ACSF Industry Proposal

Justification for a lower acceleration than 1.0m/s²

Amend the ACSF "Stockholm proposal" (reproduced in GRRF-82-08), to read:

5.6.2.1.3.   […]

- **The steering control effort necessary to override the directional control provided by the system shall not exceed 50 N.**
- **The specified maximum lateral acceleration ay_{smax} generated by the system shall be within the limits as defined in the following table:**

For vehicles of category M1, N1

Speedrange	10-60 km/h	>60-100 km/h	>100-130 km/h	>130 km/h
Specified maximum lateral acceleration shall be lower than	3m/s²	3m/s²	3m/s²	3m/s²
Specified maximum lateral acceleration shall be higher than	no req.	0,5 m/s²	[1 0.8]m/s²	0,3 m/s²

For vehicles of category M2, M3, N2, N3

Speedrange	10-30 km/h	>30- 60 km/h	> 60 km/h
Specified maximum lateral acceleration shall be lower than	2.5 m/s²	2.5 m/s²	2.5 m/s²
Specified maximum lateral acceleration shall be higher than	no req.	0.3 m/s²	0.5 m/s²

[…]

Justification:

- Drivers should not at all get the feeling that an ACSF-B1 system, which is designed for hands on driving, can steer completely automatically. In contrast drivers should experience that such driver support systems have limits, to not overly rely on it. **1m/s² might be a good compromise for the speed range between 100-130 km/h for M1 and N1 vehicles, however:**
- To ensure that a system is capable under all conditions and for all vehicles individually (and not only one vehicle sample at the time of the type approval test) to generate the required minimum acceleration, the design value needs to be slightly higher than the requirement itself. Given the limitations e.g. in the accuracy of the measurements, the required **design margin** is estimated around 0.2m /s².
- **Consequently a value of 0.8 m/s² is suggested to allow a target design of around 1.0m/s².**
- Some further considerations:
    - Several current systems will hardly fulfil this minimum requirement and may disappear from the market, while beneficial for safety.
    - The values of the table could be reviewed when performance requirements for C and D lane change ACSF categories will be defined. This would then permit B1 systems not aiming at being coupled with a C or D function to have a slightly lower performance than B1 systems aiming for it.