

**(EU/IDIADA) STUDY BY IDIADA & RACC ON L-CATEGORY
NOISE LEVEL LIMITS**

**SOUND LIMITS
NORESS & MANIPULATION
ENFORCEMENT**

MAIN MESSAGES FROM THE PRESENTATION(S)

The objective of this study is to assist EC DG/GROW with the evaluation of possible new sound level limits for L-category vehicles. In order to do so, the following sub-objectives were defined:

- a) Evaluation of the sound level of the state-of-the-art vehicles
- b) Ranking of the different sources of noise of the vehicle
- c) Proposal of new sound-level limits

To reduce real world noise issues from L-category vehicles, avoiding tampering by enforcement (market surveillance, PTI, ...) is the better solution over lower Type Approval noise level limits.

SUMMARY

EU Commission study, performed by IDIADA & RACC -ACASA (Real Automòbil Club de Catalunya), as technical support for the impact assessment for the Euro 5 step of L-category sound emissions level limits.

- The study contained following tasks:
 - Estimation of L-category fleet representativeness in the sound emissions, by means of a stakeholder summary.
 - Main conclusions:
 - Fitting NORESS (Non-Original Replacement Exhaust Sound System) is seen as having a significant impact on motorcycle noise perception,
 - L3's seen as the vehicle category more prone to tampering,
 - L3e-A3 seen as sub-category more difficult to comply to current sound level limits,
 - Opinions regarding a possible sound emission level limit reduction are divided
 - In-use controls are understood as an efficient way to lower the real-world noise emissions caused by motorcycles in an efficient way.
 - Verification of sound level limits of current motorcycles (19 vehicles tested)
 - Main conclusions:
 - All 18 vehicles below current limits
 - The margins between the test results and the current limits vary depending on vehicle sub-category
 - Most vehicles tested according to the new R41-05 RD-ASEP give positive results.
 - Noise Source ranking tests, mapping out which sub-components are the main contributors to motorcycle noise. The tested vehicles were selected based on diverse configurations (not based on sales volume).
 - Main conclusions:
 - Various technologies are used for L-category noise control and influenced by the type of vehicle.
 - Available space is a key point for the definition of the most cost-effective strategies for noise control
 - Technology refinements applied to silencers, shields, packaging, engine block vibrations, gearing or valve design can provide noise reductions.
 - Expected noise reduction of reasonable (evolutionary) design modifications of L-cat vehicles is low
 - Cost Benefit Analysis of different scenarios:
 - Main conclusions:
 - Reduce tampering /Increased enforcement (scenario A); Positive cost-benefit ratios

- Reduce tampering and -2 dB (scenario B): Technically feasible (except for very low powered motorcycles PMR < 50); Positive cost-benefit ratios.
- Reduce tampering and -4 dB (scenario C): Technically unfeasible; Negative cost-benefit ratios;
 - “unfeasible” (1) Technical: not possible more than 3dB, and (2). Cost too high.
- Reduce tampering and -2 dB + -2 dB (scenario D): Technically unfeasible; Positive cost-benefit ratios
- The study confirms the need to address tampering issues with regards to motorcycle’s noise as an urgency

ADDITIONAL POINTS FROM DISCUSSIONS IN THE UN TF-VS

- The EC acknowledges that tampering should be addressed first (e.g., Market Surveillance, PTI, ...)
 - Usually tampering issues are coming mainly from after-market, vehicles manufacturers can do more or less nothing
 - Do we need ‘more regulation’ if current ones are not enforced? Limits we have now are stringent, but there is need for enforcement.
- IMMA points out that that each motorcycle type has its own challenges (= no one technical solution to reduce Motorcycle noise).
- Germany MoT (Ministry of Transport) remarks that drastic noise limit reductions will have a negative effect on manipulations.

REFERENCES

- [TFVS-04-15](#) (EC) TF_SL-4_13-14-09-2021_L_Cat_Euro_5_step_project_presentation
- [TFVS-09-04](#) (EC-Idiada) Present_L_cat_vehicles_IDIADA_RACC_TFVS 9 24052022_v3_Final2
- [TFVS-10-03](#) (EC) EC Study for L-categories
- [TFVS-11-08](#) (Secretary) Publication of EC impact assessment on euro-ET0522080ENN
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](#)