Volume measurements: Fuel dispenser performance study
The Organisation Internationale de Métrologie Légale (OIML), established 12 October 1955, is an inter-governmental organization whose principal aim is to harmonize the regulations and metrological controls applied by the national metrology services of its Members.

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OIML meetings, New Members, Committee Drafts received by the BIML
This edition of the OIML Bulletin is the first to be published online only, following a conclusive survey among the OIML Membership which identified a clear consensus to move to a digital only format and only print one paper edition per year from now on, in January of each year. Not only does this mean we make substantial cost savings but we are also proud to reduce our environmental footprint. This ties in wholly with work the OIML is undertaking in developing new Recommendations focusing on the environment, for example, soot participle measurement.

In this issue, we publish a collection of reports on recent international meetings that members of the BIML staff have attended. Although the BIML remains a relatively small structure (nine permanent employees and one secondee), we continually strive to optimise the ways in which we interact with other entities at the regional and international levels and how we can contribute to realising the OIML’s mission statement.

Recently, BIML staff have participated in meetings of the APLM, COOMET, WELMEC and GULFMET. We were also present in New York for the Sixth Meeting of the International Partnership on Regulatory Cooperation in April 2019; this was a key opportunity to meet and discuss with other international organisations and to evaluate ways of furthering mutual cooperation.

We also report on the recent OIML-CS Management Committee meeting, the WTO TBT meeting and the CABUREK Workshop.

As a partner in the International Network on Quality Infrastructure (INetQI), the OIML was asked by UNIDO to participate in a panel discussion on the theme “Good governance and quality policy dialogue – building strong foundations for a robust quality infrastructure”. The OIML also represented the BIPM on this occasion and a full report is published in this edition.

To widen our communication channels and “move with the times”, the OIML has developed a LinkedIn page* where short summaries of key international meetings are regularly published. This new outreach is proving very popular and we have recently gained many new followers.

We hope you enjoy this edition of the Bulletin and – as ever – welcome feedback to the articles it contains, and original contributions that will contribute to increasing global awareness of legal metrology.

See you on LinkedIn!

* https://www.linkedin.com/company/organisation-internationale-de-metropologie-legale
Abstract

Like any type of measuring instruments used for commercial transactions, fuel dispensers, commonly known as petrol pumps, are submitted to metrological control in order to ensure adequate consumer protection and guarantee accurate measurements to society in general and citizens in particular, the verification being directly linked with the volume measurement of the delivered fuel.

In Portugal, fuel dispensers approved under the MID are subject to in-service metrological control. They are verified annually by the verification bodies, following the procedures defined by IPQ, according to specific national regulations.

Presently there are 45,000 fuel dispenser hoses in Portugal, verified by several verification bodies which are evenly distributed over the national territory.

In order to evaluate the influence factors in volume error determination of fuel dispensers, a study using standard test measures of different types, materials and volumes was designed and implemented. The uncertainty of the volume determination was evaluated according to the GUM methodology, considering different atmospheric conditions, volume variation over time, different fuel types and determination of the error in different types of standard test measures.

There was some difference in performance and error determination when using different standard test measures, but in all implemented tests, the maximum permissible error was not exceeded.

The results allowed the internal procedure to be simplified while maintaining the accuracy of results.

1 Introduction

Metrological verification of some measuring instruments, such as petrol pumps (SMDCs), water meters, meters for liquids other than water, gas meters and fluid storage tanks is directly related to volume measurement.

In particular, with respect to SMDCs, it is necessary to use appropriate methods and standards for the determination of the volume of these measuring instruments subject to metrological control [2], [3], to guarantee the accuracy of the measurements.

Graduated standards capacity (RVG) measures between 2 L and 50 L, with removable scale, are the standards used in determining the volume of SMDCs. Over time, these measures have undergone a technical evolution evidenced both by a better resolution and by the type of material with which they are constructed.

The calibration of the RVG may be carried out by the gravimetric method, according to ISO 4787 [4], or by the volumetric method, using the procedure described in the EURAMET cg - 21 [5] guide, depending on the accuracy of the required measurement and uncertainty.

The SMDCs are subject to annual legal metrological control, carried out by entities recognized and qualified by the Portuguese Institute for Quality (IPQ), using calibrated volume standard measures and the IPQ Technical Procedure PT1039107501. The metrological control of these measuring instruments is defined in the Ordinance nº 19/2007 [6], with a maximum permissible error (MPE) of 0.5 % for these instruments.

2 Experimental conditions and equipment

In this experimental study, a SMDC from ABA CODEISA was chosen with a resolution of 0.01 L. The tests were conducted in the south of Portugal, mainly in Almodôvar (Figure 1).

Three types of standard test measures were used to determine the error of the SMDC. Two types of RVG were made of carbon fiber - CFX (Fig. 2a) and PWLite (Fig. 2b) and one made of Stainless Steel (Fig. 2c). The tests were performed at 20 L and 5 L.

The environmental conditions of the tests are described in Table 1.

3 Volume and uncertainty calculation

The equation used to determine the volume of the SMDC at 20 °C is as follows:

\[ V_{20} = V_t[1 + \gamma(20 - t)] \]  

where \( \gamma \) is the coefficient of the cubic thermal expansion of the RVG and \( t \) is the temperature of the test liquid.
The uncertainty components associated with the volume determination of the fuel dispensers are:

- uncertainty of the RVG;
- RVG resolution;
- SMDC resolution;
- uncertainty in reading the meniscus;
- liquid temperature;
- expansion of the material of the RVG.

An example for uncertainty calculation of the SMDC volume determination using a 20 L CFX measure can be found in Table 2.

The uncertainty component with the greatest influence on the determination of the volume of SMDCs is the resolution of the measuring instrument (SMDC). In the case of PWLite and stainless steel equipment, the resolution of the RVG and the value of its calibration are also relevant.

4 Results

In order to evaluate the influence of factors such as environmental conditions (air temperature and humidity), fuel temperature, evaporation and fuel type in the measurement of the volume of the SMDC, the following tests were performed:

- determination of the SMDC error at different atmospheric conditions, in different months of the year (reproducibility);
- determination of the repeatability of the assay, with different types of RVG;
- determination of the volume variation over time (evaporation study).

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<td><strong>Air temperature (°C)</strong></td>
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<td><strong>Gasoline temperature (°C)</strong></td>
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<td><strong>Diesel temperature (°C)</strong></td>
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Figure 1 SMDC used in the tests

Figure 2

a) Left: CFX standard test measure  
b) Centre: PWLite measure  
c) Right: Stainless steel measure
In the evaluation of results, a significant variation is considered if when comparing the errors obtained they are outside the uncertainty of each test.

The error indicated in the following figures is obtained by the difference between the read value in the RVG scale and its nominal value.

For the repeatability values, each point corresponds to only one test.

4.1 Reproducibility test results - Figures 3 and 4

When analyzing the results, it can be observed that the values obtained in November for gasoline are visibly lower than in other months since it was very windy, which caused a higher rate of evaporation and therefore a lower volume. With diesel, this effect is not so pronounced.

4.2 Repeatability tests - Figures 5 and 6

In Figures 5–6, it can be seen that there is only some variation between the dry and the wet results obtained in the tests of the 20 L stainless steel and the PWLite RVG. The consecutive repeatability tests with a wet RVG do not show any variability in the results, for both diesel and gasoline.

4.3 Volume variation with time and temperature test (evaporation study) - Figures 7 and 8

During the evaporation study for the two fuels, the liquid temperature increased by 2 °C in 20 minutes. There was also an increase in the volume of gasoline and diesel, especially in the stainless steel and PWLite RVG, which is due to their open neck characteristics, which means that they are more subject to variations in atmospheric conditions. The fact is that an increase in volume with temperature results from the expansion of the liquid (0.0009 °C⁻¹) which is much higher than the expansion of the material (0.000001 °C⁻¹ for carbon fiber and 0.000048 °C⁻¹ for stainless steel).
There are also some situations of increase or decrease in volume with temperature due to the expansion of the liquid, and in the case of diesel, the volume variation with the atmospheric conditions is not so significant.

It was also established that no case exceeded the maximum permissible error of the SMDC, 0.5%, which meant that the verified SMDC would be approved at any time of the year, regardless of the atmospheric conditions or RVG used.

5 Conclusion

Several performance tests were carried out on the same petrol pump, in different months, using standard test measures with different characteristics. The objective of this study was to verify the influence factors in the determination of the volume that should be considered relevant in the metrological verification of SMDCs.

By analyzing the obtained results, it was verified that the RVG CFX is not affected by any change in the type of liquid used, temperature or test, dry or wet.

No significant differences were identified between consecutive repeatability tests in wet RVG, even with liquid temperature variations greater than 0.5 °C.

It was concluded that for air temperature values between 16 °C and 30 °C and for humidity values between 27 % and 65 %, in no case was the maximum permissible error of the SMDCs (0.5%) achieved and therefore no rejection of the result was obtained.

In the evaporation test, some variation in volume was observed, especially for gasoline in the stainless steel and PWLite RVG, which is due to their open neck characteristics. However, evaporation or condensation of liquid, where relevant, only occurs after 5 minutes (operator cannot be expected to wait 5 minutes to read the meniscus).

The study of volume variation over time revealed that in very windy situations the results obtained are much smaller. There are also some situations of increase or decrease in volume with temperature due to the expansion of the liquid, and in the case of diesel, the volume variation with the atmospheric conditions is not so significant.

It was also established that no case exceeded the maximum permissible error of the SMDC, 0.5%, which meant that the verified SMDC would be approved at any time of the year, regardless of the atmospheric conditions or RVG used.

References

1 Introduction

The Norwegian fishing industry is an important part of the national economy with regard to the export value it represents, and is also important for the coastal communities. It has been a part of Norwegian history for centuries and is equally important for the future. Norway shares approximately 90% of its fish stocks with other nations and 95% of Norwegian seafood is exported to some 140 different countries worldwide.

As a fishing nation, it is of great importance for Norway to be able to ensure the sustainable management of its fishery resources. One important element in such a strategy requires weighing systems that can provide information in a secure and trustworthy manner, since fishery products are a high-value trade commodity. In addition, landing figures (including the fishing mortality rate) are an important element for scientists when performing stock assessment and giving advice regarding quotas.

Regarding wild stocks, the Norwegian fishing industry can be divided into two main types of fisheries:
- fishing for pelagic species (the pelagic sector) where the main species are mackerel, herring, blue whiting, and capelin; and
- fishing for demersal species (the whitefish sector) where the main species are cod, haddock, saithe, Greenland halibut and redfish.

Weighing in these two sectors presents different challenges. The fleet structure for these two sectors is different in terms of the number and size of the vessels; the fishing areas and number of landing facilities for the two sectors are described below.

1.1 Pelagic sector

The Norwegian pelagic industry started to use belt weighers in the mid-90's. In 2018 approximately 1 300 000 T of the pelagic species were caught in Norway. Approximately 790 000 T were weighed using belt weighing systems and the remainder (510 000 T) was weighed for industrial purposes using batch weighing systems. The first-hand sale value of this quantity represents 6.9 billion NOK (718 million €). In the pelagic sector, there are only fresh landings, landed by a “limited” number of vessels. However, the landed quantity could be up to 2000–2500 T per landing. The processing capacity can be up to 80 T of fish per hour for human consumption and 180–200 T per hour for industrial purposes.

1.2 Whitefish sector

In 2018 the Norwegian whitefish sector landed in total approximately 900 000 T with a first-hand sale value of 12–12.5 billion NOK (1.24–1.29 billion €). The weighing equipment in use mainly consists of platform scales or batch weighing systems. The fish landed are either fresh or frozen, and the number of landings is more than ten times higher than in the pelagic sector. The quantities landed vary from just a few kilos to hundreds of tons per landing. The hourly capacity is much lower than for the pelagic sector and varies.

Regarding the value of the catches, every single fish in the whitefish sector has a significantly higher value than fish in pelagic sector. Nevertheless, in summary, the fishing industry today uses different solutions to weigh landed catches such as belt weighing systems, batch weighing systems and platform scales.

2 Measurement quality

A weighing system for weighing fish usually consists of:
- a weighing instrument (e.g. a discontinuous totalizer hopper weigher, belt weigher, non-automatic instrument);
- various types of transport systems for fish before and after the weighing instrument; and
- additional control systems for the transport device and the weighing functions (e.g. electrical, hydraulic, pneumatically controlled connections and/or PLC-systems).

1 See OIML Bulletin Vol. XXXVIII, no. 4, October 1997, pp. 24-28
Weighing instruments and additional control systems can be connected to external computer systems for presentation and storage of weighing data and system status.

Weighing instruments used in the fishing industry are generally mounted in receiving lines with transport systems for feeding the fish to the weighing instrument and for the further transport of weighed fish into the production facilities. Feeding of the fish to the weighing instrument and their transport after weighing are often controlled by external control systems with signals from the weighing instrument.

The weighing instruments used in Norway when landing pelagic species for human consumption purposes are, in most cases, belt weighing instruments. When landing fish for industrial purposes, automatic batch weighing instruments (discontinuous totalizer hopper weighers) are used.

For landing white fish, both non-automatic and automatic weighing instruments are used. Automatic weighing instruments used for white fish can either be batch weighing instruments (discontinuous totalizer hopper weights) or automatic graders (automatic catch-weighing instruments). In addition, the grader has functions for summing up the individual weighing of single fish to calculate the quantity received. A large part of the quantity of fish received from the boat is weighed on non-automatic instruments with manual functions for summing up individual weighing for determining the total landed quantity from each catch.

The accuracy and quality of the measurements produced by the weighing instruments used are based on the requirements laid down in the current instrument’s type approval with reference to requirements in the regulations and OIML Recommendations for the specific instrument type (e.g. OIML R 50, R 107.) In order for this quality and accuracy to be achieved, the weighing system must be used correctly and any errors, faults or defects with the systems must be continuously detected and corrected.

Experience from the control authorities shows that the requirements that apply to the various instrument types do not sufficiently ensure that the desired quality and accuracy of the measurement results is achieved when the instrument type is used for landing fish.

Automatic weighing instruments can easily be misused in different ways, or functions that influence the weighing can be disabled or bypassed through electrical, hydraulic, pneumatically controlled connections or through connected control systems.

Belt weigher instruments should have functions that prevent the in-feeding of fish if for various reasons the belt weigher cannot register the quantity or if the zero-setting is incorrect or not performed regularly during use.

Batch weighing instruments (discontinuous totalizer hopper weighers) used for landing pelagic fish for industrial purposes are usually connected to external control systems (PLCs) which are not covered by the weighing instrument’s type approval certificate. Central weighing functions (e.g. opening/closing of weighing hatch/dampers) can be controlled via this type of PLC system and in some cases remotely accessed from external overall computer control systems. PLC systems are open systems with limited protection against unauthorized changes in software and features. Functions in PLC systems that affect weighing can easily be changed and customized as desired without the need to break any sealing or tracking of changes.

Batch weighing instruments used for whitefish are in most cases not connected to PLC systems or overall computer control systems. Critical weight functions (e.g. opening/closing of the weighing container) on these instruments are often controlled by signals from the weighing indicator via adapted controls and coupling cabinets (e.g. electrical or pneumatically controlled connections) to the weighing instrument.

In most cases, coupling cabinets, wiring and connections of controls to actuators or other parts of the weighing instrument are not fully described in the type approval certificate. Critical controls, wiring and connections are normally not satisfactorily secured against modification or misuse.

In a few cases, newer weighing instruments have features and capabilities for storing weighing results and parameter changes in a protected and safe manner.

In order to be able to verify whether the quantity of fish received is correct and whether the weighing systems are used correctly, it is necessary to introduce requirements for safe storage and reporting of weighing results and parameter changes to the control authorities.

3 Experience gained

Malicious manipulation of weighing systems may be accomplished through simple mechanical methods, critical weighing functions may be overridden or bypassed, or more sophisticated approaches may be employed which could involve software programs and remote access to weighing instruments.

The control authorities in Norway have made several observations where weighing instruments have been manipulated or are at risk of being manipulated or used in such a way that the weighed and reported quantity of landed fish has been wrong.

Some examples of methods of manipulation and incorrect use of weighing instruments are given below.
3.1 Belt weighing instruments used for landing of pelagic species for human consumption

- Manipulation of the free movement of a weighbridge by using:
  - Wooden wedges (stopping or preventing movement on the weighbridge)
  - Plastic pieces (stopping or preventing movement on the weighbridge)
  - Broomsticks or similar (stopping or preventing movement on the weighbridge)

- Bypass or override of the "stop function":
  - Belt weigher indicator turned off (i.e. no registration of fish on the belt)
  - Forcing start-up of the weighing belt – bypass connections (electrical cabinet / connections)
  - System used as a conveyer belt for transporting fish

- Use of the belt weigher with errors at zero point - continuous weighing error:
  - No regular zero-setting or taring when zero is changing
  - Deliberate manipulation / moving of the zero point - applying weighing error

- Use of the belt weigher with the wrong fish flow:
  - The speed of the fish is faster than the speed of the weighing belt – part of the fish flow is therefore not weighed
  - Use of weights outside the approved capacity range ($Q_{\text{min}} - Q_{\text{max}}$)

- Changing setup and parameters in protected weighing software (access via broken seal or by entering protected menus that causes a break in the sealing):
  - Changing gain factor
  - Changing internal zero/zero-setting time
  - Most systems do not log changes of parameters and setup (i.e. no event log)
3.2 Batch weighing instruments (discontinuous totalizer hopper weights) used for landing pelagic fish for industrial purposes

- Bypass or override the “critical weighing function” from external PLC control systems:
  - Forcing opening of weighing hatch/dampers locally and/or remotely via a PC/tablet
  - “Open” PLC system – control of critical weighing functions can be customized and changed without the possibility for control authorities to see or track changes

- Bypass or override the “critical weighing function” via electrical, hydraulic, pneumatically controlled connections and/or units:
  - Forcing opening of weighing hatch/dampers via wiring and connections
  - Electrical cabinets, wiring and connections on actuators are not protected against changes and misuse

- Missing the summation function in the type approved certificate and presentation of total weighed quantity:
  - Summary of weighing (batches) is realized in the PLC system or external overall computer control systems. No approved totalizing function or presentation of weighing results

3.3 Batch weighing instruments (discontinuous totalizer hopper weights) used for landing whitefish

Bypass or override “critical weighing function” via electrical or pneumatically controlled connections and/or units:

- Forcing opening of weigher hatch/dampers via wiring and connections
- Electrical cabinets, wiring and connections on actuators are not protected against changes and misuse

4 Additional requirements

The Directorate of Fisheries has seen the need for improved technical requirements and additional features beyond what is required by the national metrology regulations that were the basis for type approval of the weighing systems. The Directorate of Fisheries has demanded some additional requirements such as for a total counter and a slave display. It also set requirements for stop function when an error is detected or if the zero-setting is missing in addition to the requirements for protection of the weighing system control functions. Some of the additional technical
Figure 4  Batch weighing instrument (discontinuous totalizer hopper weigher) used for landing pelagic fish for industrial purposes. PLC control system with wiring closet and overall computer control system

Figure 5  Batch weighing instrument (discontinuous totalizer hopper weighers) used for landing pelagic fish for industrial purposes. Weighing unit with double weighing containers - hydraulic cylinder for opening damper/hatch - hydraulic control valves
requirements that the Directorate considered necessary are also included and described in the national type approval of some of the weighing instruments provided by the Norwegian Metrology Service.

5 Future possibilities regarding new requirements in OIML R 50 and R 107

Sealing/securing of legally relevant components and modules in its basic form provides proof that some settings may have changed within the instrument; this is commonly achieved with physical sealing or by form of an electronic counter or checksum.

There are some challenges regarding sealing and securing of components for weighing instruments used in the fishing industry, particularly belt weighers (OIML R 50) and discontinuous totalizer hopper weighers (R 107).

Subclause 4.3.7 in R 50 and subclause 3.3 in R 107 describe the securing and sealing of components and pre-set controls. Components, interfaces and pre-set controls subject to legal requirements that are not intended to be adjusted or removed by the user shall be fitted with a securing means or shall be enclosed. When they are enclosed, it shall be possible to seal the enclosure. The seals shall, in all cases, be easily accessible. Adequate securing shall be provided on all parts of the measuring system which cannot be materially protected in any other way against operations liable to affect the measurement accuracy.

OIML R 50, 2.2.10 and R 107, 5.1.4 define modules. Mechanical parts of the belt weigher are regarded as modules. Securing of modules and components should include mechanical modules, hardware and software. In R 50 it is not clearly defined if the mechanical modules should be secured/sealed or which components should be sealed.

In Norway we have experienced the fact that those mechanical modules which are not intended to be adjusted are adjusted without any evidence of such, or the instrument has not detected system faults. This is a weakness of the instrument.

Other challenges regarding the exciting form for component sealing are that the seals do not provide information about which setting or parameter (if any) has been changed, or whether there have been multiple changes, and when the changes were made. Having this information would significantly increase the information available when doing surveillance and would add to the level of protection.

The Fisheries Control Authorities in Norway strongly advocate that an event log should be mandatory for scales used for weighing fish when discharging the catch from a fishing vessel takes place, as this is an area where each measuring instrument accounts for large economic transactions and where the risk is considered to be high. There have been incidents of manipulation and fraud while using scales.
It can be argued that without event logging, the scales do not provide sufficient protection against misuse.

These instrument categories generally measure large volumes. Considering the unit cost and the exposure to risk, the requirement for event logging does appear to be both a proportionate and a sensible measure for any instrument in one of the above-mentioned categories.

As a solution for these challenges, we believe that including an event log in the software for belt weighers (R 50) and automatic discontinuous totalizers (R 107) is necessary. In addition, it is necessary to clarify which part of the mechanical components should be sealed.

6 The need for mandatory requirements for audit trail and data storage devices

The fish that are weighed on the belt weigher (or discontinuous totalizer) cannot be weighed again after the first weighing process has ended. This is because the fish that have been weighed are delivered in bulk and will change in their nature.

For both automatic belt weighers (R 50) and automatic discontinuous totalizers (R 107), during the weighing process it is not possible for all parts that are involved in the transaction to be present. This situation make it difficult to check if the whole weighing process has been performed correctly.

In OIML R 50-1, 5.7 and in OIML R 107, 3.5 it is stated that the instrument may have a data storage device. This requirement is not mandatory.

One possible solution is to require a data storage device for R 50 and R 107. In this way, it is possible to check the traceability of measurement data.

References

OIML R 50:2014 Continuous totalizing automatic weighing instruments (belt weighers)
OIML R 107:2007 Discontinuous totalizing automatic weighing instruments (totalizing hopper weighers)
The WELMEC Committee held its 36th meeting in Brno, Czech Republic from 10 to 12 April 2019.

The meeting was hosted by the Czech Metrology Institute (CMI), and was attended by 27 members (plus 5 proxies) together with representatives from EURAMET, OIML, NoBoMet and the European Union. The BIML was represented by Luis Mussio.

Three resolutions were taken related to WELMEC Guides (Revised, New and Withdrawn), as below.

Revised Guides:
- Guide 6.1: Definition of terms
- Guide 7.2: Software
- Guide 10.2: Devices for Transferring Measured Quantities (DTMQ) associated to bottom loading measuring systems
- Guide 10.8: Guide for common application of MID Annex VII (MI-005) and OIML R 117-1 (R 81, R 80, R 139)
- Guide 10.10: Guide on evaluation of Purely Digital Parts

New Guides:
- Guide 7.3: Reference Architecture – Based on Guide 7.2
- Guide 7.4: Exemplary Application of Guide 7.2
- Guide 10.11: Compatibility Sheet
- Guide 10.12: Testing Meter Sensors
- Guide 10.13: Guide for minimizing fraudulent use and unintentional misuse for measuring systems on road tankers
- Guide 7.2: Software, Parts 10.2 and 10.3

Withdrawn Guides:
- Guide 10.1: Guide for Pattern Examination
- Guide 10.4: Guide for Testing of Electronic Calculators with Conversion Function and Conversion Devices

Another key topic discussed during the meeting was the creation of WELMEC e.V., making WELMEC a legal entity. The Committee agreed that WELMEC e.V. should reflect today’s decision that WELMEC is an organisation that represents all European Legal Metrology Authorities, while recognising the special tasks associated with implementing EU policies and legislation. It instructed the Project Group to draft the appropriate Byelaws and to circulate them among the Committee Members. It also instructed the Chair to seek approval of the Byelaws by the competent authorities in Germany, and approved the principle of transferring the assets remaining at the termination of the WELMEC MoU to WELMEC e.V.

New authorities were elected: Pavel Klenovský was elected as future Chair; he will join the Chairperson’s Group as Chair-elect. Ulrike Fuchs was elected for a second term as Vice-Chair; and Zijad Dzemic (BH), Marc Wouters (BE), Tuomo Valkeapää (FI) and Wilfried de Waal (NL) were elected as members of the Chairperson’s Group.

Lastly, it was decided that the next Committee meeting be hosted by the PTB from 22–24 April 2020 in Braunschweig (DE). The Committee thanked Dirk Ratschko (PTB) for the invitation.

For more information on WELMEC and to download the Committee resolutions:

https://www.welmec.org
Introduction

There are six Regional Legal Metrology Organisations (RLMOs) in liaison with the OIML:
- Asia-Pacific Legal Metrology Forum (APLMF)
- Euro-Asian Cooperation of National Metrological Institutions (COOMET)
- European Cooperation in Legal Metrology (WELMEC)
- Gulf Association for Metrology (GULFMET)
- Intra-African Metrology System (AFRIMETS)
- Sistema Interamericano de Metrologia (SIM)

In conjunction with each CIML meeting, a meeting of the RLMO Round Table takes place. The RLMO Round Table acts as a network and a forum for information sharing between the RLMOs, and is a group that has a role in initiating actions and as a source of advice and feedback for the OIML.

At the RLMO meeting in October 2018 there was a discussion on the role that the RLMOs can play in promoting and raising awareness of the OIML Certification System (OIML-CS).

Workshop

Following the discussion at the RLMO Round Table meeting, and to support the aim of promoting and raising awareness of the OIML-CS in the region, GULFMET proposed that a Workshop on the OIML-CS be held in conjunction with the 2019 GULFMET General Assembly in Muscat, Oman.

The objectives of the Workshop were to enable participants to:
- understand the benefits of the OIML-CS,
- determine how the OIML-CS can support their economy to implement, or further develop, a national type approval system,
The Asia-Pacific Legal Metrology Forum (APLMF) celebrates 25 years of legal metrology improvement

The Asia-Pacific Legal Metrology Forum (APLMF) is a regional grouping of legal metrology authorities whose objective is the development of legal metrology and the promotion of free and open trade through the harmonisation and removal of technical or administrative barriers to trade in the field of legal metrology.

The vision of the APLMF is to be an effective, representative, professional forum, that provides leadership and networks that build and grow close cooperation amongst members in advancing the field of legal metrology. The APLMF forms a practical link to the work of the OIML and promotes implementation and harmonisation with OIML Recommendations and Documents within the Asia-Pacific region.

The APLMF is also recognised as a Specialist Regional Body (SRB) within the Asia Pacific Economic Cooperation (APEC) and works in liaison with the other Specialist Regional Bodies that form the Regional Quality Infrastructure (made up of organisations responsible for Standards, Accreditation and Metrology) to support the achievement of APEC goals and work priorities.

All APEC member economies and members of APEC sub-fora are eligible to become APLMF members. At present, there are 27 APLMF member economies including 20 Full Members (Australia, Brunei Darussalam, Cambodia, Canada, PR China, Hong Kong, China, Indonesia, Japan, Kiribati, Republic of Korea, Malaysia, Mongolia, New Zealand, Papua New Guinea, Philippines, Singapore, Chinese Taipei, Thailand, USA and Viet Nam) and 7 Corresponding Members (Chile, Colombia, DPR Korea, Lao PDR, Russia, Mexico and Peru).

The APLMF Presidency and Secretariat has been hosted by New Zealand’s Trading Standards within the Ministry of Business, Innovation and Employment (MBIE) since October 2015. During this time the APLMF has developed and worked to deliver a 5-year strategic plan 2017–2021 which can be viewed at: https://www.aplmf.org/strategic-plan.html. The organisation is making significant progress on its key objectives: Capability development, Improved Organisational Systems and International Representation and Collaboration.

Training and regional development are key priority areas for APLMF activity and much of this work is currently delivered through the Metrology Enabling Developing Economies in Asia (MEDEA) project which is managed by the Physikalisch Technische Bundesanstalt (PTB) and funded by the German Federal Ministry for Economic Development and Cooperation. MEDEA aims to foster and further develop the capabilities of the Asia-Pacific Metrology Programme (APMP) and APLMF to better support developing economies in the Asia-Pacific region. Further information on this project and on the APLMF’s training activities can be seen at: https://www.aplmf.org/training-overview.html

In November 2018 the APLMF reached the significant milestone of its 25th year of operation and held the 25th APLMF Forum meeting in Christchurch, New Zealand. The forum was attended by 53 delegates.
The 9th COOMET Committee meeting was held on 3-4 April 2019 in Dresden, Germany. Specialists from 16 countries (Armenia, Belarus, Bosnia and Herzegovina, Germany, Georgia, Kazakhstan, China, Cuba, Kyrgyzstan, Lithuania, Moldova, Russia, Slovakia, Tajikistan, Uzbekistan, Ukraine) took part in the event, as well as representatives of international metrology organizations (Bureau International des Poids et Mesures – BIPM, International Organization of Legal Metrology - OIML) and representatives of regional metrology organizations (EURAMET, WELMEC and APMP).

Representatives of the State Etalons Centre of the Major State Service “Turkmenstandartlary” attended the meeting as guests.

The meeting agenda, working documents and presentations can be found on the COOMET website.

https://www.coomet.net/organization/coomet-committee/29th-coomet-committee-meeting/
The OIML, represented by BIML Director Anthony Donnellan, participated in the sixth meeting of the Partnership of international organisations for effective international rulemaking in New York on 10 April 2019.

The objective of the meeting was to progress the work and initiatives of the IO Partnership and the establishment of new initiatives for collaboration to drive efficacy at an international level.

One highlight of the meeting was the launch of the Brochure *The Contribution of International Organisations to a Rule-Based International System* by the OECD Secretary-General Angel Gurría. The Brochure builds on and synthesises the results of a collective effort of some 50 secretariats of IOs working together since 2014 on the quality of international rulemaking. It highlights key features of the international rulemaking and standard-setting landscape, sheds light on how international rulemaking functions, and identifies areas where both IOs and countries could take steps to improve the results.

The OIML’s participation in such events (with 50 other International Organisations) demonstrates how IOs can learn from and add value to each other’s operations.

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**The IO Partnership in a nutshell**

In the spring of 2017, 45 secretariats of IOs agreed on collective action to promote greater quality, effectiveness and impact of international rules. The IO Partnership is a flexible and cross-sectoral initiative that brings together a wide variety of organisations involved in international rulemaking in different fields of expertise. It currently comprises 53 secretariats of IOs: 45 participants and 8 observers. The initiative also invites contributions from a broad range of stakeholders, including governments, private sector, and academia.

Key features:

- Annual meetings to foster dialogue on shared challenges and support common understanding on practices in international rulemaking.
- A collaborative workspace through an e-platform facilitates exchange of practices and experience.
- Five working groups led by focal points addressing in-depth issues.
- work following the OECD’s long standing method of peer exchange and evidence-based analysis.
- A group of Academic Friends of the IO Partnership to harness expertise and research of relevant academics.

* Source: Brochure *The Contribution of International Organisations to a Rule-Based International System*
It is also important as it demonstrates regulatory cooperation and collaboration between IOs to work towards minimising the complexity for national economies, reducing TBTs and harmonising international rules to enhance free trade and economic development.

The OIML was acknowledged in the Brochure as an example of good international regulatory cooperation.

The meeting provided an opportunity to discuss matters relating to current challenges faced by IOs and to develop strategies to combat them and to evolve in a fluid environment. Existing relationships with IOs were also solidified and new relationships cultivated.

The lessons learnt from participating in such multilateral collaborative activities flow through to OIML Member States through reduced duplication of regulatory activities and coordination of reform initiatives.

The OIML’s work with the OECD IO Partnership continues the work of previous CIML Presidents and BIML Directors.

Year of establishment of 65 IOs connected to the IO Partnership
Source: Brochure The Contribution of International Organisations to a Rule-Based International System

Delegates attending the IO Partnership meeting in New York
Photo © Nina Wurtzel
The WTO TBT Committee normally holds three formal meetings per year. These are frequently preceded by workshops or thematic sessions. On this occasion, the regular meeting of the TBT Committee was preceded by thematic sessions dedicated to Good Regulatory Practice and Conformity Assessment Procedures, held on 5 March 2019.

A representative of the BIML attends the regular meetings and is given the opportunity to present a brief report on activities of the OIML which are of interest to members of the TBT Committee. This usually consists of three to four points of the OIML’s work which have been significant since the previous meeting. The OIML is also sometimes asked to speak at the thematic sessions held in association with the TBT Committee meetings, as well as at regional events organised by the secretariat of the TBT Committee.

The agenda for this meeting included the following items:

1. Adoption of the agenda
2. Implementation and administration of the Agreement
   (A) Statements from Members under Article 15.2
   (B) Specific Trade Concerns
      - New and previously raised concerns
      - Reported resolutions
   (C) Exchange of experiences
      - Good regulatory practice
      - Conformity assessment procedures
   (D) Follow-up on Committee decisions and recommendations
      - Transparency
   (E) Other matters
3. Twenty-fourth annual review
4. Technical cooperation activities
5. Updating by Observers
6. Election of the chairperson
7. Other business
8. Date of next meeting

About the WTO TBT Agreement

The Technical Barriers to Trade (TBT) Agreement aims to ensure that technical regulations, standards, and conformity assessment procedures are non-discriminatory and do not create unnecessary obstacles to trade. At the same time, it recognises WTO members’ right to implement measures to achieve legitimate policy objectives, such as the protection of human health and safety, or protection of the environment. The TBT Agreement strongly encourages members to base their measures on international standards as a means to facilitate trade. Through its transparency provisions, it also aims to create a predictable trading environment.

The work of the TBT Committee involves two broad areas:

Review of specific measures

WTO members/observers use the TBT Committee to discuss specific trade concerns (STCs) – specific laws, regulations or procedures that affect their trade, usually in response to notifications. Essentially, members raise STCs to find out more about the scope and implementation of each other's regulations in light of the core TBT obligations. The discussion is mostly about measures in the pipeline, but can also be about the implementation of existing measures. To date, more than 500 "STCs" have been raised which can be accessed through the TBT Information Management System (TBT IMS – www.tbtims.wto.org), the database of WTO information on TBT notifications, specific trade concerns, enquiry points, etc.

Strengthening implementation of the TBT Agreement

Members exchange experiences on the implementation of the Agreement with a view to making implementation more effective and efficient. This discussion revolves around generic, cross-cutting themes, including transparency, standards, conformity assessment and good regulatory practice.

The TBT Committee is mandated to perform annual reviews of activities relating to the implementation and operation of the TBT Agreement, including notifications, specific trade concerns, technical assistance activities, and TBT related disputes. It also conducts triennial reviews of the operation and implementation of the TBT Agreement. The Eighth Triennial Review was completed on 15 November 2018.

More information can be found on the World Trade Organisation’s website www.wto.org and the full text of the TBT Agreement can be found at: https://www.wto.org/english/docs_e/legal_e/17-tbt_e.htm
A significant portion of the meeting’s time was taken up with the discussions on the new and previously raised specific trade concerns (STCs) under agenda item 2 (B). At this meeting, 59 STCs were considered and discussed. The chairperson’s report on the previous day’s thematic sessions (agenda item 2(C)) and 24th annual review (agenda item 3) were also important items.

Representing the BIML, Ian Dunmill gave a short statement under item 5 on the following OIML activities:

1 **Activities for Countries and Economies with Emerging Metrology Systems (CEEMS)**

Brief recent history of the OIML's CEEMS structure and activities, and development of a framework document for OIML Training Centres, with the intention of expanding the programme for such training under various donor funding models.

2 **Technical work training**

Summary of the reasoning behind the last two years’ nine training courses for secretariats and conveners of OIML technical work.

Explanation that since OIML Recommendations are models for technical legislation on regulated measuring instruments, their technical relevance needs to be maintained by keeping them up-to-date as efficiently as possible. This then ensures a high degree of consumer protection as well as a level playing field and the removal of technical barriers in domestic and international trade.

3 **OIML Certification System (OIML-CS)**

Brief explanation of, and update on, the OIML-CS.

4 **New CIML First Vice-President and BIML Director**

Information was given on the recent appointment of the CIML First Vice-President and the BIML Director.

The OIML is an observer on the TBT Committee, along with the following other organisations:

- African, Caribbean and Pacific Group (ACP)
- African Organization for Standardisation (ARSO)
- Bureau International des Poids et des Mesures (BIPM)
- CARICOM Regional Organization for Standards and Quality (CROSQ)
- European Free Trade Association (EFTA)
- Food and Agriculture Organization (FAO)
- Gulf Cooperation Council (GCC) Standardization Organization (GSO)
- Intergovernmental Authority on Development (IGAD)
- International Electrotechnical Commission (IEC)
- International Monetary Fund (IMF)
- International Office of Epizootics (OIE)
- International Organization for Standardization (ISO)
- International Telecommunication Union (ITU)
- International Trade Centre (ITC)
- Latin American Association for Integration (ALADI)
- Organization for Economic Cooperation and Development (OECD)
- Southern African Development Community (SADC)
- UN Economic Commission for Europe (UNECE)
- United Nations Conference on Trade and Development (UNCTAD)
- United Nations Industrial Development Organization (UNIDO)
- WHO/FAO Codex Alimentarius Commission
- World Bank
- World Organisation for Animal Health (OIE)

A written report was also provided, which the TBT Committee secretariat then circulates to its members with the minutes of the meeting.

A WTO web page providing a short summary of the meeting can be found at

https://www.wto.org/english/news_e/news19_e/tbt_07mar19_e.htm
Introduction

The first ever International Quality Infrastructure (QI) Forum was organised by the United Nations Industrial Development Organization (UNIDO), in cooperation with the African Union Commission (AUC). It focused on the contribution of QI to the achievement of the Sustainable Development Goals (SDGs) and to the implementation of the African Continental Free Trade Agreement (AfCFTA). The Forum also showcased how the private sector can contribute to the achievement of the SDGs through the adoption of sustainability standards.

Participation

The Forum brought together around 140 participants from across Europe and Africa, including representatives of international quality infrastructure governance bodies and practitioners as well as stakeholders representing international, national and regional authorities, industry, civil society and academia.

Opening remarks

In his opening remarks, the Permanent Representative of the African Union to the European Union and the ACP Group, Ambassador, Ahmat Awad Sakine, said “QI would allow African businesses to compete abroad, to create more wealth and thus more jobs. At a time when economic relations and the globalization of trade impose the respect of international standards, it goes without saying that QI represents the key to Africa’s growth and development in a globalized world”.

UNIDO Managing Director Philippe Scholtès added that “QI is vital to verify and ensure compliance of products and services with quality standards and market requirements, and therefore to unleash potential, enhance competitiveness and create a virtuous cycle of growth to support sustainable development”.

The European Commission’s Director General for International Cooperation and Development (DG DEVCO), Stefano Manservisi, said “The EU is one of the major contributors worldwide in terms of QI and is ready to support African countries even further in their endeavour to achieve the SDGs”.

Technical sessions

The Forum set the scene for future collaboration on QI and served to identify priority interventions for the development of QI systems within the framework of the AfCFTA in support of the Third Industrial Development Decade for Africa 2016–2025 (IDDA III).

The Forum’s technical sessions focused on how to steer African regional quality infrastructure development within the AfCFTA towards the SDGs. The participants also discussed the importance of good governance and quality policy dialogue for building a robust QI.
OIML participation

As a partner in the International Network on Quality Infrastructure (INetQI), the OIML was asked by UNIDO to participate in a panel discussion on the theme “Good governance and quality policy dialogue – building strong foundations for a robust quality infrastructure”. The OIML also represented the BIPM on this occasion. The specific moderator’s question addressed to the OIML was “In investment intensive areas like metrology, partnerships becomes a necessity, how can global partnerships build trust and facilitate market access”. In addressing this point, BIML Assistant Director Ian Dunmill explained that measurement forms the backbone of all conformity assessment and is therefore a fundamental component of a quality infrastructure. His response also considered how metrology affects the lives of every individual in society, and legal metrology affects how those measurements are regulated by governments to ensure an appropriate level of confidence in all measurements used in trade, health, safety and the environment. He went on to describe how global partnerships play a key role in making the worldwide measurement system work, through the cooperation between national, regional, and international bodies. Mr Dunmill particularly highlighted the importance of the INetQI’s work on achieving a common international definition for the term “Quality Infrastructure” since no element of the Quality Infrastructure operates in isolation, and the real benefit comes from the synergies developed by the coordinated and cooperative work by all the Network’s partners.

Cooperation

Talking about how cross-sectoral cooperation has widened, Mr Dunmill took the example of EURAMET, whose work originally involved only the leading European NMI’s. Nowadays connections are a priority and the participation of non-European countries, partnerships with industry, standardisers and regulators all feature prominently and capacity building is an important element of their work.

During the same panel discussion, Bernardo Calzadilla-Sarmiento, Director of UNIDO’s Department of Trade, Innovation and Investment explained that “Good governance of quality policy development is critical to ensure QI systems fit the needs of national development and address challenges in industrial development, trade, consumer protection, environment protection and innovation. Our role is to advocate and promote the quality policy dialogue and involve government practitioners with moving the Agenda 2030 forward”.

Closing remarks

In his closing remarks, Patrick Gilabert, UNIDO Representative to the European Union and the ACP Group, said that “The Forum served as a platform to disseminate knowledge and good practices in an effort to remove trade barriers; assist SMEs’ access to better QI services; support funds mobilization for investing in QI in developing countries; provide technical assistance and tools to developing countries to allow them to connect to global value chains and international markets; and promote sustainable development to achieve SDGs”.

Participants at the QI Forum in Brussels

Panel discussion at the QI Forum
The project group OIML TC 17/SC 7/p3, Revision of R126, "Breath analyzers", met from 13–15 February 2019.

The meeting was hosted by the LNE, France and chaired by the co-conveners, Regina Kluess from the PTB and Laetitia Delette from the LNE.

The BIML was represented by Luis Mussio, technical contact for the Project Group.

40 representatives from 16 P-Members and four O-Members participated in the meeting.

Thomas Grenon (Managing Director of LNE), welcomed the participants and outlined the aims for this meeting:
- Discussion on the WD5 and Consultation Texts according to the “list of topics to be discussed” (see below);
- Resolve all pending technical issues in order to publish the 2 CD in the summer of 2019.

Luis Mussio made a short presentation of the timeframe and procedure to follow for CIML approval.

After many very fruitful discussions, only a few points were not resolved. In order to remain on track and be in a position to post a 2 CD for voting during the summer of 2019, online consultations through the PG workspace were carried out in March 2019.

Finally, there was a short presentation by Béatrice Lalère & Fanny Gantois on the EMPIR project16RPT02 "ALCOREF Certified forensic alcohol reference materials".

### Discussion topics

1) List of consultation texts to WD5- OIML R126:

- CT1 to WD5-R126 "Interfering substances": Proposal for revised 6.11.2 and 11.5.6
- CT2 to WD5-R126 "Water test": new optional disturbance “water” in 6.11.3
- CT3 to WD5-R126 "stress tests": Proposal for a new test in 6.11.3 and 11.5.7
- CT4 to WD5-R126 "Software validation": Proposal for revised software in 7.1.9.8 and 11.3.2
- CT5 to WD5-R126 "Part 3": Revised draft for test report format as Part 3 of the Recommendation
- CT6 to WD5-R126 “Annex A”: Revised annex A “General example for test gas generators
- CT7 to WD5-R126: Proposal for further optional requirements in 7.2.1.3

2) List of topics discussed in WD5 (the numbers correspond to paragraphs in the WD5):

- 3.2.16 Plateau of alcohol
- 6.11.1 Disturbances Table 3
- 6.11.3 Optional disturbances expected in specific environmental conditions
- 7.2.1.1 Printing device
- 10 Measurement uncertainty
- 11.4. Table 8, concentration of hydrocarbons in the environment
- 11.4.3.1 Table 9, variation of nominal volume
- 11.4.3.2 Table 11 gases without CO2
- 11.4.3.3 Gases in cylinders
- 11.4.4 Presumption of compliance
- 11.5.5.2 Table 8 radiated RF electromagnetic fields
- Annex B and Annex C

The meeting was hosted by Measurement Canada and was chaired by co-conveners Sowmya Ramakrishnan from NMIA and Justin Rae from Measurement Canada. Paul Dixon, technical contact for the project group, represented the BIML. Representatives from six P-Members (Australia, Canada, Germany, Netherlands, South Africa and United States) participated in the meeting.

The aim of the meeting was to review the outstanding comments that had been received on the 3 CD, with a view to developing a response to these comments and then developing a 4 CD for PG vote and comment. Paul Dixon explained the timeframe and procedure to follow for CIML approval.

After two days of fruitful discussions, the majority of the comments had been resolved and draft text had been developed in response to the comments. It is proposed that intermediate drafts will be developed for the PG to provide comments, prior to finalising the text of the 4 CD. In addition, it was agreed that a sub-group would be established to develop suitable text to address software requirements.

It is anticipated that a 4 CD will be circulated for PG vote and comment in the latter half of 2019, which should enable the revised R 129 to be submitted for CIML approval in October 2020.

The day after the meeting, participants had an opportunity to visit a manufacturer of log measuring instruments.
“CABUREK” ("Capacity Building in Technical and Scientific Organizations Using Regional Experiences and Knowledge") is an instrument developed and implemented by the PTB in cooperation with NMI partners in Latin America and the Caribbean. The experiences and methodology were systematized and the CABUREK concept was developed.

Within the MEDEA 2 (Metrology – Enabling Developing Economies in Asia) project, the CABUREK instrument is being transferred to the Asian region and is being implemented from 2018-2020.

During the Planning Workshop of the MEDEA 2 project in July 2018 in Hong-Kong, the representatives from the Economies defined the following three topics to work under the CABUREK scheme:

- Metrology awareness program
- Need analysis to implement a calibration/verification service
- Market surveillance

During the following months, the NMI's and LMAs were asked to nominate and to register participants based on their interests and plans. The MEDEA Coordination Committee identified interested and available experts to be members of the technical Committee of CABUREK and to coach the three working groups.

Mr. Guo Su of SAMR, China, who is also a Secondee at the BIML, was the coach of topic 2 for CABUREK in Asia.

During the second workshop, the participants not only reported on the progress on their Needs Assessment Phase of defining the scope of their project, but also developed a two-year operational plan with support from their coaches.

A SWOT analysis training course and an awareness-raising seminar were held during the week of CABUREK. Mr. Guo Su, on behalf of the BIML, gave a presentation on the OIML and its benefit to audiences from Asian countries, who are especially interested in the OIML-CS.
Countries and Economies with Emerging Metrology Systems (CEEMS)

2019 OIML CEEMS AWARD

Background

Many countries and economies with emerging metrology systems suffer from a lack of resources for the operation of a sound legal metrology system. Although these resources cannot be provided by the OIML, the Organization supports initiatives for the development of legal metrology. To highlight the importance of metrology activities in CEEMS, and to provide an incentive for their improvement, in 2009 the OIML established an Award for “Excellent achievements in legal metrology in Developing Countries”.

Following the establishment of the Advisory Group on matters of Countries and Economies with Emerging Metrology Systems (CEEMS), and an increased focus on OIML activities in this area, it was decided to rename the Award the “OIML CEEMS Award” from 2018.

The OIML CEEMS Award is intended to raise the awareness of, and create a more favorable environment for legal metrology and to promote the work of the OIML. The Award intends: “to acknowledge and honor new and outstanding activities achieved by individuals, national services or regional legal metrology organizations contributing significantly to legal metrology objectives on national or regional levels.”

How can candidates be proposed?

Nominations may be made by any individuals or organizations concerned with legal metrology, including the individual or organization seeking the Award.

Nominations should be sent to Ian Dunmille at the BIML and must contain facts, documents and arguments explaining why the candidate deserves the Award. The closing date is 17 June 2019.

Selection procedure

The BIML will prepare a list of candidates highlighting the importance of the achievements. The Award winner will be selected by the CIML President and announced at the 54th CIML Meeting in October 2019.

Selection criteria

The criteria which will be used to assess the candidates’ contribution or achievement will include:

- its significance and importance;
- its novelty;
- its attractiveness and adaptability for other legal metrology services.

The Award

The Award will consist of:

- a Certificate of Appreciation signed by the CIML President;
- a token of appreciation, such as an invitation to make a presentation of the Award-winning achievement at the next CIML Meeting or OIML Conference at the OIML’s expense;
- an engraved Award trophy.

Past Awards

2018 - Prof. Carlos Augusto de Azevedo of the Ministerio Da Industria, Comercio Exterior e Serviços, Instituto Nacional De Metrologia, Qualidade E Tecnologia – INMETRO, Brazil

2017 - Superintendencia de Industria y Comercio, Colombia
- Dr. Osman Bin Zakaria, Senior Director, National Metrology Institute of Malaysia (NMIM)
- Dato’ Roslan Bin Mahayudin, Director of Enforcement Division, Ministry of Domestic Trade, Co-operatives and Consumerism
- Haji Ibrahim Bin Hamzah, Chairman Executive, Metrology Corp. Malaysia Sdn. Bhd. (MCM)

2016 - Institute of Trade Standards Administration, Kenya

2015 - Mr. Nam Hyuk Lim, Director of Korea Testing Certification
- The Metrology Department, Saint Lucia Bureau of Standards

2014 - Serbian National Metrology Institute (DMGM)

2013 - Weights and Measures Agency, Tanzania

2012 - Loukoumanou Ossény, Benin

2011 - José Antonio Dajes, Peru and Juan Carlos Castillo, Bolivia

2010 - Thai Legal Metrology Service

2009 - Mr. Osama Melhem, Jordan

Further information

For more details, please contact:

Ian Dunmille
BIML Assistant Director
ian.dunmille@oiml.org
Introduction

The OIML-CS is a system for issuing, registering and using OIML Certificates and their associated OIML type evaluation reports for types of measuring instruments (including families of measuring instruments, modules, or families of modules), based on the requirements of OIML Recommendations.

The OIML-CS comprises two Schemes: Scheme A and Scheme B. Competence of the OIML Issuing Authorities and their Test Laboratories is demonstrated through self-declaration under Scheme B and accreditation or peer assessment under Scheme A.

The aim of the OIML-CS is to facilitate, accelerate and harmonize the work of national and regional bodies that are responsible for type evaluation and approval of measuring instruments subject to legal metrological control. In the same way, instrument manufacturers, who are required to obtain type approval in some countries in which they wish to sell their products, should benefit from the OIML-CS as it will provide evidence that their instrument type complies with the requirements of the relevant OIML Recommendation(s).

It is a voluntary system and OIML Member States and Corresponding Members are free to participate. Participating in the OIML-CS commits, in principle, the signatories to abide by the rules of the OIML-CS that are established in OIML B 18:2018 Framework for the OIML Certification System (OIML-CS). Signatories voluntarily accept and utilize OIML type evaluation and test reports, when associated with an OIML Certificate issued by an OIML Issuing Authority, for type approval or recognition in their national or regional metrological controls.

The OIML-CS was launched on 1 January 2018 and has replaced the former OIML Basic Certificate System and the OIML Mutual Acceptance Arrangement (MAA).

Further information can be found at:

www.oiml.org/en/oiml-cs

For enquiries regarding the OIML-CS, please contact the OIML-CS Executive Secretary Paul Dixon (executive.secretary@oiml.org).

OIML certificates

OIML certificates issued under Scheme A and Scheme B can be downloaded from the database on the OIML website at:


The database also includes certificates issued under the former OIML Basic Certificate System and the MAA. Although these two systems are no longer in operation, the certificates remain valid.

OIML Issuing Authorities, Utilizers and Associates

A summary of the approved OIML Issuing Authorities is given on the page opposite, and on the following pages a summary is published of those Utilizers and Associates that have declared that they will accept OIML certificates and/or OIML type evaluation reports as the basis for a national or regional approval.

Transition update

OIML Recommendations R 51 Automatic catchweighers and R 117 Liquids other than water will transition from Scheme B to Scheme A on 1 July 2019.

R 46 Active electrical energy meters and R 137 Gas meters will transition from Scheme B to Scheme A on 1 January 2020.

Upcoming OIML-CS events

OIML-CS Seminar in association with the III International Congress on Legal Metrology, 31 May 2019, Bogota, Colombia

OIML-APLMF Seminar on the OIML-CS, 15-17 July, Hangzhou, P.R. China

OIML Certification System (OIML-CS)

List of OIML Issuing Authorities and their scopes

The list of OIML Issuing Authorities is published in each issue of the OIML Bulletin and can be downloaded at www.oiml.org/oiml-cs/oiml-issuing-authorities

Updated: 2019-03-25

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<thead>
<tr>
<th>Code</th>
<th>Issuing Authority</th>
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<tbody>
<tr>
<td>AU1</td>
<td>National Measurement Institute Australia (NMIA)</td>
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<tr>
<td>CH1</td>
<td>Federal Institute of Metrology (METAS)</td>
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<tr>
<td>CN2</td>
<td>National Institute of Metrology, China (NIM)</td>
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<td>CZ1</td>
<td>Czech Metrology Institute (CMI)</td>
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<td>DE1</td>
<td>Physikalisch-Technische Bundesanstalt (PTB)</td>
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<tr>
<td>DK2</td>
<td>FORCE Certification A/S</td>
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<td>FR2</td>
<td>Laboratoire National de Métrologie et d’Essais (LNE)</td>
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<td>GB1</td>
<td>NMI</td>
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<td>NMJIAIST</td>
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<tr>
<td>NL1</td>
<td>NMI Certin B.V.</td>
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<tr>
<td>SE1</td>
<td>Research Institutes of Sweden (RISE)</td>
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<tr>
<td>SK1</td>
<td>Slovak Legal Metrology (SLM)</td>
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</tbody>
</table>

Updated: 2019-03-25
OIML Certification System (OIML-CS)

List of Utilizers, Associates and their scopes

The list of Utilizer and Associate scopes is published in each issue of the OIML Bulletin and can be downloaded at www.oiml.org/oiml-cs/utilizers-and-associates

Updated: 2019-04-17
OIML Certification System (OIML-CS)

List of Utilizers, Associates and their scopes (Cont’d)

The list of Utilizer and Associate scopes is published in each issue of the OIML Bulletin and can be downloaded at www.oiml.org/oiml-cs/utilizers-and-associates

Updated: 2019-04-17

<table>
<thead>
<tr>
<th>1 = Scheme A only</th>
<th>2 = Scheme A and MAA</th>
<th>3 = Scheme A and B</th>
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<tr>
<td>AU</td>
<td>National Measurement Institute, Australia (NMIA)</td>
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<td>BE</td>
<td>Federal Public Service Economy</td>
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<td>CA</td>
<td>Measurement Canada</td>
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<td>CH</td>
<td>Federal Institute of Metrology (METAS)</td>
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<td>CN</td>
<td>State Administration for Market Regulation (SAMR)</td>
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<td>Superintendencia de Industria y Comercio (SIC)</td>
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<td>CU</td>
<td>Oficina Nacional de Normalizacion (ONC)</td>
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<td>CZ</td>
<td>Czech Metrology Institute (CMI)</td>
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<td>DK</td>
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<td>GB</td>
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<td>IN</td>
<td>Legal Metrology Division, Department of Consumer Affairs</td>
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<td>National Metrology Institute of Japan / National Institute of Advanced Industrial Science and Technology (NMIJ/IAST)</td>
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<td>KE</td>
<td>Weights and Measures Department</td>
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<td>KH</td>
<td>National Metrology Centre (NMC)</td>
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<td>NA</td>
<td>Nambian Standards Institution</td>
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<td>NMI Cerin B.V.</td>
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<td>NL</td>
<td>Trading Standards (Ministry of Business, Innovation and Employment) (MBIE)</td>
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<td>RU</td>
<td>VIMMS</td>
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<tr>
<td>SA</td>
<td>SABS (South African Standards, Metrology and Quality Organization)</td>
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<td>SK</td>
<td>Slovak Legal Metrology (SLM)</td>
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<td>TN</td>
<td>National Agency of Metrology (NAM)</td>
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<tr>
<td>US</td>
<td>National Conference on Weights and Measures (NCWM)</td>
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<tr>
<td>ZA</td>
<td>NRCS: Legal Metrology</td>
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<td>Zambia Metrology Agency</td>
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19:22 R18 2008
19:26 R19 2009
20:28 R20 2010
20:33 R21 2011
20:36 R22 2012
20:39 R23 2013
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20:46 R25 2015

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Introduction

The Second OIML Certification System (OIML-CS) Management Committee Meeting and associated events took place in March 2019 at the new premises of NMi in Delft, Netherlands.

Review Committee

A meeting of the Review Committee (RC) was held during the morning of 19 March. The RC is responsible for making recommendations to the Management Committee on the approval of applications from OIML Issuing Authorities (IAs), Test Laboratories (TLs), Legal Metrology Experts and Management System Experts. At the meeting a number of applications for OIML IAs, TLs and experts were reviewed and positive recommendations on approval were made. There were also discussions on the operation of the RC, the monitoring of applications approved with conditions and the level of evidence that should be supplied to support applications from experts.

Maintenance Group

The Maintenance Group (MG), which is responsible for the maintenance and development of the documentation associated with the operation of the OIML-CS, held its second meeting on the afternoon of 19 March. At the meeting, the MG discussed items relating to the OIML-CS and the potential impact on the documentation. This resulted in a number of recommendations being made to the Management Committee for consideration at its meeting, including:

- use of test data from field-sites;
- interpretation of the use of test reports by an OIML IA from a TL of another OIML IA;
- role of the MC in a potential amended review/revision process for OIML Recommendations;
- development of a clarifications/interpretation document.

ISO/IEC 17065 Working Group

The MG meeting was followed by a first meeting of the Working Group (WG) that is responsible for reviewing the application of ISO/IEC 17065 to the assessment of competence of OIML IAs. The WG identified ISO/IEC 17020 as a potential alternative and considered that a gap analysis between the two standards should be conducted. In addition, the WG proposed that it should try to identify other potential alternative approaches.

Management Committee

The Second Management Committee Meeting was held on 20–21 March and was attended by 42 representatives from 18 countries (Australia, Belgium, Cambodia, Canada, Colombia, Czech Republic, France, Germany, India, Japan, Netherlands, P.R. China, Russian Federation, Slovakia, South Africa, Switzerland, United Kingdom and United States). In addition, five organisations in liaison (AQUA, CECP, CECOD, IAF and ILAC) were represented, and a representative from the IEC also participated in a part of the meeting via video link.

Over the course of the two days, there were discussions on a number of key items including the outcomes of the RC, MG and WG meetings held prior to the MC meeting. Some of the key items under consideration were:

- review of OIML IA annual reports;
- assessment requirements for OIML IAs and TLs and how the OIML-CS could benefit from the approaches adopted by other certification systems, e.g. the IECEx Certified Equipment Scheme;
- use and monitoring of experts in assessments;
- application of ISO/IEC 17065 for the assessment of OIML IA competence;
- conformity marks and limiting the validity of certificates;
- extension of the transition period for OIML IAs to use self-declaration;
- use of test data from field-sites;
- promotion and awareness raising.
During the meeting, the MC approved a number of applications from OIML Issuing Authorities and their associated Test Laboratories, Legal Metrology Experts and Management System Experts based on the positive recommendations from the RC. The MC decided that the WG for ISO/IEC 17065 should explore alternative approaches, e.g., the possible use of ISO/IEC 17020, and should also take into consideration the possible impact of Conformity to Type (CTT) should a CTT system be implemented in the OIML-CS in the future.

The MC agreed that a conformity (certification) mark should not be implemented as the OIML-CS does not include CTT. However, this will be reviewed should a CTT system be implemented in the OIML-CS in the future. The MC also agreed that it would participate in any new amended review/revision process for OIML Recommendations that are of relevance to the OIML-CS.

Two new Working Groups were established by the MC; one to make proposals relating to the assessment requirements for OIML Issuing Authorities and Test Laboratories and the other to improve promotion and awareness raising.

**Euroloop visit**

Following the MC meeting, there was a visit to the Euroloop calibration facility on 22 March. A presentation on the work of Euroloop was given, followed by a tour of the facility.

**Next MC Meeting**

The Third OIML-CS MC Meeting and associated events will be held in New Delhi, India during the week commencing 16 March 2020.

Further information on the OIML-CS is available on the OIML website at:

https://www.oiml.org/en/oiml-cs/general-info

For enquiries regarding the OIML-CS, please contact the OIML-CS Executive Secretary, Paul Dixon (executive.secretary@oiml.org).
The OIML is pleased to welcome the following new

**CIML Members**

- **Morocco:**
  - Mr. Mohammed Benjelloun
- **South Africa:**
  - Mr. Hendrik Petrus Ferreira

**OIML meetings**

- **May 2019**
  - OIML TC 12/p1 meeting
  - Revision of R 46
  - Electricity Meters (a.c.)
  - 22-24 May 2019
  - Helsinki, Finland

- **July 2019**
  - OIML/APLMF Seminar on the OIML-CS
  - 15–17 July 2019
  - Hangzhou, P.R. China

- **October 2019**
  - 54th CIML Meeting and Associated Events
  - 21–25 October 2019
  - Bratislava, Slovak Republic

**Bulletin online**

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**Committee Drafts**

- Revision of OIML D 2:2007: Legal units of measurement
  - 1 CD
  - TC 2/p 1
  - AT

- Revision of OIML B 6-1 and -2: Directives for OIML technical work
  - 1 CD
  - BIML/SC 3/p 2
  - BIML
The OIML Bulletin is a forum for the publication of technical papers and diverse articles addressing metrological advances in trade, health, the environment and safety - fields in which the credibility of measurement remains a challenging priority. The Editors of the Bulletin encourage the submission of articles covering topics such as national, regional and international activities in legal metrology and related fields, evaluation procedures, accreditation and certification, and measuring techniques and instrumentation. Authors are requested to submit:

- a titled, typed manuscript in Word or WordPerfect either on disk or (preferably) by e-mail;
- the paper originals of any relevant photos, illustrations, diagrams, etc.;
- a photograph of the author(s) suitable for publication together with full contact details: name, position, institution, address, telephone, fax and e-mail.

Note: Electronic images should be minimum 150 dpi, preferably 300 dpi.

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