



20th EUROMET General Assembly

O.08.01 Report from TC-Mass and Related Quantities

1. Projects

In the period under review (from May 2005 to date) in TC area of Mass and Related Quantities the numbers of proposed, agreed and completed projects in the various categories are shown in the table below.

	Comparison	Co-operation	Traceability	Consultation	Total
Proposed	6	2	-	-	8
Agreed	16	11	3	1	31
Completed	20	23	6	11	60
Total	42	36	9	12	99

2. Status of Comparisons in Mass and Related Quantities

There are currently 19 registered European regional key comparison in the area of Mass and Related Quantities, of which 10 are active, 4 have provisional equivalence, 3 have been approved for equivalence and two are planned to start at the end of this year. Details are given in the table below.

Comparison ID	Project no.	Subfield	No. of part.	Pilot	Status	Years
EUROMET.M.M-K1	215 C	Mass	10	NPL	Report in progress, Draft B	1992-1999
EUROMET.M.M-K2	445 A	Mass	25	SP	Report in progress, Draft B	2001-2003
EUROMET.M.M-K2.1	786 A	Mass	5	SP	Protocol complete	2004-
EUROMET.M.M-K4	510 A	Mass	26	NPL	Report in progress, Draft B	1999-2003
EUROMET.M.D-K1	339 C	Density	12	METAS	Provisional equivalence	1998-1999
EUROMET.M.D-K4.Prev	236 C	Density	5	IMGC	Provisional equivalence	1993-1994
EUROMET.M.D-K2	627 A	Density	8	PTB	Report in progress, Draft B	2001-2002
EUROMET.M.D-K4	702 A	Density	11	IMGC	In progress	2003-
EUROMET.M.P-K1.a	442 A	Pressure	10	BNM-LNE	Approved for equivalence	1999-2002
EUROMET.M.P-K1.b	442 A	Pressure	7	BNM-LNE	Approved for equivalence	2000-2002
EUROMET.M.P-K2	305 C	Pressure	6	PTB	Approved for equivalence	1994-1995
EUROMET.M.P-K3.a	439 A	Pressure	8	LNE/NPL	Report in progress, Draft B	1999-2001
EUROMET.M.P-K3.b	439 A	Pressure	13	NPL	Report in progress, Draft B	1999-2001
EUROMET.M.P-K4	389 C	Pressure	14	NPL	Report in progress, Draft B	1998-1999
EUROMET.M.P-K5	045 C	Pressure	7	BNM-LNE	Provisional equivalence	1993-1995
EUROMET.M.P-K6	110 C	Pressure	6	BNM-LNE	Provisional equivalence	1992-1994
EUROMET.M.F-K1	535 A	Force	9	MIKES	Report in progress, Draft A	2002-2004
EUROMET.M.F-K2	518 A	Force	10	NPL	Planned	2006-2008
EUROMET.M.F-K3	505 A	Force	11	PTB	Planned	2005-2007

There are also 6 supplementary comparisons of which four have been published and two are active. Details are given below.

Comparison ID	Project no.	Subfield	No. of partic.	Pilot	Status	Years
EUROMET.M.V-S1	273 C	Viscosity	4	PTB	Published	1992-1993
EUROMET.M.V-S2	303 C	Viscosity	5	PTB	Published	1993-1996
EUROMET.M.V-S3	415 C	Viscosity	12	PTB	Published	2000
EUROMET.M.V-S4	415 C	Viscosity	8	PTB	Published	1997
EUROMET.M.M-S1	461 A	Mass	15	CMI	Report in progress, Draft B	2001-2005
EUROMET.M.P-S1	788 A	Pressure	2	METAS	Report in progress, Draft B	2004-2005

3. CMCs

The penultimate TC-M submission from the EUROMET Mass TC (EUROMET.M.4.2004) was submitted for review by the other Regional Metrology Organisations in Nov 04. Of the other RMOs, SIM, APMP, and COOMET all reviewed the submission. Some minor revisions were called for and the submission was finally in August 2005. The revised CMCs were published in the BIPM KCDB on 17 Oct 05.

The last submission from the EUROMET Mass TC (EUROMET.M.5.2006) was submitted at the beginning of May 2006 and contained submissions from seven NMIs covering the areas of Mass, Pressure, Density, Vacuum and Gravity.

4. Meetings and Workshops

The Mass and related quantities TC meeting for 2006 was held at INRIM in Torino from the 1st to 3rd March. The meeting included seventeen technical sessions to review progress in projects in the fields of mass force pressure and density and also sessions to review the iMERA roadmaps in the individual areas.

The TC meeting was attended by 75 delegates from 30 countries. In addition to the reports of from the participants and reviews of the active projects, the potential re-definition of the kilogram was discussed.

5. EUROMET adoption of the EA Special Calibration Documents

The status of the following documents were discussed at the TC-M meeting in 2005. The status of the guides as of May 2006 is given in bold:

EA-10/03 Calibration of pressure balances (1997): Jean Claude Legras (LNE) and Jos Verbeek (NMI-VSL) found that the document was still good although the section on evaluation of uncertainty needed to be updated. **Conversion to EUROMET document completed.**

EA-10/04 Uncertainty of Calibration Results in Force Measurements (1996): Andre Gosset (LNE) found that this document was not up to date, especially regarding section 9, and that it should be revised in accordance with a standard on calibration of force proving instruments that is being developed by ISO. The following working group for this revision was suggested:

Philippe Averlant (LNE), Andy Knott (NPL), Rolf Kümme (PTB), Aimo Pusa (MIKES), William Vincke (SMD), José Robles (CEM). **EUROMET project set up to review.**

EA-10/14 EA Guidelines on the Calibration of Static Torque Measuring Devices (2000): According to Diederik Peschel (PTB), this guideline was up to date and did not need to be revised. **Conversion to EUROMET document completed.**

EA-10/16 EA Guideline on the Estimation of Uncertainty in Hardness Measurements (2001): Aimo Pusa (MIKES) found that although the level of this document was too high for the potential users, it was up to date and did not need to be revised. **Conversion to EUROMET document completed.**

EA-10/17 EA Guidelines on the Calibration of Electromechanical Manometers (2002): Jean Claude Legras (LNE) found that this guideline was up to date and did not need to be revised. **Conversion to EUROMET document completed.**

EA-10/18 Guidelines on the calibration of nonautomatic weighing instruments (2005): Only a draft version of the document was available, and it was unclear which status it had within EA as it did not appear on the EA website. It was thought the guide was too complex for general use. **Conversion the EUROMET document complete (additionally, Ivan Kriz (CMI) will provide a condensed version for review).**

6. The iMERA Project

The TC-M area comprises over 40 participating laboratories working in nine distinct metrological areas (Mass, force, pressure, torque, hardness, solid density, liquid density, viscosity and gravitation). For this reason and to facilitate comment from the widest possible range of participants, the initial development of the area roadmaps took place by e-mail.

Initial drafts of roadmaps in four areas (Mass, Force, Pressure and Dynamic measurement) were developed by the TC chair in collaboration with technical experts at NPL and in consultation with the technical area convenors. These drafts were circulated to the TC-M contact persons for comment by the end of 2005. Comments were received from twelve laboratories and these were used to produce updated roadmaps which were circulated prior to the TC-M meeting in Torino (1st to 3rd March 2006).

All four roadmaps were discussed at this meeting and responsibility for the roadmaps was devolved to the technical area convenors. The roadmaps have been updated by the convenors based on comments received at the TC-M meeting and are now available on the iMERA website.

Stuart Davidson
EUROMET Technical Committee
Mass and Related Quantities