

TEXT OF THE RESOLUTIONS
ADOPTED BY THE 22nd GENERAL CONFERENCE
ON WEIGHTS AND MEASURES
(2003)

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■ Links with other organizations

Resolution 1

The 22nd General Conference,

considering

- the work of the Metre Convention in extending traceability of calibration and measurement results into new application areas,
- the evident value of collaboration and Joint Committees already established by the International Bureau of Weights and Measures (BIPM) with other international organizations,
- the need to seek efficiency through collaboration and partnerships with other international organizations, where these serve the common aims and objectives,
- the long-standing relations with the Organisation Internationale de Métrologie Légale (OIML),

noting and welcoming the formal arrangements recently created by the BIPM with the International Laboratory Accreditation Cooperation (ILAC), the World Health Organization (WHO) and the World Meteorological Organization (WMO), and the efforts of the BIPM to draw up similar arrangements with other bodies,

invites

- international and intergovernmental organizations for which metrology impinges on their activities to cooperate with BIPM, to develop similar formal relationships and, if necessary, participate in Joint Committees,
- all Member States to help implement the results of these collaborations and the joint efforts so as to extend the influence and impact of the Metre Convention and of traceability of calibration and measurement results into user domains where these form part of national rather than international responsibilities.

■ **Metrology and trade**

Resolution 2

The 22nd General Conference,

considering

- the increasing importance for world trade of reliability in measurement and comparability of measurement results,
- the commitment of the World Trade Organization (WTO) to the reduction in non-tariff barriers to trade,
- the recent report commissioned by the International Bureau of Weights and Measures (BIPM) from a commercial consulting company on the economic impact of the CIPM Mutual Recognition Arrangement on world trade,

notes the long-standing application made by the BIPM for observer status on the WTO Committee on Technical Barriers to Trade, and

requests Member States of the Metre Convention to press for a positive acceptance of this application as soon as possible.

■ **On the coordination of the initiatives to support the implementation of metrology, accreditation, and standardization in developing countries and economies**

Resolution 3

The 22nd General Conference,

considering

- the desirability of extending relationships between the Metre Convention and the bodies working on aspects of metrology, accreditation and standardization infrastructures in developing countries and economies,
- the value of creating a coherent, coordinated approach to metrology, accreditation and standardization,
- the creation of a Joint Committee on Coordination of Assistance to Developing Countries in Metrology, Accreditation and Standardization (JCDCMAS), involving representatives of the International Bureau of Weights and Measures (BIPM), the International Accreditation Forum (IAF), the International Electrotechnical Commission (IEC), the International Laboratory Accreditation Cooperation (ILAC), the International Organization for Standardization (ISO), the International Telecommunication Union (ITU), the Organisation Internationale de Métrologie Légale (OIML), and the United Nations Industrial Development Organization (UNIDO),
- the initiatives of several Member States of the Metre Convention in support of metrology in developing countries,

noting the independent policy relationships between Member States of the Metre Convention and a number of the partner bodies in the JCDCMAS,

welcomes and supports the participation of the Metre Convention in the work of the JCDCMAS with the specific remit to assist in a coherent technical implementation of metrology, accreditation and standardization in developing countries and economies in such a way as to avoid any conflict with the independent policies and activities of the national metrology institutes of Member States of the Metre Convention.

■ **Value and benefits of the Metre Convention for Member States and for Associates of the General Conference**

Resolution 4

The 22nd General Conference,

considering

- the clear technical and economic benefits to countries and economies of being Member States of the Metre Convention or Associates of the General Conference,
- the desirability of extending the number of Member States or Associates so as to widen the impact and the benefit of participation in the CIPM Mutual Recognition Arrangement (MRA),
- the need to ensure that the CIPM MRA is not seen as a technical barrier to trade but, on the contrary, is seen as an Arrangement that gives equal opportunities to all,

welcomes

- the initiatives already taken by the International Bureau of Weights and Measures to promote membership of the Metre Convention and increase the number of members and Associates of the General Conference,
- the potential of the Joint Committee on Coordination of Assistance to Developing Countries in Metrology, Accreditation and Standardization (JCDCMAS) for alerting non-members to the merits of membership, and

invites Member States to promote wider membership through their initiatives, such as aid programmes in developing countries, and through their discussions in appropriate international fora.

■ **Report on evolving needs for metrology in trade, industry and society, and the role of the International Bureau of Weights and Measures**

Resolution 5

The 22nd General Conference,

considering

- Resolution 11 of the 20th General Conference, which recommended to the International Committee that it study the long-term needs relating to metrology,
- Resolution 1 of the 21st General Conference, which noted the Report to the General Conference on long-term needs relating to metrology,
- the new Report adopted by the International Committee in October 2002,

notes

- the content of the new Report,
- its contribution to the identification of priorities within current activities and to the setting of new priorities,
- its contribution to the decisions of the International Committee on the programme of future work at the International Bureau of Weights and Measures (BIPM),

thanks the many organizations and individuals who contributed to the work of the International Committee, and

invites the International Committee

- to continue to keep a careful watch on the increasing demands placed on the national metrology institutes and the BIPM as far as their current work in metrology is concerned and the additional activities generated by new needs in such areas as chemistry, biotechnology, medicine, the environment and food,
- to report to the next General Conference on the adequacy of the response of the BIPM to meet these needs together with any financial and programme implications there may be in relation to the meeting of such international needs through the activities of the BIPM, and
- if necessary, to update their 2002 Report.

■ **On the importance of the CIPM Mutual Recognition Arrangement**

Resolution 6

The 22nd General Conference,

noting

- the positive social and economic impact, including the lowering of costs in non-tariff barriers to trade that are expected to follow from adoption by regulators and legislators of the CIPM Mutual Recognition Arrangement (MRA),
- the effect of the CIPM MRA in building mutual confidence between trading partners,
- the interest already created with certain regulatory authorities, trade organizations and national authorities,
- the use of the CIPM MRA, for example, in facilitating the European Union/United States trade agreement,
- that the credibility of the CIPM MRA is based upon a secure technical foundation, namely, the key comparisons, quality systems and other measures to ensure quality,
- that the CIPM MRA has been signed with the approval of the appropriate official authorities in each country,

welcomes the interest shown by these bodies, and

invites

- all Member States to promote the CIPM MRA among their national regulatory, accreditation and standardization bodies as a framework for acceptance of calibration and measurement certificates from national metrology institutes (NMIs) and designated institutes as well as from accredited laboratories that can demonstrate traceability to the International System of Units through standards realized by the signatory NMIs and designated institutes,
- the International Committee to prepare a declaration on the importance and application of the CIPM MRA in trade, commerce and regulatory affairs, and to bring it to the attention of the Governments of the Metre Convention with the recommendation that the principles of the CIPM MRA be included in intergovernmental agreements as appropriate,

encourages the International Committee to take all possible steps to increase the number of signatories of the CIPM MRA representing NMIs and other designated institutes that form part of the metrological infrastructure of the Members States of the Metre Convention and the Associates of the General Conference.

■ **Involvement of national metrology institutes in the complete range of work of the Metre Convention**

Resolution 7

The 22nd General Conference,

considering

- the importance of the subject matter covered by the terms of reference of the Consultative Committees,
- the location of many national centres of expertise in the relevant disciplines in specialized institutes outside the national metrology institutes,
- the desirability of ensuring the maximum possible participation of national metrology institutes and other designated institutes in key comparisons in these areas,

noting that the official notification of changes to the list of designated institutes in Appendix A of the CIPM Mutual Recognition Arrangement (MRA) is transmitted to the International Bureau of Weights and Measures through the signatory national metrology institute,

recommends

- that Governments or appropriate official authorities of the Member States of the Metre Convention make appropriate arrangements to associate (or link) the activities and facilities of these other national centres of expertise to the national metrology institute by designating them under the CIPM MRA so that they can participate in the activities defined by the MRA, and
- that these facilities be used to provide services for industrial, scientific, medical and other organizations that require or would benefit from calibration results that are traceable to the International System of Units.

■ **Revision of the *mise en pratique* of the definition of the metre**

Resolution 8

The 22nd General Conference,

recalling that

- the 21st General Conference in 1999 welcomed the adoption in 1997 by the International Committee of a revised *mise en pratique* of the definition of the metre, and
- the Conference also recommended that national laboratories pursue experimental and theoretical research on optical wavelength and frequency standards, including the development of new techniques for the comparison of different standards over a wide range of wavelength and frequency to improve yet further the experimental basis of the International System of Units (SI),

considering that

- new techniques based on trapped ions and atoms have opened up the possibility of highly accurate and stable optical clocks and frequency standards,
- these systems appear to have the potential for providing the basis for a future, improved, definition of the second,
- the introduction of femtosecond comb technology has considerably facilitated the absolute frequency measurement of optical radiation sources, including those sources used to realize the metre,
- the International Committee in 2002 updated the recommended values of a number of radiations published in the 1997 *mise en pratique* and added values for several new radiations,

welcomes

- the adoption of these new values and their subsequent publication in *Metrologia* in 2003, and
- the close collaboration and discussions between the length and time and frequency communities aimed at the eventual linking of optical and microwave frequency standards,

recommends that national laboratories continue to develop reliable and proven techniques for the generation and comparison of optical and microwave frequency standards, and

invites the International Committee to keep this important subject under regular review, especially in relation to a possible redefinition of the second.

■ **Requirements for cross-border transport of measurement standards, metrological equipment and reference materials**

Resolution 9

The 22nd General Conference,

considering

- recent events that are understandably requiring stricter control of container, luggage and carry-on belongings of national and international travellers, as well as unaccompanied packages,
- that these controls are making it more and more difficult, and sometimes impossible, to transport equipment, standards, and reference materials that are needed for comparisons of national measurement standards,
- that these comparisons rely intrinsically on frequent and unimpeded transportation of standards, many of which have limited stability and so require rapid movement,
- that certain samples or equipment are fragile and can become contaminated or damaged beyond the point of use if not handled carefully by personnel in airports, freight handling agencies or customs officials,
- that the inherent dangers in transport of certain samples in the nuclear, chemical and pharmaceutical field for metrology are far less than those envisaged from the point of view of those that seek to prohibit or restrict wholesale movement of such goods,
- the importance of implementing new procedures that can facilitate the unimpeded transport of such materials,
- that this facilitation could be accomplished by modifications, guidance notes or other addenda to existing regulations that inform officials as to the course of action to be undertaken in the case of metrological samples and equipment,

recommends that national metrology institutes, government bodies and international organizations responsible for the control and regulation of the movement of goods and substances, all work with relevant bodies to investigate, propose and implement special procedures that relate to the free and unimpeded movement of metrological materials and equipment among national metrology institutes, designated institutes and the International Bureau of Weights and Measures,

and further **recommends** the International Committee to draw the attention of other international organizations having responsibilities in this area to this Resolution.

■ **Symbol for the decimal marker**

Resolution 10

The 22nd General Conference,

considering that

- a principal purpose of the International System of Units (SI) is to enable values of quantities to be expressed in a manner that can be readily understood throughout the world,
- the value of a quantity is normally expressed as a number times a unit,
- often the number in the expression of the value of a quantity contains multiple digits with an integral part and a decimal part,
- in Resolution 7 of the 9th General Conference, 1948, it is stated that “In numbers, the comma (French practice) or the dot (British practice) is used only to separate the integral part of numbers from the decimal part”,
- following a decision of the International Committee made at its 86th meeting (1997), the International Bureau of Weights and Measures now uses the dot (point on the line) as the decimal marker in all the English language versions of its publications, including the English text of the SI Brochure (the definitive international reference on the SI), with the comma (on the line) remaining the decimal marker in all of its French language publications,
- however, some international bodies use the comma on the line as the decimal marker in their English language documents,
- furthermore, some international bodies, including some international standards organizations, specify the decimal marker to be the comma on the line in all languages,
- the prescription of the comma on the line as the decimal marker is in many languages in conflict with the customary usage of the point on the line as the decimal marker in those languages,
- in some languages that are native to more than one country, either the point on the line or the comma on the line is used as the decimal marker depending on the country, while in some countries with more than one native language, either the point on the line or comma on the line is used depending on the language,

declares that the symbol for the decimal marker shall be either the point on the line or the comma on the line,

reaffirms that “Numbers may be divided in groups of three in order to facilitate reading; neither dots nor commas are ever inserted in the spaces between groups”, as stated in Resolution 7 of the 9th CGPM, 1948.

■ **Relationship between National Metrology Institutes and nationally recognized accreditation bodies**

Resolution 11

The 22nd General Conference,

considering

- the key role played by National Metrology Institutes (NMIs) at the origin of accreditation of calibration and, in some countries, also of testing laboratories to meet the increasing demand for the calibration of measuring standards and instruments traceable to the International System of Units (SI),
- the essential character of a close technical cooperation between the staff of NMIs and nationally recognized accreditation bodies (NABs),
- the overriding importance to the paying customer of technical competence in the accreditation process of calibration and testing laboratories,
- recent tendencies towards the requirement for complete separation between NMI and NAB activities in the name of impartiality, independence and integrity of the latter,
- the evident danger that such a complete separation may have for the technical competence of NABs and, in consequence, for accredited calibration and testing laboratories,
- that the specification and implementation of national practices related to the national measurement and the national accreditation systems are ultimately the responsibility of national Governments,
- that the relationship between the NMI and nationally recognized accreditation body or bodies varies from country to country; the body or bodies may be part of the NMI, be operated by the NMI or may be completely separated from it,

emphasizing the importance of equitable and harmonized practices in respect of both large and small metrology and accreditation systems in all regions of the world,

recognizing the importance of worldwide harmonization of such practices,

welcomes the recent CIPM-ILAC Memorandum of Understanding between the International Committee for Weights and Measures and the International Laboratory Accreditation Cooperation, (ILAC),

calls upon all accreditation organizations to recognize that NMIs and accredited calibration laboratories together provide an indispensable route to traceability to the SI and hence to reliability in measurements and worldwide comparability of measurement results for the whole economy and society and that they should work closely together,

recommends that

- Member Governments of the Metre Convention ensure that an appropriate relationship exists between NMIs and NABs,
- this relationship fosters collaboration on matters concerning traceability of measurement results and ensures effective and complementary actions under the CIPM MRA and the ILAC arrangement,

and notes that calibration is not a conformity assessment activity.

■ **Dotation of the BIPM for the years 2005 to 2008**

Resolution 12

The 22nd General Conference,

considering

- the increasing importance of metrology for trade, industry, the environment and human health and safety in all Member States of the Metre Convention,
- the corresponding need for an efficient, highly expert, international coordination of metrological activities,
- the central role played by the International Bureau of Weights and Measures (BIPM) in such coordination and the services it renders to Member States of the Metre Convention,
- the broadened responsibilities given to the BIPM at the 21st General Conference in 1999 but without any corresponding increase in dotation,
- the additional increase in workload, unforeseen at the time of the 21st General Conference, that has also been absorbed by the BIPM since the last General Conference,
- the extension of the range of work under the Metre Convention now carried out in Member States, notably in areas of chemistry, biotechnology and medicine,
- the need to extend the range of expertise among the scientific staff of the BIPM to meet demands in these new areas,
- the considerable efforts that continue to be made by the BIPM to enhance the efficiency of its operation, and its commitment to continue these efforts,

recognizing

- the difficult economic situation now existing in some Member States and the consequent strict limits on direct contributions to intergovernmental organizations,
- the high importance of the work of the BIPM for all Member States,
- the need to provide the financial and other means to enable the BIPM to meet the increasing demand placed upon it,

invites national metrology institutes (NMIs)

- to arrange, at their expense, a continuing series of short-term placements or secondments of their staff to the BIPM to work on projects of mutual interest integrated into the BIPM programme,
- to accept staff of the BIPM to work in their institutes on programmes of mutual interest,
- to sponsor a permanent programme of Fellowships at the BIPM for suitable staff with a view to establishing four such Fellowships at the BIPM by the end of 2004 on projects of mutual interest to the sponsoring NMI and the BIPM,

further invites individual governments, national metrology institutes and international organizations as well as private organizations and foundations to make additional financial contributions or contributions in kind to the BIPM,

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decides that the fixed part of the annual dotation of the BIPM will be increased in such a way that the fixed part and the complementary part (defined by Article 6, 1921) of the Rules annexed to the Metre Convention (1875) shall, for those States that are members of the Metre Convention at the time of the 22nd General Conference, be

9 587 000 euros in 2005
9 779 000 euros in 2006
9 974 000 euros in 2007
10 174 000 euros in 2008,

further decides to support the increasing workload of the BIPM by an additional discretionary contribution of

130 000 euros in 2005
132 000 euros in 2006
136 000 euros in 2007
138 000 euros in 2008,

requests Member States to declare to the BIPM, at the latest by 1 April 2004, their intention to pay for the full four years their share of this discretionary contribution.