

GRE 85 – 16

Informal document

Submitted by the experts from France and Germany*

manufacturers logo

Size versus visual acuity

This informal document gives additional information to the proposal (working document ECE/TRANS/WP.29/GRE/2020/5/Rev.2 prepared by experts from France and Germany) allowing the use of manufacturer logos inside the illuminant surface of a signalling lamps.

Manufacturers logo \leftrightarrow size

The proposed size is 100 cm²

Within this area, there will be a luminosity distribution visible, which allows to identify the brand of the car manufacturer

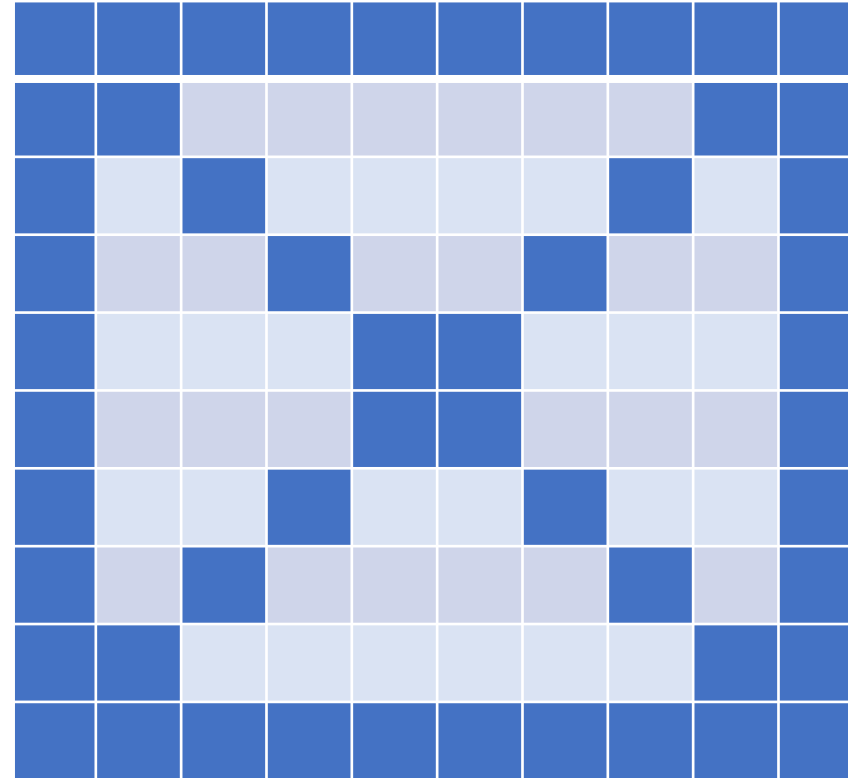
→ Smaller structures have to be detected by the human eye inside the proposed area.

→ The visual acuity is important!

Manufacturers logo \leftrightarrow size



Proposed logo size 100 cm²



Logo of 100 cm² with a simple structure

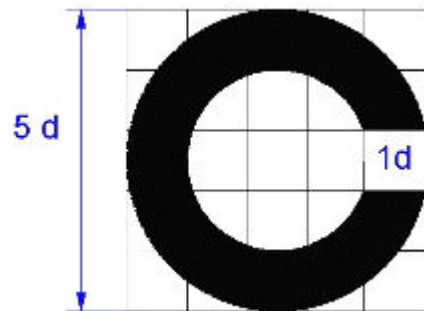
Inside the field of 100 cm² there must be a structure.

The visual acuity determines the distance at which a logo is detected as such

Manufacturers logo \leftrightarrow size

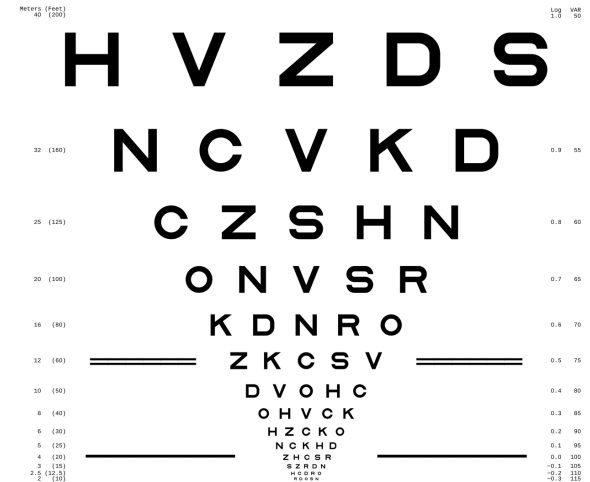
Some facts on visual acuity

- It is highest for central vision (foveal)
- It is lower for peripheral vision
- It is measured as the spatial resolution of the visual processing system
- It depends on the contrast to the surroundings and the adaptation of the eye



Landolt ring for measuring the visual acuity

Chart with letters



Manufacturers logo \leftrightarrow size

The visual acuity of a normal observer is defined as the ability to distinguish two objects with a distance of 1' (one arc minute)

- 1', one arc minute

- 1,5 mm from a distance of 5 m
- 1,75 mm from a distance of 6 m (20 feet)
- 3 mm from a distance of 10 m
- 6 mm from a distance of 20 m
- 10 mm from a distance of 33 m
- 20 mm from a distance of 67 m

Manufacturers logo \leftrightarrow size

Those observation distances have to be compared with the safety distance

- in the city: distance passed in 1 s
- outside the city: distance passed in 2 s

Safety distance in m		
(rel.) Speed in km/h	Inside the City	Outside the city or highway
30	8,3	
50	14	
60 ^{*)}	(17)	(34)
80		44
100		56
120		67
130		72
150		83

^{*)} Unusual speed for the specific zones

- 1' one arc minute
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Manufacturers logo \leftrightarrow size

conclusion

- For lower speed < 50 km/h you may distinguish two lines or areas as separated objects within a logo if their distance is larger than 3 mm
 - Remark: in the city, at lower speed, not self-luminous logos are already visible
- For higher speed even 10 mm separation is not enough to identify a logo

By restricting the size to 100 cm^2 , it is already very hard to identify a logo in normal traffic situations outside the city. In the city all logos, self-luminous or not, are visible anyway.