France consideration on maximum noise in Global Technical Regulation on Quiet Road Transport Vehicles

ECE-TRANS-WP29-GRB-58
Why « maximum noise » has to be considered in GTR on QRTV ?

Following § 12 of report WP 29 ECE/TRANS/WP29/1102 and recommandations of AC2 from WP 29, France propose to consider « maximum noise » in GTR on QTRV :

• for environmental and safety issues,
• to transcript to ECE-TRANS-WP29-GRB-58-inf04 annex 9 §4.3 wording into objective criteria,
• to prevent conflict between minimum and maximum noise level.
Environmental and safety issues

- Environmental issue: to prevent noise annoyance in quiet urban areas

- Safety issue: to avoid excessive vehicle noise which might mask others
Transcription of ECE-TRANS-WP29-GRB-58-inf04 annex 9 §4.3 wording

• ECE-TRANS-WP29-GRB-58-inf04e:
  “The sound level generated by the AVAS shall not exceed the approximate sound level of a vehicle of the M1 category equipped with an internal combustion engine and operating under the same conditions.”

• As long as we work to prevent noise annoyance in quiet urban areas, such sentence has to transcript in objective specification.
Conflict between “maximum” and “minimum” noise

• Conflict with ECE51.03 noise reduction limits
• Conflict with ECE51.03 noise limits and testing conditions
• Overlap with ECE51 ASEP
Conflict between “maximum” and “minimum” noise

- Conflict with ECE51 noise reduction limits:

  statistics are build on light ICE vehicle’s compliant for each Eu phase
  (Using OICA dBase)

→ Noise level of ICE will be reduced in next 10 years in Europe.
Sound level of EV with AVAS shall not become higher than ICE
Conflict between “maximum” and “minimum” noise

• Conflict with ECE51.03 noise limits and testing conditions:
  For HDV with powertrains with no rotational engine speed available - 2 target conditions for the vehicle speed $v_{\text{target BB'}}$:

  - $25 \text{ km/h} \leq v_{\text{BB'1}} \leq 35 \text{ km/h}$
  - $35 \text{ km/h} \leq v_{\text{BB'2}} \leq 45 \text{ km/h}$.

$\Rightarrow$ If applicability is confirmed for all EV and HV vehicles, sound level specification has to take into account maximum limit values for HDV.

AVAS will impact ECE51 sound level for that condition
Conflict between “maximum” and “minimum” noise

• Overlap with ECE51 ASEP:
  – No conflict as long as ASEP is applied to vehicles of categories M₁ and N₁ equipped with an internal combustion engine and AVAS is applied on EV and HV (ICE off).
  – If AVAS is applied to quiet ICE or If ASEP is applied to EV, a conflict is possible for excessive noisy AVAS ➔ Non compliance for ASEP due to AVAS could be prevent by a maximum sound level for AVAS.
Conclusions

• France propose to consider, in the purpose and in the development of the GTR on QRTV, the maximum noise:

[The purpose of this standard GTR is to reduce the number of deaths and injuries that result from electric and hybrid [electric] vehicles low speed crashes with pedestrians (and others like but not limited to cyclists) by providing a sound level and sound characteristics necessary for these vehicles to be detected, [located] and recognized by pedestrians]* [without generate excessive noise and introduce conflict regarding ECE51.03].

* From 4th QRTV for GTR meeting
Thank you for your attention