

Supplementary Materials

Characterization of Exhaust CO, HC and NO_x Emissions from Light-Duty Vehicles under Real Driving Conditions

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Table S1. Mileage records of all PEMS experiments in this study.

		Distance (km)			
		Urban	Suburban	highway	Total
LDDT1	Test 1	12.77	17.06	32.48	62.31
	Test 2	12.60	17.30	32.55	62.45
LDDT2	Test 1	12.63	17.20	32.81	62.64
	Test 2	12.43	17.47	32.50	62.40
LDDT3	Test 1	12.60	17.80	32.45	62.86
	Test 2	12.76	17.52	32.30	62.58
LDPC1	Test 1	12.16	17.78	32.04	61.98
	Test 2	12.73	17.48	32.35	62.56
LDPC2	Test 1	11.31	17.78	32.61	61.70
	Test 2	12.06	18.15	32.15	62.30

Table S2. Average emission factors of LDPCs and LDDTs under different road conditions.

	LDPC			LDDT		
	Urban	Suburban	Highway	Urban	Suburban	Highway
CO g/km	1.35±0.87	1.10±0.54	0.92±0.59	1.04±0.74	0.94±0.27	0.74±0.48
NOx g/km	0.36±.180	0.29±0.10	0.28±0.14	3.29±0.73	2.69±0.89	2.37±0.81
HC g/km	0.35±0.16	0.19±0.09	0.14±0.07	0.40±0.22	0.22±0.12	0.15±0.10

Table S3. Average, median and maximum speeds of LDDT3 driving under three road conditions.

	Average speed	Median speed	Maximum speed
	km/h	km/h	km/h
Urban	19.21	42.56	57.60
Suburban	37.86	49.07	72.57
Highway	76.46	82.38	99.11

Table S4. Emission rates of CO, NOx and HC at different VSP bins.

LDGV				LDDT			
VSP Bin	CO	NOx	HC	VSP Bin	CO	NOx	HC
Number	mg/s	mg/s	mg/s	Number	mg/s	mg/s	mg/s
-16.00	0.76	0.59	0.29	-16.00	5.42	23.32	2.05
-14.00	0.02	0.07	0.35	-14.00	2.98	13.11	2.12
-12.00	0.38	0.81	0.22	-12.00	4.38	14.80	2.32
-10.00	0.14	1.32	0.21	-10.00	4.32	16.50	2.44
-8.00	0.15	0.41	0.14	-8.00	4.93	15.83	2.17
-6.00	0.14	0.43	0.14	-6.00	5.41	16.03	2.25
-4.00	0.15	0.36	0.14	-4.00	6.64	17.59	2.07
-2.00	0.38	0.53	0.19	-2.00	6.02	18.97	2.23
0.00	0.44	0.35	0.18	0.00	4.60	11.98	1.85
2.00	3.74	0.86	0.40	2.00	8.07	27.79	2.57
4.00	2.80	2.31	0.51	4.00	9.69	36.64	2.79
6.00	4.36	1.86	0.59	6.00	12.08	46.50	3.16
8.00	4.11	1.62	0.79	8.00	20.68	53.06	3.29
10.00	5.35	2.17	1.09	10.00	26.13	56.00	3.10
12.00	9.21	2.97	1.32	12.00	13.34	52.71	2.51
14.00	8.01	5.53	1.46	14.00	14.54	60.85	3.03
16.00	6.29	3.64	1.26	16.00	19.86	54.54	2.53