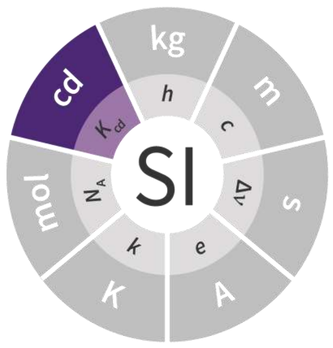
Photometry and Radiometry

The Consultative Committee for Photometry and Radiometry (CCPR)

Photometry

Describes the effects of visible light on the human eye in terms of brightness and colour as perceived by the human eye.

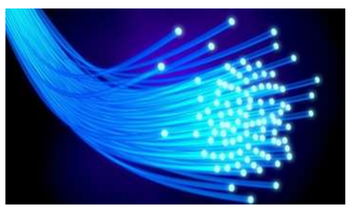


Radiometry

Metrology related to the physical measurement of the properties of electromagnetic radiation, including visible light.

Global forum for progressing the state of the art

- Rewording of the *Candela* (cd) definition and updated *mise-en-pratique* published in 2015
- 9th SI brochure – updating Appendix 3 on Units for Photochemical and Photobiological Quantities
- Workshops during CCPR meetings: Comparison Analysis (2015, 2017), Metrology Needs in Fibre Optics (2016)
  - Pilot comparison on optical fibre power responsivity using a fibre-coupled cryogenic radiometer

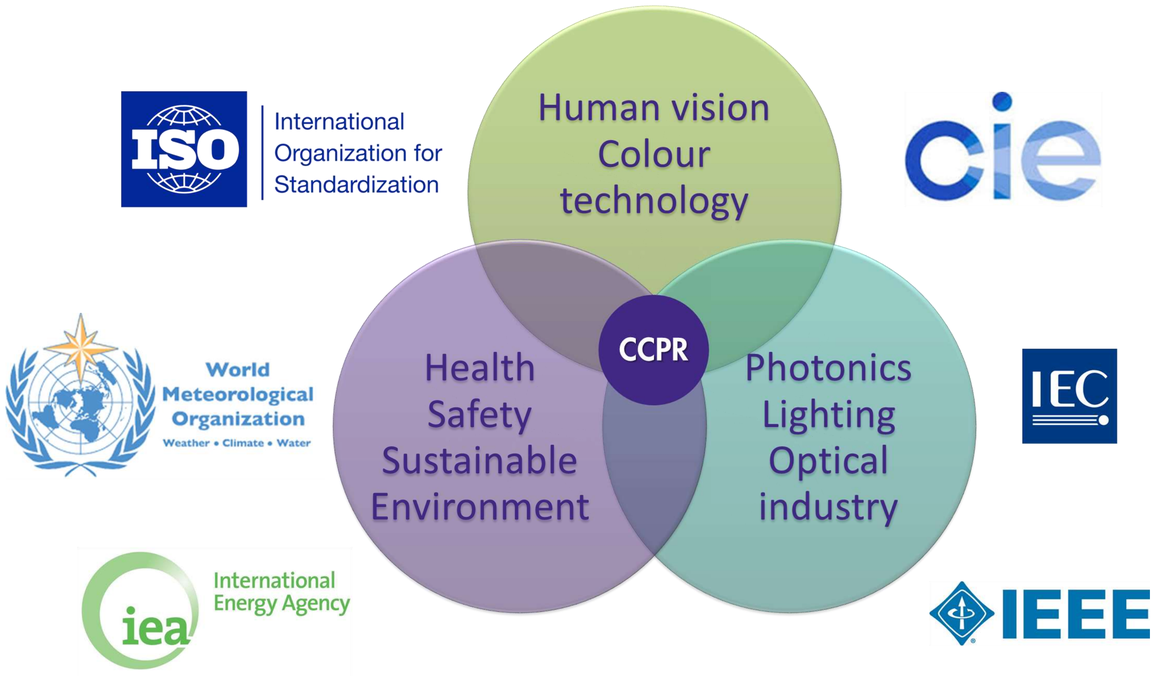


- Four discussion forums : fibre optics; few photon metrology; THz metrology; and use of white LED sources for photometry
  - Pilot study on THz laser power comparison published

    IEEE Transactions on Terahertz Science and Technology, **6**(5), 2016

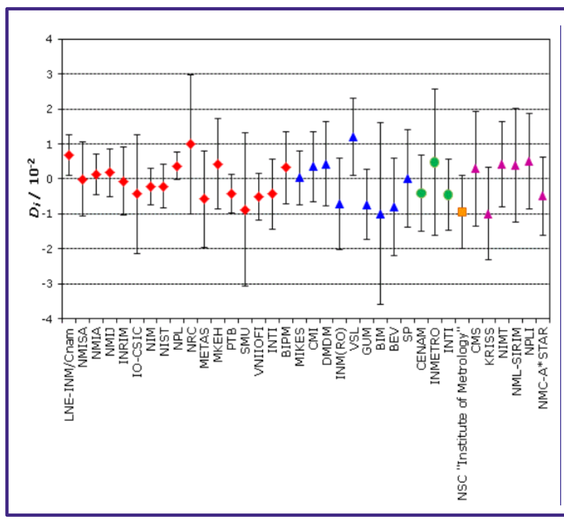
Accurate TeraHertz measurements allow development of instrumentation and sensors for remote sensing, THz imaging, high-speed telecommunications, and time-domain spectroscopy

Stakeholders



Global Comparability

- **Strengthening core competencies at the CC level**
  2nd round of Key Comparisons ongoing
- **Extending comparability world-wide with RMOs**
  10 RMO comparisons in progress



Relative Degrees of Equivalence in

CCPR-K4, EURAMET.PR-K4, SIM.PR-K4, COOMET.PR-K4 and APMP.PR-K4

Luminous flux

Red diamonds: participants in CCPR-K4
Blue triangles: participants in EURAMET.PR-K4
Green circles: participants in SIM.PR-K4
Orange square: participant in COOMET.PR-K4.1
Purple triangle: participant in APMP.PR-K4

Key challenges for the future

- **Improving efficiency of comparisons with four new guidelines**

Appearance

Gloss, texture, translucency, special effects

Colorimetry

Colour rendering and Colour Appearance Modelling

Photometry

Energy Efficient Lighting

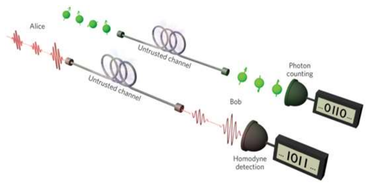
Remote Sensing

Hyperspectral imaging cube – Essential Climate Variables

Environment

Ground based measurements in extreme conditions

Quantum



Quantum Information and Computing