

## Guides, Standards and Conventions

# Principles governing photometry (2nd edition)

Yoshi Ohno<sup>1</sup>, Teresa Goodman<sup>2</sup>, Peter Blattner<sup>3</sup>, Janos Schanda<sup>4</sup>, Hiroshi Shitomi<sup>5</sup>,  
Armin Sperling<sup>6</sup> and Joanne Zwinkels<sup>7</sup>

<sup>1</sup> National Institute of Standards and Technology (NIST), Gaithersburg, MD, United States of America

<sup>2</sup> National Physical Laboratory (NPL), Teddington, United Kingdom

<sup>3</sup> Federal Institute of Metrology (METAS), Bern-Wabern, Switzerland

<sup>4</sup> University of Pannonia, Veszprém, Hungary

<sup>5</sup> National Metrology Institute of Japan (NMIJ AIST), Tsukuba, Japan

<sup>6</sup> Physikalisch-Technische Bundesanstalt (PTB), Braunschweig, Germany

<sup>7</sup> National Research Council of Canada (NRC), Ottawa, Canada

E-mail: [ohno@nist.gov](mailto:ohno@nist.gov)

Received 28 October 2019

Accepted for publication 5 February 2020

Published 27 March 2020



CrossMark

### Abstract

This document brings together the definitions and the tables of numerical values for photometry already adopted (or recommended) and published, by the Conférence Générale des Poids et Mesures (CGPM), by the Comité International des Poids et Mesures (CIPM), or by the Commission Internationale de l'Eclairage (CIE). This document provides the link between the definition of the candela in the International System of Units (SI) and the internationally agreed spectral luminous efficiency functions for human vision published by the CIE, including those for mesopic vision and for photopic vision for a 10° field of view, in addition to those for photopic vision for a 2° field of view and for scotopic vision. The definitions of photometric units and quantities have also been updated with the reformulated definition of the candela in the International System of Units (SI) 2019 and the latest definitions of the photometric quantities by the CIE.

### Full paper

The full paper is available online at: <https://metrologia.bipm.org/guides-stds-conventions/2019/G1.pdf>