

## TG Future traceability to thermodynamic temperature

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Considering that potential traceability routes other than the traditional defined scales are becoming available – either through direct calibration to thermodynamic temperature, or the availability of practical primary thermometry or in-situ calibration. The role of this task group is to assess current state of play regarding traceability, identify approaches other than defined scales that could be used to provide user traceability and identify key issues regarding temperature traceability and the role of the NMI in the potentially emerging mixed traceability environment. Specific tasks could include:

1. Current traceability ITS-90/PLTS-2000,  $T-T_{90}$  – just a statement meeting current and near future needs
2. The impact of the kelvin redefinition – facilitating traceability to  $T$  – summary of whats in Real-K, DireK-T and other NMIs – highlights of work to do in the next half decade, focus to be on new approaches to traceability to thermodynamic temperature – could lead to a recommendation from CCT. Segregate into three temperature ranges:
  - a. High temperatures
  2. Low temperatures
  3. Intermediate temperatures
3. Self-calibrating thermometers – what does traceability mean and how to demonstrate (need to examine what traceability and role of NMI is in this context in assuring traceability and reliable operation – these generally work by incorporated fixed points – so for e.g. assuring fixed point purity may be an issue)
4. Practical primary thermometry – what does traceability mean and how to demonstrate (need to look examine what traceability and role of NMI is in this context in assuring traceability and reliable operation – for e.g. if JNT ever becomes usable is traceability via quantum voltage standards?)