

## **DRAFT REPORT**

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

Venue: Federal Ministry of Transport and Digital Infrastructure in Bonn, Germany.  
Chairman: Mr. Christian Theis (D) and Mr. Hidenobu Kubota (J)  
Secretariat: Mr. Jochen Schaefer (CLEPA)  
Dates: 20.-22. January 2016  
Website: <https://www2.unece.org/wiki/display/trans/ACSF+5th+session>

1. **Participants:**  
see special attachment

2. **Welcome and Introduction**

3. **Approval of the report of the 4<sup>th</sup> Session**  
The report of the 4<sup>th</sup> Session was approved by the delegates  
[ACSF-04-19-Rev1 \(Secretary\) Adopted Report of 4<sup>th</sup> session](#)

4. **Approval of the agenda**  
The agenda was adopted and confirmed by the delegates without amendments.  
[ACSF-05-02-Rev1 \(Secretary\) Agenda 5th session](#)

5. **List of Documents:**

Documents:
<a href="#">ACSF-05-03 - (D+J) New proposal for amendments in R79. Document is based on ACSF-04-20</a>
<a href="#">ACSF-05-04 - (F) French ACSF principles</a>
<a href="#">ACSF-05-05 (F) Comments on the ACSF Test Procedures. Document is based on ACSF-04-20.</a>
<a href="#">ACSF-05-06 (S+NL) Proposal driver availability</a>
<a href="#">ACSF-05-07 (D) Transition Demand - Explanation of 5.6.1.4 Transition demand and system operation during transition</a>
<a href="#">ACSF-05-08 (D) Overview of tests for ACSF</a>
<a href="#">ACSF-05-09 (BE) comments on the consolidated Document after 4th session (ACSF-04-20)</a>
<a href="#">ACSF-05-10 (OICA-CLEPA) Driver availability recognition</a>
<a href="#">ACSF-05-11 (OICA-CLEPA) HCV trailer issue</a>
<a href="#">ACSF-05-12 (J) Test coverage of ACSF</a>

<a href="#">ACSF-05-13 (J) ACSF Function per Category</a>
<a href="#">ACSF-05-14 (D) Tests Overview with CAT D-B</a>
<a href="#">ACSF-05-15 (J) Function per Category</a>
<b><a href="#">ACSF-05-16 (Secretary) Consolidated Document after 5<sup>th</sup> session</a></b>

## 6. Discussion

*General Remark: Renumbering of the paragraphs will be done to a later time*

### 6.1. Proposal for a separate regulation (ACSF-05-04)

5 <sup>th</sup> ACSF meeting French views  Bonn 20-22 January 2016
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(F) presented this document, which proposes to separate CAT D and CAT E in a new regulation. Their intend is to concentrate only the lateral requirements in the “Steering” Regulation 79. Every system, which also have modules for longitudinal control should be defined in the new regulation. ACSF Categories A-C should remain in the Regulation 79.

(Chair-Germany, in the following “C-D”): shares many of his principles. It is clear, that for CAT E we need more that steering requirements. He agreed, that the a new regulation should be available “at the end”.

He proposes to finalize the current work in the regulation 79 and to transfer in a second step these requirements in a new regulation.

(OICA): is also taking care to look in a solution of the horizontal approach. The time-line, to have such a regulation is too long, so that the proposal is to continue the current work.

(C-D): The Chairman of the GRRF, Bernie Frost explained the “process” of the current work in the working group to WP.29 in the past. Also in the G7 meeting in Germany in September 2015 the consensus was to continue the work as it is.

He proposes to make the new regulation as the second step, but he also shares the opinion of F, that this is a misuse of the Regulation 79. To take out CAT D-E would bring us nearly back to start and will jeopardize to have the systems on the market in 2020.

(F): today it is not clear, which position F will have in the GRRF81.

(D): expects, that the work can be finalized until mid-2017. So 2020 would be possible to have systems on the market. With a separation of CAT D-E, 2020 would be not possible anymore.

(CLEPA): The delay, if separation CAT D-E would be a big problem for the industry.

(EC): agrees to the approach from F. We should continue the current work, but we should not lose sight of the separate regulation

(OICA): ToR requires CAT B-E, so we should continue the work as defined.

(Chair-Japan, in the following “C-J”): fully shares the F proposal. Because of restrictions in the timing, he supports the amendments of Regulation 79 – as an intermediate solution.

(F): will support the current way, but driver monitoring will be an essential issue. He will bring this document as an informal document to GRRF81, where he will present this issue, to share this item with the delegates.

### 6.2. Trailer at HCV (ACSF-05-11)

Industry input to ACSF-05 meeting January 20-22, 2016 in Bonn HCV issue with heavy trailers
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(OICA): presented this document, which includes a proposal, how to deal with HCVs especially with trailers.

(CLEPA): supports this document.

(C-D): there are at the moment no ideas to cover this proposal. A presentation to GRRF makes

only sense, if a principal solution is available. This should also be covered in the “new expected regulation”. Currently the trailers (Category O) is not part of the ToR.

(OICA): this document is only to make the delegates aware of the problem of vehicle combinations.

(D): currently a truck-trailer combinations can only be covered by CAT B+C. Rest would be covered by the new regulation.

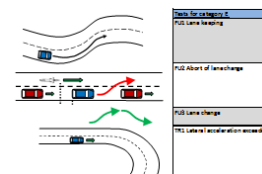
(C-J): we should concentrate first on M and N. With the second step (new regulation) we should cover this.

(F): if the systems are not able to cover vehicles with trailers, we should forbid to have the system on, when towing a trailer. (limited to CAT D+E)

(UK): for trailers a communication interface should be developed.

(EC): stick to ToR.

### 6.3. **Overview – tests for CAT E** ([ACSF-05-08](#))



(D): explained the document. It contains a lot of tests, but for a CAT E system it must be sure, that the system can cope with the different scenarios.

The details of the tests was discussed while presenting the German text proposal in [ACSF-05-03](#).

The review of the document started with ANNEX 7 – Test requirements

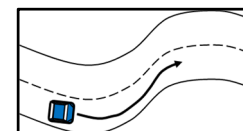
In parallel the French comments [ACSF-05-05](#) have been considered.

***For details of amendments made in the meeting,***  
please have a look on the consolidated document [ACSF-05-16](#)

#### 6.3.1. **FU1-Test**

(F): explained their proposal for amendment

(D): agreed to the comments of F. Also the info from the manufacturer can be used, if a lead vehicle is necessary in the test and should be considered.



(UK, D, OICA, F) discussion about the special requirements for time (5 min) and the lateral acceleration ( $0,5m/s^2$  - 90%  $a_{y_{vmax}}$ )

(C-D): test should have clear requirements, that the Technical Service has guidance.

- Principle is ok
- We need different vehicle speeds (definition of the speeds is important)
- Tests should be able to be performed on the given test track
- Data which is missing should be provided by the vehicle manufacturer

(NL): it is more a functional demonstration, so the values are not so important

(OICA): do we really need 90% or would 75% be enough

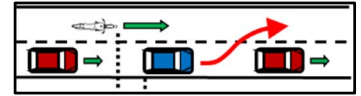
(C-D): we should be sure, that the system performs until 100%, so we should leave the 90%

(EC): a lead vehicle should be considered in “lower” CATs

(D): this should be defined in the test requirements for these CATs, but CAT E should not need a lead vehicle

*Homework: D - define test with different test speeds*

*D + J - rewording*

**6.3.2. FU2-Test**

(F): explained their proposal for amendment (in ACSF-05-05)

(D): explained the “new” FU2-Test

(OICA): for this test is a special software in the system necessary, which only will be used for the test – do we want this? Are we sure, that the safety for the motorbike is given? Wouldn't a static test be much better?

(D): yes, a special “test-SW” would be necessary. Believes, that the dynamic test is necessary.

(NL): we want to have realistic tests.

(UK): maybe a third lane can improve the safety for the motorbike.

(C-D): we should consider, that in the test car is a driver who can interrupt the test immediately, if the vehicle will start to change the lane.

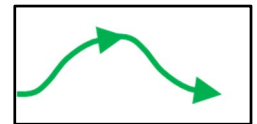
Summary: the contracting parties would like to have this kind of test.

3.1.2.2 ok, but wording should be reviewed

3,1,2,3 ok, but wording should be reviewed

3.1.2.4 ok, but wording should be reviewed

*Homework: OICA - rewording*

**6.3.3. FU3-Test**

(OICA): do we need a double lane change test?

(UK): is the purpose of the test, that a vehicle goes back to the original lane after passing the vehicle?

(C-D): at least in Germany a vehicle must always use the right lane – if possible.

(D): from the test point of view, it should be easy to perform the test

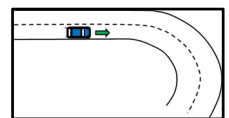
(NL): confirmed D position

(OICA): if the vehicle should go back to the original lane, it should be included in the requirements

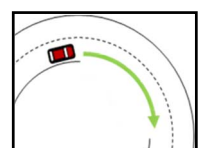
(C-D): then we would have to cover all behaviour laws within the regulation – this makes no sense

Summary: The contracting parties insist on the FU3-Test

*Homework: OICA - Rewording, considering the recommended safety distance*

**6.3.4. TR1-Test (Transition due to exceeding lateral acceleration)**

*Homework: to be checked by F, OICA*

**6.3.5. TR2-Test (Transition due to missing lane marking)**

*Homework: UK - is an inclusion of Reg. 48 in the spec necessary?*

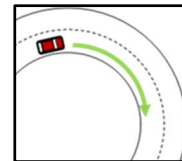
*F - to check the wording*

**6.3.6. TR3-Test (Transition due to unfastening the seat belt)**

(OICA): isn't the test now more stringent as defined in the last meeting in Tokyo?

(D): this is correct, but the "seat belt" is now a special issue

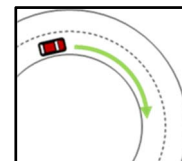
*Homework: F – to check the wording*

**6.3.7. TR4-Test (Transition due to failure)**

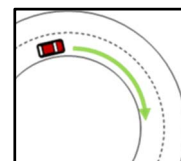
Lengthy discussion, whether the vehicle may touch the lane markings when performing the test. The test is only dedicated to a single sensor failure. There may be different situations which cannot easily covered by a simple test description.

A lane change should be possible also within a MRM (Minimal Risk Manoeuvre)

*Homework: D, UK, NL, OICA, CLEPA - Rewording*

**6.3.8. TR5-Test (Driver take over test)**

Test speed was amended – see consolidated document

**6.4. Review of the requirements, based on [ACSF-05-03](#)****2.3.4.1 Definitions of Categories**

(D): explains, that CAT C should include CAT B

(OICA): As long as the other CATs are not finally defined we should leave it open

(D): if you are steering manually, CAT C, CAT D and CAT E makes no sense

(NL): shares D comments

(S): has currently no opinion

(UK): is ok with D comments

(F): Keep CAT C and CAT D without including CAT B

(D): describes the problem, that a CAT C system (without CAT B) does not know, when to start the manoeuvre and when the lane change manoeuvre is over.

(OICA): Concepts for systems without CAT B are in work.

(EC): we work currently on CAT E. So we should define the requirements for CAT E and come back to the definitions when defining these CATs.

**2.4.8.1 Definition of Motorway**

Definition of the motorway was moved to the requirement section

**2.4.8.6 "Specified maximum speed  $V_{smax}$  "**  
proposed amendment was agreed

**2.4.8.7 " Specified minimum speed  $V_{smin}$  "**  
proposed amendment was agreed

**2.4.8.8 " Specified maximum lateral acceleration  $ay_{smax}$  "**  
(OICA): is the wording correct?

*Homework: D, J to rework definition considering emergency cases*

**2.4.8.10 " Conditions for operation "**  
proposed amendment was agreed

**2.4.8.11 " System boundaries "**  
proposed amendment was agreed

**2.4.8.16 " Protective braking "**  
(OICA): proposed to wait until the requirements are defined, but in principle ok.  
proposed amendment was agreed

**2.4.8.17 " Data Storage System for ACSF (DSSA) "**  
(SE): is here the risk, that we are doing something separate, which is already in work in another group (e.g. ITS/AD)? In general he agreed to the need of such a feature.  
(NL): should be located in a horizontal regulation. Regulation 79 is the wrong place for this.  
(C-D): this is also necessary to "protect" the driver  
(NL): here we have also to consider data protection and again, this has nothing to do with Regulation 79.  
(C-D): Shall we wait for the results of the ITS/AD group?  
(C-J): DSSA is a strong request of Japan, otherwise Japan cannot support this ACSF-Regulation.  
(UK): see the need of a DSSA, but not so strong as J. Preferring to include it in the horizontal regulation.  
(C-D): Do we have systems (e.g. ACC systems) in the market, where data is recorded?  
(OICA): must be checked  
(CLEPA): standard systems store only the failures  
(SE): EC is looking for a EDR in the future. Why do we need this here for this use? Supports NL to have this in the horizontal regulation.  
Conclusion: will be reviewed after discussion the requirements

**5.4.3.1 " ...termination of control... "**  
proposed amendment was agreed

**5.5.2 " PTI "**  
(SE): we need to understand, which codes should be used. We should specify this  
(OICA): here we should make it simpler as e.g. OBD. The information should only say "working or not"  
(C-D): want to know, whether the correct SW version is in the system.

*Homework: D to rework considering the SW-version, whether it was amended*

(CLEPA): this is already considered in Annex 6

(NL): why is the word “complex” in the wording (“...status of those **Complex** Electronic Systems...”) ?

(D): to avoid misinterpretation, that this is a **complex** electronic system

(OICA): is this in line with the EC proposal for PTI? The SW-Version is not part of this.

(UK): PTI does not need to know the SW-Version

(EC): do we need this § at all?

#### 5.6.1.1.3 “driver is overriding

(UK): does this also mean for small steering corrections?

(D): we need a clear interface between driver and the system. There may be also other causes for overriding. Important is, that the driver can always override the system.

(OICA): is this a deactivation or a temporarily inactivation?

(UK): a braking intervention should switch the system off, but also a steering input?

(EC): is the driver is steering manually, we should switch off the function.

(C-J): Steering input of the driver shall deactivate the system. Braking input or others, may deactivate the system.

(D): if the driver is steering manually, a non-deactivation would confuse the driver

(UK): as this is a Level 2 system, hands on is necessary

(EC): supports, that an intervention may deactivate the system

(OICA): we have to consider, what is already in Regulation 79 (5.1.6: “... shall be designed such that the driver may, at any time and by deliberate action, override the function...” )

(D): what leads to overriding or deactivation of the system should be mentioned in the system data.

(C-D): the only oversteering issues are: Braking, steering, accelerating

(F): is the system with or without ACC?

(CLEPA): a CAT E system without ACC is not possible

(D): steering → shall deactivate the system; braking and others → may deactivate the system

*Homework: D, UK, OICA to rework*

#### 5.6.1.1.3.1 “...specified maximum speed $V_{\text{max}}$ ”

(C-D): tolerance should be removed

proposed amendment was agreed

#### 5.6.1.1.4.1 “...maximum lateral acceleration $a_{y_{\text{max}}}$ ...”

(EC): why do we need a minimum value

(D): to specify the minimum performance of the system. The system should either reduce the speed in front of a curve or to start a transition at max. 3 m/s<sup>2</sup>

(SE): are systems able to detect the curves before?

(OICA): the system should be able to know the path of the vehicle

(CLEPA): maybe for trucks and buses the 1 m/s<sup>2</sup> is too high

(C-D): conclusion: remove the [ ]. To be reconsidered if CLEPA has more input.

#### 5.6.1.1.6 “...control the movements of the vehicle...”

(F): proposed to add longitudinal to the lateral movement

(C-D): remove “lateral” from the wording and do not add “longitudinal”.

proposed amendment was agreed

**5.6.1.1.7 signals for the driver**

(OICA): leave “manual” in the wording (and not “standby”)

(C-D): asked OICA to make a clear definition of the different modes.

(OICA): we should only differ between “automatic” and “manual”

*Homework: OICA provide a definition for “active”, “standby”, “failure” and “OFF” mode*

**5.6.1.1.8 “...monitor...a minimum range to the front...”**

(NL): obstacles should also be detected

(SE): what about (big) animals?

(C-D): is it necessary to specify this?

(NL): yes!

(EC): mentioning the conditions only in the test requirements is not enough

*Homework: NL, SE, OICA to rework considering obstacles, animals and distance values(?) – if necessary*

*Homework: D to rework considering VUT*

**5.6.1.1.8.3 " range to the left and to the right "**

proposed amendment was agreed

**5.6.1.1.9 " ...vehicle shall fulfil the tests... "**

proposed amendment was agreed

**5.6.1.2.1 Any lane change manoeuvre shall be initiated only if:**

*Homework: UK to rework considering pedestrians, [ ] and LHD/RHD traffic.  
To be moved partly to 5.6.1.1.9/10?*

**5.6.1.2.2 “...direction indicator...”**

proposed amendment was partly agreed

*Homework: EC to rework*

**5.6.1.2.3 “...system detects an imminent critical situation...”**

*Homework: UK to improve the wording*



**5.6.1.2.4 “...prior and after a lane change...”**

*Homework: UK to improve the wording*

**5.6.1.2.5 “...sudden unexpected event...”**

*Homework: D to improve the wording (separating lane change /emergency)*

**5.6.1.2.6 Driver availability recognition system****Presentation of SE and NL ([ACSF-05-06](#))**

Informal Document: ACSF-05-06

(C-D): the infotainment system can be used to detect drivers activity, but also something else...

(NL): target of this proposal is, that the infotainment system is mounted, that the driver can look directly to the front.

(C-D): the driver is still fully responsible. Could it be a solution, that e.g. a head up display is used? It is to consider, that design restrictive requirements should be avoided.

(NL): monitoring the head direction could also be used.

**Presentation of OICA ([ACSF-05-10](#))**

(D): supports the OICA approach. Why should we be more stringent as at LKAS  
=> it is not necessary to check every 10s

(C-J): proposals are going in the same direction

(SE): there should be a requirement. To define a recognition system depending on the performance is more complicated. We need studies with sleeping drivers

(F): we should not define something in the regulation, which is maybe not necessary in the future. Target should be, what is required short term. Support new studies.

(C-D): we can add here a lot of things, which are not allowed (e.g. sleeping, alcohol, driving without driver licence). We cannot cover every misuse. We should not overload the system.

(EC): origin wording is a good compromise

(OICA): there must be a balance of the minimum requirements

(D): 4s is the worst case of a drowsy driver. After 4s we have the Minimal Risk Manoeuvre (MRM), which gives the driver more time.

(UK): we are still at Level 2 (not using TV etc.). Sleeping cannot be solved yet.

(SE): we cannot deal with every misuse. Disagree, that the OICA document reflects the Tokyo status. Some kinds of limits should be made (10s, 20s, ...)

(D): we have to define different requirements for the different categories. Proposes a compromise.

(CLEPA): an eye recognition system for a high volume production car is currently not available

(F): the proposal of D is a good starting point

(SE): we are not far away from each other

(C-D): Proposal:

the system should include two features:

1. Driver availability                      seat occupancy, or seatbelt
2. Driver activity                            system can analyse drivers activity.  
Every action can be used (e.g. air conditioning)  
to be checked: every 15 minutes

Comment of the delegates:

(EC): tbd.

(SE): agree to the principles, but only 5 minutes

(F): agree to the principles,

(J): tbd

(NL): agree to the principles 15 minutes are too long

(OICA): good compromise

(CLEPA): good compromise

*Homework: NL, SE, D, UK to improve the wording considering the "compromise"*

**5.6.1.3.1.1 "values for  $V_{smax}$ ,  $V_{smin}$  and  $ay_{smax}$ "**  
proposed amendment was agreed

**5.6.1.4.3 "...driver availability recognition system..."**  
to be reviewed after rework of 5.6.1.2.6

**5.6.1.4.4 "...driver's seatbelt is unfastened..."**  
proposed amendment was agreed

**5.6.1.4.5 "...other failures than a single sensor failure ..."**  
proposed amendment was agreed

**5.6.1.4.6 "...vehicle is fitted with a built-in infotainment system..."**  
proposed amendment was agreed

**5.6.1.6 Protective Braking**

(NL): not only road users, also obstacles have to be mentioned

(SE): confirmed NL statement

*Homework: D, NL, SE to improve the wording considering decelerations other than braking, end of deceleration requirement, lane change "without risk", should be equipped with protective Braking, road user, "obstacles"...*

**5.6.1.7 Data Storage System for ACSF (DSSA)**

(C-J): as already mentioned, this is very important for J. It should not be considered as a part of the Event Data Recorder (EDR)

(EC): is protected braking also part of these data?

(C-J): yes

(OICA): there are already other “Geneva-groups” working on this issue, so a coordination is necessary (ITS/AD, GRSG). Data protection has to be considered (movie!)

(C-D): waiting for other groups would cause a delay of 2-3 yrs.

Specifications should be defined:

- Movie: -30 s ... +5s when a crash occurs
- other system reactions should be recorded

In a new regulation the result of ITS/AD may be considered

(SE): is not opposing to have it here in this group.

Problem: What is the info we need for a judge? We should go back to the legal people to clarify this before we start activities. Who is the owner of the data?

(UK): we have to have something for the next meeting. What can we take from eCall?

(C-D): What is the minimum set?

(D-TÜV): at eCall no use of the data after more than 13h after the crash is allowed.

*Homework: every party (esp. contr. Parties) should clarify their position*

**Presentation of D (ACSF-05-14)**

(D): presented the document as a proposal, how the tests can be extended to the other categories.

(OICA): good overview. We have to check, whether a 1:1 takeover is possible or whether amendments are necessary.

(F): good start, must be checked in detail

(EC): How to handle systems with ACC?

(SE): helpful overview. Requirements for CAT B2 should be similar as CAT E (without overtaking)

(D): confirms SE statement

(C-D): Are there concrete Systems in planning, which perform only CAT C?

(F): maybe there will be future systems of CAT C alone. We should not prohibit this. GRRF to decide.

(C-D): shares F opinion, but we have to specify a minimum safety standard.

(OICA): we should take in consideration, that ACSF is not reserved for High-End cars.

(F): cannot agree, that the row for CAT C is marked in “green” (edit.: so it remains yellow)

## 6.5. Consolidated Document - [ACSF-05-16](#):

Current working document will be transferred to a consolidated document.

This document should be used as basis for further amendments!

A “clean” document may be used as an Informal Document for GRRF81.

## 7. Overview Homework:

FU1-Test	define test with different test speeds	D
	rewording	D, J
FU2-Test	rewording	OICA
FU3-Test	Rewording, considering the recommended safety distance	OICA
TR1-Test	to be checked	F, OICA
TR2-Test	is an inclusion of Reg. 48 in the spec necessary?	UK
	check the wording	F
TR3-Test	check the wording	F
TR4-Test	rewording	D, UK, NL, OICA, CLEPA
2.4.8.8	rework definition considering emergency cases	D, J
5.5.2	rework considering the SW-version, whether it was amended	D
5.6.1.1.3	rework	D, UK, OICA
5.6.1.1.7	provide a definition for “active”, “standby”, “failure” and “OFF” mode	OICA
5.6.1.1.8	rework considering obstacles and animals and distance values(?) – if necessary	NL, SE, OICA
	rework considering VUT	D
5.6.1.2.1	rework considering pedestrians, [ ] and LHD/RHD traffic. To be moved partly to 5.6.1.1.9/10?	UK
5.6.1.2.2	rework	EC
5.6.1.2.3	improve the wording	UK
5.6.1.2.4	improve the wording	UK
5.6.1.2.5	improve the wording (separating lane change /emergency)	D
5.6.1.2.6	improve the wording considering the “compromise”	NL, SE, D, UK
5.6.1.6	improve the wording considering decelerations other than braking, end of deceleration requirement, lane change “without risk”, should be equipped with protective Braking, road user, “obstacles”...	D, NL, SE
5.6.1.7	clarify their position	all

**8. Schedule for further meetings.**

6<sup>th</sup> session IWG ACSF: 19. - 21. April 2016 in Tokyo Japan

7<sup>th</sup> session IWG ACSF: 28. - 30. June 2016 in London (UK) or Gothenburg (SE)

Details will follow as soon as available

Comment to 7<sup>th</sup> meeting: Chair of IWG ACSF will ask GRRF Secretary for extension to provide a working document later as the rule at UNECE request this. The ACSF working document should be available 2 week after the “normal” deadline for Working Documents.

(F): offers to provide a meeting room for the 9<sup>th</sup> session.

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

Rev.	Date	Content