

FINAL

RECOMMENDATION OF THE INTERNATIONAL COMMITTEE FOR WEIGHTS AND MEASURES

Revision of the *Mise en pratique* list of recommended radiations

RECOMMENDATION 3 (CI-2005)

The International Committee for Weights and Measures (CIPM),

considering that:

- improved frequency values for radiations of some high-stability cold ion and cold atom standards already documented in the recommended radiations list have recently become available;
- improved frequency values for the infra-red gas-cell-based optical frequency standard in the optical telecommunications region, already documented in the recommended radiations list, have been determined;
- improved frequency values for certain iodine gas-cell standard, already documented in the subsidiary recommended source list, have been determined;
- frequencies of new cold atoms, of atoms in the near-infrared region and of molecules in the optical telecommunications region have been determined by femtosecond comb-based frequency measurements for the first time;

decides that the list of *recommended radiations* be revised to include the following:

- updated frequency values for the single trapped $^{88}\text{Sr}^+$ ion quadrupole transition, the single trapped $^{199}\text{Hg}^+$ quadrupole transition and the single trapped $^{171}\text{Yb}^+$ quadrupole transition;
- an updated frequency value for the Ca atom transition;
- an updated frequency value for the C_2H_2 -stabilized standard at 1.54 μm ;
- an updated frequency value for the I_2 -stabilized standard at 515 nm;
- the addition of the ^{87}Sr atom transition at 698 nm;
- the addition of the ^{87}Rb atom two-photon transitions at 760 nm;
- the addition of the $^{12}\text{C}_2\text{H}_2$ ($\nu_1 + \nu_3$) band and the $^{13}\text{C}_2\text{H}_2$ ($\nu_1 + \nu_3$) and ($\nu_1 + \nu_3 + \nu_4 + \nu_5$) bands at 1.54 μm .