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| EC/DE/UK revised proposal | AAPC proposal for improvements |
| 4. Approval |  |
| 4.1. If the vehicle type submitted for approval pursuant to this Regulation meets the requirements of Paragraph 5 below, approval of that vehicle type shall be granted. |  |
| 4.1.1. At the request of the manufacturer, approval shall be granted for any vehicle type up to maximum mass of 12,000 kg if equipped with deployable occupant restraint system and the vehicle type meets the technical requirements of the 01 or later series of amendments to UN Regulation No. 160. | 4.2. At the request of the manufacturer, approval shall be granted for any vehicle type up to a maximum mass of 12,000 kg provided that:  (a) The vehicle type is equipped with a deployable occupant restraint system, and  (b) The vehicle type meets the technical requirements of the 01 or later series of amendments to UN Regulation No. 160. |
| 4.1.2. In the case of a vehicle type with a maximum mass between 8,000 and 12,000 kg, the approval under Paragraph 4.1.1. shall be granted subject to the vehicle type under approval being a derivative of a vehicle type of category M1 and/or N1 that has an approval to UN Regulation No.160, having safety characteristics (e.g., crash structure, deployable occupant restraint system) consistent with the characteristics of the M1 and/or N1 vehicle type, where it can be demonstrated that the EDR triggering is of equivalent effectiveness compared to the M1 and/or N1 vehicle type. The equivalence shall be demonstrated in the following way: | 4.2.1. In the case of a vehicle type with a maximum mass between 8,000 and 12,000 kg, the approval specified under paragraph 4.**2.**~~1.1.~~ shall **only** be granted provided that:  (a) The vehicle type is derivative of a vehicle type of category M1 and/or N1,  (b) The M1/N1 vehicle type meets the technical requirements of the 01 or later series of amendments to UN Regulation No. 160, and  (c) The EDR triggering performance of the vehicle type is equivalent to that of the M1/N1 vehicle type specified under (a) above. |
| (a) The manufacturer shall determine the lowest deployment thresholds of the deployable occupant restraint system of the M1 and/or N1 vehicle type for longitudinal and lateral collision scenarios;  (b) The manufacturer shall specify the scenarios used under the physical and/or simulation testing to determine the lowest deployment thresholds of the M1 and/or N1 vehicle type and shall assess those scenarios on the vehicle type under approval;  (c) Physical and/or simulation testing of the vehicle type under approval shall result in EDR triggering across all the specified scenarios. | 4.2.2. The **equivalence** ~~effectiveness~~ of the EDR triggering specified under paragraph **4.2.1.(c)** ~~4.1.2.~~ shall be demonstrated as follows:  (a) The manufacturer shall determine the lowest deployment thresholds for the occupant restraint system of the M1/N1 vehicle type under longitudinal and lateral collision scenarios,  (b) The manufacturer shall describe the scenarios used under (a) above and their suitability for application to the vehicle type under approval, and  (c) The physical and/or simulation testing of the vehicle type under approval shall result in EDR triggering across all the specified scenarios. |
| 4.1.2.1. The manufacturer shall provide the EDR triggering strategies for the vehicle type under approval, such as the integration of other active safety systems and/or modified delta-v trigger thresholds, which shall be documented in the test report. | 4.2.3. The manufacturer’s documentation shall provide the EDR triggering strategies for the vehicle type such as the integration of other active safety systems and/or modified delta-v trigger thresholds. |
| 4.1.3. Vehicles up to 12,000 kg which are not subject to national and regional regulations providing for crash tests requirements referred to in Paragraphs 5.4.1. and 5.4.2. of UN Regulation No. 160 shall be subject to Paragraph 5.4. of this regulation. | 4.2.4. Vehicle types that have not been subjected to crash tests as specified under paragraphs 5.4.1. and 5.4.2. of UN Regulation No. 160 shall be subject to paragraph 5.4. of this Regulation. |

**Explanations**

1. Numbering: Paragraph 4.1. concerns approval based on meeting the requirements of UN R169. Paragraph 4.1.1. concerns alternative approval based on meeting the requirements of UN R160. Renumbering 4.1.1. as 4.2. clarifies that UN R169 allows the two distinct options (where the second option is subject to the remaining provisions).

2. Paragraph 4.1.1. has been edited for clarity as paragraph 4.2. No substantive change is proposed.

3. Paragraph 4.1.2. has been edited for clarity as paragraph 4.2.1. (i.e., as a subparagraph concerning the 8,000-12,000 kg subset of the vehicles up to 12,000 kg specified under paragraph 4.2.).

4. The phrase “that has an approval to UN Regulation No.160” would not be permissible under the 1958 Agreement. A UN Regulation may not require another UN Regulation because not all Contracting Parties apply all regulations. Typically, these aims are achieved by requiring compliance with, but not necessarily approval under, the target UN Regulation. In this case, paragraph 4.2.1.(b) states that the M1/N1 vehicle used for comparison shall meet the UN R160 requirements.

5. Paragraph 4.2.1. specifies the criteria that an 8,000-12,000 kg vehicle type must meet in addition to the two criteria specified under paragraph 4.2. (so a total of five criteria). In short, in order to qualify for approval under paragraph 4.2, vehicle types in the 8,000-12,000 kg range must comply with UN R160, have a deployable ORS, have an M1/N1 counterpart compliant with UN R160, and demonstrate EDR triggering equivalent to the EDR of the M1/N1 counterpart.

6. Paragraph 4.2.1.(a) requires the relevant aspects of the M1/N1 and heavier vehicle type to be sufficiently similar to enable comparison of EDR performance (e.g., braking, steering, safety systems).

7. The criteria and demonstration method in paragraph 4.1.2. have been split into paragraphs 4.2.1. and 4.2.2. Paragraph 4.2.2. presents the method for demonstrating equivalent EDR triggering specified under 4.2.1.(c).

8. Paragraph 4.2.2. has been edited for brevity and to avoid repetition. “M1 and/or N1” is abbreviated as “M1/N1”. In item (a), “deployable” ORS is redundant since the provision concerns “deployment thresholds” (an “nondeployable” ORS would not have any deployment threshold). Item (b) is shortened because (a) already establishes the “deployment threshold” requirement. The wording of (b) is aligned with the various WP.29 “scenario/virtual testing” discussion outcomes (e.g., scenario descriptions, suitability assessments) and requires argumentation supporting the suitability of the scenarios for demonstrating equivalent effectiveness across the EDR.

9. Paragraph 4.1.2.1. is “upgraded” to paragraph 4.2.3. because the provision concerns an additional requirement distinct from the demonstration method. The text is clarified to avoid the risk of confusion with the “test reports” prepared by Technical Services. In this case, the provision concerns documentation from the manufacturer describing the EDR triggering strategies.

10. Under the renumbering, paragraph 4.1.3. becomes paragraph 4.2.4. The provision basically states that paragraph 5.4. (EDR survivability) shall be used in cases where a vehicle type seeking approval under paragraph 4.2. has not been tested under one of the UN R160-prescribed crash tests (e.g., UN R94, R95, etc.). Paragraph 4.2.4. proposes editorial improvements for clarity. The provision is a subparagraph of 4.2. which concerns “any vehicle type up to a maximum mass of 12,000 kg” that meets the two criteria where the manufacturer requests the alternate approval. In any case, any vehicle seeking approval to UN R169 would have to meet paragraph 5.4. unless the EDR survivability had been demonstrated under the crash testing prescribed in UN R160.