

Decisions which have to be done [...]:

1. Change inside Scope

“Additional Sound Emission Provisions (ASEP)” from UN-R51.03

into

“**Real Driving** additional sound emission provisions (**RD-ASEP**)”

Pros:

- Sound familiar
 - Shows next step (ASEP = UN-R51.03; RD-ASEP = UN-R51.04)
 - Gives information about different driving situations
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6.2.3. Real Driving Additional sound emission provisions

1. Subparagraph:

“The **RD-ASEP** apply only to vehicles of categories M₁ and N₁ equipped with **[at minimum an internal combustion engine for propulsion of the vehicle]** or in the case of one or more electric motors for propulsion combined with an electric sound enhancement system installed for the purpose of complying with UN-Regulation 138 but additionally emitting an artificial sound...”

Consequence:

- In general, all ICEVs must undergo RD-ASEP (special ICE-rules will be discussed later on)
 - In general, all Vehicles without ICE which only an R138-AVAS don't have to undergo RD-ASEP (special rules will be discussed later on)
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4. Subparagraph:

[The sound emission of the vehicle under typical on-road driving conditions, which are different from those under which the type-approval test set out in Annex 3 and Annex 7 was carried out, shall not deviate from the test result in a significant manner.]

Questions:

- What's about the sound emissions outside the vehicle speed area 10 to 100 km/h or outside the RD-ASEP-RPM-range?
 - How we make sure, that a few manufacturers (also aftermarket) don't steer flap-systems/soundgenerators very aggressive outside speed-/rpm-range?
 - Does it makes sense to use to keep the sentence from R51.03 inside R51.04 and keep the reference to “existence Interpretation 6.2.3”?
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6. Subparagraph:

[If the tests of Annex 3 and Annex 7 cannot be done on the same day, the differences of the tests conditions shall be for:

- Temperature within $\pm 5^{\circ}\text{C}$,

- Barometric pressure within $\pm 25\text{ hPa}$].

Questions:

- Do we need such a subparagraph for RD-ASEP?

- If YES, what are the necessary tolerances?

Annex 7 (RD-ASEP) general clause “the procedures of Annex 3, shall be used” (5°C to 40°C (below 5°C ... accepted as well).;

Pro: General clause works well.

Consequence: Delete the 6th subparagraph

6.2.3.2.1.1. ICE-Vehicles

(a) Vehicles of category M1 with an ICE as propulsion unit are exempted from the RD-ASEP of Annex 7, if [their power-to-mass ratio PMR does not exceed 120 and] the exhaust silencing components of the vehicle have neither variable geometries nor electric sound enhancement system for the purpose of the exterior sound emissions.

Questions:

- Should we exempt all ICEV, if they have no “flexibilities”? (e.g. also vehicles with 500 kW with turbo charger and variable valve timing)

- Should we exempt only ICEV with $\text{PMR} \leq \text{XXX}$ (e.g. ≤ 160)?

6.2.3.2.1.2. HEV and FCHV

HEV's and FCHV's of category M1 with an ICE as propulsion unit are exempted from the RD-ASEP of Annex 7, if their [power-to-mass ratio PMR does not exceed [120] and the] exhaust silencing components of the vehicle has no variable geometries, or the vehicle has no electric sound enhancement system for the purpose of the exterior sound emissions.

Questions:

- Should we exempt all HEV/FCHV with an ICE, if they have no “flexibilities”? (e.g. also ICE with 500 kW with turbo charger and variable valve timing)

- Should we exempt only HEV/FCHV with an ICE with $\text{PMR} \leq \text{XXX}$ (e.g. ≤ 160)?

6.2.3.2.1.3. PEV, BEV, FCV

PEV, BEV, FCV of category M1 are exempted from the RD-ASEP of Annex 7, if [their Rated maximum net power, P_n does not exceed 170 kW and if] the vehicle has no electric sound enhancement system for the purpose of complying with UN-Regulation 138, but additionally emitting an artificial sound outside the defined characteristics of paragraph 6.2.7 and 6.2.8 of UN-Regulation 138 or installed in addition to the sound enhancement device regulated by UN-Regulation 138, for the purpose of the exterior sound emissions.

Questions:

- Should we exempt all PEV, BEV, FCV without an maximum P_n? (e.g. also PEV with 600 kW)
 - Should we exempt only PEV, BEV, FCV with an maximum P_n ≤ XXX (e.g. ≤ 160)?
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6.2.3.2.2.1. ICE

(a) Vehicles of category N1 with an ICE as propulsion unit are exempted from the RD-ASEP of Annex 7, if [their Rated maximum net power, P_n does not exceed 135 kW and] their exhaust silencing components has no variable geometries, or the vehicle has no electric sound enhancement system for the purpose of the exterior sound emissions.

Questions:

- Should we exempt all ICEV without an maximum P_n? (e.g. also a ICEV Pickup with 600 kW)
 - Should we exempt only ICEV with an maximum P_n ≤ XXX (e.g. ≤ 160)?
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(b) [Vehicles are deemed to fulfil the requirements of Annex 7, if the vehicle manufacturer provides technical documents to the type approval authority showing, that the difference between maximum and minimum engine speed of the vehicles at BB' for any test condition inside the RD-ASEP control range defined in paragraph 3.3. of Annex 7 to this Regulation (including Annex 3 conditions) does not exceed 0.15 x S. This article is intended especially for non-lockable transmissions with variable gear ratios (CVT)].

Questions:

- Do we need this subparagraph for vehicles of category N1 with CVT?
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[(c) For vehicles of category N1, if the engine capacity does not exceed 660 cc and the power-to-mass ratio PMR calculated by using the technically permissible maximum laden mass does not exceed 35.

(d) For vehicles of category N1, if the payload is at least 850 kg and the power-to-mass ratio calculated by using the technically permissible maximum laden mass does not exceed 40.

(e) For vehicles of category N₁ ~~or M₁ derived from N₁~~ if the technically permissible maximum laden mass is greater than 2.5 tons and the R-point height is greater than 850 mm from the ground and the power- to-mass ratio calculated by using the technically permissible maximum laden mass does not exceed 40.]

Questions:

- Do we need these subparagraphs for vehicles of category N1, if we have the more general paragraphs (e.g. paragraph 6.2.3) ?
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6.2.3.2.2. HEV and FCHV

HEV's and FCHEV's of category N1 with an ICE as propulsion unit are exempted from the RD-ASEP of Annex 7, if their **rated maximum net power, P_n does not exceed [170 kW] and the** exhaust silencing components of the vehicle has no variable geometries, or the vehicle has no electric sound enhancement system for the purpose of the exterior sound emissions.

Questions:

- Should we exempt all N1 HEV/FCHV with an ICE, if they have no “flexibilities”? (e.g. ICE with 500 kW with turbo charger and variable valve timing)
 - Should we exempt only N1 HEV/FCHV with an ICE with $P_n \leq XXX$ (e.g. ≤ 170 kW)?
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6.2.3.2.2.3. PEV, BEV, FCV

PEV, BEV, FCV of category N1 are exempted from the RD-ASEP of Annex 7, if **their Rated maximum net power, P_n does not exceed 170 kW and if** the vehicle has no electric sound enhancement system for the purpose of complying with UN-Regulation 138 ...

Questions:

- Should we exempt all PEV, BEV, FCV without an maximum P_n? (e.g. also PEV with 600 kW)
 - Should we exempt only PEV, BEV, FCV with an maximum $P_n \leq XXX$ (e.g. ≤ 160)?
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6.2.3.4. Statement of manufacturer

[In applying for type approval, the manufacturer shall provide a statement, in conformity with Appendix 1 of Annex 7, that he has given all relevant information of the vehicle type to be approved to the Technical Service to perform the ~~complies with~~ test requirements of paragraph 6.2.3. of this Regulation.]

Questions:

- Do we need this statement also for RD-ASEP tested by Technical Service?
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