Proposal to amend UN Regulation No. 158

I.   Proposal

Annex 9, amend to read:

"3.5.   Calculate visual angle subtended by test objects.

Use the following equation to calculate the subtended visual angles:

$$\theta_i = 60 \, sin^{-1}\left(\frac{d_i}{a_{eye}S_{scale}}\right)$$

where i can take on the value of either test object G, H, or I, and arcsine is calculated in units of degrees.

At the request of the manufacturer, compliance with the requirements to the object size, paragraph 3 under this annex may be demonstrated by calculation. This shall include the object size, overlay requirements within the required field of vision and the resolution of the Rear-View Camera system.
The validity of the calculation method shall be established to the satisfaction of the Technical Service."

II. Justification

1.   Due to a very high variance of vehicle configurations and equipment, the camera mounting position may vary at one specific vehicle type to ensure robustness and functionality. This will result in many slightly different camera mounting positions, which all needed to be tested physically. To reduce the testing effort and ensure an appropriate covering of all camera positions it shall be possible to demonstrate the compliance of the requirements to the Object size (paragraph 3, Annex 9) by calculation. A virtual testing is in paragraph 16.1.3.1 is already accepted.

-   Resolution defined under 2.1.2.1.2: "Resolution" means the smallest detail that can be discerned with a perceptual system, i.e. perceived as separate from the larger whole. The resolution of the human eye is indicated as "visual acuity"
-   Object size specified under 16.1.1.
-   Overlay requirements within the required field of vision under 16.1.1.2.

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