EUROPEAN COMMISSION
ENTERPRISE AND INDUSTRY DIRECTORATE-GENERAL

Director-General

Brussels, 25 JUIN 2012
ENTR/D/5/KS/iv –(2012)842683

NOTE FOR THE ATTENTION OF K. FALKENBERG,
DIRECTOR-GENERAL, DG ENVIRONMENT

Subject: Implementation of Euro 6, Real Driving Emissions (RDE)

I thank you for your note of 27 April addressing some important issues in relation to real driving emissions of Euro 6 light duty vehicles. I have consequently advised my services to take into account your comments in the discussions with Member States.

I would like to inform you that the DG ENTR note to Member States has been revised accordingly (see annex) and I would like to suggest that our responsible services remain in close contacts for the following up of the respective work.

[redacted]

(electronically signed)
Daniel Calleja

Encl. : 1

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EUROPEAN COMMISSION
ENTERPRISE AND INDUSTRY DIRECTORATE-GENERAL

Industrial Innovation and Mobility Industries
Automotive industry

Brussels, 2. Mai 2012
ENTR.F1/KS D(2012)

Real Driving Emissions of Light Duty Vehicles:

Meeting with Member States of 3 May 2012

1. RDE test procedure

The guiding criterion for the RDE test procedure has to be that it covers normal conditions of use of a type approved vehicle comprehensively and delivers emission results that are close to the average emissions under such normal conditions of use, regardless of the vehicle emissions control strategies and technologies. The RDE procedure should also be easily integrable in existing type approval processes (initial type approval, in-service conformity and possibly conformity of production) at reasonable costs.

The RDE test procedure consists of several, independent elements:

(1) "Proper" test method for measuring emissions, for which two candidate methods are examined: the use of portable emission measurement systems (PEMS) during actual on-road driving, and a randomized lab test cycle, designed according to criteria addressing a wide range of driving situations. The JRC, in collaboration with stakeholders, has developed a matrix, which assesses the two candidate methods against a series of agreed criteria. At the Member States meeting on 3 May 2012 for some of the criteria draft assessments will be provided and should be discussed. After taking into account the results of this meeting, a completed assessment matrix together with first conclusions on the RDE test method(s) to develop further, should be presented at the RDE-LDV plenary meeting of 24 May 2012 with a view to taking a final decision by June 2012. The full RDE test method would then have to be developed until mid 2013.

(2) Boundary conditions: parameters, such as test temperature and humidity, the share of up- and down-hill driving or driving speed distribution etc., will inevitably have to vary between individual RDE tests to implement the necessary randomness into the test method. Still, for an RDE test to be valid, several parameters would have to lie within certain boundaries. The quantitative choice of boundary conditions has to be inspired by the need to cover a wide range of normal driving conditions. Stakeholders will provide a first list of boundary conditions and quantitative parameter ranges until 2 May for discussion at the Member State meeting of 3 May.

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(3) Evaluation of RDE test results: emission measurements obtained during a RDE test will have to be evaluated, delivering either a pass/fail or a quantitative (e.g. RDE compliance category, see below) result for the RDE performance of a vehicle. Apart from just averaging emissions measured over the whole test, other approaches exist, e.g. moving reference window approach (with different possible durations and reference quantities such as distance travelled or CO_2 emitted). During the evaluation process it is also possible to exclude certain parts of the test, which correspond to extreme situations not covered by the normal conditions of use of a vehicle.

2. Definition of regulatory RDE not-to-exceed (NTE) limits

In a second step, after the RDE test procedure is developed, regulatory NTE limits have to be defined. The NTE limits shall not be exceeded by the emissions of the different criteria pollutants. Besides the political need to meet the objectives of existing and future air quality legislation in particular the following aspects from automotive type approval legislation have to be taken into account:

(1) Legal provisions of Regulation 715/2007/EC, which relates the regulatory Euro 5/6 emission limits to "normal conditions of use".

(2) The conditions of RDE test procedures will vary due to the necessary random elements of the procedure. Albeit the collectivity of all valid RDE test procedures would cover the normal conditions of use of a vehicle comprehensively, this may not be the case for an individual RDE test procedure. As a consequence a vehicle may have higher (or lower) emissions measured at an individual RDE test procedure than its average real driving emissions under normal conditions of use.

There will always be risks that a vehicle actually complying with Euro 6 emission limits under normal conditions of use will be rejected ("manufacturer risk") and that a vehicle not complying with Euro 6 emission limits under normal conditions of use will be accepted ("user risk") by the RDE test procedure. Normally increasing the test effort, e.g. by prolonging the test duration or repeating the same test several times, will reduce both risks. A "good" RDE test procedure should keep both risks as low as possible for a given test effort. Once the RDE test procedure is defined the choice of the NTE limit influences the balance of manufacturer and user risk, i.e. and increase of the NTE limit reduces the manufacturer and increases the user risk (and the other way around).

To account for this statistical uncertainties and the higher intrinsic inaccuracy of the PEMS measurement equipment as compared to the lab and the need for a high level of legal certainty, one can conclude that the NTE limits should be somewhat higher than the regulatory Euro 6 emission limits.

3. Regulatory implementation

3.1. Implementation as part of the type approval test procedure

The future RDE test procedure should be integrated comprehensively in the type approval process, in particular at the initial type approval of representative vehicle

types but also at in-service conformity. Whether it should also be applied at the conformity of production process still needs to be investigated. Besides deciding for either PEMS or the randomized lab test cycle exclusively, it could also be envisaged to use a randomized test cycle at initial type approval and to assess compliance with a PEMS procedure against well-defined pass/fail criteria at in-service conformity.

Member States are invited to comment on possible application dates and lead time needed for the RDE test procedure at type approval, taking into account the legal requirements of Euro 6 legislation relating regulatory emission limits to the normal conditions of use of vehicles. In doing so it should also be considered that the current non-compliance of real driving NOx emissions with the objectives of co-decision legislation is largely a consequence of shortcomings in the implementing legislation. Individual vehicle manufacturers are subject to fierce competition on the market and normally can not afford "overachieving" the requirements of the implementing legislation by installing more costly technology as long as this is not generally required or incentivised. As a consequence individual manufacturers, at least as long as they do not apply blunt cycle beating, can expect some reasonable lead time for adapting to new implementing legislation.

3.2. Transitional implementation as "soft-law"

In order to reconcile air quality objectives to be met very soon and necessary lead time for industry to meet RDE type approval requirements it could be envisaged to implement the RDE test procedure as "soft law" during a transition period as soon as possible:

(1) The developed RDE test procedure (i.e. PEMS, a random test cycle or a combination of both) would be performed for each new vehicle type. A vehicle would be placed in a certain harmonised "RDE compliance category" according to its RDE performance.

(2) In order to comply with air quality legislation, locally or on their entire territory, Member States could take into account RDE performance of vehicles, determined by the "RDE compliance category", for a series of national measures such as access to environmental driving zones in urban areas, tax incentives, road tolls etc. These measures could also be agreed with the Commission (DG ENV) to remedy non-compliance with air quality legislation in order to avert infringement procedures.

It should be mentioned that due to market forces already the potential of restrictive national measures in the future addressing vehicles in a bad "RDE compliance category" is likely to lead to a better emission performance of vehicles much earlier. One driver for such a development may be the re-sale value of vehicles that is strongly influenced, e.g. by the access of vehicles to environmental driving zones (also in the future). In addition, the "soft-law" approach would in principle allow to gear the emission performance of a vehicle to the individual needs and the installation of highly performing NOx abatement technology (with high reagent consumption etc.) could be limited to vehicles actually operating in urban areas affected by high NO_2 concentrations.

The “soft-law” approach should however in principle be considered as a transitional measure to be replaced by binding type approval requirements as soon as possible

since it would, at least to some extent "de-harmonise" regulatory requirements for vehicles in the EU and may lead to confusing rules in different Member States. In addition, its final overall effectiveness on real-driving emissions of the whole vehicle fleet would depend on the measures chosen by individual Member States and is likely to be not sufficient on the long term.