

Regulation No. XXX

UNIFORM PROVISIONS CONCERNING THE APPROVAL OF
I EMERGENCY CALL DEVICES (AECD)
II VEHICLES WITH REGARD TO THE INSTALLATION OF AN
AECD OF AN APPROVED TYPE
III VEHICLES WITH REGARD TO THEIR AECS

Contents

Preliminary comments

1. This is an OICA proposal mainly focusing on part II, Paragraph 15 (AECS vehicle testing) based on outcome of AECS-06 and based on internal discussions within OICA
2. The following items are considered when making this proposal
 - a. Basis is AECS-02-02-r1 as amended by AECS-05-05e
 - b. For new UN R94/R95 vehicle type and new AECS type only full scale impact test (procedure I or II) can be carried out. The “safe zone” (procedure III) is only retained for vehicles already approved to UN R94/95 and for extension of approvals.
 - c. Verification after full scale impact test: update of option 3 (check the operation of individual AECS components by a functional check)
 - d. Outcomes of AECS-06:
 - i. delete the regional Classes I, II, III for mobile network and data transmission
 - ii. delete verification of AECD related to network communication
 - iii. delete verification of AECD related to GNSS, except when there is no mention of constellation systems

1. Scope

- 1.1. This Regulation applies to:
- (a) Part I: the AECDs which are intended to be fitted to vehicles of categories M1 and N1¹;
 - (b) Part II: the installation on vehicles of categories M1 and N1¹ of AECDs which have been approved to Part I of this regulation.
 - (c) Part III: vehicles of categories M1 and N1¹ with regard to their AECS or equipped with an AECD which has not been separately approved according to Part I of this Regulation.
- 1.2. Unless otherwise prescribed in this regulation, it does not apply to connectivity and communication to the mobile communication networks and the operation of PSAP.
- 1.3. Vehicles in the scope of neither Regulation No. 94 nor Regulation No. 95 and not fitted with an automatic triggering system shall be excluded from the scope of this regulation.
- 1.4. **Vehicles of the following categories shall be excluded from the scope of this regulation:**
- **Armoured vehicles¹**
 - **M1 vehicles with a GVM > 3.5t**

Part I: EMERGENCY CALL DEVICES (AECD)

2. Definitions

For the purposes of this Regulation:

- 2.1 “AECD (*Accident Emergency Call Device*)” means a device that at least :
- generates a communication toward emergency services if a vehicle suffers a serious road accident and provides two-way voice communication; and
 - has the ability to provide the vehicle location using signals from (an) existing external navigation system(s).
- 2.2 “*Global Navigation Satellite System receiver*” (“GNSS receiver”) means a component of an AECD designed to determine time, the coordinates and direction of the vehicle using signals from global navigation satellite systems; the GNSS receiver can be included in the AECD or in another external control unit, as long as the AECD ensure its ability to provide the vehicle location in case of an event.
- 2.3 “Satellite-Based Augmentation System” (SBAS) is a system ensuring the correction of local errors of GNSS systems due to interferences via a network of ground-based stations. (ex: EGNOS, WASS, QZSS)

¹ As defined in Section 2 of the Consolidated Resolution on the Construction of Vehicles (R.E.3) (document TRANS/WP.29/78/Rev.2) – www.unece.org/trans/main/wp29/wp29wgs/wp29gen/wp29resolutions.html.

- 2.4 “*Communications module*” means a component of an AECD designed for voice communication and to transmit data about an accident using terrestrial mobile telephone communications networks;
- 2.5 “*User interface*” means a component or function of an AECD designed to allow the user to interact with the device, including by receiving visual information, obtaining visual information and introducing control commands;
- 2.6 “*Control module*” means a component of an AECD designed to ensure the combined functioning of all components of the AECD;
- 2.7 “*Type of AECD*” means devices that do not differ in such essential respects as:
- (a) The manufacturer's trade name or mark;
 - (b) Their construction;
- 2.8 “*Data exchange protocol*” means the set of rules and agreements that define the content, format, time parameters, sequence and error checks in messages exchanged between an AECD and the devices of Public Service Answering Party (PSAP).
- 2.9 “*Public/Private Safety Answering Point (PSAP)*” means a call center responsible for answering calls to an emergency telephone call. It can be of two types
- Public Safety Answering Point managed by the public services of a Contracting Party to the 58 Agreement;
 - Private Safety Answering Point managed by a private company.

3. Application for approval of an AECD

- 3.1 The application for approval of a type of AECD shall be submitted by the holder of the trade name or mark or by his duly accredited representative.
- 3.2 A model of the information document is given in Annex 1.
- 3.3 For each type of AECD, the application shall be accompanied by samples of complete sets of AECDs in sufficient quantities for the tests prescribed by this regulation. Additional specimens may be called for at the request of the technical service responsible for conducting the test.

4. Markings of an AECD

- 4.1 The samples of AECD submitted for approval shall bear the trade name or mark of the manufacturer. This marking shall figure at least on the unit or units containing the navigation system receiver and communications module. It shall be clearly legible and be indelible.
- 4.2 The unit or units containing the navigation system receiver and communications module shall possess a space large enough to accommodate the approval mark. This space shall be shown on the drawings referred to in Annex 1.

5. Approval

- 5.1 If the samples submitted for approval meet the requirements of paragraph 6 of this Regulation, approval of the pertinent type of AECD shall be granted.
- 5.2 An approval number shall be assigned to each type approved. The first two digits (at present 00) shall indicate the series of amendments incorporating the most recent major technical

amendments made to the Regulation at the time of issue of the approval. The same Contracting Party shall not assign the same number to another type of AECD.

- 5.3 Notice of approval or of refusal, or of extension or withdrawal of approval, or of production definitively discontinued of a type of AECD pursuant to this Regulation shall be communicated to the Parties to the Agreement which apply this Regulation by means of a form conforming to the model in annex 3 to this Regulation.
- 5.4 There shall be affixed, conspicuously and in the space referred to in paragraph 4.2 above, to every AECD conforming to a type approved under this Regulation, in addition to the mark prescribed in paragraph 4.1., an international approval mark conforming to the model given in annex 5, consisting of:
- 5.4.1 A circle surrounding the letter “E” followed by the distinguishing number of the country which has granted approval;²
- 5.4.2 The number of this Regulation, followed by the letter “R”, a dash and the approval number to the right of the circle prescribed in paragraph 5.4.1.
- 5.5 The approval mark shall be clearly legible and be indelible.

6. General requirements

- [6.1. The effectiveness of AECD shall not be adversely affected by magnetic or electrical fields. This requirement shall be met by ensuring compliance with Regulation No. 10.05]
- 6.2 Reception and processing of navigation signals
- The testing procedures in Annex 5 can be performed either on the AECD unit including post processing ability or directly on the GNSS chipset.
- 6.3 Mean of access to mobile networks
- The AECD shall be fitted with an embedded hardware allowing registration/authentication on and access to the mobile network
- 6.4 Base function and operation principles
- The AECD shall send data and establish voice connection with the PSAP.
- If the sending of data failed then the AECD shall retry sending the data.
- If the AECD has successfully sent the data and then loses the voice connection, it shall try to reestablish voice connection.
- In case it was not possible to establish voice connection and/or send data using mobile communication networks, the AECD shall store the data in non-volatile memory and attempt re-transmission of the data and to establish a voice connection.
- [Whenever, a third party emergency system is installed in the vehicle compliant with regional or national standards for private Ecall [e.g. for EU CEN 16102:2011 standard “Operating requirements for third party support” (TPS Ecall)], the driver has the free choice to use this system. It has to be ensured that there is only one system active at a time”].
- 6.5. AECD information and warning signal

The following provisions are applicable if the AECD warning signal verification is not part of the installation approval of an AECD in a vehicle per Part II of this regulation.

- 6.5.1. Information shall be provided regarding the status of the connection when the AECD is automatically or manually activated.
- 6.5.2. A warning signal shall be provided to the driver when the AECD is not functioning properly.
- 6.5.3. AECD Control

If the emergency call control assessment is not part of the AECD approval per Part II of this regulation, the emergency call control assessment shall be conducted according to the procedure let down in Annex XXX, paragraph XXX

6.6. Power supply

The AECD shall be able to operate autonomously for a period of first not less than 5 minutes in voice communication (definition to be added – Qualcomm future email) mode followed by 60 minutes in call-back (definition to be added) mode and finally not less than 5 minutes in voice communication mode.

This capability is tested in following conditions:

- battery has to be fully charged at the time the test begins, at the discretion of the applicant;
- Ambient air temperature: $(25 \pm 10)^{\circ}\text{C}$

6.7 Resistance to impact

The AECD shall remain operational after impact. This shall be demonstrated according to Annex 4.

8. Modification and extension of approval of the type of AECD

9. Conformity of production

10. Penalties for non-conformity of production

11. Production definitively discontinued

12. Names and addresses of technical services responsible for conducting approval tests, and of administrative departments

Part II VEHICLES WITH REGARD TO THE INSTALLATION OF AN AECD OF AN APPROVED TYPE

12. Definitions

For the purposes of this Regulation:

- 12.1. “*Type of vehicle*” with regard to **the installation of** its AECD means vehicles that do not differ in such essential respects as:
 - (a) ~~Their manufacturer's trade name or mark;~~

- (b) the type of their AECD
- (c) vehicle features which significantly influence the performances of the AECD
- 12.2. “*Safe Zone*” means the zone limited by the safe zone borders and in which a fixed AECD is assumed to be safe from impact deterioration.
- 12.3. “*Safe Zone borders*” means the limits of the safe zone and are defined by
- In X direction: Between two z-y planes coinciding with front axle and rear axle
 - In Y direction: Between the two z-x planes crossing the outer surface of the driver’s seat and crossing the outer surface of the outermost front passenger’s seat.
- 12.4. “*Total permissible laden mass*” means the vehicle technically permissible maximum mass stated by the manufacturer.
- 12.5. “*R point*” means a reference point defined for each seat by the manufacturer in relation to the vehicle's structure, as indicated in Annex 6 to Regulation No.94
- 12.6. “*Triggering signal*” means a logic signal that requests MSD transmission.
- 12.7. **“MSD” means a set of data as defined in Annex XXX**
- 12.8. **“AECS” (Accident Emergency Call System) means an AECD when installed in a vehicle.**
- 12.9. **“Multi-task display” means a display on which more than one message can be shown simultaneously.**
- 13. Application for approval of a vehicle type equipped with an AECD which has been approved to Part I of this regulation**
- 13.1 The application for approval of a vehicle type equipped with an AECD shall be submitted by the holder of the trade name or mark or by his duly accredited representative.
- 13.2 A model of the information document is given in Annex XXX.
- 13.3 For each vehicle type equipped with an AECD, the application shall be accompanied by samples of complete sets of vehicles in sufficient quantities for the tests prescribed by this regulation. Additional specimens may be called for at the request of the technical service responsible for conducting the test.
- 14. Approval**
- 14.1. If the vehicle type submitted for approval pursuant to this Regulation meets the requirements of paragraph 15. below, approval of that vehicle type shall be granted.
- Approval **for a vehicle type with regard to the installation of an AECD shall ~~may~~ shall** be granted according to one of the approval procedures **1 and II** let down in Table 1.
- Approval to a vehicle type with regard to the installation of an AECD may be granted also according to approval procedure III let down in table 1 ^{2/}:**

Approval procedure	HMI	GNSS functionality	Resistance to impact	Triggering signal emission	AECS functionality
Procedure I	Paragraph 15.2. Paragraph 15.3.	Paragraph 16.2.1.	Paragraph 16.3.1. Paragraph 16.3.2.	Paragraph 16.4.1.	Paragraph 16.5.
Procedure II		Paragraph 16.2.2.		Paragraph 16.4.2.	
Procedure III ^{2/}		Paragraph 16.2.3.	Paragraph 16.3.3.	Paragraph 16.4.3.	

Table 1: approval procedures

^{2/} **It is recommended that approval to procedure III is conducted for the purpose:**

- **of extension of type approvals to this Regulation**
- **of National or Regional Type approval of vehicles already approved to Regulations Nos.94 or 95.**

14.2. An approval number shall be assigned to each type approved. The first two digits (at present 00) shall indicate the series of amendments incorporating the most recent major technical amendments made to the Regulation at the time of issue of the approval. The same Contracting Party shall not assign the same number to another type of vehicle.

14.3. Notice of approval or of refusal, or of extension or withdrawal of approval, or of production definitively discontinued of a type of vehicle pursuant to this Regulation shall be communicated to the Parties to the Agreement which apply this Regulation by means of a form conforming to the model in annex 3 to this Regulation.

14.4. There shall be affixed, conspicuously and in the space referred to in paragraph 14.2 above, to every vehicle conforming to a type approved under this Regulation, in addition to the mark prescribed in paragraph 4.1., an international approval mark conforming to the model given in annex 5, consisting of:

14.4.1. A circle surrounding the letter "E" followed by the distinguishing number of the country which has granted approval;

14.4.2. The number of this Regulation, followed by the letter "R", a dash and the approval number to the right of the circle prescribed in paragraph 14.4.1.

14.5. The approval mark shall be clearly legible and be indelible.

15. Requirements

15.1. General

15.1.1. The AECD installed in the vehicle shall be of a type approved under Part I of this Regulation.

15.1.2. The AECD shall be connected to the vehicle's on-board electrical network, so that the AECD functions in all the required modes, and the backup battery (if fitted) is charged.

15.1.3. The installation of the AECD shall be such to obtain **a good reception of the GNSS signal and good access to a mobile telephone communication network.**

- ~~Localisation accuracy as defined in paragraph 6.2. (Reception and processing of navigation signals)~~
- ~~Access to mobile networks as defined in paragraph 6.3. (Mean of access to mobile networks)~~

The applicant shall provide the relevant information with regard to the mobile network and GNSS to which the AECS is intended.

15.1.4 Vehicles of category M1 shall be subject to the following:

15.1.4.1. Vehicles of category M1 with a total permissible laden mass less or equal to 2,5 tons and R-point height at or below 700 mm:

15.1.4.1.1. paragraphs 16.4.1. and 16.4.2., or paragraph 16.4.3

15.1.4.1.2. paragraphs 16.3.1. and 16.3.2., or paragraph 16.3.3.

15.1.4.1.3. paragraph 16.2.

15.1.4.2. Vehicles of category M1 with a total permissible laden mass less or equal to 2,5 tons and R-point height above 700 mm:

15.1.4.2.1. paragraph 16.4.1. or frontal impact provisions of paragraph 16.4.3.

15.1.4.2.2. paragraph 16.3.1. or frontal impact provisions of paragraph 16.3.3.

15.1.4.2.3. paragraph 16.2.

15.1.4.3. Vehicles of category M1 with a total permissible laden mass above 2,5 tons and R-point height less or equal to 700 mm:

15.1.4.3.1. paragraph 16.4.2. or side impact provisions of paragraph 16.4.3.

15.1.4.3.2. paragraph 16.3.2. or side impact provisions of paragraph 16.3.3.

15.1.4.3.3. paragraph 16.2.

15.1.4.4. Vehicles of category M1 with a total permissible laden mass above 2,5 tons and R-point height above 700 mm: paragraphs ~~16.1.3.~~ **16.4.4.**, ~~16.2.3.~~ and 16.2.

15.1.5. Vehicles of category N1 shall be subject to the following:

15.1.5.1. Vehicles of category N1 with a R-point height at or below 700 mm:

15.1.5.1.1. paragraph 16.4.2. or side impact provisions of paragraph 16.4.3.

15.1.5.1.2. paragraph 16.3.2. or side impact provisions of paragraph 16.3.3.

15.1.5.1.3. paragraph 16.2.

15.1.5.2. Vehicles of category N1 with a R-point height above 700 mm: paragraphs **16.4.4.** and ~~16.3.~~ **16.2.**

15.1.6 Regardless of paragraph 15.1.5, vehicles that meet the technical requirements of Regulation No 95 without a side airbag are not subject to paragraphs **16.3.2., 16.3.3., 16.1.2.** **16.4.2** ~~or~~ and paragraph ~~16.1.3.~~ **16.4.3.**

15.2. ~~AECD~~ **AECS** control

When the vehicle is fitted with an ~~AECD~~ **AECS** control **per paragraph 16.1**, the ~~AECD~~ **AECS** control shall fulfil the requirements of paragraphs 15.2.1. to 15.2.3.

15.2.1. The ~~AECD~~ **AECS** control shall be installed such to comply with the relevant installation requirements of Regulation No.121.

- 15.2.2. The ~~emergency call~~ AECS control shall be designed and/or placed in such a way that the risk of an ~~accidental~~ **inadvertent** activation is reduced.
- 15.2.3. **If the AECS control is embedded into a multi-task display, its operation shall be possible with two deliberate actions or less.**
- 15.2.4. If the ~~emergency call~~ AECS control assessment is not part of the AECD approval per Part I of this regulation, the emergency call control functionality shall be subject to paragraph ~~16.1.~~ **16.5.**
- 15.3. ~~AECD~~ AECS information and warning signal
- The following provisions are applicable if the AECD warning signal verification is not part of the approval of an AECD in a vehicle per Part I of this regulation **and shall be verified by compliance with the provisions of paragraphs 16.1. and 16.5.**
- 15.3.1. **The AECS information and/or warning signal shall be installed such to comply with the relevant installation requirements of Regulation No.121.**
- ~~15.3.1.~~15.3.2. Information shall be provided regarding the status of the connection when the ~~AECD~~ AECS is automatically or manually activated.
- ~~15.3.2.~~15.3.3. A warning signal shall be provided to the driver when the **onboard** ~~AECD~~ AECS is not functioning properly.
- 15.4. **The AECS shall properly function after the vehicle has suffered a serious road accident. This shall be verified by compliance with the provisions of paragraph 16.5.**
- ~~15.4.~~ 15.5. [Whenever, a third party emergency system is installed in the vehicle compliant with regional or national standards for private Ecall [e.g. for EU CEN 16102:2011 standard “Operating requirements for third party support” (TPS Ecall)], the driver has the free choice to use this system. It has to be ensured that there is only one system active at a time”].

16. Performance requirements

- 16.1. **Verification of the HMI installation**
- Manual control, tell-tale, microphone and loudspeaker installation shall be verified by visual inspection.**
- 16.2. ~~Verification of communication with GNSS~~ **Verification of GNSS functionality**
- ~~Communication with GNSS~~ **Verification of the GNSS functionality** shall be **performed**, at the request of the manufacturer, either by
- 16.2.1. using actual GNSS signal, ~~per the test methods described in Annexes 5 and 6,~~
- 16.2.2. using simulated GNSS signal, ~~per the test methods described in Annexes 5 and 6,~~ or
- 16.2.3. by functional check according to Annex 8.
- 16.3. Verification of the AECS resistance to impact
- Subject to the approval procedures defined in paragraph 14.1.1., the verification of the AECS resistance to impact shall be performed either
- 16.3.1. When simulating a collision of the vehicle during tests under Regulation No.94 (frontal collision),
- 16.3.2. When simulating a collision of the vehicle during tests under Regulation No.95 (lateral collision), or
- 16.3.3. At the request of the manufacturer, when demonstrating that

- the pulse according to ~~Regulation No.17, annex 9~~ **Annex 4 to this regulation** has no negative effect on the AECD functioning,
 - the AECD is located within the safe zone border as defined in paragraph 2.13.,
 - specific components that are located outside of the safe zone are not negatively affected, and
 - if components of the AECS are out of the above defined area, the requirements are also deemed to be fulfilled if the manufacturer can show to the satisfaction of the technical service that the post-crash functioning is given. This can be e.g.:
 - Relevant components are in non-deformed areas,
 - Relevant functions are redundant,
 - Devices are mounted on/in windows (e.g. windshield, rear window, ...), or
 - (others, tbd.)
- 16.4. Verification of the triggering signal emission
- Subject to the approval procedures defined in paragraph 14.1., the verification of the triggering signal emission shall be performed either
- 16.4.1. When simulating a collision of the vehicle during tests under Regulation No.94 (frontal collision),
- 16.4.2. When simulating a collision of the vehicle during tests under Regulation No.95 (lateral collision), or
- 16.4.3. At the request of the manufacturer, when demonstrating with existing documentation (report, images, simulation data or equivalent) that during a Regulation No.94 and Regulation No.95 test a triggering signal was generated.
- 16.4.4. For the purpose of par. 15.1.4.4 and par. 15.1.5.2. only, the manufacturer shall demonstrate with existing documentation (report, images, simulation data or equivalent) that a triggering signal is available for the purpose of AECS.**
- 16.5. Verification of AECS functionality (emission of Ecall, HMI functionality and MSD)**
- The following items shall be verified according to the test procedures of paragraph 4 or 5 to Annex 8 of this regulation as appropriate:**
- 16.5.1. Activation of automatic call**
- 16.5.2. When relevant, manual emergency call control operation**
- 16.5.3. Warning signal generation and microphone operation**
- 16.5.3. Recording, content and emission of Minimum Set of Data (MSD)**
- 17. Modifications and extension of approval of a vehicle type equipped with an AECD which has been approved to Part I of this regulation**
- 17.1 Every modification of the vehicle type shall be notified to the administrative department which approved the vehicle type. The department may then either:
- 17.1.1 Consider that the modifications made are unlikely to have an appreciable adverse effect, and that in any case the vehicle still complies with the requirements; or
- 17.1.2 Require a further test report from the technical service responsible for conducting the tests.

- 17.2 Notice of the confirmation of approval, specifying the alterations made, or refusal shall be communicated to the Parties to the Agreement applying this Regulation by means of a form conforming to the model in annex XXX to this Regulation.
- 17.3 The competent authority issuing the extension of approval shall assign a series number to each communication form drawn up for such extension.

18. Conformity of production

- 18.1 The conformity of production procedure shall comply with the requirements set out in the Agreement, Appendix 2 (E/ECE/324 E/ECE/TRANS/505/Rev.2).
- 18.2 Every vehicle approved under this Regulation shall be so manufactured as to conform to the type approved by meeting the requirements set out in paragraph 15 above.

18. Penalties for non-conformity of production

- 18.1 The approval granted in respect of a vehicle type pursuant to this Regulation may be withdrawn if the requirement laid down in paragraph 17.1 above is not complied with or if the vehicle fails to pass the checks prescribed in paragraph 17.2 above.
- 18.2 If a Party to the Agreement which applies this Regulation withdraws an approval it has previously granted, it shall forthwith so notify the other Contracting Parties applying this Regulation by means of a copy of the approval form bearing at the end, in large letters, the signed and dated annotation "APPROVAL WITHDRAWN".

19. Production definitively discontinued

If the holder of the approval completely ceases to manufacture a vehicle type approved in accordance with this Regulation, he or she shall so inform the authority which granted the approval. Upon receiving the relevant communication, that authority shall inform thereof the other Parties to the Agreement which apply this Regulation by means of a copy of the approval form bearing at the end, in large letters, the signed and dated annotation "PRODUCTION DISCONTINUED".

20. Names and addresses of technical services responsible for conducting approval tests, and of administrative departments

The Parties to the Agreement which apply this Regulation shall communicate to the United Nations Secretariat the names and addresses of the technical services responsible for conducting approval tests and of the administrative departments which grant approval and to which forms certifying approval or refusal, or extension or withdrawal of approval, issued in other countries, are to be sent.

Part III VEHICLES WITH REGARD TO THEIR AECS

21. Definitions

21.1.

21.2. "*Common space*" means an area on which two or more information functions (e.g. symbol) may be displayed but not simultaneously.

22. Application for approval of a vehicle type equipped with an AECS

23. Approval

24. Requirements

24.1 General

24.2 Performance requirements

25. Modifications and extension of approval of a vehicle type equipped with an AECS

26. Conformity of production

27. Penalties for non-conformity of production

28. Production definitively discontinued

29. Names and addresses of technical services responsible for conducting approval tests, and of administrative departments

Annex 1

Information document relating to the type approval of an e-call device (AECD)

The following information, if applicable, shall be supplied in triplicate and shall include a list of contents.

Any drawings shall be supplied in appropriate scale and in sufficient detail on size A4 paper or on a folder of A4 format.

Photographs, if any, shall show sufficient detail.

1. Make (trade name of manufacturer):.....
2. Type and general commercial description(s):
3. Means of identification of type, if marked on the device:.....
4. Name and address of manufacturer:.....
5. Location of and method of affixing the approval mark:
6. Address(es) of assembly plant(s):
7. Arrangement (indicate components included on delivery):
8. Description of method(s) of attachment to the vehicle:
9. Sufficiently detailed drawings to identify the complete device, including installation instructions; the position for the type-approval mark must be indicated on the drawings:.....

Annex 2

Information document relating to the type approval of a vehicle with regard to the installation of e-call devices

The following information, if applicable, shall be supplied in triplicate and shall include a list of contents.

Any drawings shall be supplied in appropriate scale and in sufficient detail on size A4 paper or on a folder of A4 format.

Photographs, if any, shall show sufficient detail.

General

1. Make (trade name of manufacturer):
2. Type and general commercial description(s):
3. Means of identification of type, if marked on the vehicle:
4. Location of the marking:
5. Location of and method of affixing the approval mark:
6. Category of vehicle:
7. Name and address of manufacturer:
8. Address(es) of assembly plant(s):
9. Photograph(s) and/or drawing(s) of a representative vehicle:
10. E-call device/system
- 10.1 Make (trade name of manufacturer):
- 10.2 Type and general commercial description(s):
- 10.3 Arrangement (indicate components included in delivery):
- 10.4 Description of means of automatic transmission of information about the accident (if fitted):
- 10.5 Description of method(s) of attachment to the vehicle:
- 10.6 Drawing(s) showing the position of the e-call device/system:
11. Approval procedure (I, II, III)

Annex 3

Information document relating to the type approval of a vehicle with regard to AECS

The following information, if applicable, shall be supplied in triplicate and shall include a list of contents.

Any drawings shall be supplied in appropriate scale and in sufficient detail on size A4 paper or on a folder of A4 format.

Photographs, if any, shall show sufficient detail.

General

1. Make (trade name of manufacturer):
2. Type and general commercial description(s):
3. Means of identification of type, if marked on the vehicle:
4. Location of the marking:
5. Location of and method of affixing the approval mark:
6. Category of vehicle:
7. Name and address of manufacturer:
8. Address(es) of assembly plant(s):
9. Photograph(s) and/or drawing(s) of a representative vehicle:
10. E-call device/system
- 10.1 Make (trade name of manufacturer):
- 10.2 Type and general commercial description(s):
- 10.3 Arrangement (indicate components included in delivery):
- 10.4 Description of means of automatic transmission of information about the accident (if fitted):

Annex 4

Test method for resistance to mechanical impact (paragraphs 6.4. and 16.3.3.)

1. Purpose

The purpose of this test is to verify the safety performance of the representative AECD installation under inertial loads which may occur during a vehicle crash.

2. Installation

2.1. This test shall be conducted either with the complete representative AECD installation or with related representative AECD installation subsystem(s) including the electrical connections. If the manufacturer chooses to test with related subsystem(s), the manufacturer shall demonstrate that the test result can reasonably represent the performance of the complete representative AECD installation with respect to its safety performance under the same conditions.

2.2. The tested-device shall be connected to the test fixture only by the intended mountings provided for the purpose of attaching the representative AECD installation.

3. Procedures

3.1. General test conditions and requirements

The following condition shall apply to the test:

- (a) The test shall be conducted at an ambient temperature of 20 ± 10 °C,
- (b) At the beginning of the test, the battery shall be charged at the level recommended by the manufacturer;
- (c) At the beginning of the test, all protection devices which effect the function of the tested-device and which are relevant to the outcome of the test, shall be operational.

3.2. Test procedure

The AECD shall be decelerated or, at the choice of the applicant, accelerated in compliance with the acceleration corridors which are specified in Table 1. The Technical Service in consultation with the manufacturer shall decide whether the tests shall be conducted in either the positive or negative direction or both.

For each of the test pulses specified, a separate tested-device may be used.

The test pulse shall be within the minimum and maximum value as specified in Table 1. A higher shock level and /or longer duration as described in the maximum value in Table 1 can be applied to the AECD if recommended by the manufacturer.

Figure 1
Generic description of test pulses

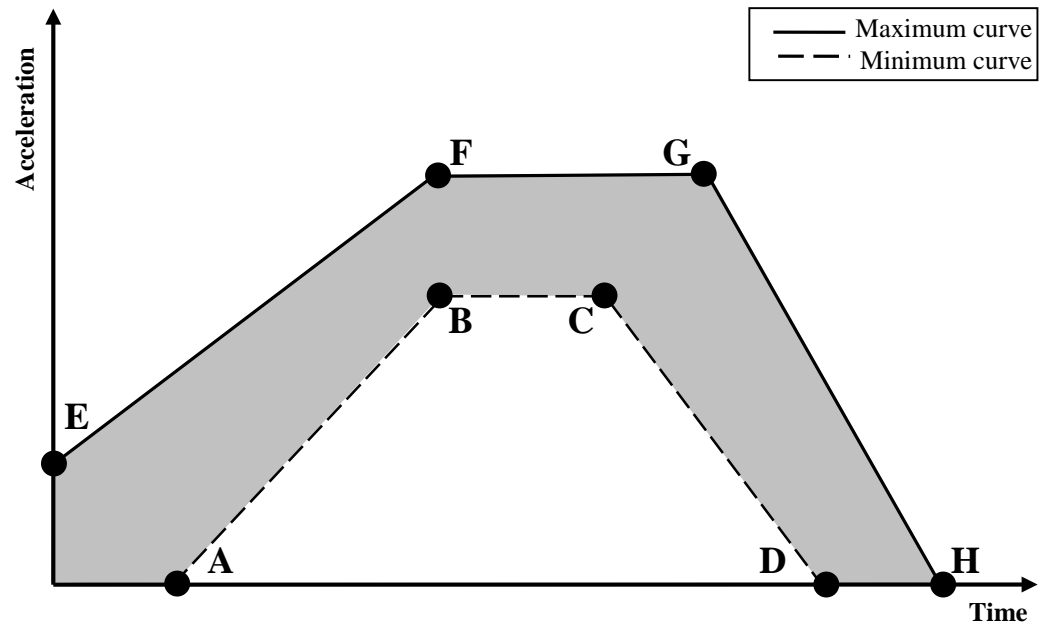


Table 1 for M₁ and N₁ vehicles:

Point	Time (ms)	Acceleration (g)	
		Longitudinal	Transverse
A	20	0	0
B	50	20	8
C	65	20	8
D	100	0	0
E	0	10	4.5
F	50	28	15
G	80	28	15
H	120	0	0

Annex 5

~~Test method for navigation solution (paragraphs 6.2. and 16.3.)~~

Annex 6

~~—————Test method for emergency call (paragraphs.)~~

Annex 7

Test method for SMS transmission

Annex 8

Test method for verifying the ~~on-board AECD~~ AECS via functional check (paragraph 16.5.3.)

1. The functional check of the in-vehicle system shall be performed via one out of the four methods laid down in paragraphs 2. to 5. below.
2. Verification of functional state of the in-vehicle system by using HMI (visual control of tell-tale)

When the ~~in-vehicle AECD~~ AECS is capable to

 - check and diagnose all devices belonging to the AECD scope (Antennas, power supply, Mic, speaker, ...), and
 - discriminate a network failure (*) from an internal failure of the AECD Unit

the communication with GNSS and mobile networks and PSAP is deemed to be compliant if no failure warning is indicated by the HMI.
- (*) An obstruction of the antenna by a metallic part could be detected and indicated as a network failure. In this case, a visual control can be performed around the antenna (or AECD Unit in the case of an internal antenna), if the antenna is not within the safe zone.
3. Verification of functional state of the in-vehicle system by internal memory checking

When

 - the vehicle's diagnostic bus is still functioning and the ~~AECS~~ AECD Unit is still powered (e.g. by main or auxiliary battery), or after AECD Unit disassembly and test bench analysis, and
 - the in-vehicle AECD is capable to
 - check and diagnose all devices belonging to the AECD scope (Antennas, power supply, Mic, speaker, ...), and
 - memorize all steps of an emergency call transaction (e.g.: trigger signal reception, construction of MSD, etc.)

the communication with GNSS and mobile networks and PSAP is deemed to be compliant if the AECD unit has memorized the correct emergency call transaction, and no failure is present in memory.
4. Verification of functional state of the in-vehicle system by separated functional test **according to Appendix 1**

When

 - the in-vehicle AECD is capable to memorize all steps of an emergency call transaction (e.g.: trigger signal reception, construction of MSD, etc.), and
 - all devices belonging to the AECD scope are removable and their connectors are accessible (for electrical testing), for the visual control or/and for functional tests

the communication with GNSS and mobile networks and PSAP is deemed to be compliant if the AECD unit has memorized the correct emergency call transaction, if all electrical tests are satisfactory and if all devices belonging to the AECD scope are in good condition and functioning correctly.
5. Verification of functional state of the in-vehicle system by functional transmission test with wired procedure

When

-
- the mobile phone antenna connector is accessible, and
 - all other parts (wire) between this antenna and the AECD Unit are accessible/removable for the visual control or/and for functional tests

the communication with GNSS and mobile networks and PSAP is deemed to be compliant if the emergency call transaction is correct (with PSAP simulator) and if all the electrical tests between antenna and the AECD unit are satisfactory

The confirmation shall be conducted according to Appendix 2.

Appendix 1 Verification of functional state of the in-vehicle system by separated functional test

This appendix defines minimum test conditions (as far as applicable) and failure criteria for verification of functional state of the in-vehicle system by separate functional test

(1) AECD

Subject	Item subject to confirmation	Criteria	Example of confirmation method
AECD	Generation of triggering (when a collision detection signal (CDS) is received)	<ul style="list-style-type: none"> - No record of triggering signal in AECS unit before collision test. - Record of triggering signal is correctly stored in the AECD memory. The time stamp of the record should be same or right after the time of collision test if unit has a capability to store time stamp of record. - Activation of emergency calling is confirmed. 	<ul style="list-style-type: none"> - The record confirmation of the internal memory using a diagnostic tool. - The visual observation of the eCall operation display
	Initiate transmission of MSD	MSD is correctly stored in the AECD memory. The time stamp of the record should be same or right after the time of crash test if unit has a capability to store time stamp of record.	<ul style="list-style-type: none"> - Confirm that MSD data (notice data of a collision transmitted to a call center) remains in the internal memory as un-transmitting - The record confirmation of the internal memory

(2) Harness

Subject	Item subject to confirmation	Criteria	Example of the confirmation method
Battery and battery harness (in case of absence of sub-battery)	Battery function	Voltage above operating minimum value (at AECD side)	<ul style="list-style-type: none"> - Battery voltage confirmation - Termination off confirmation
Sub battery (in case of presence of sub-battery)	Battery function	No damage/deformation of AECD	Visual observation of the AECD
Telephone antenna feeder wire	<ul style="list-style-type: none"> - Wire snapping - Wire short-circuit 	<ul style="list-style-type: none"> a. For external antenna : No evidence of snapping damage and of wire short-circuit b. For internal antenna : No damage/deformation of AECD 	<ul style="list-style-type: none"> a. By conducting the following tests: <ul style="list-style-type: none"> i. measurement of resistance value between termination of lines ii. measurement of resistance value between line and vehicle structure ground or b. Visual observation of the AECD

(3) Component

Subject	Item subject to confirmation	Criteria	Example of the confirmation method
---------	------------------------------	----------	------------------------------------

Telephone antenna (internal)	Function	No damage/deformation of AECD	Visual observation of AECD
Telephone antenna (external)	Function	No damage/deformation	No breakage by visual observation
		Measured Voltage Standing Wave Ratio (VSWR) satisfies the prescribed value	When there are breakage and deformation, remove antenna and confirm receiving sensitivity
Tell-tale	Display	- No damage deformation - Tell-tale lights on	- Visual observation of the display - apply prescribed voltage
Microphone	Possibility of voice communication	Keep initial prescribed performance	- Output sound pressure measurement by the standard input - Confirm by hearing the output of speaker with input (voice) to microphone (using function confirming software)
Speaker	The possibility of voice communication	Keep initial prescribed performance	- Output voltage measurement by the standard input sound - Confirm by hearing the output of speaker with input(voice) to microphone (using function confirming software)

Appendix 2 Verification of functional state of the in-vehicle system by functional transmission test with wired procedure (for AECS with external antenna)

This appendix defines minimum test conditions (as far as applicable) and failures criteria for verification of functional state of the in-vehicle system by functional transmission test with wired procedure (for AECS with external antenna)

(1) AECD

Subject	Item subject to confirmation	Criteria	Example of the confirmation method
AECD	Activation of automatic call and dial-up.	No calling sequence to PSAP performed before collision test	Connect AECD to Radio communication tester by wire or confirm status of indicator.
		calling sequence to PSAP is performed after collision test	Confirm emergency calling sequence by PSAP simulator.
	Emission of MSD with antenna wire connection to simulator after the collision.	MSD has been emitted.	After completion of the emergency calling sequence, confirm the content of MSD

(2) Harness

Subject	Item subject to confirmation	Criteria	Example of the confirmation method
Battery and battery harness (in case of absence of sub-battery)	Battery function	Voltage above operating minimum value (at AECD side)	Availability of battery can be confirmed by communication test with wire.
Sub battery (in case of presence of sub-battery)	Battery function	Correct AECS operation AECS with regard to prescribed functional items	-
Telephone antenna feeder wire	- Wire snapping - Wire short-circuit	No evidence of snapping damage and of wire short-circuit	By conducting the following tests: i. measurement of resistance value between termination of lines ii. measurement of resistance value between line and vehicle structure ground

(3) Component

Subject	Item subject to confirmation	Criteria	Example of the confirmation method
Telephone antenna (external)	Function	No damage/deformation	No breakage by visual observation
		Measured Voltage Standing Wave Ratio (VSWR) satisfies the prescribed value	When there are breakage and deformation, remove antenna and confirm receiving sensitivity
Tell-tale	Display	- No damage deformation - Tell-tale lights on	- Visual observation of the display - apply prescribed voltage
Microphone	Possibility of voice communication	Voice message from vehicle can be confirmed at PSAP simulator.	- Confirm voice condition during talking test with wire procedure.

			- One inspector of the technical service makes telephone call to another inspector of PSAP simulator side through PSAP simulator.
Speaker	Possibility of voice communication	Voice message from PSAP simulator can be confirmed at vehicle side.	One inspector of the technical service makes telephone call to another inspector of PSAP simulator side through PSAP simulator.

Annex 9

Definition of Minimum Set of Data – MSD (paragraph 12.7.)

M – Mandatory data field

O – Optional data field.

Table 1 — Contents/format of the MSD data concept

msdVersion	INTEGER (1..255)	-	M	MSD format version The format described in this document carries version 2 <i>See 6.1.3 for detailed information.</i>
messageIdentifier	INTEGER (1..255)		M	Message identifier, starting with 1 for each new eCall transaction and to be incremented with every application layer MSD retransmission following a new 'Send MSD' request after the incident event
automaticActivation	BOOLEAN			true = Automatic activation false = Manual activation
testCall	BOOLEAN			true = Test call false = Emergency
positionCanBeTrustd	BOOLEAN			true = Position can be trusted false = Low confidence in position "Low confidence in position" shall mean that there is less than 95% confidence that exact position is within a radius of ± 150 m of reported position
vehicleType	ENUM			The supported vehicle types are as follows: - passenger vehicle (Class M1) - buses and coaches (Class M2) - buses and coaches (Class M3) - light commercial vehicles (Class N1) - heavy duty vehicles (Class N2) - heavy duty vehicles (Class N3) - motorcycles (Class L1e) - motorcycles (Class L2e) - motorcycles (Class L3e) - motorcycles (Class L4e) - motorcycles (Class L5e)

					<ul style="list-style-type: none"> - motorcycles (Class L6e) - motorcycles (Class L7e) <p>Vehicle definitions class M, N according to directive 2007/46/EC; class L according directive 2002/24/EC.</p>
VIN ¹	VIN ¹			M	VIN number according to ISO 3779
vehiclePropulsionStorageType				M	<i>Contains information about the presence of propulsion storage inside the vehicle sending the MSD.</i>
gasolineTankPresent	BOOLEAN				<p>true = present; false = not present</p> <p>If no information about the propulsion storage is known, all elements should be set to FALSE.</p>
dieselTankPresent	BOOLEAN				
compressedNaturalGas	BOOLEAN				
liquidPropaneGas	BOOLEAN				
electricEnergyStorage	BOOLEAN				
hydrogenStorage	BOOLEAN				
otherPropulsionStorage	BOOELAN				
timeStamp	INTEGER (0..2 ³² -1)	sec		M	<p>Timestamp of the initial data message generation within the current eCall incident event.</p> <p>NOTE 1 The timestamp is represented in seconds elapsed since midnight January 1st, 1970 UTC.</p> <p>NOTE 2 The initial message generation immediately follows the eCall generation sequence subsequent to a (confirmed) trigger.</p> <p>NOTE 3 Subsequent transmissions within the given incident use the same timestamp, but the messageIdentifier changes.</p> <p>NOTE 4 Failure value for time stamp set to "0"</p>
vehicleLocation				M	<i>The last known vehicle position determined at the latest moment possible before message</i>

¹.The field is named vehicleIdentificationNumber in the ASN.1 definition. The ASN.1 type VIN is defined in Annex A and codes for a correct representation of the World Manufacturer Index (WMI), the Vehicle Type Descriptor (VDS) and the Vehicle Identification Sequence (VIS) that make up a VIN number, taking into account the preconditions of each part.

			<i>generation.</i>
positionLatitude	INTEGER (-2 ³¹ ..2 ³¹ -1)	milliarcsec ^c	<p>Position latitude (WGS84) calculation example: $48.3003333 = 48^{\circ}18'1.20'' N = 48*60*60.000'' + 18*60.000'' + 1.20'' = 173881.200'' = 173881200 \text{ milliarcsec}$</p> <p>maximum value: $90^{\circ}00'00.000'' = 324000000$</p> <p>minimum value: $-90^{\circ}00'00.000'' = -324000000$</p> <p>If latitude is invalid or unknown, the representation of value 2147483647 shall be transmitted.</p> <p>If both latitude and longitude have value 0 then the location shall also be interpreted as invalid/unknown.</p> <p>If the transmitter determines either latitude or longitude to be invalid/unknown, then it is recommended to transmit both longitude and latitude as unknown.</p> <p>If the receiver determines either latitude or longitude to be invalid/unknown, then it is recommended to interpret both longitude and latitude as invalid/unknown</p>
positionLongitude	INTEGER (-2 ³¹ ..2 ³¹ -1)	milliarcsec ^c	<p>Position longitude (WGS84) maximum value: $180^{\circ}00'00.000'' = 648\ 000\ 000$</p> <p>minimum value: $-180^{\circ}00'00.000'' = -648\ 000\ 000$</p> <p><i>See latitude for calculation example and notes.</i></p>

vehicleDirection	INTEGER (0..255)	2° (2 degree)	M	<p>The vehicle's last known real direction of travel (expressed in 2°- degrees steps from magnetic north (0– 358, clockwise) determined at the latest moment possible before message generation.</p> <p>calculation example: <i>due North</i> = 0° = 0 * 2° <i>due East</i> = 90° = 45 * 2° => 45 <i>due South</i> = 180° = 90 * 2° <i>due West</i> = 270° = 135 * 2°</p> <p>The direction shall be unaffected by random fluctuations of GNSS</p>
				<p>signals.</p> <p>If direction of travel is invalid or unknown, the representation of value 255 shall be transmitted</p>
recentVehicleLocationN1			O	<p><i>Known location of the vehicle some time before the generation of the data for the MSD message.</i></p> <p>The recent location shall be chosen such that they could normally assist the receiving party to confirm the current location of the vehicle in different driving environments such as city or motorway.</p>
latitudeDelta	INTEGER (-512..511)	100 milliarcsec		<p>Latitude Delta (+ for North and – for South; WGS84) with respect to vehicleLocation.</p> <p>1 Unit = 100 miliarcseconds, which is approximately 3m (on Earth)</p> <p>maximum value: 511 = 0°0'51.100" (±1580m)</p> <p>minimum value: -512 = -0°0'51.200" (± -1583m)</p>
longitudeDelta	INTEGER (-512..511)	100 milliarcsec		<p>Longitude Delta (+ for East and – for West; WGS84) with respect to vehicleLocation.</p> <p><i>See latitudeDelta for details</i></p>

recentVehicleLocationN2			O	<p>Known location of the vehicle some time before recentVehicleLocationN1.</p> <p>The recent location shall be chosen such that they could normally assist the receiving party to confirm the current location of the vehicle in different driving environments such as city or motorway.</p>
latitudeDelta	INTEGER (-512..511)	100 milliarcsec		<p>Latitude Delta (+ for North and – for South) with respect to recentVehicleLocationN1.</p> <p>See recentVehicleLocationN1. latitudeDelta for details</p>
longitudeDelta	INTEGER (-512..511)	100 milliarcsec		<p>Longitude Delta (+ for East and – for West) with respect to recentVehicleLocationN2.</p> <p>See recentVehicleLocationN1. latitudeDelta for details</p>
numberOfPassengers	INTEGER (0..255)		O	<p>Number of occupants in the vehicle according to available information.</p> <p>This information is indicative only as it may be not always be reliable in providing exact information about the number of passengers (e.g. because seatbelts may not be fastened by passengers or seatbelts may be fastened for other reasons).</p> <p>If no information about the number of occupants is available, this parameter needs to be omitted or filled with the representation of value 255</p>
optionalAdditionalData			O	
oid	RELATIVE - OID			See 6.1.5
data	OCTET STRING			. See 6.1.5

Justifications:

Paragraph 1.1: the Regulation is compartmented in three parts according to the decision made at AECS-01:

- Part I aims the approval of a type of Ecall device (AECD)
- Part II aims the approval of a vehicle type when fitted with Ecall device (AECD) approved to Part I
- Part III aims the approval of a vehicle type when fitted fully integrated Ecall system (AECS)

Paragraph 1.2: according to the decision of AECS-06, the regulation covers a restricted scope i.e. the capabilities of the ecall to connect to the mobile phone networks shall not be part of the approval. This was agreed by the informal group on the following reasons:

- Mobile phone networks legislation is not under the control of UNECE/WP29
- Mobile phones networks evolve too rapidly to be regulated by a UN regulation in the frame of the 58 Agreement.
- Regulating the capabilities of the ecall to connect to the mobile phone networks would jeopardise the efforts of the vehicle and AECD manufacturers to best match the evolution of technology.

Paragraph 1.3: In order to avoid extra costs due to the implementation of the ecall, only the vehicles that are designed by construction to be fitted with an automatic triggering system related to the detection of an impact, are included in the scope of the regulation. For defining these vehicles, it is assumed that all vehicles approved, or subject to the approval to the regulations dedicated to the assessment of the resistance to impact, are fitted with an automatic triggering system. This is because, in the current state of the technology, there is no other way to fulfil the requirements of these regulations than by equipping the vehicles in stake with “airbags” whose inflation must be triggered by an automatic triggering system. The informal group was keen to take the opportunity of the pre-existence of these airbag automatic triggering systems for triggering the ecall intervention.

Paragraph 1.4: proposal for additional exemptions:

- **Armoured vehicles: For security reasons GNSS related devices are usually not installed on these vehicles. They are in addition often equipped with scrambling equipment because their users usually refuse tracing systems. A definition of “armoured vehicle” does already exist in RE.3: “Vehicle intended for the protection of conveyed passengers and/or goods and complying with armour plating anti-bullet requirements”.**
- **M1 vehicles with a GVM > 3.5t:**
 - **The current version of the draft Regulation includes vehicles of category N1 (limited to GVM < 3.5 t) and vehicles of category M1 (without mass limit).**
 - **The vehicle fleet includes a small number of M1 vehicles with a GVW > 3,5t which are based on vehicles of category N2, N3, M2 or M3.**
 - **Limiting the scope of the regulation to the same maximum masses for commercial vehicles and passenger cars would reduce the burden for those manufacturers producing vehicles of category M1 as a variant of N2, N3, M2, M3 vehicles.**

Paragraph 2. All definitions are taken from the CLEPA document AECS-06-02-Rev.1

Paragraphs 3, 4 and 5: Provisions taken from the CLEPA document AECS-06-02-Rev.1

Paragraph 6.1:	decision taken at AECS-05 to refer to the last series of amendments to UN R10, and to introduce the sentence in [], until the group has solved the question at a future step.
Paragraph 6.2:	Provisions taken from the CLEPA document AECS-06-02-Rev.1
Paragraph 6.3:	SIM-chip or similar technology is targeted in this paragraph for identification and authentication on the mobile phone network or the PSAP. No need for further details as telecommunication performances requirements are out of the scope of the regulation.
Paragraph 6.4:	Basic description of the sequence of operation of the ecall. The references to the TPS are still subject to debate in the informal group.
Paragraph 6.5:	Provisions with regard to Human Machine Interface. Consistency necessary with the provisions of Part II (installation section). The group agreed that the ecall regulation should focus on when the warning shall be given to the driver, while a dedicated regulation (i.e. UNR121 – controls and tell-tales) should address how the warning shall be given.
Paragraph 6.6:	Provisions with regard power supply. AECS-06 reached the proposed text as an agreement in principle.
Paragraph 6.7:	Provisions with regard to the assessment of the resistance to impact. The informal group did not yet reach consensus on the test procedures and pass/fail criteria. These items are subject to Annex XXX
Paragraph 7:	Performance requirements: item deleted per the proposal from CLEPA AECS-06-02-Rev.1
Paragraphs 8 to 12:	conventional paragraphs per the 58 Agreement.
Paragraph 12:	Definitions that are considered necessary for Part II. This section is still under construction, some new definitions may need to be added. The proposed definitions include the OICA proposal for a “safe zone” that was introduced at AECS-05; there is currently no final decision of the group with regard to this principle.
Paragraph 12.1:	Part II focuses on the installation of the AECD into a vehicle type, i.e. the type of vehicle must be defined with regard to the installation of its AECD. The manufacturer’s trade name or mark cannot be a discriminating parameter for defining a type, as lots of manufacturers today dispatch their products around the world through different brands while the products are identical (at least with regard to the AECD performances). In this regard, OICA urges the informal group to establish a clear definition of “type of AECD” in paragraph 2.7. of the current version of the working document.
Paragraph 12.7:	As it was adopted at the 2nd meeting of the informal group, the definition of MSD should be identical to that of CEN 15722:2011. This is the best solution for having a stable definition of the minimum set of data in the AECS regulation. A new annex should be dedicated to this. (Annex XXX)
Paragraph 12.8:	Addition of a definition of AECS.
Paragraph 12.9:	Addition of a definition of “multi-task display”, as a copy/paste of the definition in FMVSS-101.
Paragraph 13:	conventional text per a regulation annexed to the 58 Agreement.
Paragraph 14:	Approval provisions.
Paragraph 14.1:	attempt to capture the approval procedures as proposed by OICA per their document AECS-05-04. Some solution must still be found for limiting the application of Procedure II III to the vehicles not subject to UN R94 or 95, and not fitted with any triggering mechanism.
	OICA proposes to solve the issue of the limitation of the vehicles approved to Procedure III by well separating the 2 cases:
	- Procedures I and II are dedicated to New Type Approvals

- **Procedure III is dedicated to the extension of existing Type Approvals, and for vehicles already approved to UN R94 or 95.**

The footnote 2 second indent focuses on vehicles being already approved to a national approval system and already equipped with an AECD fulfilling the requirements of the draft regulation. These vehicles must be exempted from the obligation of a destructive test for the sake of AECD installation approval, but it is legitimate that the Contracting Parties could assess their AECD performances.

Since the 58 Agreement does not provide a proper legal frame for directing certain approval applications toward a particular approval procedure, footnote 2 gives a recommendation to the Contracting Parties for the application of Procedure III.; they will then have the possibility to nationally direct the relevant approval requests toward Procedure III.

See also the justifications to paragraph 16.3.

- Paragraph 14.2 to 14.5: conventional text per a regulation annexed to the 58 Agreement.
- Paragraph 15: the references to the paragraph 16 and its sub-paragraphs are adapted to the new OICA structuration.
- Paragraph 15.1.1: according to the definition of Part II of the regulation, the requirements for vehicles equipped with an approved AECD should apply only when the vehicles is indeed equipped with an AECD approved to Part I of the regulation.
- Paragraph 15.1.2: provision per the initial proposal AECS-01-05 (RUS), as a guarantee that the AECD has sufficient power supply at all time.
- Paragraph 15.1.3.: requirement that the AECD capabilities with regard to localisation and access to mobile phone networks, which are assumed to be demonstrated par Part I of the regulation, are not jeopardised by the AECD installation in the vehicle.
- OICA proposes a simplification of the wording. OICA finds beneficial that some information on the performances of the true AECD, with regard to the connections to the networks, are provided to the Technical Services, even if these performances are not assessed.**
- Paragraph 15.1.4: attempt to capture the provisions for vehicles of category M1 per the table established as in document AECS-04-14 paragraph 7.3.
- 15.1.4.4: There is also an error in the references to the applicable tests.**
- Paragraph 15.1.5: attempt to capture the provisions for vehicles of category N1 per the table established as in document AECS-04-14 paragraph 7.3.
- Paragraph 15.1.5.2: Vehicles of category M1 > 2,5 tons and with R-point > 700 mm are out of the scopes of UN R94 and 95, yet must be equipped with a triggering mechanism for being eligible to this regulation.**
- Paragraph 15.1.6: Verification of the triggering signal emission due to side impact is not relevant when the vehicle complies with the provisions of UN R95 despite the absence of airbag, because such vehicle does not have any triggering system.
- Paragraph 15.2: ~~AECD~~ **AECS** manual control is not required on all vehicles and the informal group still must define a common position with regard to the manual control installation. **An AECS is an AECD installed in a vehicle.**
- Paragraph 15.2.1: it is of common understanding that the particular regulations must regulate **WHETHER** the manual control must be installed, while the UN R121 (controls and tell-tales) must regulate **HOW** the manual control must be installed.
- Paragraph 15.2.2: in spite of the comments above, when a regulation covers an item particularly related to safety in case of accident, this regulation may add specific requirements.

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- Paragraph 15.2.3:** **this paragraph is included for avoiding continuous display of the AECS control on the multi-task display, hence avoiding mishandling and accidental AECS activation (see paragraph 15.2.2).**
- ~~Paragraph 15.2.3~~ **15.2.4:** agreement within the informal group that the assessment of the manual control can be conducted either per Part I of the regulation (paragraph 6.5.3), or per Part II of the regulation (paragraph 15.2.3).
- Paragraph 15.3: Provisions with regard to Human Machine Interface. Consistency necessary with the provisions of Part I (device section). The group agreed that the ecall regulation should focus on when the warning shall be given to the driver, while a dedicated regulation (i.e. UNR121 – controls and tell-tales) should address how the warning shall be given. **A reference to the relevant HMI test methods is added for consistency with the new regulation structure.**
- Paragraph 15.3.1:** **this paragraph was missing from the working document. It is indeed necessary that the AECS warning information respect the relevant provisions of UN R121, similarly to the AECS control.**
- Paragraph 15.4:** **this paragraph addresses functionality of the AECS post-crash; it is necessary for covering all the aspects of AECS i.e. before and after crash, in the frame of the OICA proposal for re-structuring the section 16 (see justifications to paragraph 16 below).**
- ~~Paragraph 15.4~~ **15.5:** item still under discussion within the informal group (see document AECS-06-07, paragraph 6.3.4.) : agreement to temporarily include provisions related to TPS in [] in order to keep the door open in the regulation for the use of these systems.
- Paragraph 16:** **OICA proposes a complete re-structuration of section 16, such that the structure respects the chain of events: HMI installation, GNSS functionality, AECS resistance to impact, triggering signal, AECS functionality (emission of an Ecall, HMI functionality and MSD).**
- Paragraph 16.1:** **Verification of the Human Machine Interface per visual inspection: the presence of HMI can be visually verified. The tests to be performed prior the crash test are indicated in paragraph 15.3.**
- ~~Paragraph 16.3~~ **16.2.:** All references to the communication with the mobile phone networks ~~has~~ **have** been deleted due to the decision of the informal group to restrict the scope to the “red components”. This proposal indeed endorses the option that communication with GNSS shall be assessed as an option at manufacturer’s choice. **OICA proposes that an assessment of connection with “a” GNSS constellation is performed, but the OICA proposal does not specify any particular GNSS constellation; this remains at the full choice of the manufacturer for the sake of Type Approval.**
- ~~Paragraph 16.2~~ **16.3:** performance requirements for resistance to impact. The verification shall be performed according to the approval procedure chosen ~~par~~ **per** paragraph 14.1: frontal or lateral collision, or demonstration with functional provisions. This latter procedure should be primarily used **for extensions of existing approvals and** when the vehicle is already approved to the frontal/lateral impact regulations, and were fitted with an AECD prior the entry into force of this regulation. **In this regard, OICA proposes inserting an additional sub-paragraph in 14.1. with a dedicated footnote 2/.**
- OICA additionally proposes the compliance with the requirements of a new annex 4 (see justifications to Annex 4 below).**
- ~~Paragraph 16.4~~ **16.4:** performance requirements for triggering signal emission. The verification shall be performed according to the approval procedure chosen ~~par~~ paragraph 14.1: frontal or lateral collision, or demonstration with documentation. This latter procedure should be primarily used **for extensions of existing approvals and** when the vehicle is already approved to the frontal/lateral impact regulations, and were fitted with an AECD prior the entry into force of this regulation.

- Paragraph 16.4.4:** this new provision was missing from the draft. Vehicles out of UN R94 and UN R95, but equipped with a triggering system, need to meet some requirements. As they are not subject to any crash test, the manufacturer must demonstrate by proper means the generation of a triggering signal for the purpose of AECS.
- Paragraph 16.5:** as per the re-structuration proposed by OICA, a new paragraph 16.5 is inserted with the purpose of checking the proper functioning of the AECS after crash in the proper sequence:
1. activation of automatic call and dial-up;
 2. when existing, manual emergency call control operation;
 3. the generation of a warning signal and the operation of the microphone; and
 4. checking the correct recording, content and emission of the Minimum Set of Data (MSD).
- All these performances shall be verified according to the relevant test procedures of Annex 8.
- Paragraphs 17 to 20: Conventional wording per regulations under the 58 Agreement
- Part III: Section still to be developed. It will be largely inspired from Part II of the regulation.
- Annexes 1 to 3: Conventional annexes per regulations under the 58 Agreement.
- Annex 4: Annex dedicated to the assessment of the resistance to mechanical impact. **OICA proposes a copy/paste of the annex 8 Appendix C of UN Regulation No.100 (electric power train) – resistance to impact of the Rechargeable Energy Storage System (REESS). The text of the annex is slightly adapted to the case of AECD. OICA finds it reasonable to use these already well known test conditions and procedure for the AECD because the Rechargeable Energy Storage Systems, usually batteries or fuel cells, are as safety critical as the Accident Emergency Call Devices. The pulse proposed in this section is already considered by the passive safety experts as representative of the inertial loads which may occur during a vehicle crash.**
- Annex 5: Annex dedicated to the assessment of the navigation solution, at the request of the manufacturer. This annex is still under construction. **OICA is of the opinion that this annex should be deleted, following the decision of AECS-06 to restrict the scope of the regulation.**
- GNSS assessment must not be present in the regulation because it is not compatible with 58 Agreement spirit: test procedures are technology dependent, and as such make the regulation contradictory to the principle of mutual recognition.
 - Mandating compatibility to some existing GNSS constellation is design-restrictive and will make the list evolve when other Contracting Parties will request compliance to their GNSS.
 - Two GNSS constellations are largely sufficient for proper location accuracy. There is no additional benefit in any additional constellation
- Annex 6: Annex dedicated to the assessment of the emission of an emergency call signal, and of the presence and content of the MSD. Could be deleted according to the decision of the informal group to restrict the scope of the regulation. **OICA is indeed of the opinion that this annex should be deleted from the draft regulation as the group decided not to include communication to the mobile phone networks in the regulation.**
- Annex 7: Could be deleted. **OICA is indeed of the opinion that this annex should be deleted from the draft regulation as the group decided not to include provisions for SMS transmission in the regulation.**
- Annex 8: Detailed justifications still need to be elaborated. **OICA proposes the following:**

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- For consistency, this annex should relate to the AECS, because it addresses “the installation of an AECD” (Part II of the regulation).
 - The procedure for verification of functional state of the in-vehicle system by separated functional test is described in the detailed separate appendices 1 and 2.
 - Paragraph 2: Verification by simple Human Machine Interface should be sufficient if the AECD is capable of diagnosing all its components and discriminating the failures coming from the environment (e.g. network failures) from internal failures.
 - Paragraph 3: verification, per post-crash memory checking, that the correct MSD and emissions to networks properly occurred. This can be permitted only if the AECD as the relevant capabilities (energy supply, self-diagnosis, event sequence memorization, etc.)
 - Paragraph 4: the separate functional test of Appendix 1 should be permitted if the AECD has the capabilities of memorizing all steps of an emergency call transaction and if all the AECD components are removable for laboratory inspection.
 - Paragraph 5: functional transmission test when the connectivity components are accessible for functional testing.

- Appendix 1:** Verification of functional state of the in-vehicle system by separated functional test: the proposed criteria and confirmation methods are elaborated keeping in view the need for practical provisions. Provisions for AECD with internal antenna must be different to those with external antenna as the latter can be accessible to the operator.
- Appendix 2:** Verification of functional state of the in-vehicle system by functional transmission test with wired procedure (for AECS with external antenna): these provisions are inspired from those of appendix 1, with some changes due to wire connection. This appendix indeed is restricted to AECD with external antenna.
- Annex 9:** Definition of the minimum set of data (MSD). As agreed at the 2nd meeting of the informal group, this dedicated annex provides the minimum requirements for the MSD, i.e. the mandatory part of CEN15722 Standard, Table 1.