

Proposal to amend document ECE/TRANS/WP.29/GRVA/2025/7

Proposal for Supplements to the 03 and 04 series of amendments to UN Regulation No. 79

This informal document represents a consolidated version of the proposals for amendments to UN Regulation No. 79, containing proposals of ECE/TRANS/WP.29/GRVA/2025/7 as well as proposals to amend ECE/TRANS/WP.29/GRVA/2025/7.

Red font is used to distinguish changes proposed by this informal document from those changes proposed in ECE/TRANS/WP.29/GRVA/2025/7. Changes proposed with this revision 1 are marked in yellow, changes with revision 2 are marked in blue.

I. Proposal

Insert new paragraphs 2.12. to 2.17. to read:

- 2.12. **"Electrical Storage Device (ESD)" means a device, or combination of individual devices, each capable of storing an electrical charge and of providing electrical power to the transmission of a full-power steering system. Electrical storage devices which are connected in series and/or parallel shall be considered as one electrical storage device within this Regulation. Additionally, an electrical storage device is to be understood as an energy reservoir within the meaning of paragraph 2.3.6.2.**
- 2.13. **The "performance of an electrical storage device" means its ability to provide power (W) and quantity of energy (Wh) when fully charged.**
- 2.14. **The "state of an electrical storage device" means its ability to provide power (W) and quantity of energy (Wh) at the time.**
- 2.15. **The "effect of ageing" is quantifying the irreversible degradation of the performance of an electrical storage device of a full power steering system, due to e.g., the effects of time, use, and environmental exposure.**
- 2.16. **"Energy Management System" means, an electrical device(s), being part of, or used by, a full power steering system, that monitors critical variables that impact on the performance and state of the electrical storage device(s) (e.g., voltage, temperature, internal resistance, effect of ageing, state of charge, power consumption, charging cycles, etc.) and deduces the actual capability of the devices to fulfil the performance requirements of this Regulation.**
- 2.17. **"Electrical supply" means a device (e.g. battery, REESS, generator, fuel-cell or a combination of these components) that supplies electrical power to the steering system's electrical storage device(s).**

Paragraph 5.3.1.1., amend to read:

- “5.3.1.1. For the purposes of this Regulation the steered wheels, the steering control and all mechanical parts of the steering transmission shall not be regarded as liable to breakage if they are amply dimensioned, are readily accessible for maintenance, and exhibit safety features at least equal to those prescribed for other essential components (such as the braking system) of the vehicle. Where the failure of any such part would

be likely to result in loss of control of the vehicle, that part shall be made of metal or of a material with equivalent characteristics (**e.g. similar strength and fatigue life attributes**) and shall not be subject to significant distortion in normal operation of the steering system.”

Paragraphs 5.3.1.4. to 5.3.1.6., (unchanged) reproduced for easy reference:

- “5.3.1.4. In the case where the braking system of the vehicle shares the same energy source as the steering system and this energy source fails, the steering system shall have priority and shall be capable of meeting the requirements of paragraphs 5.3.2. and 5.3.3. as applicable. In addition the braking performance on the first subsequent application, shall not drop below the prescribed service brake performance, as given in paragraph 2. of Annex 3 to this Regulation.
- 5.3.1.5. In the case where the braking system of the vehicle shares the same energy supply as the steering system and there is a failure in the energy supply, the steering system shall have priority and shall be capable of meeting the requirements of paragraphs 5.3.2. and 5.3.3. as applicable. In addition the braking performance on the first subsequent application shall comply with the prescriptions of paragraph 3. of Annex 3 to this Regulation.
- 5.3.1.6. The requirements for the braking performance in paragraphs 5.3.1.4. and 5.3.1.5. above shall not apply if the braking system is such that in the absence of any energy reserve it is possible with the service brake control to achieve the safety requirement for the secondary braking system mentioned in:
- (a) Paragraph 2.2. of UN Regulation No. 13-H, Annex 3 (for M₁ and N₁ vehicles);
 - (b) Paragraph 2.2. of UN Regulation No. 13, Annex 4 (for M₂, M₃ and N vehicles).”

Insert a new paragraph 5.3.1.8., to read:

- “5.3.1.8. **When a full power steering system satisfies paragraph 5.3.3.6., it is considered to have been given sufficient priority as specified in paragraphs 5.3.1.4. and 5.3.1.5.”**

Amend paragraph 5.3.3.3. to 5.3.3.5. to read:

- “5.3.3. Full power steering systems
- 5.3.3.1. The system shall be designed such that the vehicle cannot be driven indefinitely at speeds above 10 km/h where there is any fault which requires operation of the warning signal referred to in paragraph 5.4.2.1.1.
- 5.3.3.2. In case of a failure within the control transmission, with the exception of those parts listed in paragraph 5.1.4., it shall still be possible to steer with the performance laid down in paragraph 6. for the intact steering system.
- 5.3.3.3. In the event of a failure of the energy source, **or of the electrical supply**, of the control transmission, it shall be possible to carry out at least 24 "figure of eight" manoeuvres, where each loop of the figure is 40 m diameter at 10 km/h speed and at the performance level given for an intact system in paragraph 6. The test manoeuvres shall begin at an energy storage level given in paragraph 5.3.3.5. **In the case where the energy transmission, or a part of it, shares the same energy source, or same electrical supply, as the control transmission, the**

requirements of paragraph 5.3.3.6. may be used as an alternative to those above.

~~Additionally, when a traction battery has the function of an energy source supplying both the control transmission and the energy transmission, one or the other alternative above shall be applied in the event that the traction battery no longer provides energy to the steering transmission.~~

- 5.3.3.4. In the event of a failure within the energy transmission, with the exception of those parts listed in paragraph 5.3.1.1., there shall not be any immediate changes in steering angle. As long as the vehicle is capable of being driven at a speed greater than 10 km/h the requirements of paragraph 6. for the system with a failure shall be met after the completion of at least 25 "figure of eight" manoeuvres at 10 km/h minimum speed, where each loop of the figure is 40 m diameter.

The test manoeuvres shall begin at an energy storage level given in paragraph 5.3.3.5. **In case the safety concept of the vehicle manufacturer is preventing from performing the 25 "figure of eight" manoeuvres as specified above (e.g. the traction is limited to below 10km/h before the completion of the 25 manoeuvres), the procedure by which this requirement can be checked shall be agreed between the manufacturer and the Technical Service. This procedure shall be recorded in the test report and included in the type-approval documentation.**

Additionally, in case the safety concept also includes automatic braking to actively reduce the vehicle speed, the deceleration demand shall not exceed $-4-2$ m/s². Any automatic deceleration demand shall start earliest 60 seconds after the failure detection. In case the longitudinal movement is controlled by another system (e.g. AEBS, Automatic Cruise Control) the vehicle may decelerate at a higher value or at an earlier point in time than specified above, e.g. to avoid a collision.

The safety concept used to fulfil the requirements above shall be described by the vehicle manufacturer and assessed according to the requirements of Annex 6.

- 5.3.3.5. The energy level to be used for the tests referred to in paragraphs 5.3.3.3. ~~and~~, 5.3.3.4. ~~and~~ 5.3.3.6. shall be the energy storage level at which a failure is indicated to the driver.

In the case of electrically powered systems subject to Annex 6, this level shall be the worst case situation outlined by the manufacturer in the documentation submitted in connection with Annex 6 and shall take into account the effects of e.g. temperature and ageing on battery performance.”

Insert a new paragraph 5.3.3.6. and subparagraphs, to read:

“5.3.3.6. In case the alternative to paragraph 5.3.3.3. is used, the following requirements shall apply:

5.3.3.6.1. The vehicle shall be brought to one of the conditions below, whereby the requirements of paragraph 6 for an intact system shall be satisfied until the corresponding condition is reached:

- (a) A speed below or equal 10 km/h or standstill, in case the failure does not affect the ability of the braking system to**

provide the service braking performance as specified in UN Regulation No. 13 or 13-H (as relevant), or

- (b) Standstill, in case the failure affects the ability of the braking system to provide the service braking performance.

5.3.3.6.2. It shall be ensured that the condition as per paragraph 5.3.3.6.1. is reached

- ~~(a) At the earliest 60 seconds [or after a driven distance of 1,500 metres, whatever occurs last,] after the failure detection, provided the failure does not lead to loss of propulsion, and~~
- ~~(b) At the latest before the energy level is down to an amount not allowing for a further lane change as specified below in 5.3.3.6.3., unless the failure leads to loss of propulsion.~~

Additionally, the system shall aim at using the remaining energy in order to maximize the time before reaching the condition as per paragraph 5.3.3.6.1. The means by which this requirement is fulfilled shall be described by the manufacturer and assessed according to Annex 6.

5.3.3.6.3. ~~Sufficient energy shall be available to perform continuous lane changes between the time when the failure occurs and the time when the condition as per paragraph 5.3.3.6.1. is reached. To demonstrate compliance to paragraph 5.3.3.6.2. (a) during testing, continuous lane change manoeuvres shall be carried out [over a distance of 1,500 metres with a speed of 60 km/h, and] for 60 seconds with a vehicle speed of 20 km/h (+/- 2 km/h) where each lane change manoeuvres shall be of a duration of not more than 5 seconds for vehicles of categories M₁ and N₁, and not more than 10 seconds for vehicles of categories M₂, M₃, N₂ and N₃. [Both tests shall start at the energy level defined in paragraph 5.3.3.5.]~~

After failure occurrence sufficient energy shall be available to steer the vehicle. The amount of energy is deemed sufficient if it is possible to perform 18 subsequent lane changes for vehicles of categories M₁ and N₁, and 9 lane changes for vehicles of categories M₂, M₃, N₂ and N₃, within a maximum time of 90s, with a vehicle speed of 20 km/h (+/- 2 km/h). The lane changes shall be alternately to the left and then to the right, while the lateral movement of the vehicle ~~should~~ **shall** be at least 3 meters. In case the safety concept of the vehicle manufacturer is preventing from completing the number of lane changes as specified above at the required speed, the remaining number of lane changes shall be performed at the reduced speed according to the safety concept. This procedure shall be recorded in the test report and included in the type-approval documentation.

It shall be understood, that para. 6.1.4. applies during the procedure as described above.

5.3.3.6.4. The maximum deceleration demand to reach the condition as per paragraph 5.3.3.6.1. shall not exceed ~~4~~ **2** m/s².

~~However, the deceleration demand may be increased up to 4 m/s², whenever needed only in the case that such higher deceleration is necessary to comply with the requirements of paragraphs 5.3.3.6.2. and 5.3.3.6.3., in specific conditions to be specified by the vehicle manufacturer and to be assessed as per Annex 6 to this regulation.~~ It should be understood that the driver still has the possibility to

stop the vehicle earlier. In case the longitudinal movement is controlled by another system (e.g. AEBS, Automatic Cruise Control) the vehicle may decelerate at a higher value, e.g. to avoid a collision.

- 5.3.3.6.5. ~~{The failure shall be indicated to the driver by illuminating the red warning as per paragraph 5.4.2.1.1.}~~ Any automatic deceleration shall start earliest ~~30~~ 60 seconds after the failure detection, ~~unless the condition specified in 5.3.3.6.2. and/or 5.3.3.6.4. (i.e. in case the longitudinal movement is controlled by other systems like AEBS, Automatic Cruise Control) are met before.~~ Additionally, there shall be a warning that includes information on the immediacy of the need to bring the vehicle to a stop, and a dynamic indication of when the automatic deceleration is expected to begin (e.g. status bar). ~~Additionally, there shall be an optical and an acoustic and/or haptic (e.g. brake jerks) appropriate warning signal to informing the driver about the upcoming deceleration. This warning shall be distinct and of great urgency. This warning shall start at least five seconds before the start of automatic deceleration and shall remain until the vehicle has reached standstill.~~ The signal to activate the hazard warning lights shall be generated with the start of the automatic deceleration. **The hazard warning light signal shall be overridden by the direction indicator, when the driver manually activates it.**
- 5.3.3.6.6. Upon reaching standstill the vehicle shall be prevented from rolling away either automatically or by requesting an action by the driver. If required, sufficient energy shall be available to satisfy this requirement (e.g. application of an electric parking brake).
- 5.3.3.6.7. There shall be an energy management system for the electrical storage device(s).
- 5.3.3.6.7.1. The energy management system shall be capable of continuously assessing the electrical storage device(s), to determine their ability to deliver to the steering transmission the needed power, over time, to fulfil the performance requirements of this Regulation and, where appropriate, of activating the warning signals required by this Regulation.

If the assessment is not complete at the time that the start/run switch is moved to the on (run) position, a red warning signal shall be activated and shall remain active until the safe status of the electrical storage device(s) has been confirmed. The red warning signal prescribed in paragraph 5.4.2.1.1. may be used. This requirement shall apply even after a maintenance operation on the electrical storage device and/or the energy management system (e.g. the replacement/temporary disconnection of an electrical storage device, or the replacement of the energy management system itself).

The method by which the energy management system determines the safe status, including after maintenance, shall be described by the manufacturer at the time of type approval. Compliance with these requirements shall be demonstrated to the satisfaction of the Technical Service, including an assessment according to Annex 6.

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- 5.3.3.6.7.2. It shall be demonstrated that the energy management system accurately identifies the condition at which the warning signals required by paragraph 5.4.2.1.5. of this Regulation are activated.**

The Technical Service shall take account of the influence of the individual variables used by the energy management system, on both the performance and the state of the electrical storage device(s).

The Technical Service shall verify that the accuracy of the energy management system is ensured under all operating conditions (for example different environmental conditions) that can reasonably be foreseen by reviewing the documentation provided by the manufacturer and performing tests of the energy management system in different conditions (e.g., changes in temperature).

- 5.3.3.6.7.3. In the context of the assessment described in paragraph 5.3.3.6.7.2., the manufacturer shall provide the following information as part of the documentation required by Annex 6, paragraph 3:**

(a) Regarding the Energy Management System;

(i) A detailed overview of the energy management system, explaining its architecture, components, and functionality,

(ii) A description of how the system monitors electrical storage device(s).

(iii) Sufficient information about the energy management system strategy to illustrate the algorithms and logic used to assess the state and the performance of electrical storage device(s).

(iv) A list of all the input variables considered by the energy management system in assessing the state and the performance of the electrical storage device(s).

(v) A sensitivity analysis showing how each of the listed variables affects the ability of the energy management system to accurately identify when a warning signal shall be activated.

(b) Regarding the relevant verification testing the documentation shall include:

(i) The thresholds, or criteria, that trigger the warning signals described in paragraph 5.4.2.1.1. and paragraph 5.4.2.1.2.

(ii) Results of verification testing to assess the accuracy of the energy management system.

(iii) Data on different operating conditions, such as temperature or battery ageing.

(iv) An outline of the boundary conditions that could impact the accuracy of the energy management system (e.g., temperature, aging characteristics)

(v) In response to paragraph 3.4.4. of Annex 6, a description of the strategy in the event of a failure of the energy management system, or of an input channel to the energy management system, when relevant to the steering functionality.

(vi) When applicable, the procedures for updating the energy management system and ensuring its ongoing maintenance.

(vii) The appropriate testing procedures to be taken into account when performing the relevant verification testing to assess compliance with paragraph 5.4.2.1.5.

5.3.3.6.7.4. In the event of a failure of the energy management system or an input channel of the energy management system that prevents the assessment of the state of the electrical storage device(s), a red visual warning signal, accompanied by an audible signal, shall be activated at the moment of the detection of the failure (i.e. a first time in operation then at each start-up thereafter). The operation of the acoustic signal may be temporary, but the visual warning must remain active as long as the failure persists. The red warning signal prescribed in paragraph 5.4.2.1.1. may be used for visual alert. If the manufacturer's failure strategy affects steering functionality, details shall be given in the documentation required in paragraph 5.3.3.6.7.3.

Even in the event of the failure described above, if the energy management system is still able to assess the status of the electrical storage device(s), it is sufficient to use only the yellow warning signal specified in paragraph 5.4.2.1.2.

5.4.2. Special provisions for full-power steering equipment

5.4.2.1. Power-driven vehicles shall be capable of providing steering failure and defect warning signals, as follows:

Paragraph 5.4.2.1.1., amend to read:

5.4.2.1.1. A red warning signal, indicating failures defined in paragraph 5.3.1.3. within the main steering equipment, **if a single additional failure could result in a complete loss of steering function.** ~~{The red warning signal may also be used for other types of failures.}~~

Insert a new paragraph 5.4.2.1.5., to read:

5.4.2.1.5. In the case where an energy management system as per paragraph 5.3.3.6.7. is installed, the following warning signals shall be displayed.

5.4.2.1.5.1. A warning signal shall be displayed no later than when the effect of ageing on the electrical storage device(s) is such that its performance is not sufficient to fulfil the requirements of paragraph 5.3.3.6.3. The yellow warning signal described in paragraph 5.4.2.1.2. shall be used **accompanied by an information**

to the driver (e.g. extra telltale, text message) that electrical storage device(s) require a maintenance check.

~~Additionally, a red warning shall be displayed when the performance of the ESD(s) is not sufficient to perform at least half of the values specified in paragraph 5.3.3.6.2.(a).~~

- 5.4.2.1.5.2. A warning signal shall be displayed no later than when the state of the electrical storage device is insufficient ~~for more than 60 seconds~~ to fulfil the requirements of paragraph 5.3.3.6.3. The yellow warning signal described in paragraph 5.4.2.1.2. shall be used.

Additionally, a red warning shall be displayed when the state of the ESD(s) is not sufficient to perform at least half of the values specified in paragraph 5.3.3.6.3.2.(a).

II. Justification

1. The modifications proposed in this document intend to define the provisions for the approval of full power steering systems such as steer-by-wire systems.

2. The detailed justifications for the modified paragraphs submitted in the working document GRVA/2025/7 above are:

(a) Subparagraph of paragraph 2.: The new definitions proposed are aligned with the definitions laid out in UN Regulations Nos. 13 and 13-H, as drafted and proposed by the experts of the Electrical Braking Special Interest Group.

(b) Paragraph 5.3.1.8.: This new paragraph seeks to clarify the provision regarding giving priority to steering over braking. The current text in paragraphs 5.3.1.4. and 5.3.1.5. seems inappropriate, especially when a certain condition as per the new paragraph 5.3.3.6. shall be reached in case of a failure of the energy source.

(c) Paragraph 5.3.1.1.: To clarify what “equivalent characteristics” means, the example of “(e.g., similar strength and fatigue life attributes)” is suggested to be added.

(d) Paragraph 5.3.3.3.: Clarifying the case when paragraph 5.3.3.6. may be used and clarifying what applies in case a traction battery functions as an energy source.

(e) Paragraph 5.3.3.4.: The current wording “As long as the vehicle is capable of being driven at a speed greater than 10 km/h ...” is somewhat unclear in its meaning, e.g., when the vehicle speed is automatically reduced and limited to a speed of 10 km/h maximum. The proposed modification seeks to clarify this by providing provisions considering the safety concept of the vehicle manufacturer.

(f) Paragraph 5.3.3.5.: Reference added to the suggested new paragraph 5.3.3.6.

(g) Paragraph 5.3.3.6.: This new paragraph defines an alternative manoeuvre for a transition to a certain condition in case of a failure of the energy source, which is not included in detail in the current wording of paragraph 5.3.3.3. The original test described in paragraph 5.3.3.3 seems inappropriate, especially for battery electric vehicles, which usually share the energy source with the propulsion. The requirements regarding the Energy Management System and the means by which the system monitors the energy storage level are aligned with the requirements for Electrical Transmission Braking Systems as laid out in UN Regulations Nos. 13 and

13-H, as drafted and proposed by the experts of the Electrical Braking Special Interest Group.

(h) Paragraph 5.4.2.1.1.: Only those failures which would result in a complete loss of steering function should be required to be shown in red. For safer designs providing more redundancy, a yellow warning as described in paragraph 5.4.2.1.2. is sufficient. Additional clarification is added that the red warning signal may also be used to indicate other failures, e.g., those for which the consultation of a service facility is needed.

(i) Paragraph 5.4.2.1.5.: This new paragraph defines the means by which a warning based on the performance and state of an electrical storage device shall be displayed. These requirements are aligned with the requirements for Electrical Transmission Braking Systems as laid out in UN Regulations Nos. 13 and 13-H, as drafted and proposed by the experts of the Electrical Braking Special Interest Group.

3. The detailed justifications for the changes proposed by this informal document from those changes proposed in GRVA/2025/7 above are (see red font):

(a) Paragraph 5.3.3.3.: Proposed changes are a simplification of the wording (no change to the meaning). The overall intention is to clarify that a traction battery may be part of the electrical supply, even only for one circuit, whereas this circuit would not have an energy source (alignment with concept developed by EBSIG).

The overall intention of the proposed amendment to R79 is to add an alternative to the 24 "figure of eight" manoeuvres, which only applies to the case where the energy transmission (or only a part of it, e.g. only one steering circuit) is supplied from the same electrical power supply (the alternator of an ICE vehicle, the traction battery of a BEV...) as the control transmission.

(b) Paragraph 5.3.3.4.:

- The proposal is reducing the maximum deceleration demand from 4m/s^2 to 2m/s^2 . The intention is to reduce the potential impact of an automatic deceleration for the following traffic and to ease lane change for the driver. The 2m/s^2 value is based on the maximum deceleration value defined in R157 paragraph 5.2.6.7.5.
- The proposal is also adding a requirement that the 60 first seconds after the failure detection shall be free of any automatic deceleration demand, to ensure consistency with requirements of paragraph 5.3.3.6.5.
- 60 seconds is considered as a reasonable duration for a driver to appropriately react to the occurrence of a failure warning signal, before the automatic system reaction occurs. The value is based on requirements from other part of R79 or from other regulations using the same time duration for a similar purpose. For example, R79 specifies a maximum duration of 60s for hands-off driving, before the automatic deactivation of the ACSF-B1 assistance. See also the requirements on Low Energy Emergency Function in R13 series 14 and R13H series 02 (from the EBSIG amendment).

The proposed amendment to R79 is supplementing the current text in 5.3.3.4 with new requirements, to cover new technical solutions about to reach the market. Three main requirements are added:

- A description (included in the type approval documentation) of the test procedure used to check the requirements, in case the safety concept would practically prevent a direct check of the 25 figures of eight. The vehicle speed may indeed be limited to below 10km/h (e.g. to fulfil 5.3.3.1) before the 37 minutes necessary to perform 25 figures of eight are elapsed.

- Technical requirements for the case where the safety concept includes an automatic deceleration demand (coming on top of a simple speed limitation).

An assessment as per Annex 6 of the safety concept used to fulfil the requirements of paragraph 5.3.3.4.

(c) Paragraph 5.3.3.6.2.:

- Deletion of sub-paragraph (a): the reason is that the 60 seconds period (as well as the 1500m distance) is actually defining an amount of energy to be secured in the system, rather than a minimum time (or distance) to be secured. Consequently, the 60s requirement is somehow transferred to paragraph 5.3.3.6.3.
- The sub-paragraph (b) is of course kept, while clarifying that the requirement may not be fulfilled if the failure leads to losing the propulsion.

(d) Paragraph 5.3.3.6.3.:

- Deletion of the reference to a minimum distance, since a distance at a given speed is equivalent to a time (1500m at 60km/h is 90s).
- Increase of minimum time from 60 to 90 seconds, while keeping the 20km/h speed for the lane changes. The proposal is to take the worst case conditions from both original test scenarios: lane changes were specified at 20km/h during 60s in the first test, while at 60km/h during 90s (i.e. 1500m) in the second.
- Clarification of the test procedure: alternative lane changes to the left and then to the right, with a lateral movement not less than 3 meters etc.
- Editorial improvement for better readability.
- Testing requirements for the case where the safety concept prevents from completing the number of lane changes, e.g. when the traction is limited to below 20 km/h before the completion of the required number of lane changes (earliest after 60 s).
- Clarification that the requirement on essential systems specified in 6.1.4 applies for the test procedure here.

(e) Paragraph 5.3.3.6.4.:

- Reduce the maximum deceleration demand from 4 m/s² to 2 m/s², same justification as for 5.3.3.4.
- Clarification that an increase up to 4 m/s² is possible, if needed in specific situations as specified by the vehicle manufacturer and assessed as per Annex 6. The value of 4 m/s² is based on the maximum deceleration demand defined for an RMF in R79, paragraph 5.1.6.3.6.
- Editorial improvements.

(f) Paragraph 5.3.3.6.5.:

- The time when the automatic deceleration can start is increased from 30 to 60s. Same justification as for paragraph 5.3.3.4.
- The deceleration can start before 60s if the the energy level is down to an amount not allowing for a further lane change (condition defined in 5.3.3.6.2) or if an AEBS or an ACC (or any similar system) needs to brake e.g. to avoid a collision, to keep the safety distance with a preceding vehicle.
- Less specific requirements on the warning signal informing the driver of the upcoming deceleration, to avoid over-specifying / being design restrictive. Text inspired from R79 requirements on Risk Mitigation Function.

(g) Paragraph 5.4.2.1.1.: The usage of a red warning in cases where a less stringent warning is required, is not prohibited by the regulation.

(h) Paragraph 5.4.2.1.5.1.:

- Make clear to the driver that the effect of ageing requires a maintenance check of the electrical storage device(s). The aim is to differentiate this permanent status from the temporary warning required by 5.4.2.1.5.2.
- Deletion of the requirement for a red warning since:
 - New information to the driver is added to indicate the need for a maintenance check.
 - The red warning will anyway be displayed by the requirement specified in 5.4.2.1.5.2.
 - The red warning is not required by R13 / R13H in case of ageing of the ESDs of an ETBS. We have to be consistent with the EBSIG concept.

(i) Paragraph 5.4.2.1.5.2.:

- Square brackets are deleted to be consistent with EBSIG concept.
- Adjustment of cross references.