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## Welcome to measure**up**



### Editorial: Tony Lee

THE MEASUREMENT AND PRODUCT SAFETY SERVICE NEWSLETTER FOR ACCREDITED PERSONS

Hi Everyone! Welcome to the second issue of measureUP.

In the last issue we talked about 'change' – the changing faces of MAPSS, the changes to the Weights and Measures Regulations and, in particular, the changes in the Regulations that will affect Accredited Persons (APs).

Today change is imminent, as technology and demographic changes alter the face of our marketplace. As these changes occur, it can sometimes seem daunting as we deal with issues that seem beyond our control. Managing change is always a challenge. It requires us to be steadfast about the benefits and potential of change and not to lose sight of that bigger picture because of the day-to-day issues that occur.

MAPSS, which is a part of the Ministry of Consumer Affairs (MCA), an operating division of the Ministry of Economic Development (MED), is also under-going change. We in MCA are now part of an expanded division of the MED called the "Effective Markets Branch" which will work for business and consumers.

Our (MAPSS) current role is to ensure that trade in goods in and from New Zealand is conducted on the basis of fair and accurate measure, and that goods and services sold in New Zealand are safe for consumers. This work ensures that consumers get accurate measure and safe products that they

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This is the second edition of measureUP, the Measurement and Product Safety Service's (MAPSS) newsletter for Accredited Persons.

In this edition of measure**UP** we look at the introduction of a three year renewal period for letters of accreditation for APs, the review of the Australian National Trade Measurement system and legislation, and Pattern Approval for Weighing and Measuring Equipment.

measure**UP** is a bi-annual publication launched in March this year to improve communication between APs and MAPSS, and form a medium of contact between our two groups.

The aim of this publication is to keep APs and stakeholders up to date with the latest issues within legal metrology and provide some clarification on technical matters.

We'd appreciate your feedback in relation to the types of stories you would like us to feature. If there's anything you'd like us to clarify or feature in future editions of this newsletter please let us know.

We are also looking at setting up a Questions and Answers section, so if you have any uncertainties in regards to trade measurement and legal metrology then give us a shout.

For any suggestions for future content or to direct a question which you would like answering, contact:

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can rely upon. We also work to ensure that businesses are aware and encouraged to comply with the law relating to weights and measures and to the sale of safe goods and services.

Hence, although our end goal remains the same, we are taking a 'measured' look at the - why, what and how, of the things we do, to ensure that we manage the changes that are occurring and that are likely to occur around us in the marketplace leading to 2010 and beyond. We will continue to look for ways to improve our processes, and to ensure that these translate to better benefits for business and consumers in New Zealand. We will come to you to seek information on the businesses that you work with and will be keen to hear your views on all matters of Measurement.

One example of change in the marketplace is the growth and popularity of weekend markets. We encountered communication issues with a number of Chinese speaking traders, hence we had to find different ways of communicating, to facilitate awareness and understanding of the rules relating to Weights & Measures in NZ. We have since developed a handout in Chinese which we have used when working with these traders, and will be including this handout with this Bulletin for APs to use.

Help us make that transition from 'being good to being great', by helping us manage and work with change.

Tony Lee Manager MAPSS

### Introduction of Three Year Renewal Period For Letters of Accreditation

## MAPSS is currently implementing the transition of Accredited Person's letters of accreditation from the current annual renewal to the new three year period of renewal.

This change is one of a number of alterations that came into force in the Weights and Measures Amendment Act 2005.

On 1 July 2006 the scheduled transition of APs to the three year renewal period began. Approximately 20 companies a year will be moved to the new three year cycle over the next three years.

Associated with the three year accreditation renewal period is the new requirement that before accreditation is renewed MAPSS must be "satisfied that the applicant continues to meet the requirements for accreditation"<sup>1</sup> prescribed by the Weights and Measures Regulations.

In order to fulfil this requirement, prior to the three yearly renewal of a letter of accreditation, a systems and compliance audit will be completed on each applicant.

The systems audit will look at the formal Quality Management System. If the Quality Management System does not meet the minimum requirements set out in Schedule 7 and Section 30C (4) (c) of the Weights and Measures Act 1987, MAPSS will request that the manual be amended before accreditation is renewed.

The compliance audit will focus on the current competencies of each of the individual APs to carry out verifications, certificates of accuracy and work within the Quality Management Framework. The results of the inspection of individual AP's work completed by MAPSS Officers as part of their routine surveillance will also be taken into account and will determine the extent

### Review of the Australian National Trade Measurement System and Legislation

#### The Ministerial Council on Consumer Affairs (Australia/New Zealand) at the request of the Council of Australian Governments is currently conducting a review to develop recommended options for a national system of trade measurement in Australia.

Under the current arrangements the Commonwealth sets national standards through the National Measurement Act 1960 and the States and Territories administer model Uniform Trade Measurement Legislation through their local Trade Measurement Acts and Administration Acts.

For a considerable time, a lack of uniformity in trade measurement legislation and administration between Australian States and Territories has been identified as a problem.

The Ministry of Consumer Affairs and MAPSS have been involved in this process. We have made submissions stressing the importance of the development of a single economic market between Australia and New Zealand and in particular the harmonisation of trans-Tasman trade measurement arrangements as a step towards this outcome, drawing on the strengths of our different approaches.

of compliance auditing required before renewal. If for some reason an accredited individual has not carried out verification or certification work in the period prior to renewal that person will need to be assessed by MAPSS to determine their continued competency.

Once issued the expiry date (anniversary) of a three year Letter of Accreditation will remain fixed at three years from the date of issue. The categories of accreditation, individuals accredited, and any conditions of accreditation will be included in an appendix to the letter of accreditation. Changes to the accreditation will no longer result in a new letter of accreditation but will result in a new appendix being issued to the current letter. The appendix will also include each AP's number, name and location.

Before your current Letter of Accreditation expires you are required apply for renewal as is currently done. At this time your Client Manager will renew your accreditation for another one year period or advise you when you will be audited for transition to a three year period.

When you have been scheduled for assessment by MAPSS to move to a 3 year renewal period you will be contacted by your Client

The Ministry's submission highlighted the fact that the current lack of uniformity within Australia made attempts at trans-Tasman alignment difficult. The submission also strongly emphasised New Zealand's commitment to continued involvement in this project as it moves forward.

The Ministry is supportive of any change to the national system of trade measurement in Australia that results in one national point of contact for trade measurement issues in Australia. The preferred outcome of this review, from New Zealand's perspective, is that



Manager and dates for a system audit and compliance audits (if required) will be arranged.

If you have any questions regarding your accreditation, please contact your Client Manager.

<sup>1</sup> Section 30C(4) of the Weights and Measures Act 1987 as amended 2005.

Australia moves to a system with one national administrative agency and legislation.

Whichever system Australia decides upon may have ramifications for trade measurement in New Zealand as our government moves towards a future goal of harmonisation.

MAPSS will keep you informed of the results of the Australian Review in future editions of this newsletter.



## *Pattern Approval for* Weighing and Measuring Equipment

The provisions of the Weights and Measures Act 1987 maintain confidence in weighing and measuring equipment in New Zealand by requiring that all equipment used for trade must be of an approved type.

The definition of "used for trade" can be summarised as,

any weighing or measuring instrument that is used to determine a quantity, which is used to establish the basis for a financial transaction between two parties.

Approval testing (also referred to as pattern or type approval) involves testing weighing and measuring instruments to ensure they do not facilitate fraud and that they operate within prescribed tolerances even when exposed to a variety of operational and environmental influences.

Some of these tests include:

I.E.C 1000-4-2	Electrostatic Discharge Immunity
I.E.C 1000-4-3	Radiated Electromagnetic Susceptibility
I.E.C 1000-4-4	Electrical Fast Transient Bursts
I.E.C 1000-4-11	Voltage Dips and Short Interruptions
I.E.C 68 -2-3	Damp Heat, Steady State Humidity
I.E.C 68 -2-1	Static temperatures

## Responsibility of an Accredited Person

The following Sections of the Weights and Measures Act 1987 are relevant to Accredited Persons when they make the decision to stamp a piece of weighing or measuring equipment with a mark of verification.

#### **20** Approval of appliances

Subject to section 22 of this Act, no weight or measure and no weighing or measuring instrument shall be stamped with a mark of verification under this Act unless it is of a type approved by the Secretary in accordance with regulations made under this Act.

The purpose of this section is to provide that no weight, measure, weighing or measuring instrument shall be stamped with a mark of verification under the Act unless the Secretary has approved it. The rationale for pattern or type approval is set out in the Weights and Measures Regulations. It is to ensure that new types of weights, measures, weighing or measuring instruments:

- 1. comply with the regulations which set out various minimum standards and;
- 2. are suitable for use for trade and;
- 3. do not facilitate fraud.

Confirmation that a piece of equipment is of an approved type for use within New Zealand must be made by an Accredited Person before stamping it with a mark of verification. If the legend of the equipment does not have TSS or TMU approval number marked on it, confirmation can be obtained from the Approvals Database on the Ministry of Consumer Affairs website www.consumeraffairs.govt.nz/measurement/ businessinfo/tss/index.html or by contacting MAPSS.

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## 21 Weights and measures to be stamped with mark of verification

- (1) Subject to any regulations made under this Act, no person shall use for trade, or have in that person's possession for use for trade, any weight or measure or any weighing or measuring instrument which has not been stamped with a mark of verification in accordance with regulations made under this Act.
- (2) Subject to section 22 of this Act, every person commits an offence who uses for trade, or has in that person's possession for use for trade, any weight, measure, or weighing or measuring instrument which is not stamped with a mark of verification as required by this Act.

The purpose of this section is to ensure that new and repaired weights, measures, weighing or measuring instruments meet a minimum performance standard before they are put into use for trade. An indication that they meet this standard and that they are legal for use for trade is the stamping on them of the mark of verification.

There is an assumption that the mark of verification relates to the status of the equipment when it was last subject to verification. If the equipment is subsequently repaired the conventional view is that the status has been materially affected and the equipment should be re-tested and verified following the repair. The equipment remains legal for use for trade while it contains the mark of verification and the only criteria for obliterating that stamp is contained in the Weights and Measures Regulations.

#### 22 Sections 20 and 21 not to apply to automatic weighing or dispensing machines

Nothing in section 20 and section 21 of this Act shall apply to any automatic weighing machine or any automatic volumetric liquid dispensing machine.

This section exempts automatic weighing and dispensing machines from the requirements of Sections 20 and 21 (approval by the Secretary and stamping with a mark of verification).

While these types of instruments are exempt from approval and verification they are still required to be accurate and if they are not, prosecution of the instrument user, can be taken under Section 24 of the Weights and Measures Act 1987.

Applications for pattern approval in New Zealand can fall into three categories:

#### 1) Full Pattern Approval

Full pattern approval examinations involve numerous environmental, electrical and physical tests that are performed on the equipment in the MAPSS laboratory in Petone and other Accredited Laboratories. New Zealand is a full member of the International Organisation of Legal Metrology (OIML), and full pattern approval testing is carried out in accordance with procedures and guidelines detailed in the relevant OIML documentation, and prescribed under The Weights and Measures Act 1987.

Full pattern approval testing is required for all weighing instruments of a new design, which do not have an overseas pattern approval certificate issued by a full OIML member economy.

MAPSS Petone laboratory is NZ/ISO/IEC 17025 accredited for type approval and an issuing authority for OIML certificates for non-automatic weighing instruments. MAPSS is currently

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## Volume Measuring Equipment

Through the use of appropriate test equipment and field procedures the measurement uncertainty associated with the testing of volume measuring instruments is minimised to a level that does not cause significant errors that affect the final testing results.

Measurement uncertainty needs to be quantified and taken into account in procedures to maintain confidence in the measurement results obtained.

Approved methods of determining the error of volume measuring instruments:

- 1. Using a verified volume measure with visi-gauge to determine the error
- 2. Using a verified volume measure with graduated strips to determine the error
- 3. Using a verified brim volume measure in conjunction with verified graduated measure to determine the error

#### AP's responsibilities

When verifying volume measuring instruments, an Accredited Person must determine the error by reading it from a measure of known accuracy. In the case of a verified volume measure this is done from reading the visi-gauge or graduated strip.

If using a brim type conical measure, the error is determined using verified graduated measures (normally glass or plastic).

MAPSS recommends that the most effective and practical way of testing Driveway Flow Meters (fuel dispensers) is to determine the volume using a verified measure with a graduated strip or visi-gauge to evaluate the errors.

#### Different types of volume measures:

The different types of verified volume measure include:

- 1. Conical brim measures
- 2. Brim line strike off measures
- 3. Volume measures with graduated strips
- 4. Volume measures with visi-guage

Conical brim measures have issues associated with them:

Can be difficult to read the meniscus

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in the process of extending this accreditation to the approval of driveway flowmeters (fuel dispensers) tested to OIML Recommendation R117. Approval is also granted to other types of weighing and measuring instruments if they comply with the relevant OIML Recommendation.

MAPSS typically approves instruments within 4-6 weeks after receiving all supporting documentation and the equipment for the test.

#### 2) Overseas Based Approval

This approval requires the instrument to have been tested and approved, by an authorised overseas body from a full OIML member economy. The equipment must have been fully tested to the requirements of the relevant OIML Recommendation. A copy of the overseas certificate of approval, in English, and the accompanying application documentation are examined and a New Zealand Certificate of approval is issued.

#### 3) Variant to an Existing Approval

This type of approval is required when an instrument which already has a New Zealand Certificate of approval is modified. If the modification affects the technical or metrological characteristics then partial testing may be required to determine if the instrument still meets the performance requirements of the original approval.

Examples of these types of changes include:

 A change of a major component. For example, a different approved load cell in a weighbridge or a different approved meter in a Driveway Flow Meter.

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Volume measure with graduated strips used to assess meter error



- Uneven base or working on an unlevelled surface makes it difficult to form even meniscus around the brim
- APs do not use graduated measures in evaluating the errors, when using conical brim measures
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- A change in the metrological characteristics, constituting improved performance from the approved instrument. For example, increasing the number of verification scale intervals
- A significant increase in the load receptor size from the original instrument

For more information on the Approvals Process or details of a specific approved instrument contact MAPSS Approvals Officers, Barrie Morgan or Charanjit Singh or speak to your Client Manager.

Volume measure with visi-guage used to assess meter



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#### The correct field procedure for verifying a Driveway Flow Meter (DFM)

When verifying a DFM using a 20 L measure, fill the measure until the display of DFM shows 20.00 L. The error, over or under 20 L, is then evaluated using graduated glass measures or a graduated strip or visi-gauge.



A MAPSS Inspector using visi-gauge measure to test a Driveway Flow Meter

## Issues with the 200 L and 220 L measures:

It was noticed during recent surveillance audits of Accredited Persons testing Driveway Flow Meters using a 220 L working standard that they were evaluating the meters errors by using the DFM display.

MAPSS Standards and Approvals Professional Practice Group has discussed this issue and concluded the procedure followed by some of the APs for testing the Driveway Flow Meters was not correct.

Acceptable methods are for either 200 L or 220 L volume measures to have graduated strips (inside the neck and on the collar) or have visi-gauge or use calibrated graduated beaker or measure to assess any errors.

If using 200 L / 220 L volume measures without visigauge or graduated strips and not using graduated beaker/measure to evaluate the errors, the issues concerned are:

- Petrol Tankers it's difficult to precisely control the flow and with high pressure pumps the fuel will overflow the brim. So if reading from the display, the overflowed fuel cannot be measured unless a graduated measure is used.
- The graduated strips on the volume measures will improve the accuracy of the reading, unless an alternate method of evaluating the error is in place eg graduated measure, volume measures with visi-gauge.
- MAPSS wants to work with Accredited Persons to improve the accuracy of testing results. We want to address the concerns raised above and eliminate the practice of evaluating errors based on a guess or the DFM display of the meter under test.

Please contact your respective Client Manager if you have any questions.

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## Accredited Persons Requirements for using 200 L and 220 L volume measures:

The MAPSS Standards Committee recommends that all APs using 200 L and 220 L volume measures to meet the following criteria:

- Use measures that have graduated strips (graduated to 0.5% of test vessel volume) inside the neck and on the collar. For example, on a 220 L measure the strips should be graduated to 1100 ml. or
- Use measures that have a visi-gauge with a graduated strip (graduated to 0.5% both in excess and deficiency of test vessel volume). For example, on a 220 L measure the strip should be graduated to ±1100 ml. or
- Error of meter in excess or deficiency from Volume Measures should be evaluated with a graduated beaker or measure which can hold at least 0.5% of the Testing Vessel volume; (if using 220 L then graduated measure should at least hold 1100 ml).

**Note:** Every Accredited Person will be required to amend the test procedures in their Quality Management System to reflect these changes if their current procedures are different.

If a 200 L or 220 L is submitted for verification without graduated strips or a visi-gauge, the Accredited Person will be required by the testing inspector to have appropriate test procedures in their Quality Management System to allow it to be used in the field. Volume measures which do not meet one of the three criteria above that are submitted for testing to MAPSS will be returned unless it can be clearly shown that the appropriate test procedure is being used.



www.oiml.org/maa

## *New Zealand signs* A Mutual Acceptance Arrangement for Non Automatic Weighing

### Instruments

In an effort aimed at increasing the international acceptance of the Organisation of Legal Metrology (OIML) Pattern Approval test reports for nonautomatic weighing instruments, MAPSS recently became a signatory to the OIML R76 Declaration of Mutual Confidence.

This Declaration of Mutual Confidence and one in relation to R60 (Loadcells), are the first to be developed using the OIML Mutual Acceptance Arrangement (MAA) framework.

The OIML MAA offers manufacturers:

- a "one-stop testing" process for type approval worldwide;
- better information at the beginning of the process when deciding on tests to be performed
- recognised confidence in test results
- the use of Type Evaluation Reports for type approval also in countries where national regulations are not fully aligned with OIML Recommendations; and
- an accelerated type approval process

MAPSS has been accepted as an OIML Issuing Authority in relation to non-automatic weighing instruments. To date the following testing laboratories have been assessed and accepted as OIML Issuing Authorities in this category:

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Country	Issuing Authority	Testing Laboratories
Australia	NMI (National Measurement Institute of Australia)	NMI, National Measurement Institute of Australia
China	AQSIQ, General Administration of Quality Supervision, Inspection and Quarantine	NIM, National Institute of Metrology
France	LNE, Laboratoire National de Métrologie et d'Essais	LNE, Laboratoire National de Métrologie et d'Essais
Japan	NMIJ/AIST, National Metrology Institute of Japan	NMIJ/AIST, National Metrology Institute of Japan
Korea (R.)	KATS, Korean Agency for Technology and Standards	MPI, Korea Machinery-Meter and Petromechanical Testing and Research Institute
New Zealand	MCA/MAPSS, Ministry of Consumer Affairs/ Measurement & Product Safety Service	MCA/MAPSS, Ministry of Consumer Affairs/ Measurement & Product Safety Service
Slovakia	SLM, Slovak Legal Metrology (Banská Bystrica)	<ul> <li>SLM, Slovak Legal Metrology</li> <li>EVPU, Elektrotechnick v skumn a projektov stav</li> </ul>

In practical terms, the R76 Declaration of Mutual Confidence means that any non-automatic weighing instruments tested in New Zealand by MAPSS, to the requirements of Recommendation R76 and in accordance to the declaration, will be accepted in the signatory economies without the need for further testing. The current signatories are listed over. More economies are expected to join this declaration in the future.



Committee of Participation Review Meeting, Sydney 2006. Attended by Stephen O'Brien, Senior Advisor, MAPSS.

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#### **Current Signatories**

Country	Identity of Participants and Associates			
Australia	NMI, National Measurement Institute of Australia			
Bulgaria	SAMTS, State Agency for Metrology and Technical Surveillance			
Canada	Measurement Canada			
China	AQSIQ, General Administration of Quality Supervision, Inspection and Quarantine			
France LNE, Laboratoire National de Métrologie et d'Essais				
Israel	Ministry of Industry and Trade			
Japan	NMIJ/AIST, National Metrology Institute of Japan			
Korea (R.)	KATS, Korean Agency for Technology and Standards			
New Zealand	MCA/MAPSS, Ministry of Consumer Affairs/Measurement & Product Safety Service			
Russian Federation	VNIIMS, Russian Research Institute for Metrological Service			
Saudi Arabia	SASO, Saudi Arabian Standards Organization			
Serbia	ZMDM, Bureau of Measures and Precious Metals			
Slovakia	SLM, Slovak Legal Metrology (Banská Bystrica)			
South Africa	SABS, South African Bureau of Standards – Legal Metrology Department			
UK NWML, National Weights and Measures Laboratory				

The OIML MAA is certainly an additional tool which will make access to the global market easier for manufacturers, in particular because its scope is wider than that of existing bilateral and regional mutual acceptance/recognition agreements.

This declaration compliments agreements that have been in place for sometime for the mutual acceptance of type approval test reports with the National Weights and Measures Laboratory of the United Kingdom and the National Measurement Institute<sup>2</sup> of Australia.

New Zealand has a number of innovative manufacturers of weighing instruments that are trying to identify and access new markets and take advantage of international opportunities. The fact that MAPSS can issue internationally recognised OIML type approval certificates in New Zealand represents a significant cost saving and establishes international credibility for their products.

<sup>2</sup>Formally known as the National Standards Commission



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