Schweizerische Eidgenossenschaft
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Federal Department of Justice and Police FDJP

Federal Office of Metrology METAS

CCM AHGMSI: Report

Philippe RICHARD

CCM AdHoc WG on changes to the SI

Creation in April 2006

Members:
M. Tanaka, P. Becker, W. Bich, R. Davis, C. Ehrlich, K. Fujii, M. Gläser, Z. Jabbour, P. Richard (Chair), C. Thomas.

Terms of Reference (CCM Web page)

First meeting in July 2006 (Report: CCM Web page)

CCM AHWGSI Terms of Reference

- To advise the President of the CCM on the implications to the community of mass metrologists on the proposed changes to the definitions.
- To consider the consequences to mass metrology of candidate *mises en pratique* to realize a future re-definition of the kilogram based on fundamental constants;
- To monitor the progress of the International Avogadro Coordination and the various watt balance experiments with a view to how a *mise en pratique* at the level of 1 kg might best be achieved;
- To alert the President of the CCM to serious obstacles for the community of mass metrologists for the implementation of a *mise en pratique*;
- To propose ways in which the wider community of mass metrologists, including those in industry, can best be informed of the changes under consideration.

CCM AHWGSI First Meeting

July 6, 2006 in Torino (Italy), before the CPEM Conference

Agenda:
Presentation of recent papers (Mills; Becker)
Status report of Avogadro and Watt Balance
Discussion on technical topics
(sufficient number of experiments, uncertainties, inconsistencies, consequences of a new definition…)
Discussion on the CCM Recommendation G1 (2005)

CCM AHWGSI First Meeting

Discussion on the CCM Recommendation G1 (2005)

agreement within two standard deviations

recommends

- that the following conditions be met before the kilogram is redefined with respect to a fundamental constant:
  1. there are no significant unresolved discrepancies between results from independent experiments,
  2. the relative standard uncertainty of the best realization of the definition of the kilogram does not exceed two parts in 10^8, at the level of one kilogram,
  3. the results of a sufficient number of independent experiments are available with the required uncertainty,

at least three independant experiments (including Avogadro and watt balance)

at least one experiment should have a relative standard uncertainty no greater than 2 part in 10^8

CCM AHWGSI other activities

January 2007

Presentation by Richard Davis in the name of the CCM AHWGSI at the CCEM AHWGSI on the subject:

„Redefining the kg from the perspective of mass metrology“