

Singapore Weights and Measures Programme – Authorised Verifier Scheme

Information Booklet 2020

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Enterprise Singapore

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Chapter 1

1.1 Preface

Enterprise Singapore is the legal metrology authority administering Singapore's Weights and Measures Act (WMA). Under the WMA, qualified private sector companies such as manufacturers, repairers and installers of weighing and measuring instruments for trade use may be designated as Authorised Verifiers 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. 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, understand the qualification criteria, technical and administrative requirements to become an Authorised Verifier.

Enterprise Singapore 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:

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This booklet can also be downloaded at <http://www.enterprisesg.gov.sg>

1.2 Overview of the Authorised Verifier (AV) Scheme

Enterprise 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 Enterprise Singapore 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, such as , manufacturers, repairers and installers of weighing and/or measuring instruments to be designated as Authorised Verifiers (AVs). These AVs will carry out verification and re-verification of weighing and measuring instruments for trade use.

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 to be verified by an AV.

Under this Scheme:

(a) An applicant must be:

- Certified to ISO 9001 Quality Management Systems; or
- Accredited to ISO/IEC 17025 General Requirements for Competence of Testing and Calibration Laboratories.

(b) Enterprise Singapore, as the Designating Authority, will:

As the national body for legal metrology, Enterprise Singapore regulates weighing and measuring instruments for trade use to ensure fair transaction of goods and to protect the interests of both consumers and businesses.

- Assess applicants on their suitability, capabilities and competencies, before designating them as 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 Enterprise Singapore , 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 Weights & Measures Seal 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

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 Enterprise Singapore's system and technical audits
- (d) understood the requirements to be an AV under Chapter 3 of this booklet

Chapter 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) 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 How to apply to be an Authorised Verifier?

To apply as an Authorised Verifier, interested applicant may reach out to Enterprise Singapore at consumerprotection@enterprisesg.gov.sg for the application form.

2.4 Approval for Designation

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

(a) Systems audit:

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.

(b) Technical audit:

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 documentation, 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.

The applicant agrees to allow CW 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 D) 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, that it had applied to be designated for
- (b) Stamping with a mark of verification on instruments that are fit for trade use
- (c) Affixing the ACCURACY Label on any weighing and measuring instruments that it has 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, in line with 25(4) of Weights and Measures Regulations. The assessment fee is based on Board's charge out rates for each Enterprise Singapore Officer appointed to conduct the assessment.

Chapter 3 – Requirements of Authorised Verifiers

3.1 Power 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 Enterprise Singapore 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 Enterprise Singapore, 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 detect unauthorised adjustment/ tampering after the instrument has been verified correct. Stamp the working standard after adjustment and calibration to the tolerance as specified by Enterprise Singapore
- (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

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
- (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 a verification form, or on relevant calibration forms deemed acceptable by Enterprise Singapore, for the purpose of audit checks

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



Fuel Dispenser



Flowmeters

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

Acceptance of instruments and working standards:

Before any weighing or measuring instrument is verified as fit for trade use (see Appendix E), the AV shall ensure the following:

As the national body for legal metrology, Enterprise Singapore regulates weighing and measuring instruments for trade use to ensure fair transaction of goods and to protect the interests of both consumers and businesses.

Visit www.enterprisesg.gov.sg for more information.

- (a) Unless otherwise allowed by Enterprise Singapore, the pattern of the instrument is registered with Enterprise Singapore in accordance with section 8 of the Weights and Measures Act
- (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 (MPE) specified for the instrument. See Appendix F for the MPEs
- (f) Suitable working standards are available for verification of the instrument

Stamping with the Verification Seal

When a weighing or measuring instrument has been passed by an AV as fit for trade use, the AV will need to seal the instrument to prevent access to any adjustment knobs/switches/parts. The seal shall be of the following designs:



Plastic seal



Tamper-evident paper adhesive seal

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 CW, Enterprise Singapore).

In the event that any verification seal(s) is/are discovered by an AV to be lost or missing, the AV shall inform Enterprise Singapore 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 Enterprise Singapore. 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

Unless cancelled or tampered with, every ACCURACY Label affixed to a weighing or measuring instrument shall be in force for a period of 12 months immediately following the month it was affixed.

Requirements for not stamping an instrument

An AV shall not stamp 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 Enterprise Singapore
- (e) Which is not suitable for the intended use

If any of the above circumstances are encountered, the AV shall also notify Enterprise Singapore.

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 calibration reports and documentation, at the request of an Inspector of Weights and Measures for review.

Chapter 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.

Renewal of a Certificate of Designation is done online via the AV's [CPSA account](#). Upon receiving the application and payment of the prescribed fee, Enterprise Singapore shall review the application and renew the Certificate of Designation for a period of one year if the applicant meets the set out criteria.

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 Enterprise Singapore 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
- (g) Ceases to be employed by that person to whom that letter of appointment has been issued by Enterprise Singapore

4.3 Revocation of Designation

When Enterprise Singapore 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 inform 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.

Chapter 5 – Weights and Measures Fees

Any person using a prescribed¹ instrument for trade² must submit the instrument to an appointed Authorised Verifier (AV) for annual verification. Instruments will be tested for its fitness for use for trade, then sealed and affixed with a valid Accuracy Label. This service rendered is chargeable, and a part of it is paid to the authority.

The Weights & Measures (Fees) Regulations have been in force since 1984, and several amendments have been made since to pass on savings from process improvements to businesses. Enterprise Singapore is committed to ensuring that the process of ensuring accurate weighing and measuring instruments is as business-friendly and cost efficient as possible. The revised fees will take effect from 1 May 2020.

The corresponding revised fees for the services and applications are as shown in the table.

s/n	Fee Type	Fee (excl GST)
Fees for AVs, Suppliers/Manufacturers of Instruments		
1	Pattern Registration <i>Registration of instrument pattern for evaluation as fit for trade use (excl verification fee payable to AVs)</i>	\$280
2	AV Application and Renewal <i>Apply to be an AV to conduct verification of instruments use for trade (renewable on an annual basis)</i>	\$500
3	General Administration	
A	– <i>Certified true copy of an extract from the register (inclusive of GST).</i>	\$31.50
B	– <i>Duplicate appointment letters, certified true copy of an extract from the register relating to AV or pattern approval (inclusive of GST).</i>	\$5.25

¹ Weighing or measuring instruments listed in the First Schedule of the Weights and Measures Regulations 2005 such as linear and liquid measure, non-automatic weighing instruments (electronic weighing and mechanical spring scales, weighbridges, daching), fuel dispensing pumps and flow meters.

² Use for trade refers to transactions involving the transferring/ rendering of money's worth by reference to a certain quantity of goods exchanged, or where there is payment in respect of any toll or duty.

s/n	Fee Type	Fee (excl GST)
Fees for Traders/Businesses Operating with Weights and Measures		
4	Linear Measure <i>Service rendered by ESG for the testing and/or passing as fit for trade use for the purpose of supply of the linear measure (with scale marks where the distance between are indicated in metric units of length).</i>	\$2
5	Verification Report Submission <i>Where the testing and/or passing of instrument as fit for trade is by an AV, the verification report is to be submitted and the fee payable to the Controller through the AV.</i>	
A	- Linear measure	\$2
B	- Liquid measure	\$3
C	- Flow meter and petrol pump	\$30
D	- Instrument with weighing capacity not exceeding 1 metric ton	\$3
E	- Instrument with weighing capacity exceeding 1 metric ton but not exceeding 30 metric tons	\$25
F	- Instrument with weighing capacity exceeding 30 metric tons but not exceeding 60 metric tons	\$500
G	- Instrument with weighing capacity exceeding 60 metric tons	\$1,000

As the national body for legal metrology, Enterprise Singapore regulates weighing and measuring instruments for trade use to ensure fair transaction of goods and to protect the interests of both consumers and businesses.

Visit www.enterprisesg.gov.sg for more information.

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 CW 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 W&M'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.

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

This refers to an 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 CW 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 CW 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) 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.
- 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.

As the national body for legal metrology, Enterprise Singapore regulates weighing and measuring instruments for trade use to ensure fair transaction of goods and to protect the interests of both consumers and businesses.

Visit www.enterprisesg.gov.sg for more information.

- 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.
- 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

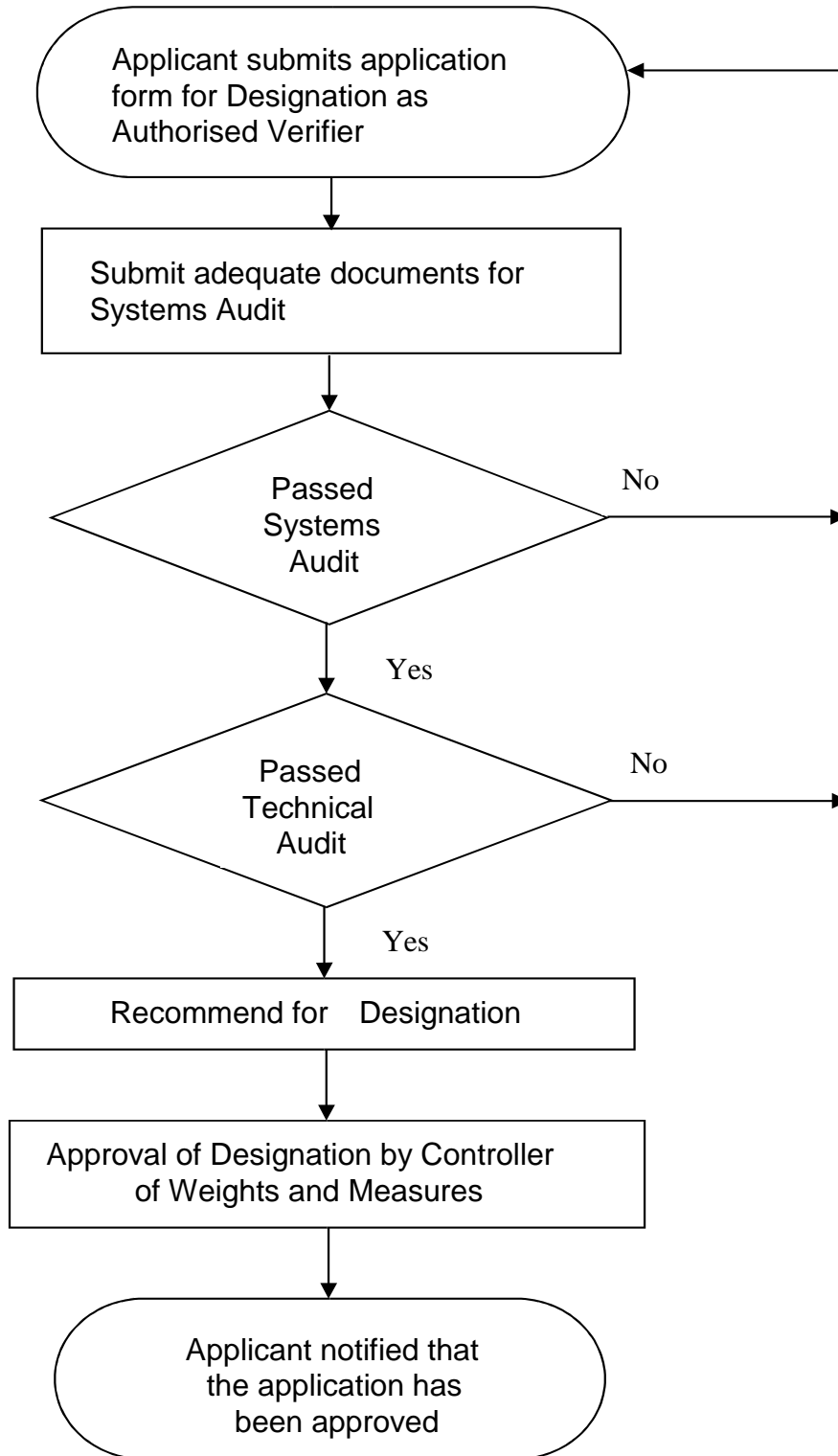
(b) submit to the Controller, in such form, comprising such information and within such time as the Controller may require, together with the prescribed fee –

(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.

Section 7A (11) Any Authorised Verifier who fails to keep any record referred to in 7A (10 (a) shall be guilty of an offence. The penalty, if found guilty, is a fine not exceeding \$2,000.

Flowchart for Designation of Authorised Verifiers



As the national body for legal metrology, Enterprise Singapore regulates weighing and measuring instruments for trade use to ensure fair transaction of goods and to protect the interests of both consumers and businesses.

Visit www.enterprisesg.gov.sg for more information.

**Enterprise 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
Enterprise 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)

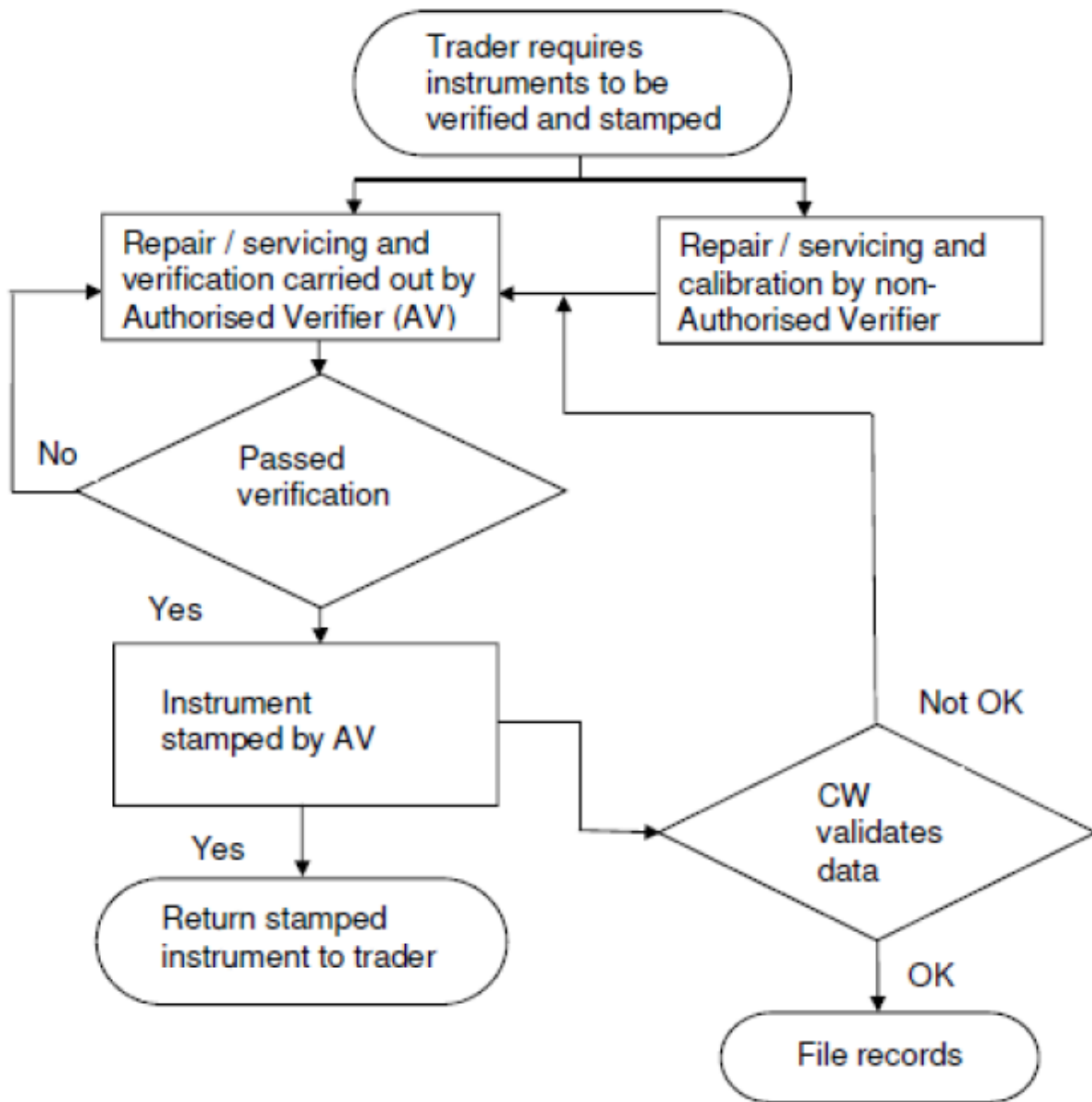
Issued on :
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AV number: AV [AV number]

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



As the national body for legal metrology, Enterprise Singapore regulates weighing and measuring instruments for trade use to ensure fair transaction of goods and to protect the interests of both consumers and businesses.

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1. Maximum Permissible Error of Weights

Extracted from OIML-R111 Edition 2004 (E)

Table 1 Maximum permissible errors for weights ($\pm \delta m$ in mg)

Nominal value*	Class E ₁	Class E ₂	Class F ₁	Class F ₂	Class M ₁	Class M ₁₋₂	Class M ₂	Class M ₂₋₃	Class M ₃
5 000 kg			25 000	80 000	250 000	500 000	800 000	1 600 000	2 500 000
2 000 kg			10 000	30 000	100 000	200 000	300 000	600 000	1 000 000
1 000 kg		1 600	5 000	16 000	50 000	100 000	160 000	300 000	500 000
500 kg		800	2 500	8 000	25 000	50 000	80 000	160 000	250 000
200 kg		300	1 000	3 000	10 000	20 000	30 000	60 000	100 000
100 kg		160	500	1 600	5 000	10 000	16 000	30 000	50 000
50 kg	25	80	250	800	2 500	5 000	8 000	16 000	25 000
20 kg	10	30	100	300	1 000		3 000		10 000
10 kg	5.0	16	50	160	500		1 600		5 000
5 kg	2.5	8.0	25	80	250		800		2 500
2 kg	1.0	3.0	10	30	100		300		1 000
1 kg	0.5	1.6	5.0	16	50		160		500
500 g	0.25	0.8	2.5	8.0	25		80		250
200 g	0.10	0.3	1.0	3.0	10		30		100
100 g	0.05	0.16	0.5	1.6	5.0		16		50
50 g	0.03	0.10	0.3	1.0	3.0		10		30
20 g	0.025	0.08	0.25	0.8	2.5		8.0		25
10 g	0.020	0.06	0.20	0.6	2.0		6.0		20
5 g	0.016	0.05	0.16	0.5	1.6		5.0		16
2 g	0.012	0.04	0.12	0.4	1.2		4.0		12
1 g	0.010	0.03	0.10	0.3	1.0		3.0		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				

* The nominal weight values in Table 1 specify the smallest and largest weight permitted in any class of R 111 and the maximum permissible errors and denominations shall not be extrapolated to higher or lower values. For example, the smallest nominal value for a weight in class M₂ is 100 mg while the largest is 5 000 kg. A 50 mg weight would not be accepted as an R 111 class M₂ weight and instead should meet class M₁ maximum permissible errors and other requirements (e.g. shape or markings) for that class of weight. Otherwise the weight cannot be described as complying with R 111.

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

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

- The Accuracy Classes for flowmeters are as follows:
 - Class 0.3 refers to flowmeters used in pipe work and includes truck loading and terminal meters; and
 - Class 0.5 refers to flowmeters for general use for trade.
- The percentages specified refer to the actual measured quantity against the standard

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Summary of Updates

No.	Chapter	Changelog (only main changes will be highlighted)
1	Preface	The Consumer Protection, Weights & Measure office will be moving to Bugis Junction Office Tower from 1 Jan 2020.
2	Appendix D	Removed form for Application as Designation as Authorised Verifier from the 2018 version. Applicants may reach out to consumerprotection@enterprisesg.gov.sg for the application form and supporting documents required.
3	Appendix F	Removed Evaluation Report Form for NAWI from the 2018 version. For NAWI verification, AVs may refer to the ASEAN NAWI Guideline and ASEAN NAWI evaluation form.
4	Appendix I	Removed form for Application of Renewal for Designation as AV from 2018 version. AV renewal may be done online through the Consumer Product Safety and Accuracy (CPSA) System.
5	Chapter 5	Added table of Weights and Measures Fees