

OCE GTR
Laboratory Based WNTE Test – Revised Draft EC Proposal
Modified ACEA Version

Description of the WNTE laboratory test procedure

- The emissions of gaseous and particulate pollutants shall be determined on the basis of randomly defined test points distributed across the WNTE control area. All the test points shall be contained within 3 randomly selected squares of a grid imposed over the WNTE control area. The grid comprises of 6 squares and is defined as follows:
 - 3 horizontal lines at equal distance of torque (1/3) at each vertical line within the WNTE control area
 - 3 vertical lines at n_{30} , the intersection of 30% torque/30% power, and n_{hi} .An example of the grid applied to a specific engine is shown in Figure 2.
- The 3 selected grid-cells shall each include 5 random test points, so a total of 15 random points shall be tested within the WNTE control area. Each grid-cell shall be tested sequentially; therefore all 5 points in one grid-cell are tested before transiting to the next grid-cell. The test points are combined into a single ramped steady state cycle.
- The order in which each of the grid-cells are tested, and the order of testing the points within the grid-cell, shall be randomly determined. The 3 grid-cells, the 15 test points, the order of tested grid-cells and the order of the points within a grid-cell shall be selected by the type approval or certification authority using scientifically acknowledged statistical methods of randomisation. For the random selection of grid-cells and test points within a grid-cell, each cell of the grid and each area within a given cell should have the same probabilistic weight.
- The average specific mass emissions of gaseous pollutants shall not exceed the WNTE limit values specified in section 5.2 (of the GTR) when measured over each of the cycles in a grid-cell with 5 test points.
- The average specific mass emissions of particulate pollutants shall not exceed the WNTE limit values specified in section 5.2 when measured over the whole 15 test point cycle.

Laboratory test procedure

- The warmed-up engine shall be preconditioned at mode 9 of the WHSC for a period of three minutes. The test sequence shall start immediately after completion of the preconditioning phase.
- The engine shall be operated for 2 minutes at each random test point. This time includes the preceding ramp from the previous steady state point. Ramps between the test points shall be linear for engine speed and load and shall last a maximum of 20 seconds.

- The total test time from start until finish shall be 30 minutes. The test of each set of 5 selected random points in a **grid-cell** shall be 10 minutes, measured from the start of the entry ramp to the 1st point until the end of the steady state measurement at the 5th point. Figure 1 illustrates the structure of the test procedure.
- The measurement of the emissions shall be carried out in accordance with paragraph 7.8 of gtr n° 4 (WHDC).
- The calculation of the test results shall be carried out in accordance with paragraph 8 of gtr n° 4 (WHDC).

Figure 1: Schematic example of the start of the WNTe test cycle

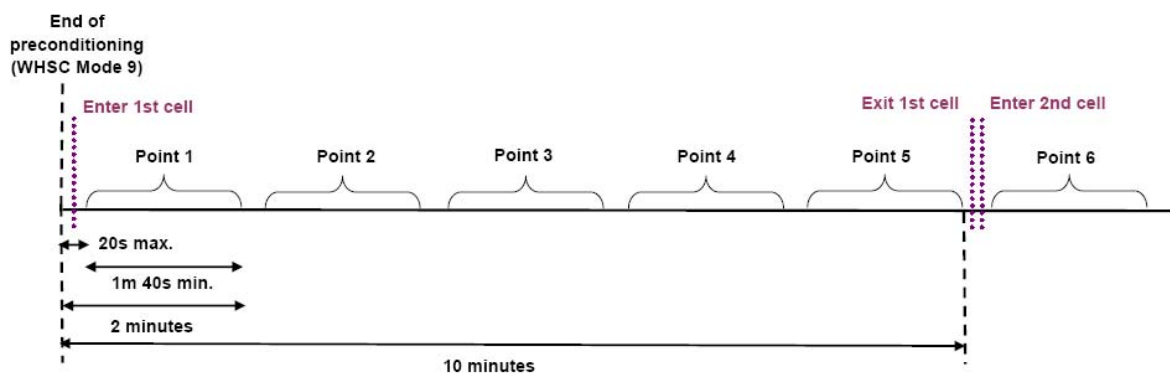


Figure 2: WNTe test cycle grid

