

13 CA ADC § 1961

§ 1961. Exhaust Emission Standards and Test Procedures - 2004 and Subsequent Model Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles.

Introduction. This section 1961 contains the California “LEV II” exhaust emission standards for 2004 and subsequent model passenger cars, light-duty trucks and medium-duty vehicles. A manufacturer must demonstrate compliance with the exhaust standards in section 1961(a) applicable to specific test groups, and with the composite phase-in requirements in section 1961(b) applicable to the manufacturer's entire fleet. Section 1961(b) also includes the manufacturer's fleet-wide composite phase-in requirements for the 2001 - 2003 model years.

Prior to the 2004 model year, a manufacturer that produces vehicles that meet the standards in section 1961(a) has the option of certifying the vehicles to those standards, in which case the vehicles will be treated as LEV II vehicles for purposes of the fleet-wide phase-in requirements. Similarly, 2004 - 2006 model-year vehicles may be certified to the “LEV I” exhaust emission standards in section 1960.1(g)(1) and (h)(2), in which case the vehicles will be treated as LEV I vehicles for purposes of the fleet-wide phase-in requirements.

A manufacturer has the option of certifying engines used in incomplete and diesel medium-duty vehicles with a gross vehicle weight rating of greater than 8,500 lbs. to the heavy-duty engine standards and test procedures set forth in title 13, CCR, sections 1956.8(c), (g) and (h).

(a) *Exhaust Emission Standards.*

(1) *“LEV II” Exhaust Standards.* The following standards represent the maximum exhaust emissions for the intermediate and full useful life from new 2004 and subsequent model-year “LEV II” LEVs, ULEVs, and SULEVs, including fuel-flexible, bi-fuel and dual fuel vehicles when operating on the gaseous or alcohol fuel they are designed to use:

LEV II Exhaust Mass Emission Standards for New 2004 and Subsequent Model LEVs, ULEVs, and SULEVs in the Passenger Car, Light-Duty Truck and Medium-Duty Vehicle Classes



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(2) *Reactivity Adjustment in Determining Compliance with the NMOG Standard*

(A) The NMOG emission results from all TLEVs, LEVs, ULEVs and SULEVs certifying on a fuel other than conventional gasoline shall be numerically adjusted to establish an NMOG exhaust mass emission value equivalent. The manufacturer shall multiply measured NMOG exhaust emission results by the appropriate reactivity adjustment factor set forth in section 1961(a)(2)(B) or established in accordance with the test

procedures incorporated by reference in section 1961(d). The reactivity adjustment factor represents the ratio of the NMOG specific reactivity of a low-emission vehicle designed to operate on a fuel other than conventional gasoline compared to the NMOG baseline specific reactivity of vehicles in the same vehicle emission category operated on conventional gasoline.

(B) The following reactivity adjustment factors apply:



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(3) *NMOG Standards for Bi-Fuel, Fuel-Flexible and Dual-Fuel Vehicles Operating on Gasoline.* For fuel-flexible, bi-fuel, and dual-fuel PCs, LDTs and MDVs, compliance with the NMOG exhaust mass emission standards shall be based on exhaust emission tests both when the vehicle is operated on the gaseous or alcohol fuel it is designed to use, and when the vehicle is operated on gasoline. A manufacturer must demonstrate compliance with the applicable exhaust mass emission standards for NMOG, CO, NOx and formaldehyde set forth in the table in section 1961(a)(1) when certifying the vehicle for operation on the gaseous or alcohol fuel.

The following standards represent the maximum NMOG emissions when the vehicle is operating on gasoline. A manufacturer shall not apply a reactivity adjustment factor to the exhaust NMOG mass emission result when operating on gasoline. A manufacturer may measure NMHC in lieu of NMOG when fuel-flexible, bi-fuel and dual-fuel vehicles are operated on gasoline, in accordance with the test procedures incorporated by reference in section 1961(d). Testing at 50⁰F is not required for fuel-flexible, bi-fuel and dual-fuel vehicles when operating on gasoline. The applicable CO, NOx and formaldehyde standards are set forth in section 1961(a)(1).

LEV II NMOG Standards for Bi-Fuel, Fuel-Flexible and Dual-Fuel Vehicles Operating on Gasoline (g/mi)

Vehicle Type	Vehicle Category	Durability Vehicle Basis	
		50,000 mi	120,000 mi
All PCs; LDTs,	LEV	0.125	0.156
0-8500 lbs. GVW	ULEV	0.075	0.090

	SULEV	0.010	0.040
MDVs, 8501-10,000 lbs. GVW	LEV	n/a	0.230
	ULEV	n/a	0.167
	SULEV	n/a	0.117
MDVs, 10,001-14,000 lbs. GVW	LEV	n/a	0.280
	ULEV	n/a	0.195
	SULEV	n/a	0.143

(4) *50°F Exhaust Emission Standards.* All light- and medium-duty LEVs, ULEVs and SULEVs must demonstrate compliance with the following exhaust emission standards for NMOG and formaldehyde (HCHO) measured on the FTP (40 CFR, Part 86, Subpart B) conducted at a nominal test temperature of 50°F, as modified by Part II, Section C of the “California Exhaust Emission Standards and Test Procedures for 2001 and Subsequent Model Passenger Cars, Light-Duty Trucks and Medium-Duty Vehicles” incorporated by reference in section 1961(d). The NMOG mass emission result shall be multiplied by the applicable reactivity adjustment factor, if any, prior to comparing to the applicable adjusted 50,000 mile certification standards set forth below. A manufacturer may demonstrate compliance with the NMOG and HCHO certification standards contained in this subparagraph by measuring NMHC exhaust emissions or issuing a statement of compliance for HCHO in accordance with Section D.1, subparagraph (p) and Section G.3.1.2, respectively, of the “California Exhaust Emission Standards and Test Procedures for 2001 and Subsequent Model Passenger Cars, Light-Duty Trucks and Medium-Duty Vehicles” incorporated by reference in section 1961(d). Emissions of CO and NOx measured at 50°F shall not exceed the standards set forth in §1961(a)(1) applicable to vehicles of the same emission category and vehicle type subject to a cold soak and emission test at 68° to 86°F. Natural gas and diesel-fueled vehicles are exempt from the 50°F test requirements.

Vehicle Weight Class	Vehicle Emission Category (g/mi)					
	LEV		ULEV		SULEV	
	NMOG	HCHO	NMOG	HCHO	NMOG	HCHO
PCs; LDTs 0-8500 lbs. GVW	0.150	0.030	0.080	0.016	0.020	0.008

MDVs 8501- 10,000 lbs. GVW	0.390	0.064	0.286	0.032	0.200	0.016
MDVs 10,001- 14,000 lbs. GVW	0.460	0.080	0.334	0.042	0.234	0.020

(5) *Cold CO Standard.* The following standards represent the 50,000 mile cold temperature exhaust carbon monoxide emission levels from new 2001 and subsequent model-year passenger cars, light-duty trucks, and medium-duty vehicles:

2001 AND SUBSEQUENT MODEL-YEAR COLD TEMPERATURE CARBON MONOXIDE EXHAUST EMISSIONS STANDARDS FOR PASSENGER CARS, LIGHT-DUTY TRUCKS, AND MEDIUM-DUTY VEHICLES (grams per mile)

Vehicle Type	Carbon Monoxide
All PCs, LDTs 0-3750 lbs. LVW	10.0
LDTs, 3751 lbs. LVW - 8500 lbs. GVW; LEV I and Tier 1 MDVs 8500 lbs. GVW and less	12.5

These standards are applicable to vehicles tested at a nominal temperature of 20°F (-7°C) in accordance with 40 CFR Part 86 Subpart C, as amended by the “California Exhaust Emission Standards and Test Procedures for 2001 and Subsequent Model Passenger Cars, Light-Duty Trucks and Medium-Duty Vehicles” incorporated by reference in section 1961(d). Natural gas, diesel-fueled and zero-emission vehicles are exempt from these standards.

(6) *Highway NOx Standard.* The maximum emissions of oxides of nitrogen measured on the federal Highway Fuel Economy Test (HWFET; 40 CFR 600 Subpart B, which is incorporated herein by reference) shall not be greater than 1.33 times the applicable PC and LDT standards or 2.0 times the applicable MDV standards set forth in section 1961(a)(1). Both the projected emissions and the HWFET standard shall be rounded in accordance with ASTM E29-67 to the nearest 0.1 g/mi (or 0.01 g/mi for vehicles certified to the 0.05 or 0.02 g/mi NOx standards) before being compared.

(7) *Supplemental Federal Test Procedure (SFTP) Off-Cycle Emission Standards.* The SFTP exhaust emission levels from new 2004 and subsequent model LEVs, ULEVs, and SULEVs shall not exceed the standards set forth in section 1960.1(r).

(8) *Requirements for Vehicles Certified to the Optional 150,000 Mile Standards.*

(A) *Requirement to Generate Additional Fleet Average NMOG Credit.* A vehicle that is certified to the 150,000 mile standards in section 1961(a) shall generate additional

NMOG fleet average credit as set forth in 1961(b)(1) or additional vehicle equivalent credits as set forth in 1961(b)(2) provided that the manufacturer extends the warranty on high cost parts to 8 years or 100,000 miles, whichever occurs first, and agrees to extend the limit on high mileage in-use testing to 112,500 miles.

(B) *Requirement to Generate a Partial ZEV Allowance.* A vehicle that is certified to the 150,000 mile SULEV standards shall also generate a partial ZEV allocation according to the criteria set forth in section C.3 of the "California Exhaust Emission Standards and Test Procedures for 2005 and Subsequent Model Zero-Emission Vehicles, and 2001 and Subsequent Model Hybrid Electric Vehicles, in the Passenger Car, Light-Duty Truck and Medium-Duty Vehicle Classes," incorporated by reference in section 1962.

(9) *Optional LEV II NOx Standard.* A manufacturer may certify up to 4% of its light-duty truck fleet from 3751 lbs. LVW - 8500 lbs. GVW with a maximum base payload of 2500 lbs. or more to the LEV, option 1, standard set forth in 1961(a)(1) based on projected sales of trucks in the LDT2 category. Passenger cars and light-duty trucks 0-3750 lbs. LVW are not eligible for this option.

(10) *Intermediate In-Use Compliance Standards.* For test groups certified prior to the 2007 model year, the following intermediate in-use compliance standards shall apply for the first two model years the test group is certified to the new standard. For SULEVs certified prior to the 2004 model year, the following intermediate in-use compliance SULEV standards shall apply through the 2006 model year.

Emission Category	Durability	LEV II PCs		LEV II MDVs	
		and LDTs		8500 - 10,000 lbs. GVW	
	Vehicle Basis	NMOG	NOx	NOx	NOx
LEV/ULEV	50,000	n/a	0.07	n/a	
	120,000	n/a	0.10	0.3	
	150,000	n/a	0.10	0.3	
LEV, Option 1	50,000	n/a	0.10	n/a	
	120,000	n/a	0.14	n/a	
	150,000	n/a	0.14	n/a	
SULEV	120,000	0.020	0.03	0.15	
	150,000	0.020	0.03	0.15	

(11) *NMOG Credit for Vehicles with Zero-Evaporative Emissions.* In determining compliance of a vehicle with the applicable exhaust NMOG standard, a gram per mile NMOG factor, to be determined by the Executive Officer based on available data, shall be subtracted from the reactivity-adjusted NMOG exhaust emission results for any vehicle that has been certified to the "zero" evaporative emission standard set forth in title 13, CCR, section 1976(b)(1)(E). This credit shall not apply to a SULEV that generates a partial ZEV allowance.

(12) *NMOG Credit for Direct Ozone Reduction Technology.* A manufacturer that certifies vehicles equipped with direct ozone reduction technologies shall be eligible to receive

NMOG credits that can be applied to the NMOG exhaust emissions of the vehicle when determining compliance with the standard. In order to receive credit, the manufacturer must submit the following information for each vehicle model, including, but not limited to:

(A) a demonstration of the airflow rate through the direct ozone reduction device and the ozone-reducing efficiency of the device over the range of speeds encountered in the Unified Cycle Driving Schedule.

(B) an evaluation of the durability of the device for the full useful life of the vehicle; and

(C) a description of the on-board diagnostic strategy for monitoring the performance of the device in-use.

Using the above information, the Executive Officer shall determine the value of the NMOG credit based on the calculated change in the one-hour peak ozone level using an approved airshed model.

(13) *NO_x Credits for Pre-2004 MDVs Certified to the LEV I LEV or ULEV Standards.* Prior to the 2004 model year, a manufacturer may earn a 0.02 g/mi per vehicle NO_x credit for MDVs between 6,000-8500 lbs. GVW certified to the LEV I LEV or ULEV standards for PCs and LDTs set forth in section 1960.1(g)(1). The manufacturer may apply the credit on a per vehicle basis to the NO_x emissions of LDTs between 6,000-8500 lbs. GVW certified to the PC/LDT LEV or ULEV standards in section 1961(a)(1) for the 2004 through 2008 model years.

(14) *When a Federally-Certified Vehicle Model is Required in California.*

(A) *General Requirement.* Whenever a manufacturer federally-certifies a 2004 or subsequent model-year passenger car, light-duty truck or medium-duty vehicle model to the standards for a particular emissions bin that are more stringent than the standards for an applicable California emission category, the equivalent California model may only be certified to (i) the California standards for a vehicle emissions category that are at least as stringent as the standards for the corresponding federal emissions bin, or (ii) the exhaust emission standards to which the federal model is certified. However, where the federal exhaust emission standards for the particular emissions bin and the California standards for a vehicle emissions category are equally stringent, the California model may only be certified to either the California standards for that vehicle emissions category or more stringent California standards. The federal emission bins are those contained in Tables S04-1 and S04-2 of 40 CFR § 86.1811-04(c) as adopted February 10, 2000. The criteria for applying this requirement are set forth in Part I. Section H.1 of the "California Exhaust Emission Standards and Test Procedures for 2001 and Subsequent Model Passenger Cars, Light-Duty Trucks and Medium-Duty Vehicles," as incorporated by reference in section 1961(d).

(B) *Exception for clean fuel fleet vehicles.* Section 1961(a)(14)(A) does not apply in the case of a federally-certified vehicle model that is only marketed to fleet operators for applications that are subject to clean fuel fleet requirements established pursuant to section 246 of the federal Clean Air Act (42 U.S.C. sec. 7586). In addition, the Executive Officer shall exclude from the requirement a federally-certified vehicle model where the manufacturer demonstrates to the Executive Officer's reasonable satisfaction that the

model will primarily be sold or leased to clean fuel fleet operators for such applications, and that other sales or leases of the model will be incidental to marketing to those clean fuel fleet operators.

(C) *Opt-in for 2003 or prior model year vehicles.* A manufacturer may certify a passenger car, light-duty truck or medium-duty vehicle to federal exhaust emission standards pursuant to section 1961(a)(14)(A) prior to the 2004 model year.

(15) *Emission Standard for a Fuel-Fired Heater.* Whenever a manufacturer elects to utilize an on-board fuel-fired heater on any passenger car, light-duty truck or medium-duty vehicle, the fuel-fired heater must meet LEV II ULEV standards for passenger cars and light-duty trucks less than 8,500 pounds GVW as set forth in section 1961(a)(1). On-board fuel-fired heaters may not be operable at ambient temperatures above 40°F.

(b) *Emission Standards Phase-In Requirements for Manufacturers.*

(1) *Fleet Average NMOG Requirements for Passenger Cars and Light-Duty Trucks.*

(A) The fleet average non-methane organic gas exhaust mass emission values from the passenger cars and light-duty trucks certified to the Tier 1, LEV I and LEV II standards that are produced and delivered for sale in California each model year by a manufacturer other than a small volume manufacturer or an independent low volume manufacturer shall not exceed:

FLEET AVERAGE NON-METHANE ORGANIC GAS EXHAUST MASS EMISSION
REQUIREMENTS FOR LIGHT-DUTY VEHICLE WEIGHT CLASSES (50,000 mile
Durability Vehicle Basis)

Model Year	Fleet Average NMOG (grams per mile)	
	All PCs; LDTs 0-3750 lbs. LVW	LDTs 3751 lbs. LVW - 8500 lbs. GVW
2001	0.070	0.098
2002	0.068	0.095
2003	0.062	0.093
2004	0.053	0.085
2005	0.049	0.076
2006	0.046	0.062
2007	0.043	0.055
2008	0.040	0.050
2009	0.038	0.047
2010+	0.035	0.043

(B) *Calculation of Fleet Average NMOG Value.*

1. *Basic Calculation.*

a. Each manufacturer's PC and LDT1 fleet average NMOG value for the total number of PCs and LDT1s produced and delivered for sale in California shall be calculated as follows:

$$\frac{\left(\sum [\text{Number of vehicles in a test group} \times \text{applicable emission standard}] + \sum [\text{Number of hybrid electric vehicles in a test group} \times \text{HEV NMOG factor}] \right)}{\text{Total Number of Vehicles Produced, Including ZEVs and HEVs}}$$

b. Each manufacturer's LDT2 fleet average NMOG value for the total number of LDT2s produced and delivered for sale in California shall be calculated as follows:

$$\frac{\left(\sum [\text{Number of vehicles in a test group} \times \text{applicable emission standard}] + \sum [\text{Number of hybrid electric vehicles in a test group} \times \text{HEV NMOG factor}] \right)}{\text{Total Number of Vehicles Produced, Including ZEVs and HEVs}}$$

c. The applicable emission standards to be used in the above equations are as follows:



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2. *HEV NMOG Factor.* The HEV NMOG factor for light-duty vehicles is calculated as follows:

$$\text{LEV HEV Contribution Factor} = 0.075 - [(\text{Zero-emission VMT Factor}) \times 0.035]$$

$$\text{ULEV HEV Contribution Factor} = 0.040 - [(\text{Zero-emission VMT Factor}) \times 0.030]$$

where Zero-emission VMT Factor for HEVs is determined in accordance with section 1962.

3. *Federally-Certified Vehicles.* A vehicle certified to the federal standards for a federal exhaust emissions bin in accordance with Section H.1 of the "California Exhaust Emission Standards and Test Procedures for 2001 and Subsequent Model Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles," as incorporated by reference in section 1961(d), shall use the corresponding intermediate useful life NMOG standard to which the vehicle is deemed certified in the fleet average calculation.

(C) *Requirements for Small Volume Manufacturers.*

1. In 2001 through 2006 model years, a small volume manufacturer shall not exceed a fleet average NMOG value of 0.075 g/mi for PCs and LDTs from 0-3750 lbs. LVW or 0.100 g/mi for LDTs from 3751-5750 lbs. LVW calculated in accordance with section 1961(b)(1)(B). In 2007 and subsequent model years, a small volume manufacturer shall not exceed a fleet average NMOG value of 0.075 for PCs and LDTs from 0-3750 lbs.

LVW or 0.075 for LDTs from 3751 lbs. LVW - 8500 lbs. GVW calculated in accordance with section 1961(b)(1)(B).

2. If a manufacturer's average California sales exceed 4500 units of new PCs, LDTs, MDVs and heavy duty engines based on the average number of vehicles sold for the three previous consecutive model years, the manufacturer shall no longer be treated as a small volume manufacturer and shall comply with the fleet average requirements applicable to larger manufacturers as specified in section 1961(b)(1) beginning with the fourth model year after the last of the three consecutive model years.

3. If a manufacturer's average California sales fall below 4500 units of new PCs, LDTs, MDVs and heavy duty engines based on the average number of vehicles sold for the three previous consecutive model years, the manufacturer shall be treated as a small volume manufacturer and shall be subject to the requirements for small volume manufacturers beginning with the next model year.

(D) *Phase-in Requirements for Independent Low Volume Manufacturers.* In 2001 through 2006 model years, an independent low volume manufacturer shall not exceed a fleet average NMOG value of 0.075 g/mi for PCs and LDTs from 0-3750 lbs. LVW or 0.100 g/mi for LDTs from 3751-5750 lbs. LVW calculated in accordance with section 1961(b)(1)(B). In 2007 and subsequent model years, an independent low volume manufacturer shall not exceed a fleet average NMOG value of 0.060 for PCs and LDTs from 0-3750 lbs. LVW or 0.065 g/mi for LDTs from 3751 lbs. LVW - 8500 lbs. GVW calculated in accordance with section 1961(b)(1)(B).

(E) *Treatment of ZEVs.* ZEVs classified as LDTs (>3750 lbs. LVW) that have been counted toward the ZEV requirement for PCs and LDTs (0-3750 lbs. LVW) as specified in sections 1962 and 1962.1 shall be included as LDT1s in the calculation of a fleet average NMOG value.

(2) *LEV II Phase-In Requirement for PCs and LDTs.* Beginning in the 2004 model year, a manufacturer, except a small volume manufacturer or an independent low volume manufacturer, shall certify a percentage of its PC and LDT fleet to the LEV II standards in section 1961(a) according to the following phase in schedule:

Model Year	PC/LDT1 (%)	LDT2 (%)
2004	25	25
2005	50	50
2006	75	75
2007	100	100

In determining compliance with the phase-in schedule, the fleet shall consist of LEV I and LEV II PCs and LDT1s for the PC/LDT1 calculation, and LEV I and LEV II LDT2s for the LDT2 calculation. LEV I MDVs are not counted in the calculation until they are certified as LEV II LDT2s.

A manufacturer may use an alternative phase-in schedule to comply with these phase-in requirements as long as equivalent NOx emission reductions are achieved by the 2007 model year from each of the two categories - PC/LDT1 and LDT2. Model year emission reductions shall be calculated by multiplying the percent of either PC/LDT1 or LDT2

vehicles meeting the LEV II standards in a given model year (based on a manufacturer's projected sales volume of vehicles in each category) by 4 for the 2004 model year, 3 for the 2005 model year, 2 for the 2006 model year and 1 for the 2007 model year. The yearly results for PCs/LDT1s shall be summed together to determine a separate cumulative total for PCs/LDT1s and the yearly results for LDT2s shall be summed together to determine a cumulative total for LDT2s. The cumulative total for each category must be equal to or exceed 500 to be considered equivalent. A manufacturer may add vehicles introduced before the 2004 model year (e.g., the percent of vehicles introduced in 2003 would be multiplied by 5) to the cumulative total.

(3) Medium-Duty Vehicle Phase-In Requirements.

(A) A manufacturer of MDVs, other than a small volume manufacturer, shall certify an equivalent percentage of its MDV fleet according to the following phase-in schedule:

Vehicles Certified to §1960.1(h)(1), Model Year	Vehicles Certified to (h)(2), and §1961(a)(1) (%)		Tier 1	§1956.8(g) or (h) (%)	
	LEV	ULEV		LEV	ULEV
	2001	80		20	100
2002	70	30	0	100	0
2003	60	40	0	100	0
2004 +	40	60	0	0	100

(B) *Phase-In Requirements for LEV II MDVs.* For the 2004 through 2006 model years, a manufacturer, other than a small volume manufacturer must phase-in at least one test group per model year to the MDV LEV II standards. All 2007 and subsequent model year MDVs, including those produced by a small volume manufacturer, are subject to the LEV II MDV standards. Beginning in the 2005 model year, all medium-duty engines certified to the optional medium-duty engine standards in title 13, CCR §1956.8(c) or (h), including those produced by a small volume manufacturer, must meet the standards set forth in title 13, CCR §1956.8(c) or (h), as applicable. A manufacturer that elects to certify to the Option 1 or Option 2 federal standards as set forth in 40 CFR §86.005-10(f) is not subject to these phase-in requirements.

(C) *Identifying a Manufacturer's MDV Fleet.* For the 2001 and subsequent model years, each manufacturer's MDV fleet shall be defined as the total number of California-certified MDVs produced and delivered for sale in California. The percentages shall be applied to the manufacturers' total production of California-certified medium-duty vehicles delivered for sale in California. For the 2005 and subsequent model years, a manufacturer that elects to the optional medium-duty engine standards in title 13, CCR, §1956.8(c) or (h) shall not count those engines in the manufacturer's total production of California-certified medium-duty vehicles for purposes of this subsection.

(D) *Requirements for Small Volume Manufacturers.* In 2001 through 2003 model years, a small volume manufacturer shall certify, produce, and deliver for sale in California vehicles or engines certified to the MDV Tier 1 standards in a quantity equivalent to 100% of its MDV fleet. In 2004 through 2006 model years, a small volume manufacturer shall certify, produce, and deliver for sale in California vehicles or engines certified to the

MDV LEV I standard in a quantity equivalent to 100% of its MDV fleet. Engines certified to these MDV LEV I standards are not be eligible for emissions averaging.

(E) For a manufacturer that elects to certify to the optional medium-duty engine standards in title 13, CCR §1956.8(c) or (h), all such 2005 and subsequent model year MDVs, including those produced by a small volume manufacturer, shall be subject to the emissions averaging provisions applicable to heavy-duty diesel or Otto-cycle engines as set forth in the “California Exhaust Emission Standards and Test Procedures for 2004 and Subsequent Model Heavy-Duty Otto-Cycle Engines,” or the “California Exhaust Emissions Standards and Test Procedures for 2004 and Subsequent Model Heavy-Duty Diesel Engines, incorporated by reference in §1956.8(b) or (d), as applicable.

(c) Calculation of NMOG Credits/Debits

(1) *Calculation of NMOG Credits for Passenger Cars and Light-Duty Trucks.* In 2001 and subsequent model years, a manufacturer that achieves fleet average NMOG values lower than the fleet average NMOG requirement for the corresponding model year shall receive credits in units of g/mi NMOG determined as:

$$[(\text{Fleet Average NMOG Requirement}) - (\text{Manufacturer's Fleet Average NMOG Value})] \times (\text{Total No. of Vehicles Produced and Delivered for Sale in California, Including ZEVs and HEVs}).$$

A manufacturer with 2001 and subsequent model year fleet average NMOG values greater than the fleet average requirement for the corresponding model year shall receive debits in units of g/mi NMOG equal to the amount of negative credits determined by the aforementioned equation. For the 2001 and subsequent model years, the total g/mi NMOG credits or debits earned for PCs and LDTs 0-3750 lbs. LVW, for LDTs 3751-5750 lbs. LVW and for LDTs 3751 lbs. LVW - 8500 lbs. GVW shall be summed together. The resulting amount shall constitute the g/mi NMOG credits or debits accrued by the manufacturer for the model year.

(2) Calculation of Vehicle Equivalent NMOG Credits for Medium-Duty Vehicles.

(A) In 2001 and subsequent model years, a manufacturer that produces and delivers for sale in California MDVs in excess of the equivalent requirements for LEVs, ULEVs and/or SULEVs certified to the exhaust emission standards set forth in section 1961(a)(1) or to the exhaust emission standards set forth in Title 13, CCR, Section 1956.8(h) shall receive “Vehicle-Equivalent Credits” (or “VECs”) calculated in accordance with the following equation, where the term “produced” means produced and delivered for sale in California:

$$\begin{aligned} & [(\text{No. of LEVs Produced excluding HEVs}) + \\ & (\text{No. of LEV HEVs} \times \text{HEV VEC factor for LEVs})] + \\ & (1.20 \times \text{No. of LEVs certified to the 150,000 mile standards}) - \\ & (\text{Equivalent No. of LEVs Required to be Produced}) + \\ & [(1.4) \times (\text{No. of ULEVs Produced excluding HEVs}) + \end{aligned}$$

(No. of ULEV HEVs x HEV VEC factor for ULEVs)] +

(1.50 x No. of ULEVs certified to the 150,000 mile standards)) - [(1.4) x (Equivalent No. of ULEVs Required to be Produced)]) +

[(1.7) x (No. of SULEVs Produced excluding HEVs) +

(No. of SULEV HEVs x HEV VEC factor for SULEVs)] +

(1.75 x No. of SULEVs certified to the 150,000 mile standards)) - [(1.7) x [(Equivalent No. of SULEVs Required to be Produced)]) +

[(2.0) x (No. of ZEVs Certified and Produced as MDVs)].

MDVs certified prior to the 2004 model year to the LEV I LEV or ULEV standards for PCs and LDTs 0-3750 lbs. LVW set forth in section E.1 of these test procedures shall receive VECs calculated in accordance with the following equation, where the term "produced" means produced and delivered for sale in California: [(1.6) x (No. of MDVs meeting the LEV I LEV standards for PCs and LDTs 0-3750 lbs. LVW excluding HEVs) + (No. of HEVs meeting the LEV I LEV standards for PCs and LDTs 0-3750 lbs. LVW x HEV VEC factor for MDVs meeting the LEV I LEV standards for PCs and LDTs 0-3750 lbs. LVW)]+ [(1.65 x No. of MDVs certified to the 150,000 mile LEV I LEV standards for PCs and LDTs 0-3750 lbs.)] + [(1.8) x (No. of MDVs meeting the LEV I ULEV standards for PCs and LDTs 0-3750 lbs. LVW excluding HEVs) + (No. of HEVs meeting the LEV I ULEV standards for PCs and LDTs 0-3750 lbs. LVW x HEV VEC factor for MDVs meeting the LEV I ULEV standards for PCs and LDTs 0-3750 lbs. LVW)]+ [(1.85 x No. of MDVs certified to the 150,000 mile LEV I ULEV standards for PCs and LDTs 0-3750 lbs.)].

(B) *MDV HEV VEC factor.* The MDV HEV VEC factor is calculated as follows:

1 + [(LEV standard - ULEV standard) x (Zero-emission VMT Factor) / LEV standard] for LEVs;

1 + [(ULEV standard - SULEV standard) x (Zero-emission VMT Factor) / ULEV standard] for ULEVs;

1 + [(SULEV standard - ZEV standard) x (Zero-emission VMT Factor) / SULEV standard] for SULEVs;

where "Zero-emission VMT Factor" for an HEV is determined in accordance with section 1962.

The HEV VEC factor for MDVs prior to model year 2004 meeting the LEV I LEV and ULEV standards for PCs and LDTs 0-3750 lbs. LVW is calculated as follows:

1 + [(MDV SULEV standard - PC LEV I LEV standard) x (Zero-emission VMT Factor) / PC LEV I LEV standard] for MDVs meeting the LEV I LEV standards for PCs and LDTs 0-3750 lbs. LVW;

$1 + [(MDV \text{ SULEV standard} - PC \text{ ULEV standard}) \times (\text{Zero-emission VMT Factor}) / PC \text{ LEV I ULEV standard}]$ for MDVs meeting the ULEV I LEV standards for PCs and LDTs 0-3750 lbs. LVW.

(C) A manufacturer that fails to produce and deliver for sale in California the equivalent quantity of MDVs certified to LEV, ULEV and/or SULEV exhaust emission standards, shall receive "Vehicle-Equivalent Debits" (or "VEDs") equal to the amount of negative VECs determined by the equation in section 1961(c)(2)(A).

(D) Only ZEVs certified as MDVs and not used to meet the ZEV requirement shall be included in the calculation of VECs.

(3) Procedure for Offsetting Debits.

(A) A manufacturer shall equalize emission debits by earning g/mi NMOG emission credits or VECs in an amount equal to the g/mi NMOG debits or VEDs, or by submitting a commensurate amount of g/mi NMOG credits or VECs to the Executive Officer that were earned previously or acquired from another manufacturer. For 2001 through 2003 and for 2007 and subsequent model years, manufacturers shall equalize emission debits by the end of the following model year. For 2004 through 2006 model years, a manufacturer shall equalize NMOG debits for PCs and LDTs and LEV II MDVs within three model years and prior to the end of the 2007 model year. If emission debits are not equalized within the specified time period, the manufacturer shall be subject to the Health and Safety Code section 43211 civil penalty applicable to a manufacturer which sells a new motor vehicle that does not meet the applicable emission standards adopted by the state board. The cause of action shall be deemed to accrue when the emission debits are not equalized by the end of the specified time period. For the purposes of Health and Safety Code section 43211, the number of passenger cars and light-duty trucks not meeting the state board's emission standards shall be determined by dividing the total amount of g/mi NMOG emission debits for the model year by the g/mi NMOG fleet average requirement for PCs and LDTs 0-3750 lbs. LVW applicable for the model year in which the debits were first incurred and the number of medium-duty vehicles not meeting the state board's emission standards shall be equal to the amount of VEDs incurred.

(B) The emission credits earned in any given model year shall retain full value through the subsequent model year. The value of any credits not used to equalize the previous model-year's debit shall be discounted by 50% at the beginning of second model year after being earned, shall be discounted to 25% of its original value if not used by the beginning of the third model year after being earned, and will have no value if not used by the beginning of the fourth model year after being earned.

(d) *Test Procedures.* The certification requirements and test procedures for determining compliance with the emission standards in this section are set forth in the "California Exhaust Emission Standards and Test Procedures for 2001 and Subsequent Model Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles," as amended September 27, 2010, and the "California Non-Methane Organic Gas Test Procedures," as amended July 30, 2002, which are incorporated herein by reference. In the case of hybrid electric vehicles and on-board fuel-fired heaters, the certification requirements and test procedures for determining compliance with the emission standards in this section are set forth in the "California Exhaust Emission Standards and Test Procedures

for 2005 through 2008 Model Zero-Emission Vehicles, and 2001 through 2008 Model Hybrid Electric Vehicles, in the Passenger Car, Light-Duty Truck and Medium-Duty Vehicle Classes,” incorporated by reference in section 1962 and the “California Exhaust Emission Standards and Test Procedures for 2009 and Subsequent Model Zero-Emission Vehicles and Hybrid Electric Vehicles, in the Passenger Car, Light-Duty Truck and Medium-Duty Vehicle Classes,” incorporated by reference in section 1962.1.

(e) *Abbreviations.* The following abbreviations are used in this section 1961:

“ALVW” means adjusted loaded vehicle weight.

“ASTM” means American Society of Testing and Materials.

“CO” means carbon monoxide.

“FTP” means Federal Test Procedure.

“g/mi” means grams per mile.

“GVW” means gross vehicle weight.

“GVWR” means gross vehicle weight rating.

“HEV” means hybrid-electric vehicle.

“LDT” means light-duty truck.

“LDT1” means a light-duty truck with a loaded vehicle weight of 0-3750 pounds.

“LDT2” means a “LEV II” light-duty truck with a loaded vehicle weight of 3751 pounds to a gross vehicle weight of 8500 pounds or a “LEV I” light-duty truck with a loaded vehicle weight of 3751-5750 pounds.

“LEV” means low-emission vehicle.

“LPG” means liquefied petroleum gas.

“LVW” means loaded vehicle weight.

“MDV” means medium-duty vehicle.

“mg/mi” means milligrams per mile.

“NMHC” means non-methane hydrocarbons.

“Non-Methane Organic Gases” or “NMOG” means the total mass of oxygenated and non-oxygenated hydrocarbon emissions.

“NOx” means oxides of nitrogen.

“PC” means passenger car.

“SULEV” means super-ultra-low-emission vehicle.

“TLEV” means transitional low-emission vehicle.

“ULEV” means ultra-low-emission vehicle.

“VEC” means vehicle-equivalent credits.

“VED” means vehicle-equivalent debits.

“VMT” means vehicle miles traveled.

“ZEV” means zero-emission vehicle.

Note: Authority cited: Sections 39500, 39600, 39601, 43013, 43018, 43101, 43104 and 43105, Health and Safety Code. Reference: Sections 39002, 39003, 39667, 43000, 43009.5, 43013, 43018, 43100, 43101, 43101.5, 43102, 43104, 43105, 43106, 43204 and 43205, Health and Safety Code.

HISTORY

1. New section filed 10-28-99; operative 11-27-99 (Register 99, No. 44).
2. Amendment filed 4-30-2001; operative 5-30-2001 (Register 2001, No. 18).
3. Amendment of subsections (a)(8)(B) and (d) filed 5-24-2002; operative 6-23-2002 (Register 2002, No. 21).
4. Amendment filed 9-16-2002; operative 10-16-2002 (Register 2002, No. 38).
5. Amendment of third paragraph, subsections (a)(4), (a)(8)(A) and (a)(12)(A), new subsection (a)(15), amendment of subsections (b)(3)(B)-(D), new subsection (b)(3)(E) and amendment of subsections (d) and (e) filed 11-4-2003; operative 12-4-2003 (Register 2003, No. 45).
6. Amendment of subsections (a)(8)(B) and (d) filed 2-25-2004; operative 3-26-2004 (Register 2004, No. 9).
7. Amendment of subsection (d) filed 7-15-2004; operative 8-14-2004 (Register 2004, No. 29).
8. Amendment of subsection (d) and Note filed 9-15-2005; operative 1-1-2006 (Register 2005, No. 37).
9. Change without regulatory effect amending incorporated document California Exhaust Emission Standards and Test Procedures for 2001 and Subsequent Model Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles filed 9-15-2005 pursuant to section 100, title 1, California Code of Regulations (Register 2005, No. 37).

10. Amendment of incorporated document California Exhaust Emission Standards and Test Procedures for 2001 and Subsequent Model Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles and amendment of subsection (d) filed 1-18-2007; operative 2-17-2007 (Register 2007, No. 3).

11. Amendment of subsection (d) and amendment of Note filed 12-5-2007; operative 1-4-2008 (Register 2007, No. 49).

12. Amendment of incorporated document California Exhaust Emission Standards and Test Procedures for 2001 and Subsequent Model Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles and amendment of subsection (d) filed 6-16-2008; operative 6-16-2008 pursuant to Government Code section 11343.4 (Register 2008, No. 25).

13. Amendment of subsections (b)(1)(E) and (d) filed 1-14-2010; operative 2-13-2010 (Register 2010, No. 3).

14. Amendment of subsection (d) indicating 2-22-2010 amendment of "California Exhaust Emission Standards and Test Procedures for 2001 and Subsequent Model Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles" (incorporated by reference) filed 4-1-2010; operative 4-1-2010 pursuant to Government Code section 11343.4 (Register 2010, No. 14).

15. Amendment of subsection (d) indicating 3-29-2010 amendment of "California Exhaust Emission Standards and Test Procedures for 2001 and Subsequent Model Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles" (incorporated by reference) and amendment of Note filed 4-1-2010; operative 4-1-2010 pursuant to Government Code section 11343.4 (Register 2010, No. 14).

16. Amendment of subsection (d) and amendment of Note filed 11-8-2010; operative 12-8-2010 (Register 2010, No. 46).

17. Change without regulatory effect indicating 9-27-2010 amendment of "California Exhaust Emission Standards and Test Procedures for 2001 and Subsequent Model Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles" (incorporated by reference) filed 1-19-2011 pursuant to section 100, title 1, California Code of Regulations (Register 2011, No. 3).

13 CCR § 1961, ← **13 CA ADC § 1961** →

13 CA ADC § 1961.1

§ 1961.1. Greenhouse Gas Exhaust Emission Standards and Test Procedures - 2009 and Subsequent Model Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles.

13 CCR § 1961.1 - Greenhouse Gas Exhaust Emission Standards and Test Procedures - 2009 and Subsequent Model Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles.

(a) *Greenhouse Gas Emission Requirements.* The greenhouse gas emission levels from new 2009 and subsequent model year passenger cars, light-duty trucks, and medium-

duty passenger vehicles shall not exceed the following requirements. Light-duty trucks from 3751 lbs. LVW - 8500 lbs. GVW that are certified to the Option 1 LEV II NOx Standard in section 1961(a)(1) are exempt from these greenhouse gas emission requirements, however, passenger cars, light-duty trucks 0-3750 lbs. LVW, and medium-duty passenger vehicles are not eligible for this exemption.

(1) Fleet Average Greenhouse Gas Requirements for Passenger Cars, Light-Duty Trucks, and Medium-Duty Passenger Vehicles.

(A)(i) The fleet average greenhouse gas exhaust mass emission values from passenger cars, light-duty trucks, and medium-duty passenger vehicles that are produced and delivered for sale in California each model year by a large volume manufacturer shall not exceed:

FLEET AVERAGE GREENHOUSE GAS EXHAUST MASS EMISSION REQUIREMENTS FOR PASSENGER CAR, LIGHT-DUTY TRUCK, AND MEDIUM-DUTY PASSENGER VEHICLE WEIGHT CLASSES¹

(4,000 mile Durability Vehicle Basis)

<i>Model Year</i>	<i>Fleet Average Greenhouse Gas Emissions (grams per mile CO₂ - equivalent)</i>	
	<i>All PCs; LDTs 0-3750 lbs. LVW</i>	<i>LDTs 3751 lbs. LVW - 8500 lbs. GVW; MDPVs</i>
2009	323	439
2010	301	420
2011	267	390
2012	233	361
2013	227	355
2014	222	350
2015	213	341
2016+	205	332

¹Each manufacturer shall demonstrate compliance with these values in accordance with section 1961.1(a)(1)(B).

1. For each model year, a manufacturer must demonstrate compliance with the fleet average requirements in this section 1961.1(a)(1)(A) based on one of two options applicable throughout the model year, either:

Option 1: the total number of passenger cars, light-duty trucks, and medium-duty passenger vehicles that are certified to the California exhaust emission standards in this section 1961.1, and are produced and delivered for sale in California; or

Option 2: the total number of passenger cars, light-duty trucks, and medium-duty passenger vehicles that are certified to the California exhaust emission standards in this

section 1961.1, and are produced and delivered for sale in California, the District of Columbia, and all states that have adopted California's greenhouse gas emission standards for that model year pursuant to Section 177 of the federal Clean Air Act (42 U.S.C. § 7507).

a. For the 2009 and 2010 model years, a manufacturer that selects compliance Option 2 must notify the Executive Officer of that selection, in writing, within 30 days of the effective date of the amendments to this section (a)(1)(A)1 or must comply with Option 1.

b. For the 2011 and later model years, a manufacturer that selects compliance Option 2 must notify the Executive Officer of that selection, in writing, prior to the start of the applicable model year or must comply with Option 1.

c. When a manufacturer is demonstrating compliance using Option 2 for a given model year, the term "in California" as used in subsections 1961.1(a)(1)(B)3. and 1961.1(b) means California, the District of Columbia, and all states that have adopted California's greenhouse gas emission standards for that model year pursuant to Section 177 of the federal Clean Air Act (42 U.S.C. § 7507).

d. A manufacturer that selects compliance Option 2 must provide to the Executive Officer separate values for the number of vehicles produced and delivered for sale in the District of Columbia and for each individual state within the average.

(A)(ii) For the 2012 through 2016 model years, a manufacturer may elect to demonstrate compliance with this section 1961.1 by demonstrating compliance with the National greenhouse gas program as follows:

1. A manufacturer that selects compliance with this option 1961.1(a)(1)(A)(ii) must notify the Executive Officer of that selection, in writing, prior to the start of the applicable model year or must comply with 1961.1(a)(1)(A)(i).

2. The manufacturer must submit to ARB a copy of the Model Year CAFE report that it submitted to EPA as required under 40 CFR §86.1865-12 (as proposed at 74 Fed.Reg. 49454, 49760 (September 28, 2009) and adopted by EPA on April 1, 2010, 75 Fed.Reg. [insert page] (April [insert date], 2010), for demonstrating compliance with the National greenhouse gas program and the EPA determination of compliance. These must be submitted within 30 days of receipt of the EPA determination of compliance, for each model year that a manufacturer selects compliance with this option 1961.1(a)(1)(A)(ii). and

3. If a manufacturer has outstanding greenhouse gas debits at the end of the 2011 model year, as calculated in accordance with 1961.1(b), the manufacturer must submit to the Executive Officer a plan for offsetting all outstanding greenhouse gas debits by using greenhouse gas credits earned under the National greenhouse gas program before applying those credits to offset any National greenhouse as program debits. Upon approval of the plan by the Executive Officer, the manufacturer may demonstrate compliance with this section 1961.1 by demonstrating compliance with the National greenhouse gas program. Any California debits not offset by the end of the 2016 model year National greenhouse gas program reporting period are subject to penalties as provided in this Section 1961.1.

(B) *Calculation of Fleet Average Greenhouse Gas Value.*

1. *Basic Calculation.*

a. Option A: Each manufacturer shall calculate both a “city” grams per mile average CO₂-equivalent value for each GHG vehicle test group and a “highway” grams per mile average CO₂-equivalent value for each GHG vehicle test group, including vehicles certified in accordance with section 1960.5 and vehicles certified in accordance with section 1961(a)(14), using the following formula. Option B: For a manufacturer that elects to demonstrate compliance with the greenhouse gas requirements using CAFE data, “GHG vehicle test group” shall mean “subconfiguration” in this subsection 1961.1(a)(1)(B)1.a. Greenhouse Gas emissions used for the “city” CO₂-equivalent value calculation shall be measured using the “FTP” test cycle (40 CFR, Part 86, Subpart B). Greenhouse Gas emissions used for the “highway” CO₂-equivalent value calculation shall be based on emissions measured using the Highway Test Procedures.

CO₂-Equivalent Value = CO₂ + 296 x N₂O + 23 x CH₄ - A/C Direct Emissions Allowance
- A/C Indirect Emissions Allowance

A manufacturer may use N₂O = 0.006 grams per mile in lieu of measuring N₂O exhaust emissions. A manufacturer that elects to use CAFE data to demonstrate compliance with the greenhouse requirements may substitute the term 1.9 CO₂-equivalent grams per mile for the terms “296 x N₂O + 23 x CH₄” in this equation.

b. *A/C Direct Emissions Allowance.* A manufacturer may use the following A/C Direct Emission Allowances, upon approval of the Executive Officer, if that manufacturer demonstrates that the following requirements are met. Such demonstration shall include specifications of the components used and an engineering evaluation that verifies the estimated lifetime emissions from the components and the system. A manufacturer shall also provide confirmation that the number of fittings and joints has been minimized and components have been optimized to minimize leakage. No A/C Direct Emissions Allowance is permitted if the following requirements are not met.

i. A “low-leak air conditioning system” shall be defined as one that meets all of the following criteria:

A. All pipe and hose connections are equipped with multiple o-rings, seal washers, or metal gaskets only (e.g., no single o-rings);

B. All hoses in contact with the refrigerant must be ultra-low permeability barrier or veneer hose on both the high-pressure and the low-pressure sides of the system (e.g., no rubber hoses); and

C. Only multiple-lip compressor shaft seals shall be used (with either compressor body o-rings or gaskets).

ii. For an air conditioning system that uses HFC-134a as the refrigerant:

A. An A/C Direct Emissions Allowance of 3.0 CO₂-equivalent grams per mile shall apply if the system meets the criteria for a “low-leak air conditioning system.”

B. An A/C Direct Emissions Allowance of 3.0 CO₂-equivalent grams per mile shall apply if the manufacturer demonstrates alternative technology that achieves equal or lower direct emissions than a “low-leak air conditioning system.”

C. An A/C Direct Emissions Allowance greater than 3.0 CO₂-equivalent grams per mile may apply for an air conditioning system that reduces refrigerant leakage further than would be obtained from a “low-leak air conditioning system.” A maximum A/C Direct Emissions Allowance of 6.0 CO₂-equivalent grams per mile may be earned for an air conditioning system that has 100 percent containment of refrigerant during “normal operation.” To obtain an A/C Direct Emissions Allowance greater than 3.0 CO₂-equivalent grams per mile, the manufacturer must provide an engineering evaluation that supports the allowance requested.

iii. For an air conditioning system that uses HFC-152a, CO₂ refrigerant, or any refrigerant with a GWP of 150 or less: An A/C Direct Emissions Allowance shall be calculated using the following formula:

$$\text{A/C Direct Emissions Allowance} = A - (B \times C)$$

where: A = 9 CO₂-equivalent grams per mile (the lifetime vehicle emissions expected from an air conditioning system that uses refrigerant HFC-134a);



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where: B is the lifetime vehicle emissions expected from an air conditioning system that uses a refrigerant with a GWP of 150 or less, and

“GWP” means the GWP of this refrigerant; and

C = 1, except for an air conditioning system that meets the criteria of a “low-leak air conditioning system.”

For an air conditioning system that meets or exceeds the criteria of a “low-leak air conditioning system,” the following formula shall apply:

$$C = 1 - (0.12 \times \text{credit})$$

where: “credit” equals 3.0 CO₂-equivalent grams per mile for a “low-leak air conditioning system” that meets the criteria of section 1961.1(a)(1)(B)1.b.i., or

“credit” equals a value greater than 3.0 CO₂-equivalent grams per mile for an air conditioning system that reduces refrigerant leakage further than would be obtained from a “low-leak air conditioning system.” A maximum credit of 6.0 CO₂-equivalent grams per mile may be earned for an air conditioning system that has 100 percent containment of refrigerant during normal operation. To obtain a credit greater than 3.0 CO₂-equivalent grams per mile, the manufacturer must provide an engineering evaluation that supports the credit requested.

iv. A manufacturer that elects to use CAFE Program emissions data to demonstrate compliance with the greenhouse requirements shall calculate the A/C Indirect Emissions Allowance for each Vehicle Configuration by calculating the A/C Indirect Emissions Allowance for each air conditioning system used in that Vehicle Configuration and calculating a sales-weighted average for that Vehicle Configuration.

c. *A/C Indirect Emissions Allowance.* A manufacturer may use the following A/C Indirect Emissions Allowances, upon approval of the Executive Officer, if the manufacturer demonstrates using data or an engineering evaluation that the air conditioning system meets the following requirements. A manufacturer may use the following A/C Indirect Emissions Allowances for other technologies, upon approval of the Executive Officer, if that manufacturer demonstrates that the air conditioning system achieves equal or greater CO₂-equivalent grams per mile emissions reductions.

i. An "A/C system with reduced indirect emissions" shall be defined as one that meets all of the following criteria:

A. Has managed outside and recirculated air balance to achieve comfort, demisting, and safety requirements, based on such factors as temperature, humidity, pressure, and level of fresh air in the passenger compartment to minimize compressor usage;

B. Is optimized for energy efficiency by utilizing state-of-the-art high efficiency evaporators, condensers, and other components; and

C. Has an externally controlled compressor (such as an externally controlled variable displacement or variable speed compressor or an externally controlled fully cycling fixed displacement compressor) that adjusts evaporative temperature to minimize the necessity of reheating cold air to satisfy occupant comfort.

ii. For an A/C system that meets all of the criteria for an "A/C system with reduced indirect emissions," the allowance shall be calculated using the following emission factors, up to a maximum allowance of 9.0 CO₂-equivalent grams per mile if the system has one evaporator and up to a maximum allowance of 11.0 CO₂-equivalent grams per mile if the system has two evaporators:

A. 5.0 CO₂-equivalent grams per mile per 100 cc of maximum compressor displacement for a system that does not use CO₂ as the refrigerant

B. 27.5 CO₂-equivalent grams per mile per 100 cc of maximum compressor displacement for a system that uses CO₂ as the refrigerant

iii. For an air conditioning system equipped with a refrigerant having a GWP of 150 or less, the allowance shall be calculated using the following emission factors, up to a maximum allowance of 0.5 CO₂-equivalent grams per mile:

A. 0.2 CO₂-equivalent grams per mile per 100cc of maximum compressor displacement for a system that does not use CO₂ as the refrigerant and

B. 1.1 CO₂-equivalent grams per mile per 100cc of maximum compressor displacement for a system that uses CO₂ as the refrigerant.

iv. A manufacturer that elects to use CAFE Program emissions data to demonstrate compliance with the greenhouse requirements shall calculate the A/C Indirect Emissions Allowance for each Vehicle Configuration by calculating the A/C Indirect Emissions Allowance for each air conditioning system used in that Vehicle Configuration and calculating a sales-weighted average for that Vehicle Configuration.

d. *Upstream Greenhouse Gas Emission Adjustment Factors for Alternative Fuel Vehicles.* A grams per mile average CO₂-equivalent value for each GHG vehicle test group certifying on a fuel other than conventional gasoline, including vehicles certified in accordance with section 1960.5 and vehicles certified in accordance with section 1961(a)(14), shall be calculated as follows:

$$(\text{CO}_2 + \text{A/C Indirect Emissions}) \times (\text{Fuel Adjustment Factor}) + 296 \times \text{N}_2\text{O} + 23 \times \text{CH}_4 + \text{A/C Direct Emissions}$$

where:

$$\text{A/C Indirect Emissions} = A - B$$

where: "A" represents the indirect emissions associated with an A/C system that does not incorporate any of the A/C improvements described in section 1961.1(a)(1)(B)1.c. A is determined by the following emission factors, with a maximum value of 17.0 CO₂-equivalent grams per mile for a system that has one evaporator and a maximum value of 21.0 CO₂-equivalent grams per mile for a system that has two evaporators.

A = 9.6 CO₂-equivalent grams per mile per 100cc of maximum compressor displacement for an A/C system that does not use CO₂ as the refrigerant or

A = 52.8 CO₂-equivalent grams per mile per 100cc of maximum compressor displacement for an A/C system that uses CO₂ as the refrigerant.

B = A/C Indirect Emissions Allowance as calculated per section 1961.1(a)(1)(B)1.c.

A/C Direct Emissions = 9 CO₂ - equivalent grams per mile - A/C Direct Emissions Allowance as calculated per section 1961.1(a)(1)(B)1.b.

The Fuel Adjustment Factors are:

<i>Fuel</i>	<i>Fuel Adjustment Factor</i>
Natural Gas	1.03
LPG	0.89
E85	0.74

e. *Calculation of CO₂-Equivalent Emissions for Hydrogen Internal Combustion Engine Vehicles and for Electric and Hydrogen ZEVs.* The grams per mile average CO₂-equivalent value for each GHG vehicle test group certifying to ZEV standards, including vehicles certified in accordance with section 1960.5 and vehicles certified in accordance with section 1961(a)(14), shall be:

$$\text{A/C Direct Emissions} + \text{Upstream Emissions Factor}$$

where: A/C Direct Emissions = 9 CO₂-equivalent grams per mile - A/C Direct Emissions Allowance as calculated per section 1961.1(a)(1)(B)1.b.

The Upstream Emissions Factors are:

<i>Vehicle Type</i>	<i>Upstream Emissions Factor¹</i> <i>(CO₂-equivalent g/mi)</i>
Electric ZEV	130
Hydrogen Internal Combustion Engine Vehicle	290
Hydrogen ZEV	210

¹The Executive Officer may approve use of a lower upstream emissions factor if a manufacturer demonstrates the appropriateness of the lower value by providing information that includes, but is not limited to, the percentage of hydrogen fuel or the percentage of electricity produced for sale in California using a “renewable energy resource.”

2. *Calculation of Greenhouse Gas Values for Bi-Fuel Vehicles, Fuel-Flexible Vehicles, Dual-Fuel Vehicles, and Grid-connected Hybrid Electric Vehicles.* For bi-fuel, fuel-flexible, dual-fuel, and grid-connected hybrid, electric vehicles, a manufacturer shall calculate a grams per mile average CO₂-equivalent value for each GHG vehicle test group, in accordance with section 1961.1(a)(1)(B)1., based on exhaust mass emission tests when the vehicle is operating on gasoline.

a. *Optional Alternative Compliance Mechanisms.* Beginning with the 2010 model year, a manufacturer that demonstrates that a bi-fuel, fuel-flexible, dual-fuel, or grid-connected hybrid electric GHG vehicle test group will be operated in use in California on the alternative fuel shall be eligible to certify those vehicles using this optional alternative compliance procedure, upon approval of the Executive Officer.

i. To demonstrate that bi-fuel, fuel-flexible, dual-fuel, or grid-connected hybrid electric vehicles within a GHG vehicle test group will be operated in use in California on the alternative fuel, the manufacturer shall provide data that shows the previous model year sales of such vehicles to fleets that provide the alternative fuel on-site or, for grid-connected hybrid electric vehicles, to end users with the capability to recharge the vehicle on-site. This data shall include both the total number of vehicles sales that were made to such fleets or end users with the capability to recharge the vehicle on-site and as the percentage of total GHG vehicle test group sales. The manufacturer shall also provide data demonstrating the percentage of total vehicle miles traveled by the bi-fuel, fuel-flexible, dual-fuel, or grid-connected hybrid electric vehicles sold to each fleet or to end users with the capability to recharge the vehicle on-site in the previous model year using the alternative fuel and using gasoline.

ii. For each GHG vehicle test group that receives approval by the Executive Officer under section 1961.1(a)(1)(B)2.a.i., a grams per mile CO₂-equivalent value shall be calculated as follows:

$$\text{CO}_2\text{-equivalent value} = [A \times E \times B \times C] + [(1 - (A \times E \times B)) \times D]$$

where: A = the percentage of previous model year vehicles within a GHG vehicle test group that were operated in use in California on the alternative fuel during the previous calendar year;

B = the percentage of miles traveled by "A" during the previous calendar year;

C = the CO₂-equivalent value for the GHG vehicle test group, as calculated in section 1961.1(a)(1)(B)1, when tested using the alternative fuel;

D = the CO₂-equivalent value for the GHG vehicle test group, as calculated in section 1961.1(a)(1)(B)1, when tested using gasoline; and

E = 0.9 for grid-connected hybrid electric vehicles or

E = 1 for bi-fuel, fuel-flexible, and dual-fuel vehicles.

The Executive Officer may approve use of a higher value for "E" for a grid-connected hybrid electric vehicle GHG vehicle test group if a manufacturer demonstrates that the vehicles can reasonably be expected to maintain more than 90 percent of their original battery capacity over a 200,000 mile vehicle lifetime. The manufacturer may demonstrate the appropriateness of a higher value either by providing data from real world vehicle operation; or by showing that these vehicles are equipped with batteries that do not lose energy storage capacity until after 100,000 miles; or by offering 10 year/150,000 mile warranties on the batteries.

iii. For the first model year in which a grid-connected hybrid electric vehicle model is certified for sale in California, the manufacturer may estimate the sales and percentage of total vehicle miles traveled information requested in section 1961.1(a)(1)(B)2.a.i. in lieu of providing actual data, and provide final sales data and data demonstrating the percentage of total vehicle miles traveled using electricity by no later than March 1 of the calendar year following the close of the model year.

3. Calculation of Fleet Average Greenhouse Gas Values.

a. Each manufacturer's PC and LDT1 fleet average Greenhouse Gas value for the total number of PCs and LDT1s produced and delivered for sale in California, including vehicles certified in accordance with section 1960.5 and vehicles certified in accordance with section 1961(a)(14), shall be calculated as follows:

$$[0.55 \times (\text{City Test Group Greenhouse Gas Values}) + 0.45 \times (\text{Highway Test Group Greenhouse Gas Values})] / \text{Total Number of PCs and LDT1s Produced, Including ZEVs and HEVs}$$

where: City Test Group Greenhouse Gas Value = [(Total Number of Vehicles in a Test Group - <<SIGMA>> Number of Vehicles in Optional GHG Test Vehicle Configurations)

x “worst-case” calculated CO₂-equivalent value + <<SIGMA>> (Number of vehicles in Optional GHG Test Vehicle Configurations x applicable calculated CO₂-equivalent value)] measured using the FTP test cycle; and

Highway Test Group Greenhouse Gas Value = [(Total Number of Vehicles in a Test Group - <<SIGMA>> (Number of Vehicles in Optional GHG Test Vehicle Configurations) x “worst-case” calculated CO₂-equivalent value + <<SIGMA>> (Number of vehicles in Optional GHG Test Vehicle Configurations x applicable calculated CO₂-equivalent value)] measured using the Highway Test Procedures.

b. Each manufacturer's LDT2 and MDPV fleet average Greenhouse Gas value for the total number of LDT2s and MDPVs produced and delivered for sale in California, including vehicles certified in accordance with section 1960.5 and vehicles certified in accordance with section 1961(a)(14), shall be calculated as follows:

$$\frac{[0.55 \times (\text{City Test Group Greenhouse Gas Values}) + 0.45 \times (\text{Highway Test Group Greenhouse Gas Values})]}{\text{Total Number of LDT2s and MDPVs Produced, Including ZEVs and HEVs}}$$

where: City Test Group Greenhouse Gas Value = [(Total Number of Vehicles in a Test Group - <<SIGMA>> Number of Vehicles in Optional GHG Test Vehicle Configurations) x “worst-case” calculated CO₂-equivalent value + <<SIGMA>> (Number of vehicles in Optional GHG Test Vehicle Configurations x applicable calculated CO₂-equivalent value)] measured using the FTP test cycle; and

Highway Test Group Greenhouse Gas Value = [(Total Number of Vehicles in a Test Group - <<SIGMA>> Number of Vehicles in Optional GHG Test Vehicle Configurations) x “worst-case” calculated CO₂-equivalent value + <<SIGMA>> (Number of vehicles in Optional GHG Test Vehicle Configurations x applicable calculated CO₂-equivalent value)] measured using the Highway Test Procedures.

(C) Requirements for Intermediate Volume Manufacturers.

1. Before the 2016 model year, compliance with this section 1961.1 shall be waived for intermediate volume manufacturers.

2. For each intermediate volume manufacturer, the manufacturer's baseline fleet average greenhouse gas value for PCs and LDT1s and baseline fleet average greenhouse gas value for LDT2s and MDPVs shall be calculated, in accordance with section 1961.1(a)(1)(B) using its 2002 model year fleet.

3. In 2016 and subsequent model years, an intermediate volume manufacturer shall either:

a. not exceed a fleet average greenhouse gas emissions value of 233 g/mi for PCs and LDT1s and 361 g/mi for LDT2s and MDPVs, or

b. not exceed a fleet average greenhouse gas value of 0.75 times the baseline fleet average greenhouse gas value for PCs and LDT1s and 0.82 times the baseline fleet average greenhouse gas value for LDT2s and MDPVs, as calculated in section 1961.1(a)(1)(C)2.

4. If a manufacturer's average annual California sales exceed 60,000 units of new PCs, LDTs, MDVs and heavy-duty engines based on the average number of vehicles sold for the three previous consecutive model years, the manufacturer shall no longer be treated as a intermediate volume manufacturer and shall comply with the fleet average requirements applicable to large volume manufacturers as specified in section 1961.1(a)(1) beginning with the fourth model year after the last of the three consecutive model years.

5. If a manufacturer's average annual California sales fall below 60,001 units of new PCs, LDTs, MDVs and heavy-duty engines based on the average number of vehicles sold for the three previous consecutive model years, the manufacturer shall be treated as a intermediate volume manufacturer and shall be subject to the requirements for intermediate volume manufacturers beginning with the next model year.

(D) Requirements for Small Volume Manufacturers and Independent Low Volume Manufacturers.

1. Before the 2016 model year, compliance with this section 1961.1 shall be waived for small volume manufacturers and independent low volume manufacturers.

2. At the beginning of the 2013 model year, each small volume manufacturer and independent low volume manufacturer shall identify all 2012 model year vehicle models, certified by a large volume manufacturer that are comparable to that small volume manufacturer or independent low volume manufacturer's 2016 model year vehicle models, based on horsepower and horsepower to weight ratio. The small volume manufacturer and independent low volume manufacturer shall demonstrate to the Executive Officer the appropriateness of each comparable vehicle model selected. Upon approval of the Executive Officer, s/he shall provide to the small volume manufacturer and to the independent low volume manufacturer the CO₂-equivalent value for each 2012 model year vehicle model that is approved. The small volume manufacturer and independent low volume manufacturer shall calculate an average greenhouse gas emissions value for each its greenhouse gas vehicle test groups based on the CO₂-equivalent values provided by the Executive Officer.

3. In the 2016 and subsequent model years, a small volume manufacturer and an independent low volume manufacturer shall either:

a. not exceed the fleet average greenhouse gas emissions value calculated for each GHG vehicle test group for which a comparable vehicle is sold by a large volume manufacturer, in accordance with section 1961.1(a)(1)(D)2; or

b. not exceed a fleet average greenhouse gas emissions value of 233 g/mi for PCs and LDT1s and 361 g/mi for LDT2s and MDPVs; or

c. upon approval of the Executive Officer, if a small volume manufacturer demonstrates a vehicle model uses an engine, transmission, and emission control system that is identical to a configuration certified for sale in California by a large volume manufacturer, those small volume manufacturer vehicle models are exempt from meeting the requirements in paragraphs 3.a. and b. of this section.

4. If a manufacturer's average annual California sales exceed 4,500 units of new PCs, LDTs, MDVs and heavy-duty engines based on the average number of vehicles sold for the three previous consecutive model years, the manufacturer shall no longer be treated as a small volume manufacturer and shall comply with the fleet average requirements applicable to larger volume manufacturers as specified in section 1961.1(a)(1) beginning with the fourth model year after the last of the three consecutive model years.

5. If a manufacturer's average annual California sales exceed 10,000 units of new PCs, LDTs, MDVs and heavy-duty engines based on the average number of vehicles sold for the three previous consecutive model years, the manufacturer shall no longer be treated as an independent low volume manufacturer and shall comply with the fleet average requirements applicable to larger volume manufacturers as specified in section 1961.1(a)(1) beginning with the fourth model year after the last of the three consecutive model years.

6. If a manufacturer's average annual California sales fall below 4,501 units of new PCs, LDTs, MDVs and heavy-duty engines based on the average number of vehicles sold for the three previous consecutive model years, the manufacturer shall be treated as a small volume manufacturer and shall be subject to the requirements for small volume manufacturers beginning with the next model year.

(b) Calculation of Greenhouse Gas Credits/Debits.

(1) Calculation of Greenhouse Gas Credits for Passenger Cars, Light-Duty Trucks, and Medium-Duty Passenger Vehicles.

(A) In the 2000 through 2008 model years, a manufacturer that achieves fleet average Greenhouse Gas values lower than the fleet average Greenhouse Gas requirement applicable to the 2012 model year shall receive credits for each model year in units of g/mi determined as:

$$\begin{aligned} & [(Fleet Average Greenhouse Gas Requirement for the 2012 model year) - \\ & (Manufacturer's Fleet Average Greenhouse Gas Value)] \times (Total No. of Vehicles \\ & Produced and Delivered for Sale in California, Including ZEVs and HEVs). \end{aligned}$$

(B) In 2009 and subsequent model years, a manufacturer that achieves fleet average Greenhouse Gas values lower than the fleet average Greenhouse Gas requirement for the corresponding model year shall receive credits in units of g/mi Greenhouse Gas determined as:

$$\begin{aligned} & [(Fleet Average Greenhouse Gas Requirement) - (Manufacturer's Fleet Average \\ & Greenhouse Gas Value)] \times (Total No. of Vehicles Produced and Delivered for Sale in \\ & California, Including ZEVs and HEVs). \end{aligned}$$

(2) A manufacturer with 2009 and subsequent model year fleet average Greenhouse Gas values greater than the fleet average requirement for the corresponding model year shall receive debits in units of g/mi Greenhouse Gas equal to the amount of negative credits determined by the aforementioned equation. For the 2009 and subsequent model years, the total g/mi Greenhouse Gas credits or debits earned for PCs and LDT1s and for LDT2s and MDPVs shall be summed together. The resulting amount shall constitute

the g/mi Greenhouse Gas credits or debits accrued by the manufacturer for the model year.

(3) Procedure for Offsetting Greenhouse Gas Debits.

(A) A manufacturer shall equalize Greenhouse Gas emission debits by earning g/mi Greenhouse Gas emission credits in an amount equal to the g/mi Greenhouse Gas debits, or by submitting a commensurate amount of g/mi Greenhouse Gas credits to the Executive Officer that were earned previously or acquired from another manufacturer. A manufacturer shall equalize Greenhouse Gas debits for PCs, LDTs, and MDPVs within five model years after they are earned. If emission debits are not equalized within the specified time period, the manufacturer shall be subject to the Health and Safety Code section 43211 civil penalty applicable to a manufacturer which sells a new motor vehicle that does not meet the applicable emission standards adopted by the state board. The cause of action shall be deemed to accrue when the emission debits are not equalized by the end of the specified time period. For a manufacturer demonstrating compliance under Option 2 in subsection 1961.1(a)(1)(A)1., the emission debits that are subject to a civil penalty under Health and Safety Code section 43211 shall be calculated separately for California, the District of Columbia, and each individual state that is included in the fleet average greenhouse gas requirements in subsection 1961.1(a)(1)(A)1. These emission debits shall be calculated for each individual state using the formula in subsections 1961.1(b)(1)(B) and 1961.1(b)(2), except that the "Total No. of Vehicles Produced and Delivered for Sale in California, including ZEVs and HEVs" shall be calculated separately for the District of Columbia and each individual state.

For the purposes of Health and Safety Code section 43211, the number of passenger cars and LDT1s not meeting the state board's emission standards shall be determined by dividing the total amount of g/mi Greenhouse Gas emission debits for the model year calculated for California by the g/mi Greenhouse Gas fleet average requirement for PCs and LDTs 0-3750 lbs. LVW applicable for the model year in which the debits were first incurred. For the purposes of Health and Safety Code section 43211, the number of LDT2s and MDPVs not meeting the state board's emission standards shall be determined by dividing the total amount of g/mi Greenhouse Gas emission debits for the model year calculated for California by the g/mi Greenhouse Gas fleet average requirement for LDTs 3751 lbs. LVW - 8500 lbs. GVW and MDPVs applicable for the model year in which the debits were first incurred.

(B) Greenhouse Gas emission credits earned in the 2000 through 2008 model years shall be treated as if they were earned in the 2011 model year and shall retain full value through the 2012 model year. Greenhouse Gas emission credits earned in the 2009 and subsequent model years shall retain full value through the fifth model year after they are earned. The value of any credits earned in the 2000 through 2008 model years that are not used to equalize debits accrued in the 2009 through 2012 model years shall be discounted by 50% at the beginning of the 2013 model year, shall be discounted to 25% of its original value if not used by the beginning of the 2014 model year, and will have no value if not used by the beginning of the 2015 model year. Any credits earned in the 2009 and subsequent model years that are not used by the end of the fifth model year after they are accrued shall be discounted by 50% at the beginning of the sixth model year after being earned, shall be discounted to 25% of its original value if not used by the beginning of the seventh model year after being earned, and will have no value if not used by the beginning of the eighth model year after being earned.

(c) *Test Procedures.* The certification requirements and test procedures for determining compliance with the emission standards in this section are set forth in the “California Exhaust Emission Standards and Test Procedures for 2001 and Subsequent Model Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles,” incorporated by reference in section 1961(d). In the case of hybrid electric vehicles and on-board fuel-fired heaters, the certification requirements and test procedures for determining compliance with the emission standards in this section are set forth in the “California Exhaust Emission Standards and Test Procedures for 2005 and Subsequent Model Zero-Emission Vehicles, and 2001 and Subsequent Model Hybrid Electric Vehicles, in the Passenger Car, Light-Duty Truck and Medium-Duty Vehicle Classes,” incorporated by reference in section 1962.

(d) *Abbreviations.* The following abbreviations are used in this section 1961.1:

“cc” mean cubic centimeters.

“CH₄” means methane.

“CO₂” means carbon dioxide.

“E85” means a blend of 85 percent ethanol and 15 percent gasoline.

“FTP” means Federal Test Procedure.

“GHG” means greenhouse gas.

“g/mi” means grams per mile.

“GVW” means gross vehicle weight.

“GVWR” means gross vehicle weight rating.

“GWP” means the global warming potential.

“HEV” means hybrid-electric vehicle.

“LDT” means light-duty truck.

“LDT1” means a light-duty truck with a loaded vehicle weight of 0-3750 pounds.

“LDT2” means a “LEV II” light-duty truck with a loaded vehicle weight of 3751 pounds to a gross vehicle weight of 8500 pounds.

“LEV” means low-emission vehicle.

“LPG” means liquefied petroleum gas.

“LVW” means loaded vehicle weight.

“MDPV” means medium-duty passenger vehicle.

“MDV” means medium-duty vehicle.

“mg/mi” means milligrams per mile.

“N₂O” means nitrous oxide.

“PC” means passenger car.

“SULEV” means super-ultra-low-emission vehicle.

“ULEV” means ultra-low-emission vehicle.

“ZEV” means zero-emission vehicle.

(e) *Definitions Specific to this Section.* The following definitions apply to this section 1961.1:

(1) “A/C Direct Emissions” means any refrigerant released from a motor vehicle's air conditioning system.

(2) “A/C Indirect Emissions” means any increase in motor vehicle exhaust CO₂ emissions that can be attributed to the operation of the air conditioning system.

(3) “GHG Vehicle Test Group” means vehicles that have an identical test group, vehicle make and model, transmission class and driveline, aspiration method (e.g., naturally aspirated, turbocharged), camshaft configuration, valvetrain configuration, and inertia weight class.

(4) “Greenhouse Gas” means the following gases: carbon dioxide, methane, nitrous oxide, and hydrofluorocarbons.

(5) “Grid-Connected Hybrid Electric Vehicle” means a hybrid electric vehicle that has the capacity for the battery to be recharged from an off-board source of electricity and has some all-electric range.

(6) “GWP” means the 100-year global warming potential specified in IPCC (Intergovernmental Panel on Climate Change) 2000: Emissions Scenarios. N. Nakicenovic et. al. editors, Special Report of Working Group III of the IPCC, Cambridge University Press, Cambridge UK, ISBN 0-521-80493-0.

(7) “National greenhouse gas program” means the national program that applies to new 2012 through 2016 model year passenger cars, light-duty trucks, and medium-duty passenger vehicles as proposed by the U.S. Environmental Protection Agency at 74 Fed.Reg. 49454 (September 28, 2009) and adopted by EPA on April 1, 2010, 75 Fed.Reg. [insert page], April [insert date], 2010, as incorporated in and amended by the “California Exhaust Emission Standards and Test Procedures for 2001 and Subsequent Model Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles.”

(8) "Normal Operation" of an air conditioning system means typical everyday use of the A/C system to cool a vehicle. "Normal Operation" does not include car accidents, dismantling of an air conditioning system, or any other non-typical events.

(9) "Optional GHG Test Vehicle Configuration" means any GHG vehicle configuration that is selected for testing by the manufacturer as allowed by section G.2.3 of the "California Exhaust Emission Standards and Test Procedures for 2001 and Subsequent Model Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles," other than the worst-case configuration.

(10) "Renewable Energy Resource" means a facility that meets all of the criteria set forth in Public Resources Code section 25741(a), except that the facility is not required to be located in California or near the border of California.

(11) "Variable Displacement Compressor" means a compressor in which the mass flow rate of refrigerant is adjusted independently of compressor speed by the control system in response to cooling load demand.

(12) "Variable Speed Compressor" means a compressor in which the mass flow rate of refrigerant can be adjusted by control of the compressor input shaft speed, independent of vehicle engine speed. For example, a variable speed compressor can have electric drive, hydraulic drive, or mechanical drive through a variable speed transmission.

(13) "Worst-Case" means the vehicle configuration within each test group that is expected to have the highest CO₂-equivalent value, as calculated in section 1961.1(a)(1)(B)1.

(f) *Severability*. Each provision of this section is severable, and in the event that any provision of this section is held to be invalid, the remainder of this article remains in full force and effect.

(g) *Effective Date of this Section*. The requirements of this section 1961.1 shall become effective on January 1, 2006.

Note: Authority cited: Sections 39500, 39600, 39601, 43013, 43018, 43018.5, 43101, 43104 and 43105, Health and Safety Code. Reference: Sections 39002, 39003, 39667, 43000, 43009.5, 43013, 43018, 43018.5, 43100, 43101, 43101.5, 43102, 43104, 43105, 43106, 43204, 43205 and 43211, Health and Safety Code.

HISTORY

1. New section filed 9-15-2005; operative 1-1-2006 (Register 2005, No. 37).

2. New subsections (a)(1)(A)1.-(a)(1)(A)1.d., amendment of subsection (a)(1)(B)1.a., new subsections (a)(1)(B)1.b.iv. and (a)(1)(B)1.c.iv. and amendment of subsection (b)(3)(A) filed 4-1-2010; operative 4-1-2010 pursuant to Government Code section 11343.4 (Register 2010, No. 14).

3. Amendment designating former subsection (a)(1)(A) as subsection (a)(1)(A)(i), new subsections (a)(1)(A)(ii)-(a)(1)(A)(ii)3., new subsection (e)(7) and subsection

renumbering filed 4-1-2010; operative 4-1-2010 pursuant to Government Code section 11343.4 (Register 2010, No. 14).

13 CCR § 1961.1, **←13 CA ADC § 1961→.1**

This database is current through 5/18/12 Register 2012, No. 20