

## **Draft REPORT**

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

Venue: Grand InterContinental Seoul COEX (06164) 524, Bongeunsa-ro,  
Gangnam-gu, Seoul, Republic of Korea  
Chairman: Mr. Christian Theis (D) and Mr. Hidenobu Kubota (J)  
Secretariat: Mr. Jochen Schaefer (CLEPA)  
Dates: 16. – 18. May 2017  
Website: <https://www2.unece.org/wiki/display/trans/ACSF+12th+session>

**1. Participants:**

see special attachment

**2. Welcome and Introduction**

The chairmen welcomed the delegates to the 12<sup>th</sup> session of the IWG ACSF

**3. Approval of the report of the 11<sup>th</sup> Session**

The report of the 11<sup>th</sup> Session was adopted by the delegates  
[ACSF-11-13-Rev.1 - \(Secretary\) Report of 11th session](#)

**4. Approval of the agenda**

The agenda (running order was changed) was approved by the delegates.  
[ACSF-12-02-Rev1 \(Secretary\) Agenda 12th session](#)

**5. List of Documents:**

IG ACSF - 12. Meeting (Seoul, 16.-18. May 2017)	UNECE WEBSITE (editable)
ACSF-12-01 - (ROK) Information to the 12th session in Seoul	<a href="#">Doku</a>
ACSF-12-02 - (Chair) Provisional Agenda 12th session	<a href="#">Doku</a>
ACSF-12-03 - (Japan + Germany) Proposal for Category C1	<a href="#">Doku</a>
ACSF-12-04 - (Republic Of Korea) Cat. C Detecting range of sensor (2 option)	<a href="#">Doku</a>
ACSF-12-05 - (Germany + Japan) Proposal for amendments of the TOR for the ACSF IWG	<a href="#">Doku</a>
ACSF-12-06 - (Japan) Abort of Lane Change manoeuvre	<a href="#">Doku</a>
ACSF-12-07 - (OICA) ACSF CAT C_Radar Sensor Range	<a href="#">Doku</a>
ACSF-12-08 - (OICA) ACSF-12-03 - incl. Industry comments	<a href="#">Doku</a>
ACSF-12-09 - (UK-Secretary) Radar-Meeting-26_04_2017	<a href="#">Doku</a>
ACSF-12-10 - (Japan) Minimum lane change distance	<a href="#">Doku</a>
ACSF-12-11 - (Secretary) Consolidated document for ESF after 12th session (with homework)	<a href="#">Doku</a>
ACSF-12-12 - (Secretary) Consolidated document for C1 after 12th session (with homework)	<a href="#">Doku</a>
ACSF-12-13 - (OICA) Definition of Sensor range and safety distances	<a href="#">Doku</a>

## 6. Emergency Steering Function (ESF)

(OICA): presented the document [ACSF-10-08-Rev.1](#)

(NL): Expected, to have a warning prior the intervention, similar to AEBS.

(OICA): The intervention is started at the very last moment to avoid/mitigate an accident. A warning is not possible/useful at this time.

(Chair-D; in the following C-D): In the situation “i.c”, is the system overriding the driver?

(OICA): No, the driver receives a torque, but he may easily override this.

(Chair-J; in the following C-J): Is the system able to detect in all cases the lane markings?

(OICA): Normally yes, but in “i.a” lane markings are not necessary.

(C-D): But slide 4 says “within the lane”.

(OICA): Yes, the automatic intervention is only within the lane.

(C-D): At “ii”, is there also a braking application?

(OICA): Normally yes.

(Secretary): If there is a sudden obstacle, maybe a parking car is opening the door, a quick steering input is maybe the only chance to avoid a collision.

(C-D): Is the driver able to switch off the system?

(OICA): Not directly with a button; maybe in a menu of the body computer.

(J): If CAT B1 is active, has ESF “i.a” priority?

(OICA): Yes.

(C-D): What is the difference between “manually” and “automatically”?

(OICA): Manually: The system will not react by itself

Automatically: The system tries to override the driver.

(SE): Wasn’t it the target to define ESF independent of the scenarios?

(OICA): This was possible with CSF until now.

With the new definition of CSF this is not possible anymore. The different scenarios were created to show potential interventions of the system. Industry is supporting a general definition.

(C-D): What is the minimum range that the system will intervene?

(OICA): This can be very short.

(C-J): The CPs think, that minimum requirements are necessary:

- minimum range
- minimum torque to override
- always combined with CSF or CAT B1?
- limitation of the intervention time

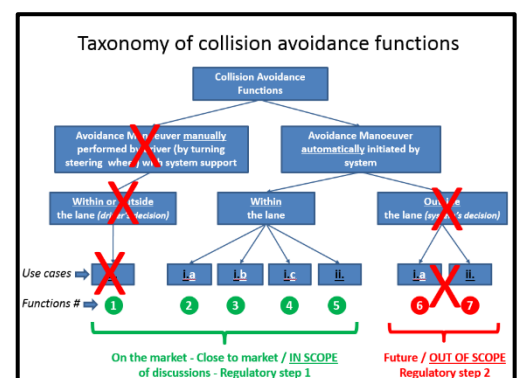
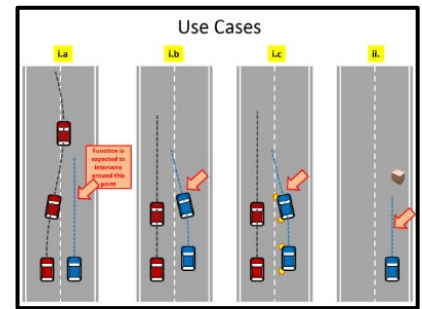
(J): For performing “ii” the system needs to have sensors to avoid problems with other road users.

(OICA): Agreed to a), b) and d). c) should be optional.

The group discussed about possible “ii” types, working inside or outside the lane.

Finally the group agreed to amend slide 4 as shown here:

ESF should only be dedicated to a “Avoidance Manoeuvre automatically initiated by system” within the lane and not initiated/controlled by the driver.



Joint discussion about document [ACSF-10-07](#).

Comments and homework was included in the document, which is now the [ACSF-12-11 - \(Secretary\) Consolidated document for ESF after 12th session \(with homework\).docx](#)

**Emergency Steering Function (ESF)  
Industry proposal  
Consolidated document after 12<sup>th</sup> session**

**Homework ESF**

**Homework:** OICA to rework paragraph 5.1.6.3.2. (with support of the CPs)

**Homework:** OICA to rework the two paragraphs (5.1.6.3.3 and 5.1.6.3.4) to get one paragraph

**Homework:** OICA to rework 5.1.6.3.5., make it inline with CAT B1 and make a proposal to the PTI check (§ 5.5 in this regulation)

**Homework:** OICA (OEMs who have systems in the market) should make proposals how their systems have been tested by the Technical Service.

**Homework:** Technical Service should provide information, which data is recorded in the test report.

Summary of the homework (excerpt of document [ACSF-12-11](#)):

## **7. Results of a small working group to radar sensor performance**

This meeting took place in Amsterdam, the 26. April 2017 and was hosted by NL. Participants were: CPs from UK (Chair), D, J, NL, ROK (phone), SE; Secretary; OICA, CLEPA.

(UK) reported about the meeting.

This meeting was a very open meeting as industry shared some confidential information, which is not possible to share in an “official” group meeting. Therefore, no documents, beside of a summary, can be uploaded to the ACSF-website.

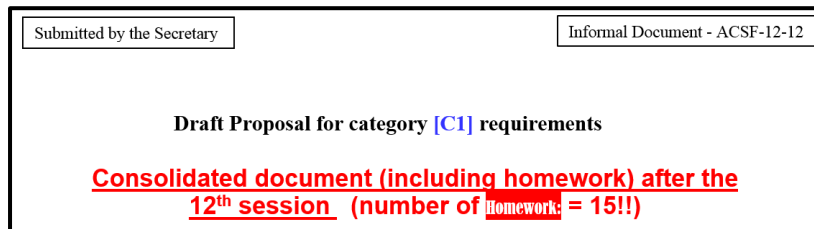
The CPs were very satisfied with the content which was presented by industry.

(UK): presented the document [ACSF-12-09](#)

Results of the CP-Meeting  
26. April 2017 in Amsterdam

**8. CAT C – C1**

**Remark:** the consolidated document with comments and homework for the 13<sup>th</sup> session is: [ACSF-12-12 - \(Secretary\) Consolidated document for C1 after 12th session \(with homework\)](#)



(J) presented document [ACSF-12-03](#), the common proposal for CAT C1 from J and D.

**5.6.5.2.12 “...minimal distance to detect vehicles...to the rear...”**

(J) explained the requirements for the rear vision of the sensor. The proposal is to have a requirement, which depends on the speed range of the system.

(OICA): Sensor range should not depend on the speed range. It should be a fixed value. When using TTC of 2,5s, there is a high lateral acceleration to get the vehicle back to the initial lane.

(D): We have to consider: What is safe!

(OICA): What is, if the car cannot return to the own lane, because it is blocked now. The automatic return may cause big problems.

=> Warning yes, but no automatic return to the initial lane.

(J): 2,5s should be enough, as the whole Lane Change (LC) should be completed within 5s.

(EC): Do not see a problem, as the numbers are quite ok.

(D): Expects, that a minimum value can be guaranteed under all conditions.

(OICA): Proposed to have a fixed values.

(C-D): The idea behind is, that if the differential speed is high, also the monitoring range should be higher.

(UK): We have to consider the rules for the safety distance, which is in D for example at a speed of 130 km/h = 65m.

(ROK) presented document [ACSF-12-04](#)

(C-J): at 50 km/h the value is similar to the proposal of D and J

Detecting Range to the Rear  
by ACSF system of Category C  
Korea Automobile Testing & Research Institute

(OICA-BMW) presented a confidential document, which cannot be uploaded to the ACSF-website.

Their system is consistent with the current LC-warning systems, which are on the market. If the LC has to be aborted, there is a warning to the driver and a “support” to get back to the initial lane. BMW expects a range of maximum 35m.

(C-J): We have two possibilities:

a) fixed value

b) a value depending on  $\Delta V$

(D): Is there an impact on the sensor range, when repainting the vehicle from white to silver?

(OICA-BMW): Yes, there is an impact. Some colours are forbidden in repainting.

(D): Then the type approval is effected by this!

How do we justify, that a TTC of 3s is sufficient?

(OICA-BMW): This is based on customer survey results, but it depends on the drivers. We should not forget, that the responsibility for the rear traffic is at the driver.

(UK): Thinks we lost track!

The regulation will be based on the safety requirements of the future and not, what is on the market. The tests, which have been performed together with Thatcham have shown a sensor performance of ~90m. He expects from this performance to bring safety to the system.

Repair is another issue. We have to assure, that the sensor detects, if the performance is reduced. We have to have confidence to the technology, before we make a regulation.

(SE): Shared the opinion of UK.

According a Swedish law, it is forbidden to overtake a vehicle, if the car itself is being to be overtaken. He is in favour of a fixed value, but 25m is not sufficient.

(OICA-DAI): We should consider minimum safety requirements, as the driver is still in full responsibility. The driver must follow the traffic rules, not the system.

(UK): We have to look on systems “behind” a blind spot monitoring. We have to assure, that the system will be deactivated, if the sensor range is below a required value.

We should consider two values:

- range for a new sensor at type approval
- the range of the minimum sensor performance in the deteriorate situation

(SE): We should combine the minimum value with a TTC (Time To Collision)

(D): Supports UK.

How can we assure, that the system will switch off, if the sensor range is below a certain value?

(C-D): Let's take the two values, which have been proposed by UK.

(CLEPA): Will prepare a document, whether it is possible that the system is able to detect the fact, that a certain sensor range will not been reached.

(C-D): Is the best place for the sensor behind the bumper?

(OICA): At the moment, this is the best place (rigid structure, wiring, secured mounting)

(UK): OICA to show the impact of vehicle feature to type approval (colour, “face lift”, repair...)

**Homework: OICA to prepare a document**

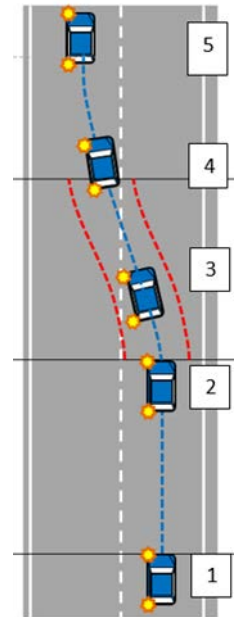
**Homework: J + D to consider the distance (fixed) vs. to the warning (flexible)**

(SE): We should not accept a low distance value, in case the  $\Delta V = 0$

**Homework: OICA to prepare a proposal**

## 2.4.13.1 How long shall a direction indicator lamps been activated?

Most of the CPs agreed, that the direction indicator may be deactivated at point 4. (see sketch right)



## 5.6.5.1.4. Definition of “highway” (Remark: “highway” is here a synonym for all roads, which fulfil the conditions mentioned in 5.6.5.1.4 )

On this issue, there was a long discussion. The requirements of the CPs was, that the system has to ensure, that the “highway” conditions are detected by the system to 100%.

On the other hand the industry said, that a 100% detection cannot be guaranteed (e.g. constructions, where the constructional separation is removed, there is a re-routing of the “highway” and this part of the road is no “highway” anymore).

That there may be conflicts to a 100% detection of the “highway”, as explained in 5.6.5.1.4 is understood by the CPs. While the discussion an appropriate definition could not be found.

**Homework: OICA to make a new proposal**

## 5.6.5.1.6 (Lane change; lateral acceleration; lane change time...)

(OICA): Asked to extend the [5s], as tests have shown, that at high speed ( $\gg 130$  km/h), due to comfort reasons, the 5s are not enough.

(C-D): Do we allow, that CAT C lane change manoeuvre can be performed at high speed (above 130 km/h)?

**Homework: D + J to clarify, whether CAT C can be activated  $> 130$  km/h**

After knowing the proposal from D + J; are amendments in the lane change time necessary?

If speed of CAT C may be higher than 130 km/h:

**Homework: OICA: which value is proposed**

Activation of the direction indicator:

Discussion, whether the “tip-blinking” is possible in general?

This could not be clarified while the meeting. Also the question occurred, how a started tip-blinking can be aborted:

The CPs think, that it must be possible - at any time - to deactivate the lane change manoeuvre.

(UK): Driver should be able to cancel the lane change function with the same means, which activated the system.

(Secr): Maybe a new paragraph is necessary.

**Homework:** Secretary to create a list of items to be clarified with other GR groups (direction indicator, telltales...)

**Homework:** J: to check the Regulation 48 (w.r.t. direction indicator requirements)

Safety distance, when is a vehicle allowed to perform the lane change if there is a vehicle in a certain distance in the adjacent lane.

On this item there was a intensive discussion, without finding a final conclusion.

- Is a vehicle able (allowed to) change the lane, if it enters the safety distance of the car in the adjacent lane?
- Is the system “allowed” to break “vehicle laws”?

(UK): We should not discuss issues, which have to be decided by lawyers. OICA should prepare a proposal with the sensor range boundary conditions

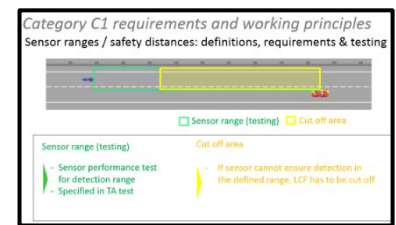
(OICA): We should understand, that for CAT C the driver has the full responsibility.

Within a break, industry prepared the document [ACSF-12-13](#) with the definition of

- the sensor area and
- the “cut-off” area.

(D): Two tests should be defined:

1. Good condition test (e.g. 63m)
2. “cut-off” test (currently unknown how this should be performed)



(OICA): A “cut-off” test cannot be performed with systems today.

(CLEPA): Will prepare a statement for the next meeting in Paris.

(UK): We should try to do the best consideration how the tests can be done. A clear test requirement shall then be included in the GRRF document.

In case this cannot be finalized in the Working Document for GRRF84 we also can work with a supplement.

(Secr.): Radar sensors detect at the moment only “complete” blindness. If we expect to sense the minimal range of the sensor, this should be defined very fast. To have it in the car (if possible at all) it will take years, not months.

(C-D): What is currently in the car?

(OICA-DAI): only complete blindness.

(OICA): We should not forget, that this is a Level 2 system. The responsibility remains at the driver.

(UK): We need to know, when the vehicle does not “see” enough. Then the system should be automatically deactivated.



## 9. Next steps and “new” Terms of Reference (TOR – ACSF-12-05)

(C-D): What should be the next steps in this group.

(EC): We should first finalize The CAT C. For other CATs we should wait for the input of ITS/AD. Also the current work on CEL should be considered.

(OICA): We should continue, especially with CAT B2.

(C-D): Proposal for the next steps:

- finalize ESF
- finalize CAT C1
- work on CAT C2
- start with CAT B2 on Level 2
- start with CAT E on Level 2

(OICA): agrees, but the Levels should be not considered

**Homework:** OICA: to prepare a new proposal of their “[Roadmap](#)”

(C-D): What’s about the extension of the TOR?

(UK): Shall we ask WP.29 about an extension of this IWG, if the technology, for e.g. CAT E, is not known at the moment?

Maybe it is necessary to ask WP.29 for guidance.

Proposal:

We should ask for an extension for this IWG to finalize the work on Regulation 79 (CAT C).

Creating a new TOR for a new task, e.g. starting a new regulation.

(C-D): Do we need to have a document available for GRRF84 (Sept. 2017), or can we delay it to GRRF85 (Feb. 2018)?

(UK): GRRF84 is expecting a document. A supplement in GRRF85 should be possible.

(EC): supports UK.

**Homework:** D + J: to rework the TOR-proposal.

## 10. Next meetings

### IWG ACSF 13:

Date: 12.-14. June 2017 - see [ACSF-13-01](#)

Venue: La Defence, Paris (France)

### GRRF84:

Date: 18.-22. September 2017

Venue: United Nations, Geneva (Switzerland)

***Please provide the documents for the next meeting as early as possible!***