

# 6th ACSF meeting

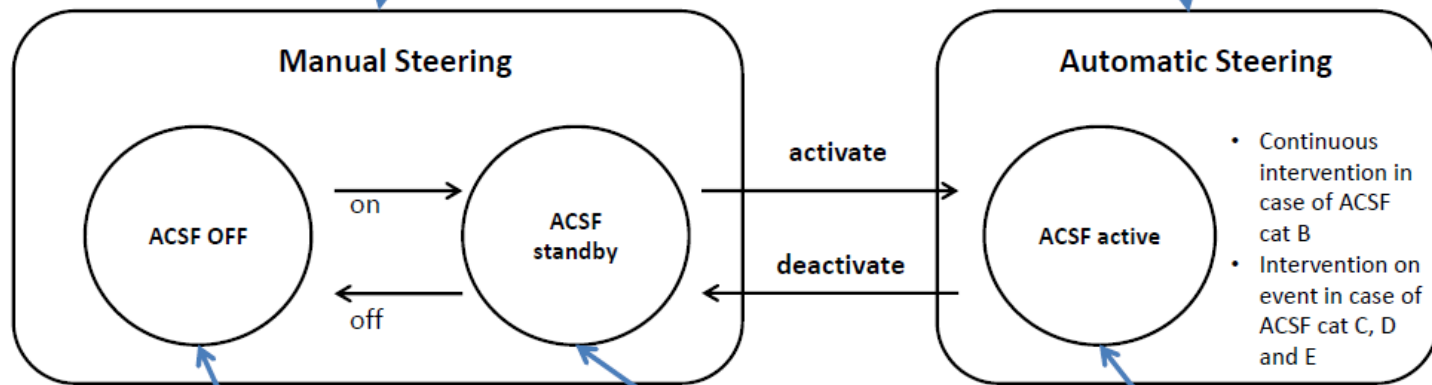
## Tokyo, 19-21 April 2016

Industry proposals for  
ACSF status definition and HMI

# Reminder from ACSF-03-12 (Munich)

## ACSF System Status & proposed HMI

Change from auto to manual mode shall always be indicated by a « non permanent » warning (optical for all cat. + Haptic or acoustic only for cat. B and E)



Manual mode does not have to be indicated to driver when system is OFF (except momentarily when the driver switches Off the system directly from Auto mode)

Manual mode shall be indicated to driver, when system is ON (optical information)

Auto mode shall be indicated to driver (optical information)

*Note: similar to ACC or ASLD functions*

**Note:** it should be avoided to define colours for the optical information. This should be left to VM, so that he can ensure consistency with other systems' HMI.

# Extracts from ACSF-05-16

## General provisions for ACSF

- 5.1.6.1. Whenever ~~the an~~ Automatically Commanded Steering function becomes operational, this shall be indicated to the driver. ~~and the control action shall be automatically disabled if the vehicle speed exceeds the set limit of 10 km/h by more than 20 per cent or the signals to be evaluated are no longer being received. Any termination of control shall produce a short but distinctive driver warning, [especially, in case of category E termination of control is described] in accordance with the requirements of paragraph 5.4.3. by a visual signal and either an acoustic signal or by imposing a tactile warning signal on the steering control.~~
- 5.4.3. **Special Warning Provisions for Automatically Commanded Steering Functions**
- 5.4.3.1 Any termination of control initiated by the system other than specified in 5.6.1.4.7 shall produce a distinctive driver warning including visual warning} and either an acoustic warning or an haptic warning until the driver has resumed steering control.

## Special provisions for ACSF cat. E

- 5.6.1. **Special Provisions for Category E ACSF**
- 5.6.1.1.7. ~~The system shall at any time give a noticeable and distinctive signalization to the driver about the system status. This signalization shall be at least a visual signal. Any change in system status shall be indicated by an optical and [, if not initiated by the driver,] either an acoustic or haptic signal.~~
- The system status shall be indicated to the driver by a visual signal.
- The indication shall [at least] distinguish between the system status ~~manual~~ stand-by Mode, active Mode and failure Mmode.
- The indication shall be present as long as the relevant system status persists.
- When the system is ~~manually~~ switched off by the driver, the indication of ~~manual~~ stand-by Mmode and failure Mmode may be suppressed.
- Any change in system status shall be indicated by a visual and either an acoustic or haptic signal.

Consistency tbc

# General provisions for ACSF

## General provisions for ACSF

5.1.6.1. Whenever ~~the~~ **an** Automatically Commanded Steering function becomes operational, this shall be indicated to the driver. ~~and the control action shall be automatically disabled if the vehicle speed exceeds the set limit of 10 km/h by more than 20 per cent or the signals to be evaluated are no longer being received.~~ Any termination of control shall produce a short but distinctive driver warning, **[especially, in case of category E termination of control is described]** in accordance with the requirements of paragraph 5.4.3. ~~by a visual signal and either an acoustic signal or by imposing a tactile warning signal on the steering control.~~

### 5.4.3. Special Warning Provisions for Automatically Commanded Steering Functions

5.4.3.1 Any termination of control initiated by the system other than specified in 5.6.1.4.7 shall produce a distinctive driver warning including visual warning} and either an acoustic warning or an haptic warning until the driver has resumed steering control.

## Comments & proposals

### Comments 1:

- “operational” should be clarified
- Consistency with 5.6.1.1.7. (HMI for cat E) to be checked

### Comments 2:

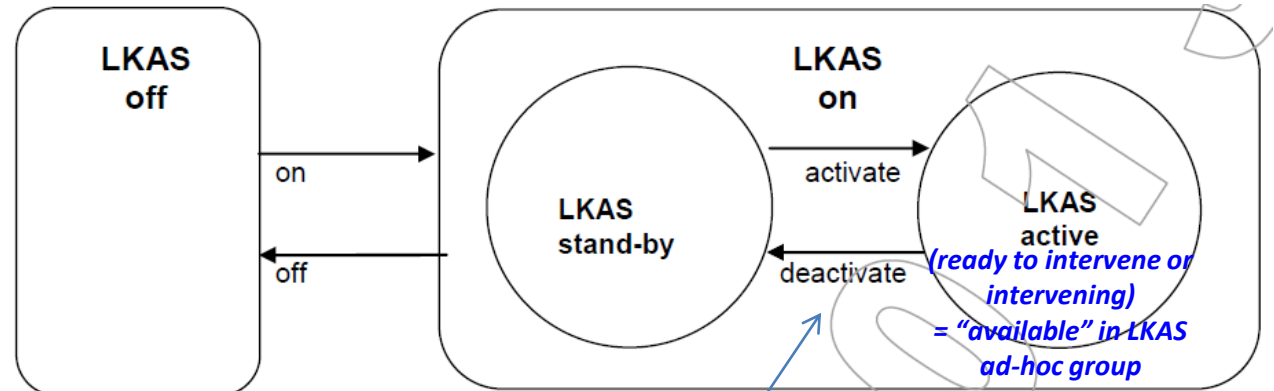
- “especially” is unspecific
- Specific requirements to category should be in 5.6.1.1.7
- Proposal to delete text in [ ]

### Comments 3:

- Not relevant for a low speed ACSF (e.g. park Assist or RCP). The proposal is to come back to the original requirement, given the low speed / low criticality: “Any termination of control shall produce a short but distinctive driver warning“
- An haptic/acoustic warning is not necessary for an ACSF-B1, since the driver is hands-on and steering; a visual warning should be enough
- When the vehicle comes to standstill, it should be possible to suppress the warning signal.
- Proposal: amend this paragraph or move it to special provisions per category (e.g. 5.6.1.1.7 for cat E)

# What does “operational” mean?

**LKAS**  
(as in ISO 11270)  
*(valid for LKAS-CSF and ACSF-B1)*

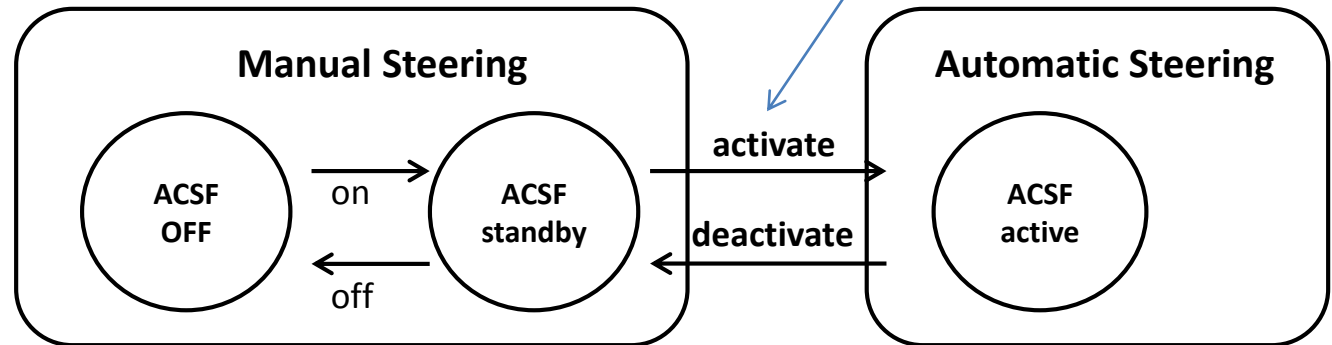


Remark →

Automatic activation when the conditions for operation are fulfilled

No automatic activation when the conditions for operation are fulfilled, deliberate action from driver required.

**ACSF-03-12**  
*(valid for ACSF-B2 and E)*



**What does “operational” mean:**

- A. “switched on”
- B. “active”**
- C. “the system is able to intervene without further action or confirmation by driver“ ...?

# Proposal for new definitions

- 2.4.8.18** An [ACSF / ADASS] is in “off mode” (or “switched off”) when prevented from controlling the steering system.
- 2.4.8.19** An [ACSF / ADASS] is in “standby mode” when the [function / system] is switched on but the conditions for being active are not all met. In this mode, the system does not control the steering system.
- 2.4.8.20** An [ACSF / ADASS] is in “active mode” (or “active”) when the [function / system] is switched on and the conditions for being active are met. In this mode, the system [continuously or discontinuously] controls the steering system.
- [2.4.8.21** An [ACSF / ADASS] is “operational” when the system is [active] ]  
*Comment: maybe this definition is not needed, e.g. “operational” could be replaced by [active] in 5.1.6.1*
- 2.4.8.22** An [ACSF / ADASS] is in “failure mode” when the [function / system] has detected a failure.

# Proposed requirements

Changes to ACSF-05-16 in blue text

## General provisions for ACSF

5.1.6.1. Whenever ~~the an~~ Automatically Commanded Steering function becomes **[operational]** **[active]**, this shall be indicated to the driver. ~~and the control action shall be automatically disabled if the vehicle speed exceeds the set limit of 10 km/h by more than 20 per cent or the signals to be evaluated are no longer being received. Any termination of control shall produce a short but distinctive driver warning,~~ **[especially, in case of category E termination of control is described]** in accordance with the requirements of paragraph 5.4.3. ~~by a visual signal and either an acoustic signal or by imposing a tactile warning signal on the steering control.~~

## 5.4.3. Special Warning Provisions for Automatically Commanded Steering Functions

5.4.3.1 Any termination of control initiated by the system **(i.e. when the active mode is automatically deactivated by the system)**, other than specified in 5.6.1.4.7 shall produce a distinctive driver warning including visual warning] and either an acoustic warning or an haptic warning until the driver has resumed steering control **or the vehicle is at standstill.**

**The same warning as for a transition demand maybe used.**

**In the case of ACSF category A, a short [but distinctive] warning is deemed to fulfill the warning requirement above.**

**In the case of ACSF category B1, the warning maybe optical only.**

## Special provisions for ACSF cat. E

5.6.1. Special Provisions for Category E ACSF

5.6.1.1.7. ~~The system ... signal.~~

The system status shall be indicated to the driver by a visual signal.

The indication shall [at least] distinguish between ~~the system status manual stand-by~~ **Mode**, active **Mode** and failure **Mmode**.

The indication shall be present as long as the relevant system status persists.

~~When the system is manually switched off by the driver, the indication of manual stand-by Mmode and failure Mmode may be suppressed.~~

**Any change in system status shall be indicated by a visual and either an acoustic or haptic signal.**

# Proposed requirements

Cleaned-up  
version

## General provisions for ACSF

- 5.1.6.1. Whenever ~~the an~~ Automatically Commanded Steering function becomes ~~[operational]~~ **[active]**, this shall be indicated to the driver. ~~and the control action shall be automatically disabled if the vehicle speed exceeds the set limit of 10 km/h by more than 20 per cent or the signals to be evaluated are no longer being received. Any termination of control shall produce a short but distinctive driver warning, in accordance with the requirements of paragraph 5.4.3. by a visual signal and either an acoustic signal or by imposing a tactile warning signal on the steering control.~~
- 5.4.3. **Special Warning Provisions for Automatically Commanded Steering Functions**
- 5.4.3.1 Any termination of control initiated by the system **(i.e. when the active mode is automatically deactivated by the system)**, other than specified in 5.6.1.4.7 shall produce a distinctive driver warning including visual warning} and either an acoustic warning or an haptic warning until the driver has resumed steering control **or the vehicle is at standstill.**

The same warning as for a transition demand **maybe used.**

In the case of ACSF category A, a short **[but distinctive]** warning is deemed to fulfill the warning requirement above.

In the case of ACSF category B1, the warning **maybe optical only.**

## Special provisions for ACSF cat. E

- 5.6.1. **Special Provisions for Category E ACSF**
- 5.6.1.1.7. The system status shall be indicated to the driver by a visual signal.  
The indication shall **[at least] distinguish between stand-by, active and failure mode.**  
The indication shall be present as long as the relevant system status persists.

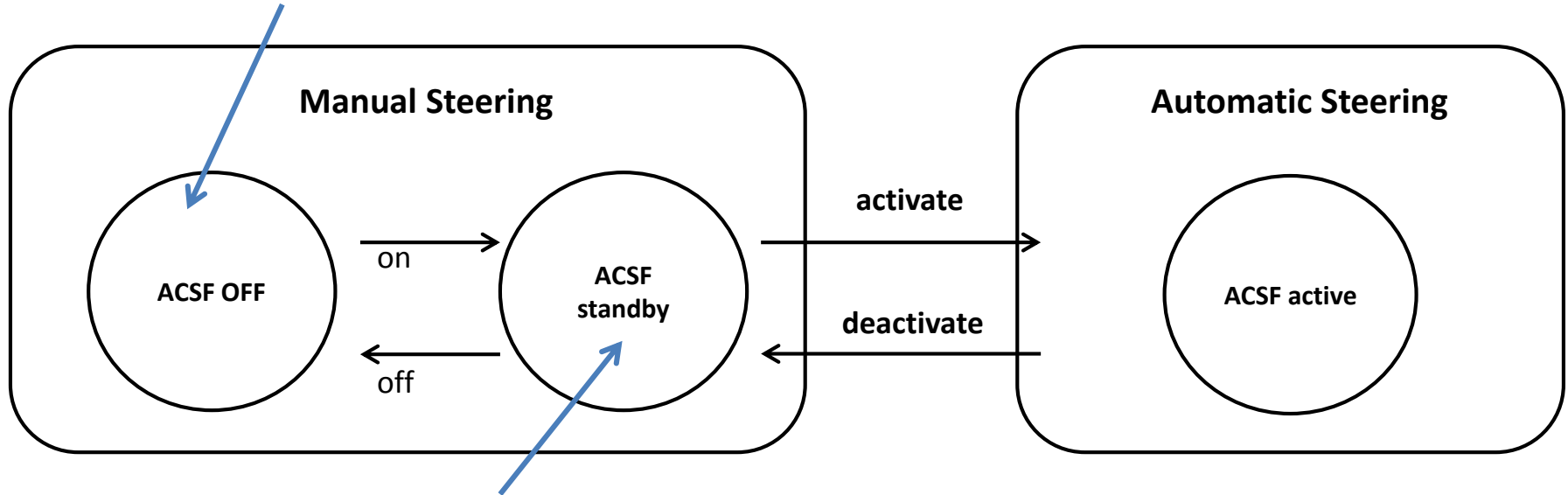


# Backup slides

# Example of implementation

« ACSF off » may mean:

- The ECU is electrically switched off
- or... ACSF is waiting for the function to be switched on by driver and does nothing else
- or... ACSF is waiting for the function to be switched on by driver, yet the ACSF sensors and/or actuators are used for other functionalities which are not ACSF (e.g. sign recognition, LDWS, steering assistance, side wind compensation...)
- or... ACSF is monitoring the conditions for operation, waiting for the driver to request activation...



« ACSF standby » may work as follows:

- ACSF is monitoring the conditions for operation
- ACSF indicates to driver if the conditions for operation are fulfilled
- ACSF is monitoring driver request to activate ACSF (“deliberate action”)
- If conditions are fulfilled and driver requests ACSF to be activated, ACSF is activated