**Section 276.204 Steady-State Idle Exhaust Emissions Test Procedures**

a) Steady-State Idle Test

The steady-state idle test may be substituted for the OBD test for those vehicles identified in Section 13C-25(d) of the Vehicle Emissions Inspection Law of 2005. The steady-state idle test consists of a first-chance idle mode test followed, if necessary, by a second-chance test. The second-chance test consists of a high idle preconditioned mode while in neutral or park, followed immediately by an idle mode.

b) General Requirements

1) Initial tests (i.e., those occurring for the first time in a vehicle's scheduled test cycle) shall be performed without repair or adjustment at the inspection facility prior to the test.

2) Tests shall be performed with Agency-approved equipment that has been calibrated according to the quality procedures contained in Section 276.602 of this Part.

3) Vehicles with apparent leaks of fuel, oil, coolant, or exhaust shall not be tested.

4) Vehicles with missing tail pipe sections that would prohibit full insertion of an analyzer probe shall not be tested.

5) Vehicles shall be tested with their engines and emissions control systems at normal operating temperatures and not overheating (as indicated by gauge, temperature lamp, touch test on the radiator hose, and/or boiling radiator).

6) Vehicles shall be tested without any accessories in operation.

7) Vehicles must be operated during each mode of the test with the gear selector in neutral or park for the idle mode test and the high idle preconditioning mode.

8) For vehicles with multiple tailpipes, separate test results from each tailpipe shall be numerically averaged for each pollutant sampled unless equipment capable of simultaneously sampling multiple tailpipes is utilized.

c) Procedures

1) The analysis of exhaust gas concentrations must begin 10 seconds after the applicable test mode begins.

2) Exhaust gas concentrations must be analyzed at a minimum rate of once every 0.75 second.

3) The measured value for the pass/fail determination shall be a simple running average of the measurements taken over 5 seconds.

4) With the exception of those vehicles specified in subsection (c)(5) of this Section, the tachometer must be attached to the vehicle in accordance with the analyzer manufacturer's instructions.

5) Vehicles that cannot continuously meet the engine speed requirements of subsection (e)(1)(B) of this Section within 30 seconds after initiation of the first-chance test shall be rejected upon verification of the proper operation and placement of the tachometer. If it is determined that the operation or placement of the tachometer is faulty, immediate corrective action shall be taken and the vehicle shall be retested in accordance with subsection (e) of this Section.

6) If the engine speed falls outside the limits specified in subsection (e)(1)(B), (e)(2)(B) or (e)(2)(C) of this Section, as applicable, for more than 5 seconds in any one excursion, or 15 seconds over all excursions within a test mode, the mode timer shall be reset to zero and the mode restarted.

7) For vehicles whose design prevents the monitoring of the engine rpm rate with a tachometer, the engine speed requirements of subsections (e)(1)(B), (e)(2)(B), and (e)(2)(C) of this Section shall not apply. The preconditioning mode of a second-chance idle test shall consist of accelerating the vehicle's engine to an estimated rate of 2500 rpm for a period of 30 seconds prior to initiating a second-chance idle mode test.

8) The sample probe must be inserted into the vehicle's tailpipe to a minimum depth of 10 inches. If the vehicle's exhaust system prevents insertion to this depth, a tailpipe extension must be used.

9) The measured concentration of CO plus CO2 must be greater than or equal to 6 percent or the vehicle will be rejected.

10) If a vehicle's engine stalls at any time during the test sequence, the test shall be aborted and restarted. If after 3 attempts the test cannot be completed, the vehicle shall be rejected.

d) Pass/Fail Determination

 A pass or fail determination is made for each applicable test mode based on a comparison of the test standards contained in 35 Ill. Adm. Code 240.152 with the measured value for HC and CO as described in subsection (c) of this Section. A vehicle passes the test mode if any pair of simultaneous measured values for HC and CO are below or equal to the applicable test standards. A vehicle fails the test mode if the values for either HC or CO, or both, in all simultaneous pairs of values are above applicable standards.

e) Test Sequence

 The steady-state idle test consists of a first-chance test and a second-chance test. The first-chance test consists only of an idle mode. The second-chance test consists of a preconditioning mode followed immediately by an idle mode, and is performed only if the vehicle fails the first-chance test.

1) First-Chance Test

A) The test starts when the conditions specified in subsections (e)(1)(B) and (e)(1)(C) of this Section are met.

B) The mode starts when the vehicle engine speed is between 350 and 1300 rpm. The minimum mode length is determined as described under subsection (e)(1)(C) of this Section.

C) The pass/fail analysis begins after an elapsed time of 10 seconds. A pass or fail determination is made for the vehicle and the mode is terminated in accordance with subsections (e)(1)(C)(i) through (e)(1)(C)(iv) of this Section.

i) The vehicle passes the idle mode and the test terminates on or before an elapsed time of 30 seconds, if the measured values are less than or equal to the applicable test standards as described in subsection (d) of this Section.

ii) The pass/fail analysis shall continue beyond 30 seconds as long as emission readings are declining based upon comparison of the last 5 consecutive measured values. The vehicle passes the idle mode and the test is immediately terminated if, at any point between an elapsed time of 30 seconds and 90 seconds, the measured values are less than or equal to the applicable test standards described in subsection (d) of this Section.

iii) The vehicle fails the first-chance test if the provisions of subsection (e)(1)(A), (e)(1)(C)(i), or (e)(1)(C)(ii) of this Section are not met.

iv) The vehicle shall fail the first-chance test and the second-chance test shall be omitted if no measured values less than 1800 ppm HC are found by an elapsed time of 30 seconds.

2) Second-Chance Test

A) If the vehicle fails the first-chance test, a second-chance test is performed except as described in subsection (e)(1)(C)(iv) of this Section.

B) Preconditioning Mode

The high idle preconditioning mode starts when the engine speed is between 2200 and 2800 rpm, or between 1650 and 1950 rpm on specified vehicles equipped with ZF 4-speed Automatic Transmissions. The mode continues for an elapsed time of 30 seconds.

C) Idle Mode

 The mode starts 5 seconds after the vehicle engine speed returns to between 350 and 1300 rpm after high idle preconditioning. The minimum idle mode length is determined as described in subsection (e)(2)(D) of this Section.

D) The pass/fail analysis begins after an elapsed time of 10 seconds. A pass or fail determination is made for the vehicle and the idle mode is terminated in accordance with the following:

i) The vehicle passes the idle test and the test terminates on or before an elapsed time of 60 seconds if the measured values are less than or equal to the applicable test standards as determined by the procedure described in subsection (d) of this Section;

ii) The vehicle fails the idle test and the test terminates if the provisions of subsection (e)(2)(D)(i) are not met within an elapsed time of 60 seconds.

(Source: Amended at 35 Ill. Reg. 11268, effective June 28, 2011)