

## **DRAFT REPORT**

### **6<sup>th</sup> meeting of GRRF Informal Working Group on Automatically Commanded Steering Function**

Venue: Venue: TKP (Ichigaya Conference Center) Tokyo, Japan  
Chairman: Mr. Christian Theis (D) and Mr. Hidenobu Kubota (J)  
Secretariat: Mr. Jochen Schaefer (CLEPA)  
Dates: 19. – 21. April 2016  
Website: <https://www2.unece.org/wiki/display/trans/ACSF+6th+session>

1. **Participants:**  
see special attachment

2. **Welcome and Introduction**

3. **Approval of the report of the 5<sup>th</sup> Session**  
The report of the 5<sup>th</sup> Session was approved by the delegates  
[ACSF-05-17-Rev1 \(Secretary\) Adopted Report of 5<sup>th</sup> session](#)

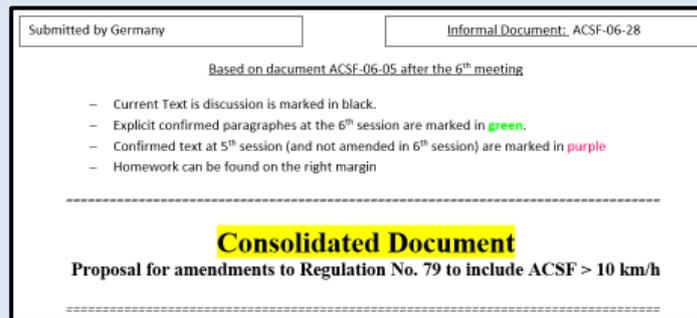
4. **Approval of the agenda**  
The agenda was adopted and confirmed by the delegates without amendments.  
[ACSF-06-02-Rev1 \(Secretary\) Agenda 6th session](#)

**5. List of Documents:**

<a href="#">ACSF-06-01 - (Secretary) Info to the 6th meeting in Tokyo</a>
<a href="#">ACSF-06-02-Rev1 - Agenda for the 6th session of the informal group</a>
<a href="#">ACSF-06-03 - (UK) Homework of UK included in document ACSF-05-16</a>
<a href="#">ACSF-06-04 - (UK) R79 ACSF categories requirements</a>
<a href="#">ACSF-06-05 - (D) Proposal to amend R79, based on ACSF-05-16</a>
<a href="#">ACSF-06-06 - (ROK) The specified maximum speed of ACSF system</a>
<a href="#">ACSF-06-07 - (UK) Proposal to amend R79</a>
<a href="#">ACSF-06-08 - ((UK) Proposal for Data Storage System Requirements to include in R79</a>
<a href="#">ACSF-06-09 - (S+NL) Proposal to amend Par.5.6.1.x in R79</a>
<a href="#">ACSF-06-10 - (B+F) Proposal for amendments in R79 based on Consolidated Document ACSF-05-16</a>
<a href="#">ACSF-06-11 - (F) requirements per ACSF category in R79</a>
<a href="#">ACSF-06-12 - (F) Amendments in the test procedure for ACSF in R79</a>
<a href="#">ACSF-06-13 (J) Proposal to amend R79 based on ACSF-05-16</a>
<a href="#">ACSF-06-14 - (J) Requirements per ACSF category in R79</a>
<a href="#">ACSF-06-15 - (D) Discussion paper – Major Issues</a>
<a href="#">ACSF-06-16 - (D) ACSF-06-05 - What's new with regard to Cat E</a>
<a href="#">ACSF-06-17 - (D) Data Storage System (DSSA) for ACSF CAT B2 and CAT E</a>
<a href="#">ACSF-06-18 - (OICA-CLEPA) Requirements for Sensor view and Environment monitoring</a>
<a href="#">ACSF-06-19 - (OICA-CLEPA) B1–Test Proposal FU0</a>
<a href="#">ACSF-06-20 - (OICA-CLEPA) Boundaries between CSF and ACSF</a>
<a href="#">ACSF-06-21 - (OICA) Overriding of the ACSF</a>
<a href="#">ACSF-06-22 - (OICA-CLEPA) Proposals for ACSF status definition and HMI</a>
<a href="#">ACSF-06-23 - (OICA-CLEPA) Proposal Low Speed Systems up to 60 kph Category B2</a>
<a href="#">ACSF-06-24 - (S) Proposal for an amendment of DSSA based on ACSF-05-16</a>
<a href="#">ACSF-06-25 - (J) Results of a Study on Reduced Awakeness in Drivers Using ACSF</a>
<a href="#">ACSF-06-26 - (J) DSSA requirement</a>
<a href="#">ACSF-06-27 - (EC) Proposal to amend R79 based on ACSF-06-05</a>
<a href="#">ACSF-06-28 - (Secretary) Consolidated Document after 6th session - to be used for further documents</a>

**General Remark:**

all amendments, which have been discussed are included in the “consolidated document” ACSF-06-28. The joint agreed parts of the document are marked in green letters. Amendments, which have been discussed, but finally removed are not more included in the document. The consolidated document is the latest stage of discussion of the group.

**6. Discussion****6.1. Major Issues ([ACSF-06-15](#))**

(D) presented this document, which is a summary of the major issues to be clarified within this meeting.

Proposal of D is, that the CSF function should be reduced to a clear corrective steering function (page 2-3) with a short intervention time.

CAT A, CAT B1 and CAT B2 are the only “stand-alone” functions.

CAT C, CAT D and CAT E shall only be available in the combination with a CAT B1/B2 as explained on page 4.

Every system combination with B2 is for “highway\*” use only.

(\*: means a road as explained in 5.6.1.2.1. of the document ACSF-06-28)



(EC): we have to consider, that “hands off” is not a part of the discussion here. We should discuss it with WP.1.

(D): at the moment, there is no clear requirement, that “hands on” is mandated.

(OICA): we should clarify the boundaries between CSF and ACSF.

(Chair J): J does not forbid “hands off”

(UK): Has some reservations with regards to a “hands off” system, as the driver has to control the vehicle

(F): we have to find a solution with regards to vehicles, which are homologated according CSF. ACSF should monitor the attentiveness of the driver and not the activity.

(D): this is a discussion, we had several times before. We can only measure the activity, but not the attentiveness of the driver.

This must vary between the different CATs.

(UK): has found a comment in a UK document, that the driver should have the hands on the steering wheel.

We should be sure, that, if we discuss a CAT B2 system, that the system must be “robust” enough. We have to have a clear boundary between CSF and ACSF.

(EC): reminds the delegates to the content of the Convention on Road traffic Vienna 1968 ( in the following “VC”), that the driver has to control the vehicle.

(Chair-D): We have to consider, that the wording in the VC is nearly 60 yrs old. As the driver is switching on the system, he is controlling this. We should avoid to mention “hands on” or “hands off” in the regulation.

By the way: The Reg. 79 requires no steering “wheel” and there is also no § in the VC that says “hands on”

(Chair-J): If we look at a ACC system, where the driver has “foot off”, this is also not in contradiction with the VC.

(SE): shares the view of Chair-D. Is the VC the limitation we are discussing?

(Chair-D): we do not allow other tasks.

### 6.1.1. (UK) presenting document [ACSF-06-07](#)

2.3.4.1, and 2.3.4.2:

Target is the lomitation of the intervention by a CSF function.

The values for CSF (“...of less than one second and followed by no input for the following two seconds...”) are only proposals.

(OICA): is it correct, to define the time in the definitions? Should be in the requirement section. The duration of 1s is too short. OICA proposes 15s.

(D): We should clearly differentiate between a corrective and an assistance system. 1s is maybe too short. We clearly want to have these “comfort systems” in ACSF.

(NL): Is happy with the UK proposal and also supports the D comments, but is not happy with the time interval. If a clear corrective intervention is necessary it should not be limited.

(UK): is fine to remove the time from the definitions and to put it in the requirements.

Is 15s really a corrective system? 15s is for UK too long. Is there a comment to the pause?

(Chair-D): We look for a solution to differentiate between CSF and ACSF. With regards to CSF we are looking for a “single event”. We should maybe look for the wording for the event and not searching for the time.

If CAT B1 is available, do we need CSF at all?



### 6.1.2. (OICA) presentation [ACSF-06-20](#)

(Chair-D): Let us first focus on CSF vs. B1

(D): What should be the gap between two CSF interventions

(NL): we should try to focus on the event and not searching a time.

(D): fully supports NL proposal

(UK): for type approval, a time could be helpful.

(Chair-D): repeated his previous question: Do we need CSF in the future, if CAT B1 is available?

Lengthy discussion, whether CSF is still necessary or not

- number of interventions
  - interventions by CSF, which are normally not dedicated to CAT B1 (stabilizing the vehicle in case of side wind, leaving carriage way...)
  - warning at CSF interventions
- without final result.



(Chair-D) proposes the following summary of the discussion:

We have 3 options:

- 1) CSF will be deleted ( is covered by CAT B1)
- 2) Warning after every CSF intervention
- 3) following 1/2s of the UK proposal - perhaps with a compromise between 1-15s

CPs:

(D): after some interventions with a warning -> switch off of the system.

(ROK): no opinion

(UK): 3) with a compromise

**Homework:**  
**UK to make a  
proposal**

### 6.1.3. (J) presents the result of a driver study [ACSF-06-25](#)

The target of the study was to check whether the time between driver activities (current proposal: 15 min) is too long.

Preconditioning of the driver was “normal”. It is expected, that if the driver would have the hands at the steering wheel, he will be more awake.

(OICA): Why did the drivers fall into asleep?

(NHTSL): People were instructed before the test.

(Chair-D): This is a typical simulator result. Many drivers can fall into asleep within 3-6 min. At a real traffic situation this value should be significantly higher.

(D): The pages with the test results show, that at >6 min many people fall into asleep.

(UK): 15 minutes seem to be too long

(NL): we should not go higher than 3 min.

(SE) supports NL with 180s. The risk, that the people fall asleep after that time is increasing

(CLEPA): we should not take a simulator study to define values in a regulation.

(D): A lot of car clinics have been made within the last years. We should have to look at these.

(NL): the driver is per definition “inderloaded”

(Chair-D): Proposal is 3 min. New values can be considered if new results are available (footnote).

(NL): supports 3min, but lower values at higher speeds (e.g. 180s at 60 km/h and 45s at 130 km/h)

(D): value should be independent of the speed

(UK): Supports Chair-D, 3 min + footnote

(EC): 3 min + footnote

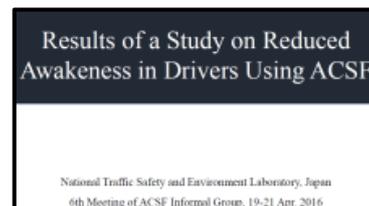
(F): no opinion

(ROK): 3 min

(D): 3 min + footnote

### Summary for CAT B2 basic conditions:

- only available to activate on “highway”
- Warning/transition after 3 min of inactivity of the driver
- Protective braking
- Emergency manoeuvre
- Minimal Risk manoeuvre if possible



**Summary of conditions/combinations of the CATs:**

	<b>Roads</b>	<b>max. speed</b>	<b>Monitoring:</b>
<b>CAT B1:</b>	all	no limit	30s [180s] driver availability
<b>CAT B2:</b>	“highway”	130 km/h	180s driver activity (w/ footnote)
<b>CAT C + B1:</b>	“highway”	no limit	see CAT B1
<b>CAT C + B2:</b>	“highway”	130 km/h	see CAT B2
<b>CAT D + B1:</b>	“highway”	130 km/h	see CAT B1
<b>CAT D + B2:</b>	“highway”	130 km/h	see CAT B2
<b>CAT E + B2:</b>	“highway”	130 km/h	see CAT B2

**6.1.4.** (D) presented the document [ACSF-06-05](#)  
Proposal for amendments to Regulation No. 79



The following text should only reflect the discussion while amending ACSF-06-05.

(SE): is a “default on” for the system possible?

(NL): proposes no “default on”

(D): this is not supported by D

(OICA): flexibility would be preferred

(F): CAT C and CAT D should not be mandated together with CAT B1 or CAT B2.

The word “lateral” should be included in 2.3.4.1.4. and 2.3.4.1.5. (rem: done in ACSF-06-28)

New paragraph inserted to explain the “normal operation condition”

2.4.8.8. *“Normal operating conditions” mean that the ACSF system is active and does neither carry out a transition procedure nor a Minimal Risk Manoeuvre nor an Emergency Manoeuvre.*

**Homework:**  
UK to improve  
wording

Discussion, whether a system may switch automatically between different CATs.

The majority of the CPs do not support this.

OICA to clarify and to provide a wording, how this can be formulated in the regulation.

**Homework:**  
OICA to  
provide a  
wording

OICA presented document [ACSF-06-22](#) for ACSF status definition and HMI

(SE): are emergency systems are allowed to work in the background?

(D): Emergency systems are not affected by this definition. They may work at any time.

(CLEPA): This is also valid for systems, which use the steering system for an evasive manoeuvre.

These systems are in development and actually do not change the lane.



Amendments, which have been proposed by OICA in [ACSF-06-22](#) have been modified and adopted by the group. They are included in the “consolidated document”.

There have been different trials to define the “new” CSF function.

At the end of the discussion, the proposal from D+J found the agreement of different (not all) CPs

Proposal for new wording for a "Corrective steering function" (CSF)

"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 influence the vehicle's dynamic behaviour.

Any system for avoiding the lane departure or for keeping within the lane shall be considered ACSF according. 2.3.4.1

As not finally decided, this is in the “consolidated document” marked with [..]

#### 5.5.2 Periodical Technical Inspection (PTI)

(J): what is a “valid” software (SW)?

(D): The OEM has to mention a new SW to a “central station”

(UK): refers to the document [ACSF-06-07](#)

*5.6.1.1.12. The system shall be capable of indicating the software level currently installed and in operation, as well as any previous software levels that were installed in the vehicle and the dates of updates. [This shall involve a maximum of [3] distinct actions].*

(OICA): this is a complex question. A SW for a system may be distributed to different ECUs

(SE): PTI is not there to check the type approval!

Summary: issue remains “open”

#### 5.6. Special Provisions for Automatically Commanded Steering Functions

Proposal of D is to add the need of a information provided to the vehicle user.

(D): User has to be clearly informed about the function.

(OICA): is this e.g. the owners manual?

(D): yes

(OICA): is this part of the type approval?

(D): yes

(UK): is it a display or a manual?

(D): display is possible, but it must be at least in the owners manual.

##### 5.6.1.1.1. ...activation of the system...

F proposal in ACSF-06-10 is to include, that AEBS and LKS systems shall not be affected.

(D): this is not necessary, as these systems are not mandated.

##### 5.6.1.1.3 “overriding”

Wording for D and UK (ACSF-06-03) was amended, but not finally decided

New wording:

[Deliberate braking operation by the driver shall take priority over a demand for longitudinal movement by the ACSF system.

Deliberate Accelerating operation by the driver shall take priority over a demand for longitudinal movement by the ACSF system.

Deliberate Steering operation by the driver shall take priority over a demand for steering by the ACSF system.

The system may remain active provided that priority is given to the driver during the overriding period. The means to override the ACSF shall be indicated in the system information data. A transition demand may be issued at the discretion of the vehicle manufacturer to request the driver for [an orderly] takeover.]

#### 5.6.1.1.4 ... specified maximum speed

Document of ROK ACSF-06-06 with regards to the maximum speeds in different countries

(Chair-D): Shall we put national law in the regulation?

(D): the limitation should follow the rule of the CPs, not here, which is the vehicle/system limit speed.

(OICA):  $V_{\text{max}}$  is the technical limit of the system.

New proposal in “consolidated document” shall be considered in the next meeting:

[5.6.1.1.x            *The vehicle shall detect the max. speed limit of the country, where it is used and shall not activate the ACSF system (CAT E) above this speed limit.*]

#### 5.6.1.1.8 ... minimum range to the front...

OICA presented document [ACSF-06-18](#) about the sensor view in different tests

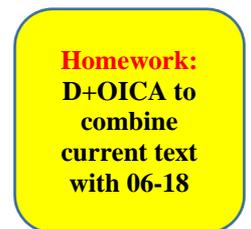


(J): it is very difficult to perform the tests in Annex 7 – J proposes amendments as explained in [ACSF-06-13](#)



(D): the J proposal is a good idea, but we should stick to the values (incl. friction coefficient)

Despite the formulas are no requirement, it should be taken as a basis



### 6.1.5. (SE) presented the document [ACSF-06-09](#)

Detection of detect obstacles and other road users  
(5.6.1.1.8)



This proposal describes the necessity to detect objects, pedestrian and animals. The distance that such kinds of “things” have to be detected to start a protective/emergency braking should be defined to 60m.

(CLEPA): we should leave it open, as the driver is still responsible for driving

(Chair-D): large animals and pedestrian are normally not on the highway

(NL): we should consider this, because there are people on the highway, and some are killed.  
 (UK): as we have a Level 2 system, the driver must monitor the roadway. This is a philosophic question, whether these systems have to detect this.  
 (D): We should not separate between Vehicles and pedestrian  
 (D): what are large animals?  
 (SE): now we come in the level discussion, what we want to avoid.  
 (Secretary): we have to avoid to define requirements, which maybe do more harm than good!  
 (OICA): current proposal [ACSF-06-18](#) is flexible  
 (SE): supports OICA  
 (D): supports SE  
 (EC): supports the combination of a text + Annex 6  
 (remark: Annex 6 are the “SPECIAL REQUIREMENTS TO BE APPLIED TO THE SAFETY ASPECTS OF COMPLEX ELECTRONIC VEHICLE CONTROL SYSTEMS”)  
 (NL): but the aim is to avoid an accident



**Homework:**  
**D+J+SE+NL to make a new proposal**

(EC): OICA to consider in the homework the current activities of the EC with regard to Annex 6.

**Homework: OICA to make a proposal based on Annex 6 + ACSF-06-03**

5.6.1.1.9 proposal of UK in ACSF-06-03:

*The vehicle shall have a means to detect whether the rule of the road is left or right hand traffic, and shall behave accordingly, keeping left or right as far as possible. It shall overtake on the lane outside slower traffic and returning to the original lane, once a suitable distance ahead of the overtaken traffic.*

(D): this proposal is supported by D  
 Wording is included in the “consolidated document” marked with [..]

5.6.1.2.2 “turn indicators”

Proposal of D was adopted and marked in green in the “consolidated document”.

5.6.1.2.6 “driver monitoring”

(D) explained their proposal for a driver activity detection in document [ACSF-06-16](#)

(EC): is it any activity, or any driving activity? (level 2!)

(D): even in Level 2 the system is driving, so every driving activity of the driver could deactivate the system.

(UK): more specific requirements are necessary.

(D): we want that the driver is not sleeping. But this is not the main task of the system – the driver is responsible.

(SE): is a activity, e.g. flipping a page in a book, enough?

(D): yes

(Remark: proposal is now included in the “consolidated document”).

5.6.1.7 “Longitudinal control and protective deceleration”

(D): presented this paragraph in the document [ACSF-06-16](#)

(EC): we request ACC, but there are no details specified



(Remark: proposal is now included in the “consolidated document”.)

#### 5.6.1.8. “Data Storage System for ACSF (DSSA)”

Several Documents have been presented:

- (D): [ACSF-06-05](#), [ACSF-06-17](#)
- (UK): [ACSF-06-08](#)
- (SE): [ACSF-06-24](#)
- (J): [ACSF-06-26](#)

Discussion:

(SE): How can we detect an accident?

(OICA): no final solution available. Is there a difference between passenger car and a truck?

(UK): for a CAT B2 system it is ok.

(OICA): is it clear, that the storage will only be activated, if CAT B2 is active?

(D): yes, this is ok

**Homework: OICA**  
to provide more  
information in the  
next meeting

#### 5.6.1.8.2 The DSSA shall record and store following data:

(J): why GPS-time + GPS location?

(OICA): Data privacy is very important. This is finally not clarified.

(SE): will check, what is possible in SE

(NL): has heard, that EC is looking for a EU-wide harmonisation (Data protection framework)

(EC): confirmed this

(Chair-D): are there current systems in the market, which are monitoring, whether the system or the driver is responsible for an accident?

(OICA): has currently no information.

- GPS-time
- GPS Location
- Information about the ACSF status
- Information about failures
- Information about transition demands
- Information about minimal risk manoeuvre
- Takeover of the steering by the driver

#### 5.6.1.8.3 – 5.6.1.8.5 “deterioration of data; readout of the data; recording time”

discussion about the readout, deterioration of data and the duration of the recording without final conclusion

(SE): will not accept numbers, until more information is available.

**Homework: As the delegates are not experts in the discussion, the CPs shall check within their countries the facts. What are the minimum requirements?**

**7. Schedule for further meetings.**

7<sup>th</sup> session IWG ACSF: 28. - 30. June 2016 in London (UK)  
(Details see: [ACSF-07-01](#))

GRRF82: 20. – 23. September 2016 in Geneva (CH)

***Please provide the documents for the next meeting at least one week prior to the meeting start***

Rev.	Date	Content