Subject: Values for pedestrian and cyclist velocities are set unrealistically low in provisions of the draft implementing act on automated driving systems, and should be increased.

Dear [European Commission],

We are writing to you with regards to the draft European Commission Implementing Regulation on automated driving systems for certain use cases, and in specific the values used for the speed at which respectively pedestrians and cyclists travel in the context of collision avoidance.

With this letter, we would like to provide further information and clarification with regards to concerns raised by the European Cyclist Federation (ECF) and the European Transport Safety Council (ETSC) in their respective responses to the short public consultation that the values used for the walking and riding speeds of pedestrians and cyclists are too low and should be increased to represent the realistic velocities of the majority of the walking and cycling population.

We recognise that general safety performance requirements are set in Annex 2 that aim to ensure the safe interaction between the automated vehicle and other road users. In the context of this letter notably point 1.2 which states that other road users should be detected and appropriately responded to, as well as point 2.1.1. which states that the ADS should "be able to detect the risk of collision with other road users (…) and be able to automatically perform appropriate emergency operation (…) to avoid collisions and minimise risks to the safety of the vehicle occupant and other road users."

These general performance requirements are further specified in Annex 3 on the compliance assessment. Through the relevant points in Annex 3[1], the implementing act requires the automated vehicle to avoid a collision with pedestrians and cyclists only when the latter two are travelling at a maximum speed of respectively 5 km/h and 15 km/h. **We strongly believe that these values are set too low and moreover, are not representative for pedestrian and cyclist speeds in urban environments.**

Firstly, the figures of 5 km/h for pedestrians and 15 km/h for cyclists are often quoted as well as often used values for their *average* speed. However, setting the *maximum* value (for pedestrian and cyclist speeds for which automated vehicles are required to avoid a collision) based on the *average* value for the respective road user category represents a logical error, as this means that automated vehicles will be required to avoid collisions only with that half of the population that walks or rides at or below the average speed. The other half of the population is therefore unprotected by these provisions, even though they are walking and riding at their normal pace. A more realistic value would be the 95th percentile, as this

[1] In particular in two specific sections. Firstly, in Part 1 on traffic scenarios, in point 1.5.3.1.1. on collision avoidance requirements for the ADS in urban and rural driving conditions. The provision requires the avoidance of a collision with a crossing pedestrian walking at a speed of 5 km/h or a cyclist riding at a speed of 15 km/h. For speeds above the two mentioned values, the ADS is allowed to switch to a mitigation strategy if a collision can no longer be avoided (1.5.3.1.2.), and a minimum deceleration of 20 km/h is required (1.5.3.1.2.). Secondly, these values are then used again in point 8.5.1. of Part 3 of Annex 3, on the test to assess the capability of the ADS to avoid a collision with a crossing pedestrian (sub point d) and a crossing cyclist (sub point g), as well as used for their respective velocities when travelling in the same lane (sub points e and g).

would ensure that the normal walking/riding speed of vast majority of respectively pedestrians and cyclists is accounted for.

Secondly, the often quoted average figures of 5 km/h for pedestrians and 15 km/h for cyclists are not representative for the average speed at which pedestrians and cyclists walk and ride in Europe. For example, a study by SWOV found that in the Netherlands, the average speed of cyclists was 17.3 km/h in urban areas, and 18.3 km/h in rural areas.[2] And to reiterate, being an average, it is therefore known that half of the Dutch population travels at greater speeds while riding their bicycles normally.

Similar supporting data can be found in the UK, where the 85th percentile cyclist speed was found to be 22 km/h on flat surfaces, and 25km/h for a downhill gradient of 3%.[3] These figures from the Netherlands and the UK underline the need that the velocity figures should already be revised and significantly increased based on data for conventional cyclists.

Thirdly, the values do not account for e-bike riders on pedelecs and speed pedelecs. The previously mentioned SWOV study found that pedelec riders travel on average at 20.1 km/h in urban environments, while speed pedelecs travel at 26.9 km/h. In rural areas, they go on average even faster, at respectively 22.2 km/h and 31.4 km/h. And again we would like to underline that these are average velocities, meaning that half of the Dutch cycling population is going at greater speeds. Moreover, speed pedelec riders can be reasonably be expected to travel at speeds of 45 km/h, given their design and the applicable traffic rules (in this case, the Netherlands). To the sensor systems of automated vehicles, however, these bicycles can be expected to look like conventional bicycles, and the provisions in the implementing act should take this into account.

Similar arguments can be made for pedestrian speeds.[4] For example, someone jogging leisurely can already be reasonably expected to travel at speeds greater than 6.5 km/h, not to mention the velocities of (even recreational) runners. These are very common activities in urban areas, and should therefore be accounted for as well.

Therefore, in order to prevent a deterioration of road safety levels on urban and rural roads, we call for the abovementioned values to be increased significantly, in line with realistic travel speeds based on empirical data from studies, with the travel speeds capturing not merely half but the vast majority of pedestrians and cyclists.[5]

We expect competent human drivers to avoid collisions with normal pedestrians and cyclists in different shapes, forms and indeed speeds, where possible taking into account the laws of nature. We should expect the same performance from automated vehicles, and assess their compliance with it on test tracks. If these vehicles cannot achieve detection and avoidance of collisions (where physically possible) with

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[2] Twisk et al (2021), Corrigendum to "Speed characteristics of speed pedelecs, pedelecs and conventional bicycles in naturalistic urban and rural traffic conditions". Accident Analysis Prevention 150. https://bit.ly/3L3ne2O

[3] Parkin & Rotheram (2010), Design speeds and acceleration characteristics of bicycle traffic for use in planning, design and appraisal. Transport Policy 17(5). Pp. 335-341. https://bit.ly/37z0JoG

[4] For example, research from India shows that the 85th percentile speed for pedestrians is over 6km/h. Chandra & Bharti (2013), "Speed distribution curves for pedestrians during walking and crossing." Procedia-Social and Behavioral Sciences, 104, 660-667.

[5] For example, 95th percentile speed for pedestrians, taking into account the different velocities they may reasonably be expected to travel at (e.g. jogging, running), based on scientific data. For cyclists, this should be the maximum design speeds of speedpedelecs or the 95th percentile of cycling speeds, whichever is higher.

pedestrians and cyclists traveling at the for-them-realistic velocities, it means that from the perspective of road safety, these systems are not yet technologically mature enough to be allowed on our streets.

Moreover, ETSC would like to reiterate from its response that anticipatory behaviour in this context is especially important, and that dedicated tests and provisions in the implementing act should ensure the automated vehicles are assessed with regards to their anticipatory behaviour. ETSC would also like to underline that testing in urban environments should not only concern pedestrians and cyclists, but other vulnerable road users as well, such as wheel chair users, cargo bikes and e-scooters. And moreover, the test scenarios should reflect the complexities of interaction between different road users in urban areas, something which we feel is currently lacking in the scenarios included in the draft implementing act.

We are at your disposal to further discuss the above.

Kind regards,

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Ceri Woolsgrove – European Cyclists' Federation (ECF)
Geert van Waeg – International Federation of Pedestrians (IFP)

INTERNATIONAL FEDERATION OF PEDESTRIANS

ECF EUROPEAN CYCLISTS' FEDERATION

ETSC European Transport Safety Council