



**Phase 2 Heavy-Duty Greenhouse Gas (GHG)
and Fuel Consumption
Trailer Implementation Workshop**

Industry/EPA/NHTSA
Ann Arbor, MI
November 16, 2016

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Key Dates



- Final rule signed August 16, 2016
- Final rule published October 25, 2016
- EPA's trailer program begins January 1, 2018
 - January 1, 2019 for trailer manufacturers with <1,000 employees
 - NHTSA's trailer program is voluntary until January 2021 when it aligns with EPA program
- Four stages of standards for new trailers
 - MYs 2018, 2021, 2024, 2027+

Key Web Sites



- EPA heavy-duty regulations page
 - <https://www.epa.gov/regulations-emissions-vehicles-and-engines/regulations-greenhouse-gas-emissions-commercial-trucks>
- NHTSA regulations page
 - <http://www.nhtsa.gov/Laws-&-Regulations/CAFE-%E2%80%93-Fuel-Economy>
- Dockets: www.regulations.gov
 - EPA-HQ-OAR-2014-0827
 - NHTSA-2014-0132
- Federal Register: www.federalregister.gov
 - 81 FR 73478
- Regulations: www.ecfr.gov (updates expected by Jan 2017)
 - 40 CFR part 1037
 - 49 CFR part 523 and part 535

EPA-NHTSA Relationship



- EPA is the certification/compliance portal for both EPA and NHSTA compliance programs
- Submission to EPA is equivalent to submission to both
 - The agencies work closely behind the scenes on any issues that come up
 - Averaging credits (MY 2027+) would be managed by each agency separately
- NHTSA's trailer program is optional until MY 2021
 - Manufacturers may voluntarily ask EPA to submit MY 2018-2020 data to NHSTA



TRAILERS IN PROGRAM

Excluded Vehicles



- 40 CFR 1037.5 (49 CFR 535.4)
 - (g) Non-box trailers other than flatbed trailers, tank trailers, and container chassis.
 - (h) Trailers meeting one or more of the following characteristics:
 - (1) Trailers with four or more axles and trailers less than 35 feet long with three axles (i.e., trailers intended for hauling very heavy loads).
 - (2) Trailers intended for temporary or permanent residence, office space, or other work space, such as campers, mobile homes, and carnival trailers.
 - (3) Trailers with a gap of at least 120 inches between adjacent axle centerlines. In the case of adjustable axle spacing, this refers to the closest possible axle positioning.
 - (4) Trailers built before January 1, 2018.
 - (5) Note that the definition of “trailer” in § 1037.801 excludes equipment that serves similar purposes but are not intended to be pulled by a tractor. This exclusion applies to such equipment whether or not they are known commercially as trailers. For example, any equipment pulled by a heavy-duty vehicle with a pintle hook or hitch instead of a fifth wheel does not qualify as a trailer under this part.

Trailer Definitions



- 40 CFR 1037.801 (49 CFR 523 and 571.3)
 - **Trailer** means a piece of equipment designed for carrying cargo and for being *drawn by a tractor when coupled to the tractor's fifth wheel*. These trailers may be known commercially as semi-trailers or truck trailers. This definition excludes equipment that serve similar purposes but are not intended to be pulled by a tractor, whether or not they are known commercially as trailers.
 - **Box vans** are trailers with *enclosed cargo space that is permanently attached to the chassis, with fixed sides, nose, and roof*. Tank trailers are not box vans.
 - Box vans with *self-contained HVAC systems* are **refrigerated vans**. Note that this includes systems that provide cooling, heating, or both. All other box vans are **dry vans**.
 - Trailers that are not box vans are **non-box trailers**. Note that the standards for non-box trailers in this part 1037 apply only to *flatbed trailers, tank trailers, and container chassis*.
 - Box vans with length *at or below 50.0 feet* are **short box vans**. Other box vans are **long box vans**.
- Also see Preamble Section IV.C.1

Trailer Definitions (cont.)



- 40 CFR 1037.801 (49 CFR 535.4)
 - **Container chassis** means a trailer designed for carrying temporarily mounted shipping containers.
 - **Flatbed trailer** means a trailer designed to accommodate *side-loading* cargo onto a *single, continuous load-bearing surface* that runs from the rear of the trailer to at least the trailer's kingpin. This includes trailers that use *curtains, straps, or other devices* to restrain or protect cargo while underway. It also may include similar trailers that have *one or more side walls* without completely enclosing the cargo space. For purposes of this definition, disregard any ramps, moveable platforms, or other rear-mounted equipment or devices designed to assist with loading the trailer.
 - **Tank trailer** means a trailer designed to *transport liquids or gases*
- NOTES: The following types of equipment are not trailers for purposes of this part 1037:
 - Top-loading dry bulk “vans”
 - Containers that are not permanently mounted on chassis
 - Dollies used to connect tandem trailers
 - Expandable, gooseneck, drop deck or lowboy platform trailers
 - Dry bulk tank trailers with hoppers
 - Tank trailers if main purpose is for storage (frac tanks)
- Also see Preamble Section IV.C.1

Work-Performing Equipment



- 40 CFR 1037.107 (49 CFR 535.5(e))
- Manufacturers may optionally meet less stringent standards if their box vans have the following characteristics
 - “Partial-aero” if they have side or rear work-performing equipment (WPE)
 - “Non-aero” if they have both side and rear WPE

Side WPE	Rear WPE
Side lift gate	Rear lift gate
Side-mounted pull-out platform	Rear hinged ramp
Steps for side-door access	Roll-up doors until model year 2024 (see interim provision § 1037.150)
Drop-deck design	
Long belly boxes	



WHAT IS MODEL YEAR?

- 40 CFR 1037.801 (49 CFR 535.4)
 - Model year means one of the following for compliance with this part 1037. Note that manufacturers may have other model year designations for the same vehicle for compliance with other requirements or for other purposes:
 - (1) For tractors and vocational vehicles ...
 - (2) For trailers and for Phase 1 tractors and vocational vehicles with a date of manufacture before January 1, 2021, model year means the manufacturer's annual new model production period, except as restricted under this definition and 40 CFR part 85, subpart X. It must include January 1 of the calendar year for which the model year is named, may not begin before January 2 of the previous calendar year, and it must end by December 31 of the named calendar year. The model year may be set to match the calendar year corresponding to the date of manufacture.

Trailer Model Year



- EPA program begins for regulated trailer types manufactured on or after January 1, 2018
 - One year delay (to January 1, 2019) for trailer manufacturers that qualify as small businesses*
 - Fewer than 1000 employees (including affiliated companies)
 - Must notify EPA of your eligibility as a small business prior to 2018
 - NHTSA program is optional until MY 2021
 - Manufacturers may voluntarily ask EPA to submit MY 2018-2020 data to NHTSA
 - EPA and NHTSA compliance programs align starting in MY 2021
- After 2018, model year can be any one-year period surrounding January 1 of that year
 - 40 CFR 1037.801 and 49 CFR 535.4
 - For reporting purposes, EPA considers MY to end on Dec 31 of the named calendar year
- Model year for EPA and NHTSA compliance is not required to align with model years used for marketing or other regulations and can align with calendar year

* The remainder of this workshop assumes everyone starts in 2018



STANDARDS

EPA Standards for Trailers (40 CFR 1037.107)



Table 1 of § 1037.107—Phase 2 CO₂ Standards for Full-Aero Box Vans (g/ton-mile)

Model Year	Dry Van		Refrigerated Van	
	Short	Long	Short	Long
2018-2020	125.4	81.3	129.1	83.0
2021-2023	123.7	78.9	127.5	80.6
2024-2026	120.9	77.2	124.7	78.9
2027+	118.8	75.7	122.7	77.4

Table 2 of § 1037.107—Phase 2 CO₂ Standards for Partial-Aero Box Vans (g/ton-mile)

Model Year	Dry Van		Refrigerated Van	
	Short	Long	Short	Long
2018-2020	125.4	81.3	129.1	83.0
2021+	123.7	80.6	127.5	82.3

Subcategory	MYs 2018-2020	MYs 2021+
Non-Aero Box Vans	Automatic tire inflation system (ATIS) or tire pressure monitoring system (TPMS) with wheels on all axles	
	Tire Rolling Resistance Level (TRRL) at or below 5.1 kg/tonne	TRRL at or below 4.7 kg/tonne
Non-Box Trailers	ATIS or TPMS with wheels on all axles	
	TRRL at or below 6.0 kg/tonne	TRRL at or below 5.1 kg/tonne

See trailer definitions on slides 8-10

NHTSA Standards for Trailers (49 CFR 535.5(e))



TABLE 15—PHASE 2 FULL AERO BOX VAN FUEL CONSUMPTION STANDARDS
[Gallons per 1,000 ton-miles]

Model years	Dry van		Refrigerated van	
	Long	Short	Long	Short
Voluntary Standards				
2018 to 2020	7.98625	12.31827	8.15324	12.68173
Mandatory Standards				
2021 to 2023	7.75049	12.15128	7.91749	12.52456
2024 to 2026	7.58350	11.87623	7.75049	12.24951
2027 and later	7.43615	11.72888	7.60314	12.10216

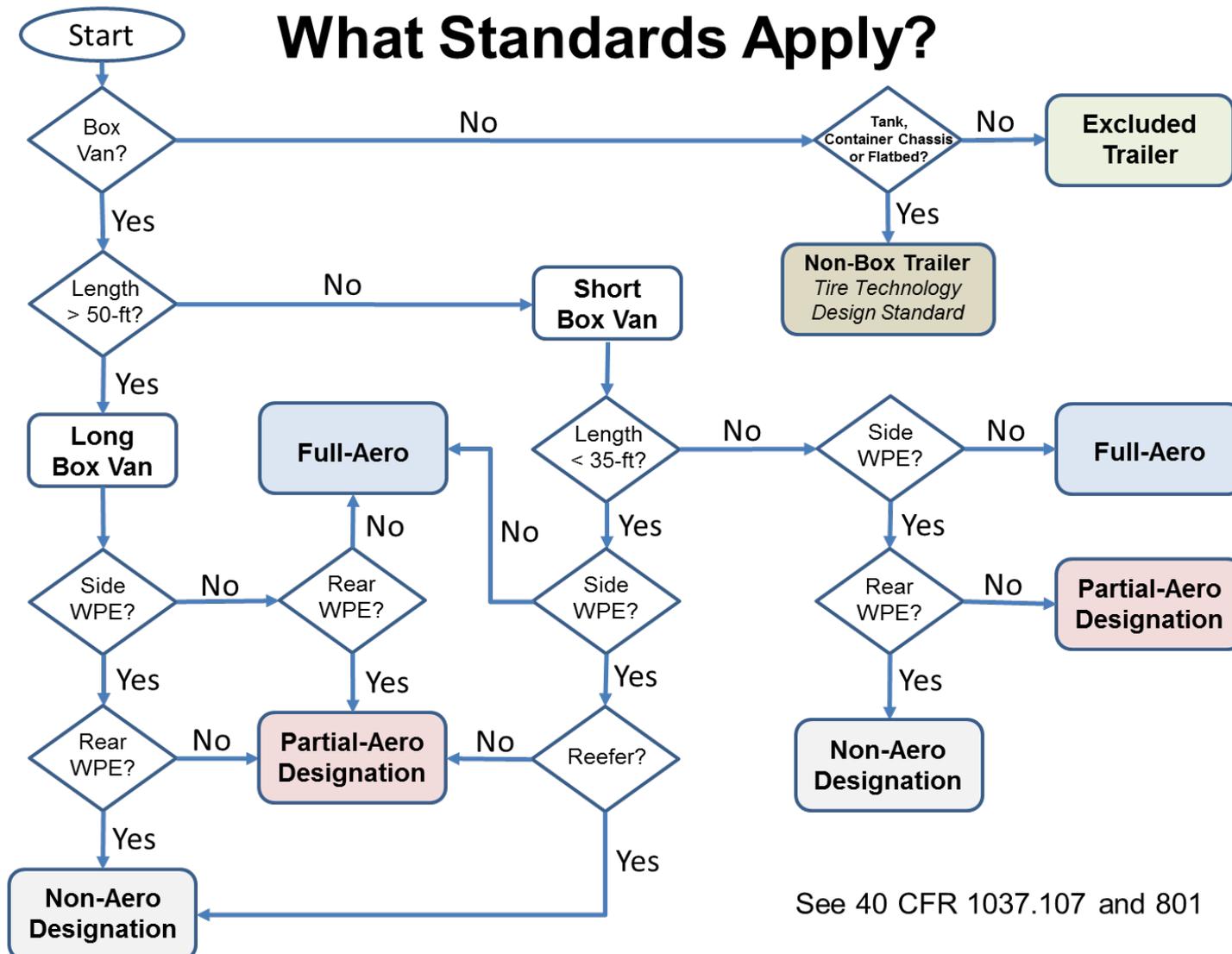
TABLE 16—PHASE 2 FUEL CONSUMPTION STANDARDS FOR PARTIAL-AERO BOX VANS
[Gallons per 1,000 ton-mile]

Model year	Dry van		Refrigerated van	
	Short	Long	Short	Long
2018–2020	12.31827	7.98625	12.68173	8.15324
2021 and later	12.15128	7.91749	12.52456	8.08448

Subcategory	MYs 2018-2020	MYs 2021+
Non-Aero Box Vans	ATIS or TPMS with wheels on all axles	
	TRRL at or below 5.1 kg/tonne	TRRL at or below 4.7 kg/tonne
Non-Box Trailers	ATIS or TPMS with wheels on all axles	
	TRRL at or below 6.0 kg/tonne	TRRL at or below 5.1 kg/tonne

See trailer definitions on slides 8-10

What Standards Apply?



See 40 CFR 1037.107 and 801

Trailer Program Flexibilities



- Small business manufacturers allowed a 1-year delay in implementation to January 1, 2019 for EPA standards
 - Prior to 2018, contact EPA to confirm that your company has 1000 or fewer employees
- Transitional allowance for trailers
 - 40 CFR 1037.150(v) and 49 CFR 535.3(e)(3)
 - MYs 2018-2026 only
 - Trailer manufacturer may specify 20% or 350 box vans for exemption
 - Trailer manufacturer may specify 20% or 250 non-box trailers for exemption
 - Label must state that trailer is exempt under provisions of 40 CFR 1037.150
- Limited averaging program for box vans available MYs 2027+
- For all flexibilities, work with your certification representative to confirm that your trailer qualifies

Averaging (MY 2027+)



- If a manufacturer opts into the averaging program, some trailers in the subcategory/family may not meet the standard, as long as a sufficient number of trailers in the subcategory/family perform better than the standard
 - All trailers in each subcategory/family that meet the same CO₂ value (better, worse, or equivalent to the standard) are considered a “subfamily” with the same Family Emissions Limit (FEL)
 - All production-weighted FEL must average to meet the standard for that family
 - No FEL may be higher than the MY 2018 standard for that family
- Limited averaging program
 - Available in MY 2027 and later
 - Full-aero dry and refrigerated box vans only
 - Credits only apply to given model year (no carry-over)
 - Limited carry-over of deficits
- In a given model year, averaging credits may be averaged within the two Averaging Sets
 - Long box vans
 - Short box vans

Deficits for MY 2027+ if Averaging



- 40 CFR 1037.745 and 49 CFR 535.7(e)
- We understand manufacturers may choose to average, but misproject their production for a given model year
 - Our trailer provisions allow for deficits to be accrued
- Deficits determined at the end of the model year and maintained/reported
 - Must be remedied within three model years after the year generated
 - Subsequent MYs must generate credits to offset previous year's deficit
 - If not offset after three years, penalties may apply
 - If carrying-over a deficit, credit plans will be expected to demonstrate how credit deficits will be resolved
- Certificates may be voided *ab initio* if a deficit is not offset by the required model year

Summary of Regulatory Structure



	Subcategory	Family	Subfamily	Vehicle Configuration	Vehicle
Description	10 Trailer subcategories	Typically one family per vehicle subcategory; subcategories may be combined into fewer families	(only for averaging) A subfamily is a group of vehicle configurations within a family that have the same family emissions limit (FEL)	A vehicle configuration is a set of vehicles with the same set of component configurations	Each trailer produced is a vehicle with a unique Vehicle Identification Number (VIN)
Example	Full-aero long dry van Non-box trailers	Full-aero long dry van + full-aero long refrig van	Family standard is 83 g/ton-mi; FELs may be 80 g/ton-mi, 84 g/ton-mi, etc.	Aero configuration has similar aero bin Tire configuration has same tire rolling resistance level	
Regulatory Use	The subcategory determines the CO ₂ emission standard	Certification is based on the family <ul style="list-style-type: none"> • One cert application per family • One certificate of conformity issued for each family 	Each subfamily has its own FEL which becomes the emission standard for every vehicle in the subfamily; production-averaged FELs must meet the family standard	Compliance equation used for each configuration in end-of-year report	<ul style="list-style-type: none"> • Each vehicle has its own label • Recordkeeping is required for each vehicle • In-use audit • Recall



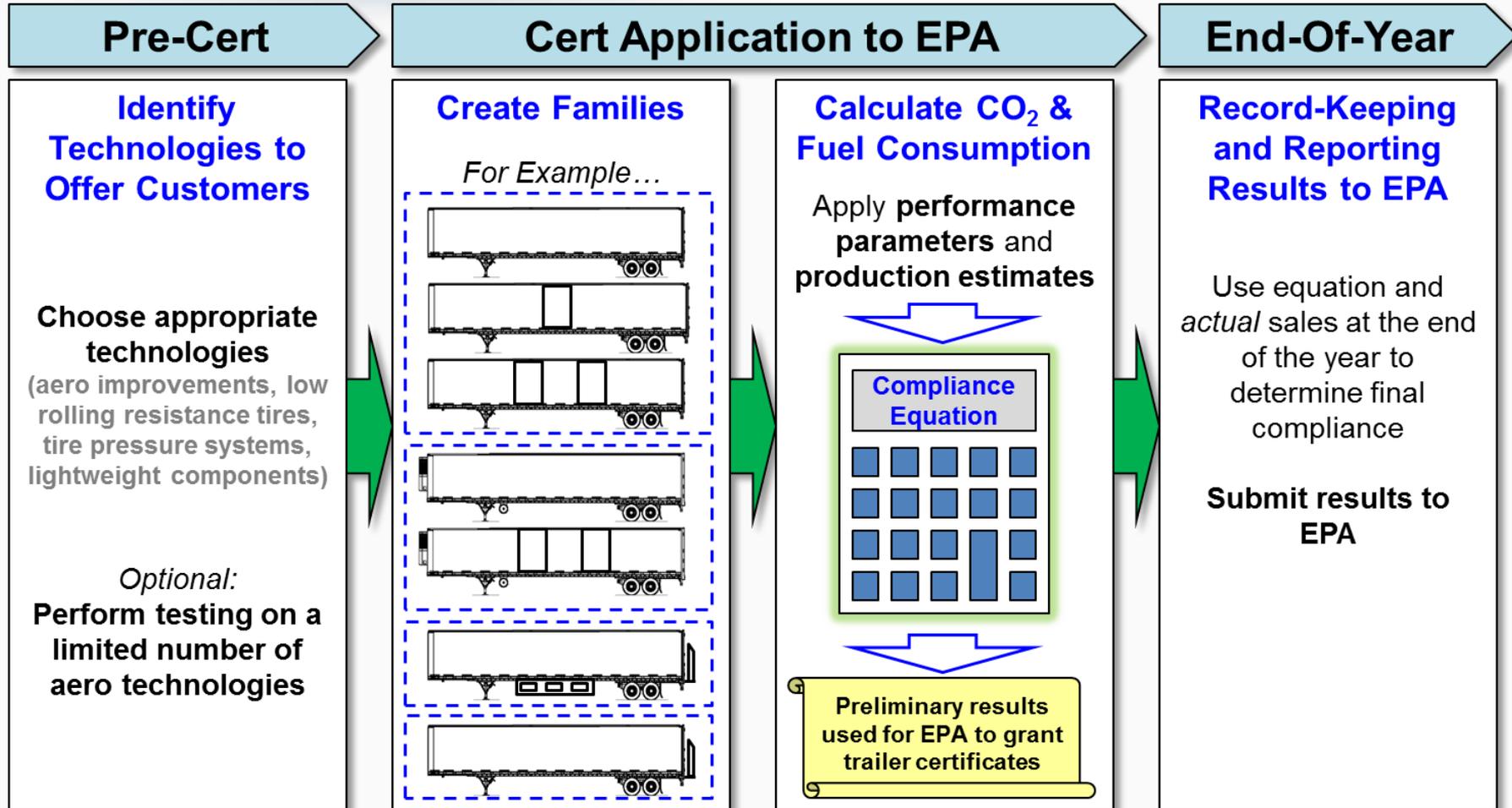
GENERAL CERTIFICATION PROCESS

Certification Process Outline



- Obtain manufacturer code & Verify access
- Pre-application
 - Define vehicle families, subfamilies, and configurations
 - Conduct aerodynamic evaluation, collect tire data, other testing
 - Determine other compliance equation inputs (tire pressure system, weight reduction)
 - Apply the inputs for your subfamilies into the compliance equation
 - Review compliance plans (e.g., product portfolio, testing) with EPA certification representative
- Application
 - Fill out and submit the certification template
 - Submit supplemental documents
- Review
 - EPA certification staff will review your materials
 - Agencies will work with you to resolve any outstanding issues
- Certification
 - If all regulatory requirements are satisfied, we will issue a certificate of conformity, allowing your vehicle family to be introduced into US commerce

Summary of Certification Process



At all steps, we encourage you to work with your EPA certification representative to avoid surprises or delays in the process

Requirement for Certification (40 CFR 1037.201)



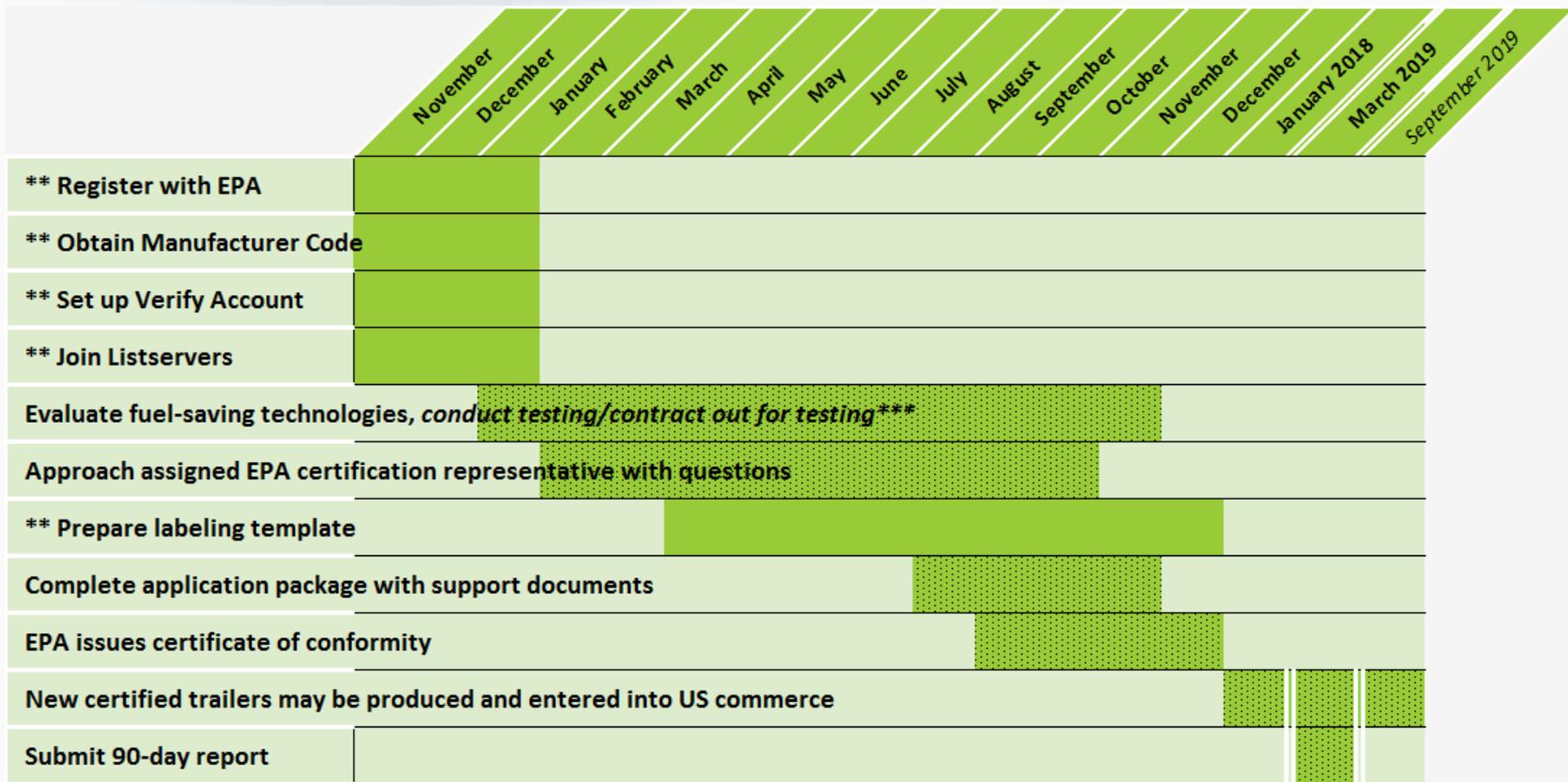
- Each **vehicle family** is required to be certified prior to introduction into US commerce
 - A **certificate of conformity**, or “**certificate**” is issued as evidence of this
- Trailer production of interest include “U.S.-directed production volume for which the manufacturer has a reasonable assurance that sale was or will be made to ultimate purchasers in the United States”
- The certificate is valid from the effective date until the end of the model year for which it is issued.
 - A model year must include January 1 of the calendar year for which the model year is named and may not begin before January 2 of the previous calendar year, and it must end by December 31 of the named calendar year (§ 1037.801)
- The certificate must be renewed annually for vehicles you continue to produce
 - There are no certification fees associated with this rule
- For trailers, the certifying manufacturer (i.e., “certificate holder”) is the trailer manufacturer

Timeline for Compliance



- Now
 - Register with EPA for certification (obtain a manufacturer code)
 - Get on EPA Verify and Guidance listservs
 - Once system is available, set up Verify account
- After registration
 - Approach certification staff with questions about pre-certification testing
 - Aerodynamic evaluation, tire testing, off-cycle testing
 - Prepare labeling equipment
 - Evaluate technologies and conduct necessary testing
- Prior to Model Year (MY)
 - Complete application package, including template and additional support documents
 - Once regulatory requirements are met, EPA will issue a certificate of conformity, which allows your new vehicle to be entered into US commerce
- 90 days after end of MY
 - Submit report to EPA including production volumes by vehicle (March)
- If averaging in MYs 2027+
 - Submit a draft averaging report 90 days after end of MY (March)
 - Submit a final averaging report 270 days after end of MY (September)

Timeline for Compliance Activities*



* Example for planning period with model year beginning in January

** Indicates one-time activity

*** *Recommend contacting EPA prior to conducting aero testing*

Note: If averaging in MY 2027+, the averaging report is due 270 days after production (Sept of following year)

Verify Certification Steps



Register with EPA

- Sign up for listservs
- Get 3-digit manufacturer code

Assign Roles

- Who will have access to Verify?
- Who will submit data, update information?
- Who will authorize info and request certificates?

Log into Verify Account

- Electronically submit information through EPA's Central Data Exchange (CDX) and Verify
- MyCDX homepage
- CDX Inbox for communications

Request for Certificate

- Certificate Summary Information (CSI)
- Supporting certification documents
- Compliance statement
- Encrypted electronic signature

Prepare and Submit Dataset

- Web-based application will be available to collect required information

Maintain Manufacturer Information

- Company addresses
- Company contacts
- Test labs





REGISTERING WITH EPA

Verify Certification Steps



Register with EPA

- Sign up for listservs
- Get 3-digit manufacturer code

Assign Roles

- Who will have access to Verify?
- Who will submit data, update information?
- Who will authorize info and request certificates?

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Prepare and Submit Dataset

- Web-based application will be available to collect required information

Maintain Manufacturer Information

- Company addresses
- Company contacts
- Test labs

Stay Current with Compliance Updates



- Subscribe to the Verify listserv
 - Receive status updates on system developments and outages
 - Opportunity to test new Heavy-Duty Trailer module during development
 - Receive information on upcoming webinars
 - Subscribe by going to https://lists.epa.gov/read/all_forums/subscribe?name=verify
- Guidance letters listserv
 - Get notified when new guidance letters are available
 - Email verify@epa.gov and provide email address(es) you would like to be added to the Guidance letter listserv
- Guidance for NHTSA available through Public Information Center (PIC)
 - http://www.nhtsa.gov/CAFE_PIC/CAFE_PIC_Home.htm

Registering with EPA for Certification



- Verify is EPA's compliance information system that engine, vehicle, and equipment manufacturers use to report certification and compliance information
- There are two parts to registering for the Verify system:
 - Part 1: Company registration for Verify
 - Obtain a 3-character manufacturer code
 - Obtain manufacturer code prior to first MY of regulation
 - Each manufacturer will be assigned an EPA certification representative who can answer questions and assist with the certification process
 - Go to <https://www.epa.gov/vehicle-and-engine-certification/company-registration-verify-system> for additional information
 - Part 2: Account setup for Verify
 - Users must follow this process to get an account for a functional role within Verify
 - Go to <https://www.epa.gov/vehicle-and-engine-certification/account-setup-verify-system> for additional information

Cross-Media Electronic Reporting Rule (CROMERR)



- CROMERR (40 CFR part 3) provides the framework for electronic reporting for all of the EPA's environmental regulations
- CROMERR establishes standards for information systems that receive reports and other documents electronically
- The CROMERR program ensures the enforceability of regulatory information collected electronically by EPA and EPA's state, tribal and local government partners.
- Under CROMERR, electronic reporting directly to EPA requires submission through EPA's Central Data Exchange (CDX)

Verify Certification Steps



Register with EPA

- Sign up for listservs
- Get 3-digit manufacturer code

Assign Roles

- Who will have access to Verify?
- Who will submit data, update information?
- Who will authorize info and request certificates?

Log into Verify Account

- Electronically submit information through EPA's Central Data Exchange (CDX) and Verify
- MyCDX homepage
- CDX Inbox for communications

Request for Certificate

- Certificate Summary Information (CSI)
- Supporting certification documents
- Compliance statement
- Encrypted electronic signature

Prepare and Submit Dataset

- Web-based application will be available to collect required information

Maintain Manufacturer Information

- Company addresses
- Company contacts
- Test labs



Certification Roles for Each Company



Functional Roles	Description
Company Authorizing Official (CAO)	Identifies, vouches for, and manages the “Verify Submitters” and “CROMERR Signers”
CROMERR Signer	Takes legal responsibility for all of the information used as the basis for a request for certificate
Verify Submitter	Submits certification and compliance information to Verify (not including certificate requests)

Additional Roles	Description
Maintain Manufacturer Information	Provide updates to industries, addresses, contacts, test labs and other manufacturer information
Upload Compliance Documents	Submit non-certification compliance documents

Company Authorizing Official



- To establish a CAO you must submit:
 - Sponsor letter for the Verify CAO
 - Used only to identify CAOs
 - Electronic Signature Agreement (ESA) for the Verify CAO
 - Verify User Registration Information spreadsheet

<https://www.epa.gov/vehicle-and-engine-certification/checklist-verify-registration-package>

CAO – use these templates to establish CAO(s) for your company

- blank Verify CROMERR Company Authorizing Official (CAO) Sponsor Letter (Word)
- blank Verify CROMERR Company Authorizing Official (CAO) Electronic Signature Agreement (ESA) (Word)
- blank Verify User Registration Information (XLS) **

Sponsor Letter for the Verify CAO

- Print letter on company letterhead
- List name(s) of CAO(s)
- Include the Date
- Sign the letter in ink (wet ink signature) by Senior Manager

ESA for the CAO

For each CAO listed in the sponsor letter

- Complete ESA
- Signed in ink (wet ink signature) by CAO & proper witness

Information Spreadsheet for Verify User Registration

For each CAO listed in the sponsor letter

- Fill in Manufacturer Code and Date
- Fill in the contact information
- Select CAO

CROMERR Signer(s)



- To establish CROMERR Signer(s) you must submit:
 - Sponsor letter for Verify Submitter and CROMERR Signer
 - Used only to identify Verify Submitters and CROMERR Signers
 - ESA for the Verify CROMERR Signer
 - Verify User Registration Information spreadsheet

<https://www.epa.gov/vehicle-and-engine-certification/checklist-verify-registration-package>

CROMERR Signer – use these templates to establish CROMERR Signer(s) for your company

- blank Verify CROMERR User Sponsor Letter (Word) *
- blank Verify CROMERR Signer Electronic Signature Agreement (ESA) (Word)
- blank Verify User Registration Information (XLS) **

Sponsor Letter for Verify Submitter and CROMERR Signer

- Print letter on Company Letterhead
- List name(s) of CROMERR Signer(s)
- List names(s) of Verify Submitters
- Include the Date
- Sign the letter in ink (wet ink signature) by a CAO

ESA for the CROMERR Signer

For each CROMERR Signer listed in the sponsor letter

- Complete ESA
- Sign the ESA in ink (wet ink signature by the CROMERR Signer)

Information Spreadsheet for Verify User Registration

For each CROMERR Signer listed in the sponsor letter

- Fill in Manufacturer Code and Date
- Fill in the contact information
- CROMERR Signer selected

Verify Submitter(s)



- To establish Verify Submitter(s) you must submit:
 - Sponsor letter for Verify Submitter and CROMERR Signer
 - Used only to identify Verify Submitters and CROMERR Signers
 - Verify User Registration Information spreadsheet

<https://www.epa.gov/vehicle-and-engine-certification/checklist-verify-registration-package>

Verify Submitters – *use these templates to establish Verify Submitters(s) for your company*

- blank Verify CROMERR User Sponsor Letter (Word) *
- blank Verify User Registration Information (XLS) **

Sponsor Letter for Verify Submitter and CROMERR Signer

- Print letter on Company Letterhead
- List name(s) of Verify Submitter (s)
- Include the Date
- Sign the letter in ink (wet ink signature) by a CAO

Information Spreadsheet for Verify User Registration

For each Verify Submitter listed in the sponsor letter

- Fill in Manufacturer Code and Date
- Fill in the contact information
- Select Industry Roles

Contact Info for EPA Registration



- Mail complete hard-copy CROMERR documentation to:
Verify Team
c/o CGI Federal, Inc.
12601 Fair Lakes Circle
Fairfax, VA 22033
- Once approved, each user will receive an email with instructions for finalizing their registration and a link to access their CDX accounts.
- Questions regarding registration can be sent to:
verifydpc@epacdx.net



MAINTAIN MANUFACTURER INFORMATION

Trailer-Specific Module is Currently in Development

Verify Certification Steps



Register with EPA

- Sign up for listservs
- Get 3-digit manufacturer code

Assign Roles

- Who will have access to Verify?
- Who will submit data, update information?
- Who will authorize info and request certificates?

Log into Verify Account

- Electronically submit information through EPA's Central Data Exchange (CDX) and Verify
- MyCDX homepage
- CDX Inbox for communications

Request for Certificate

- Certificate Summary Information (CSI)
- Supporting certification documents
- Compliance statement
- Encrypted electronic signature

Prepare and Submit Dataset

- Web-based application will be available to collect required information

Maintain Manufacturer Information

- Company addresses
- Company contacts
- Test labs



Manufacturer Information in Verify



- EPA certification engineers rely on the company information in the Verify/CDX database
- Once they have access, each company is responsible for keeping all of the information in Verify's "Maintain Manufacturer Information" module complete and up-to-date
 - Add any new or missing industries, addresses, contacts, test labs, notification emails, etc.
 - Inactivate any obsolete addresses, contacts, test labs, etc.
- By default, all Verify users can "View Manufacturer Information" for their Manufacturer
 - A separate Verify role is needed for "Maintain Manufacturer Information"
 - Each company should have at least one user assigned the "Maintain Manufacturer Information" role to be able to update their company information

Manufacturer Information: CDX Login



- New users will obtain a URL to the CDX system in their authorization email
- The CDX system is currently being updated to include trailers
 - EPA will inform manufacturers when the system is available via the **Verify listserv**

EPA United States Environmental Protection Agency

Home About Recent Announcements Terms and Conditions Help

CDX Central Data Exchange [Contact Us](#)

Log in to CDX

User ID

Password

[Log In](#) [Register with CDX](#)

[Forgot your Password?](#)
[Forgot your User ID?](#)
[Warning Notice and Privacy Policy](#)

Welcome

Welcome to the Environmental Protection Agency (EPA) Central Data Exchange (CDX) - the Agency's electronic reporting site. The Central Data Exchange concept has been defined as a central point which supplements EPA reporting systems by performing new and existing functions for receiving legally acceptable data in various formats, including consolidated and integrated data.

Warning Notice and Privacy Policy

Warning Notice

In proceeding and accessing U.S. Government information and information systems, you acknowledge that you fully understand and consent to all of the following:

1. you are accessing U.S. Government information and information systems that are provided for official U.S. Government purposes only;
2. unauthorized access to or unauthorized use of U.S. Government information or information systems is subject to criminal, civil, administrative, or other lawful action;
3. the term U.S. Government information system includes systems operated on behalf of the U.S. Government.

Maintain Manufacturer Information: Manufacturer Information



The appropriate industry sector(s)* must be selected as “industries” on this tab in order to submit requests for certificates

Maintain Manufacturer Profile

* = required field

+ = CTRL-click to select multiple values

Help

Manufacturer	Addresses	Contact Information	Notification Emails	Test Labs	Divisions (Light-Duty Only)	Alternate Manufacturers	EPA Compliance Representatives
Manufacturer Information							
Manufacturer Full Company Legal Name	Environmental Protection Agency	Manufacturer Code	EPA				
Industries*							
Please include all applicable industries for which you will be requesting a certificate of conformity from EPA. For each selected industry, please include the first model year you expect to request a certificate.							
<input checked="" type="checkbox"/>	Heavy-Duty Highway Gas and Diesel Engines	First Model Year	2000				
<input checked="" type="checkbox"/>	Heavy-Duty Highway Evaporative	First Model Year	2000				
<input checked="" type="checkbox"/>	Heavy-Duty Highway Tractors & Vocational Vehicles	First Model Year	2015				

*** Verify listserv will announce when the trailer industry sector is available**

Maintain Manufacturer Information*: Addresses



All company addresses must be entered on this tab in order to submit requests for certificates

Maintain Manufacturer Profile

* = required field
+ = CTRL-click to select multiple values

Help

Manufacturer Addresses Contact Information Notification Emails Test Labs Divisions (Light-Duty Only) Alternate Manufacturers EPA Compliance Representatives

Company Address Information

Address #6

Address Label * Example: Company Headquarters

Address, First Line *

Address, Second Line

Address, Third Line

Address, Fourth Line

City * Country *

State Zip Code

State/Province * Postal Code *

Active/Inactive Status *

*** Check Verify listserv for availability**

Maintain Manufacturer Information*: Contact Information



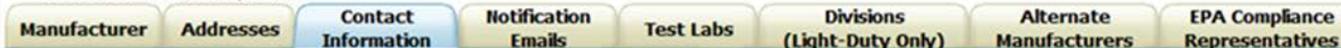
- All company contacts must be entered (or inactivated) on this tab with the applicable industries selected for each contact.
- An industry will not appear in the RFC pull-down unless the CROMERR Signer is specified as a contact here for that industry.

Maintain Manufacturer Profile

* = required field

+ = CTRL-click to select multiple values

Help



Company Contact Information

Company Contact #1

Prefix	Select ▾	Title	<input type="text"/>
First Name *	Sandra	Middle Initial	<input type="text"/>
Last Name *	Somoza	Suffix	Select ▾
Contact Role *	Compliance Representative - Employee ▾	Contact Role, If Other	<input type="text"/>
Active/Inactive Status *	Active ▾		

Contact Industry/Compliance Programs

Industry*	Compliance Program(s)*	
Heavy-Duty Highway Tractors & Vocational Vehicles ▾	All Certification Confirmatory Test	Delete

* Check Verify listserv for availability

Maintain Manufacturer Information*: Notification Emails



All company contacts must be entered (or inactivated) on this tab in order to submit requests for certificates

Maintain Manufacturer Profile

* = required field
+ = CTRL-click to select multiple values

[Help](#)

Manufacturer | **Addresses** | **Contact Information** | **Notification Emails** | **Test Labs** | **Divisions (Light-Duty Only)** | **Alternate Manufacturers** | **EPA Compliance Representatives**

Broadcast Notification Email Address Information

Use this form to indicate to which email addresses Verify should send broadcast notifications.

Notification Email Address #1

Notification Email Address * Email Notification Type *

Industry * +
Aircraft
All Terrain Vehicle

Active/Inactive

[Add Another Notification Email Address](#)

[Print](#) [< Previous](#) [Next >](#) [Review & Submit](#)

* Check Verify listserv for availability

Maintain Manufacturer Information*: Test Labs



Test lab information only applicable if performing or contracting tire or aerodynamic testing

Maintain Manufacturer Profile

* = required field

+ = CTRL-click to select multiple values

Help

Manufacturer

Addresses

Contact Information

Notification Emails

Test Labs

Divisions (Light-Duty Only)

Alternate Manufacturers

EPA Compliance Representatives

Manufacturer Test Labs

Verify Test Lab ID 1

Is this test lab owned by another manufacturer? *

No

Active/Inactive Status *

Active

Test Lab Description

Test Lab Name *

LOD

Test Lab Address *

NVFEL- Lab Building, 2565 Plymouth Rd, Ann Arbor, MI

Add New Address

High Altitude? *

No

Number of Analyst Sites *

2

Number of Climate Chambers *

1

Number of Dynos/Sheds/Test Sites *

4

Test Lab Reference

* Check Verify listserv for availability



REQUESTING A CERTIFICATE

Trailer-Specific Module is Currently in Development

Verify Certification Steps



Register with EPA

- Sign up for listservs
- Get 3-digit manufacturer code

Assign Roles

- Who will have access to Verify?
- Who will submit data, update information?
- Who will authorize info and request certificates?

Log into Verify Account

- Electronically submit information through EPA's Central Data Exchange (CDX) and Verify
- MyCDX homepage
- CDX Inbox for communications

Request for Certificate

- Certificate Summary Information (CSI)
- Supporting certification documents
- Compliance statement
- Encrypted electronic signature

Prepare and Submit Dataset

- Web-based application will be available to collect required information

Maintain Manufacturer Information

- Company addresses
- Company contacts
- Test labs

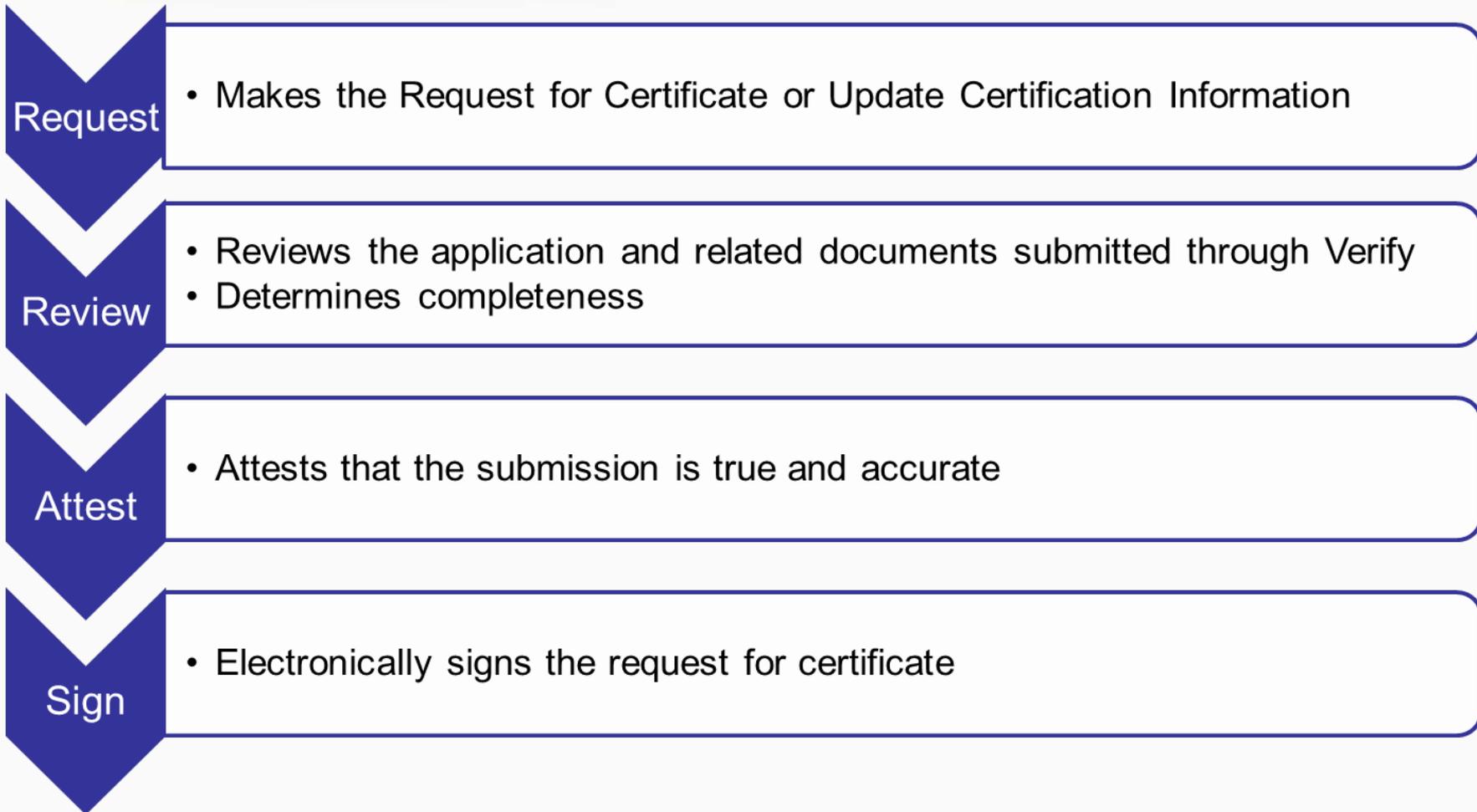


Request for Certificate: CROMERR Package



- The CROMERR package is compiled and stored in the CROMERR Archive when a Request for Certificate (RFC) or Revised Certificate is completed
- Package includes:
 - Formatted Certificate Summary Information (CSI) PDF report
 - Supporting certification documents
 - RFC Compliance Statement Answers
 - Encrypted electronic signature information
- A link to the CROMERR package will be sent to the CROMERR Signer's CDX inbox

Request for Certificate Process: The CROMERR Signer



Request for Certificate Process: CROMERR Signer's MyCDX



Only Verify users with the CROMERR Signer role will have the link to the Request for Certificate* module on their MyCDX page

Central Data Exchange

MyCDX | Inbox | My Profile | Reg Maint | Role Sponsorship | Submission History

Status	Program Service Name	Role(s)
	Verify-RFC: Request an Engine, Vehicle or Component Certificate of Conformity (CROMERR)	CROMERR Signer

Add Program Service

* Verify listserv will announce when the RFC module is available

Request for Certificate Process*: General Information



EPA VERIFY ENGINE AND VEHICLE COMPLIANCE SYSTEM

My CDX CDX Inbox Welcome, SOMOZA4704! Logout
Manufacturer: EPA

Request for Certificate

1 Identify 2 Documents 3 Statements 4 Confirm 5 eSignature 6 Complete

59:54
Click here to reset timer

General Information

Process Code * Request for New Certificate

Industry * Heavy-Duty Highway Tractors & Vocational Vehicles

Model Year (YYYY) * 2017

EPA Vehicle Family Name * HEPA2VOCV5TP

Next →

*** Check Verify listserv for availability**

Request for Certificate Process*: Certification Documents



Select all applicable documents for this family and click “Next”

Request for Certificate

Identify **Documents** Statements Confirm eSignature Complete

Review Industry Information Hide

Process Code: **Request for New Certificate** Industry: **Heavy-Duty Highway Tractors & Vocational Vehicles**

Model Year: **2017** EPA Vehicle Family Name: **HEPA2VOCV5TP**

Certification Documents

Select the document(s) below by clicking the checkbox or box area. Sort the document(s) by clicking the ▲ up arrow (ascending) and the ▼ down arrows (descending). You can open the documents by clicking the file name or document title in bold text.

Filter: **Select Document Type**

File Name ▲	Document Title ▲	Document Type ▲	Date ▲
<input checked="" type="checkbox"/> 2017 Tire crr.rtf	EPA General Applicability Compliance Document Data	Tire Crr Statement	12/15/2015
<input checked="" type="checkbox"/> 2017 Aero.rtf	EPA General Applicability Compliance Document Data	Aerodynamics Report	12/15/2015
<input checked="" type="checkbox"/> 2017 Warranty Statement1.docx	EPA General Applicability Compliance Document Data	Warranty Statement	12/15/2015
<input checked="" type="checkbox"/> 2017 Maintenance Instructions.rtf	EPA General Applicability Compliance Document Data	Maintenance Instructions	12/15/2015
<input checked="" type="checkbox"/> 2017 Sample label.rtf	EPA General Applicability Compliance Document Data	Sample Vehicle Emission Control Label	12/15/2015
<input checked="" type="checkbox"/> ABT-17-1.docx	US EPA General Applicability Compliance Document Data	ABT - Averaging, Banking and Trading Credit Projection Report	08/04/2016
<input checked="" type="checkbox"/> CSI-HEPA2VOCV5TP.pdf	CSI-HEPA2VOCV5TP.pdf	CSI Report	07/21/2016

Re-start **Next**

* Check Verify listserv for availability

Request for Certificate Process*: Compliance Statements



Answer all required Compliance Statements and click “Review”

Request for Certificate

Identify Documents **Statements** Confirm eSignature Complete

Review Industry Information Hide

Process Code: Request for New Certificate Industry: Heavy-Duty Highway Tractors & Vocational Vehicles

Model Year: 2017 EPA Vehicle Family Name: HEPA2VOCV5TP

Review Certification Documents Hide

File Name	Document Title	Type	Date
2017 Tire crr.rtf	EPA General Applicability Compliance Document Data	Tire Crr Statement	12/15/2015
2017 Aero.rtf	EPA General Applicability Compliance Document Data	Aerodynamics Report	12/15/2015
2017 Warranty Statement1.docx	EPA General Applicability Compliance Document Data	Warranty Statement	12/15/2015
2017 Maintenance Instructions.rtf	EPA General Applicability Compliance Document Data	Maintenance Instructions	12/15/2015
2017 Sample label.rtf	EPA General Applicability Compliance Document Data	Sample Vehicle Emission Control Label	12/15/2015
ABT-17-1.docx	US EPA General Applicability Compliance Document Data	ABT - Averaging, Banking and Trading Credit Projection Report	08/04/2016
CSI-HEPA2VOCV5TP.pdf	CSI-HEPA2VOCV5TP.pdf	CSI Report	07/21/2016

Certification Statements

1. Introduction to Commerce Date: 11/30/2016

2. I unconditionally certify that this test group/engine family/vehicle family/evaporative family complies with the requirements of its corresponding part, other referenced parts of the CFR and the Clean Air Act. I Agree

[Back](#) [Review](#)

* Check Verify listserv for availability

Request for Certificate Process*: Review Statements



Review the information provided and click “Sign & Submit” if correct

Request for Certificate

Identify Documents **Statements** Confirm eSignature Complete

Review Industry Information Hide

Process Code	Industry
Request for New Certificate	Heavy-Duty Highway Tractors & Vocational Vehicles
Model Year	EPA Vehicle Family Name
2017	HEPA2VOCV5TP

Review Certification Documents Hide

File Name	Document Title	Type	Date
2017 Tire crr.rtf	EPA General Applicability Compliance Document Data	Tire Crr Statement	12/15/2015
2017 Aero.rtf	EPA General Applicability Compliance Document Data	Aerodynamics Report	12/15/2015
2017 Warranty Statement1.docx	EPA General Applicability Compliance Document Data	Warranty Statement	12/15/2015
2017 Maintenance Instructions.rtf	EPA General Applicability Compliance Document Data	Maintenance Instructions	12/15/2015
2017 Sample label.rtf	EPA General Applicability Compliance Document Data	Sample Vehicle Emission Control Label	12/15/2015
ABT-17-1.docx	US EPA General Applicability Compliance Document Data	ABT - Averaging, Banking and Trading Credit Projection Report	08/04/2016
CSI-HEPA2VOCV5TP.pdf	CSI-HEPA2VOCV5TP.pdf	CSI Report	07/21/2016

Review Certification Statements Hide

1. Introduction to Commerce Date	11/30/2016
2. I agree that this update does not change any fields that appear on this family's certificate of conformity.	I Agree
3. I unconditionally certify that this test group/engine family/vehicle family/evaporative family complies with the requirements of its corresponding part, other referenced parts of the CFR and the Clean Air Act.	I Agree

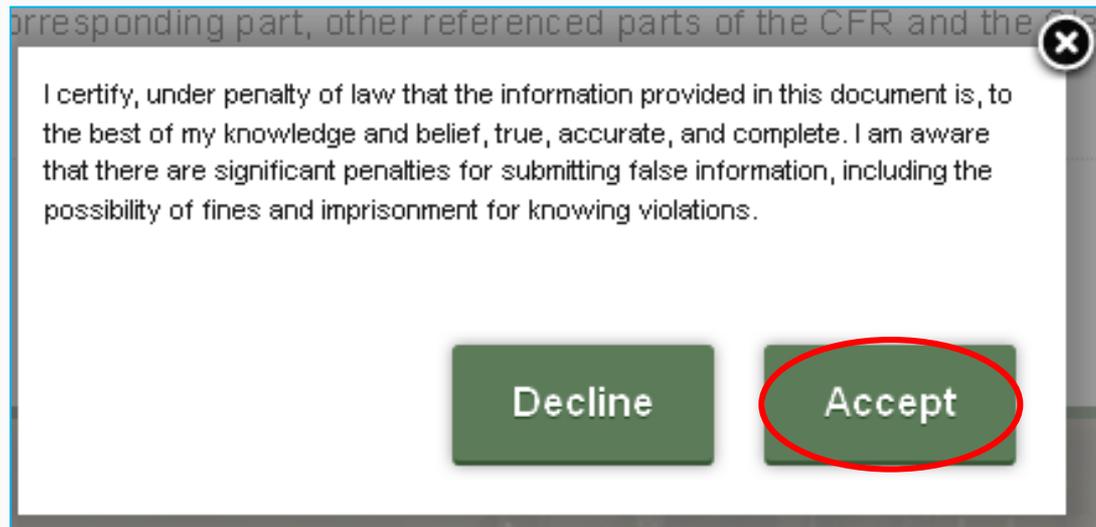
Back **Sign & Submit**

* Check Verify listserv for availability

Request for Certificate Process*: Confirm



Read the CROMERR Electronic Signature message and click “Accept”



*** Check Verify listserv for availability**

Request for Certificate Process*: Electronic Signature



Provide your CDX password and answer your secret question to electronically sign your Certification package. Click “Sign”.

eSignature Widget

1. Log in to CDX User: SOMOZA4704 Password: ●●●●●● Welcome Sandra Somoza	2. Answer Secret Question Question: Who is your favorite author? Answer: allende Correct Answer	3. Sign File <input type="button" value="Sign"/>
---	---	--

* Check Verify listserv for availability

Request for Certificate Process*: Complete



Your Request for Certificate package has been submitted to EPA when “Complete” is displayed at the top of the confirmation screen.

Request for Certificate

✓ — ✓ — ✓ — ✓ — ✓ — 6

Identify Documents Statements Confirm eSignature Complete

📍 Complete

Your Request for Certificate has been submitted to EPA.

If you have any questions, please contact EPA at (888) 890-1995 or email evcishelpdesk@epacdx.net

Please check your MyCDX Inbox for a message indicating that Verify has accepted your submission.

Submission Summary

Date	01/27/2016
Process Code	Request for New Certificate
Industry	Heavy-Duty Highway Tractors & Vocational Vehicles
EPA Vehicle Family Name	Nonroad Spark-Ignition - Small
EPA Engine Family Name	HEPA2VOCV5TP
Model Year	2017
CROMERR Activity ID	_cea6a96a-5e46-4a4b-bd21-57a63255fb14
CROMERR Document ID	c3d4efb1-291b-4438-9446-af36237db816
Transaction ID	_3b702274-5fb6-42f0-86bb-c7981db6e3da

[New Request](#) [Go to My CDX](#) ➔

*** Check Verify listserv
for availability**



DEMONSTRATING COMPLIANCE

Demonstrating Compliance with Standards



- When requesting a certificate, box van manufacturers must calculate a *projected* CO₂ performance for each family based on modeled CO₂ emission rates using the compliance equation
 - MY 2018 – MY 2026
 - A vehicle family is considered in compliance with the emission standards if all configurations in that family have CO₂ emission rates at or below the applicable standards
 - When requesting a certificate for each family, calculate for the highest projected CO₂ (worst performing) configuration
 - MY 2027 and later
 - If not averaging, all configurations in a family must meet the standard
 - Calculate for the highest projected CO₂ (worst performing) configuration
 - If averaging, the projected production-weighted CO₂ average (including deficits) must meet applicable subcategory standard
 - Calculate for at least three subfamilies (highest CO₂/worst, lowest CO₂/best, and highest projected production)
- CO₂ emission rates are converted to fuel consumption (FC) rates for the NHSTA standards
- Note that *non-box trailers* and box vans designated “*non-aero*” have design standards and manufacturers simply document that appropriate LRR tires and tire pressure systems were installed

Compliance Equation for Box Vans (40 CFR 1037.515(a))



$$e_{\text{CO}_2} = (C_1 + C_2 \cdot TRRL + C_3 \cdot \Delta C_d A + C_4 \cdot WR) \cdot C_5$$

Table 1 of § 1037.515— Regression Coefficients for Calculating CO₂ Emissions

Trailer Category	C_1	C_2	C_3	C_4
Long dry box van	76.1	1.67	-5.82	-0.00103
Long refrigerated box van	77.4	1.75	-5.78	-0.00103
Short dry box van	117.8	1.78	-9.48	-0.00258
Short refrigerated box van	121.1	1.88	-9.36	-0.00264

$C_5 = 0.988$ (ATIS), 0.990 (TPMS or mix), 1.000 (none)

This equation and the coefficients apply to all full- and partial-aero box vans

Converting CO₂ to Fuel Consumption for NHTSA Standards



- 49 CFR 535.6(e)
- NHTSA's fuel consumption standards are expressed as gallons per 1000 ton-miles
 - Use the compliance equation from 40 CFR 1037.515(a) to calculate the CO₂ emissions rate (e_{CO_2}) and convert to fuel consumption (FC) as follows:

$$FC\left(\frac{gal_{diesel}}{1000\ ton - mile}\right) = \frac{e_{CO_2}\left(\frac{g_{CO_2}}{ton - mile}\right)}{10,180\left(\frac{g_{CO_2}}{gal_{diesel}}\right)} \times 1000$$

- The NHTSA results are included in the data submitted to EPA; do not send these results separately to NHTSA

Tire Rolling Resistance Level (TRRL)



$$e_{\text{CO}_2} = (C_1 + C_2 \cdot \text{TRRL} + C_3 \cdot \Delta C_d A + C_4 \cdot WR) \cdot C_5$$

- Measured as coefficient of rolling resistance (CRR)
 - Units of kg/metric ton
 - Reported to 1 decimal place
 - See 40 CFR 1037.520(c)
 - Based on ISO 28580 standard, incorporated by reference in 40 CFR 1037.810
 - We expect tire manufacturers will perform testing and provide CRR data to trailer manufacturers
- Box van manufacturers may submit a *higher* CRR value than shown in data to EPA as their TRRL

Aerodynamic Improvements ($\Delta C_d A$)



$$e_{CO_2} = (C_1 + C_2 \cdot TRRL + C_3 \cdot \Delta C_d A + C_4 \cdot WR) \cdot C_5$$

- Measured as change in drag area ($\Delta C_d A$)
 - See 40 CFR 1037.526(a)
 - Units of m^2
 - Reported to 2 decimal places and assigned an aerodynamic bin
 - Approved test procedures include wind tunnel, computational fluid dynamics (CFD) or coastdown
 - Wind tunnel and CFD are measured at two surrogate yaw angles ($\pm 4.5^\circ$) to represent wind-averaged results
 - Coastdown uses zero-yaw or manufacturers can work with EPA to establish a wind-averaged correction
- Trailer manufacturers or device manufacturers may perform testing, 40 CFR 1037.515 and 1037.211
- Data from aerodynamic devices verified under SmartWay's 2014 protocols can be pre-approved before MY 2018 for use by trailer manufacturers until MY 2021

Weight Reduction (WR)



$$e_{\text{CO}_2} = (C_1 + C_2 \cdot TRRL + C_3 \cdot \Delta C_d A + C_4 \cdot WR) \cdot C_5$$

Table 3 of § 1037.515—Weight Reductions for Trailers (pounds)

Component	Material	Weight Reduction (pounds)
Structure for Suspension Assembly ¹	Aluminum	280
Hub and Drum (per axle)	Aluminum	80
Floor ²	Aluminum	375
Floor ²	Composite (wood and plastic)	245
Floor Crossmembers ²	Aluminum	250
Landing Gear	Aluminum	50
Rear Door	Aluminum	187
Rear Door Surround	Aluminum	150
Roof Bows	Aluminum	100
Side Posts	Aluminum	300
Slider Box	Aluminum	150
Upper Coupler Assembly	Aluminum	430

¹ For tandem-axle suspension sub-frames made of aluminum, apply a weight reduction of 280 pounds. Use good engineering judgment to estimate a weight reduction for using aluminum sub-frames with other axle configurations.

² Calculate a smaller weight reduction for short trailers by multiplying the indicated values by 0.528 (28/53).

- Box van manufacturers that install any of the technologies in Table 3 of 40 CFR 1037.515 directly apply the specified weight reduction values
- Box van manufacturers may also apply for off-cycle provisions (40 CFR 1037.610) to account for other weight reduction options
- Note that weight reduction is a positive value
 - Measured in pounds and reported to the nearest integer

Tire Pressure Systems (C_5)



$$e_{\text{CO}_2} = (C_1 + C_2 \cdot TRRL + C_3 \cdot \Delta C_d A + C_4 \cdot WR) \cdot C_5$$

- Box van manufacturers can optionally install tire pressure monitoring systems (TPMS) or automatic tire inflation systems (ATIS)
- Systems must be on wheels on all axles
- No testing required
 - ATIS assigned an effectiveness value of 0.988 (1.2% improvement)
 - TPMS or mix of ATIS and TPMS assigned an effectiveness value of 0.990 (1.0% improvement)
 - No tire pressure system applies a value of 1.000 (zero improvement)

Off-Cycle Technologies



- 40 CFR 1037.610 and 49 CFR 535.7
- Off-cycle provisions can be requested if
 - A technology's performance is not captured in the trailer compliance equation (e.g., use of solar, regenerative braking)
 - Test will determine the improvement factor applied to compliance equation
 - A manufacturer wishes to use additional lightweight materials or weight reduction strategies not included in the regulations
 - Additional weight reduction is applied to the "WR" parameter in the compliance equation
- NHTSA additionally requires:
 - Technology having direct impact on FC performance
 - Removing credits for technologies found to be defective, or identified as a part of NHTSA's safety defects program.
 - Manufacturers must consider safety performance for all incentivized off-cycle technologies
 - Credits not to be approved for any technology that is related to crash avoidance technologies, safety critical systems or systems affecting safety critical functions, or technologies designed for the purpose of reducing the frequency of vehicle crashes.
- Contact EPA prior to conducting any off-cycle testing
 - Off-cycle technologies are jointly reviewed and approved by EPA and NHTSA



WHAT MUST I INCLUDE IN MY CERTIFICATION APPLICATION? (40 CFR 1037.205)

Trailer Certification Template



- Template will be designed to collect most information required in 40 CFR 1037.205
 - General family information
 - Compliance equation input/output
- Remainder of information is collected in supplemental documents
 - Emission Control Information (ECI) Label
 - Warranty document
 - Aerodynamics test results (pre-approved or tested)
 - Tire information
- All information uploaded to EPA's CDX system

Trailer Families

(40 CFR 1037.230)



- Ten trailer subcategories with unique standards
 - Typically each subcategory is a family
- Manufacturers may combine families to reduce the number of certificates required (40 CFR 1037.230(d)(3))
 - Refrigerated vans can meet dry van standards
 - Short vans can meet long van standards
- Families are identified with a 12-digit name
 - Includes model year and manufacturer code
 - We will issue separate guidance on naming

(3) Apply subcategories for trailers as shown in the following table:

Table 3 of § 1037.230— Trailer Subcategories

Full-aero trailers	Partial-aero Trailers	Other trailers
Long dry box vans	Long dry box vans	Non-aero trailers
Short dry box vans	Short dry box vans	Non-box trailers
Long refrigerated box vans	Long refrigerated box vans	
Short refrigerated box vans	Short refrigerated box vans	

Supplemental Labeling Documents

(40 CFR 1037.135)



- 40 CFR 1037.135 Requires your vehicles to have a permanent emission-control information label
- Provide a sample vehicle label with the following information:
 - Heading: “VEHICLE EMISSION CONTROL INFORMATION”
 - Corporate name and trademark
 - Vehicle family standardized designation (provided in guidance)
 - Regulatory subcategory
 - Date of manufacture
 - Emission Control System (identifiers shown in Appendix III to 40 CFR part 1037)
 - Statement “THIS VEHICLE COMPLIES WITH U.S. EPA REGULATIONS FOR [MODEL YEAR] HEAVY-DUTY VEHICLES”

Emission Control Identifiers for Label (Appendix III to Part 1037)



Components	Description	Identifier
Tires	low rolling resistance tires	LRRA
Aerodynamic	tractor-to-trailer gap reducing trailer fairing	TGRT
	trailer aerodynamic side skirt	TATS
	trailer aerodynamic rear fairing	TARF
	trailer aerodynamic underbody device	TAUD
Other	automatic tire inflation system	ATI
	tire pressure monitoring system	TPMS
	weight-reducing trailer wheels	WRTW
	weight-reducing trailer upper coupler plate	WRTC
	weight-reducing trailer axle sub-frames	WRTS
	wide-base single trailer tires with steel wheel	WBSW
	wide-base single trailer tires with aluminum wheel	WBAW
	wide-base single trailer tires with light-weight aluminum alloy wheel	WBLW
	dual-wide trailer tires with steel wheel	DWSW
	dual-wide trailer tires with aluminum wheel	DDAW
dual-wide trailer tires with light-weight aluminum alloy wheel	DWLW	

Supplemental Warranty Documents

(40 CFR 1037.120)



- For purposes of application for certification, include a copy of the emissions warranty statement provided to consumers
 - Warranty information for other trailer components not required
- The general requirement is that the product is designed and built so it conforms at the time of sale with GHG requirements
- Warranty periods:
 - 1 year for tires
 - 5 years for other emissions-related components
 - Warranty period cannot be shorter than any warranty of a component that you provide without charge
- Components covered include all components whose failure would increase a vehicle's GHG emissions, including:
 - Aerodynamic technologies, tires, tire pressure systems, and lightweight components
- Describe the emission-related warranty provisions in the owners manual
 - Do not need to create a trailer-specific owners manual for all trailer components; simply must provide information for GHG emissions components
 - Owners manual can be electronic

Supplemental Maintenance Documents (40 CFR 1037.125)



- For purposes of your application for certification, include a statement that says you meet the maintenance requirements of this part
 - If applicable, provide a copy of any maintenance instructions provided to the consumer
- Critical emission-related maintenance
 - You may schedule critical emission-related maintenance on these components if you demonstrate that the maintenance is reasonably likely to be done at the recommended intervals on in-use vehicles
- See regulations for other special maintenance, noncritical emission-related maintenance, and non emission-related maintenance
- Explain the owner's responsibility for proper maintenance in the owners manual
 - Include instructions that will enable the owner to replace tires so that the vehicle conforms to the original certified vehicle configuration
- See 40 CFR 1037.220 for amending maintenance instructions

Supplemental Aero Documents (40 CFR 1037.515)



- Standardized template/format will be available
 - Please consult 40 CFR 1037.515 for the required content
- Example sets of aerodynamic documents
 - Aerodynamic testing
(submitted and approved in pre-certification process)
 - Test vehicle and test method descriptions
 - Device and device manufacturer description(s)
 - Methodology for aerodynamic configuration grouping
 - Test results from vehicles within the family
 - Aerodynamic bin(s) for each configuration
 - Pre-approved aerodynamic data
(submitted with the application package)
 - Device and device manufacturer description(s)
 - Copy of pre-approval confirmation letter for device data

Supplemental Tire Documents (40 CFR 1037.520(c))



- Standardized template/format will be available
 - Please consult 40 CFR 1037.520(c) for the required content
- Example documents
 - Summary of all tires expected to be used during the year
 - Tire manufacturer
 - Brand, model, size and CRR
 - Copy of letter from tire manufacturer or test lab confirming rolling resistance results

Running Change Requirements (40 CFR 1037.225)



- A running change can be used to make post-certification changes to current model year trailers, such as
 - Add a vehicle configuration to a vehicle family
 - Change a vehicle configuration already included in a vehicle family in a way that may affect emissions or change components described in the application
 - Include additional technologies (aero devices, tires, etc.)
 - Modify an FEL for a vehicle family
- Running changes are processed like a Request for Certificate in Verify
 - If you are unclear if you need to file a running change, consult your certification representative



RECORDKEEPING & REPORTING

Managing Records and Reporting



- Manufacturers will need access to a computer for recordkeeping and reporting
- Required software
 - Internet browser (e.g., Internet Explorer, Firefox, Chrome)
 - PDF reader
- Recommended software
 - Spreadsheet program
 - Text editor
 - PDF converter
- EPA will provide future guidance on the format of reports

Production Recordkeeping



- 40 CFR 1037.250
 - (a) ...
 - (b) Organize and maintain the following records:
 - (1) A copy of all applications and any summary information you send us.
 - (2) Any of the information we specify in § 1037.205 that you were not required to include in your application.
 - (3) A detailed history of each emission-data vehicle (including emission-related components), if applicable.
 - (4) Production figures for each vehicle family divided by assembly plant.
 - (5) Keep a list of vehicle identification numbers for all the vehicles you produce under each certificate of conformity. Also identify the technologies that make up the certified configuration for each vehicle you produce.
 - (c) Keep required data from emission tests and all other information specified in this section for eight years after we issue your certificate...
 - (d) Store these records in any format and on any media, as long as you can promptly send us organized, written records in English if we ask for them. You must keep these records readily available. We may review them at any time.

End-of-Year Production Report



- 40 CFR 1037.250(a) and 49 CFR 535.8
 - An end-of-year production report must be submitted within 90 days after the end of the model year and include the following information:
 - Manufacturer corporate name and corporate ownership structure
 - US-directed production volumes by VIN, vehicle configuration, and subfamily
 - Trailers exempt under the transitional allowance flexibility, if applicable (§ 1037.150(v))
 - Uncertified vehicles sold to secondary vehicle manufacturers
 - Manufacturer average CO₂ and FC performance by subcategory
 - All intermediate calculation values

Recordkeeping when Averaging



- 40 CFR 1037.735
 - (a) You must organize and maintain your records as described in this section.
 - (b) Keep the records required by this section for at least eight years after the due date for the end-of-year report...
 - (c) Keep a copy of the reports we require in § § 1037.725 and 1037.730.
 - (d) Keep records of the vehicle identification number for each vehicle you produce. You may identify these numbers as a range...
 - (e) We may require you to keep additional records or to send us relevant information not required by this section in accordance with the Clean Air Act.

End-of-Year Averaging Report



- 40 CFR 1037.730 and 49 CFR 535.8(d)
 - If averaging in MYs 2027+, manufacturers submit a second report describing their averaging results
 - Draft report within 90 days and final report within 270 days following the end of the model year
 - Submit the following information for each trailer family participating in averaging:
 - (1) Vehicle-family and subfamily designations, and averaging set.
 - (2) The regulatory subcategory and emission standards that would otherwise apply to the vehicle family.
 - (3) The FEL for each pollutant...
 - (4) The projected and actual U.S.-directed production volumes for the model year...
 - (5) Useful life.
 - (6) Calculated positive or negative emission credits for the whole vehicle family...
 - (7) If you have a negative credit balance for the averaging set in the given model year, specify whether the vehicle family (or certain subfamilies with the vehicle family) have a credit deficit for the year.



- EPA and NHTSA are committed to both protecting Confidential Business Information (CBI) and to achieving transparency in implementation of the trailer program
- The agencies currently publish
 - Compliance Report
 - Certification data (certification testing summary)
- We do not consider emissions and fuel consumption data to be CBI
 - Compliance equation outputs will not be treated as CBI
- The agencies intend to publish as much non-CBI emissions and fuel consumption information as possible for each manufacturer after the end of the model year



AERODYNAMIC TEST OPTIONS

Pre-Approved Aero Data



- Prior to January 1, 2018, test data may be submitted to EPA for pre-approval from
 - SmartWay's 2014 wind tunnel, CFD, or coastdown test protocols (40 CFR 1037.150(u))
 - Data must be submitted as $\Delta C_d A$
 - SmartWay wind tunnel and CFD results are obtained from a yaw sweep
 - » Apply a 4th order curve fit to the yaw sweep data
 - » Submit an average of the +4.5° and -4.5° results from that curve fit to EPA for pre-approval
 - SmartWay coastdown results are obtained at zero yaw
 - » Submit the zero yaw results to EPA for approval
 - Phase 2 test procedures (40 CFR 1037.515)
- January 1, 2018 and later
 - All new submissions must come from Phase 2 test procedures (40 CFR 1037.515)

Summary of Trailer Aero Data Options



	2017	2018	2019	2020	2021+
SmartWay-Verified Device Data	<p>Collect data from post-2014 SmartWay protocols for wind tunnel, CFD or coastdown testing</p> <p>Submit $\Delta C_d A$ data to EPA for pre-approval</p>	Pre-approved data available for trailer OEMs to use for compliance			<p>Retest devices using Phase 2 test procedures</p> <p>Submit $\Delta C_d A$ data to EPA for pre-approval</p> <p>Pre-approved data available for trailer OEMs to use for compliance</p>
Pre-Approved Device Data	<p>Collect data from Phase 2 test procedures for wind tunnel, CFD or coastdown testing</p> <p>Submit $\Delta C_d A$ data to EPA for pre-approval</p> <p>Pre-approved data available for trailer OEMs to use for compliance</p>				
OEM-Tested Data	<p>Collect data from Phase 2 test procedures for wind tunnel, CFD or coastdown testing</p> <p>Submit $\Delta C_d A$ data to EPA for compliance</p> <p>Data may be resubmitted annually for compliance</p>				

Aerodynamic Bins for Equation Inputs



- Aerodynamic bins account for uncertainties in testing
- Trailer manufacturers choose an appropriate bin for certification based on their test results
- Pre-approved test data is submitted to EPA as-is without bins
 - Trailer manufacturers decide the appropriate bin for certification based on the pre-approved $\Delta C_d A$ value(s)
 - Trailer manufacturers may apply pre-approved data from multiple devices in combination (40 CFR 1037.526(c))

Table 2 of § 1037.515—Bin Determinations for Trailers Based on Aerodynamic Test Results
($\Delta C_d A$ in m^2)

If a trailer's measured $\Delta C_d A$ is ...	designate the trailer as ...	and use the following value for $\Delta C_d A$
≤ 0.09	Bin I	0.0
0.10 – 0.39	Bin II	0.1
0.40 – 0.69	Bin III	0.4
0.70 – 0.99	Bin IV	0.7
1.00 – 1.39	Bin V	1.0
1.40 – 1.79	Bin VI	1.4
> 1.80	Bin VII	1.8

EPA Test Data Applied to Aerodynamic Bins (RIA)

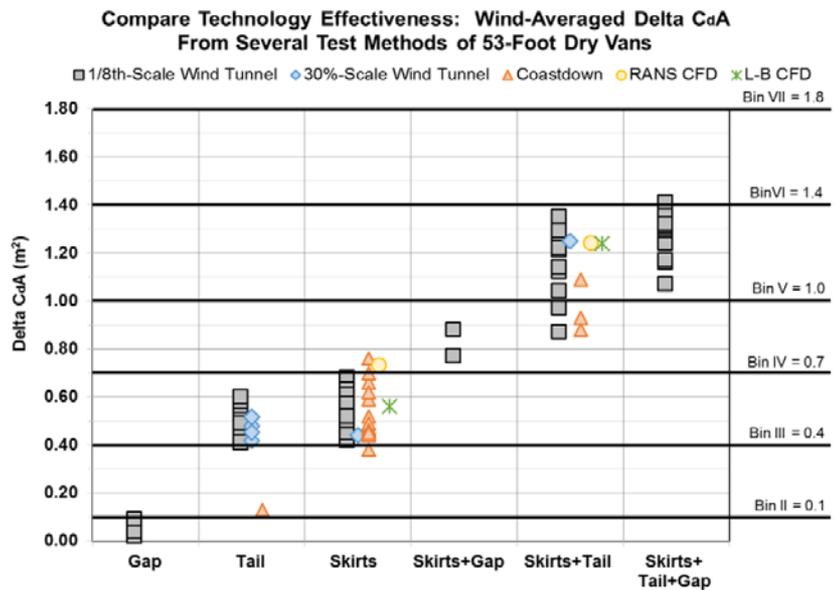


Figure 2-72 Wind-Averaged 53-Foot Dry Van Aerodynamic Test Results Relative to the Aerodynamic Bins that will be Used for Compliance

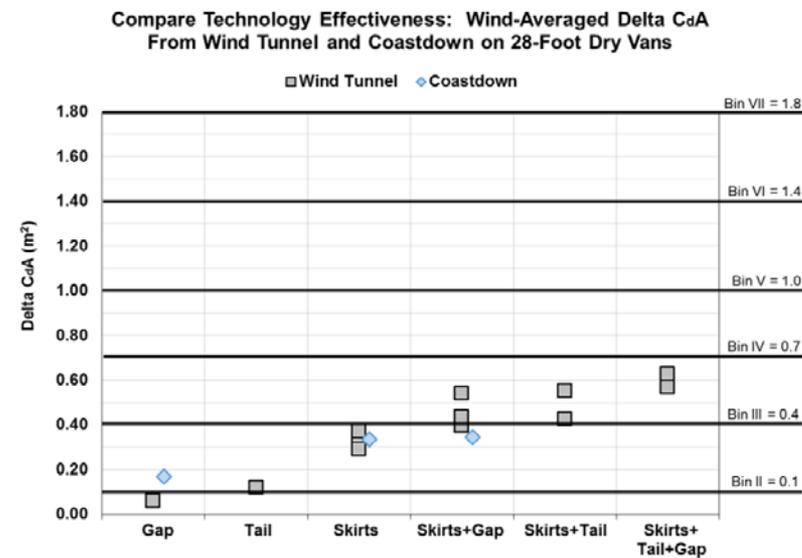


Figure 2-73 Wind-Averaged 28-Foot Dry Van Aerodynamic Test Results Relative to the Aerodynamic Bins that will be Used for Compliance



CONTACTS & MORE INFORMATION

Certification Contacts for Trailers



- Steve Healy, EPA Certification Representative
 - Healy.Stephen@epa.gov, 734-214-4121
- Lauren Steele, EPA Certification Representative
 - Steele.Lauren@epa.gov, 734-214-4788
- Maurice Hicks, NHTSA Certification Representative (credits and enforcement)
 - Maurice.Hicks@dot.gov, 202-366-1078

Future Guidance



- EPA and NHTSA will issue guidance on future subjects when and if necessary
- Please use index cards to submit additional questions
- Please register with EPA and sign up for listservs as soon as possible
 - Once assigned, contact your certification representative

More information



- A copy of this presentation and the rulemaking documents will be available at EPA's heavy-duty regulations page
 - <https://www.epa.gov/regulations-emissions-vehicles-and-engines/regulations-greenhouse-gas-emissions-commercial-trucks>
- Vehicle and engine certification information
 - <https://www.epa.gov/vehicle-and-engine-certification>
- See 81 FR 73478 (October 25, 2016)
- See 40 CFR part 1037, and 49 CFR part 523 and part 535



APPENDIX

- 40 CFR 1037.241 and 49 CFR 535.5(e)
- Useful life of trailers is 10 years
- We assume zero deterioration
 - If we determine that your emission controls (with the exception of tires) are likely to deteriorate during the useful life, we may require you to develop and apply deterioration factors consistent with good engineering judgment

Warranty, Defect Reports & Recall



- See Clean Air Act (CAA) section 207(a) and 40 CFR 1037.15, 1037.120, 1037.601, and 1068.501
- Defect Warranty
 - Applies to emission-related parts, components, systems, software or elements of design which must function properly to assure continued compliance with GHG requirements.
 - Applies to emission-related components, systems, software or elements of design used to obtain credits for advanced technology vehicles, off-cycle technologies and early credits.
- Defect Reporting & Voluntary Emission-Related Recall Reporting Requirements:
 - Applies to emission-related parts, components, systems, software or elements of design which must function properly to assure continued compliance with GHG requirements.
 - Applies to emission-related components, systems, software or elements of design used to obtain credits for advanced technology vehicles, off-cycle technologies and early credits.
- Recall:
 - Applies to emission-related components, systems, software or elements of design which must function properly to assure compliance with GHG requirements.

Preamble and EPA Regulation References for Key Trailer Provisions



	Preamble Section	Regulations
Trailers Covered		
• Regulated trailer definitions	IV.C.1	§ 1037.801
• Regulated trailers	IV.C.1.a, IV.C.1.b	§ 1037.107(a)
• Excluded trailers	IV.C.1.c	§ 1037.5(g)-(i)
• Regulatory subcategories/families	IV.E.1.b	§ 1037.230
Trailer Standards and Phase-In		Subpart B
• Full-aero box van standards	IV.C.2, Table IV-2	§ 1037.107(a)(1) and (2)
• Partial-aero box van standards	IV.C.2, Table IV-3	§ 1037.107(a)(1) and (3), 150(w)
• Non-aero box vans and non-box trailer standards	IV.C.2, Table IV-4	§ 1037.107(a)(1) and (4), 150(w)
Demonstrating Compliance for Trailers		
• GEM-based trailer compliance equation for box vans	IV.E.2.a	§ 1037.515(a)
• Inputs to compliance equation for box vans	IV.E.2.b	§ 1037.515
• Design standards for non-box trailers	IV.C.2, Table IV-4	§ 1037.107(a)(4)
Compliance Provisions	IV.E	Subpart C
• Basic certification process	IV.E.1.a	§ 1037.201
• Information needed for certification application	IV.E.1.c	§ 1037.205
• End of year reporting	IV.E.1.d	§ 1037.250
• Optional averaging provisions	IV.E.5.b	§ 1037.107(a)(5), Subpart H except § 1037.715, 720
• Trailer useful life	IV.E.4.a	§ 1037.107(c)
• Trailer labeling provisions	IV.E.4.b	§ 1037.135, Appendix III
• Emission-related warranty provisions	IV.E.4.c	§ 1037.120, 620(e)
• Maintenance provisions	IV.E.4.d	§ 1037.125
• Post-useful life modifications	IV.E.4.e	§ 1037.655
• Delegated assembly and secondary manufacturers	IV.C.1.c	§ 1037.130, 620-622
• Transitional allowance of non-complying trailers	IV.E.5.a	§ 1037.150(v)

Preamble and EPA Regulation References for Key Trailer Provisions (cont.)



	Preamble Section	Regulations
Testing	IV.E.3	Subpart F
• Tire rolling resistance testing	IV.E.3.a	§ 1037.515(b), 520(c)
• Trailer aerodynamic testing (overview)	IV.E.3.b	§ 1037.150(x), 515(c), 526
• Trailer aerodynamic testing (test procedures)	IV.E.3.b	§ 1037.528, 530, 532
• Trailer aerodynamic performance bins (box vans)	IV.E.3.b.iv	§ 1037.515(c)
• Demonstrating weight reduction	IV.D.1.d	§ 1037.515(d) and (e)
• Data from pre-approved technologies	IV.E.3.b.v	§ 1037.211, 620(c) and (d)
• SmartWay-verified technologies	IV.E.5.c	§ 1037.150(u)
• Off-cycle testing	IV.E.5.d	§ 1037.515(e), 610
• EPA confirmatory testing and production vehicle audits	IV.E.4.f	§ 1037.235(c), 301, 310
Small Business Manufacturers		
• Small manufacturer definition	(RIA Ch 12)	§ 1037.801
• SBA size standards identified by NAICS codes	(RIA Ch 12)	13 CFR 121.201
• How SBA determines “affiliation”		13 CFR 121.103
• How SBA calculates number of employees		13 CFR 121.106
• Small business flexibilities (1-year delay)	IV.E.5.e (RIA Ch 12)	§ 1037.150(c)
Other		
• Reporting and recordkeeping requirements		§ 1037.250, 825
• Submitting confidential business information		§ 1037.815
• Exemptions for exported trailers		40 CFR 1068.230
• Importation of trailers		40 CFR 1068 subpart D
• Example compliance scenarios (docket memo)		“MemoToDocket_ExampleComplianceScenarios.pdf”