

**(IMMA) STUDY BY IMPACT ASSESSMENT INSTITUTE (IAI) –
ACUSTICA AND T.U. GRAZ ON L-CATEGORY NOISE LEVEL
LIMITS**

**SOUND LIMITS
NORESS & MANIPULATION
ASEP**

MAIN MESSAGES FROM THE PRESENTATION(S)

- 1) Scrutiny study on EU commission's 2017 Cost benefit analysis on Euro 5 sound level limits for L-category (see references below):
 - High uncertainty inherent to cost benefit calculations
 - Reviewed and updated cost benefit calculation show lower benefit/cost ratios from reduced sound level limits
 - Single events difficult to fit in a cost benefit calculation
- 2) Noise Source Ranking study:
 - -2dB sound level limit reductions technically challenging, while -5dB reductions are unfeasible.

SUMMARY

Expert review of EU Commissions 2017 cost benefit analysis study on Euro 5 sound level limits for L-category by IAI (Impact Assessment institute) and Acustica,
Supported by a Noise Source Ranking study performed by T.U.Graz

- 1) Noise Source ranking:
 - Performed on 8 motorcycles, on intake noise, engine noise (mechanical), exhaust noise, overall noise.
 - Challenging technical interventions necessary to meet -2dB reductions,
 - Robust and accurate cost estimations are difficult to achieve due to:
 - Multiple vehicle systems need to be re-designed at the same time to achieve notable reductions,
 - Different vehicle types require intervention on different combinations of vehicle systems.
 - -5dB reductions unfeasible for smaller motorcycles and very challenging or potentially unfeasible for larger motorcycles
 - Not possible without extensive intervention into vehicle and engine concept
 - Due to different characteristics, the main noise sources vary model by model (e.g. smaller scooters' main contributor is usually the driveline, while for bigger motorcycles the exhaust has a much higher contribution to the overall sound emissions)
- 2) EU Commissions 2017 cost-benefit study scrutiny
 - 2017 results have a high level of uncertainty due to inconsistencies in input parameters and unsubstantiated assumptions (absence of sources).
 - After reviewing and updating the 2017 cost benefit's assumptions, data and calculations, the benefit/cost ratio (2dB reduction, 25% illegal exhausts scenario) reduced from 2,18 (2017 study) to 0,82 (2021 updated study), though still subject to high uncertainty
 - No validation of the 2017 study claims that impact of larger limit reductions is stronger for single events. The 2017 Single event analysis is incoherent.

ADDITIONAL POINTS FROM DISCUSSIONS IN THE UN TF-VS

- When considering future limit values also:

Category(ies) of vehicle : L

- UN Regulation No.41-04 ASEP (Additional Sound Emission Provisions) and No.41-05 RD-ASEP (Real Driving-ASEP),
- the type and category of vehicle, and
- anti-manipulation and driving behaviour measures need to be considered.
- RD-ASEP step 2 is being considered

REFERENCES

- [TFVS-07-09Rev1](#) (IMMA) IAI-Acustica-TUG study_motorcycles
- [TFVS-07-10](#) (IMMA) TUGraz - Experimental Noise Source Ranking
- [TFVS-07-12](#) (IMMA) IAI_and_Acustica - CBA_study_on_Euro_5_sound_limits_for_L-category_vehicles
- [TFVS-08-07](#) (IMMA) 220404 IAI-Acustica Presentation for TF-VS final
- [TFVS-08-09](#) (IMMA) Report FVT-044-21 ACEM NSR_April_4th_Meeting
- Link to the official report: Technical support for the impact assessment on Euro 5 step of L-category sound emissions level limits published on June 03, 2022