DRAFT REPORT

2nd meeting of the GRSG informal group on Accident Emergency Call System (AECS)

Venue: **OICA**
4 rue de Berri
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France

Chairman: Mr. Mr. Denis Zagarin (RUS)   (zagarin@autorc.ru)
Secretariat: Mr. Olivier Fontaine (OICA)   (ofontaine@oica.net)

Dates: Thursday 5 December until Friday 6 December 2013

1.   Welcome and Introduction

Document: AECS-02-04 (Secretariat)

The Chair welcomed the participants and organized a tour de table; each expert could then introduce himself. The list of attendees can be found as document AECS-02-04.

2.   Approval of the agenda

Document: AECS-02-01 (Chair)

The agenda was adopted with the addition of a new item 5: "context of AECS in different areas". The next items were re-numbered accordingly.

3.   Revision and approval of the draft minutes of the 1st meeting

Document: AECS-01-07-Rev.1 (Chair)

The minutes were adopted with no change.

4.   Outcomes of GRSG-105 (October 2013)

Document: ECE/TRANS/WP29/GRSG/84

The Chair summarized the discussions which took place at the 105th session of GRSG in Geneva (8-11 October 2013). He recalled the decision of a structure in 3 parts, and a scope limited to categories M1 and N1 as a 1st step, with the possibility for the Contracting Parties to extend nationally the application to other categories.
The informal group Chair informed that the Chair of GRSG recalled the necessity to adopt the final Terms of Reference for the group at the 106th session of GRSG (May 2014).
The NL questioned the scope and raised the concern of mutual recognition in the frame of the 58 Agreement, should a manufacturer get a Type Approval to this regulation for national application for a vehicle of a category not in the scope of the regulation. It was clarified that the scope in a 1st step, as if fitted, will be limited to vehicles of categories M1/N1.

Conclusion: item to be further discussed.

5. Context in different areas

5.1. EU

Document: 17236/13 - Work programme of the incoming Presidency - Information from the Greek Delegation (http://register.consilium.europa.eu/servlet/driver?typ=Advanced&cmsid=639&fc=REGAISEN&srm=25&md=100&lang=EN&ff_DOCKEY=%22ST17236/13ORI%22&rc=1&nr=1&page=Detail)

The European Commission representative recalled that the European Commission emitted a proposal for a regulation on AECS in May 2013. She informed that the European Commission expects the Greek Presidency to add E-call in its list of priorities (Note of the secretariat: this is confirmed in the meantime per document 17236/13).

She added that the decision in the EU is subject to an ordinary legislative procedure, the EP (European Parliament) being expected to provide a first vote on the text in April 2014, and a first position of the Council could be known by the summer 2014, leading to a possible draft delegated Act around September 2014. She informed that some preliminary technical performance requirements could be expected by end of April 2014, subject to a report to be produced by their contractor (TRL).

Concerning the Galileo satellite constellation, the expert from the European Commission revealed that it will probably not be fully in place before 2017, but that EGNOS (European Geostationary Navigation Overlay Service) is operational since 2009 and capability is available in most of automotive receivers available in the market and Galileo will start early services in 2014, by wen users will be able to take advantage of Galileo. The European GNSS Agency (GSA) and the European Commission are inviting eCall manufacturers to participate in a test campaign to assess their capabilities to support the reception and processing of Galileo signals, in order to accelerate the testing of the Galileo's compatibility with in-vehicle eCall devices.

The European Commission was keen that the UN regulation does not exclude the Galileo system.

5.2. RUS

Document: AECS-02-05 (RUS)

The representative of RUS explained the ERA-GLONASS progress and informed that all testing sessions are passed, i.e. the system is ready for operation. The delegate projected AECS-02-05 about the legislative situation in RUS and informed that the final text will be frozen by end of 2013. He added that all approved standards related to ERA-GLONASS IVS test methods will be available for purchase end of December 2013; standards that underwent amendment in 2013 will be available for purchase early next year. It was clarified that the UN regulation would override the RUS standards, unless some contradictions cannot be overcome, and that these contradictions will be subjects for discussions during the informal group meetings.

5.3. Japan

Document: AECS-02-06 (J)

The representative from J presented the HELPNET system via the presentation in AECS-02-06. The expert underlined that J does not use the GSM network and informed that J is committed to adopt the UN regulation, but needs that some flexibility is ensured for the infrastructure.
OICA requested some technical details such that the manufacturers can compare the RUS, EU and J systems (transmission of data, etc.).
The informal group was also informed that the management of the J AECS is purely private.

6. Revision of the draft Terms of Reference

Document: AECS-01-01-r1e (Chair and Secretary)

The group revised the Terms of Reference. Some standards were added as references. The RUS Federation informed that the national regulation will be used until the UN regulation is established. The experts acknowledged the timeline such that the application of the regulation would not be possible before end 2015.

Conclusion: amended Terms of Reference adopted and to be transmitted to GRSG (available on the UNECE website as document AECS-01-01-r1e)

7. Revision of the main features

The Chair proposed that the group starts discussing the main items of the regulation rather than looking directly to the details of the draft regulation, because it would make the work more efficient if the group could agree on the main topics. It would then be easy to translate the agreements on the general main topics into a regulatory text.
The informal group agreed to proceed following this principle.

7.1. Starting point of the regulation (reception of the "triggering signal")

The Secretary introduced the subject by recalling that, in the chain of events linked to an accident, the AECS regulation should only focus on what is relevant for AECS approval. The 1st event could be e.g. the activation of the airbags, but this would generate other questions like e.g. which acceleration sensor signal should be the AECS triggering signal, taking into account that their signals can be computerized before controlling the airbags. The starting point of the regulation could also be the time of reception of a "triggering logic signal" by the AECS. In that case, the manufacturer should decide when and how this signal is generated, and the text of the regulation should define the meaning of "reception of the triggering signal by the AECS".

RUS was keen to introduce a clear definition of an accident, when it is needed to trigger E-call. In addition, the expert from RUS pointed out the need for requirements that the system survives the crash, and as a consequence some part of crash simulation would be needed in the regulation.
OICA was keen that the regulation does not rely only on airbag inflation because the provisions should not be design-restrictive.
The European Commission and RUS supported this OICA position.

RUS said that there is a need for a high-level definition of when the AECS should activate. OICA pointed out that airbag is not mandatory in any Contracting Party and cannot be referred to in the regulation. OICA suggested referring to the conditions of UN R94 (frontal collision - representative of most severe frontal crashes) and UN R95 (lateral collision).

Conclusion:
- − AECS shall be triggered at least under the conditions of R94.02 (ODB – Offset Deformable Barrier collision) / R95, [may be triggered under other conditions which create high risk of injury]
- − The calculation of the triggering signal shall not be part of the regulation.

7.2. Finishing point of the regulation (emission of the e-call)

The Secretary introduced this subject and indicated that when the AECS emits its call, the communication is established after some connecting protocols are fulfilled (synchronization of the signals between the AECS and the mobile telephone communication network). The question is whether the AECS is compliant when the AECS emits its call, when the signals of the AECS and the network are synchronized (i.e. communication with the mobile phone network), or even later when the 2-way voice communication is established with the PSAP (i.e. communication with the PSAP). In the second case, the mobile phone network must be simulated in the approval test, in the third case, the mobile phone network AND the PSAP must be simulated.

OICA recalled the 3 part structure of the regulation and was of the opinion that a separate device should be approved to Part I up to the MSD emission. Part II (vehicle equipped with approved device) would be for assessing that the system is connected to the net. The expert stressed that there would be no need for further test as this would be double testing. For the Part III, the expert said that the discussion should be taken separate.
RUS generally agreed to avoid double certification. Yet Part III requirements should include all those included in Part I assuming AECS did not pass Part I certification. The delegate stressed that regardless AECD or AECS approach there is a need to check that AECD/AECS (including antenna and audio system) surviving the crash.
OICA recalled that most crash facilities are in the basement, and many Type Approvals will be conducted out of EU or RUS, i.e. tests with complete vehicles may not have a net coverage, hence the need to distinguish the network from the rest.
RUS stated that simulation of network and mobile phone network does exist today.
The group acknowledged the concern regarding the cost of such network simulation devices and their availability. RUS has given an example of Rohde-Schwarz CMW500 eCall tester.
OICA clarified that the manufacturers cannot guarantee the network functioning and availability, and that the vehicle could only be tested for what is on-board, i.e. the regulation should be limited to the equipment mounted in the vehicle. Concerning the voice communication, the informal group was informed that the current systems are not guaranteed to survive a crash. The manufacturers would like to avoid having to develop and install an additional audio system separate to the existing one.

RUS stated that the system is designed to report the crash and it is therefore important to demonstrate that the system is still operational after the crash. The expert from RUS found the voice part a vital component of the emergency response service and that it needs to remain operational after the crash in addition to data transmission capability.
The German Technical Service questioned why to perform the crash test: they proposed that the regulation should either assess that AECS survives all the crashes, or verify that a triggering signal is emitted. The expert from Germany suggested a sled test for assessing e.g.

the audio system post-crash survival (e.g. 20 G pulse). OICA stressed that the regulatory tests only simulate the reality, and hence verify e.g. the antenna only in certain particular conditions. Hence the most representative test is the pulse, and the verification that the antenna remains attached.

RUS acknowledged that test can only cover simulation, yet was keen that the system survives the crash in order to be efficient. RUS reminded an earlier conclusion that UN R94/95 environment is the best practical approximation and should be relied upon.

OICA pointed out that the 1st important item should be the triggering signal, then the survival of the system, then the MSD, then phone communication and then PSAP answering capacities.

The expert from Russia:

- Suggested to find a way to test crash survival
- Agreed to use UN R94/95 as an environment for the test
- suggested a pass/fail criterion for AECS survival in a crash
- was keen that the emission of data be tested with or without mobile phone network available

OICA committed to prepare a proposal along these lines for the next meeting. In addition, the basic requirement is that the PSAP receives a signal to which it can react should be integrated into the draft regulation. The European Commission and RUS found 2-way voice communication as a minimal requirement.

Conclusion:

- Agreement to avoid double testing in the regulation
    - approval of a vehicle equipped with approved AECD (Part II): all that was already approved on AECD shall not have to be re-assessed
- Provisions to cover AECS post-crash functioning (pass/fail criteria to be developed)
- Post-crash AECS capabilities to cover at least data emission after UN R94/95 crash environment
- OICA to provide approach to testing AECS capabilities for transmission of data after UN R94/95 environment, alternative to testing end2end transmission, for next meeting
- OICA to provide proposal for post-crash 2-way voice communication in the UN R94/95 environment for next meeting.

7.3. Minimum set of data (MSD)

The Secretary introduced this item as an attempt to clarify what data should be included in the MSD.

RUS was of the opinion that the MSD is already well defined in the relevant existing regulations. However it is necessary to envisage the possibility of extension in the future. RUS proposed to simply make a reference to existing standards. The expert from Russia admitted that the RUS standard in fact is a bit extended compared to the current EU standard.

The Secretary proposed the following mandatory data:

- ID (MSD format version)
- Message identifier
- Control
- Vehicle identification
- Vehicle propulsion type

- Timestamp
- Vehicle location
- Vehicle direction

It was pointed out that the existing standards are still under revision and that additional optional field can be considered.

UK recognized that no representative of PSAP was present in the meeting and stressed that it is relevant to mandate the data necessary for the PSAP to make a decision about their intervention.

UK questioned the value of providing the VIN to PSAP because its treatment makes it necessary to have the VIN database available and the capacities to manage it. EUCARIS (EUropean CAR and driving license Information System) was mentioned as a network for providing information on registration of the vehicles in EU, with probably some data about VIN.

OICA clarified that VIN only contains one part of mandatory data, then the rest is added information free to the manufacturer. As a consequence there is no certainty that e.g. propulsion type is included in the VIN.

RUS did not find any issue with the VIN.

Conclusion:
- MSD to be copy/paste of that defined in EN 15722:2011 or a reference to this standard.
- Contracting Parties to check the relevancy of including VIN in the MSD.
- Decision to be done at next meeting

7.4. **References to existing standards (inclusion of the text of the standards vs. references to these standards)**

The Secretary introduced this item by pointing out that the original Russian draft text contains a dozen of annexes providing detailed provisions, and that it could be reasonable to replace them by references to the relevant standards and regulations.

RUS was open to refer to e.g. ISO for certain items, but thought that some provisions should be totally included in the regulation because they are not described anywhere else.

The European Commission found that when there are existing standards, a reference to those is favoured.

UK pointed out that any reference to a standard should be a dated reference such that it is fixed. For the content, the expert raised the potential problem of copyright.

OICA acknowledged the problem and informed that references to existing standards do already exist in numerous regulations. Under the vehicle manufacturer point of view, too many details in the provisions would lead to the necessity of regular extensions of approvals in case a little change in the technology is done in a vehicle type. In addition, some references to parts of standards should be possible.

Conclusion: AECS regulation to contain as much as possible references to existing standards (with fixed dates) rather than detailed technical provisions, for the items where it is relevant.

8. **Discussion of the draft regulatory text**

Document: AECS-02-02 (OICA)

The Secretary introduced the document.

8.1. Scope

RUS questioned the necessity of the Part III because the requirements there would probably be the same as those of Part I.

The UK questioned whether the vehicles not included in the scope would have to be approved to Part II of the regulation.

RUS was concerned that in case of Part III approval all components would have to be approved in addition to the vehicle approval. The expert from RUS found the situation of AECS similar to that of UN R116, which has 2 parts. RUS favoured that the Part III provides for a kind of exceptional approval way with limited additional provisions.

A debate took place about the way to understand and treat Part III.

It was recognized that the problem of separate component certification (e.g. use of communication device with prohibited frequency), could not be solved under the frame of the 58 Agreement.

The informal group acknowledged that the manufacturers have anyway to cope with this problem separately.

J informed that the HELPNET system includes mobile phone networks: J was keen to get a clear view as to whether AECS with separate mobile phone would be included or not in the provisions of the future regulation, for making an official position on this.

The European Commission was keen that AECS can function throughout the full life of the vehicle and throughout Europe. The European Commission had doubts that separate cell-phone system does permit this.

RUS supported the European Commission that there seems to be currently no place in the regulation for this possibility of separate cell phone AECS.

OICA stressed the difference of lifecycles between vehicles and cell phone networks: 10 years vs. 3-5 years (same for the development times: 5-7 years for a passenger car vs. 2 years for a cell phone). The expert added that there is no obligation for the network providers to sustain their network during a determined time and that there is currently no answer to the problem of life cycle differences. It was suggested that this is a matter of good cooperation between the 3 actors; i.e. auto Industry, PSAP and network providers.

RUS took the example of other components in the car that could fail or be subject to wear. Unless there is an obligation for the car owner to replace or repair the component, nothing can ensure the good functioning, at least at the time of Type Approval. RUS suggested sticking to the AECS with embedded network access device.

The Secretary compared the AECS network situation to the case of LDWS when a Contracting Party changes its road marking: the embedded system would then have to comply with a situation not covered by the approval.

OICA hence feared problems of responsibility and user claims, should the AECS be unable to function because of network breakdown.

Conclusion:
- Part II: need to check the relevant requirements for M1 and N1 categories as the scopes of UN R94/95 have to be considered.
- Part III to be re discussed with regard to
  - Scope according to UN R94/95
  - Need of the repetition of the Part I requirements.
- Problem of network lifetime to be kept in mind

8.2. Definitions

The European Commission questioned the change of name of the E-Call: the expert found it simple to use terms already present in existing standards.
Secretary explained that the proposed name was derived from the Russian proposal WP29/2013/67, and had the advantage of making an easy difference between the device as a separate component and the fully integrated system.
RUS said that the group should avoid using terms associated to existing specific systems. As an example GPS should be called GNSS. RUS supported the acronyms AECS and AECD.

RUS pointed out the loss of not referring to 2 GNSSs in the definition and argued that there is a need for e.g. compatibility to two mobile phone networks. OICA challenged the obligation of compliance with 2 GNSSs because connecting to two different GNSSs is not necessary everywhere.

It was recommended not addressing the definitions now, and rather focusing on requirements, and seeing the definitions when looking or after having looked at the requirements.

Conclusion: recommendation adopted, informal group to start the revision of the requirements.

8.3. Requirements

Paragraph 6.1. (EMC), Paragraph 6.2. (climate resistance) and 6.3. (mechanical resistance)

OICA informed that the 05 series of Regulation No. 10 will be ready very soon, and found that requirements for EMC are not necessary as it is common to the vehicle.
RUS found necessary to keep a reference to UN R10.

Conclusion: need for provisions that the AECD is not affected by electromagnetic field with reference to ISO-7637. Item to be confirmed at next meeting, together with replacement of paragraphs 6.1.1. and 6.1.2. and 6.1.3 with relevant references.

OICA questioned the presence of requirements on climate and mechanical resistance because other systems in vehicles do not have such requirements. This does not exist for e.g. lighting devices.
RUS agreed to replace Annexes 6 and 7 by relevant references and stressed that UN R116 for example does include climate resistance provisions.
Secretary proposal: copy/paste of paragraph 6.4. of UN R116
RUS stated that these requirements are in fact in the current Annex 6 of the RUS proposal.

Conclusion for EMC, climate resistance and mechanical resistance: all experts to verify for next meeting how best replace relevant annexes by references.

Paragraph 6.4. (Post-crash resistance):

Conclusion:
- − Agreement that post-crash resistance is addressed in the regulation.
- − All experts to review this internally for next meeting.

Paragraph 6.5. (reception of GNSS)

RUS found the OICA proposal not complete, and was keen that the reception of 2 GNSSs should be added at this place if deleted from the definition section.
The European Commission committed to confirm compliance of future Galileo with draft Annex 9
OICA wondered whether those detailed specifications of Annex 9 are appropriate for Type Approval process. The expert noticed that in addition, they are GLONASS related rather than GNSS-free.
The expert from RUS pointed out that the proposed annex 9 cannot be replaced with CEP95 test because the latter addresses only stationary test scenario and does not cover a number of essential parameters. RUS was of the opinion that GLONASS and GPS are cited, because they are the only existing GNSSs, and encouraged EU to provide the relevant data for their system. RUS supported the technology-neutral approach in the requirements; however, test methods have to be technology-dependant as they test operation with selected specific GNSSs.
OICA suggested that this item be reviewed at the next meeting, and in the meantime reviewed by a small task force where at least one expert is from CLEPA. OICA was of the opinion that GNSS is not technology neutral (e.g. EGNOS – European terrestrial positioning system could fulfil the AECS requirements). Yet EGNOS could be a corrective system complementing a GNSS which is probably the best available technology to date. The group convened that there are other technologies that can provide positioning and beneficially complement GNSS. The group agreed not to consider other possible augmentation systems and/or alternative positioning technologies and concentrate on the GNSS systems.

Conclusion:
  − Agreement to focus on GNSS technology
  − Interested experts will organize a re-check of the Annex 9, with the participation of the experts from the supplier industry.
  − Deadline: 3rd meeting of the informal group.
  − Interested experts to contact Secretary for coordinating the work (probably via webex meetings)

Paragraph 6.6. (communication with mobile phone network)

RUS acknowledged the different mobile networks in different Contracting Parties, and the fact that J is not using GSM. RUS agreed with the possibility to display the relevant networks in an annex. RUS added that based on known frequency utilization policies, in Russian the regulation would continue to include both GSM and UMTS requirements.
J supported the OICA proposal of adding an annex. J committed to check the networks relevant for J for next meeting.
OICA pointed out that the system cannot work with all networks worldwide and proposed to review the functioning of such annex. The expert from OICA proposed to refer to GSM as a minimum requirement and add other networks for markets where the system is intended to be marketed. He recalled that the network providers are the only party having no obligation and may change their network.
The European Commission committed to provide for next meeting a position with regard to acceptability of GSM as a minimum requirement.
J confirmed to the group that GSM (2G) networks do not exist in Japan at all.
The UK suggested inspiring from regulations where the system must comply with "the country where the system is intended to be marketed".
The Secretary proposed to eradicate the detailed requirements for particular mobile phone networks, and to make it regulated nationally.

The group faced 2 possibilities:
1.   Initial proposal with detailed requirements in annex with list of existing networks, or
2.   Let it regulated nationally.

Conclusion:
  –   Proposed wordings as follows for addressing the 2nd alternative mentioned above:
        (a) [The AECD shall be capable of communication on mobile telephone communication
              network(s) of the market where the AECD is intended to be put on the market.]
        (b) [The AECD shall comply with at least the mobile telephone communication
              network(s) indicated in the national regulation of the Contracting Party where the
              AECD is submitted for approval]
        (c) [The Applicant shall provide evidence of compliance of capacity of communication on
              mobile telephone communication network(s) of the markets where the AECD is
              intended to be marketed, by documentation.
  –   Proposed wording to be reviewed at next meeting. Informal group may need the help of
        GSMA and other competent experts

Paragraph 6.6.1. (SIM card):

J and OICA requested clarity about the capacity of updating information.
RUS clarified that this was intended for provisioning purposes should a network provider have this
need for embedded SIM-card, as well as for the systems that are used as AECS as well as for other
purposes, i.e. additional services. RUS however favoured the route of letting this regulated
nationally.
OICA pointed out that this item was already discussed at EU level with the decision that separate
approach (AECS vs. additional services) should be favoured.
RUS informed that SIM-IC (Subscriber Identity Module – Integrated Circuit) is mandatory in RUS
The European Commission found it design restrictive to mandate SIM-IC in this regulation and
was keen that privacy be respected and "personal SIM" could not be supported.
RUS explained that the term "personal" resulted from double translation of the term "Subscriber
Identity Module" and agreed to delete the word "personal" from the regulation.

J requested clarification about which information is necessary to be updated. RUS informed having
added the capacity of updating the SIM card profile because, in the Russian proposal, the SIM card
is not removable. OICA clarified having put the word "upload" as a misunderstanding of the word
"update". RUS agreed to delete the provision of SIM card information updating capabilities if the
group decides to follow the route of mobile communication network national regulation.

Conclusion:
  –   Whatever the decision for paragraph 6.6., the SIM card shall be mandatory and shall be
        non-removable by the user.
  –   SIM-IC accepted as well as SIM card depending on national regulation
  –   Other requirements to be regulated nationally

The group agreed that all could be regulated and harmonized except what concerns the
communication. Yet the concern of OICA was that the regulation only covers half a system in the
end of the day. RUS questioned whether this remark indicate support of the approach to list
requirements per territory in the Annex to the regulation as opposed to relaying entirely to the
national regulation.

8.4.   General Conclusion:

Informal group to make a decision about the way to address areas that are different in nature in the different Contracting Parties. This leads to the following alternative:
   a. Including an annex listing options applicable in different territories, or
   b. Relying on the national legislations.

9.   List of action items for next meeting

− Suggestion to organize a presentation about ERA-GLONASS on 25 February 2014.
− OICA to provide approach to testing AECS capabilities for transmission of data after UN R94/95 environment, alternative to testing end2end transmission
− OICA to provide proposal for post-crash 2-way voice communication in the UN R94/95 environment
− European Commission to provide a position with regard to acceptability of GSM as a minimum requirement in the regulation.
− Interested experts to organize a re-check of the Annex 9, with the participation of the experts from the supplier industry
− Informal group to
   o Review the proposed scope
   o EMC, climate resistance and mechanical resistance: consider how best replace the provisions of AECS-02-02
   o Review post-crash resistance requirements (paragraph 6.4.)
   o make a decision about the way to address areas that are different in nature in the different Contracting Parties (mobile phone networks, data transmission mechanisms)
   o Review proposed wording for communication with mobile phone network (paragraph 6.6.)
   o Review MSD provisions

10.   Schedule for further IG meetings

| AECS-03 | 26-28 February 2014 | Moscow– RUS to provide support |
| AECS-04 | 28-30 April 2014 | OICA |

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