weighing instrument must not have a load receptor which is readily absorbent due to imperfect glazing or extensive cracks or chippings.

(7) A friction plate, friction stay, friction hook or friction loop used in a weighing instrument must be made of hardened steel or other approved material.

(8) A weighing instrument must not have bearings or knife-edges which are loose, not aligned, worn out or otherwise defective for the intended operation of the instrument.

31. Prohibitions regarding weighing instruments

(1) No person shall use a weighing instrument that is—

- (a) erected on a loose, weak or unstable base;
- (b) not levelled as its construction requires; or
- (c) exposed to wind or draught which affects the indication.

(2) No person shall use a weighing instrument for a load greater than its maximum capacity.

(3) No person shall use a weighing instrument for retail trade in the presence of the purchaser unless it is constructed and sited so that the weighing of goods and the indicated mass are simultaneously clearly visible to the purchaser.

(4) No person shall use a platform machine or weighbridge unless its platform or rails support the load completely.

Section 6- Weighing instruments – Requirements for self- or semi-self- indicating instruments

32. Compliance requirements for self- or semi-self-indicating instruments

(1) Self- or semi-self-indicating instruments must comply with Regulations 22 to 31 in addition to the requirements of this Regulation.

(2) The scale interval must be in the form 1×10^k , 2×10^k or 5×10^k units in which the result is expressed, the index k being a positive or negative whole number or zero.

(3) The weighing result must contain the names or symbols of the unit of mass in which it is expressed.

(4) All indicating, printing and tare-weighing devices of a self- or semi-self-indicating weighing instrument must have the same scale interval for any given load.

(5) In a self- or semi-self- indicating weighing instrument—

- (a) a digital indication must display at least one figure beginning at the extreme right; and
- (b) a decimal fraction must be separated from its integer by a decimal mark (point or comma), with the indication showing at least one figure to the left of the mark and all figures to the right.

(6) The damping of the oscillations of the indicating element or of the movable scale must be adjusted to a value slightly below “critical damping.”

(7) An instrument must be fitted with a levelling device and a level indicator. The level indicator must be fixed firmly on the instrument in a place clearly visible to the user.

(8) The following instruments are exempt from the requirements of Sub-regulation (7)—

- (a) freely suspended instruments; and
- (b) instruments installed in a fixed position.

Section 7 – Requirements of electronic instruments

33. Electronic instruments - compliance

(1) Electronic instruments must comply with the requirements of Regulations 22 to 32 in addition to the requirements of this Regulation.

(2) An electronic instrument must be designed and manufactured so that when it is exposed to disturbances—

- (a) significant faults do not occur; or
- (b) significant faults are detected, indicated in a way that is not confusing with other messages that may appear in the display and are acted upon by means of a checking facility.

(3) A pattern of an electronic instrument is presumed to comply with Sub-regulations (2) and 36(1) if a certificate of approval, from a recognised laboratory, is presented and approved by the Director.

(4) The requirements of Sub-regulation (2) may be applied separately to—

- (a) each individual cause of significant fault; or

(*b*) each part of the instrument.

(5) The choice whether Sub-regulation (2)(*a*) or (*b*) is applied is left to the manufacturer.

34. Instruments with checking facilities

(1) When a significant fault has been detected, a visual or audible indication is to be provided automatically and continue until the user takes action or the fault disappears.

(2) An instrument with a checking facility must be manufactured so that it is possible during pattern evaluation to verify the presence and correct functioning of the checking facilities.

(3) Sub-regulations (1) and (2) do not apply to an electronic instrument or any part of an electronic instrument equipped with checking facilities if the manufacturer claims compliance with Sub-regulation 33(2)(*a*).

35. Durability protection features

The manufacturer of an instrument shall ensure that the instrument is manufactured in such a way that—

- (*a*) one measuring process for which the instrument is intended can be performed or simulated at the discretion of the operator or at switch on, or, in the case of an instrument permanently connected to the mains power supply, at switch-on of indication;
- (*b*) at switch-on, or switch-on of indication, a special procedure is performed which shows all relevant signs of the indicator in their active and non-active state sufficiently long to be checked by the operator;
- (*c*) all relevant measurement data are checked for correct value whenever they are stored internally or transmitted to peripherals by interface, through such means as: parity bit, checksum, double storage, or handshake routine with retransmission;
- (*a*) when significant durability error has been detected automatically, a visual or audible indication is provided that continues until the user takes action or the error disappears; and
- (*e*) during pattern evaluation it is possible to verify the presence and correct functioning of durability protection features.

36. Functional requirements

(1) An electronic instrument must comply with the requirements under a relative humidity of 93% at the maximum high temperature specified for the instrument.

(2) Sub-regulation (1) does not apply to—

- (a) an electronic instrument of Class I; or
- (b) an electronic instrument of Class II if the verification scale interval is less than 1 gram.

(3) During the warm-up time of an electronic instrument, there is to be no indication or transmission of the weighing result.

(4) An electronic instrument may be equipped with an interface permitting the coupling of the instrument to external equipment. When external equipment is connected, the electronic instrument must continue to function correctly and its metrological functions must not be influenced.

(5) A battery-powered electronic instrument must either continue to function correctly or automatically be put out of service whenever the voltage drops below the manufacturer's specified minimum value.

Section 8 – Weighing instruments – Requirements of non-self-indicating instruments

37. Compliance requirements

A non-self indicating instrument must comply with Regulation 5 as far as applicable.

38. Equilibrium index

(1) A non-self-indicating instrument must be manufactured so that—

- (a) the two indices of relative displacement are of the same thickness; and
- (b) the distance between them does not exceed that thickness.

(2) If the thickness of the indices is less than 1 mm, the distance between the indices may be 1mm.

39. Sealing

A non-self-indicating instrument must be manufactured so that the sliding poises, the removal masses and the adjusting cavities or the housing of such devices can be sealed.

40. Printing

If the device permits printing it must be manufactured so that printing can only be done if—

- (a) sliding bars or poises or a mass switching mechanism are each in a position corresponding to a whole number of scale divisions; and
- (b) the equilibrium index is in the reference position to within the nearest half scale interval, except for accessible sliding poises or bars.

41. Sliding poise devices

Sliding poise instruments must be manufactured so that—

- (a) on bars on which the scale interval is the verification scale interval, the scale marks are lines of constant thickness; and
- (b) on other major or minor bars, the scale marks are notches.

42. Scale spacing

The distance between scale marks on an instrument must not be less than 2mm and be of sufficient length so that the normal machining tolerances for notches or scale marks do not cause an error in the weighing result exceeding 0.2 of the verification scale interval.

43. Stops

The displacement of sliding poises and minor bars of an instrument must be limited to the graduated part of major and minor bars.

44. Reading index

Each sliding poise of an instrument must have a reading index.

45. Accessible sliding poise devices

(1) A sliding poise device must not have—

- (a) moving parts except for a minor bar; and

(*t*) cavities that could accidentally hold foreign bodies.

(2) A sliding poise device must be manufactured so that—

(*a*) detachable parts can be sealed;

(*b*) the displacement of its sliding poises and minor bars requires some effort;

(*c*) indication must be effected by metrologically controlled weights; and

(*a*) its reduction ratios are in the form 10^k , where 'k' is an integer or zero.

(3) On an instrument intended for direct selling to the public, the height of the raised edge of the weights receptor platform must not exceed one tenth of the greatest dimension of the platform, without being more than 25mm.

46. Equilibrium index

(1) An instrument must have two moving indices or one moving index and a fixed datum mark, the respective position of which indicates the reference position of equilibrium.

(2) On an instrument of class III or IIII designed to be used for direct selling to the public, the indices and scale marks must allow equilibrium to be seen from the opposite sides of the instrument.

47. Knives, bearings and friction plates

(1) Levers on an instrument must be fitted with knives only and they must be pivoted on bearings.

(2) The line of contact between knives and bearings must be a straight line.

(3) Counter-beams must be pivoted on knife-edges.

(4) The knives must be fitted to the levers in such a way that the invariability of the ratios of the lever arms is ensured and must not be welded or soldered.

(5) The edges of the knives of a lever must be practically parallel and must be situated in one plane.

(6) The bearings must not be welded or soldered to their supports or in their mountings.

(7) An instrument with ratio platforms and steelyards must be manufactured so that—

- (a) its bearings can oscillate in all directions on their supports or in their mountings; and
- (b) it has anti-disconnection devices to prevent the disconnection of articulated parts.

(8) An instrument must be manufactured so that—

- (a) the longitudinal play of the knives is limited by friction plates;
- (b) there is point contact between knife and friction plates and situated on the extension of the line of contact between the knife and the bearings;
- (c) the friction plate forms a plane through the point of contact with the knife;
- (d) the friction plate is situated perpendicular to the line of contact with the knife and bearings; and
- (e) the friction plate is not welded or soldered to the bearings or their support.

(9) Contact parts of knives, bearings, friction plates, interlevers, interlever supports and links must have a hardness of at least 58 Rockwell C.

(10) A protective coating may be applied to the parts in contact of jointed components, so long as no change of metrological properties results.

(11) An instrument must not be fitted with a tare device.

48. Simple equal arm beams

(1) An instrument must be manufactured so that—

- (a) it has two planes of symmetry: longitudinal and transversal;
- (b) it is in equilibrium with or without the pans; and
- (c) detachable parts which may be used equally well on either end of the beam are interchangeable and of equal mass.

(2) If an instrument of class III or IV is provided with a zero setting device, it must be in a cavity below one of the pans and the cavity may be sealed.

49. Simple $1/10$ ratio beam

(1) An instrument must be manufactured so that—

- (a) the ratio must be indicated legibly and permanently on the beam in the form 1:10 or $1/10$, and
- (b) the beam must have a longitudinal plane of symmetry.

(2) Sub-regulation 47(2) applies to an instrument under this section.

50. Simple sliding poise instrument (steelyard)

An instrument must be manufactured so that—

- (a) the scale marks are lines or notches, either on the edge or on the flat of the graduated shank;
- (b) the minimum scale spacing is 2 mm between notches and 4mm between lines.
- (c) the load per unit length on the knives is not more than 10 kg/mm;
- (a) the bores of bearings in the form of an annulus have a diameter at least equal to 1.5 times the largest dimension of the cross-section of the knife;
- (e) the length of the equilibrium index, taken from the edge of the fulcrum knife-edge of the instrument, is not less than $1/15$ of the length of the graduated part of the major sliding poise bar;
- (j) in the case of an instrument with detachable sliding poises, the head and the sliding poise bear the same distinctive mark;
- (g) in the case of an instrument with single capacity, the minimum distance between knife-edges is 25mm for maximum capacities less than or equal to 30 kg and 20mm for maximum capacities exceeding 30 kg.;
- (h) in the case of an instrument with dual capacity—
 - (i) the minimum distance between knife edges is 45 mm for the lower capacity and 20 mm for the higher capacity,
 - (ii) the suspension mechanism of the instrument is differentiated from the load suspension mechanism,
 - (iii) the scales corresponding to each of the capacities permits weighing from zero to maximum capacity with a break in continuity either without the two scales having a common part or with a common part not more than $1/5$ of the highest value of the lower scale,

- (iv) the scale intervals of each scale has a constant value, and
- (v) there is no zero-setting device;
- (i) the graduation extends from zero to the maximum capacity; and
- (j) in the case of an instrument of class III or IV provided with a zero-setting device, the device is a captive screw or nut arrangement with a maximum effect of 4 verification scale intervals per revolution.

51. Roberval and Beranger instruments

An instrument must be manufactured so that—

- (a) detachable symmetrical parts occurring in pairs are interchangeable and of equal mass;
- (b) if an instrument is provided with a zero-setting device, it must be in a cavity below the support of one of the pans and the cavity may be sealed;
- (c) in the case of an instrument having a simple beam—
 - (i) the distance between the outward ends of load knife-edge are at least equal to the diameter of the bottom of the pan, and
 - (ii) the distance between the outward ends of the centre knife edge are at least equal to 0.7 times the length of the load knife-edges; and
- (a) in the case of a double beam instrument the stability of the mechanism must be equal to that obtained with a simple beam instrument.

52. Instruments with ratio platforms

An instrument must be manufactured so that—

- (a) the maximum capacity of the instrument is greater than 30 kg.;
- (b) the ratio between the weighed load and the equilibrium load is indicated legibly and permanently on the beam in the form 1:10 or $1/10$.;
- (c) it has a zero-setting device consisting either of a cup with greatly convex cover, or of a captive screw or nut arrangement, with a maximum effect of 4 verification scale intervals per revolution;

- (a) any complementary balancing device that avoids the use of weights which are of low value in relation to the maximum capacity is a graduated steelyard with a sliding poise so that the effect is additive and not more than 10 kg.; and
- (e) it has a manual device for locking the beam, the action of which prevents the equilibrium indices coinciding when at rest.

53. Instrument with a load-measuring device with accessible sliding poises (of the steelyard type)

(1) Regulations 38 to 45 relating to load measuring devices with accessible sliding poises apply to instruments under this section.

(2) An instrument must be manufactured so that—

- (a) the numbered scale of the instrument permits continuous weighing from zero to the maximum capacity;
- (b) the scale spacing i_x of the different bars ($x = 1, 2, 3, \dots$) corresponding to the scale interval d_x of these bars is $i_x \geq (d_x/e) \cdot 0.05$ mm, but $1_x \geq 2$ mm;
- (c) the ratio between the value of weights placed on any ratio platform for extending the indicating range of the numbered scale to balance a load and the load itself is $1/10$ or $1/100$; and
- (a) the ratio referred to in paragraph (c) is indicated legibly and permanently on the beam in a position close to the ratio platform in the form 1:10, 1:100, or $1/10, 1/100$.

(3) Regulations 52(c) and (e) apply to the instrument.

Section 9 -Weighing instruments – Requirements of automatic weighing machines

54. Requirements

(1) An automatic weighing machine and its integral parts must, as far as practicable, satisfy the requirements of these regulations which are applicable, corresponding to its type and class to which the machine most nearly relates.

(2) All beams of automatic weighing machines must be identified with the machines to which they relate by means of an indelible number or other mark of recognition.

(3) Any adjusting mechanism of an automatic weighing machine must be so secured and protected that it cannot be readily tampered with.

*Section 10 – Measuring instruments – Requirements of fuel dispensing instruments***55. Compliance requirements – petrol pumps**

(1) A petrol pump must be manufactured so that it—

- (a) delivers fuel at only one outlet;
- (b) has a clear and legible volume indicator;
- (c) has no counter or totalizing device which might be confused with the volume indicator;
- (d) does not leak;
- (e) does not have a delivery hose longer than 5 metres, unless—
 - (i) the pump is used to refuel ships or aircraft; and
 - (ii) the Director has given written permission for a delivery hose longer than 5m;
- (f) has the manufacturer's name clearly marked on it; and
- (g) has any price indicator fitted with a device which clearly indicates the price per litre or price per gallon and regulates the registration on the indicator.

(2) For the purpose of Sub-regulation (1)(e), the length of the delivery hose includes the length of the nozzle but excludes the length of a swing or radial arm and, in the case of a retractable hose, must be measured when fully extended from where it emerges from its housing.

(3) If the pump is used to measure lubricating oil, its delivery hose must be permanently filled to nozzle.

(4) A petrol pump of a fixed type must be—

- (a) securely mounted on a solidly-constructed level base;
- (b) sited so that a purchaser has an unobstructed view of the volume indicator, and of any price indicator, and
- (c) sited so that the adjusting mechanism, seal and place for the verification stamp are readily accessible.

(5) A petrol pump equipped with a meter must—

- (a) not deliver fuel unless the volume indicator and any price indicator have been reset to zero;
- (b) have an air separator and a cut-off valve which ensures non-registration if the supply of fuel stops; and
- (c) have a delivery hose permanently filled to the nozzle.

(6) A petrol pump which has one or more measuring chambers must—

- (a) except when fitted with valves for automatic filling and emptying of the chambers, have visual indication that a chamber is full or is empty;
- (b) have the delivery hose so positioned as to allow complete discharge of the liquid flowing from one chamber into another; and
- (c) if it has more than one measuring chamber,
 - (i) have a valve to prevent the liquid flowing from one chamber into another, and
 - (ii) have each chamber denominated

(7) A petrol pump, when new or in service, must have no error exceeding the greater of—

- (a) $\pm 0.5\%$ of the volume purported to be delivered; or
- (b) 50 ml.

56. Compliance requirement, bulk meters

(1) A bulk meter, including a vehicle tank meter must—

- (a) have devices which—
 - (i) prevent air from passing through the meter to such an extent as to affect the accuracy of delivery, and
 - (ii) ensure that no registration takes place when the supply of fuel fails;
- (b) have no leakage;

- (c) have figures on any indicator which are indelible, clear and legible;
 - (a) have the maker's name marked on it;
 - (e) have the minimum and maximum rates of flow in litres or cubic meters per minute or gallons per minute clearly marked;
 - (j) have primary indicating or recording elements which can advance only by the flow of the liquid through the meter, provided that the meter reading may be cleared by an advance movement which cannot be stopped before zero is reached; and
 - (g) when a pre-set mechanism is incorporated, automatically stop delivery registration and flow when the pre-set volume has been delivered.
- (2) A bulk meter, when new or in service, must have no error exceeding the greater of—
- (a) $\pm 0.5\%$ of the volume purported to be delivered; or
 - (b) 2 litres.

57. Delivery from vehicle tanks

(1) Except where permitted in accordance with Sub-regulation (2), no person shall sell, or in a commercial transaction deliver, fuel in bulk from a mobile tanker except through a petrol pump, or through a bulk meter.

- (2) Vehicle tanks or compartments of vehicle tanks are permitted for trade of fuel if—
- (a) they have been approved, verified and stamped by the Director within errors not exceeding $\pm 0.5\%$ of the entire content of each tank compartment;
 - (b) they are used for one individual delivery of the entire content of one or more compartments; and
 - (c) they are so positioned during delivery as to assume complete emptying of the compartments.

PART IV

**TESTING, VERIFICATION AND STAMPING OF WEIGHTS, MEASURES AND
WEIGHING AND MEASURING INSTRUMENTS**

Section 1 – General

58. Fees

Fees at the rates set out in Schedule 9 are payable for testing, verification, adjustment and stamping of weights, measures, and weighing and measuring instruments.

59. Stamping etc.

Every weight, measure, or weighing or measuring instrument which complies with these regulations and is correct must be stamped or marked with the official verification mark prescribed for the purpose. In addition to such marking a numeral indicating the month and the last two numerals of the year must also be impressed provided it is practicable to do so.

Section 2 – Testing of Weights

60. Testing method

(1) A weight must be tested by comparison with the equivalent working standard weight or group of working standard weights having errors less than one-third of the limit of error specified in Table 2 of Schedule 1 and Table 2 of Schedule 2, by direct comparison on a class II or higher class balance.

(2) If a weight does not conform to these Regulations it must not be passed as correct at verification. A rejection mark may be stamped or affixed to the weight.

61. Place of stamping

(1) A weight for general trade that has been passed as correct at verification, must be stamped—

- (a) if the weight has an adjusting hole, on the lead in that hole; or
- (b) in any other case, on the base surface of the weight.

(2) A precision weight for trade with valuable goods that has been passed as correct at verification, must be stamped—

- (a) on its base surface if it is of a denomination of 200 grams or more, or

- (*b*) on the identification plate on top of the storage box if it is of a denomination of 100 grams or less.

Section 3 – Testing of liquid measures

62. Testing method

- (1) A measure of volume must be tested—
 - (*a*) by filling it to its capacity with water; and
 - (*b*) by emptying those contents into a standard test measure having limits of error not exceeding one-fourth of those specified in Schedule 3 or Schedule 4 and by allowing a drainage time of 30 seconds.
- (2) A measure of volume may be tested by the gravimetric method instead of the method referred to in Sub-regulation (1).
- (3) A fixed storage tank must be tested by a geometric or volumetric method.
- (4) The reference temperature at the time of testing must be 27 degrees C, or, in the case of a measure of volume intended to be used at another temperature, at that other temperature.
- (5) If a measure does not conform to these Regulations it must not be passed as correct at verification. A rejection mark may be stamped or affixed to the measure of volume.

63. Place of stamping

A measure of volume which has been passed as correct at verification must be stamped—

- (*a*) in the case of a metal measure, at the bottom of the inside of any lip or retaining edge; and
- (*b*) in any other case, near the marking of capacity.

Section 4 - Testing of length measures

64. Testing method

- (1) A measure of length must be tested—
 - (*a*) against a standard measure of length having errors not exceeding one-third of the limits specified in Schedule 5 and Schedule 6;

- (b) at a reference temperature of 27°C, unless intended for use at another temperature; and
- (c) in the case of a tape measure, while it is supported horizontal over its complete length and subjected to a tensile force of—
 - (i) 50 Newtons in the case of a metal measure; or
 - (ii) 10 Newtons in the case of a measure not made of metal.

(2) A measure of length which does not conform to the requirements of these regulations as applicable must not be passed as correct at verification. A rejection mark may be stamped or affixed to the measure of length.

Section 5 - Testing of weighing instruments

65. Testing Method

(1) In order to ensure the accuracy of weighing instruments, tests to ensure that it is fit for its intended use must be carried out on a new or repaired weighing instrument at verification, including—

- (a) a visual inspection of all parts of the instrument including those which may be dismantled and re-assembled without changing the correct operation of the instrument; and
- (b) the tests referred to in Regulation 26.

(2) At in-service inspection of weighing instruments, the applicable parts of inspection and testing as specified in Sub-regulation (1) must be carried out and any stamps, seals and markings of the instrument and verification certificates must be examined.

(3) A weighing instrument must be inspected—

- (a) in the case of a portable instrument, at a site where it is intended to be used or at a place and time to be determined by the Director; or
- (b) in the case of any other instrument, at the site of its intended use.

(4) The limit of error of a weighing instrument must be tested with working standard weights having errors of not more than one-third of the limit of error for that instrument.

(5) Except where otherwise provided in these Regulations, tests must be carried out for all weighing instruments at the following loads—

- (a) at no load;
- (b) at half maximum capacity;
- (c) at maximum capacity, including if applicable, maximum additive tare; and
- (a) at loads at which the method of balancing is modified by addition or subtraction of a unit weight.

(6) Self-indicating weighing machines, in addition to test loads specified in Sub-regulation (5), must be tested at—

- (a) capacity of self-indication if different from maximum capacity; and
- (b) at as many loads as is necessary to ensure that they are correct in view of their particular construction.

(7) The following tests must be carried out on platform machines and weighbridges at verification—

- (a) tests for discrimination, sensitivity and limit of error must be carried out in compliance with Regulation 25 provided that procedures and means for applying high test loads are available with the Director; and
- (b) tests for position of load must be made in accordance with Regulation 25, with weighbridges being tested using a vehicle with a total load not exceeding 80 percent of the sum of the maximum capacity and maximum tare which is successively immobilized at different points of the load receptor.

(8) A weighbridge must be checked for—

- (a) adequate drainage with no accumulation of water, mud or debris in the pit;
- (b) smooth, straight and horizontal approaches for a distance of at least half the length of the platform at each end of the weighbridge;
- (c) ensuring that the building with the indicating device is so constructed that the operator has an unobstructed view of the whole platform;
- (a) the platform being so protected that vehicles can only go onto it or leave it at the ends;
- (e) adequate foundations to support the platform and other components at maximum load without movement; and

- (j) a counterpoise weight of distinctive shape from other counterpoise weights which can accurately compensate for the weight of any loose receptor or frame used with the instrument and which has the words "TARE WEIGHT" legibly and conspicuously stamped on its edge.

Section 6 - Testing of Fuel Dispensing Instruments

66. General

(1) A measuring instrument must be tested under practical working conditions with the liquid fuel or lubricant that the instrument is intended to deliver.

(2) No fuel dispensing instrument may be tested unless it is complete with all parts and attachments necessary for the operation of measurement and delivery.

(3) An Inspector may open any lock or sealed tank or container from which liquid fuel or lubricant has been withdrawn for the purposes of testing in order to return the fuel or lubricant to it. Immediately after the fuel or lubricant has been returned, the Inspector shall securely re-fasten the tank or container and replace any seal or link broken in opening the tank or container with a seal upon which he or she shall affix the official stamp.

(4) Any liquid fuel or lubricant that is drawn from any tank or container for the purpose of the test must be returned to the person in charge of the measuring instrument.

67. Petrol pumps

(1) A petrol pump having a measuring chamber must be tested, after passing 5 litres or more of fuel or lubricant through the delivery hose.

(2) The standard test measures used to test a petrol pump must not have limits of error exceeding ± 0.1 percent.

(3) A petrol pump must be tested by delivering the fuel into test measures in such numbers and volume as are necessary.

(4) The meter must be tested by a slow test at a rate of delivery not exceeding 10 litres per minute.

(5) The pump must be tested to ensure that it works correctly whether the fuel is delivered rapidly or slowly.

(6) The pump must be tested to ensure that when a delivery has been completed, no further operation can take place until the indicator for quantity has been reset to zero.

(7) The pump must be tested to ensure that over a number of deliveries, the indications on the price indicator correspond with the indications on the volume indicator and with the price per litre or gallon, as the case may be.

(8) The pump must be tested to ensure that the volume indicators and the price indicators both agree after a delivery, for pumps having more than one volume and price indicator.

(9) In the case of a pump having a nozzle control valve, the pump must be tested to ensure that no fuel is delivered when the valve is open and the pump is not operating.

(10) A petrol pump not conforming to these Regulations must not be passed as correct at verification. A rejection mark may be stamped or affixed to the petrol pump.

(11) A pump which has been passed as correct at verification must—

- (a) have a verification mark stamped on a lead plug inserted in a conspicuous and easily accessible part of the pump; and
- (b) have affixed to it a standard seal to prevent access to the adjusting device without breaking the seal.

68. Bulk meters

(1) A bulk meter must be tested—

- (a) after any dry hose has been flushed and the instrument reset to zero;
- (b) using standard test measures or a calibrated master meter or a proving loop, which have limits of error not exceeding ± 0.15 percent;
- (c) by passing the liquid intended to be normally used through the meter into standard test measures in several necessary deliveries and volumes, or by comparison of the indication of the meter under test with the indication of a calibrated master meter or proving loop;
- (a) with varying heads of liquid or with varying bore by manipulation of the delivery valve as far as is practicable.

(2) A meter which has been passed as correct at verification must—

- (a) have a verification mark stamped on a conspicuous and easily accessible part of the meter; and

- (b) have affixed to it a standard seal to prevent access to the working parts or adjusting device without breaking the seal.

Section 7 – Testing of Pre-Packaged Goods

69. Method

(1) For the purposes of checking the net weight or measure of pre-packaged goods, an Inspector may—

- (a) use measuring devices that have been issued to him or her; or
- (b) use measuring devices owned by the trade outlet so long as—
 - (i) they have been passed as correct at verification; and
 - (ii) their accuracy is suitable for the type and quantity of the goods checked.

(2) A measuring device used by an Inspector for the purpose of checking the quantity of pre-packaged goods must be accurate to about 1 % of the measured quantity.

(3) For the purposes of checking the net weight or measure of pre-packaged goods, the Inspector shall—

- (a) consider as one lot, as large a number as possible of the goods being offered for sale and in store;
- (b) draw random samples of the goods; and
- (c) determine the net weight or measure of the goods.

(4) The limits of error for pre-packaged goods must not be greater than the limits of error specified in Schedule 9.

PART V

LICENSING OF SELLERS, REPAIRERS AND MANUFACTURERS OF WEIGHTS, MEASURES AND WEIGHING INSTRUMENTS

70. Licence to sell, repair, etc. weight etc.

A person who desires to obtain a licence to sell or repair or manufacture and sell any weight or measure or any weighing or measuring instrument for use in commercial trade shall make an

application to the Director in the form set out in forms A1 or A2 in Schedule 10 accompanied by the prescribed fee.

71. Licence to sell, repair etc. metric weight etc.

A licence to sell or repair or manufacture and sell a metric weight or measure or a metric weighing or measuring instrument—

- (a) must be in the forms L1 and L2 set out in Schedule 10;
- (b) is an annual licence that expires on the anniversary of the date on which it was issued;
- (c) is subject to the conditions specified in it; and
- (a) may be renewed on payment of the prescribed annual fee.

72. Loss etc. of licence

If a licence is lost, damaged or destroyed, the licensee may be issued a certified copy of the licence—

- (a) on applying to the Director in writing; and
- (b) on payment of the prescribed fee.

SCHEDULE 1*Regulations 7, 9, 10 and 60***LIMITS OF ERROR FOR WEIGHTS FOR USE IN TRADE - METRIC SYSTEM****Table 1 - Limits of error for weights for general trade (Metric System)**

Denomination	Limit of Error, \pm mg	
	Initial verification	In-service verification
1 g	5	10
2 g	5	10
5 g	10	20
10 g	20	40
20 g	20	40
50 g	30	60
100 g	100	200
200 g	100	200
500 g	250	500

1 kg	500	1000
2 kg	1000	2000
5 kg	2500	5000
10 kg	5000	10 000
20 kg	10 000	20 000
50 kg	25 000	50 000

Table 2 - Limits of error for weights for use in trade with valuable goods (Metric System)

Denomination	Limit of Error	
	Initial Verification	In-service Verification
10 mg	+ 0.2 0	± 0.2
20 mg	+ 0.5 0	± 0.5

50 mg	+0.5 0	± 0.5
100 mg	+0.5 0	± 0.5
200 mg	+1.0 0	± 1.0
500 mg	+1.0 0	± 1.0
1 g	+1.0 0	± 1.0
2 g	+1.0 0	± 1.0
5 g	+2.0 0	± 2.0
10 g	+4.0 0	± 4.0
20 g	+4.0	± 4.0

	0	
50 g	+5.0 0	± 5.0
100 g	+10.0 0	± 10.0

SCHEDULE 2

Regulations 7, 8, 10 and 60

LIMITS OF ERROR FOR WEIGHTS FOR USE IN TRADE –BRITISH IMPERIAL SYSTEM

Table 1 - Limits of error for weights for general trade (British Imperial System)

Denomination	Limit of Error, mg	
	Initial Verification	In-service Verification
1 drams	0.08	0.16
2 drams	0.16	0.32
4 drams	0.32	0.64

8 drams	0.32	0.64
1 ounce	0.5	1
2 ounces	0,5	1
4 ounces	1.5	3
8 ounces	1.5	3
1 pound	4	8
2 pounds	8	16
4 pounds	15	30
5 pounds	20	40
7 pounds	24	48
7 pounds	35	70
14 pounds	50	100
20 pounds	95	190
28 pounds	100	200

50 pounds	175	350
56 pounds	195	390

Table 2 - Limits of error for weights for trade with valuable goods (British Imperial System)

Denomination	Limit of error, grains	
	Initial verification	In-service Verification
ounces troy		
1	+ 0.1 0	± 0.1
2	+ 0.1 0	± 0.1
3	+0.15 0	± 0.15
4	+ 0.2 0	± 0.2
5	+ 0.25	± 0.25

	0	
10	+ 0.5 0	± 0.5
20	+ 1 0	± 1
30	+1.5 0	± 1.5
40	+ 2 0	± 2
50	+ 2.5 0	± 2.5
100	+ 5 0	± 5
200	+ 9 0	± 9
300	+ 14 0	± 14

400	+ 18 0	± 18
500	+ 22 0	± 22

SCHEDULE 3*Regulations 12, 16 and 62***LIMITS OF ERROR FOR VOLUME MEASURES FOR USE IN TRADE – METRIC SYSTEM**

Denomination	Limit of error, millilitres (ml)	
	Initial Verification	In-service Verification
20 ml	± 1	+ 2 - 1
50 ml	± 2	+ 4 - 2
100 ml	± 3	+ 6 - 3

200 ml	± 5	+ 10 - 5
250 ml	± 5	+ 10 - 5
500 ml	± 10	+ 20 - 10
1 l	± 15	+ 30 - 15
2 l	± 25	+ 50 - 25
5 l	± 50	+ 100 - 50
10 l	± 80	+ 160 - 80
20 l or more	± 0.5 percent	+ 1 percent - 0.5 percent

SCHEDULE 4*Regulations 12, 16 and 62***LIMITS OF ERROR FOR VOLUME MEASURES FOR USE IN TRADE - BRITISH IMPERIAL SYSTEM**

Denomination	Maximum permissible error	
	Initial Verification	In-service Verification
1 fluid ounce	± 24 minims	+ 48 minims - 24
2 fluid ounces	± 38 minims	+ 76 minims - 38
4 fluid ounces	± 57 minims	+ 114 minims - 57
6 fluid ounces	± 70 minims	+ 140 minims - 70
8 fluid ounces	± 70 minims	+ 140 minims - 70
$\frac{1}{2}$ pint	± 95 minims	+ 190 minims - 95

1 pint	± 190 minims	+ 380 minims - 190
1 quart	± 285 minims	+ 570 minims - 285
½ gallon	± 475 minims	+ 950 minims - 475
1 gallon	± 760 minims	+ 1520 minims - 760
2 gallon	± 2.5 ounce	+ 5 ounce - 2.5
3 gallon	± 3.8 ounce	+ 7.6 ounce - 3.8
4 gallon	± 5 ounce	+ 10 ounce - 5
5 gallon or more	± 0.5 percent	+ 1 percent - 0.5 percent

SCHEDULE 5*Regulation 17***LIMITS OF ERROR FOR MEASURES FOR DISPENSING MEDICINE**

Denomination or value at graduation	Limit of error, Millilitres (ml)
500 ml	± 5.00
200 ml	± 2.00
100 ml	± 1.00
50 ml	± 0.50
25 ml	± 0.25
20 ml	± 0.02
10 ml	± 0.10
5 ml	± 0.05
2 ml	± 0.02
1 ml	± 0.01

SCHEDULE 6*Regulations 20 and 64***LIMITS OF ERROR FOR LENGTH MEASURES FOR USE IN TRADE-METRIC SYSTEM**

Denomination or value of graduation, m	Limit of error, \pm mm	
	End measures	Line measures
0.5	1.2	0.8
1	1.4	1
1.5	1.6	1.2
2	1.8	1.4
3	2	1.8
4	-	2.2
5	-	2.6
10	-	4.6
15	-	6.6
20	-	8.6

25	-	10.6
30	-	12.6
50	-	20.6
60	-	24.6
100	-	40.6

SCHEDULE 7*Regulations 20 and 64***LIMITS OF ERROR OF LENGTH MEASURES FOR USE IN TRADE - BRITISH IMPERIAL SYSTEM**

Denomination or value of graduation, inches	Limit of error, \pm inches	
	End - measures	Line measures
1	0.04	0.02
6	0.04	0.02
12	0.04	0.02
24	0.06	0.04

36	0.06	0.04
48	0.06	0.04
60	0.06	0.04
72	0.08	0.06
96	0.08	0.06
120	-	0.08
240	-	0.12
396	-	0.18
600	-	0.26
792	-	0.34
1200	-	0.50

SCHEDULE 8

Regulations 23, 24 and 25

ACCURACY CLASSES AND LIMITS OF ERROR OF WEIGHING INSTRUMENTS

Table 1 - Definition on the verification scale interval (e)

Type of Instrument	Accuracy Class	Maximum Load "Max"	Value of the verification interval (ϵ)
Graduated	Classes I, II, III, and IV	-	equal to the scale interval (a)
Non-graduated	Class I Special	From 100 mg to 1 g both inclusive	1 mg
		From 1 g to 10 g both inclusive	Max /1000
		above 100 g	Max/10 000
	Class II High	From 1 g inclusive to 5 g exclusive	Max/1000
		From 5 g to 100 g both inclusive	5 mg
		From 100 g to 200 g both exclusive	Max/20 000

	Class III Medium	From 20 g to both inclusive	0.1 g
		From 100 g to 1 kg both exclusive	Max/1000
		From 1 kg to both inclusive	1 g
		Above 2 kg	Max/2000
	Class IV Ordinary	Form 1 kg to 2 kg both inclusive	5 g
		Above 2 kg	Max/400

Table 2 - Definition of number of verification scale intervals and minimum of weighing instruments

Accuracy Class	Verification interval (ϵ)	Scale	Number of verification Scale intervals (n)*, min	Minimum Capacity Min
Special Class I	$e \ni 0.001 \text{ g}$		50 000	100 e
High Class II	$0.05 \text{ g} \ni e \ni 0.001 \text{ g}$		100	20 e

	$e \geq 0.1 \text{ g}$	5000	50 e
Medium Class III	$2 \text{ g} \geq e \geq 0.1 \text{ g}$	100	20 e
	$e \geq 5 \text{ g}$	500	20 e
Ordinary Class IV	$e \geq 5 \text{ g}$	100	10 e

* NOTE : Number of verification scale intervals = $\frac{\text{Max capacity}}{e}$

Table 3 - Limits of error of weighing instruments

Maximum permissible error on initial verification	Load Range			
	Class I	Class II	Class III	Class IV
$\forall 0.5 e$	0 to 50 000 e both inclusive	0 to 5000 e both inclusive	0 to 500 e both inclusive	0 to 50 e both inclusive
$\forall 1 e$	50 000 e to 200 000 e inclusive	5000 e to 20 000 e inclusive	500 e to 2000 e inclusive	200 e to 1000 e inclusive

∇ 1.5 e	Over 200 000 e	20 000 e to 100 000 e inclusive	2000 e to 10000 e inclusive	200 e to 1000 e inclusive
---------	----------------	---------------------------------	-----------------------------	---------------------------

e - verification scale interval in mass units

SCHEDULE 9

Regulation 69

LIMITS OF ERROR FOR NET QUANTITIES DECLARED IN METRIC UNITS OF MASS OR VOLUME

Nominal quantity (Qn) in grams or millilitres	Tolerable deficiency	
	As a percentage of nominal quantity	Grams or millilitres
0 to 50	9	-
From 50 to 100	-	4.5
From 100 to 200	4.5	-
From 200 to 300	-	9
From 300 to 500	3	-

From 500 to 1000	-	15
From 1000 to 10000	1.5	-
Above 15000	1.0	0

SCHEDULE 10*Regulations 70 and 71***FORMS****Form A 1****Application for Licence to Sell Weights, Measures, or Weighing and Measuring Instruments**To the Director of the Bureau of Standards:

1. Name: _____.
2. Address of premises where the selling is to be carried on:

 _____.
3. Proof of licence to carry on business _____.
4. Please attach the prescribed fee: \$ _____.

The applicant hereby declares that all the information provided in this application and any other document provided in support of it is true and correct. Applicant further undertakes to inform the Director without delay of any changes to the information supplied with this application.

Authorized Signature

Date

By: _____

Form A 2

Application for Licence to Manufacture and Sell, or to Repair Weights, Measures, or Weighing and Measuring Instruments

To the Director of the Bureau of Standards

1. Name: _____.

2. Address of premises where the selling is to be carried on:

_____.

3. Proof of licence to carry on business _____

4. FOR MANUFACTURERS:

Proof of submission and approval by the Director of design of, and specimens of weights, measures or instruments to be manufactured for sale

: _____

FOR REPAIRERS:

Proof of competency in repairing weights, measures, or instruments to be repaired

FOR REPAIRERS:

Proof that the Applicant possesses the equipment necessary to undertake the repairs:

5. Please attach the prescribed fee: \$ _____.

The applicant hereby declares that all the information provided in this application and any other document provided in support of it is true and correct. Applicant further undertakes to inform the Director without delay of any changes to the information supplied with this application.

Authorized Signature

Date

By:

Form L 1

Licence to sell metric weights, measures and weighing and measuring instruments

_____ is / are hereby licensed under the Metrology Regulations to sell weights, measures and weighing and measuring instruments at _____ from the date of issuance until the thirty- first day of December, 20__.

Date of issuance: _____

Director

Antigua and Barbuda Bureau of Standards

Form L 2

Licence to manufacture and sell weights or measures or weighing or measuring instruments or to repair weights and measures or weighing or measuring instruments

_____ is / are hereby licensed under the Metrology Regulations to manufacture and sell weights, measures and weighing and measuring instruments , or to repair weights, measures or weighing and measuring instruments (*strike out what is not applicable*) at _____ from the date of issuance until the thirty-first day of December, 20__.

Date of issuance: _____

Director

Antigua and Barbuda Bureau of Standards

Conditions of the licence

For Manufacturers:

1. A person licensed to manufacture weights or measures or weighing instruments shall submit to the Director for his approval, the design of every weight or measure or weighing or measuring instrument which the person proposes to manufacture.
2. A person licensed to manufacture weights and measures or weighing or measuring instruments shall submit to the Director for his approval a specimen of every weight or measure or weighing or measuring instrument which the person proposes to manufacture.

For Repairers:

1. A person licensed to repair weights or measures or weighing or measuring instruments, shall either be competent to repair them or employ personnel who are competent to do so.
2. A person licensed to repair metric weights or measures or weighing or measuring instruments shall always maintain at the place or places mentioned above equipment as necessary for the repair of weights or measures or weighing or measuring instruments and for which a licence has been issued.
3. A person licensed to repair weights shall not charge more for a repair than the maximum Amount set out in Schedule 9.

SCHEDULE 11*Regulations 58, 70 and 72***FEES**

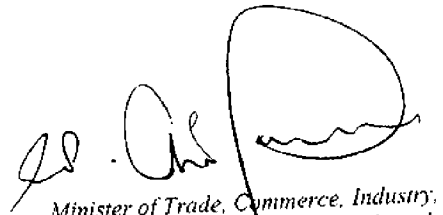
Activity	ECD
Calibration of Storage Tank (l) <ul style="list-style-type: none">• 0 to 50 L• >50 to 100 L• >100 to 250 L• > 250 to 1000 L	75.00 100.00 125.00 200.00
Calibration of Weight Pieces <ul style="list-style-type: none">• 1g to 100g• >100g to 1 kg• >1 kg to 20 kg• >20 kg to 100 kg• >100 kg	20.00 45.00 60.00 125.00 200.00
Calibration of Pipettes	30.00
Calibration of Burettes	35.00
Calibration of Volumetric Provers	

5 L	20.00
10 L	30.00
20 L	40.00
50 L	55.00
100 L	70.00
> 100 L	100.00
Calibration of Weight/Gallon Cups	20.00
Calibration of Tyre Pressure Gauges	25.00
Calibration of Blood Pressure Manometers	30.00
Calibration of Liquid-in-glass Thermometers	30.00
Calibration of Medical/Clinical Thermometers	30.00
Calibration of weighing machine (maximum capacity not exceeding 140 kg)	100.00
Calibration of weighing machine (maximum capacity greater than 140 kg)	200.00
Calibration of Weighbridges	300.00
Checking the Contents of Packaged Commodities	
• 0 to 2 kg	15.00
• >2 kg to 20 kg	25.00

• >20 kg	40.00
Inspection of Tyres	10.00
Testing of Petrol Pumps	55.00
Testing of Analytical Balance	150.00
Testing of Water Metres (Range)	15.00
Testing of Electricity Meters	20.00
Verification of Weight Pieces	25.00
Verification of Weighbridges	100.00
<u>Verification of Price Scanners</u>	<u>75.00</u>
<u>Verification of Tape Measures/Length Measures not exceeding 1m</u>	<u>50.00</u>
<u>Fee for application for licence to sell, repair, or manufacture and sell weights, measures measuring instrument</u>	
Registration fee per serviceman	100.00
Annual fee per serviceman	25.00
Replacement of lost or damaged licence	25.00

Other activities performed by Inspectorate to be prescribed accordingly	
---	--

Made this 7th day of March, 2017



*Minister of Trade, Commerce, Industry,
Sports, Culture and National Festivals and
Minister with responsibility for the
Metrology Act.*