

Submitted by the expert of Japan

Informal Document: ACSF-03-08

Difference for  
"Automatically commanded steering function" ,  
"Corrective steering function" and  
" Autonomous Steering System "

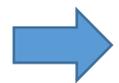
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- Traffic Jam Assist is a corrective steering function under the current R79.
  - Traffic Jam Assist system has a function of steering control on ACC to follow a vehicle in front without lane recognition over 10km/h. This may be interpreted as the automatically following function in lateral like "Lane changing"
- On the other hand, Lane changing is a kind of ACSF function under ACSF informal group.

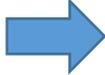


Systems with the same function can be classified as ACSF or Corrective steering depending on whether or not lane recognition is active.

### Question 1:

- Under amended R79, does a steering function on ACC without lane recognition belong to Corrective steering function ? or ACSF ?

- Category 5 of ACSF is a function defined as "continuously determine the possibility of a manoeuver (e.g. lane change) and complete these manoeuvres for extended periods without further driver command/confirmation"
- On the other hand, "Autonomous Steering System" is defined as "The driver will not necessarily be in primary control of the vehicle " and out of scope of R79.

 Category5 of ACSF may be interpreted as "The driver will not necessarily be in primary control of the vehicle"

## Question 2:

- To distinguish Category 5 from "Autonomous Steering System" do we need clearer definition for Category 5 ?

## Understanding for current and amended R79 for each system

System	Current R79		Amended R79	
	Corrective	ACSF	Corrective	ACSF
Steering control on ACC to follow a vehicle in front without lane recognition over 10km/h	✓	-	✓	? (Q.1)
LKAS	✓	-	✓	-
Parking assist below 10km/h	-	✓	-	✓
Lane keeping	Not approved		-	✓
Lane changing	Not approved		? (Q.1)	✓
Category 5 of ACSF	Not approved		-	? (Q.2)
Autonomous steering	Out of Scope		Out of Scope	

# Ref.) Corrective steering function and LKAS

- Corrective steering function and LKAS are defined in LKAS-03-04 as follows;

2.3.4.2. "Corrective steering function" means the discontinuous control function within a complex electronic control system whereby, for a limited duration, changes to the steering angle of one or more wheels may result from the automatic evaluation of signals initiated on-board the vehicle, in order to maintain the basic desired path of the vehicle or to influence the vehicle's dynamic behaviour.

Systems that do not themselves positively actuate the steering system but that, possibly in conjunction with passive infrastructure features, simply warn the driver of a deviation from the ideal path of the vehicle, or of an unseen hazard, by means of a tactile warning transmitted through the steering control, are also considered to be corrective steering.

2.3.4.2.1. "Lane Keeping Assistance System" means a system which assists the driver in keeping the vehicle within the chosen lane, by influencing the lateral movement of the vehicle.

# Ref.) ACSF and its categories

- ACSF and its categories are defined in ACSF-03-03 as follows;

2.3.4.1. "Automatically commanded steering function" (ACSF) means the function within a complex electronic control system where actuation of the steering system can result from automatic evaluation of signals initiated on-board the vehicle, possibly in conjunction with passive infrastructure features, to generate continuous control action in order to assist the driver ~~in following a particular path, in low speed maneuvering or parking operations.~~

2.3.4.1.1. Category 1 ACSF means, a function that operates at a speed no greater than 10 km/h to assist the driver, on demand, in low speed maneuvering or parking operations.

2.3.4.1.2. Category 2 ACSF tbd. By OICA

2.3.4.1.3. Category 3 ACSF means, a function that operates at a speed no greater than [130 km/h] and which can perform a single manoeuver (e.g. lane change) when commanded by the driver.

2.3.4.1.4. Category 4 ACSF means, a function that operates at a speed no greater than [130 km/h] and which can indicate the possibility of a single maneuver (e.g. lane change) but performs that function only following a ~~command~~-confirmation by the driver.

2.3.4.1.5. Category 5 ACSF means, a function that operates at a speed no greater than [130 km/h], which is ~~commanded~~ initiated by the driver and which can continuously determine the possibility of a maneuver (e.g. lane change) and complete these manoeuvres for extended periods without further driver command/confirmation.

# Ref.) Autonomous Steering System

- Autonomous Steering System is defined in current R79 as follows;

1.2 This Regulation does not apply to:

1.2.2. Autonomous Steering Systems as defined in paragraph 2.3.3

2.3.3. "Autonomous Steering System" means a system that incorporates a function within a complex electronic control system that causes the vehicle to follow a defined path or to alter its path in response to signals initiated and transmitted from off-board the vehicle. The driver will not necessarily be in primary control of the vehicle.