THE REPUBLIC OF KIRIBATI

METROLOGY ACT 2021

Arrangement of Sections

THE REPUBLIC OF KIRIBATI

(No.3 of 2021)

I assent,

Beretitenti

19/05/2021

An Act

entitled

An Act to provide for the regulation of metrology in the Republic of Kiribati

Commencement date:

_____2021

MADE by the Maneaba Ni Maungatabu and assented to by the Beretitenti.

PART I – PRELIMINARY

1. Short title

This Act may be cited as the *Metrology Act 2021*.

2. Commencement

This Act commences on a date to be appointed by the Minister by notice.

3. Interpretation

(1) In this Act, unless the context otherwise requires-

"Act" means the *Metrology Act 2021*;

"adjust" or "adjustment" means the set of operations carried out on a measuring instrument or measurement standard so that it provides prescribed indications corresponding to given values of a quantity to be measured;

"adjustor" means the person conducting an adjustment or adjustments;

"calibration" means the operation that, under specified conditions, in a first step, establishes a relation between the quantity values with measurement uncertainties provided by measurement standards and corresponding indications with associated measurement uncertainties and, in a second step, uses this information to establish a relation for obtaining a measurement result from an indication;

"certified reference material" means reference material, accompanied by documentation issued by an authoritative body and providing one or more specified property values with associated uncertainties and traceabilities, using valid procedures;

"company" means a company incorporated under the Companies Act;

"container" means any form of packaging in which goods are exposed, packed, offered for sale or sold, including, in particular, a bag, case, carton, bottle, glass, box, can, envelope, net, sack or wrapper whether or not such wrapper fully encloses its contents;

"Convention of the Metre" means the treaty signed that was originally signed on 20 May 1985 which created the intergovernmental organisation known as the International Bureau of Weights and Measures (BIPM);

"Director" means the Director appointed under section 5(2) of this Act;

"Division" means the Metrology Division established by section 5 of this Act;

"indication" means the quantity value provided by a measuring instrument or a measuring system;

"initial verification" means the verification of a measuring instrument which has not been verified previously;

"inspector" means a person authorized and appointed under section 7 of this Act;

"International System of Units, SI" means the coherent system of units adopted and recommended by the General Conference of Weights and Measures;

"in-service verification" or "Subsequent verification" means verification of a measuring instrument after a previous verification. This may include of all or some of the following:

(a) mandatory verification;

(b) verification after repair; and

(c) voluntary verification;

"legal metrology" means the practice and process of applying statutory and regulatory structure and enforcement to metrology;

"measurement standard" means the realization of the definition of a given quantity, with stated quantity value and associated measurement uncertainty, used as a reference;

"measuring instrument" means a device used for making measurements, alone or in conjunction with one or more supplementary devices;

"measurement uncertainty" means the non-negative parameter characterizing the dispersion of quantity values being attributed to a measurand, based on the information used;

"metrology" means the science of measurement and its application;

"metrological traceability" means the property of a measurement result whereby the result can be related to a reference through a documented unbroken chain of calibrations, each contributing to the measurement uncertainty;

"Minister" means the Minister responsible for commerce;

"Ministry" means the Ministry responsible for commerce;

"national measurement standard" means the measurement standard recognised by national metrology authority to serve in a state or economy as the basis of assigning quantity values to other measurement standards for the king of quantity concerned;

"net quantity" in relation to a prepackage, means the quantity or number of such commodity contained in that prepackage, excluding the container;

"packer" means an individual, group, agency or company that is responsible for filling containers or prepackages which are to be offered for sale;

"premises" means any building, factory, shop, store, warehouse, shed, land, vehicle, vessel or aircraft;

"prepackage" means a container containing goods together with the container in a case where –

(i) the goods are placed for sale in the container otherwise than in the presence of the person purchasing the goods; and

(ii) none of the goods can be removed from the container without disturbing the integrity of the package;

"primary measurement standard" means a measurement standard established using a primary reference measurement procedure, or created as an artifact, chosen by convention;

"quantity" means the property of a phenomenon, body or substance where the property has a magnitude that be expressed as a number and a reference;

"recalibrate" means to calibrate again;

"reference Material" means a material, sufficiently homogenous and stable with reference to specified properties, which has been established to be fit for its intended use in measurement or in examination of nominal properties;

"reference measurement standard" means a measurement standard designated for the calibration of other measurement standards for quantities of a given kind in a given organisation or at a given location;

"rejection mark" means a mark applied to a measuring instrument in a conspicuous manner to indicate that the measuring instrument does not comply with the statutory requirements and that obliterates the previously applied verification mark;

"seal" means a device intended to protect the measuring instrument against any unauthorized modification, adjustment, removal of parts, etc.;

"secondary measurement standard" means a measurement standard established through calibration with respect to a primary measurement standard for a quantity of the same kind;

"Secretary" means the Secretary responsible for commerce;

"trade" means the selling, purchasing, exchanging, leasing, rendering, consigning or providing of any goods, land, facility, service or work on the basis of measurement and includes the collecting of tolls, duties and taxes on the basis of measurement and the business of providing facilities for measuring by means of a prescribed measuring device;

"verification" means a conformity assessment procedure (other than type evaluation) which results in the affixing of a verification mark and/or issuing of a verification certificate;

"verification mark" means a mark applied to a measuring instrument in a conspicuous manner certifying that the verification of the measuring instrument was carried out and compliance with statutory requirements was confirmed;

"vested interest" means a personal stake or involvement in an undertaking or state of affairs, especially one with an expectation of financial gain;

"working measurement standard" means a measurement standard that is used routinely to calibrate or verify measuring instruments or measuring systems.

(2) For the purposes of this Act and Regulations, a **measuring instrument gives an inaccurate measurement** if, upon comparison with a national, reference or working standard, it is found to operate outside the appropriate limits of error that are permitted under the regulations.

(3) Where metrology definitions are not prescribed in this Act, the following documents are to be used:

(a) International Vocabulary of Metrology – Basic and General Concepts and Associated Terms (VIM) published by the International Bureau of Weights and Measures (BIPM).

(b) International Vocabulary of Terms in Legal Metrology published by the International Organisation of Legal Metrology (OIML).

4. Objects of the Act

The objects of this Act are to —

(a) provide the legal framework for metrology within the Republic of Kiribati;

(b) strengthen the enforcement of legal metrology;

(c) ensure measurements taken in Kiribati are traceable to the International System of Units;

(d) ensure fairness in the domestic marketplace by protecting consumers from inaccurate measurements; and

(e) support the development of local industry with a focus on improving export competitiveness.

PART II – ADMINISTRATION

5. Administration and Implementation of the Act

(1) A division in the Ministry known as the Metrology Division of Kiribati is established by this section.

(2) There shall be a Director appointed by the Minister from among the staff of the Ministry, who is responsible for this division and for the administration and enforcement of this Act.

(3) Other Officers may be appointed by the Minister to assist the Director under this Act. If new appointments are needed, they may be appointed in accordance with section 99 of the Constitution. Both the Director and these other officers are subject to the direction of the Secretary when performing their functions.

(4) For the purposes of subsection (1), the Metrology Division shall have the following functions:

(a) to develop, implement and monitor the national metrology policy;

(b) to develop and coordinate all subfields of metrology;

(c) to monitor and evaluate the application of this Act and regulations;

(d) to give effect to the decisions and recommendations of international and regional agreements;

(e) to evaluate and where appropriate seek membership in appropriate international and regional metrology organisations;

(f) to nurture and maintain relationships with other National Metrology Institutes particularly those within the Asia Pacific Metrology Program (APMP) and the Asia-Pacific Legal Metrology Forum (APLMF);

(g) to facilitate cooperation within the international metrology community in order to strengthen the national metrology infrastructure of the Republic of Kiribati;

(h) to coordinate the action of other departments, organisations and institutions related to metrological issues;

(i) to represent the Republic of Kiribati in relevant international and regional metrology organisations, technical committees and activities;

(j) to establish and maintain laboratories for conducting scientific, industrial and legal metrology activities;

(k) to maintain the metrological traceability of all standards;

(l) to develop the technical competence of inspectors and metrologists;

(m) to build public awareness of metrology and its importance for industrial development, trade and the welfare of all I-Kiribati;

(n) to administer the type approval of measuring instruments required under this Act;

(o) to conduct verifications of measuring instruments used in trade;

(p) to inspect prepackages and determine their compliance with this Act; and

(q) to carry out any functions given to it under this Act or any other Act.

6. Assigning of powers to other organisations

(1) The Minister may, after consultation with the Secretary and Metrology Division, assign in writing to any statutory body, department of Government or private organisation the carrying out, subject to such conditions and requirements as may be prescribed by regulation, of any function specified in this Act.

(2) The Minister may, in writing, on the recommendation of Secretary and Metrology Officers, authorise any accredited facility to verify all measuring instruments or any particular kind of measuring instrument in respect of which such facility is accredited.

7. Appointment and termination of legal metrology inspectors

(1) The Minister may appoint any person, having the required qualifications and being an officer in the Metrology Division, as an inspector for the purposes of this Act.

(2) The Minister may appoint any other suitably qualified officer or class of officers in the public service as inspectors for the purpose of this Act. If new appointments are needed, they may be appointed in accordance with section 99 of the Constitution.

(3) Every inspector shall be furnished with a letter or certificate of appointment in the prescribed form.

(4) Every inspector shall be furnished by the Ministry with an identification card bearing his or her photograph and which clearly indicates that he or she has been duly appointed as a legal metrology inspector under this Act.

(5) The Minister may terminate the appointment of a person duly appointed as an inspector under this Act, if that person:

(a) does not comply with section 8 of this Act;
(b) contravenes section 43 of this Act;
(c) fails to carry out the inspector's functions to a reasonable standard; or
(d) has been convicted of an offence under this or any other Act.

8. Duties of inspectors

Every inspector shall have the following duties and obligations:

(a) to verify measuring instruments to establish their compliance with this Act;

(b) to inspect articles, goods and prepackages to establish their compliance with this Act;

(c) to keep a record in the prescribed form in which he or she shall enter such particulars as may be prescribed relating to the performance of his or her duties under this Act and shall at such times as may be prescribe, provide such records to the Secretary for examination;

(d) to display clearly the identification card provided by the Division which indicates that he or she has been duly appointed as a legal metrology inspector under this Act;

(e) to furnish the owner or person in charge of a premises, upon request, with a written receipt before removing any measuring instrument, article, good or prepackage from the premises;

(f) to account for and pay over to the Account division of the Ministry all fees taken under this Act at such times as directed by the Secretary; and

(g) to protect the secrecy of information acquired in the course of their duties as inspectors and continue to protect such secrecy after the termination of employment.

9. Powers of legal metrology inspectors

(1) An inspector duly appointed in accordance with this Act, in the discharge of his or her duties, shall have the following powers:

(a) to enter any premises in which:

(i) any measuring instrument is or is suspected to be kept or used for the purpose of any trade, or

(ii) any articles, goods or prepackages are offered or exposed for sale;

(b) to inspect, measure or verify:

(i) any measuring instrument used for the purpose of any trade, and

(ii) any article, goods or prepackage intended for, offered or exposed for sale,

in order to determine compliance with this Act and regulations;

(c) to search for, or require the person in charge of the premises to produce for inspection, all or any of the measuring instruments kept on the premises;

(d) to require the production of all records, books, accounts or documents relating to measuring instruments and goods on any premises and to inspect and copy any of those records, books, accounts or documents;

(e) to take samples of goods found on any premises, free of charge, for the purpose of inspection, verification, testing or other examination;

(f) to take photographs or audio-visual recordings of persons, premises, measuring instruments, articles, goods or prepackages and record them on any medium for data storage;

(g) to affix a verification mark to measuring instruments found to comply with the limits of error that are permitted under the regulations;

(h) to seize and detain for the purpose of this Act any measuring instrument which is found after comparison or test, to be inaccurate, or which appears to the inspector to have been or likely to be used in contravention of this Act or regulations;

(i) to seize and detain for the purpose of this Act any article, good or prepackage which is found after comparison or test, to be inaccurate, or which appears to the inspector to have been or likely to be used in contravention of this Act or regulations;

(j) to charge the fee for inspection, verification or testing of all measuring instruments, articles, goods and prepackages;

(k) to issue fixed penalties or spot fines as prescribed in the regulations when there is a breach of any part of this Act, or any regulations or orders made under this Act;

(l) to institute, prosecute and conduct any legal proceedings in respect of any alleged offence against this Act or any regulations or orders made under this Act; and

(m) to carry out any duty given to inspectors under this Act or any other Act.

(2) An inspector entering any premises pursuant to this section may take with him/her such other person(s) and such equipment as may appear to him or her to be necessary.

(3) No action or other proceeding for damages shall be instituted against the Metrology Division, an inspector, or anyone acting under their authority, for any act done in good faith in the execution or intended execution of any power or duty under this Act or the regulations or for any alleged neglect or default in the execution in good faith of that power or duty.

10. Directions by inspectors to secure compliance

(1) An inspector may give directions in writing to any person who has, for use in trade, any measuring instrument, article, good, or prepackage, which does not comply with the provisions of this Act or any regulations made thereunder, requiring that person to take such steps as shall be prescribed in the directions to secure compliance with these provisions.

(2) During the time period provided to secure compliance with the provisions of this Act, the inspector may affix a rejection mark to the measuring instrument and seal or otherwise secure the measuring instrument from further use until the required steps have been taken and the measuring instrument has been verified to comply with the provisions of this Act.

(3) Any person aggrieved by any directions given pursuant to subsection (1) may appeal in writing to the Appeal Panel established under section 49 of this Act in the manner prescribed in section 50.

(4) Subject to the provisions of subsection (2) any person who fails to comply with the directions given pursuant to subsection (1) shall be guilty of an offence.

11. Use of uncalibrated standards

(1) No inspector shall use, for the purpose of this Act, a working standard or any measuring instrument which is provided for his or her use unless that working standard or measuring instrument has been calibrated in the prescribed manner.

(2) No inspector shall use any working standard for the purposes of verifying any measuring instrument at any time after the expiry of a period of two years from the date on which that standard was last calibrated.

PART III – NATIONAL MEASUREMENT SYSTEM

12. Legal units of measurement

(1) The International System of Units as agreed upon by the International Committee of Weights and Measures defined in Schedule 1 shall be the legal units of measurement of the Republic of Kiribati.

(2) The units of measurement in Schedule 2 may be used within the Republic of Kiribati for the uses specified therein because of their practical importance, wide usage or use in specialised fields.

(3) Units of measurement not prescribed under Schedules 1 and 2 may be legal units of measurement in the Republic of Kiribati until **20 May 2025** or an earlier date so prescribed by the Minister.

(4) The Metrology Division shall be responsible for developing and implementing all activities required to ensure compliance with subsection (3).

(5) For all purposes of law, units of measurement shall be converted in accordance with Schedule 3.

13. Measurement standards

(1) The Minister shall procure, maintain, or cause to be maintained, such standards of measurement including the required facilities, equipment, measuring instruments and reference materials, as are necessary to facilitate the realization and dissemination of the International System of Units.

(2) The Director shall ensure that every standard owned by the Metrology Division is maintained, calibrated and stored in such a way as to ensure it conforms to the appropriate class or uncertainty requirements.

(3) Every standard shall be calibrated by a standard that either:

(a) has a smaller measurement uncertainty than the uncertainty required for the standard being calibrated; or

(b) is of a higher accuracy class than the standard being calibrated.

(4) An up-to-date calibration certificate shall be maintained for every measurement standard or set of measurement standards owned by the Metrology Division.

(5) If a standard is damaged, that standard shall not be used until it is recalibrated in accordance with the appropriate method of comparison and the requirements of subsections (3) and (4).

(6) When any doubt arises as to the continued conformity of a measurement standard to the required limits of error, measurement uncertainty or accuracy class, that standard shall not be used until it has been recalibrated.

14. National measurement standards

(1) Every national measurement standard shall be calibrated and thereafter recalibrated either by:

(a) comparison with equivalent primary standards owned by one or more National Metrology Institute(s) or Designated Institute(s) of States Parties to the

Convention of the Metre with Calibration and Measurement Capabilities (CMCs) published on the International Bureau of Weights and Measures Key Comparison Database for the required quantity and measurement uncertainty;

(b) a National Metrology Institute or Designated Institute of States Parties to the Convention of the Metre with Calibration and Measurement Capabilities (CMCs) published on the International Bureau of Weights and Measures Key Comparison Database for the required quantity and measurement uncertainty; or

(c) a calibration laboratory accredited by a signatory to the International Laboratory Accreditation Cooperation (ILAC) Mutual Recognition Agreement (MRA) to perform calibrations for the required quantity and measurement uncertainty.

(2) Every national measurement standard shall be recalibrated within an appropriate time interval such as is required to maintain the metrological traceability of that standard but shall not exceed once every ten (10) years.

15. Reference standards

(1) Every reference standard shall be calibrated and thereafter recalibrated by a national measurement standard or other reference standard possessing a smaller measurement uncertainty than the reference standard being calibrated.

(2) Every reference standard shall be recalibrated within an appropriate time interval such as is required to maintain the metrological traceability of that standard but shall not exceed once every five (5) years.

16. Working standards

(1) The Minister shall provide working standards for use by inspectors, and shall maintain, calibrate and from time to time, replace such working standards.

(2) Working standards shall be calibrated by national measurement standards, reference standards or other working standards possessing a smaller measurement uncertainty than the working standard being calibrated, and if necessary, be adjusted to within such limits of error as may be prescribed.

(3) Working standards that are adjusted to be within the required limits of error shall be recalibrated.

(4) Every working standard shall be recalibrated within an appropriate time interval such as is required to maintain the metrological traceability of that standard but shall not exceed once every two (2) years.

17. Temporary national measurement standards

(1) The Minister may, in the absence of a national measurement standard, declare a reference standard as the temporary national measurement standard.

(2) A temporary standard may only be used for the purposes of this Act if it has been calibrated in accordance with the appropriate method of comparison and the requirements of section 14.

18. Measurements to be ascertained in accordance with appropriate standards of measurement

When, for any legal purpose, it is necessary to ascertain whether a measurement of a physical quantity for which there are legal units of measurement has been made or is being made in terms of those units that fact shall be ascertained by means of, by reference to, by comparison with or by derivation from:

(a) an appropriate primary standard which is traceable to the International System of Units;

(b) an appropriate secondary standard which is traceable to the International System of Units;

(c) an appropriate reference standard of measurement that complies with section 6 of this Act;

(d) an appropriate working standard of measurement that complies with section 7 of this Act;

(e) an appropriate standard of National Metrology Institute or Designated Institute of States Parties to the Convention of the Metre with Calibration and Measurement Capabilities (CMCs) published on the International Bureau of Weights and Measures Key Comparison Database for the required quantity and measurement uncertainty;

(f) an appropriate standard of a calibration laboratory accredited by a signatory to the International Laboratory Accreditation Cooperation (ILAC) Mutual Recognition Agreement (MRA) to perform the prescribed measurements;

(g) a certified reference material produced by a signatory to the Convention of the Metre with calibration and measurement capabilities to perform the prescribed measurement as documented on the International Bureau of Standards Key Comparison Database; and

(h) a certified reference material produced by a laboratory accredited by a signatory to the International Laboratory Accreditation Cooperation Mutual Recognition Agreement to produce reference materials for that quantity;

and not in any other manner.

19. Custodian of standards

(1) The Secretary is the custodian of standards.

(2) The Secretary may assign custody of a standard to an officer of the Ministry, an inspector, metrologist or an authorized agency.

(3) All custodians of standards shall maintain and preserve each standard in their custody.

PART IV – USE OF AUTHORISED UNITS OF MEASUREMENT

20. Use of authorised units for all purposes

(1) Every contract, bargain or sale made or had in the Republic of Kiribati whereby any work, article, good merchandise or other things is or are to be done, sold, hired, delivered, carried, measured, computed, paid for or agreed to by a unit of measurement,

shall be made and had according to any of the legal units of measurement specified in section 12 of this Act.

(2) All fees and duties whatsoever charged or collected in the Republic of Kiribati shall be based on the legal units of measurement specified in section 12 of this Act.

(3) All packaging, labels, stickers affixed, attached to or associate with any article, good or prepackage intended or offered for sale within the Republic of Kiribati shall indicate measurements in the legal units of measurement specified according to section 12 of this Act.

21. Exemption of export goods

Section 20 of this Act shall not apply to goods, which are intended for export or sale in a territory outside of the Republic of Kiribati.

22. Measuring instruments

(1) All measuring instruments for trade used within the Republic of Kiribati shall be in the legal units of measurement specified in section 12 of this Act.

(2) The form, size and other requirements for marking measuring instruments may be prescribed by regulations

(3) Subject to subsection (3), all measuring instruments intended for use in trade, which purport to be of an authorised denomination shall:

(a) be indelibly marked with the authorised denomination on the top or side of it in legible figures and letters; and

(b) be marked to indicate the maximum quantity it is designed to measure

(4) The marking required under subsection (2) does not apply if the small size of the equipment renders the marking impracticable.

PART V – LEGAL METROLOGY

23. Verification of measuring instruments

(1) All measuring instruments for use in trade and for the purposes specified in subsection (2) shall be subject to:

(a) type approval as specified in section 27;

(b) initial verification in accordance with the requirements prescribed in regulations;

(c) in-service verification in accordance with the requirements prescribed in regulations; and

(d) verification after alteration, repair, adjustment or modification.

(2) The purposes referred to in subsection (1), include measuring instruments used:

(a) in the field of public health;

(b) in the postal services;

(c) in the petroleum sector; and

(d) for the sale of electricity and water.

24. Periodic verification of measuring instruments

(1) The Director shall:

a) fix the times and places at which an inspector shall examine and verify measuring instruments; and

b) notify the relevant persons of the time and place for the examination and verification of measuring instruments.

(2) An inspector under this section shall, upon receipt of payment of the approved fee, attend with the working standards provided for use and verify in the prescribed manner every measuring instrument which is produced for that purpose.

(3) Nothing in subsection (1) shall be deemed to prevent an inspector from examining, verifying, comparing or testing any measuring instrument which is produced to that inspector;

(4) An examination and verification under this section, shall be subject to the payment of the approved fee.

25. Affixing verification marks

(1) The inspector shall affix a verification mark to a measuring instrument upon approval.

(2) An inspector shall affix a verification mark only if that measuring instrument:

a) measures in the legal units of measurement;

b) is found to operate within the appropriate limits of error that are permitted under the regulations;

c) meets the requirements for initial verification, in-service verification and verification after alteration, repair, modification or adjustment; and

d) complies with this Act and regulations.

(3) Where a prescribed measuring instrument is, in the opinion of the inspector, too small or too delicate to have the verification mark properly affixed but the measuring instrument satisfies the requirements of subsection (2), that inspector shall issue a certificate endorsed to that effect.

26. Legal status of measuring instrument bearing a verification mark or certificate of verification

All measuring instruments which have:

(a) a valid verification mark affixed; or

(b) a certificate of verification

shall be classified as a legal measuring instrument, unless it is found thereafter to be false or inaccurate.

27. Type approval of measuring instruments

(1) All measuring instruments used in trade and in the fields specified in section 23 (2) shall be subject to type approval in accordance with the specifications and limits of error, as may be prescribed.

(2) Type approval of a measuring instrument shall be subject to the payment of a prescribed fee.

(3) The Minister on the recommendation of the Secretary and Officers of Metrology Division may accept and utilise the International Organisation of Legal Metrology (OIML) Certification System by accepting type approval and test reports issued by approved OIML Issuing Authorities.

(4) Where a measuring instrument has been approved and subsequently has been found to be defective or inaccurate, the Minister may cancel the approval and notify any person of such cancellation.

28. License required to sell measurement standards and measuring instruments

(1) A person shall not sell, manufacture, repair or adjust any measuring instrument except under the authority of a license issued by the Secretary under this section.

(2) A person who wishes to obtain a license under subsection (1):

(a) to repair or adjust any measurement standard or measuring instrument shall:

(i) demonstrate to the satisfaction of the Secretary his or her ability or the ability of the persons employed by him or her, to repair the type of measurement standard or measuring instrument which he or she seeks to repair; and

(ii) be in possession of such equipment, tools and other facilities as may be required for the proper execution of such repair or adjustment;

(b) to manufacture any measurement standard or measuring instrument shall:

(i) demonstrate to the satisfaction of the Secretary his or her ability or the ability of the persons employed by him or her, to manufacture the measurement standard or measuring instrument which he or she seeks to manufacture; and

(ii) be in possession of such equipment, tools and other facilities as may be required for the manufacture or assembly of such measurement standard or measuring instrument; and

(iii)submit to the Secretary the drawings and samples as may be required, of the measurement standard or measuring instrument which he or she intends to manufacture for type approval.

(3) No license to manufacture, repair or adjust measuring instruments shall be issued to any person except upon satisfactory demonstration of the ability to manufacture, repair adjust the measuring instruments by said person(s).

(4) Every license issued by the Secretary under this section shall be in the prescribed form, subject to such conditions as may be prescribed, and shall be in force until such date as may be specified in the license.

(5) The Secretary may revoke any license issued under this section if the holder of the license breaches any terms or conditions of the license or is convicted of an offence under this Act.

PART VI – PRODUCT QUANTITIES AND PREPACKAGES

29. Sale by Net Quantity

(1) Any person who sells, offers for sale or exposes for sale any article or good shall do so by net quantity.

(2) Any person who contravenes subsection (1) commits an offence and shall be liable upon conviction to a fine not exceeding $500 or to imprisonment for a term not exceeding 6 months or both.

30. Obligation to measure

(1) Any person who sells, offers for sale or exposes for sale any article or good shall, on demand by the purchaser, measure the article or good in the presence of that purchaser.

(2) Any person who purchases any article or good, and provides the measuring instrument for determining the quantity of to be purchased shall, on demand by the seller, measure the article or good in the presence of that seller.

(3) This section does not apply to prepackages.

31. Prepackages

(1) Any person who sells, offers for sale or exposes for sale any prepackage shall correctly and clearly indicate the net quantity using the legal units of measurement specified in section 12 and as prescribed by regulations, on the container or on a ticket, card or label placed where it may clearly be seen by a prospective purchaser, purchaser or inspector and so as to be clearly applicable to the prepackage.

(2) Where a declaration of net quantity shows the purported net quantity of the prepackage to which it is applied, that declaration shall be deemed to be correct if the net quantity of the prepackage is, subject to the prescribed tolerance, not less than the declared net quantity of the prepackaged product and the declaration otherwise meets the requirements of this Act and the regulations.

(3) The net quantity shall be indicated:

(a) by weight, if the commodity is solid, semi-solid, high viscosity or a mixture of solid and liquid: in kilograms (for amounts less than 1 kilogram, in grams or milligrams);

(b) by volume, if the commodity is liquid or sold by cubic measure: in litres (or for amounts less than 1 litre, in millilitres);

(c) by length, if the commodity sold by linear measure: in metres (for amounts greater than 1000 metres, in kilometers and for amounts less than 1 metre, in centimetres or millimetres);

(d) by area, if the commodity is sold by area measure: in metres squared; or

(e) by count, if the commodity is sold by number.

(4) A person who contravenes subsections (1) or (3) commits an offence and shall be liable upon conviction to a fine not exceeding $5000 or to imprisonment for a term not exceeding 2 years or both.

(5) The Minister may by Order, specify that this section shall not apply to specified prepackages.

PART VII – OFFENCES AND PENALTIES

32. General penalty

A person who is convicted of an offence under this Act or regulation for which no penalty is provided is liable on conviction to a fine not exceeding $1,000 or to imprisonment for a term not exceeding 6 months, or both.

33. Principal liable for offences by employees and agents

Where an offence under this Act is committed by an agent, employee or servant of a manufacturer or trader, such offence shall be deemed to have been committed by the manufacturer or trader unless such person proves that the offence was committed without their knowledge.

34. Forfeiture orders

(1) In proceedings for an offence relating to measuring instruments, articles, goods or prepackages under this Act, the court may order, either at trial or on subsequent application

(a) the forfeiture or destruction of the measuring instruments, articles, goods or prepackages; or

(b) the disposal of the measuring instruments, articles, goods or prepackages in a manner determined by the court; or

(c) the measuring instruments, articles, goods or prepackages be delivered to the person appearing to the court to be entitled to the measuring instruments, articles, goods or prepackages; or

(d) compensation be provided by the Ministry to the person appearing to the court to be entitled to the measuring instruments, articles, goods or prepackages if:

(i) it has been founded that the measuring instruments, articles, goods or prepackages comply with this Act and regulations; and

(ii) are lost, damaged, destroyed or expires while under the care of the Ministry.

(2) Subsequent to subsection (1) (d), the Ministry shall not be liable to provide compensation for loss of use.

35. Offence to supply inaccurate quantity

(1) Any person who, whether on his or her own behalf or on behalf of another person, sells, offers for sale, exposes for sale or agrees to sell any good by net quantity, delivers or causes to be delivered to the purchaser a lesser quantity or number:

(a) than is purported to be supplied; or

(b) than corresponds to the price charged,

commits an offence and shall be liable upon conviction to a fine not exceeding $5,000 or to imprisonment for a term not exceeding 2 years or both.

(2) Any person who, whether on his or her own behalf or on behalf of another person, purchases any good by net quantity, and provides the measuring instrument for the purchase, causes the seller to deliver a greater quantity or number:

(a) than is purported to be purchased; or

(b) than corresponds to the purchase price,

commits an offence and shall be liable upon conviction to a fine not exceeding $5,000 or to imprisonment for a term not exceeding 2 years or both.

(3) Any person who:

(a) in connection with any measuring instrument, makes a false record of any measurement; or

(b) commits any other fraud in connection with any measurement by means of a measuring instrument,

commits an offence and shall be liable upon conviction to a fine not exceeding $1,000 or to imprisonment for a term not exceeding 6 months or both.

36. Court may order offender to make good any deficiency

The Court may order a person convicted of an offence under section 35 to make good to the person in respect of whom the offence was committed, either in goods or in money:

(a) the deficiency between the quantity of goods actually delivered and that charged for or purported to be sold; or

(b) the deficiency between the quantity of goods actually delivered and that stated on the package, label or sticker attached to, affixed to or otherwise associated with that package.

37. Sale and use of unverified measuring instruments

(1) Any person who uses, sells, offers for sale or exposes for sale, any measuring instrument which has not been verified by an inspector and bears a valid mark of verification commits an offence and shall be liable upon conviction to a fine not exceeding $5000 or to imprisonment for a term not exceeding 2 years or both.

(2) Any person who uses for the purpose of any trade, or has in his or her possession for use in any trade, any measuring instrument which has not been verified by an inspector and bears a valid mark of verification commits an offence and shall be liable upon

conviction to a fine not exceeding $5,000 or to imprisonment for a term not exceeding 2 years or both.

38. Refusal to produce measuring instrument

A person who:

a) refuses to produce measuring instruments and related equipment when required to do so under this Act;

b) refuses to produce an records of measuring instruments; or

c) resists or obstructs an inspector or person acting under their authority in exercising power under this Act,

commits an offence and shall be liable upon conviction to a fine not exceeding $1,000 or to imprisonment for a term not exceeding 6 months, or both.

39. Forgery and false marking

Any person who:

(a) forges or counterfeits any mark either of verification or type approval used on any measuring instrument;

(b) applies to any measuring instrument a mark which is forged or counterfeit, or which is false or inaccurate; or

(c) uses, sells, exchanges or disposes of any measuring instrument with such forged, counterfeit, false or inaccurate mark thereon, or any mark liable to be confused with marks authorised under the provisions of this Act,

with the intent to defraud or deceive, commits a felony and shall be liable upon conviction to imprisonment for a term not exceeding 7 years.

40. Tampering with marks and measuring instruments

Any person who:

(a) By any means renders a measuring instrument false or inaccurate;

(b) For any prescribed purpose, uses, supplies, sells, exchanges or disposes of a false or inaccurate measuring instrument; or

(c) Not being an inspector under this Act or authorised by the Minister to do so, attaches affixes, inscribes, inserts or otherwise applies any verification mark or type approval; or

(d) Not being an inspector under this Act or authorised by the Minister to do so, removes, defaces, obliterates, tampers with or otherwise changes any verification mark or type approval,

commits an offence and shall be liable upon conviction to a fine not exceeding $1,000 or to imprisonment for a term not exceeding 6 months, or both.

41. Removal of or tampering with tags, seals and devices

Any person who removes, defaces, obliterates, breaks, tampers with or otherwise changes any tag, seal or device that has been placed, affixed or attached to a measuring instrument by an inspector commits an offence and shall be liable upon conviction to a fine not exceeding $1,000or to imprisonment for a term not exceeding 6 months, or both.

42. Injuring official standards and measuring instruments

(1) Any person who falsifies or willfully injures or otherwise damages any national standard, reference standard, working standard, measuring instrument or equipment made available under section 13 (1) commits an offence and shall be liable upon conviction to a fine not exceeding $1,000 or to imprisonment for a term not exceeding 6 months, or both.

(2) The Court may order a person convicted of an offence under section 42 (1) to bear the cost of restoring or replacing the damaged standards, measuring instruments or equipment.

43. Offences for inspectors

(1) An inspector commits an offence when he or she:

(a) breaches the duties provided in section 17;

(b) contravenes this Act or regulations;

(c) derives any profit from or is employed in the making or selling of measuring instruments;

(d) repairs, alters or adjusts any measuring instrument without written authorization from the Secretary to do so;

(e) verifies any measuring instrument that he or she has repaired, altered or adjusted;

(f) verifies or otherwise inspects any measuring instrument, article, good or prepackage that he or she owns or has a vested interest in;

(g) accepts either directly or indirectly, any money or other thing of value, to perform any of the duties prescribed in section 17 with the intent to influence his or her decision; or

(h) impersonates the Secretary.

(2) Notwithstanding subsection (1)(c) where the Secretary is satisfied that it is desirable or advantageous that an inspector should be allowed to repair, alter or adjust measuring instruments of a specific type or in a specific location, the Secretary may, if he or she deems fit, authorise that inspector to repair, alter or adjust those specified measuring instruments.

(3) Pursuant to subsection (1)(e) where an inspector repairs, alters or adjusts any measuring instrument, another inspector shall verify that the measuring instruments operates within the appropriate limits of error that are permitted under the regulations.

(4) An inspector convicted of an offence under subsection (1) shall be liable to a fine not exceeding $2,000 or to imprisonment for a term not exceeding 12 months, or both.

44. Confidentiality

Any person who discloses to any other person any information obtained by him or her in pursuance of this Act commits an offence and shall be liable upon conviction to a fine not exceeding $1,000 or to imprisonment for a term not exceeding 6 months, or both, unless the disclosure was made in or for the purpose of the performance by him, her or any other person of functions under this Act.

45. Limitation period

Save with the consent of the Attorney General, no prosecution for an offence under this Act shall be commenced after the expiration of 3 years from the commission of the offence or 6 months from the discovery by the prosecutor, whichever is earlier.

46. Evidence of possession

For the purposes of this Act, any measuring instrument which is found in the possession of any person who carries on any trade, shall be deemed, until the contrary is proved, to be in the possession of that person for use in trade.

47. Evidence of facts

Any certificate or document signed by the Secretary or an inspector regarding:

(a) any measuring instrument specified therein that was examined, tested or verified by him or her on a date specified therein, and the result of that examination, test or verification; or

(b) any article, good or prepackage specified therein was weighed, measured or counted by him or her on a date specified therein and were found to be a weight, measurement or number specified therein,

shall, upon production thereof into evidence in any proceedings, be evidence of the facts certified therein and in the absence of evidence of rebuttal thereof shall be conclusive evidence of the facts stated in the certificate.

48. Defences

(1) In any proceedings under this Act, if the defendant proves to the satisfaction of the Court that he took all reasonable precautions and exercised all due diligence to avoid commission of an offence, the defendant shall be discharged from the prosecution.

(2) In any proceedings under this Act in respect of an alleged deficiency in the measurement of any article delivered to a purchaser, the defendant shall be discharged from the prosecution if he proves to the satisfaction of the court that the alleged deficiency was due to unavoidable evaporation or drainage and that due care and precaution had been taken to avoid such deficiency.

PART VIII – APPEAL

49. Appeal Panel

(1) An Appeal Panel is established by this section.

(2) The Appeal Panel shall consist of the following four (4) members—

(a) a Chairperson;

(b) a person who is qualified as a lawyer;

(c) a representative of the private sector; and

(d) a representative of a non-government organisation,

who shall be appointed by notice by the Minister.

(3) The Minister may appoint members of the Appeal Panel on terms and conditions to be prescribed.

(4) The Chairperson and other members of the Appeal Panel shall hold office for three (3) years and be eligible for re-appointment.

(5) The Minister may at any time terminate the appointment of a member who has been found guilty of—

(a) any misconduct, default or breach of trust in the discharge of that member's duties; or

(b) an offence of a nature as renders it desirable that the member's appointment be terminated.

(6) The Appeal Panel may appoint as advisor for a specific appeal a person whose specialised knowledge or experience is that the person must be able to assist the Appeal Panel in its deliberations.

(7) Allowance and expenses of members of the Appeal Panel incurred by them in respect of their duties may be paid out of the Consolidated Fund at a rate as the Minister may from time to time prescribe and as presented and passed in the Appropriation Bill.

(8) If a member of the Appeal Panel has any pecuniary interest whether it be direct or indirect and is present at a meeting, shall as soon as practicable before the commencement of the meeting, disclose to the members the fact and nature of his interest, and shall not take part in the consideration or discussion of the appeal.

(9) The Appeal Panel may conduct its own proceedings according to its own rules as may be prescribed by regulation.

50. Right of Appeal

(1) Any owner of a measuring instrument, buyer, seller or party to a transaction involving a measuring instrument regulated under this Act who is dissatisfied with the decision of an inspector or contests the accuracy of a measuring instrument regulated under this Act may apply to the Appeal Panel for –

(a) a review of a decision of an inspector with regard to a measuring instrument's compliance with this Act or associated regulations;

(b) a review of the directions given by an inspector to secure compliance with this Act or associated regulations; or

(c) a determination of the accuracy of the measuring instrument in question.

(2) An application for review under subsection (1) shall—

(a) be in writing;

(b) specify the reasons for making the application; and

(c) be made within one month from the date of the decision.

(3) An applicant for a review under subsection (1) must pay a sum as may be prescribed, which may be forfeited if it is determined that the application was frivolous.

(4) If an application for a review is made under this section, the decision of the inspector is suspended until the appeal is heard and determined by the Appeal Panel.

(5) The Appeal Panel shall make a decision under this section within fourteen (14) working days of the date of submission of an application for review under subsection (2).

(6) The Appeal Panel may dismiss an application for review where it considers:

(a) the application is vexatious; or

(b) that there are no reasonable prospects of making a decision.

(7) The Appeal Panel may, if it determines that there is a merit in it, order one or more of the following remedies—

(a) recommend the annulment in whole or in part of any decision or direction, or remedying of any omission, of the inspector;

(b) recommend the payment of any deficiency due to the inaccuracy of a measuring instrument; or

(c) recommend the affixing of a verification mark to the measuring instrument in question if that measuring instrument is found to comply with this Act and associated regulations.

(8) The Appeal Panel shall provide to the applicant and publish written reasons for its decisions.

(9) A person dissatisfied with a decision of the Appeal Panel may appeal against the decision to the High Court, within 3 months from the date of the decision.

PART IX – FINAL PROVISIONS

51. Police assistance

(1) The Secretary, an inspector or other person acting under the authority of the Minister or an inspector may request the assistance of a police officer in uniform in the enforcement of the provisions of this Act.

(2) A police officer who is requested to give assistance under subsection (1) shall give such assistance.

(3) The failure of a police officer to comply with an obligation imposed under this Act shall constitute misconduct for the purposes of section 41 of the *Police Service Act,* 2008 and any other related laws or conditions of service.

52. Protection against claims

The fact that:

(a) any measuring instrument or prepackage has been inspected, verified or is alleged to have been verified under this Act; or

(b) any verification mark is used in connection with any measuring instrument, shall not give rise to any claim against the State or Ministry.

53. Fees and forms

(1) The Minister shall determine the fees and other charges for the purpose of this Act.

(2) All fees and charges shall be paid to the Ministry.

(3) The Secretary may approve forms for the purposes of this Act.

54. Regulations

(1) The Minister may make regulations for the better carrying out of the provisions and purposes of this Act, and in particular and without prejudice to the generality of the foregoing power, such regulations may provide for any or all of the following:

(a) prohibiting or controlling the importation, manufacture, repair or sale of certain types of measuring instruments designed to be used for trade and providing for the issuing of licenses for such importation, manufacture, repair or sale;

(b) the methods of inspecting, verifying and stamping weights, measures, copies and models thereof, all other measuring instruments, and of certifying such verification;

(c) prescribing the amount of error that may be tolerated in measuring instruments;

(d) prescribing penalties and enforcement mechanisms including powers of the labour inspectors to prosecute and issue fixed penalties and spot fines;

(e) requiring the marking on weights and measures of their denominations and on other measuring instruments of their capacities, and prescribing the manner of so doing;

(f) exempting any particular classes of measuring instrument from the requirements of this Act;

(g) limiting the purposes for which certain measuring instruments may lawfully be used and prescribing the types of such measuring instruments to be used in certain trades;

(h) prescribing the types of measuring instruments that shall or shall not be legal for use in trade and how they shall be marked to so indicate;

(i) prohibiting the use of any particular kind or kinds of measuring instruments except in compliance with the conditions set out in the regulations;

(j) requiring measuring instruments to be inspected, verified and stamped or, if necessary, the stamp obliterated;

(k) prescribing the requirements to be observed, the facilities, apparatus and assistance to be provided and the proper storage of calibration and testing equipment to be furnished by owners of measuring instruments for the purpose of inspection and verification thereof;

(l) prohibiting the sale by retail of any goods therein specified otherwise than in the prescribed net quantities;

(m) prescribing the manner of marking of wrappers or containers of prepackages sold by quantity or on tickets, cards or labels associated therewith, to indicate the contents of the wrapper or container;

(n) regulating the sale with regards to the determination of the quantity of particular goods when such goods are sold by quantity;

(o) as to the method by which and the conditions under which quantity is to be determined in connection with any requirement under this Act;

(p) requiring persons who sell, make, possess, offer, expose or carry for sale any goods which they are prohibited from selling otherwise than by net quantity to provide, for the use of persons buying or proposing to buy such goods from them, the means of verifying or checking the net quantity of the goods; and

(q) prohibiting the importation of prepackages for sale within the Republic which do not comply with the requirements of this Act.

(2) Regulations made under this Act may be made applicable throughout, or to any part of, the Republic.

55. Amendment of Schedules

The Minister may by Order amend the Schedules to this Act by adding or removing any unit of measurement specified therein.

56. Savings

Unless inconsistent with this Act, all regulations, orders or notices made or given under the repealed Act remain in force and can also be amended accordingly as if they were made or given under this Act.

57. Repeal

The *Weights and Measures Act,* 1984 is hereby repealed.

SCHEDULE 1

INTERNATIONAL SYSTEM OF UNITS

Part 1
Base and Derived Units

1. Definition of the International System of Units

The International System of Units (SI) is the system of units in which:

(a) the unperturbed ground state hyperfine transition frequency of the caesium 133 atom, $\Delta\nu_{Cs}$ is 9,192,631,770 Hz;

(b) the speed of light in vacuum, c is 299,792,458 m/s;

(c) the Planck constant, h is $6.62607015 \times 10^{-34}$ J s;

(d) the elementary charge, e is $1.602176634 \times 10^{-19}$ C;

(e) the Boltzmann constant, k is 1.380649×10^{-23} J/K; and

(f) the Avogadro constant N_A is $6.02214076 \times 10^{23}$ mol^{-1}; and

(g) the luminous efficacy of monochromatic radiation of frequency 540×10^{12} Hz, K_{cd}, is 683 lm/W.

2. Base units

The definitions and symbols of the base units of the SI are:

(a) The second, symbol s, is the SI unit of time. It is defined by taking the fixed numerical value of the caesium frequency $\Delta\nu_{Cs}$, the unperturbed ground-state hyperfine transition frequency of the caesium 133 atom, to be 9,192,631,770 when expressed in the unit Hz, which is equal to s^{-1}.
The exact expression for the second is:

$$1\text{s} = \frac{9\,192\,631\,770}{\Delta\nu_{Cs}}$$

(b) The metre, symbol m, is the SI unit of length. It is defined by taking the fixed numerical value of the speed of light in vacuum c to be 299,792,458 when expressed in the unit m/s, where the second is defined in terms of $\Delta\nu_{Cs}$.
The exact expression for the metre is:

$$1\text{m} = \left(\frac{c}{299\,792\,458}\right)s = \frac{9\,192\,631\,770}{299\,792\,458}\frac{c}{\Delta\nu_{Cs}}$$

(c) The kilogram, symbol kg, is the SI unit of mass. It is defined by taking the fixed numerical value of the Planck constant h to be $6.62607015 \times 10^{-34}$ when expressed in the unit J s, which is equal to kg m^2 s^{-1}, where the metre and the second are defined in terms of c and $\Delta\nu_{Cs}$.
The exact expression for the kilogram is:

$$1\text{kg} = \left(\frac{h}{6.626\,070\,15 \times 10^{-34}}\right) m^{-2} s$$

which is equal to:

$$1\text{kg} = \frac{(299\,792\,458)^2}{(6.626\,070\,15 \times 10^{-34})(9\,192\,631\,770)} \frac{h\Delta v_{Cs}}{c^2}$$

(d) The ampere, symbol A, is the SI unit of electric current. It is defined by taking the fixed numerical value of the elementary charge e to be $1.602176634 \times 10^{-19}$ when expressed in the unit C, which is equal to A s, where the second is defined in terms of Δv_{Cs}.

The exact expression for the Ampere is:

$$1\text{A} = \left(\frac{e}{1.602\,176\,634 \times 10^{-19}}\right) s^{-1}$$

which is equal to:

$$1\text{A} = \frac{1}{(9\,192\,631\,770)(1.602\,176\,634 \times 10^{-19})} \Delta v_{Cs} e$$

(e) The kelvin, symbol K, is the SI unit of thermodynamic temperature. It is defined by taking the fixed numerical value of the Boltzmann constant k to be 1.380649×10^{-23} when expressed in the unit J K^{-1}, which is equal to kg m^2 s^{-2} K^{-1}, where the kilogram, metre and second are defined in terms of h, c and Δv_{Cs}.

The exact expression for the Kelvin is:

$$1\text{K} = \left(\frac{1.380\,649}{k}\right) \times 10^{23} \text{kg m}^2 \text{ s}^{-2}$$

Which is equal to:

$$1K = \frac{1.380\,649 \times 10^{-23}}{(6.626\,070\,15 \times 10^{-34})(9\,192\,631\,770)} \frac{\Delta v_{Cs} h}{k}$$

(f) The mole, symbol mol, is the SI unit of amount of substance. One mole contains exactly $6.02214076 \times 10^{23}$ elementary entities. This number is the fixed numerical value of the Avogadro constant, N_A, when expressed in the unit mol^{-1} and is called the Avogadro number.

The amount of substance, symbol n, of a system is a measure of the number of specified elementary entities. An elementary entity may be an atom, a molecule, an ion, an electron, any other particle or specified group of particles.

The exact expression for the mole is:

$$1\,mol = \left(\frac{6.022\,140\,76 \times 10^{23}}{N_A}\right)$$

(g) The candela, symbol cd, is the SI unit of luminous intensity in a given direction. It is defined by taking the fixed numerical value of the luminous efficacy of monochromatic radiation of frequency 540×10^{12} Hz, K_{cd}, to be 683 when expressed in the unit lm W^{-1}, which is equal to cd sr W^{-1}, or cd sr kg^{-1} m^{-2} s^3, where the kilogram, metre and second are defined in terms of h, c and Δv_{Cs}.

The exact expression for the mole is:

$$1cd = \left(\frac{K_{cd}}{683}\right) kg\, m^2\, s^{-3}\, sr^{-1}$$

Which is equal to:

$$1cd = \frac{1}{(6.626\,070\,15 \times 10^{-34})(9\,192\,631\,770)^2 683} (\Delta v_{Cs})^2 h K_{cd}$$

3. Derived Units

(1) Derived units are defined as products of powers of the base units. When the numerical factor of the product is one, the derived units care called *coherent derived units*. The base and coherent derived units of the SI form a coherent set, designated the *set of coherent SI units*. Since there are a limitless number of quantities it is impossible to provide a complete list of derived units however the most commonly used derived units are provided in subsections (2), (3) and (4).

(2) The 22 SI derived units with special names and symbols:

Derived Quantity	**Special name of unit**	**Symbol**	**Unit expressed in terms of base units**	**Units expressed in terms of other SI Units**
plane angle	radian	rad	m/m	
solid angle	steradian	sr	m^2/m^2	
frequency	hertz	Hz	s^{-1}	
force	newton	N	kg m s^{-2}	
pressure, stress	pascal	Pa	kg m^{-1} s^{-2}	
energy, work, quantity of heat	joule	J	kg m^2 s^{-2}	N m
power, radiant flux	watt	W	kg m^2 s^{-3}	J/s
electric charge, quantity of electricity	coulomb	C	A s	
electric potential difference, volt electromotive force	volt	V	kg m^2 s^{-3} A^{-1}	W/A
capacitance	farad	F	kg^{-1} m^{-2} s^4 A^2	C/V
electric resistance	ohm	Ω	kg m s^{-3} A^{-2}	V/A
electric conductance	siemens	S	kg^{-1} m^{-2} s^3 A^2	A/V
magnetic flux	weber	Wb	kg m^2 s^{-2} A^{-1}	V s
magnetic flux density	tesla	T	kg s^{-2} A^{-1}	Wb/m2
inductance	henry	H	kg m^2 s^{-2} A^{-2}	Wb/A
Celsius temperature	degree Celsius	°c	K	
luminous flux	lumen	lm	cd sr	Cd sr
illuminance	lux	lx	cd sr m^{-2}	Lm/m2
activity (of a radionuclide)	becquerel	Bq	s^{-1}	
absorbed dose, specific energy (impacted), kerma	gray	Gy	m^2 s^{-2}	J/kg
dose equivalent	sievert	Sv	m^2 s^{-2}	J/kg
catalytic activity	katal	kat	mol s^{-1}	

(3) Examples of coherent derived units expressed in terms of base units:

Derived quantity	**Typical symbol of quantity**	**Derived unit expressed in terms of base units**
Area	A	m^2
Volume	V	m^3
speed, velocity	v	$m\ s^{-1}$
Acceleration	a	$m\ s^{-2}$
Wavenumber	σ	m^{-1}
density, mass density	ρ	$kg\ m^{-3}$
surface density	ρ_A	$kg\ m^{-2}$
specific volume	v	$m^3\ kg^{-1}$
current density	j	$A\ m^{-2}$
magnetic field strength	H	$A\ m^{-1}$
amount of substance concentration	c	$mol\ m^{-3}$
mass concentration	ρ, γ	$kg\ m^{-3}$
Luminance	L_v	$cd\ m^{-2}$

(4) Examples of SI coherent derived units whose names and symbols include SI coherent derived units with special names and symbols:

Derived quantity	**Name of coherent derived unit**	**Symbol**	**Derived unit expressed in terms of base units**
dynamic viscosity	pascal second	$Pa\ s$	$kg\ m^{-2}\ s^{-2}$
moment of force	newton metre	$N\ m$	$kg\ m^2\ s^{-2}$
surface tension	newton per metre	$N\ m^{-1}$	$kg\ s^{-2}$
angular velocity, angular frequency	radian per second	$rad\ s^{-1}$	s^{-1}
angular acceleration	radian per second squared	rad/s^2	s^{-2}
heat flux density, irradiance	watt per square metre	$W\ m^2$	$kg\ s^{-3}$
heat capacity, entropy	joule per kelvin	$J\ K^{-1}$	$kg\ m^2\ s^{-2}\ K^{-1}$
specific heat capacity, specific entropy	joule per kilogram kelvin	$J\ K^{-1}\ kg^{-1}$	$m^2\ s^{-2}\ K^{-1}$
specific energy	joule per kilogram	$J\ kg^{-1}$	$m^2\ s^{-2}$
thermal conductivity	watt per metre kelvin	$W\ m^{-1}\ K^{-1}$	$kg\ m\ s^{-3}\ K^{-1}$
energy density	joule per cubic metre	$J\ m^{-3}$	$kg\ m^{-1}\ s^{-2}$
electric field strength	volt per metre	$V\ m^{-1}$	$kg\ m\ s^{-3}\ A^{-1}$
electric charge density	coulomb per cubic metre	$C\ m^{-3}$	$A\ s\ m^{-3}$
surface charge density	coulomb per square metre	$C\ m^{-2}$	$A\ s\ m^{-2}$
electric flux density, electric displacement	coulomb per square metre	$C\ m^{-2}$	$A\ s\ m^{-2}$
permittivity	farad per metre	$F\ m^{-1}$	$kg^{-1}\ m^{-3}\ s^4\ A^2$

permeability	henry per metre	$H\ m^{-1}$	$kg\ m\ s^{-2}\ A^{-2}$
molar energy	joule per mole	$J\ mol^{-1}$	$kg\ m^2\ s^{-2}\ mol^{-1}$
molar entropy, molar heat capacity	joule per mole kelvin	$J\ K^{-1}\ mol^{-1}$	$kg\ m^2\ s^{-2}\ mol^{-1}\ K^{-1}$
exposure (x- and γ-rays)	coulomb per kilogram	$C\ kg^{-1}$	$A\ s\ kg^{-1}$
absorbed dose rate	gray per second	$Gy\ s^{-1}$	$m^2\ s^{-3}$
radiant intensity	watt per steradian	$W\ sr^{-1}$	$kg\ m^2\ s^{-3}$
radiance	watt per square metre steradian	$W\ sr^{-1}\ m^{-2}$	$kg\ s^{-3}$
catalytic activity concentration	katal per cubic metre	$Kat\ m^{-3}$	$mol\ s^{-1}\ m^{-3}$

3. SI Prefixes

(1) The decimal multiples and sub-multiples of SI units are formed by means of the decimal numerical factors set out in subsection (2) by which the SI unit concerned is multiplied.

(2) The names of the decimal multiples and sub-multiples of the SI units are formed by means of SI prefixes designating the decimal numerical factors.

Factor	SI Prefix	Symbol
$1\ 000\ 000\ 000\ 000\ 000\ 000\ 000 = 10^{24}$	yotta	Y
$1\ 000\ 000\ 000\ 000\ 000\ 000 = 10^{21}$	zetta	Z
$1\ 000\ 000\ 000\ 000\ 000 = 10^{18}$	exa	E
$1\ 000\ 000\ 000\ 000\ 000 = 10^{15}$	peta	P
$1\ 000\ 000\ 000\ 000 = 10^{12}$	tera	T
$1\ 000\ 000\ 000 = 10^{9}$	giga	G
$1\ 000\ 000 = 10^{6}$	mega	M
$1\ 000 = 10^{3}$	kilo	k
$100 = 10^{2}$	hector	h
$10 = 10^{1}$	deca	da
$0.1 = 10^{-1}$	deci	d
$0.01 = 10^{-2}$	centi	c
$0.001 = 10^{-3}$	milli	m
$0.000\ 001 = 10^{-6}$	micro	μ
$0.000\ 000\ 001 = 10^{-9}$	nano	n
$0.000\ 000\ 000\ 001 = 10^{-12}$	pico	p
$0.000\ 000\ 000\ 000\ 001 = 10^{-15}$	femto	f
$0.000\ 000\ 000\ 000\ 000\ 001 = 10^{-18}$	atto	a
$0.000\ 000\ 000\ 000\ 000\ 000\ 001 = 10^{-21}$	zepto	z
$0.000\ 000\ 000\ 000\ 000\ 000\ 000\ 001 = 10^{-24}$	yocto	y

(3) A prefix shall be considered to be combined with the name of the unit to which it is directly attached.

(4) The symbol of the prefix shall be placed before the symbol of the unit without intermediate space; the whole forms the symbol of the multiple or sub-multiple of the

unit. The symbol of the prefix is therefore considered to be combined with the symbol of the unit to which it is directly attached, forming with it a new unit symbol which can be raised to a positive or negative power and which be combined with other unit symbols to form the symbols for compound units.

(5) Compound prefixes, formed by the juxtaposition of several SI prefixes, are not permitted.

(6) The names and symbols of the decimal multiples and sub-multiples of the unit of mass are formed by the addition of the SI prefixes to the word "gram" (symbol g). 1 g = 0.001 kg = 10^{-3} kg.

(7) To designate the decimal multiples and sub-multiples and sub-multiples of a derived unit which is expressed in a form of a fraction, a prefix can be attached indifferently to the units which appear either in the numerator, or in the denominator, or in both of these terms.

Part 2
NON-SI Units accept for use with the SI Units.

Non-Si units accepted for use with the International System of Units

Quantity	**Name of unit**	**Symbol of unit**	**Value in SI units**
Time	Minute	min	1 min – 60 s
	Hour	h	1 h + 60 min = 3,600 s
	Day	d	1 d = 24 h = 86,400 s
Length	astronomical unit	au	1 au = 149,597,870,700 m
plane angle	Degree	°	1° = (π/180) rad
	Minute	'	1' = (1/60)° = (π/10,800) rad
	Second	"	1" = (1/60) ' = (π/648,000) rad
Area	Hectare	ha	1 ha = 1hm^2 = 10^4 m^2
volume	Litre	L, l	1 L = 1 l = 1 dm^3 = 10^3 cm^3 = 10^{-3} m^3
Mass	Tonne	t	1 t = 10^3 kg
	Dalton	Da	1 Da = 1.66053886(28) x 10^{-27} kg
Energy	Electronvolt	eV	1 eV = 1.602176565 x 10^{-19} J
logarithmic	Neper	Np	
ratio quantities	Del	B	
	Decibel	dB	

SCHEDULE 2
ADDITIONAL UNITS OF MEASUREMENT LEGAL FOR USE IN KIRIBATI

Quantity	Name	Symbol	Definition	Use
length	inch	In	0.9144/36 m	(a) Automotive tyres and rims; (b) Equipment used, or intended for use, in the manufacturer and repair of automotive tyres or rims; (c) Precision pipes, precision tubes, precision fitting or precision screw threads; (d) Spare parts for equipment constructed using measurements other than metric measurements; (e) Equipment used for, or intended for use, in the manufacture of equipment refeed to in (c) or (d); (f) Defence equipment; (g) Equipment used, or intended for use, in aviation; (h) Equipment used, or intended for use, in the computer industry; (i) Equipment used, or intended for use, in the electronics industry; or (j) Components of equipment referred to in (a) to (i) inclusive.
length	foot	Ft	0.9144/3 m	Altitude in aviation; or Vertical separation in aviation; or Submarine depth.
Mass	troy ounce	oz tr	480 x 0.45359237/7000 kg	The mass of precious metals.
Power	horsepower	Hp	745.7 W	Engine ratings: In the aviation industry; or In defence equipment
pressure	millibar	mb or mbar	100 Pa	Air pressure in the aviation industry
Quantity	**Name**	**Symbol**	**Definition**	**Use**

pressure	millimetre of mercury	mmHg	133.32219 Pa	Blood pressure
velocity	foot per minute	Ft/min	0.3048/60 m/s	Vehicular vertical speed
Work and energy	kilocalorie	Kcal	4.1868×10^3 J	Food energy values
concentration	degrees Brix	°Bx	Concentration in grams of solute per 100g of an aqueous solution of pure sucrose, having the same density as a sugar solution at the same temperature.	Measurement of sugar concentration
concentration	degrees Z	°Z	Concentration equivalent to 0.26 g of sucrose per 100 g of an aqueous solution of pure sucrose.	Measurement of sugar concentration
concentration	Pol	Pol	Concentration in grams of solute per 100 g of an aqueous solution of pure sucrose having the same optical rotation as a sugar solution at the same temperature	Measurement of sugar concentration
Mass concentration			Grams of alcohol per 210 litres of exhaled breath	Measurement of the mass concentration of alcohol in exhaled breath

Schedule 3
CONVERSION FACTORS

Alphabetical listing of the conversion factors to SI Units from the most common Non-SI Units.

To Convert From	To	Conversion
Acre	square metre (m2)	Multiply by $4.046\ 873 \times 10^{3}$
ampere hour	coulomb (C)	Multiply by 3.6×10^{3}
astronomical unit	metre (m)	Multiply by $1.495\ 979 \times 10^{11}$
atmosphere (standard)	pascal (Pa)	Multiply by $1.013\ 250 \times 10^{5}$
atmosphere (technical = 1kgf/cm2)	pascal (Pa)	Multiply by $9.806\ 650 \times 10^{4}$
Bar	pascal (Pa)	Multiply by 1.0×10^{5}
barrel (for petroleum, 42 gal)	cubic metre (m^3)	Multiply by $1.589\ 873 \times 10^{-1}$
bushel (U.S.)	cubic metre (m^3)	Multiply by $3.523\ 907 \times 10^{-2}$
caliber (inch)	metre (m)	Multiply by 2.54×10^{-2}
Calorie	joule (J)	Multiply by 4.186 8
carat (metric)	kilogram (kg)	Multiply by 2.0×10^{-4}
Chain	metre (m)	Multiply by $2.011\ 68 \times 10^{1}$
cubic foot (cu ft or ft^3)	cubic metre (m^3)	Multiply by $2.831\ 685 \times 10^{-2}$
cubic inch (cu in or in^3)	cubic metre (m^3)	Multiply by $1.638\ 706 \times 10^{-5}$
cubic yard (cu yd or yd^3)	cubic metre (m^3)	Multiply by $7.645\ 549 \times 10^{-1}$
degree (angle)	radian (rad)	Multiply by $1.745\ 329 \times 10^{-2}$
degree Celsius	kelvin (K)	$T_K = T_{°C} + 273.15$
degree Centigrade (see degree Celsius)		
degree Fahrenheit	degree Celsius	$T_{°C} = (T_{°F} - 32)/1.8$
degree Fahrenheit	kelvin (K)	$T_K - (T_{°F} + 459.67)/1.8$
Foot	metre (m)	Multiply by 3.048×10^{-1}
foot (U.S. survey)	metre (m))	Multiply by $3.048\ 006 \times 10^{-1}$
foot per minute	metre per second (m/s)	Multiply by 5.080×10^{-3}
gallon (U.K. liquid)	cubic metre (m^3)	Multiply by $4.546\ 092 \times 10^{-3}$
gallon (U.S. dry)	cubic metre (m^3)	Multiply by $4.404\ 884 \times 10^{-3}$
gallon (U.S. liquid)	cubic metre (m^3)	Multiply by $3.785\ 412 \times 10^{-3}$
Gram	kilogram (kg)	Multiply by 1.0×10^{-3}
hectare	Square meter (m^2)	Multiply by 1.0×10^{4}
horsepower (550 ft-lbf/s)	watt (W)	Multiply by $7.456\ 999 \times 10^{2}$
horsepower (boiler)	watt (W)	Multiply by $9.806\ 650 \times 10^{1}$
horsepower (U.K.)	watt (W)	Multiply by 7.457×10^{2}
Inch	metre (m)	Multiply by 2.54×10^{-2}
Kelvin	degree Celsius	$T_{°C} = T_K - 273.15$
kilocalorie	joule (J)	Multiply by $4.186\ 8 \times 10^{3}$

To Convert From	To	Conversion
knot	metre per second (m/s)	Multiply by 5.144 444 x 10^{-1}
Micron	metre (m))	Multiply by 1.0 x 10^{-6}
Mile	metre (m)	Multiply by 1.609 344 x 10^{3}
mile (international nautical)	metre (m)	Multiply by 1.852 x 10^{3}
mile (U.K. nautical)	metre (m)	Multiply by 1.853 184 x 10^{3}
mile/hr	metre per second (m/s)	Multiply by 4.470 4 x 10^{-1}
mile/hr	Kilometer per hour (km/h)	Multiply by 1.609 344
millibar	pascal (Pa)	Multiply by 1.0 x 10^{2}
millimetre of mercury (mm hg)	pascal (Pa)	Multiply by 1.33 322 19 x10^{2}
minute (angle)	radian (rad)	Multiply by 2.908 882 x 10^{-4}
ounce (avoirdupois)	kilogram (kg)	Multiply by 2.834 952 x 10^{-2}
ounce (troy or apothecary)	kilogram (kg)	Multiply by 3.110 348 x 10^{-2}
ounce (U.K. fluid)	cubic metre (m^3)	Multiply by 2.841 307 x 10^{-5}
ounce (U.S. fluid)	cubic metre (m^3)	Multiply by 2.957 353 x 10^{-5}
pennyweight	kilogram (kg)	Multiply by 1.555 174 x 10^{-3}
pint (U.S. dry)	cubic metre (m^3)	Multiply by 5.506 105 x 10^{-4}
pint (U.S. liquid)	cubic metre (m^3)	Multiply by 4.731 765 x 10^{-4}
pound	kilogram (kg)	Multiply by 4.535 924 x 10^{-1}
pound-force (lbf)	newton (N)	Multiply by 4.448 222
quart (U.S. dry)	cubic metre (m^3)	Multiply by 1.101 221 x 10^{-3}
quart (U.S. liquid)	cubic metre (m^3)	Multiply by 9.463 529 x 10^{-4}
second (angle)	radian (rad)	Multiply by 4.848 137 x 10^{-6}
Slug	kilogram (kg)	Multiply by 1.459 390 x 10^{1}
square foot	square metre (m^2)	Multiply by 9.290 304 x 10^{-2}
square inch	square metre (m^2)	Multiply by 6.451 6 x 10^{-4}
square mile	square metre (m^2)	Multiply by 2.589 988 x 10^{6}
square yard	square metre (m^2)	Multiply by 8.361 274 x 10^{-1}
Stone	kilogram (kg)	Multiply by 6.350 293 18
tablespoon	cubic metre (m^3)	Multiply by 1.478 676 x 10^{-5}
teaspoon	cubic metre (m^3)	Multiply by 4.928 922 x 10^{-6}
ton (long)	kilogram (kg)	Multiply by 1.016 047 x 10^{3}
ton (short)	kilogram (kg)	Multiply by 9.071 847 x 10^{2}
watthour (W-hr)	joule (J)	Multiply by 3.6 x 10^{3}
Yard	metre (m)	Multiply by 9.144 x 10^{-1}

THE REPUBLIC OF KIRIBATI
METROLOGY ACT 2021

EXPLANATORY MEMORANDUM

As a part of the 20-year Vision (KV20) for the Republic of Kiribati, the Government of Kiribati has identified the Fisheries and Tourism sectors as two critical sectors for development. The Government intends to increase international trade especially in these two sectors as a means of improving Kiribati's economy thereby improving the lives of all I-Kiribati. One important prerequisite to international trade is the existence of an internationally recognised National Quality Infrastructure (NQI). Such a NQI allows the manufacturer, producer or exporter to demonstrate the compliance of its products and services with the technical, sanitary and phytosanitary requirements of the export market. A country's NQI include all systems related to standards development, metrology, conformity assessment and accreditation. A functioning and internationally recognised NQI not only supports trade but also plays a critical part in ensuring the protection of consumers' rights, health, life and the environment.

In order to provide the framework and principles for the development of the NQI in Kiribati, the Government has created a National Quality Policy (NQP). This NQP has highlighted metrology as one of the critical areas for focus. Metrology, being defined as the science of measurement, is one of the pillars of NQI and is critical to domestic and international trade. Metrology provides the means and methods of realising and harmonizing the International System of Units (SI), supports quality assurance in manufacturing processes as well as protects consumers and the public against unfair trade practices as well as unsafe and unhealthy products and processes. Metrology is divided into three (3) subfields namely, scientific metrology, industrial metrology and legal metrology.

The National Metrology Infrastructure consists of the body responsible for developing and implementing the national metrology policy, regulating the units of measurements used within Kiribati, managing the system of standards used to disseminate measurement traceability and the methods used for regulated (legal metrology) trade measurements and voluntary (industrial metrology) calibration services.

The Pacific Agreement on Closer Economic Relations (PACER) Plus Agreement calls on all parties to use relevant international standards, guides or recommendations as a basis for their regulations and standards. In line with this principle, Kiribati has joined the International Organisation of Legal Metrology (OIML) and begun using OIML recommendations. The development of an internationally recognised national metrology infrastructure will however require ongoing and extensive technical assistance in both the technical and administrative areas.

The new law will repeal and replace the *Weights and Measures Act* 1984.

The Act is divided into nine (9) parts and contains fifty-six (56) sections.

Part I of the Act, sections 1-4, deal with matters of a preliminary nature, that is, the short title of the Act, the commencement, interpretation of special words and terms used in the Act and the objects of the Act.

CERTIFICATE OF THE CLERK OF THE MANEABA NI MAUNGATABU

This printed impression of the Metrology Act 2021 has been carefully examined by me with the Bill which passed the Maneaba ni Maungatabu on the 22nd April 2021 and is found by me to be a true and correctly printed copy of the said Bill.

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Eni Tekanene
Clerk of the Maneaba ni Maungatabu

Published by exhibition at the Maneaba ni Maungatabu this 19th day of .....MAY..... 2021.

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Eni Tekanene
Clerk of the Maneaba ni Maungatabu