

## RESEARCH AND STANDARDISATION

### RESPONSE FORM for Standardisation groups

## Opportunity for standardisation to contribute to the *European Partnership on Metrology EPM* under Horizon Europe

**Objective: to collect standardization needs and suggestions to develop research projects in testing and measurements for the upcoming European Partnership on Metrology (EPM) calls in 2021**

In the frame of the cooperation agreement between CEN-CENELEC and EURAMET, CEN and CENELEC have been invited by the EURAMET Management to put forward their **testing and measurement needs in research** for consideration by metrology institutes for future calls under EPM.

**Relevant technical groups** (sector fora, advisory boards, coordination groups, TCs, WGs...) **are invited to contribute with**

- a short introduction or an overview paper of their unaddressed standardization needs for testing and measurement, and
- a contact person (secretary, chair, convenor, liaison officer, etc.) whom proposers for the Potential Research Topics can contact,

by using this Response Form and send it at STAIR EMPIR, Mr Ortwin Costenoble: [empir@nen.nl](mailto:empir@nen.nl)

Deadline for the consultation: **11 December 2020.**

<b>Source of the identified need</b> (identification of TC, WG, etc, incl. title)	<input type="checkbox"/> CEN/TC 0/WG 0 / <input type="checkbox"/> CLC/TC 0/WG 0 <input type="checkbox"/> ISO/TC 0/SC 0 / WG 0 / <input type="checkbox"/> IEC/TC 0/SC 0 / WG 0 <input checked="" type="checkbox"/> Other, namely <i>CIE, International Commission on Illumination, Division 4 Interior Lighting and Lighting Design</i>
<b>European entity</b> responsible for submission of the need	<i>International Commission on Illumination (CIE)</i>
<b>Person that can be contacted for more detail</b>	<i>Kathryn Nield General Secretary CIE Central Bureau Babenbergerstrasse 9/9A Vienna, 1010 Austria ciecb@cie.co.at</i>
<b>Title:</b>	<i>Calibration and Characterization of HDR cameras for luminance measurements and glare evaluations</i>
<b>Unaddressed need</b>	<i>Several CIE, ISO and CEN standards are referring to the evaluation of glare based on high dynamic luminance distributions. So far, the metrological traceability of HDR measurements are missing.</i>
<b>Further explanation of need</b> (TC business plan, road map, formal decision, work item, etc.)	<i>Visual perception strongly relates to the luminance distribution in the visual field. Excessive luminance, and areas of high luminance in the field of view can lead to discomfort and reduced visibility. Lighting-application</i>

	<p><i>standards specify minimum luminance values for the visual tasks (cf. EN 13201-2 "Road lighting - Part 2: Performance requirements") or maximum values for glare sources (cf. EN 12464-1 "Light and Lighting – Lighting of work places – Part 1: Indoor work places") that need to be evaluated in the field. For this purpose imaging luminance measurement devices (ILMDs) are typically used. These devices are complex and expensive, limiting significantly the application potential.</i></p> <p><i>Cost effective cameras with a high dynamic range (HDR) are becoming very popular for field measurements. They can potentially be used for glare evaluation. Already the standard EN 17037:2018 "Daylight in buildings" proposes the use of an HDR camera using a fish-eye lens for quantifying the daylight glare probability (DGP).</i></p> <p><i>Thus, so far no international standard exists for the calibration and characterization of HDR cameras used for luminance distribution measurements and glare evaluation. To draft such a standard, additional research is necessary, in particular to define calibration and evaluation conditions and to provide guidance on the uncertainty evaluation for luminance distribution measurements and glare assessment.</i></p> <p><i>Several CIE Technical Committee are related to the topic: TC 3-56 Assessment of Discomfort Glare from Daylight in Buildings, TC 2-86 Glare Measurement by Imaging Luminance Measurement Device (ILMD), TC 2-59 Characterisation of Imaging Luminance Measurement Devices, TC 2-62 Imaging-Photometer-Based Near-Field Goniophotometry</i></p>
<b>Proof of need by the TC/SC</b>	CIE has identified the need for research in the research strategy ( <a href="http://www.cie.co.at/research-strategy">http://www.cie.co.at/research-strategy</a> , research topic no 3 and 9).
<b>Enclosures</b>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

\*See more information or a link to the webinar at

[EMPIR website](#)

[CEN/CENELEC website "Standards and metrology"](#)