

Supplementary Information

1. Figures

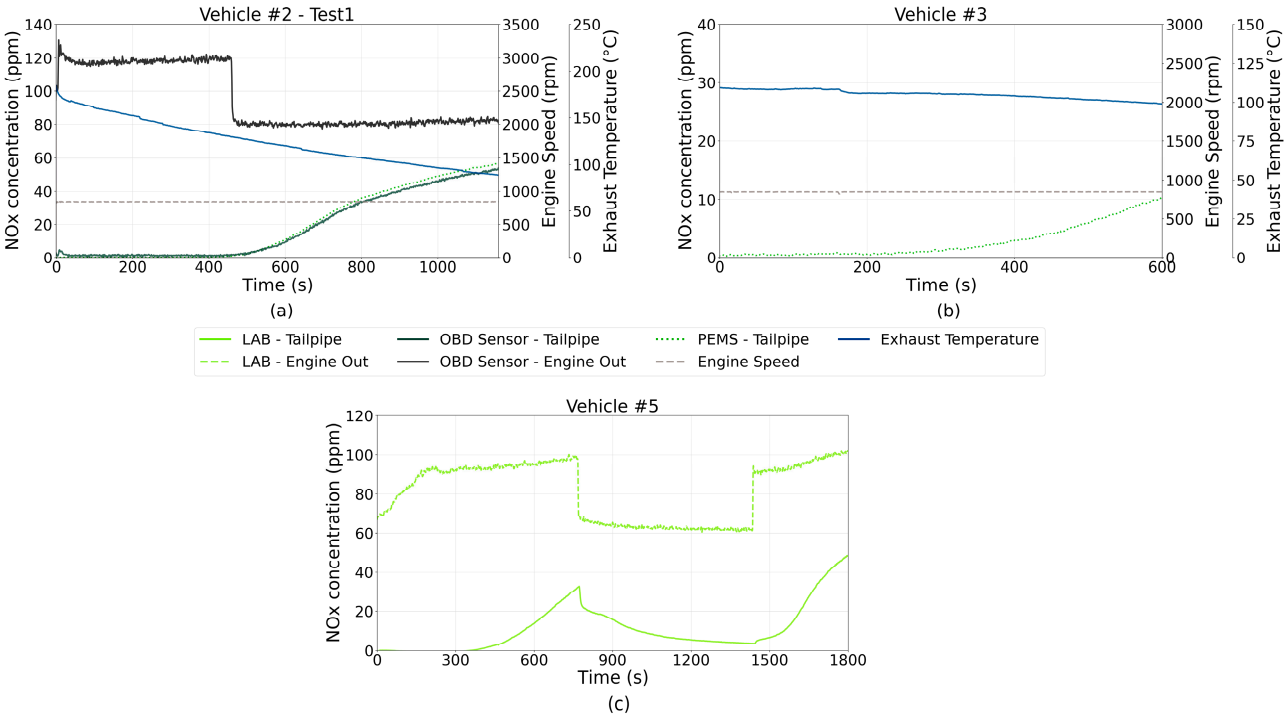


Figure S1. NOx emission profiles of vehicle #2 – Test1 (a), vehicle #3 (b) and vehicle #5 (c) during the hot idling test. NOx concentration measured by laboratory-grade NOx analysers (solid light green line), PEMS (dotted green line) and vehicle NOx tailpipe (solid dark green line) and engine out (solid black line) sensors are displayed together with vehicle engine speed (dashed grey line) and exhaust gas temperature (solid blue line) at the vehicle tailpipe exit. Additional details on the equipment used for each vehicle are provided in Table 2. Not all instruments/signals were available for each test (e.g. engine speed not available for vehicle #5). For vehicle #5 NOx at engine out was measured with a laboratory bench (c) (dashed light green line). Time scale for all vehicles starts at the end of the warm-up phase.

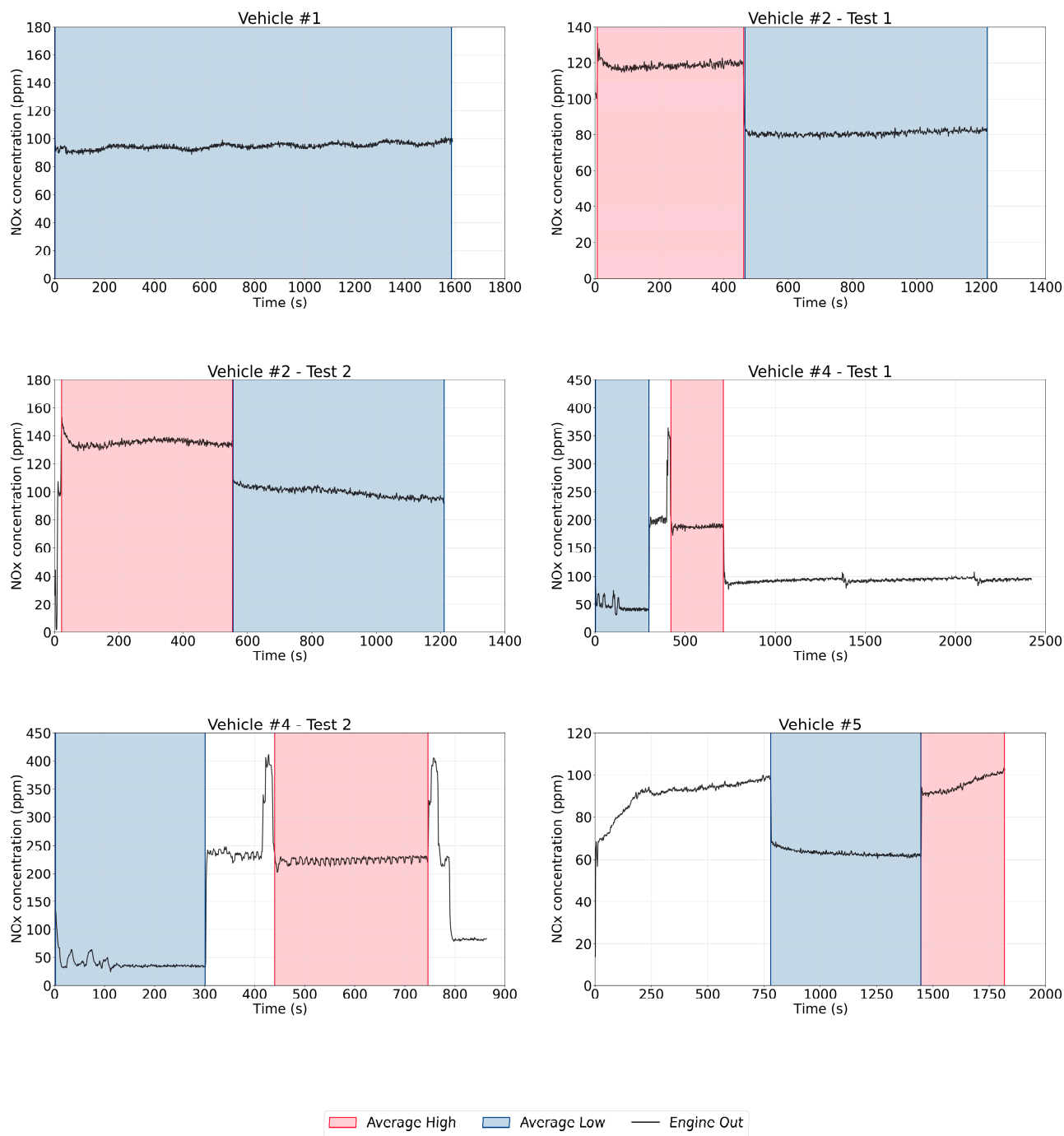


Figure S2. Engine-out NO_x values recorded at the OBD port for those vehicle where the NO_x engine out sensor signal was available (except for vehicle #5 where NO_x at engine out was measured with a laboratory bench, see Section 2.1 for additional details). For those vehicles where engine out concentration changed during the idle two areas of the graph are highlighted: the maximum concentration period in red and the lowest in blue. The final average value over each area is reported in Table 3.

2. Tables

Table S1. NO_x tailpipe average concentration (ppm) measured during static hot idling on 30 sec and 60 sec window since idling start using different equipment. When two tests were performed on the same vehicle the results were both. The standard deviation (σ) for each instrument in the same time window is reported. Those values lower than 0.1 ppm have been reported as <0.1 ppm and negative ones as 0.

		Vehicle #1			Vehicle #2		Vehicle #3	Vehicle #4			Vehicle #5
		LAB	PEMS	SENSOR	PEMS	SENSOR	PEMS	LAB	PEMS	SENSOR	LAB
30 sec	Test1	0.5	0.3	0.1	0.2	2.5	0.4	0	<0.1	0.2	0
	Test2				0.4	2.6		0	0	1.0	
	σ Test1	<0.1	0.1	0.4	0.1	1.0	0.1	<0.1	0.1	0.6	<0.1
	σ Test2				0.1	1.0		<0.1	<0.1	1.1	
60 sec	Test1	0.5	0.3	0.1	0.2	1.9	0.5	0	0.1	0.2	0
	Test2				0.4	2.0		0	0	0.7	
	σ Test1	<0.1	0.1	0.3	0.1	1.0	0.1	<0.1	0.1	0.5	<0.1
	σ Test2				0.1	1.0		<0.1	<0.1	1.0	