

**(OICA/ACEA/ATEEL) COMPARISON OF EMISIA & ATEEL  
STUDY ON SOUND LIMIT VALUES FOR M & N VEHICLES**

**PREDICTION MODEL  
TRAFFIC FLOW  
CBA  
SOUND LIMITS  
SINGLE EVENTS  
ROAD SURFACE  
TYRE ROAD NOISE**

**MAIN MESSAGES FROM THE PRESENTATION(S)**

This comparison study shows the need to review the different studies available and especially the EMISIA[1] & ATEEL[2] studies to better understand the hypothesis and the scenarios used. Then it will be possible in a timeline to be defined:

- to improve the current noise mapping model to make it still more representative of what it happens in real life and the impact of noise on citizen comfort & health.
- to consider really effective actions whether on vehicles, tyres, roads, speeds, noise sonar, ...

**SUMMARY**

Points that have been considered in this comparison study:

- Comparison of the approaches and the findings in the ATEEL & EMISIA studies.
- Impact calculations for limit value scenarios and alternative measures using ATEEL simulation tool
- Reflection on Brussels Environment study
- Representativeness of type approval values for real traffic situations differing from type approval conditions

Conclusions after peer review and recommendations

- Regarding benefits and measures
  - o Both studies conclude that benefits by further limit reductions are highly limited and time delayed
  - o Both studies conclude that a reduction of tyre rolling sound provides the highest benefit
  - o Benefits of the CBA (Cost Benefit Analysis) appear significantly too high according to recalculation with ATEEL tool. The values used for the CBA need to be updated & consolidated to make sure they are fully representative and realistic.

Both studies are not in line on the implementation deployment and the effect of the achievable tyre noise improvement.

  - o Powertrain measures can only contribute to sound improvements in conjunction with quite road surfaces and / or tyres
  - o Improvements by alternative measure such as quiet asphalt or vehicle speed limits evaluated by ATEEL as most efficient since even older vehicles would immediately benefit
- Regarding results and final limit value proposals
  - o EMISIA study final proposal provides only minor space for limit reductions → only a minor improvement can be expected
  - o The final proposal for category N3 is not considered realistic (see presentations [GRB-51-13](#), [GRB-51-20](#), [GRB-53-17](#))
  - o Considering higher accelerations is a step back towards UN Regulation No.51-02 – inefficient and not representative for real traffic
  - o Most single events, caused by bad driving style or manipulated vehicles, could be handled efficient by traffic monitoring
- Recommendations for next Steps
  - o Legislation side – limit value adaptations beyond phase 3
    - Wait for new exhaust emission legislation impact on vehicle design
    - Wait for phase 3 vehicles to enter the market and observe the impact on sound level

- Examine more closely costs and risks/drawbacks of other disciplines such as safety and pollutants
- Take also into account the desired/efficient movement of goods and people. e.g. payload or packaging issues
- Additional tasks that could help to get a better understanding on real traffic issues
  - More campaigns similar to recent studies (Brussels Env., Bruitparif, G+P Switzerland and FEDRO) help to understand real traffic noise
  - Gathering of N3 vehicle data with realistic configuration especially on street types with higher driving speed

#### ADDITIONAL POINTS FROM DISCUSSIONS IN THE UN TF-VS

- Regarding the real sound level of the vehicles on the street, we may have a potential discrepancy between the vehicles running on OE (Original Equipment) tyres, used during the type-approval process, and the vehicles using replacement / aftermarket tyres fitted to the vehicle (according to the different priorities for the vehicle's owner).
- The status of tyres in real life is unknown.
- The interaction between the tire and the road including the road dispersion has to be considered, and not the tyre alone.
- CBA provides a lot of room for questions and discussions since the data (from 2010's – need to be updated), assumptions and boundary conditions require further description for better understanding, assessment and then improvement.
- In both studies (ATEEL[2] & EMISIA[1]), aging of vehicles was not considered. The renewal of the fleet was considered with a certain exchange rate of the vehicles.
- The existing noise mapping models should be revised to be better aligned with the real-life situation taking, into account the recent studies and technical innovations. Especially current vehicles (state of the art), the road surfaces, the street types, the weather scenarios, the tire choice, the age of vehicles, the vehicle speeds, the number of lanes in the street, the distance between the facades and the street should be considered. The link between the knowledge on the testing and the knowledge on modelling the noise mapping needs to be aligned.
  - ➔ From different results on the current CNOSSOS (Common NOise aSSessment MethOdS in Europe – Environmental Noise Directive 2002/49/EC (END)) model vs. its representativity of the reality shows the need to re-work the noise mapping model.
  - ➔ For reminder, the Current CNOSSOS model is based on sound emission source data collected in 2007-2009 and the resulting sound emission model was adopted in 2012. The continuous progress of the vehicles and most of the other measures for the noise abatement like speed reduction, better roads should be better reflected in the calculation model Cnossos. This progress will be visible not only in the real sound environment but also in the resulting strategic noise maps.
  - ➔ A review of each study (Emisia, Phenomena, ...) is needed to make a kind of a plausibility check on the hypothesis and the scenarios used in the studies to clearly lay down what is assumed in the establishment of such scenarios. These checks should be shared in reports so that readers can validate the scenarios and make them more comparable.

#### REFERENCES

- [TFVS-10-04 Rev.1](#) (OICA/ACEA/ATEEL): Comparison of EMISIA ([TFVS-07-11](#)) & ATEEL ([TFVS-07-03](#)) study on sound limit values for vehicle category M & N – Interim results
  - [TFVS-11-05](#) (OICA/ACEA/ATEEL): Comparison of EMISIA & ATEEL study on sound limit values for vehicle category M & N – Final
- [1] [EC Study for M/N-cat.](#) or [TFVS-07-11](#) (EC/EMISIA): Study on sound level limits of M- and N-category vehicles – full report, <https://op.europa.eu/en/publication-detail/-/publication/d23a63bc-8310-11ec-8c40-01aa75ed71a1/language-en>

Category(ies) of vehicle: M & N

[2] [TFVS-04-10](#) (OICA/ACEA/ATEEL): Intermediate presentation, [TFVS-07-03](#) (OICA/ACEA/ATEEL): Final report, and [TFVS-07-04](#) (OICA/ACEA/ATEEL): Final presentation