

Component Technical Specification

Adaptive Cruise Control

v 1.3

2017-04-10

Revision history

Version	Description	Date
1.3	Set distance values changes	2017-04-10
1.2	Document formatting	2017-03-06
1.1	Reviewed, minor findings fixed	2017-03-06
1.0	Initial draft version	2017-02-07

Functional description - Adaptive Cruise Control

The Adaptive Cruise Control (ACC) is responsible for adapting the speed of the vehicle to the flow of traffic. The ACC maintains a distance (safe following interval) to the preceding vehicle, according to the parameters set by the driver.

Based on the object list (from radar sensor), if there is an object in the same lane, and it is slower than the vehicle, speed shall be adapted (by sending requested acceleration value to Powertrain system) in order to keep safe following interval.

If there is no object, set speed should be kept.

ACC Operational modes:

- a) Disabled
- b) Active (Distance maintenance)
- c) Stop & go
- d) Suspended

In Active mode the ACC has no effect on the vehicle.

The Active mode can be enabled by the driver in the 40 – 200km/h range. If it is activated from Disabled mode, the vehicle speed limit shall be set to the current speed and the "safe distance" to 2.5 seconds. The Active mode shall maintain the vehicle speed set by the driver.

The driver should be able to change the set values in the following range:

- "Safe distance": 1/1.5/2/2.5 s
- Set speed: 0-200 km/h

The stop & go mode is activated if the distance maintenance reduces the vehicle speed to standstill. If the vehicle speed is 0km/h for less than 10s and the distance to the next vehicle is increasing, then the vehicle shall switch back to Active mode automatically. If the vehicle speed is 0km/h for 10s or more, then there are 2 possible mode transitions: if the driver pushes the acceleration pedal for 1s or less, the ACC should change to distance maintenance mode; if the driver pushes the acceleration pedal for more than 1s, the ACC should change to Suspended mode.

In Suspended mode the ACC has no effect on the vehicle. If the driver enables ACC, the Active mode is activated with the previously set parameters.

If the driver pushes the acceleration or brake pedal in Active mode, the ACC shall change to Suspended mode.