

(A) The vehicle shall pass the second-chance idle mode and the test shall be immediately terminated if, prior to an elapsed time of 30 seconds (mt=30), measured values are less than or equal to 100 ppm HC and 0.5 percent CO.

(B) The vehicle shall pass the second-chance idle mode and the test shall be terminated at the end of an elapsed time of 30 seconds (mt=30) if, prior to that time, the criteria of paragraph (VI)(d)(4)(iii)(A) of this appendix are not satisfied, and the measured values are less than or equal to the applicable short test standards as described in paragraph (VI)(a)(2) of this appendix.

(C) The vehicle shall pass the second-chance idle mode and the test shall be immediately terminated if, at any point between an elapsed time of 30 seconds (mt=30) and 90 seconds (mt=90), measured values are less than or equal to the applicable short test standards described in paragraph (VI)(a)(2) of this appendix.

(D) The vehicle shall fail the second-chance idle mode and the test shall be terminated if none of the provisions of paragraphs (VI)(d)(4)(iii) (A), (B), and (C) of this appendix is satisfied by an elapsed time of 90 seconds (mt=90).

[57 FR 52987, Nov. 5, 1992, as amended at 61 FR 40946, Aug. 6, 1996]

APPENDIX C TO SUBPART S OF PART 51— STEADY-STATE SHORT TEST STANDARDS

(I) Short Test Standards for 1981 and Later Model Year Light-Duty Vehicles

For 1981 and later model year light-duty vehicles for which any of the test procedures described in appendix B to this subpart are utilized to establish Emissions Performance Warranty eligibility (*i.e.*, 1981 and later model year light-duty vehicles at low altitude and 1982 and later model year vehicles at high altitude to which high altitude certification standards of 1.5 gpm HC and 15 gpm CO or less apply), short test emissions for all tests and test modes shall not exceed:

- (a) Hydrocarbons: 220 ppm as hexane.
- (b) Carbon monoxide: 1.2%.

(II) Short Test Standards for 1981 and Later Model Year Light-Duty Trucks

For 1981 and later model year light-duty trucks for which any of the test procedures described in appendix B to this subpart are utilized to establish Emissions Performance Warranty eligibility (*i.e.*, 1981 and later model year light-duty trucks at low altitude and 1982 and later model year trucks at high altitude to which high altitude certification standards of 2.0 gpm HC and 26 gpm CO or less apply), short test emissions for all tests and test modes shall not exceed:

- (a) Hydrocarbons: 220 ppm as hexane.
- (b) Carbon monoxide: 1.2%.

APPENDIX D TO SUBPART S OF PART 51— STEADY-STATE SHORT TEST EQUIPMENT

(I) Steady-State Test Exhaust Analysis System

(a) *Sampling system*—(1) *General requirements*. The sampling system for steady-state short tests shall, at a minimum, consist of a tailpipe probe, a flexible sample line, a water removal system, particulate trap, sample pump, flow control components, tachometer or dynamometer, analyzers for HC, CO, and CO₂, and digital displays for exhaust concentrations of HC, CO, and CO₂, and engine rpm. Materials that are in contact with the gases sampled shall not contaminate or change the character of the gases to be analyzed, including gases from alcohol fueled vehicles. The probe shall be capable of being inserted to a depth of at least ten inches into the tailpipe of the vehicle being tested, or into an extension boot if one is used. A digital display for dynamometer speed and load shall be included if the test procedures described in appendix B to this subpart, paragraphs (III) and (V), are conducted. Minimum specifications for optional NO analyzers are also described in this appendix. The analyzer system shall be able to test, as specified in at least one section in appendix B to this subpart, all model vehicles in service at the time of sale of the analyzer.

(2) *Temperature operating range*. The sampling system and all associated hardware shall be of a design certified to operate within the performance specifications described in paragraph (I)(b) of this appendix in ambient air temperatures ranging from 41 to 110 degrees Fahrenheit. The analyzer system shall, where necessary, include features to keep the sampling system within the specified range.

(3) *Humidity operating range*. The sampling system and all associated hardware shall be of a design certified to operate within the performance specifications described in paragraph (I)(b) of this appendix at a minimum of 80 percent relative humidity throughout the required temperature range.

(4) *Barometric pressure compensation*. Barometric pressure compensation shall be provided. Compensation shall be made for elevations up to 6,000 feet (above mean sea level). At any given altitude and ambient conditions specified in paragraph (I)(b) of this appendix, errors due to barometric pressure changes of ± 2 inches of mercury shall not exceed the accuracy limits specified in paragraph (I)(b) of this appendix.

(5) *Dual sample probe requirements*. When testing a vehicle with dual exhaust pipes, a dual sample probe of a design certified by the analyzer manufacturer to provide equal flow in each leg shall be used. The equal flow requirement is considered to be met if the flow rate in each leg of the probe has been measured under two sample pump flow rates (the