

# APPENDIX A - PROPOSED REGULATION ORDER

## Amendments to Sections 1900, 1956.8, 1961.2, 1962.2, 1965, and 1976, and 1978, Title 13, California Code of Regulations

Set forth below are the proposed amendments to title 13 of the California Code of Regulations. Amendments to existing section proposed and subject to comment in this rulemaking are shown in underline to indicate additions and ~~strikeout~~ to indicate deletions. Amendments to these regulations that were approved by the Board on December 12, 2013 [HD GHG Date, 201X] as part of the “Rulemaking to Consider the Proposed Greenhouse Gas (GHG) Regulations for Medium- and Heavy-Duty Engines and Vehicles, Optional Reduced Emission Standards for Heavy-Duty Engines, and Amendments to the Tractor-Trailer GHG Regulation, Diesel-Fueled Commercial Motor Vehicle Idling Rule, and the Heavy-Duty Hybrid-Electric Vehicles Certification Procedures,” but which have not yet been approved by the Office of Administrative Law are indicated in dotted underline to indicate additions and ~~italics double strikeout~~ to indicate deletions. The dotted underline and ~~italics double strikeout~~ text is presented for context and completeness only and is not subject to comment in this proposal. Subsections for which no changes are proposed in this rulemaking are indicated with [No change] or “\* \* \* \*”.

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1. Amend title 13, CCR, section 1900 to read as follows:

**§ 1900. Definitions.**

\* \* \* \*

(b) In addition to the definitions incorporated under subdivision (a), the following definitions shall govern the provisions of this chapter.

\* \* \* \*

(~~69~~) "Heavy-duty vehicle" means any motor vehicle having a manufacturer's gross vehicle weight rating greater than ~~6,000~~ 8,500 pounds, except passenger cars.

\* \* \* \*

(~~114~~) "Light-duty truck" means any 2000 and subsequent model motor vehicle certified to the standards in section 1961(a)(1) or 1961.2 rated at 8,500 pounds gross vehicle weight or less, and any other motor vehicle rated at 6,000 pounds gross vehicle weight or less, which is designed primarily for purposes of transportation of property or is a derivative of such a vehicle, or is available with special features enabling off-street or off-highway operation and use.

\* \* \* \*

(~~116~~) "Medium-duty vehicle" means any pre-1995 model year heavy-duty vehicle having a manufacturer's gross vehicle weight rating of 8,500 pounds or less; any 1992 through 2006 model-year heavy-duty low-emission, ultra-low-emission, super-ultra-low-emission or zero-emission vehicle certified to the standards in section 1960.1(h)(2) having a manufacturer's gross vehicle weight rating of 14,000 pounds or less; any 1995 through 2003 model year heavy-duty vehicle certified to the standards in section 1960.1(h)(1) having a manufacturer's gross vehicle weight rating of 14,000 pounds or less; and any 2000 and subsequent model heavy-duty low-emission, ultra-low-emission, super-ultra-low-emission or zero-emission vehicle certified to the standards in Section 1961(a)(1), 1961.2, 1962, or 1962.1 having a manufacturer's gross vehicle weight rating between 8,501 and 14,000 pounds.

\* \* \* \*

NOTE: Authority cited: Sections ~~3901.0~~, 39600, 39601, 43013, 43018, 43101 and 43104, Health and Safety Code. Reference: Sections 39002, 39003, 39010, 39500, 40000, 43000, 43013, 43018.5, 43100, 43101, 43101.5, 43102, 43103, 43104, 43106 and 43204, Health and Safety Code; and Section 27156, Vehicle Code.

2. Amend title 13, CCR, section 1956.8 to read as follows:

**§ 1956.8. Exhaust Emission Standards and Test Procedures - 1985 and Subsequent Model Heavy-Duty Engines and Vehicles.**

\* \* \* \*

(b) *Test Procedures.* The test procedures for determining compliance with standards applicable to 1985 and subsequent model heavy-duty diesel engines and vehicles and the requirements for participating in the averaging, banking and trading programs, are set forth in the “California Exhaust Emission Standards and Test Procedures for 1985 through 2003 Model Heavy-Duty Diesel-Engines and Vehicles,” adopted April 8, 1985, as last amended December 12, 2002, the “California Exhaust Emission Standards and Test Procedures for 2004 and Subsequent Model Heavy-Duty Diesel-Engines and Vehicles,” adopted December 12, 2002, as last amended ~~April 18, 2013~~ [DATE OF AMENDMENT FOR HD GHG Date, 201X] [DATE OF AMENDMENT], and the “California Interim Certification Procedures for 2004 and Subsequent Model Hybrid-Electric Vehicles and Other Hybrid Vehicles, in the Urban Bus and Heavy-Duty Vehicle Classes,” adopted October 24, 2002, as last amended [INSERT DATE OF AMENDMENT FOR HD GHG Date 201X], which are incorporated by reference herein.

\* \* \* \*

(d) *Test Procedures.* The test procedures for determining compliance with standards applicable to 1987 and subsequent model heavy-duty Otto-cycle engines and vehicles are set forth in the “California Exhaust Emission Standards and Test Procedures for 1987 through 2003 Model Heavy-Duty Otto-Cycle Engines and Vehicles,” adopted April 25, 1986, as last amended December 27, 2000, the “California Exhaust Emission Standards and Test Procedures for 2004 and Subsequent Model Heavy-Duty Otto-Cycle Engines and Vehicles,” adopted December 27, 2000, as last amended ~~April 18, 2013~~ [DATE OF AMENDMENT FOR HD GHG Date, 201X] [DATE OF AMENDMENT], the “California Non-Methane Organic Gas Test Procedures,” adopted July 12, 1991, as last amended ~~December 6, 2012~~, and the “California Interim Certification Procedures for 2004 and Subsequent Model Hybrid-Electric and Other Hybrid Vehicles, in the Urban Bus and Heavy-Duty Vehicle Classes,” adopted October 24, 2002, as last amended [DATE OF AMENDMENT FOR HD GHG Date, 201X], which are incorporated by reference herein; and the “California Non-Methane Organic Gas Test Procedures for 1993 through 2016 Model Year Vehicles” and the “California Non-Methane Organic Gas Test Procedures for 2017 and Subsequent Model Year Vehicles,” which are incorporated by reference in section 1961.2.

\* \* \* \*

NOTE: Authority cited: Sections ~~38501, 38505, 38510, 38560, 38580~~, 39500, 39600, 39601, 40000, 43013, 43018, 43100, 43101, 43102, 43104, 43105, 43106, 43107 and 43806, Health and Safety Code; and Section 28114, Vehicle Code. Reference: Sections ~~38501, 38505, 38510, 38560, 38580~~, 39002, 39003, 39010, 39017, 39033, 39500, ~~39600, 39601, 39610, 39650, 39657, 39667, 39701~~, 40000, 43000, 43000.5, 43009, 43009.5, 43013, 43017, 43018, 43100, 43101, 43101.5, 43102, 43104, 43105, 43106, 43107, 43202, 43204, 43205, 43205.5, 43206, 43210, 43211, 43212, 43213 and 43806, Health and Safety Code; and Section 28114, Vehicle Code.

3. Amend title 13, CCR, section 1961.2 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.**

\* \* \* \*

(a) *Exhaust Emission Standards.*

(1) *“LEV III” Exhaust Standards.*

\* \* \* \*

<b>LEV III Exhaust Mass Emission Standards for New 2015 and Subsequent Model Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles<sup>3</sup></b>						
Vehicle Type	Durability Vehicle Basis (mi)	Vehicle Emission Category <sup>2</sup>	NMOG + Oxides of Nitrogen <sup>4</sup> (g/mi)	Carbon Monoxide (g/mi)	Formaldehyde (mg/mi)	Particulates <sup>1</sup> (g/mi)
All PCs; LDTs 8500 lbs. GVWR or less; and 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, excluding MDPVs  Vehicles in this category are tested at their adjusted loaded vehicle weight	150,000	LEV395 <sup>5,6</sup>	0.395	6.4	6	0.12
		ULEV340 <sup>5,6</sup>	0.340	6.4	6	0.06
		ULEV250	0.250	6.4	6	0.06
		ULEV200	0.200	4.2	6	0.06
		SULEV170	0.170	4.2	6	0.06
		SULEV150	0.150	3.2	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 <sup>5,6</sup>	0.630	7.3	6	0.12
		ULEV570 <sup>5,6</sup>	0.570	7.3	6	0.06
		ULEV400	0.400	7.3	6	0.06
		ULEV270	0.270	4.2	6	0.06
		SULEV230	0.230	4.2	6	0.06
		SULEV200	0.200	3.7	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.

<sup>3</sup> These standards apply at both low altitude and high altitude except as noted in footnote 4.

<sup>4</sup> The LEV III NMOG+NOx 150,000-mile exhaust mass emission standards for passenger cars and light-duty trucks that apply at high-altitude conditions are: 0.160 g/mi for LEV160 and ULEV125; 0.105 g/mi for ULEV70; 0.070 g/mi for ULEV50; and 0.050 g/mi for SULEV30 and SULEV20.

<sup>5</sup> These vehicle emission categories are only applicable for the 2015 through 2021 model years.

<sup>6</sup> The following NOx standards also apply for certification testing with emission-data vehicles: 0.2 g/mi for LEV395 and ULEV340; 0.4 g/mi for LEV630 and ULEV570.

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

\* \* \* \*

(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: (1) the percent of PC+LDT+MDPV vehicles meeting the 3 mg/mi particulate standard in the 2019 model year is greater than or equal to the highest percent of PC+LDT+MDPV vehicles meeting the 3 mg/mi particulate standard in the 2016, 2017, and 2018 model years individually; (2) the percent of PC+LDT+MDPV vehicles meeting the 3 mg/mi particulate standard in the 2020 model year is greater than or equal to the highest percent of PC+LDT+MDPV vehicles meeting the 3 mg/mi particulate standard in the 2016, 2017, and 2018 model years individually; and (3) 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. In the 2021 model year, the cumulative total must be equal to or greater than 490, and 100 percent of the manufacturer's passenger cars, light-duty trucks, and medium-duty passenger vehicles must be certified to the 3 mg/mi particulate standard, 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.

\* \* \* \*

(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 4,000-mile 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 CD 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.10, ~~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.

\* \* \* \*

(6) *Highway NMOG + NOx Standard.* The maximum emissions of non-methane organic gas plus oxides of nitrogen measured on the federal Highway Fuel Economy Test (HWFET; 40 CFR ~~§1066.840~~ ~~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+NOx standard set forth in subsection (a)(1). Both the sum of the NMOG+NOx 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+NOx 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+NOx and CO Stand-Alone Exhaust Emission Standards* set forth in subsection (a)(7)(A)1, or in accordance with the *SFTP NMOG+NOx 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. These standards only apply to 2015 through 2016 model year In the case of fuel-flexible vehicles  $\leq$  6,000 lbs. GVWR and 2015 through 2017 model year fuel-flexible vehicles  $>$  6,000 lbs. GVWR when operating on, 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.” 2017 and subsequent model year multi-fueled vehicles (including bi-fueled, dual-fueled and fuel-flexible vehicles)  $\leq$  6,000 lbs. GVWR as well as 2018 and subsequent model year multi-fueled vehicles  $>$  6,000 lbs. GVWR, including vehicles certifying with carryover data, shall comply with all requirements established for each consumed fuel (or blend of fuels in the case of fuel-flexible vehicles).

\* \* \* \*

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. These standards only apply to 2015 through 2016 model year In the case of fuel-flexible vehicles  $\leq$  6,000 lbs. GVWR and 2015 through 2017 model year fuel-flexible vehicles  $>$  6,000 lbs. GVWR when operating on, 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.” 2017 and subsequent model year multi-fueled vehicles (including bi-fueled, dual-fueled and fuel-flexible vehicles) ≤ 6,000 lbs. GVWR as well as 2018 and subsequent model year multi-fueled vehicles > 6,000 lbs. GVWR, including vehicles certifying with carryover data, shall comply with all requirements established for each consumed fuel (or blend of fuels in the case of fuel-flexible 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:

SFTP NMOG+NOx and CO Composite Emission Standards for 2015 and Subsequent Model Passenger Cars, Light-Duty Trucks, and Medium-Duty Passenger Vehicles (g/mi) <sup>1</sup>											
Model Year	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025+
All PCs; LDTs 8,500 lbs. GVWR or less; and MDPVs <sup>3</sup>	<b>Sales-Weighted Fleet Average NMOG+NOx Composite Exhaust Emission Standards<sup>2,4,5,6</sup></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) except LEV II vehicles which are subject to the test weights specified in 1960.1(r), title 13, CCR.	<b>CO Composite Exhaust Emission Standard<sup>7</sup></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 and Cleaner Federal Vehicles.* For test groups certified to LEV II FTP emission standards, SFTP emission values shall be converted to NMOG+NOx and projected out to the same full useful life mileage as their LEV II FTP certification, 120,000 miles or 150,000 miles (~~depending on LEV II FTP certification~~) using deterioration factors or aged components. In lieu of deriving a deterioration factor specific to SFTP test cycles, carry-over LEV II 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 the LEV II SFTP 4k standards, that value may be used in the sales-weighted fleet-average without applying an additional deterioration factor. For federally-certified test groups certifying in California in accordance with Section H.1.4 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 full-useful life emission value used to comply with federal full-useful life SFTP requirements may be used in the sales-weighted fleet-average without applying an additional deterioration factor. . For gasoline-fueled vehicles ~~in all cases~~, 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. LEV II test groups that contain vehicles at or below 6,000 lbs. GVWR shall certify to SFTP bins as described in footnote 4 at the same full useful life mileage as their LEV II FTP certification starting model year 2017 and in each subsequent model year, thereafter. LEV II test groups that only contain vehicles above 6,000 lbs. GVWR shall certify to SFTP bins as described in footnote 4 at the same full useful life mileage as their LEV II FTP certification starting model year 2018 and in each subsequent model year, thereafter. Test groups certifying to bins shall be subject to the in-use requirements in section (a)(8)(c).

<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> LEV III 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 and report to the Executive Officer, 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 2 of this table, for carry-over LEV II test groups. For each test group, the manufacturer shall report to the Executive Officer the composite value of bin and the number of vehicles within the test group.

- <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~~ may not be able to meet ~~comply with 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 and federally-certified test groups certifying in California in accordance with Section H subparagraph 1.4 of "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" 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  $\leq 6,000$  lbs. GVWR certified to LEV III FTP standards prior to model year 2017 and fuel-flexible vehicles  $> 6,000$  lbs. GVWR certified to LEV III FTP standards prior to model year 2018, these standards only apply when the vehicles is operating on 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." 2017 and subsequent model year multi-fueled vehicles (including bi-fueled, dual-fueled and fuel-flexible vehicles)  $\leq 6,000$  lbs. GVWR and 2018 and subsequent model year multi-fueled vehicles  $> 6,000$  lbs. GVWR, including vehicles certifying with carryover data, shall comply with all requirements established for each consumed fuel (or blend of fuels in the case of fuel-flexible 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>					
Vehicle Type	Test Weight	Mileage for Compliance	Test Cycle	PM <sub>2.5</sub> (mg/mi)	
				<u>2018 and Prior Model Years</u>	<u>2019 and Subsequent Model Years</u>
All PCs and LDTs through 8,500 lbs GVWR; MDPVs LDTs 0-6,000 lbs GVWR	Loaded vehicle weight	150,000	US06	10	<u>6</u>
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 section E.1.1.2.1 on a 150,000-mile durability basis shall comply with the SFTP PM Exhaust Emission Standards in this table.

<sup>2</sup> Relaxed Interim Certification Standard. Manufacturers shall certify 2018 and prior model test groups to a relaxed interim US06 PM certification standard of 10 mg/mi. However, all 2019 and subsequent model vehicles certifying to the LEV III FTP PM standard, including those from carryover test groups, shall be subject to the 6 mg/mi US06 PM standard.

(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 certified to LEV III FTP standards prior to model year 2018, 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.” 2018 and subsequent model year multi-fueled vehicles (including bi-fueled, dual-fueled and fuel-flexible vehicles), including vehicles certifying with carryover data, shall comply with all requirements established for each consumed fuel (or blend of fuels in the case of fuel-flexible 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 <sup>e</sup>	HP/GVW R <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) or §1066.105, as applicable, 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 certified prior to the 2018 model year, 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. 2018 and subsequent model year MDVs 8,501-10,000 lbs. GVWR certifying to the FTP ULEV250 and ULEV200 emission categories, including vehicles certifying with carryover data, shall comply with the SFTP ULEV standards set forth in this section E.1.2.2.3, and those certifying to FTP SULEV170 and SULEV150, including vehicles certifying with carryover data, shall comply with the SFTP SULEV standards set forth in this section E.1.2.2.3. 2018 and subsequent model year MDVs 10,001-14,000 lbs. GVWR certifying to FTP ULEV400 and ULEV270 emission categories, including vehicles certifying with carryover data, shall comply with the SFTP ULEV standards set forth in this section E.1.2.2.3, and those certifying to SULEV230 and SULEV200, including vehicles certifying with carryover data, shall comply with the SFTP SULEV standards set forth in this section E.1.2.2.3.

(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 certified to LEV III FTP standards prior to model year 2018, 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.” 2018 and subsequent model year multi-fueled vehicles (including bi-fueled, dual-fueled and fuel-flexible vehicles), including vehicles certifying with carryover data, shall comply with all requirements established for each consumed fuel (or blend of fuels in the case of fuel-flexible 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 R<sup>2</sup></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) or §1066.105, as applicable, 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.

<sup>5</sup> If a manufacturer provides an engineering evaluation for a test group demonstrating that SC03 PM emissions are equivalent to or lower than FTP PM emissions, the FTP PM emission value may be used in lieu of the SC03 PM emission value when determining the composite emission value for that test group.

\* \* \* \*

(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 that are more stringent than the standards to which the test group was certified in a prior model year.

\* \* \* \*

(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+NOx for the first two model years that they are certified to new standards. 2016 and prior model year light-duty and medium-duty passenger vehicle test groups that contain vehicles at or below 6,000 lbs. GVWR, 2017 and prior model year light-duty and medium-duty passenger vehicle test groups with only vehicles above 6,000 lbs. GVWR, and 2019 and prior model year medium-duty vehicle test groups may use an in-use compliance standard for NMOG+NOx for the first two model years that they are certified to LEV III NMOG+NOx standards or a LEV III SFTP NMOG+NOx bin.~~

\* \* \* \*

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. 2020 and prior model year light-duty and medium-duty passenger vehicle test groups, and 2022 and prior model year medium-duty vehicle test groups may use an in-use compliance standard for PM for the first two model years that they are certified to the LEV III 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 10 mg/mi ~~higher than the applicable certification standard.~~

\* \* \* \*

(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. This credit can only be used for determining compliance with the exhaust standards in subsection (a)(1) or subsection 1961(a)(1), as applicable.

(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, and in Table 2 of 40 CFR §86.1811.17(b), as adopted April 28, 2014. 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.”

\* \* \* \*

(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 4964(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) *Calculation of Fleet Average NMOG + NOx Value.*

\* \* \* \*

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. For the purpose of applying this formula to light-duty off-vehicle charge capable hybrid electric vehicles that are certified to the LEV II standards set forth in subsection 1961(a)(1), a LEV II LEV shall use the formula for LEV160, a LEV II ULEV shall use the formula for ULEV125, and a LEV II SULEV shall use the formula for SULEV30.:

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

Where the Zero-emission VMT Allowance for 2015 through 2017 model year 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~~ For the 2018 and subsequent model years, the Zero-emission VMT Allowance is equal to the sum of the Zero-Emission Vehicles Miles Traveled TZEV Allowance and the Allowance for US06 Capability in section C.3.3 of 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 f~~ 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~~2016 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~~the 2017 through 2021 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~~2022 and subsequent model years, a small volume manufacturer shall not exceed a fleet average NMOG+NOx value of ~~0.070~~0.051 g/mi for PCs and LDTs from 0-3750 lbs. LVW or ~~0.070~~0.051 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.

\* \* \* \*

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

(A) Requirement for Manufacturers Other than Small Volume Manufacturers. 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) <sup>1</sup> (%)				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

<sup>1</sup> The LEV II LEV, LEV II ULEV, LEV III LEV395, LEV630, ULEV340, and ULEV570 emission categories are only applicable for the 2015 through 2021 model years.

\* \* \* \*

(C) Alternate Phase-In Schedules for LEV III MDVs.

1. Alternate Phase-In Schedules for LEV III MDVs for All Manufacturers.

a. For the 2016 and subsequent model years, the fleet average non methane organic gas plus oxides of nitrogen exhaust mass emission values from the medium-duty vehicles produced and delivered for sale in California each model year shall not exceed:

<u>FLEET AVERAGE NON-METHANE ORGANIC GAS PLUS OXIDES OF NITROGEN EXHAUST MASS EMISSION REQUIREMENTS FOR MEDIUM-DUTY VEHICLES (150,000 mile Durability Vehicle Basis)</u>		
<u>Model Year</u>	<u>Fleet Average NMOG + NOx (g/mi)</u>	
	<u>MDVs 8,501 - 10,000 lbs. GVWR</u>	<u>MDVs 10,001-14,000 lbs. GVWR</u>
<u>2016</u>	<u>0.333</u>	<u>0.548</u>
<u>2017</u>	<u>0.310</u>	<u>0.508</u>
<u>2018</u>	<u>0.278</u>	<u>0.451</u>
<u>2019</u>	<u>0.253</u>	<u>0.400</u>
<u>2020</u>	<u>0.228</u>	<u>0.349</u>
<u>2021</u>	<u>0.203</u>	<u>0.298</u>
<u>2022+</u>	<u>0.178</u>	<u>0.247</u>

b. Each manufacturer's fleet average NMOG+NOx value for the total number of MDVs 8,501 - 10,000 lbs. GVWR produced and delivered for sale in California shall be calculated as follows:

$$\frac{(\sum [\text{Number of MDVs 8,501 - 10,000 lbs. GVWR in a test group excluding off-vehicle charge capable hybrid electric vehicles x applicable emission standard}] + \sum [\text{Number of off-vehicle charge capable hybrid electric vehicles in a test group x HEV NMOG+NOx contribution factor}]) \div \text{Total Number of MDVs 8,501 - 10,000 lbs. GVWR Produced and Delivered for sale in California, Including ZEVs and HEVs}}$$

c. Each manufacturer's fleet average NMOG+NOx value for the total number of MDVs 10,001-14,000 lbs. GVWR produced and delivered for sale in California shall be calculated as follows:

$$\frac{(\sum [\text{Number of MDVs 10,001 - 14,000 lbs. GVWR in a test group excluding off-vehicle charge capable hybrid electric vehicles x applicable emission standard}] + \sum [\text{Number of off-vehicle charge capable hybrid electric vehicles in a test group x HEV NMOG+NOx contribution factor}]) \div \text{Total Number of MDVs 10,001 - 14,000 lbs. GVWR Produced and Delivered for sale in California, Including ZEVs and HEVs}}$$

HEV NMOG+NOx contribution factor]) ÷  
Total Number of MDVs 10,001 - 14,000 lbs. GVWR Produced and  
Delivered for sale in California, Including ZEVs and HEVs

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

<u>Model Year</u>	<u>Emission Category</u>	<u>Emission Standard Value (g/mi)</u>
<u>2016 and subsequent model year federally-certified vehicles</u>	<u>All</u>	<u>Sum of the full useful life NMOG and NOx Federal Emission Standards or full useful life NMOG+NOx Federal Emission Standard to which Vehicle is Certified</u>
<u>2016 through 2019 model year vehicles certified to the "LEV II" standards in subsection 1961(a)(1)</u>	<u>All</u>	<u>Sum of the full useful life NMOG and NOx LEV II Emission Standards to which Vehicle is Certified</u>
<u>2016 and subsequent model year vehicles certified to the "LEV III" standards in subsection (a)(1)</u>	<u>All</u>	<u>Full useful life NMOG+NOx LEV III Emission Standards to which Vehicle is Certified</u>

e. NMOG+NOx Contribution Factor for Off-vehicle Charge Capable HEVs. The HEV NMOG+NOx contribution factors for medium-duty off-vehicle charge capable hybrid electric vehicles are calculated as follows.

The Zero-emission VMT Allowance for 2016 and 2017 model year 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." For the 2018 and subsequent model years, the Zero-emission VMT Allowance is equal to the sum of the Zero-Emission Vehicles Miles Traveled TZEV Allowance and the Allowance for US06 Capability in section C.3.3 of 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. For

the purposes of this subsection (b)(3)(C)1.e, the maximum allowable Zero-emission VMT Allowance that may be used in these equations is 1.0.

i. *NMOG+NO<sub>x</sub> Contribution Factor for Off-vehicle Charge Capable HEVs 8,501 - 10,000 lbs. GVWR.* The HEV NMOG+NO<sub>x</sub> contribution factors for medium-duty off-vehicle charge capable hybrid electric vehicles 8,501 - 10,000 lbs. GVWR are calculated as follows.

For the purpose of applying this formula to medium-duty off-vehicle charge capable hybrid electric vehicles 8,501 - 10,000 lbs. GVWR that are certified to the LEV II standards set forth in subsection 1961(a)(1), a LEV II LEV shall use the formula for LEV395, a LEV II ULEV shall use the formula for ULEV340, and a LEV II SULEV shall use the formula for ULEV200.

LEV395 HEV Contribution Factor = 0.395 - [(Zero-emission VMT Allowance) x 0.055]  
ULEV340 HEV Contribution Factor = 0.340 - [(Zero-emission VMT Allowance) x 0.090]  
ULEV250 HEV Contribution Factor = 0.250 - [(Zero-emission VMT Allowance) x 0.050]  
ULEV200 HEV Contribution Factor = 0.200 - [(Zero-emission VMT Allowance) x 0.030]  
SULEV170 HEV Contribution Factor = 0.170 - [(Zero-emission VMT Allowance) x 0.020]  
SULEV150 HEV Contribution Factor = 0.150 - [(Zero-emission VMT Allowance) x 0.020]

ii. *NMOG+NO<sub>x</sub> Contribution Factor for Off-vehicle Charge Capable HEVs 10,001 - 14,000 lbs. GVWR.* The HEV NMOG+NO<sub>x</sub> contribution factors for medium-duty off-vehicle charge capable hybrid electric vehicles 10,001 - 14,000 lbs. GVWR are calculated as follows.

For the purpose of applying this formula to medium-duty off-vehicle charge capable hybrid electric vehicles 10,001 - 14,000 lbs. GVWR that are certified to the LEV II standards set forth in subsection 1961(a)(1), a LEV II LEV shall use the formula for LEV630, a LEV II ULEV shall use the formula for ULEV570, and a LEV II SULEV shall use the formula as follows.

LEV II SULEV HEV Contribution Factor = 0.327 - [(Zero-emission VMT Allowance) x 0.057]

LEV630 HEV Contribution Factor = 0.630 - [(Zero-emission VMT Allowance) x 0.060]  
ULEV570 HEV Contribution Factor = 0.570 - [(Zero-emission VMT Allowance) x 0.170]  
ULEV400 HEV Contribution Factor = 0.400 - [(Zero-emission VMT Allowance) x 0.130]  
ULEV270 HEV Contribution Factor = 0.270 - [(Zero-emission VMT Allowance) x 0.040]  
SULEV230 HEV Contribution Factor = 0.230 - [(Zero-emission VMT Allowance) x 0.030]  
SULEV200 HEV Contribution Factor = 0.200 - [(Zero-emission VMT Allowance) x 0.030]

2. *Alternate Phase-In Schedules for LEV III MDVs for Manufacturers with a Limited Number of Test Groups.* 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.

a4. 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.

\* \* \* \*

b2. 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.

\* \* \* \*

c3. 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.

\* \* \* \*

d4. 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.

\* \* \* \*

(4) *SFTP Phase-In Requirements.*

\* \* \* \*

(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 certified prior to the 2018 model year, 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. 2018 and subsequent

model year MDVs 8,501-10,000 lbs. GVWR certifying to the FTP ULEV250 and ULEV200 emission categories, including vehicles certifying with carryover data, shall comply with the SFTP ULEV standards set forth in this section E.1.2.2.3, and those certifying to FTP SULEV170 and SULEV150, including vehicles certifying with carryover data, shall comply with the SFTP SULEV standards set forth in this section E.1.2.2.3. 2018 and subsequent model year MDVs 10,001-14,000 lbs. GVWR certifying to FTP ULEV400 and ULEV270 emission categories, including vehicles certifying with carryover data, shall comply with the SFTP ULEV standards set forth in this section E.1.2.2.3, and those certifying to SULEV230 and SULEV200, including vehicles certifying with carryover data, shall comply with the SFTP SULEV standards set forth in this section E.1.2.2.3.

\* \* \* \*

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

\* \* \* \*

(2) Calculation of NMOG+NOx Credits and Debits for Medium-Duty Vehicles Other than MDPVs.

(A2) Calculation of Vehicle-Equivalent NMOG + NOx Credits for Medium-Duty Vehicles Other than MDPVs.

1.(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:

\* \* \* \*

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

\* \* \* \*

3.(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).

(B) Calculation of Fleet Average NMOG+NOx Credits and Debits for Medium-Duty Vehicles Other than MDPVs.

1. In 2016 and subsequent model years, a manufacturer shall calculate its medium-duty vehicle fleet average credits or debits using the following equation.

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

2. In 2016 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 2016 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. Medium-duty fleet average credits and debits earned in accordance with subsection (c)(2)(B) may not be summed together with fleet average credits and debits earned for passenger cars, light-duty trucks, and medium-duty passenger vehicles in accordance with subsection (c)(1).

(C) Only ZEVs certified as MDVs and not used to meet the ZEV requirement shall be included in the calculation of VECs or the calculation of NMOG+NOx credits and debits.

(3) *Procedure for Offsetting Debits.*

(A) A manufacturer shall equalize emission debits by earning g/mi NMOG+NOx emission credits or VECs in an amount equal to the g/mi NMOG+NOx debits or VEDs, or by submitting a commensurate amount of g/mi NMOG+NOx credits or VECs to the Executive Officer that were earned previously or acquired from another manufacturer. A manufacturer shall equalize NMOG+NOx debits for PCs, LDTs, and MDPVs and VEC debits or NMOG+NOx debits, as applicable, 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+NOx emission debits for the model year by the g/mi NMOG+NOx 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 or shall be determined by dividing the total amount of g/mi NMOG+NOx emission debits for the model year by the g/mi NMOG+NOx fleet average requirement for MDVs 8,501-10,000 lbs. GVW and for MDVs 10,001 lbs. – 14,000 lbs. GVW applicable for the model year in which the debits were first incurred.

\* \* \* \*

(5) Changing Vehicle-Equivalent Credits and Debts to NMOG+NOx Fleet Average Credits and Debts. The value of any vehicle-equivalent credits and debits earned in accordance with subsection (c)(2) or subsection 1961(c)(2) shall be converted to NMOG+NOx fleet average credits and debits using the provisions in subsection (c)(2)(B), for each model year in which the credits or debits are accrued. For the purpose of applying the formula in subsection (c)(2)(B)1, for credits and debits earned in accordance with subsection 1961(c)(2), the Fleet Average NMOG+NOx Requirement is 0.364 g/mi for MDVs between 8,501-10,000 lbs. GVWR and 0.592 g/mi for MDVs between 10,001-14,000 lbs. GVWR. These credits and debits are subject to the provisions in subsection (c)(3) or subsection 1961(c)(3), as applicable, based on the model year in which they are first earned as vehicle-equivalent credits or debits.

\* \* \* \*

(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~~ amended [INSERT DATE OF AMENDMENT], the “California Non-Methane Organic Gas Test Procedures for 1993 through 2016 Model Year Vehicles,” as amended ~~March 22, 2012~~ [INSERT DATE OF AMENDMENT], and the “California Non-Methane Organic Gas Test Procedures for 2017 and Subsequent Model Year Vehicles,” as adopted [INSERT DATE OF ADOPTION], 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.

\* \* \* \*

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.

4. Amend title 13, CCR, section 1962.2 to read as follows:

**§ 1962.2. Zero-Emission Vehicle Standards for 2018 and Subsequent Model Year Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles.**

\* \* \* \*

**(h) Test Procedures.**

**(1) Determining Compliance.** The certification requirements and test procedures for determining compliance with this section 1962.2 are set forth in "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," adopted March 22, 2012, last amended ~~May 30, 2014~~ [INSERT DATE OF AMENDMENT], which is incorporated herein by reference.

\* \* \* \*

Note: Authority cited: Sections 39600, 39601, 43013, 43018, 43101, 43104 and 43105, Health and Safety Code. Reference: Sections 38562, 39002, 39003, 39667, 43000, 43009.5, 43013, 43018, 43018.5, 43100, 43101, 43101.5, 43102, 43104, 43105, 43106, 43107, 43204, and 43205.5, Health and Safety Code.

5. Amend title 13, CCR, section 1965 to read as follows:

**§ 1965. Emission Control, Smog Index, and Environmental Performance Labels - 1979 and Subsequent Model-Year Motor Vehicles.**

In addition to all other requirements, emission control labels are required by the California certification procedures contained in the “California Motor Vehicle Emission Control and Smog Index Label Specifications for 1978 through 2003 Model Year Motorcycles, Light-, Medium- And Heavy-Duty Engines And Vehicles,” adopted March 1, 1978, as last amended September 5, 2003, which is incorporated herein by reference, the “California 2001 through 2014 Model Criteria Pollutant Exhaust Emission Standards and Test Procedures and 2009 through 2016 Model Greenhouse Gas Exhaust Emission Standards and Test Procedures for Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles,” incorporated by reference in §1961(d), 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,” incorporated by reference in §1961.2(d), the “California Exhaust Emission Standards and Test Procedures for 2004 and Subsequent Model Heavy-Duty Diesel-Engines and Vehicles,” incorporated by reference in §1956.8(b), the “California Interim Certification Procedures for 2004 and Subsequent Model Hybrid-Electric Vehicles, in the Urban Bus and Heavy-Duty Vehicle Classes,” incorporated by reference in §1956.8(b) and (d), and the “California Exhaust Emission Standards and Test Procedures for 2004 and Subsequent Model Heavy-Duty Otto-Cycle Engines,” incorporated by reference in §1956.8(d). Smog index labels for passenger cars and light-duty trucks shall conform to the “California Smog Index Label Specifications for 2004 through 2009 Model Year Passenger Cars and Light-Duty Trucks,” adopted September 5, 2003, as last amended May 2, 2008, which is incorporated herein by reference. Environmental Performance labels for passenger cars, light-duty trucks, and medium-duty passenger vehicles shall conform to the “California Environmental Performance Label Specifications for 2009 and Subsequent Model Year Passenger Cars, Light-Duty Trucks, and Medium-Duty Passenger Vehicles,” adopted May 2, 2008, as last amended ~~March 22, 2012~~[INSERT DATE OF AMENDMENT], which is incorporated herein by reference. Motorcycles shall meet the requirements of Title 40 Code of Federal Regulations section 86.413-78, as last amended October 28, 1977, which is incorporated herein by reference.

Note: Authority cited: Sections 39600, 39601, 43200, and 43200.1, Health and Safety Code.  
Reference: Sections 39002, 39003, 43000, 43013, 43018.5, 43100, 43101, 43102, 43104, 43107, 43200, and 43200.1, Health and Safety Code.

6. Amend title 13, CCR, section 1976 to read as follows:

**§ 1976. Standards and Test Procedures for Motor Vehicle Fuel Evaporative Emissions.**

\* \* \* \*

(b)(1) Evaporative emissions for 1978 and subsequent model gasoline fueled, 1983 and subsequent model liquefied petroleum gas fueled, and 1993 and subsequent model alcohol fueled motor vehicles and hybrid electric vehicles subject to exhaust emission standards under this article, except petroleum fueled diesel vehicles, compressed natural gas fueled vehicles, hybrid electric vehicles that have sealed fuel systems which can be demonstrated to have no evaporative emissions, and motorcycles, shall not exceed the following standards:

\* \* \* \*

(G) For 2015 and subsequent model motor vehicles, the following evaporative emission requirements apply:

1. A manufacturer must certify all vehicles subject to this section to the emission standards specified in either Option 1 or Option 2 below.

\* \* \* \*

b *Option 2.* The evaporative emissions from 2015 and subsequent model motor vehicles, tested in accordance with the test procedure sequence described in the "California Evaporative Emission Standards and Test Procedures for 2001 and Subsequent Model Motor Vehicles," incorporated by reference in section 1976(c), shall not exceed:

Vehicle Type	Hydrocarbon <sup>(1)</sup> Emission Standards <sup>(2)</sup>		
	Running Loss (grams per mile)	Highest Whole Vehicle Diurnal + Hot Soak <sup>(3)(4)(5)</sup> (grams per test)	Canister Bleed <sup>(6)</sup> (grams per test)
Passenger cars; and Light-duty trucks 6,000 lbs. GVWR and under, and 0 - 3,750 lbs. LVW	0.05	0.300	0.020
Light-duty trucks 6,000 lbs. GVWR and under, and 3,751 – 5,750 lbs. LVW	0.05	0.400	0.020
Light-duty trucks 6,001 - 8,500 lbs. GVWR; and Medium-duty passenger vehicles	0.05	0.500	0.020
Medium-duty vehicles (8,501 - 14,000 lbs. GVWR); and Heavy-duty vehicles (over 14,000 lbs. GVWR)	0.05	0.600	0.030

- 1 Organic Material Hydrocarbon Equivalent for alcohol-fueled vehicles.
- 2 ~~Except as provided below, for all vehicles certified to the running loss and the highest whole vehicle diurnal plus hot soak emission these standards, the “useful life” shall be 15 years or 150,000 miles, whichever occurs first. For 2016 and previous model vehicles, 2017 and previous model vehicles >6,000 lbs. GVWR, and 2021 and previous model vehicles certified by a small volume manufacturer, the canister bleed standards are certification standards only. Manufacturers are not required to establish deterioration factors for canister bleed emissions. Approval of vehicles that are not exhaust emission tested using a chassis dynamometer pursuant to section 1961, title 13, California Code of Regulations shall be based on an engineering evaluation of the system and data submitted by the applicant. The canister bleed emission standard does not have a useful life requirement.~~
- 3 The manufacturer shall determine compliance by selecting the highest whole vehicle diurnal plus hot soak emission value of the Three-Day Diurnal Plus Hot Soak Test and of the Two-Day Diurnal Plus Hot Soak Test.
- 4 *Fleet-Average Option for the Highest Whole Vehicle Diurnal Plus Hot Soak Emission Standard Within Each Emission Standard Category.* A manufacturer may optionally comply with the highest whole vehicle diurnal plus hot soak emission standards by using fleet-average hydrocarbon emission values. To participate, a manufacturer must utilize the fleet-average option for all of its emission standard categories and calculate a separate fleet-average hydrocarbon emission value for each emission standard category. The emission standard categories are as follows: (1) passenger cars and light-duty trucks 6,000 pounds GVWR and under, and 0 - 3,750 pounds LVW; (2) light-duty trucks 6,000 pounds GVWR and under, and 3,751 – 5,750 pounds LVW; (3) light-duty trucks

6,001 - 8,500 pounds GVWR and medium-duty passenger vehicles; and (4) medium-duty and heavy-duty vehicles. The fleet-average hydrocarbon emission value for each emission standard category shall be calculated as follows:

$$\frac{\sum_{i=1}^n [( \text{number of vehicles in the evaporative family} )_i \times (\text{family emission limit})_i]}{\sum_{i=1}^n (\text{number of vehicles in the evaporative family})_i}$$

where "n" = a manufacturer's total number of Option 2 certification evaporative families within an emission standard category for a given model year;

"number of vehicles in the evaporative family" = the number of vehicles produced and delivered for sale in California in the evaporative family;

"family emission limit" = the numerical value selected by the manufacturer for the evaporative family that serves as the emission standard for the evaporative family with respect to all testing, instead of the emission standard specified in this section 1976 (b)(1)(G)1.b. The family emission limit shall not exceed 0.500 grams per test for passenger cars; 0.650 grams per test for light duty trucks 6,000 pounds GVWR and under; 0.900 grams per test for light-duty trucks 6,001 - 8,500 pounds GVWR; and 1.000 grams for medium-duty passenger vehicles, medium-duty vehicles, and heavy-duty vehicles. In addition, the family emission limit shall be set in increments of 0.025 grams per test.

\* \* \* \*

<sup>6</sup> *Vehicle Canister Bleed Emission.* Compliance with the canister bleed emission standard shall be determined based on the Bleed Emission Test Procedure described in the "California Evaporative Emission Standards and Test Procedures for 2001 and Subsequent Model Motor Vehicles," incorporated by reference in section 1976(c), and demonstrated on a stabilized canister system. Vehicles with a non-integrated refueling canister-only system are exempt from the canister bleed emission standard.

2. *Phase-In Schedule.* For each model year, a manufacturer shall certify, at a minimum, the specified percentage of its vehicle fleet to the evaporative emission standards set forth in section 1976(b)(1)(G)1.a. or section 1976(b)(1)(G)1.b., according to the schedule set forth below. For the purpose of this section 1976(b)(1)(G)2., the manufacturer's vehicle fleet consists of the vehicles produced and delivered for sale by the manufacturer in California that are subject to the emission standards in section 1976(b)(1)(G)1. All 2015 through 2022 model motor vehicles that are not subject to these standards pursuant to the phase-in schedule shall comply with the requirements for 2004 through 2014 model motor vehicles, as described in section 1976(b)(1)(F).

<i>Model Years</i>	<i>Minimum Percentage of Vehicle Fleet <sup>(1)(2)</sup></i>
2015, 2016, and 2017	Average of vehicles certified to section 1976(b)(1)(E) in model years 2012, 2013, and 2014 <sup>(3)(4)</sup>
2018 and 2019	60
2020 and 2021	80
2022 and subsequent	100

- 1 For the 2018 through 2022 model years only, a manufacturer may use an alternate phase-in schedule to comply with the phase-in requirements. An alternate phase-in schedule must achieve equivalent compliance volume by the end of the last model year of the scheduled phase-in (2022). The compliance volume is the number calculated by multiplying the percent of vehicles (based on the ~~manufacturer's projected sales volume of all vehicles~~ vehicles produced and delivered for sale by the manufacturer in California) meeting the new requirements in each model year by the number of years implemented prior to and including the last model year of the scheduled phase-in, then summing these yearly results to determine a cumulative total. The cumulative total of the five year (60/60/80/80/100) scheduled phase-in set forth above is calculated as follows: (60\*5 years) + (60\*4 years) + (80\*3 years) + (80\*2 years) + (100\*1 year) = 1040. Accordingly, the required cumulative total for any alternate phase-in schedule of these emission standards is 1040. The Executive Officer shall consider acceptable any alternate phase-in schedule that results in an equal or larger cumulative total by the end of the last model year of the scheduled phase-in (2022).
- 2 Small volume manufacturers are not required to comply with the phase-in schedule set forth in this table. Instead, they shall certify 100 percent of their 2022 and subsequent model year vehicle fleet to the evaporative emission standards set forth in section 1976(b)(1)(G)1.a. or section 1976(b)(1)(G)1.b.
- 3 The percentage of vehicle fleet averaged across the 2015, 2016, and 2017 model years shall be used to determine compliance with this requirement.
- 4 The minimum percentage required in the 2015, 2016, and 2017 model years is determined by averaging the percentage of vehicles certified to the emission standards in section 1976(b)(1)(E) in each of the manufacturer's 2012, 2013, and 2014 model year vehicle fleets. For the purpose of calculating this average, a manufacturer shall use the percentage of vehicles produced and delivered for sale in California for the 2012, 2013, and 2014 model years. A manufacturer may calculate this average percentage using the projected sales for these model years in lieu of actual sales.

3. *Carry-Over of 2014 Model-Year Evaporative Families Certified to the Zero-Fuel Evaporative Emission Standards.* A manufacturer may carry over 2014 model motor vehicles certified to the zero-fuel (0.0 grams per test) evaporative emission standards set forth in section 1976(b)(1)(E) through the ~~2018~~ 2019 model year and be considered

compliant with the requirements of section 1976(b)(1)(G)1. For all motor vehicles that are certified via this carry-over provision, the emission standards set forth in section 1976(b)(1)(E) shall apply when determining in-use compliance throughout the vehicle's useful life. If the manufacturer chooses to participate in the fleet-average option for the highest whole vehicle diurnal plus hot soak emission standard, the following family emission limits are assigned to these evaporative families for the calculation of the manufacturer's fleet-average hydrocarbon emission value.

<i>Vehicle Type</i>	<i>Highest Whole Vehicle Diurnal + Hot Soak (grams per test)</i>
Passenger cars	0.300
Light-duty trucks 6,000 lbs. GVWR and under, and 0 - 3,750 lbs. LVW	0.300
Light-duty trucks 6,000 lbs. GVWR and under, and 3,751 – 5,750 lbs. LVW	0.400
Light-duty trucks 6,001 - 8,500 lbs. GVWR	0.500

\* \* \* \*

6. Effective leak diameter standard and procedure.

Manufacturers shall demonstrate that for 2018 and subsequent model vehicles ≤14,000 lbs. GVWR certifying to the evaporative emission standards set forth in 1976(b)(1)(G), fuel systems do not exceed an effective leak diameter of 0.02 inches when tested in accordance with the test procedure sequence described in the “California Evaporative Emission Standards and Test Procedures for 2001 and Subsequent Model Motor Vehicles,” incorporated by reference in section 1976(c). This requirement does not apply to 2021 and previous model vehicles certified by a small volume manufacturer. For vehicles with fuel tanks exceeding 25 gallons nominal fuel tank capacity, manufacturers may request approval from the Executive Officer for a leak standard greater than 0.020 inches, up to a maximum value of 0.040 inches.

7. Auxiliary engines and fuel systems. For 2017 and subsequent model vehicles ≤6,000 lbs. GVWR equipped with an auxiliary engine and 2018 and subsequent model vehicles >6,000 lbs. GVWR

equipped with an auxiliary engine, manufacturers shall demonstrate compliance in accordance with the provisions set forth in the “California Evaporative Emission Standards and Test Procedures for 2001 and Subsequent Model Motor Vehicles,” incorporated by reference in section 1976(c). These requirements do not apply to 2021 and previous model vehicles certified by a small volume manufacturer.

\* \* \* \*

(c) The test procedures for determining compliance with the standards in subsection (b) above applicable to 1978 through 2000 model year vehicles are set forth in “California Evaporative Emission Standards and Test Procedures for 1978-2000 Model Motor Vehicles,” adopted by the state board on April 16, 1975, as last amended August 5, 1999, which is incorporated herein by reference. The test procedures for determining compliance with standards applicable to 2001 and subsequent model year vehicles are set forth in the “California Evaporative Emission Standards and Test Procedures for 2001 and Subsequent Model Motor Vehicles,” adopted by the state board on August 5, 1999, and as last amended ~~December 6, 2012~~ [INSERT DATE OF AMENDMENT], which is incorporated herein by reference.

\* \* \* \*

Note: Authority cited: Sections 39500, 39600, 39601, 39667, 43013, 43018, 43101, 43104, 43105, 43106 and 43107, Health and Safety Code. Reference: Sections 39002, 39003, 39500, 39667, 43000, 43009.5, 43013, 43018, 43100, 43101, 43101.5, 43102, 43104, 43105, 43106, 43107, 43204 and 43205 Health and Safety Code.

7. Amend title 13, CCR, section 1978 to read as follows:

**§1978. Standards and Test Procedures for Vehicle Refueling Emissions.**

(a)(1) Vehicle refueling emissions for 1998 and subsequent model gasoline-fueled, alcohol-fueled, diesel-fueled, liquefied petroleum gas-fueled, fuel-flexible, and hybrid electric passenger cars, light-duty trucks, and medium-duty vehicles with a gross vehicle weight rating less than 8501 pounds, ~~and 2015 and subsequent model gasoline-fueled, alcohol-fueled, diesel-fueled, liquefied petroleum gas-fueled, fuel-flexible, and hybrid electric medium-duty vehicles with a gross vehicle weight rating between 8,501 and 14,000 pounds, and 2022 and subsequent model gasoline-fueled, alcohol-fueled, diesel-fueled, liquefied petroleum gas-fueled, fuel-flexible, and hybrid electric heavy-duty vehicles with a gross vehicle weight rating greater than 14,000 pounds~~ shall not exceed the following standards. Natural gas-fueled vehicles are exempt from meeting these refueling standards, but the refueling receptacles on natural gas-fueled vehicles must comply with the receptacle provisions of the American National Standards Institute/~~American Gas Association~~ Standard for Compressed Natural Gas Vehicle Fueling Connection Devices, ANSI/~~AGA~~ NGV1-~~2006 standard~~ 1994, which is incorporated herein by reference. The standards apply equally to certification and in-use vehicles.

Hydrocarbons (for gasoline-fueled, diesel-fueled, and hybrid electric vehicles): 0.20 gram per gallon of fuel dispensed.

Organic Material Hydrocarbon Equivalent (for alcohol-fueled, fuel-flexible, and hybrid electric vehicles): 0.20 gram per gallon of fuel dispensed.

Hydrocarbons (for liquefied petroleum gas-fueled vehicles): 0.15 gram per gallon of fuel dispensed.

(2) Vehicles powered by diesel fuel are not required to conduct testing to demonstrate compliance with the refueling emission standards set forth above, provided that ~~all of the following provisions are met:~~

(A) ~~The manufacturer shall attest to the following evaluation: "Due to the low vapor pressure of diesel fuel and the vehicle tank temperatures, hydrocarbon vapor concentrations are low and~~ that the vehicle meets the 0.20 grams/gallon refueling emission standard ~~without a control system; and~~

(B) The certification requirement described in paragraph (A) is provided in writing and applies for the full useful life of the vehicle, as defined in section 2112.

In addition to the above provisions, the ARB reserves the authority to require testing to enforce compliance and to prevent noncompliance with the refueling emission standard.

Vehicles certified to the refueling emission standard under this provision shall not be counted in the phase-in sales percentage compliance determinations.

\* \* \* \*

(4) ~~Beginning with model year 2015, a~~ All vehicles subject to the refueling emission standards in section 1978(a)(1) shall demonstrate compliance except incomplete vehicles of 14,000 pounds gross vehicle weight rating or less that are certified as incomplete vehicles for the purposes of evaporative emissions testing as set forth in the "California Evaporative Emission Standards and Test Procedures for 2001 and Subsequent Model Motor Vehicles," incorporated by reference in section 1976.

(5) *Carry-Over of 2014 Model Year Families:* 2014 model year motor vehicles certified to the refueling emission standards of section 1978(a)(1) may carry over to the 2015 through 2018 model years and be considered compliant.

(b) The test procedures for determining compliance with standards applicable to 1998 through 2000 gasoline, alcohol, diesel, and hybrid electric passenger cars, light-duty trucks, and medium-duty vehicles are set forth in the "California Refueling Emission Standards and Test Procedures for 1998-2000 Model Year Motor Vehicles," as amended August 5, 1999, which is incorporated herein by reference. The test procedures for determining compliance with standards applicable to 2001 and subsequent gasoline, alcohol, diesel, and hybrid electric passenger cars, light-duty trucks, and medium-duty vehicles are set forth in the "California Refueling Emission Standards and Test Procedures for 2001 and Subsequent Model Motor Vehicles," adopted August 5, 1999, and last amended ~~March 22, 2012~~ [INSERT DATE OF AMENDMENT], which is incorporated herein by reference.

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