SLR-64-09

New approach to apparent surface

(by D. Kooß)

A) Boundaries

1. It shall be possible to calculate the area of the apparent surface on the outer lens with the help of drawings and CAD, so that these parameters can be fixed in an early stage of the development.
2. In shall be possible for the manufacturer to show their calculation to the authority.
3. The apparent surface should approximately show what the human eye will see.
4. There shall be an objective measurement to determine whether an outer lens is textured or not, to get a distinct way for determining the apparent surface.
5. The edge of the apparent surface shall also be calculated by drawings and CAD methods.

B) Course of action

Step 1: Find an objective way to determine whether an outer lens is textured or clear.

Step 2: Find an acceptable way to determine the apparent surface or area of a lamp.

Step 3: Find an acceptable way of defining the edges of the light emitting parts.

Note: this document is based on the documents WG-I 306, WGP-2023-14 and the discussions in these GTB working groups.

Proposal 1: Method for determining the apparent surface of a signalling device

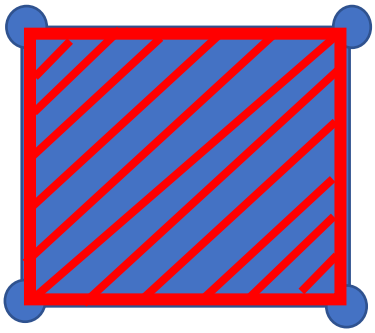
The area is defined by the minimum surface that is faced out, starting with the centre of the facing head from an inner part of the function with a facing head (eraser) of 10 mm in diameter and covering the complete function.

Example:

Remark: To find out how the method will work, imagine first big and simple shapes. Complex shapes and small shapes, like lines and dots, should be discussed if the proposed method for those simple shapes is acceptable.

a) Circles and ovals will be calculated exactly with the proposed method.

b) Sharp edges will have a small circular extension.



c) Thin lines and thin appendices of a logo will be expanded.

This expanding is in line with what the human eye will see (compare to GRE-85-16). For a larger distance a thin line and a thick line of 10 mm will have the same visual appearance.

Proposal 2: Method for determining the boundaries of the apparent surface of a signalling device

The boundaries are defined by the orthogonal projection in the direction of the reference axis of the minimum surface that is faced out, starting with the edge of the facing head from an outer part of the illuminated surface with a facing head (eraser) of 10 mm in diameter along the edge of the said surface.

For non-textured lenses, the edge of the surface is given by the following, whatever occurs first:

a) the edge of a reflector inside the device

b) the edge of the light emitter(s) inside the device

c) the edge of an optical lens inside the device

d) …

For textured outer lenses the edge of the surface is given by the lens itself.

Rem.: If a device is so constructed, that none of the above criteria can be chosen the measurement according to UN-Regulation 48 § 2.10.3.2. shall be done to determine the apparent surface.

Open questions:

- How to deal with partially textured outer lenses?
- Is it possible to transfer this method to calculate the size of a logo?
- Does the method also cover a thin line or a couple of small dots?
- Is it possible to determine the apparent surface of a illuminating device?