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NOTE

From: European Commission

To: Delegations

Subject: Euro 7: Commission's answers to written MS comments

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Questions and Answers on Euro 7

Date of introduction for passenger cars and vans

1. Which time schedule can be expected for the implementing acts required for the implementation of Euro 7?

The work on the implementing rules started with a meeting of AGVES in December 2022. Monthly meetings are foreseen for the coming 6 months and beyond. The aim is that the draft implementing rules for LDV are finished as soon as possible pending the finalisation of the co-decision process and adopted soon thereafter. The implementing rules for HDV might take longer, due to the additional elements needed and also because the proposed HDV application date is two years later.

2. Does the Commission plan to limit the number of implementation stages in the EURO 7 proposal? Fewer implementation stages could ease the implementation process for the national authorities.

The intention is to have a single implementation stage with reviews every three to four years in order to provide stability.

3. What happens to N1 vehicles homologated in Euro VI (according to Regulation 595/2009 heavy goods vehicles) on 1 July 2025?

New N1 vehicles will have to be homologated under the new set of rules of Euro 7 as light duty vehicles.

Emission Limits

4. What technical justification can the Commission give for the proposed limit values for vans with P/m > 35 kW/t, which are 25 % higher than for other cars and vans? What considerations were used to reduce the limit value for the other vans more than for cars, which has been halved compared to Euro 6 e.g. for NOx for N1 Class III vehicles?

The proposed limit values are in line with the assessment of the CLOVE consortium, and the current RDE, which foresees specific limitations for underpowered vans, defined as those having power to mass ratio less than 35 kW/t.

Similarly based on the assessment of the technical experts of the CLOVE consortium, there is no technical reason to allow for higher emissions for vans, since they operate on the same engines and aftertreatment systems as heavier passenger cars. The proposal also took into account that such vans are used extensively in cities for deliveries and therefore it is paramount to keep emissions as well controlled as for cars.

5. Why is the "power-to-mass ratio" based on the mass in running order and not on the technically permissible mass?

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This is a correction that is needed in the definition. I.e., the definition should read: "power-to-mass ratio' means the ratio of rated power to the maximum mass"

6. Why not keep the possibility for manufacturers to choose the approval method for their N1/N2 between light vehicles and heavy vehicle methods?

The removal of such exemptions provides greater clarity and simplicity of the rules, and eliminates 'grey areas' that makes the standard clearer and more effective to implement.

7. Annex I, Table 3: What is the justification for differentiating with a maximum mass of 2650 kg?

This is to recognise that heavier vans have bigger fuel tanks and also higher background emissions from other sources inside the vehicle and should therefore be allowed a higher evaporative limit.

8. What is the intention of the Commission for the introduction of options such as Euro 7 A, G, + etc.? What incentives does the COM see to make these options attractive to manufacturers and customers? What proportion of total registrations does the Commission expect these options to account for?

This allows manufacturers to have certain dedicated vehicles stand out from 'basic' Euro 7 vehicles. This further accommodates national incentive programs to promote sales of greener vehicles. It is for MS, not the Commission, to support these options with appropriate incentives, if they consider them beneficial. The Commission has not made any forecasts on the portion of the total registrations these options might account for.

9. What is the Commission's rationale for proposing cars and vans limits for NMHC and THC instead of a single methane limit, as opposed to lorries and busses, which has an NMOG and methane limit? Why would volatile oxygenates (alcohols, ketones, aldehydes) not be monitored in passenger cars?

The Commission decided to to maintain regulatory stability where possible to the current structure and level of emission limits for LDVs. This is the reason why NMOG was not proposed for LDV.

10. Why has the proposal omitted a nitrous oxide limit value for cars and vans, while it is to be introduced for lorries and busses? Has the Commission investigated whether non-specific or undesirable side reactions can lead to higher nitrous oxide formation in cars and vans with high NOx reduction by exhaust gas catalysts (three-way catalytic converter or SCR catalysts) and what additional costs would be incurred by introducing a nitrous oxide limit value?

The Commission decided to maintain regulatory stability to the current structure and level of emission limits for LDVs where possible. This is the reason why a N₂O limit was not proposed for LDV.

11. The hot limits for HDV are a major challenge, especially for PN, N2O and NOx. The accompanying report says PEMS measurement of NOx below a

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level of 89 mg/kWh is not reliable. So how can you propose a limit of 90 that has legal certainty?

The CLOVE report defines 89 mg/kWh as 10 times the limit of detection, and at least 3 times than the limit of quantification, i.e. including also the engineering margin and allowing for accurate determination of the emissions with extremely high certainty. Furthermore, as shown in the study performed by the JRC together with vehicle and instrument manufacturers (see DOI: 10.3390/ijerph19106199), the current accuracy of portable instruments when measuring NO_x from HDV is approximately 20 mg/kWh, i.e. much lower than the limit of 90 mg/kWh.

12. Concerns regarding technical feasibility have been raised especially regarding the nitrous oxide limits for N2/N3 vehicles. Has the Commission studied and proven the technical feasibility of these limits, especially under Euro 7 normal and extended driving conditions? What is the motivation for this approach?

The limits for N₂O for heavy-duty vehicles are in line with what required by other regions (e.g., USA) and with what is measured in such vehicles currently. Scientific studies (e.g., the JRC study by Selleri et al., 2022 <https://doi.org/10.3390/catal12020184>) show that the proposed cold (100th percentile) N₂O limit has been proven to be feasible for currently available technology.

13. The Euro 7 proposal does not contain a NO_x limit for N1 vehicles running in idle condition, whereas these vehicles are often used for package delivery. Package delivery is characterised by stops with the engine running in residential areas. What is the motivation of the Commission behind the choice not to limit idle running NO_x emissions for N1 vehicles?

Idle emissions for N1 vehicles will be measured during RDE tests and the test needs to be representative of the usage of the vehicle under test. A specific idling limit would be contrary to the Euro 7 goal of simplifying the rules where possible by complicating the analysis of PEMS data.

14. In Euro 7, M1-vehicles will be defined as in article 4 of the Regulation (EU) 2018/858. This can lead to heavy M1-vehicles. How will these heavy M1-vehicles be tested?

There are very few M1 vehicles heavier than 3.5 tonnes, if any. Special purpose M1 vehicles, such as motor caravans, may require adaptation of the rules in Regulation 2018/858.

15. Development of a new fuel system to fulfil new EVAP limit is needed because the EVAP limits are too hard. Costs will be too high especially for small vehicles.

The new EVAP limit is already applicable in other regions, like USA and China and therefore fuel systems that already fulfil the new EVAP limit are already available. The costs of such systems are estimated to be 14 Euro per car/van.

Test Conditions

16. Is the Commission developing rules on the exclusion of unrealistic, manipulative driving in the RDE emissions test ("biased driving")?

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The COM is already working with experts, CLOVE and JRC to find an acceptable method to define and identify "biased driving". Such methodology will be presented in the AGVES meeting of 22 February 2023.

17. More precise definition of trip composition shall be provided. „Any“ might be too loose definition for standardized type approval.

The "any" used for defining what is accepted as normal driving conditions for LDVs should be interpreted in the same way as "as per usual use" which is the term used for HDVs. The intention of the proposal is to include "any" usual driving conditions instead of previously equal parts of urban, rural and highway driving. The intention in this proposal is to regulate emissions for a vehicle that is driven in its usual use, i.e. a passenger car in daily commutes, and also in long ranges, a van in its commercial routes, a bus in its usual daily route, and lorries in long-haul routes.

18. How are the RDE ranges "normal", "extended" and "invalid" to be applied in the evaluation of car and van measurement results? Is a second-by-second accounting of the extended divisor foreseen and are invalid time steps to be excluded from evaluation?

All the details of the measurement procedures are being discussed in the preparation of implementing rules in AGVES. The intention is that periods where more than one extended condition is present, will be excluded from evaluation.

19. What is the legal consequence if more than one parameter is in the "extended" range during an RDE test? In which legal act should this be regulated (basic act/implementing act)?

Tables 1 and 2, of Annex III state that the extended driving divider applies only during the time when one of the extended conditions applies. This implies that when more than one of the conditions apply, this part of the trip is not taken into account during the evaluation.

20. How should the RDE ranges "normal" and "extended" be applied in the evaluation of lorries and busses measurement results in combination with Moving Average Windows (MAW)? Would then all limits for MAW in which one time step exceeds a boundary condition be raised accordingly? Or are the conditions also to be averaged across the MAW?

See answer to previous point, i.e., each data point presenting more than one parameter in the "extended" condition will be excluded from the data evaluation, hence will not be included in the moving average windows.

21. In Euro 6, the RDE test boundary conditions were set based on the analysis of traffic data and there were restrictions with regard to driving dynamics. Please explain which criteria were used in the Euro 7 draft to define the boundary conditions for "normal driving conditions" and "extended driving conditions" and why no extended criterion is provided for driving dynamics after the cold start phase.

This was done on the basis of CLOVE expert's analysis. Euro 7 technologies are expected to control emissions under normal conditions after the cold start phase and regardless of the driving dynamics. Regarding the feasibility, Euro 6 and Euro VI technologies are already able to control emissions beyond the current dynamic driving boundaries.

22. Has a quantification of the utilisation rate of vehicles under extended temperature and altitude conditions been carried out?

A statistical evaluation of the normal and extended conditions suggested by CLOVE was included in CLOVE's Report (see Page 13-14 in Annexes to Report on Testing, Pollutants and Emission Limits). The final conditions were set with minor modifications from today's testing conditions.

23. Annex III: What is meant by "aerodynamic modifications"?

Aerodynamic modifications is a concept already used in the Euro 6 implementing regulations and means any change to the vehicle that would affect its aerodynamic properties.

24. Annex III: What is meant by "auxiliaries – possible as per normal use"?

Auxiliaries should be used in a normal way. As an example, seat heating should not be used in the summer but in the winter and in any case, when the ambient temperature is low enough to require it.

25. Annex III Table 2: How should "towing not allowed" be understood regarding tractor units for semitrailers or road tractors?

The intention is indeed to allow towing for those HDV that are used in such a mode, therefore the wording 'towing' could be deleted.

26. Average maximum power to the wheels during the first 2 kilometres after cold start: should we understand that in extended conditions, it is possible to have 100% of the power from moment 0 of the test from the start?

Data analysed by CLOVE and other experts have shown that in usual tests this 20% power limit is not exceeded. Cases of biased driving will be addressed in the AGVES discussions on the implementing regulations.

27. In Annex III, Table 2, in the line "Towing/aerodynamic modifications" for "extended driving conditions": the text states that it is: "Allowed according to manufacturer specifications and up to the regulated speed". What is meant by "manufacturer specifications"? For the N3, does this include special vehicles, such as exceptional transport, for example 70 tons towed?

Manufacturer's specifications refers to the declared maximum mass allocated to the combination of a motor vehicle and one or more trailers on the basis of its construction features and its design performances or the maximum mass allocated to the combination of a tractor unit and a semi-trailer. Furthermore, the manufacturer may decide to limit the use of aerodynamic modifications considered appropriate under the specific emission type approval.

28. What is the justification for the multiplicative factor of 1.6 for extended conditions in M1-N1 and factor 2 for M2-M3-N2-N3?

The factor of 1.6 for extended conditions of light-duty vehicles was based on the current applicable factor in Euro 6 RDE rules. The factor 2 for extended conditions of heavy-duty vehicles was based on the CLOVE report on Testing, Pollutants and Emission Limits.

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29. Is the emission testing temperature range in the proposal considered sufficiently representative of 'normal' operating temperatures, noting the frequent breaches of these temperatures recorded in recent years?

The higher temperature, i.e. 45 °C is rarely exceeded in Europe and it would be unreasonable to design cars for such rare occurrences. The lower temperature, i.e. -10 °C was decided because the reactant used for emission control of diesel vehicles, i.e. urea, freezes in lower temperatures.

Measurement procedures

30. We ask the EU-COM to confirm that the "Laboratory test of low temperature for emissions + range" (Annex V, Tab 1 + 2) is also planned for cars and vans with electric drive and to explain why a comparable test for HDV is apparently not planned.

The low temperature test is indeed planned for all cars and vans in accordance with Annex 13 of UN Global Technical Regulation 15. For HDV, the range is determined on the basis of VECTO simulations and currently there is no plan to consider the range of HDVs at low temperatures.

31. Annex V, Table 1 provides that exhaust components should be partially tested in the laboratory if they cannot be measured on the road. We ask the Commission to explain which exhaust components are to be measured on the road on a mandatory basis and which exhaust components can be measured in the laboratory?

The pollutants that can be routinely measured on the road already are NO_x, PN, and CO. Studies have demonstrated the feasibility of measuring other pollutants e.g. NH₃, N₂O and HCHO on the road. The experts are currently developing requirements for the PEMS to be able to measure other pollutants as well. In the meantime, all pollutants can be measured in the laboratory by testing RDE cycles driven on the road with a particular type of vehicle. Such RDE cycles in the laboratory should reflect the actual use of a vehicle.

32. Please explain which PEMS devices are intended to be used for Euro 7 measurements for cars, vans and trucks (e.g. "mobile FTIR") and which pollutant-specific measurement uncertainty was assumed for the proposed limits.

The PEMS devices that should be used for the Euro 7 measurements will be dictated by the performance requirements set for PEMS in the implementing rules. Such rules are currently being discussed in AGVES. There was a thorough analysis of the CLOVE experts which estimated that the limits proposed can be accurately measured. This analysis was presented in AGVES and included in the technical report accompanying the proposal.

33. Methodology for newly measured components NH₃, PN₁₀, NMOG, HCHO needs to be clearly defined. It is important to know for the level of equipment needed in the laboratories.

The Commission agrees this should be properly defined in the implementing legislation. Studies have demonstrated the feasibility of measuring these components on the road with very good accuracy. Experts are working on defining the appropriate technical requirements.

34.HDV: Are validity criteria to be introduced for the Moving Average Windows (MAWs) or is it planned to utilize the CLOVE "Reference Power" method? If so: why is the > 10 % load criterion needed? If no: is there protection against misuse testing? A MAW with a very low engine output would be sufficient at the 100th percentile limit to exceed the limit (g/kWh division by a very low value possible).

All moving average windows will be taken into consideration in the analyses. The CLOVE "reference power" method has not been included in the proposal. Instead, for those rare cases where the average power for the moving average windows is below 6% (i.e., windows where operation is heavily impacted by idle operation), those windows will be assessed against the idle limit. This will be further elaborated in the AGVES meetings and implementing rules. See also the reply to an earlier question on determining biased driving.

35.Will there be provisions for PEMS accuracy and calibration?

All the requirements related to the PEMS will be defined in the implementing rules, as is the case today.

36.For vehicles of category M1 there are no mass limits, for vehicles above a certain mass (i. e. more than 5 tons) there will be technical difficulties to perform WLTC on a chassis dyno. SPV or multistage provisions will cover many of these cases, nevertheless there could be problems with some vehicles. Is it planned to divide M1 vehicles by mass?

Very few M1 vehicles will be more than 5 tons of maximum mass and the majority of these vehicles will fall under the definition of special purpose vehicles, therefore having particular requirements to be defined in Regulation 2018/858.

37.Methodology for measurement of refueling emissions needs to be clearly defined. It is necessary to provide reference or define new methodology. Important to know for the level of equipment needed in the laboratories.

The draft methodology for defining refuelling emissions will be presented at the AGVES meeting of 22 February 2023 and will be discussed with all stakeholders.

38.Test conditions for "Extended driving conditions": speed above 145 km/h and altitude of more than 700 m are difficult to be achieved in certain EU countries. How will those countries test in "extended driving conditions"?

There is no need to test under extended driving conditions in all countries. In case a MS wants to test for those extended conditions and not able to do it on the road, the RDE may be replicated in the laboratory, as long as it was previously driven by the same vehicle type somewhere in the EU.

39.Confirmation is needed that PM measurement is not expected for RDE on road. Define which pollutants shall be measured in RDE on the road and which in RDE cycles on the chassis dyno and which in WLTP. Important to know for the level of equipment needed in the laboratories.

PM measurements in the real life driving are not needed. In case a gaseous pollutant cannot be measured on the road, then an RDE in the lab is required in order to measure all pollutants either with lab equipment or PEMS.

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OBM

40. Which pollutants are to be monitored by means of OBM, also with regard to the future availability and performance of the sensors?

The pollutants monitored in the initial implementation of OBM are NO_x, NH₃ and particle mass. This choice is based on the state of development of the sensors as evaluated in the impact assessment. The technical discussions on the future implementing rules will take place in AGVES.

41. What is the objective of measurement in the vehicle by means of installed sensors (NO_x, NH₃)? Are the data only of informative nature or are legal consequences planned in the event of limit values being exceeded, and who should be the addressee of the measures (owner, manufacturer, type approval authority)?

The objective of measurements via sensors is to know whether the emission control system of a vehicle is functioning properly, or whether it over-emits. In case of detection of persistently high emissions (beyond a certain threshold, for a significant number of the recent trips), the vehicle would trigger an inducement procedure to ensure that vehicles do not continue to circulate for long periods with high emissions unless the emissions return to normal levels (e.g., after a repair). The inducement would apply progressively (providing a soft warning well in advance of stronger measures such as preventing engine start). It could also allow emission levels to self-heal (to mitigate the risk of unnecessary repairs). This measure addresses the owner.

OBM will also be used in order to ensure that a vehicle type complies with the regulation (via checking data of several thousands of vehicles of the same type). This measure addresses the manufacturer and authorities (both type approval and market surveillance ones). In this case, the thresholds and statistical criteria would be stricter than those applied at the vehicle level since the level of accuracy when reading thousands of vehicles is much greater than when reading a single vehicle.

42. Article 6 (3): "Manufacturers shall ensure that OBFCM, OBD and OBM devices and anti-tampering measures installed in these vehicles comply with the provisions of this Regulation as long as the vehicle is in use" What is meant by that? Which obligations does this provision mean for the manufacturers considering vehicles in use?

"As long as the vehicle is in use" means until the individual vehicle is removed from the market. Monitoring via OBM of a single vehicle, and the inducement procedure described above, should continue regardless of the mileage of the vehicle. The criteria to evaluate OBM data (at the individual vehicle) should take ageing into account in a way that is consistent with Euro 7 durability requirements. The requirement for the authorities to check vehicle types would however end at the lifetime requirements set in Annex IV.

43. Will the OBD/OBM system substitute tailpipe measurements during periodical technical inspections (PTI)? If yes, how will the Commission avoid manipulated OBD/OBM systems to pass a PTI?

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OBM has the potential to complement or even substitute PTI procedure in the future. Any such changes to PTI will be covered by the work on the Roadworthiness Package led by DG MOVE.

44. Will the extraction of data from the OBM system be dependent on the vehicle owner's consent?

OBM data will be transferred anonymously over the air to a central server and will only serve to verify the compliance of a vehicle type, not a single vehicle. It will still be up to the owner of the vehicle, whether these data can also be used for PTI purposes and therefore read directly from the vehicle.

45. How is the on-board monitoring system expected to record errors and faults during the vehicle's life cycle and to provide related information through wireless access/OBD port?

OBM systems should be able to report their own fault state, which would trigger the inducement procedure.

46. Is it intended to save the entire vehicle's error history in the OBM system, so that it would be available for use by the owner, the authorities and also generally for statistical purposes?

No. A history of OBD faults will not be stored by OBM. OBM data about repair events may however be stored and reported by OBM systems, as it allows to monitor the performance of the inducement and supports the work of market surveillance authorities.

47. Would it be necessary to lay down basic requirements for the use of OBM systems and the possibilities of using its data already on the regulation?

The implementing regulation will lay down requirements for the OBM systems and specify the data that need to be made available, stored and transmitted by the vehicle. The rules for the inducement will be specified, as well as the criteria for establishing compliance for a vehicle type. OBM data will also support the work of market surveillance authorities.

48. How does the Commission make sure, that these sensors will be available in due time for development, certification and homologation until 2025? What if this forecast does not fit and these sensors do not show the expected accuracy or lifetime stability?

NOx sensor technology is already mature for the OBM applications foreseen in Euro 7. The same sensors that are used to manage exhaust after-treatment systems can reasonably be used also for OBM.

49. Euro 6 "High emitter vehicles" can drive with no OBD warning activated. The vehicle will not be repaired before the OBD warning is on and the vehicle is approaching limp mode and subsequently torque reduction. We would appreciate if the Commission would elaborate on how the proposal for Euro 7 could help solve this issue.

The inducement will be a key building block of OBM rules to enforce repairs of vehicles with repeated emission exceedances. The inducement should apply progressively (providing a soft

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warning well in advance of stronger measures such as preventing engine start). It could also allow emission levels to self-heal (to mitigate the risk of unnecessary repairs).

Brake / Tyre abrasion

50. How high is the measurement uncertainty of the method described in the proposed GTR on the brake abrasion measurement procedure, which is applied as a mark-up on a development target for manufacturers, in this case for PM10 and PN?

The measurement variability during the Interlaboratory study (ILS) was reported to be in the range of up to 30% for PM10, to 40% for PN, and to 10% for the total brake mass loss. However, this level of uncertainty already overestimates the actual method's uncertainty since the vast majority of the participating laboratories did not respect the minimum technical specifications defined prior to the ILS.

Following this, a series of additional technical specifications with the aim of minimizing particle losses and making the method more robust were introduced. This applies both to PM10 and PN measurement setups. As a consequence, JRC estimates that the measurement uncertainty is currently much lower.

51. Does the brake limit level already take into account the simplified approach to account for regenerative braking components in the GTR? This would reduce the calculated emissions from mechanical braking fractions and could potentially underestimate emissions for PHEVs and Mild-HEVs.

The most important technologies for reducing brake particle emissions include regenerative braking, the use of NAO pads as an alternative to ECE pads, and the use of coated discs as an alternative to the conventional cast iron discs. These technologies have been the basis of the proposed Euro 7 PM10 limit and will be considered for a possible definition of PN limits in the future.

The current version of the GTR uses fixed coefficients for the different vehicle types (Mild-hybrids, Full-hybrids, PHEV, PEV) based on all available data in the PMP group and taking into account the worst-case within each vehicle type. The next version of the GTR will provide a method for calculating the specific friction energy values for each individual vehicle. This will make the method even more representative of the real-world applications. Based on these, we don't have any reason to believe that brake emissions from PHEVs and Mild-HEVs are underestimated.

52. With regard to brake wear, are there differences between PEV and ICE vehicles in terms of the test method?

The testing procedure is the same regardless of the vehicle's electrification grade, but specific characteristics of the brake system are taken into account. This means that brakes mounted on PEVs are tested as if they were mounted in an ICE vehicle, however applying the PEV characteristics (vehicle mass, brake force distribution). The final methodology takes into account the regenerative capabilities of PEVs.

53. How are tyre types used in the Nordic countries to be measured?

Studded tyres are associated with much higher tyre abrasion compared to regular winter tyres. The testing methodology for measuring tyre abrasion currently studied in the Task

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Force for Tyre Abrasion (i.e. on-road method) can be applied to all types of tyres available in the market.

54. As vehicle fleets undergo electrification, impacts to local environment from tyre and brake-wear will become increasingly significant. What is the basis for exclusion of analysis of PMs and other non-tailpipe pollutants to water and soil quality? What methods were assessed, and can the Commission indicate if this will be introduced at a later stage?

The proposal recognises the importance of particles emitted by brake systems and microplastics emitted by tyres to the environment, including their importance to water and soil quality. It is expected that with the shift to electrification, the emissions from brake systems will diminish due to use of regenerative braking. This is reflected in the lower emission limit set for brakes after 2035. However, tyre emissions are expected to remain important or even increase from electrified vehicles, due to the increase in weight of such vehicles, when compared with traditional ones.

Studies estimate tyres to be one of the most important sources of microplastics in the environment. For this reason, the proposed testing methodology for measuring tyre abrasion (i.e. mass loss of the tyre per distance driven) quantifies all the material released by a tyre during normal driving. This includes larger particles (i.e. microplastics) that end up in other environmental compartments including soil and water.

55. Limits for fine particles from brake abrasion are not yet defined. When does the Commission expect the next steps on this under Euro 7, and what does the commission expect these steps to look like?

Currently the database of particle number (PN) emissions from brakes is relatively small. There is a need to collect more data with the application of the current GTR method to reach a solid conclusion regarding the actual emission levels of PN.

56. Methodology for measurement of the brake tyre abrasion needs to be clearly defined. How this will be implemented into the lifetime of the vehicle? Does it mean that components used during homologation can be used only? Limits for brake particles for vehicles M1/N1 are set, but test procedure is still discussed in UN/ECE (GTR).

The methodology for brake emissions is clearly defined in the GTR for brake particles that was approved by UN GRPE in January 2023. While for OEMs the rules for the initial type approval of brakes are clear, the rules for the aftermarket are still under discussion and need to take into account parameters of high importance in terms of PM emissions while also aiming to reduce the amount of necessary tests. The next step in the GTR development will also need to set clear rules for the aftermarket sale of components of the brake systems.

57. Annex III, table 5: This table should refer to tyre classes C1/C2/C3 and not to vehicles, as abrasion concerns tyres, regardless of the vehicles on which they are fitted.

We confirm that tyre abrasion is going to be an approval for tyres and not related to a specific vehicle type.

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Durability

58. Why is the durability requirement for cars and vans set at 160,000 km or 8 years for the main service life and 200,000 km or 10 years for the extended service life, when the average service life of cars and vans in Europe is higher at approx. 11 years? What is the reasoning behind the current proposed vehicle lifespan for HDV?

The main durability was set at this level, in order to keep the same duration of main life as in Euro 6/VI. The extended durability was set at this level based on an analysis contained in the report on durability. Vehicles that would be in circulation for longer periods, would still need to maintain a good level of emission control, due to the inducement procedure linked to the OBD. The reason for increasing the lifespan of HDV is to be more closely in line with the average vehicle lifetime.

59. Annex IV, table 2 durability: what is the justification for the multiplicative factor of 1.2 for M1, N1 and M2 vehicles? When will the "durability multiplier" for heavy-duty vehicles be defined? What will be the basis for this value?

This is a durability multiplier for adjusting the gaseous pollutant emissions limits when testing vehicles during the additional lifetime, set on the basis of the CLOVE technical report on durability. CLOVE is currently working on a proposal to establish HDV durability factors, based on used vehicle testing.

In Service Conformity

60. How can it be ensured that the vehicle data and parameters required for independent testing (third-party testing) are made available by the manufacturers in a uniform or standardized manner?

All data required for testing Euro 6 vehicles are regulated in Annex II of Regulation 2017/1151 and in Regulation 2022/163. Similar clauses will be inserted in the implementing rules of Euro 7, currently under development. All necessary data, such as the condition of the emission control system and traction batteries will be made available via the OBD port and in certain cases over the air.

Required measurement technology/engineering

61. We ask for an explanation of which technological changes to the vehicles (e.g. "twin dosing", "electrically heated catalyst") were used as a basis for determining the additional costs compared to Euro 6d vehicles. What costs were applied for the individual changes, including for OBM sensors and ORVR?

The CLOVE Impact Assessment Study report includes all hardware costs included in the evaluated options per vehicle category as well an explanation of the methodology used.

For the final proposal on LDV (which is different from the ones evaluated in the IA), we estimated on average the need for calibrations in the engine and exhaust systems (~€60-90), ORVR introduction (~€16), improvement in the sensors used for OBM (~€7) and

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advanced brakes (~€23). The costs estimated are slightly higher than the PO1, yet significantly lower than those in PO2a and PO3a.

Market surveillance

62. Will the EURO 7 cause more testing for the national market surveillance authorities?

No it will not. The rules for the required numbers of testing under Regulation 2018/858 still apply. The market surveillance tests in annex V tables 2, 4, 6, 8 & 10 should be seen only as specifying which tests are necessary when a MS needs to perform an "emission related test covering all the applicable emissions-related requirements".

Type approval

63. Could you please specify which TAA is the text referring to? Is it the type approval authority that granted the emissions type approval or any type approval authority?

All references to TAA should be understood as Granting Type Approval Authority.

64. Please specify what the term "national authorities" means?

National authorities means the type approval and market surveillance authorities as defined in Article 3 (37) of Regulation (EU) 2018/858.

65. Why are the SVM and USVM only related to vehicles M1 and N1? There are also SVM and USVM for HDVs.

SVM and USVM are not yet defined for HDVs. This is the reason why the proposal includes the empowerment to be able to set out the definitions for SVM and USVM for HDV after a thorough evaluation.

66. Provide specific information what/who are the third parties. In the Article 9 and 13(10) of Regulation (EU) 2018/858 is not clearly defined who are the third parties. As they will have opportunity to use sensitive manufacturer data is necessary to know who is using them.

The detailed rules for third Parties are defined in Commission Implementing Regulation (EU) 2022/163.

Anti-tampering

67. Will the Commission take account of the widespread issue of tampering with emission control systems when considering durability requirements, and how can this be addressed? Is there scope for alignment with DG MOVE's proposed revision of the Roadworthiness Directives in respect of anti-tampering, cybersecurity measures, etc.?

Tampering has many aspects and should be prohibited by all relevant regulations. In the type approval regulation, it is important to protect from tampering from the side of the OEMs, i.e. introduce strong security measures to make tampering so difficult that it is no longer profitable.

This document is intended to facilitate the understanding of the technical issues in the Euro 7 proposal and is in itself not legally binding for the Commission.

Others

68. Why is the environmental vehicle passport-EVP necessary if all the environmental data included in the EVP are already available in the CoC? What data will the EVP contain?

The CoC is mainly used for registration purposes and used by the registration offices in the Member States. The EVP has a consumer focus and will contain consumer related information which may be relevant in making a purchase decision, as well as being relevant for verifications and testing performed in regards emissions. The data contained in the EVP will be specified in the implementing rules and discussed with experts in AGVES.