

PROPOSED Recommendation T 2 (2017)

Recommendation of the Consultative Committee for Thermometry submitted to the International Committee for Weights and Measures

RECOMMENDATION T 2 (2017)

On the realisation of the redefined kelvin

The Consultative Committee for Thermometry (CCT)

recalling

- Resolution 1 (2011) of the CGPM, “On the possible future revision of the International System of Units, the SI” which will link the unit of temperature to the Boltzmann constant;
- the CCT Recommendation to the CIPM in 2014, “On a new definition of the kelvin”, CCT T 1(2014);

welcoming

- The CGPM recommendation 1 (2014) encouraging “completion of all work necessary for the CGPM at its 26th meeting to adopt a resolution that would replace the current SI with the revised SI”
- That all pre-conditions of CCT Recommendation T2 (2010) are now fulfilled for the redefinition of the kelvin by the next CGPM
- The recommendation by CCT/28 for adoption by the CIPM of the completed *mise en pratique* for the definition of the kelvin

considering

- That the redefinition of the kelvin will:
 - Provide new opportunities for NMIs to simplify the realisation and dissemination of thermodynamic temperature to a wide spectrum of users
 - Stimulate innovative technological developments in primary thermometry, both at the user level (e.g. *in-situ* traceability for practical primary thermometers for industry) and for the metrology community
 - Progressively, through the mechanism of the *MeP-K*, replace dissemination of the defined scales with thermodynamic temperature, bringing the user community in close contact with the primary realisation of the unit (thus avoiding confusion between defined scales and thermodynamic temperatures)
- In the long term dissemination and realisation of thermodynamic temperature will address societal challenges such as where very long reliable base line temperature data is required for example in reliable monitoring of climate change or the temperature of nuclear waste stores
- That there are remain outstanding technical challenges after the kelvin redefinition to take full benefit from the opportunities afforded by the redefinition

recommends

- that the CIPM encourage member state NMIs to take full advantage of the opportunities afforded by the kelvin redefinition by using all relevant options provided by the *MeP-K* for the realisation and dissemination of thermodynamic temperature