

Consultative Committee for Photometry and Radiometry (CCPR)
24th Meeting (19 - 20 September 2019)

Questionnaire on activities in radiometry and photometry

Reply from: Standards and Calibration Laboratory

Delegate: Mr C.M. Tsui

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1. Summarize the progress in your laboratory in realizing top-level standards of:
 - (a) broad-band radiometric quantities : Nil
 - (b) spectral radiometric quantities :
Realization of the scale of absolute spectral responsivity of silicon trap detectors using cryogenic radiometer.
System installation is completed. Verification is in progress. The uncertainty is estimated to be less than 0.03 %.
 - (c) photometric quantities :
Realization of the scale of Candela using trap photometer.
Verification is in progress. The uncertainty is estimated to be less than 0.8 %.
 2. What other work has taken place in your laboratory in scientific or technological areas relevant to the CCPR?
 - (a) Measurement of spectral Irradiance and radiance measurement of light sources by comparison with a reference laboratory standard.
 - (b) Measurement of total luminous flux and spectral radiant flux of light sources by comparison with a reference laboratory standard.
 - (c) Measurement of regular spectral transmittance at wavelength from 400 nm to 1000 nm of optical filters and spectrally neutral materials.
 - (d) Measurement of correlated colour temperature of light sources.
 3. What work in PR has been/will be terminated in your laboratory, if any, in the past /future few years? Please provide the name of the institution if it has been/will be substituted by a DI or accredited laboratory.
Nil
 4. What are present, new or emerging needs of users of your services that are not being supported sufficiently by current CCPR activities or initiatives? In the light of this information please suggest desirable changes in the future working program of the CCPR.
Nil.
 5. What priorities do you suggest for new research and development programmes at NMIs in the area of Photometry and Radiometry?

The characterisation of LED standard lamps.

6. Are there any research projects where you might be looking for collaborators from other NMIs or are there studies that might be suitable for collaboration or coordination between NMIs?

Bilateral comparison of spectral responsivity using silicon trap detectors.

Bilateral comparison of luminous intensity.

7. Have you got any other information to place before the CCPR in advance of its next meeting?

Nil

8. Bibliography of radiometry and photometry papers of your laboratory since the last CCPR (September 2016)?

“Study of the Size-of-Source effect (SSE) on the Calibration of Spectral Radiance Standards,” CIE 2019, Washington DC, USA, June 2019.

“Calibration of Optical Fiber Time Domain Reflectometers in Accordance with IEC 61746-1:2009,” NCSL International measure: The Journal of Measurement Science, Vol. 12 (1), pp. 54 to 63, March 2018.

“A Multi-Purpose, Detector-Based Photometric Calibration System for Luminous Intensity, Illuminance and Luminance,” Journal of Physics: Conference Series (JPCS), September 2018.

“Calibration of Total Luminous Flux, Spectral Radiant Flux and Correlated Colour Temperature of LED Lamps by Integrating Sphere,” CIE 2018 Conf. Digest, April 2018.

“Calibration of Optical Fiber Time Domain Reflectometers in Accordance with IEC 61746-1:2009,” NCSL International measure: The Journal of Measurement Science, Vol. 12 (1), pp. 54 to 63, March 2018.

“Calibration of Luminance Meters,” CIE 2017 Midterm Meeting Conf. Proc., October 2017.

“Measurement of Regular Spectral Transmittance of Optical Filters,” CIE 2017 Midterm Meeting Conf. Proc., October 2017.

“A Single Detector-based Calibration System for Light Sources, Illuminance Meters and Luminance Meters,” 13th Intl. Conf. on New Dev. and Apps. in Opt. Radiometry, June 2017.