

EURO 7/VII EMISSION STANDARDS FOR CARS, VANS, BUSES AND TRUCKS

Position paper - June 2021

The European emissions control industry that AECC represents today issues this updated AECC position paper on Euro 7/VII emission standards for cars, vans, buses and trucks. The aim is to further clarify the views of our industry as well as to consider some of the content presented by the CLOVE consortium to the recent meetings of the Advisory Group on Vehicle Emission Standards (AGVES).

A [first position paper](#)¹ on Euro 7/VII emission standards was released by AECC in July 2020. Since then AECC contributed with presentations in the AGVES meetings on 26 November 2020 and 24 February 2021. AECC also sent an [open letter](#)² on an ambitious Euro 7 and the uptake of sustainable renewable fuels in Internal Combustion Engines (ICEs) on 24 March 2021.

AECC remains committed to contribute to the discussion and development of ambitious Euro 7/VII real-world emissions standards. As a new contribution, please find herewith our updated AECC position on Euro 7/VII.

AECC supports an ambitious proposal for future Euro 7/VII emission legislations for light- and heavy-duty vehicles to further decrease road traffic pollutant emissions with advanced emission control systems. The Euro 7/VII is a key element of the Smart and Sustainable Mobility package under the EU's Green Deal. It should embrace an all-inclusive strategy in a technology neutral context ensuring all powertrain technologies contribute to the EU's Green Deal long-term goals.

The Euro 7/VII Regulation development is a unique opportunity within the Smart and Sustainable Mobility package to ensure truly clean vehicles on European roads, while minimising impact on the health of EU citizens and preserving mobility options for everybody's needs. An all-inclusive strategy should be embraced to enable all powertrain technologies to contribute to the EU's Green Deal long-term goals. Advanced combustion engines within various forms of hybrid vehicles are predicted to dominate the European powertrain mix beyond the next decade. A holistic policy framework is needed to ensure this majority of the vehicle fleet is part of the solution to improve air quality in our cities, to minimise health impacts as well as to mitigate climate change. Mitigating climate change is covered by other regulatory frameworks and policies. In that context, AECC supports measures for the enhanced uptake of sustainable renewable fuels. This will allow to accelerate the reduction of CO₂ emissions from road transport with an immediate effect from the in-use vehicles using the existing fuelling infrastructure, in addition to new vehicles.

To undertake all possible efforts to reduce harmful effects of vehicle pollutants on the health of European citizens and to improve European air quality, a next step in the on-road vehicles' emission legislation is surely needed. It will have a positive effect well beyond the next decade as the fleet renewal takes more than 10 years. AECC provides robust scientific data about the application of state-of-the-art emission control technologies to modern ICE powertrain systems.

As reported in various studies on Euro 6/VI emission factors, improvements have been achieved with previous legislative steps. For light-duty vehicles, the introduction of on-road testing with Portable Emissions Measurement Systems (PEMS) within the Real Driving Emissions procedures (RDE), as of Euro 6dTEMP and Euro 6d, has significantly reduced vehicle emissions. The testing framework however still has limitations to the coverage of possible vehicle operation, and is not fully guaranteeing low emissions in high impact areas for urban air quality. For heavy-duty vehicles, the introduction of PEMS testing in Euro VI also reduced emissions. However, this is so far limited to the emissions from an In-Service Conformity test that mimics the type-approval test conditions. A real-world operation test, similar to the light-duty RDE procedure is still to be introduced. Furthermore, several pollutants that are of concern today were not included in the past. Consequently, areas for further improvements do remain for both light- and heavy-duty vehicles.

The Euro 7/VII should address the open issues by further focusing on measured real-world emissions, by having a fuel- and technology-neutral approach in limits and testing, and by legislating according to a 'total system approach' using a 'whole-vehicle' basis¹.

Euro 7/VII furthermore needs to ensure Europe keeps a worldwide leading role in pollutant emissions legislation. This guarantees research, development, innovation and employment in the emissions control industry are kept in Europe. In this way, European standards will continue to serve as the benchmark for other emissions legislations around the world.

To further promote innovation in emission controls and to achieve ambition levels beyond the capabilities of today's state-of-the-art technologies, AECC suggests a phased approach within one legislative package for Euro 7/VII to be implemented over the next years. A phased approach will allow to improve air quality as soon as possible in the highest impact areas, i.e. urban and city environments, relying on emission controls for which the Technology Readiness Levels (TRLs)³ are at 6-7. This is demonstrated in the recent AECC [test programmes](#)⁴⁻⁶ on modern ultra-low emissions demonstrator vehicles. At the same time, such an approach will provide a development outlook for those technologies that are today at a lower TRL and offer a review opportunity for some of the newly introduced regulatory items. Such an approach is already considered by CLOVE for On-Board Measurement (OBM) technologies. This phased approach should ideally be fully defined before the entry into force date of the Euro 7/VII Regulation. Incentives for the introduction of more advanced technologies by early adopters should be welcomed promoting these to find their way on modern vehicles.

AECC appreciates the overall technical assessment presented by the CLOVE consortium to the AGVES meetings, latest on 27 April 2021. The assessment has been well elaborated for gaseous pollutants. AECC does recommend checking the consistency for known trade-offs between different pollutants in the design of emission control systems. The assessment should however be enhanced for particulate emissions as there are several requirements in addition to the limit reduction that make it challenging to achieve the expected Euro 7/VII emission reduction performance. AECC will soon issue a separate technical note with specific comments on light- and heavy-duty vehicles emissions based on the latest AECC test programme data.

Should you need more information, you can contact AECC at info@aecc.eu.

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References

- ¹ AECC Position Paper on Euro 7/VII Emission Standards, 9 July 2020
<https://www.aecc.eu/wp-content/uploads/2020/08/200709-AECC-position-on-Euro-7.pdf>
- ² AECC open letter on Euro 7 and renewable fuels, 24 March 2021
<https://www.aecc.eu/wp-content/uploads/2021/03/210324-AECC-open-letter-on-Euro-7-and-renewable-fuels.pdf>
- ³ Extract from Part 19 - Commission Decision C(2014)4995 – Horizon 2020 Work Programme
- ⁴ “Integrated Diesel System Achieving Ultra-Low Urban and Motorway NOx Emissions on the Road”, J. Demuyneck, et al.; 40th International Vienna Motor Symposium, 15-17 May 2019,
<https://www.aecc.eu/wp-content/uploads/2020/07/190516-AECC-IAV-IPA-Integrated-Diesel-System-achieving-Ultra-Low-NOx-on-the-road-Vienna-Symposium.pdf>
- ⁵ “Demonstration of Extremely Low NOx Emissions with Partly Close-Coupled Emission Control on a Heavy-duty Truck Application”, P. Mendoza Villafuerte, et al.; 42nd International Vienna Motor Symposium, 29-30 April 2021,
https://www.aecc.eu/wp-content/uploads/2021/05/210219_Vienna_HD-diesel-AECC-FEV-paper-final_v2.pdf
- ⁶ “AECC Contribution to the Euro 7/VII Process”, AGVES meeting, 24 February 2021,
<https://www.aecc.eu/wp-content/uploads/2021/02/210224-AECC-presentation-AGVES-final-v2.pdf>

AECC is an international non-profit scientific association of European companies operating worldwide in the research, development, testing and manufacture of key technologies for emissions control. Their products are the ceramic substrates for catalysts and filters; catalysts (substrates with catalytic materials incorporated or coated); adsorbers; filter-based technologies to control engine particulate emissions; and speciality materials incorporated into the catalyst or filter. Members' technology is integrated in the exhaust emissions control systems of cars, commercial vehicles, buses, non-road mobile machinery and motorcycles in Europe. More information on AECC can be found at www.aecc.eu and www.dieselinformation.aecc.eu.

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