| **ORG** | **Paragraph #** | **Type of comment1** | **Original text (Consolidated version prepared by OICA)** | **Proposed change** | **Justification** |
| --- | --- | --- | --- | --- | --- |
| CH | *2.23* | Ed | Table of symbols

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| Lκj | dB(A) | Annex 7 | **3.5.**  | sound pressure level measured for a gear κ and at a test point j; value to be reported and used for calculations to the first decimal place |

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| Lκj | dB(A) | Annex 7 | **3.6.**  | sound pressure level measured for a gear κ and at a test point j; value to be reported and used for calculations to the first decimal place |

 | Due to renumbering |
| CH | *2.29* | Ed/te | “*Exterior Sound Enhancement System (ESES)*” means an active system that is installed on a vehicle for the purpose of producing exterior sound such as, but not limited to* horns according to UN Regulations No. 28, or
* AVAS according to UN Regulation No. 138, or
* Audible reverse warning device according to UN Regulation No. 165, or
* sound actuators, either integrated into an exhaust silencing system or mounted as an individual unit. "
 | “*Exterior Sound Enhancement System (ESES)*” means an active system installed on a vehicle **to generate** exterior sound **that enhances vehicle audibility or character in a manner not regulated by other UN Regulations. This includes but is not limited to AVAS according to UN Regulation No. 138 in the optional speed range and sound actuators, either integrated into an exhaust silencing system or mounted as an individual unit.** **For the purpose of this Regulation, any system or function that is subject to applicable mandatory requirements under another UN Regulation shall not be considered an ESES. This includes,** but **is** not limited to**:****(a) horns according to UN Regulations No. 28;****(b) anti-theft according to UN Regulation No. 116;****(c) Audible reverse warning device according to UN Regulation No. 165;****(d) AVAS according to UN Regulation No. 138, in the mandatory speed range [+ a fade out area of 9.50 km/h].** | CH solution (in blue): split the definition between AVAS and ESES according to the speed rangeOther good solution (without the blue part): divide the definition by optional and mandatory sounds regardless of the speed range. |
| OICA | *2.29.* | Ed/te | “*Exterior Sound Enhancement System (ESES)*” means an active system that is installed on a vehicle for the purpose of producing exterior sound such as, but not limited to* horns according to UN Regulations No. 28, or
* AVAS according to UN Regulation No. 138, or
* Audible reverse warning device according to UN Regulation No. 165, or
* sound actuators, either integrated into an exhaust silencing system or mounted as an individual unit. "
 | **“*Exterior Sound Enhancement System (ESES)*” means an active system that is installed on a vehicle for the purpose of producing exterior sound such as, but not limited to*** **horns according to UN Regulations No. 28, or**
* ~~AVAS according to UN Regulation No. 138, or~~
* **Audible reverse warning device according to UN Regulation No. 165, or**
* **sound actuators, either integrated into an exhaust silencing system or mounted as an individual unit. "**
 | The reference to AVAS and UN Regulation No. 138 has been deleted, since there is the objective that during the next update of the Regulation it will focus on whole vehicle sound and the expression AVAS could be obsolete. |
| CH | 6.2.3. | te | …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.**[[1]](#footnote-1)**Footnote: 1 **See recommendations provided by informal document GRB-68-03 as guidance for technical interpretation. The document can be found in https://unece.org/documents-reference-only-0.** | …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.**1****If the vehicle is equipped with an** ~~electric sound enhancement system~~ **ESES the ESES shall be active and in the same configuration and activation state during the type-approval test (including tests specified in Annex 7 to this Regulation subject to paragraph 3.1. of Annex 7 to this Regulation) and in real world operation.[[2]](#footnote-2) The vehicle equipped with an ESES shall continue to comply with all requirements and specifications of other UN Regulations (e.g. but not limited with the stationary sound requirements of UN regulation No. 138).** **The ESES shall be capable of being muted by the driver. In the muted state, the vehicle shall continue to comply with the applicable minimum sound emission requirements within the mandatory speed range as specified in UN Regulation No. 138, and the maximum limits set out in Annex 7 to this Regulation. The emitted sound shall progressively decrease at vehicle speeds between 20.00 km/h and 28.00 km/h and shall cease entirely at speeds above 28.50 km/h (with the sole margin of +1.00 km/h including CoP tests) while in the muted state.**"Footnotes:1 **See recommendations provided by informal document GRB-68-03 as guidance for technical interpretation. The document can be found in https://unece.org/documents-reference-only-0.**2 **The sound content shall be alterable by the vehicle manufacturer only, shall not impair traffic safety and shall not be designed to cause deliberate disturbance. See recommendations provided by informal document #### as guidance for technical interpretation. Notwithstanding the provisions of this Regulation a Contracting Party may permanently, temporarily or conditionally prohibit specific sound content emitted by [ESES], or impose additional requirements for the content of [ESES].** | GRB-68-03 needs to be adapted in order to work with the new ASEP lines.“In the muted state… muted state.” Could be left out depending on the definition |
| COM | 6.2.3.1. | ge/te | The vehicle manufacturer shall not intentionally alter, adjust, or introduce any mechanical, electrical, thermal, or other device or procedure solely for the purpose of fulfilling the sound emission requirements as specified under this Regulation which is not operational during typical on-road operation. | The motorcycle manufacturer shall not use any device, procedure or software which would modify any noise related functional parameters of the vehicle for the purpose of passing the tests within this Regulation and which would result in increased noise emissions during typical on-road operation in the ASEP control range of Annex 7 paragraph 2.3, compared to during testing according to the provisions of this Regulation. | Update of the prohibition of defeat device clause/ alignment with the one of UNR 41 (updated during last GRBP, February 2025) |
| NL | New para. 6.4. | te |  | 6.4 Additional requirements for ESES6.4.1 The non-mandatory ESES sound shall have a direct available “button” for the driver to be switched off completely.6.4.2. ESES sound shall contribute to the detectability of the vehicle that it is mounted on6.4.3 ESES sound shall not mask mandatory required sound of the vehicle6.4.4 ESES sound shall not reduce the detection of other vehicles in traffic in such a way that other road users could be mis informed by the ESES. 6.4.5 ESES sound shall fulfil the description of document xxxxx (a document to describe allowed sound for ESES) | The test in the speed range of mandatory sound should show that the mandatory sound requirements are dominant in the SPL.6.4.2.: The test in the speed range of mandatory sound should show that the mandatory sound requirements are dominant in the SPL.6.4.4.,: This might be difficult, but this could be based on the assumption that were shared by OICA. A vehicle approaching at a higher speed should have a louder signal to warn, but it should not mask a vehicle that is in fact closer and will be aearlier at the point of the observer.6.4.5.: For this we need an additional document for reference. In my opinion OICA should propose the content of the first version of this document to commit to a certain way forward with a sound that will contribute to the purposes that were shared in the meetings. PleasantDetectabilityA certain level of signatureEtc... |
| CH | 11.xx. | Te | **Supplement [yy] does not apply to existing type approvals and their extensions, granted prior to the date of entry into force of Supplement [yy]** | **Supplement [yy] does not apply to existing type approvals and their extensions, granted prior to the date of entry into force of Supplement [yy] until [10] months after the entry into force of Supplement [yy].** | Subject to discussion. Has to be checked with the templates. |
| NL | 11.xx | ge | **Supplement [yy] does not apply to existing type approvals and their extensions, granted prior to the date of entry into force of Supplement [yy]** |  | Is a supplement not to be used for new extensions? Existing Tas will remain valid, but extension should follow the supplement. |
| OICA | 11.xx | ed | **Supplement [yy] does not apply to existing type approvals and their extensions, granted prior to the date of entry into force of Supplement [yy]** | **"11.[**~~xx~~**19]. Supplement** [~~yy~~**11**] **does not apply to existing type approvals and their extensions, granted prior to the date of entry into force of Supplement** [~~yy~~**11**] |  |
| OICA | Annex 3, 3.1.2.1.4.3. |  | Vehicles with only one gear ratio, like but not limited to Battery Electric Vehicles (BEV) and Fuel Cell Vehicles (FCV)The gear selector position for forward driving shall be used. The acceleration value awot test shall be calculated as defined in paragraph 3.1.2.1.2.1.The achieved acceleration awot test shall be greater or equal to aurban.If possible, the manufacturer shall take measures to avoid an acceleration value awot test greater than 2.0 m/s². Table 1 in Appendix to Annex 3 provides examples for valid measures to avoid accelerations beyond 2.0 m/s². Any measure used by manufacturer for the above-mentioned purposes shall be documented in the test report.The achieved acceleration awot\_test **, but not more than 2.0 m/s²,** is then used for the calculation of the partial power factor kp (see paragraph 3.1.2.1.3.) instead awot ref.[For Annex 7 calculations, the true achieved acceleration shall be used.] | Vehicles with only one gear ratio, like but not limited to Battery Electric Vehicles (BEV) and Fuel Cell Vehicles (FCV)The gear selector position for forward driving shall be used. The acceleration value awot test shall be calculated as defined in paragraph 3.1.2.1.2.1.The achieved acceleration awot test shall be greater or equal to aurban.If possible, the manufacturer shall take measures to avoid an acceleration value awot test greater than 2.0 m/s². Table 1 in Appendix to Annex 3 provides examples for valid measures to avoid accelerations beyond 2.0 m/s². Any measure used by manufacturer for the above-mentioned purposes shall be documented in the test report.The achieved acceleration awot\_test **, but not more than 2.0 m/s²,** is then used for the calculation of the partial power factor kp (see paragraph 3.1.2.1.3.) instead awot ref.**~~[For Annex 7~~** **~~calculations, the true achieved acceleration shall be used.]~~** | The use of the suitable acceleration value (limited to 2 m/s² or true achieved) for calculation in Annex 7 is moved to Annex 7 and there described |
| OICA | Annex 7, 2.3. |  | …~~Vehicle speed V~~~~AA\_ASEP~~~~: v~~~~AA~~ ~~≥ 20 km/h~~~~Vehicle acceleration a~~~~WOT\_ASEP~~~~: a~~~~WOT~~ ~~≤ 5.0 m/s~~~~2~~~~Engine speed n~~~~BB\_ASEP:~~ ~~n~~~~BB~~ ~~≤ 2.0 \* PMR~~~~-0.222~~ ~~\* S or~~~~n~~~~BB~~ ~~≤ 0.9 \* S, whichever is the lowest~~**The manufacturer shall take measures to achieve an acceleration aWOT\_ASEP within the acceleration control range.****Table 1 in Appendix 1 to Annex 3 provides examples for valid measures to enable a test condition within the above specified acceleration boundaries. Any measure used by manufacturer for the above-mentioned purposes shall be documented in the test report.**~~Vehicle speed V~~~~BB\_ASEP~~~~:~~~~If the vehicle, in the lowest valid gear does not achieve the maximum engine speed n~~~~BB\_ASEP~~~~below 70 km/h, increase the vehicle speed in that gear to reach the maximum engine speed n~~~~BB\_ASEP~~~~, but not beyond 80 km/h.~~ | …~~Vehicle speed V~~~~AA\_ASEP~~~~: v~~~~AA~~ ~~≥ 20 km/h~~~~Vehicle acceleration a~~~~WOT\_ASEP~~~~: a~~~~WOT~~ ~~≤ 5.0 m/s~~~~2~~~~Engine speed n~~~~BB\_ASEP:~~ ~~n~~~~BB~~ ~~≤ 2.0 \* PMR~~~~-0.222~~ ~~\* S or~~~~n~~~~BB~~ ~~≤ 0.9 \* S, whichever is the lowest~~**For vehicles subject to paragraph 1.1. of this Annex,** **the manufacturer shall take measures to achieve an acceleration aWOT\_ASEP within the acceleration control range.****Table 1 in Appendix 1 to Annex 3 provides examples for valid measures to enable a test condition within the above specified acceleration boundaries. Any measure used by manufacturer for the above-mentioned purposes shall be documented in the test report.**~~Vehicle speed V~~~~BB\_ASEP~~~~:~~~~If the vehicle, in the lowest valid gear does not achieve the maximum engine speed n~~~~BB\_ASEP~~~~below 70 km/h, increase the vehicle speed in that gear to reach the maximum engine speed n~~~~BB\_ASEP~~~~, but not beyond 80 km/h.~~ |  |
|  | Annex 7, 3.1. |  | Determination of the anchor point The anchor point is the same for each gear ratio κ falling under the control range according to paragraph 2.3. The parameters for the anchor point are taken from the acceleration test of Annex 3 as follows:In the case the test has been carried out with two gear ratios:Lanchor isthe higher sound pressure level of Lwot,(i) of left and right side of gear ratio i;nanchor is the average of nBB,wot of the 4 runs of gear ratio i reported from Annex 3;**vanchor is the average of vBB,wot of the 4 runs of gear ratio i reported from Annex 3;****aanchor  is the average of awot,rep of the 4 runs of the gear ratio i reported from Annex 3;**In the case the test has been carried out in a single gear:Lanchor isthe higher sound pressure level of Lwot of left and right side of gear ratio selected for the test;nanchor is the average of nBB,wot of the 4 runs of gear ratio selected for the test reported from Annex 3;**vanchor is the average of vBB,wot of the 4 runs of gear ratio selected for the test reported from Annex 3.****aanchor  is the average of awot,rep of the 4 runs of the gear ratio selected for the test reported from Annex 3;****aanchor is the determined acceleration and not restricted to 2.0 m/s² as provided from paragraph 3.1.2.1.4.3. Annex 3 for determination of the kp‑factor.**" | Determination of the anchor point The anchor point is the same for each gear ratio κ falling under the control range according to paragraph 2.3. The parameters for the anchor point are taken from the acceleration test of Annex 3 as follows:In the case the test has been carried out with two gear ratios:Lanchor isthe higher sound pressure level of Lwot,(i) of left and right side of gear ratio i;nanchor is the average of nBB,wot of the 4 runs of gear ratio i reported from Annex 3;**~~v~~~~anchor~~ ~~is the average of v~~~~BB~~~~,~~~~wot~~ ~~of the 4 runs of gear ratio i reported from Annex 3;~~****~~a~~~~anchor~~~~is the average of a~~~~wot,reptest~~ ~~of the 4 runs of the gear ratio i reported from Annex 3;~~**In the case the test has been carried out in a single gear:Lanchor isthe higher sound pressure level of Lwot of left and right side of gear ratio selected for the test;nanchor is the average of nBB,wot of the 4 runs of gear ratio selected for the test reported from Annex 3;**~~v~~~~anchor~~ ~~is the average of v~~~~BB~~~~,~~~~wot~~ ~~of the 4 runs of gear ratio selected for the test reported from Annex 3.~~****~~a~~~~anchor~~~~is the average of a~~~~wot,rep~~ ~~of the 4 runs of the gear ratio selected for the test reported from Annex 3;~~****~~a~~~~anchor~~~~is the determined acceleration and not restricted to 2.0 m/s² as provided from paragraph 3.1.2.1.4.3. Annex 3 for determination of the k~~~~p‑~~~~factor.”~~****In the case for vehicles subject to paragraph 1.1. of this Annex:****Lanchor isthe higher sound pressure level of Lwot of left and right side of gear ratio selected for the test;****vanchor is the average of vBB,wot of the 4 runs of gear ratio selected for the test reported from Annex 3, but limited to 60 km/h for further calculation.****aanchor is the average acceleration awot test reported from Annex 3, as defined in paragraph 3.1.2.1.2. of Annex 3;****aanchor is the measured acceleration and is not limited to 2.0 m/s² as provided from Annex 3 paragraph 3.1.2.1.4.3. for determination of the kp‑factor.”** | The vehicle speed at the anchor point is limited to 60 km/h. For some Type Approval Authorities and manufacturers, who do not want to limit the acceleration in Annex 3 WOT-test in regard to vehicle safety (no blocking of accelerator), the effect of moving the anchor point to higher speeds would lead to an unneeded burden. By limiting the speed this burden is also limited. |
|  | Annex 7, 3.4. |  | Calculation of the sound level increase regarding performance For vehicles subject to paragraph 1.1. of this annex, the sound level ΔLacc,κj for measurement point j and gear ratio κ shall be calculated:$For v\_{BB test κ,j} × a\_{wot\_{test} κ,j}\leq v\_{anchor}× a\_{anchor}: $ $ΔL\_{acc κ,j\_{ }}=0 dB$$$For v\_{BB test κ,j} × a\_{wot\_{test} κ,j}> v\_{anchor}× a\_{anchor}: $$$$ ΔL\_{acc κ,j\_{ }}=[8dB] ×log\_{10}\left(\frac{ v\_{BB test κ,j }×a\_{wot\_{test} κ,j}}{ v\_{anchor }×a\_{anchor }}\right)$$For all other vehicles the sound level ΔLacc,κj is set to 0 dB." | **Calculation of the sound level increase regarding performance** **For vehicles subject to paragraph 1.1. of this annex, the sound level ΔLASEP~~acc~~,κj for measurement point j and gear ratio κshall be calculated:**$For v\_{BB, test, κ,j} × a\_{wot, test, κ,j}\leq v\_{anchor}× a\_{anchor}: $$$ΔL\_{ASEPacc,κj\_{ }}=0 dB$$$$For v\_{BB test κ,j} × a\_{wot, test, κ,j}> v\_{anchor}× a\_{anchor}: $$$$ ΔL\_{ASEPacc,κ,j\_{ }}=[8dB] ×log\_{10}\left(\frac{ v\_{BB test κ,j }×a\_{wot,test, κ,j}}{ v\_{anchor }×a\_{anchor }}\right)$$**For all other vehicles the sound level ΔLASEP~~acc~~,κj is set to 0 dB.**" | To avoid misunderstandings the sound level increase regarding performance is renamed from Index acc to ASEP. So, the new variable is called Δ LASEP, since it temporary allows higher LASEP -Levels during performances higher than tested in Annex 3. |
|  | Annnex 7, 3.6. |  | SpecificationsEvery individual sound measurement shall be evaluated.The sound level of every specified measurement point shall not exceed the limits given below:Lκj **- ΔLacc κ,**j ≤ LASEP\_κ.j + xWith:~~x = 3 dB(A)~~ **~~+~~** ~~limit value - L~~~~urban~~ ~~for vehicle tested with non-locked transmission conditions~~ x = 2 dB(A) + **(**limit value1 - Lurban), ~~of Annex 3 for all other vehicles~~**and only for vehicles** * **tested with non-locked transmission conditions given by multiple gear ratios or**
* **having multiple electric propulsion sources or**
* **having an Lcrs\_rep greater than Lwot\_rep of Annex 3:**

x = 3 dB + (limit value2 - Lurban) of Annex 3If **at any point** the measured sound level ~~at a point~~ exceeds the limit, two additional measurements at the same point shall be carried out to verify the measurement uncertainty. The vehicle is still in compliance with ASEP, if the average of the three valid measurements at this specific point fulfils the specification."Footnotes:As applicable for the approved type of vehicleAs applicable for the approved type of vehicle | 3.~~5~~**6**. SpecificationsEvery individual sound measurement shall be evaluated.The sound level of every specified measurement point shall not exceed the limits given below:Lκj **- ΔLASEP~~acc,~~ κ,**j ≤ LASEP,κ.j + xWith:~~x = 3 dB(A)~~ **~~+~~** ~~limit value - L~~~~urban~~ ~~for vehicle tested with non-locked transmission conditions~~x = 2 dB~~(A)~~ + **(**limit value1 - Lurban), ~~of Annex 3 for all other vehicles~~**and only for vehicles** * **tested with non-locked transmission conditions given by multiple gear ratios or**
* **having multiple electric propulsion sources or**
* **having an Lcrs\_rep greater than Lwot\_rep of Annex 3:**

x = 3 dB + (limit value2 - L~~urban~~**urban**) of Annex 3If **at any point** the measured sound level ~~at a point~~ exceeds the limit, two additional measurements at the same point shall be carried out to verify the measurement uncertainty. The vehicle is still in compliance with ASEP, if the average of the three valid measurements at this specific point fulfils the specification."Footnotes:As applicable for the approved type of vehicleAs applicable for the approved type of vehicle |  |
| OICA | Annex 92.2. | ed | 2.2. “*Exterior sound enhancement system*" means a system that is installed to a vehicle for producing exterior sound, such as but not limited to sound actuators, either integrated into an exhaust silencing system or mounted as an individual unit. | ~~“2.2. "~~*~~Exterior sound enhancement system~~*~~" means a system that is installed to a vehicle for producing exterior sound, such as but not limited to sound actuators, either integrated into an exhaust silencing system or mounted as an individual unit.”~~ |  |
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1. [↑](#footnote-ref-1)
2. [↑](#footnote-ref-2)