Driver & Vehicle Standards Agency

WP180 Emissions Testing Programme 2025-26

Contract Reference: K28022801a

Schedule 2a – Specification for Lot 1 - Light Duty Vehicles Petrol, Diesel, Hydrogen & NOVC Hybrid- M1/N1

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1. Introduction

This specification is for the provision of Lot 1 - Light Duty Vehicles Petrol, Diesel, Hydrogen & NOVC Hybrid- M1/N1. This specification (Schedule 2a) is to be read in conjunction with the over-arching Specification (Schedule 2) for the Vehicle Emissions Testing Programme 2025-26.

2. Vehicle Selection and Provision

The programme is expected to deliver a minimum of 24 vehicles in this programme and costs to be based on this figure, there may be scope to do additional vehicles if there is time available after the initial vehicles are completed.

The vehicle types will consist of a mix of petrol, diesel and hydrogen and include 4X4 passenger cars, mild or NOVC hybrid vehicles and light vans/pick-ups, with engines certified as meeting Euro 6 requirements. These vehicles will be provided to the laboratory by the DVSA.

The exact split will be decided once programme is awarded and underway dependent on availability of suitable vehicles.

All vehicles provided will be subject to the preconditioning checks as set out within the common specification (Schedule 2).

3. Test specification

a) A Type 1 test as per EU 2017/1151, GB 715/2007 and UN R154.03 (as amended) referred as the “laboratory standard (cold) test”.
b) In the event that a vehicle fails the initial laboratory standard (cold) type 1 test, up to a further two laboratory standard (cold) type 1 tests will be required to be undertaken.
c) An RDE test as per regulation EU 2017/1151, GB 715/2007 and UN R168.0 (as amended) referred to as the “RDE standard test”.
d) Two additional lab based RDE (to meet regulation criteria as per the RDE road drive) tests completed “back to back” with exact requirements provided in the test request.
e) Additional testing if required.

For every Type 1**,** the Supplier shall analyse exhaust gases by collecting samples in bags (which will be used for the purposes of calculating the final test results), as well as measuring tailpipe exhaust gases continuously over the cycle (which will be used for detailed investigations, as required). The results of both analysis methods shall be made available to DVSA. It is required for labs to make appropriate REESS measurements across the test cycles for all vehicles, and instructions will be provided as appropriate, following guidance from vehicle manufacturers.

4. Specific Test Requirements – Type 1 Laboratory Standard Tests

The Type 1 test procedure as per EU 2017/1151, GB 715/2007 and UN R154.03 (as amended) shall be followed, for the applicable vehicle type, under the correct laboratory conditions, for every test vehicle. For vehicles equipped with a manual shift transmission, the 'gear shift schedule' to be used for the test shall be provided as used at type approval and used for the purposes of the preconditioning and Type 1 tests.

Vehicles shall always be tested in the predominant, 'key-on' default mode, unless otherwise specified by DVSA.

Unless otherwise agreed by DVSA the vehicle shall be tested under the same chassis dynamometer configuration as at type-approval. If the vehicle has a dyno or coastdown mode, information on how to enable these modes will be communicated by DVSA.

Transferring road load to a chassis dynamometer shall be done using the Fixed or Iterative methods as given in the regulation requirement (paragraph 8. of Sub-Annex 4 of Annex XXI). The dynamometer load coefficients generated from this are valid for use in preconditioning, where possible ensure the PEMS kit used for the Road and Lab RDE is the one which performed the correlation. Otherwise, this activity must be repeated after the Type 1 test to confirm the generated dynamometer loads are still valid.

Test vehicle preconditioning shall follow the applicable the regulation requirements (paragraph 2.6. of Sub-Annex 6 of Annex XXI)

a) Vehicle REESSs shall be fully charged unless otherwise specified.
b) One applicable Type 1 shall be driven. Further Type 1's may be driven to stabilise emissions control systems, as appropriate.
c) Test vehicle shall then be put into a dedicated soak area for 6 – 36 hours at 23 ± 3°C. Vehicle shall not be placed on charge again before the Type 1 test. Additionally, keys must be kept away from the test vehicle to reduce the possibility of battery charge depletion.

Type 1 test requirements (as given in Annex XXI)

a) Applicable Type 1 shall be driven (i.e. Class 1, 2, 3a or 3b).
b) The emissions required to be measured and recorded for each Type 1 test are limited to the pollutants applicable to the vehicle under test, as per the Euro 6 emissions limits (Annex I of Regulation (EC) No 715/2007 & UNR83.08). CO2 shall also be measured, and fuel consumption shall be reported. Per phase and per cycle values shall be recorded.
c) Speed trace tolerances requirements shall be adhered to, and IWR and RMSSE drive trace indices limits shall also be satisfied. Otherwise, the test is deemed invalid and shall be repeated. These results shall be reported to DVSA.
d) Both raw emissions test results and Ki and DF corrections reports are to be produced.
e) RCB Corrections shall be applied to the results where applicable – K_{CO2} factors will be supplied.

f) Upon completion of the laboratory standard test a roadload check / coastdown should be completed and recorded to verify the dynamometer load coefficients are unchanged.

5. PEMS and RDE Test Requirements

PEMS equipment to be installed prior to lab testing and correlated during the lab testing of each vehicle.

The RDE preparation, test and post-processing procedures, As per EU 2017/1151, GB 715/2007 and UN R168.0 1151 of the regulations, shall be followed in their entirety and documented, for the applicable vehicle type, as shown below:

a) Test procedure for vehicle emissions testing with a Portable Emissions Measurement System (PEMS)
b) Specifications and calibration of PEMS components and signals
c) Validation of PEMS and non-traceable exhaust mass flow rate
d) Determination of emissions
e) Verification of overall trip dynamics using the moving averaging window method (as applicable)

   The vehicle should be driven dynamically targeting high Vapos 90%
   For urban section Vapos must be between 80 and 95
   For rural section Vapos must be between 75 and 90
   For highway section Vapos must be between 65 and 85
   Vehicle mass at the start of the test should be at 90%payload (DVSA will supply the targeted weight).

f) Using the appropriate RDE package and conformity factors. Final results should be presented with and without Ki.

Initial RDE testing shall take place on public roads (apart from the PEMS validation), and the measured exhaust emissions shall include NOx, PN and CO (mg/km) and CO2 (g/km) as a minimum. All utilised test equipment described in Appendix 2 of Annex IIIA of EU 2017/1151, shall possess a valid calibration certificate, which shall be provided to DVSA to cover any conducted testing. Vehicles shall always be tested in the predominant, 'key-on' default mode, unless otherwise specified by DVSA.

RDE preconditioning drives may take place on a chassis dynamometer (with the correct road-loads applied) or on-road, as long as all other regulatory requirements are met.

The test shall be conducted in the prevailing ambient conditions; however, it should not be conducted in adverse conditions. If the below conditions exist, the test should be delayed until suitable conditions prevail;

- Ambient temperature ≤0°C or ≥30°C
- Heavy rain, snow or excessive standing water

Unless otherwise specified the target test mass of the vehicle (with the driver, passenger(s), and the PEMS installed), shall be the same as the mass of the vehicle as received with a driver and passenger, without the PEMS installed ± 5%. This is to provide an allowance for the different fuel tank levels and different driver and passenger masses. The vehicle shall be weighed prior to RDE test and the test mass shall be recorded.

For RDE tests, winter tyres may be used if road/weather conditions deem them to be mandatory for safety reasons (and testing cannot be completed otherwise). However, summer (or all season) tyres are preferred in all other cases. All tyres used shall be in the vehicle's approved list.

All PEMS pre and post calibration gas analyser checks shall be recorded and included in all reports delivered to DVSA.

As with the laboratory test the vehicle should be tested using reference fuel. The vehicle should undergo a series of pre-test checks, with minimum requirements as follows;

a. Tyre pressure
b. Vehicle weight
c. Vehicle diagnostics check with full OBD status report, including list of available PIDs
d. DPF soot mass / distance since last regen (if appropriate)
e. 12 & 48V/HV Battery State of Charge (if applicable)

Check the soot loading for Diesel application and make sure the vehicle will not perform a DPF RGN during the test. If need , perform a DPF RGN followed by 60min stabilisation.

For RDE post-processing (Moving Average Window), the reference CO2 masses shall be provided. Trip dynamics indicators; $V.a_{pos}$ and RPA, shall also be included in the data post-processing/ reporting.

6. Specific Test Requirements – "RDE standard test"

In addition to the overall RDE test requirements listed above, for the standard test the vehicle shall start the test with a cold engine. Therefore, the vehicle shall be preconditioned and soaked As per the regulation it falls under. Precon and soak time are different with UN legislation.

7. Specific Test Requirements – "RDE back to back test"

Following the standard RDE road testing each vehicle will require 2 additional RDE tests to the same qualifying criteria as the legislative road RDE to be carried out on the Dynamometer back to back with vehicle ignition remaining on the whole time (No Key Off). Lab RDE drive characteristics could be based on the characteristics recorded as driven on the standard RDE road test for each vehicle.

Where possible exhaust gas collection and processing to the requested package as detailed in each vehicle specific test request should be completed using lab analysers (PEMS can also be used as secondary collection and processing). The individual lab reports should contain all the relevant information at the format of an RDE report (urban and Overall section, Vapos MAW, RPA and test conditions…)

These tests may also have different requirements as listed below:

- Vehicle weight
- Driving characteristics (more aggressive for example)
- Testing ambient temperature should be 0degC
- Vehicle soaked for a minimum of 8hours at 0degC
- Transient Loading

Please include costs for these individual elements.

8. Additional testing requirements as necessary

Please supply additional costs in your separate schedule of costs for the following:

- Cost to install a VCA supplied/lab hired PEMS kit
- Cost for correlation of additional PEMS kit
- Daily Hire charge for a PEMS kit (outside normal initial test requirements)
- Cost to transport Vehicle to and from Vehicle Certification Agency, Midlands Centre, Watling Street, Nuneaton, Warwickshire, CV10 0UA
- Daily track use hire charge for supplier to complete additional testing (including labour for running test)
- Cost to transport Vehicle to and from supplier test facility

9. 4 Wheel Drive Vehicles

The Supplier shall test vehicles in 4 wheel drive mode when instructed to do so by the Authority or as the original approval requirements. Bidders must demonstrate their capability in this regard in their proposal.

10. Delivery of Results

A test report containing all the regulated pollutants in conjunction with the test data files should be provided to DVSA within 1 working day of test completion. If tests are aborted or delayed this should be reported to DVSA within 1 working day. Preliminary results shall also be provided as soon as possible post-test to allow for review of results in between tests in case it is necessary for test repeats to be authorised as soon as possible.