SLR-61-05

Apparent surface
SLR meeting

23.02.2023, Brussels

Apparent Surface

Possible test set-upto find luminance threshold

1. Take pictures with a camera with different exposure times – select some pictures around the one that is close to what has been seen visually

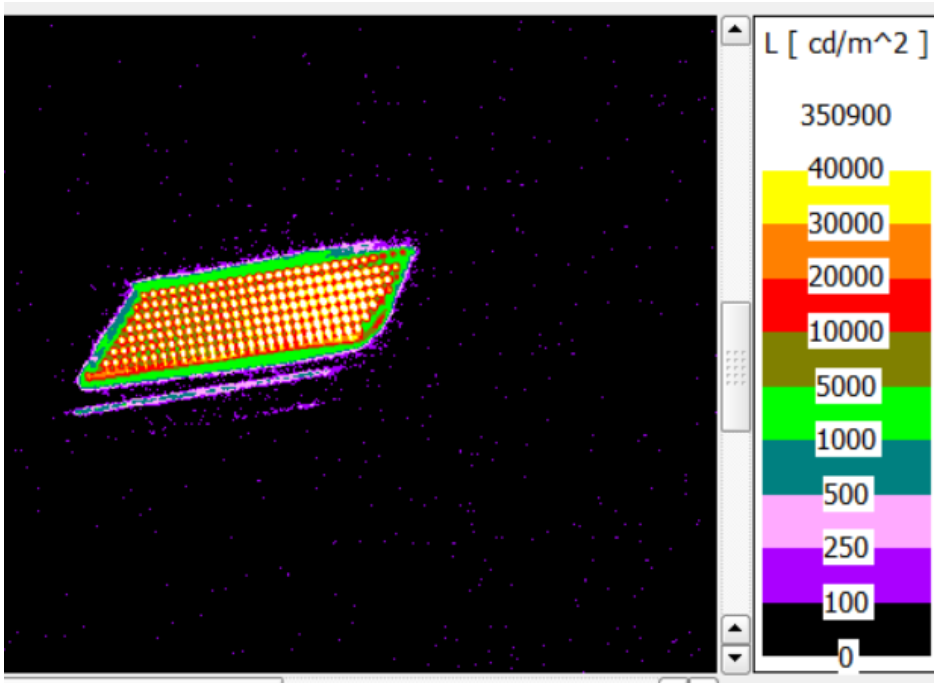
2. Ask some test persons to assess what picture meets best what they see when the lamp is lit

3. Several settings could be assessed, e.g. bright – dark room, different illuminance settings,…

Apparent Surface

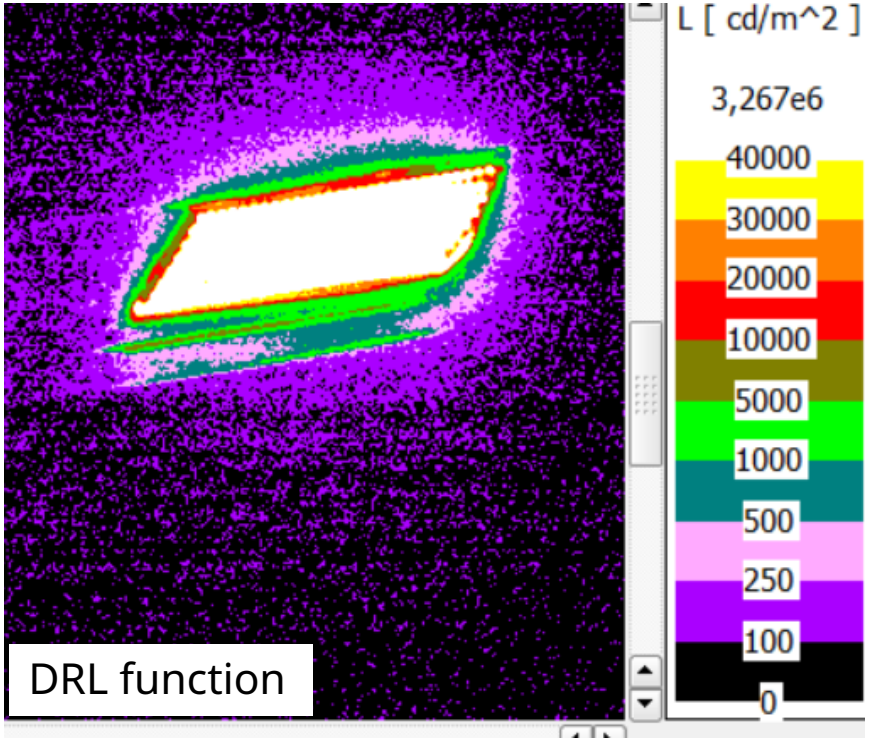
Photographs with different exposure times (POS)

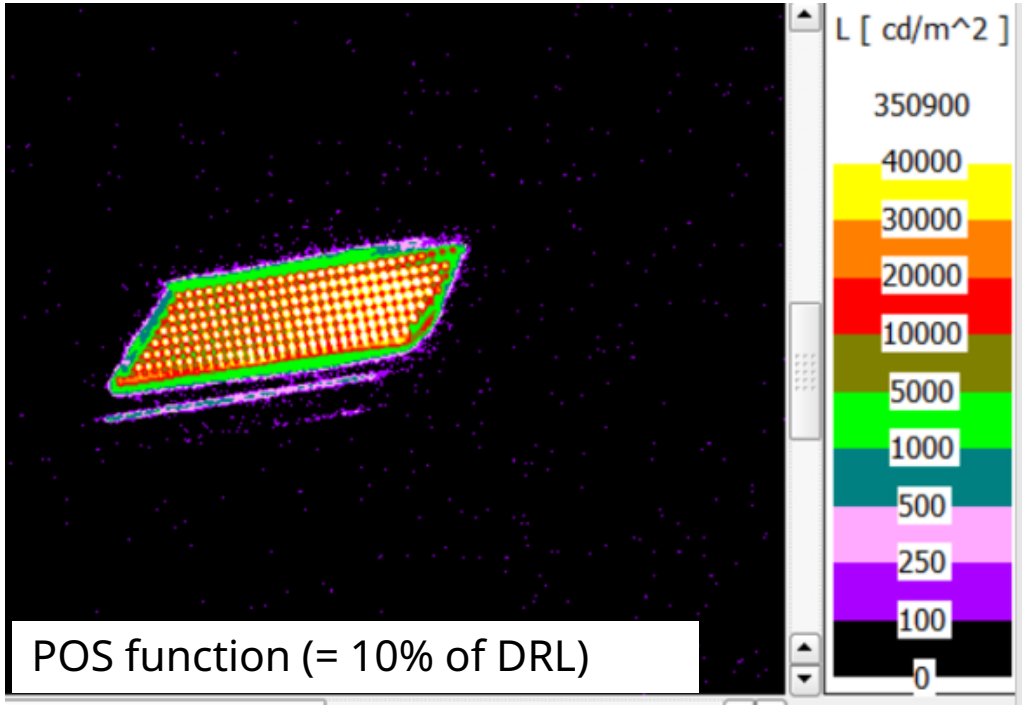
Apparent Surface
Correlation of picture – luminace value



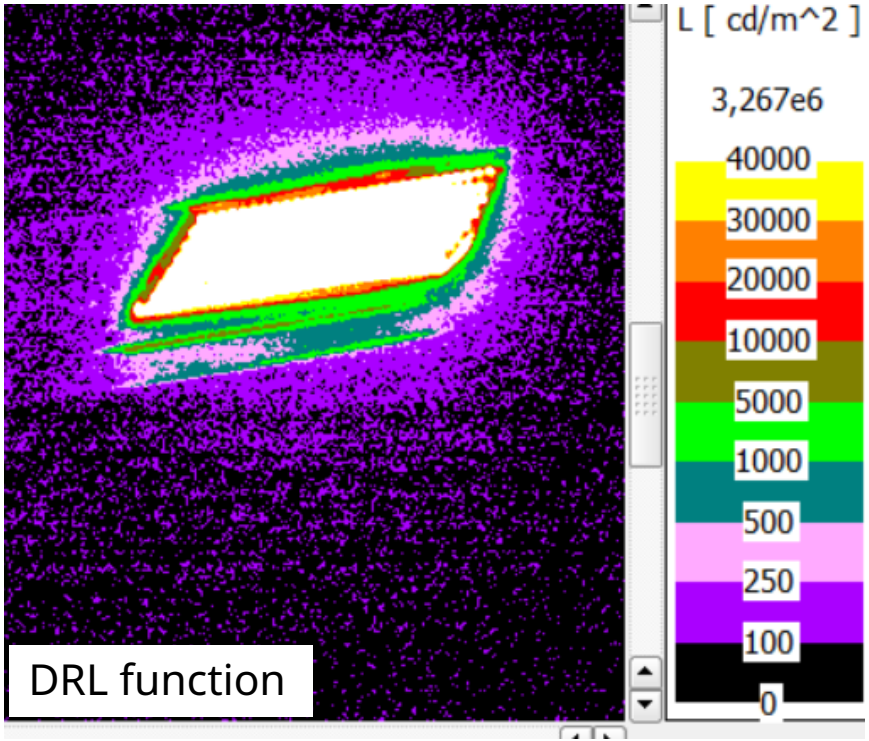
A threshold value could be approximated with help of specific features (e.g. reflections)

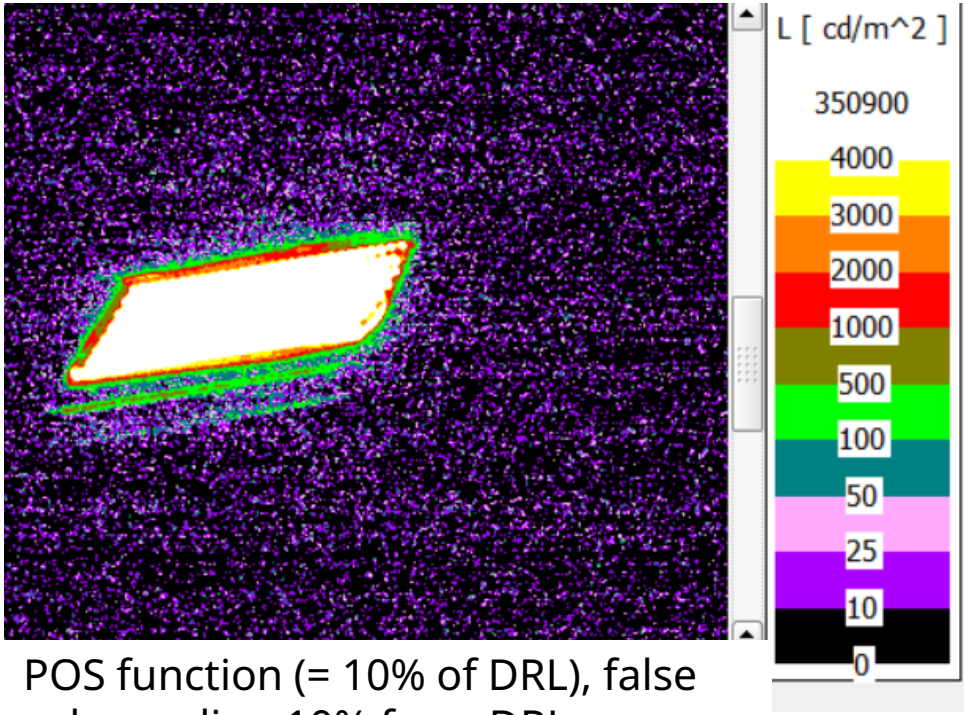
Apparent Surface
Luminance measurements (5m)





Apparent Surface
Luminance measurements (5m)





POS function (= 10% of DRL), false color scaling 10% from DRL

Apparent Surface
General thoughts

- Human eye can perceive highly dynamic contrasts
- Adaptation and visual acuity are big factors for assessment of what is being perceived
- Noise must not be taken into account → sensitive threshold definition
- Threshold needs to be in relation to a maximum value
  - measured luminance? → may not be representative
  - measured luminous intensity? → is not taking into account actual size of the light emitting surface
  - max. defined luminous intensity per function? → POS: 4d < Imax < 140, i.e. Factor 35
- How shall the „resulting“ apparent surface be defined?

Apparent Surface
Alternative approach

What is the Apparent surface used for?

- secure a minimum illuminated surface (DRL, rear fog lamp) → ensure visibility and to avoid glare through high luminance
- Limits for installation requirements
- Single lamp definition: frame for different illuminated parts of a function
- Part of definition of combined functions (grouped, combined or reciprocally incorporated)

Apparent Surface
Alternative approach

Proposal for simplification:

- Use a simple geometrical approach considering the projection all optically effective parts of a function as base („light emitting surface“) → simplification during design phase

<u>To consider</u>:

- How shall the resulting „apparent surface“ be defined, e.g. only illuminated parts or as polygon considering illuminated and dark areas?
- Simplification / Clarification of „single lamp“ condition
- Adaption of current requirements may be necessary to accomodate current legal designs (e.g. min size of a function or singel lamp requirements)

Thanks!