Luminance distribution measurements

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IV. Conclusion

This project aims at developing Models for Human Centric Lighting based on field studies. Luminance distribution is expected to be important for visual aspects, consensus for non-visual metrics is not there (yet).

II. Pilot Field Study

Measurements in small meeting room using practical luminance distribution measurement device.

- Requirements
  - Intuitive controllable lighting system
  - Electrical light + daylight
- Benefits
  - Multiple users
  - New preference for every meeting
  - Multiple light indicators are based on luminance distribution

<table>
<thead>
<tr>
<th>Quantity</th>
<th>Luminance, Luminance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glare</td>
<td>UGR, DGP</td>
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<tr>
<td>Distribution</td>
<td>Uniformity, Luminance ratios</td>
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<tr>
<td>Directionality</td>
<td>Vector to Scalar Ratio</td>
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<tr>
<td>Dynamics</td>
<td>Luminance Variability</td>
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</tbody>
</table>

Objectives:
- Correlations between indicators
- Normative aspects/indicators
- User preferences lighting quality indicators

III. Implementation

Building management systems tend cause annoyance due to inadequate sensory input (photocell).

- Luminance distribution provides spatially resolved data
- Suitable for open and closed loop systems

The effectiveness of luminance distribution measurement device compared to photocell can be modelled based on field measurements conducted with the practical luminance distribution measurement device. This device is able to conduct both spot and spatially resolved measurements.

IV. Conclusion

- Luminance distribution can be measured in a practical and economical way.
- Luminance distribution measurements provide the opportunity to evaluate multiple light quality aspects simultaneously.
- A luminance distribution measurement device can improve the effectiveness of building management systems.
