

**Singapore Weights and Measures
Programme -
Authorised Verifier Scheme**

**Information Booklet
2012 Edition**

**Weights and Measures Office
(WMO)
SPRING Singapore**

SINGAPORE WEIGHTS AND MEASURES PROGRAMME - AUTHORISED
VERIFIER SCHEME

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Section I

Introduction

SINGAPORE WEIGHTS AND MEASURES PROGRAMME – AUTHORISED VERIFIER SCHEME

1 General

1.1 Preface

Under the Weights and Measures Act 2005, qualified private sector companies such as manufacturers, repairers and installers of weighing and measuring instruments for trade use are allowed to carry out the testing/passing (also known as verification) and stamping of weighing and measuring instruments as fit for trade use under the Authorised Verifier Scheme. This means that the qualified companies (Authorised Verifiers) possess a Letter of Designation issued by the Controller of Weights and Measures. The Authorised Verifier Scheme provides a bigger pool of Verifiers, resulting in faster turn-around time to the users of weighing and measuring instruments without compromising the accuracy of the instruments.

This information booklet aims to help interested manufacturers, repairers and those dealing with weighing and measuring instruments for trade use to understand the qualification criteria. This edition highlights the technical and administrative requirements to become an Authorised Verifier.

The Weights and Measures Office (WMO) reserves the right to amend and introduce new requirements to the Authorised Verifier Scheme without reference to the holder of this booklet.

We appreciate any feedback so that improvements to this booklet could be made. Please send your feedback to:

Weights and Measures Office (WMO)
SPRING Singapore
5th Storey, Podium Block
2 Bukit Merah Central
Singapore 159835

Tel : 1800 457 5033
Fax : (65) 6458 1441
E-mail : wmo@spring.gov.sg
Website: www.spring.gov.sg/wmo

This booklet can also be downloaded at www.spring.gov.sg/wmo

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1.2 Overview of the Authorised Verifier (AV) Scheme

The Weights and Measures Office (WMO) of SPRING Singapore ensures that a uniform and accurate system of weights and measures is used in Singapore. This ensures that consumers and traders get fair weights and measures when buying goods that are weighed, measured or pre-packaged.

This is made possible by:

- (a) Designating Authorised Verifiers to perform verification and re-verification of weighing and measuring instruments for trade use.
- (b) Registering weighing and measuring instruments used for trade. This ensures that such instruments used for trade are of an approved type and registered with the WMO before they can be allowed for trade use.
- (c) Inspecting weighing and measuring instruments used for trade purposes for inaccuracies and to ensure that they have not been tampered with.

Authorised Verifier Scheme

The Authorised Verifier Scheme is a voluntary scheme that allows qualified private sector companies, that is, manufacturers, repairers and installers to become designated as Authorised Verifiers (AVs). These AVs will perform the following:

- (a) Verification and re-verification of weighing and measuring instruments for trade use. This is applicable to AVs who are either ISO 9001 certified or ISO/IEC 17025 accredited by the Singapore Accreditation Council (SAC)
- (b) Calibration of working standards like weights and volume measures. This applies to AVs who are ISO/IEC 17025 accredited by SAC.

This means that any person:

- Who is in the business of supplying any weighing or measuring instrument for trade use; or
- Who is in the possession of a weighing or measuring instrument for trade use;

shall submit the instrument and on payment of the prescribed fee have the instrument verified by an AV.

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Under this Scheme:

(a) An applicant must be:

- Certified to ISO 9001:2008¹ Quality Management Systems; or
¹ Certification to ISO 9001:2008 shall not be recognised for application to be AVs for calibration of working standards.
- Accredited to ISO/IEC 17025:2005 General Requirements for Competence of Testing and Calibration Laboratories.

(b) SPRING as the Designating Authority, will:

- Designate AVs
- Supervise AVs to ensure that they carry out verification or calibration in accordance with the technical requirements stipulated under the Weights and Measures Programme.

Designation will be given when the prospective AV has met all the requirements under the AV Scheme. A Certificate of Designation of AV will be issued to the qualified company.

1.3 Scope of the Operations for Authorised Verifiers

Under the AV Scheme, the designated AV will be empowered to undertake the verification or calibration work based on methods stipulated by WMO and with verified working standards or calibrated reference standards to:

- (a) Perform Initial verification of new instruments to ensure that they have been properly assembled and are accurate
- (b) Perform re-verification (repaired or serviced instruments) to maintain their accuracy and ensure that they are still fit for trade use
- (c) Affix the instrument that passed the verification with the AV Stamp and an Accuracy Label. These instruments would have errors that fall within the prescribed limit (also known as Maximum Permissible Error) and found fit for trade use
- (d) Calibrate, adjust and stamp on working standards to the tolerance as specified by WMO.

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1.4 Criteria for Designation of Authorised Verifiers

Before designating, the Controller of Weights and Measures must be satisfied that the applicant seeking designation under the Weights and Measures Act 2005 has:

- (a) provided the necessary information and documents required for the processing of the application
- (b) all its testing instruments / equipment (working standards) examined and tested as accurate
- (c) met all the requirements under the WMO's system and technical audits
- (d) understood the requirements to be an AV under Chapter 3 of this booklet.

Section II

Technical Requirements

SINGAPORE WEIGHTS AND MEASURES PROGRAMME – AUTHORISED VERIFIER SCHEME

2 Designation of Authorised Verifiers

2.1 Who can Apply for this Scheme?

The Authorised Verifier Scheme is open to any company who wishes to take on the role of verifications (initial verification/re-verification) and stamping of weighing and measuring instruments for trade use and/or calibration of working standards, i.e. weights or volume measures. Generally, these companies are the manufacturers, repairers and installers of weighing and measuring instruments or accredited laboratories by SAC possessing the relevant scopes of ISO/IEC 17025 accreditation. They should be able to comply with the requirements stipulated in this information booklet and the Weights and Measures Act 2005. See Appendix C for flowchart for designation of AV.

The applicant applying for designation on behalf of the company can be:

- (a) A proprietor or managing partner of a sole proprietorship company,
- or
- (b) The managing director (MD), or appointed director by the MD in the case of a private limited company.

2.2 What are the Application Criteria?

The applicant seeking designation to become an AV must:

- (a) Carry out his business as a legal entity
- (b) Have sufficient capital and financial resources to maintain viable operations
- (c) Possess the knowledge, competence, tools, machineries and equipment to perform verification, calibration and stamping works
- (d) Possess the required types and classes of standard weights or measures up to the maximum capacity of the instrument that the person intends to verify or calibrate
- (e) Have staff with adequate skills to verify weighing or measuring instruments to the required standard
- (f) Have staff with at least a National ITE Certificate (Intermediate) in any electrical or electronic course for the repair of electronic instrument
- (g) Have technician with in-house training by the principal of the weighing and measuring instruments

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- (h) Certified to ISO 9001:2008 Quality Management System or accredited to ISO/IEC 17025: 2005 General Requirements for Competence of Testing and Calibration Laboratory by SAC

2.3 What Documents are needed for the Application?

The applicant must submit the following documents (where applicable) to WMO for the application for appointment as AV:

- (a) Completed Application Form: “Application for Designation as Authorised Verifier” and the application processing fee. See Appendix D
- (b) A copy of both sides of the applicant’s identity card
- (c) A copy of the Business Profile issued by the Accounting and Corporate Regulatory Authority (ACRA)
- (d) A copy of the ISO 9001 or ISO/IEC 17025 Certificate issued by SAC
- (e) A copy of the implemented ISO 9001 or ISO/IEC 17025 Quality Manual and supporting documents
- (f) The Organisation Chart with information on its key personnel, certificates to attest the educational and professional qualification, criminal records and suspension records, if any
- (g) Layout of testing facility
- (h) Evidence of in-house training by the principal of the weighing or measuring instruments
- (i) A list of the required types and classes of standard weights or measures up to the maximum capacity of the instrument that the person intends to service for the purpose of verification of the instrument to the required accuracy
- (j) A list of reference standards calibrated by the National Metrology Centre, A* Star.

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2.4 Approval for Designation

The decision by the Controller of Weights and Measures will be based on the following:

Systems audit

- (a) The applicant has met all the requirements under the application criteria in accordance with section 2.2, and the information provided in the application form by the applicant is complete and is in accordance with section 2.3.

Technical audit

- (b) The assessment of the company's capability and resources to ensure that facilities and equipment are adequate for verification and/or calibration services. This would include and not limited to the following:
 - (i) Procedures for the verification of the weighing or measuring instrument to ensure conformity with the weights and measures legislation
 - (ii) The test equipment used and the procedures for the control of test equipment used to conduct the verifications and calibrations
 - (iii) The relevant skills and qualifications of all staff who will perform verification or calibration work, the procedures for the identification/review of training needs and the methods of providing such training for all staff who will perform verification or calibration
 - (iv) Procedures to show the applicants control and responsibility over the actions of its subcontractors (if any) in relation to routine verification checks
 - (v) Procedures for internal reviews and copy of the audit reports of the applicant's quality system
 - (vi) Procedures for document, data control and maintenance of verification or calibration reports which provide evidence and results of verification of instrument or calibration of working standards
 - (vii) Procedures for the control and the use of the prescribed AV stamp and procedure for affixing the Accuracy Label
 - (viii) Procedures to notify the Controller of Weights and Measures if the verification of the instrument is prevented from being passed as being fit for trade use.

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- (c) The applicant agrees to allow WMO to access its business premises during normal working hours for the purpose of auditing the verification and/or calibration reports.

The Controller will appoint the applicant of the company as an AV if the company meets the above requirements.

2.5 Appointment of Authorised Verifier

The successful applicant will be issued with a Certificate of Designation (See Appendix E) as an AV for carrying out:

- (a) Initial verification/re-verification of weighing and measuring instruments and/or calibration of working standards, i.e. weights or volume measures
- (b) Stamping with a mark of verification on instruments that are fit for trade use
- (c) Affixing the Accuracy Label in respect of any weighing and measuring instruments that has been stamped as fit for trade use.

Only designated companies with a valid Certificate of Designation by the Controller of Weights and Measures will be able to carry out the initial verification, re-verification and stamping of new/repared weighing or measuring instruments for trade use and/or calibration of working standards, i.e. weights or volume measures.

The Certificate of Designation is valid for a period of one year from the date of issue and renewed on a yearly basis.

2.6 Designation Fees

The fee for the issue or renewal of the designation is \$500 per year.

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3 Requirements of Authorised Verifiers

3.1 Powers and Duties of Authorised Verifiers

The powers of the AV are as follows:

- (a) Require a person who presents a weighing and measuring instrument for verification to dismantle the instrument sufficiently to enable all its working parts to be inspected and tested
- (b) Verify or re-verify any weighing or measuring instrument for its fitness for use for trade and/or calibrate working standards i.e. weight or volume measure. These instruments must be tested using working standards or testing instruments as specified in the relevant International Organisation of Legal Metrology (OIML) Recommendations (international standards). However, unless the WMO allows, no AV shall pass any instrument as fit for trade use unless a letter of pattern approval in respect of the pattern of that instrument has been issued by the Controller. Working standards must be adjusted to the tolerance as specified by WMO and calibrated using reference standards calibrated by the National Metrology Centre, A* Star
- (c) Stamp the instrument with the seal which is to be affixed on a part (base/side or internal parts) of the instrument to prevent further adjustment after the instrument has been verified correct. Stamp the working standard after adjustment and calibration to the tolerance as specified by WMO
- (d) Affix the Accuracy Label (in addition to the verification seal) on a prominent part of the instrument to make it easy for consumers and traders to identify that the instrument has been verified to be fit for trade use
- (e) Refuse to inspect or test any weighing or measuring instrument if the instrument is situated in a position that is exposed to wind or to any other disturbing influence, or is put to a use that, by its nature, is likely to seriously affect its accuracy
- (f) Decline to pass any instrument as fit for use for trade, or affix the verification stamp or an Accuracy Label on it, if the AV believes that the instrument will be used for a particular purpose for which it is not suitable.

Duties

The duties are:

- (a) Every AV shall inspect and test every weighing and measuring instrument submitted to the AV in a fair and unbiased manner

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- (b) No AV shall refuse to inspect or test any weighing or measuring instrument submitted to it without valid reason
- (c) All AVs shall establish if the instrument complies with the requirements of the regulations (see section 3.3 for Criteria for acceptance of instruments as fit for trade use, stamping and affixing the Accuracy Label)
- (d) All AVs shall record the verification details on the verification form (see Appendix F) or on relevant accepted calibration forms for the purpose of audit checks by WMO

3.2 Categories of Instruments for Verification by Authorised Verifiers

Below are some examples of weighing and measuring instruments that are used for trade purposes that will be verified and stamped by AVs.



Non-automatic weighing instruments



Oil dispensing pumps



Flow meters

3.3 Criteria for Acceptance of Instruments as fit for trade use, Stamping and Affixing the Accuracy Label

Acceptance of instruments as fit for trade use or working standards meeting the tolerance of WMO

Before any weighing or measuring instrument is verified as fit for trade use (see Appendix G) or working standard is calibrated as meeting the tolerance as specified by WMO, the AV shall ensure the following:

- (a) Unless allowed by WMO, the pattern of the instrument is registered with SPRING Singapore in accordance with section 8 of the Weights and Measures Act

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- (b) Inspect the instrument to determine if there are any anomalies in the instrument
- (c) The instrument is sufficiently strong to withstand the wear and tear of its intended use in trade
- (d) The instrument is complete with all parts assembled
- (e) The instrument is working within the Maximum Permissible Error specified for the instrument. See Appendix H
- (f) The working standards are suitable for calibration

Stamping with the Verification Seal

When a weighing and measuring instrument or volume measure has been passed by an AV as fit for trade use, the AV will need to seal the side - with the base cover or openings to access adjustment knob/part or internal parts of the instrument with a verification stamp of the following design:

123456

Stamping of Verification Number for weights

When a weight has been passed by an AV as fit for use as working standard for weighing instruments, the AV will need to stamp the verification on the lead portion of the adjustment cavity. This is not applicable to weights without exposed adjustment cavity.

Loss and Replacement of Verification Seals

The AV is expected to safeguard all verification seals allocated to it in a secure location and keep record on its usage of verification seals including damaged seals (to be surrendered to WMO, SPRING Singapore).

In the event that any verification seal(s) is/are discovered and deemed by an AV to be lost or missing, the AV shall inform WMO immediately and lodge a police report on the lost or missing seal(s) with the police.

Upon receipt of the police report, the AV shall forward a copy of it to WMO.

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Additionally, the AV shall undertake the cost for replacing the lost or missing seal(s). The cost for replacing the verification seal(s) shall include the following:

- cost of the verification seal(s)
- administrative cost of \$50
- prevailing rate of GST

Affixing the Accuracy Label



The AV shall affix the Accuracy Label on a weighing or measuring instrument only if it has been verified correct and affixed with a verification stamp.

The Accuracy Label shall be in the form of a label affixed to the instrument that:

- (a) Readily sticks on to the instrument
- (b) Is easily visible to both consumers and traders by placing it on a prominent part of the instrument
- (c) Is designed such that its removal results in noticeable and irreparable damage to the label.

The Label, containing the AVs verifier code 'XX' and the period (month/year) will be placed on a prominent part of the weighing or measuring instruments, to certify that the instruments were accurate at the point of verification.

Duration of Accuracy Label

Every Accuracy Label affixed to a weighing or measuring instrument shall, unless it is sooner cancelled, be in force for a period of 12 months immediately following the month it was affixed.

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Requirements for not stamping an instrument

An AV shall not stamp on any weighing or measuring instrument

- (a) Which falls outside the prescribed limits of error
- (b) Which has been damaged and has not been properly repaired
- (c) Which since it was last stamped has, in the opinion of the AV, had its accuracy affected by reason of any alteration, addition, adjustment or repair
- (d) Whose Letter of Pattern Approval issued under Section 8 of the Act has been revoked by the Controller.
- (e) Which is not suitable for the intended use.

In all of the above circumstances, the AV shall also refer the matter to the Controller.

Cancellation of Accuracy Label

Where the verification stamp of a weighing or measuring instrument has been obliterated, the AV who obliterated that verification stamp shall cancel the Accuracy Label on the weighing or measuring instrument by removing the label from it.

3.4 Review of Verification/Calibration Reports

Companies designated as AVs under the Weights and Measures Act are required to make available the verification reports or relevant accepted calibration reports and documentation, on the request by the Inspector of Weights and Measures for review of the verification work and duties under the relevant standard.

Section II

Administrative Requirements

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4 Conditions of Designation

4.1 Validity Period of Designation

Every Certificate of Designation issued by the Controller of Weights and Measures under Regulations shall be in force for a period of one year beginning on the date of its issue. The Certificate of Designation issued shall be renewed in accordance with the Regulations.

For renewal

An application for the renewal of a Certificate of Designation shall be made in the form in Appendix I. On receiving the application and upon payment of the prescribed fee, the Board shall review and if still meeting the renewal criteria to renew the Certificate of Designation for a period of one year.

4.2 Failure to Comply with the Requirements of an Authorised Verifier

The Letter of Appointment of the AV may be revoked if the AV

- (a) No longer meets any of the requirements for appointment specified in Chapter 2 of this booklet
- (b) Has contravened or is contravening any condition imposed by the Board on that person's appointment
- (c) Has failed to exercise or perform the powers, functions and duties of an AV to satisfactory standard, or is unable to properly exercise or perform such powers, functions and duties
- (d) Has been convicted of an offence under section 11 or 14 of the Act or of any offence involving fraud or dishonesty
- (e) Fails to pay to the Board any fees or charges required under the Act or these Regulations
- (f) If for some other reason is not fit to continue as an AV appointed by the Board
- (g) Ceases to be employed by that person to whom that letter of appointment has been issued by the Board

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4.3 Revocation of Designation

When the Board suspends or revokes the appointment of any person or removes the name of any individual from a letter of appointment based on above sub-section 4.2, that person shall be deemed, from the date of that suspension, revocation or removal, not to be an AV for the purposes of the Act and under regulations made there under.

4.4 Termination of Designation

If a company wishes to terminate its designation, it should advise the Controller of Weights and Measures as soon as possible.

If the nominated management representative who is the AV for the Company ceases to be employed by the designated organisation, or that the Company wishes to change the AV, the Company shall inform the Controller as soon as possible.

Note: If an AV leaves the designated company and is employed by another, then the applicant will have to be re-assessed for designation under the new company.

Section IV

Appendices

General Definitions

Accuracy

The closeness between the result of a measurement and the true (conventional) value of the measured quantity.

Adjustment

Alteration of the measurement parameters to bring the instrument or working standard within the allowable maximum permissible errors permitted in service or tolerance as specified by WMO respectively.

Authorised Verifier Scheme

Qualified private sector companies to carry out verification of weighing and measuring instruments and/or calibration of working standards, i.e. weights and volume measures.

Instrument

Instrument means a weighing or measuring instrument for trade use, and may include working standards, i.e. weights and volume measures.

Instrument Test Report

Based on the performance of a module or a complete instrument and may or may not take into account the pattern approval specifications.

Initial Verification

The verification of a new instrument, which does not bear WMO's mark and has never been verified before.

Maximum Permissible Error

Maximum difference, positive or negative, allowed by regulation between the indication of an instrument and the corresponding true value, as determined by reference standard weights with the instrument being at zero with no-load, in the reference position.

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Standard Weight

A mass which is calibrated against a reference standard weight calibrated by the National Metrology Centre, A*Star, and is used to verify ordinary weighing instruments of a lower accuracy than itself.

Non-automatic weighing instrument

Instrument that requires the intervention of an operator during the weighing process. For example, to deposit or remove from the receptor the load to be measured and also to obtain the result.

Pattern of an instrument

The definite design of an instrument of which all the components affecting its metrological properties are suitably defined.

Verification

The examination of an instrument by the AV or WMO in order to mark the instrument indicating that it conforms to the requirements outlined in this booklet.

Re-verification

Any verification of a weighing or measuring instrument which follows the initial verification because for some reason the stamp is no longer valid due to such condition as:

- Repairs or adjustment to the instrument
- The stamp has been removed
- At the request of the user.

The verification involves an examination of an instrument to be carried out by the AV or WMO with the aim of checking that the verification mark is valid, that the instrument has not been modified in any way after verification, and the errors do not exceed the maximum permissible error permitted for re-verification.

Stamping

All the operations for the purpose of applying to an instrument the marks indicating that it conforms to the requirements of verification and re-verification. It can be a stamp plug, a stamping label or a wire seal.

Weights and Measures Legislation

The Weights and Measures Act, 2005 was gazetted on 1 January 2006 to enforce amongst others on weighing and measuring instruments for trade use, the Authorised Verifier Scheme as well as prevent unfair trading due to short-weights or measures.

Key Sections of the Act

- Section 7 (2) Weighing and measuring instruments for trade use
No person shall –
- (a) supply for use for trade; or
 - (b) use for trade, or have in his possession for use for trade,
- any instrument to which this section applies, unless –
- (i) the instrument has been submitted to and passed as being fit for such use by an Authorised Verifier under section 7A or an inspector under section 7B;
 - (ii) except as otherwise expressly provided under the Act or by regulations made under section 10, has been affixed with –
 - (A) a stamp; and
 - (B) an Accuracy Label
- indicating that it has been so passed, and both the stamp and Accuracy Label remain undefaced otherwise than by reason of fair wear and tear.
- Section 7 (4) In the case of any instrument which is required by regulations made under section 10 to be passed and affixed with a stamp and an Accuracy Label under this section only after it has been installed at the place where it is to be used for trade, if after the instrument has been so passed and affixed with a stamp and an Accuracy Label it is dismantled and re-installed, whether in the same or some other place, it shall not be used for trade after being so re-installed until it has been retested by an Authorised Verifier or inspector.

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- Section 7A (1) Any person requiring any weighing or measuring instrument to which section 7 applies to be tested for its fitness for use for trade by an Authorised Verifier shall submit the instrument to the Authorised Verifier in such manner as the Authorised Verifier may require.
- Section 7A (2) An Authorised Verifier may charge such fee as he may determine for the testing of any weighing or measuring instrument submitted to him under subsection (1).
- Section 7A (3) On payment of such a fee, the Authorised Verifier shall inspect the instrument and -
(a) test the instrument for its fitness for use for trade by means of such working standard and testing instruments as may be specified by the Controller; and
(b) if the instrument being tested falls within the prescribed maximum permissible error, pass the instrument as being fit for use for trade and affix the instrument with a stamp and an Accuracy Label.
- Section 7A (4) If any differences arises between an Authorised Verifier and the person who submitted the instrument being tested with respect to any method of testing, working standard or testing instrument used under subsection (3)(a), that difference may with the consent of that other person , and shall at the request of that other person, be referred to the Controller, whose decision shall be final.
- Section 7A (5) Unless the Board otherwise allows, no Authorised Verifier shall pass, or affix a stamp or an Accuracy Label on, any instrument submitted to him under subsection (1) unless a letter of pattern approval in respect of the pattern of that instrument has been issued or a declaration has been published, by the Controller under section 8.
- Section 7A (6) Where any instrument submitted to an Authorised Verifier under subsection (1) is of a pattern in respect of which a letter of pattern approval granted under section 8 is for the time being in force, or of such a pattern modified only in manner for the time being authorised by the Controller under that section, the Authorised Verifier shall not refuse to pass, or affix a stamp or an Accuracy Label on, the instrument on the ground that it is not suitable for use for trade.

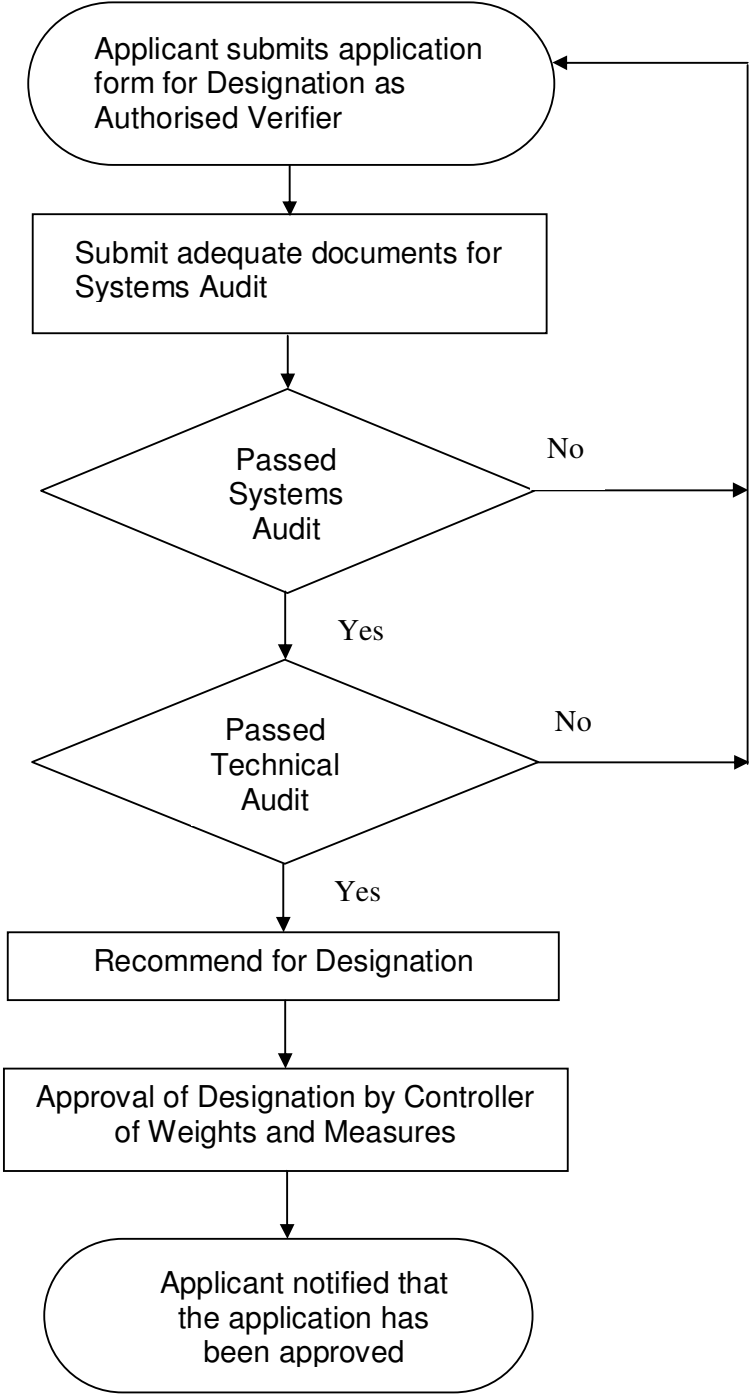
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- Section 7A (7) For the purpose of subsection (6), if the Authorised Verifier is of the opinion that the instrument is intended for use for trade for a particular purpose for which it is not suitable, he may refuse to pass it as fit for use for trade, or affix a stamp or an Accuracy Label on it, until the matter has been referred to the Controller, whose decision shall be final.
- Section 7A (8) Where an Authorised Verifier refuses to pass as fit for use for trade any weighing or measuring instrument, the Authorised Verifier shall -
- (a) immediately give to the person in charge of that weighing or measuring instrument notice in writing of his refusal in such form as the Controller may require, and
 - (b) as soon as practicable, send a copy of the notice to the Controller.
- Section 7A (9) Where it is not possible or practicable to give a notice under subsection (8)(a), the Authorised Verifier shall attach the notice to the weighing or measuring instrument to which the notice relates.
- Section 7A (10) Every Authorised Verifier shall –
- (a) keep a record of –
 - (i) every inspection and test carried out by him under subsection (2); and
 - (ii) every instance in which the Authorised Verifier breaks any stamp affixed on any weighing or measuring instrument and
 - (b) submit to the Controller, in such form, comprising such information and within such time as the Controller may require, together with the prescribed fee –
 - (i) a report on every test carried out by him under subsection (2); and
 - (ii) a report on every instance in which the Authorised Verifier breaks any stamp affixed on any weighing or measuring instrument.

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Appendix C

Flow-Chart for Designation of Authorised Verifiers



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Appendix D

Application for Designation as Authorised Verifier

You may require about 10 minutes to fill in this form.

1. General Particulars

Name of Company / Organisation Seeking Designation:			Company Registration No.:
Address:			Postal Code:
Telephone Number:	Fax:	Handphone:	E-mail Address:
Managing Director's Name:			NRIC No.:

2. Inspection and Testing Facility

Testing Facility Address:		Postal Code:
Telephone Number:	Fax:	
ISO 9000 Certification Number:	Issued By:	Date of Certification / Accreditation:
ISO/IEC 17025 Accreditation Number:		
Quality Manager's Name / Quality Management Representative's Name		
Qualified Mechanics / Technicians Employed:		
1. _____	_____	_____
(Name)	(NRIC No.)	(Educational Qualification)
2. _____	_____	_____
3. _____	_____	_____
4. _____	_____	_____
5. _____	_____	_____
6. _____	_____	_____

SINGAPORE WEIGHTS AND MEASURES PROGRAMME – AUTHORISED
VERIFIER SCHEME

**3. Type of Weighing/Measuring Instrument/Working Standard
Verified/Calibrated**

(Please state whether mechanical or electronic and whether you are the sole agent, authorised dealer, etc for such instrument)

Type and Brand of Instrument	Capacity of Instrument

4. Workshop/Testing Facilities

(Please list out all the necessary tools and machineries, standard weights, measures, etc that are used for verification or proving)

Type	Capacity	Quantity

Note: Please submit the following documents (where applicable)

1. Application processing fee of \$500 made payable to “SPRING Singapore”.
2. A copy of both sides of the applicant’s identity card.
3. A copy of the company’s Certification to ISO 9001 or Accreditation to ISO/IEC 17025 General Requirements for competence of testing and calibration laboratories.
4. A copy of the Quality Manual.
5. A copy of the Business Profile issued by the Accounting and Corporate Regulatory Authority (ACRA).
6. The Organisation chart with information on its key personnel, and with evidence of training provided by the principal of the weighing and measuring instruments; Information of its key personnel; certificates to attest the educational and professional qualification, criminal records and suspension records, if any.
7. Layout of testing facility.
8. A list of the required types and classes of standard weights or measures up to the maximum capacity of the instrument that the person intends to service for the purpose of verification, proving of the instrument to the required accuracy.
9. A list of reference standards calibrated by the National Metrology Centre, A* Star.

SINGAPORE WEIGHTS AND MEASURES PROGRAMME – AUTHORISED
VERIFIER SCHEME

5. Declaration

I(Name of Applicant),
declare that the particulars stated in this application are correct to the best of
my knowledge and I am aware that any false declaration on my part will result
in the withdrawal as Authorised Verifier.

Fulfil all conditions and meet all requirements in accordance with the
Weights and Measures Regulations for the Designation as Authorised Verifier
under the Authorised Verifier Scheme.

Indemnify SPRING Singapore from and against all liabilities, damages,
claims, cost and expenses incurred or sustained by SPRING Singapore as a
result of any action taken by SPRING Singapore relating to the designation as
Authorised Verifier.

I also undertake to inform the Controller of Weights and Measures
immediately of any change in particulars given in this application.

.....
Applicant's Signature and Date

.....
Name and Designation

**SPRING Singapore’s Designation Scheme for Authorised
Verifiers**

CERTIFICATE OF DESIGNATION

This is to certify that

**[Insert company’s name]
[Insert company’s address]**

*has been assessed under the
SPRING Singapore’s Designation Scheme for Authorised Verifiers
as having conformed to the requirements
of the Authorised Verifier Scheme for*

[Insert category of weighing and/or measuring instruments]
(see Terms and Conditions of the Authorised Verifier for Details)

Issued on :

Date of Expiry :

AV number: AV [AV number]

Controller, Weights and Measures
SPRING Singapore

This certificate remains the property of SPRING Singapore and
shall be returned upon request.

SINGAPORE WEIGHTS AND MEASURES OFFICE – AUTHORISED
VERIFIER SCHEME

Appendix F

AV/PAV's EVALUATION REPORT

Documentation

AV/PAV's designated No.: _____ Verification Date: _____

Weights and Measures verification Seal No (1): _____

Weights and Measures verification Seal No.(2): _____
(2nd destructive seal to be used only on weighbridge or platform indicators that required 2 seals)

Instrument Type: _____ Brand / Model: _____ Capacity: _____

Serial No.: _____ Instrument Class: _____ e value/s : _____

Owner of Instrument: _____

Location where instrument will be deployed: _____

Purpose of Test

- Initial Verification
- Subsequent Verification
- In-service Inspection

Visual Inspection

1. General

- Yes No Mandatory markings
- Yes No Level indicating device
- Yes No Clean and serviceable
- Yes No Adequate protection from any influence likely to affect its performance
- Yes No There are no apparent obstructions
- Yes No View of weighing process clear and unobstructed

2. Specific requirements for the type of instrument as per the Procedure Manual

- Yes No (a)
- Yes No (b)
- Yes No (c)
- Yes No (d)
- Yes No (e)
- Yes No (f)

3. Auxiliary devices

- Yes No (a)
- Yes No (b)

Performance Tests

1. Repeatability

Load	1 st Reading	2 nd Reading	3 rd Reading	Difference

Pass / Fail

2. Eccentricity

Mass used =

Corner ()	Corner ()	Corner ()	Corner ()
Centre		Corner ()	Corner ()
Corner ()	Corner ()	Corner ()	Corner ()

Pass / Fail

3. Accuracy of Zero Setting

Pass / Fail

4. Weighing Performance

Applied Load	Results up	mpe
Min		
1 st mpe change pt		
2 nd mpe change pt		
3 rd mpe change pt		
Max		

Applied Load	Result down	mpe
Min		
1 st mpe change pt		
2 nd mpe change pt		
3 rd mpe change pt		
Max		

Pass / Fail

5. Discrimination

Pass / Fail

6a. Accuracy of Tare Setting

Pass / Fail

6b. Tare Weighing Device

Pass / Fail

Comments/Action taken

.....

Signed:

Name (BLOCK LETTERS):

Position:

Organisation:

Date:...../...../.....

Remarks By Inspector of Weights and Measures

.....

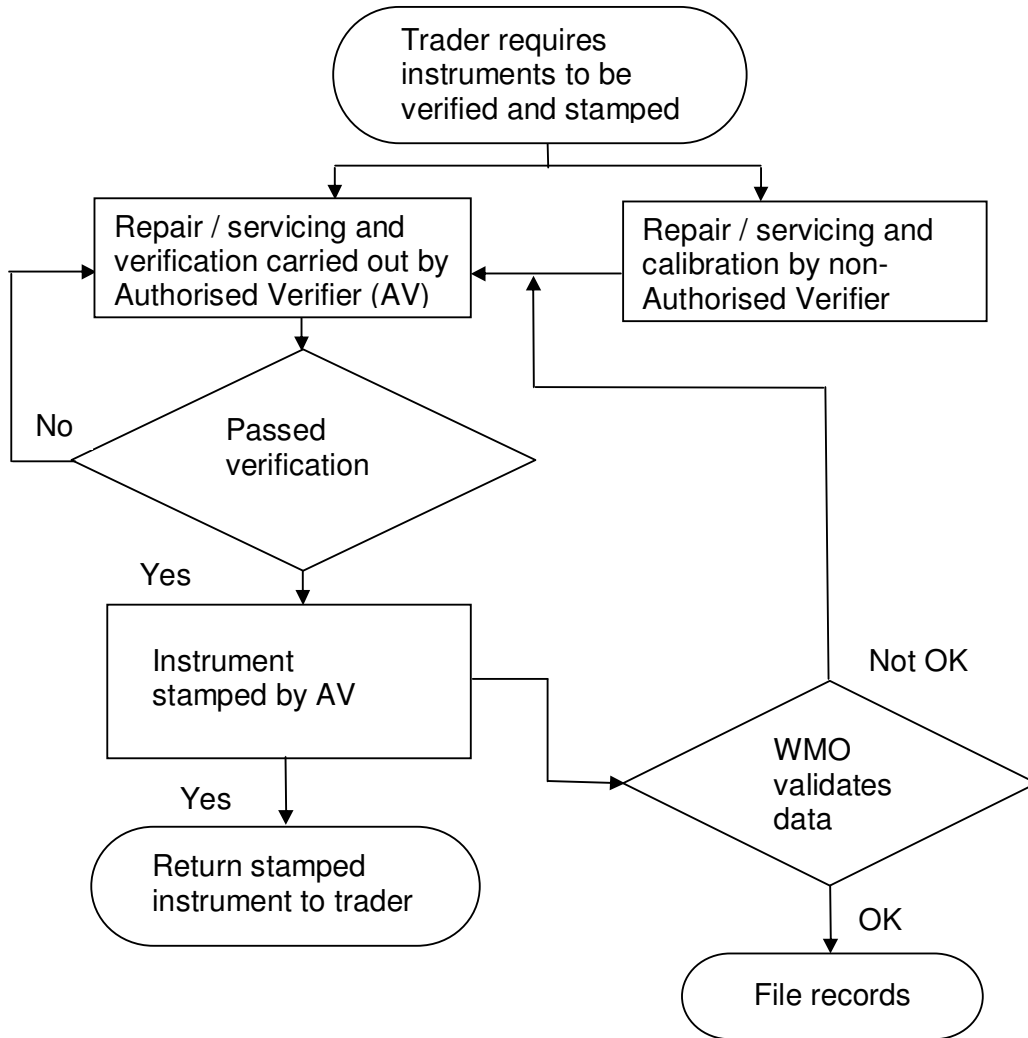
Signature:

Name:

SINGAPORE WEIGHTS AND MEASURES OFFICE – AUTHORISED
VERIFIER SCHEME

Appendix G

Flow-Chart for Verification of Weighing and Measuring Instruments under the
Authorised Verifier Scheme



SINGAPORE WEIGHTS AND MEASURES PROGRAMME – AUTHORISED
VERIFIER SCHEME

Appendix H

Maximum Permissible Error of Weights

1. Measurement of Mass or Weight

1.1 Measurement of Weights, other than carat (metric) weights δm in mg

Nominal value	δm in mg						
	Class E1	Class E2	Class F1	Class F2	Class M1	Class M2	Class M3
50 kg	25	80	250	800	2500	8000	25000
20 kg	10	30	100	300	1000	3000	10000
10 kg	5	16	50	160	500	1600	5000
5 kg	2.5	8.0	25	80	250	800	2500
2 kg	1.0	3.0	10	30	100	300	1000
1 kg	0.5	1.6	5	16	50	160	500
500 g	0.25	0.8	2.5	8.0	25	80	250
200 g	0.10	0.30	1.0	3.0	10	30	100
100 g	0.05	0.16	0.5	1.6	5	16	50
50 g	0.030	0.10	0.30	1.0	3.0	10	30
20 g	0.025	0.080	0.25	0.8	2.5	8	25
10 g	0.020	0.060	0.20	0.6	2.0	6	20
5 g	0.016	0.050	0.16	0.5	1.6	5	16
2 g	0.012	0.040	0.12	0.4	1.2	4	12
1 g	0.010	0.030	0.10	0.3	1.0	3	10
500 mg	0.008	0.025	0.08	0.25	0.8	2.5	
200 mg	0.006	0.020	0.06	0.20	0.6	2.0	
100 mg	0.005	0.016	0.05	0.16	0.5	1.6	
50 mg	0.004	0.012	0.04	0.12	0.4		
20 mg	0.003	0.010	0.03	0.10	0.3		
10 mg	0.003	0.008	0.025	0.08	0.25		
5 mg	0.003	0.006	0.020	0.06	0.20		
2 mg	0.003	0.006	0.020	0.06	0.20		
1 mg	0.003	0.006	0.020	0.06	0.20		

SINGAPORE WEIGHTS AND MEASURES PROGRAMME – AUTHORISED
VERIFIER SCHEME

1.2 Weights, other than carat (metric) weights (Block weights)

Nominal Value	Maximum Permissible Errors
5,000 kg	± 500 g
2,000 kg	± 200 g
1,000 kg	± 100 g
250kg - 500 kg	± 50 g
200 kg	± 20 g
100 kg	± 10 g

1.3 Carat (metric) weights

Purported value	Error on Verification on excess only, on inspection in excess or deficiency
0.01 carat (metric)	0.1 milligram
0.02 carat (metric)	0.2 milligram
0.05 carat (metric)	0.2 milligram
0.1 carat (metric)	0.2 milligram
0.2 carat (metric)	0.5 milligram
0.25 carat (metric)	0.5 milligram
0.5 carat (metric)	0.5 milligram
1 carat (metric)	1 milligram
2 carats (metric)	1 milligram
5 carats (metric)	1 milligram
10 carats (metric)	1 milligram
20 carats (metric)	1 milligram
50 carats (metric)	2 milligrams
100 carats (metric)	2 milligrams
200 carats (metric)	3 milligrams
500 carats (metric)	5 milligrams

SINGAPORE WEIGHTS AND MEASURES PROGRAMME – AUTHORISED
VERIFIER SCHEME

2. Weighing Instruments

Non-automatic weighing instruments

Classes of weighing instrument	Load (e value, expressed in units of grams or kilograms)	Error in excess or deficiency	
		Initial verification	In-service inspection
Class I	from 0 to 50 000	0.5 (e)	1 (e)
	over 50,000 up to 200,000	1 (e)	2 (e)
	over 200,000	1.5 (e)	3 (e)
Class II	from 0 to 5,000	0.5 (e)	1 (e)
	over 5,000 to 20,000	1 (e)	2 (e)
	over 20,000	1.5 (e)	3 (e)
Class III	from 0 to 500	0.5 (e)	1 (e)
	over 500 to 2,000	1 (e)	2 (e)
	over 2,000	1.5 (e)	3 (e)
Class IIII	from 0 to 50	0.5 (e)	1 (e)
	over 50 up to 200	1 (e)	2 (e)
	over 200	1.5 (e)	3 (e)

Notes

Load refers to a mass of known quantity applied to the load receptor for the purpose of testing or inspection.

e is the value, expressed in units of mass, of the scale interval used on the instrument.

The Accuracy Classes of non-automatic weighing instruments are as follows:

- Class I - Special Accuracy
- Class II - High Accuracy
- Class III - Medium Accuracy
- Class IIII - Ordinary Accuracy

SINGAPORE WEIGHTS AND MEASURES PROGRAMME – AUTHORISED
VERIFIER SCHEME

3. Measurement of Volume

3.1 Capacity measures

Purported value	Testing and passing as fit for use for trade					Maximum permissible error in excess or deficiency
						millilitres
1 millilitre	0.03
2 millilitres	0.06
5 millilitres	0.15
10 millilitres	0.3
20 millilitres	0.6
25 millilitres	0.75
30 millilitres	0.9
50 millilitres	1.5
100 millilitres	3
200 millilitres	6
250 millilitres	7.5
500 millilitres	15
1 litre and above	At the rate of 0.3% per litre

SINGAPORE WEIGHTS AND MEASURES PROGRAMME – AUTHORISED
VERIFIER SCHEME

Measurement of Volume

Oil dispensing pumps

Quantity Delivered	Testing and passing as fit for use for trade	In-service inspection
	Maximum permissible error in excess or deficiency	Maximum permissible error in excess or deficiency
	millilitres	millilitres
250 millilitres	0.75	1.25
500 millilitres	1.5	2.5
1 litre and above	At the rate of 0.3% per litre	At the rate of 0.5% per litre

Flowmeters

Accuracy Class	Testing and passing as fit For use for trade	In-service inspection	Repeatability
	Maximum permissible error in excess or deficiency	Maximum permissible error in excess or deficiency	
0.3	0.2 %	0.3 %	0.12%
0.5	0.5%	0.5%	0.2%

Notes

1. The Accuracy Classes for flowmeters are as follows:
 - (a) Class 0.3 refers to flowmeters used in pipe work and includes truck loading and terminal meters; and
 - (b) Class 0.5 refers to flowmeters for general use for trade.

2. The percentages specified refer to the actual measured quantity against the standard

WEIGHTS AND MEASURES PROGRAMME – AUTHORISED VERIFIER
SCHEME

Appendix I

Application for Renewal of Designation as Authorised Verifier

1. General Particulars

Name of Company / Organisation Seeking Renewal of Designation:			Company Registration No.:
Address:			Postal Code:
Telephone Number:	Fax:	Handphone:	E-mail Address:
Managing Director's Name:			NRIC No.:
Authorised Verifier Designation Number:			

2. Information

Information on any updates (eg. Change of key persons etc)
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3. For Office Use

Remarks:	Decision:
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4. Applicant's Legally Authorised Signature

Authorised Signature

Company Stamp

Name and Title of Signatory

Date