

Note: The entire text of section 1961.2 set forth below is new language and is shown in “normal type” proposed to be added to the California Code of Regulations.

**Adopt new Sections 1961.2, Title 13, California Code of Regulations to read as follows:**

**§ 1961.2. Exhaust Emission Standards and Test Procedures - 2015 and Subsequent Model Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles.**

*Introduction.* This section 1961.2 contains the California “LEV III” exhaust emission standards for 2015 and subsequent model year passenger cars, light-duty trucks, and medium-duty vehicles. A manufacturer must demonstrate compliance with the exhaust standards in subsection (a) applicable to specific test groups, and with the composite phase-in requirements in subsection (b) applicable to the manufacturer’s entire fleet.

Before the 2015 model year, a manufacturer that produces vehicles that meet the standards in subsection (a) has the option of certifying the vehicles to those standards, in which case the vehicles will be treated as LEV III vehicles for purposes of the fleet-wide phase-in requirements. Similarly, 2015 - 2019 model-year vehicles may be certified to the “LEV II” exhaust emission standards in subsection 1961(a)(1), in which case the vehicles will be treated as LEV II 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 10,000 lbs. GVW to the heavy-duty engine standards and test procedures set forth in title 13, CCR, subsections 1956.8(c) and (h). All medium-duty vehicles with a gross vehicle weight rating of less than or equal to 10,000 lbs. GVW, including incomplete otto-cycle medium-duty vehicles and medium-duty vehicles that use diesel cycle engines, must be certified to the LEV III chassis standards and test procedures set forth in this section 1961.2.

*Pooling Provision.*

For each model year, a manufacturer must demonstrate compliance with this section 1961.2 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 vehicles that are certified to the California exhaust emission standards in subsection (a) and subsection 1961(a)(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 vehicles that are certified to the California exhaust emission standards in subsection (a) and subsection 1961(a)(1), and are produced and delivered for sale in California, the District of Columbia, and all states that have adopted California's criteria pollutant emission standards set forth in this section 1961.2 for that model year pursuant to section 177 of the federal Clean Air Act (42 U.S.C. § 7507).

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. Once a manufacturer has selected compliance Option 2, that selection applies unless the manufacturer selects Option 1 and notifies the Executive Officer of that selection in writing before the start of the applicable model year.

When a manufacturer is demonstrating compliance using Option 2 for a given model year, the term "in California" as used in this section 1961.2 means California, the District of Columbia, and all states that have adopted California's criteria pollutant emission standards set forth in this section 1961.2 for that model year pursuant to Section 177 of the federal Clean Air Act (42 U.S.C. § 7507).

(a) *Exhaust Emission Standards.*

(1) *"LEV III" Exhaust Standards.* The following standards are the maximum exhaust emissions for the full useful life from new 2015 and subsequent model year "LEV III" passenger cars, light-duty trucks, and medium-duty vehicles, including fuel-flexible, bi-fuel and dual-fuel vehicles when operating on the gaseous or alcohol fuel they are designed to use. 2015 – 2019 model-year LEV II LEV vehicles may be certified to the NMOG+NOx numerical values for LEV160, LEV395, or LEV630, as applicable, in this subsection (a)(1) and the corresponding NMOG+NOx numerical values in subsection (a)(4), in lieu of the separate NMOG and NOx exhaust emission standards in subsections 1961(a)(1) and 1961(a)(4); LEV II ULEV vehicles may be certified to the NMOG+NOx numerical values for ULEV125, ULEV340, or ULEV570, as applicable, in this subsection (a)(1) and the corresponding NMOG+NOx numerical values in subsection (a)(4), in lieu of the separate NMOG and NOx exhaust emission standards in subsections 1961(a)(1) and 1961(a)(4); and LEV II SULEV vehicles may be certified to the NMOG+NOx numerical values for SULEV30, SULEV170, or SULEV230, as applicable, in subsection (a)(1) and the corresponding NMOG+NOx numerical values in subsection (a)(4), in lieu of the separate NMOG and NOx exhaust emission standards in subsections 1961(a)(1) and 1961(a)(4). Such vehicles will be treated as LEV II vehicles for purposes of the fleet-wide phase-in requirements.

<b>LEV III Exhaust Mass Emission Standards for New 2015 and Subsequent Model Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles</b>						
<i>Vehicle Type</i>	<i>Durability Vehicle Basis (mi)</i>	<i>Vehicle Emission Category<sup>2</sup></i>	<i>NMOG + Oxides of Nitrogen (g/mi)</i>	<i>Carbon Monoxide (g/mi)</i>	<i>Formaldehyde (mg/mi)</i>	<i>Particulates<sup>1</sup> (g/mi)</i>
All PCs; LDTs 8500 lbs. GVWR or less; MDPVs  Vehicles in this category are tested at their loaded vehicle weight	150,000	LEV160	0.160	4.2	4	0.01
		ULEV125	0.125	2.1	4	0.01
		ULEV70	0.070	1.7	4	0.01
		ULEV50	0.050	1.7	4	0.01
		SULEV30	0.030	1.0	4	0.01
		SULEV20	0.020	1.0	4	0.01
MDVs 8501 - 10,000 lbs. GVWR  Vehicles in this category are tested at their adjusted loaded vehicle weight	150,000	LEV395	0.395	6.4	6	0.12
		ULEV340	0.340	3.2	6	0.06
		ULEV250	0.250	2.6	6	0.06
		ULEV200	0.200	2.6	6	0.06
		SULEV170	0.170	1.5	6	0.06
		SULEV150	0.150	1.5	6	0.06
MDVs 10,001-14,000 lbs. GVWR  Vehicles in this category are tested at their adjusted loaded vehicle weight	150,000	LEV630	0.630	7.3	6	0.12
		ULEV570	0.570	3.7	6	0.06
		ULEV400	0.400	3.0	6	0.06
		ULEV270	0.270	3.0	6	0.06
		SULEV230	0.230	1.7	6	0.06
		SULEV200	0.200	1.7	6	0.06

<sup>1</sup> These standards shall apply only to vehicles not included in the phase-in of the particulate standards set forth in subsection (a)(2).

<sup>2</sup> The numeric portion of the category name is the NMOG+NOx value in thousandths of grams per mile.

(2) *“LEV III” Particulate Standards.*

(A) *Particulate Standards for Passenger Cars, Light-Duty Trucks, and Medium-Duty Passenger Vehicles.* Beginning in the 2017 model year, a manufacturer, except a small volume manufacturer, shall certify a percentage of its passenger car, light-duty truck, and medium-duty vehicle fleet to the following particulate standards according to the following phase-in schedule. These standards are the maximum particulate emissions allowed at full useful life. All vehicles certifying to these particulate standards must certify to the LEV III exhaust emission standards set forth in subsection (a)(1).

<b>LEV III Particulate Emission Standard Values and Phase-in for Passenger Cars, Light-Duty Trucks, and Medium-Duty Passenger Vehicles</b>		
<b>Model Year</b>	<b>% of vehicles certified to a 3 mg/mi standard</b>	<b>% of vehicles certified to a 1 mg/mi standard</b>
2017	10	0
2018	20	0
2019	40	0
2020	70	0
2021	100	0
2022	100	0
2023	100	0
2024	100	0
2025	75	25
2026	50	50
2027	25	75
2028 and subsequent	0	100

(B) *Particulate Standards for Medium-Duty Vehicles Other than Medium-Duty Passenger Vehicles.*

1. Beginning in the 2017 model year, a manufacturer, except a small volume manufacturer, shall certify a percentage of its medium-duty vehicle fleet to the following particulate standards. These standards are the maximum particulate emissions allowed at full useful life. All vehicles certifying to these particulate standards must certify to the LEV III exhaust emission standards set forth in subsection (a)(1). This subsection (a)(2)(B)1 shall not apply to medium-duty passenger vehicles.

<b>LEV III Particulate Emission Standard Values for Medium-Duty Vehicles, Other than Medium-Duty Passenger Vehicles</b>	
<b>Vehicle Type<sup>1</sup></b>	<b>Particulates (mg/mi)</b>
MDVs 8501 - 10,000 lbs. GVWR, excluding MDPVs	8
MDVs 10,001 - 14,000 lbs. GVWR	10

<sup>1</sup> Vehicles in these categories are tested at their adjusted loaded vehicle weight.



2. A manufacturer of medium-duty vehicles, except a small volume manufacturer, shall certify at least the following percentage of its medium-duty vehicle fleet to the particulate standards in subsection (a)(2)(B)1 according to the following phase-in schedule. This subsection (a)(2)(B)2 shall not apply to medium-duty passenger vehicles.

<b>LEV III Particulate Emission Standard Phase-in for Medium-Duty Vehicles, Other than Medium-Duty Passenger Vehicles</b>	
<b>Model Year</b>	<b>Total % of MDVs certified to the 8 mg/mi PM Standard or to the 10 mg/mi PM Standard, as applicable</b>
2017	10
2018	20
2019	40
2020	70
2021 and subsequent	100

(C) *Particulate Standards for Small Volume Manufacturers.* In the 2021 through 2027 model years, a small volume manufacturer shall certify 100 percent of its passenger car, light-duty truck, and medium-duty passenger vehicle fleet to the 3 mg/mi particulate standard. In the 2028 and subsequent model years, a small volume manufacturer shall certify 100 percent of its passenger car, light-duty truck, and medium-duty passenger vehicle fleet to the 1 mg/mi particulate standard. In the 2021 and subsequent model years, a small volume manufacturer shall certify 100 percent of its medium-duty vehicles 8501 - 10,000 lbs. GVWR, excluding MDPVs, to the 8 mg/mi particulate standard. In the 2021 and subsequent model years, a small volume manufacturer shall certify 100 percent of its medium-duty vehicles 10,001 - 14,000 lbs. GVWR to the 10 mg/mi particulate standard. These standards are the maximum particulate emissions allowed at full useful life. All vehicles certifying to these particulate standards must certify to the LEV III exhaust emission standards set forth in subsection (a)(1).

(D) *Alternative Phase-in Schedule for Particulate Standards.*

1. *Alternative Phase-in Schedules for the 3 mg/mi Particulate Standard for Passenger Cars, Light-Duty Trucks, and Medium-Duty Passenger Vehicles.* A manufacturer may use an alternative phase-in schedule to comply with the 3 mg/mi particulate standard phase-in requirements as long as equivalent PM emission reductions are achieved by the 2021 model year from passenger cars, light-duty trucks, and medium-duty passenger vehicles. Model year emission reductions shall be calculated by multiplying the percent of PC+LDT+MDPV vehicles meeting the 3 mg/mi particulate standard in a given model year (based on

a manufacturer's projected sales volume of vehicles in each category) by 5 for the 2017 model year, 4 for the 2018 model year, 3 for the 2019 model year, 2 for the 2020 model year, and 1 for the 2021 model year. The yearly results for PC+LDT+MDPV vehicles shall be summed together to determine a cumulative total for PC+LDT+MDPV vehicles. The cumulative total must be equal to or greater than 490 in the 2021 model year to be considered equivalent. A manufacturer may add vehicles introduced before the 2017 model year (e.g., the percent of vehicles introduced in 2016 would be multiplied by 5) to the cumulative total.

2. *Alternative Phase-in Schedules for the 1 mg/mi Particulate Standard for Passenger Cars, Light-Duty Trucks, and Medium-Duty Passenger Vehicles.* A manufacturer may use an alternative phase-in schedule to comply with the 1 mg/mi particulate standard phase-in requirements as long as equivalent PM emission reductions are achieved by the 2028 model year from passenger cars, light-duty trucks, and medium-duty passenger vehicles. Model year emission reductions shall be calculated by multiplying the percent of PC+LDT+MDPV vehicles meeting the 1 mg/mi particulate standard in a given model year (based on a manufacturer's projected sales volume of vehicles in each category) by 4 for the 2025 model year, 3 for the 2026 model year, 2 for the 2027 model year, and 1 for the 2028 model year. The yearly results for PC+LDT+MDPV vehicles shall be summed together to determine a cumulative total for PC+LDT+MDPV vehicles. The cumulative total must be equal to or greater than 500 in the 2028 model year to be considered equivalent. A manufacturer may add vehicles introduced before the 2025 model year (e.g., the percent of vehicles introduced in 2024 would be multiplied by 4) to the cumulative total.

3. *Alternative Phase-in Schedules for the Particulate Standards for Medium-Duty Vehicles Other than Medium-Duty Passenger Vehicles.* A manufacturer may use an alternative phase-in schedule to comply with the particulate standard phase-in requirements as long as equivalent PM emission reductions are achieved by the 2021 model year from medium-duty vehicles other than medium-duty passenger vehicles. Model year emission reductions shall be calculated by multiplying the total percent of MDVs certified to the 8 mg/mi PM standard or to the 10 mg/mi PM standard, as applicable, in a given model year (based on a manufacturer's projected sales volume of vehicles in each category) by 5 for the 2017 model year, 4 for the 2018 model year, 3 for the 2019 model year, 2 for the 2020 model year, and 1 for the 2021 model year. The yearly results for MDVs shall be summed together to determine a cumulative total for MDVs. The cumulative total must be equal to or greater than 490 in the 2021 model year to be considered equivalent. A manufacturer may add vehicles introduced before the 2017 model year (e.g., the percent of

vehicles introduced in 2016 would be multiplied by 5) to the cumulative total.

(3) *NMOG+NO<sub>x</sub> Standards for Bi-Fuel, Fuel-Flexible, and Dual-Fuel Vehicles.* For fuel-flexible, bi-fuel, and dual-fuel PCs, LDTs and MDVs, compliance with the NMOG+NO<sub>x</sub> exhaust mass emission standards must 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+NO<sub>x</sub>, CO, and formaldehyde set forth in the table in subsection (a)(1) when certifying the vehicle for operation on the gaseous or alcohol fuel, as applicable, and on gasoline or diesel, as applicable.

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 "California 2015 and Subsequent Model Criteria Pollutant Exhaust Emission Standards and Test Procedures and 2017 and Subsequent Model Greenhouse Gas Exhaust Emission Standards and Test Procedures for Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles." Testing at 50°F is not required for fuel-flexible, bi-fuel, and dual-fuel vehicles when operating on gasoline.

(4) *50°F Exhaust Emission Standards.* All passenger cars, light-duty trucks, and medium-duty vehicles, other than natural gas and diesel-fueled vehicles, must demonstrate compliance with the following exhaust emission standards for NMOG+NO<sub>x</sub> 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 2015 and Subsequent Model Criteria Pollutant Exhaust Emission Standards and Test Procedures and 2017 and Subsequent Model Greenhouse Gas Exhaust Emission Standards and Test Procedures for Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles." A manufacturer may demonstrate compliance with the NMOG+NO<sub>x</sub> 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 2015 and Subsequent Model Criteria Pollutant Exhaust Emission Standards and Test Procedures and 2017 and Subsequent Model Greenhouse Gas Exhaust Emission Standards and Test Procedures for Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles." Emissions of CO measured at 50° F shall not exceed the standards set forth in subsection (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.

(A) *Standards for Passenger Cars, Light-Duty Trucks, and Medium-Duty Passenger Vehicles Certified to the LEV III Standards.*

<b>50°F Exhaust Emission Standards for LEV III Passenger Cars, Light-Duty Trucks, and Medium-Duty Passenger Vehicles</b>			
<i>Vehicle Emission Category</i>	<i>NMOG + NO<sub>x</sub> (g/mi)</i>		<i>HCHO (g/mi)</i>
	Gasoline	Alcohol Fuel	Both Gasoline and Alcohol Fuel
LEV160	0.320	0.320	0.030
ULEV125	0.250	0.250	0.016
ULEV70	0.140	0.250	0.016
ULEV50	0.100	0.140	0.016
SULEV30	0.060	0.125	0.008
SULEV20	0.040	0.075	0.008

(B) *Standards for Medium-Duty Vehicles (Excluding MDPVs)  
Certified to the LEV III Standards.*

<b>50°F Exhaust Emission Standards for LEV III Medium-Duty Vehicles (Excluding MDPVs)</b>			
<i>Vehicle Emission Category</i>	<i>NMOG + NO<sub>x</sub> (g/mi)</i>		<i>HCHO (g/mi)</i>
	<i>Gasoline</i>	<i>Alcohol Fuel</i>	<i>Both Gasoline and Alcohol Fuel</i>
LEV395	0.790	0.790	0.064
ULEV340	0.680	0.680	0.032
ULEV250	0.500	0.500	0.032
ULEV200	0.400	0.500	0.016
SULEV170	0.340	0.425	0.016
SULEV150	0.300	0.375	0.016
LEV630	1.260	1.260	0.080
ULEV570	1.140	1.140	0.042
ULEV400	0.800	0.800	0.042
ULEV270	0.540	0.675	0.020
SULEV230	0.460	0.575	0.020
SULEV200	0.400	0.500	0.020

(5) *Cold CO Standard.* The following standards are the 50,000 mile cold temperature exhaust carbon monoxide emission levels from new 2015 and subsequent model-year passenger cars, light-duty trucks, and medium-duty passenger vehicles:

**2015 AND SUBSEQUENT MODEL-YEAR COLD TEMPERATURE  
CARBON MONOXIDE EXHAUST EMISSIONS STANDARDS FOR  
PASSENGER  
CARS, LIGHT-DUTY TRUCKS, AND MEDIUM-DUTY PASSENGER VEHICLES**  
(grams per mile)

<i>Vehicle Type</i>	<i>Carbon Monoxide</i>
All PCs, LDTs 0-3750 lbs. LVW;	10.0
LDTs, 3751 lbs. LVW - 8500 lbs. GVWR; MDPVs 10000 lbs. GVWR and less	12.5

These standards apply 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 2015 and Subsequent Model Criteria Pollutant Exhaust Emission Standards and Test Procedures and 2017 and Subsequent Model Greenhouse Gas Exhaust Emission Standards and Test Procedures for Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles.” Natural gas, diesel-fueled and zero-emission vehicles are exempt from these standards.

(6) *Highway NMOG + NO<sub>x</sub> Standard.* The maximum emissions of non-methane organic gas plus oxides of nitrogen measured on the federal Highway Fuel Economy Test (HWFET; 40 CFR 600 Subpart B), as modified by the “California 2015 and Subsequent Model Criteria Pollutant Exhaust Emission Standards and Test Procedures and 2017 and Subsequent Model Greenhouse Gas Exhaust Emission Standards and Test Procedures for Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles,” must not be greater than the applicable LEV III NMOG+NO<sub>x</sub> standard set forth in subsection (a)(1). Both the sum of the NMOG+NO<sub>x</sub> emissions and the HWFET standard must be rounded in accordance with ASTM E29-67 to the nearest 0.001 g/mi before being compared.

(7) *Supplemental Federal Test Procedure (SFTP) Off-Cycle Emission Standards.*

(A) *SFTP NMOG+NO<sub>x</sub> and CO Exhaust Emission Standards for Passenger Cars, Light-Duty Trucks, and Medium-Duty Passenger Vehicles.* Manufacturers shall certify 2015 and subsequent model year LEVs, ULEVs, and SULEVs in the PC, LDT, and MDPV classes to either the *SFTP NMOG+NO<sub>x</sub> and CO Stand-Alone Exhaust Emission Standards* set forth in subsection (a)(7)(A)1, or in accordance with the *SFTP NMOG+NO<sub>x</sub> and CO Composite Exhaust Emission Standards and Fleet-Average Requirements* set forth in subsection (a)(7)(A)2. A manufacturer may also certify 2014 model LEVs, ULEVs, or SULEVs in the PC, LDT, or MDPV classes to LEV III SFTP standards, in which

case, the manufacturer shall be subject to the LEV III SFTP emission standards and requirements, including the sales-weighted fleet-average NMOG+NOx composite emission standard applicable to 2015 model vehicles if choosing to comply with the *SFTP NMOG+NOx and CO Composite Exhaust Emission Standards and Fleet-Average Requirements* set forth in subsection (a)(7)(A)2. The manufacturer shall notify the Executive Officer of its selected emission standard type in the Application for Certification of the first test group certifying to SFTP NMOG+NOx and CO emission standards on a 150,000 mile durability basis. Once an emission standard type for NMOG+NOx and CO is selected for a fleet, and the Executive Officer is notified of such selection, the selection must be kept through the 2025 model year for the entire fleet, which includes LEV II vehicles if selecting to comply with subsection (a)(7)(A)2. The manufacturer may not change its selection until the 2026 model year. Test groups not certifying to the 150,000-mile SFTP NMOG+NOx and CO emission standards pursuant to this subsection (a)(7)(A) shall be subject to the 4,000-mile SFTP NMOG+NOx and CO emission standards set forth in subsection 1960.1(r).

1. *SFTP NMOG+NOx and CO Exhaust Stand-Alone Emission Standards.* The following standards are the maximum SFTP NMOG+NOx and CO exhaust emissions through full useful life from 2015 and subsequent model-year LEV III LEVs, ULEVs, and SULEVs when operating on the same gaseous or liquid fuel they use for FTP certification. In the case of fuel-flexible vehicles, SFTP compliance shall be demonstrated using the LEV III certification gasoline specified in Part II, Section A.100.3.1.2 of the "California 2015 and Subsequent Model Criteria Pollutant Exhaust Emission Standards and Test Procedures and 2017 and Subsequent Model Greenhouse Gas Exhaust Emission Standards and Test Procedures for Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles."



<b>SFTP NMOG+NOx and CO Stand-Alone Exhaust Emission Standards for 2015 and Subsequent Model LEV III Passenger Cars, Light-Duty Trucks, and Medium-Duty Passenger Vehicles</b>						
<i>Vehicle Type</i>	<i>Durability Vehicle Basis (mi)</i>	<i>Vehicle Emission Category<sup>1</sup></i>	<i>US06 Test (g/mi)</i>		<i>SC03 Test (g/mi)</i>	
			<i>NMOG + NOx</i>	<i>CO</i>	<i>NMOG + NOx</i>	<i>CO</i>
All PCs; LDTs 0- 8,500 lbs. GVWR; and MDPVs  Vehicles in these categories are tested at their loaded vehicle weight (curb weight plus 300 pounds).	150,000	LEV	0.140	9.6	0.100	3.2
		ULEV	0.120	9.6	0.070	3.2
		SULEV (Option A) <sup>2</sup>	0.060	9.6	0.020	3.2
		SULEV	0.050	9.6	0.020	3.2

<sup>1</sup> *Vehicle Emission Category.* Manufacturers must certify all vehicles, which are certifying to a LEV III FTP emission category on a 150,000-mile durability basis, to the emission standards of the equivalent, or a more stringent, SFTP emission category set forth on this table. That is, all LEV III LEVs certified to 150,000-mile FTP emission standards shall comply with the SFTP LEV emission standards in this table, all LEV III ULEVs certified to 150,000-mile FTP emission standards shall comply with the SFTP ULEV emission standards in this table, and all LEV III SULEVs certified to 150,000-mile FTP emission standards shall comply with the SFTP SULEV emission standards in this table.

<sup>2</sup> *Optional SFTP SULEV Standards.* A manufacturer may certify light-duty truck test groups from 6,001 to 8,500 lbs. GVWR and MDPV test groups to the SULEV, option A, emission standards set forth in this table for the 2015 through 2020 model year, only if the vehicles in the test group are equipped with a particulate filter and the manufacturer extends the particulate filter emission warranty mileage to 200,000 miles. Passenger cars and light-duty trucks 0-6,000 lbs. GVWR are not eligible for this option.

2. *SFTP NMOG+NOx and CO Composite Exhaust Emission Standards.* For the 2015 and subsequent model years, a manufacturer selecting this option must certify LEV II and LEV III LEVs, ULEVs, and SULEVs, such that the manufacturer’s sales-weighted fleet-average NMOG+NOx composite emission value does not exceed the applicable NMOG+NOx composite emission standard set forth in the following table. In addition, the CO composite emission value of any LEV III test group shall not exceed the CO composite emission standard set forth in the following table. SFTP compliance shall be demonstrated using the same gaseous or liquid fuel used for FTP certification. In the case of fuel-flexible vehicles, SFTP compliance shall be demonstrated using the LEV III certification gasoline specified in Part II, Section A.100.3.1.2 of the “California 2015 and Subsequent Model Criteria Pollutant Exhaust Emission Standards and Test Procedures and 2017 and Subsequent Model Greenhouse Gas Exhaust Emission Standards and Test Procedures for Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles.”

For each test group subject to this subsection, manufacturers shall calculate a Composite Emission Value for NMOG+NOx and, for LEV III test groups, a separate Composite Emission Value for CO, using the following equation:

$$\text{Composite Emission Value} = 0.28 \times \text{US06} + 0.37 \times \text{SC03} + 0.35 \times \text{FTP}$$

[Eq. 1]

where “US06” = the test group’s NMOG+NOx or CO emission value, as applicable, determined through the US06 test;  
 “SC03” = the test group’s NMOG+NOx or CO emission value, as applicable, determined through the SC03 test; and  
 “FTP” = the test group’s NMOG+NOx or CO emission value, as applicable, determined through the FTP test.

If no vehicles in a test group have air conditioning units, the FTP cycle emission value can be used in place of the SC03 cycle emission value in Equation 1. To determine compliance with the SFTP NMOG+NOx composite emission standard applicable to the model year, manufacturers shall use a sales-weighted fleet average of the NMOG+NOx composite emission values of every applicable test group. The sales-weighted fleet average shall be calculated using a combination of carry-over and new certification SFTP composite emission values (converted to NMOG+NOx, as applicable). LEV II test groups will use their emission values in the fleet average calculation but will not be considered LEV III test groups. Compliance with the CO composite emission standard cannot be demonstrated through fleet averaging. The NMOG+NOx sales-weighted fleet-average composite emission value for the fleet and the CO composite emission value for each test group shall not exceed:

<b>SFTP NMOG+NOx and CO Composite Emission Standards for 2015 and Subsequent Model Passenger Cars, Light-Duty Trucks, and Medium-Duty Passenger Vehicles</b>											
<b>(g/mi)<sup>1</sup></b>											
<b>Model Year</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025+</b>
All PCs; LDTs 8,500 lbs. GVWR or less; and MDPVs <sup>3</sup>	<b><i>Sales-Weighted Fleet Average NMOG+NOx Composite Exhaust Emission Standards<sup>2,4,5,6</sup></i></b>										
	0.140	0.110	0.103	0.097	0.090	0.083	0.077	0.070	0.063	0.057	0.050
Vehicles in this category are tested at their loaded vehicle weight (curb weight plus 300 pounds).	<b><i>CO Composite Exhaust Emission Standard<sup>7</sup></i></b>										
	4.2										

<sup>1</sup> Mileage for Compliance. All test groups certifying to LEV III FTP emission standards on a 150,000-mile durability basis shall also certify to the SFTP on a 150,000-mile durability basis, as tested in accordance

with the "California 2015 and Subsequent Model Criteria Pollutant Exhaust Emission Standards and Test Procedures and 2017 and Subsequent Model Greenhouse Gas Exhaust Emission Standards and Test Procedures for Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles."

- <sup>2</sup> *Determining NMOG+NOx Composite Emission Values of LEV II Test Groups.* For test groups certified to LEV II FTP emission standards, SFTP emission values shall be converted to NMOG+NOx and projected out to 120,000 miles or 150,000 miles (depending on LEV II FTP certification) using deterioration factors or aged components. NMHC emission values for the US06 and SC03 test cycles shall be converted to NMOG emission values by multiplying by a factor of 1.03. In lieu of deriving a deterioration factor specific to SFTP test cycles, carry-over test groups may use the applicable deterioration factor from the FTP cycle in order to determine the carry-over composite emission values for the purpose of the NMOG+NOx sales-weighted fleet-average calculation. If an SFTP full-useful life emission value is used to comply with SFTP 4k standards, that value may be used in the sales-weighted fleet-average without applying an additional deterioration factor.
- <sup>3</sup> MDPVs are excluded from SFTP NMOG+NOx and CO emission standards and the sales-weighted fleet average until they are certified to LEV III FTP 150,000-mile NMOG+NOx and CO requirements.
- <sup>4</sup> Test groups shall certify to bins in increments of 0.010 g/mi. Beginning with the 2018 model year, vehicles may not certify to bin values above a maximum of 0.180 g/mi.
- <sup>5</sup> *Calculating the sales-weighted average for NMOG+NOx.* For each model year, the manufacturer shall calculate its sales-weighted fleet-average NMOG+NOx composite emission value as follows.

$$\frac{\left[ \sum_{i=1}^n (\text{number of vehicles in the test group})_i \times (\text{composite value of bin})_i \right]}{\sum_{i=1}^n (\text{number of vehicles in the test group})_i} \quad [\text{Eq. 2}]$$

where "n" = a manufacturer's total number of PC, LDT, and, if applicable, MDPV certification bins, in a given model year including carry-over certification bins, certifying to SFTP composite emission standards in that model year;

"number of vehicles in the test group" = the number of vehicles produced and delivered for sale in California in the certification test group; and

"Composite Value of Bin" = the numerical value selected by the manufacturer for the certification bin that serves as the emission standard for the vehicles in the test group with respect to all testing for test groups certifying to SFTP on a 150,000-mile durability basis, and the SFTP carry-over composite emission value, as described in footnote 7 of this table, for carry-over LEV II test groups.

- <sup>6</sup> *Calculation of Fleet Average Total NMOG+NOx Credits or Debits.* A manufacturer shall calculate the total NMOG+NOx credits or debits, as follows:

$$\begin{aligned} & [(\text{NMOG+NOx Composite Emission Standard}) - (\text{Manufacturer's Sales-Weighted Fleet-} \\ & \text{Average Composite Emission Value})] \\ & \times (\text{Total Number of Vehicles Produced and Delivered for Sale in California in the 0-8,500 lbs} \\ & \text{GVWR plus MDPVs classes, if applicable}) \end{aligned} \quad [\text{Eq. 3}]$$

A negative number constitutes total NMOG+NOx debits, and a positive number constitutes total NMOG+NOx credits accrued by the manufacturer for the given model year. Total NMOG+NOx credits earned in a given model year retain full value through the fifth model year after they are earned. At the beginning of the sixth model year, the total NMOG+NOx credits have no value. A manufacturer may trade credits with other manufacturers

A manufacturer shall equalize total NMOG+NOx debits within three model years after they have been incurred by earning NMOG+NOx credits in an amount equal to the total NMOG+NOx debits. If total NMOG+NOx debits are not equalized within the three model-year period, the manufacturer is 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 total NMOG+NOx 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 vehicles not meeting the state board's emission standards is determined by dividing the NMOG+NOx debits for the model year by the NMOG+NOx composite emission standard in effect during the model year in which the debits were incurred.

<sup>7</sup> *Calculating the CO composite emission value.* Composite emission values for CO shall be calculated in accordance with Equation 1 above. Unlike the NMOG+NOx composite emission standards, manufacturers would not be able to meet the proposed CO composite emission standard through fleet averaging: each individual test group must comply with the standard. Test groups certified to 4,000-mile SFTP emission standards are not subject to this CO emission standard.

(B) *SFTP PM Exhaust Emission Standards for Passenger Cars, Light-Duty Trucks, and Medium-Duty Passenger Vehicles.* The following standards are the maximum PM exhaust emissions through the full useful life from 2017 and subsequent model-year LEV III LEVs, ULEVs, and SULEVs in the PC, LDT, and MDPV classes when operating on the same gaseous or liquid fuel they use for FTP certification. In the case of fuel-flexible vehicles, SFTP compliance shall be demonstrated using the LEV III certification gasoline specified in Part II, Section A.100.3.1.2 of the “California 2015 and Subsequent Model Criteria Pollutant Exhaust Emission Standards and Test Procedures and 2017 and Subsequent Model Greenhouse Gas Exhaust Emission Standards and Test Procedures for Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles.” Manufacturers must certify LEVs, ULEVs, and SULEVs in the PC, LDT, and MDPV classes, which are certifying to LEV III FTP PM emission standards in subsection (a)(2) on a 150,000-mile durability basis, to the *SFTP PM Exhaust Emission Standards* set forth in this subsection (a)(7)(B).

<b>SFTP PM Exhaust Emission Standards for 2017 and Subsequent Model LEV III Passenger Cars, Light-Duty Trucks, and Medium-Duty Passenger Vehicles<sup>1</sup></b>				
<i>Vehicle Type</i>	<i>Test Weight</i>	<i>Mileage for Compliance</i>	<i>Test Cycle</i>	<i>PM (mg/mi)</i>
All PCs; LDTs 0-6,000 lbs GVWR	Loaded vehicle weight	150,000	US06	10
LDTs 6,001-8,500 lbs GVWR; MDPVs	Loaded vehicle weight	150,000	US06	20

<sup>1</sup> All PCs, LDTs, and MDPVs certified to LEV III FTP PM emission standards in subsection (a)(2) on a 150,000-mile durability basis shall comply with the SFTP PM Exhaust Emission Standards in this table.

(C) *SFTP NMOG+NOx and CO Exhaust Emission Standards for Medium-Duty Vehicles.* The following standards are the maximum NMOG+NOx and CO composite emission values for full useful life of 2016 and subsequent model-year medium-duty LEV III ULEVs and SULEVs from 8,501 through 14,000 pounds GVWR when operating on the same gaseous or liquid fuel they use for FTP certification. In the case of flex-fueled vehicles, SFTP compliance shall be demonstrated using the LEV III certification gasoline specified in Part II, Section A.100.3.1.2 of the “California 2015 and Subsequent Model Criteria Pollutant Exhaust Emission Standards and Test Procedures and 2017 and Subsequent Model Greenhouse Gas Exhaust Emission Standards and Test Procedures for Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles.”

The following composite emission standards do not apply to MDPVs subject to the emission standards presented in subsections (a)(7)(A) and (a)(7)(B).

<b>SFTP NMOG+NOx and CO Composite Exhaust Emission Standards for 2016 and Subsequent Model ULEVs and SULEVs in the Medium-Duty Vehicle Class</b>						
Vehicle Type	Mileage for Compliance	HP/GVWR <sup>2</sup>	Test Cycle <sup>3,4,5</sup>	Vehicle Emission Category <sup>6</sup>	Composite Emission Standard <sup>1</sup> (g/mi)	
					NMOG + NOx	Carbon Monoxide
MDVs 8,501 - 10,000 lbs GVWR	150,000	≤ 0.024	US06 Bag 2, SC03, FTP	ULEV	0.550	22.0
				SULEV	0.350	12.0
		> 0.024	Full US06, SC03, FTP	ULEV	0.800	22.0
				SULEV	0.450	12.0
MDVs 10,001-14,000 lbs GVWR	150,000	n/a	Hot 1435 UC (Hot 1435 LA92), SC03, FTP	ULEV	0.550	6.0
				SULEV	0.350	4.0

- <sup>1</sup> Manufacturers shall use Equation 1 in subsection (a)(7)(A)2 to calculate SFTP Composite Emission Values for each test group subject to the emission standards in this table. For MDVs 10,001-14,000 lbs. GVWR, the emission results from the UC test shall be used in place of results from the US06 test.
- <sup>2</sup> *Power to Weight Ratio.* If all vehicles in a test group have a power to weight ratio at or below a threshold of 0.024, they may opt to run the US06 Bag 2 in lieu of the full US06 cycle. The cutoff is determined by using a ratio of the engine's maximum rated horsepower, as established by the engine manufacturer in the vehicle's Application for Certification, to the vehicle's GVWR in pounds and does not include any horsepower contributed by electric motors in the case of hybrid electric or plug-in hybrid electric vehicles. Manufacturers may opt to test to the full cycle regardless of the calculated ratio; in such case, manufacturers shall meet the emission standards applicable to vehicles with power-to-weight ratios greater than 0.024.
- <sup>3</sup> *Test Weight.* Medium-duty vehicles are tested at their adjusted loaded vehicle weight (average of curb weight and GVWR).
- <sup>4</sup> *Road Speed Fan.* Manufacturers have the option to use a road speed modulated fan as specified in 40-CFR § 86.107-96(d)(1) instead of a fixed speed fan for MDV SFTP testing.
- <sup>5</sup> If a manufacturer provides an engineering evaluation for a test group showing that SC03 emissions are equivalent to or lower than FTP emissions, the FTP emission value may be used in place of the SC03 emission value when determining the composite emission value for that test group.
- <sup>6</sup> *Vehicle Emission Categories.* For MDVs 8,501-10,000 lbs. GVWR, for each model year, the percentage of MDVs certified to an SFTP emission category set forth in this section 1961.2 shall be equal to or greater than the total percentage certified to the FTP ULEV250, ULEV200, SULEV170, and SULEV150 emission categories; of these vehicles, the percentage of MDVs certified to an SFTP SULEV emission category shall be equal to or greater than the total percentage certified to both the FTP SULEV170 and SULEV150 emission categories. For MDVs 10,001-14,000 lbs. GVWR, for each model year, the percentage of MDVs certified to an SFTP emission category set forth in this section 1961.2 shall be equal to or greater than the total percentage certified to the FTP ULEV400, ULEV270, SULEV230, and SULEV200 emission categories; of these vehicles, the percentage of MDVs certified to an SFTP SULEV emission category shall be equal to or greater than the total percentage certified to both the FTP SULEV230 and SULEV200 emission categories.

**(D) SFTP PM Exhaust Emission Standards for Medium-Duty Vehicles.** The following standards are the maximum PM composite emission values for the full useful life of 2017 and subsequent model-year LEV III LEVs, ULEVs, and SULEVs when operating on the same gaseous or liquid fuel they use for FTP certification. In the case of fuel-flexible vehicles, SFTP compliance shall be demonstrated using the LEV III certification gasoline specified in Part II,



Section A.100.3.1.2 of the “California 2015 and Subsequent Model Criteria Pollutant Exhaust Emission Standards and Test Procedures and 2017 and Subsequent Model Greenhouse Gas Exhaust Emission Standards and Test Procedures for Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles.” The following composite emission standards do not apply to MDPVs subject to the emission standards set forth in subsections (a)(7)(A) and (a)(7)(B).

<b>SFTP PM Exhaust Emission Standards for 2017 and Subsequent Model Medium-Duty Vehicles<sup>1</sup></b>					
<i>Vehicle Type</i>	<i>Test Weight</i>	<i>Mileage for Compliance</i>	<i>Hp/GVWR<sub>2</sub></i>	<i>Test Cycle<sup>3,4</sup></i>	<i>PM (mg/mi)</i>
MDVs 8,501-10,000 lbs GVWR	Adjusted loaded vehicle weight	150,000	≤ 0.024	US06 Bag 2	7
			>0.024	US06	10
MDVs 10,001-14,000 lbs GVWR	Adjusted loaded vehicle weight	150,000	n/a	Hot 1435 UC (Hot 1435 LA92)	7

<sup>1</sup> Except for MDPVs subject to the emission standards set forth in subsection (a)(7)(B), MDVs certified to 150,000-mile FTP PM emission standards in subsection (a)(2) shall comply with the SFTP PM Exhaust Emission Standards in this table.

<sup>2</sup> *Power to Weight Ratio.* If all vehicles in a test group have a power to weight ratio at or below a threshold of 0.024, they may opt to run the US06 Bag 2 in lieu of the full US06 cycle. The cutoff is determined by using a ratio of the engine’s horsepower to the vehicle’s GVWR in pounds and does not include any horsepower contributed by electric motors in the case of hybrid electric or plug-in hybrid electric vehicles. Manufacturers may opt to test to the full cycle regardless of the calculated ratio; in such case, manufacturers shall meet the emission standards applicable to vehicles with power-to-weight ratios greater than 0.024.

<sup>3</sup> *Road Speed Fan.* Manufacturers have the option to use a road speed modulated fan as specified in 40-CFR § 86.107–96(d)(1) instead of a fixed speed fan for MDV SFTP testing.

<sup>4</sup> Manufacturers shall use Equation 1 above to calculate SFTP Composite PM Emission Values for each test group subject to the emission standards in this table. For MDVs 8,501-10,000 lbs. GVWR certifying to the US06 Bag 2 PM emission standard, the emission results from the US06 Bag 2 test shall be used in place of results from the full US06 test. For MDVs 10,001-14,000 lbs. GVWR, the emission results from the UC test shall be used in place of results from the US06 test.

**(8) *Interim In-Use Compliance Standards.***

**(A) *LEV III NMOG+NOx Interim In-Use Compliance Standards.***

The following interim in-use compliance standards shall apply for the first two model years that a test group is certified to the LEV III standards.

1. *NMOG+NOx Interim In-Use Compliance Standards for Passenger Cars, Light-Duty Trucks, and Medium-Duty Passenger Vehicles.* For the 2015 through 2019 model years, these standards shall apply.

Emission Category	Durability Vehicle Basis (miles)	LEV III PCs, LDTs, and MDPVs
		NMOG + NOx (g/mi)
LEV160	150,000	n/a
ULEV125	150,000	n/a
ULEV70	150,000	0.098
ULEV50	150,000	0.070
SULEV30	150,000	0.042 <sup>1</sup>
SULEV20	150,000	0.028 <sup>1</sup>

<sup>1</sup> not applicable to test groups that receive PZEV credits

2. *NMOG+NOx Interim In-Use Compliance Standards for Medium-Duty Vehicles, Excluding Medium-Duty Passenger Vehicles.* For the 2015 through 2020 model years, these standards shall apply.

Emission Category	Durability Vehicle Basis (miles)	LEV III MDVs (excluding MDPVs) 8,501 - 10,000 lbs. GVW	LEV III MDVs 10,001 - 14,000 lbs. GVW
		NMOG + NOx (g/mi)	NMOG + NOx (g/mi)
LEV395	150,000	n/a	n/a
ULEV340	150,000	n/a	n/a
ULEV250	150,000	0.370	n/a
ULEV200	150,000	0.300	n/a
SULEV170	150,000	0.250	n/a
SULEV150	150,000	0.220	n/a
LEV630	150,000	n/a	n/a
ULEV570	150,000	n/a	n/a
ULEV400	150,000	n/a	0.600
ULEV270	150,000	n/a	0.400
SULEV230	150,000	n/a	0.340
SULEV200	150,000	n/a	0.300



(B) *LEV III Particulate Interim In-Use Compliance Standards.* The following interim in-use compliance standards shall apply for the first two model years that a test group is certified to the LEV III standards.

1. *LEV III Particulate Interim In-Use Compliance Standards for Passenger Cars, Light-Duty Trucks, and Medium-Duty Passenger Vehicles.* For the 2017 through 2020 model years, the interim in-use compliance standard for vehicles certifying to the 3 mg/mi particulate standard is 6 mg/mi. For the 2025 through 2028 model years, the interim in-use compliance standard for vehicles certifying to the 1 mg/mi particulate standard is 2 mg/mi.

2. *LEV III Particulate Interim In-Use Compliance Standards for Medium-Duty Vehicles, excluding Medium-Duty Passenger Vehicles.* For the 2017 through 2020 model years, the interim in-use compliance standard for vehicles certifying to the 8 mg/mi particulate standard shall be 16 mg/mi and the interim in-use compliance standard for vehicles certifying to the 10 mg/mi particulate standard shall be 20 mg/mi.

(C) *SFTP Interim In-Use Compliance Standards.*

1. Test groups certified prior to the 2020 model year may use an in-use compliance standard for NMOG+NO<sub>x</sub> for the first two model years that they are certified to new standards.

a. For light-duty vehicle test groups and medium-duty passenger vehicle test groups certifying to the standards in subsection (a)(7)(A)1, in-use compliance emission standards for NMOG+NO<sub>x</sub> shall be 1.4 times the applicable certification standard.

b. For light-duty vehicle test groups and medium-duty passenger vehicle test groups certifying to the standards in subsection (a)(7)(A)2, in-use compliance emission standards for NMOG+NO<sub>x</sub> shall be 1.4 times the Composite Value of the bin to which a test group is certified.

c. For medium-duty vehicle tests groups certifying to the standards in subsection (a)(7)(C), in-use compliance emission standards for NMOG+NO<sub>x</sub> shall be 1.4 times the applicable certification standard.

2. Test groups certified prior to the 2021 model year will be allowed an in-use compliance standard for PM for the first five model years that they are certified to the SFTP PM standard.

a. For light-duty vehicle test groups and medium-duty passenger vehicle test groups certifying to SFTP PM exhaust emission standards in subsection (a)(7)(B), in-use compliance emission standards for PM shall be 5.0 mg/mi higher than the applicable certification standard.

b. For medium-duty vehicle test groups certifying to SFTP PM Exhaust Emission Standards in subsection (a)(7)(D), in-use compliance emission standards for PM shall be 5.0 mg/mi higher than the applicable certification standard.

(9) *Requirement to Generate Additional NMOG+NOx Fleet Average Credit.* For a vehicle that is certified to the LEV III standards in subsection (a)(1), which does not 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 2009 through 2017 Model Zero-Emission Vehicles and Hybrid Electric Vehicles, in the Passenger Car, Light-Duty Truck and Medium-Duty Vehicle Classes” and the “California Exhaust Emission Standards and Test Procedures for 2018 and Subsequent Model Zero-Emission Vehicles and Hybrid Electric Vehicles, in the Passenger Car, Light-Duty Truck and Medium-Duty Vehicle Classes,” a manufacturer may subtract 5 mg/mi from the NMOG+NOx emission standards value set forth in subsection (b)(1)(B)1.c when calculating the manufacturer’s fleet average, provided that the manufacturer extends the performance and defects warranty period to 15 years or 150,000 miles, whichever occurs first.

(10) *Requirement to Generate a Partial ZEV Allowance.* For the 2015 through 2017 model years, a manufacturer that certifies to the LEV III SULEV30 or the LEV III SULEV20 standards may 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 2009 through 2017 Model Zero-Emission Vehicles and Hybrid Electric Vehicles, in the Passenger Car, Light-Duty Truck and Medium-Duty Vehicle Classes.”

(11) *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 for which it gets credit, 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 contained in Part II G. of the “California 2015 and Subsequent Model Criteria Pollutant Emission Standards and Test Procedures for and 2017 and Subsequent Model Greenhouse Gas Exhaust Emission Standards and Test Procedures for Passenger Cars, Light-Duty trucks and Medium-duty Vehicles,” as adopted March 22, 2012;

(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.

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

(A) *General Requirement.* Whenever a manufacturer federally-certifies a 2015 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 2015 and Subsequent Model Criteria Pollutant Exhaust Emission Standards and Test Procedures and 2017 and Subsequent Model Greenhouse Gas Exhaust Emission Standards and Test Procedures for Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles."

(B) *Exception for clean fuel fleet vehicles.* Subsection (a)(12)(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.

(13) *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 ULEV125

standards for passenger cars and light-duty trucks less than 8,500 pounds GVWR as set forth in subsection 1961(a)(1). The exhaust emissions from the fuel-fired heater shall be determined in accordance with the “California Exhaust Emission Standards and Test Procedures for 2009 through 2017 Model Zero-Emission Vehicles and Hybrid Electric Vehicles, in the Passenger Car, Light-Duty Truck and Medium-Duty Vehicle Classes” or the “California Exhaust Emission Standards and Test Procedures for 2018 and Subsequent Model Zero-Emission Vehicles and Hybrid Electric Vehicles, in the Passenger Car, Light-Duty Truck and Medium-Duty Vehicle Classes,” as applicable. If the on-board fuel-fired heater is capable of operating at ambient temperatures above 40°F, the measured emission levels of the on-board fuel-fired heater shall be added to the emissions measured on the FTP (40 CFR, Part 86, Subpart B), as amended by the “California 2015 and Subsequent Model Criteria Pollutant Exhaust Emission Standards and Test Procedures and 2017 and Subsequent Model Greenhouse Gas Exhaust Emission Standards and Test Procedures for Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles” to determine compliance with the exhaust emission standards in subsection (a)(1).

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

(1) *Fleet Average NMOG + NOx Requirements for Passenger Cars, Light-Duty Trucks, and Medium-Duty Passenger Vehicles.*

(A) The fleet average non-methane organic gas plus oxides of nitrogen exhaust mass emission values from the passenger cars, light-duty trucks, and medium-duty passenger vehicles that are produced and delivered for sale in California each model year by a manufacturer other than a small volume manufacturer shall not exceed:

<b>FLEET AVERAGE NON-METHANE ORGANIC GAS PLUS OXIDES OF NITROGEN EXHAUST MASS EMISSION REQUIREMENTS FOR PASSENGER CARS, LIGHT-DUTY TRUCKS, AND MEDIUM- DUTY PASSENGER VEHICLES</b> (150,000 mile Durability Vehicle Basis)		
Model Year	Fleet Average NMOG + NO <sub>x</sub> (grams per mile)	
	All PCs; LDTs 0-3750 lbs. LVW	LDTs 3751 lbs. LVW - 8500 lbs. GVWR; All MDPVs
2014 <sup>1</sup>	0.107	0.128
2015	0.100	0.119
2016	0.093	0.110
2017	0.086	0.101
2018	0.079	0.092
2019	0.072	0.083
2020	0.065	0.074
2021	0.058	0.065
2022	0.051	0.056
2023	0.044	0.047
2024	0.037	0.038
2025+	0.030	0.030

<sup>1</sup> For the 2014 model year, a manufacturer may comply with the fleet average NMOG+NO<sub>x</sub> values in this table in lieu of complying with the NMOG fleet average values in subsection 1961(a)(b)(1)(A). A manufacturer must either comply with the NMOG+NO<sub>x</sub> fleet average requirements for both its PC/LDT1 fleet and its LDT2/MDPV fleet or comply with the NMOG fleet average requirements for both its PC/LDT1 fleet and its LDT2/MDPV fleet. A manufacturer must calculate its fleet average NMOG+NO<sub>x</sub> values using the applicable full useful life standards.

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

2. *PZEV Anti-Backsliding Requirement.* In the 2018 and subsequent model years, a manufacturer must produce and deliver for sale in California a minimum percentage of its passenger car and light-duty truck fleet that certifies to SULEV30 and SULEV20 standards. This minimum percentage must be equal to the average percentage of PZEVs produced and

deliver for sale in California for that manufacturer for the 2015 through 2017 model year. A manufacturer may calculate this average percentage using the projected sales for these model years in lieu of actual sales.

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

1. *Basic Calculation.*

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

$$\frac{(\sum [\text{Number of vehicles in a test group excluding off-vehicle charge capable hybrid electric vehicles} \times \text{applicable emission standard}] + \sum [\text{Number of off-vehicle charge capable hybrid electric vehicles in a test group} \times \text{HEV NMOG+NOx contribution factor}])}{\text{Total Number of PCs plus LDT1s Produced and Delivered for sale in California, Including ZEVs and HEVs}}$$

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

$$\frac{(\sum [\text{Number of vehicles in a test group excluding off-vehicle charge capable hybrid electric vehicles} \times \text{applicable emission standard}] + \sum [\text{Number of off-vehicle charge capable hybrid electric vehicles in a test group} \times \text{HEV NMOG factor}])}{\text{Total Number of LDT2s plus MDPVs Produced and Delivered for sale in California, Including ZEVs and HEVs}}$$

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

Model Year	Emission Category	Emission Standard Value <sup>1</sup> (g/mi)	
		All PCs; LDTs 0-3750 lbs. LVW	LDTs 3751-5750 lbs. LVW; All MDPVs
2015 and subsequent model year federally-certified vehicles	All	Sum of the full useful life NMOG and NOx Federal Emission Standards to which Vehicle is Certified	Sum of the full useful life NMOG and NOx Federal Emission Standards to which Vehicle is Certified
Model Year	Emission Category	All PCs; LDTs 0-3750 lbs. LVW	LDTs 3751 lbs. LVW - 8500 lbs. GVWR; All MDPVs
2015 through 2019 model year vehicles certified to the "LEV II" standards in subsection 1961(a)(1);	LEV II LEVs; LEV160s	0.160	0.160
	LEV II ULEVs; LEV125s	0.125	0.125
	ULEV70s	0.070	0.070
	ULEV50s	0.050	0.050
2015 and subsequent model year vehicles certified to the "LEV III" standards in subsection 1961.2(a)(1)	LEV II SULEVs; SULEV30s	0.030	0.030
	SULEV20s	0.020	0.020
	LEV II LEVs; LEV395s	n/a	0.395
	LEV II ULEVs	n/a	0.343
	ULEV340s	n/a	0.340
	ULEV250s	n/a	0.250
	ULEV200s	n/a	0.200
	SULEV170s	n/a	0.170
	SULEV150s	n/a	0.150

<sup>1</sup> For LEV III vehicle test groups that meet the extended emission warranty requirements in subsection (a)(9), the applicable emission standard value shall be the emission standard value set forth in this table minus 5 mg/mi.

2. *NMOG+NOx Contribution Factor for Off-vehicle Charge Capable HEVs.* The HEV NMOG+NOx contribution factor for light-duty off-vehicle charge capable hybrid electric vehicles is calculated as follows:



LEV160 HEV Contribution Factor =  $0.160 - [(Zero\text{-}emission\ VMT\ Allowance) \times 0.035]$   
 ULEV125 HEV Contribution Factor =  $0.125 - [(Zero\text{-}emission\ VMT\ Allowance) \times 0.055]$   
 ULEV70 HEV Contribution Factor =  $0.070 - [(Zero\text{-}emission\ VMT\ Allowance) \times 0.020]$   
 ULEV50 HEV Contribution Factor =  $0.050 - [(Zero\text{-}emission\ VMT\ Allowance) \times 0.020]$   
 SULEV30 HEV Contribution Factor =  $0.030 - [(Zero\text{-}emission\ VMT\ Allowance) \times 0.010]$   
 SULEV20 HEV Contribution Factor =  $0.020 - [(Zero\text{-}emission\ VMT\ Allowance) \times 0.020]$

Where the Zero-emission VMT Allowance for off-vehicle charge capable HEVs is determined in accordance with section C.3 of the "California Exhaust Emission Standards and Test Procedures for 2009 through 2017 Model Zero-Emission Vehicles and Hybrid Electric Vehicles, in the Passenger Car, Light-Duty Truck and Medium-Duty Vehicle Classes" and the "California Exhaust Emission Standards and Test Procedures for 2018 and Subsequent Model Zero-Emission Vehicles and Hybrid Electric Vehicles, in the Passenger Car, Light-Duty Truck and Medium-Duty Vehicle Classes," as applicable, except that for the purposes of this subsection (b)(1)(B)2, the maximum allowable Zero-emission VMT Allowance that may be used in these equations is 1.0. This subsection (b)(1)(B)2 shall only apply to off-vehicle charge capable HEVs certified to the LEV III standards set forth in subsection (a)(1).

(C) *Phase-In Requirements for Small Volume Manufacturers.*

1. In the 2015 through 2021 model years, a small volume manufacturer shall not exceed a fleet average NMOG+NOx value of 0.160 g/mi for PCs and LDTs from 0-3750 lbs. LVW or 0.160 g/mi for LDTs from 3751-5750 lbs. LVW calculated in accordance with subsection (b)(1)(B). In 2022 through 2024 model years, a small volume manufacturer shall not exceed a fleet average NMOG+NOx value of 0.125 g/mi for PCs and LDTs from 0-3750 lbs. LVW or 0.125 g/mi for LDTs from 3751 lbs. LVW - 8,500 lbs. GVW and MDPVs calculated in accordance with subsection (b)(1)(B). In 2025 and subsequent model years, a small volume manufacturer shall not exceed a fleet average NMOG+NOx value of 0.070 g/mi for PCs and LDTs from 0-3750 lbs. LVW or 0.070 g/mi for LDTs from 3751 lbs. LVW - 8,500 lbs. GVW and MDPVs calculated in accordance with subsection (b)(1)(B). For the 2015 through 2021 model years, a small volume manufacturer may certify its vehicles to the LEV II exhaust standards in section 1961. All vehicles certified by a small volume manufacturer for the 2022 and subsequent model years must meet the LEV III exhaust standards in this section 1961.2.

2. If a manufacturer's average California sales exceeds 4500 units of new PCs, LDTs, MDVs, heavy-duty vehicles, 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. If this is the first time the manufacturer exceeds the 4500 unit sales limit, the manufacturer must comply with the fleet average requirements applicable to a large volume manufacturer, as specified in subsection (b)(1)(A) beginning with the fourth model year after the last of the three consecutive model years. If during this four year lead time period the manufacturer's sales drop below the 4500 unit sales limit and then increase again above the 4500 unit sales limit, the four year lead time period shall be calculated based on the first model year in which the manufacturer again exceeds the 4500 unit sales limit. Except as noted above – i.e., if this is not the first time the manufacturer has exceeded the 4500 unit sales limit – the manufacturer shall comply with the fleet average requirements applicable to larger manufacturers as specified in subsection (b)(1)(A) beginning with the following 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) *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 1962.1 and 1962.2 shall be included as LDT1s in the calculation of a fleet average NMOG value.

(2) *LEV III Phase-In Requirement for Passenger Cars, Light-Duty Trucks, and Medium-Duty Passenger Vehicles.* For the 2015 and 2016 model years, the LEV II SULEV emission standards set forth in section 1961(a)(1) that are applicable to PCs, LDTs, and MDPVs shall only apply to those PCs, LDT1s, LDT2s, and MDPVs that certify to SULEV emission standards using "carryover" of emission test data from a previous model year in accordance with U.S. EPA OMS Advisory Circular A/C No. 17F, issued November 16, 1982, and last amended January 21, 1988, incorporated herein by reference. Beginning in the 2017 model year, the LEV II SULEV emission standards set forth in section 1961(a)(1) that are applicable to PCs, LDTs, and MDPVs shall only apply to those PCs, LDT1s, LDT2s, and MDPVs that receive partial ZEV allowances in accordance with the "California Exhaust Emission Standards and Test Procedures for 2009 through 2017 Model Zero-Emission Vehicles and Hybrid Electric Vehicles, in the Passenger Car, Light-Duty Truck and Medium-Duty Vehicle Classes." A manufacturer, other than a small volume manufacturer, must certify 100 percent of its PC, LDT, and MDPV fleet to the LEV III standards in subsection (a)(1) in 2020 and subsequent model years. A small volume

manufacturer must certify 100 percent of its PC, LDT, and MDPV fleet to the LEV III standards in subsection (a)(1) in 2022 and subsequent model years.

(3) *LEV III Phase-In Requirements for Medium-Duty Vehicles, Other than Medium-Duty Passenger Vehicles.*

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

Model Year	Vehicles Certified to §1961.2(a)(1) (%)				Vehicles Certified to §1956.8(c) or (h) (%)
	LEV II LEV; LEV III LEV395 or LEV630	LEV II ULEV; LEV III ULEV340 or ULEV570	LEV III ULEV250 or ULEV400	LEV III SULEV170 or SULEV230	ULEV
2015	40	60	0	0	100
2016	20	60	20	0	100
2017	10	50	40	0	100
2018	0	40	50	10	100
2019	0	30	40	30	100
2020	0	20	30	50	100
2021	0	10	20	70	100
2022 +	0	0	10	90	100

(B) *Requirements for Small Volume Manufacturers.* In the 2015 through 2017 model years, a small volume manufacturer shall certify, produce, and deliver for sale in California vehicles or engines certified to the MDV LEV II LEV standards or to the LEV III LEV395 or LEV III LEV630 standards, as applicable, in a quantity equivalent to 100% of its MDV fleet. In the 2018 through 2021 model years, a small volume manufacturer shall certify, produce, and deliver for sale in California vehicles or engines certified to the MDV LEV II ULEV standards or to the LEV III ULEV340 or LEV III ULEV570 standards, as applicable, in a quantity equivalent to 100% of its MDV fleet. In the 2022 and subsequent model years, a small volume manufacturer shall certify, produce, and deliver for sale in California vehicles or engines certified to the MDV LEV III ULEV250 or LEV III ULEV400 standards, as applicable, in a quantity equivalent to 100% of its MDV fleet. Engines certified to these MDV standards are not eligible for emissions averaging.

(C) *Alternate Phase-In Schedules for LEV III MDVs.* For the 2016 and subsequent model years, a manufacturer that produces and delivers for sale in California four or fewer medium-duty test groups may comply with the following alternate phase-in schedule for LEV III medium-duty vehicles.

1. A manufacturer that produces and delivers for sale in California four medium-duty test groups may comply with the following alternate phase-in schedule for LEV III medium-duty vehicles.

Model Year	Number of Test Groups Certified to §1961.2(a)(1)				Vehicles Certified to §1956.8(c) or (h) (%)
	LEV II LEV; LEV III LEV395 or LEV630	LEV II ULEV; LEV III ULEV340 or ULEV570	LEV III ULEV250 or ULEV400	LEV III SULEV170 or SULEV230	ULEV
2016-2017	1	2	1	0	100
2018	0	2	2	0	100
2019	0	1	2	1	100
2020	0	1	1	2	100
2021	0	0	1	3	100
2022 +	0	0	0	4	100

2. A manufacturer that produces and delivers for sale in California three medium-duty test groups may comply with the following alternate phase-in schedule for LEV III medium-duty vehicles.

Model Year	Number of Test Groups Certified to §1961.2(a)(1)				Vehicles Certified to §1956.8(c) or (h) (%)
	LEV II LEV; LEV III LEV395 or LEV630	LEV II ULEV; LEV III ULEV340 or ULEV570	LEV III ULEV250 or ULEV400	LEV III SULEV170 or SULEV230	ULEV
2016	1	2	0	0	100
2017	0	2	1	0	100
2018	0	1	2	0	100
2019-2020	0	1	1	1	100
2021	0	0	1	2	100
2022 +	0	0	0	3	100

3. A manufacturer that produces and delivers for sale in California two medium-duty test groups may comply with the following alternate phase-in schedule for LEV III medium-duty vehicles.

Model Year	Number of Test Groups Certified to §1961.2(a)(1)				Vehicles Certified to §1956.8(c) or (h) (%)
	LEV II LEV; LEV III LEV395 or LEV630	LEV II ULEV; LEV III ULEV340 or ULEV570	LEV III ULEV250 or ULEV400	LEV III SULEV170 or SULEV230	ULEV
2016	1	1	0	0	100
2017-2019	0	1	1	0	100
2020-2021	0	0	1	1	100
2022 +	0	0	0	2	100

4. A manufacturer that produces and delivers for sale in California one medium-duty test groups may comply with the following alternate phase-in schedule for LEV III medium-duty vehicles.

Model Year	Number of Test Groups Certified to §1961.2(a)(1)				Vehicles Certified to §1956.8(c) or (h) (%)
	LEV II LEV; LEV III LEV395 or LEV630	LEV II ULEV; LEV III ULEV340 or ULEV570	LEV III ULEV250 or ULEV400	LEV III SULEV170 or SULEV230	ULEV
2016-2018	0	1	0	0	100
2019-2021	0	0	1	0	100
2022 +	0	0	0	1	100

(D) *Identifying a Manufacturer's MDV Fleet.* 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. A manufacturer that elects to certify to the optional medium-duty engine standards in subsections 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.

(E) For a manufacturer that elects to certify to the optional medium-duty engine standards in title 13, CCR subsections 1956.8(c) or (h), all such 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 Emission Standards and Test Procedures for 2004 and Subsequent Model Heavy-Duty Diesel Engines, incorporated by reference in subsections 1956.8(b) or (d), as applicable.

(4) *SFTP Phase-In Requirements.*

(A) *Phase-In Requirement for Passenger Cars, Light-Duty Trucks, and Medium-Duty Passenger Vehicles.* A test group certifying to LEV III FTP emission categories on a 150,000-mile durability basis shall also certify to SFTP requirements on a 150,000-mile durability basis.

Manufacturers shall have two options for phase in to the SFTP NMOG+NOx and CO emission standards.

1. Under Option 1, beginning with the 2015 model year, a manufacturer shall certify its PCs, LDTs, and MDPVs to the SFTP NMOG+NOx and CO emission standards in subsection (a)(7)(A)1 when the



vehicles are also certifying to a LEV III FTP emission category at 150,000-mile durability.

2. Under Option 2, for 2015 and subsequent model years, a manufacturer shall certify its fleet of PCs, LDTs, and MDPVs such that the manufacturer's sales-weighted fleet-average NMOG+NOx composite emission value does not exceed the composite emission standard in effect for that model year. During the 150,000-mile durability phase-in, the sales-weighted fleet-average NMOG+NOx composite emission value shall be calculated using a combination of carry-over values and new-certification values. Carry-over test groups shall convert values to NMOG+NOx and may use the applicable deterioration factor from the FTP cycle in lieu of deriving a deterioration factor specific to SFTP test cycles. Any vehicle certified to SFTP requirements on a 150,000-mile durability basis shall be subject to the applicable emission standards for the full useful life of that vehicle. Compliance with the CO composite emission standard cannot be demonstrated through fleet averaging.

Beginning with the 2017 model year, a manufacturer shall certify its PCs, LDTs, and MDPVs certifying to LEV III FTP PM emission standards on a 150,000-mile durability basis to the SFTP PM emission standards in subsection (a)(7)(B).

(B) *Phase-In Requirements for Medium-Duty Vehicle*

*Manufacturers.* Phase-in for NMOG+NOx and CO emission standards begins with the 2016 model year. For MDVs 8,501-10,000 lbs. GVWR, for each model year, the percentage of MDVs certified to an SFTP emission category set forth in this section 1961.2 shall be equal to or greater than the total percentage certified to the FTP ULEV250, ULEV200, SULEV170, and SULEV150 emission categories; of these vehicles, the percentage of MDVs certified to an SFTP SULEV emission category shall be equal to or greater than the total percentage certified to both the FTP SULEV170 and SULEV150 emission categories. For MDVs 10,001-14,000 lbs. GVWR, for each model year, the percentage of MDVs certified to an SFTP emission category set forth in this section 1961.2 shall be equal to or greater than the total percentage certified to the FTP ULEV400, ULEV270, SULEV230, and SULEV200 emission categories; of these vehicles, the percentage of MDVs certified to an SFTP SULEV emission category shall be equal to or greater than the total percentage certified to both the FTP SULEV230 and SULEV200 emission categories.

In addition, 2017 and subsequent model MDVs certifying to LEV III FTP PM emission standards on a 150,000-mile durability basis must also certify to the SFTP emission standards set forth in subsection (a)(7)(D).

(C) *Identifying a Manufacturer's Medium-Duty Vehicle Fleet.*

For the 2016 and subsequent model years, each manufacturer's MDV fleet shall be defined as the total number of California-certified MDVs, other than MDPVs,



produced and delivered for sale in California. For 2016 and subsequent model years, a manufacturer that elects to certify engines to the optional medium-duty engine emission standards in subsections 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 subparagraph.

(c) *Calculation of NMOG + NOx Credits/Debits*

(1) *Calculation of NMOG+NOx Credits and Debits for Passenger Cars, Light-Duty Trucks, and Medium-Duty Passenger Vehicles.*

(A) In 2015 and subsequent model years, a manufacturer shall calculate its credits or debits using the following equation.

$$\frac{[(\text{Fleet Average NMOG+NOx Requirement}) - (\text{Manufacturer's Fleet Average NMOG+NOx Value})] \times (\text{Total No. of Vehicles Produced and Delivered for Sale in California, Including ZEVs and HEVs})}{1}$$

(B) In 2015 and subsequent model years, a manufacturer that achieves fleet average NMOG+NOx values lower than the fleet average NMOG+NOx requirement for the corresponding model year shall receive credits in units of g/mi NMOG + NOx . A manufacturer with 2015 and subsequent model year fleet average NMOG+NOx values greater than the fleet average requirement for the corresponding model year shall receive debits in units of g/mi NMOG + NOx equal to the amount of negative credits determined by the aforementioned equation. The total g/mi NMOG+NOx 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. GVWR shall be summed together. The resulting amount shall constitute the g/mi NMOG+NOx credits or debits accrued by the manufacturer for the model year.

(2) *Calculation of Vehicle-Equivalent NMOG + NOx Credits for Medium-Duty Vehicles Other than MDPVs.*

(A) In 2016 and subsequent model years, a manufacturer that produces and delivers for sale in California MDVs, other than MDPVs, in excess of the equivalent requirements for LEV III vehicles certified to the exhaust emission standards set forth in subsection (a)(1), 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:

$$(1.00) \times \{[(\text{No. of LEV395s and LEV630s Produced excluding HEVs}) + (\text{No. of LEV395 HEVs} \times \text{HEV VEC factor for LEV395s}) + (\text{No. of LEV630 HEVs} \times \text{HEV VEC factor for LEV630s})] -$$

(No. of LEV395s and LEV630s Required to be Produced))} +

(1.14) x {[(No. of ULEV340s and ULEV570s Produced excluding HEVs) +  
(No. of ULEV340 HEVs x HEV VEC factor for ULEV340s) +  
(No. of ULEV570 HEVs x HEV VEC factor for ULEV570s)] -  
(No. of ULEV340s and ULEV570s Required to be Produced))} +

(1.37) x {[(No. of ULEV250s and ULEV400s Produced excluding HEVs) +  
(No. of ULEV250 HEVs x HEV VEC factor for ULEV250s) +  
(No. of ULEV400 HEVs x HEV VEC factor for ULEV400s)] -  
(No. of ULEV250s and ULEV400s Required to be Produced))} +

(1.49) x {[(No. of ULEV200s and ULEV270s Produced excluding HEVs) +  
(No. of ULEV200 HEVs x HEV VEC factor for ULEV200s) +  
(No. of ULEV270 HEVs x HEV VEC factor for ULEV270s)] -  
(No. of ULEV200s and ULEV270s Required to be Produced))} +

(1.57) x {[(No. of SULEV170s and SULEV230s Produced excluding HEVs)  
+  
(No. of SULEV170 HEVs x HEV VEC factor for SULEV170s) +  
(No. of SULEV230 HEVs x HEV VEC factor for SULEV230s)] -  
(No. of SULEV170s and SULEV230s Required to be Produced))} +

(1.62) x {[(No. of SULEV150s and SULEV200s Produced excluding HEVs)  
+  
(No. of SULEV150 HEVs x HEV VEC factor for SULEV150s) +  
(No. of SULEV200 HEVs x HEV VEC factor for SULEV200s)] -  
(No. of SULEV150s and SULEV200s Required to be Produced))} +

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

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

For LEV395s:

$$1 + \left[ \frac{(LEV395 \text{ standard} - ULEV340 \text{ standard}) \times \text{Zero-emission VMT Allowance}}{LEV395 \text{ standard}} \right];$$

For ULEV340s:

$$1 + \left[ \frac{(ULEV340 \text{ standard} - ULEV250 \text{ standard}) \times \text{Zero-emission VMT Allowance}}{ULEV340 \text{ standard}} \right];$$

For ULEV250s:

$$1 + \left[ \frac{(ULEV250 \text{ standard} - ULEV200 \text{ standard}) \times \text{Zero-emission VMT Allowance}}{ULEV250 \text{ standard}} \right];$$

For ULEV200s:

$$1 + \left[ \frac{(ULEV200 \text{ standard} - SULEV170 \text{ standard}) \times \text{Zero-emission VMT Allowance}}{ULEV3200 \text{ standard}} \right];$$

For SULEV170s:

$$1 + \left[ \frac{(SULEV170 \text{ standard} - SULEV150 \text{ standard}) \times \text{Zero-emission VMT Allowance}}{SULEV170 \text{ standard}} \right];$$

For SULEV150s:  $1 + \left[ \frac{(SULEV150 \text{ standard} - ZEV \text{ standard}) \times \text{Zero-emission VMT Allowance}}{SULEV150 \text{ standard}} \right];$

For LEV630s:

$$1 + \left[ \frac{(LEV630 \text{ standard} - ULEV570 \text{ standard}) \times \text{Zero-emission VMT Allowance}}{LEV630 \text{ standard}} \right];$$

For ULEV570s:

$$1 + \left[ \frac{(ULEV570 \text{ standard} - ULEV400 \text{ standard}) \times \text{Zero-emission VMT Allowance}}{ULEV570 \text{ standard}} \right];$$

For ULEV400s:

$$1 + \left[ \frac{(ULEV400 \text{ standard} - ULEV270 \text{ standard}) \times \text{Zero-emission VMT Allowance}}{ULEV400 \text{ standard}} \right];$$

For ULEV270s:

$$1 + \left[ \frac{(ULEV270 \text{ standard} - SULEV230 \text{ standard}) \times \text{Zero-emission VMT Allowance}}{ULEV270 \text{ standard}} \right];$$

For SULEV230s:

$$1 + \left[ \frac{(SULEV230 \text{ standard} - SULEV200 \text{ standard}) \times \text{Zero-emission VMT Allowance}}{SULEV230 \text{ standard}} \right]$$

For SULEV200s:  $1 + \left[ \frac{(SULEV200 \text{ standard} - ZEV \text{ standard}) \times \text{Zero-emission VMT Allowance}}{SULEV200 \text{ standard}} \right]$

where "Zero-emission VMT Allowance" for an HEV is determined in accordance with section C of the "California Exhaust Emission Standards and Test Procedures for 2009 through 2017 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, or the "California Exhaust Emission Standards and Test Procedures for 2018 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 1962.2, as applicable, except that for the purposes of this

subsection (c)(2)(B), the maximum allowable Zero-emission VMT Allowance that may be used in these equations is 1.0.

(C) A manufacturer that fails to produce and deliver for sale in California the equivalent quantity of MDVs certified to LEV III exhaust emission standards, shall receive "Vehicle-Equivalent Debits" (or "VEDs") equal to the amount of negative VECs determined by the equation in subsection (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+NO<sub>x</sub> emission credits or VECs in an amount equal to the g/mi NMOG+NO<sub>x</sub> debits or VEDs, or by submitting a commensurate amount of g/mi NMOG+NO<sub>x</sub> credits or VECs to the Executive Officer that were earned previously or acquired from another manufacturer. A manufacturer shall equalize NMOG+NO<sub>x</sub> debits for PCs, LDTs, and MDPVs and VEC debits for MDVs within three model years. If emission debits are not equalized within the specified time period, the manufacturer shall be subject to the Health and Safety Code §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. A manufacturer demonstrating compliance under Option 2 in subsection (b)(1)(A)1.a, must calculate the emission debits that are subject to a civil penalty under Health and Safety Code section 43211 separately for California, the District of Columbia, and for each individual state that is included in the fleet average greenhouse gas requirements in subsection (b)(1)(A)1.a. The manufacturer must calculate these emission debits separately for California, the District of Columbia, and each individual state using the formula in subsections (c)(1) and (c)(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 §43211, the number of passenger cars, light-duty trucks, and medium-duty passenger vehicles not meeting the state board's emission standards shall be determined by dividing the total amount of g/mi NMOG+NO<sub>x</sub> emission debits for the model year by the g/mi NMOG+NO<sub>x</sub> fleet average requirement for PCs and LDTs 0-3750 lbs. LVW and for LDTs 3751 lbs. LVW - 8500 lbs. GVW and MDPVs 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 five subsequent model years. Credits will have no value if not used by the beginning of the sixth model year after being earned.

(4) *Changing NMOG Credits and Debits to NMOG+NO<sub>x</sub> Credits and Debits.* The value of any emission credits that have not been used prior to the start of the 2015 model year and any emission debits that have not been equalized prior to the start of the 2015 model year earned shall be converted to NMOG+NO<sub>x</sub> credits at the start of the 2015 model year by multiplying their values by a factor of 3.0. These credits and debits are subject to the provisions in subsection 1961(c)(3).

(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 2015 and Subsequent Model Criteria Pollutant Exhaust Emission Standards and Test Procedures and 2017 and Subsequent Model Greenhouse Gas Exhaust Emission Standards and Test Procedures for Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles," as adopted March 22, 2012, the "California Non-Methane Organic Gas Test Procedures," as amended March 22, 2012, 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 2009 through 2017 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, and the "California Exhaust Emission Standards and Test Procedures for 2018 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 1962.2.

(e) *Abbreviations.* The following abbreviations are used in this section 1961.2:

"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 light-duty truck with a loaded vehicle weight of 3751 pounds to a gross vehicle weight rating 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.  
“NMHC” means non-methane hydrocarbons.  
“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.  
“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.

(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 both this section and this article remains in full force and effect.

Note: Authority cited: Sections 39500, 39600, 39601, 43013, 43018, 43101, 43104, 43105 and 43106, 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.