

## Interim Requirements to Determine Eligibility of SmartWay Tractors

### Summary of SmartWay Tractor & Trailer Program

U.S. Environmental Protection Agency Designated SmartWay tractors and trailers are a new generation of long-haul rigs equipped with cleaner, fuel-saving features. SmartWay tractors and trailers can achieve fuel savings of 10 to 20 percent (saving carriers between 1,700 and 3,300 gallons of diesel fuel annually), lower greenhouse-gas emissions, and significantly reduce oxides of nitrogen, particulate matter, and other air pollutants.

This document describes the interim requirements (both design and performance) for adding tractors to the existing list of SmartWay designated trucks.



### Purpose of Interim Requirements

The U.S. Environmental Protection Agency (EPA) developed these interim requirements to determine eligibility for SmartWay designation of Class 8 sleeper-cab tractors.<sup>1</sup> These interim requirements are intended to permit truck manufacturers to add SmartWay-designated sleeper-cab tractor models to the current list of SmartWay-designated Class 8 tractors.<sup>2</sup> These interim requirements replace all prior EPA guidance and direction to truck manufacturers and truck purchasers on how to determine eligibility for SmartWay-designated tractors.

### Interim Requirements

To be eligible for SmartWay designation, a tractor must be a Class 8 sleeper-cab tractor and meet the following design, performance and licensing requirements.

#### 1. Design Requirement

All SmartWay designated tractors will have the following design features:

- a. New model (newly introduced into commerce), not a retrofit.
- b. Sleeper cab intended for over-the-road line haul operation.
- c. Aerodynamic profile (sloping hood, curved features), no “classic-style” tractors (long nose, flat hood, flat, squared-off grill) will be considered eligible even if they meet other requirements.
- d. Equipped with the following components and features:
  - (1) 2007 or newer EPA-compliant engine, as determined by federal emissions certification testing.
  - (2) Roof fairing attached to the cab roof that extends the uppermost height of the integrated cab roof and fairing to approximately at or above the height of a typical (53' L x 102" W x 13'6" H) dry box van semi-trailer when such a trailer is attached to the tractor, to help maintain smooth air flow across the top surface of the combined tractor and trailer (“integrated roof fairing”).<sup>3</sup>

<sup>1</sup> This method is an interim method, in effect until the US Environmental Protection Agency (EPA) finalizes a more comprehensive greenhouse gas emissions test protocol for medium duty and heavy duty commercial on highway vehicles. When the more comprehensive test protocol is finalized, EPA plans to establish new performance-based eligibility criteria for SmartWay certification of Class 8 sleeper-cab tractor-trailers using the new more comprehensive test method. EPA will consider using the finalized test protocol to expand SmartWay certification to other truck configurations and classes.

<sup>2</sup> EPA initially limited each truck manufacturer to two (2) SmartWay-certified Class 8 sleeper-cab tractor models in each truck make (brand). The initial SmartWay-certified models were selected on the basis of their fuel efficiency. To be eligible, a manufacturer had to confirm to EPA that the model or models were the most fuel-efficient model or models offered in that truck make. A manufacturer evaluated the fuel efficiency of its truck models using industry-accepted test methods, including the Joint TMC/SAE J1321 Fuel Consumption Test Procedure Type II RP J1321; the TMC RP 1109 Type IV Fuel Economy Test Procedure; computational fluid dynamics (CFD) modeling; and wind tunnel testing. Additionally, the models had to be equipped with the following features: 2007 or newer EPA-compliant engine, as determined by federal emissions certification testing; integrated roof fairing; cab side extender fairings; side fuel tank fairings; aerodynamic mirrors; aerodynamic bumper; low rolling resistance EPA-verified tires; aluminum wheels encouraged, but not required; and an idle reduction system capable of providing eight (8) or more continuous hours of idle-free operation for the main truck engine.

<sup>3</sup> Actual trailer height from the ground to the roof of the trailer depends upon a combination of factors including trailer dimensions, fifth wheel setting, wheel and tire size, etc.

- (3) Fairings that extend back from the sides of the cab to help maintain smooth air flow across the tractor-trailer gap (“cab side extender fairings”).
  - (4) Fairings that cover the side fuel tanks to help maintain smooth air flow over the fuel tanks (“side tank fairings”).
  - (5) Mirrors with a curved housing to help maintain smooth air flow over the mirrors (“aerodynamic mirrors”).
  - (6) A bumper that curves inward at the bottom and sides, to help maintain smooth air flow under and around the tractor (“aerodynamic bumper”).
  - (7) Low rolling resistance EPA-verified low rolling resistance tires.<sup>4</sup>
  - (8) Idle reduction system capable of providing eight (8) or more continuous hours of idle-free operation for the main truck engine.<sup>5</sup>
- e. Aluminum wheels and other light-weight components are encouraged, but not required.

## 2. Performance Requirement

The tractor must demonstrate that it meets or exceeds the fuel efficiency performance of at least one current SmartWay-designated sleeper-cab tractor model, of any make from any manufacturer. To demonstrate that a tractor meets this fuel efficiency requirement, it must be tested using the Joint TMC/SAE J1321 Fuel Consumption Test Procedure Type II RP J1321, as modified by EPA. Testing must the following specific requirements:

- a. The SAE J1321 test must be conducted according to EPA’s interim J1321 Test Method.
- b. The make and/or manufacturer need not match that of the candidate tractor. However, EPA must approve of the reference tractor / candidate tractor configurations.
- c. The manufacturer must have its test plan approved by EPA prior to testing.
- d. The manufacturer must share raw test data, as well as other test information (test conditions, test method, test facility, comparison tractor, etc.) with EPA as part of its submission for SmartWay certification.
- e. EPA reserves the right to disregard tests that it judges to be invalid because the conduct of the test, or the test facilities, conditions, test equipment, or vehicles fail to meet the provisions of the test method or EPA’s supplemental test guidelines, or because EPA determines that the reported results are incompatible with good engineering judgment.
- f. The manufacturers will submit a test report to EPA that includes signatures from the test facility and manufacturer certifying that the test was conducted in accordance with

<sup>4</sup> A list of SmartWay-verified low rolling resistance tire models is available at:

<http://www.epa.gov/smartway/transport/what-smartway/verified-technologies.htm#tires>

<sup>5</sup> The truck purchaser can choose the manufacturer-offered idle reduction system or an EPA-approved alternative. The purchaser must demonstrate to EPA that the alternative option provides eight (8) or more continuous hours of idle-free operation.

the SAE J1321 as modified by the most recent EPA requirement.

## 3. Licensing Requirement

Once EPA determines that a sleeper-cab tractor model is eligible for SmartWay designation, the manufacturer must submit a request to EPA to license the model as a SmartWay-designated vehicle. If a truck owner wants to display an external SmartWay logo on a SmartWay-eligible sleeper-cab tractor, the truck owner must complete a separate logo request and equipment check list with EPA.

## Right of Exclusion

EPA reserves the right to withhold SmartWay designation if in its estimation the proposed truck model does not meet these design, performance, or licensing requirements.

## Testing Costs

The manufacturer bears all costs for testing.

## Contact EPA

- For general information about SmartWay and SmartWay-designated tractors and trailers, visit the EPA SmartWay web site at [www.epa.gov/smartway](http://www.epa.gov/smartway).
- For further information related to these interim eligibility requirements and the interim test method for SmartWay designation of sleeper-cab tractors, contact the SmartWay technical e-mail center at [SmartWay-tech@epamail.epa.gov](mailto:SmartWay-tech@epamail.epa.gov).

In general, to contact EPA,

- send an e-mail to: [SmartWay-tech@epa.gov](mailto:SmartWay-tech@epa.gov)
- telephone the SmartWay Transport Partnership Call Center at (734) 214-4767
- write to SmartWay Transport Partnership, US EPA, 2000 Traverwood, Ann Arbor, MI 48105.