# **Quality Assessment of Vertical Angular Deviations for Photometer Calibration Benches**

## A. Silva Ribeiro

National Laboratory of Civil Engineering (LNEC), Lisbon, Portugal

### A. Costa Santos

National Laboratory of Civil Engineering (LNEC), Lisbon, Portugal

### J. Alves e Sousa

Regional Laboratory of Civil Engineering (LREC-RAM), Funchal, Madeira, Portugal

#### A. B. Forbes National Physical Laboratory (NPL), Teddington, United Kingdom

#### E-mail: asribeiro@lnec.pt

Abstract. Lighting, both natural and electric, constitutes one of the most important aspects of the life of human beings, allowing us to see and perform our daily tasks in outdoor and indoor environments. The safety aspects of lighting are self-evident in areas such as road lighting, urban lighting and also indoor lighting. The use of photometers to measure lighting levels requires traceability obtained in accredited laboratories, which must provide an associated uncertainty. It is therefore relevant to study the impact of known uncertainty sources like the vertical angular deviation of photometer calibration benches, in order to define criteria to its quality assessment.