United States Environmental Protection Agency

Light-Duty Vehicles and Light-Duty Trucks: Tier 0, Tier 1, National Low Emission Vehicle (NLEV), and Clean Fuel Vehicle (CFV) Exhaust Emission Standards

Vehicle Type	Emission Category	Vehicle Useful Life													
		5 Years / 50,000 Miles							10 Years / 100,000 Miles						
		THC [a,b,c] (g/mi)	NMHC [d] (g/mi)	NMOG (g/mi)	CO [c,e] (g/mi)	NOx (g/mi)	PM [f] (g/mi)	HCHO (g/mi)	THC [a,b] (g/mi)	NMHC [d] (g/mi)	NMOG (g/mi)	CO [g] (g/mi)	NOx (g/mi)	PM [f] (g/mi)	HCHO (g/mi)
Federal — LDV [h,i,j]	Tier 0	0.41	0.34 [l]	-	3.4	1	0.20 [n]	-	-	-	-	-	-	-	-
	Tier 1	0.41 [k]	0.25	-	3.4	0.4 [m]	0.08	-	-	0.31	-	4.2	0.6 [o]	0.1	-
Federal — LDT1 [h,i,j]	Tier 0 [p]	-	-	-	-	-	-	-	0.8	0.67 [l]	-	10	1.2	0.26 [n]	-
	Tier 1	-	0.25	-	3.4	0.4 [m]	0.08	-	0.80 [k,p]	0.31	-	4.2	0.6 [o]	0.1	-
Federal — LDT2 [h,i,j]	Tier 0 [p]	-	-	-	-	-	-	-	0.8	0.67 [l]	-	10	1.7	0.13 [n]	-
	Tier 1	-	0.32	-	4.4	0.7 [q]	0.08	-	0.80 [k,p]	0.4	-	5.5	0.97	0.1	-
Federal NLEV — LDV [i,r,s]	TLEV	0.41 [k]	-	0.125 [u,v]	3.4	0.4 [w]	0.08	0.015	-	-	0.156 [u,v]	4.2	0.6 [w]	0.08 [x]	0.018
	LEV [t]	0.41 [k]	-	0.075 [u,v]	3.4	0.2 [w]	0.08	0.015	-	-	0.090 [u,v]	4.2	0.3 [w]	0.08 [x]	0.018
	ULEV [t]	0.41 [k]	-	0.040 [u,v]	1.7	0.2 [w]	0.08	0.008	-	-	0.055 [u,v]	2.1	0.3 [w]	0.04 [x]	0.011
	ZEV [t]	0	0	0	0	0.0 [w]	0	0	0	0	0	0	0.0 [w]	0	0
Federal NLEV — LDT1 [i,r,s]	TLEV	-	-	0.125 [u,v]	3.4	0.4 [w]	0.08	0.015	0.80 [k,p]	-	0.156 [u,v]	4.2	0.6 [w]	0.08 [x]	0.018
	LEV [t]	-	-	0.075 [u,v]	3.4	0.2 [w]	0.08	0.015	0.80 [k,p]	-	0.090 [u,v]	4.2	0.3 [w]	0.08 [x]	0.018
	ULEV [t]	-	-	0.040 [u,v]	1.7	0.2 [w]	0.08	0.008	0.80 [k,p]	-	0.055 [u,v]	2.1	0.3 [w]	0.04 [x]	0.011
	ZEV [t]	0	0	0	0	0.0 [w]	0	0	0	0	0	0	0.0 [w]	0	0
Federal NLEV — LDT2 [i,r,s]	TLEV	-	-	0.160 [u,v]	4.4	0.7 [w]	0.08	0.018	0.80 [k,p]	-	0.200 [u,v]	5.5	0.9 [w]	0.10 [x]	0.023
	LEV [t]	-	-	0.100 [u,v]	4.4	0.4 [w]	0.08	0.018	0.80 [k,p]	-	0.130 [u,v]	5.5	0.5 [w]	0.10 [x]	0.023
	ULEV [t]	-	-	0.050 [u,v]	2.2	0.4 [w]	0.08	0.009	0.80 [k,p]	-	0.070 [u,v]	2.8	0.5 [w]	0.05 [x]	0.013
	ZEV [t]	0	0	0	0	0.0 [w]	0	0	0	0	0	0	0.0 [w]	0	0
Federal CFV — LDV [h,i,s]	LEV	0.41 [k]	-	0.075 [z]	3.4	0.2 [w]	-	0.015	-	-	0.090 [z]	4.2	0.3 [w]	0.08 [aa]	0.018
	ILEV [y]	0.41 [k]	-	0.075	3.4	0.2 [w]	-	0.015	-	-	0.090	4.2	0.3 [w]	0.08 [aa]	0.018
	ULEV	0.41 [k]	-	0.040 [z]	1.7	0.2 [w]	-	0.015	-	-	0.055 [z]	2.1	0.3 [w]	0.04 [aa]	0.011
	ZEV [t]	0	0	0	0	0.0 [w]	0	0	0	0	0	0	0.0 [w]	0	0
Federal CFV — LDT1 [h,i,s]	LEV	-	-	0.075 [z]	3.4	0.2 [w]	-	0.015	0.80 [k,p]	-	0.090 [z]	4.2	0.3 [w]	0.08 [aa]	0.018
	ILEV [y]	-	-	0.075	3.4	0.2 [w]	-	0.015	0.80 [k,p]	-	0.090	4.2	0.3 [w]	0.08 [aa]	0.018
	ULEV	-	-	0.040 [z]	1.7	0.2 [w]	-	0.008	0.80 [k,p]	-	0.055 [z]	2.1	0.3 [w]	0.04 [aa]	0.011
	ZEV [t]	0	0	0	0	0.0 [w]	0	0	0	0	0	0	0.0 [w]	0	0
Federal CFV — LDT2 [h,i,s]	LEV	-	-	0.100 [z]	4.4	0.4 [w]	-	0.018	0.80 [k,p]	-	0.130 [z]	5.5	0.5 [w]	0.08 [aa]	0.023
	ILEV [y]	-	-	0.1	4.4	0.4 [w]	-	0.018	0.80 [k,p]	-	0.13	5.5	0.5 [w]	0.08 [aa]	0.023
	ULEV	-	-	0.050 [z]	2.2	0.4 [w]	-	0.009	0.80 [k,p]	-	0.070 [z]	2.8	0.5 [w]	0.04 [aa]	0.013
	ZEV [t]	0	0	0	0	0.0 [w]	0	0	0	0	0	0	0.0 [w]	0	0

Notes on following page.

Notes:

Tests Covered: Federal Test Procedure (FTP), cold carbon monoxide (CO), highway, and idle

Effective Model Year: 1981 - 1993, Tier 0

1994 - 1999, Tier 1

1999 - 2003, NLEV

1999 - Present, CFV

a Total hydrocarbon equivalent (THCE) for methanol vehicles.

b Does not apply to compressed natural gas (CNG) vehicles.

c Certification short test emissions from gasoline vehicles shall not exceed 100 parts per million (ppm) HC or 0.5 percent exhaust gas CO at idle and 2500 revolutions per minute (rpm) at 4,000 miles; compliance statement allowed in lieu of data.

d THCE for Tier 0 methanol vehicles, non-methane hydrocarbon equivalent (NMHCE) for other alcohol vehicles.

e Cold CO emissions for gasoline fueled vehicles shall not exceed 10.0 grams per mile (g/mi) for light-duty vehicles (LDV) and light-duty trucks 1 [LDT1], or 12.5 g/mi for LDT2, LDT3, & LDT4 at 50,000 miles.

f Particulates compliance statement allowed for non-diesel cycle vehicles (in lieu of supplying acutal test data).

g Idle CO emissions from gasoline, methanol, CNG, and liquified petroleum gas trucks shall not exceed 0.50 percent exhaust gas at 120,000 miles or 11 years; compliance statement allowed in lieu of actual test data.

h Federal On-board diagnostics (OBD) system required beginning with 1994 model year vehicles.

i Tier 1, NLEV & CFV vehicles must meet Tier 1 emission standards at high altitude; Tier 0 vehicles must meet special high altitude standards; compliance statement allowed in lieu of actual test data.

j Tier 0 and Tier 1 emission standards do not apply to ethanol vehicles.

k Total hydrocarbon (THC); compliance statement allowed in lieu of acutal test data.

l CNG vehicles only.

m 1.0 for diesel-fueled vehicles through 2003 model year.

n Diesel-fueled vehicles only.

o 1.25 for diesel-fueled vehicles through 2003 model year.

p Standards apply at a useful life of 11 years or 120,000 miles.

q Does not apply to diesel-fueled vehicles.

r California OBD-II system required.

s NLEV and CFV (LDV, LDT1, LDT2) vehicles must meet special 50 degrees Fahrenheit emission standards at 4,000 miles (not applicable to diesel, CNG, or hybride electric vehicles).

t Special interim in-use emission standards apply to 1999 Low Emission Vehicles (LEV) and 1999-2002 Ultra-Low Emission Vehicles (ULEV).

u Non-methane hydrocarbon (NMHC) for diesel cycle vehicles.

v Dual and flexible fuel vehicles may meet less stringent non-methane organic gas (NMOG) standard when operating on gasoline.

w Highway nitrogen oxides (NOx) emissions shall not exceed 1.33 times the applicable FTP (city) NOx standards.

x 0.10 g/mi particulate matter (PM) standard applies to non-diesel vehicles.

y Special evaporative requirements apply (5.0 grams maximum with the evaporative system disconnected).

z Special NMOG standards apply to dual and flexible fuel vehicles.

aa Diesel-fueled vehicles only.

Code of Federal Regulations (CFR) citations:

- 40 CFR 86 Subpart A
- 40 CFR 86 Subpart R - National Low Emission Vehicle program