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OIML celebrates its Fiftieth Anniversary
and holds its Fortieth CIML Meeting in Lyon, France

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JEAN-FRANÇOIS MAGAÑA

Post Lyon: Summary and future actions

In June this year the OIML celebrated its Fiftieth Anniversary in Lyon (France) and this memorable event was extremely successful and appreciated by all. The special celebrations culminated in a magnificent fireworks display and banquet, hosted by the OIML in the grounds of the *Manoir de la Garde,* Jarnioux.

During the 40th CIML Meeting we were honoured to welcome some 170 participants, a record number. The Twelfth International Metrology Congress, which was organized in conjunction with the OIML events, was also a great success, notably thanks to the long-standing synergy that exists between legal and practical metrology.

A number of CIML Members informed the CIML President, myself and the BIML Staff that they greatly appreciated being able to attend the Metrology Congress, and both the organizers and delegates also highly appreciated the presence of metrologists from so many OIML Member States and Corresponding Members, making the events an ideal forum for an informative exchange of information and experience.

The CIML Meeting was also crowned with success and opened the way to further progress. The new CIML President, Alan E. Johnston (Canada) took over from Acting President Manfred Kochsiek (Germany) and a new Vice-President (Stuart Carstens, South Africa) was elected in Lyon.

Immediately, a number of initiatives were discussed and launched, and as planned the Bureau is already progressing with their actual implementation. These initiatives will in particular be reflected in the OIML Strategy and Action Plan, which will be finalized shortly and submitted to CIML Members in time for the 41st CIML Meeting in 2006.

A number of fields are currently being worked on by the BIML in the wake of the new Strategy document:

- The MAA is progressing well and will soon address new categories (R 49 *Water meters* and R 117/R 118 *Fuel dispensers*;
- The *Directives for Technical Work* are being completely revised and will in future will be much simpler, more efficient and more open;
- The follow-up of OIML Technical Committees and Subcommittees has been reorganized at the Bureau and will soon provide improved support to Secretariats;
- Developments on the OIML web site should also be broadened in the short to medium term;
- Cooperation with other Organizations is being accelerated and made closer;
- Governments' awareness of metrology is being addressed jointly by the Metre Convention, ILAC and the OIML;
- Information to Members, Corresponding Members, Liaison Organizations and Industry has started to be considerably developed.

This, and all the other initiatives which would be too long to mention here, is set to provide for an exciting future and we look forward to continuing to work with Members to achieve our objectives. ■

J.F. Magaña

FUEL DISPENSERS

An indirect gravimetric calibration technique for the verification of fuel dispenser narrow neck test measures

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Weights and Measures Officers – Camera di Commercio Industria Artigianato e Agricoltura di Napoli

Marco Dell'Isola, Giorgio Ficco, Andrea Frattolillo
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Table 1 Automotive refuelling stations data

Number of refuelling stations	590
Average number of fuel dispensers per station	4.1
Overall number of fuel dispensers existing in the jurisdiction territory	2419
Number of fuel dispensers verified in 2002	1094
Validity period of fuel dispenser verification according to [1]	2 years
Number of Weights and Measures Officers in force at the Legal Metrology Authority of Naples	5

Introduction

The Local Metrology Authority of Naples, the *Ufficio Metrico della Camera di Commercio Industria Artigianato e Agricoltura di Napoli* is a Body serving a large and densely populated jurisdiction territory (the Province of Naples) on matters concerning legal metrology.

As such it has the duty to implement weights and measures verification and surveillance programs in order to ensure an acceptable level of effectiveness in preserving fairness in the marketplace and in protecting consumers from dishonest practices.

One of the major concerns for the Body is the verification and surveillance of the numerous fuel dispensers that constitute the large distribution network existing in the field in the Province of Naples.

In Table 1, information describing the up-to-date situation in the field concerning the automotive refuelling station network is given.

The data in Table 1 show that about 50 % (45.2 %) of the total number of fuel dispensers existing in the territory are verified in the course of the year, thus meeting the aim of verifying the whole population of dispensers within the validity period fixed by law.

The workload per officer is such that about 20 % of the working hours are dedicated to the verification of fuel dispensers in the field.

In a scenario where several verification programs (small, medium, and high capacity weighing devices, household gasmeters, road tanker meters, oil legal custody loading racks meters) and surveillance programs (pre-packaged goods and precious metal assaying) are also in progress, official fuel dispenser verifications usually take place after a period which ranges from two weeks to three months from the "Put-in-Service Report". It notifies the Local Metrology Authority that an authorized repair person or agency [2] has performed a fuel dispenser installation or repair. For these reasons, the major concern arises of ensuring the traceability of the standard volume measures used by repair persons or repair agencies.

The standard measures used by the service persons or agencies are usually metal narrow neck volume measures of nominal value 10, 20 and 50 litres approved by Italian regulations [3].

Each service person or agency has from five to ten measures to trace back to the unit standard of volume.

Italian Regulations [1] provide for the verification of these test measures to be performed every five years; however the Metrology Authority of Naples has adopted a policy for which service persons and agencies can submit their test measures for verification after a shorter period due to the shocks they are likely to be subjected to during use in the field. Also a Weights and Measures Officer may require them to be verified after a shorter period than five years since their last official verification should the office have reasonable doubts about their accuracy.

Due to the large number of test measures to be verified in a year and to the related maximum permissible errors (0.05 % of the nominal value [3]), an indirect gravimetric technique has been developed by *Ufficio Metrico di Napoli* in cooperation with the University of Cassino.

This technique allows:

i) small uncertainty values with respect to maximum permissible errors to be obtained (U < 1/3 MPE); and
ii) tap water to be used during the tests (thus eliminating the procedural difficulty in using deionized or distilled water needed to perform direct gravimetric verifications).

1 Description of the method

The proposed indirect gravimetric method consists in the measurement, by weighing, of the reference standard (RSM) and the measures under test (MUT), filled with tap water to their nominal volume mark. The mass measurement, carried out in air, is corrected considering both the buoyant force, and the effects produced by the variations in the reference temperature. Figure 1 shows a flow chart related to the calibration procedure.

The test reference masses will have weight values corresponding to full measures (≅ 25 kg for the Metrology Authority of Naples measures).

Environmental test conditions (t_x and t_R), generally differ form the reference conditions (t_0). An expected value of 5 °C for the temperature differences ($t_x - t_0$) and ($t_R - t_0$) can be assumed, with a maximum oscillation of 1 °C and 0.5 °C respectively for the air (t_a) and water (t_w) temperatures.

The average water mass measurement in air (corrected with the buoyant force) is given by the equation:

$$[\rho_W(t_x) - \rho_a] \cdot V_x(t_x) = m_x\left(1 - \frac{\rho_a}{\rho_m}\right) \qquad (1)$$

where:

$\rho_W(t_x)$ is the density of water at the temperature t_x;

ρ_a is the actual density of the air in the place of weighing;

$V_x(t_x)$ is the volume under test at the temperature t_x;

ρ_m is the actual value of the density of the weights used to calibrate the weighing instrument or the density of the built-in counterpart weights;

m_x is the actual mass of the water contained in the test measure.

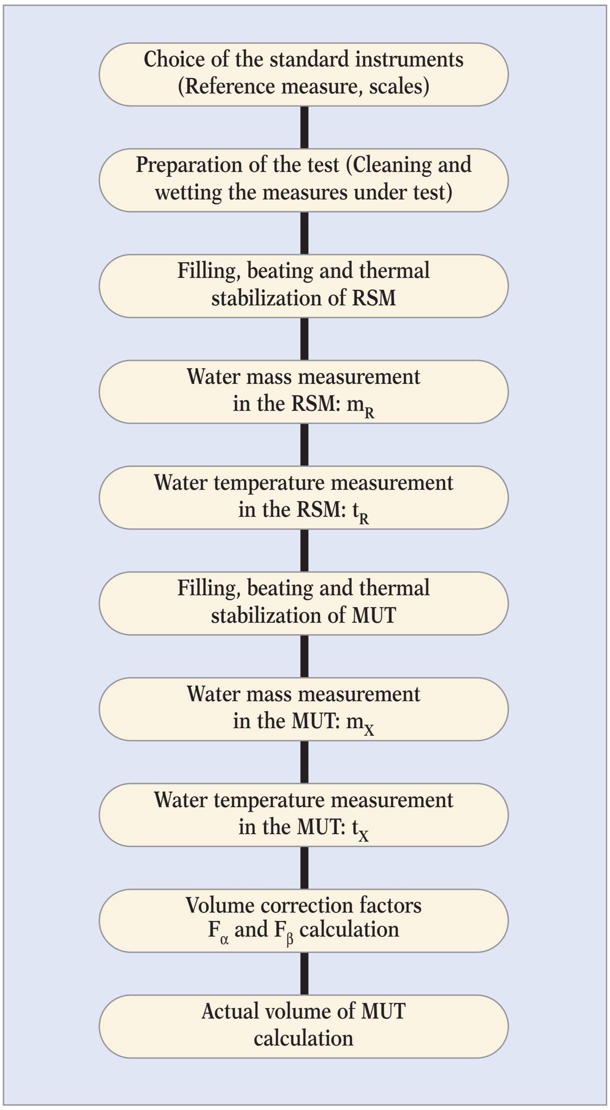

Figure 1 Indirect gravimetric method procedure

Indicating by m_x^c the conventional mass [4] of the unknown mass value of the water, the definition of conventional mass versus real mass value yields:

$$m_x \cdot \left(1 - \frac{1.2}{\rho_m}\right) = m_x^c \cdot \left(1 - \frac{1.2}{8000}\right) \qquad (2)$$

where the numerical values 1.2 kg/m^3 and 8000 kg/m^3 are respectively the standard air and the reference steel weight densities according to the definition of conventional mass (see [4]).

Equation (2) can be written as:

$$m_x = \frac{0.99985}{1 - \dfrac{1.2}{\rho_m}} \cdot m_x^c \qquad (3)$$

Then, substituting m_x from equation (3) into (1), the following weighing process equation can be obtained, in which use of conventional mass is made:

$$\left[\rho_W\left(t_x\right)-\rho_a\right]\cdot V_x\left(t_x\right)=0.99985\cdot\frac{1-\dfrac{\rho_a}{\rho_m}}{1-\dfrac{1.2}{\rho_m}}\cdot m_x^c \tag{4}$$

Assuming, for the capacity under test, that the relationship between the volume at the temperature t_x, V_x (t_x) and the volume at the reference temperature $t_{0,}$ (usually 15 °C for petroleum fuel narrow neck test measures) V_{x0} is linear:

$$V_x\left(t_x\right)=V_{x0}\cdot\left[1+\beta_x\cdot\left(t_x-t_0\right)\right] \tag{5}$$

where β_x is the cubical expansion coefficient of the measure, equation (4) can be written as follows:

$$\left[\rho_W\left(t_x\right)-\rho_a\right]\cdot V_{x0}\cdot\left[1+\beta_x\cdot\left(t_x-t_0\right)\right]= =0.99985\cdot m_x^c\cdot\frac{1-\dfrac{\rho_a}{\rho_m}}{1-\dfrac{1.2}{\rho_m}} \tag{6}$$

A similar equation can be written for the weighing process of a reference standard measure whose actual value is traceable to the relevant national standard unit:

$$\left[\rho_W\left(t_R\right)-\rho_a\right]\cdot V_{R0}\cdot\left[1+\beta_R\cdot\left(t_R-t_0\right)\right]= =0.99985\cdot m_R^c\cdot\frac{1-\dfrac{\rho_a}{\rho_m}}{1-\dfrac{1.2}{\rho_m}} \tag{7}$$

where the subscripts "$_R$" are assigned to the relevant values relating to the reference standard measure.

Dividing the corresponding sides of equations (6) and (7) and in the hypothesis of: i) using the same weighing instrument, ii) capacity under test weights very close(1) and iii) moderate variation of environmental test conditions(2), we obtain the measurement equation:

$$\frac{\left[\rho_W\left(t_x\right)-\rho_a\right]\cdot V_{x0}\cdot\left[1+\beta_x\cdot\left(t_x-t_0\right)\right]}{\left[\rho_W\left(t_R\right)-\rho_a\right]\cdot V_{R0}\cdot\left[1+\beta_R\cdot\left(t_R-t_0\right)\right]}=\frac{m_x^c}{m_R^c} \tag{8}$$

and consequently $V_{x0:}$

$$V_{x0}=V_{R0}\cdot\frac{m_x}{m_R}\cdot\frac{\left[\rho_W\left(t_R\right)-\rho_a\right]}{\left[\rho_W\left(t_x\right)-\rho_a\right]}\cdot\frac{\left[1+\beta_R\cdot\left(t_R-t_0\right)\right]}{\left[1+\beta_x\cdot\left(t_x-t_0\right)\right]} \tag{9}$$

where, in order to simplify notations, use has been made of the symbols m_x and m_R instead of the corresponding m_x^c and m_R^c to indicate conventional mass values.

Equation (9) can be rewritten as:

$$V_{x0}=V_{R0}\cdot\frac{m_x}{m_R}\cdot\frac{\rho_W\left(t_R\right)}{\rho_W\left(t_x\right)}\cdot\frac{\left[1-\dfrac{\rho_a}{\rho_W\left(t_R\right)}\right]}{\left[1-\dfrac{\rho_a}{\rho_W\left(t_x\right)}\right]}\cdot \cdot\left[1+\beta_R\cdot\left(t_R-t_0\right)\right]\cdot\left[1-\beta_x\cdot\left(t_x-t_0\right)\right] \tag{10}$$

Assuming (3):

$$\frac{\rho_W\left(t_R\right)}{\rho_W\left(t_x\right)}=1+\alpha\cdot\left(t_x-t_R\right),$$

$$\left[1-\frac{\rho_a}{\rho_W\left(t_R\right)}\right]\Big/\left[1-\frac{\rho_a}{\rho_W\left(t_x\right)}\right]=1$$

,

where α is the temperature interval mean expansion coefficient of the testing liquid (usually mains supply water), and neglecting the second order infinitesimal terms coming out of the product.

$$\left[1+\beta_R\cdot\left(t_R-t_0\right)\right]\cdot\left[1-\beta_x\cdot\left(t_x-t_0\right)\right]$$

Equation (10) can be finally written:

$$V_{x0}=V_{R0}\cdot\frac{m_x}{m_R}\cdot\left[1+\alpha\cdot\left(t_x-t_R\right)\right]\cdot \cdot\left[1-\beta_x\cdot\left(t_x-t_0\right)+\beta_R\cdot\left(t_R-t_0\right)\right] \tag{11}$$

To summarize, the following equations can be written:

(1) The hypotheses i) and ii) allow the systematic error related to the non linear characteristic and thermal effect of the weighing instrument utilized to be neglected. Of course, the other uncertainty sources cannot be neglected and their estimation will be taken in account in the ANOVA analysis.

(2) At environmental test conditions 10 < t_a < 30 °C, a variation of ± 1 °C in the air temperature causes a variation of the air density of about ± 0.004 kg/m^3 and of the weights density (ρ_m = 8000 kg/m^3 @ 20 °C) of about 0.32 kg/m^3. The approximation used in (8) is valid unless ± 0.6 ppm. This value can be neglected in the uncertainty analysis too.

(3) At environmental test conditions, a variation of ±1 °C in the air temperature, causes a variation of the air density of about ± 0.004 kg/m^3. whereas a variation of ± 0.5 °C in the water temperature causes a variation of about 0.25 kg/m^3 of the water density. The approximations used in (11) is valid unless ± 5 ppm. This value can be neglected in the uncertainty analysis too.

$$\begin{cases} V_{x0} = V_{R0} \cdot \dfrac{m_x}{m_R} \cdot F_\alpha \cdot F_\beta \\ F_\alpha = 1 + \alpha \cdot (t_x - t_R) \\ F_\beta = 1 - \beta_x \cdot (t_x - t_0) + \beta_R \cdot (t_R - t_0) = \\ \quad = 1 + \beta_R \cdot \Delta t + \Delta\beta \cdot \Delta t_0 \end{cases} \tag{12}$$

where the assumption $\Delta t = t_R - t_X$, $\Delta t_0 = t_x - t_0 \cong t_R - t_0$, and $\Delta\beta = \beta_R - \beta_X$ have been made.

2 Estimating the uncertainty of the method

From the first of equations (12), the following relation involving relative standard uncertainties of the product factors can be written [5]:

$$\left[\frac{u(V_{x0})}{V_{x0}}\right]^2 = \left[\frac{u(V_{R0})}{V_{R0}}\right]^2 + \left[\frac{u(m_x)}{m_x}\right]^2 + \left[\frac{u(m_R)}{m_R}\right]^2 + \\ + 2r_{m_x,m_R}\left[\frac{u(m_x)}{m_x}\right]\cdot\left[\frac{u(m_R)}{m_R}\right] + \left[\frac{u(F_\alpha)}{F_\alpha}\right]^2 + \\ + \left[\frac{u(F_\beta)}{F_\beta}\right]^2 + 2r_{F_\alpha,F_\beta}\left[\frac{u(F_\alpha)}{F_\alpha}\right]\cdot\left[\frac{u(F_\beta)}{F_\beta}\right] \tag{13}$$

where the correlation factor $r_{mx,mR}$ can be evaluated differentiating the type A and type B contribution uncertainties, whereas factor $r_{F\alpha,F\beta}$ can be assumed approximately equal to zero.

2.1 Relative uncertainty due to the reference standard measure

Typically the standard uncertainty of a reference standard measure calibrated by means of direct gravimetric procedures can be deemed to have the following magnitude order:

$$\frac{u(V_{R0})}{V_{R0}} = \frac{2\ \text{mL}}{20000\ \text{mL}} = 1 \cdot 10^{-4}$$

2.2 Relative uncertainty due to repeatability of the weighing instrument

From equation (13) we can deduce that not only the accuracy but the repeatability of the weighing instruments is essential for the calibration of the capacities under test.

In fact the type B $u_B(m_x)$ and $u_B(m_R)$ uncertainties can be assumed as being practically equal and perfectly correlated ($r_{Bmx,mR} = 1$). Then their contribution to composed uncertainty can be assumed to be negligible.

Whereas the type A $u_A(m_x)$ and $u_A(m_R)$ uncertainties can be assumed to be uncorrelated ($r_{Amx,mR} = 0$) and estimated by means of several weighing data at loads near weight values corresponding to full measures (≈ 25 kg). The standard deviation achieved was found as having a value of about 0.1 g (this value practically corresponds to 1 *d*, where "*d*" is the weighing instrument's display interval). So the standard uncertainties due the weighing process yield:

$$\left\{\left[\frac{u_A(m_x)}{m_x}\right]^2 + \left[\frac{u_A(m_R)}{m_R}\right]^2 + 2r_{A(m_x,m_R)}\left[\frac{u_A(m_x)}{m_x}\right]\cdot\left[\frac{u_A(m_R)}{m_R}\right] + \\ + \left[\frac{u_B(m_x)}{m_x}\right]^2 + \left[\frac{u_B(m_R)}{m_R}\right]^2 + 2r_{B(m_x,m_R)}\left[\frac{u_B(m_x)}{m_x}\right]\cdot\left[\frac{u_B(m_R)}{m_R}\right]\right\}^{1/2} = \\ = \sqrt{\left[\frac{u_A(m_R)}{m_R}\right]^2 + \left[\frac{u_A(m_x)}{m_x}\right]^2} = \sqrt{2}\cdot\left[\frac{0.1}{20000}\right] = 7.1\times10^{-6}$$

2.3 Relative uncertainty due to the temperature corrective factor F_α

Since the temperatures t_x and t_R can be deemed to be quite close, the expected F_α value is very close to the unity. However, also when the correction due to F_α is negligible, its uncertainty cannot be neglected and can be evaluated as follows:

$$u^2(F_\alpha) = \left(\frac{\partial F_\alpha}{\partial \Delta t}\right)^2 \cdot u^2(\Delta t) + \left(\frac{\partial F_\alpha}{\partial \alpha}\right)^2 \cdot u^2(\alpha) = \\ = \alpha^2 \cdot u^2(\Delta t) + \Delta t^2 \cdot u^2(\alpha) \tag{14}$$

The expected value of the expansion coefficient α is 0.0002 °C^{-1} and its real value can be deemed as ranging between ± 10 % of its expected value.

The maximum Δt is equal to 0.5 °C and its standard uncertainty $u(\Delta t)$ have been estimated as being almost equal to 0.1 °C [(4)].

[4] Analogously to the mass measurements, it is possible to prove that type B $u_B(t_x)$ and $u_B(t_R)$ uncertainties can be assumed to be practically equal and perfectly correlated ($r_{B,tx,tR} = 1$). Then their contribution to composed uncertainty can be assumed as being negligible. Whereas the type A $u_A(t_x)$ and $u_A(t_R)$ uncertainties can be assumed uncorrelated ($r_{A,tx,tR} = 0$) and estimated equal to the standard deviation achieved in several measurements data of about 0.1 °C (this value practically corresponds to 1/2 division of the used thermometer).

Thus:

$$\frac{u(F_\alpha)}{F_\alpha} \cong \sqrt{\left[(0.0002 \cdot 0.1)^2 + \left(0.5 \cdot \frac{2 \cdot 10^{-5}}{\sqrt{3}}\right)^2\right]} = $$
$$= 2.0 \cdot 10^{-5}$$

2.4 Relative uncertainty due to the temperature factor F_β

Also in this case, the temperatures t_x and t_R and the cubical dilation coefficients β_X and β_R can be deemed to be quite close. Then the expected F_β value is very close to the unity, and the correction due to F_β is generally negligible. Of course, its uncertainty cannot be neglected and can be evaluated on the base of equation (12), as follows:

$$\begin{aligned} u^2(F_\beta) &= \left(\frac{\partial F_\beta}{\partial \beta_R}\right)^2 \cdot u^2(\beta_R) + \left(\frac{\partial F_\beta}{\partial \Delta t}\right)^2 \cdot u^2(\Delta t) + \\ &+ \left(\frac{\partial F_\beta}{\partial \Delta \beta}\right)^2 \cdot u^2(\Delta \beta) + \left(\frac{\partial F_\beta}{\partial \Delta t_0}\right)^2 \cdot u^2(\Delta t_0) = \\ &= \Delta t^2 \cdot u^2(\beta_R) + \beta_R^2 \cdot u^2(\Delta t) + \\ &+ \Delta t_0^2 \cdot u^2(\Delta \beta) + \Delta \beta^2 \cdot u^2(\Delta t_0) \end{aligned} \tag{15}$$

In the evaluation of $u^2(F_\beta)$, supposing a variation range of ± 10 % on the cubical dilation coefficient expected value ($\beta = 4 \times 10^{-5}$ for the two capacities), the general expression for $u(\beta_R)$ can be deemed to be as follows:

$$u(\beta_R) = \frac{0.1 \times \beta_{expected}}{\sqrt{3}} = \frac{4 \times 10^{-6}}{\sqrt{3}} = 2.3 \times 10^{-6}\ °C^{-1} \tag{16}$$

The standard uncertainties $u(\Delta t_0)$ and $u(\Delta\beta)$ can be estimated, respectively, as equal to $5/\sqrt{3}$ - 2.89 °C on the basis of the maximum temperature difference with respect to the reference conditions, and $\sqrt{2} \cdot u(\beta) = 3.3 \times 10^{-6}$ °C^{-1}.

Thus equation (15) becomes:

$$\frac{u(F_\beta)}{F_\beta} \cong \sqrt{\begin{aligned}&(0.5 \cdot 2.3 \cdot 10^{-6})^2 + (4 \cdot 10^{-5} \cdot 0.1)^2 + \\ &+ (5 \cdot 3.3 \cdot 10^{-6})^2 + 0\end{aligned}} = $$
$$= 1.7 \cdot 10^{-5} \tag{17}$$

2.5 The expanded relative uncertainty

Combining the calculated terms according to equation (13), the combined relative uncertainty is:

$$\left[\frac{u(V_{x0})}{V_{x0}}\right] = \left[\begin{aligned}&(10^{-4})^2 + (7.1 \times 10^{-6})^2 + (2 \times 10^{-5}) + \\ &+ (1.7 \times 10^{-5})\end{aligned}\right]^{\frac{1}{2}} = $$
$$= 1.0 \cdot 10^{-4}$$

The expanded relative uncertainty is evaluated as follows:

$$\left[\frac{U(V_{x0})}{V_{x0}}\right] = 2 \cdot \left[\frac{u(V_x)}{V_x}\right] = 2 \cdot 10^{-4} = 0.02\ \% \tag{18}$$

From equation (18) the absolute expanded uncertainty is $U(V_x)$ = 4.0 mL.

2.6 Evaluation of the uncertainty due to the manufacture of the measure neck when reading a level other than the nominal value

Given the nominal level, the volume corresponding to the level l above or below the nominal one is given by:

$$V_{neck}(l) = \int_0^l A(x)dx \tag{19}$$

where $A(x)$ is the cross-sectional area of the neck at a level x above or below the nominal one and l is the level of the meniscus of the liquid in the measure neck. Thus a further uncertainty adds up to the other above quoted uncertainty sources.

From equation (19) the estimate for the standard uncertainty can be derived as follows:

$$\begin{aligned} u^2(V_{neck}) &= \left(\frac{\partial V_{neck}}{\partial l}\right)^2 \cdot u^2(l) + \left(\frac{\partial V_{neck}}{\partial A}\right)^2 \cdot u^2(A) \\ &= A^2_{nom} \cdot u^2(l) + l^2 \cdot u^2(A) \end{aligned} \tag{20}$$

where, considering a typical manufacture practice for the Italian standard measures:

A_{nom} = 31.5 cm^2

$u(l)$ = 0.01 cm

l = 3 cm

$u(A)$ = 0.15 cm^2

The above quoted values have been deduced by considering the typical manufacturing tolerances and assuming rectangular probability distribution centred on the average manufacturing values from a sample of standard measures used at the *Ufficio Metrico di Napoli* and considering values (l) that maximize $u^2(V_{neck})$ (worst case situation).

Thus, the standard uncertainty due to the reading on a level other than the nominal one is:

$$u(V_{neck}) = \sqrt{31.5^2 \cdot 0.01^2 + 3^2 \cdot 0.15^2} = 0.5\,\text{mL}$$

The relative standard uncertainty is given by:

$$\left(\frac{u(V_{neck})}{V_X}\right) = \frac{0.5}{20000} = 2.5 \times 10^{-5}$$

From the comparison of the values relating to the previously evaluated combined relative standard uncertainty with $u(V_{neck})$, the uncertainty due to the manufacturing tolerances when reading the meniscus at a level other than the nominal one can be neglected.

2.7 Source of variation due to experimental factors

Further sources of variation due to a number of factors that may vary in an unpredictable way, such as the amount of clingage in a standard measure, or small variation in a meniscus or thermometer reading, make it very difficult to estimate the overall uncertainty related to a narrow neck test measure calibration.

A practical way adopted by the *Ufficio Metrico di Napoli* to estimate the standard deviation of the process s_p is to perform a number of calibration runs on the same test measure.

The standard deviation resulting from those calibration runs is deemed to represent the overall standard uncertainty u_c.

The other two components, the standard uncertainty as determined in equation (13) and the standard deviation of the process s_p, can be combined to yield the overall uncertainty:

$$u_c^2 = s_p^2 + u^2(V_{x0}) - u^2(V_{R0}) \qquad (21)$$

or, in relative standard uncertainty terms,

$$\left(\frac{u_c^2}{V_{x0}}\right)^2 = \left(\frac{s_p}{V_{x0}}\right)^2 + \left(\frac{u(V_x)}{V_{x0}}\right)^2 - \left(\frac{u(V_{R0})}{V_{x0}}\right)^2 \qquad (22)$$

Thus the standard deviation of the process can be derived from equation (22):

$$\left(\frac{s_p}{V_{x0}}\right) = \sqrt{\left(\frac{u_c}{V_{x0}}\right)^2 - \left(\frac{u(V_{x0})}{V_{x0}}\right)^2 + \left(\frac{u(V_{R0})}{V_{x0}}\right)^2} \qquad (23)$$

From equation (23) it can be assumed that, if the square root argument is not less than zero, then the variation sources of the process are relevant and cannot be neglected.

2.7.1 *Worked out example of process standard deviation by using the Analysis of Variance (ANOVA) technique*

In order to determine a typical value for s_p which represents the actual standard uncertainty to be attributed to the laboratory calibration process, an ANOVA scheme experiment ([6]) was conceived that involved the whole personnel (Weights & Measures Officers) responsible for the calibration of 20 L narrow neck standard measures.

A 20 L standard measure was calibrated by four officers in two pairs with each group performing four test runs.

The results obtained are shown in Table 2.

Table 2 Calibration results in mL

Officers' Group	Test run No. 1	2	3	4
1–2	19997.2	19998.0	19997.5	19999.0
3–4	19998.2	19998.4	19999.0	19998.0
1–3	19999.0	19999.4	19998.8	19999.0
2–4	19997.8	19999.0	19998.8	19999.4
1–4	19997.5	19997.5	19998.2	19998.1
2–3	19999.0	19998.8	19999.1	19999.0

In order to simplify calculations, the value 20000 mL is subtracted from the values shown in the table, thus obtaining the following:

Table 3 Deviations (mL) from the nominal value

Officers' Group	Test run No. 1	2	3	4
1–2	– 2.8	– 2.0	– 2.5	– 1.0
3–4	– 1.8	– 1.6	– 1.0	– 2.0
1–3	– 1.0	– 0.6	– 1.2	– 1.0
2–4	– 2.2	– 1.0	– 1.2	– 1.6
1–4	– 2.5	– 2.5	– 1.8	– 1.9
2–3	– 1.0	– 1.2	– 0.9	– 1.0

From the values in Table 3, the overall average deviation from the nominal value of 20000 mL can be calculated:

$$\overline{X} = \sum_{i=1}^{a}\sum_{j=1}^{b} X_{ij} \Big/ a \cdot b \qquad (24)$$

Where $a = 6$, $b = 4$ and X_{ij} is the table (matrix) element on the i^{th} row and j^{th} column position.

The calculation indicated in equation (24) yields, for the value shown in Table 3, the following overall average deviation:

$\overline{X} = -1.554$ mL

Table 4 shows further data giving the group averages for each pair of operators involved in the calibration process.

Table 4 Averages of data deviations

		Group average $\overline{X_{i,.}}$
Officers' Group	1–2	– 2.075
	3–4	– 1.600
	1–3	– 0.950
	2–4	– 1.500
	1–4	– 2.175
	2–3	– 1.025

The calibration process factor between calibration data is:

$$V_B = b \cdot \sum_{i=1}^{a}\left(\overline{X_{i,.}} - \overline{X}\right)^2 = 4 \cdot 1.30677$$
$$= 5.227 \text{ mL}^2 \qquad (25)$$

The freedom degrees associated with the calculation of V_B are:

$\nu_B = a - 1 = 6 - 1 = 5$ (26)

The overall variation can be calculated as follows:

$$V = \sum_{i=1}^{a}\sum_{j=1}^{b}\left(X_{i,j} - \overline{X}\right)^2 = 9.160 \text{ mL}^2$$

with $\nu = a \cdot b - 1 = 23$ freedom degrees.

From the variation property:

$V = V_B + V_W$ (27)

where V_W is the variation "within" the calibration data relating to each experimenter group:

$$V_W = \sum_{i=1}^{a}\sum_{j=1}^{b}\left(X_{i,j} - \overline{X_{i,.}}\right)^2$$

The V_W value can be derived:

$V_W = V - V_B = (9.160 - 5.227)$ mL^2 = 3.933 mL^2

with:

$\nu_W = a \cdot (b - 1) = 18$ freedom degrees.

Thus the ANOVA analysis can be performed by using the following ANOVA Table, where the following definitions concerning the mean square are given:

$$s_B^2 = \frac{b \cdot \sum_{i=1}^{a}\left(\overline{X_{i,.}} - \overline{X}\right)^2}{a-1} = \frac{V_B}{\nu_B} = \frac{5.277}{5} = 1.0454$$

$$s_W^2 = \frac{\sum_{i=1}^{a}\sum_{j=1}^{b}\left(X_{i,j} - \overline{X}\right)^2}{a \cdot (b-1)} = \frac{V_W}{\nu_W} = \frac{3.933}{18} = 0.2185$$

In Table 5 (ANOVA Table) the critical Fisher's value has been evaluated relating to the freedom degree pair (ν_B, ν_W) = (5.18) and at a significance level of 0.05 (i.e. the probability of rejecting the hypothesis that s_B and s_W are the same estimates of the standard deviation of the measurement process, while in fact they are the same, is only 5/100).

Table 5 ANOVA Table

	Variation value, V	Freedom degrees, ν	Mean square, s	Fisher's value, F
V_B	5.227	5	$s_B^2 = 1.0454$	$F = \frac{s_B^2}{s_W^2} = 4.785$
V_W	3.933	18	$s_W^2 = 0.2185$	Critical Fisher's value for (ν_B,ν_W) = (5.18): Fc = 2.773
V	9.160	23		

Since the critical Fisher's is:

$F_c = 2.773 < 4.785$

at a significance level of 0.05, it can be deduced that the measurement process differs in a significant manner according to the officer pair involved in the test run. So, in order to correctly characterize the variation sources in the measurement process, the parameter s_B (the "between measurement" standard deviation) needs to be considered.

Thus:

$u_c = s_B = 1.02$ mL

In relative uncertainty terms:

$$\left(\frac{u_c}{V_x}\right) = \frac{1.02}{20000} \approx 5.1 \times 10^{-5} \qquad (28)$$

By substituting that value in equation (23), the measurement process standard deviation can be calculated:

$$\left(\frac{s_p}{V_x}\right) = \sqrt{\left(5.1\times10^{-5}\right)^2 - \left(1.0\times10^{-4}\right)^2 + \left(10^{-4}\right)^2} =$$
$$= 5.1\times10^{-5} \qquad (29)$$

or, in absolute values,

s_p = 1.0 mL

From the ANOVA analysis it can be deduced that a better uncertainty estimate for the calibration process is:

$$u_c = \sqrt{u^2(V_x) + s_p^2} = 2.2\ \mathrm{mL}$$

and thus:

$U = 2 \cdot u_c$ = 4.4 mL

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Typical Italian regulation narrow neck test standard volume measure

Setup for the indirect calibration of standard volume measures

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CEREAL MOISTURE

Main factors influencing the uncertainty of cereal moisture measurement

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Introduction

Ensuring the accuracy of moisture measurements of solid materials, especially that of cereals, is an important matter for Romanian legal and applied metrology since Romania is a producer and importer of cereals. Within this framework, this paper presents the secondary standard and method of measurement used in the National Institute of Metrology (INM), Romania. The main factors influencing the measurement uncertainty are also discussed.

Solving this matter implies the existence of a reliable national base for certifying the cereal moisture measuring instruments, traceable to the national institute standards.

According to the existing national and international standards in that field, "water content" means the weight loss (expressed as a percentage) that a product suffers under normal foreseen conditions. Mass loss is related to the mass of the moist sample.

In Romania the definition of the solid materials moisture unit is put into practice within the INM Reference Materials Laboratory, through the oven drying standard method [1] – a method of absolute measurement associated with the secondary standard installation to determine the moisture.

The oven drying standard method repeatability, which is a practical reference method [2], applied within the INM using the moisture secondary standard installation, is of maximum 0.2 %, and the expanded uncertainty U of moisture measuring through this method is in the range of (0.20...0.40) % for a confidence level of 95 %.

The primary standard installation with an expanded uncertainty of U = (0.10...0.15) % is in fact an international primary standard, which is located at the International Association of Cereal Chemistry (ICC) in France.

Confirmation of the results obtained in assigning values to the INM moisture standards has resulted from scientific work [3] and from testing the world's highest level types of moisture meters with measurement results traceable to the ICC.

Due to the importance of cereal moisture determination in practical applications the need arose to evaluate and express the measurement results by associating them with measurement uncertainty (standard expanded and/or composed).

1 Description of the measurement method

According to the standard method of determination of the water and evaporating material content of cereals [4, 5, 6] the main work operations to be carried out for whole cereal seeds are the following:

Sample	Operation	Means or auxiliary measuring device
	Weighing	Analytical balance
	Drying	Oven
	Cooling	Exicator
	Weighing	Analytical balance
	Calculation	Calculator

and for milled cereals seeds they are the following:

Sample	Operation	Means or auxiliary measuring device
	Weighing	Analytical balance
	Pre-drying	Oven
	Weighing	Analytical balance
	Grinding	Mill
	Weighing	Analytical balance
	Drying	Oven
	Cooling	Exicator
	Weighing	Analytical balance
	Calculation	Calculator

The following specific conditions are imposed on the measuring instruments and devices that are used in the process line of moisture determination:

- Analytical balance with a maximum indication of 200 g or 100 g and scale division of d = 0.1 mg or d = 0.2 mg that enables weighing in a very short time;

- Electric mill (grinder) that can be easily cleaned and which enables proper grinding without significantly heating the sample and without considerably modifying the water and evaporating material content;
- Electric oven that can maintain, in the drying area of the weighing boxes, the temperature within the range of (130...133) °C with ± 2 °C stability and which ensures a natural air circulation and a satisfactory thermic capacity;
- Flat bottom weighing boxes, made out of stable material under drying conditions, with an airtight lid that enables specific loadings of around 0.2 g/cm^2;
- Exicator with a metallic plate, which contains the dehydrated agent phosphorus pentoxide (P_2O_5) that allows rapid cooling of the weighing boxes with the dry sample.

Neither OIML R 59 [1] nor certain other standards [4, 5, 6] cover a series of factors which occur during the work operations and which can influence the result of the determination by introducing systematic errors.

Thus, in these standards the following are not taken into consideration:

- the time needed for the weighing;
- weight of the initial sample depending on the water content;
- granulation of the sample after grinding;
- the influence of the mill type (electric with high rotation or mechanical/manual with slow rotation);
- air exchange inside the oven during the drying;
- air circulation in the oven from entrance to evacuation, depending on the weighing boxes position;
- water and evaporating materials loss during grinding, depending on the seed type and the content of these components.

2 Factors influencing the cereal moisture measurement uncertainty

2.1 The influence of the weighing time variation

An analytical balance with maximum indication of 100 g and scale division of d = 0.1 mg is used for determinations. The results are presented in Table 1.

Reviewing the experimental data results, the grinding time for whole grain samples represents around 80 % and around 50 % for milled samples. In order to determine this factor, influence tests were performed where the weighing time was increased by 2–5 times.

The measurement results are obtained from equation (1) [3] and are presented in Table 2.

$$v = \frac{m_1 - m_2}{m_2} \qquad (1)$$

Table 1 Weighing time

Necessary time for:	Time (s)	
	No grinding	With grinding
Sample prelevation	10...12	10...12
Grinding	-	25...30
Mill stop and sample removal	-	32...40
Sample weighing	40...80	40...80
Total	50...92	107...162

Table 2 Influence of weighing time variation of the seeds sample over moisture for sunflower and soybeans

Weighing time (s)	% water + evaporating materials	
	Sunflower	Soybeans
80	17.62	-
160	17.56	7.82
240	17.51	7.80
400	17.54	7.80

The graphs of the variation of these results with the weighing time for sunflower are presented in Figure 1.

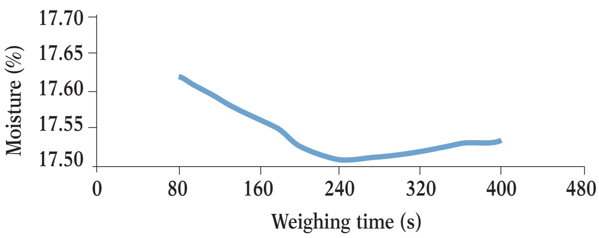

Fig. 1 Influence of weighing time variation of the seeds sample over moisture for sunflower

Reviewing the experimental data results for sunflower, for a 5 times longer weighing time the difference is 0.08 % compared to 0.2 % admitted in [6], for two parallel samples.

In the case of soybean seeds the difference is insignificant.

The influence factors mentioned above have significant effects on seeds having maximum moisture.

2.2 The influence of weight variation of the sample

OIML R 59 (1984) [1] provides that for whole grain seeds, the initial weight of the sample has to be (5...10) g, and for milled seeds the initial weight of the sample has to be (5.0 ± 0.5) g.

The results obtained were calculated with equation (1) [3] and are presented in Table 3.

Table 3 Influence of weight variation of the seeds sample over moisture for sunflower and soybeans

Sample weight (g)	% water + evaporating materials	
	Sunflower	Soybeans
4.5	-	10.32
5.0	16.22	10.37
5.5	-	10.41
7.5	16.35	-
10.0	16.32	-
Deviation from medium mass	0.07; 0.03	0.05, 0.04

The graphs of the variation of these results with the weight variation of the seeds sample for sunflower and soybeans are presented in Figures 2 and 3.

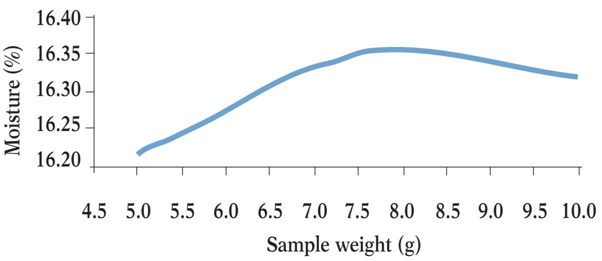

Fig. 2 Influence of weight variation of the seeds sample over moisture for sunflower

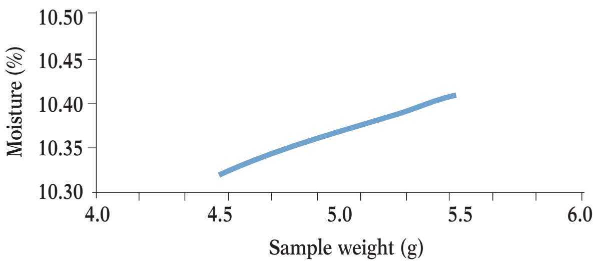

Fig. 3 Influence of weight variation of the seeds sample over moisture for soybeans

The deviation from the medium mass results is around 1/3 of the maximum admissible difference between two parallel samples (reproducibility).

2.3 The influence of granulation of the milled samples

According to the standard method [6], drying is carried out until the mass becomes constant for seeds with dimensions up to 7 mm and on milled samples for seeds over 7 mm.

The granulation conditions are of maximum 2 mm otherwise the seeds pass at minimum 50 % through a sieve of 3.15 mm.

The results obtained were calculated with equation (1) [3] and are presented in Table 4.

Table 4 Influence of grinding granulation of the seeds sample over moisture for soybeans and castor-oil plant

Granulation	% water + evaporating materials	
Pass through sieve of 2 mm, %	Soybeans	Castor-oil plant
98	11.24	
92	11.18	
82	11.11	
54	11.06	
41	11.07	
Pass through sieve of 3.15 mm, %		
76		6.17
64		6.14
52		6.14
45		6.13
32		6.02

The graphs of the variation of these results with granulation of the milled samples for soybeans are shown in Figure 4.

The deviation of the sample results with large granulation against normal granulation can be significant: 0.17 % water and evaporating materials for soybeans and 0.15 % water and evaporating materials for castor-oil plant, when the tests were performed in order to achieve large granulations so the effect of the particle dimensions would be obvious.

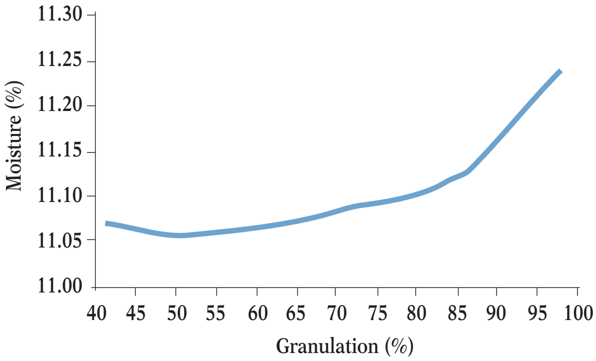

Fig. 4 Influence of grinding granulation of the sample over moisture for soybeans

It is appreciated that the granulation can influence the results of the tests with maximum 0.1 % water and evaporating materials if the particle dimensions exceed the admissible upper limits by 10 %.

2.4 The influence of the drying temperature of the sample

An oven with T-air circulation and temperature stability of ± 1 °C was used for tests, where a best drying surface was chosen in the center of the 4th superior shelf, for four weighing sample boxes.

Concerning the drying, for the cereal seeds the following was monitored:

- the influence of the drying temperature variation within the prescribed limits;
- the influence of the variation in the air flow circulating through the oven;
- the influence of the variation in the drying time on reaching the constant mass of the drying samples.

In order to establish the influence of the drying temperature variation within the limits laid down by the standard method [6], the following steps were taken:

- the drying temperature was adjusted by ± 1 °C, to the values of 102 °C, 103 °C and 104 °C;
- parallel tests were performed on sunflower, soybeans and castor-oil plant at the above mentioned temperatures, and all samples were subjected to the same phase of the thermic cycle of drying.

The results obtained were calculated with equation (1) [3] and were compared between each other and with those obtained at 103 °C; they are presented in Tables 5 and 6.

Table 5 Influence of drying temperature variation of the sample over moisture (% water + evaporating materials)

Set temperature, °C	102	103	104
Measured temperature, °C (minimum-maximum)	101…103	102…104	103…105
Seed species			
Sunflower	7.21	7.24	7.25
	9.86	9.89	9.90
	17.29	17.32	17.33
Rapeseed	5.72	5.74	5.86
	6.76	6.77	6.85
Soybeans	7.86	7.81	7.84
	10.62	10.68	10.67
	11.64	11.62	11.68
Castor-oil plant	5.10	5.12	5.12

The deviations of the moisture values depending on the temperature variations are presented in Table 6.

Table 6 Moisture value deviations depending on the temperature variation (% water + evaporating materials)

Temperature variation, °C	$U_{103\,°C} - U_{102\,°C}$	$U_{104\,°C} - U_{103\,°C}$	$U_{104\,°C} - U_{102\,°C}$
Seed species			
Sunflower	0.03	0.01	0.04
	0.03	0.01	0.04
	0.03	0.01	0.04
Rapeseed	0.02	0.12	0.14
	0.01	0.08	0.09
Soybeans	– 0.05	0.03	– 0.02
	0.06	– 0.01	0.05
	– 0.02	0.06	0.04
Castor-oil plant	0.02	0.00	0.02

The graph of the variation of these results with drying temperature of the samples for sunflower is presented in Figure 5.

Reviewing the results, the following resulted: the percentage growth, percentage water plus evaporating materials for 1 °C is within the range of 0.01 % and 0.04 % for sunflower, 0.01 % and 0.14 % for rapeseed, – 0.05 % and 0.06 % for soybeans and 0.02 % for castor-oil plant.

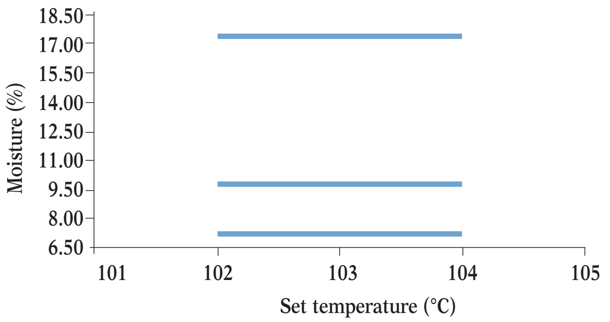

Fig. 5 Influence of drying temperature variation of the seeds sample over moisture for sunflower

The influence of the air flow circulating inside the oven during the drying process was also followed.

Verification of this parameter was carried out by opening apertures of a known size for the air to enter into the oven.

The results obtained were calculated with equation (1) [3] and are presented in Table 7.

Table 7 Influence of air flow variation over moisture (% water + evaporating materials)

Seed species	Orifice opening			
	1/4	1/2	3/4	1/1
Sunflower	7.02	7.28	7.29	7.12
	9.67	9.94	9.90	9.71
	16.62	16.87	16.93	16.65

The result of reviewing the experimental data was that when the aperture is closed around 3/4 or is wide open, the water and evaporating materials content is less with around 0.3 % compared to the values obtained in the other two positions.

In order to establish the drying time length variation over the process of reaching a constant mass of the dried samples the following steps were taken:

- the oven was heated to (103 ± 1) °C;
- the weighing boxes with the samples were dried for 3 h;
- the samples were cooled in the excicator;
- the weighing boxes with the samples were weighed;
- the weighing boxes with the samples were dried again for 1 h;
- the cooling, weighing and additional drying operations were repeated until the difference between two successive weighings was less than 0.005 g for the sample of 5.000 g, as prescribed in [6]. These operations were repeated 5-6 times.

The results obtained were calculated with equation (1) [3] and are presented in Table 8.

Reviewing the values obtained during the tests, the following was observed:

- the drying time until constant mass was almost reached is specific to each type of seed and is dependent on its dimensions. Thus, it can be noticed that for sunflower the minimum drying time is 4 h, and for soybeans it is 5 h;
- after the above mentioned drying time the mass variation of the sample falls within the limits of maximum 0.01 % compared to the admissible difference of ± 0.02 % for two parallel samples.

During the process of measuring the cereals moisture, the following five correction factors were identified, assessed and taken into account in order to be used for the expression of the measurement uncertainty, associated with the final result of the measurement:

- f_1 correction factor due to weighing time of the cereals samples;

Table 8 Influence of drying time variation of the sample over moisture (% water + evaporating materials)

Seed species	Drying time, h							
	3	3 + 1	4 + 1	5 + 1	6 + 1	7 + 1	8 + 1	9 + 1
Sun-flower	7.231	7.244	7.245	7.246	7.248	7.244	7.249	7.240
	9.925	9.941	9.943	9.940	9.936	9.946	9.941	9.943
	17.125	17.229	17.226	17.231	17.239	17.240	17.232	17.243
Soy-beans	7.893	7.956	7.983	7.996	7.992	7.989	7.991	7.990
	10.612	10.625	10.639	10.642	10.648	10.644	10.641	10.643

- f_2 correction factor due to initial mass of the samples depending on the moisture content;
- f_3 correction factor due to samples granulation after grinding;
- f_4 correction factor due to drying temperature of the samples;
- f_5 correction factor due to drying time of the samples.

The experimental values of the quantities influencing the measurement and which are taken into account for the five correction factors are the following:

- for f_1, t = 50 s;
- for f_2, m = 5.0002 g;
- for f_3, ∅ = (0.2…2) mm;
- for f_4, T = 131 °C;
- for f_5, drying time until constant mass is reached (specific to each seed species), t = (2…5) h.

Those five correction factors were added into equation (1) [3]:

$$\upsilon = \frac{m_1 - m_2}{m_2} \cdot \prod_{i=1}^{5} f_i \qquad (2)$$

Equation (2) is rather difficult to use as such to combine uncertainties. Therefore, it may be written as the difference between the two terms A_1 and A_2:

$$\upsilon = A_1 - A_2 \qquad (3)$$

where:

$$A_1 = \frac{m_1}{m_2} \cdot \prod_{i=1}^{5} f_i \qquad (4)$$

and

$$A_2 = \prod_{i=1}^{5} f_i \qquad (5)$$

The combined standard uncertainty of A_1, taking into consideration equation (4), is:

$$u_{A_1} = A_1 \cdot \sqrt{\left(\frac{u_{m_1}}{m_1}\right)^2 + \left(\frac{u_{m_2}}{m_2}\right)^2 + \left(\frac{u_{f_1}}{1}\right)^2 + \left(\frac{u_{f_2}}{1}\right)^2 + \left(\frac{u_{f_3}}{1}\right)^2 + \left(\frac{u_{f_4}}{1}\right)^2 + \left(\frac{u_{f_5}}{1}\right)^2} \qquad (6)$$

Conclusions

The installation to determine the moisture content of cereals that was developed by scientific research within the Romanian INM [7, 8, 9] meets the requirements for accreditation and use as a secondary standard in the field of cereals moisture.

By modernizing certain components of the secondary moisture standard installation developed by the INM (e.g. analytical balance, mill, oven, etc.) using components with better technical and metrological features (similar to those of the standard installations of other national metrology institutes with an established track record in the field of moisture metrology such as the BNM (France), the PTB (Germany) or NIST (USA)), maintenance of the variations of the influence factors of the measurement uncertainty of cereals moisture will be assured within the lowest limits possible, these values being evaluated in Romania for the first time.

The results obtained show that the INM standard of solid materials moisture is equivalent to certain other standards of the same accuracy order. International recognition of the INM standard implies participation in standard comparisons that are organized worldwide by the BIPM for the member states of the Meter Convention, of which Romania has been a member since 1893.

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INFRASTRUCTURES

Modernization of legal metrology in Germany

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Abstract

The transposition of the European Measuring Instruments Directive (MID) into German law will also be the opportunity to modernize national requirements taking into account political, economic and technical developments. The protective goals so far applicable will also be reached in future and the conformity assessment procedures specified in the MID will moreover be adopted for those measuring instruments not covered by the MID but which are still subject to national legal control. It has been politically decided to include more private bodies for conformity assessment and verification of measuring instruments.

1 Introduction

Germany has an efficient legal metrology system to which the PTB, the Verification Authorities and the state-approved test centers have made essential contributions. The test and surveillance activities so far performed have proved their worth in the past, but European harmonization by the MID, technical progress as well as the increasing shortage of resources require additional modernization [1].

The European Union Member States will have to transpose the MID into their national law before 30 April 2006 and the MID has to be applied on 30 October 2006. This revision of national legislation will be used to modernize German law; consumer protection should, however, be more strongly geared to the economic consequences of measurements.

The categories of instrument which are subject to legal control have to be discussed, as does the role of the competent bodies which will take over the tasks of notified bodies. The conformity assessment procedures specified in the MID can also be adopted for those measuring instruments which are not covered by the MID but which are still subject to national legal control. EU Member States should take appropriate action to prevent non-complying measuring instruments from being placed on the market. In addition to that, the use of the instruments should also be monitored to ensure correct operation and reliable measurements.

2 Legal metrology in Germany

2.1 National law

The law on metrology and verification (Verification Act) has established the protection of consumers and competition as essential objectives of national legal metrology. Official measurements as, for example, in road traffic and for the determination of taxes and duties also play an important role. The European requirements for instruments and procedures are derived from European Old Approach Directives since 1971 and the Directive for Non-automatic Weighing Instruments since 1993. The technical requirements for measuring instruments and test procedures subject to national legal control have been derived from OIML Recommendations.

2.2 Competent bodies

Germany has a federal structure with 16 states of very different sizes and populations. The Federal Government has the legislative power for weights and measures to guarantee uniformity of legal metrology on the federal level. The operative tasks in the Verification Act have been assigned in part to the Federal Government, but predominantly to the federal states.

The PTB realizes the legal units, disseminates them and ensures uniformity in metrology. It grants type approvals for measuring instruments, releases test specifications and renders consultancy services to the federal states and the state-approved test centers including work in organizations for European and international harmonization.

The federal states execute the Verification Act in more than 80 verification offices. These tasks cover initial verifications, subsequent verifications and surveillance of users and repairers of instruments and packers of pre-packages including the prosecution of administrative offences. The Verification Authorities are also responsible for the approval and surveillance of more than 300 state-approved test centers which are obliged to verify measuring instruments for electricity, gas, water and heat. Each year, approximately 2 million verifications are performed by the verification offices and about 18 million verifications including sampling procedures are performed by the test centers.

3 Political, economic and technical developments

For many years, legal metrology has been successfully applied but now the system has to be adapted following technical developments, further globalization of the economy and political targets.

3.1 Political and economic changes

The primary reason for amending the national law is the transposition of the MID. But further activities are necessary in the wake of the globalization and liberalization of the markets with increased competition between the manufacturers and the users of instruments. This implies on one hand the risk that the manufacturer places non-conforming instruments on the market and on the other hand a possible interest of the user to manipulate his instrument. So more severe surveillance measures are necessary, but this is limited by the decreasing resources of the monitoring bodies.

Another challenge is the political decision to privatize responsibilities in legal metrology not only following the possibilities of the MID. Moreover, the Government has decided that private bodies shall also perform testing of instruments which have been placed on the market.

3.2 Technical developments

Under the influence of information technology, modern measuring instruments have increasingly become complex open systems with stationary and sometimes exchangeable components, which are networked among one another. The essential metrological characteristics are defined by software, and the requirements for the software and its testing have become increasingly important. Higher complexity requires a larger scope of tests but more extensive tests are economically not acceptable [2].

Another challenge are measuring systems in utility networks with devices which communicate with the main measuring instrument and remote displays without access to the consumer. In the electricity market devices with load profile memories form new values from the values measured which are not always recognizable for the customer as the basis for payment. This is why the MID stipulates protection against corruption for instruments with processing of measurement data relevant to the invoice. The range of application of the law must cover not only the individual measuring instrument but also the whole measuring system including sub-assemblies and peripheral equipment. It must be ensured that only such measurement values will be used as a basis for the invoice, which have been determined by verified or suitably monitored components of the measuring system.

4 National transposition of the MID

The principles of legal metrology in the MID are responding to reasons of public interest, public health, safety and order, protection of the consumer and the environment, of levying taxes or duties and of fair trade. Legal metrological control should not lead to barriers to the free movement of measuring instruments. The provisions concerning the placing on the market or first putting into use should be the same in all European Member States.

4.1 National scope of legal control

The MID allows different levels of consumer protection that may apply at national level. According to this subsidiary principle the Member States continue to decide under their own responsibility which application and thus which measuring instrument categories will be subject to legal control and which competent certification bodies will be designated as notified bodies.

Consumer protection must orientate itself more strongly towards the economic consequences of measurements. Legal regulations should concentrate on such measurements where errors could result in considerable damage to the consumer or to clear distortions of competition.

As a result of such discussions Germany will prescribe legal metrological control for all measuring instruments defined in the MID and additionally for some more categories of instruments on the basis of national requirements.

4.2 Conformity assessment

The conformity assessment procedures specified in the MID will also be adopted for those other measuring instruments which are not covered by the MID and which are only subject to national legal control. For all measuring instrument categories (with the exception of the instruments regulated in accordance with the Old Approach Directives) private bodies can be designated as conformity assessment bodies.

The conformity assessment procedures are structured according to different modules from which the manufacturer can freely choose. The procedure according to modules B and F comprises type examination (module B) and the test of all series devices (module F). This procedure basically corresponds to the combination of type approval and initial verification so far applied.

Instead of module F with expensive and time-consuming product tests of all series devices by a notified body, the manufacturer can apply module D by having his quality assurance in production approved and supervised by a notified body.

The manufacturer may also choose the procedure according to module H1 with a design examination on the basis of measurement results of the manufacturer and an approved and supervised full quality system also covering the development.

The notified bodies to be included in the conformity assessment procedures have to meet the criteria for independence, competence and integrity stated in the Directive. In addition to their metrological and technical competence, they also have to furnish proof of their ability to assess quality systems. Due to the required independence, only third-party bodies come into question as notified bodies. The German Government will designate the PTB for modules B, D and H1. For module F the Verification Offices will be designated but there are also some private bodies interested in conformity assessment according to module F.

The same conformity assessment procedures will be applied to instruments subject to legal control in Germany but which are not covered by the MID. The level of competence of the certification bodies will also be equivalent to the MID requirements. The Government will designate the PTB and the Verification Authorities as competent bodies, so the manufacturers operating a quality system will no longer have to make use of initial verification by a Verification Office.

4.3 Requirements to be met by instruments

The measuring instruments have to meet essential requirements laid down in the MID. The technical and performance specifications of harmonized European standards or internationally agreed normative documents (OIML Recommendations) may also comply with the essential requirements. Legislation shall not impede technical progress. So the use of European technical standards or internationally agreed normative documents should therefore be optional. The use of these standards or normative documents gives only rise to a presumption of conformity.

4.4 Software

Measurement data and software that is critical for measurement characteristics shall be protected against accidental or intentional corruption. Following this requirement of the MID the software used in measuring systems with integrated software-controlled functions must be tested and secured. The PTB is preparing itself for such new technologies and has developed within the scope of the existing cooperation on the European level in the framework of WELMEC [3] common software requirements and test procedures for the transfer, storage and conversion of measurement data. A software guide for the application of the MID has been developed by the European Growth project "MID-Software" and the WELMEC working group "Software" [4]. Further activities have been started in OIML TC 5.

4.5 Conformity assessment in the PTB

In preparation for the tasks on the basis of the MID, especially for the design examination and approval of quality systems, the PTB has established a certification body for measuring instruments for certification of products and quality systems. Within the scope of standardization, the PTB has consequently separated testing and certification. The test laboratories for type examination will work in decentralized PTB divisions and the central certification body has been established in a cross-sectional division.

An essential task of this certification body is the harmonized assessment of test reports and audit reports. Approval criteria and test procedures shall be compatible with those of other notified bodies. This process of harmonizing the application of the MID takes place in WELMEC.

For market access in Germany the manufacturers will no longer depend on type approvals from the PTB because they can obtain this from other notified bodies in Europe, but the PTB will further offer conformity assessment to industry and compete with governmental and private European notified bodies.

5 Measures after putting into use

The Verification Act not only aims at measuring instruments but also at measurements, including the activities of the users of instruments. The requirements are subject to national legislation.

5.1 Subsequent verification

A measuring instrument shall be designed to maintain an adequate stability of its metrological characteristics over a period of time, provided that it is properly installed, maintained and used according to the manufacturer's instructions. This durability of an instrument will be reached to a large extent by periodical subsequent verifications, which will be applied to most of the instruments including MID instruments. The periods of validity of the verification are laid down in the appropriate instrument-specific requirements.

When testing an instrument for initial verification or subsequent verification the MPEs are applied. During the period of validity of the verification the error of measurement shall not exceed the maximum permissible error in service (2 × MPE).

On the basis of the statistical data from rejections of instruments when re-verified it must be checked whether the periods of validity of verification so far applicable are still appropriate. Former investigations have shown that the period of validity of the verification for fuel dispensers and weighing instruments could be considerably prolonged for technical reasons alone as far as subsequent verifications are not linked with other metrological surveillance measures.

For instruments in utilities not only periodical verifications are applied but also sampling procedures for prolongation of the period of validity of the verification. The number of to meters for electricity, gas, water and heat which has been applied to these sampling procedures for several decades has increased considerably. On the basis of these positive experiences the application of sampling procedures to other categories of instruments will be discussed.

5.2 Market surveillance

Market surveillance is necessary to ensure that the MID is correctly applied in Europe. It serves to determine whether the manufacturer has only placed measuring instruments on the market which meet the legal requirements. Monitoring these instruments falls under the responsibility of the national authorities. Appropriate surveillance measures are necessary but the increasing complexity of the measuring instruments and systems requires considerably higher technical competence of the Verification Authorities, which will perform the market surveillance activities in Germany. In addition to that the increasing privatization of public tasks will limit the human and financial resources and the effectiveness of market surveillance.

For the organization of market surveillance a cross-border exchange of information is required; Germany aims to achieve close cooperation, both on the national and on the international levels. As further regulation is required in the European context, WELMEC [3] has founded a Working Group which has developed a guideline for market surveillance, and another Group to develop an effective information exchange.

5.3 Surveillance of the user

A distinction must be made between market surveillance targeted at the manufacturer and the surveillance of measuring instruments in service. This measure is targeted at the user of the instrument who is responsible for the installation and maintenance, the processing of measurement values, manipulation and the permanent compliance with the requirements in the user manual.

When processing the data to conclude certain trading transactions, the measuring instrument shall record by a durable means the measurement result accompanied by information to identify the particular transaction. This is a requirement when the measurement is non-repeatable and the measuring instrument is intended for use in the absence of one of the trading parties. The correct application of such a requirement has to be checked by the monitoring authority; especially for measuring systems there are often reasons for inspections.

5.4 Private bodies for subsequent verification

For several decades now, state-approved test centers have been authorized to verify measuring instruments for electricity, gas, water and heat (initial and subsequent verification). Most of these test centers are supported by utility companies. The assessment of their technical competence, recognition and surveillance are tasks of the Verification Authorities.

Moreover, the Bundesrat (Federal Council) has decided that the testing of instruments by private bodies should not be limited to the above mentioned categories of instruments. Extensive discussions have been started about further categories of instruments which might be subject to subsequent verification by private bodies. Regarding technical competence and impartiality, new private bodies shall be independent from development, production and repair of the instruments. So the manufactures are not allowed to perform subsequent verification on their own measuring instruments. The authorities shall remain responsible for recognition and surveillance of these bodies.

Due to the loss of fees hitherto charged for subsequent verification, such a concept cannot, however, be implemented completely in the short term but has to take the different financial situations of the individual federal states into account. So this privatization of technical tasks will be performed in successive steps.

The PTB is making efforts to raise the level of the requirements to be met by the private bodies responsible for subsequent verification to that of the notified bodies. This intention aims at an equivalent protection level for both new instruments and instruments already in service.

6 Summary

The German legal metrology system, including the PTB, the Verification Authorities and the state-approved test centers has been successful in the past, but European harmonization, technical progress and the increasing shortage of resources require sustainable modernization.

Legal regulations will be concentrated on those measuring instruments for which errors can lead to considerable damage for the consumer or to clear distortions of competition. A corresponding amendment of the legal regulations will include not only all the MID instruments but also other categories of instruments.

Verification Authorities and private bodies will in future perform the enforcement of legal metrology. The PTB will continue to realize and disseminate the legal units, carry out tests and conformity assessments including quality systems and render advisory services to the regional authorities and private bodies to ensure federal uniformity.

Market surveillance cannot be regulated and enforced only on the national level. A harmonized approach and a cross-border exchange of information is required to avoid contradiction with the MID and the PTB supports close cooperation both on the national and on the international levels. ■

7 References

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12e CONGRÈS INTERNATIONAL de MÉTROLOGIE INTERNATIONAL METROLOGY CONGRESS

This paper was originally given as a lecture at the 12th International Metrology Congress held in Lyon (June 2005) in conjunction with the OIML Meetings ■

The International Committee of Legal Metrology held its 40th Meeting in Lyon from 18–20 June 2005 in conjunction with the 12th International Metrology Congress. Special celebrations were held to mark the 50th Anniversary of the Organization, founded in 1955.

40th CIML Meeting, Lyon, June 2005

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12 Closure

Opening address by Prof. Manfred Kochsiek

Ladies and Gentlemen,

It is my pleasure to welcome you here to this 40th Meeting of our Committee, and I thank you in advance for your participation, which I am sure will be as positive, as fruitful as ever. It is also an honor for me to welcome about 170 delegates, observers, guests to the city of Lyon, where we have already had several meetings this week, such as the Committee on Participation Review for the Mutual Acceptance Arrangement, the Permanent working Group on Developing Countries, a new Working Group on Conformity to Type and a Presidential Council Meeting. In the next few days we will be celebrating not only the 40th Meeting of the International Committee but also the 50th Anniversary of the OIML, and we are involved with several sessions in the 12th International Metrology Congress.

Last year some countries expressed an interest in becoming OIML Member States or Corresponding Members, so today I am pleased to welcome some new Members:

- Turkey has changed from Corresponding Member to Member State;
- We have three new Corresponding Members: Kyrgyzstan, Qatar and Tajikistan; and Zambia has moved from a Member State to a Corresponding Member.

So now there are 60 Member States and 53 Corresponding Members.

In reviewing the composition of our Committee, I have the pleasure of welcoming the following CIML Members:

- Ms. Biserka Mladinic, from Croatia;
- Dr. Yukinobu Miki from Japan;
- Mr. Francis Kamau from Kenya;
- Mr. Tony Lee from New Zealand;
- Mr. Abdul Ghaffar Soomro from Pakistan; and
- Dr. Atilla Sahin from Turkey.

Mr. Drissi from Algeria has replaced the former CIML Member Mr. Boudissa, but up to now his formal designation as CIML Member has not been sent to us by the Algerian Government.

On Monday we will be celebrating the 50th Anniversary of our Organization. On several occasions we reflect on the development, and I will start my opening address with some information on its development.

Already before 1913, that is over 90 years ago, the 5th General Conference on Weights and Measures, which is the decision-making body of the Metre Convention, had discussed the proposal to establish a new international organization for resolving the problems raised by the use of measuring instruments.

At that time, verification in a lot of countries was already developed quite well, and differences between national regulations for measuring instruments subject to legal metrology control disturbed free flow of trade with this measuring harmonization. It was only in 1933 that the 8th General Conference on Weights and Measures commissioned the International Committee to establish a Consultative Committee for Practical Metrology.

Hereupon the International Conference of Practical and Legal Metrology was convened by the French government. The main output of the discussions was to create a Provisional Committee of Legal Metrology, which should have met for the first time in 1938. Due to the occurrences prior to the Second World War, during the War and after the War, it was only in 1950 that it was able to meet for the first time. The layout of a Convention establishing an International Organization of Legal Metrology was developed and submitted to the diplomatic representatives in Paris in 1952. It would come into force after 23 states had signed in 1955.

The First International Conference of the International Organization of Legal Metrology was held in 1956.

The first preliminary Recommendations about weights and commercial weighing instruments were ready to be adopted by the Second International Conference.

During the first years the classical fields of verification (length, mass and volume measurement) were dealt with, but in the course of time main emphasis has been put on new fields of activity. For the past 20 years these have been the fields of medical measuring instruments, measuring instruments for environmental protection and radiation protection, all of them taking into account the latest developments in the field of electronics and statistical test procedures.

Since 1955, the OIML has grown and produced numerous documents and systems to facilitate mutual confidence and recognitions.

The growth of the OIML can also be demonstrated by other parameters such as the number of Member States. The OIML membership includes Member States, which are countries that participate actively in technical activities, and Corresponding Members, which are countries that join the OIML as observers.

In 1956 there were 22 signatory states, one less than the year before; in 1968 there were already 36 Member States, and 30 years later in 1986 the OIML comprised 51 Member States and 27 Corresponding Members. Now, as already mentioned, in 2005 the OIML has 60 Member States and 53 Corresponding Members and is still growing.

In 1956 there existed no publications at all; at the time of the Third OIML Conference held in Paris in 1968, 18 Recommendations had already been approved, 8 were at the level of final drafts and 33 texts were being developed within the relevant Technical Secretariats.

Up to 1987, 75 International Recommendations (model regulations) and 16 International Documents (informative documents) had been issued, and now 114 International Recommendations are in force and 28 International Documents plus a number of other publications (Vocabularies, Guides and Expert Reports).

A system for issuing OIML Certificates of Conformity of measuring instruments was set up in 1991 and now covers more than 40 categories of measuring instruments. This System is being complemented by a Mutual Acceptance Arrangement (the OIML MAA) whose implementation is now beginning.

This brief outline of the foundation and history of the OIML as well as a 50 year story of success should stimulate further considerations in the next few days.

Coming now to a short review of the last year since the 39th Committee Meeting and 12th Conference in Berlin, first of all I want to mention a new Long Term Strategy, the Action Plan for several years and the Work Program for one year, which will be discussed later on. Another important subject will be the ongoing development of the MAA; as already mentioned, this week we had a successful meeting of the CPR whose objective was to make the MAA a useful operational tool for the globalization of legal metrology.

Another important point which has started and will be continued in the next year is a review of Technical Committees and Subcommittees and several projects. Also, closer cooperation with regional organizations continued. Under the leadership of Mr. Magaña, the effectiveness of the Bureau has improved considerably. The intensification of electronic communication, including an up to date web site, facilitated and speeded up the exchange of information and ideas. The renovation of the OIML building and its adaptation to a growing need for space is a further step forward. However, we will have to consider how we can make the OIML more effective with regard to its working procedures. In this context, we are looking forward to your ideas and suggestions. They will be highly appreciated and implemented wherever possible. I am sure that this positive development will continue under the leadership of the new President, Mr. Johnston, and the Vice President we will elect during this meeting.

So, at the end of my opening address I thank all of you for your support and cooperation, especially Alan Johnston, the President Elect, and Mr. Magaña and his staff for all their support during my nearly two years as Acting CIML President.

So with the following handshake I pass the Presidency to Alan Johnston.

Opening address by Mr. Alan E. Johnston

Policies and Priorities

Good morning, bonjour.

Welcome to the beautiful city of Lyon. I hope you will have the opportunity to enjoy the activities that we have planned this week and also to enjoy the city of Lyon. I would like to give you a little piece of advice, though: when you visit Old Lyon, there is a tram that takes you to the top of the hill; my wife and I only discovered this when we walked to the top of the hill, and it took us several hours to recover! If you need further instructions please see me after the meeting this morning and I'll help you out.

I would like to begin by thanking Manfred Kochsiek for his dual role over the last two years as President and First Vice President. I have worked closely with Manfred since the meeting in Berlin; I have learned a lot from him and over the course of the last nine months we have had the opportunity to work together on various issues. One of the concerns I had was whether or not Manfred and I would see eye to eye on most things or whether we would be at opposite ends of the spectrum. I am pleased to say that, for the most part, we agreed on the activities that we had to work together on - I am sure that Jean-François Magaña may not have thought so on occasions when he received emails from Manfred and myself, but this has made the transition very easy for me and I look forward to continuing to receive counsel from Manfred. I have asked Manfred to stay at the front of the room for the entire meeting to show my respect for his capacity, both as the representative for Germany and for his long, long service to the OIML.

Somebody asked what my priorities were going to be during my term as President: I will get into them very briefly but most of the items that I will be talking about we will be discussing at this meeting. Mr. Kochsiek has already mentioned a number of them, such as the Mutual Acceptance Arrangement; we are looking for ways to expedite the work of the Technical Committees; I would like to work with Mr. Magaña and his team in terms of ensuring that the services provided by the OIML Secretariat are relevant and meet your needs - if they do not meet your needs, then we will have to look at how we can improve. I think he is doing an excellent job and I would also like to thank him and his team at this point for the work they have done in organizing this meeting, and also the 50th Anniversary of the OIML and the work that he has done in relation to the International Metrology Congress.

In 1821, John Quincy Adams, who was an American Secretary of State, wrote the following about the importance of metrology:

"Weights and Measures may be ranked among the necessities of life to every individual of human society. They enter into the economic arrangements and daily concerns of every family. They are necessary to ensure every occupation in human industry; to the distribution and security of every species of property; and to ensure transaction of trade and commerce."

Now, that was 1821. You could read this today and I think that everything in there is still relevant. Today the issues are the difficulty of making governments recognize the importance of legal metrology and of metrology in general; it is not "sexy" and it does not usually win too many votes. I know that, talking to my colleagues around the world, most of them are experiencing a reduction in resources, and pressure from their governments to privatize, to involve the private sector more in metrology. There is nothing wrong with that, but I think the role for the OIML will be to ensure that we can provide you with whatever information you need in order to convince your governments of the importance of legal metrology and to ensure that we continue to have a viable system worldwide. We are moving towards this through the development of the MAA, through various regional meetings and regional organizations; but it will be extremely important for me and for the OIML to continue to demonstrate the relevance of legal metrology. How we do this will be on a case by case basis, but I look forward to providing any assistance I can in terms of this kind of information.

There are many other things that we will be doing over the course of the next two or three days, and Mr. Kochsiek has already touched on the issues that we will be discussing. So I decided that in the interests of brevity this morning I will not repeat them. I would encourage you, though, throughout the day to come and talk to me if you have any issues you would like to discuss. I will make myself available throughout this meeting and I will be here for most of the International Metrology Congress.

In closing, I would like of course to thank you all for your confidence in electing me in Berlin. I hope that I can demonstrate to your satisfaction that I am worthy of the job and I look forward to representing the OIML in the future. Thank you very much for your time. ■

To mark the outstanding contributions of certain key legal metrology personalities, the CIML nominated one Honorary Member, made four OIML Awards and gave two Letters of Appreciation during the Fiftieth Anniversary celebrations

Gerard Faber,
CIML Immediate Past-President,
was appointed CIML Honorary Member

AWARD:
Mitsuru Tanaka (right)
presented by Yukinobu Miki

POSTHUMOUS AWARD:
Marianne Kooiman on behalf of her late husband Aart,
presented by Cees van Mullem

AWARD:
Ken Butcher

AWARD:
Li Chuanqing,
presented
by Alan Johnston

Letters of Appreciation were given to:

Richard Davis (right)
presented by Rainer Köhler

Michael Gläser

40th CIML Meeting

Mr. Magaña welcomed the 170 meeting delegates present - a record participation - and explained an alteration in the voting system: previously there had been a preliminary vote on each item and at the end of the meeting a quorum was taken and Members had voted again on all the issues. This year, as an experiment, there would just be one vote on each item (where required), which would mean the quorum would have to be taken each time. If it proved to be practical, this method of voting would be operated at future meetings. It was established that a quorum was present: 51 Member States were present or represented, and the agenda was approved and adopted unanimously.

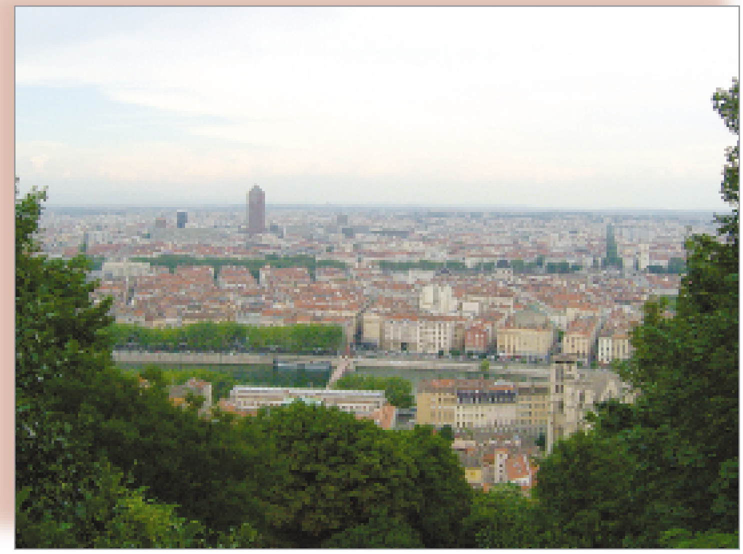
1 Approval of the minutes of the 39th CIML Meeting

The minutes of the 39th CIML Meeting were approved unanimously.

2 Member States and Corresponding Members

2.1 Situation of certain Members

The 12th Conference had instructed the CIML to review annually the situation of Members who paid reduced fees and asked it to re-examine the possibility of these States resuming their normal contributory class as soon as the state of their finances permitted.



The amount paid by any country depended upon the size of its population (taking the nearest whole million below) and on its economic situation. The Committee had the power to permit a country to drop by one contribution level, and had asked the BIML to draw up a clear and fair rule to govern the situation of such Members.

The proposed rule on the subject, circulated previously to Members, stated that a country's contributory class might be varied if its population or economic situation had changed significantly since the last figures.

Mr. Magaña invited Members' comments on this proposal but pointed out that it was generally in accord with existing practice in the OIML, apart from a small number of exceptional cases. The new rule (full details can be found in the Minutes) was adopted by the CIML and the situation of six Member States would, for different reasons, be modified by the new arrangements, though Mr. Johnston suggested that any countries who wished to offer observations on their individual contributions or on those of others should write to him by the end of July and proposed that a postal vote be held once any such comments had been received. Any changes would be applicable from 2007, since every State had a budgetary procedure to go through.

3 Financial matters

3.1 Adoption of the Auditor's report for 2004

The 2004 OIML accounts, approved by their External Auditor, had been drawn up according to the old system, which had been in operation up to the end of 2004.

Mr. Magaña showed a table indicating that income from Corresponding Members' fees had been slightly higher than that estimated in Berlin but on the other hand the revenue from the sale of publications had been rather lower, since all publications were now available online without payment.

Other differences between actual and estimated expenses were mainly in the *Miscellaneous* category and represented tax payments and other elements which were difficult to budget for.

Salary payments for the past year had been slightly lower than the Berlin estimates. Meeting expenses for 2004 had also come in somewhat below budget and in fact there were few major differences between the budget presented in Berlin and the final figures, except for certain incidental expenses, which were lower than expected.

There being neither "no" votes nor abstentions, the accounts were unanimously approved and would be presented again, as was normal practice, to the 2008 Conference.

3.2(a) Report on the OIML Pension Scheme

Mr. Magaña informed Members that a review of the OIML Pension Scheme had been requested. The pension arrangements formed part of the Staff Regulations, which set out the rights of employees and the financing of the Pension Scheme. The costs of this system had been evaluated by an expert. The OIML Convention stated that if the Organization were dissolved, its funds would be divided among its Member States after deduction of moneys owing to BIML staff, both serving and retired. Thus, these rights needed to be valued and shown in the accounts. A summary of the expert's report had been circulated to Members in April; it showed considerable differences from the previous state of affairs.

The expert's report had included a number of recommendations and the sum needed in future to cover current requirements had been calculated, for which a provision should be made in the accounts. Mr. Magaña noted that these conclusions had been reached after the accounts had been approved by the 2004 Conference, and the budget would therefore have to be changed accordingly, though obviously it was not possible to plan for a much larger deficit than the Conference had approved despite the fact that this matter would have considerable repercussions on the OIML balance sheet.

3.2(b) Assets and liabilities as at 01/01/2005

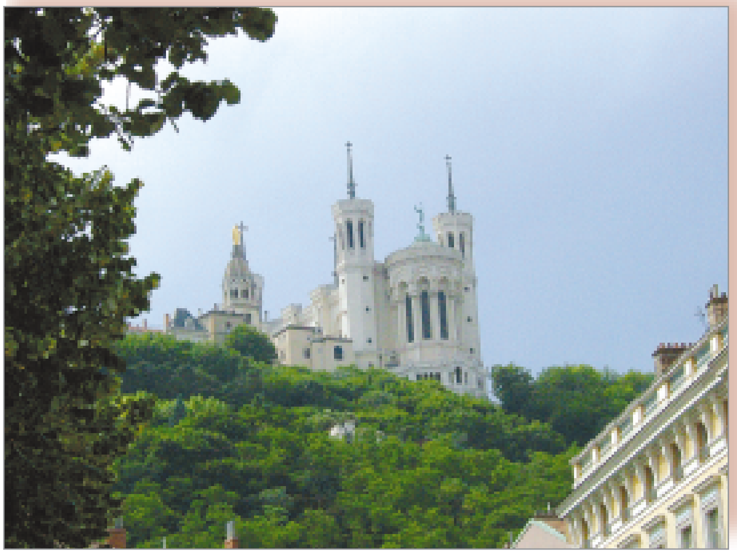
Mr. Magaña told delegates that information on the assets and liabilities of the OIML was detailed within the framework of the changed accountancy system. As from 1 January 2005 the new system agreed in Berlin had been in operation and would result in a number of credits and debits in the balance sheet being shown in a different manner from previously, namely:

- The Pension Fund, as explained above;
- Assets had previously been depreciated as soon as they were bought; under the new accountancy system linear depreciation would show the buildings depreciating over 50 years, fixed fittings over 10 years, office equipment over 5 years, etc.;
- Money owing from Member States would continue to be shown as under the current system, but their advances would be accounted for more clearly as debts. Additionally, Corresponding Members' debts had never previously been accounted for;
- Loans to staff would be shown in the accounts as such and not under miscellaneous expenditure;
- The OIML Translation Center (consisting of voluntary payments by certain Member States to defray the cost of translating certain documents) had now been integrated into the accounts;
- Other minor matters, including the entering of advance payments, would be shown differently in the new accounts.

The overall effect was that the Reserve Fund would be considerably diminished. In recent years, this fund had appeared to be too high, in that it represented more than the cost of one year's functioning; but in fact it had been overvalued, and therefore would now reflect its true value.

3.3 Information on the implementation of the new Financial Regulations

Mr. Magaña said these changed Regulations, which had already been largely covered under other headings, had been approved by the Conference and had come into effect at the beginning of 2005. Accountancy matters were already being done in the new way and, with the assistance of the external auditor and other trainers, work was under way on setting up systems for recording those matters which had not previously come under accounting procedures. A complete evaluation of the OIML's assets and various analytical accounts was still under way and prevented a full report being offered to the present meeting, but this would be available before the end of the year. The estimates which Mr. Magaña and the Bureau had given the Presidential Council were too complex to be offered on the present occasion. Large outgoings such as the increase in the Pension Fund were being compensated as far as possible by economies elsewhere. The deficit at the end of the year would be smaller than had been budgeted for. The end of year accounts for 2005 would be complete and in total accord



with the new accountancy system and detailed information would be given then regarding the transition from the old system to the new.

4 Presidential Council activities

4.1 Report on Presidential Council activities

Mr. Johnston reported that there had been two meetings of the Presidential Council since the meeting in Berlin, one in March and one the previous day. Many of the items discussed would be on the afternoon's agenda. The main subjects discussed had been Council membership, the Long Term Strategy, the MAA, technical work, liaisons, the renewal of the Director's contract and the recruitment of a new Assistant Director.

4.2 Long Term Strategy and Action Plan

The Long Term Action Plan and Strategy Document had needed reviewing and revising; Mr. Magaña had drawn up and circulated one summary document describing the OIML's long term goals and objectives and another which was a draft 5-year Action Plan detailing what should be done in order to achieve these ends. Additionally there was a Work Program for the Bureau for 2005, on which work was already well under way.

The strategy paper began with a general description of the benefits of legal metrology, and set out the long term objectives of the OIML and what its Members' commitment should be: support to regulators, support to national enforcement authorities, support to users in non regulated areas, trade facilitation, and exchange of knowledge and competence. All these actions must go in the direction of building a global metrology system in conjunction with other organizations such as the Metre Convention, ISO, ILAC and the IEC. Also important in the OIML strategy were Developing Countries, whose participation in technical work should be facilitated.

The main topics of the Strategy and Action plan were:

- Acceleration of OIML technical work;
- Revision of the Certificate System in the wake of the MAA;
- Individual certification of instruments, with a recognizable and accepted OIML conformity mark;
- Mutual information guides;
- Promotion of legal metrology; and
- Clarification of the OIML's internal structures.

Detailed discussions followed on:

- The issuing of "harmonized standards";
- Cooperation with regional metrology organizations;
- The privatization of certain legal metrology tasks;
- Metrological supervision and subsequent verification of instruments already in service;
- The challenges being faced by the OIML and the way forward in order to meet them;
- Sharing facilities with national enforcement authorities;
- Reactivity in the face of new technologies;
- Consistency between OIML Recommendations; and
- Review and harmonization of the OIML TCs and SCs and their work projects.

5 Developing Country activities

5.1 Report on PWGDC activities

Dr. Seiler reported that the Permanent Working Group on Developing Countries, established in May 2004, had held two meetings in Berlin and one the previous day in Lyon. Members had discussed the work they wanted to achieve, the contribution of each member of the Working Group and what should be planned for the future (summarized):

- In Berlin the Committee had decided to find out what kind of simplified verification instructions were necessary based on OIML Recommendations but taking into account the state of the art in Developing Countries;
- They would like to do the same with translations of OIML publications, creating a focal point where Members could retrieve relevant information regarding publications in different languages;

- Retrieve existing teaching material, to see whether there were copyright problems, and make this material available for others;
- Deal with the needs expressed during the Berlin Forum "Metrology - Trade facilitator?".

All this work would form what would be called the Virtual Forum on Legal Metrology; work on the project would be ongoing and Members were invited to feed in information or requests.

Certain manufacturers had also already made some equipment available for Developing Countries and the Virtual Forum could be used to match supply and demand for such equipment in the future. Metrology institutes could possibly also provide second hand equipment to other institutes.

Another area the PWGDC could assist in was making OIML publications available in other languages, notably Arabic and Spanish.

5.2 Report on JCDCMAS activities

Mr. Dunmill reminded Members that a report on JCDCMAS activities had been given at the Berlin meeting the previous October, and that the membership of JCDCMAS consisted of representatives of international metrology organizations, accreditation organizations and standardization organizations that acted at international level, plus the ITC and UNIDO which, whilst themselves not directly standardizing bodies, were representing the interests of assistance to Developing Countries at international level.

The most recent meeting of the JCDCMAS had been held in March 2005, at the BIPM, with the OIML taking over its Secretariat for the coming year. At the March 2004 meeting, it had been decided that the secretariat of the JCDCMAS would rotate among its members and, in principle, between different kinds of organization. This explained how the OIML had come to be taking over in the current year.

There had been a background paper on the subject of metrology, accreditation and standardization to support the infrastructure development in countries; this had been produced during 2004 but never finalized; it was intended to update this and publish it.

JCDCMAS was also setting up an online calendar of international events.

A presentation had been compiled intended for awareness raising events amongst people who were not themselves metrologists, standardizers or accreditation experts; all of the organizations involved recognized that there was a big problem in raising awareness amongst people at political level or non-experts.

JCDCMAS had a web site, which at the moment was hosted by the BIPM and which was changing slightly because some pages were currently being updated. The BIML would henceforth be in charge of maintaining this site updated.

6 Liaisons

6.1 Presentation by the Bureau on liaison activities

Mr. Magaña told members that the Bureau had had a period of intensive activity with a number of liaisons. He wished to highlight especially the World Trade Organization; BIML staff had attended all the TBT Committee meetings of this organization, in addition to several workshops of the TBT Committee every year. More information on TBT activities would be put on the web site, in Information Letters, etc., as time on the present occasion was limited. The OIML was well recognized by the TBT Committee and cooperation with them was good.

Much work was done in common with standardization organizations, and most TCs and SCs had tight liaisons with ISO, the IEC and so on.

There were also very privileged liaisons and good relationships with the BIPM and with ILAC; information about the annual tripartite meetings between these organizations had been sent to Members; also, the Bureau had frequent meetings with colleagues from the BIPM for informal discussions on a number of issues, administrative matters, ideas for joint activities, etc. Members had had information about the joint work with the BIPM done in connection with Developing Countries.

The annual meetings of all Regional Legal Metrology Organizations were attended by a representative from

the OIML, either the President or Vice President of the CIML or the Director or an Assistant Director of the Bureau. In this way they could inform them of recent developments, give advice and listen to their needs and expectations.

6.2 Updates by Liaison Organizations (BIPM, ILAC, ISO, UNIDO, IMEKO, CECIP)

BIPM

Mr. Köhler, representing the BIPM, explained that there were currently 45 Full Members and 17 Associates of the CGPM, with an 18th expected in the immediate future. The Mutual Recognition Arrangement had now been signed by 61 organizations, and covered 79 additional institutes because not every country had only one laboratory.

The BIPM provided a single coherent system for measurements throughout the SI and tried to coordinate and harmonize work performed with regional metrology organizations, collaborating with other national metrology institutes and organizations which had related missions.

The BIPM performed certain calibrations for NMIs at the highest level, the predominant activity being organizing international comparisons of national measurement standards to verify that in each country they were comparable. Last but not least, they maintained a small but very high level scientific activity.

A new activity in the past three years or so had been a scientific activity in chemistry, and two other new activities were just about to begin.

The Mutual Recognition Arrangement Statement was already used on certificates by many NMIs. It was a breakthrough, in that accreditors and regulators knew that they did not need to investigate any further, and that what was claimed on the certificate was correct. There was now also an MRA logo.

The BIPM maintained the key comparison database, KCDB, a comprehensive and quantitative database on calibration and measurement capabilities. The CMCs were underpinned by key comparisons, the latter being chosen by the Consultative Committees, and all this information could be found on the KCDB database which contained some 1600 entries.

The BIPM also collaborated with many international organizations, for example, recently the Codex Alimentarius; they had signed an agreement with ILAC and with the International Federation of Clinical Chemistry.

BIPM collaboration with the OIML and ILAC continued to be of very strategic importance both for the Metre Convention and for the other two Organizations. With ILAC, they were on the point of completing a joint statement which explained their mutual responsibilities. The BIPM also had a very strong interest in working together with ISO on standards which were of common interest.

Mr. Köhler concluded with what he described as his simplistic view of how the contemporary metrology world was going: an NMI which had primary standards and working standards gave traceability to an accredited calibration network in the country, and perhaps to testing laboratories. This system could only work if it was possible to be confident that in different nations the same thing was described with the same resolution and the same quality.

ILAC

Mr. Reposeur explained the notion of accreditation: an accreditor's principal job was to develop, in the eyes of regulating authorities and free market clients, confidence in the services of accredited organizations, in the case of ILAC mainly calibration and standardization laboratories and testing laboratories.

Mr. Reposeur explained that laboratory accreditation was based on ISO/IEC 17025, at times complemented by specialized criteria in certain spheres. Technical requirements, procedural methods and regulatory requirements reinforced an evaluation, and made up what they called a complete accreditation, so that competency could be effectively evaluated.

ILAC's principal activity, recognition of competency, promotion of accredited laboratories and assistance to countries or bodies without much experience, had been carried on for some 35 years. Their structure was somewhat similar to that of the BIPM: the annual General Assembly was the place where decisions were taken, to be carried out thereafter by a number of committees meeting twice a year.

At present 47 Members representing 38 economies had signed the recognition agreement and which could therefore use the ILAC MRA "brand". The status of Full Member was given only to signatories of the MRA. It was possible to be an Associate Member, but this did not imply being a signatory.

Their aim was to make it possible for a laboratory which was accredited for calibration and standardization or for testing not to have to keep re-proving its competency every time a client from whatever country came to it; to make it possible for an instrument which had been calibrated in one part of the world to be accepted as traceable according to the SI System, and to ensure that uncertainties were accepted as beyond discussion through the laboratories accredited through a signatory member of the MRA.

ILAC covered four regions: Europe, South Africa, the Asian Pacific region, and the Americas and the aim of the MRA was for equivalence to be accepted whenever the market and national laws permitted it, to try to save time and money by not duplicating testing or carrying out pointlessly repeated calibrations and assessments.

ISO

Mr. Bryden said that International Standards were more and more in demand because of the globalization of trade in products and services, but also because there was an increasing delocalization of investment and procurement, because public services were being privatized or deregulated in many countries, because the general public had a growing demand for quality, safety and environmental protection and was exposed to a more international offer of products and services.

The WTO recommended the use of international standards to eliminate technical barriers to trade created by technical regulations, and had also been a driver to review national legislative contacts for technical regulations.

There was also a multiplication of regional and bilateral free trade agreements; international standards could help in that area, in particular to avoid such regional agreements creating a new fragmentation of standards. The relationship between ISO and CEN in Europe was quite exemplary.

In this context, since 1946 ISO had developed as one of the leaders for the production of international standards. They now had 153 national members because metrology and standardization, accreditation and conformity assessment were the basis of the national quality infrastructure. There were 177 active committees with sub committees and working groups; every day some 10 and 15 physical meetings took place.

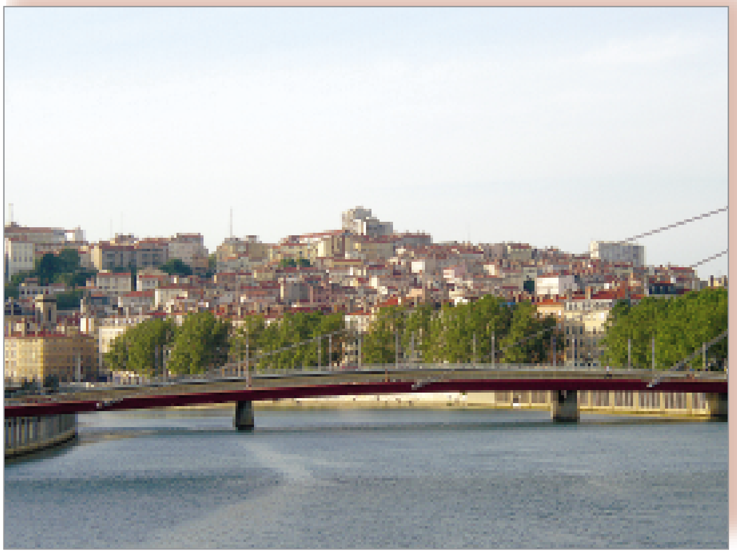
Over the past two years ISO had adjusted its strategy, policies and organization to the challenges of the 21st century. After broad consultation of the members, a new strategic plan had been adopted; a code of ethics for ISO activities had been developed and published; an action plan for Developing Countries had been adopted since more than 80 % of the members were from Developing Countries; a policy on the global relevance of ISO standards had been adopted and communication on the benefits and importance of standardization had been enhanced.

In the current year, the overall collection of ISO Standards had reached 15000 in use and there were 4000 work items in progress.

Since the creation of the OIML, a very close relationship between the two organizations had been enjoyed. They worked together on guides related to metrology and uncertainties of measurement: the very well known VIM and GUM Documents were the joint production of the OIML, ISO, and various other organizations such as the BIPM, and they were in the course of revising these fundamental documents. The OIML had liaisons with seven ISO TCs and also with ISO CASCO and ISO DEVCO. ISO was also collaborating with the OIML on the subject of Developing Countries.

ISO was known particularly for its 9000 series of standards on quality management, and the OIML was making use of this series, as well as others such as 17011, 17021, Guide 65, Guide 68, etc.

Mr. Bryden said in conclusion that ISO was keen to pursue cooperation with the OIML and other organizations in this very positive way.



UNIDO

Mr. Loesener-Díaz told Members that at UNIDO a comprehensive package of services had been developed, including metrology, which appeared to be attractive to the international community.

There was an excellent working relationship between UNIDO and the OIML, and he was sure that the two organizations would continue work in favor of Developing Countries, these having recently expressed concerns with regard to the effective implementation of the TBT agreement. UNIDO, in cooperation with the WTO/TBT Secretariat, had analyzed the responses of almost 60 Developing Countries to an inquiry, with the following findings:

- More than 90 % of the responses indicated a need to improve national quality policy; this should include a strategy on the implementation of metrology, accreditation and standardization activities;
- Almost 80 % of the responses referred to the lack of standardization infrastructure;
- Around 90 % identified the need to improve conformity assessment infrastructures;
- Many countries made reference to the need to include metrology activities in connection with the activities of the TBT agreement.

It was in this context that UNIDO was providing vital trade-related technical assistance and capacity building in coordination with international organizations, since the UNIDO strategy towards enabling the participation of Developing Countries in international trade foresaw cooperation with these bodies. So far, cooperation agreements had been signed with ILAC/IAF to support the globalization of accreditation; with the WTO to improve the participation of Developing Countries in international trade; with ISO to support standardization bodies; and with the OIML and the PTB to support the development of legal metrology.

The publication of the OIML Document D 1 would play a key role in the context of cooperation between the OIML, PTB and UNIDO, and these activities had been linked to the OIML Permanent Working Group on Developing Countries to ensure effective and efficient implementation of these technical assistance programs.

IMEKO

IMEKO had been founded in 1958 in Budapest. Mr. Van Biesen reminded delegates that IMEKO was a non governmental federation with 36 national member organizations comprising representatives of scientific and technical committees concerned with the advancement of measurement technology and instrument engineering, higher education, industry, and users of instruments.

The objective of IMEKO was the promotion and interchange of scientific and technical information on measurement and instrumentation, and international cooperation among scientists. It was therefore also a platform for individuals to meet and make contacts for future projects.

The 20 technical committees were the most important part of the organization; activities were mainly conducted through these and this was done by organizing symposia, workshops, conferences, seminars, etc. on specific topics at regular intervals.

The main activity was the IMEKO World Congress, held every three years: the September 2006 Congress would be held in Rio de Janeiro and in 2009 it would be in Paris in conjunction with the Metrology Congress (soon to be in session in Lyon).

The IMEKO journal, with a recently modernized cover, was called *Measurement*; other publications could be found on their web site.

CECIP

Mrs. Martens noted that again at this CIML Meeting, the OIML MAA had been a major topic that interested CECIP. They had said in Berlin, and now repeated, that they supported the intention of the MAA, which was a way forward towards a global system for type approval.

However, CECIP was concerned that the system being introduced should have benefits over and above the OIML Certificate System that it complemented: at the moment they were still struggling to see what these additional benefits were and CECIP pointed out that the MAA might result in increased costs for industry; not only the direct cost of the Certificate itself but also indirect costs such as providing experts for peer assessment and attending committee meetings which would be borne by industry in the form of higher testing costs.

Like all people and organizations, when faced with higher costs they expected to see benefits in the form of added value, and, as they had said in Berlin, and in their submissions since, the added value had yet to be demonstrated to them.

It might be, Mrs. Martens continued, that CECIP's worries were ill founded, and that the MAA indeed took them forward and gave them benefits that they had not yet recognized. If this proved to be the case, then they as an organization would be delighted. If, as the OIML expected, the MAA provided added value for CECIP and for industry, then it would sell itself. The OIML would not have to impose the system, industry would take it up willingly.

CECIP urged the OIML to allow that to happen, by running the Certificate System and MAA side by side, even at the same Issuing Authority, and to let industry have the choice.

Manufacturers faced an ever increasing burden of regulation and control. This might be inevitable as technology moved forward; the regulations faced by industry were not only based on metrology, but dealt with safety, environmental matters, financial rules and many other topics. It seemed to them that each new set of rules and regulations that appeared was more complex than the set it replaced. Manufacturers nowadays had to spend many hours working through complex legislation, trying to understand it and implement its requirements. It was almost inevitable that at some point industry would miss something because of the complexity. It would not be in their interests deliberately to do something wrong; they saw the need for regulations and for control; it benefited manufacturers' customers, their customers and benefited themselves.

Mrs. Martens admitted that CECIP needed help to find their way through the complexities that faced them. Industry's plea, therefore, was for clarity and simplicity in the content and format of OIML Recommendations, and for requirements to be limited to the basic and the essential.

She assured the President that CECIP had always been a staunch supporter of the OIML, and continued to be so. The OIML had from the beginning made them welcome at its meetings and its TC/SC meetings. It had been an example to other legislation organizations of how to involve industry. They were grateful for that and regarded themselves as partners and friends of the OIML. If they offered any "criticism" of the OIML it was not done maliciously but in a spirit of cooperation. They hoped their criticisms were constructive.

Gulf Standardization Organization

The Gulf Standardization Organization was a regional organization which coordinated standardization activities in the Gulf States, which comprised Saudi Arabia, United Arab Emirates, Kuwait, Qatar, Bahrain and Oman. Their organization was new and was the successor to a former organization the Gulf Standards and Metrology Organization. Their task was not just standardization; they were responsible for developing other sectors of the total quality system, which included metrology, conformity assessment and standardization. At this stage they were building a structure for the whole Gulf to set up a metrology system for their region, and the same thing with the other sectors. So they looked forward to receiving help and technical assistance from the OIML.

6.3 Updates by RLMOs (and one Regional Organization)

The floor was then given over to representatives of Regional Legal Metrology Organizations who presented the work they had carried out over the past year.

APMLF, Mr. Ooiwa

The APLMF now comprised 26 Member Economies and seven Working Groups; main activities were training and seminars for aiding Developing Economies as well as some legal metrology systems. Since the previous year's CIML Meeting they had already held five training seminars and others were planned for the near future;

there was a clear need expressed by Developing Economies for such seminars and training courses and the APLMF was studying how to offer more.

COOMET, Mr. Zhagora

COOMET had begun by studying the legislation in different countries regarding legal metrology questions and this year this work would be finished. Several countries were currently preparing new laws on legal metrology based on OIML D 1.

A seminar, *The Role of Metrology in Trade*, had attracted 100 participants from 18 countries and had been held in conjunction with the 14th COOMET Meeting. COOMET was also working on the question of certification or attestation of software for legal metrology purposes and preparing a draft of a normative document, *Methodology: How to Check Software* and on the question of how to use ISO/IEC 17025 for legal metrology.

EMLMF, Mr. Lagauterie

EMLMF held a meeting in Lyon which showed the interest of members in the Forum's work. Matters dealt with had included the creation of a warning network for non conforming instruments and the designation of bodies in the framework of the Directive on Measuring Instruments (MID).

SADCMEL, Mr. Carstens

SADCMEL had held two meetings since the last CIML Meeting and currently comprised 14 Member States. The current status of legal metrology within the SADC countries fell into three categories: states with almost no legislation or infrastructure, national legislation concerning regulatory control of simple or basic instruments for mass, volume and length of goods, and thirdly national legislation and regulatory control, inspection, and verification of more sophisticated instruments for mass, volume and length of goods.

There had been a workshop on D 1, *Law on Metrology* which had been very successful, and discussions on changes to certain SADCMEL Documents. SADCMEL appreciated the financial and technical assistance offered to African countries by the PTB and thanked them for their continued cooperation.

SIM, Mr. Ehrlich (on behalf of Mr. da Silva from Brazil)

SIM reported that it had not been very active but that it had notably sponsored a successful training course on mass metrology.

South Pacific Legal Metrology Forum, Mr. Vadei

A forum was being created for the South Pacific Island countries and was undertaking studies conducted by technical authorities from Australia and New Zealand as well as from the OIML. They hoped that the OIML would look into their development and help with shaping their organization to help them make their way forward.

WELMEC, Mr. Freistetter

WELMEC now comprised 31 Member countries: the 25 EU Member Countries, plus the EFTA countries, and Bulgaria and Rumania which hoped to become EU Members by 1 January 2007. Turkey had also joined as a new Associate Member.

A very long list of measuring instruments was already subject to legal metrology control in Europe and the MID highlighted ten categories considered by the European Union as being the most important to be subjected to legal metrology control.

At present there were about 20 MID guidance documents under preparation to support its implementation and, especially, about 15 related to a comparison between OIML publications and the MID requirements.

WELMEC had already endorsed the document related to software in measuring instruments subject to legal metrology control. A European project had also been running on this and WELMEC had decided to develop a Software Guide.

Three new Guides or updates of Guides had already been adopted in the current year concerning non-automatic weighing instruments; packers of prepacked products; and the new Software Guide 7.2.

Close cooperation with the European Union and the European Commission was related to market surveillance activities, to the conformity assessment activities foreseen in the Directive and to the operation of notified bodies. Identification of relevant OIML publications, development of guidance documents and close administrative cooperation was a new issue in the Directives, the objective being a common approach all over Europe.

Looking to the near future, some areas of the MID were still in need of clarification and the approach to some questions remained problematical.

CEN/CENELEC, Mr. Mertens

CEN and CENELEC were two of the three regional bodies active in standardization in Europe. CENELEC had been founded in 1973 and CEN in 1961.

One important general feature in standardization, especially in Europe, was that CENELEC standards were implemented as identical national standards in 28 countries; this implied that there were 28 members. An important element had been the harmonization of these national standards.

The members of CEN and CENELEC were the organizations within the 25 EU countries and three EFTA countries, and membership was still growing. CENELEC also had partnerships with 33 industry federations, and also with other associations, among them the OIML. CENELEC had eight associate members but CEN had many cooperation agreements with a number of organizations, again including the OIML. Cooperation between CEN, CENELEC and the OIML had always been smooth, for example the European standard EN 45001 in conjunction with the OIML's R 76.

Mr. Mertens presented the European Standardization Model, notably the fact that standards were elaborated by the technical body on a consensus basis, taking into account the viewpoints of all interested parties such as industry, legal authorities, metrology experts and others (including the OIML). This stage was followed by a public inquiry: anyone, expert or not, could comment upon any document, and that resulted in clarification of many aspects which might not have been clear in the first draft. Then there was a vote: the key was democracy when ratifying CENELEC documents. CENELEC also had cooperation agreements with the IEC, with CEN and with ISO and the principle was to work at international level and not at European level unless absolutely necessary; consensus results established at international level were then brought to Europe and the OIML's links with IEC and ISO helped to ensure this communality.

On the topic of the MID Mr. Mertens pointed out the common interest with the OIML. According to the wording of this, "presumption of conformity with the official requirements of the Directive can be done either through normative documents or through harmonized European standards".

7 BIML activities

7.1 Organization of the Bureau

Mr. Magaña told Members that there had been three staff changes in the Bureau: one secretary had left, the MAA Project Leader had taken up her duties and one position of Engineer remained vacant (which explained why the translation of publications into French had temporarily been suspended).

The distribution of the Bureau's tasks had been to a minor extent reorganized, and the responsibilities of each staff member had been clarified and confirmed and could be found on line in the staff section of the web site.

7.2 Communication, web site

Chris Pulham announced that the Bureau was now at a turning point and was increasingly placing emphasis on improving communication (notably electronic and especially the OIML web site – www.oiml.org – which was constantly being developed), to broaden their own ideas and also, predominantly, to help Members to communicate better with industry and with other

government departments in their own countries; the Bureau was putting together what almost amounted to a "sales package" to help the global effort of promoting legal metrology.

One part of this package was a brand new "leaflet" explaining the benefits of legal metrology and the role of the OIML; a large number of leaflets had been printed and brought to Lyon, which were enthusiastically received by Members both at the meeting and in the ensuing months. Posters had also been produced for exhibition purposes and the BIML announced the availability, free of charge, of one set of posters for each Member. Thematic leaflets would also be produced over the coming months.

After going into some detail about current and future projects on the theme of communication and how the OIML could best use its resources to aid Members to better promote legal metrology in their countries, Mr. Pulham went on to speak of the current situation of production and distribution of publications, which were now free of charge to all – a move that was much appreciated by manufacturers and others, the objective being to ensure the widest possible dissemination of publications without the barrier of cost. This had also greatly relieved the secretarial activities of the Bureau.

He reminded Members that the OIML was open minded about articles submitted for the Bulletin; papers on any subject could be accepted and Members should not hesitate to contribute.

Mr. Seiler and a number of other delegates commended the Bureau on all the work they had done in this field, and looked forward to seeing further developments.

7.3 Report on BIML activities and work program for 2005

Mr. Magaña told Members that, complementing the Action Plan and Strategy Document discussed earlier, the BIML had drawn up a Work Program for 2005, equally addressed to Members.

Among the Bureau's numerous aims was to review the role and functioning of the Conference and Committee, to review the Guide for CIML Members and revise it as necessary, to develop activities in favor of Developing Countries and those in conjunction with other organizations, to speed up OIML technical work, to increase the use of interactive on line tools, to keep publication revision delays at an acceptable level, to follow up on the MAA and Certificate System and undertake a review of publication B 3 on the System, to improve the organizing of meetings, to develop practical guidelines for organizing the CIML, to manage and disseminate information as rapidly and as widely as possible, to develop presentations on legal metrology, and to set up the new accountancy system.

8 Technical activities

8.1 Approval of International Recommendations and Documents

Despite the short time period between the CIML Meetings, good progress had been made and the outlook for the coming year was also excellent: six meetings had been held and it was foreseen that a further six to eight would be organized in the present year or early in 2006. Sixteen projects were ongoing, and priority and high priority projects in particular were progressing well (notably the combined revision of the Recommendation on gas meters, the combined revision of R 117 and R 118 for measurement of liquids other than water, the combined revision of water meters including hot water meters, and the revisions of electricity meters and nonautomatic weighing instruments). These could probably all be approved by the 41st CIML Meeting.

There were also projects within TC 7, TC 7/SC4, TC 8/SC 1 and TC 9/SC 2 and the postal ballots for R 41, R 51-1, R 51-2 and R 134-1 were practically complete.

8.2 Examination of the situation of certain TCs/SCs

This item generated lengthy discussion so only the key points are summarized here; full details will be published in the Minutes:

- A proposal had been made at the 12th Conference to withdraw R 62 on strain gauges, the only Recommendation TC 10/SC 6 had been responsible for, and then disband this SC;

- Proposal to merge TC 8/SC 1 (*Static volume measurement*) and SC 2 (*Static mass measurement*). Two new working projects were ongoing and this had coincided with the proposal of the Bureau to revise R 125 (*Mass measurement*), and to have only one Recommendation for static volume and mass measurement, hence there was no longer a need to have two separate Subcommittees especially since the majority of P-members were members of both;
- China had offered to take over responsibility for the secretariat of TC 10/SC 3 *Barometers*, which had been vacant for two years since the UK had relinquished it;
- Proposal to withdraw certain working projects on which little or no progress had been made for some time:
  - TC 7/SC 1 *Measuring instruments for length*: Revision of R 30 on standards of length gauge blocks;
  - TC 10/SC 4 *Material testing machines*: Requirements for measuring instruments for verifying material test machines (in favor of using the existing ISO publication);
  - TC 17/SC 6 *Gas analysis*: Proposal to withdraw two working projects on calibration procedures.

These proposals were unanimously accepted. Mr. Szilvássy then moved on to Subcommittees which had problems or which were changing their work projects:

- TC 3/SC 5 *Conformity assessment* (working group): there were long standing projects on the elaboration of guidance documents based on ISO/IEC Standards and Guides. The CPR had started to develop drafts which had been discussed during the CPR meeting. The proposal to the CIML was to note that this working group was no longer needed since the CPR Documents could be developed by the CPR in conjunction with TC 3/SC 5 itself rather than in a distinct WG, thus putting the documents back into the traditional circuit of publications directly under the responsibility of an OIML SC. In effect, TC 3/SC 5 would develop a project on conformity assessment based on an existing CPR paper;
- TC 4 *Measurement standards and calibration and verification devices*: one of the responsibilities of this Subcommittee was D 10, which had originally been elaborated by ILAC and which had now been revised by ILAC. There had been some lack of harmonization between the two Organizations as the CIML had already approved D 10 but ILAC had continued their revision. ILAC therefore proposed that the revised D 10 be a common Document posted on the web site for free downloading by both Organizations;
- There was concern that two Subcommittees, TC 8/SC 7 *Gas metering* and TC 8/SC 8 *Gas meters* were experiencing conflicts in their use of terminology and also in some requirements; the Bureau had encouraged them to try to harmonize their respective Documents in order to avoid overlap and inconsistencies;
- TC 9/SC 1 *Nonautomatic weighing instruments* was at an advanced stage in the revision of R 76; it was proposed that the co-secretariat should draw up the final CD and circulate it by the end of October in order that this Recommendation could be approved the following year;
- The United States was considering relinquishing the TC 10 Secretariat (*Instruments for measuring pressure, force and associated quantities)*; volunteers would soon be sought to over take this TC;
- The Secretariat of TC 12 *Instruments for measuring electrical quantities* had been vacant since Germany had relinquished it, but work on the revision of R 46 was continuing and advancing well. Sweden had made a request to take on TC 12, or failing that Australia;
- The Russian Secretariat of TC 15 *Measuring instruments for ionizing radiations* and TC 15/SC 1 *Measuring instruments for ionizing radiations used in medical applications* was looking for another institution within Russia to assist with the work.

8.3 MAA

Régine Gaucher reminded Members that the implementation of the MAA had begun with two categories, Load cells and Nonautomatic weighing instruments, fields in which a large number of OIML Certificates of

Conformity had been issued - 422 for load cells and 632 for nonautomatic weighing instruments - representing some 75 % of the Certificates issued since 1991.

About 20 participants were now expected in the first two Declarations of Mutual Confidence; as Members knew, there were two types of participant, Issuing Participants (Issuing Authorities which would deliver OIML Certificates of Conformity based on OIML Test Reports issued under Declarations of Mutual Confidence) and Utilizing Participants (accepting OIML Test Reports attached to the OIML Certificates of Conformity issued by the Issuing Participant).

Even though the OIML publication B 10-1 specified that one Committee on Participation Review should be established per DoMC, it had been decided that only one should be established for the first two DoMCs, as the scope of these was fairly similar. The CPR would be composed of one representative of each signatory or of a maximum of two per signatory, for instance, one per category. Each participating country had only one vote in the CPR.

The provisional CPR had held its first meeting on 15 and 16 June. For the first two DoMCs, all the participating countries were OIML Member States, the majority of them already designated representatives in the CPR.

The CPR had been composed of additional members, one representative of TC 3/SC 5, which was responsible for OIML B 10, one representative of TC 9, which was responsible for OIML R 60 and one representative (two at the first meeting) of TC 9/SC 1, which was responsible for OIML R 76. The BIML was responsible for the Secretariat of the CPR.

Information related to the MAA implementation was available on the MAA part of the OIML web site, including password-protected CPR and Assessors pages.

The first CPR meeting had been an intensive meeting with a lively exchange of points of view. Firstly, general issues had been discussed on the basis of working papers prepared for the meeting. These had been related to the operating rules of the CPR and of DoMCs. These general rules had of course to be adopted before the examination of the files.

The first Working Document had been a general document adopted by the CPR and related to operating rules for a DoMC; its aim was to clarify some points of B 10-1, and to propose certain amendments to it. This document would be taken into account by TC 3/SC 5 for the revision of B 10.

Due to the fact that some conclusions made by the CPR were not fully in line with the specifications of B 10-1, the CPR proposed to submit five resolutions to the CIML for voting by postal approval:

1 Signatories of a DoMC shall be either OIML Issuing Authorities; or national Type Approval Bodies; or national bodies responsible for putting the instrument on the market.

2 One single CPR may be established for several DoMCs if their scopes are similar. In such a case, the CPR may be composed of several representative Members from one country to ensure the necessary degree of competence.

3 Decisions in the CPR are validated if 80 % of participating countries which have appointed a CPR representative vote “yes” with a maximum of one “no” vote from an Issuing Participant.

4 Applications for the admission of new Issuing Participants or of new Utilizing Participants with additional national requirements are examined by the CPR twice a year. Applications for the admission of new Utilizing Participants without any additional national requirements are taken into account at any time by the BIML.

5 The BIML shall initially bear the costs of peer assessments and subsequently invoice the peer assessed bodies with a lump sum equal to 2 000 € per peer assessment, plus 2 000 € per day of assessment. These fees shall be reviewed and if necessary revised at the 41st CIML Meeting.

Mr. Magaña reiterated that all the proposed Resolutions would be submitted for comments and then, with explanatory notes, for postal ballot.

Mrs. Gaucher informed Members that peer assessment would be conducted by a team of experts, one metrology and technical expert from the list validated by the CPR, and one expert in quality systems who would be an ILAC assessor competent for assessment according to ISO/IEC 17025. Guidelines for the application of ISO/IEC 17025 to peer assessment for the implementation of the MAA had been adopted by the CPR. They would be presented to the assessors during a seminar for assessors which would be organized on 5 and 6 September in Paris, the aim of this seminar being to make assessors familiar with the documents which would be used in conducting peer assessments and to have peer assessment as harmonized as possible. Peer assessments should be conducted between September and December 2005. The next CPR meeting was planned for the end of January or beginning of February 2006 to examine the results of the peer assessments and to take final decisions and the CPR had decided that three full peer assessments should be conducted, one for OIML R 76 and two for OIML R 60.

Participants having additional national requirements would submit the relevant detailed procedure to the BIML; this would be examined by the CPR at its next meeting and of course these additional detailed procedures would be attached to the DoMC if the participants became signatories. The necessity of maintaining such additional requirements should be reviewed periodically, in line with the revision of the applicable OIML Recommendations and with national legislation.

Mrs. Gaucher's last piece of information concerned the cooperation of manufacturers in implementing the MAA. The BIML would develop a discussion forum on the web site to create a special tool accessible to manufacturers to raise questions and concerns regarding the MAA, which would be taken into account in the MAA implementation.

Finally, Mr. Magaña said that, to date, expenses had been slightly lower than planned because the Project Leader had not had to travel as much as had been anticipated. Many countries, however, had joined without needing visits from the Project Leader, so travel costs had been lower than expected. It had been decided to spend the amount saved on a seminar for Peer Assessors, an important and useful event which had not originally been planned, so with this, the overall cost would be more or less as initially planned.

8.4 Progress in the revision of the Directives

Mr. Magaña reminded Members that this was a high priority project approved in previous years; unfortunately though, due to the short time between the previous CIML Meeting and this one, it had not yet been possible to start.

There was now a working group comprising a number of countries which had expressed their wish to participate in the revision of the Directives and Mr. Magaña told Members that the Bureau would begin work very shortly and expected to make speedy progress. It was intended to simplify the administrative and procedural work in this revision so that Secretariats were able to focus on the essential issues, and thus considerably accelerate the work.

9 Human resource matters

9.1 Election of the CIML First Vice-President

There were two candidates for the Vice Presidency: Mr. Stuart Carstens (South Africa) and Mr. Grahame Harvey (Australia); the voting rules were explained in detail and each candidate gave his presentation. It was explained that Mr. Kochsiek would remain in office until the Cape Town Meeting, so for a period of time there would be three Vice Presidents - Mr. Kochsiek's expertise would greatly benefit the Organization.

A secret ballot was held on the last day of the CIML Meeting and Mr. Carstens, who received the largest number of votes, was duly elected CIML First Vice-President.

9.2 Extension of the contract of the BIML Director

Mr. Johnston announced that the vote (proceedings not recorded) for the renewal of Mr. Magaña's contract as Director of the BIML had been positive, and congratulated him.

Mr. Magaña expressed his thanks to the President, Vice President, Presidential Council and all the Members, and confirmed his desire, together with the BIML Staff, to see the organization progressing under his continued leadership of the Bureau; he had many plans for continued improvement of its functioning.

9.3 Appointment of a new Assistant Director in 2007

Mr. Johnston explained that Mr. Szilvássy would be retiring in August 2007, so a new Assistant Director should be appointed in October 2006.

Mr. Magaña explained that the appointment procedure would be to nominate a Selection Committee to recommend a candidate at the Cape Town meeting. A call for candidates would be sent out to all CIML Members to distribute in their countries in September 2005; a Selection Committee would examine the applications and meet at the beginning of 2006 and the chosen candidate would be proposed to the CIML in Cape Town. The members of the Selection Committee therefore had to be designated, and Mr. Johnston proposed himself as well as Mr. Kochsiek, Mr. Ehrlich, Mr. Harvey, Mr. Carstens and Mr. Magaña.

10 Future meetings

10.1 41st CIML Meeting (2006)

The 2006 CIML Meeting would be held in South Africa and Mr. Carstens showed a DVD from the Cape Town Tourist Bureau and gave a few facts about South Africa. Mr. Johnston renewed his thanks to Mr. Carstens and said that exact dates and other details would be circulated at a later date.

10.2 42nd CIML Meeting (2007)

No official invitations had yet been received, but China had expressed interest. Ms. Kong Xiaokang said that China had not yet prepared an invitation because they had not gone through all the procedures. Nevertheless, there would be nothing to stop them hosting a CIML Meeting in 2007. She therewith confirmed China's invitation to CIML Members to attend the 42nd CIML Meeting in Shanghai. More detailed information and a formal invitation would be sent later.

Mr. Johnston said that an official decision would not be made that day but expressed his thanks to China.

10.3 13th Conference and 43rd CIML Meeting (2008)

Mr. Johnston said that an expression of interest had been received from Australia; Mr. Harvey cordially invited CIML to Australia in 2008 for the Conference and CIML Meeting; this invitation would also be confirmed in due course.

11 Other matters

Awards and Letters of Appreciation

Mr. Johnston explained that here were three types of award:

- Honorary Member; this was the OIML's highest award, and rarely given, although there was one today;
- Medals were given to recognize the outstanding contribution of individuals to the development of legal metrology;
- Letters of Appreciation demonstrated excellent work on a specific project relating to legal metrology.

He also wished to make a proposal for comment: to develop a call letter for nomination for these awards in future well in advance of the meeting. Nominations would then be received and discussed at the Presidential Council and the President would make a final decision based on the nominations presented. Mr. Johnston hoped that this would encourage more nominations and also ensure that everybody felt that the process was open to all for nomination.

The Awards made are pictured on page 29.

12 Closure

With a final few words on administrative matters from Mr. Magaña, Alan Johnston officially closed the 40th CIML Meeting and thanked all those present for their active participation, wishing them a pleasant stay in France. ■

Account by Chris Pulham, BIML

OIML Certificate System:

Certificates registered 2005.05–2005.07

Up to date information (including B 3): www.oiml.org

The *OIML Certificate System for Measuring Instruments* was introduced in 1991 to facilitate administrative procedures and lower costs associated with the international trade of measuring instruments subject to legal requirements.

The System provides the possibility for a manufacturer to obtain an OIML Certificate and a test report indicating that a given instrument type complies with the requirements of relevant OIML International Recommendations.

Certificates are delivered by OIML Member States that have established one or several Issuing Authorities responsible for processing applications by manufacturers wishing to have their instrument types certified.

The rules and conditions for the application, issuing and use of OIML Certificates are included in the 2003 edition of OIML B 3 *OIML Certificate System for Measuring Instruments.*

OIML Certificates are accepted by national metrology services on a voluntary basis, and as the climate for mutual confidence and recognition of test results develops between OIML Members, the OIML Certificate System serves to simplify the type approval process for manufacturers and metrology authorities by eliminating costly duplication of application and test procedures.

This list is classified by Issuing Authority; updated information on these Authorities may be obtained from the BIML.

Cette liste est classée par Autorité de délivrance; les informations à jour relatives à ces Autorités sont disponibles auprès du BIML.

► Issuing Authority / *Autorité de délivrance*

Netherlands Measurement Institute (NMi) Certin B.V., The Netherlands

For each instrument category, certificates are numbered in the order of their issue (renumbered annually).

Pour chaque catégorie d'instrument, les certificats sont numérotés par ordre de délivrance (cette numérotation est annuelle).

R60/2000-NL1-02.02

Type 0765 (Class C)

Mettler-Toledo Inc., 150 Accurate Way, Inman, SC 29349, USA

OIML Recommendation applicable within the System / Year of publication

Recommandation OIML applicable dans le cadre du Système / Année d'édition

The code (ISO) of the Member State in which the certificate was issued, with the Issuing Authority's serial number in that Member State.

Le code (ISO) indicatif de l'État Membre ayant délivré le certificat, avec le numéro de série de l'Autorité de Délivrance dans cet État Membre.

Year of issue

Année de délivrance

Certified type(s)

Type(s) certifié(s)

Applicant

Demandeur

Système de Certificats OIML:

Certificats enregistrés 2005.05–2005.07

Informations à jour (y compris le B 3): www.oiml.org

Le *Système de Certificats OIML pour les Instruments de Mesure* a été introduit en 1991 afin de faciliter les procédures administratives et d'abaisser les coûts liés au commerce international des instruments de mesure soumis aux exigences légales.

Le Système permet à un constructeur d'obtenir un certificat OIML et un rapport d'essai indiquant qu'un type d'instrument satisfait aux exigences des Recommandations OIML applicables.

Les certificats sont délivrés par les États Membres de l'OIML, qui ont établi une ou plusieurs autorités de délivrance responsables du traitement des demandes présentées par des constructeurs souhaitant voir certifier leurs types d'instruments.

Les règles et conditions pour la demande, la délivrance et l'utilisation de Certificats OIML sont définies dans l'édition 2003 de la Publication B 3 *Système de Certificats OIML pour les Instruments de Mesure.*

Les services nationaux de métrologie légale peuvent accepter les certificats sur une base volontaire; avec le développement entre Membres OIML d'un climat de confiance mutuelle et de reconnaissance des résultats d'essais, le Système simplifie les processus d'approbation de type pour les constructeurs et les autorités métrologiques par l'élimination des répétitions coûteuses dans les procédures de demande et d'essai.

INSTRUMENT CATEGORY
CATÉGORIE D'INSTRUMENT

Automatic catchweighing instruments
Instruments de pesage trieurs-étiqueteurs à fonctionnement automatique

R 51 (1996)

▶ Issuing Authority / *Autorité de délivrance*

Laboratoire National d'Essais
Service Certification et Conformité Technique
Certification Instruments de Mesure, France

R051/1996-FR2-2005.01
Automatic Catchweighing Instrument Type VENUS
Societa Cooperativa Bilanciai Campogalliano a.r.l., Via S. Ferrari 16, I-41011, Campogalliano Di Modena, Italy

▶ Issuing Authority / *Autorité de délivrance*

Physikalisch-Technische Bundesanstalt (PTB), Germany

R051/1996-DE1-2005.02
Automatic Catchweighing Instrument Types: EWK xyz WZG and SYNUS xx WZG
Scanvaegt International A/S, P.O. Pedersens Vej 18, DK-8200 Aarhus N, Denmark

INSTRUMENT CATEGORY
CATÉGORIE D'INSTRUMENT

Metrological regulation for load cells (applicable to analog and/or digital load cells)
Réglementation métrologique des cellules de pesée (applicable aux cellules de pesée à affichage analogique et/ou numérique)

R 60 (2000)

▶ Issuing Authority / *Autorité de délivrance*

International Metrology Cooperation Office, National Metrology Institute of Japan (NMIJ)
National Institute of Advanced Industrial Science and Technology (AIST), Japan

R060/2000-JP1-2005.01
Type UB1-200kg, UB1-300kg, UB1-500kg, UB1-1T, UB1-2T
Yamato Scale Co. Ltd., 5-22 Saenba-cho, 673-8688 Akashi City, Japan

▶ Issuing Authority / *Autorité de délivrance*

Netherlands Measurement Institute (NMi) Certin B.V., The Netherlands

R060/1991-NL1-1998.23 Rev 1
Type: C2G1-....K-F
Minebea Co. Ltd., Kuruizawa Factory Miyota-Machi, Kitasakugun, Nagano-Ken, Japan

R060/2000-NL1-2005.01
Type: DBBP Series
Bongshin Loadcell Co. Ltd., 148 Sangdaewon-dong, Jungwon-ku, Seongnam-city, Geonggi-do, Korea (R.)

R060/2000-NL1-2005.02
Type: SBH and SBH (ab)
Mettler-Toledo (Changzhou) Precision Instruments Ltd., 5 HuaShanZhong Lu, ChangZhou, JiangSu, China

R060/2000-NL1-2005.03
Type: MT1260 series
Mettler-Toledo (Changzhou) Precision Instruments Ltd., 5 HuaShanZhong Lu, ChangZhou, JiangSu, China

R060/2000-NL1-2005.04
Type PW20i
Hottinger Baldwin Messtechnik GmbH, Im Tiefen See 45, D-64293 Darmstadt, Germany

R060/2000-NL1-2005.05
Type: 1022, 1022P and LPS
Vishay Transducers, 5a Hatzoran St., New Industrial Zone, IL-42506 Netanya, Israel

R060/2000-NL1-2005.06
Type: C2G1
Minebea Co. Ltd., Kuruizawa Factory Miyota-Machi, Kitasakugun, Nagano-Ken, Japan

R060/2000-NL1-2005.07
Type: PW16./..
Hottinger Baldwin Messtechnik GmbH, Im Tiefen See 45, D-64293 Darmstadt, Germany

▶ Issuing Authority / *Autorité de délivrance*
OIML Chinese Secretariat,
State General Administration for Quality Supervision and Inspection and Quarantine (AQSIQ), China

R060/2000-CN1-2004.02
Load Cell - Types: T-BXB -50, T-BXB -150, T-BXB -200, T-BXB -250, T-BXB -300, T-BXB -500, T-BXB -1A, T-BXB -2, T-BXB-5
Jinan Jinzhong Electronic Scale Co. Ltd., No. 147 Yingxiongshan Road, Jinan, Shandong, China

R060/2000-CN1-2004.03
Load Cell - Types B-XA-6, B-XA-10, B-XA-15, B-XA-20, B-XA-30, B-XA-35, B-XA-50
Jinan Jinzhong Electronic Scale Co. Ltd., No. 147 Yingxiongshan Road, Jinan, Shandong, China

R060/2000-CN1-2004.04
Load Cell - Types: BM-LS-10A, BM-LS-20, BM-LS-25, BM-LS-30, BM-LS-50
Jinan Jinzhong Electronic Scale Co. Ltd., No. 147 Yingxiongshan Road, Jinan, Shandong, China

R060/2000-CN1-2005.01
Load Cell - Type: PA6140 (China)
Yuyao Pacific Weighing Engineering Co. Ltd (China), 50 Tianjialing East Road, Yuyao, Zhejiang Province, China

R060/2000-CN1-2005.02
Load Cell - Type: PA61110 (China)
Yuyao Pacific Weighing Engineering Co. Ltd (China), 50 Tianjialing East Road, Yuyao, Zhejiang Province, China

INSTRUMENT CATEGORY
CATÉGORIE D'INSTRUMENT

Nonautomatic weighing instruments
Instruments de pesage à fonctionnement non automatique

R 76-1 (1992), R 76-2 (1993)

▶ Issuing Authority / *Autorité de délivrance*
National Measurement Institute (NMI), Australia

R076/1992-AU1-2005.01
Ishida Model AC-4000D Non-Automatic Weighing Instrument
Ishida Co. Ltd., 44 Sanno-cho, Shogoin, Sakyo-ku, 606-8392 Kyoto-city, Japan

▶ Issuing Authority / *Autorité de délivrance*
Netherlands Measurement Institute (NMi) Certin B.V., The Netherlands

R076/1992-NL1-2003.38 Rev 1
Type: IPC, IPC-WP, JC or JC-WP
Ishida Co. Ltd., 44 Sanno-cho, Shogoin, Sakyo-ku, 606-8392 Kyoto-city, Japan

R076/1992-NL1-2005.08
Type: DS-866
Shanghai Teraoka Electronic Co. Ltd., Tinglin Industry Developmental Zone, Jinshan District, Shanghai 201505, China

R076/1992-NL1-2005.09
Type: AJ(H), AJ for Carat (CT), SJ or SJP
Shinko Denshi Co. Ltd., 3-9-11 Yushima, Bunkyo-ku, 113-0034 Tokyo, Japan

R076/1992-NL1-2005.10
Type: PA-series (IND205)
Mettler-Toledo Inc., 1150 Dearborn Drive, 43085-6712 Ohio, Worthington, Ohio, United States

R076/1992-NL1-2005.11
Type: SM-100..
Shanghai Teraoka Electronic Co. Ltd., Tinglin Industry Developmental Zone, Jinshan District, Shanghai 201505, China

R076/1992-NL1-2005.12
Type: RWA 8.1. E/.....
HKM-Messtechnik GmbH, Ziegelhofstrasse 228, D-79110 Freiburg, Germany

R076/1992-NL1-2005.13
Type: CCLT
CPS Products Inc., 1010 E 31 Street, 33013 Hialeah, Florida, United States

R076/1992-NL1-2005.14
Type: IQ+355...
Rice Lake Weighing Systems, 230 West Coleman Street, 54868 Wisconsin, Rice Lake, Wisconsin, United States

R076/1992-NL1-2005.15
Type: P21 ECO
Epelsa S.L., C/. Albasanz 6-8, E-28037 Madrid, Spain

R076/1992-NL1-2005.16
Type: bTwin
Mettler-Toledo (Changzhou) Scale & System Ltd., 111 Changxi Road, Changzhou, Jiangsu 213001, China

R076/1992-NL1-2005.17
Type: 320XR
Precisa Instruments A.G., Moosmattstraße 32, CH-8953 Dietikon, Switzerland

R076/1992-NL1-2005.18
Type: SM-100..
Shanghai Teraoka Electronic Co. Ltd., Tinglin Industry Developmental Zone, Jinshan District, Shanghai 201505, China

▸ Issuing Authority / *Autorité de délivrance*

Physikalisch-Technische Bundesanstalt (PTB), Germany

R076/1992-DE1-2005.01
Non-automatic Mechanical Weighing Instrument With Lever System - Types: M709x2/M711x2

Seca Meß- und Wiegetechnik or Vogel & Halke GmbH & Co., Hammer Steindamm 9-25, D-22089 Hamburg, Germany

▸ Issuing Authority / *Autorité de délivrance*
OIML Chinese Secretariat,
State General Administration for Quality Supervision and Inspection and Quarantine (AQSIQ), China

R076/1992-CN1-2004.06
Electronic Meterage Scale - Types PB-615C, OL-615, ESP-615, TL-615

Xiamen Pinnacle Electrical Co. Ltd.,
4F Guangxia Building, North High-Tech Zone,
Xiamen, Fujian, China

R076/1992-CN1-2004.07
Electronic Meterage Scale - Types ACS-3, ACS-6, ACS-15, ACS-30

Zhejiang Congueror Weighing Apparatus Co. Ltd.,
47 South Road of Zhiying Town, Yongkang City,
Zhejiang, China

R076/1992-CN1-2004.08
Electronic Bar Code Electronic Valuation Scale

Taiyuan Aero-Instruments Co. Ltd.,
No. 489 Bingzhou Nanlu Taiyuan, Shanxi, China

INSTRUMENT CATEGORY
CATÉGORIE D'INSTRUMENT

Fuel dispensers for motor vehicles
Distributeurs de carburant pour véhicules à moteur

R 117 (1995) + R 118 (1995)

▸ Issuing Authority / *Autorité de délivrance*

National Weights and Measures Laboratory (NWML), United Kingdom

R117/1995-GB1-2005.01 Rev.1
Fuel Dispenser For Motor Vehicles, Gilbarco China Endeavor Series Dispensers

Gilbarco-China, Binhe Industrial Zone, Jianshi Rd W,
PingGu, 101200 Beijing, China

▸ Issuing Authority / *Autorité de délivrance*

Netherlands Measurement Institute (NMi) Certin B.V., The Netherlands

R117/1995-NL1-2005.04
Type: Global Vista

Dresser Wayne Pignone, Via Roma 32,
I-23018 Talamona (SO), Italy

▸ Issuing Authority / *Autorité de délivrance*

Russian Research Institute for Metrological Service (VNIIMS) of the Federal Agency for Technical Regulation and Metrology of Russia, Russian Federation

R117/1995-RU1-2005.01
Kaizen Fuel Dispensing Pump Spirit Series/ ROVER Series/OPPORTUNITY Series

Kaizen Innovative Products Pvt. Ltd., India, A-174,
TTC Industrial Area, MIDC, Village Khairane,
400709 Navi Numbai, India

R117/1995-RU1-2005.02
Kaizen Flow meters Type KL-100 for Fuel Dispensing Pump SPIRIT series/ROVER series/ OPPORTUNITY series

Kaizen Innovative Products Pvt. Ltd., India, A-174,
TTC Industrial Area, MIDC, Village Khairane,
400709 Navi Numbai, India

R117/1995-RU1-2005.03
Kaizen Flow meters type KL-200 for Fuel Dispensing Pump SPIRIT series/ROVER series/OPPORTUNITY series

Kaizen Innovative Products Pvt. Ltd., India, A-174,
TTC Industrial Area, MIDC, Village Khairane,
400709 Navi Numbai, India

R117/1995-RU1-2005.04
Fuel Dispensers Avery Highline series/Avery Multiline Multiproduct series

Avery India Ltd., Plots 50-59, Sector-25,
Ballabhgarh, 121004 Haryana, India

Lists and PDF files of OIML Certificates:

www.oiml.org

TC/SC NEWS

OIML TC 8/SC 8 Working Group Meeting

Delft, The Netherlands

2–3 June 2005

Jos G.M. van der Grinten
NMi Certin, The Netherlands
TC 8/SC 8 Secretariat

The TC 8/SC 8 Working Group for the combined revision of the International Recommendations on Gas meters (OIML R 6, R 31 and R 32) held a one and a half day meeting on 2 and 3 June 2005 in Delft, The Netherlands. Thirty-two delegates from twelve countries (11 P-Members and 1 O-Member) and two liaisons attended the meeting, which took place in NMi's new office in Delft.

The draft of the Recommendation on Gas meters is intended to replace the existing R 6, R 31 and R 32 and this First Committee Draft aims to modernize the existing Recommendations with respect to technology and metrology, taking into account the increasing pace of technological developments and the liberalization of the gas markets in the different parts of the world.

In December 2004 the 2 CD on Gas meters was sent out for comments; by early April more than 550 comments had been received from 24 countries.

As it is impossible to discuss all comments in a meeting, comments were grouped in a series of main discussion items and a group of detailed discussion points. For most of the difficulties solutions were found. Also it was suggested to look for additional tests regarding acoustic interference and pulsations.

One of the issues that require future attention is the overlap of the scopes of the TC 8/SC 7 and TC 8/SC 8 Secretariats. During the meeting it was decided to present the issue to TC 8. However, during the CIML Meeting in Lyon the Committee instructed the Bureau *"to organize a meeting with the secretariats of TC 8/SC 7 and TC 8/SC 8 and to redefine the scope of these Subcommittees' projects (Measuring systems for gaseous fuel of SC 7 and gas Meters of SC 8) so as to avoid unnecessary overlapping, and eliminate redundancies, discrepancies and duplication of work"*.

In conclusion we can look back to a successful meeting. Discussions both during the meeting and during the breaks were vivid and constructive, and attendees learnt from each other's viewpoints. Once again the OIML TC 8/SC 8 Secretariat would like to thank the participants, CIML Members and technical experts for their many useful comments and their contribution to the discussions.

After the meeting most participants welcomed the opportunity to visit the new length measurement and gas flow laboratories of the NMi Van Swinden Laboratory.

The results from the Working Group meeting in Delft will certainly lead to an improved 3 CD. Depending on the outcome of joint Secretariat meeting, publication is planned for October 2005. Comments on this 3 CD are welcomed before 31 January 2006. The next meeting is scheduled for 18 and 19 May 2006 at a venue still to be decided.

OIML MAA

Application of ISO/IEC 17025:2005 to peer assessments

Régine Gaucher,
MAA Project Leader, BIML

Introduction

According to the framework of the OIML Mutual Acceptance Arrangement (MAA), designated Testing Laboratories of an Issuing Authority which perform type evaluation examination and/or testing shall be assessed either by accreditation or by peer assessment using criteria that comply with ISO/IEC 17025.

The peer assessments decided on by the Committee on Participation Review (CPR) are conducted by technical and metrological experts from the list validated by the CPR.

In order to facilitate the examination of the conformance of Testing Laboratories to ISO/IEC 17025 requirements, the CPR has drawn up *Guidelines for the application of ISO/IEC 17025 to type testing laboratories in legal metrology*. This document is numbered OIML MAA 02 – August 2005 and is available on the MAA page of the OIML web site: http://www.oiml.org/maa

These Guidelines have been developed on the basis of the first Edition of ISO/IEC 17025 (1999-12-15). In the meantime, a new Edition of ISO/IEC 17025 has been published (Second Edition dated 2005-05-15).

What are the changes in this new Edition?

The examination of the Second Edition of ISO/IEC 17025 leads to the conclusion that there is no major change in the Standard for its application to peer assessments, since there are no essential changes in the technical requirements.

The main changes are related to requirements applicable to the management system. These requirements are now close to those of ISO 9001:2000. To this end, the requirements increase the responsibility of the top management and define the need for improving the effectiveness of the management system.

Further to these changes, the only significant changes related to technical requirements concern subclauses 5.2.2 and 5.9.2 of the Standard.

A requirement related to the evaluation of the effectiveness of the training actions has been included in subclause 5.2.2.

A new requirement preventing incorrect results from being reported by analyzing quality control data has been added to subclause 5.9.

Do we need to modify our Guidelines?

Further to this analysis and considering the transition period of two years set by ILAC for the implementation of the new Edition of ISO/IEC 17025, the peer assessments decided on by the CPR in June 2005 will be conducted according to the document OIML MAA 02 – August 2005.

Further work

OIML TC 3/SC 5 is responsible for drawing up guidelines for the application of ISO/IEC 17025 to the assessment of Testing Laboratories involved in type evaluation. The first Working Document has been developed on the basis of the document OIML MAA 02 – August 2005 and includes the new Edition of ISO/IEC 17025. ■

OIML D 11

Overview of the present status of the standards referred to in OIML D 11 *General requirements for electronic measuring instruments* (2004)

GEP ENGLER,
Verispect B.V., The Netherlands
TC 5/SC 1 Secretariat

During the meeting of OIML TC 5/SC 1 (*Electronic instruments*) held on 21–22 October 2002 in Delft, it was suggested that it would be useful if the Secretariat of this Subcommittee could periodically publish an informal paper in the OIML Bulletin giving the actual status of the standards referred to in D 11. In this way, OIML TC/SC members are informed of changes without having to wait for an official revision of D 11. This information can assist OIML TCs and SCs in drawing up draft OIML Recommendations, to comply with the statement in the beginning of Annex A of D 11:

> *"All normative documents are subject to revision, and the users of this Document are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. Members of IEC and ISO maintain registers of currently valid International Standards."*

D 11 was published some six months ago and since then three of the standards referred to in it have been revised technically. So, in the opinion of the Secretariat, the time has come to review the current status of the standards referred to.

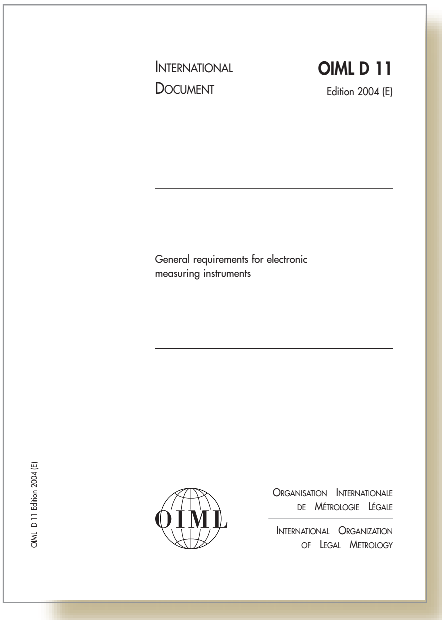
It must, however, be stressed that the information given in the table below is merely an overview of the actual situation, and - due to the fact that it has been approved neither by TC 5/SC 1 (or even discussed in this Subcommittee) nor by the CIML - it is published here for informational purposes only and does not have the status of a formal addendum to D 11.

The new versions of the standards have not been reviewed for their contents, so it is up to the TCs and SCs to review and decide for themselves about the applicability of the latest version(s).

The information in the table below is based on the following web sites (situation as at 9 August 2005):

IEC standards:
http://www.iec.ch/searchpub/cur_fut.htm

ISO standards:
http://www.iso.org/iso/en/CatalogueListPage.CatalogueList


INTERNATIONAL DOCUMENT

OIML D 11
Edition 2004 (E)

General requirements for electronic measuring instruments

OIML D 11 Edition 2004 (E)

ORGANISATION INTERNATIONALE DE MÉTROLOGIE LÉGALE

INTERNATIONAL ORGANIZATION OF LEGAL METROLOGY

Reference in D 11 (2004)	Standard referred to in D 11 (2004)	Present standard as at 9 August 2005	New description of the standard	Major technical changes
[11]	IEC 60068-2-47 (1999-10)	IEC 60068-2-47 (2005-4)	This standard provides methods for mounting products, whether packaged or unpackaged, as well as mounting requirements for equipment and other articles, for the series of dynamic tests in IEC 60068-2, that is impact (Test E), vibration (Test F) and acceleration, steady-state (Test G). When they are fastened to the test apparatus and subjected to these tests, whether packaged or unpackaged, they are referred to as specimens.	*The major technical changes with regard to the second edition are related to specific guidance on the testing of packaged products.*
[32]	IEC 61000-4-6 (2003-05) Amm 1 (2004-10)	IEC 61000-4-6 Consolidated edition (2004-11)	This part of IEC 61000-4 relates to the conducted immunity requirements of electrical and electronic equipment to electromagnetic disturbances coming from intended radio-frequency (RF) transmitters in the frequency range 9 kHz up to 80 MHz. Equipment not having at least one conducting cable (such as mains supply, signal line or earth connection) which can couple the equipment to the disturbing RF fields is excluded. The object of this standard is to establish a common reference for evaluating the functional immunity of electrical and electronic equipment when subjected to conducted disturbances induced by radio-frequency fields. The test method documented in this part of IEC 61000 describes a consistent method to assess the immunity of an equipment or system against a defined phenomenon.	*Consolidated edition based on the second edition (2003) and its amendment 1 (2004)*
[37]	IEC 61000-6-1 (1997-07)	IEC 61000-6-1 (2005-3)	This part of IEC 61000 for EMC immunity requirements applies to electrical and electronic apparatus intended for use in residential, commercial and light-industrial environments. Immunity requirements in the frequency range 0 Hz to 400 GHz are covered. No tests need to be performed at frequencies where no requirements are specified. This generic EMC immunity standard is applicable if no relevant dedicated product or product-family EMC immunity standard exists. This standard applies to apparatus intended to be directly connected to a low-voltage public mains network or connected to a dedicated DC source which is intended to interface between the apparatus and the low-voltage public mains network. This standard applies also to apparatus which is battery operated or is powered by a non-public, but non-industrial, low voltage power distribution system if this apparatus is intended to be used in the locations described below. The environments encompassed by this standard are residential, commercial and light industrial locations, both indoor and outdoor. The following list, although not comprehensive, gives an indication of locations which are included: - residential properties, for example houses, apartments; - retail outlets, for example shops, supermarkets; - business premises, for example offices, banks; - areas of public entertainment, for example cinemas, public bars, dance halls; - outdoor locations, for example petrol stations, car parks, amusement and sports centres; - light-industrial locations, for example workshops, laboratories, service centres. Locations which are characterised by being supplied directly at low voltage from the	*This second edition constitutes a technical revision. Specific technical changes have been introduced to Tables 1 to 4. The frequency range for tests according to IEC 61000-4-3 has been extended above 1 GHz according to technologies used in this frequency area. The use of TEM waveguide testing according to IEC 61000-4-20 has been introduced for certain*

Reference in D 11 (2004)	Standard referred to in D 11 (2004)	Present standard as at 9 August 2005	New description of the standard	Major technical changes
[37]	IEC 61000-6-1 (1997-07)	IEC 61000-6-1 (2005-3)	public mains network are considered to be residential, commercial or light-industrial. The object of this standard is to define the immunity test requirements for apparatus specified in the scope in relation to continuous and transient, conducted and radiated disturbances including electrostatic discharges. The immunity requirements have been selected to ensure an adequate level of immunity for apparatus at residential, commercial and light-industrial locations. The levels do not, however, cover extreme cases, which may occur at any location, but with an extremely low probability of occurrence. Not all disturbance phenomena have been included for testing purposes in this standard but only those considered as relevant for the equipment covered by this standard. These test requirements represent essential electromagnetic compatibility immunity requirements. Test requirements are specified for each port considered.	*products and the testing requirements according to IEC 61000-4-11 have been amended significantly.*
[38]	IEC 61000-6-2 (1999-01)	IEC 61000-6-2 (2005-01)	This part of IEC 61000 for EMC immunity requirements applies to electrical and electronic apparatus intended for use in industrial environments, as described below. Immunity requirements in the frequency range 0 Hz to 400 GHz are covered. No tests need to be performed at frequencies where no requirements are specified. This generic EMC immunity standard is applicable if no relevant dedicated product or product-family EMC immunity standard exists. This standard applies to apparatus intended to be connected to a power network supplied from a high or medium voltage transformer dedicated to the supply of an installation feeding manufacturing or similar plant, and intended to operate in or in proximity to industrial locations, as described below. This standard applies also to apparatus which is battery operated and intended to be used in industrial locations. The environments encompassed by this standard are industrial, both indoor and outdoor. Industrial locations are in addition characterised by the existence of one or more of the following: - industrial, scientific and medical (ISM) apparatus (as defined in CISPR 11); - heavy inductive or capacitive loads are frequently switched; - currents and associated magnetic fields are high. The object of this standard is to define immunity test requirements for apparatus defined in the scope in relation to continuous and transient, conducted and radiated disturbances, including electrostatic discharges. The immunity requirements have been selected to ensure an adequate level of immunity for apparatus at industrial locations. The levels do not, however, cover extreme cases, which may occur at any location, but with an extremely low probability of occurrence. Not all disturbance phenomena have been included for testing purposes in this standard, but only those considered as relevant for the equipment covered by this standard. These test requirements represent essential electromagnetic compatibility immunity requirements	*This second edition constitutes a technical revision. Specific technical changes have been introduced to Tables 1 to 4. The frequency range for tests according to IEC 61000-4-3 has been extended above 1 GHz according to technologies used in this frequency area. The use of TEM waveguide testing according to IEC 61000-4-20 has been introduced for certain products and the testing requirements according to IEC 61000-4-11 have been amended significantly.*

Continued

In addition to the standards quoted in OIML D 11, the following recently published IEC standard gives guidance for the choice of vibration test(s):

IEC 60068-3-8 (2003-08) Environmental testing - Part 3-8: Supporting documentation and guidance - Selecting amongst vibration tests

Description of the standard IEC 60068-3-8

This standard IEC 60068-3-8 provides guidance for selecting amongst the IEC 60068-2 stationary vibration test methods Fc sinusoidal, Fh random and F(x) Mixed mode vibration. The different steady-state test methods and their aims are briefly described in Clause 4. Transient test methods are not included. For vibration testing, the environmental conditions, especially the dynamic conditions for the specimen, should be known. This standard helps to collect information about the environmental conditions (Clause 5), to estimate or measure the dynamic conditions (Clause 6) and gives examples to enable decisions to be made on the most applicable environmental vibration test method. Starting from the condition, the method of selecting the appropriate test is given. Since real life vibration conditions are dominated by vibration of a random nature, random testing should be the commonly used method, see Table 1, Clause 7. The methods included hereafter may be used to examine the vibration response of a specimen under test before, during and after vibration testing. The selection for the appropriate excitation method is described in Clause 8 and tabulated in Table 2. In this standard specification, writers will find information concerning vibration test methods and guidance for their selection. For guidance on test parameters, or severities of one of the test methods, reference should be made to the normative references. Has the status of a basic safety publication in accordance with IEC Guide 104.

Introduction to the standard IEC 60068-3-8

Components, equipment and other electrotechnical products, hereinafter called specimens, can be subjected to different kinds of vibration during manufacture, transportation or in service. In the IEC 60721-3 standards, those different vibration environments are tabulated into classes characterizing stationary and transient vibration conditions. The standards in the IEC 60068-2 series describe methods for testing with stationary or transient vibration. There will be three standards in the IEC 60068-2 series for environmental testing that specify test methods employing stationary vibration:

Part 2-6 Test Fc: Vibration (sinusoidal),
Part 2-64 Test Fh: Vibration, broad-band random (digital control) and guidance, and
Part 2-80 Test F-: Mixed mode testing (under consideration)

TYPE APPROVAL

Pattern compliance – or conformity to type

ADRIAN CASTER
Manager, Pattern Approval Laboratory
National Measurement Institute (Australia)

For many years, testing authorities around the world have believed that instruments submitted for type approval are carefully selected and tested instruments - often referred to as "gold plated instruments". However, there is little evidence to support this perception, despite the fact that it was unlikely that a manufacturer would submit for type testing an instrument in which he did not have a certain degree of confidence that it would perform satisfactorily. Many testing authorities required manufacturers to provide test results in support of their application, again ensuring that the instrument submitted would be a good quality one.

In the late 1980's the then National Standards Commission of Australia (NSC) (now the National Measurement Institute) was requested to carry out testing on some approved load cells that were to be used in weighbridge upgrades in one of the small countries in the South Pacific Region. Sixteen load cells from different manufacturers (all approved in Australia and in various other countries) were tested and only one met the performance requirements necessary for the number of scale intervals that their approvals allowed. Some performed at less than 20 % of the required standard for their existing approval.

Pattern compliance has always been a difficult activity to introduce because of the lack of funding necessary for carrying out the tests. Manufacturers were reluctant to fund repeat testing of already approved equipment as any additional costs had an impact on their ability to recover the development costs on new and existing technology.

Other examples of production instruments failing to meet the same standard as the tested and approved instrument were uncovered accidentally as there was no process of post approval testing other than the in field verification process, which cannot ensure compliance with most of the environmental and influence requirements that the instruments are exposed to during type testing. Examples that were discovered showed that screening of displays against EMC was not supplied on production models. Similarly ferrite beads on data cable were not supplied on standard production models.

In 2001 the Australian Government recognised that with mutual recognition agreements reducing the amount of testing globally, the risks of non complying instruments being supplied into the Australian market could increase and as a result they provided funding to allow random post approval testing to be carried out.

As the Government was funding the project there was to be no cost to manufacturers and as most suppliers of instruments in Australia are importing agents they were willing to voluntarily provide production instruments for pattern compliance testing.

Since the scheme was introduced tests have been carried out on over 80 instruments with the tests being restricted to those aspects which cannot be checked in the field. In order to make some allowance for manufacturing variables the non-compliance was broken up into two categories "minor failure" = no more than $1.5 \times$ MPE for type approval and "major failure" = greater than $1.5 \times$ MPE for type approval.

Of the tests carried out to date there have been 15 "minor failures" and 6 "major failures".

As part of the incentive for manufacturers to cooperate it was agreed that there would be no penalty for minor failures. This meant that manufacturers were very interested in the results of the testing with many going back to their supplier to have the design checked for the causes of the minor failures.

With the major failures, manufacturers voluntarily withdrew their product from the market until the causes of the failures had been determined and rectified.

This program has demonstrated that there is a need for pattern compliance testing after approvals have been granted and this will become more important as the OIML MAA has the effect of significantly reducing the amount of independent testing that instrument prototypes may be subjected to as part of the type approval process. ■

CECIP

55th General Assembly

Katowice, Poland

6 May 2005

MICHEL TURPAIN
CECIP Permanent Secretary

CECIP, the European Committee of Weighing Instruments Manufacturers, held its 55th General Assembly in Katowice, Poland, at the invitation of the Polish Federation.

The General Assembly took place at the Qubus Hotel. A number of guests and members of CECIP gave presentations on a wide range of topics concerning our activity:

- Mrs Caroline Obrecht, CECIP Interim President, officially opened the 55th CECIP General Assembly,
- Mr Michal Czarski, "Marshal" of the Voivodeship of Silesia, gave a welcome speech to all guests and delegates, and presented the Silesian area with its important industrial potentialities,
- Mr Wlodzimierz Sanocki, President of the Polish Main Office of Measures, presented metrology in Poland after joining European Union,
- Mr Waldemar Ziomek, President of Architec Company, presented the Documents Archiving and Work Flow Organization in the Main Office of Measures,
- Mr Gerald Freistetter, President of WELMEC, European Cooperation in Legal Metrology, gave a presentation on WELMEC and its relationships with industry,
- Prof. Dr. Manfred Kochsiek, CIML Acting President, gave the latest news about the OIML including the forthcoming CIML Meeting in June 2005, and the setting up of the OIML Mutual Recognition Arrangement on load cells and on nonautomatic weighing instruments,
- Mr Daniel Phillips presented the EMeTAS Consortium (European Metrology Type Approvals System) database of type certificats on weighing instruments.

Following the entry as CECIP members of three new Federations in 2003, CECIP is now composed of 15 Federations from the following countries:

Czech Republic	Romania
Finland	Russia
France	Slovak Republic
Germany	Spain
Hungary	Switzerland
Italy	Ukraine
Netherlands	United Kingdom
Poland	

Each Federation then presented the situation of the weighing industry in its country during 2004. The table summarizes the weighing industry production in Europe and indicates an increase in production compared to 2003 in Germany, Czech Republic, Russia and Ukraine, and a decrease in Spain, Finland, France (a decrease in household and bathroom scales, but an increase in industrial scales), Italy and the United Kingdom. Overall, the European average is + 0.5%.

Exports increased in Germany, Finland, France, Russia and Ukraine, and decreased in Spain, Italy, Czech Republic, the United Kingdom and Switzerland. Overall, the European average is + 8.3 %, but with exchanges between the European Union Members and with third countries.

Imports increased in Germany, Spain, France, Czech Republic, Russia, Switzerland and Ukraine, and decreased in Finland, Italy, and the United Kingdom. Overall, the European average is + 15.1 %, but with exchanges between the European Union Members and with third countries.

During the afternoon the statutory part included, as usual, the program as stated below:

- the activity report of the Legal Metrology Group, which is continuing with its task of coming up with proposals on and examinations of OIML publications (especially the revisions of Recommendations dealing with automatic weighing instruments which will accompany the Measuring Instruments Directive), of WELMEC documents, European Cooperation in Legal Metrology, (especially harmonization Guides),
- the activity report of the Bureau, which takes care of the day-to-day management of the Committee and of its development by:
  - passing on experience acquired to the younger Federations of those countries that come knocking at the European Union's door,
  - inviting, as observer, the Bulgarian Federation,
  - making contacts with the Federations of weighing instrument manufacturers around the world, bringing on board new CECIP Members, such as Poland, Romania and Russia in 2003, and
  - creating links with the Chinese, American and Japanese Federations.

This year the CECIP Bureau election took place. The composition is as follows:

- President	Mr Antonio Matute Federation of Spain
- Vice-President	Mrs Caroline Obrecht Federation of Switzerland
- Vice-President	Mr Richard Herbert Federation of the United Kingdom
- Vice-President	Mr Fabio Martignoni Federation of Italy
- Member	Dr Günther Maaz Federation of Germany
- Member	Mr Daniel Stastny Federation of the Czech Republic
- Permanent Secretary	Mr Michel Turpain Federation of France

Our Polish friends made an excellent job in organizing this General Assembly in the town of Katowice. The General Assembly beautifully ended with a Gala Dinner in the superb "Shooting Lodge" of Promnice in the middle of the forest. The next day was a sightseeing day in the surroundings of Katowice, to discover the Salt Mine of Wieliczka, listed among the Unesco World Heritage Sites, with a great number of chambers and sculptures of salt. Then, a pleasant walk along the streets of Krakow enabled us to discover the wonders of the town which deserves a second visit. The lunch in the famous Wiezynek Restaurant was such a marvellous time in beautiful rooms with a delicious menu.

Many thanks to our Polish friends, Mr Piotr Cholewa, President of the Polish Federation, Marek Bronder, Marjena, Agneska and all the Members of the Polish Federation for their warm welcome. See you next year in Italy! ■

CECIP

55ème Assemblée Générale

Katowice, Pologne

6 mai 2005

Michel Turpain
Secrétaire Permanent du CECIP

Le CECIP, Comité Européen des Constructeurs d'Instruments de Pesage, vient de tenir sa 55ème Assemblée Générale à Katowice en Pologne, à l'invitation de la Fédération Polonaise.

Notre Assemblée Générale s'est tenue dans les salons de l'Hôtel Qubus. De nombreux invités et membres du CECIP sont intervenus dans des domaines très variés intéressant notre activité:

- Mme Caroline Obrecht, Présidente par interim du CECIP, a ouvert officiellement la 55ème Assemblée Générale du CECIP,
- M. Michal Czarski, "Marshal" de la Région de Silésie, a prononcé un discours de bienvenue à l'ensemble des invités et des délégués et nous a présenté la région de Silésie et son important potentiel industriel,
- M. Wlodzimierz Sanocki, Président de l'Office Principal Polonais des Mesures, nous a présenté la métrologie en Pologne après l'adhésion à l'Union Européenne,
- M. Waldemar Ziomek, Président de la société Architec, nous a présenté l'archivage des documents et l'organisation des flux à l'Office Principal Polonais des Mesures,
- M. Gérald Freistetter, Président du WELMEC, European Cooperation in Legal Metrology, nous a présenté le WELMEC et ses relations avec l'industrie,
- Prof. Dr Manfred Kochsiek, Président par Interim du CIML, Comité International de Métrologie Légale, nous a donné les dernières nouvelles de l'OIML en vue de la réunion du CIML en juin 2005 et de la mise en place de l'Accord de Reconnaissance Mutuelle sur les cellules de pesée et les instruments de pesage à fonctionnement non automatique,
- M. Daniel Phillips, nous a présenté le consortium EMeTAS, European Metrology Type Approvals System, base de données des certificats de type des instruments de pesage.

Après l'arrivée de trois nouvelles Fédérations au sein du CECIP en 2003, le CECIP est composé aujourd'hui de 15 Fédérations venant des pays suivants:

Allemagne	République Slovaque
Espagne	République Tchèque
Finlande	Roumanie
France	Royaume-Uni
Hongrie	Russie
Italie	Suisse
Pays-Bas	Ukraine
Pologne	

Chaque Fédération a présenté la situation de l'industrie du pesage en 2004 dans son pays, résumée dans un tableau récapitulatif détaillant la production d'instruments de pesage en Europe et montrant une hausse de la production par rapport à 2003 en Allemagne, en République Tchèque, en Russie et en Ukraine et une baisse en Espagne, en Finlande, en France (en baisse dans les produits grand public mais en hausse dans les produits industriels), en Italie et au Royaume-Uni. Ceci nous amène à une moyenne européenne de + 0,5 %.

Les exportations sont en hausse en Allemagne, en Finlande, en France, en Russie et en Ukraine, et en baisse en Espagne, en Italie, en République Tchèque, au Royaume-Uni et en Suisse. Ceci nous amène à une moyenne européenne de + 8,3 % mais avec des échanges entre les membres de l'Union Européenne et les pays tiers.

Les importations sont en hausse en Allemagne, en Espagne, en France, en République Tchèque, en Russie, en Suisse et en Ukraine, et en baisse en Finlande, en Italie, et au Royaume-Uni. Ceci nous amène à une moyenne européenne de + 15,1 % mais avec des échanges entre les membres de l'Union Européenne et les pays tiers.

La partie statutaire s'est déroulée l'après-midi avec le programme habituel suivant:

- le rapport d'activité du Groupe Métrologie Légale qui poursuit sa tâche de propositions et d'examens des publications de l'OIML (en particulier la révision des Recommandations touchant les instruments de pesage à fonctionnement automatique qui accompagneront la Directive sur les Instruments de Mesure), des documents du WELMEC, European Cooperation in Legal Metrology, (en particulier les guides d'harmonisation),
- le rapport d'activité du bureau qui assure la gestion quotidienne du Comité et son développement:
  - en apportant notre expérience aux jeunes Fédérations des pays qui frappent à la porte de l'Union Européenne,
  - en prenant contact avec les Fédérations de constructeurs d'instruments de pesage à travers le monde, amenant de nouveaux membres au CECIP, comme la Pologne, la Roumanie et la Russie en 2003,
  - en invitant cette année, comme observateur, la Bulgarie, et
  - en créant des liens avec les Fédérations de Chine, des Etats-Unis d'Amérique ou du Japon.

Puis cette année nous avions l'élection du nouveau Bureau du CECIP. La composition est la suivante:

- Président	M. Antonio Matute Fédération de l'Espagne
- Vice-Présidente	Mme Caroline Obrecht Fédération de la Suisse
- Vice-Président	M. Richard Herbert Fédération du Royaume-Uni
- Vice-Président	M. Fabio Martignoni Fédération de l'Italie
- Membre	Dr Günther Maaz Fédération de l'Allemagne
- Membre	M. Daniel Stastny Fédération de la République Tchèque
- Secrétaire Permanent	M. Michel Turpain Fédération de la France

Nos amis Polonais avaient parfaitement organisé cette Assemblée Générale dans la ville de Katowice. L'assemblée se termina par un dîner de gala dans le superbe "Shooting Lodge" de Promnice en plein coeur de la forêt. La journée suivante fut consacrée au tourisme dans les environs de Katowice à la découverte de la mine de sel de Wieliczka, classée au patrimoine mondial de l'Unesco, avec ses multiples chapelles et sculptures de sel. Puis une agréable promenade dans les rues de Cracovie fut l'occasion de découvrir les merveilles de cette ville qui mérite une seconde visite. Le déjeuner au restaurant Wiezynek fut une halte bienvenue dans un cadre superbe avec un menu raffiné.

Merci à nos amis Polonais, M. Piotr Cholewa, Président de la Fédération Polonaise, Marek Bronder, Marjena, Agneska et tous les membres de la Fédération Polonaise pour leur chaleureux accueil. A l'année prochaine en Italie !

Statistiques - Industrie du Pesage — Results - Weighing Industry
Année 2004 — *Year 2004*

Pays Country	Production		Variation	Export	Import
	Hors taxe Monnaie locale Local currency	Hors taxe Without tax Million Euro	2004 / 2003	Variation/2003 Million Euro	Variation/2003 Million Euro
ALLEMAGNE *GERMANY*		712.4	+ 6.7 %	495.6 + 11.8 %	192.1 + 4.2 %
ESPAGNE *SPAIN*		48.5	– 2.4 %	33.6 – 11.4 %	64.4 + 10.3 %
FINLANDE *FINLAND*		28.2	– 1 %	4.79 + 12.6 %	10.64 – 8.5 %
FRANCE *FRANCE*		155.8	– 5.4 %	79.3 + 4.5 %	139.9 + 9.6 %
HONGRIE *HUNGARY*					
ITALIE *ITALY*		143.6	– 9.7 %	21.7 – 6.9 %	33.1 – 6.5 %
PAYS-BAS *NETHERLANDS*					
POLOGNE *POLAND*					
REPUBLIQUE SLOVAQUE *SLOVAK REPUBLIC*					
REPUBLIQUE TCHEQUE *CZECH REPUBLIC*		12.7	+ 1.4 %	1.73 – 11.3 %	10.95 + 12.7 %
ROUMANIE *ROMANIA*					
ROYAUME-UNI *UNITED KINGDOM*		185.1	– 4 %	126.7 – 8 %	129.6 – 1.7 %
FEDERATION RUSSE *RUSSIAN FEDERATION*		44.2	+ 16 %	4.6 + 2 %	33 + 23 %
SUISSE *SWITZERLAND*				107.4 – 4.2 %	43.5 + 8.3 %
UKRAINE *UKRAINE*		18.0	+ 17.6 %	1.9 + 2.3 %	6.7 + 5.6 %

The OIML is pleased to welcome the following new

CIML Members

- **Spain:**
  Mr. Fernando Ferrer Margalef
- **Turkey:**
  Dr. Atilla Sahin

Corresponding Members

- **Tajikistan**
- **Qatar**

OIML Meetings

Last Quarter of 2005
(Measurement Canada, Ottawa, Canada - Date to be confirmed)

TC 12 Instruments for measuring electrical quantities
Revision of R 46

9–10 March 2006 - BEV, Vienna, Austria (to be confirmed)

TC 8/SC 1 Static volume measurement
Drafts of revisions of R 71, R 80 and R 81
Note: Possible alternative dates are 11–12 May 2006 in Vienna

Committee Drafts

Received by the BIML, 2005.06 – 2005.07

Instruments for continuous measuring SO_2 in stationary source emissions	E	1 CD	TC 16/SC 1	RU
Reference blackbody radiators for the temperature range from – 50 °C to + 2500 °C	E	1 CD	TC 11/SC 3	RU
Revision R 46: Electricity meters	E	2 CD	TC 12	SE
R 136-2 Instruments for measuring the area of leathers. Part 2: Test report format	E	1 CD	TC 7/SC 3	UK
Pressure transducers with unified (4 – 20) mA or (10 – 50) mA output signal	E	3 CD	TC 10/SC 1	CZ
Revision R 107-1 Discontinuous totalizing automatic weighing instruments (totalizing hopper weighers). Part 1: Metrological and technical requirements - Tests	E	1 WD	TC 9/SC 2	UK
Measuring systems for gaseous fuel	E	4 CD	TC 8/SC 7	BE/FR
Vessels used for commercial transactions (combined revision of R 4, R 29, R 45 and R 96)	E	2 CD	TC 8	CH
R 75-3: Heat Meters: Part 3 Test Report Format	E	2 CD	TC 11	DE
Revision R 106 Automatic rail-weighbridges. Parts 1 & 2	E	1 CD	TC 9/SC 2	UK
Revision R 83: Gas chromatographic systems for measuring pollution from pesticides and other toxic substances	E	2 CD	TC 16/SC 2	USA

Call for papers

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RLMOs
Liaison Institutions
Manufacturers' Associations
Consumers' & Users' Groups, etc.

- Technical articles on legal metrology related subjects
- Features on metrology in your country
- Accounts of Seminars, Meetings, Conferences
- Announcements of forthcoming events, etc.

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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