



Mercedes-Benz MY2024 GLE350 4MATIC PEMS Report

1. Background

Mercedes-Benz Group AG (Mercedes-Benz), with headquarters in Stuttgart, Germany, is a large automotive company that sells vehicles and services in nearly every country in the world. Mercedes-Benz has production facilities in Europe, North and South America, Asia, and Africa. The current brand portfolio includes Mercedes-Benz as well as Mercedes-AMG, Mercedes-Maybach, smart, and EQ.

As part of fulfilling obligations under the Consent Decree entered on March 9, 2021 (“Consent Decree”) with the United States and California, Mercedes-Benz conducts off-cycle testing, encompassing Portable Emissions Measurement System (PEMS) testing, to demonstrate off-cycle tailpipe emissions and to screen for undisclosed auxiliary emission control devices (AECDs) and defeat devices in U.S. light- and medium-duty vehicles. The testing was conducted as described in Section VII of the Consent Decree. Pursuant to the Consent Decree, Mercedes-Benz will conduct PEMS testing for any new diesel vehicles issued Certificates of Conformity or Executive Orders through and including MY2023 as light- or medium-duty diesel models, and for three vehicles certified as light- or medium-duty gasoline Test Groups per Model Year from MY2021 through and including MY2024. This PEMS report relates to MY2024 GLE350 4MATIC from Test Group RMBXT02.0HY1, which is the second highest volume Test Group applicable for MY2024 based on the projected 50 states’ sales volumes prepared for NMOG + NOx fleet averages under Tier 3.

2. Approach

To demonstrate off-cycle tailpipe emissions, tests were performed on public roads in the Los Angeles area on city, highway, and mountain routes. These test routes have been approved by CARB. Emissions measured and/or calculated and reported include oxides of nitrogen (NO_x), carbon monoxide (CO), carbon dioxide (CO₂), total hydrocarbons (THC), and non-methane organic gases (NMOG). All tests were executed by a team in Long Beach, CA. This team is independent of Mercedes-Benz’s product development departments. All vehicles were configured and tested by MBRDNA Long Beach Compliance staff. Test results were then analyzed to ensure quality control processes took place before and after each test sequence, including instrument calibration and calibration with reference gasses.

3. Emissions Results

MY2024 vehicle with the specifications listed in Table 1 was tested in November 2022. Tables 2 through 4 provide the vehicle test results of the combined route segments performed in the default transmission mode (Comfort Mode).

Table 1: Vehicle Specification

Model	Tier	Drive type	HP	Torque (ft.lb)	Transmission	Exh Treatment	Fuel	Start Mileage
GLE350 4M	SULEV 30	AWD	255	295	9 Automatic	TWC	Gasoline	72

Table 2: Highway Results

Model	A1 Highway East (g/mi)					B2 Highway West (g/mi)				
	CO ₂	CO	THC	NO _x	NMOG	CO ₂	CO	THC	NO _x	NMOG
GLE350 4M	346.27	0.93286	0.00589	0.00902	0.00560	266.79	1.12161	0.00117	0.00502	0.00111

Table 3: Mountain Results

Model	A2 Mountain Uphill (g/mi)					B1 Mountain Downhill (g/mi)				
	CO ₂	CO	THC	NO _x	NMOG	CO ₂	CO	THC	NO _x	NMOG
GLE350 4M	615.96	1.42507	0.01097	0.01069	0.01045	158.57	0.59984	0.00997	0.00682	0.00951

Table 4: Cold Start and Urban Driving Result

Model	A0 Long Beach → CARB (g/mi)					LA City (g/mi)				
	CO ₂	CO	THC	NO _x	NMOG	CO ₂	CO	THC	NO _x	NMOG
GLE350 4M	343.24	1.36477	0.01476	0.01125	0.01502	487.80	2.24223	0.00238	0.02171	0.00227

4. Trip Statistics

Tables 5 to 10 summarize the vehicle test statistics and environmental conditions during each test cycle.

Table 5: Highway East (A1)

Trip Duration h.mm.ss	Distance (mi)	V*Apos [‡]	Average Speed (mi/h)	Standstill %	Constant %	Acceleration %	Deceleration %	Cumulative pos. altitude (m)	Average temperature (F)
00:28:17	27.86	15.032	59.38	3.26	1.95	49.38	45.41	416.80	70.88

Table 6: Highway West (B2)

Trip Duration h.mm.ss	Distance (mi)	V*Apos [‡]	Average Speed (mi/h)	Standstill %	Constant %	Acceleration %	Deceleration %	Cumulative pos. altitude (m)	Average temperature (F)
00:30:05	28.53	15.352	57.15	4.23	0.95	50.42	44.41	193.20	73.99

Table 7: Mountain Uphill (A2)

Trip Duration h.mm.ss	Distance (mi)	V*Apos [‡]	Average Speed (mi/h)	Standstill %	Constant %	Acceleration %	Deceleration %	Cumulative pos. altitude (m)	Average temperature (F)
00:31:37	17.19	15.255	32.76	17.84	0.48	42.62	39.07	1023.20	68.75

Table 8: Mountain Downhill (B1)

Trip Duration h.mm.ss	Distance (mi)	V*Apos [‡]	Average Speed (mi/h)	Standstill %	Constant %	Acceleration %	Deceleration %	Cumulative pos. altitude (m)	Average temperature (F)
00:27:56	17.99	15.559	38.85	11.33	1.44	46.52	40.71	84.00	67.71

Table 9: Long Beach to CARB (A0)

Trip Duration h.mm.ss	Distance (mi)	V*Apos ‡	Average Speed (mi/h)	Standstill %	Constant %	Acceleration %	Deceleration %	Cumulative pos. altitude (m)	Average temperature (F)
00:32:05	24.23	15.737	45.50	4.63	0.94	50.46	43.97	242.00	71.36

Table 10: LA City

Trip Duration h.mm.ss	Distance (mi)	V*Apos ‡	Average Speed (mi/h)	Standstill %	Constant %	Acceleration %	Deceleration %	Cumulative pos. altitude (m)	Average temperature (F)
00:57:07	16.01	15.778	16.86	31.32	0.15	35.42	33.11	299.40	74.82

‡V*Apos results are the 95th percentile values displayed in m²/s³

5. Routes

The routes for on-road emissions testing are approved by CARB and intended to include various road and traffic conditions. These routes include mountain driving at high elevation, urban driving, and highway driving. These routes are separated into six test sections with no key-off cycles between A0 and B2. For the Combined Test Route, the test vehicle was cold-started at the Mercedes-Benz Los Angeles Technology Center (MB LATC) and data was collected for Segment A0 between MB LATC and the official start of the route at CARB El Monte. The Urban/Downtown L.A. test route, consistent with past Off-Cycle tests was driven on a different day, and was started with a running engine after a transfer drive from MB LATC to the start of the route with no key-off cycles.

Table 11: Description of Test Routes and Calculated Trip Statistics

Route	Distance (mi)	Segment Duration	Max – Min Elevation (m)	Average Speed (mph)	Fraction Hwy	Fraction Urban/Rural
A0	24	32 min	124	46	70	30
A1	28	28 min	279	59	91	9
A2	17	32 min	978	33	0	100
B1	18	28 min	986	39	24	76
B2	29	30 min	285	57	89	11
LA City	16	57 min	80	17	9	91

5.1 Highway Sections (A1 & B2)

These routes are representative of highway driving in California. Each route segment is approximately 28 miles and is composed of 95% highway and 5% surface roads. These segments travel between Vineyard Ave, Ontario CA and California Air Resource Board office at 9528 Telstar Ave, El Monte CA via Hwy 10. The average speed is 50mph and the net elevation change is approximately 938ft (286m).

A1 – Highway East

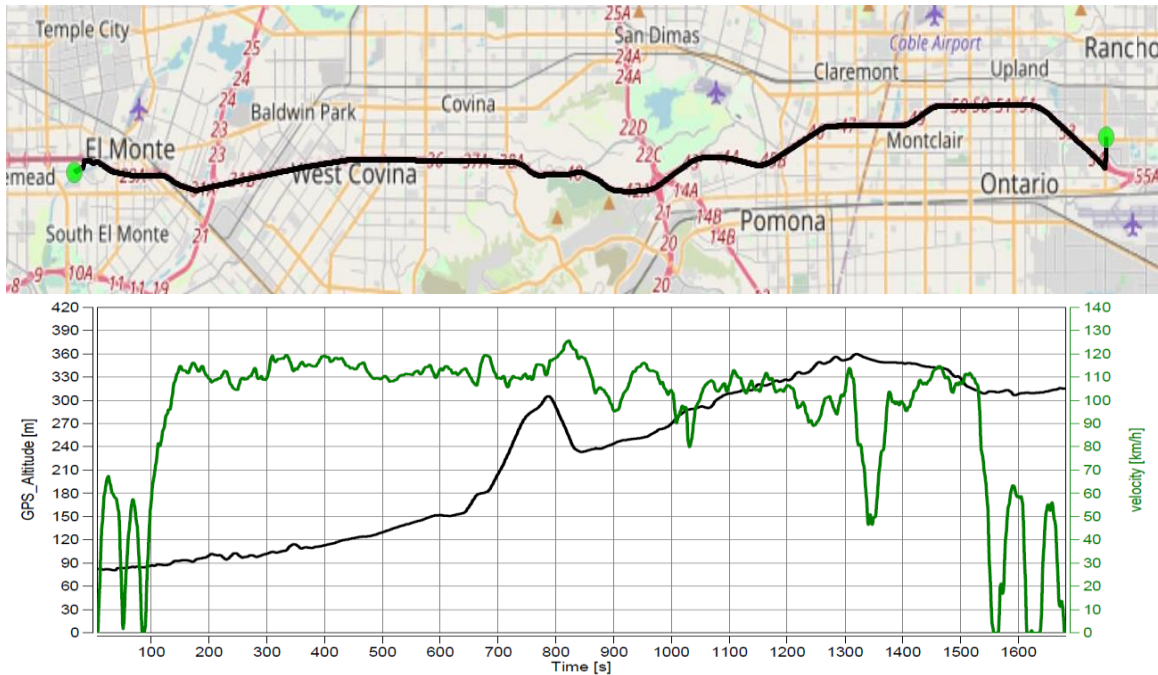


Figure 1. Map of Route A1 – Highway East. Including speed and elevation

B2 – Highway West



Figure 2. Map of Route B2 – Highway West. Including speed and elevation

5.2 Mountain Sections (A2 & B1)

This route is representative of rural uphill and downhill driving. Each route segment is approximately 17.5 miles and is composed of 90% surface roads and 10% highway, starting from Vineyard Ave in Ontario and traveling to Mt. Baldy, then returning to Vineyard Ave. The average speed is 30mph. The net elevation change is 3242ft (988m).

A2 – Mountain Uphill

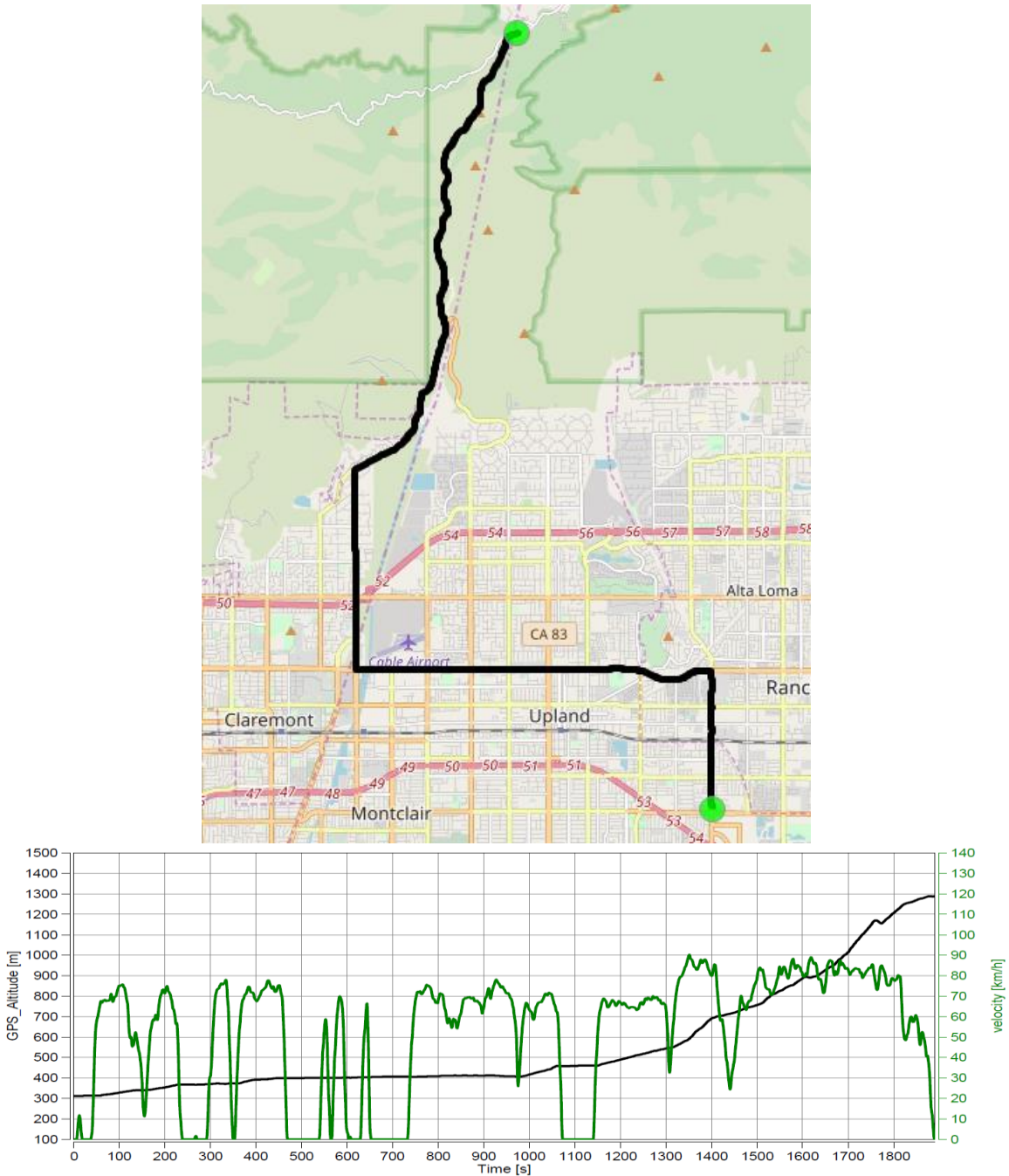


Figure 3. Map of Route A2 – Mountain Uphill. Including speed and elevation

B1 – Mountain Downhill.

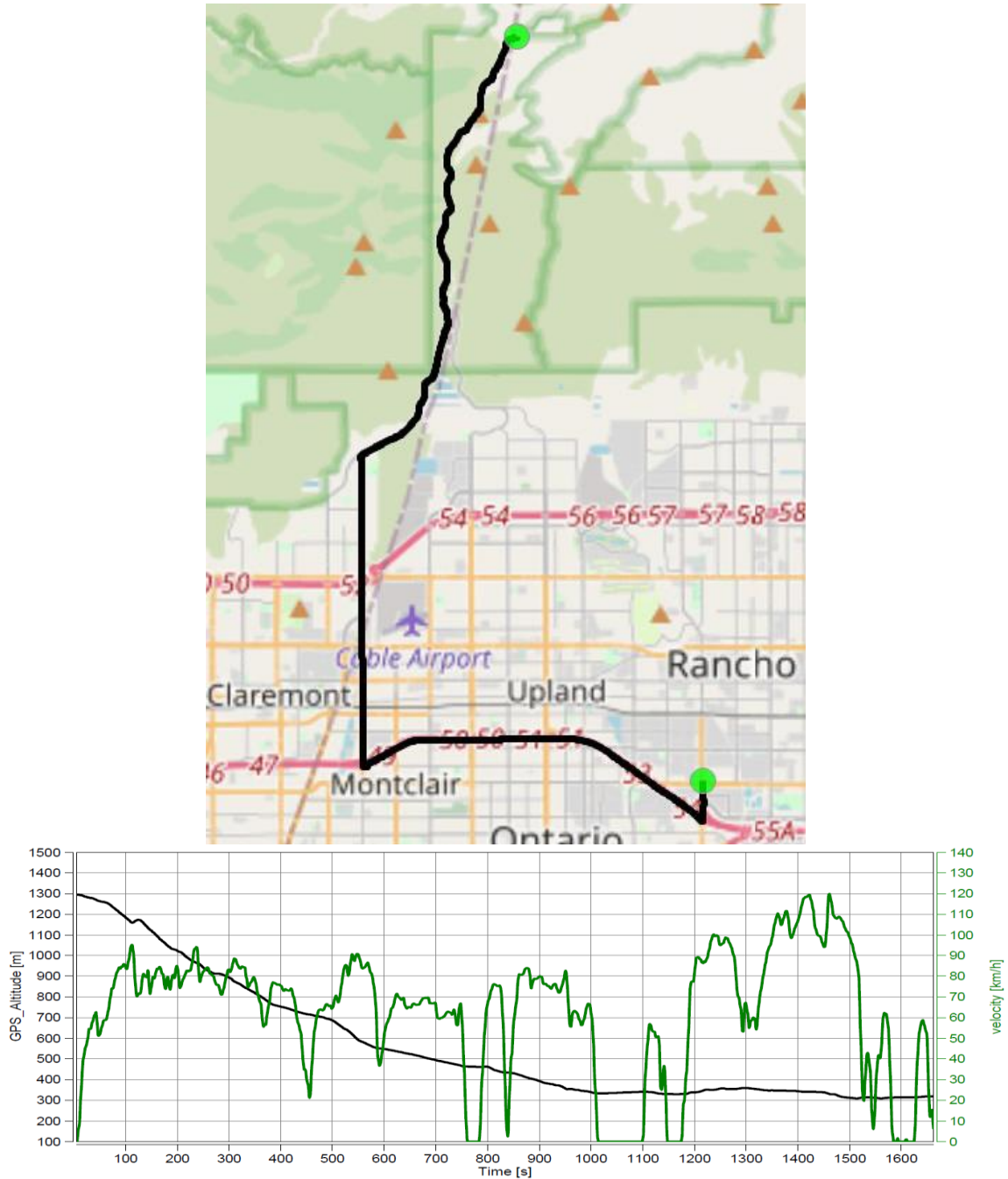


Figure 4. Map of Route B1 – Mountain Downhill. Including speed and elevation

5.3 Long Beach to CARB Section (A0)

This route travels between 4035 Via Oro Ave, Long Beach CA and 9528 Telstar Ave, El Monte CA. This route contains a cold start event with the test vehicle normalized to ambient conditions, beginning from Long Beach.

A0 – Long Beach to CARB

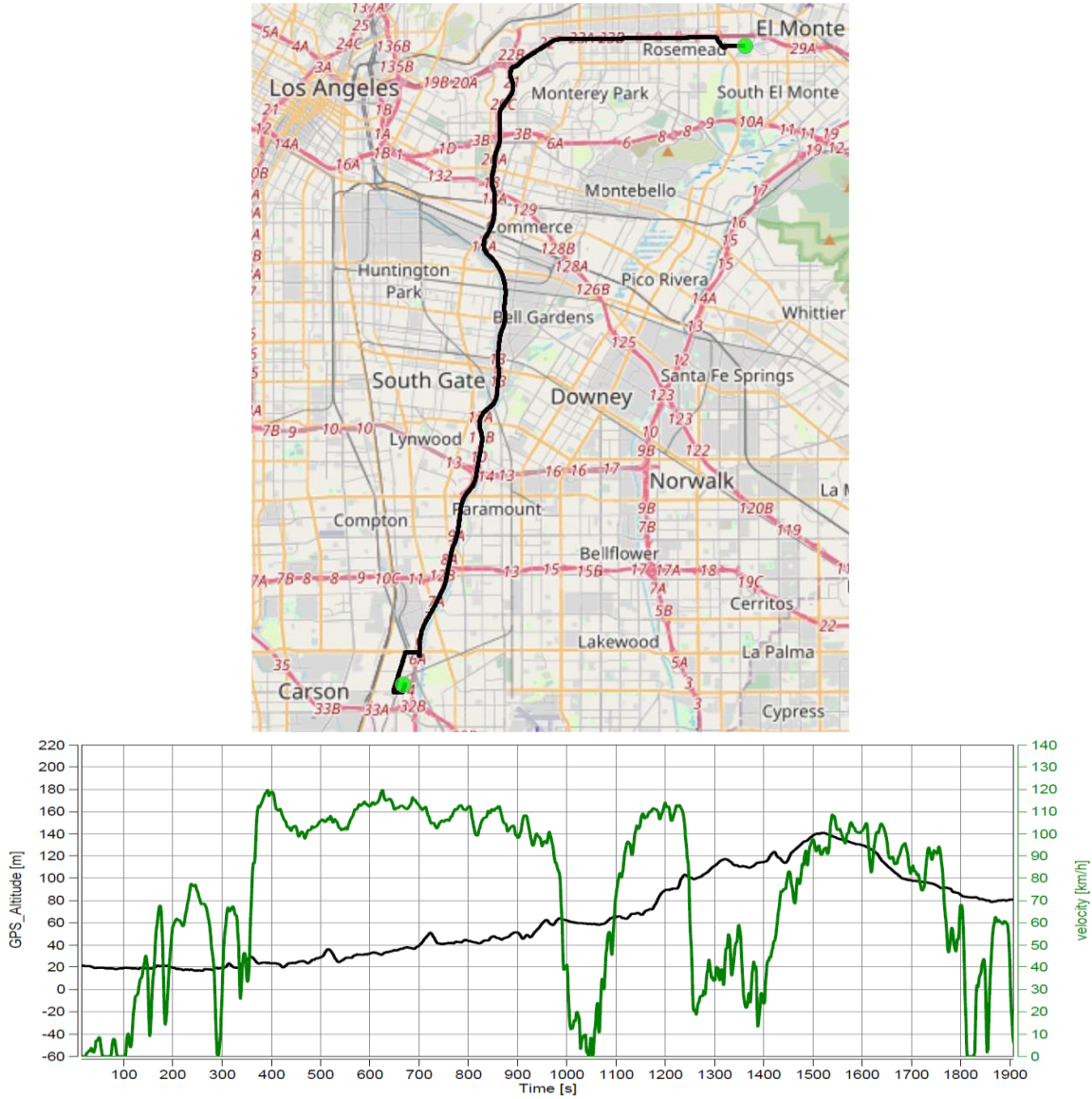


Figure 5. Map of Route A0 – Long Beach to CARB, El Monte. Including speed and elevation

5.4 LA City Driving Section

This route is intended to represent city driving and is a modernized reflection of the LA4. There are minor modifications to account for traffic patterns and roads which have changed since 1972 but this route represents a similar pattern to the original route. The route is approximately 16 miles and is 20% highway, 80% surface road with an average speed of 16mph.

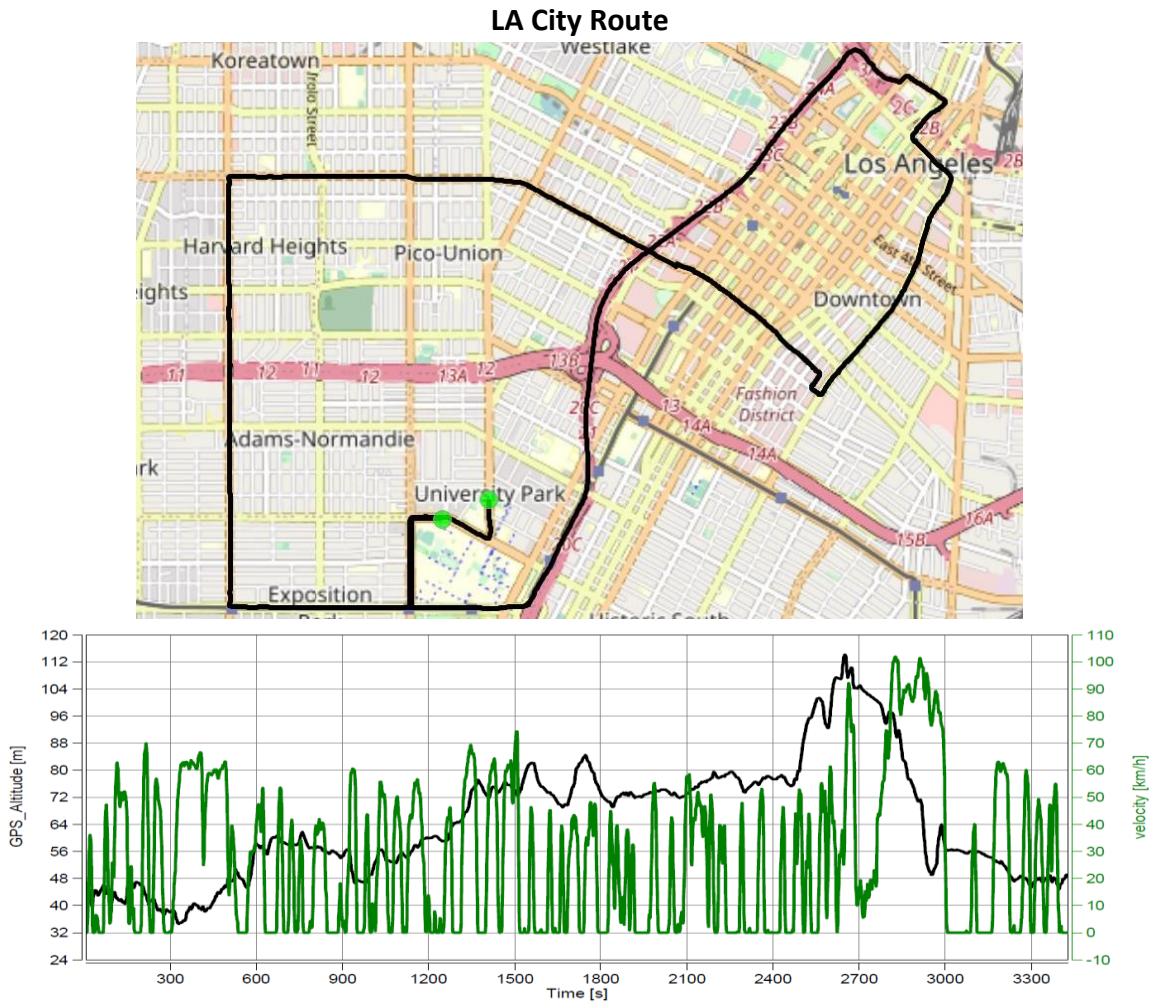


Figure 6. Map of LA City Route. Including speed and elevation

6. Log Sheets

A comprehensive list with information regarding each PEMS test conducted is provided separately as an addendum to this report. In addition to the information concerning PEMS test results, all test records will also be provided in the same file.

The information is provided in the file: Flat File Log Sheet MY2024 GLE350.pdf

The file contains log sheet information on PEMS testing conducted with the MY2024 Mercedes-Benz GLE350 4MATIC test vehicle V167-4955. The table also includes information and explanations on valid, aborted, and invalid tests.

7. Appendix

The following pages include emission report summaries for each valid test performed using the PEMS system and AVL post processing.

Trip Duration	1697.00	s
Trip Duration (a)	1697.00	s
Trip Distance	27.86	mi
Trip Distance (a)	27.86	mi
Trip Fuel Cons. (b)	3.13	kg
Trip Fuel Cons. (ab)	3.13	kg
Trip Fuel Cons. EU (ac)	3.19	kg
Trip Fuel Cons. US (ac)	3.18	kg
Trip Fuel Economy (b)	25.20	mpg_US
Trip Fuel Economy (ab)	25.20	mpg_US
Trip Fuel Economy EU (ac)	24.74	mpg_US
Trip Fuel Economy US (ac)	24.76	mpg_US
Trip Fuel Economy GGE (b)	25.20	mpg_US
Trip Fuel Economy GGE (ab)	25.20	mpg_US
Trip Fuel Economy EU GGE (ac)	24.74	mpg_US
Trip Fuel Economy US GGE (ac)	24.76	mpg_US
Trip Av. Eng. Speed	1675.98	rpm
Trip Av. Torque	104.52	lbft
Trip Av. Power	35.54	hp
Trip Work		
Trip Work (a)	16.67	hphr
Trip Exhaust Mass	48.92	kg
Trip Exhaust Mass EU (ac)	48.03	kg
Trip Exhaust Mass US (ac)	48.08	kg
Trip Av. Amb. Temperature	70.88	deg_F
Trip Av. Humidity	24.40	%
Trip Av. GPS Altitude	226.28	m
Fuel Type	Petrol (E10)	

ave THC	5.21084	ppm
ave NMHC	5.10662	ppm
ave CH4	0.10422	ppm
ave CO	590.07508	ppm
ave CO2	12.33277	%
ave NOx	4.46748	ppm
ave PM	n/a	mg/m3
ave Soot meas	n/a	mg/m3
ave Soot	n/a	mg/m3
ave PN	n/a	#/cm3
tot THC	0.16377	g
tot NMHC	0.15149	g
tot CH4	0.00363	g
tot CO	25.91647	g
tot CO2	9639.27167	g
tot NO (d)	0.10266	g
tot NO2	0.15026	g
tot NOx	0.25292	g
tot Soot	n/a	g
tot Soot meas	n/a	g
tot PM	n/a	g
tot PN	n/a	#
PM measurement type	0.00000	-
tot Soot on PM filter (estim.)	0.00000	mg
Soot --> PM simple scaling factor	1.00000	-
Trip Av. Veh. Speed	59.38190	mi/hr
Trip Distance Share Urban	4.42513	% distance
Trip Distance Share Rural	5.03546	% distance
Trip Distance Share Motorway	90.53940	% distance

BS CO2	578.08803	g/hphr
BS CO	1.55427	g/hphr
BS THC	0.00982	g/hphr
BS NMHC	0.00908	g/hphr
BS CH4	0.00022	g/hphr
BS NO (d)	0.00616	g/hphr
BS NO2	0.00901	g/hphr
BS NOx	0.01517	g/hphr
BS Soot	n/a	g/hphr
BS Soot meas	n/a	g/hphr
BS PM	n/a	g/hphr
BS PN	n/a	#/hpr
DS CO2	345.98952	g/mi
DS CO	0.93024	g/mi
DS THC	0.00588	g/mi
DS NMHC	0.00544	g/mi
DS CH4	0.00013	g/mi
DS NO (d)	0.00368	g/mi
DS NO2	0.00539	g/mi
DS NOx	0.00908	g/mi
DS Soot	n/a	g/mi
DS Soot meas	n/a	g/mi
DS PM	n/a	g/mi
DS PN	n/a	#/mi
FS CO2	3080.92225	g/kg
FS CO	8.28347	g/kg
FS THC	0.05234	g/kg
FS NMHC	0.04842	g/kg
FS CH4	0.00116	g/kg
FS NO (d)	0.03281	g/kg
FS NO2	0.04803	g/kg
FS NOx	0.08084	g/kg
FS Soot	n/a	g/kg
FS Soot meas	n/a	g/kg
FS PM	n/a	g/kg
FS PN	n/a	#/kg

(a) GAS PEMS measurement state only, (b) based on fuel rate input (ECU, Fuel Meter), (c) Based on A/F ratio (eq 28-32 - R49)
(d) NO calculated using molecular weight of NO2, GGE=Gasoline Gallon Equivalents

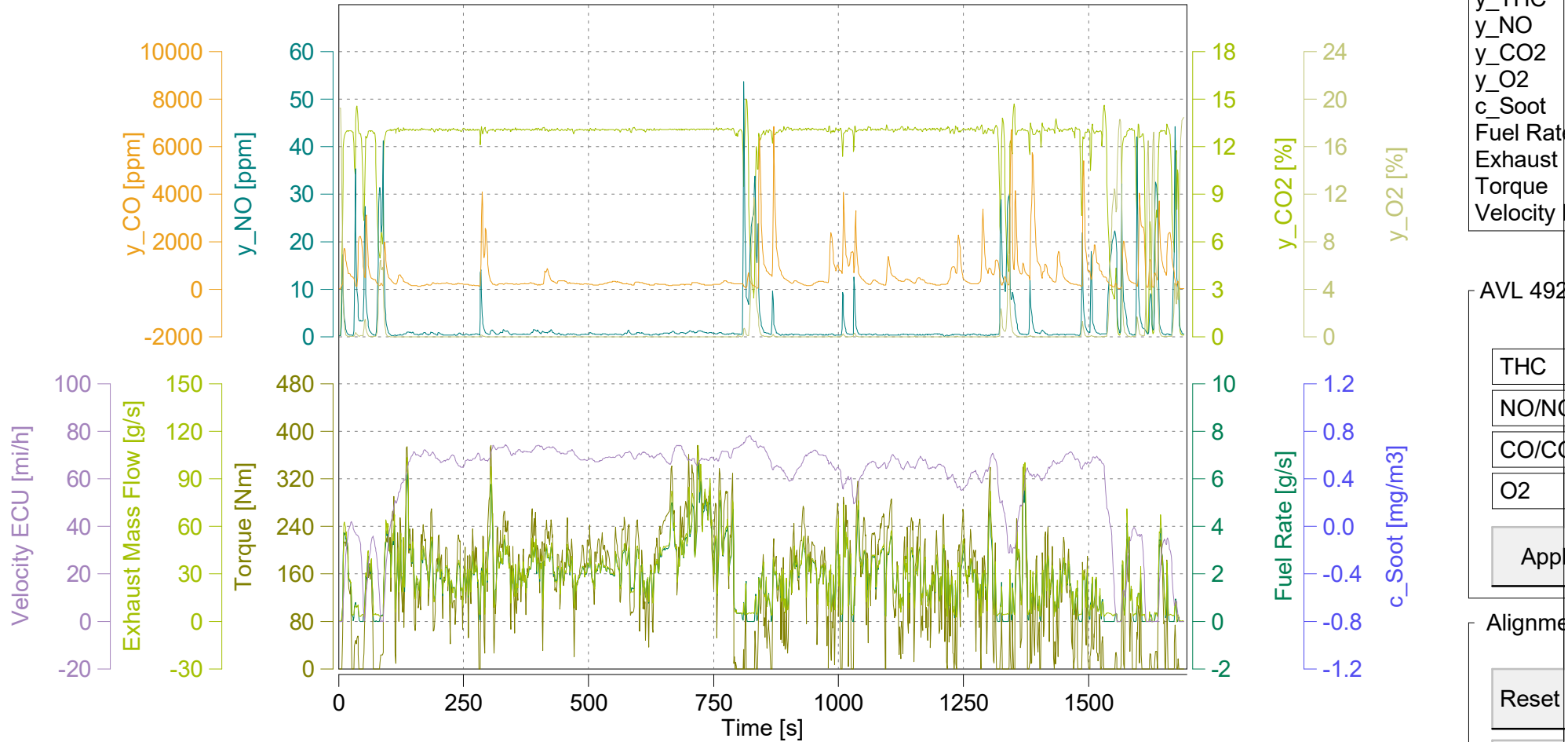


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Trip Fuel Economy GGE (b)	25.20	mpg_US
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Trip Work		
Trip Work (a)	16.67	hphr
Trip Exhaust Mass	48.92	kg
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Trip Exhaust Mass US (ac)	48.08	kg
Trip Av. Amb. Temperature	70.88	deg_F
Trip Av. Humidity	24.40	%
Trip Av. GPS Altitude	226.28	m
Fuel Type	Petrol (E10)	

ave THC DC	5.21809	ppm
ave NMHC DC	5.11373	ppm
ave CH4 DC	0.10436	ppm
ave CO DC	591.75616	ppm
ave CO2 DC	12.34267	%
ave NOx DC	4.44554	ppm
ave PM	n/a	mg/m3
ave Soot meas	n/a	mg/m3
ave Soot	n/a	mg/m3
ave PN DC		
tot THC DC	0.16399	g
tot NMHC DC	0.15170	g
tot CH4 DC	0.00363	g
tot CO DC	25.98941	g
tot CO2 DC	9647.00991	g
tot NO DC (d)	0.10148	g
tot NO2 DC	0.14972	g
tot NOx DC	0.25120	g
tot Soot	n/a	g
tot Soot meas	n/a	g
tot PM	n/a	g
tot PN DC		
PM measurement type	0.00000	-
tot Soot on PM filter (estim.)	0.00000	mg
Soot --> PM simple scaling factor	1.00000	-
Trip Av. Veh. Speed	59.38190	mi/hr
Trip Distance Share Urban	4.42513	% distance
Trip Distance Share Rural	5.03546	% distance
Trip Distance Share Motorway	90.53940	% distance

BS CO2 DC	578.55211	g/hphr
BS CO DC	1.55864	g/hphr
BS THC DC	0.00984	g/hphr
BS NMHC DC	0.00910	g/hphr
BS CH4 DC	0.00022	g/hphr
BS NO DC (d)	0.00609	g/hphr
BS NO2 DC	0.00898	g/hphr
BS NOx DC	0.01506	g/hphr
BS Soot	n/a	g/hphr
BS Soot meas	n/a	g/hphr
BS PM	n/a	g/hphr
BS PN DC		
DS CO2 DC	346.26728	g/mi
DS CO DC	0.93286	g/mi
DS THC DC	0.00589	g/mi
DS NMHC DC	0.00544	g/mi
DS CH4 DC	0.00013	g/mi
DS NO DC (d)	0.00364	g/mi
DS NO2 DC	0.00537	g/mi
DS NOx DC	0.00902	g/mi
DS Soot	n/a	g/mi
DS Soot meas	n/a	g/mi
DS PM	n/a	g/mi
DS PN DC		
FS CO2 DC	3083.39556	g/kg
FS CO DC	8.30678	g/kg
FS THC DC	0.05242	g/kg
FS NMHC DC	0.04849	g/kg
FS CH4 DC	0.00116	g/kg
FS NO DC (d)	0.03243	g/kg
FS NO2 DC	0.04785	g/kg
FS NOx DC	0.08029	g/kg
FS Soot	n/a	g/kg
FS Soot meas	n/a	g/kg
FS PM	n/a	g/kg
FS PN DC		

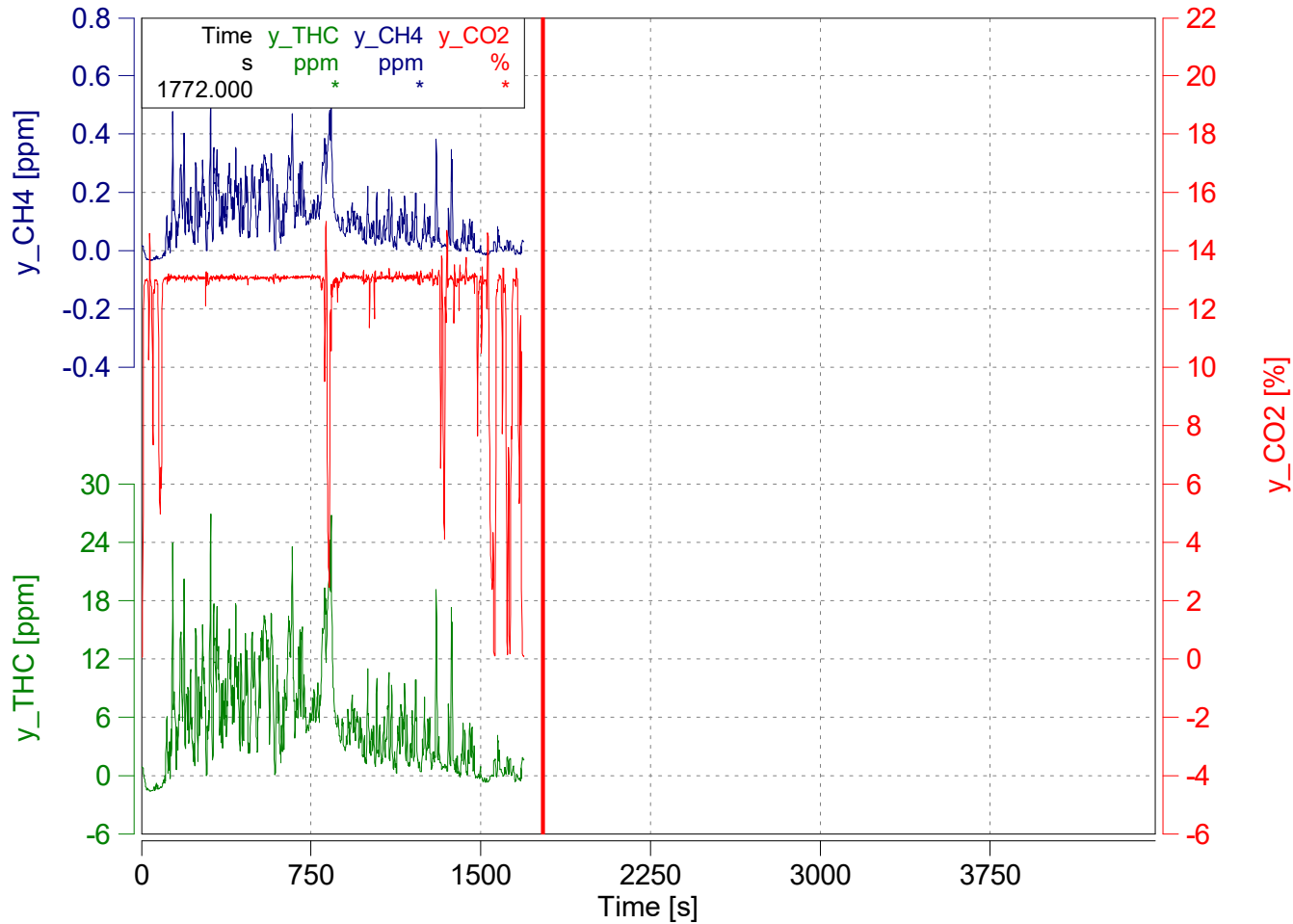
(a) GAS PEMS measurement state only, (b) based on fuel rate input (ECU, Fuel Meter), (c) Based on A/F ratio (eq 28-32 - R49)
 (d) NO calculated using molecular weight of NO2, GGE=Gasoline Gallon Equivalents



- y_THC
- y_NO
- y_CO2
- y_O2
- c_Soot
- Fuel Rate
- Exhaust
- Torque
- Velocity

- AVL 492
- THC
 - NO/NO2
 - CO/CO2
 - O2
 - App

- Alignme
- Reset
 - Re
 - App

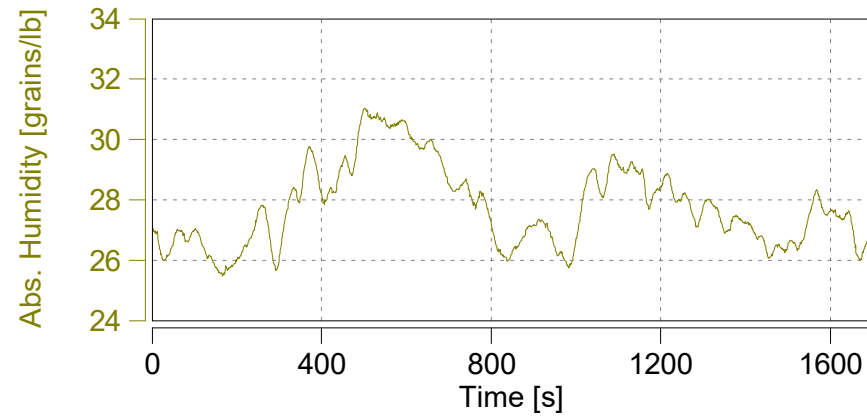
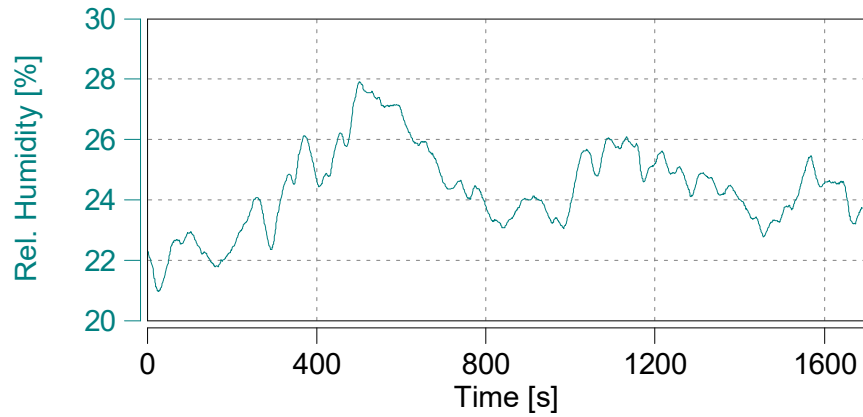
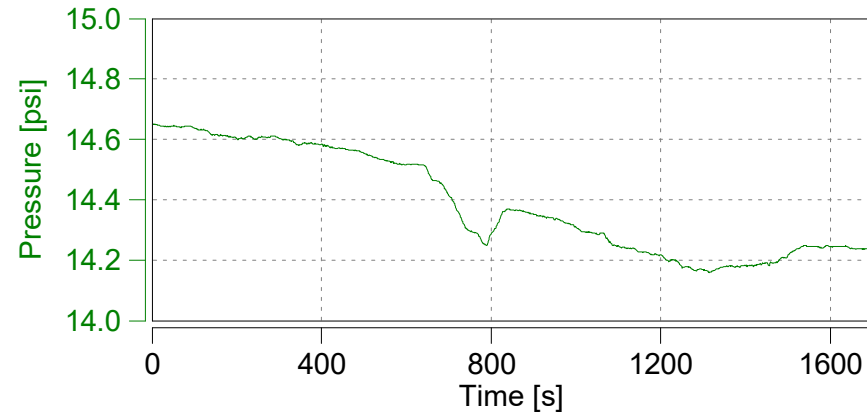
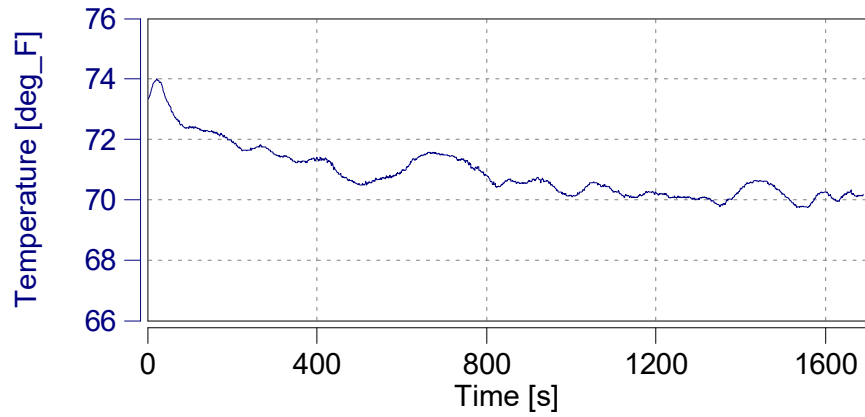


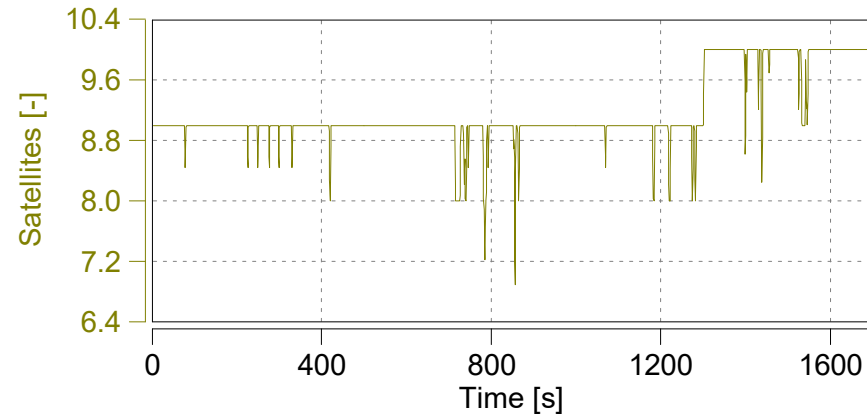
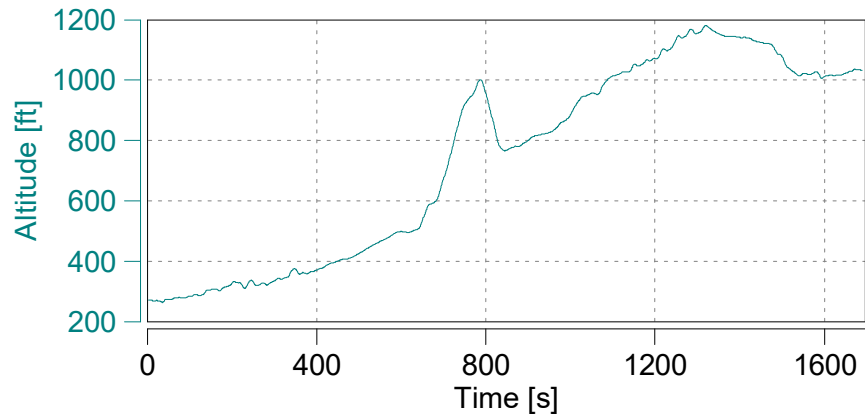
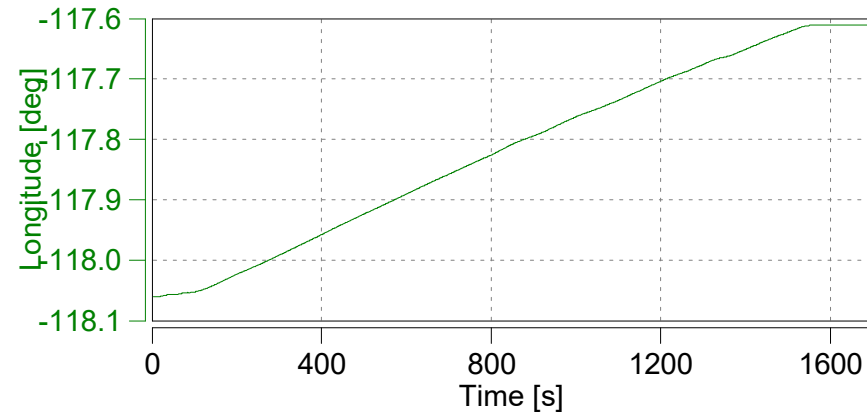
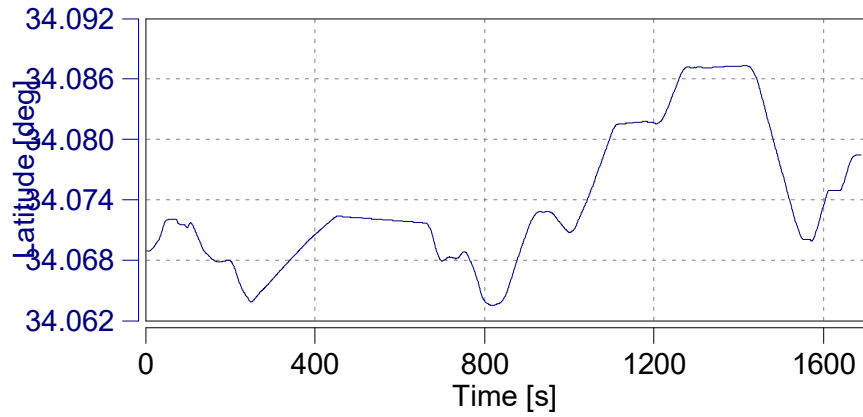
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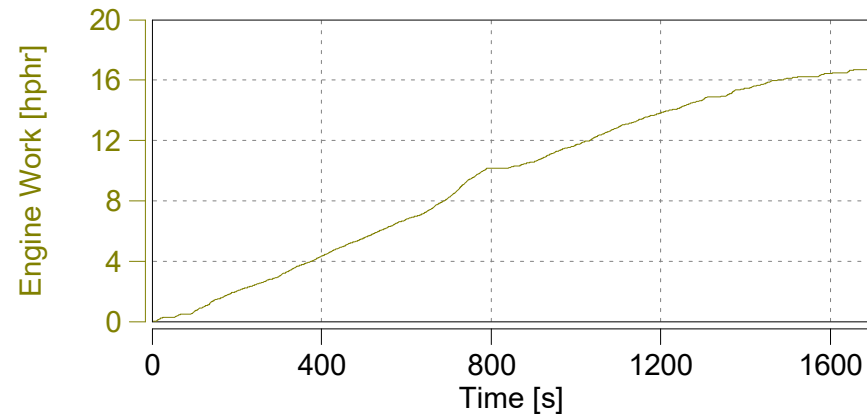
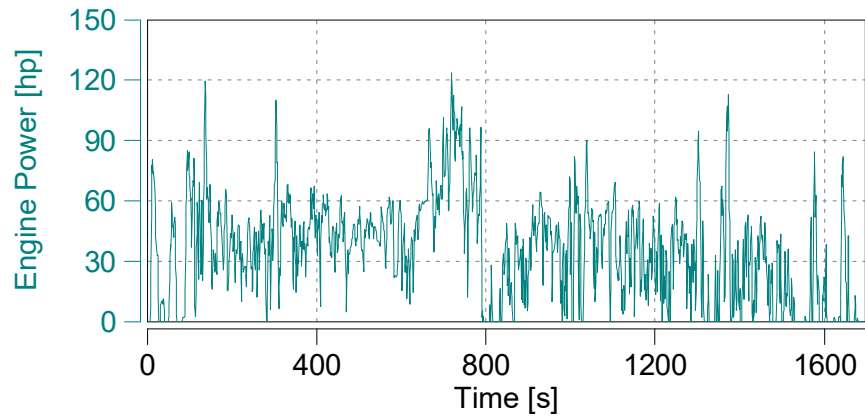
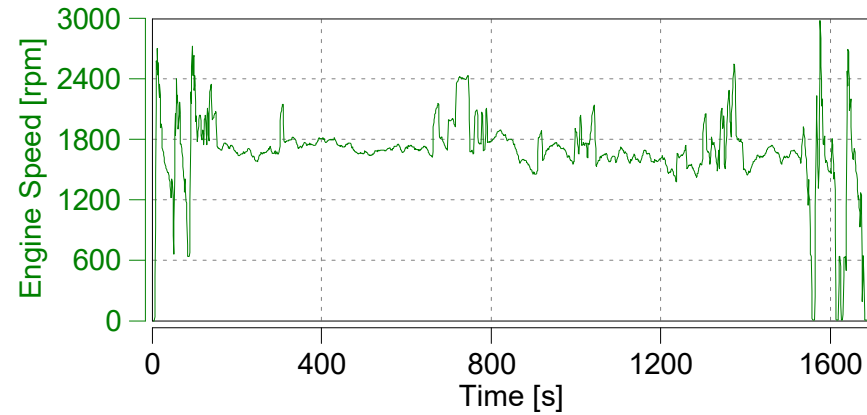
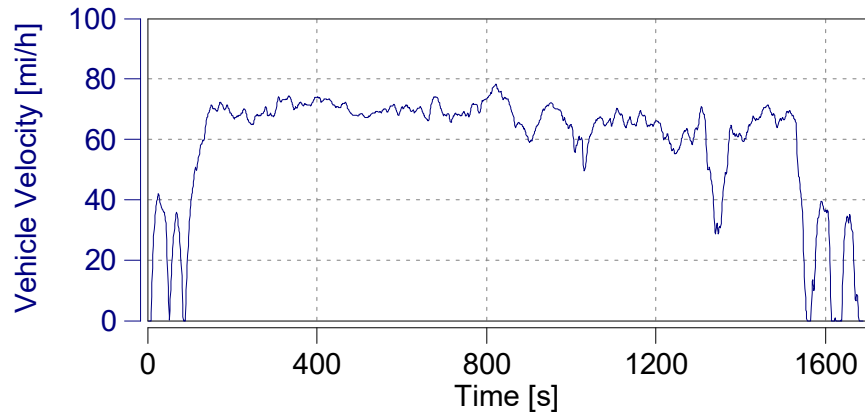
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y_CH4	s	0.0

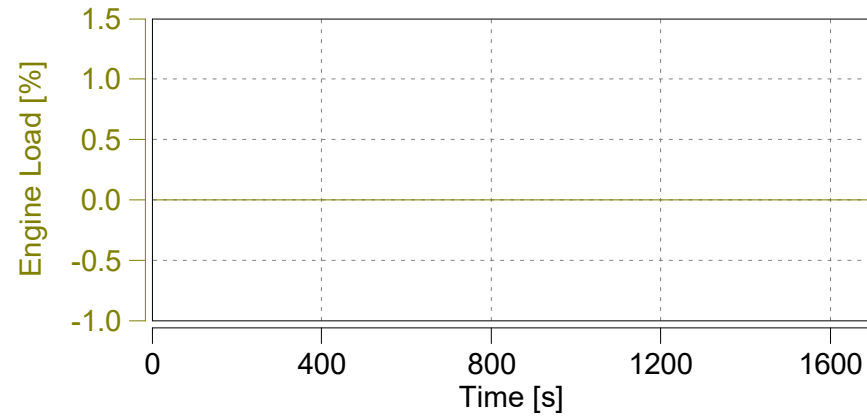
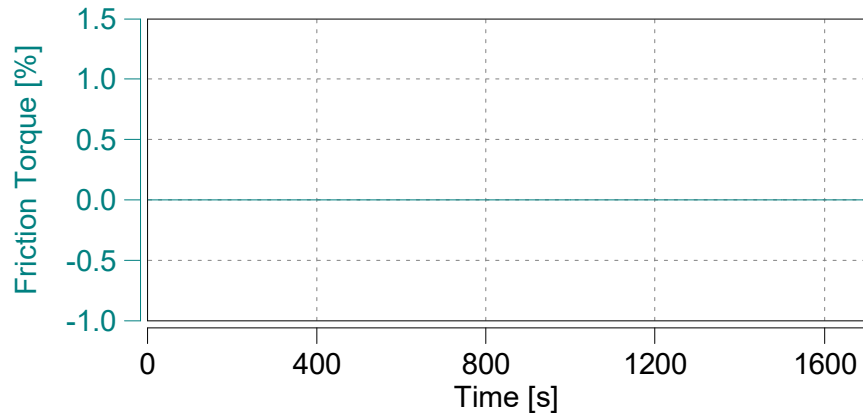
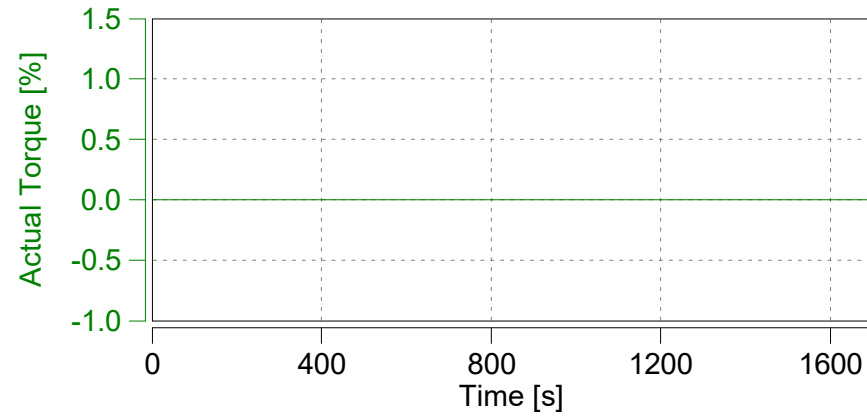
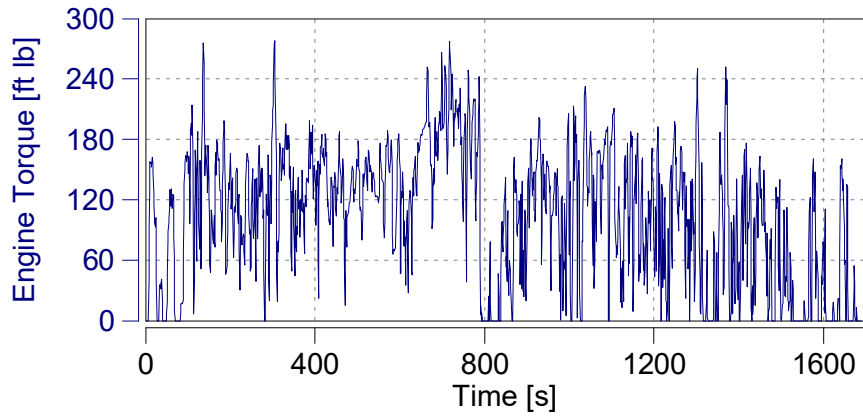
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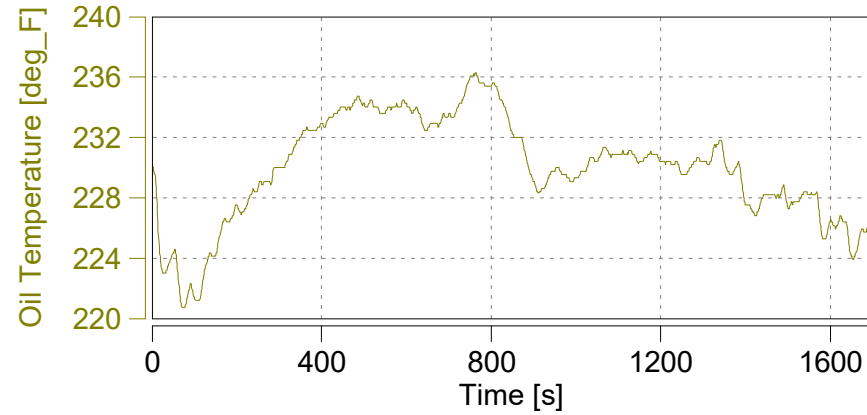
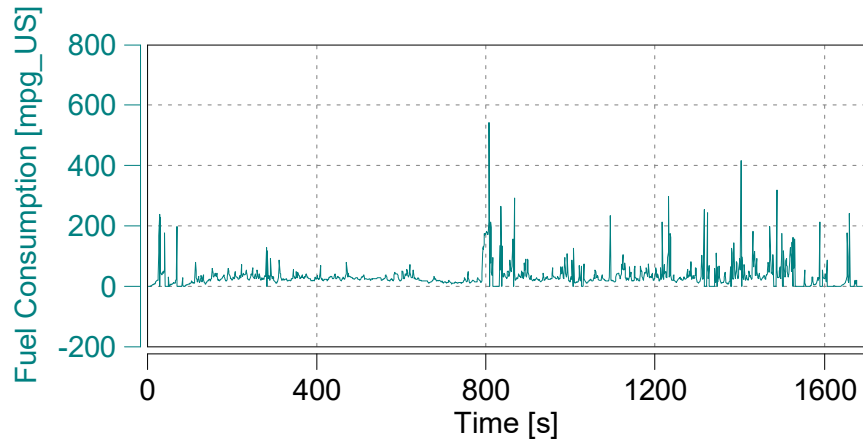
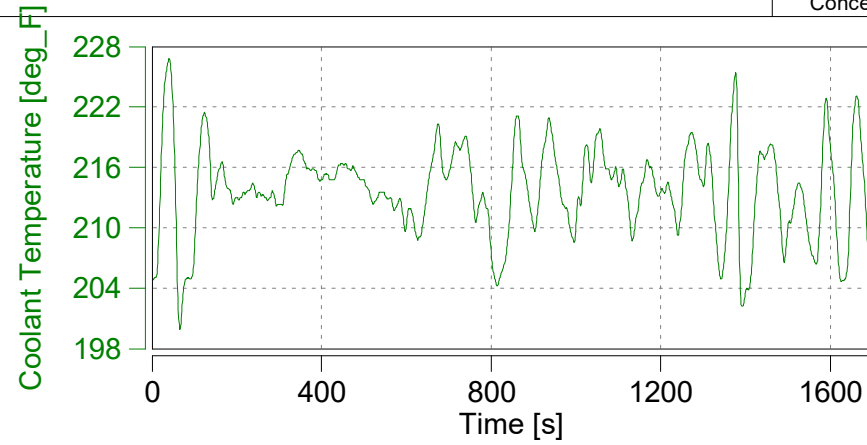
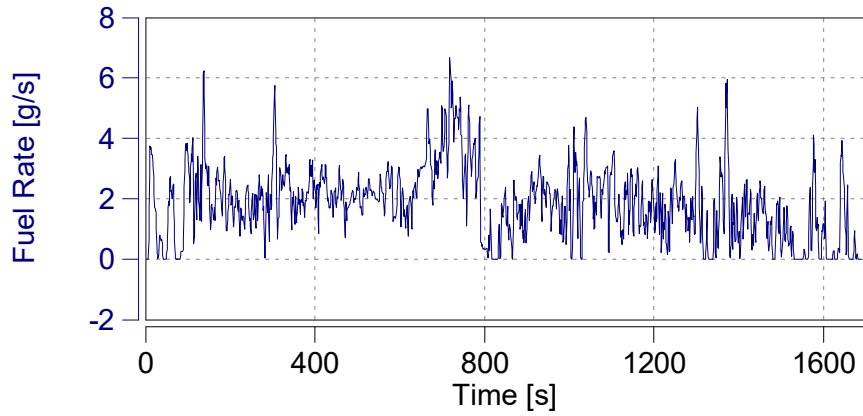
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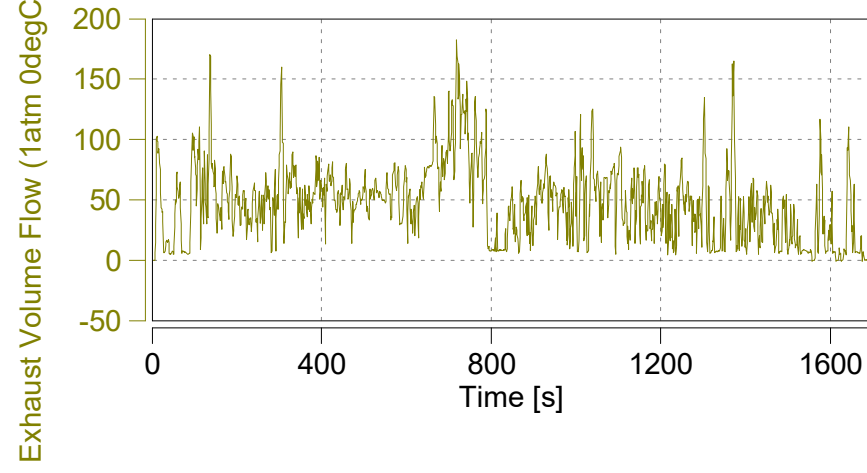
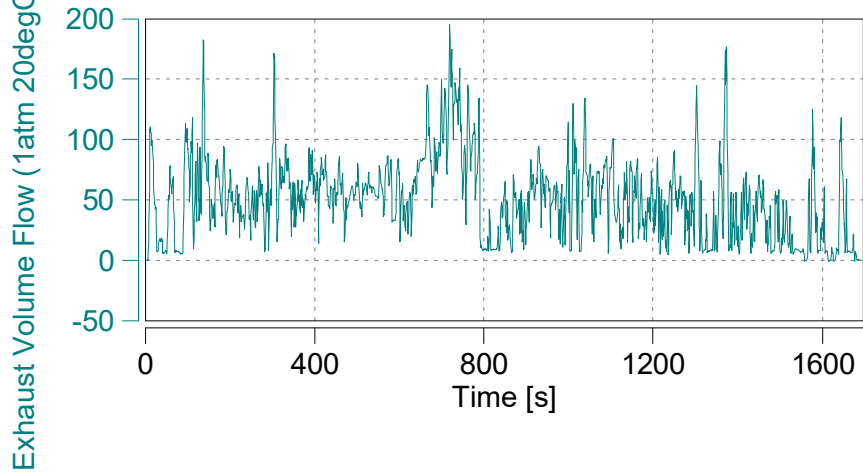
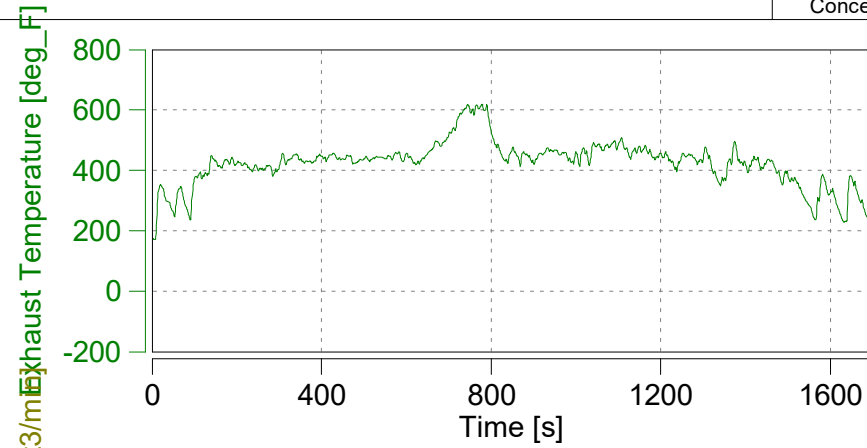
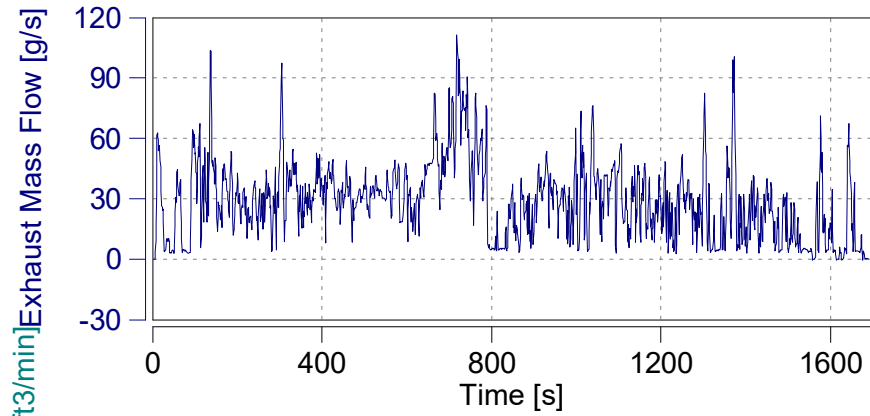


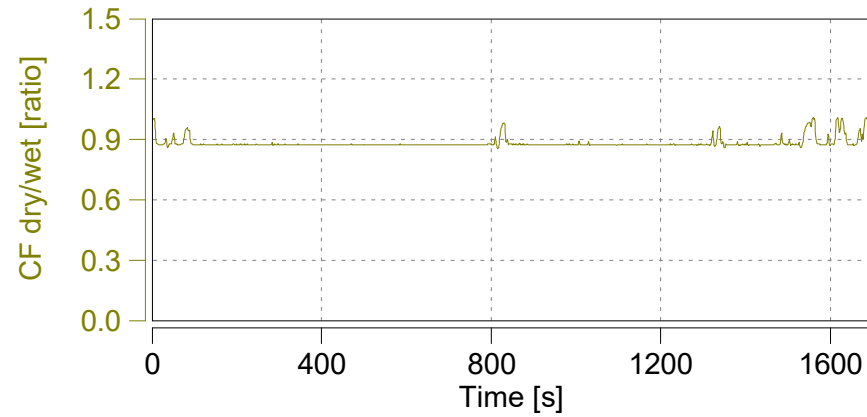
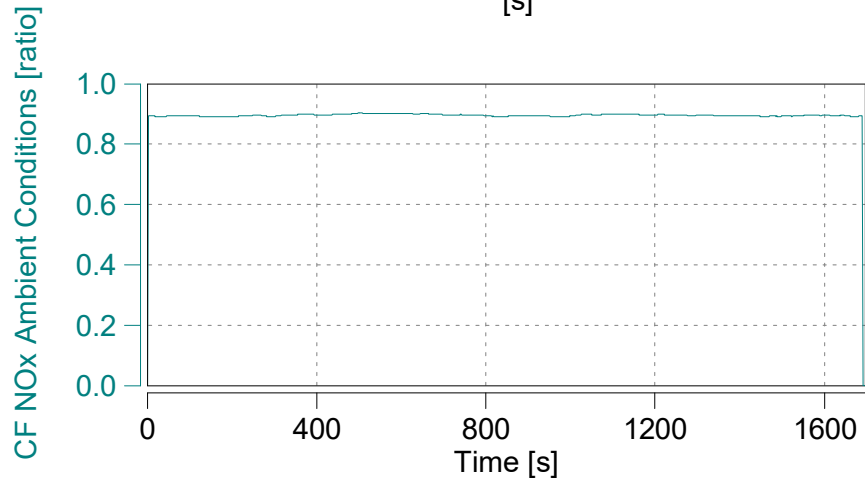
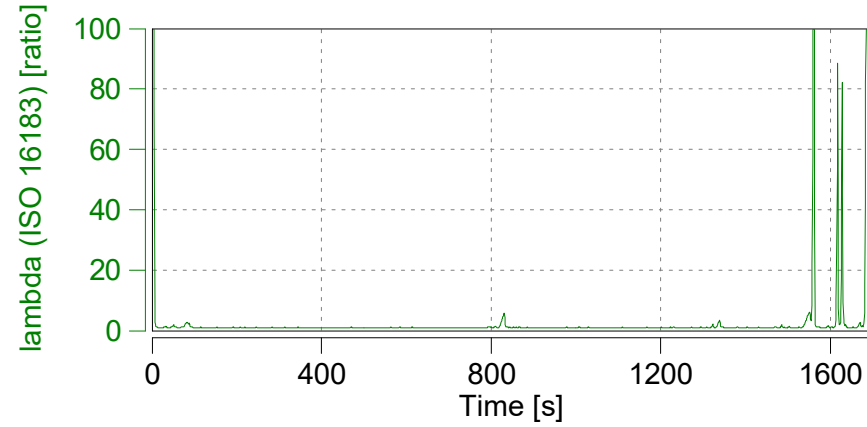
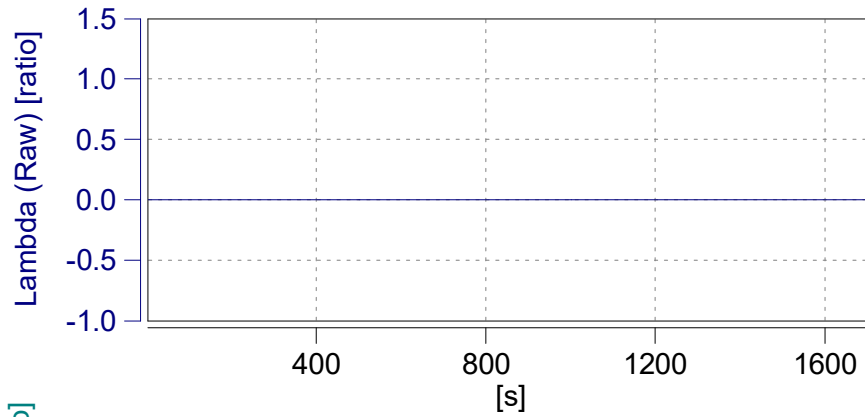


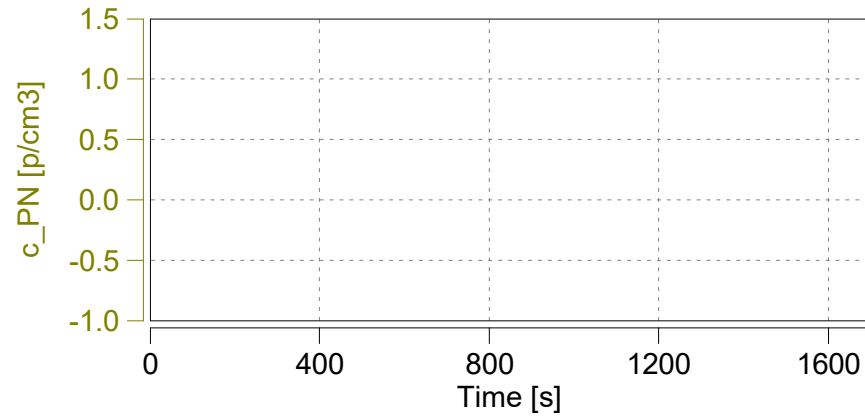
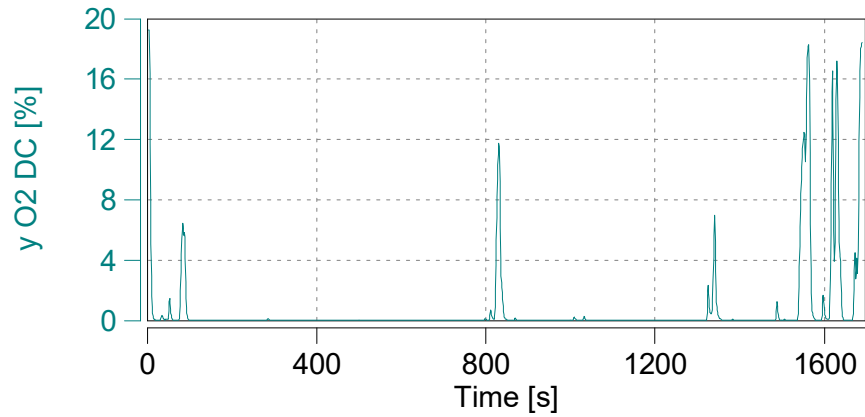
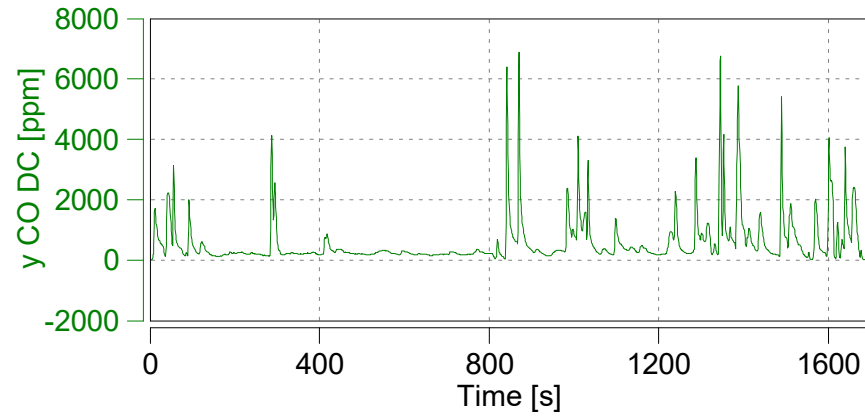
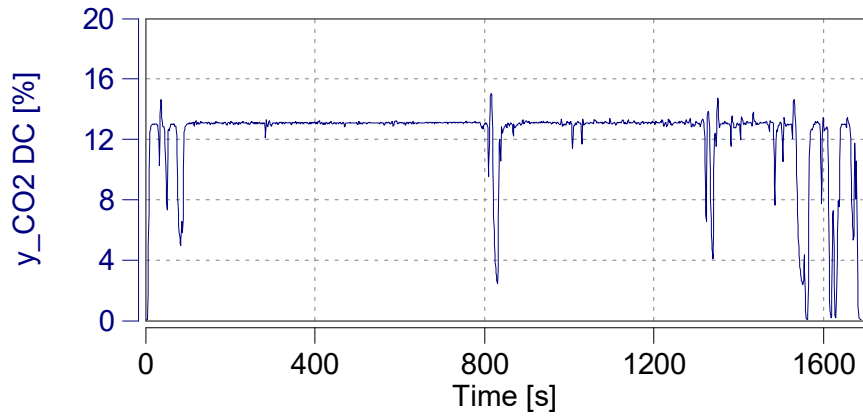


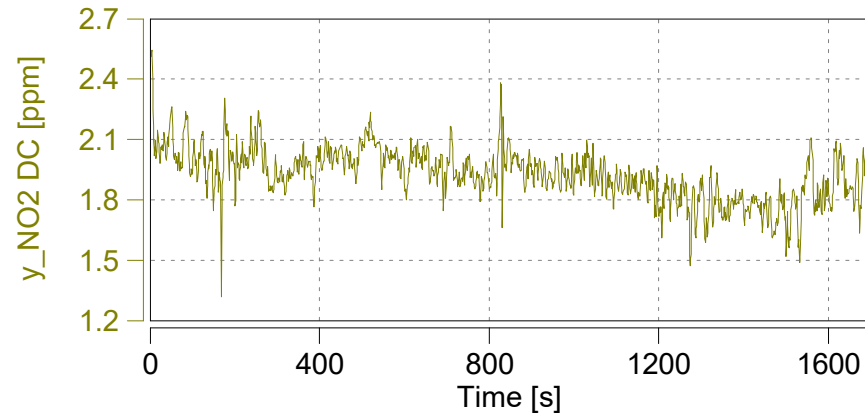
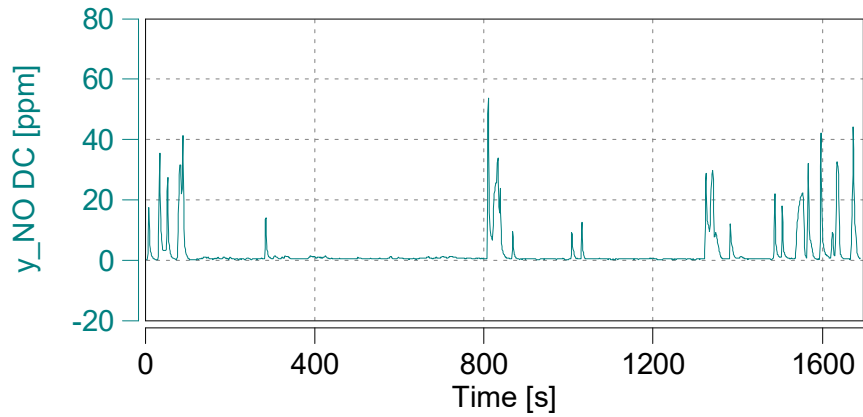
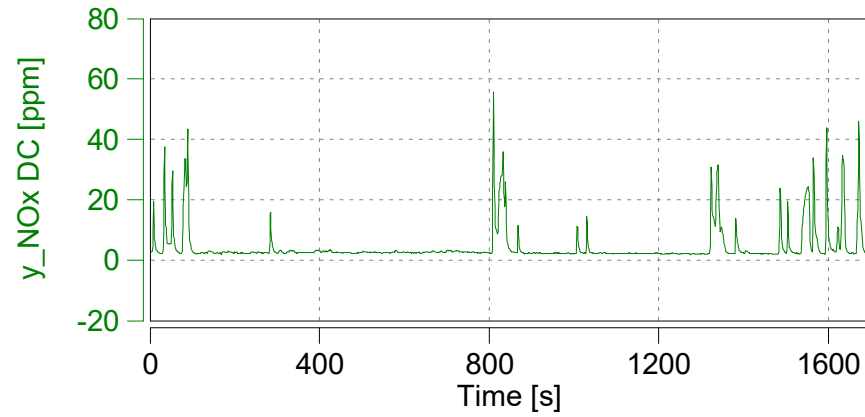
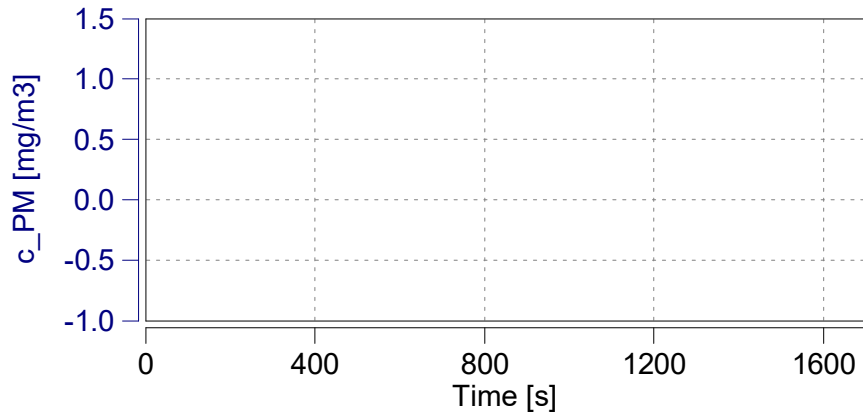


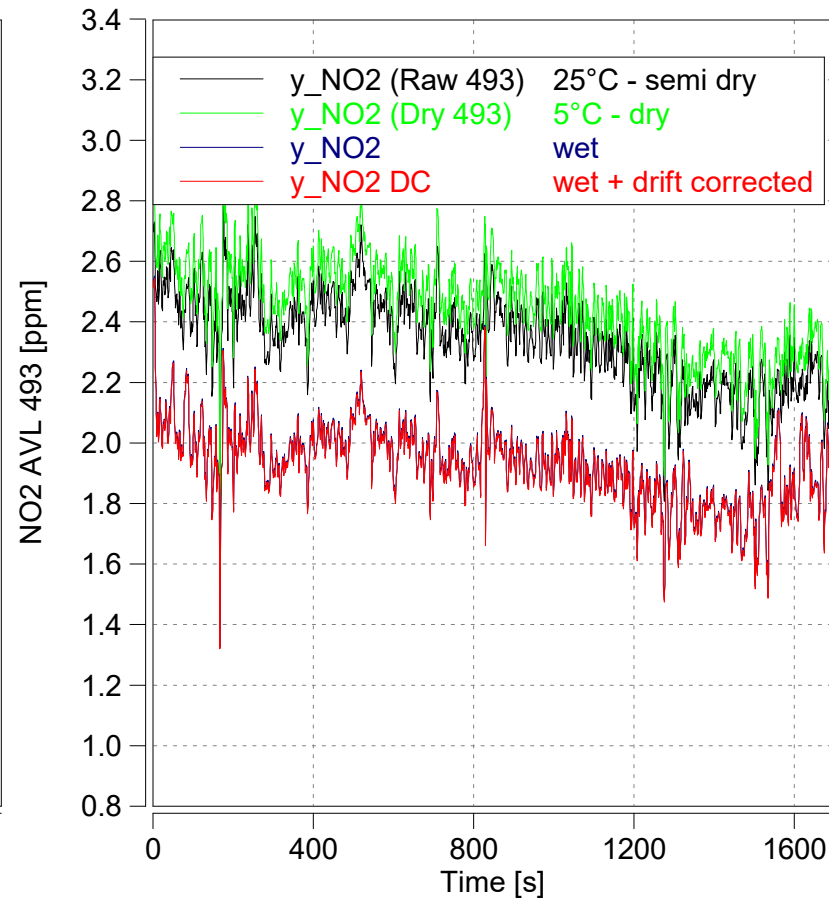
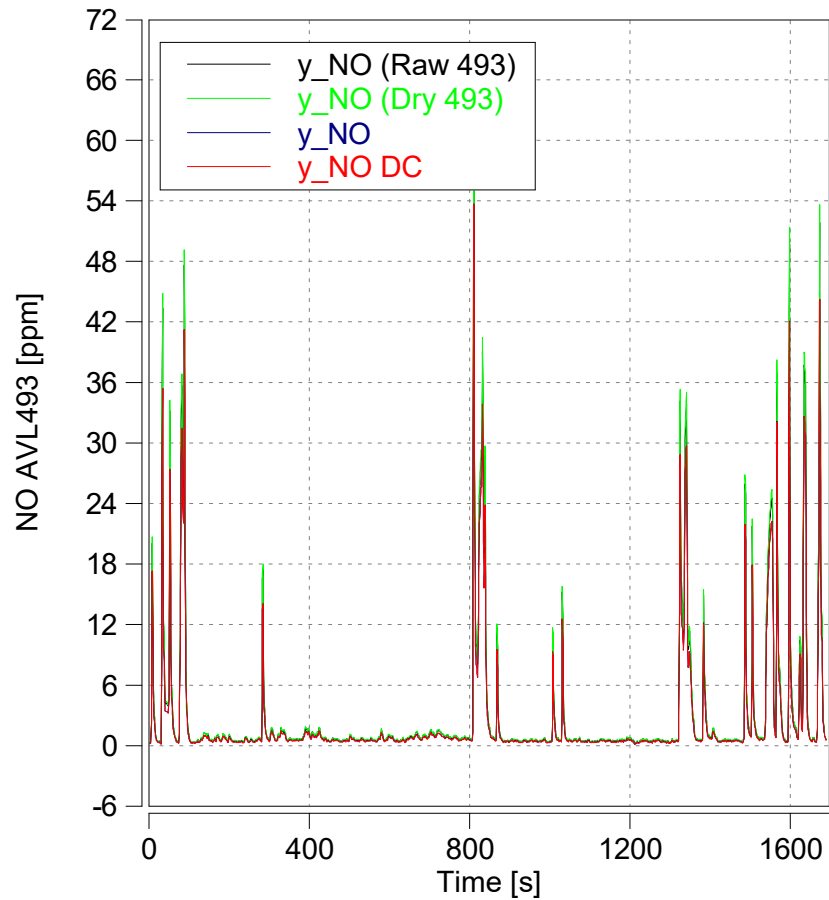


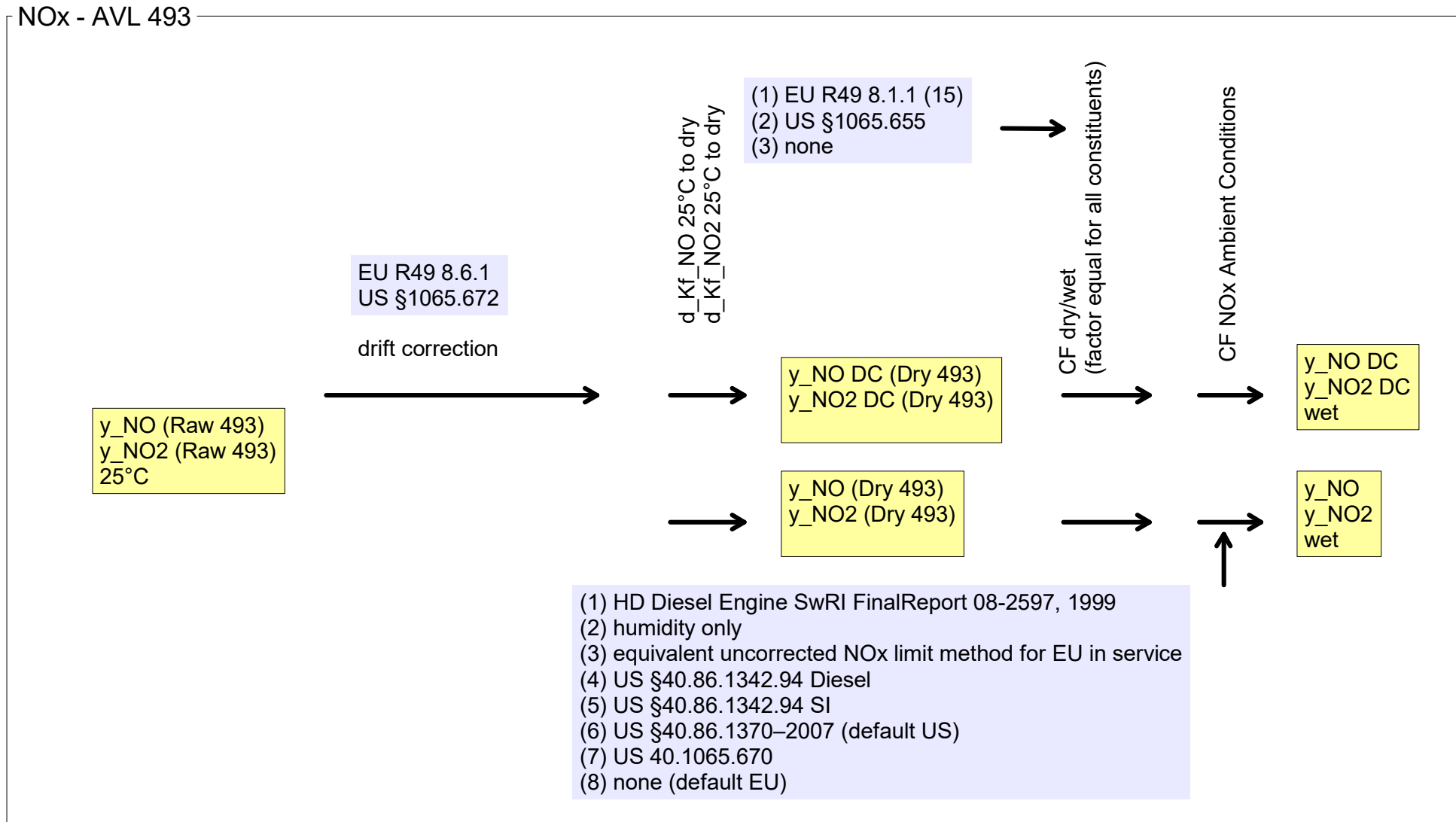


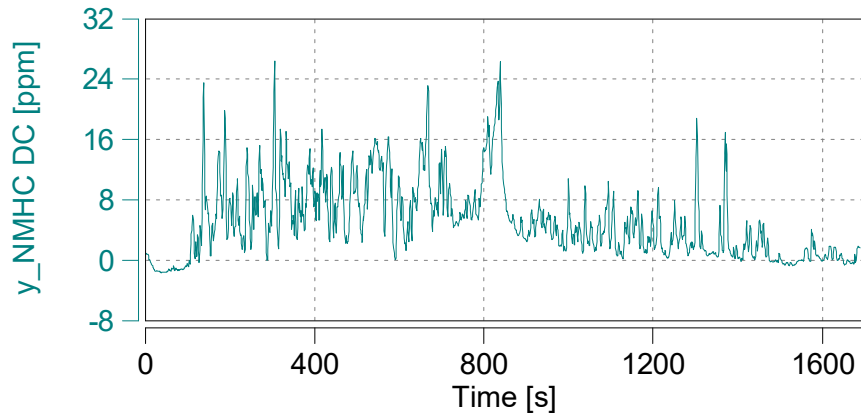
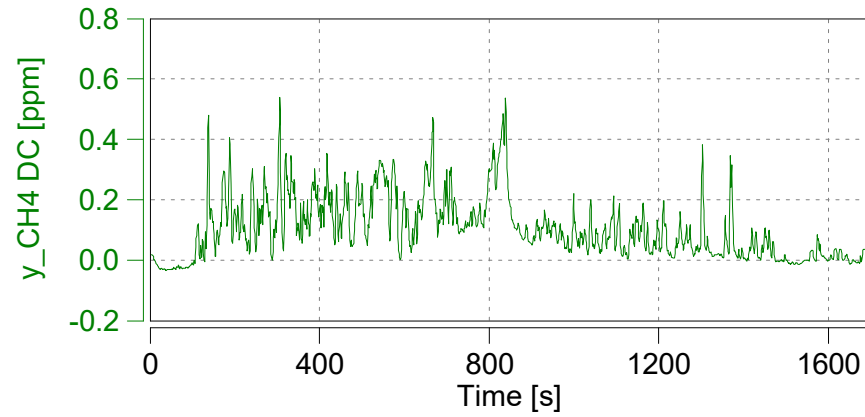
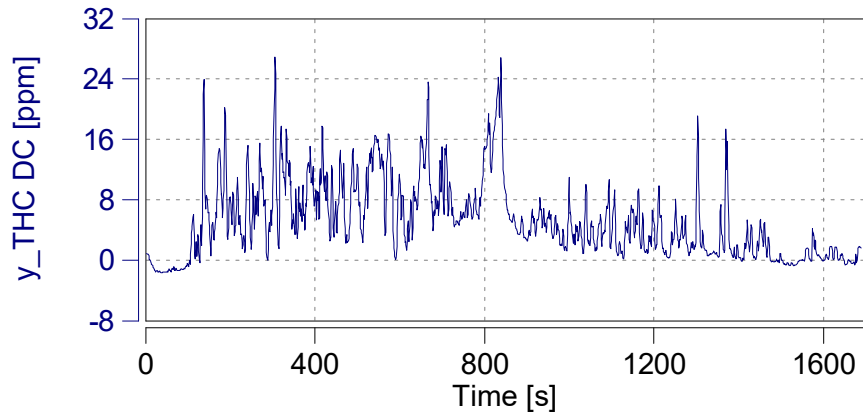


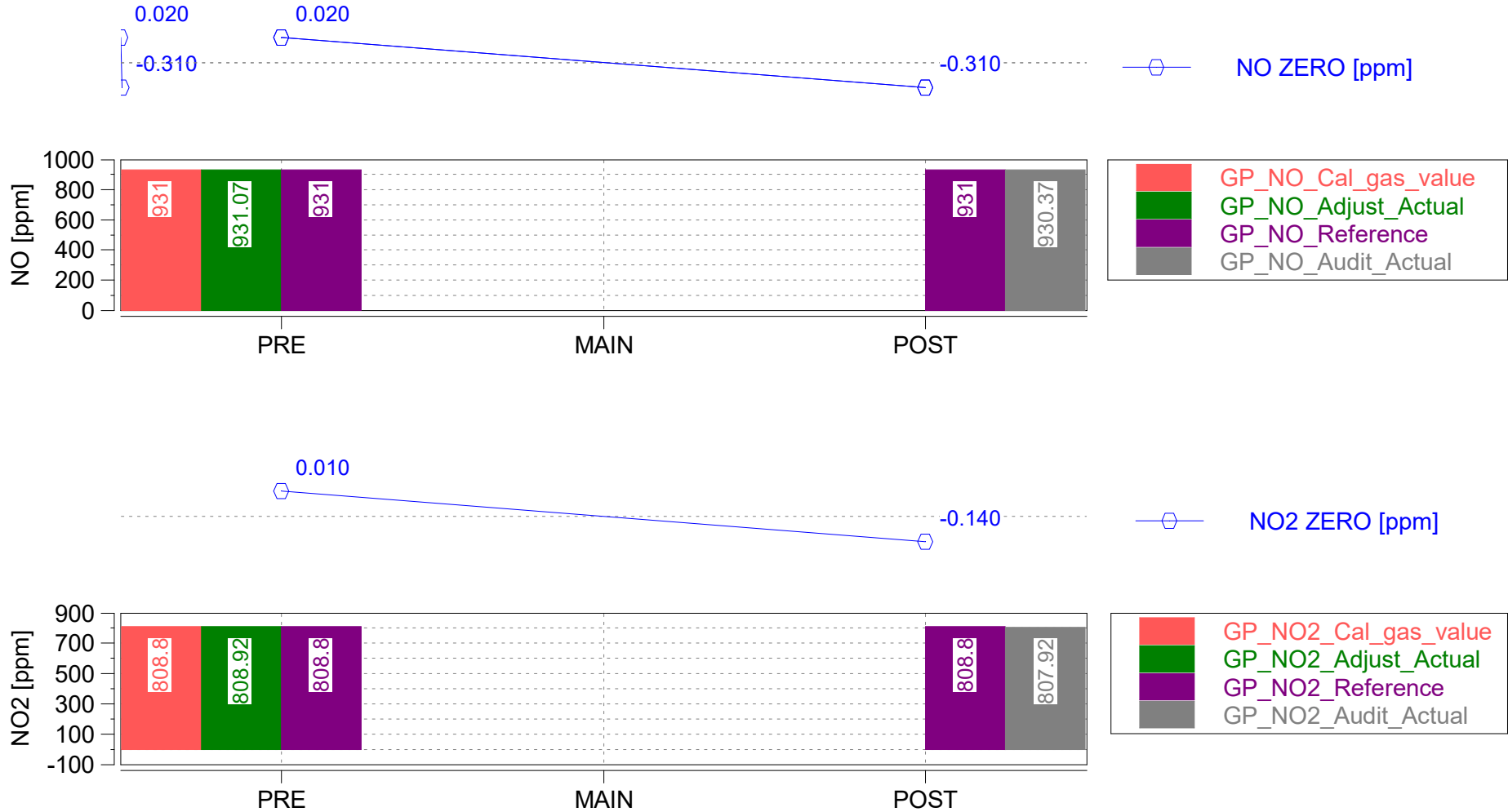


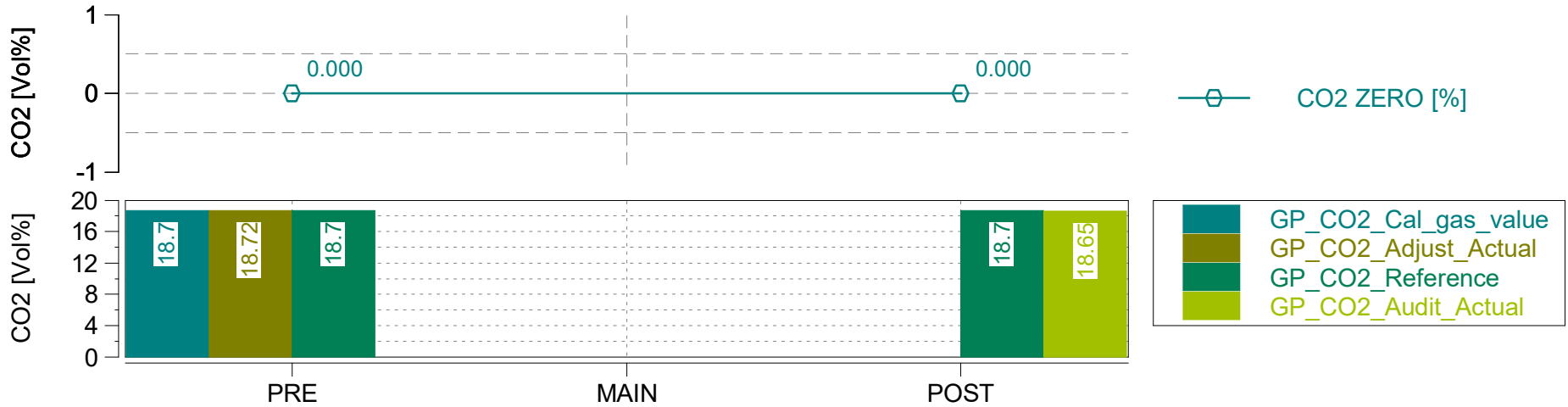
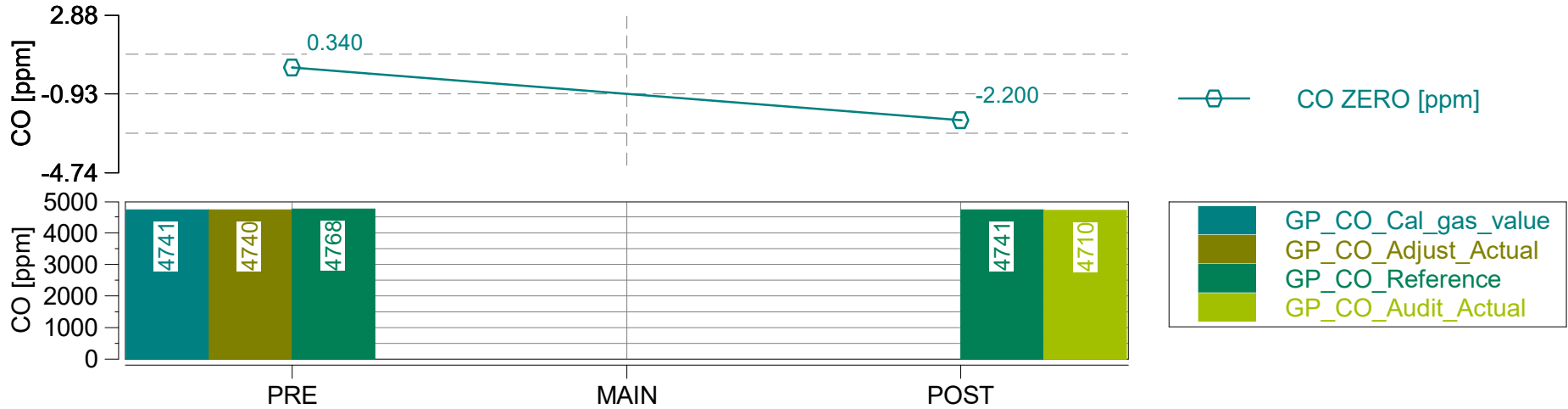


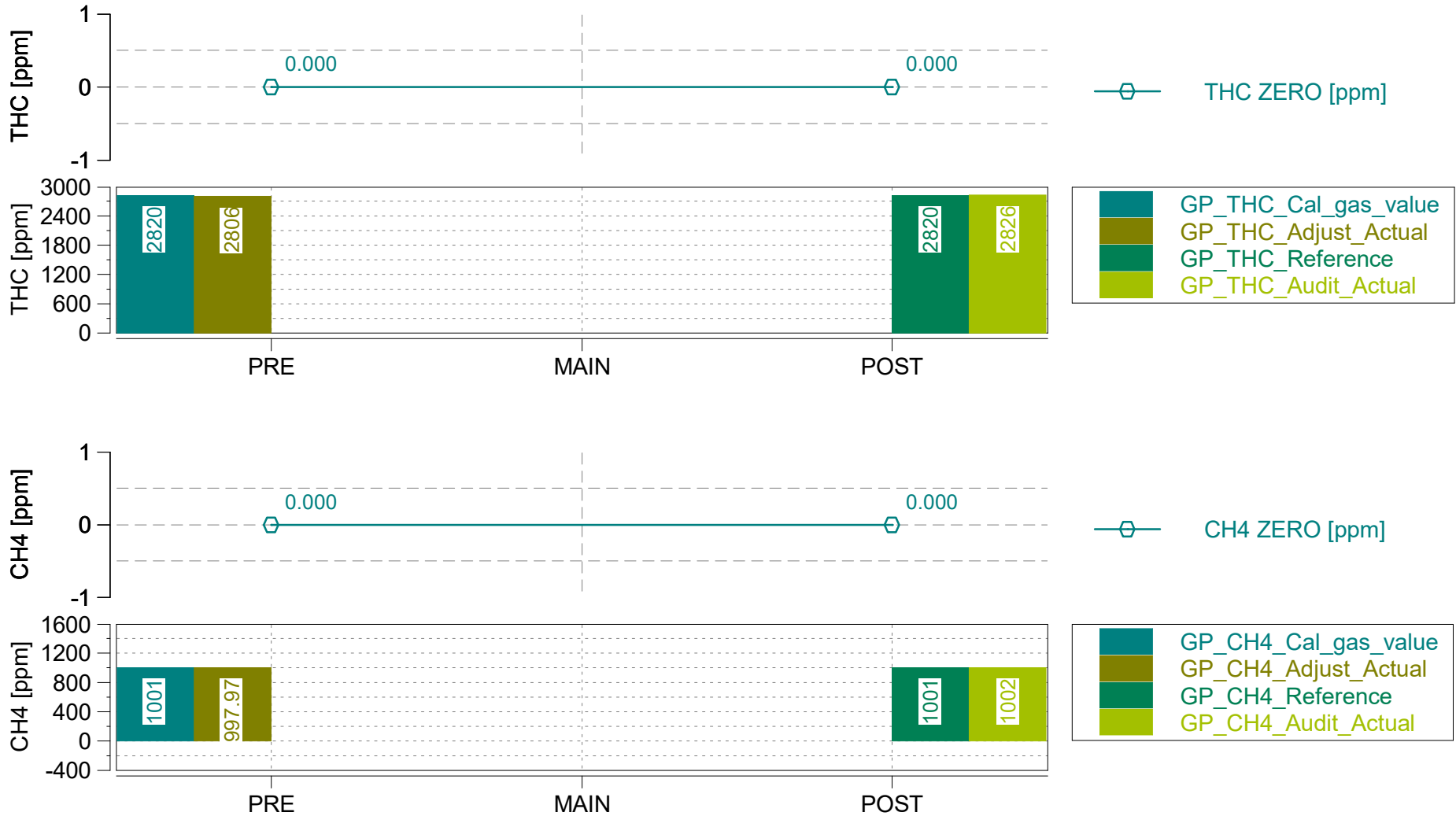














§	criterium	condition	value		
GAS Leak Check	The leakage rate on the vacuum side shall not exceed 0.5 per cent of the in-use flow rate for the portion of the system being checked.	The leakage rate <= 0.5%	0.18		
PN Leak Check	n/a	n/a	n/a		
PM Leak Check	n/a	n/a	n/a		

GAS PEMS Devices

Device ID	AVL492
Serial Number	0597
Firmware Version	V1.18
Main Test Date	2022-11-14
Leak Check Age [days]	0

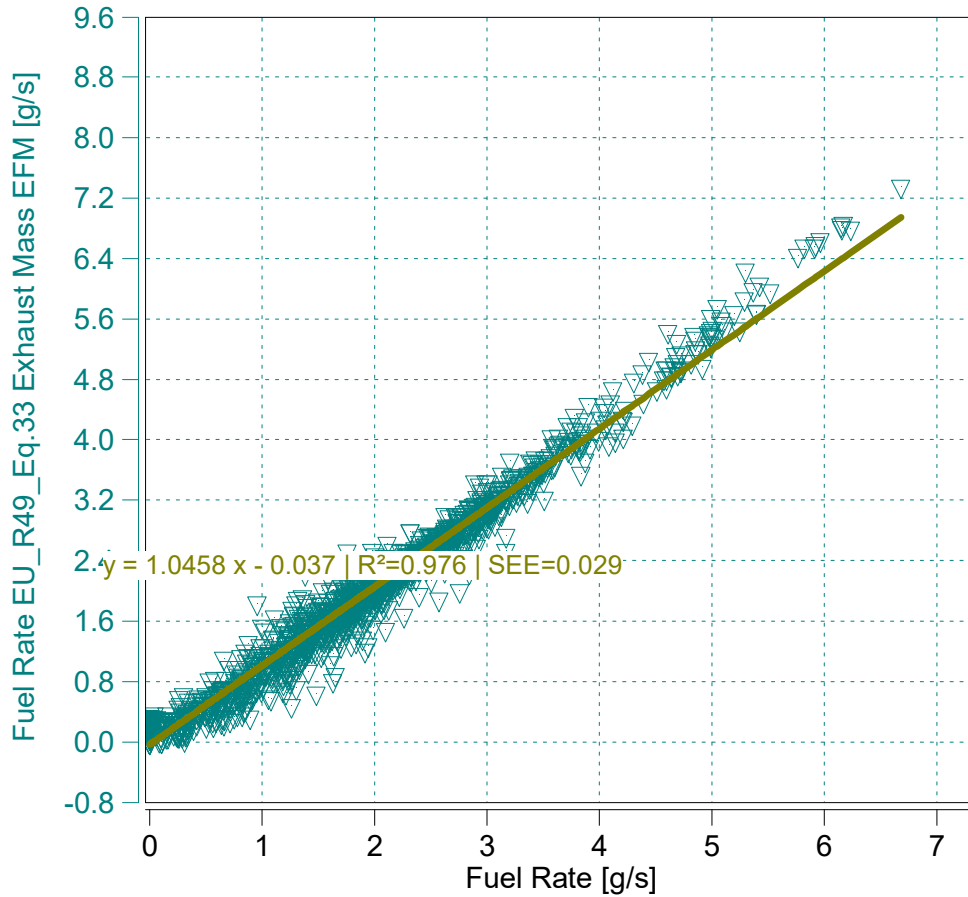
Device ID	AVL4925iS
Serial Number	202
Firmware Version	1.23.0.3

EFM

Device ID	AVL495
Serial Number	00826
Serial Number Tube	01080
Firmware Version	V1.18

System Control

SC Version	R18.0.2_b242
SC Serial Number	60301151



EU 582/2011/Appendix I/3.2.1 | Fuel Rate ECU and calculated

$y = 1.0458 x - 0.037 \mid R^2=0.976 \mid SEE=0.029$

$m = 1.05$ (0.9 - 1.1 recommended)

$R^2 = 0.98$ (min 0.9 mandatory)

Data from - to [% of Maximum]



Trip Duration	1805.00	s
Trip Duration (a)	1805.00	s
Trip Distance	28.53	mi
Trip Distance (a)	28.53	mi
Trip Fuel Cons. (b)	2.44	kg
Trip Fuel Cons. (ab)	2.44	kg
Trip Fuel Cons. EU (ac)	2.52	kg
Trip Fuel Cons. US (ac)	2.52	kg
Trip Fuel Economy (b)	33.15	mpg_US
Trip Fuel Economy (ab)	33.15	mpg_US
Trip Fuel Economy EU (ac)	32.06	mpg_US
Trip Fuel Economy US (ac)	32.07	mpg_US
Trip Fuel Economy GGE (b)	33.15	mpg_US
Trip Fuel Economy GGE (ab)	33.15	mpg_US
Trip Fuel Economy EU GGE (ac)	32.06	mpg_US
Trip Fuel Economy US GGE (ac)	32.07	mpg_US
Trip Av. Eng. Speed	1643.72	rpm
Trip Av. Torque	72.62	lbft
Trip Av. Power	24.72	hp
Trip Work		
Trip Work (a)	12.34	hphr
Trip Exhaust Mass	38.82	kg
Trip Exhaust Mass EU (ac)	37.41	kg
Trip Exhaust Mass US (ac)	37.44	kg
Trip Av. Amb. Temperature	73.99	deg_F
Trip Av. Humidity	19.46	%
Trip Av. GPS Altitude	213.61	m
Fuel Type	Petrol (E10)	

ave THC	0.00565	ppm
ave NMHC	0.00554	ppm
ave CH4	0.00011	ppm
ave CO	820.99897	ppm
ave CO2	12.04445	%
ave NOx	4.11115	ppm
ave PM	n/a	mg/m3
ave Soot meas	n/a	mg/m3
ave Soot	n/a	mg/m3
ave PN	n/a	#/cm3
tot THC	0.03341	g
tot NMHC	0.03091	g
tot CH4	0.00074	g
tot CO	31.90226	g
tot CO2	7605.09634	g
tot NO (d)	0.08625	g
tot NO2	0.06456	g
tot NOx	0.14464	g
tot Soot	n/a	g
tot Soot meas	n/a	g
tot PM	n/a	g
tot PN	n/a	#
PM measurement type	0.00000	-
tot Soot on PM filter (estim.)	0.00000	mg
Soot --> PM simple scaling factor	1.00000	-
Trip Av. Veh. Speed	57.15287	mi/hr
Trip Distance Share Urban	5.75139	% distance
Trip Distance Share Rural	5.66583	% distance
Trip Distance Share Motorway	88.58278	% distance

BS CO2	616.24813	g/hphr
BS CO	2.58507	g/hphr
BS THC	0.00271	g/hphr
BS NMHC	0.00250	g/hphr
BS CH4	0.00006	g/hphr
BS NO (d)	0.00699	g/hphr
BS NO2	0.00523	g/hphr
BS NOx	0.01172	g/hphr
BS Soot	n/a	g/hphr
BS Soot meas	n/a	g/hphr
BS PM	n/a	g/hphr
BS PN	n/a	#/hpr
DS CO2	266.57604	g/mi
DS CO	1.11825	g/mi
DS THC	0.00117	g/mi
DS NMHC	0.00108	g/mi
DS CH4	0.00003	g/mi
DS NO (d)	0.00302	g/mi
DS NO2	0.00226	g/mi
DS NOx	0.00507	g/mi
DS Soot	n/a	g/mi
DS Soot meas	n/a	g/mi
DS PM	n/a	g/mi
DS PN	n/a	#/mi
FS CO2	3122.78617	g/kg
FS CO	13.09963	g/kg
FS THC	0.01372	g/kg
FS NMHC	0.01269	g/kg
FS CH4	0.00030	g/kg
FS NO (d)	0.03542	g/kg
FS NO2	0.02651	g/kg
FS NOx	0.05939	g/kg
FS Soot	n/a	g/kg
FS Soot meas	n/a	g/kg
FS PM	n/a	g/kg
FS PN	n/a	#/kg

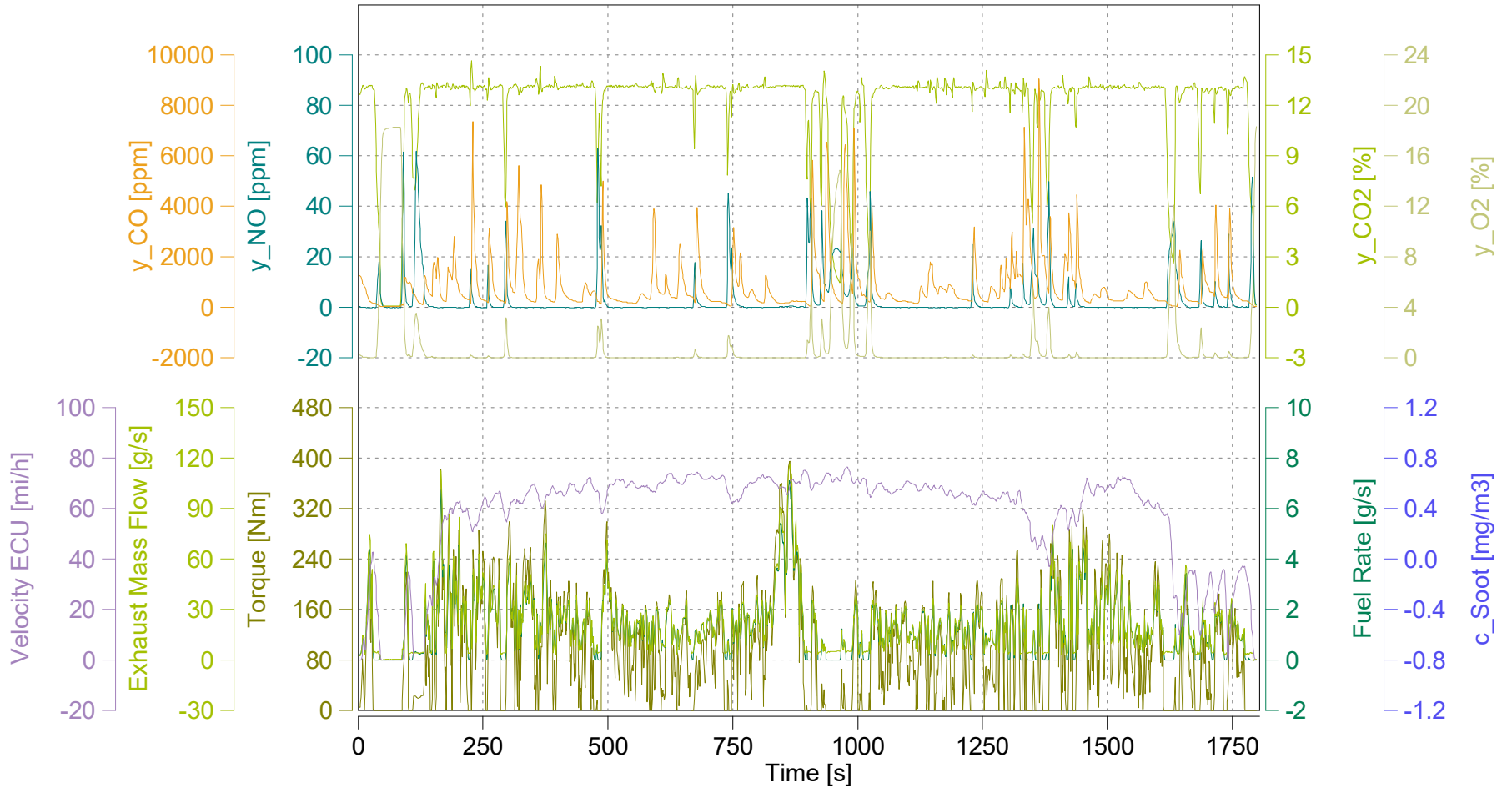
(a) GAS PEMS measurement state only, (b) based on fuel rate input (ECU, Fuel Meter), (c) Based on A/F ratio (eq 28-32 - R49)
(d) NO calculated using molecular weight of NO2, GGE=Gasoline Gallon Equivalents

Trip Duration	1805.00	s
Trip Duration (a)	1805.00	s
Trip Distance	28.53	mi
Trip Distance (a)	28.53	mi
Trip Fuel Cons. (b)	2.44	kg
Trip Fuel Cons. (ab)	2.44	kg
Trip Fuel Cons. EU (ac)	2.52	kg
Trip Fuel Cons. US (ac)	2.52	kg
Trip Fuel Economy (b)	33.15	mpg_US
Trip Fuel Economy (ab)	33.15	mpg_US
Trip Fuel Economy EU (ac)	32.06	mpg_US
Trip Fuel Economy US (ac)	32.07	mpg_US
Trip Fuel Economy GGE (b)	33.15	mpg_US
Trip Fuel Economy GGE (ab)	33.15	mpg_US
Trip Fuel Economy EU GGE (ac)	32.06	mpg_US
Trip Fuel Economy US GGE (ac)	32.07	mpg_US
Trip Av. Eng. Speed	1643.72	rpm
Trip Av. Torque	72.62	lbft
Trip Av. Power	24.72	hp
Trip Work		
Trip Work (a)	12.34	hphr
Trip Exhaust Mass	38.82	kg
Trip Exhaust Mass EU (ac)	37.41	kg
Trip Exhaust Mass US (ac)	37.44	kg
Trip Av. Amb. Temperature	73.99	deg_F
Trip Av. Humidity	19.46	%
Trip Av. GPS Altitude	213.61	m
Fuel Type	Petrol (E10)	

ave THC DC	0.00566	ppm
ave NMHC DC	0.00555	ppm
ave CH4 DC	0.00011	ppm
ave CO DC	823.45451	ppm
ave CO2 DC	12.05412	%
ave NOx DC	4.08906	ppm
ave PM	n/a	mg/m3
ave Soot meas	n/a	mg/m3
ave Soot	n/a	mg/m3
ave PN DC		
tot THC DC	0.03346	g
tot NMHC DC	0.03095	g
tot CH4 DC	0.00074	g
tot CO DC	31.99820	g
tot CO2 DC	7611.20158	g
tot NO DC (d)	0.08592	g
tot NO2 DC	0.06411	g
tot NOx DC	0.14326	g
tot Soot	n/a	g
tot Soot meas	n/a	g
tot PM	n/a	g
tot PN DC		
PM measurement type	0.00000	-
tot Soot on PM filter (estim.)	0.00000	mg
Soot --> PM simple scaling factor	1.00000	-
Trip Av. Veh. Speed	57.15287	mi/hr
Trip Distance Share Urban	5.75139	% distance
Trip Distance Share Rural	5.66583	% distance
Trip Distance Share Motorway	88.58278	% distance

BS CO2 DC	616.74284	g/hphr
BS CO DC	2.59284	g/hphr
BS THC DC	0.00271	g/hphr
BS NMHC DC	0.00251	g/hphr
BS CH4 DC	0.00006	g/hphr
BS NO DC (d)	0.00696	g/hphr
BS NO2 DC	0.00519	g/hphr
BS NOx DC	0.01161	g/hphr
BS Soot	n/a	g/hphr
BS Soot meas	n/a	g/hphr
BS PM	n/a	g/hphr
BS PN DC		
DS CO2 DC	266.79004	g/mi
DS CO DC	1.12161	g/mi
DS THC DC	0.00117	g/mi
DS NMHC DC	0.00108	g/mi
DS CH4 DC	0.00003	g/mi
DS NO DC (d)	0.00301	g/mi
DS NO2 DC	0.00225	g/mi
DS NOx DC	0.00502	g/mi
DS Soot	n/a	g/mi
DS Soot meas	n/a	g/mi
DS PM	n/a	g/mi
DS PN DC		
FS CO2 DC	3125.29309	g/kg
FS CO DC	13.13902	g/kg
FS THC DC	0.01374	g/kg
FS NMHC DC	0.01271	g/kg
FS CH4 DC	0.00030	g/kg
FS NO DC (d)	0.03528	g/kg
FS NO2 DC	0.02632	g/kg
FS NOx DC	0.05883	g/kg
FS Soot	n/a	g/kg
FS Soot meas	n/a	g/kg
FS PM	n/a	g/kg
FS PN DC		

(a) GAS PEMS measurement state only, (b) based on fuel rate input (ECU, Fuel Meter), (c) Based on A/F ratio (eq 28-32 - R49)
(d) NO calculated using molecular weight of NO2, GGE=Gasoline Gallon Equivalents



y_THC
y_NO
y_CO2
y_O2
c_Soot
Fuel Rate
Exhaust
Torque
Velocity

AVL 492

THC
NO/NO2
CO/CO2
O2

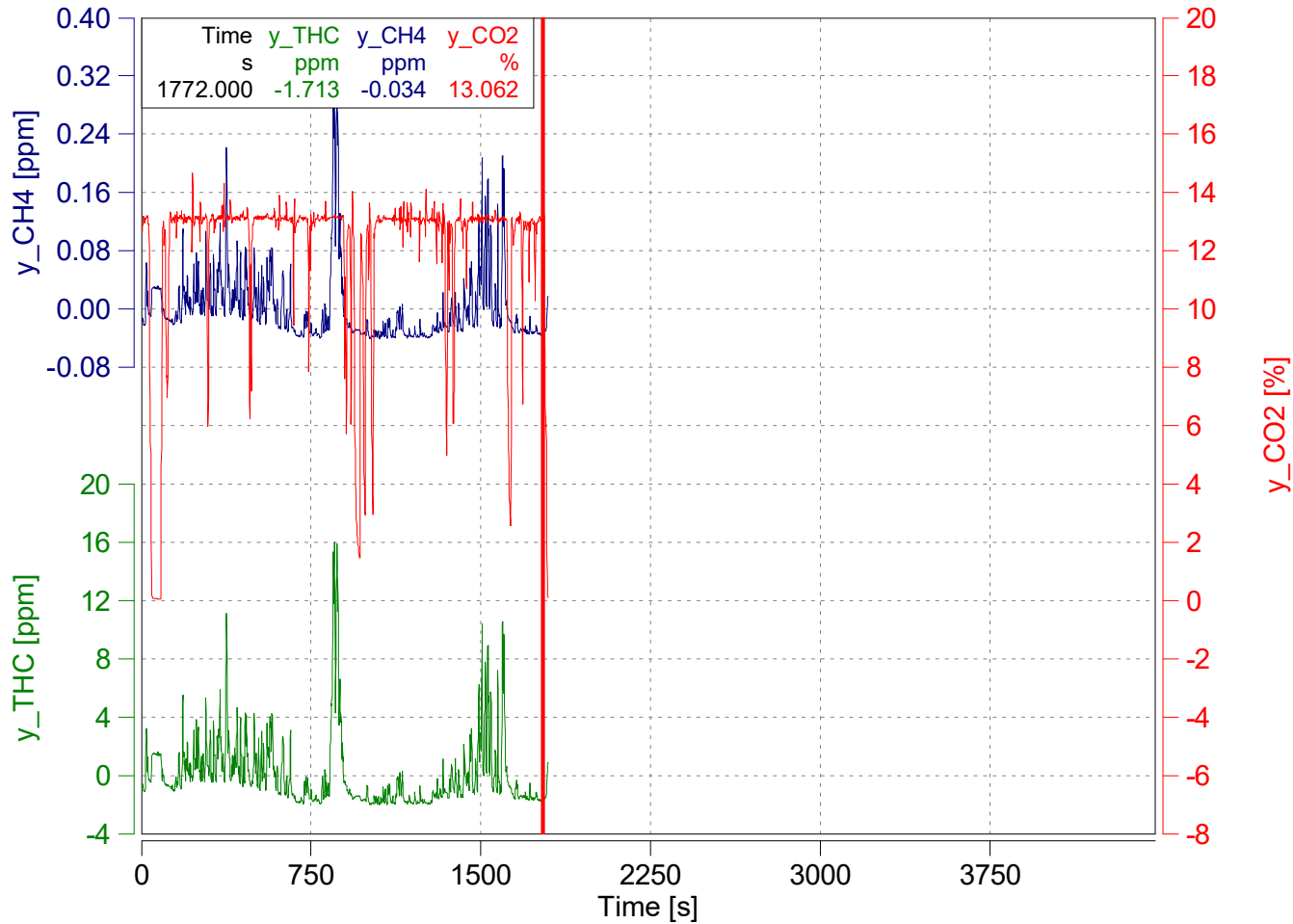
App

Alignme

Reset

Re

App

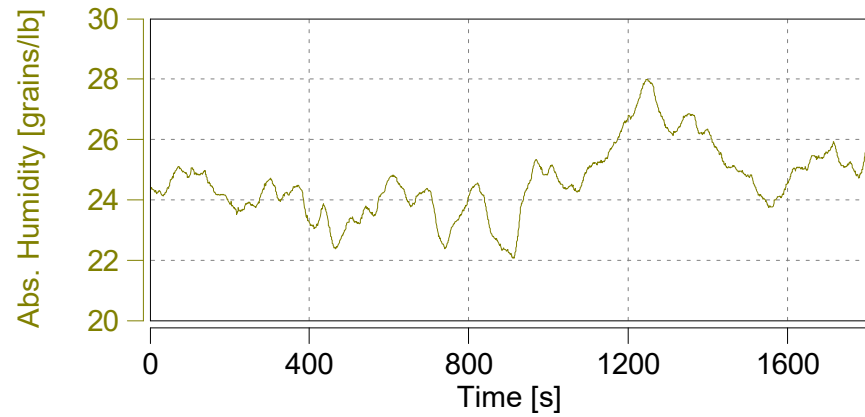
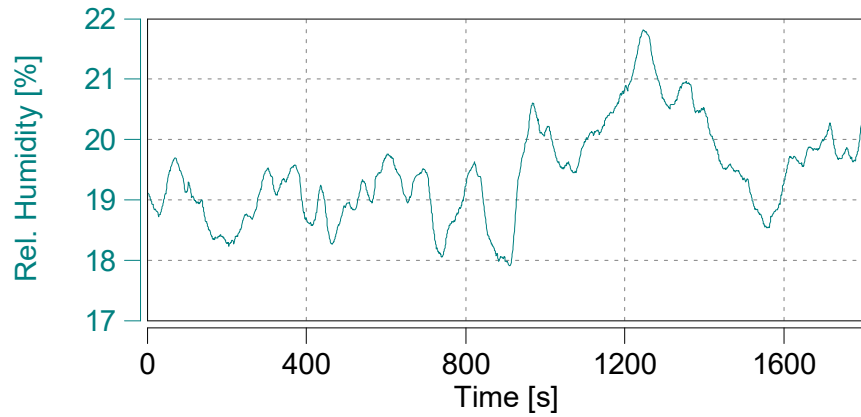
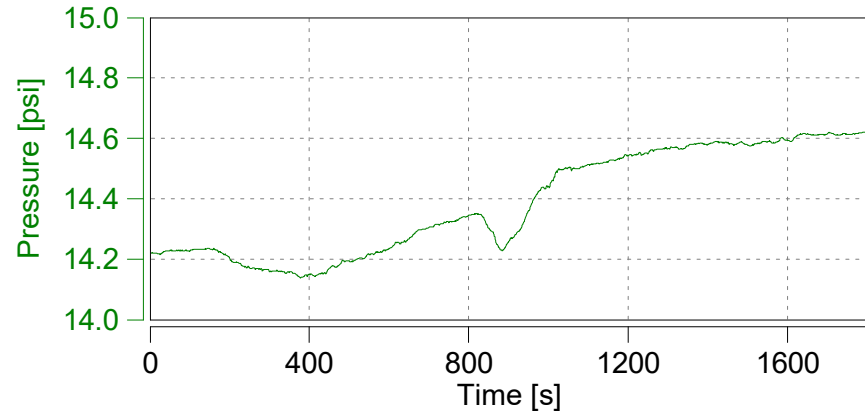
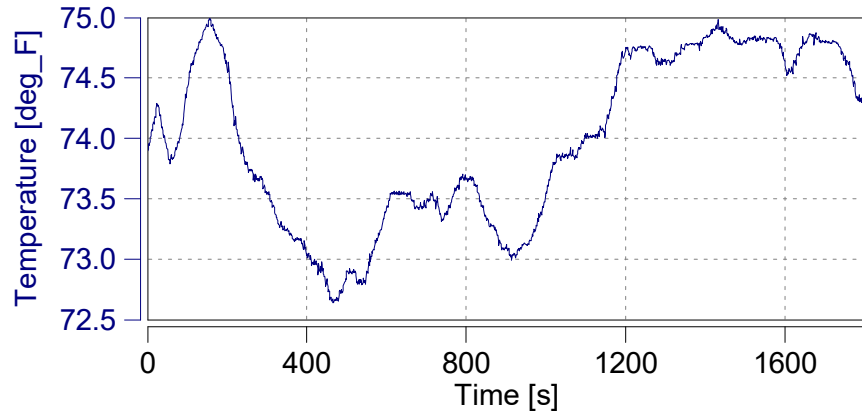


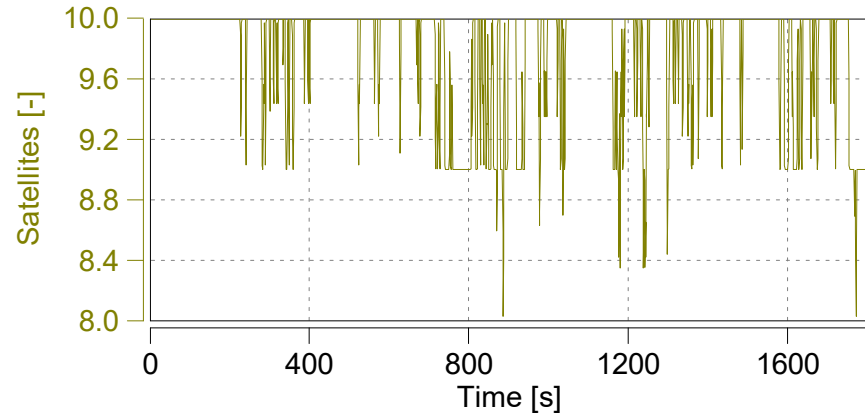
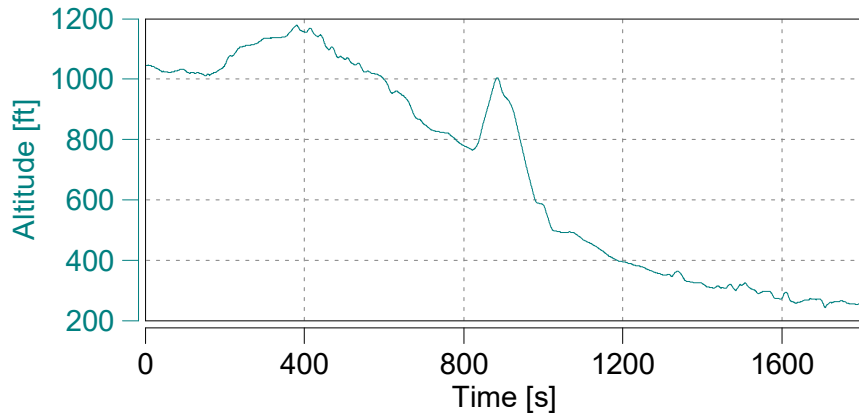
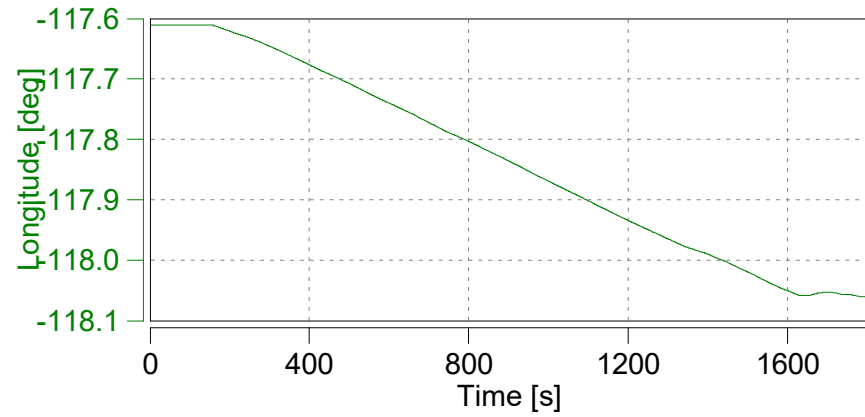
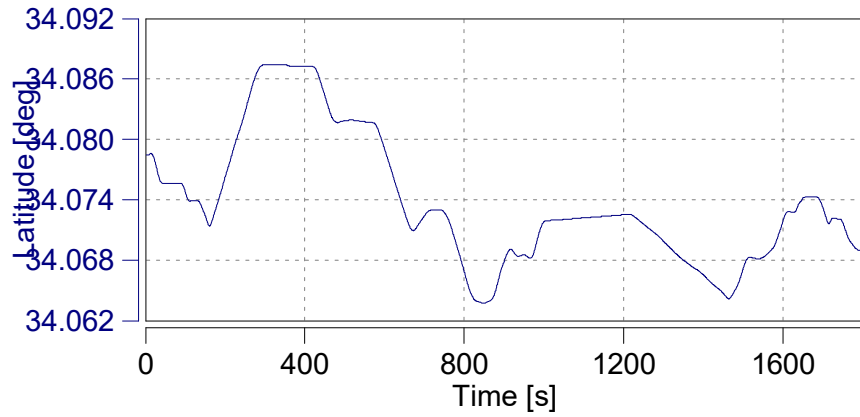
Absolute Time Shifts

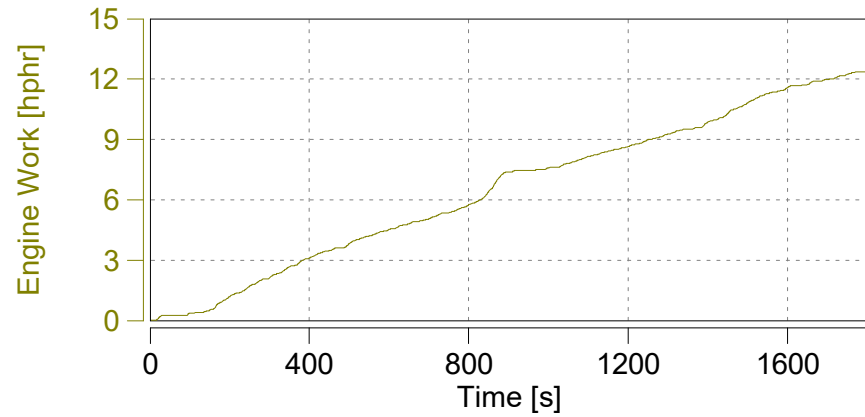
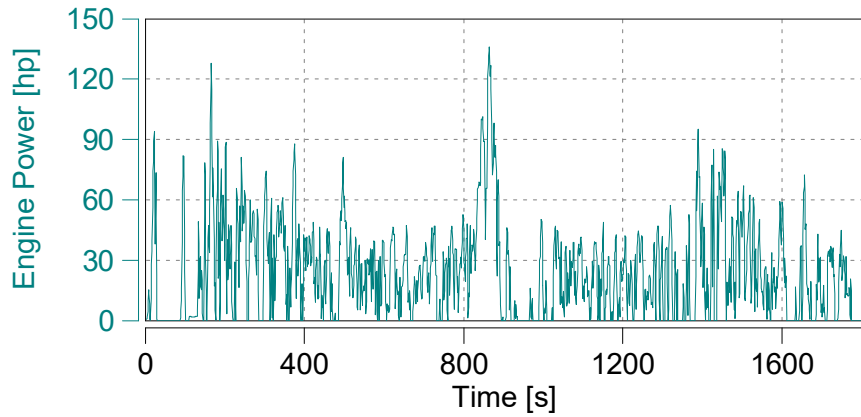
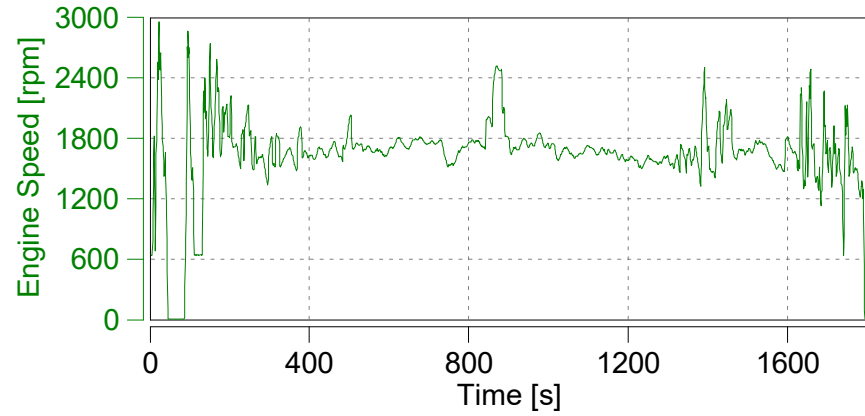
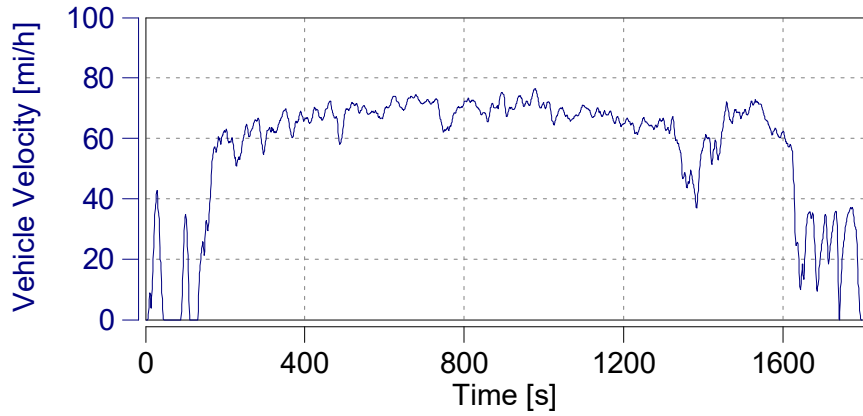
y_THC	s	0.0
y_CH4	s	0.0

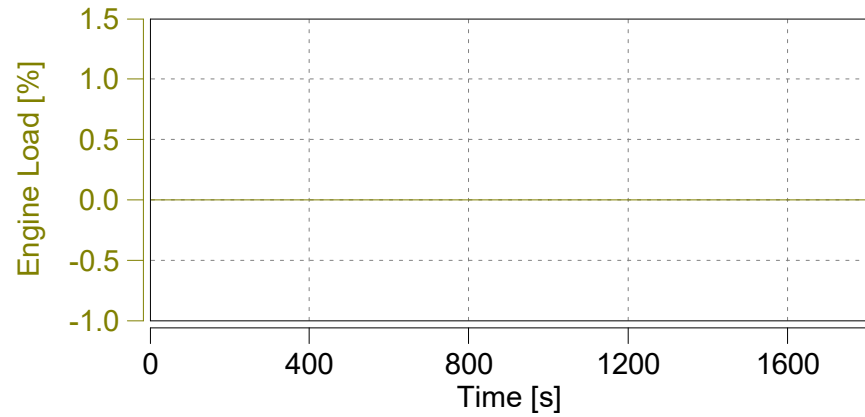
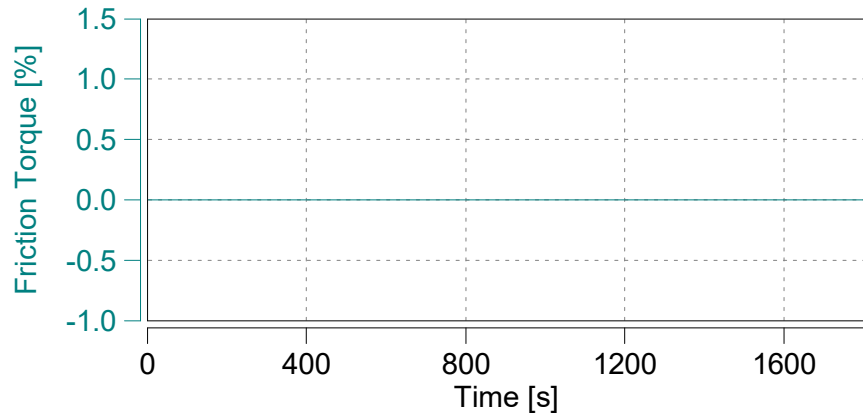
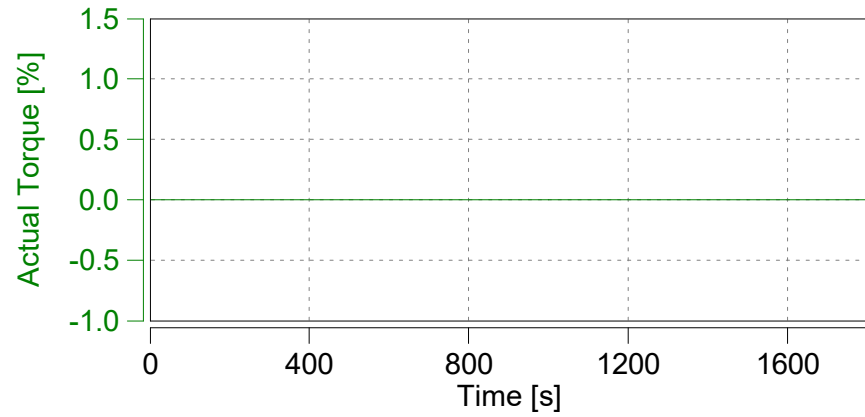
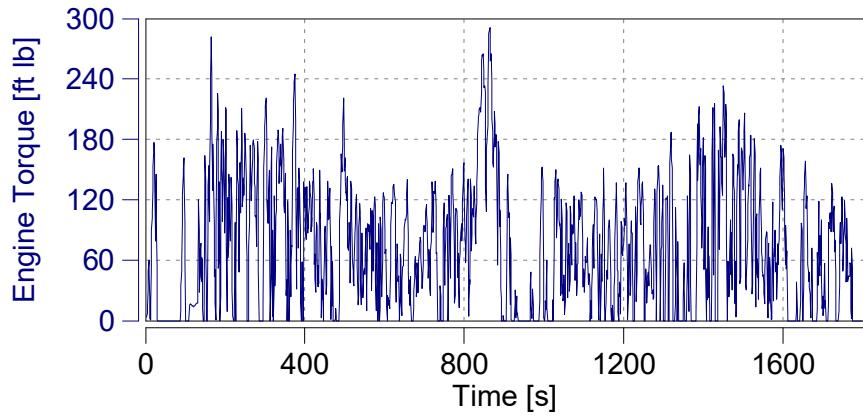
Reset Time Shifts in Plot

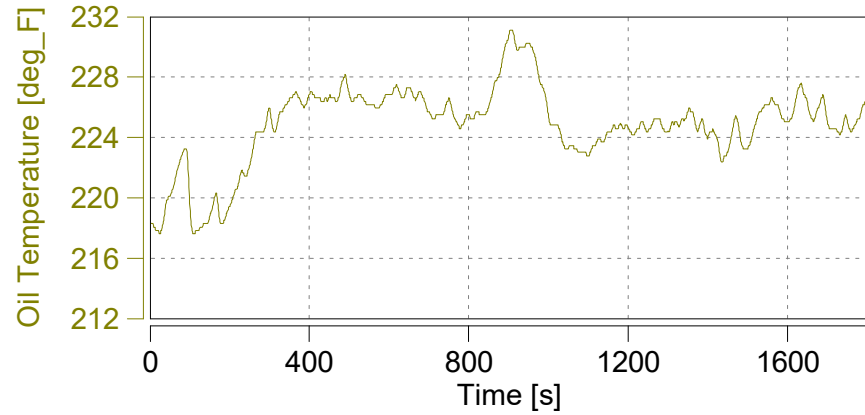
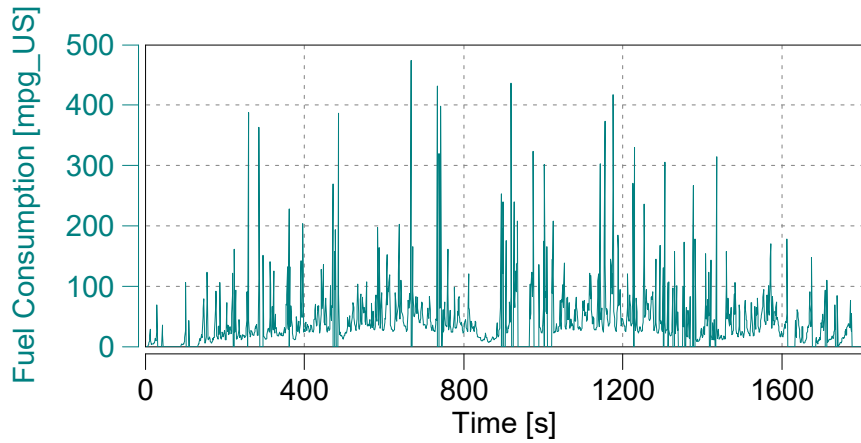
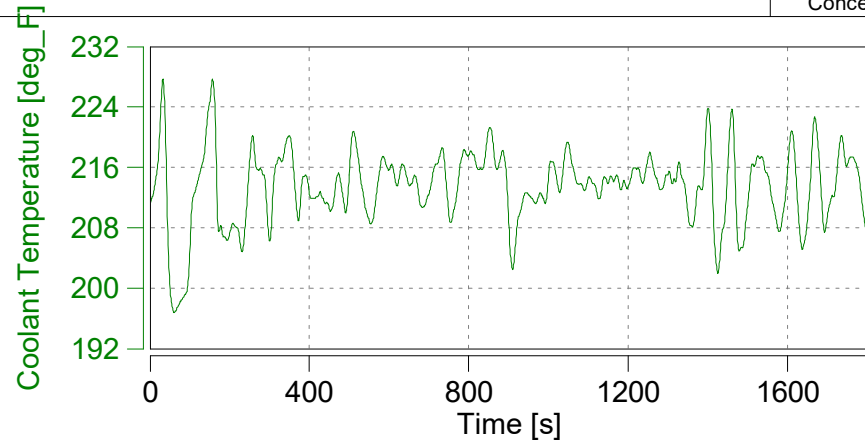
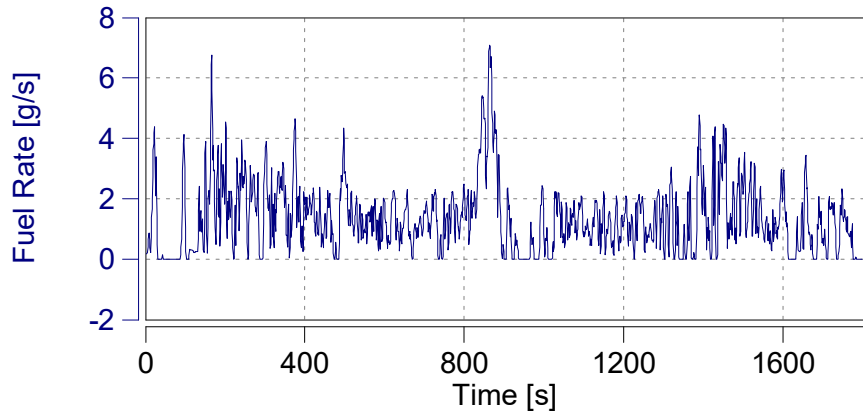
Apply Current Values

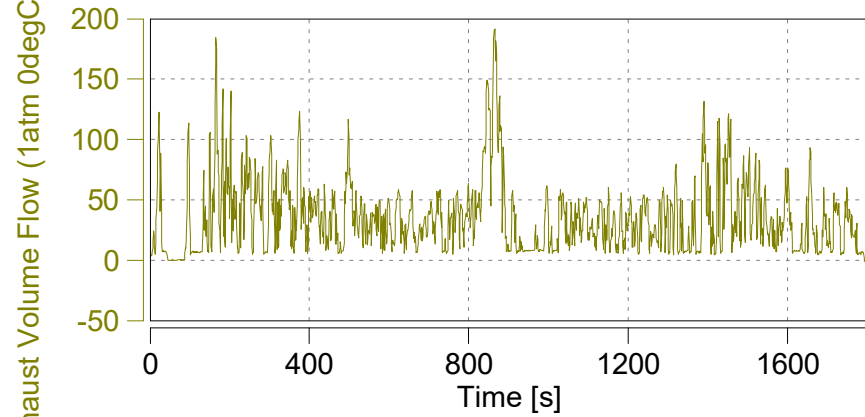
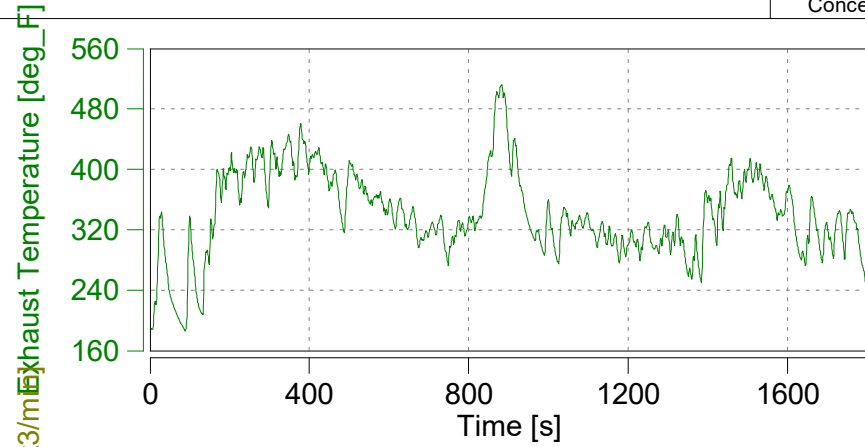
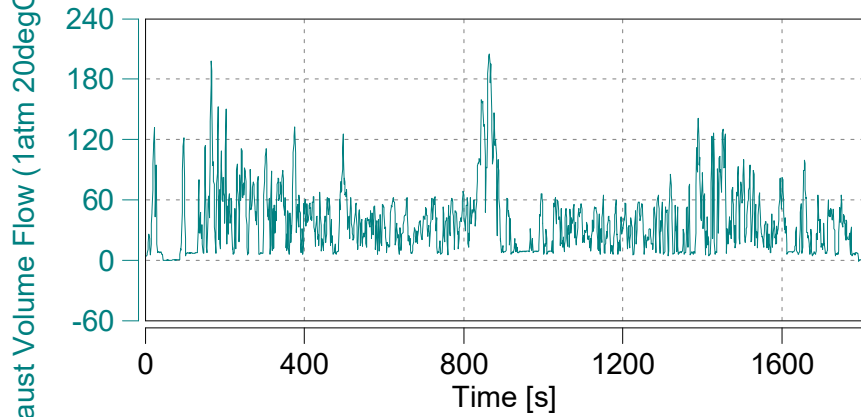
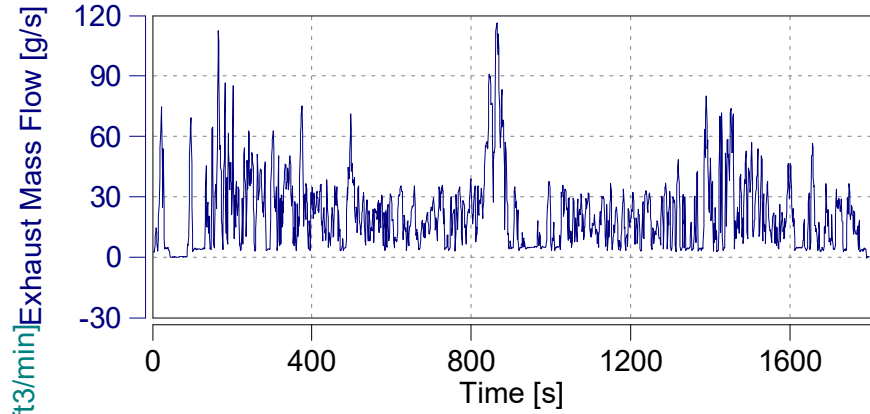


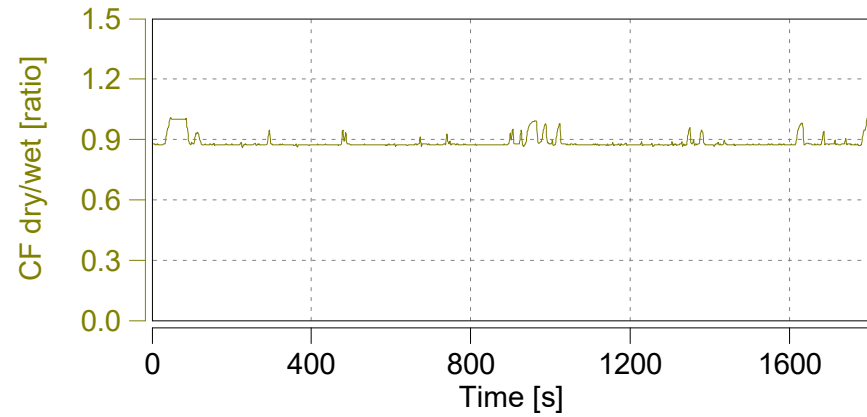
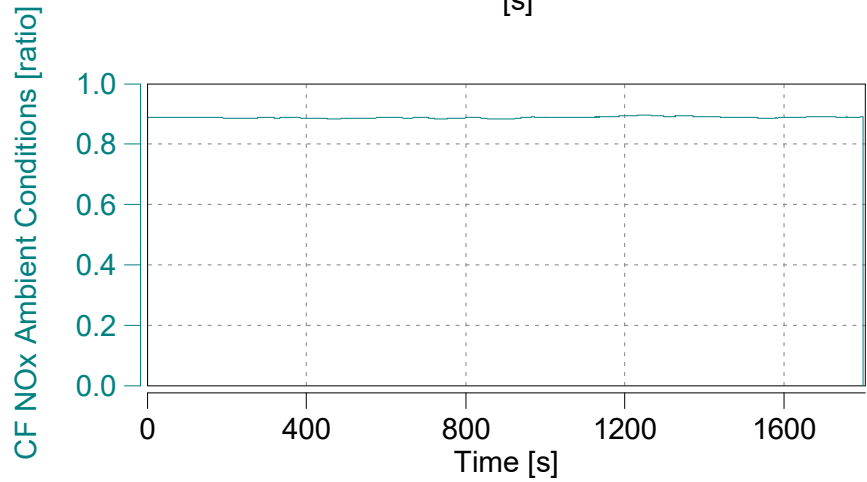
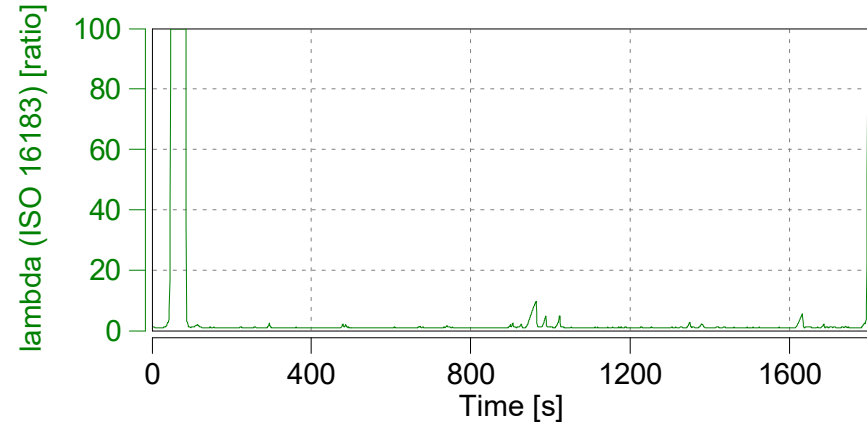
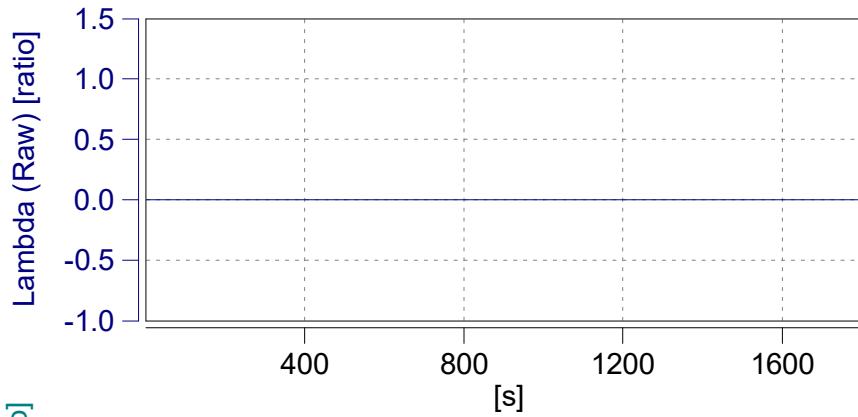


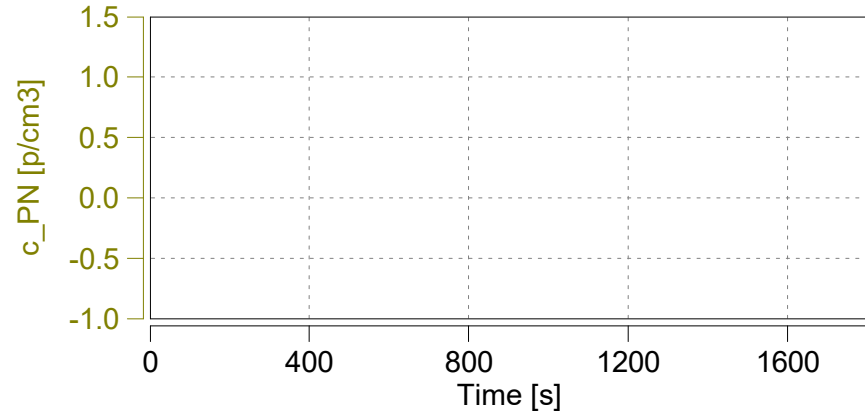
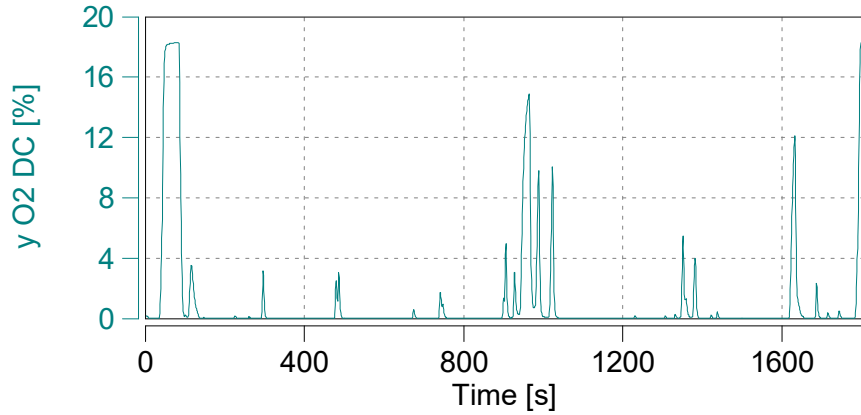
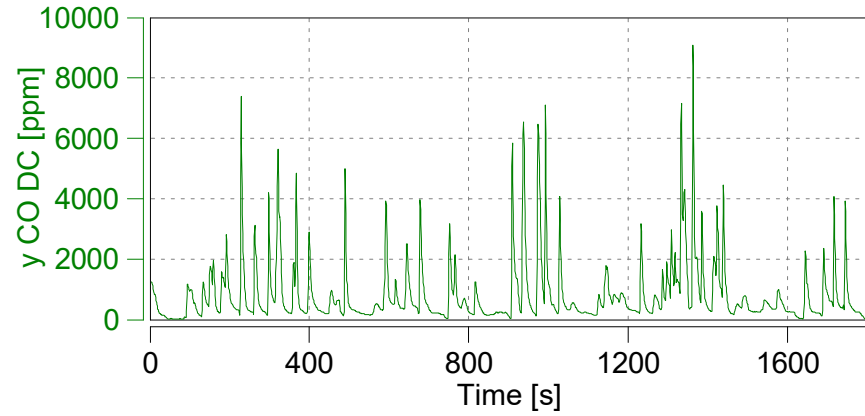
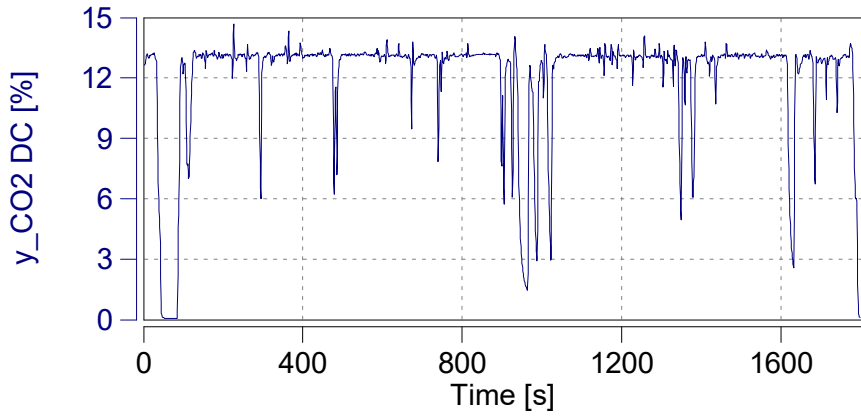


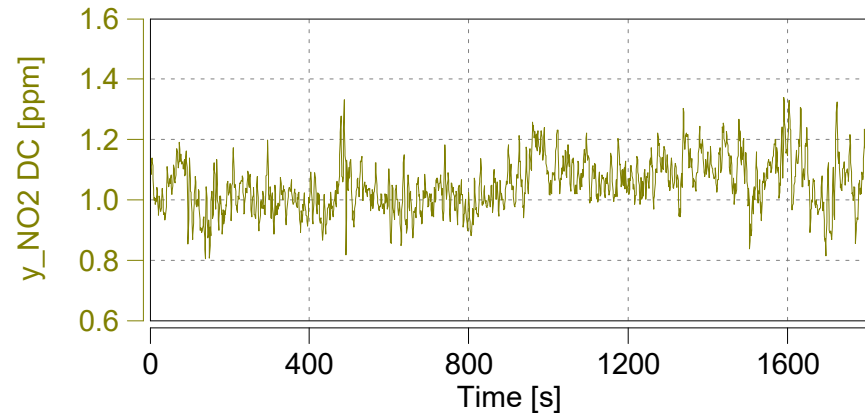
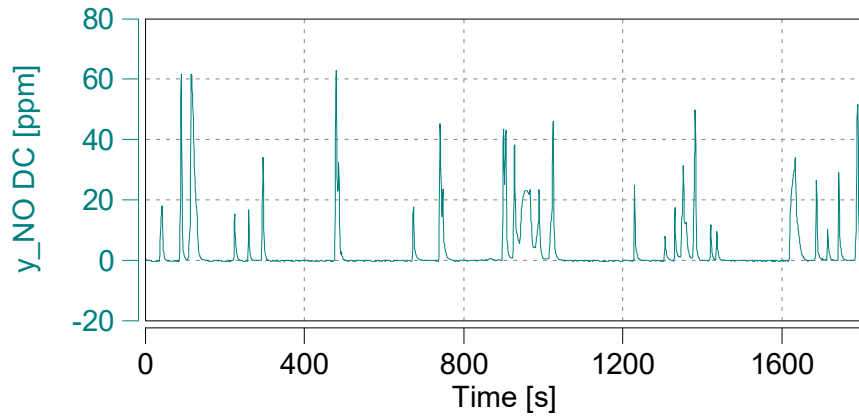
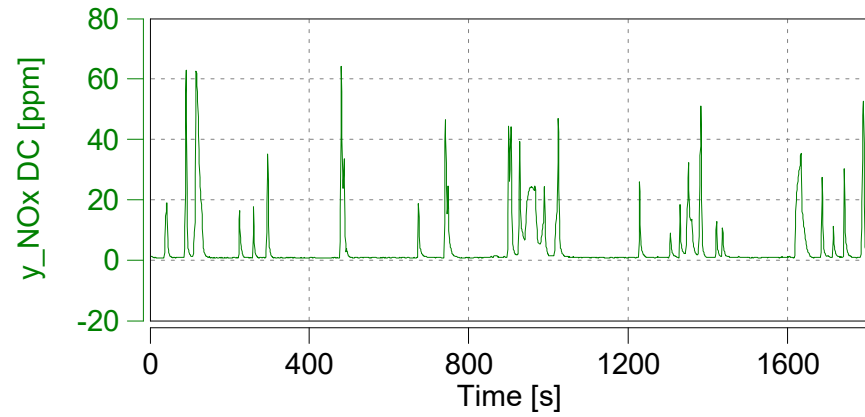
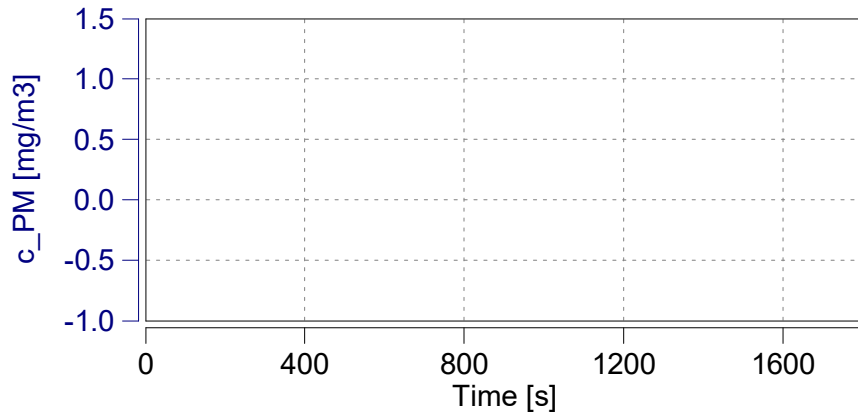


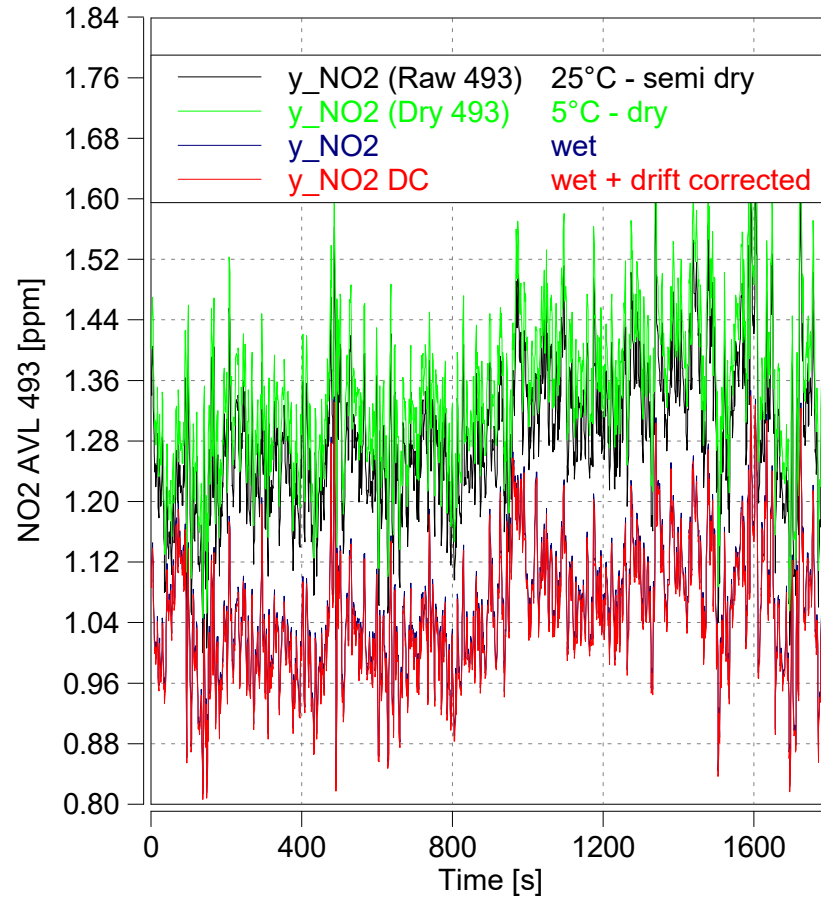
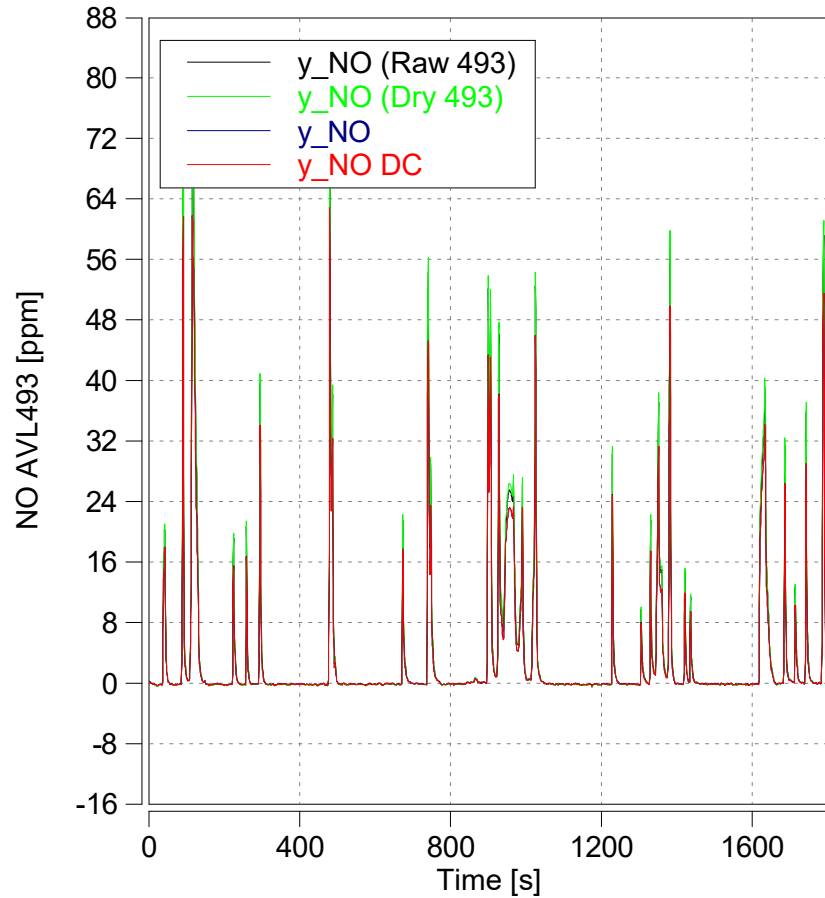


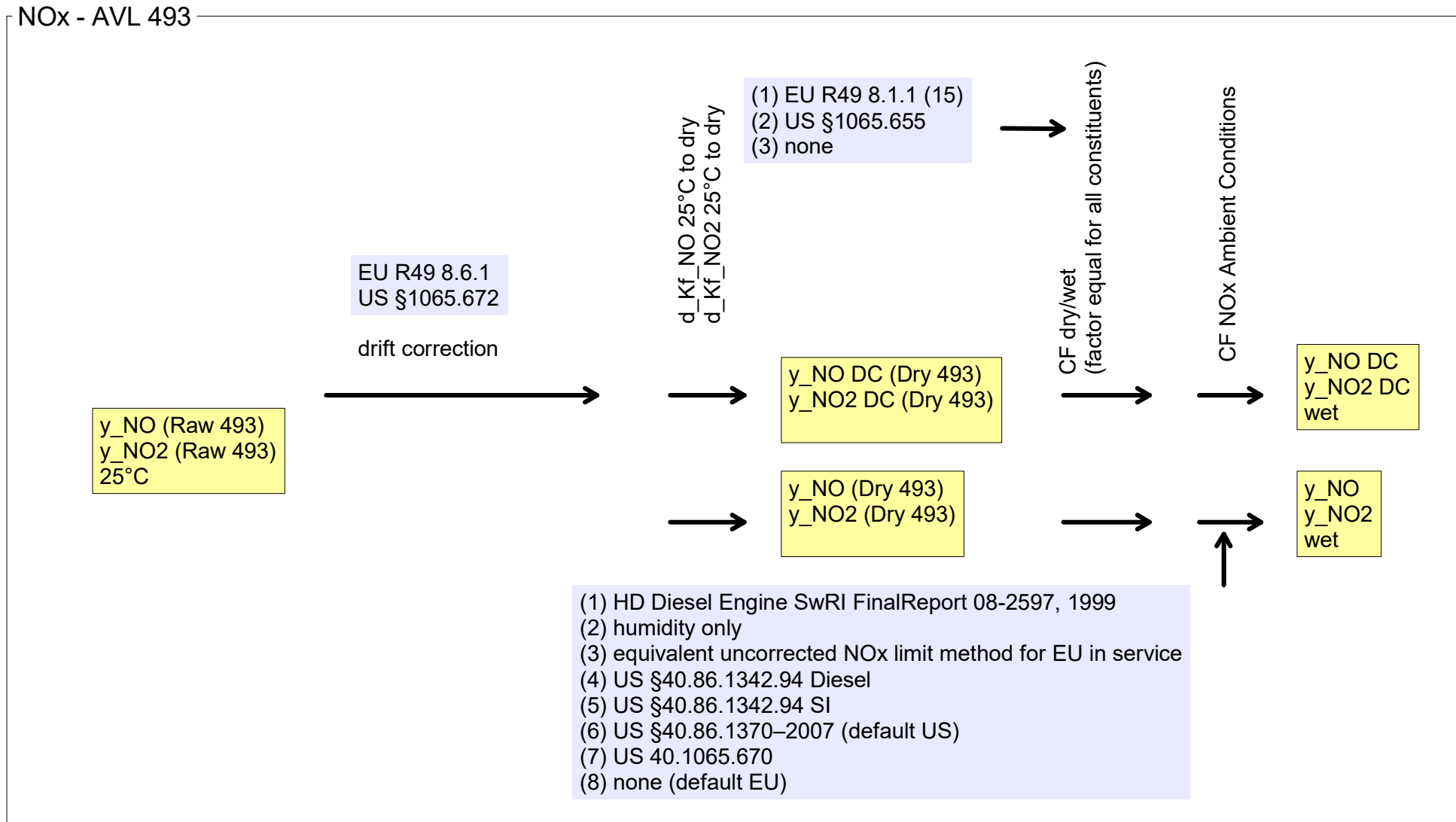


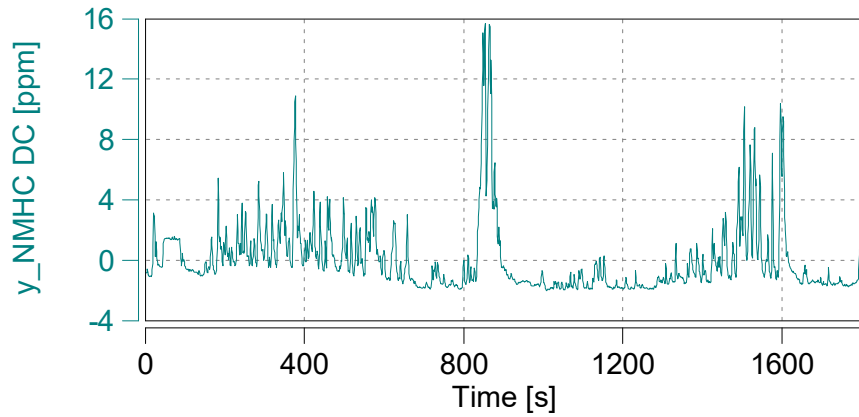
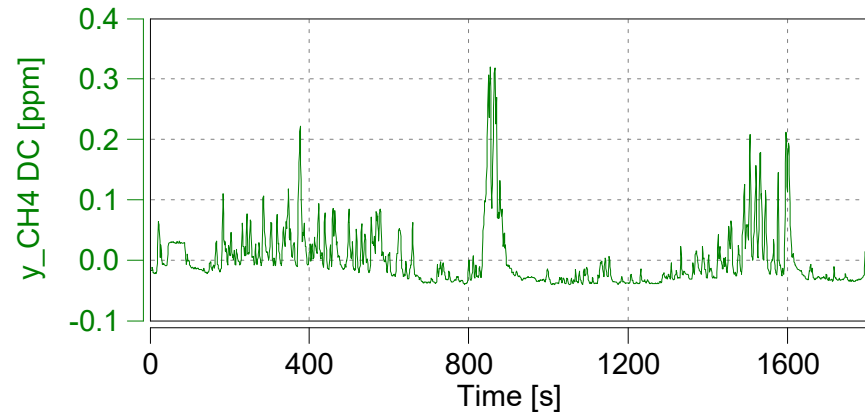
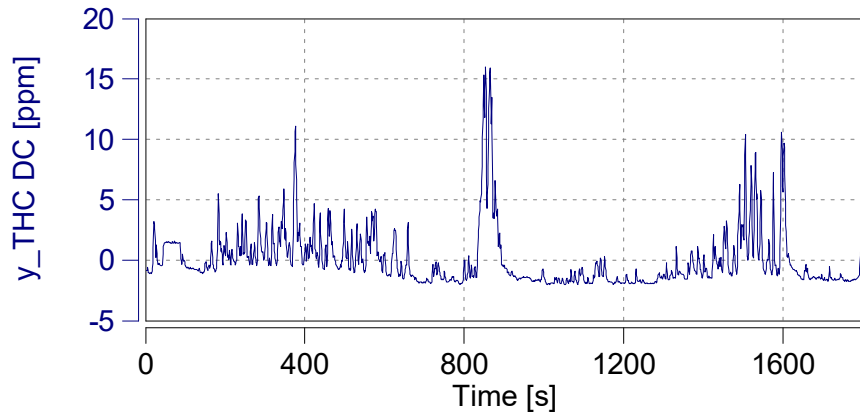


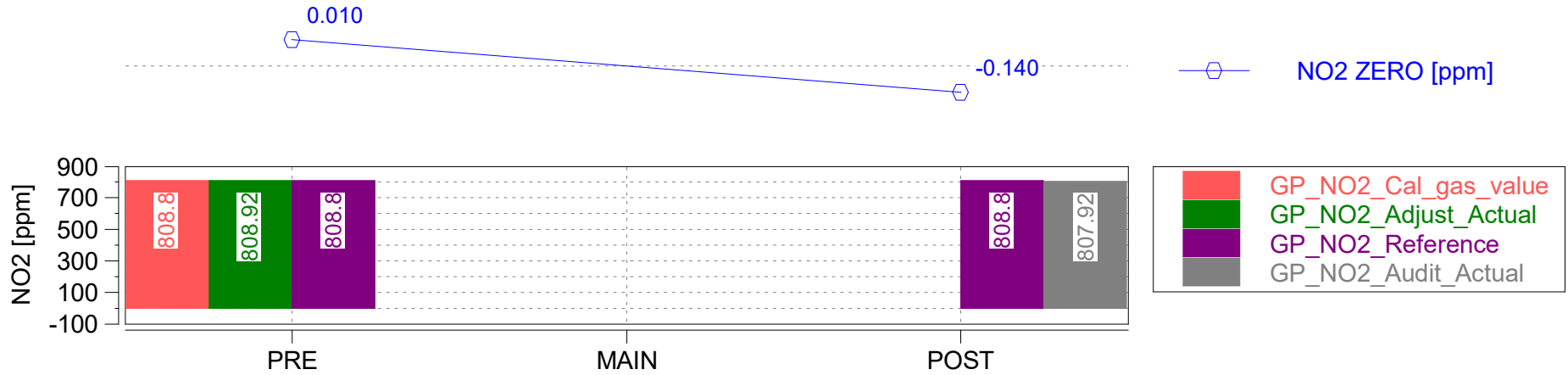
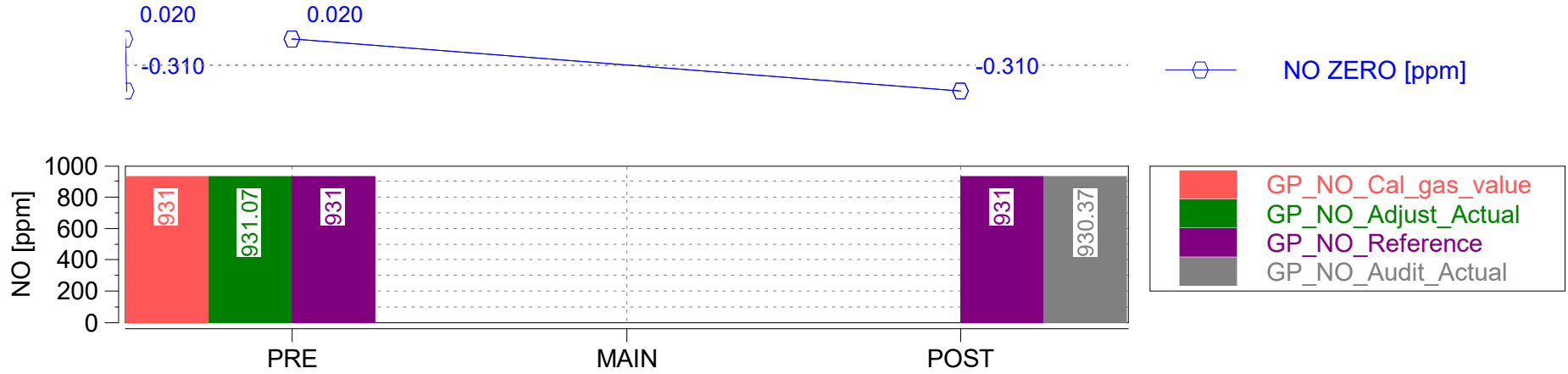


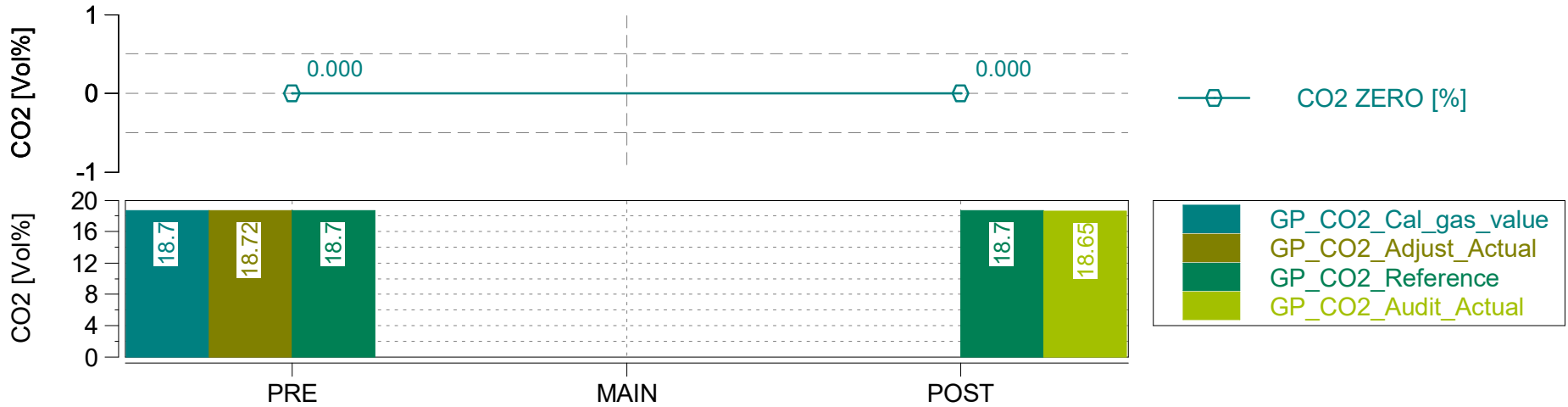
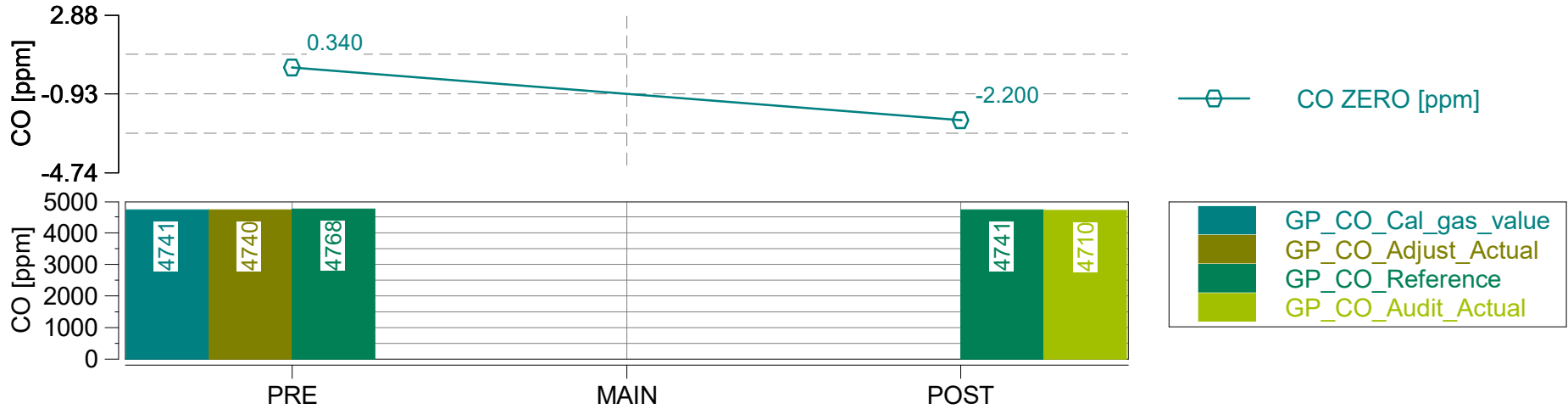


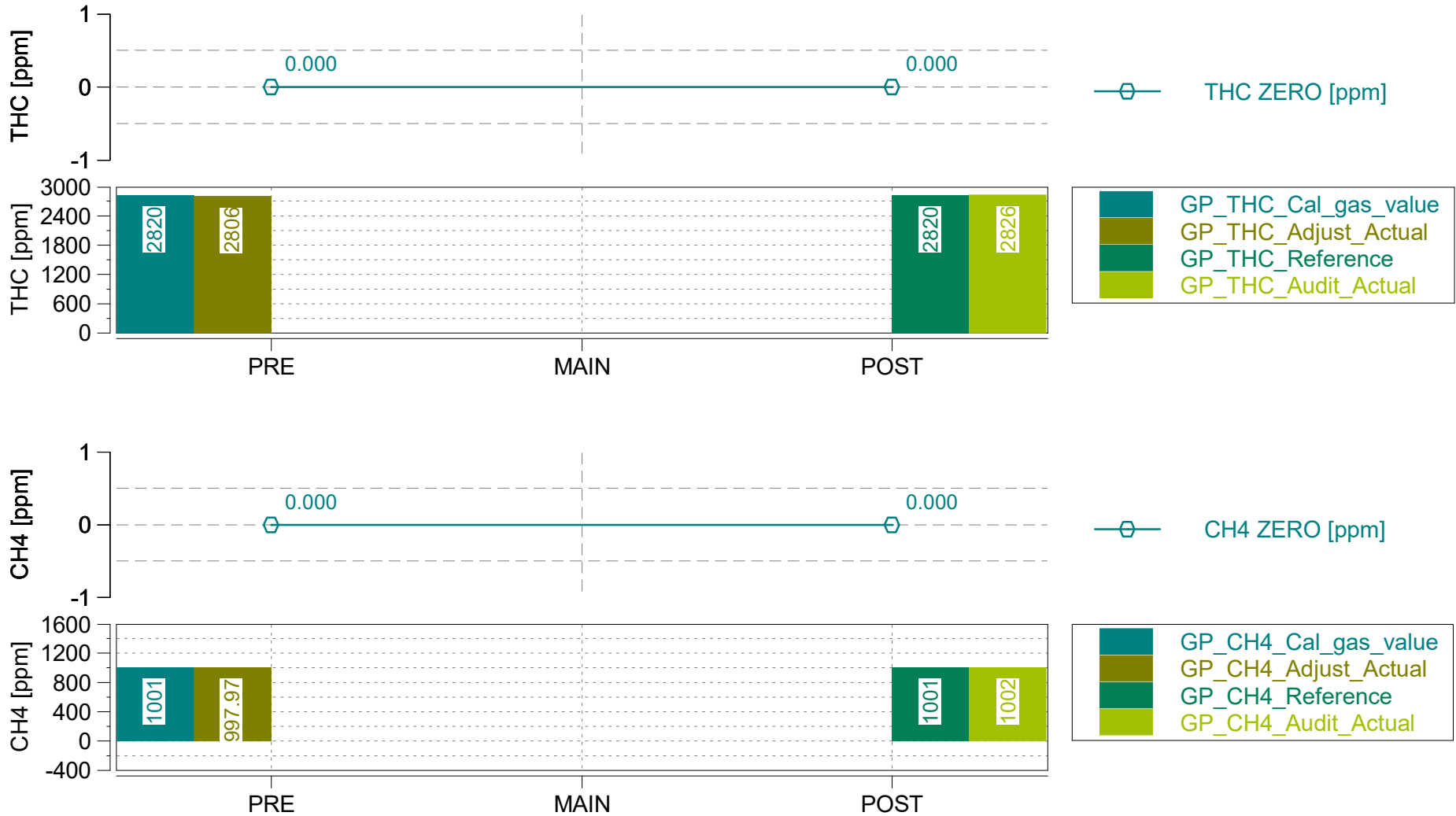














§	criterium	condition	value		
GAS Leak Check	The leakage rate on the vacuum side shall not exceed 0.5 per cent of the in-use flow rate for the portion of the system being checked.	The leakage rate <= 0.5%	0.18		
PN Leak Check	n/a	n/a	n/a		
PM Leak Check	n/a	n/a	n/a		

GAS PEMS Devices

Device ID	AVL492
Serial Number	0597
Firmware Version	V1.18
Main Test Date	2022-11-14
Leak Check Age [days]	0

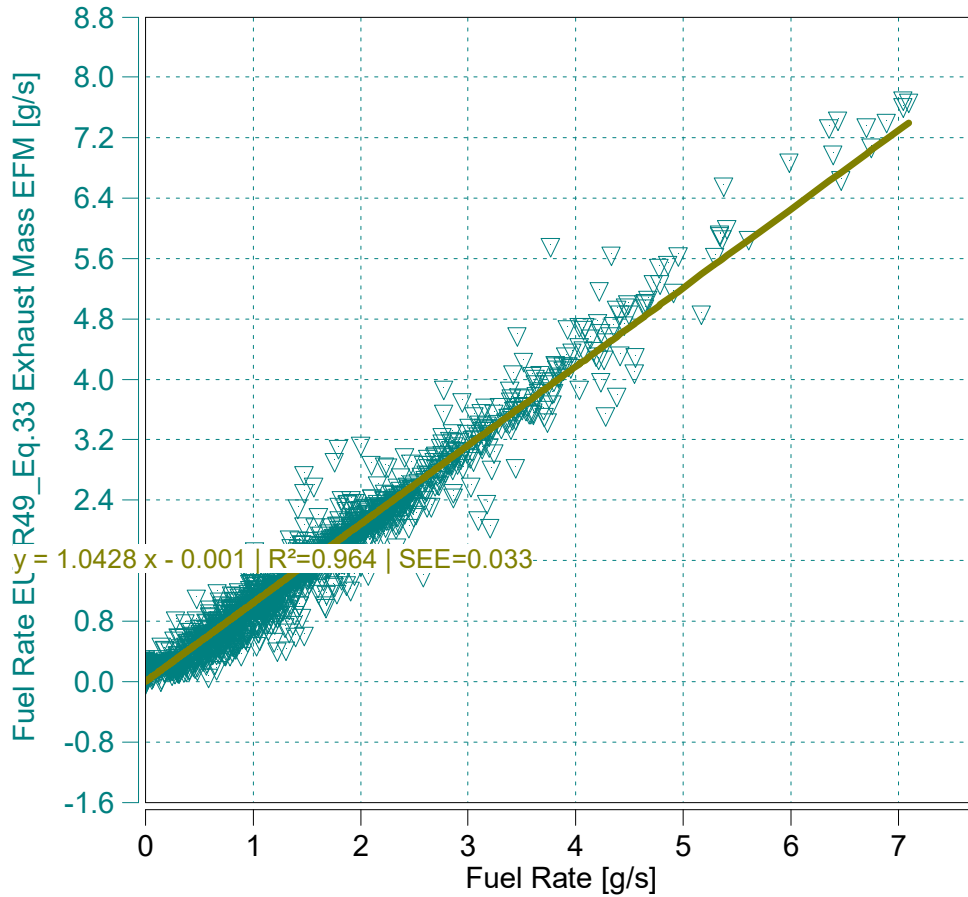
Device ID	AVL4925iS
Serial Number	202
Firmware Version	1.23.0.3

EFM

Device ID	AVL495
Serial Number	00826
Serial Number Tube	01080
Firmware Version	V1.18

System Control

SC Version	R18.0.2_b242
SC Serial Number	60301151



EU 582/2011/Appendix I/3.2.1 | Fuel Rate ECU and calculated

$y = 1.0428 x - 0.001 \mid R^2=0.964 \mid SEE=0.033$
 $m = 1.04$ (0.9 - 1.1 recommended)
 $R^2 = 0.96$ (min 0.9 mandatory)

Data from - to [% of Maximum]



Trip Duration	1897.00	s
Trip Duration (a)	1897.00	s
Trip Distance	17.19	mi
Trip Distance (a)	17.19	mi
Trip Fuel Cons. (b)	3.38	kg
Trip Fuel Cons. (ab)	3.38	kg
Trip Fuel Cons. EU (ac)	3.49	kg
Trip Fuel Cons. US (ac)	3.49	kg
Trip Fuel Economy (b)	14.41	mpg_US
Trip Fuel Economy (ab)	14.41	mpg_US
Trip Fuel Economy EU (ac)	13.93	mpg_US
Trip Fuel Economy US (ac)	13.93	mpg_US
Trip Fuel Economy GGE (b)	14.41	mpg_US
Trip Fuel Economy GGE (ab)	14.41	mpg_US
Trip Fuel Economy EU GGE (ac)	13.93	mpg_US
Trip Fuel Economy US GGE (ac)	13.93	mpg_US
Trip Av. Eng. Speed	1559.23	rpm
Trip Av. Torque	89.37	lbft
Trip Av. Power	34.14	hp
Trip Work		
Trip Work (a)	17.91	hphr
Trip Exhaust Mass	53.51	kg
Trip Exhaust Mass EU (ac)	51.84	kg
Trip Exhaust Mass US (ac)	51.88	kg
Trip Av. Amb. Temperature	68.75	deg_F
Trip Av. Humidity	22.94	%
Trip Av. GPS Altitude	561.01	m
Fuel Type	Petrol (E10)	

ave THC	4.28473	ppm
ave NMHC	4.19903	ppm
ave CH4	0.08569	ppm
ave CO	538.09205	ppm
ave CO2	11.50692	%
ave NOx	3.64301	ppm
ave PM	n/a	mg/m3
ave Soot meas	n/a	mg/m3
ave Soot	n/a	mg/m3
ave PN	n/a	#/cm3
tot THC	0.18836	g
tot NMHC	0.17423	g
tot CH4	0.00417	g
tot CO	24.42911	g
tot CO2	10579.34259	g
tot NO (d)	0.06968	g
tot NO2	0.11679	g
tot NOx	0.18562	g
tot Soot	n/a	g
tot Soot meas	n/a	g
tot PM	n/a	g
tot PN	n/a	#
PM measurement type	0.00000	-
tot Soot on PM filter (estim.)	0.00000	mg
Soot --> PM simple scaling factor	1.00000	-
Trip Av. Veh. Speed	32.75868	mi/hr
Trip Distance Share Urban	16.68551	% distanc
Trip Distance Share Rural	83.13325	% distanc
Trip Distance Share Motorway	0.18124	% distanc

BS CO2	590.53421	g/hphr
BS CO	1.36362	g/hphr
BS THC	0.01051	g/hphr
BS NMHC	0.00973	g/hphr
BS CH4	0.00023	g/hphr
BS NO (d)	0.00389	g/hphr
BS NO2	0.00652	g/hphr
BS NOx	0.01036	g/hphr
BS Soot	n/a	g/hphr
BS Soot meas	n/a	g/hphr
BS PM	n/a	g/hphr
BS PN	n/a	#/hpr
DS CO2	615.46424	g/mi
DS CO	1.42119	g/mi
DS THC	0.01096	g/mi
DS NMHC	0.01014	g/mi
DS CH4	0.00024	g/mi
DS NO (d)	0.00405	g/mi
DS NO2	0.00679	g/mi
DS NOx	0.01080	g/mi
DS Soot	n/a	g/mi
DS Soot meas	n/a	g/mi
DS PM	n/a	g/mi
DS PN	n/a	#/mi
FS CO2	3133.97660	g/kg
FS CO	7.23677	g/kg
FS THC	0.05580	g/kg
FS NMHC	0.05161	g/kg
FS CH4	0.00124	g/kg
FS NO (d)	0.02064	g/kg
FS NO2	0.03460	g/kg
FS NOx	0.05499	g/kg
FS Soot	n/a	g/kg
FS Soot meas	n/a	g/kg
FS PM	n/a	g/kg
FS PN	n/a	#/kg

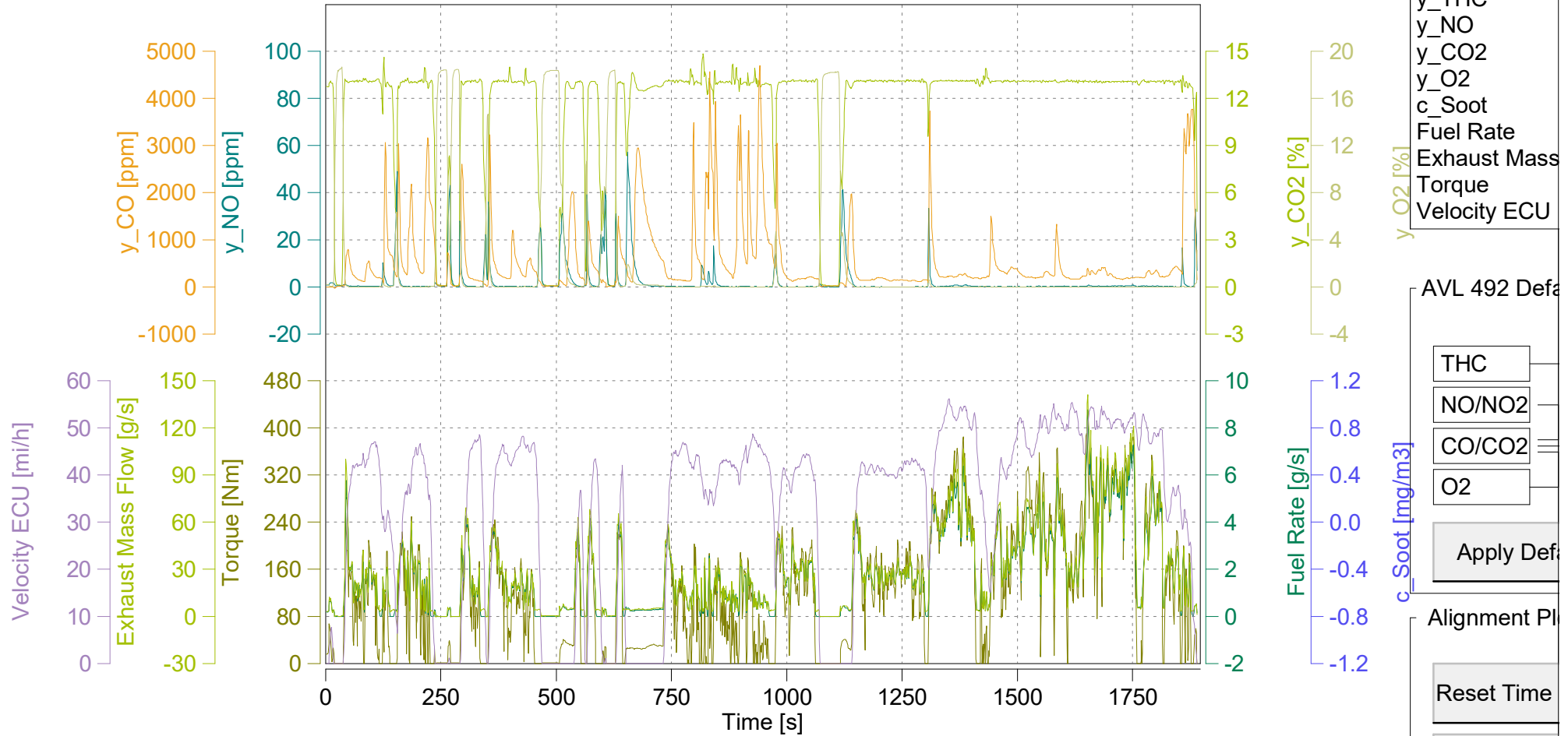
(a) GAS PEMS measurement state only, (b) based on fuel rate input (ECU, Fuel Meter), (c) Based on A/F ratio (eq 28-32 - R49)
(d) NO calculated using molecular weight of NO2, GGE=Gasoline Gallon Equivalents

Trip Duration	1897.00	s	ave THC DC	4.29069	ppm	BS CO2 DC	591.00828	g/hphr
Trip Duration (a)	1897.00	s	ave NMHC DC	4.20488	ppm	BS CO DC	1.36734	g/hphr
Trip Distance	17.19	mi	ave CH4 DC	0.08581	ppm	BS THC DC	0.01053	g/hphr
Trip Distance (a)	17.19	mi	ave CO DC	539.59562	ppm	BS NMHC DC	0.00974	g/hphr
			ave CO2 DC	11.51615	%	BS CH4 DC	0.00023	g/hphr
Trip Fuel Cons. (b)	3.38	kg	ave NOx DC	3.62067	ppm	BS NO DC (d)	0.00383	g/hphr
Trip Fuel Cons. (ab)	3.38	kg	ave PM	n/a	mg/m3	BS NO2 DC	0.00649	g/hphr
Trip Fuel Cons. EU (ac)	3.49	kg	ave Soot meas	n/a	mg/m3	BS NOx DC	0.01025	g/hphr
Trip Fuel Cons. US (ac)	3.49	kg	ave Soot	n/a	mg/m3	BS Soot	n/a	g/hphr
			ave PN DC			BS Soot meas	n/a	g/hphr
						BS PM	n/a	g/hphr
Trip Fuel Economy (b)	14.41	mpg_US	tot THC DC	0.18862	g	BS PN DC		
Trip Fuel Economy (ab)	14.41	mpg_US	tot NMHC DC	0.17447	g			
Trip Fuel Economy EU (ac)	13.93	mpg_US	tot CH4 DC	0.00418	g	DS CO2 DC	615.95833	g/mi
Trip Fuel Economy US (ac)	13.93	mpg_US	tot CO DC	24.49574	g	DS CO DC	1.42507	g/mi
Trip Fuel Economy GGE (b)	14.41	mpg_US	tot CO2 DC	10587.83551	g	DS THC DC	0.01097	g/mi
Trip Fuel Economy GGE (ab)	14.41	mpg_US	tot NO DC (d)	0.06862	g	DS NMHC DC	0.01015	g/mi
Trip Fuel Economy EU GGE (ac)	13.93	mpg_US	tot NO2 DC	0.11618	g	DS CH4 DC	0.00024	g/mi
Trip Fuel Economy US GGE (ac)	13.93	mpg_US	tot NOx DC	0.18371	g	DS NO DC (d)	0.00399	g/mi
			tot Soot	n/a	g	DS NO2 DC	0.00676	g/mi
Trip Av. Eng. Speed	1559.23	rpm	tot Soot meas	n/a	g	DS NOx DC	0.01069	g/mi
Trip Av. Torque	89.37	lbft	tot PM	n/a	g	DS Soot	n/a	g/mi
Trip Av. Power	34.14	hp	tot PN DC			DS Soot meas	n/a	g/mi
Trip Work						DS PM	n/a	g/mi
Trip Work (a)	17.91	hphr				DS PN DC		
			PM measurement type	0.00000	-			
Trip Exhaust Mass	53.51	kg	tot Soot on PM filter (estim.)	0.00000	mg	FS CO2 DC	3136.49251	g/kg
Trip Exhaust Mass EU (ac)	51.84	kg	Soot --> PM simple scaling factor	1.00000	-	FS CO DC	7.25651	g/kg
Trip Exhaust Mass US (ac)	51.88	kg				FS THC DC	0.05588	g/kg
			Trip Av. Veh. Speed	32.75868	mi/hr	FS NMHC DC	0.05169	g/kg
Trip Av. Amb. Temperature	68.75	deg_F				FS CH4 DC	0.00124	g/kg
Trip Av. Humidity	22.94	%	Trip Distance Share Urban	16.68551	% distanc	FS NO DC (d)	0.02033	g/kg
Trip Av. GPS Altitude	561.01	m	Trip Distance Share Rural	83.13325	% distanc	FS NO2 DC	0.03442	g/kg
			Trip Distance Share Motorway	0.18124	% distanc	FS NOx DC	0.05442	g/kg
Fuel Type	Petrol (E10)					FS Soot	n/a	g/kg
						FS Soot meas	n/a	g/kg
						FS PM	n/a	g/kg
						FS PN DC		

(a) GAS PEMS measurement state only, (b) based on fuel rate input (ECU, Fuel Meter), (c) Based on A/F ratio (eq 28-32 - R49)
 (d) NO calculated using molecular weight of NO2, GGE=Gasoline Gallon Equivalents



Concerto Absolute Time



- y_THC
- y_NO
- y_CO2
- y_O2
- c_Soot
- Fuel Rate
- Exhaust Mass
- Torque
- Velocity ECU

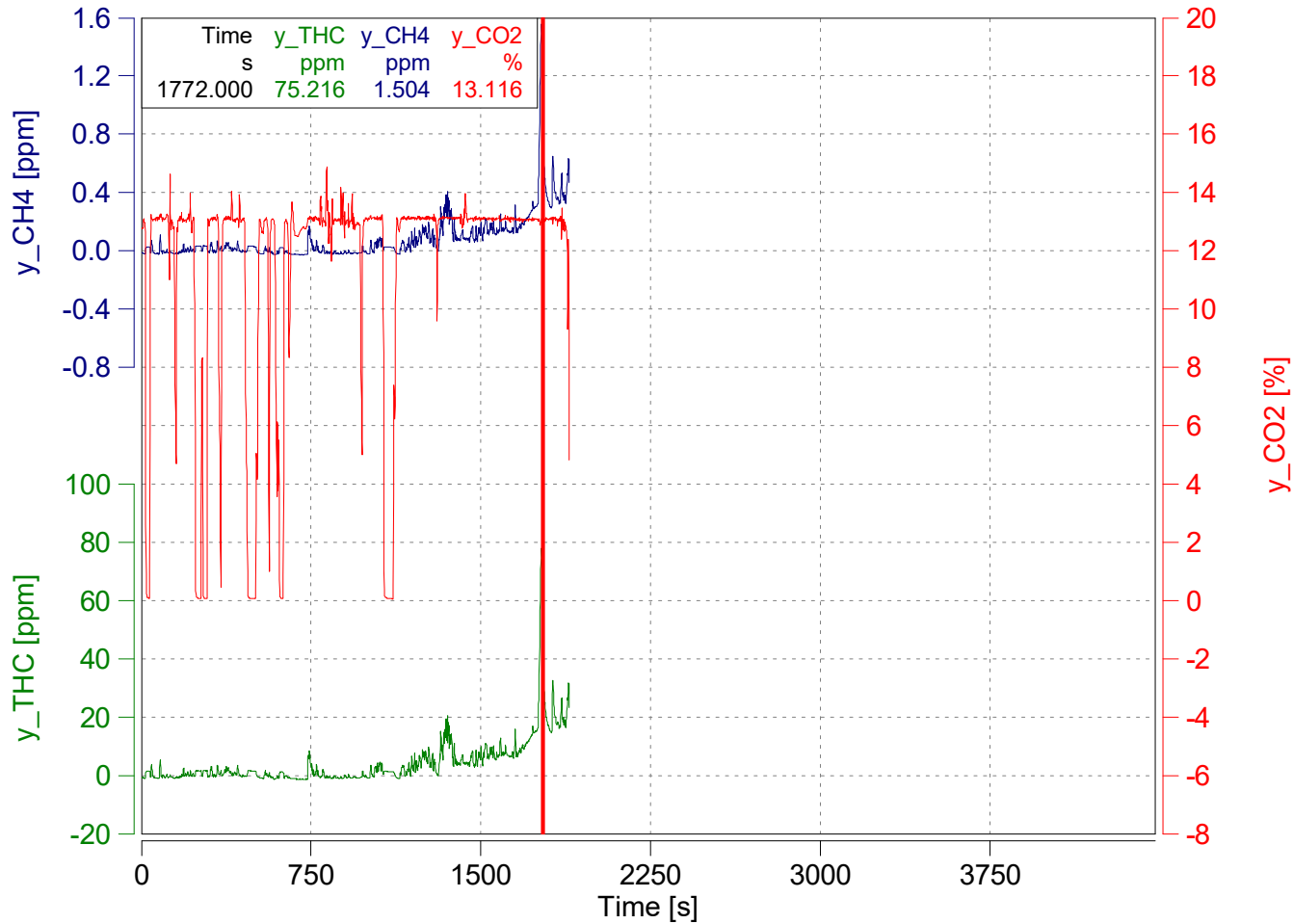
AVL 492 Defa

- THC
- NO/NO2
- CO/CO2
- O2

Apply Defa

Alignment Pl

-
-
-

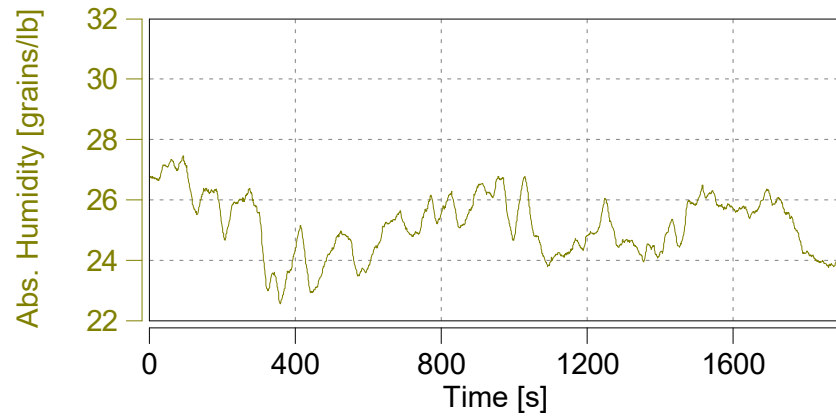
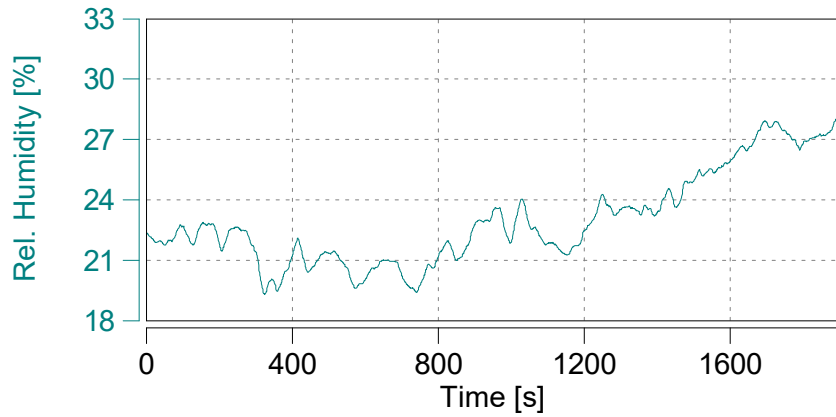
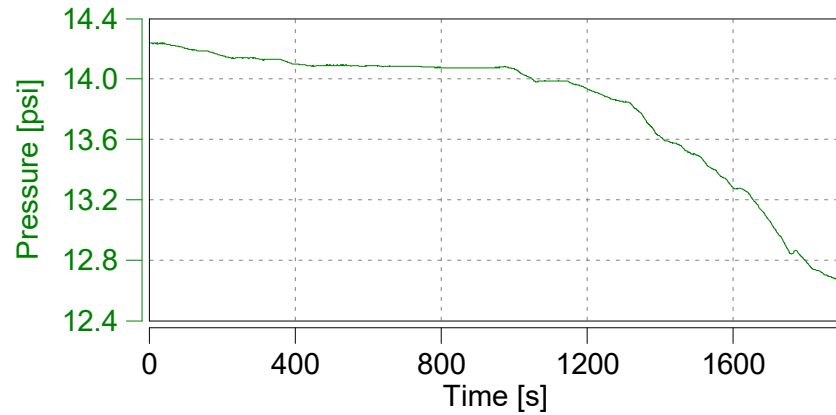
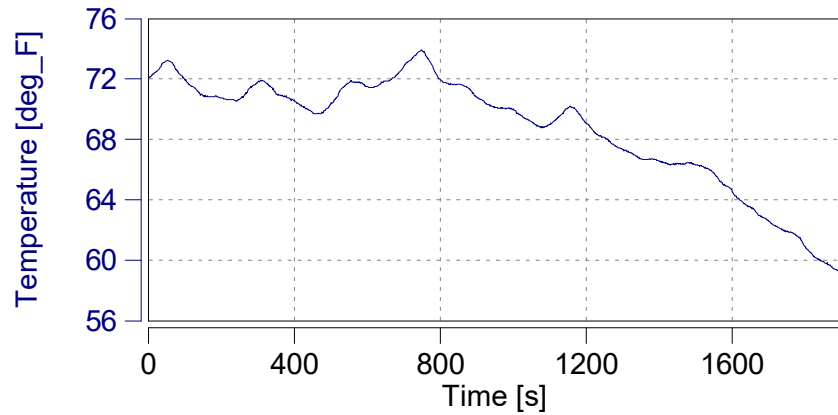


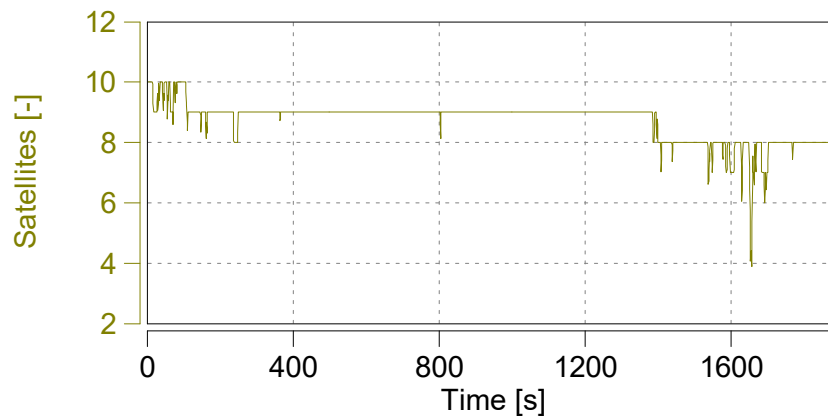
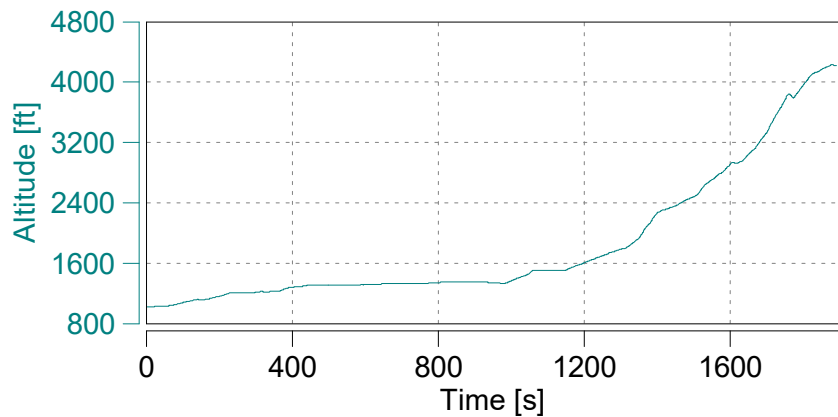
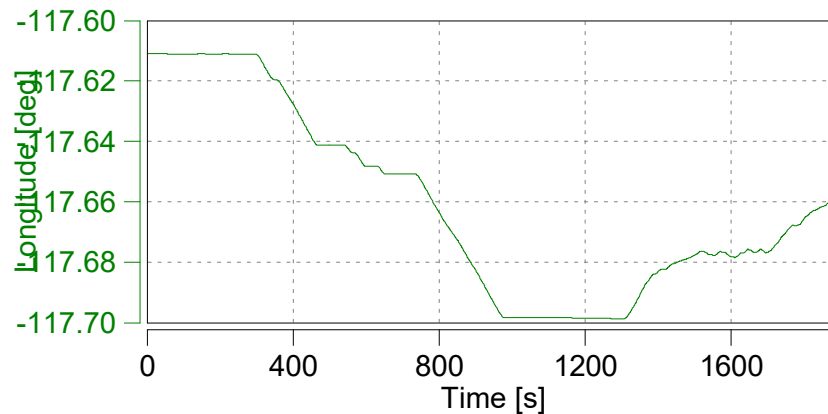
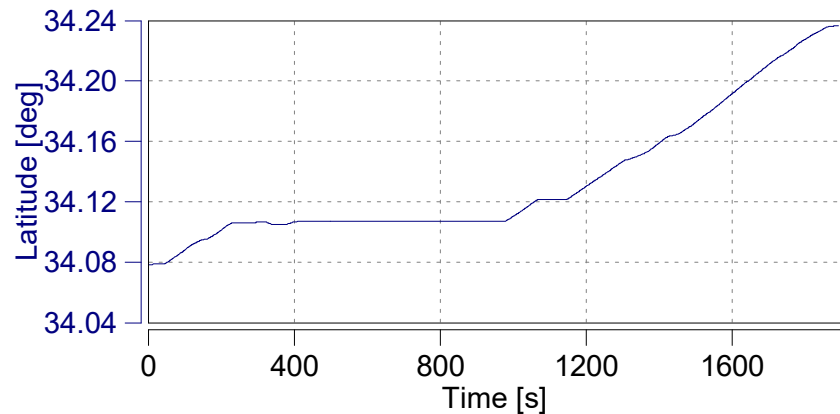
Absolute Time Shifts

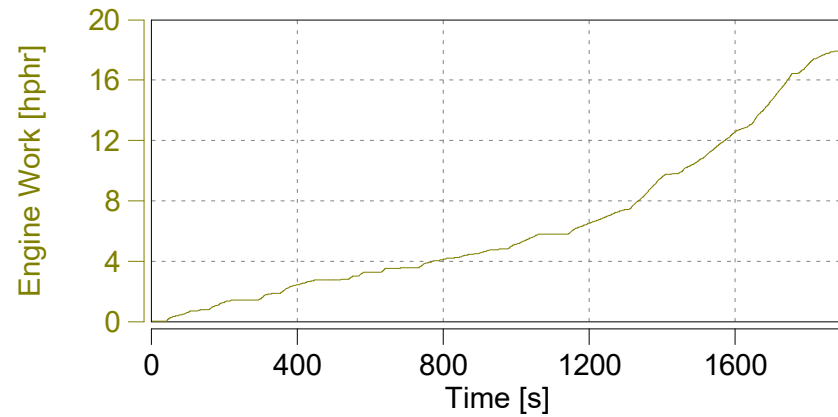
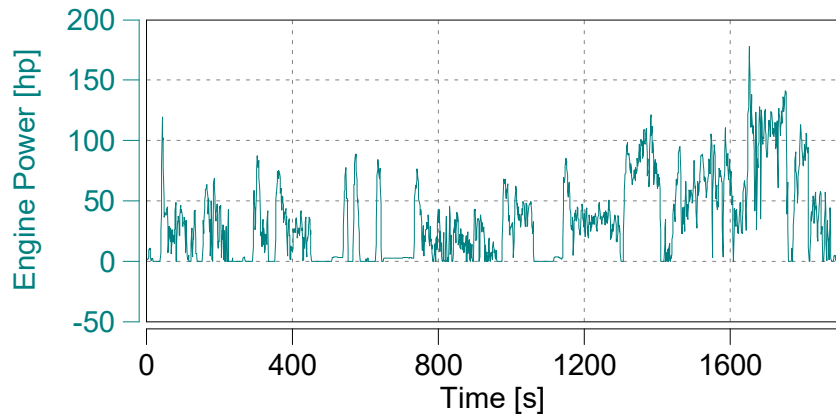
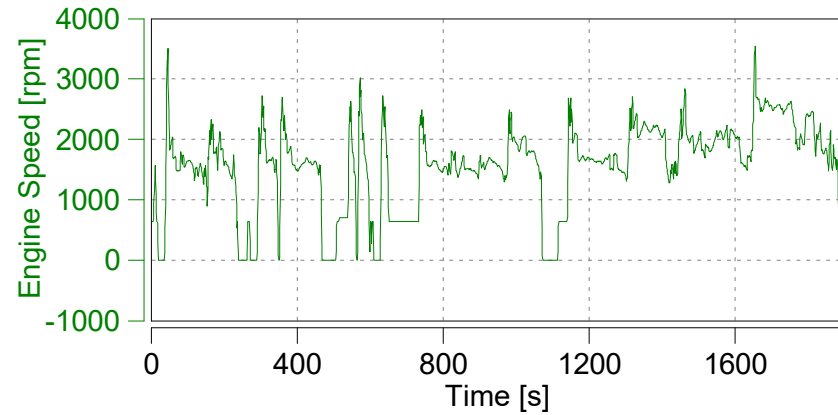
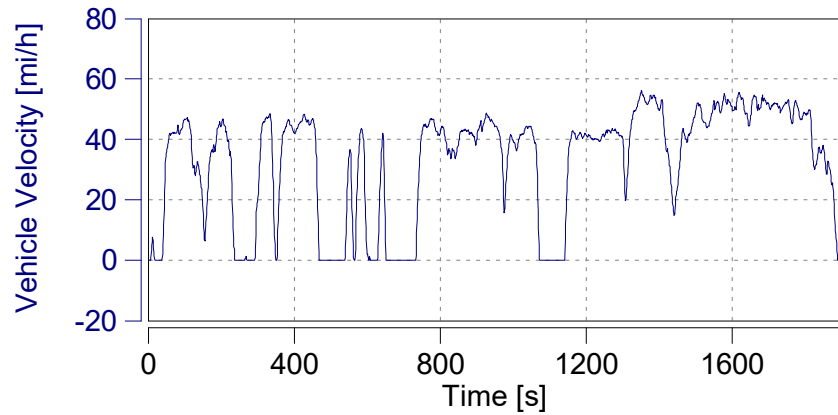
y_THC	s	0.0
y_CH4	s	0.0

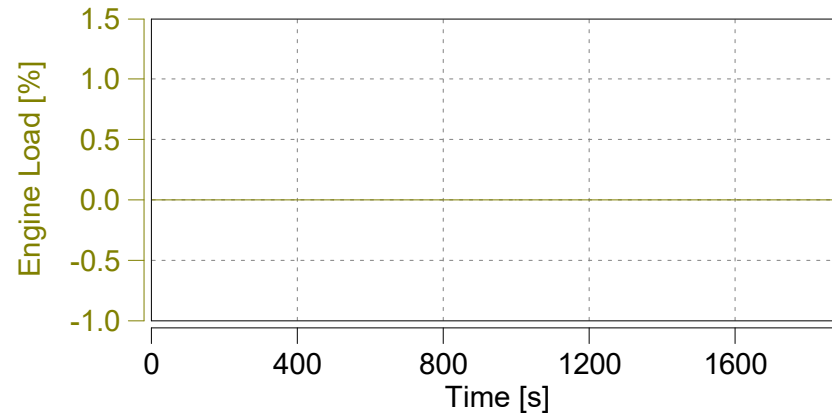
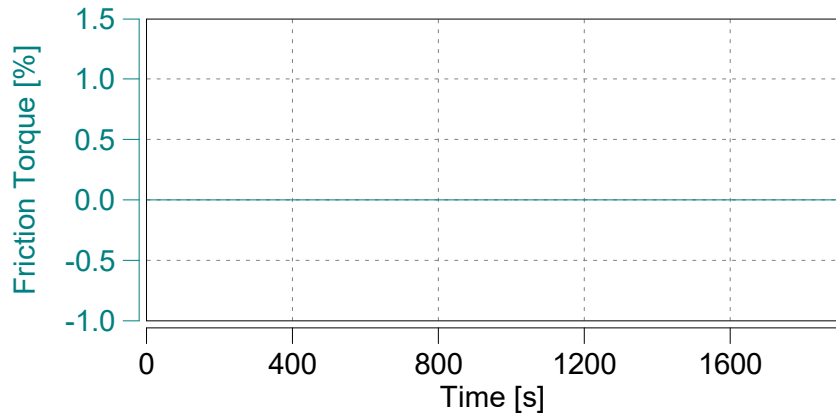
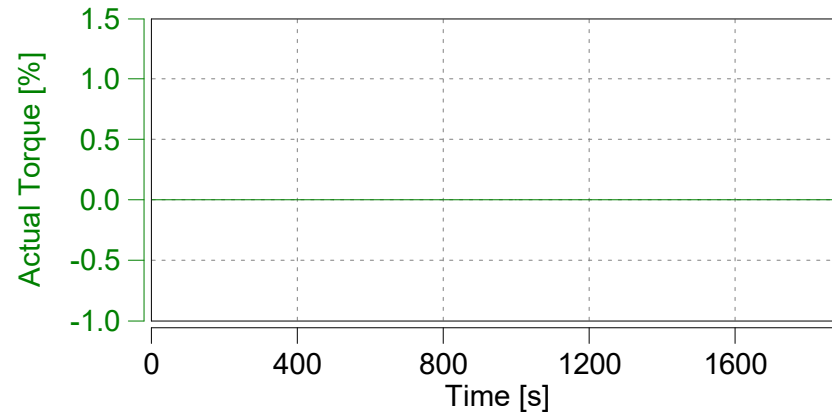
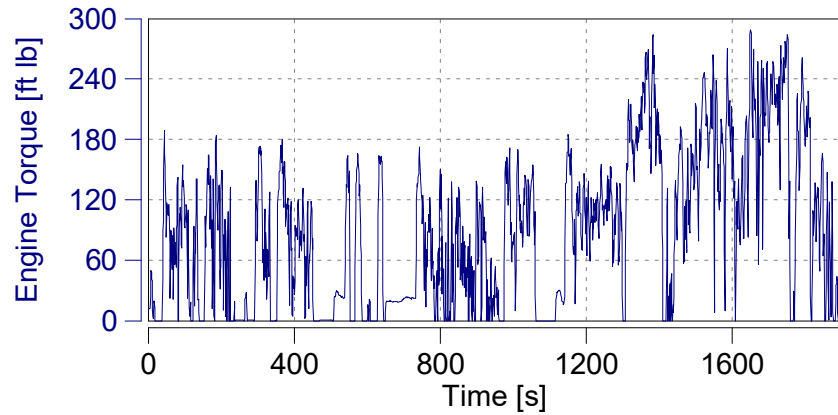
Reset Time Shifts in Plot

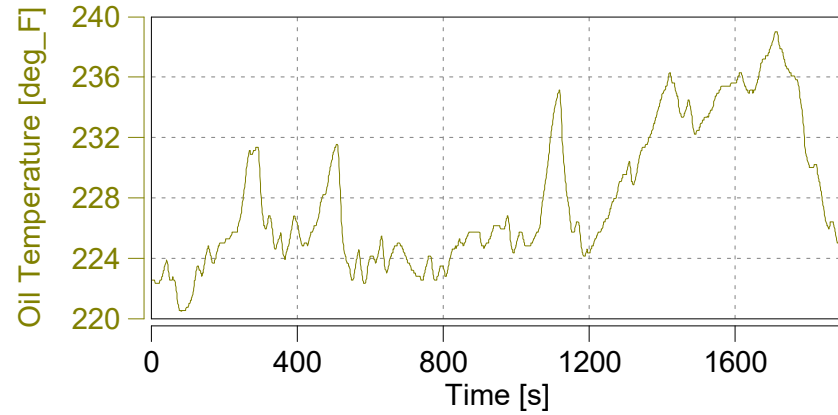
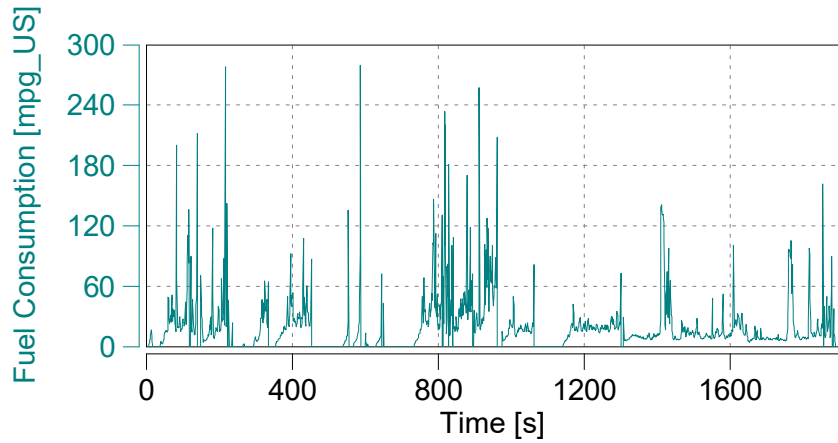
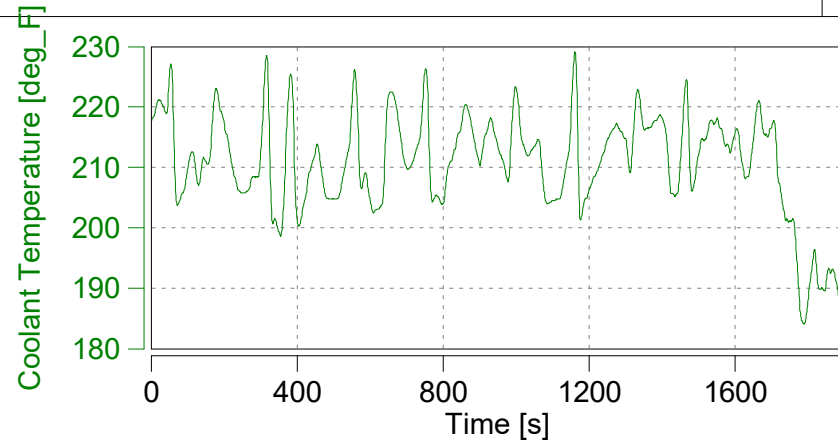
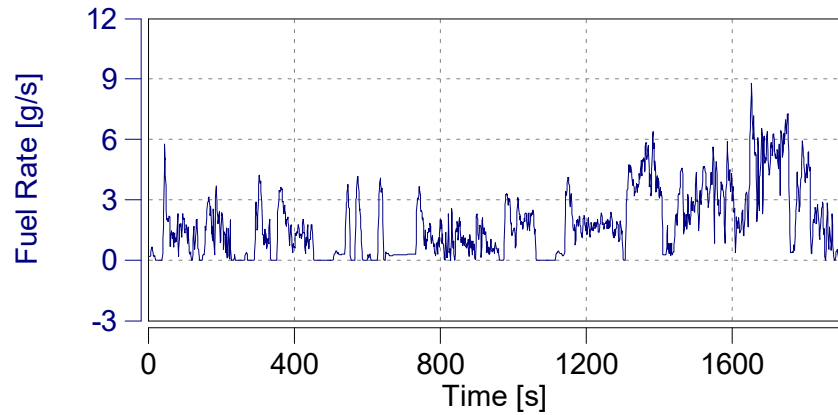
Apply Current Values

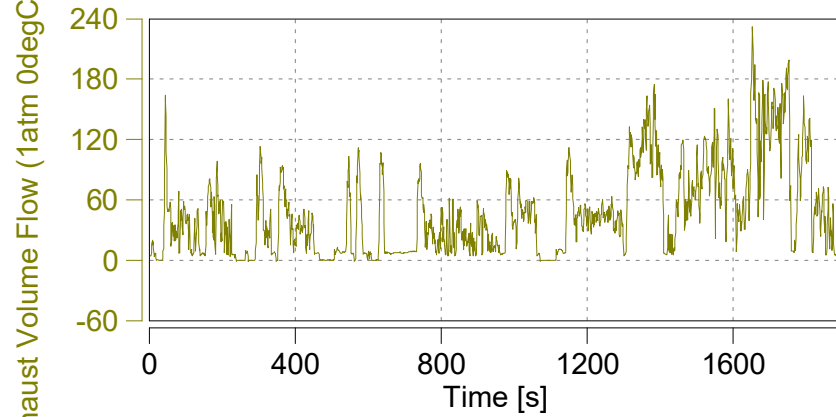
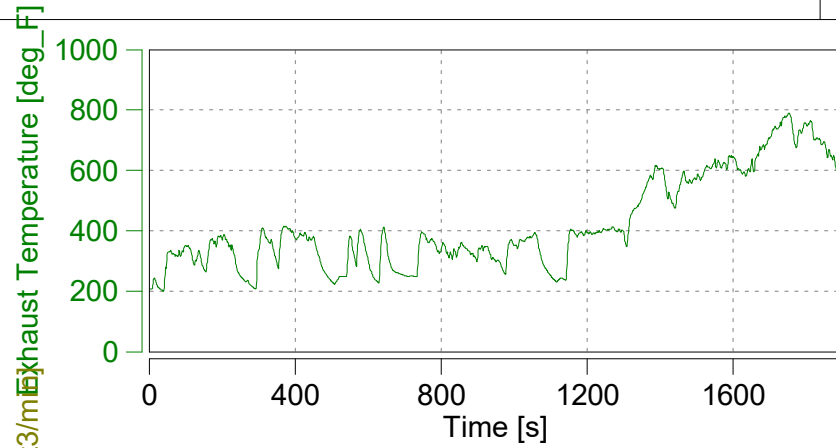
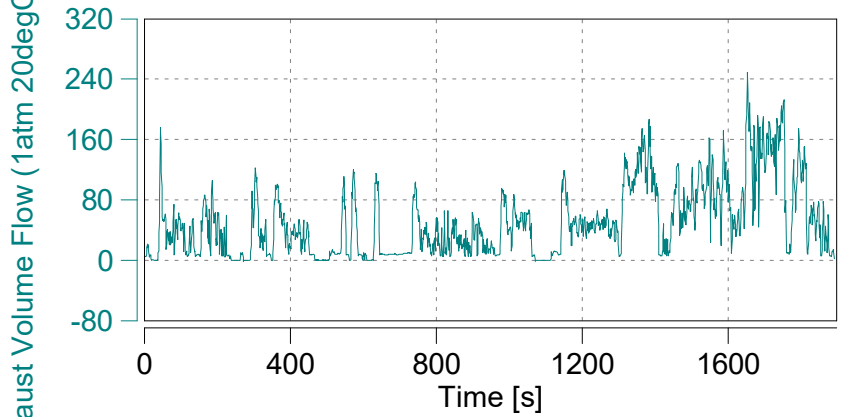
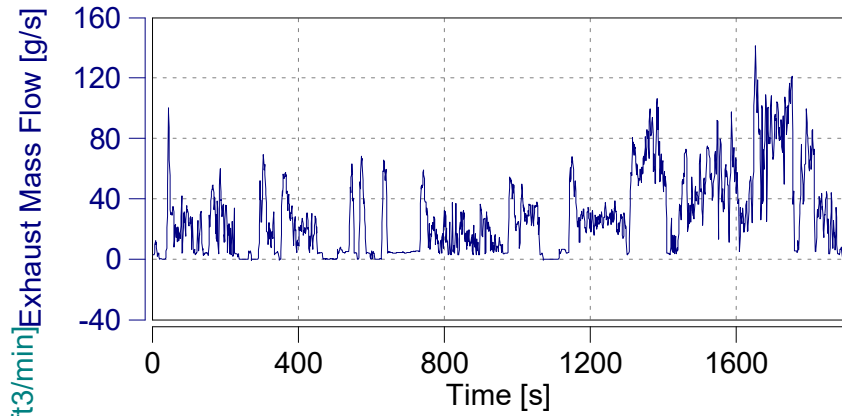


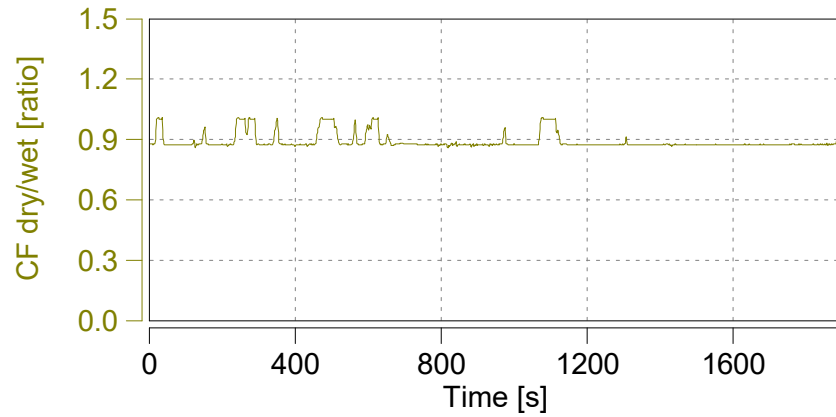
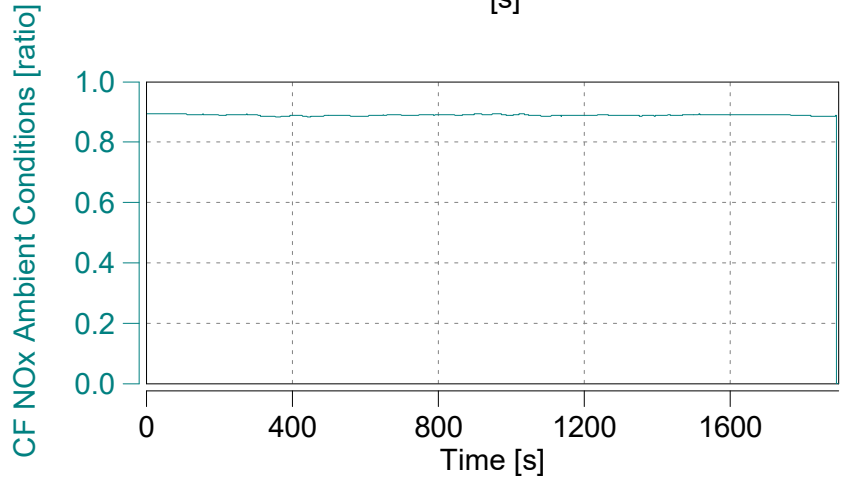
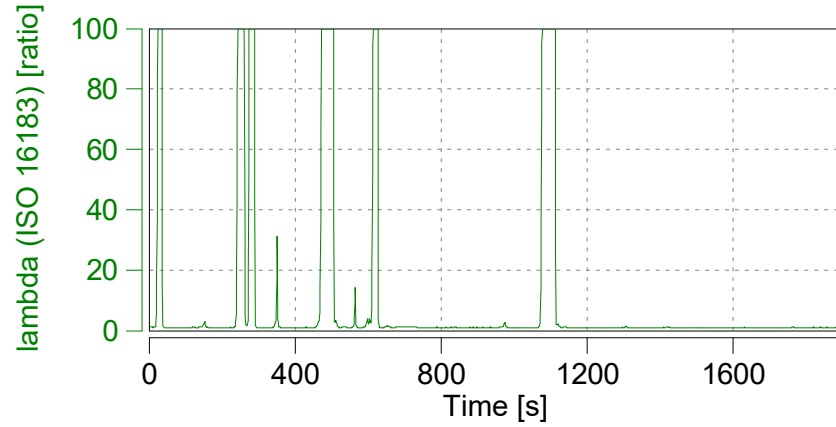
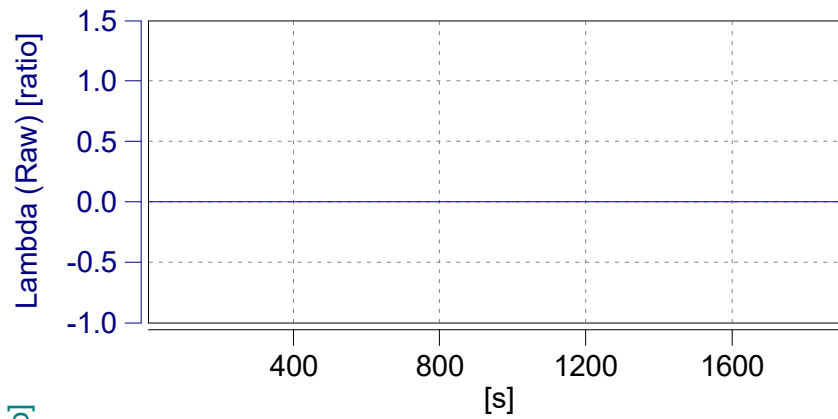


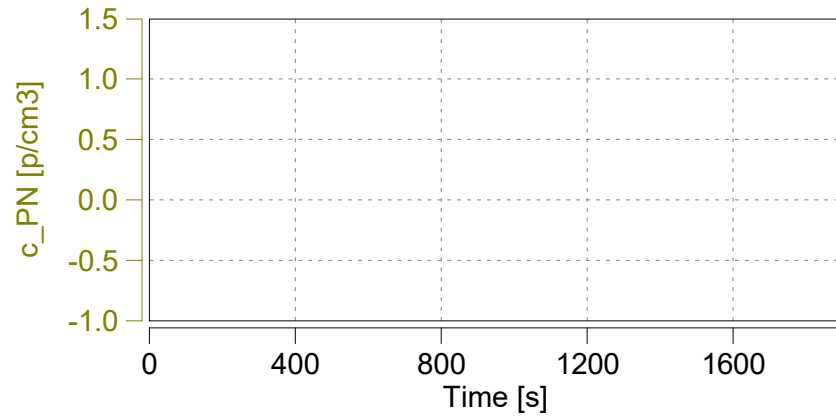
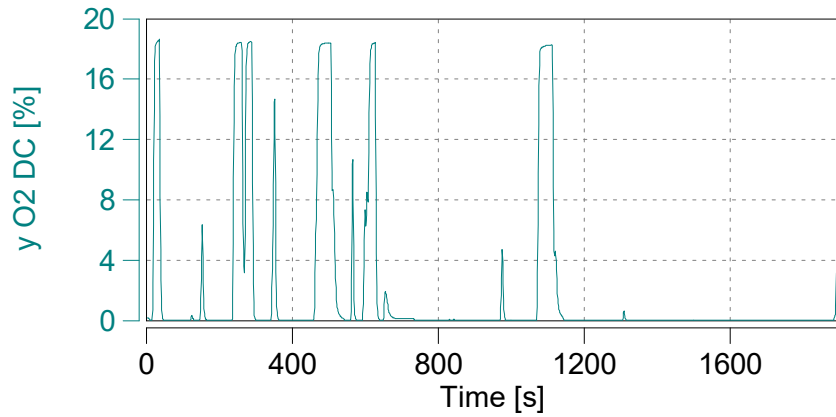
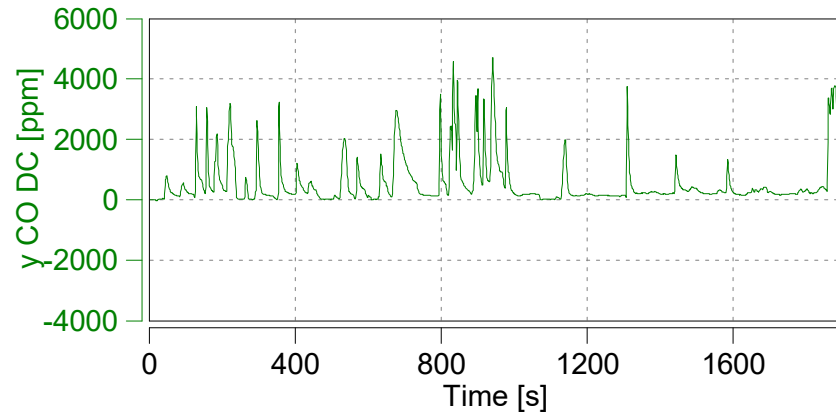
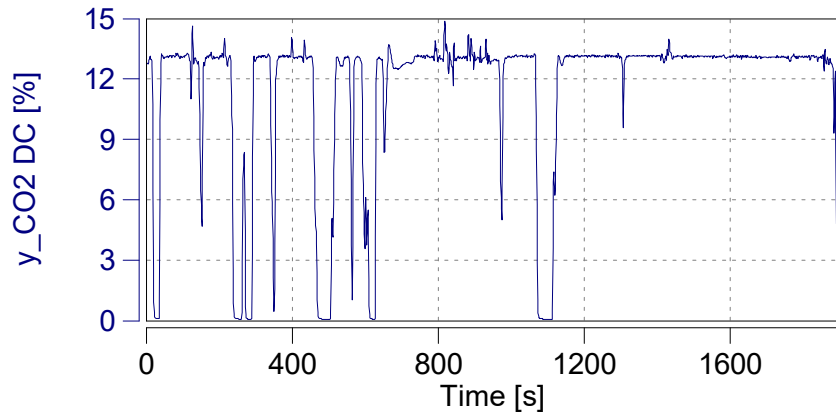


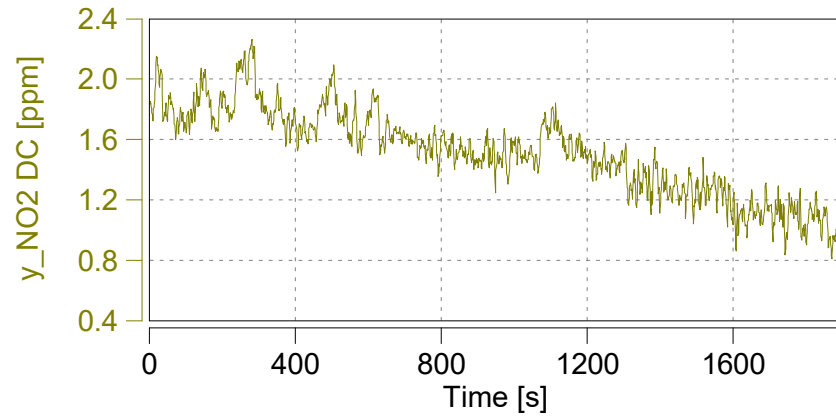
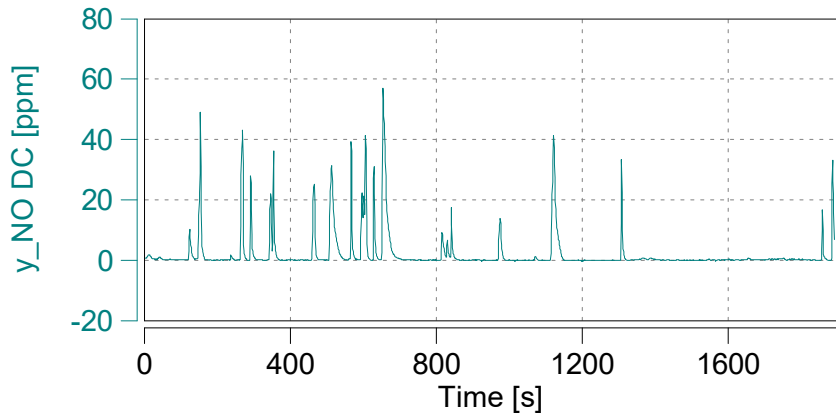
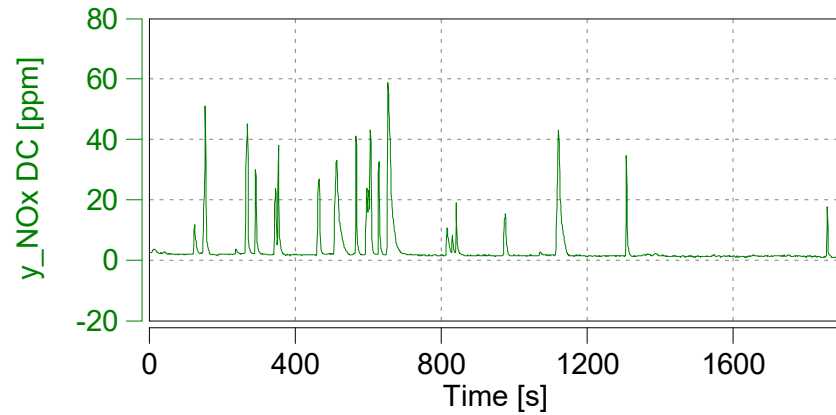
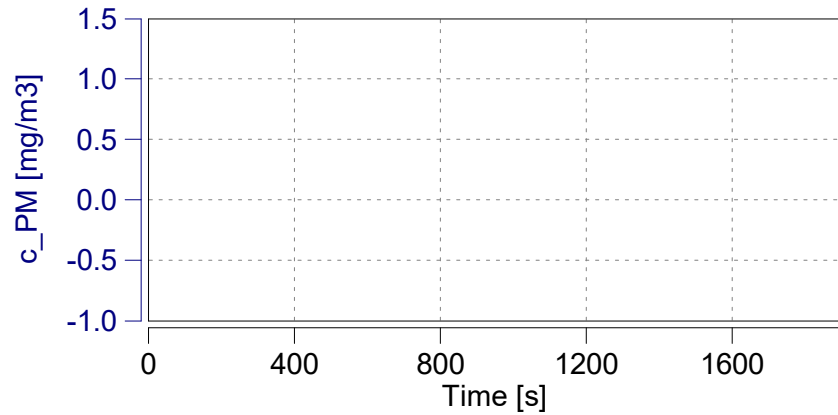


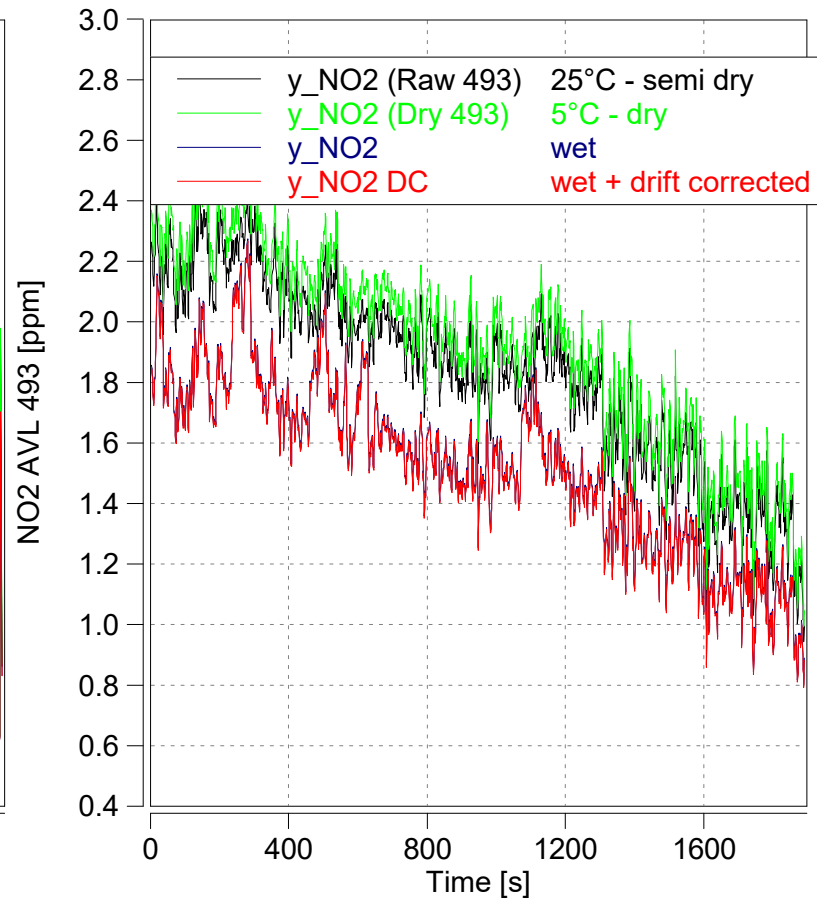
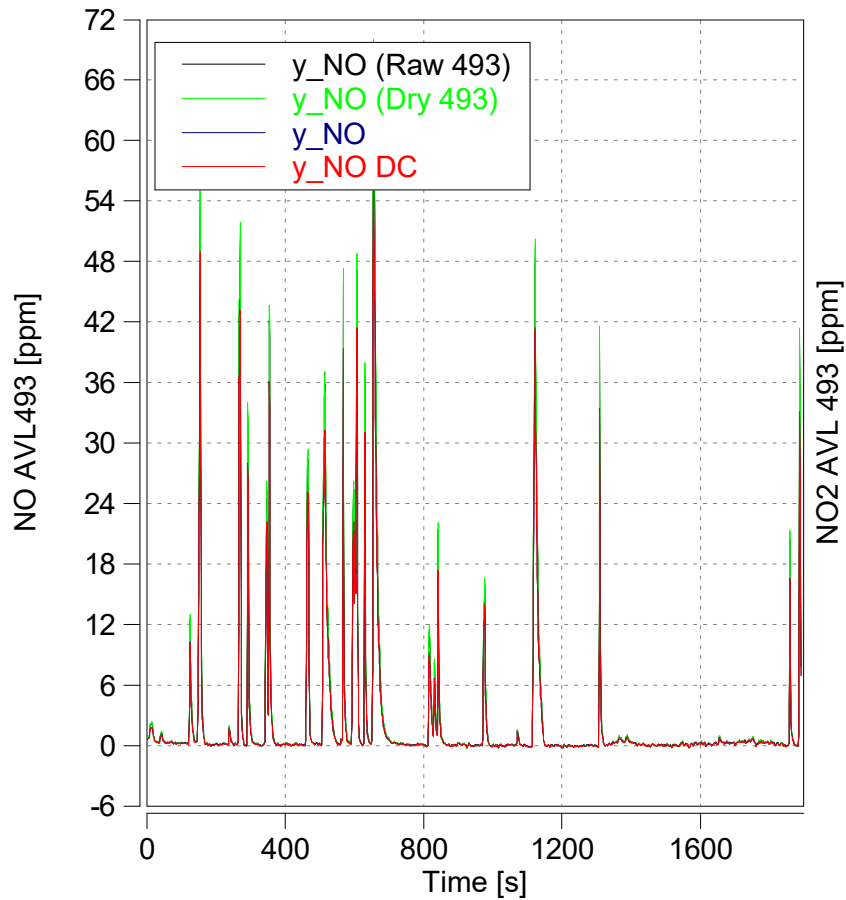




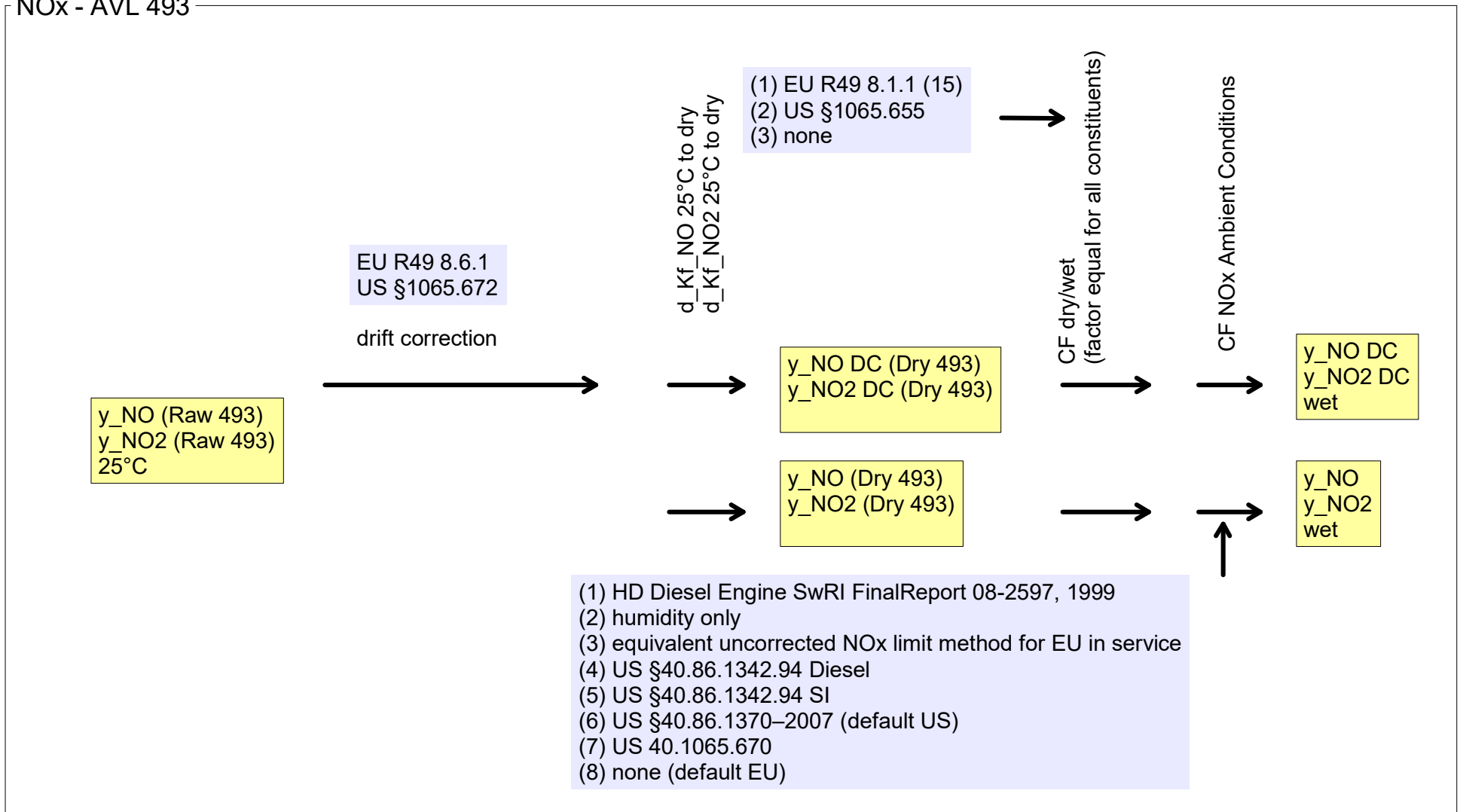


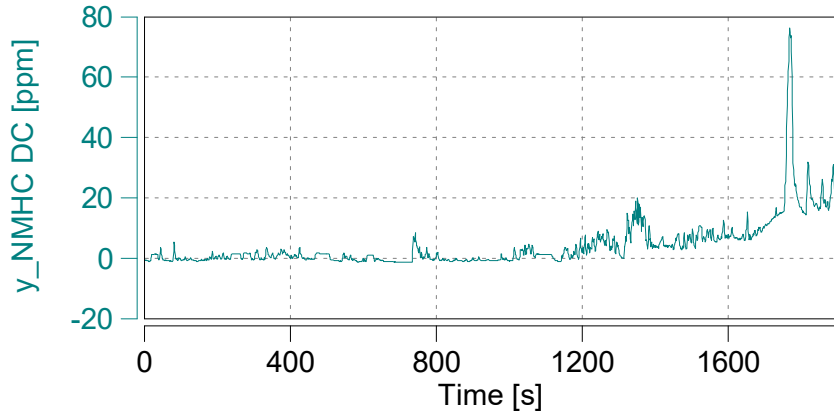
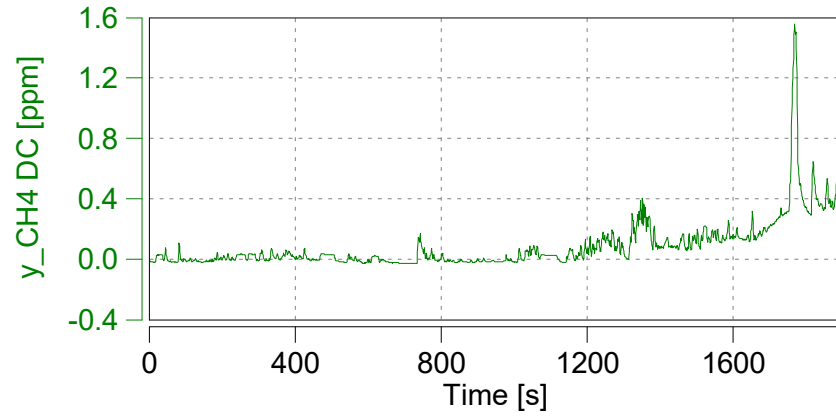
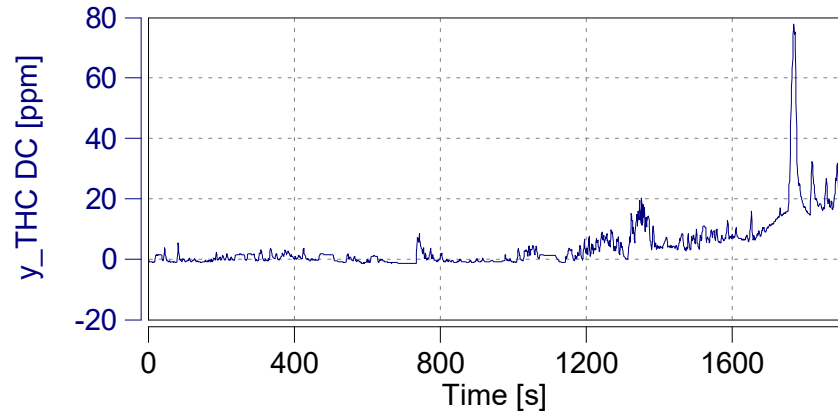


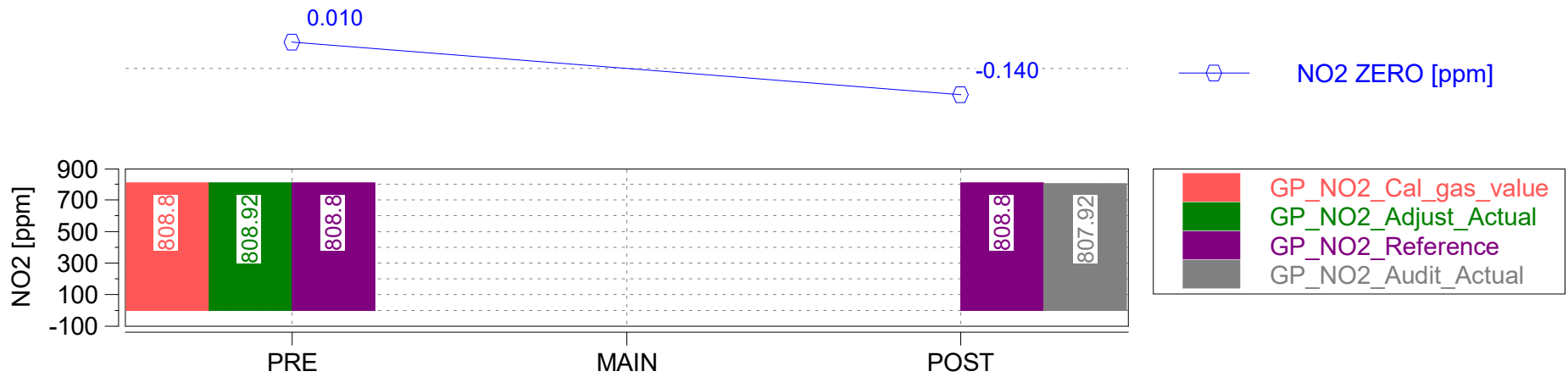
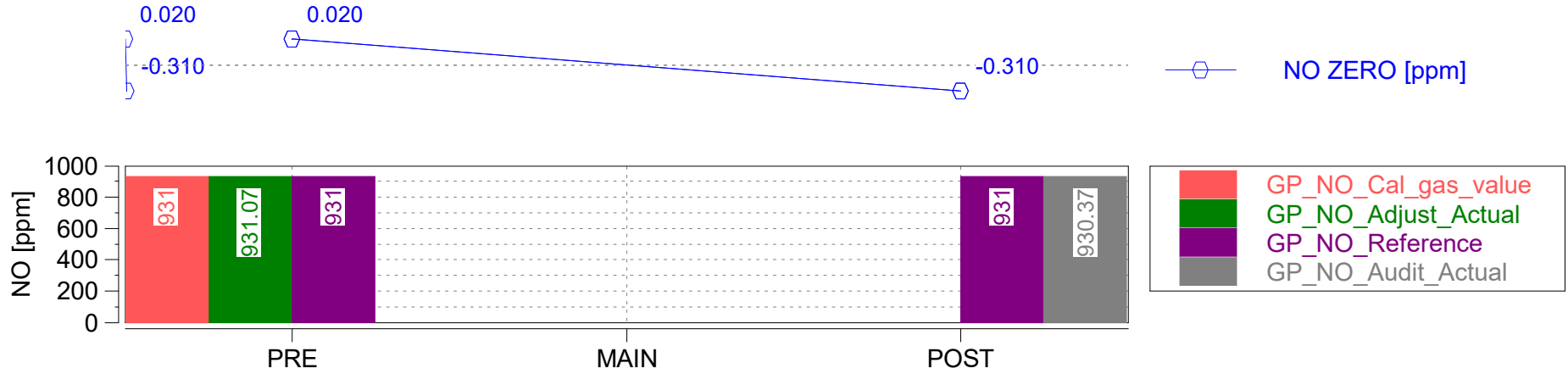


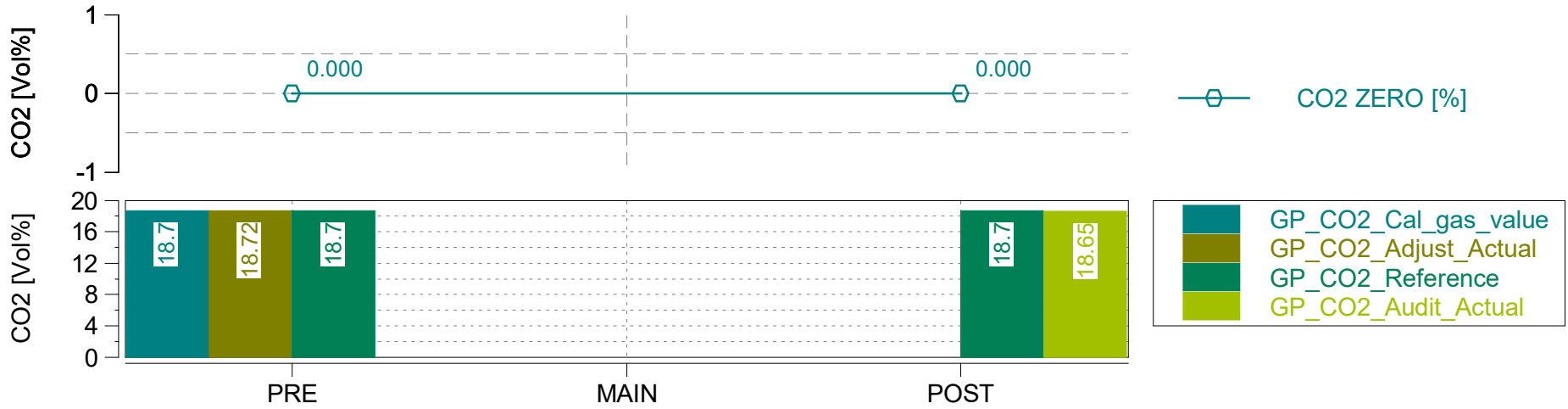
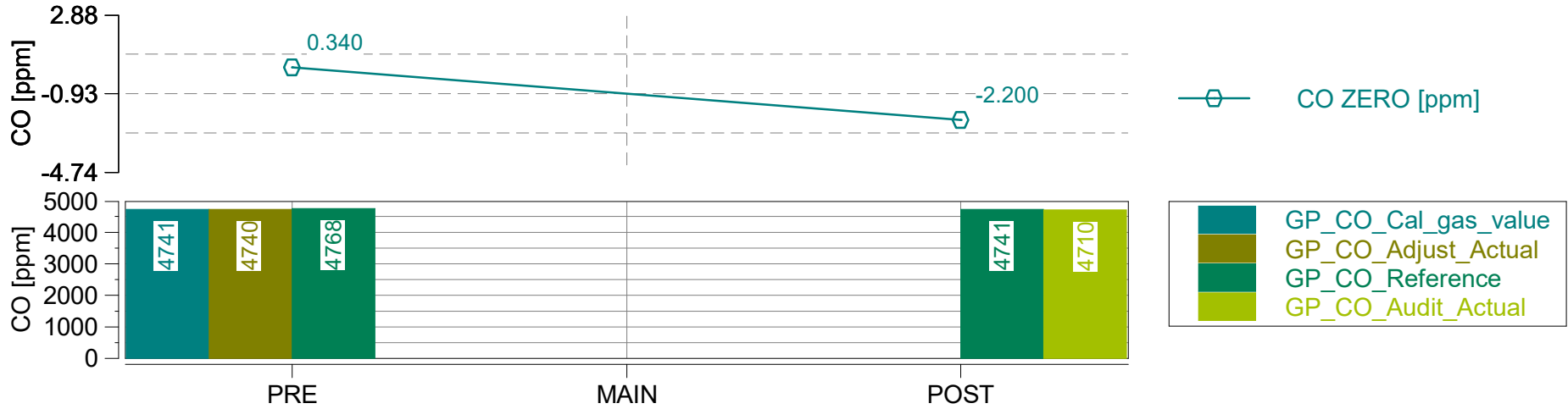


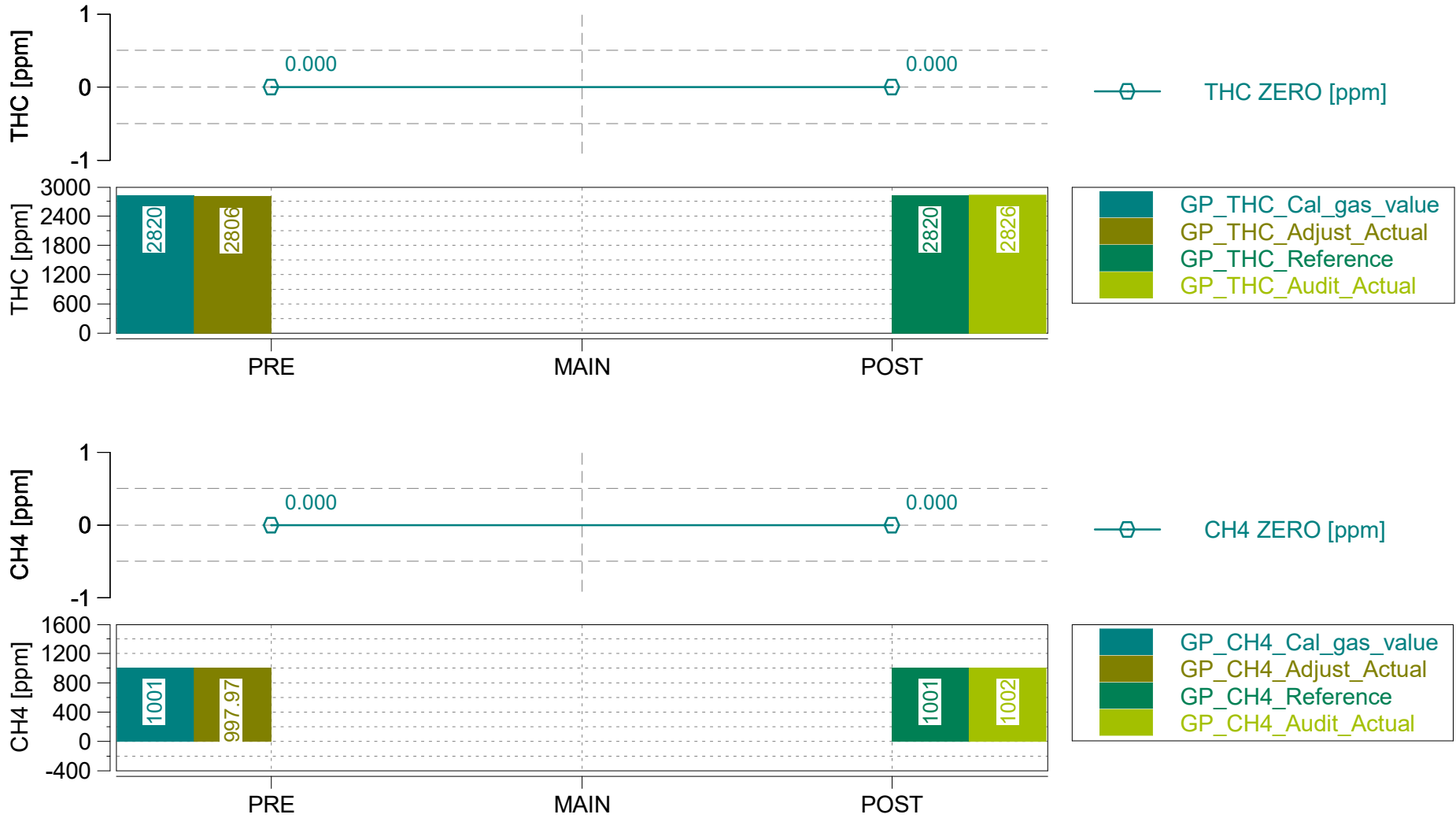
NOx - AVL 493













§	criterium	condition	value		
GAS Leak Check	The leakage rate on the vacuum side shall not exceed 0.5 per cent of the in-use flow rate for the portion of the system being checked.	The leakage rate <= 0.5%	0.18		
PN Leak Check	n/a	n/a	n/a		
PM Leak Check	n/a	n/a	n/a		

GAS PEMS Devices

Device ID	AVL492
Serial Number	0597
Firmware Version	V1.18
Main Test Date	2022-11-14
Leak Check Age [days]	0

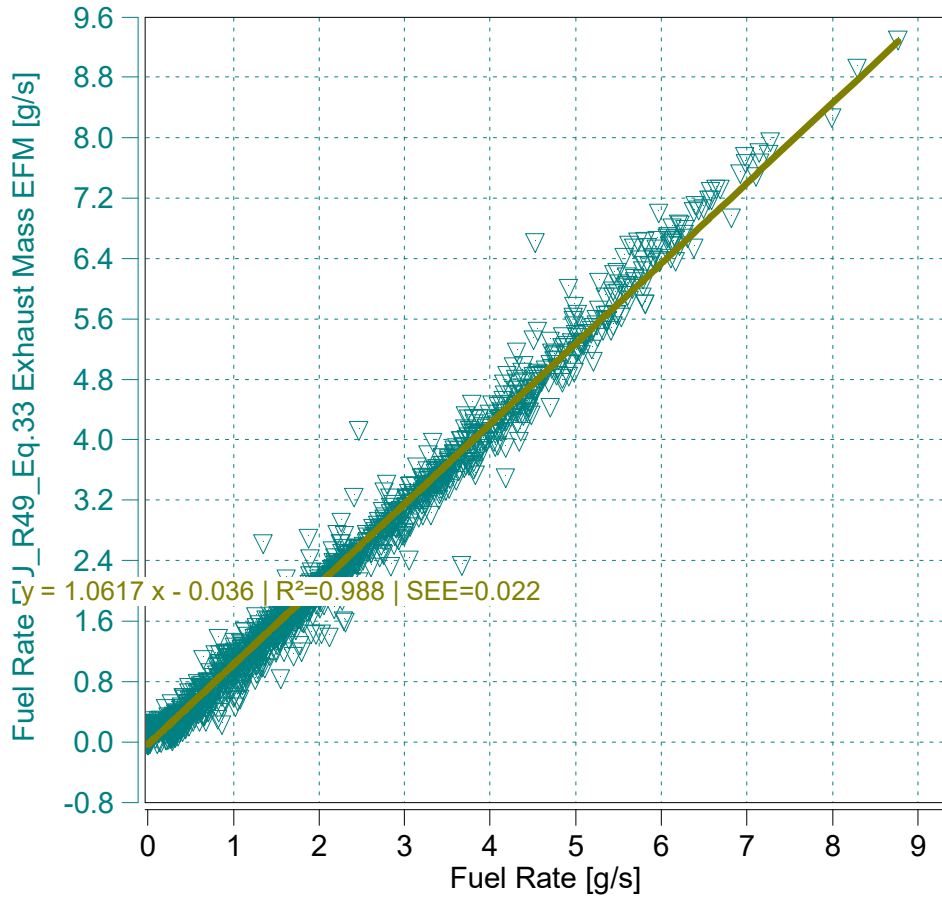
Device ID	AVL4925iS
Serial Number	202
Firmware Version	1.23.0.3

EFM

Device ID	AVL495
Serial Number	00826
Serial Number Tube	01080
Firmware Version	V1.18

System Control

SC Version	R18.0.2_b242
SC Serial Number	60301151



EU 582/2011/Appendix I/3.2.1 | Fuel Rate ECU and calculated

$y = 1.0617x - 0.036 \mid R^2=0.988 \mid SEE=0.022$
 $m = 1.06$ (0.9 - 1.1 recommended)
 $R^2 = 0.99$ (min 0.9 mandatory)

Data from - to [% of Maximum]



Trip Duration	1676.00	s
Trip Duration (a)	1676.00	s
Trip Distance	17.99	mi
Trip Distance (a)	17.99	mi
Trip Fuel Cons. (b)	0.90	kg
Trip Fuel Cons. (ab)	0.90	kg
Trip Fuel Cons. EU (ac)	0.94	kg
Trip Fuel Cons. US (ac)	0.94	kg
Trip Fuel Economy (b)	56.63	mpg_US
Trip Fuel Economy (ab)	56.63	mpg_US
Trip Fuel Economy EU (ac)	53.99	mpg_US
Trip Fuel Economy US (ac)	53.98	mpg_US
Trip Fuel Economy GGE (b)	56.63	mpg_US
Trip Fuel Economy GGE (ab)	56.63	mpg_US
Trip Fuel Economy EU GGE (ac)	53.99	mpg_US
Trip Fuel Economy US GGE (ac)	53.98	mpg_US
Trip Av. Eng. Speed	1604.43	rpm
Trip Av. Torque	24.49	lbft
Trip Av. Power	8.93	hp
Trip Work		
Trip Work (a)	4.14	hphr
Trip Exhaust Mass	17.43	kg
Trip Exhaust Mass EU (ac)	16.64	kg
Trip Exhaust Mass US (ac)	16.70	kg
Trip Av. Amb. Temperature	67.71	deg_F
Trip Av. Humidity	23.46	%
Trip Av. GPS Altitude	566.56	m
Fuel Type	Petrol (E10)	

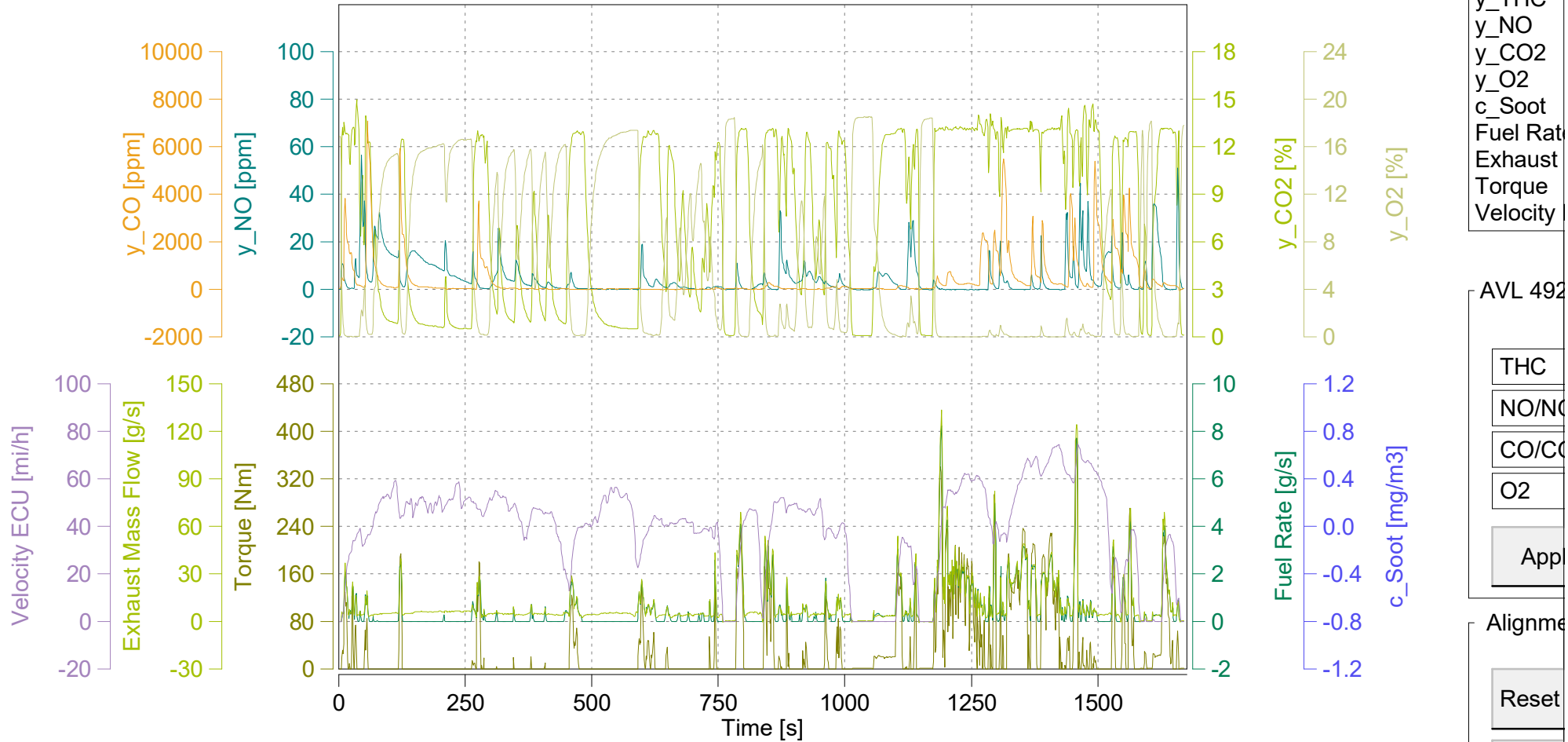
ave THC	12.06746	ppm
ave NMHC	11.82611	ppm
ave CH4	0.24135	ppm
ave CO	399.54674	ppm
ave CO2	7.55702	%
ave NOx	5.66347	ppm
ave PM	n/a	mg/m3
ave Soot meas	n/a	mg/m3
ave Soot	n/a	mg/m3
ave PN	n/a	#/cm3
tot THC	0.17920	g
tot NMHC	0.16576	g
tot CH4	0.00397	g
tot CO	10.76049	g
tot CO2	2850.58958	g
tot NO (d)	0.09462	g
tot NO2	0.02986	g
tot NOx	0.12331	g
tot Soot	n/a	g
tot Soot meas	n/a	g
tot PM	n/a	g
tot PN	n/a	#
PM measurement type	0.00000	-
tot Soot on PM filter (estim.)	0.00000	mg
Soot --> PM simple scaling factor	1.00000	-
Trip Av. Veh. Speed	38.82995	mi/hr
Trip Distance Share Urban	15.61925	% distance
Trip Distance Share Rural	60.36029	% distance
Trip Distance Share Motorway	24.02046	% distance

BS CO2	689.15186	g/hphr
BS CO	2.60143	g/hphr
BS THC	0.04332	g/hphr
BS NMHC	0.04007	g/hphr
BS CH4	0.00096	g/hphr
BS NO (d)	0.02287	g/hphr
BS NO2	0.00722	g/hphr
BS NOx	0.02981	g/hphr
BS Soot	n/a	g/hphr
BS Soot meas	n/a	g/hphr
BS PM	n/a	g/hphr
BS PN	n/a	#/hpr
DS CO2	158.44344	g/mi
DS CO	0.59810	g/mi
DS THC	0.00996	g/mi
DS NMHC	0.00921	g/mi
DS CH4	0.00022	g/mi
DS NO (d)	0.00526	g/mi
DS NO2	0.00166	g/mi
DS NOx	0.00685	g/mi
DS Soot	n/a	g/mi
DS Soot meas	n/a	g/mi
DS PM	n/a	g/mi
DS PN	n/a	#/mi
FS CO2	3170.88066	g/kg
FS CO	11.96954	g/kg
FS THC	0.19933	g/kg
FS NMHC	0.18439	g/kg
FS CH4	0.00442	g/kg
FS NO (d)	0.10525	g/kg
FS NO2	0.03322	g/kg
FS NOx	0.13717	g/kg
FS Soot	n/a	g/kg
FS Soot meas	n/a	g/kg
FS PM	n/a	g/kg
FS PN	n/a	#/kg

(a) GAS PEMS measurement state only, (b) based on fuel rate input (ECU, Fuel Meter), (c) Based on A/F ratio (eq 28-32 - R49)
(d) NO calculated using molecular weight of NO2, GGE=Gasoline Gallon Equivalents

Trip Duration	1676.00	s	ave THC DC	12.08425	ppm	BS CO2 DC	689.70510	g/hphr
Trip Duration (a)	1676.00	s	ave NMHC DC	11.84257	ppm	BS CO DC	2.60903	g/hphr
Trip Distance	17.99	mi	ave CH4 DC	0.24169	ppm	BS THC DC	0.04338	g/hphr
Trip Distance (a)	17.99	mi	ave CO DC	400.57118	ppm	BS NMHC DC	0.04013	g/hphr
			ave CO2 DC	7.56308	%	BS CH4 DC	0.00096	g/hphr
Trip Fuel Cons. (b)	0.90	kg	ave NOx DC	5.64067	ppm	BS NO DC (d)	0.02281	g/hphr
Trip Fuel Cons. (ab)	0.90	kg	ave PM	n/a	mg/m3	BS NO2 DC	0.00717	g/hphr
Trip Fuel Cons. EU (ac)	0.94	kg	ave Soot meas	n/a	mg/m3	BS NOx DC	0.02966	g/hphr
Trip Fuel Cons. US (ac)	0.94	kg	ave Soot	n/a	mg/m3	BS Soot	n/a	g/hphr
			ave PN DC			BS Soot meas	n/a	g/hphr
						BS PM	n/a	g/hphr
Trip Fuel Economy (b)	56.63	mpg_US	tot THC DC	0.17945	g	BS PN DC		
Trip Fuel Economy (ab)	56.63	mpg_US	tot NMHC DC	0.16599	g			
Trip Fuel Economy EU (ac)	53.99	mpg_US	tot CH4 DC	0.00398	g	DS CO2 DC	158.57064	g/mi
Trip Fuel Economy US (ac)	53.98	mpg_US	tot CO DC	10.79192	g	DS CO DC	0.59984	g/mi
Trip Fuel Economy GGE (b)	56.63	mpg_US	tot CO2 DC	2852.87799	g	DS THC DC	0.00997	g/mi
Trip Fuel Economy GGE (ab)	56.63	mpg_US	tot NO DC (d)	0.09433	g	DS NMHC DC	0.00923	g/mi
Trip Fuel Economy EU GGE (ac)	53.99	mpg_US	tot NO2 DC	0.02965	g	DS CH4 DC	0.00022	g/mi
Trip Fuel Economy US GGE (ac)	53.98	mpg_US	tot NOx DC	0.12270	g	DS NO DC (d)	0.00524	g/mi
			tot Soot	n/a	g	DS NO2 DC	0.00165	g/mi
Trip Av. Eng. Speed	1604.43	rpm	tot Soot meas	n/a	g	DS NOx DC	0.00682	g/mi
Trip Av. Torque	24.49	lbft	tot PM	n/a	g	DS Soot	n/a	g/mi
Trip Av. Power	8.93	hp	tot PN DC			DS Soot meas	n/a	g/mi
Trip Work						DS PM	n/a	g/mi
Trip Work (a)	4.14	hphr				DS PN DC		
			PM measurement type	0.00000	-			
Trip Exhaust Mass	17.43	kg	tot Soot on PM filter (estim.)	0.00000	mg	FS CO2 DC	3173.42619	g/kg
Trip Exhaust Mass EU (ac)	16.64	kg	Soot --> PM simple scaling factor	1.00000	-	FS CO DC	12.00450	g/kg
Trip Exhaust Mass US (ac)	16.70	kg				FS THC DC	0.19961	g/kg
			Trip Av. Veh. Speed	38.82995	mi/hr	FS NMHC DC	0.18464	g/kg
						FS CH4 DC	0.00442	g/kg
Trip Av. Amb. Temperature	67.71	deg_F	Trip Distance Share Urban	15.61925	% distance	FS NO DC (d)	0.10493	g/kg
Trip Av. Humidity	23.46	%	Trip Distance Share Rural	60.36029	% distance	FS NO2 DC	0.03299	g/kg
Trip Av. GPS Altitude	566.56	m	Trip Distance Share Motorway	24.02046	% distance	FS NOx DC	0.13648	g/kg
						FS Soot	n/a	g/kg
Fuel Type	Petrol (E10)					FS Soot meas	n/a	g/kg
						FS PM	n/a	g/kg
						FS PN DC		

(a) GAS PEMS measurement state only, (b) based on fuel rate input (ECU, Fuel Meter), (c) Based on A/F ratio (eq 28-32 - R49)
(d) NO calculated using molecular weight of NO2, GGE=Gasoline Gallon Equivalents



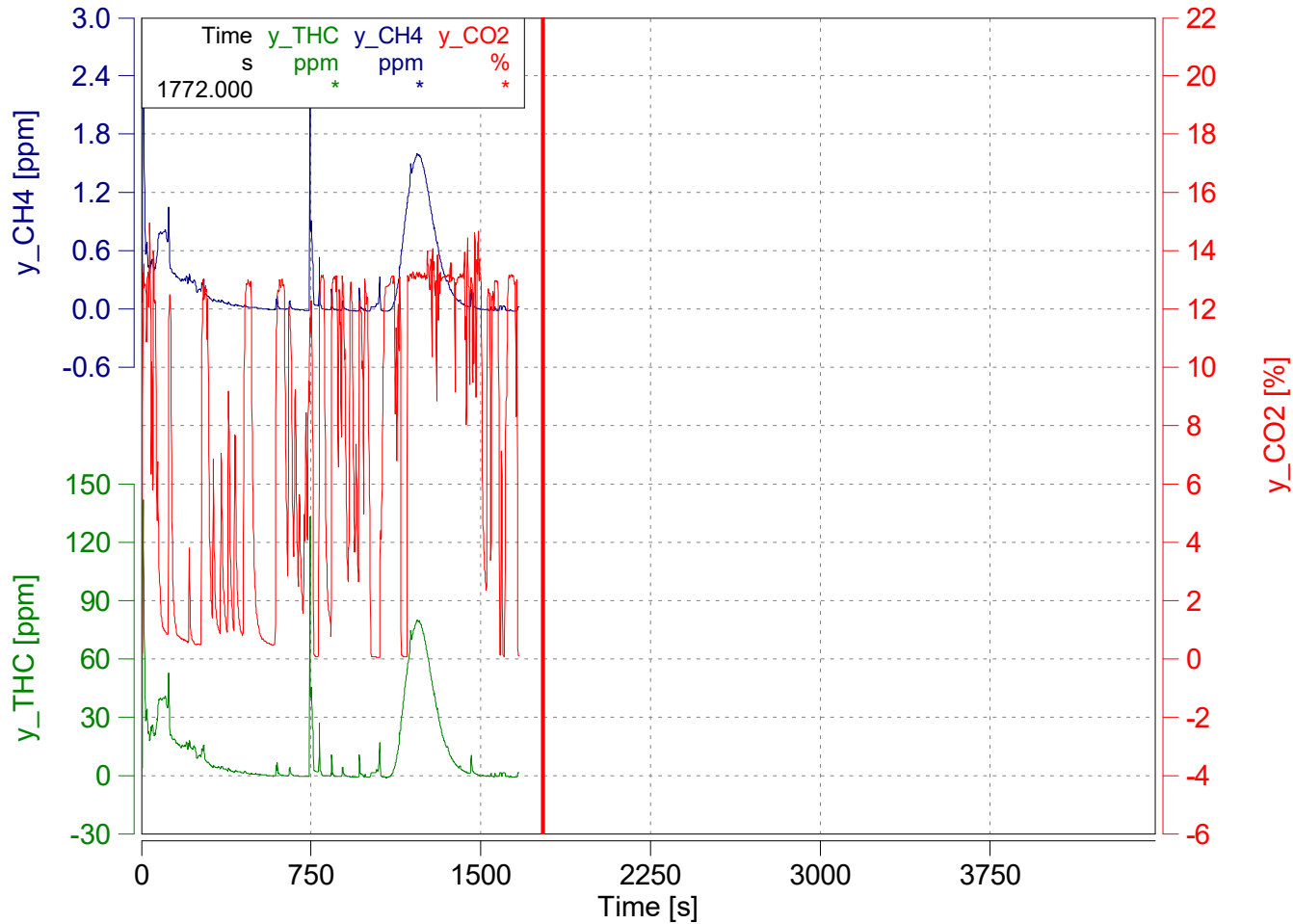
y_THC
y_NO
y_CO2
y_O2
c_Soot
Fuel Rate
Exhaust
Torque
Velocity

AVL 492

- THC
- NO/NO2
- CO/CO2
- O2
- App

Alignme

- Reset
- Re
- App

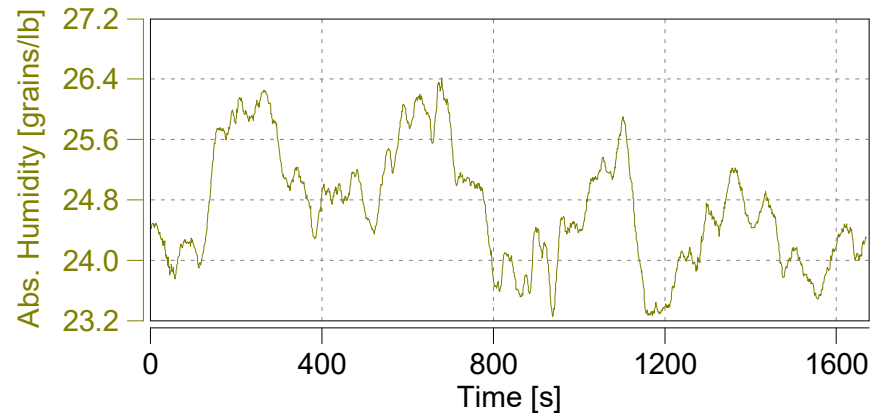
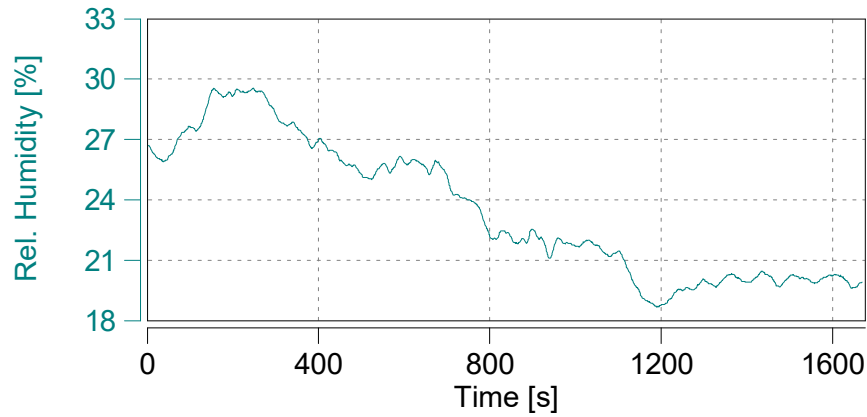
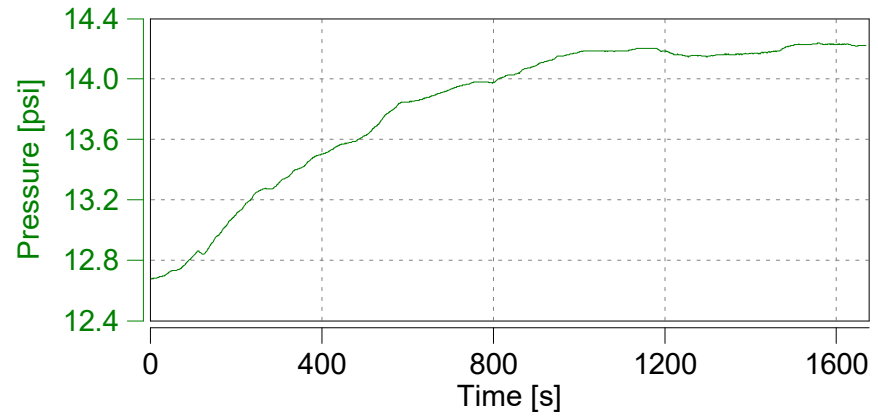
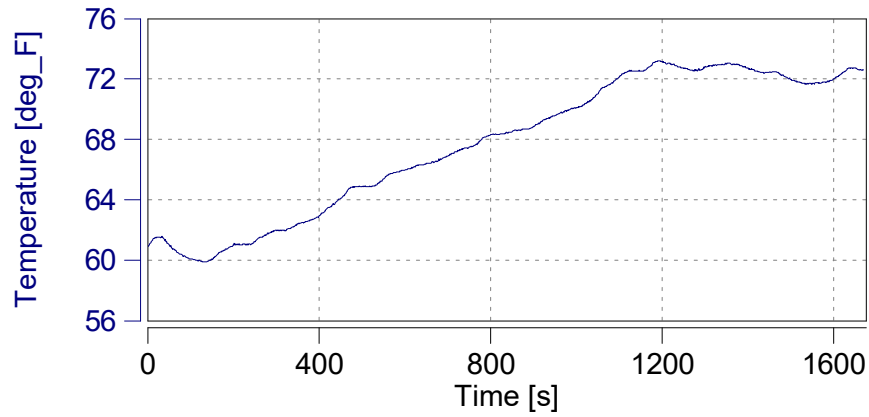


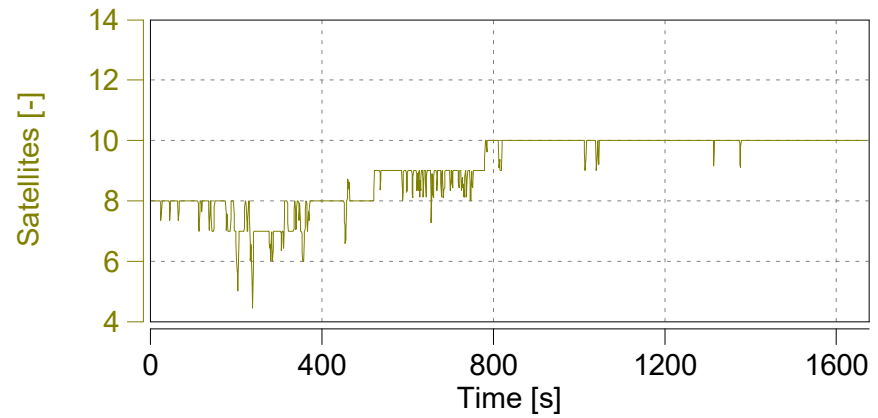
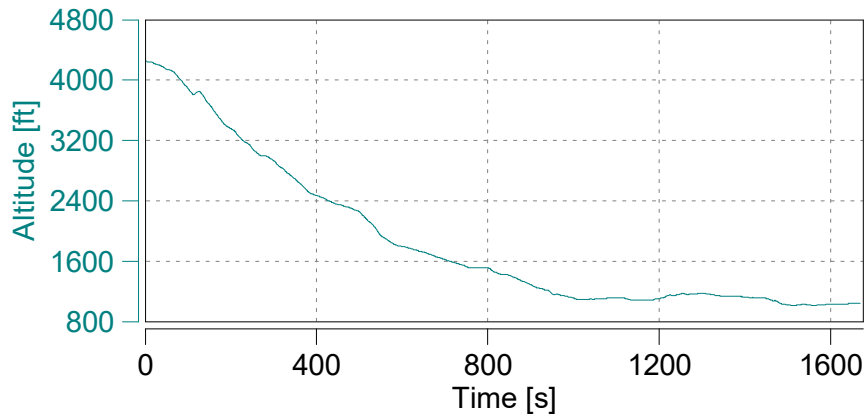
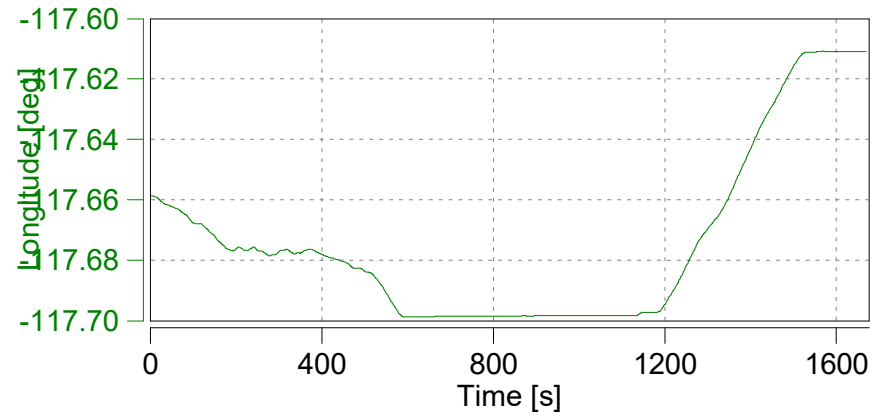
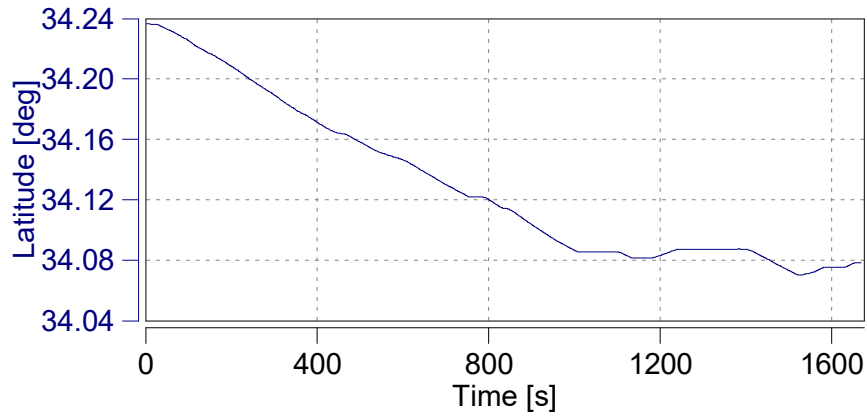
Absolute Time Shifts

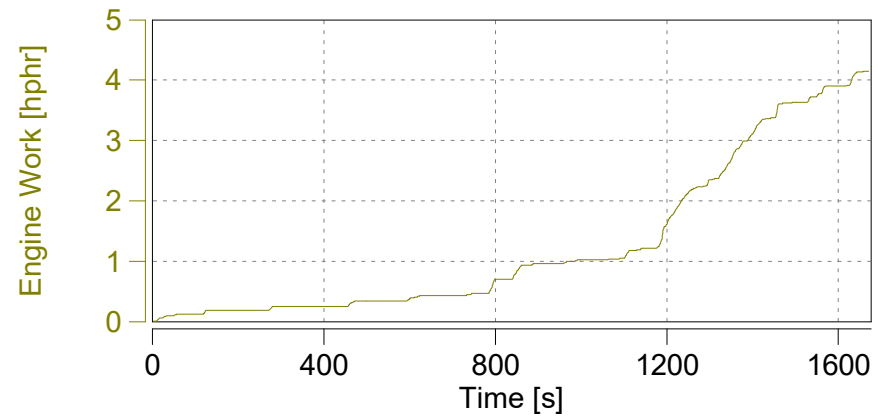
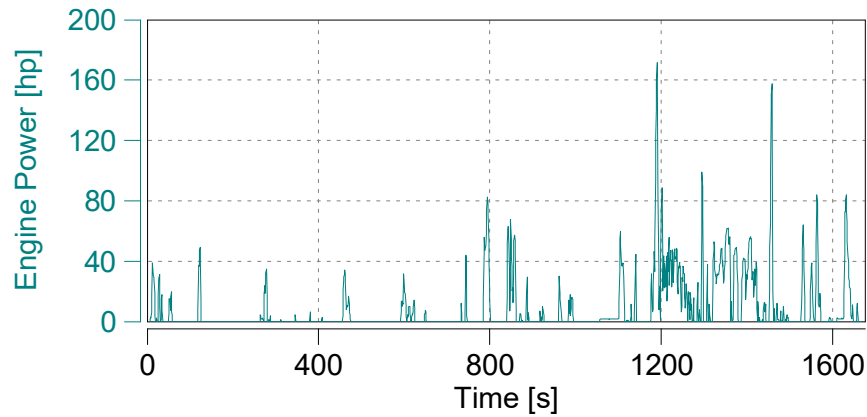
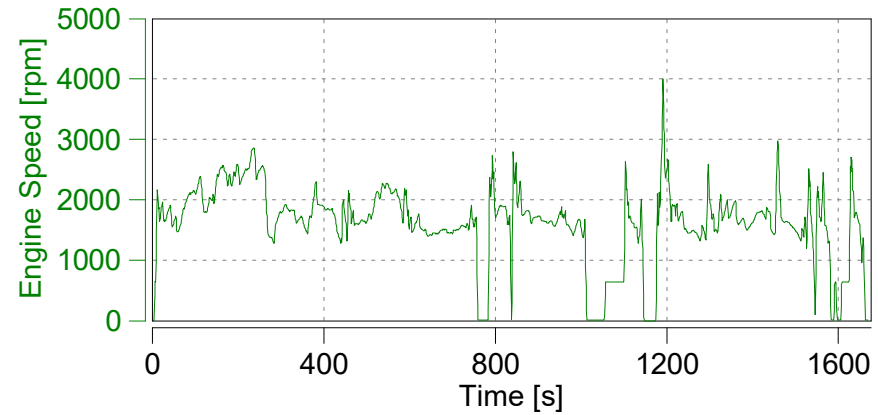
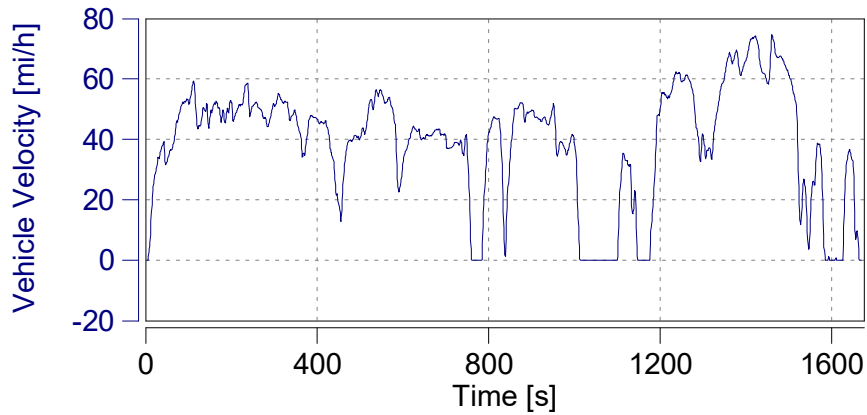
y_THC	s	0.0
y_CH4	s	0.0

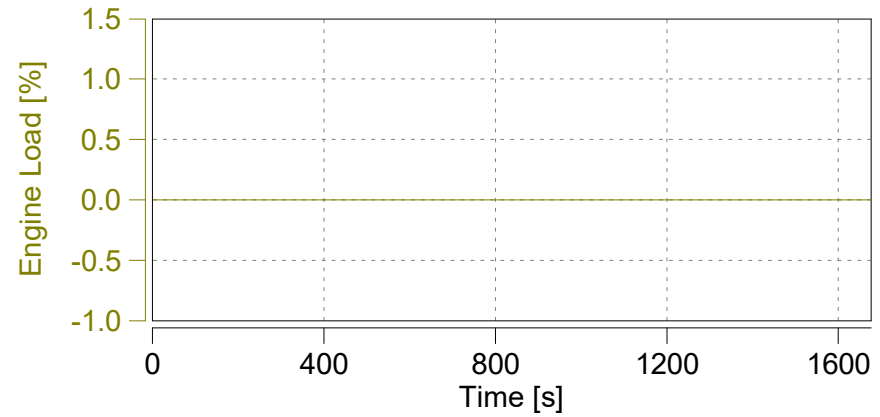
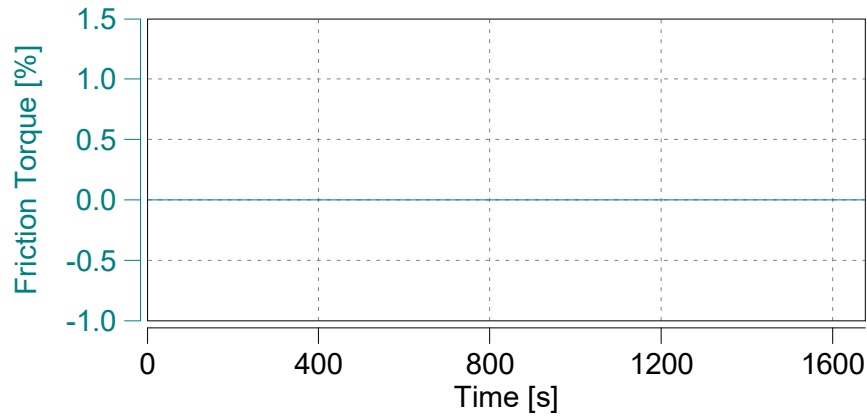
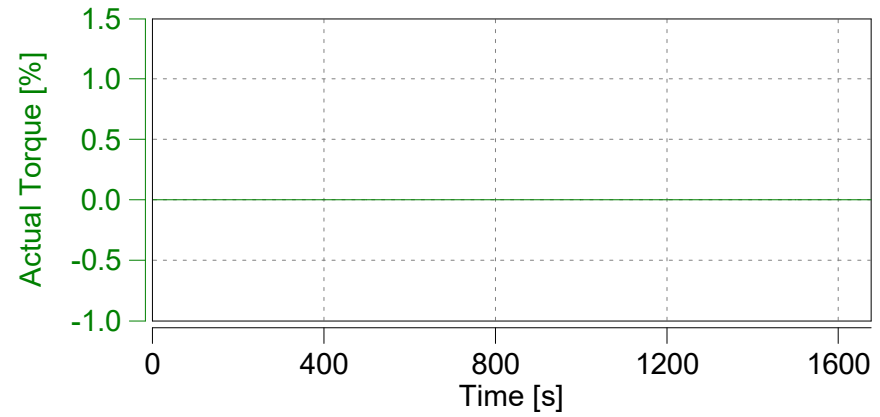
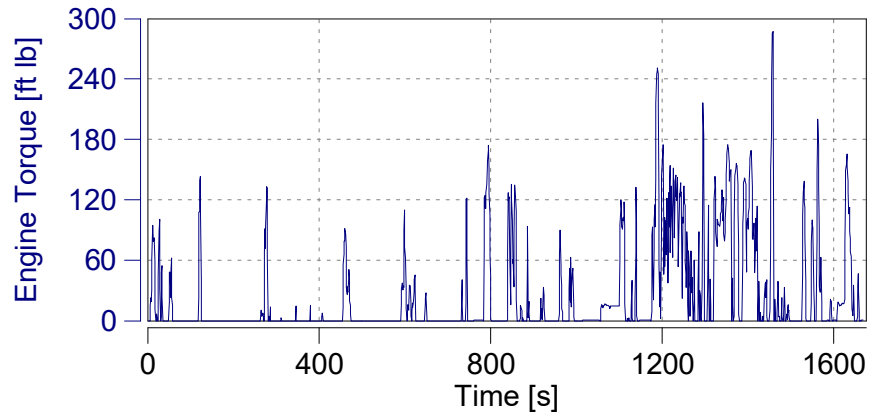
Reset Time Shifts in Plot

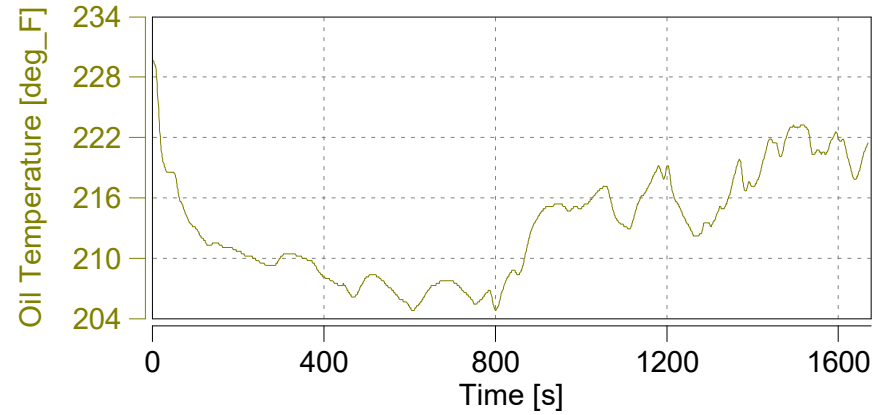
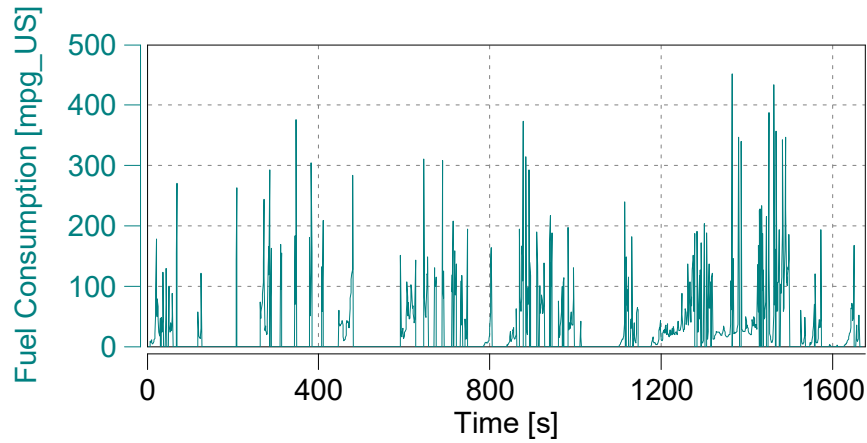
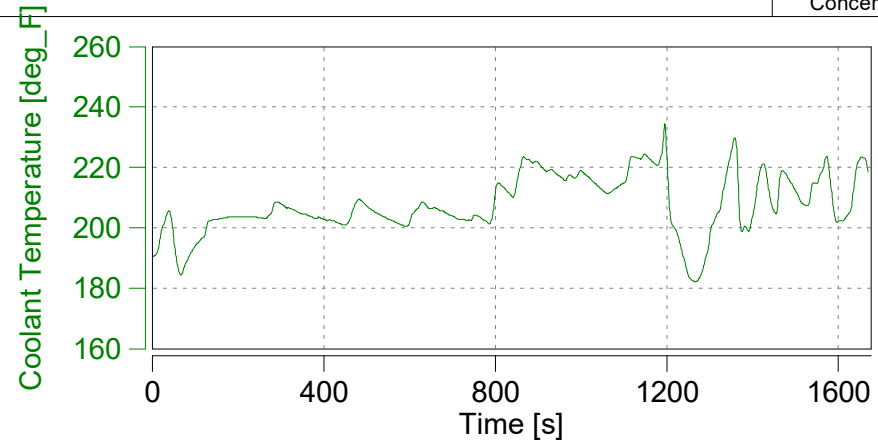
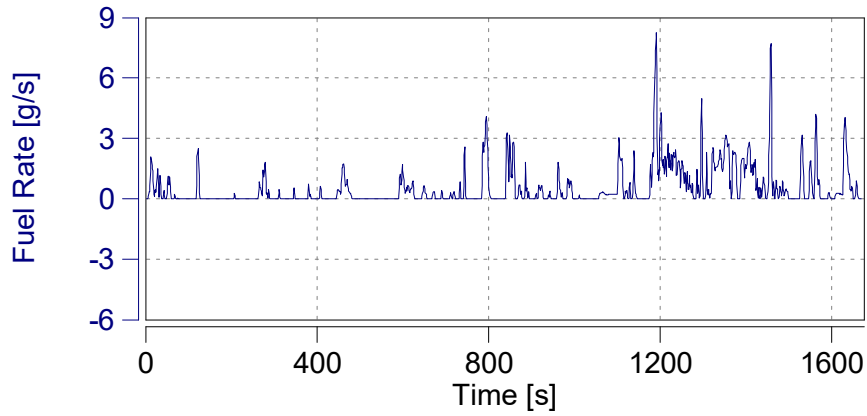
Apply Current Values

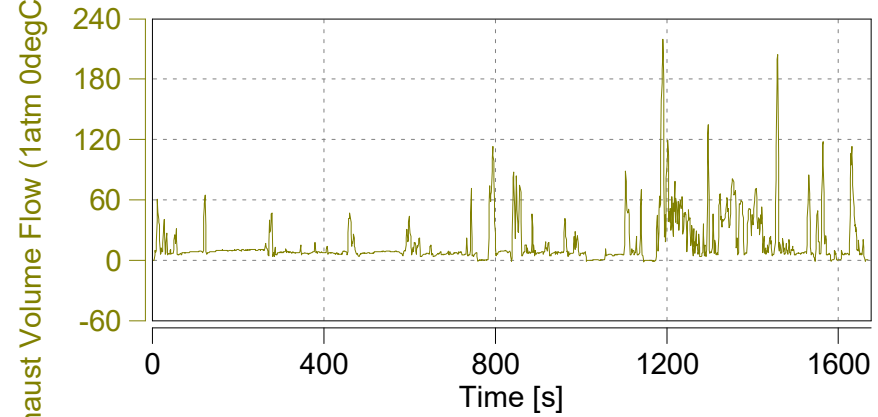
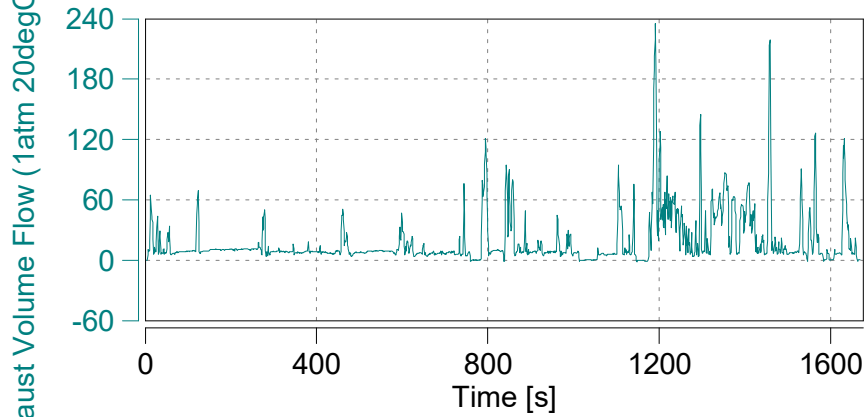
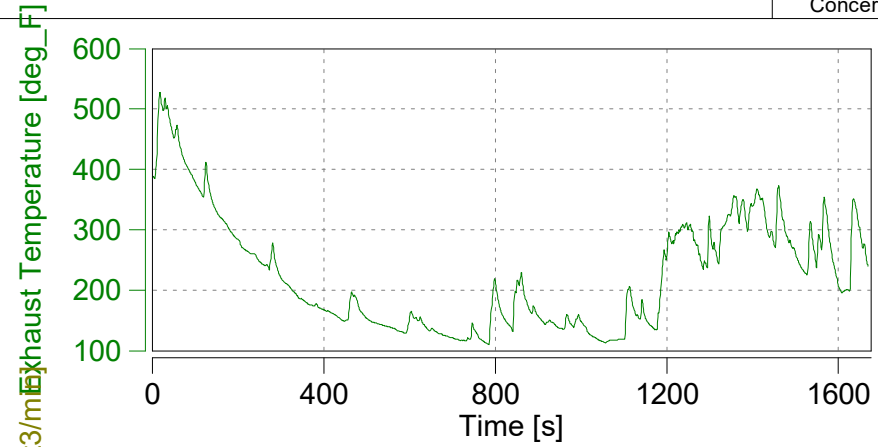
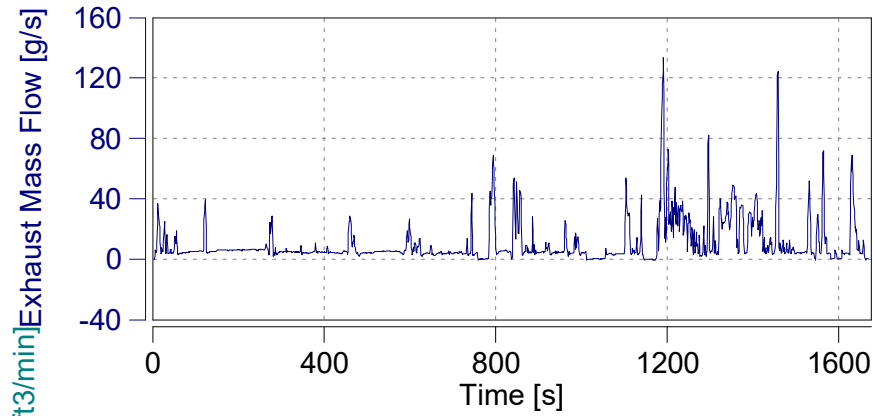


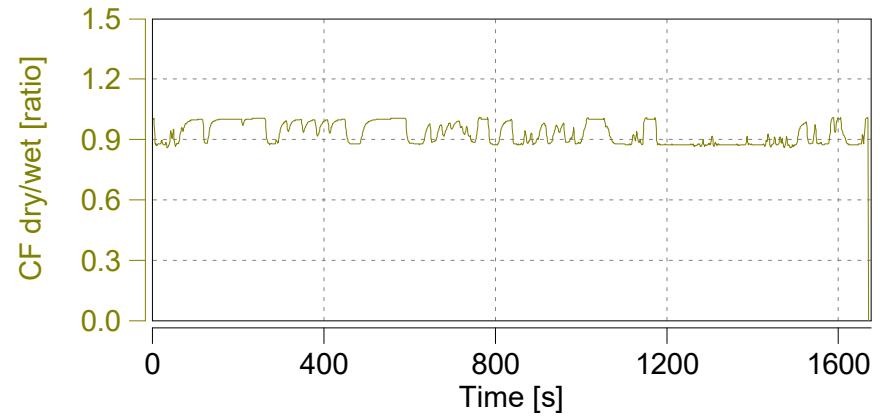
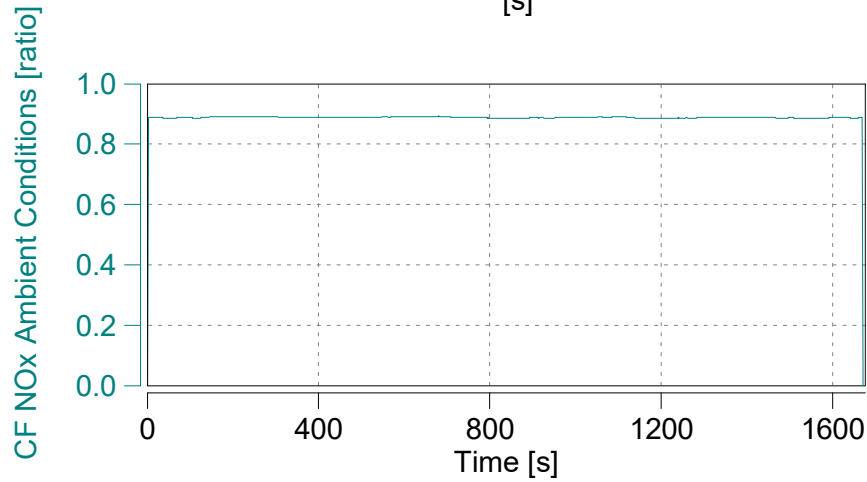
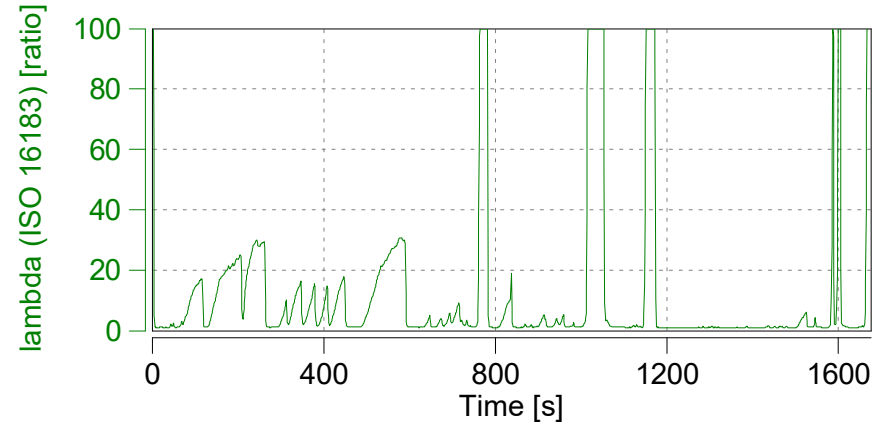
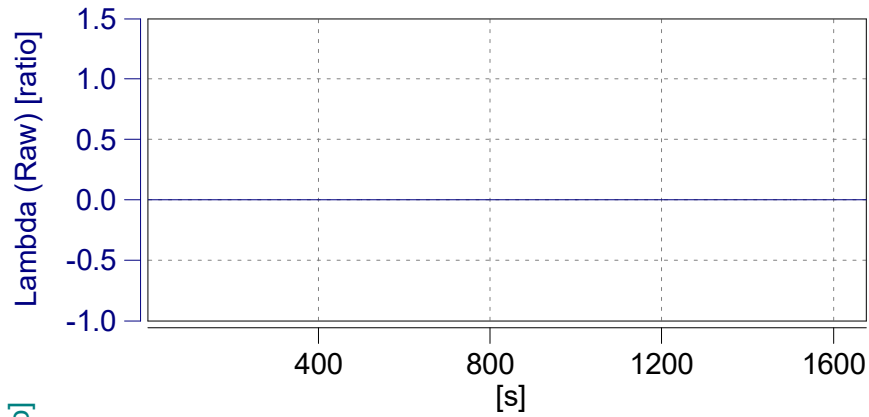


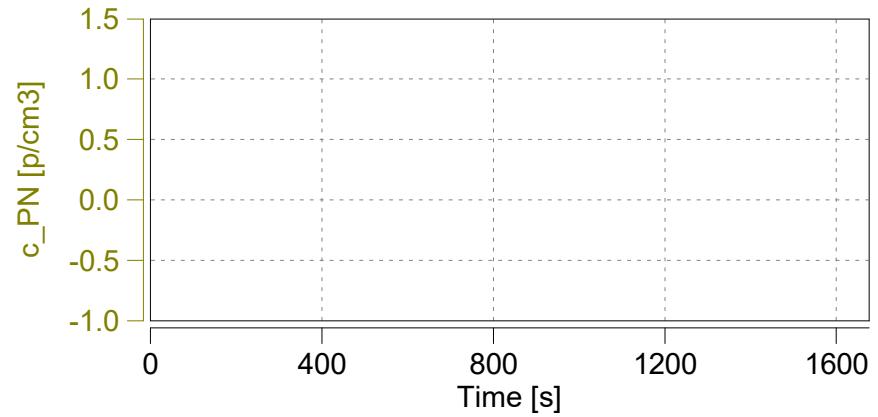
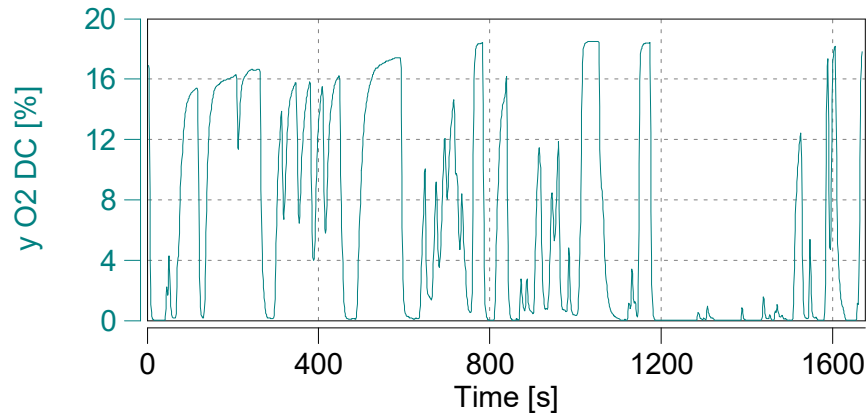
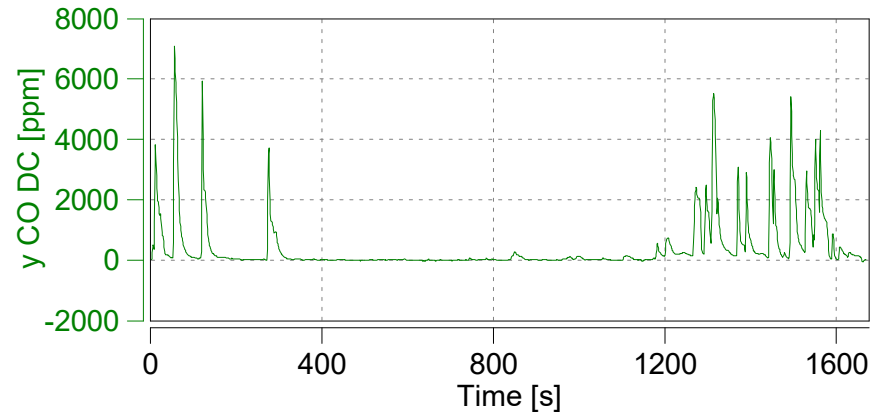
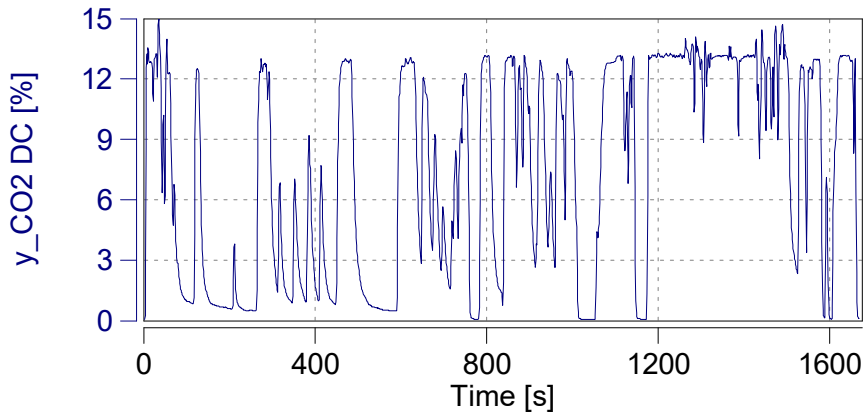


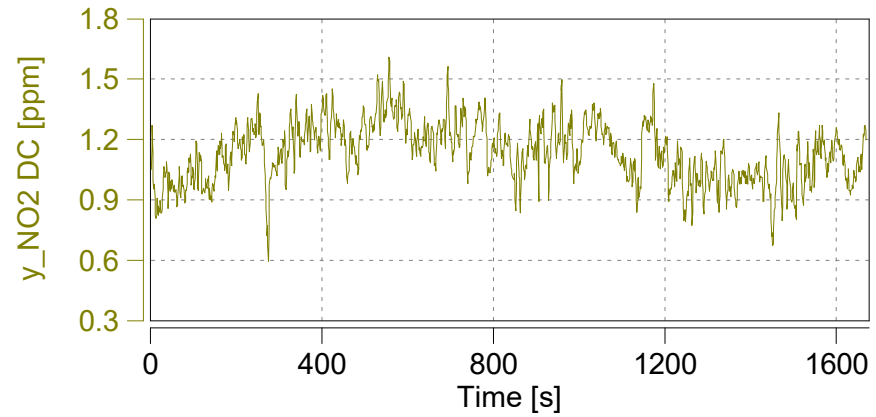
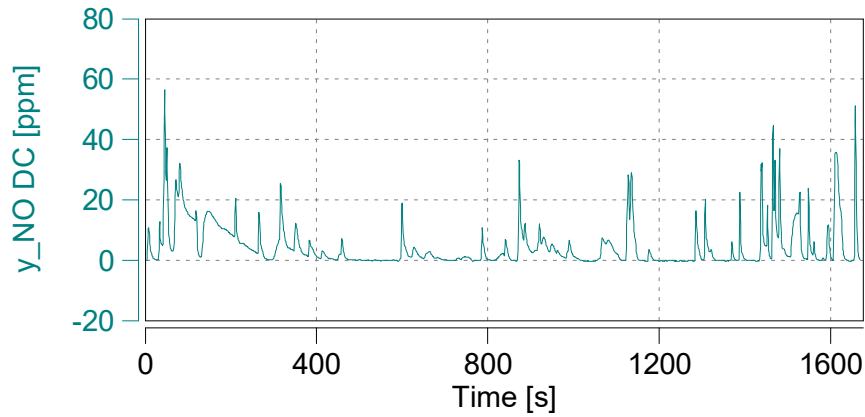
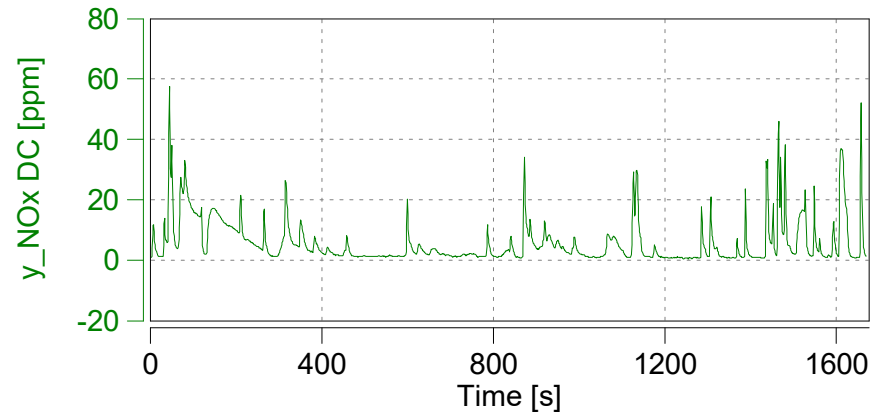
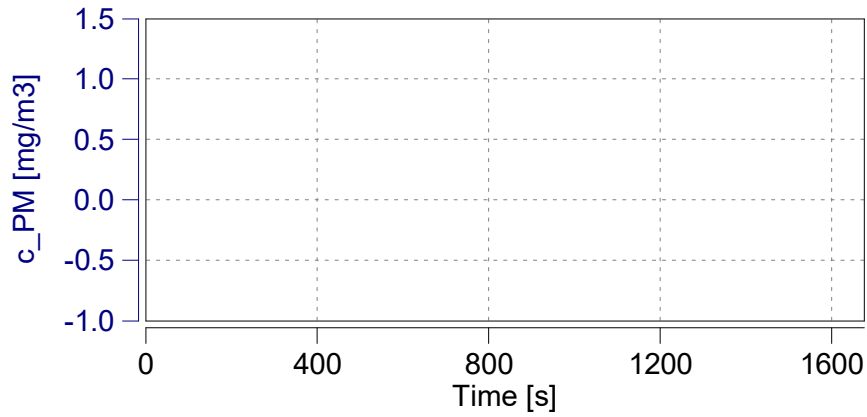


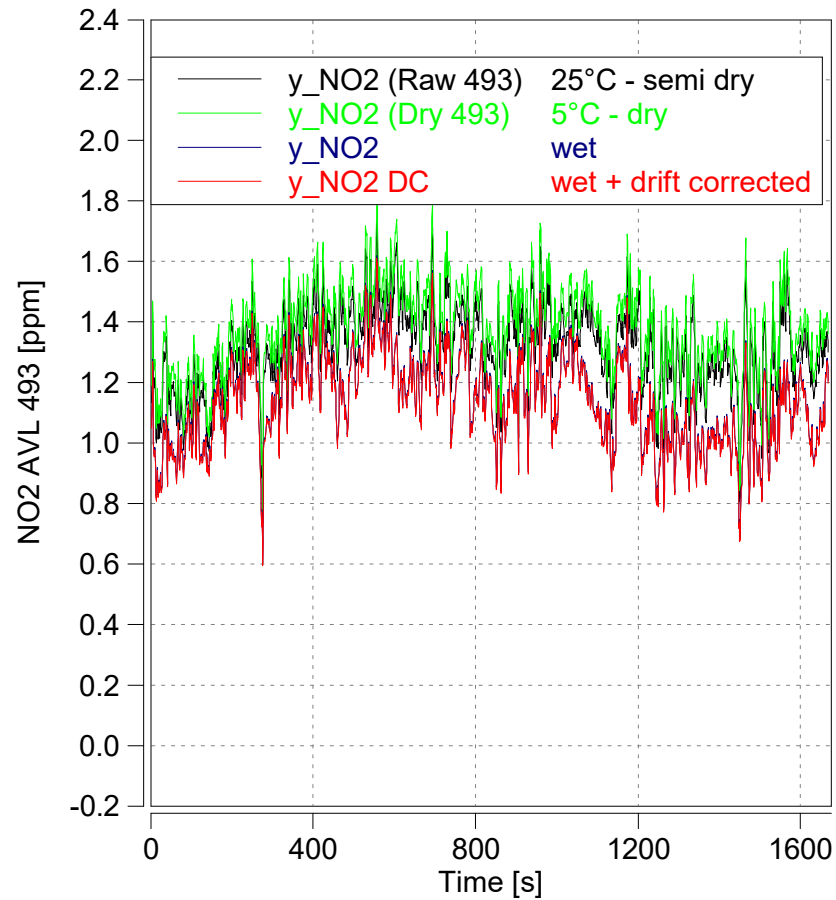
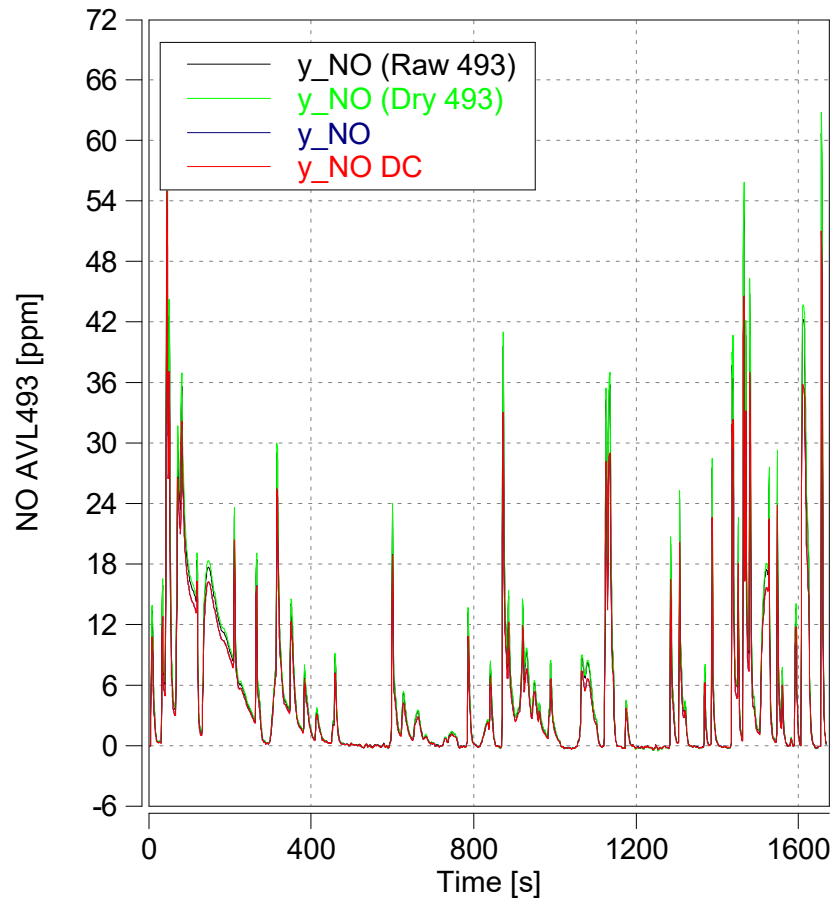


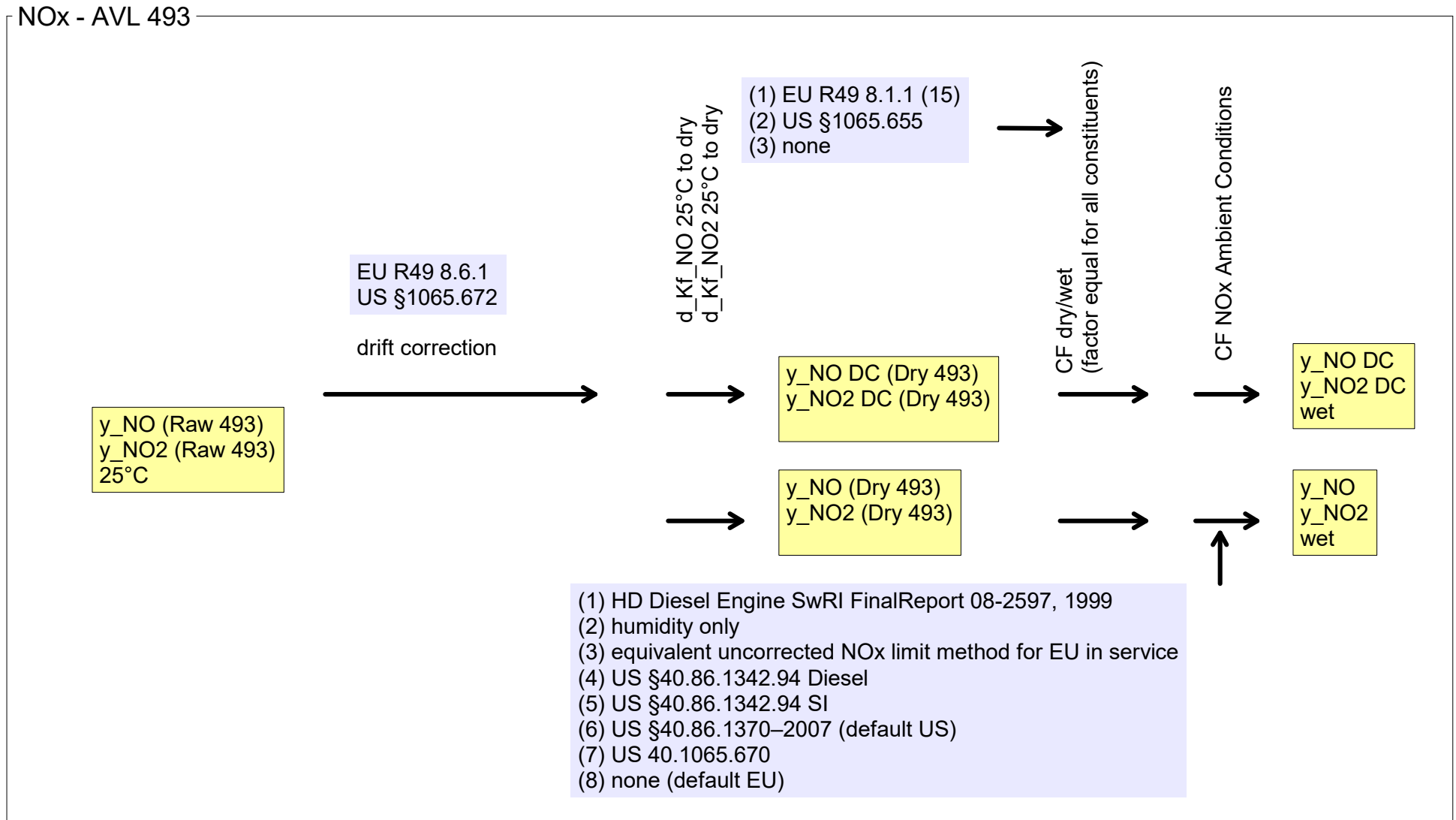


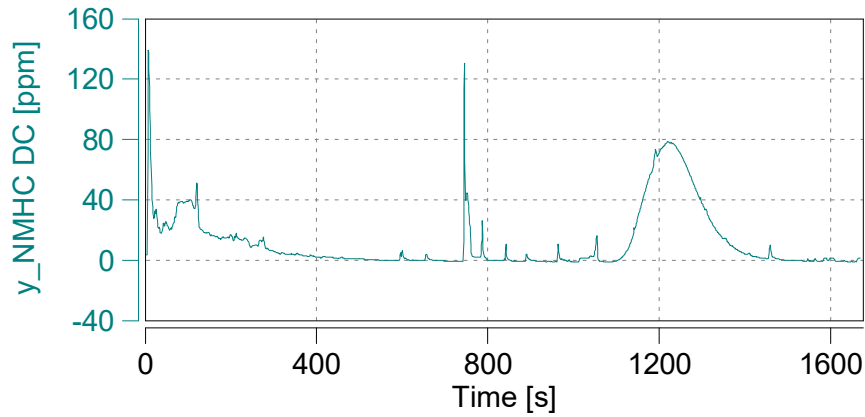
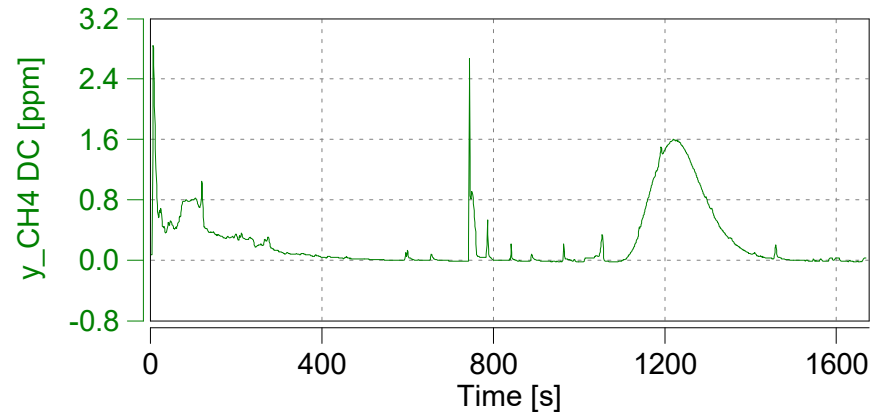
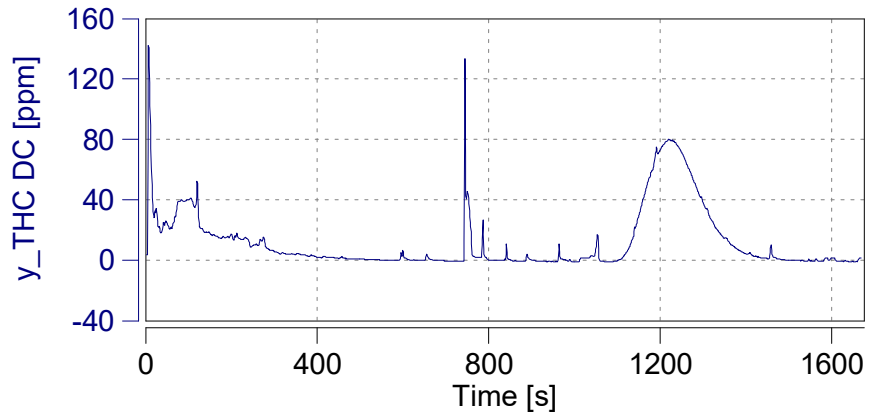


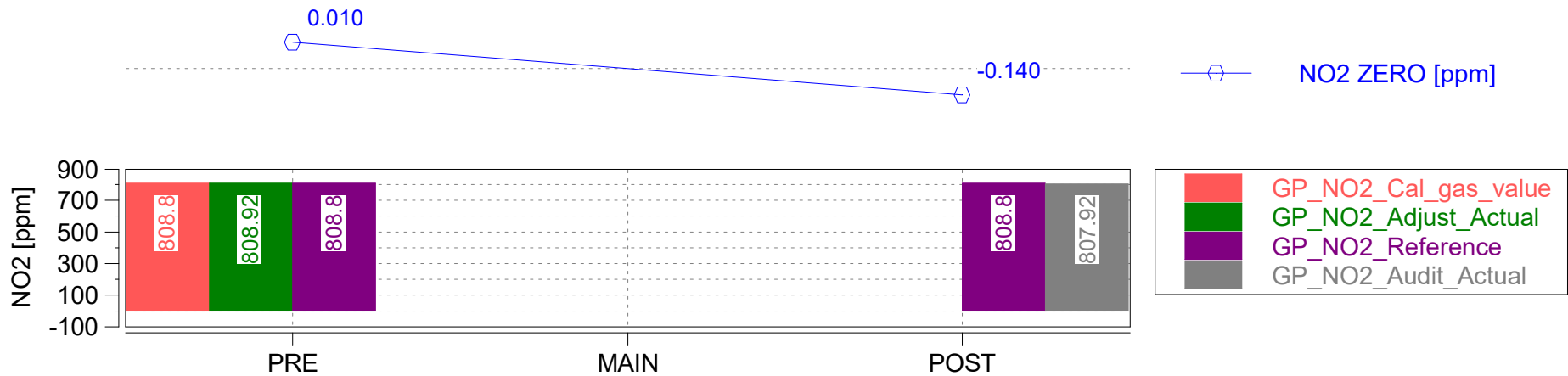
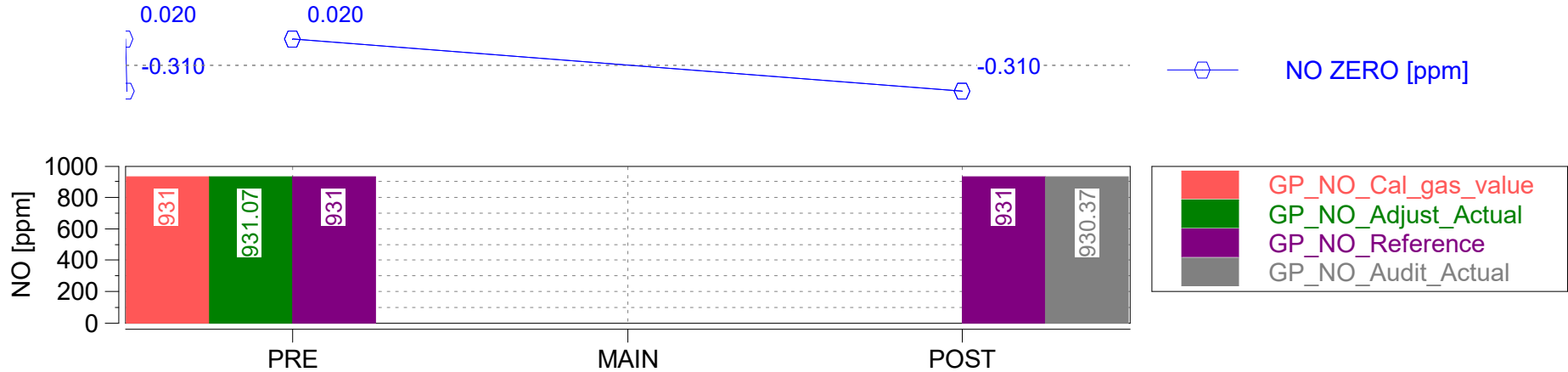


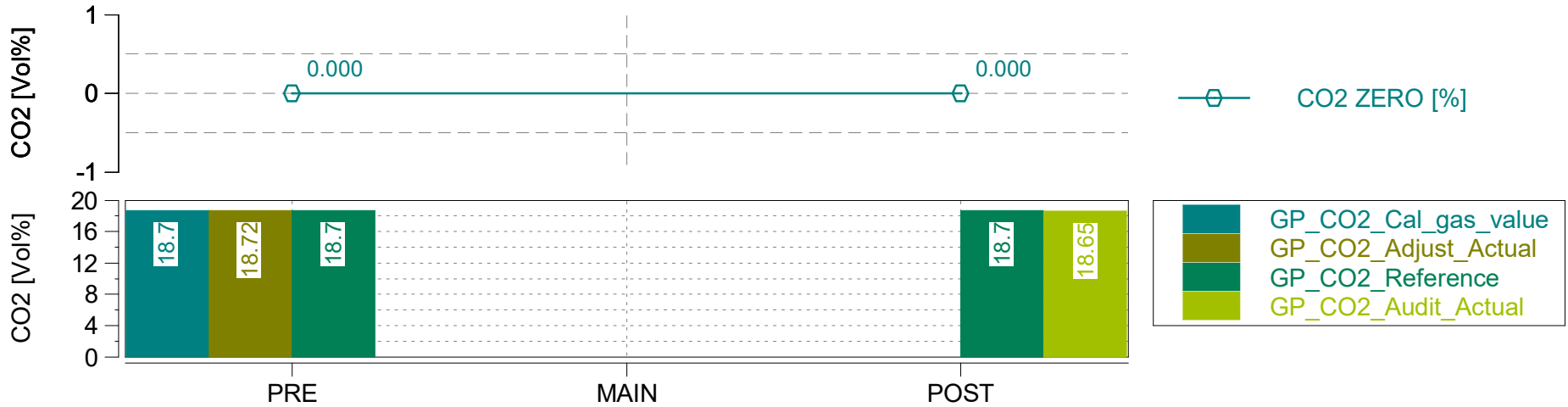
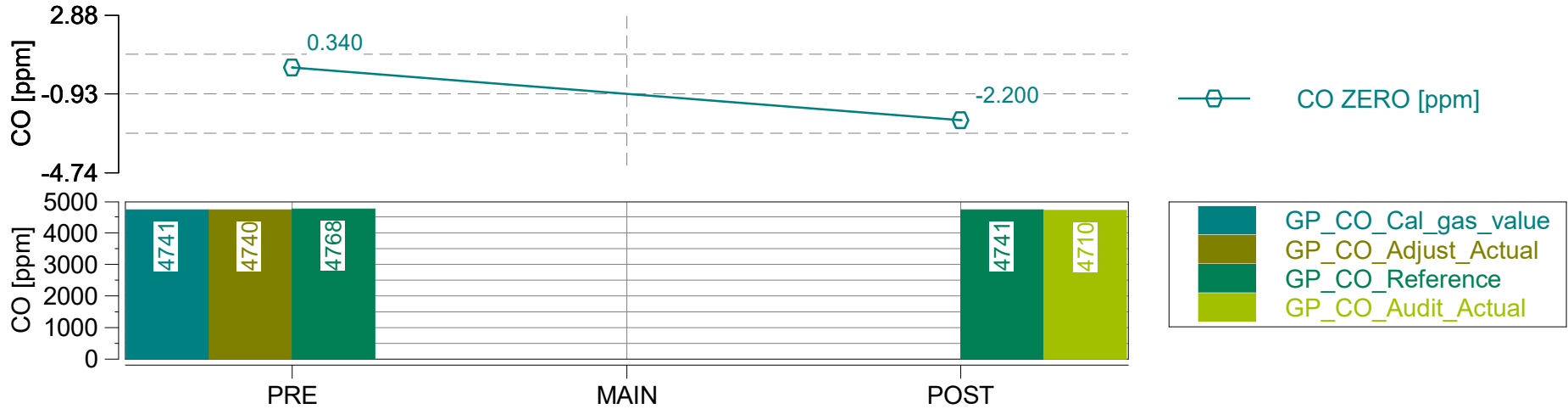


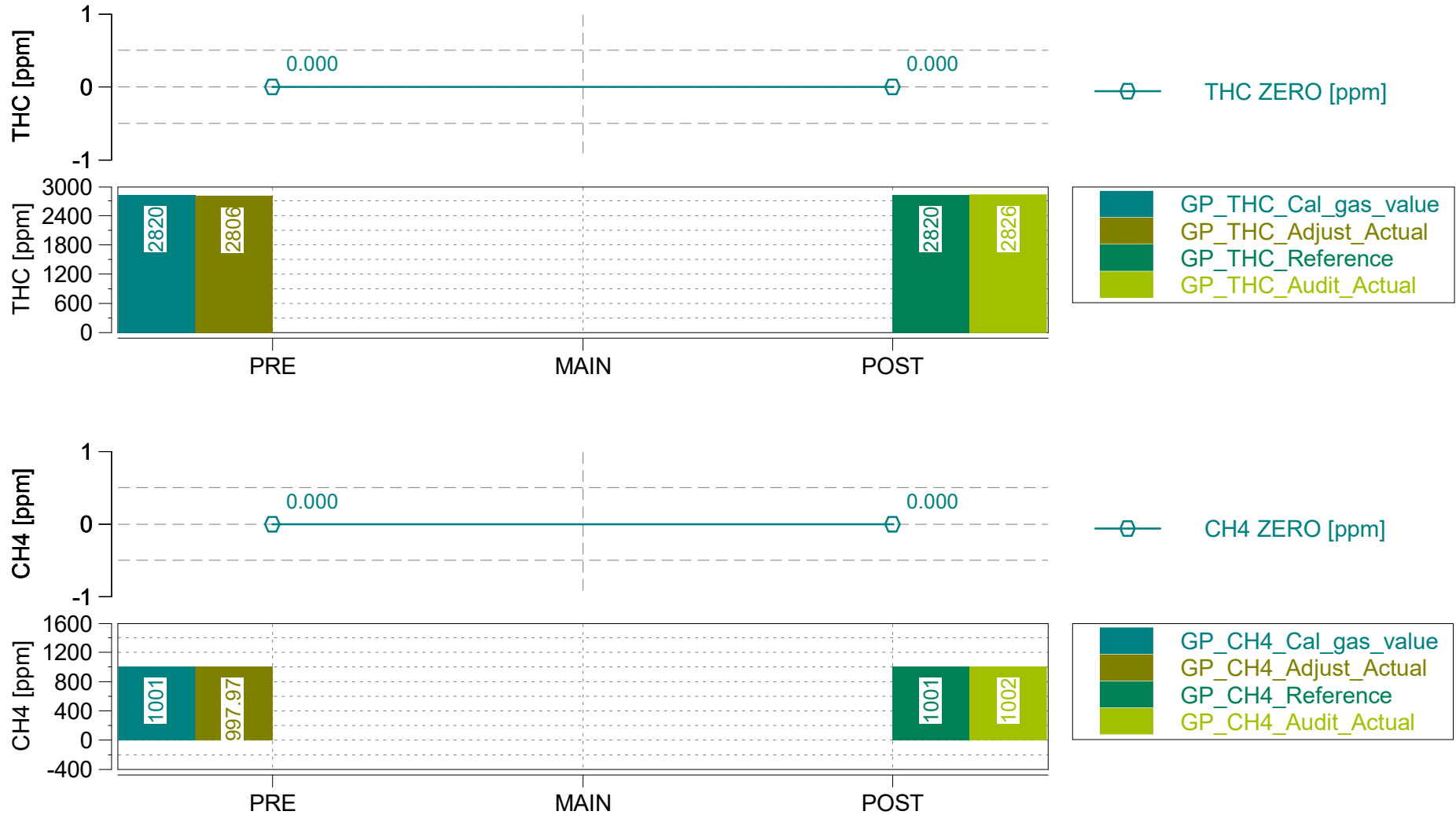














§	criterium	condition	value		
GAS Leak Check	The leakage rate on the vacuum side shall not exceed 0.5 per cent of the in-use flow rate for the portion of the system being checked.	The leakage rate <= 0.5%	0.18		
PN Leak Check	n/a	n/a	n/a		
PM Leak Check	n/a	n/a	n/a		

GAS PEMS Devices

Device ID	AVL492
Serial Number	0597
Firmware Version	V1.18
Main Test Date	2022-11-14
Leak Check Age [days]	0

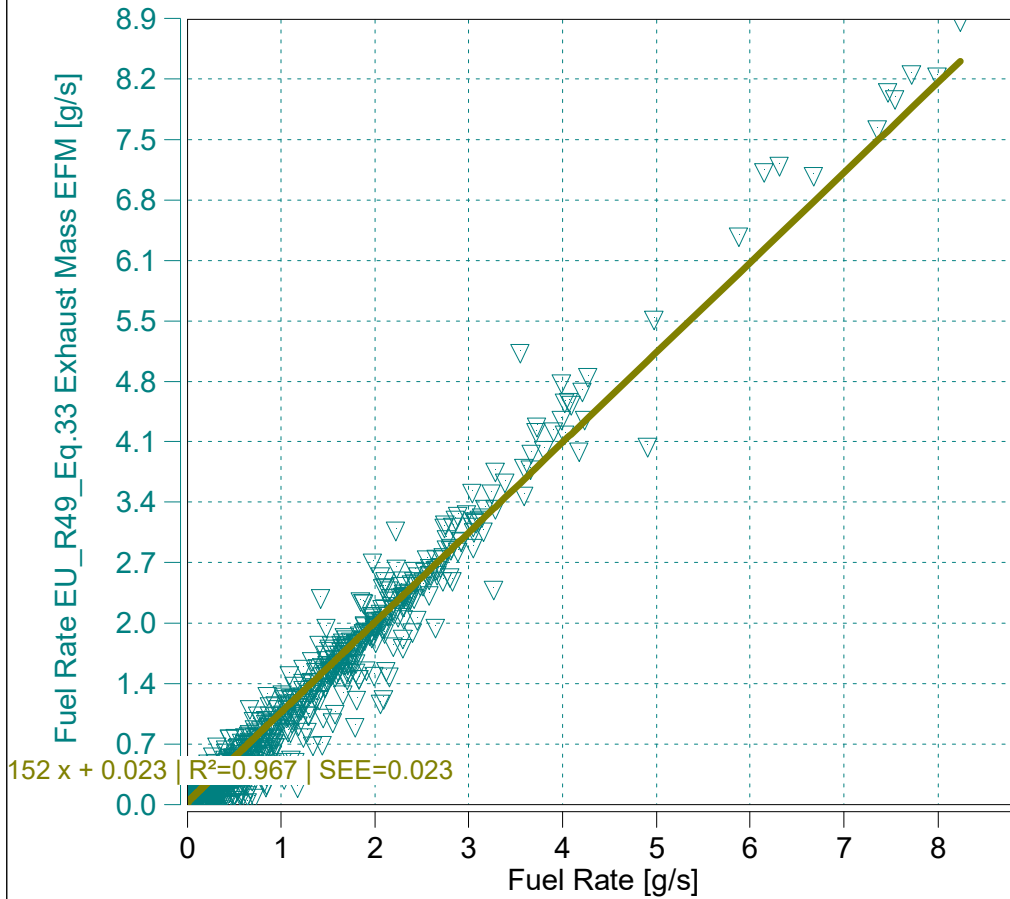
Device ID	AVL4925iS
Serial Number	202
Firmware Version	1.23.0.3

EFM

Device ID	AVL495
Serial Number	00826
Serial Number Tube	01080
Firmware Version	V1.18

System Control

SC Version	R18.0.2_b242
SC Serial Number	60301151



EU 582/2011/Appendix I/3.2.1 | Fuel Rate ECU and calculated

$y = 1.0152x + 0.023$ | $R^2 = 0.967$ | $SEE = 0.023$
 $m = 1.02$ (0.9 - 1.1 recommended)
 $R^2 = 0.97$ (min 0.9 mandatory)

Data from - to [% of Maximum]



Trip Duration	1925.00	s
Trip Duration (a)	1925.00	s
Trip Distance	24.23	mi
Trip Distance (a)	24.23	mi
Trip Fuel Cons. (b)	2.71	kg
Trip Fuel Cons. (ab)	2.71	kg
Trip Fuel Cons. EU (ac)	2.76	kg
Trip Fuel Cons. US (ac)	2.75	kg
Trip Fuel Economy (b)	25.25	mpg_US
Trip Fuel Economy (ab)	25.25	mpg_US
Trip Fuel Economy EU (ac)	24.88	mpg_US
Trip Fuel Economy US (ac)	24.93	mpg_US
Trip Fuel Economy GGE (b)	25.25	mpg_US
Trip Fuel Economy GGE (ab)	25.25	mpg_US
Trip Fuel Economy EU GGE (ac)	24.88	mpg_US
Trip Fuel Economy US GGE (ac)	24.93	mpg_US
Trip Av. Eng. Speed	1619.79	rpm
Trip Av. Torque	78.67	lbft
Trip Av. Power	26.83	hp
Trip Work		
Trip Work (a)	14.29	hphr
Trip Exhaust Mass	42.60	kg
Trip Exhaust Mass EU (ac)	42.16	kg
Trip Exhaust Mass US (ac)	42.26	kg
Trip Av. Amb. Temperature	71.36	deg_F
Trip Av. Humidity	28.33	%
Trip Av. GPS Altitude	63.63	m
Fuel Type	Petrol (E10)	

ave THC	24.49928	ppm
ave NMHC	24.00930	ppm
ave CH4	0.48999	ppm
ave CO	775.26345	ppm
ave CO2	12.20568	%
ave NOx	4.76592	ppm
ave PM	n/a	mg/m3
ave Soot meas	n/a	mg/m3
ave Soot	n/a	mg/m3
ave PN	n/a	#/cm3
tot THC	0.35701	g
tot NMHC	0.33024	g
tot CH4	0.00791	g
tot CO	32.96612	g
tot CO2	8309.09279	g
tot NO (d)	0.12192	g
tot NO2	0.15221	g
tot NOx	0.27395	g
tot Soot	n/a	g
tot Soot meas	n/a	g
tot PM	n/a	g
tot PN	n/a	#
PM measurement type	0.00000	-
tot Soot on PM filter (estim.)	0.00000	mg
Soot --> PM simple scaling factor	1.00000	-
Trip Av. Veh. Speed	45.49721	mi/hr
Trip Distance Share Urban	12.97244	% distanc
Trip Distance Share Rural	16.95871	% distanc
Trip Distance Share Motorway	70.06885	% distanc

BS CO2	581.52617	g/hphr
BS CO	2.30719	g/hphr
BS THC	0.02499	g/hphr
BS NMHC	0.02311	g/hphr
BS CH4	0.00055	g/hphr
BS NO (d)	0.00853	g/hphr
BS NO2	0.01065	g/hphr
BS NOx	0.01917	g/hphr
BS Soot	n/a	g/hphr
BS Soot meas	n/a	g/hphr
BS PM	n/a	g/hphr
BS PN	n/a	#/hpr
DS CO2	342.96457	g/mi
DS CO	1.36070	g/mi
DS THC	0.01474	g/mi
DS NMHC	0.01363	g/mi
DS CH4	0.00033	g/mi
DS NO (d)	0.00503	g/mi
DS NO2	0.00628	g/mi
DS NOx	0.01131	g/mi
DS Soot	n/a	g/mi
DS Soot meas	n/a	g/mi
DS PM	n/a	g/mi
DS PN	n/a	#/mi
FS CO2	3060.47015	g/kg
FS CO	12.14234	g/kg
FS THC	0.13150	g/kg
FS NMHC	0.12164	g/kg
FS CH4	0.00291	g/kg
FS NO (d)	0.04491	g/kg
FS NO2	0.05606	g/kg
FS NOx	0.10090	g/kg
FS Soot	n/a	g/kg
FS Soot meas	n/a	g/kg
FS PM	n/a	g/kg
FS PN	n/a	#/kg

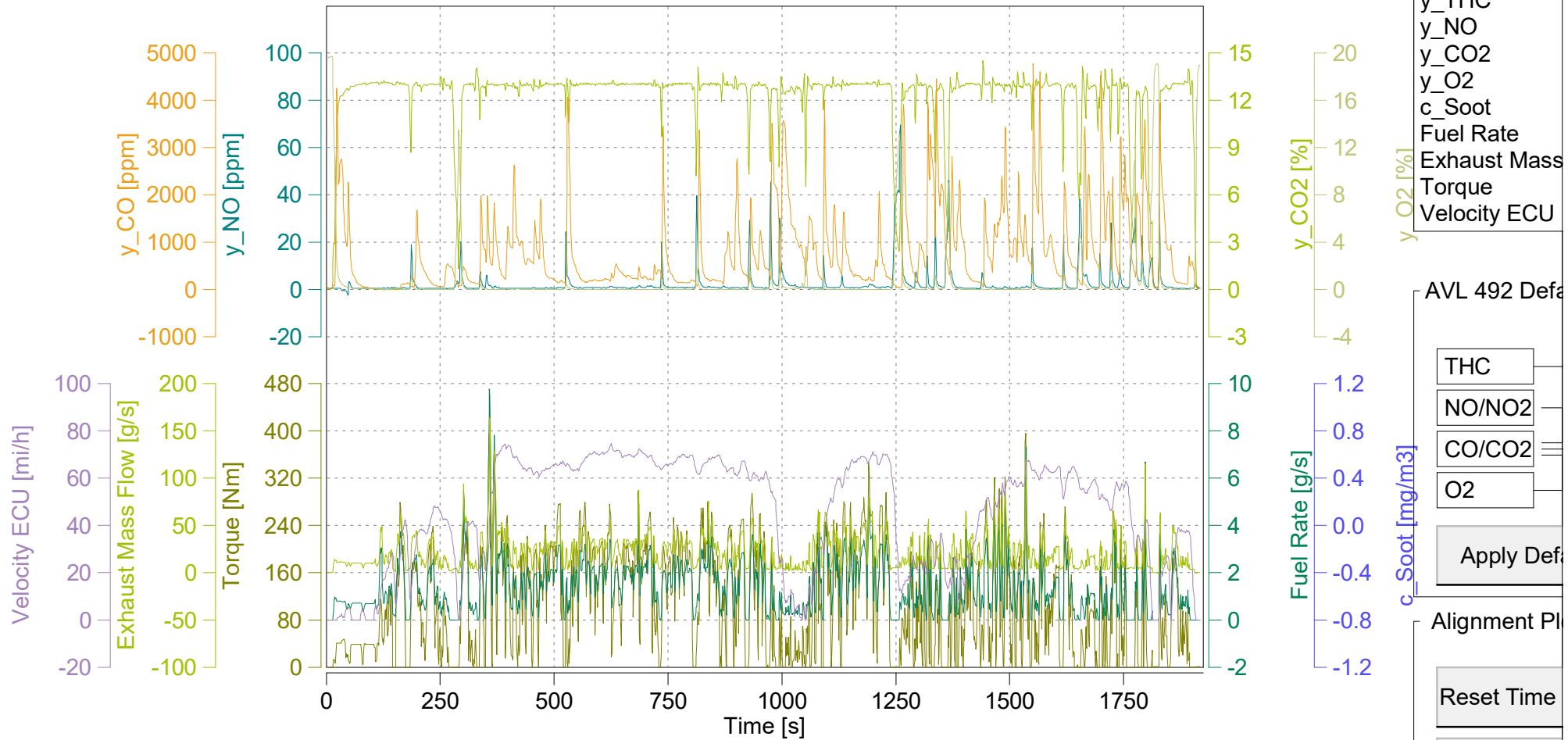
(a) GAS PEMS measurement state only, (b) based on fuel rate input (ECU, Fuel Meter), (c) Based on A/F ratio (eq 28-32 - R49)
(d) NO calculated using molecular weight of NO2, GGE=Gasoline Gallon Equivalents

Trip Duration	1925.00	s	ave THC DC	24.53338	ppm	BS CO2 DC	581.99301	g/hphr
Trip Duration (a)	1925.00	s	ave NMHC DC	24.04272	ppm	BS CO DC	2.31409	g/hphr
Trip Distance	24.23	mi	ave CH4 DC	0.49067	ppm	BS THC DC	0.02502	g/hphr
Trip Distance (a)	24.23	mi	ave CO DC	777.56644	ppm	BS NMHC DC	0.02314	g/hphr
			ave CO2 DC	12.21548	%	BS CH4 DC	0.00055	g/hphr
Trip Fuel Cons. (b)	2.71	kg	ave NOx DC	4.74386	ppm	BS NO DC (d)	0.00846	g/hphr
Trip Fuel Cons. (ab)	2.71	kg	ave PM	n/a	mg/m3	BS NO2 DC	0.01062	g/hphr
Trip Fuel Cons. EU (ac)	2.76	kg	ave Soot meas	n/a	mg/m3	BS NOx DC	0.01907	g/hphr
Trip Fuel Cons. US (ac)	2.75	kg	ave Soot	n/a	mg/m3	BS Soot	n/a	g/hphr
			ave PN DC			BS Soot meas	n/a	g/hphr
						BS PM	n/a	g/hphr
Trip Fuel Economy (b)	25.25	mpg_US	tot THC DC	0.35751	g	BS PN DC		
Trip Fuel Economy (ab)	25.25	mpg_US	tot NMHC DC	0.33070	g			
Trip Fuel Economy EU (ac)	24.88	mpg_US	tot CH4 DC	0.00792	g	DS CO2 DC	343.23989	g/mi
Trip Fuel Economy US (ac)	24.93	mpg_US	tot CO DC	33.06476	g	DS CO DC	1.36477	g/mi
Trip Fuel Economy GGE (b)	25.25	mpg_US	tot CO2 DC	8315.76319	g	DS THC DC	0.01476	g/mi
Trip Fuel Economy GGE (ab)	25.25	mpg_US	tot NO DC (d)	0.12090	g	DS NMHC DC	0.01365	g/mi
Trip Fuel Economy EU GGE (ac)	24.88	mpg_US	tot NO2 DC	0.15175	g	DS CH4 DC	0.00033	g/mi
Trip Fuel Economy US GGE (ac)	24.93	mpg_US	tot NOx DC	0.27245	g	DS NO DC (d)	0.00499	g/mi
			tot Soot	n/a	g	DS NO2 DC	0.00626	g/mi
Trip Av. Eng. Speed	1619.79	rpm	tot Soot meas	n/a	g	DS NOx DC	0.01125	g/mi
Trip Av. Torque	78.67	lbft	tot PM	n/a	g	DS Soot	n/a	g/mi
Trip Av. Power	26.83	hp	tot PN DC			DS Soot meas	n/a	g/mi
Trip Work						DS PM	n/a	g/mi
Trip Work (a)	14.29	hphr				DS PN DC		
			PM measurement type	0.00000	-			
Trip Exhaust Mass	42.60	kg	tot Soot on PM filter (estim.)	0.00000	mg	FS CO2 DC	3062.92704	g/kg
Trip Exhaust Mass EU (ac)	42.16	kg	Soot --> PM simple scaling factor	1.00000	-	FS CO DC	12.17867	g/kg
Trip Exhaust Mass US (ac)	42.26	kg				FS THC DC	0.13168	g/kg
			Trip Av. Veh. Speed	45.49721	mi/hr	FS NMHC DC	0.12181	g/kg
Trip Av. Amb. Temperature	71.36	deg_F				FS CH4 DC	0.00292	g/kg
Trip Av. Humidity	28.33	%	Trip Distance Share Urban	12.97244	% distanc	FS NO DC (d)	0.04453	g/kg
Trip Av. GPS Altitude	63.63	m	Trip Distance Share Rural	16.95871	% distanc	FS NO2 DC	0.05589	g/kg
			Trip Distance Share Motorway	70.06885	% distanc	FS NOx DC	0.10035	g/kg
Fuel Type	Petrol (E10)					FS Soot	n/a	g/kg
						FS Soot meas	n/a	g/kg
						FS PM	n/a	g/kg
						FS PN DC		

(a) GAS PEMS measurement state only, (b) based on fuel rate input (ECU, Fuel Meter), (c) Based on A/F ratio (eq 28-32 - R49)
 (d) NO calculated using molecular weight of NO2, GGE=Gasoline Gallon Equivalents



Concerto Absolute Time



- y_THC
- y_NO
- y_CO2
- y_O2
- c_Soot
- Fuel Rate
- Exhaust Mass
- Torque
- Velocity ECU

AVL 492 Defa

- THC
- NO/NO2
- CO/CO2
- O2

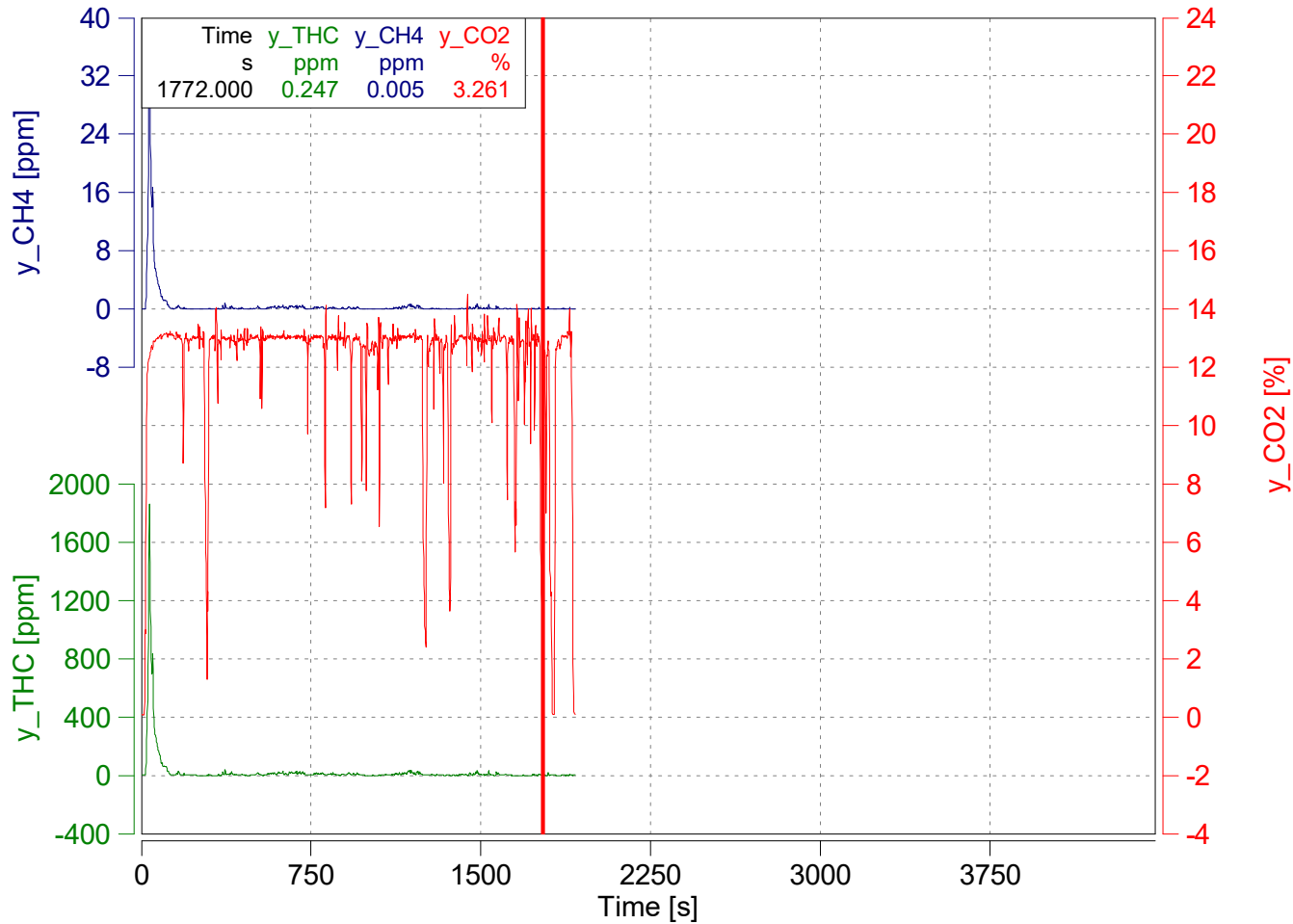
Apply Defa

Alignment Pl

Reset Time

Reset Al

Apply Curr

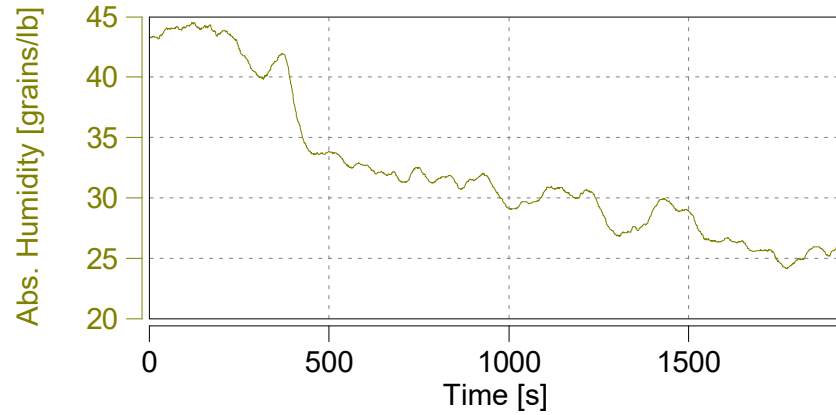
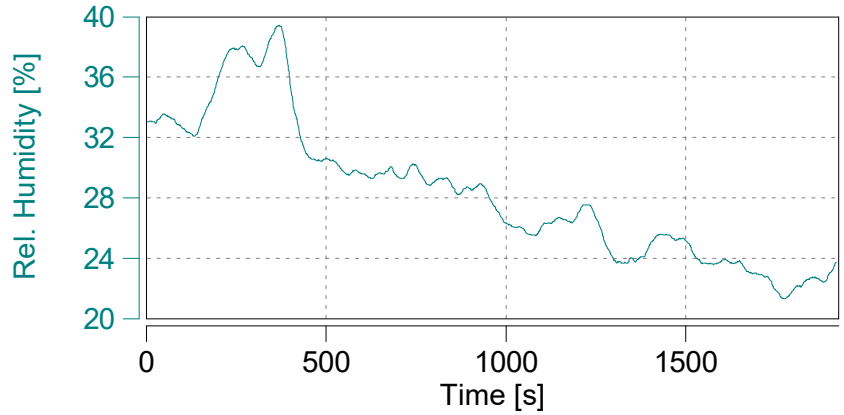
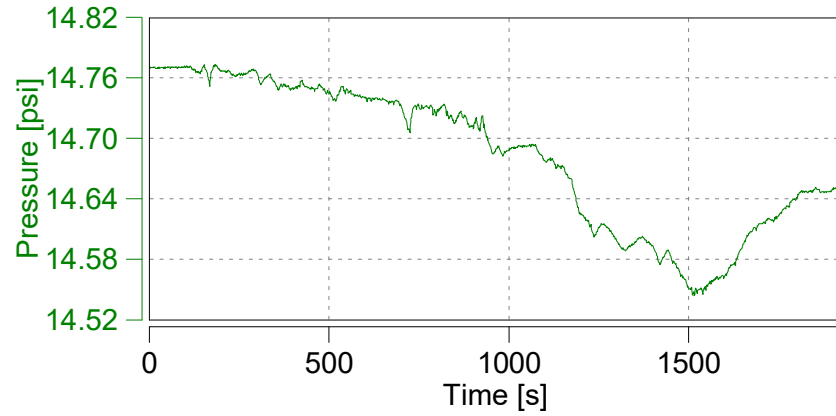
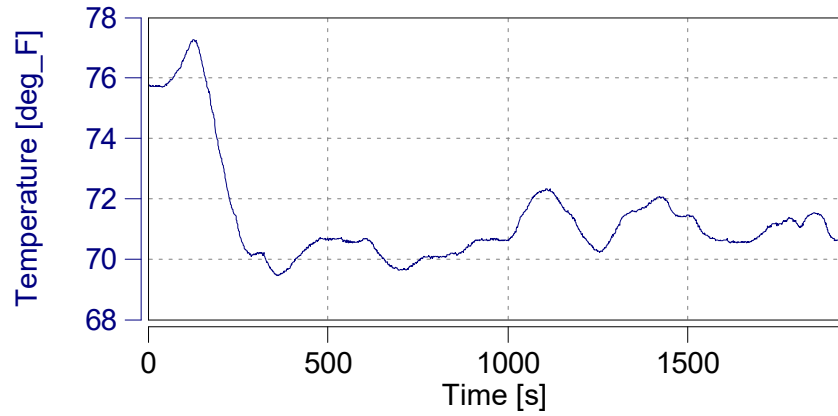


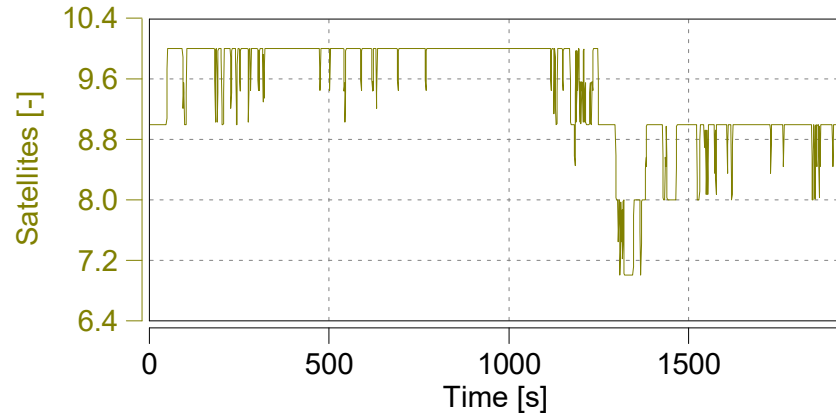
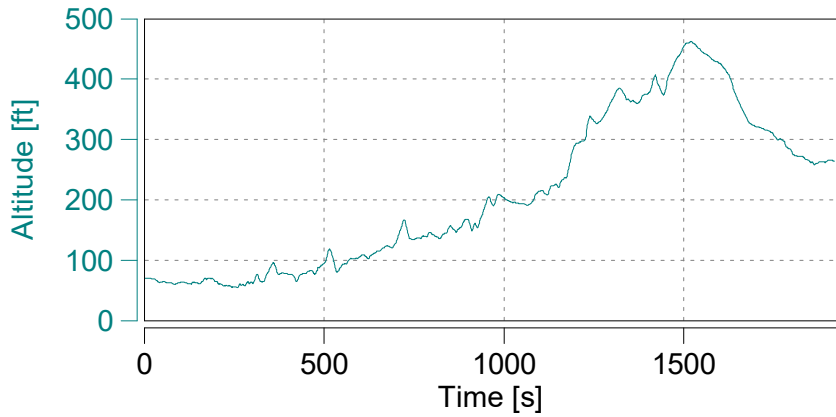
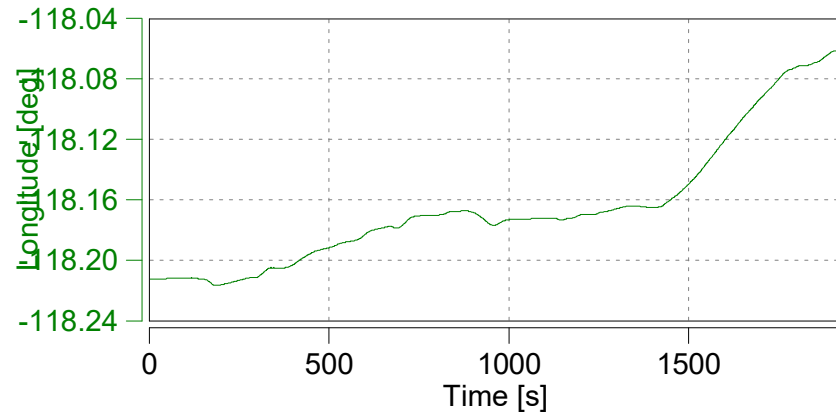
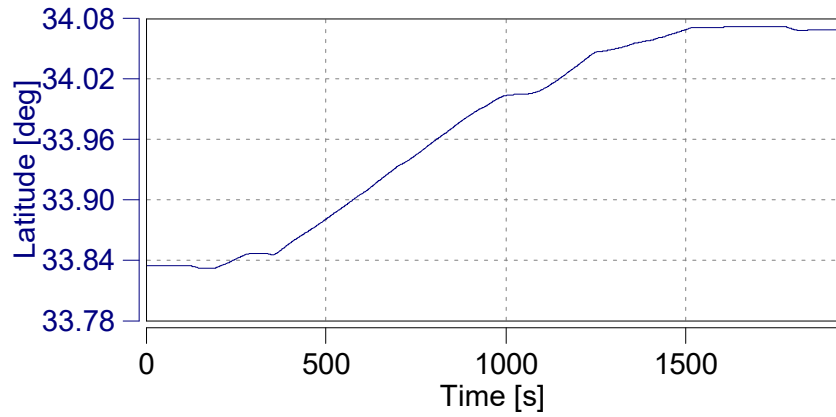
Absolute Time Shifts

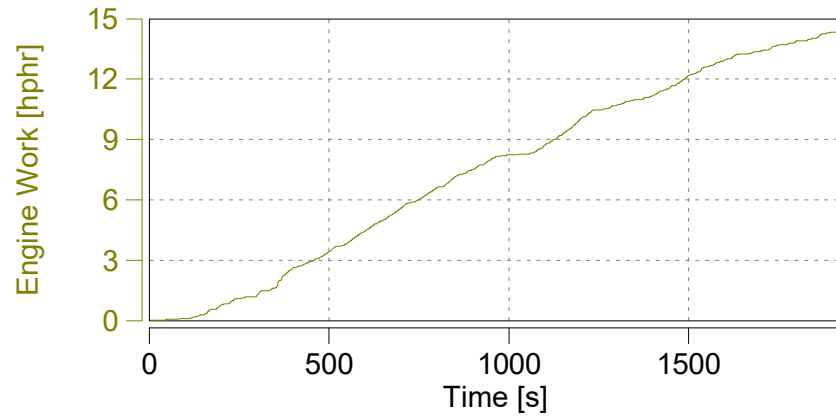
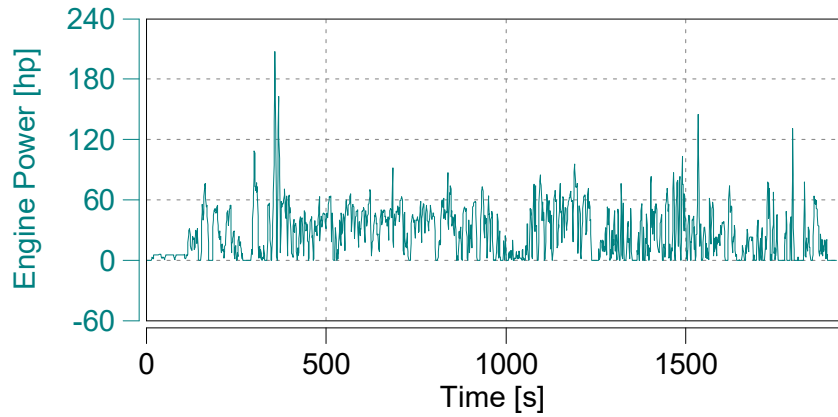
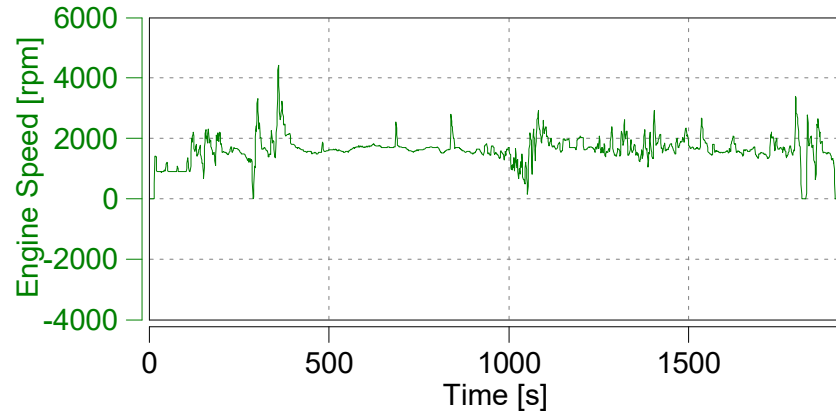
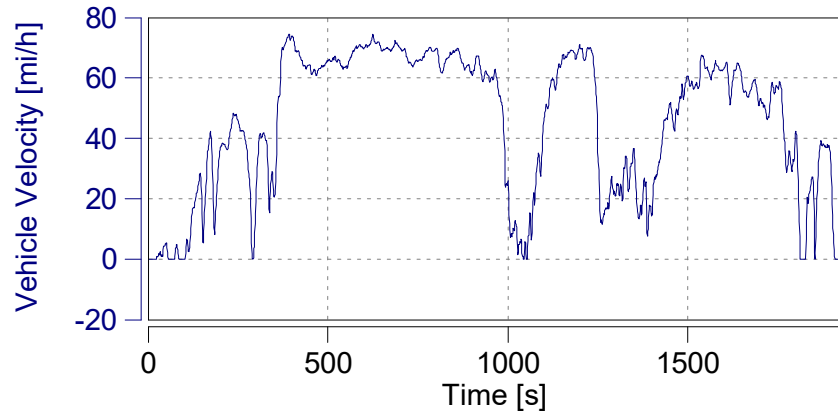
y_THC	s	0.0
y_CH4	s	0.0

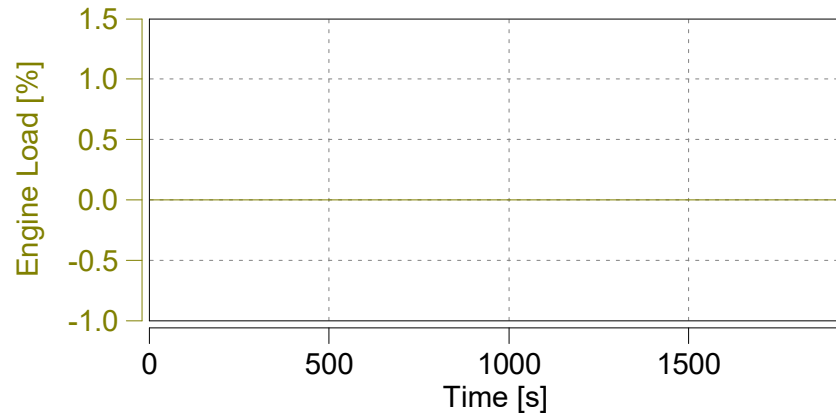
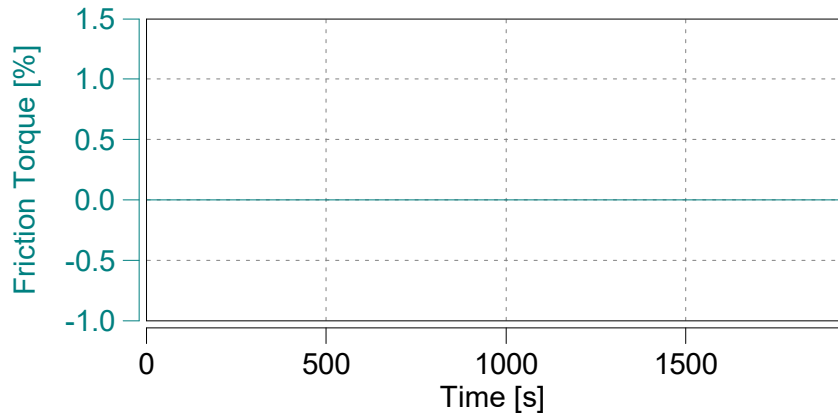
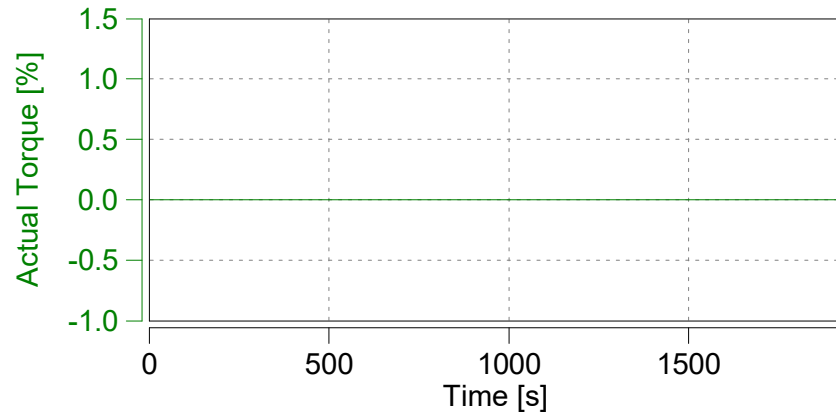
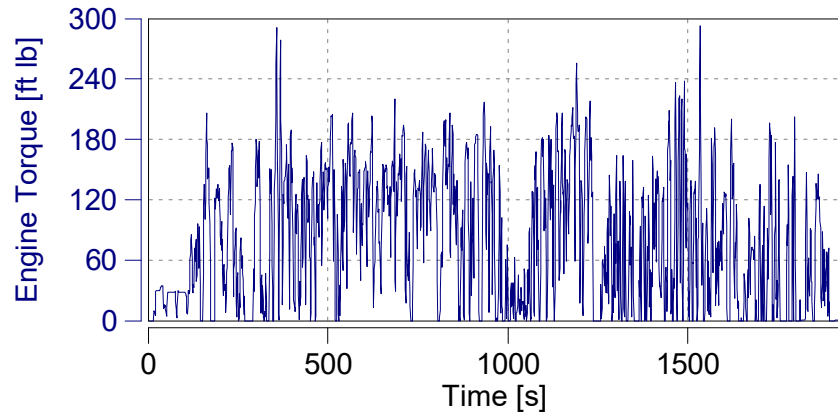
Reset Time Shifts in Plot

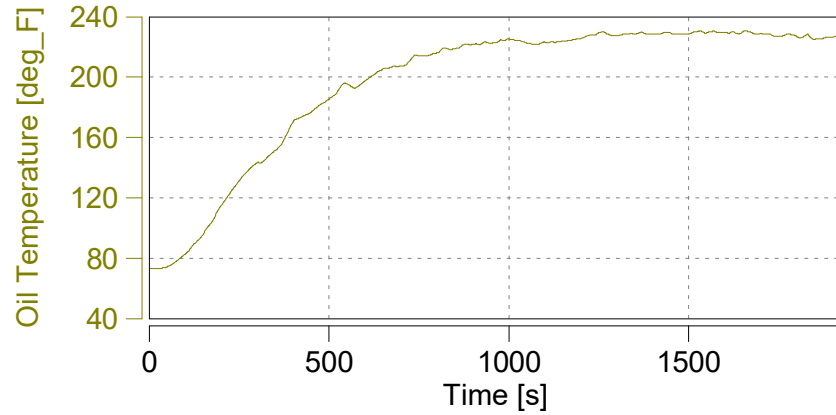
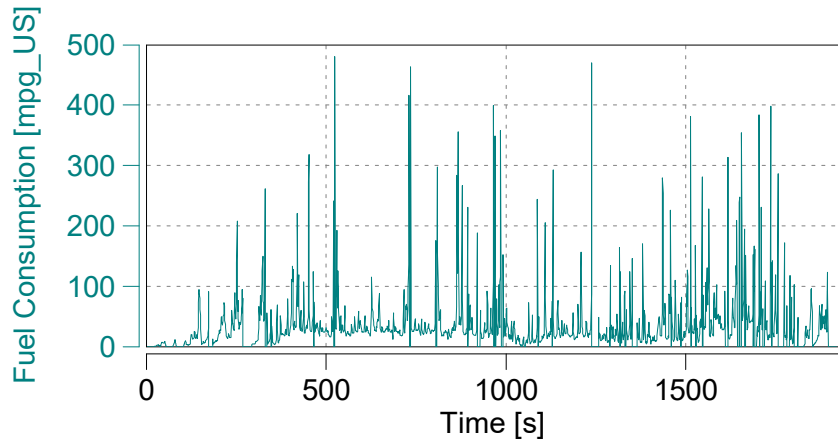
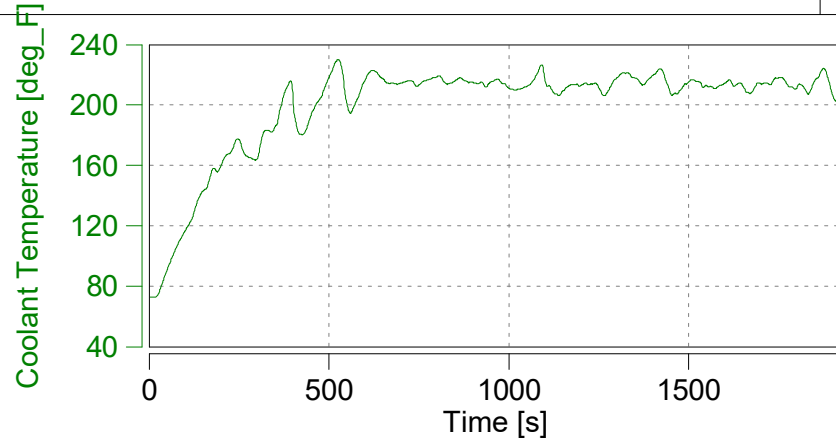
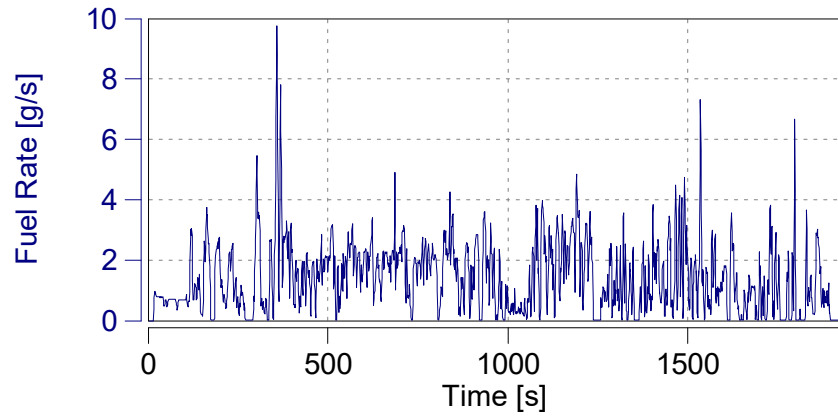
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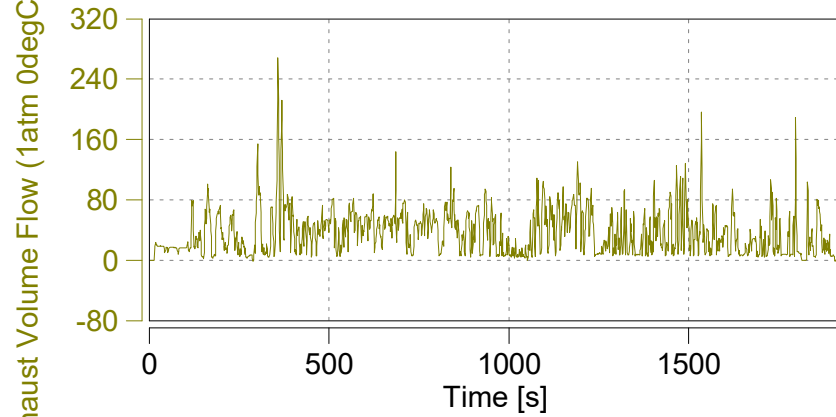
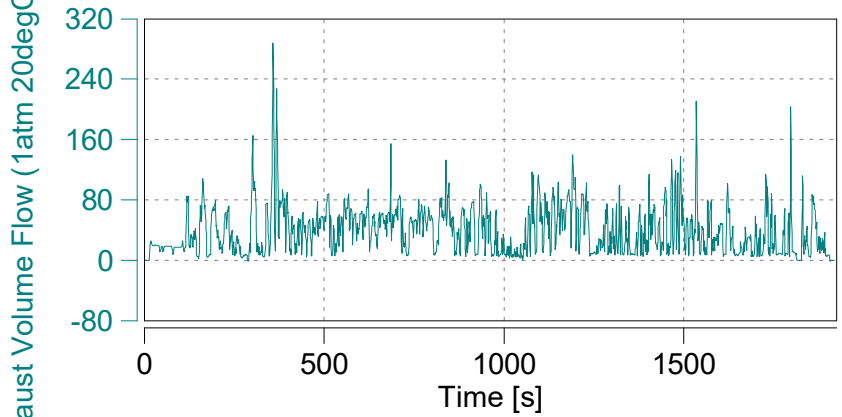
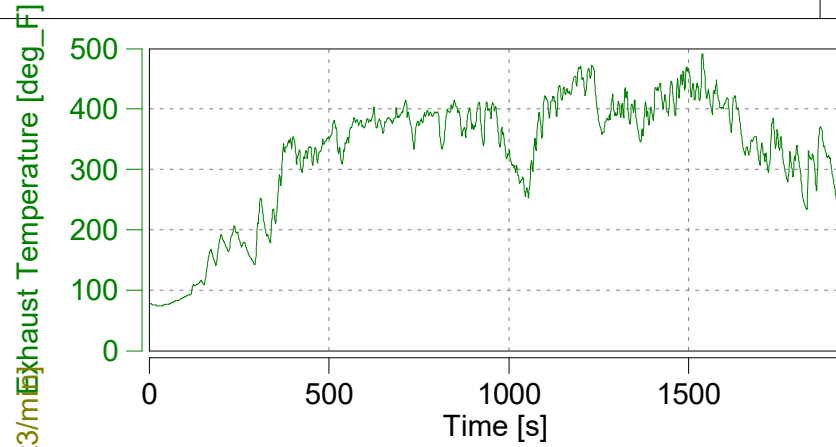
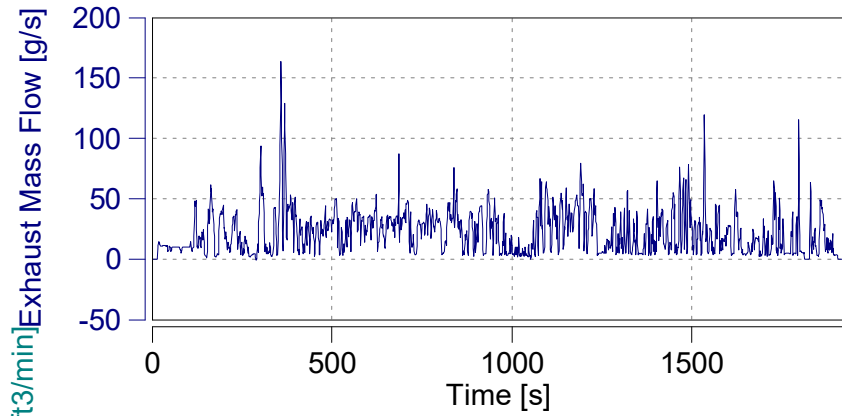


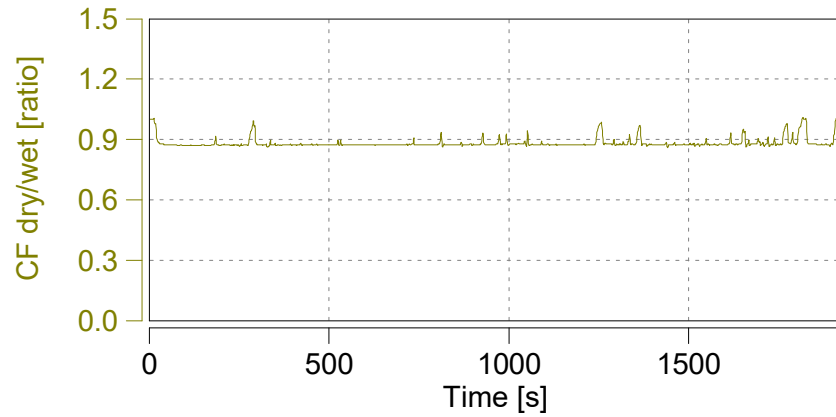
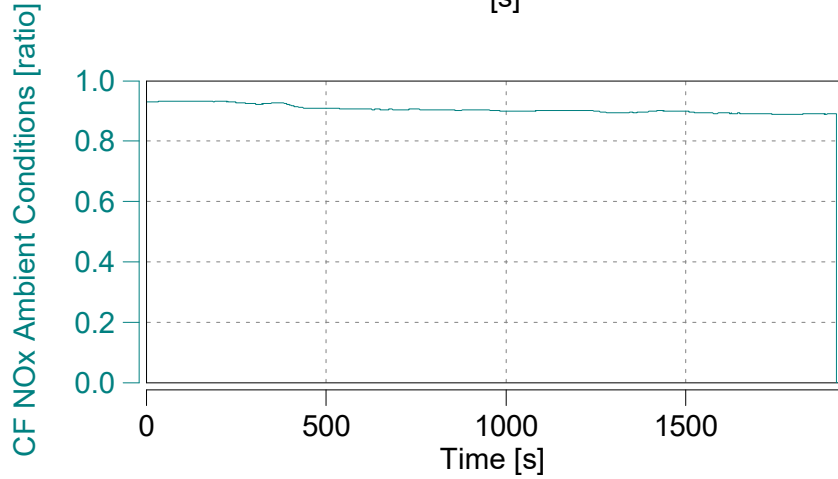
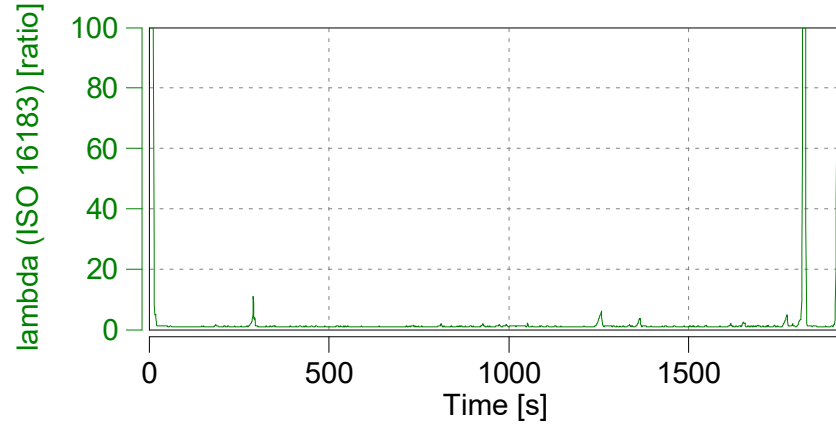
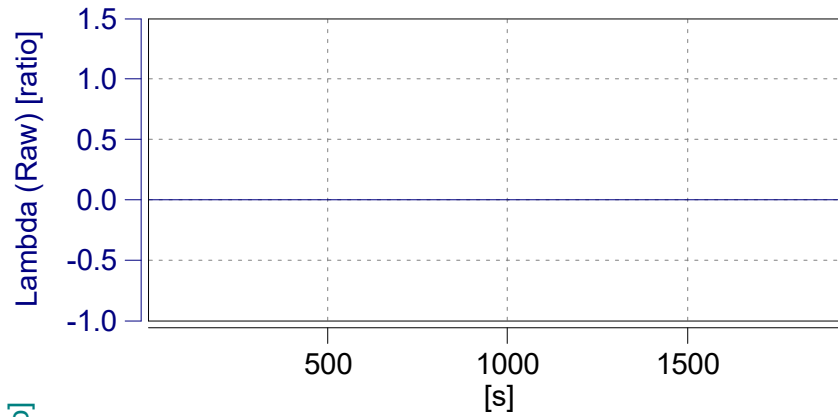


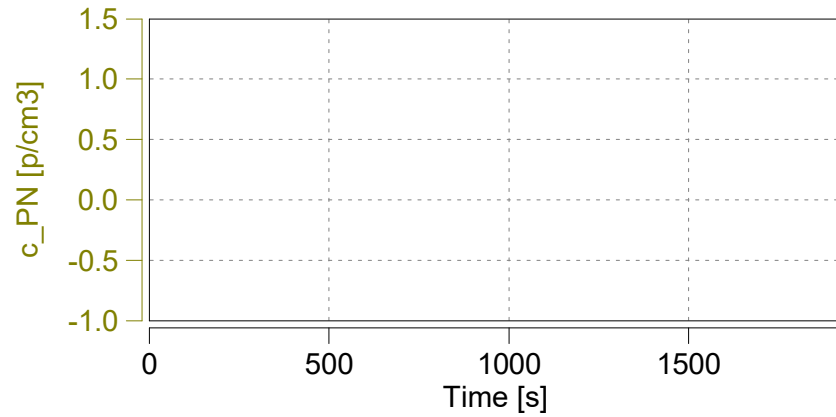
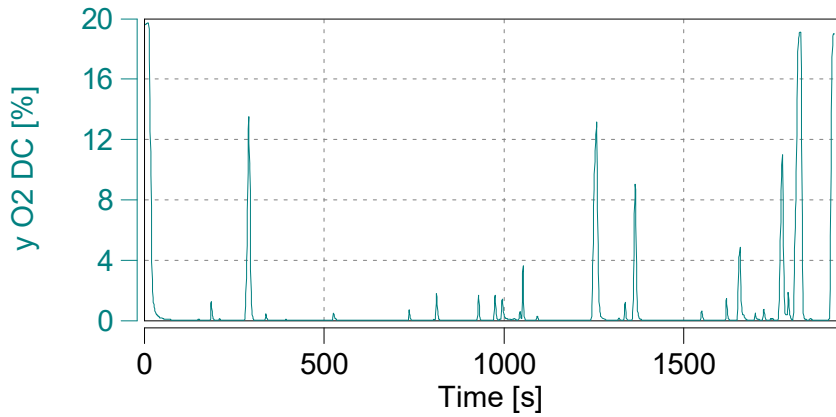
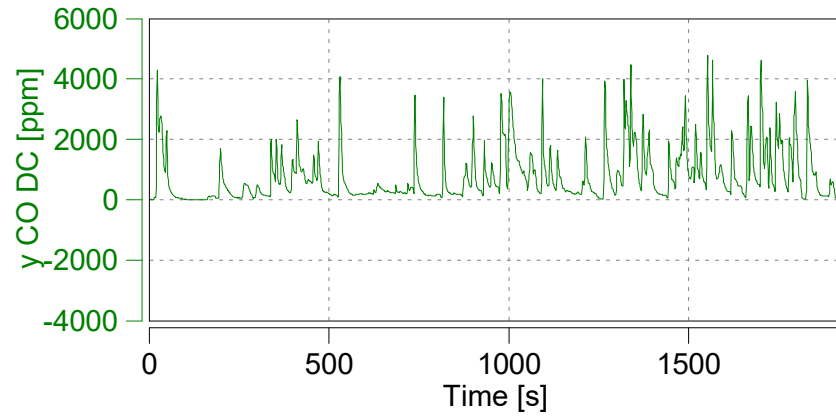
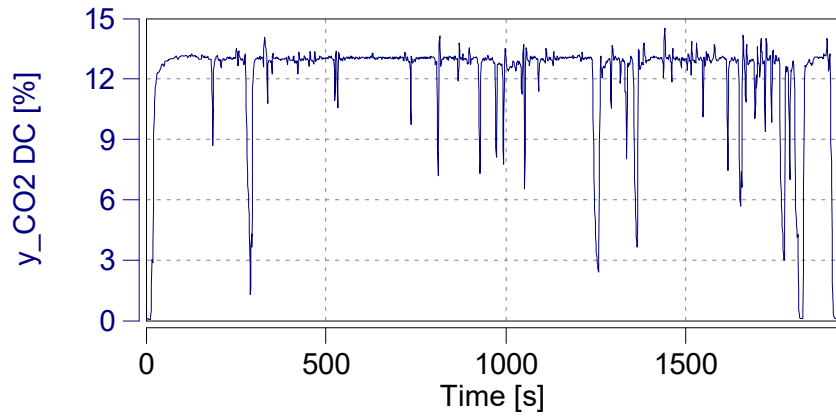


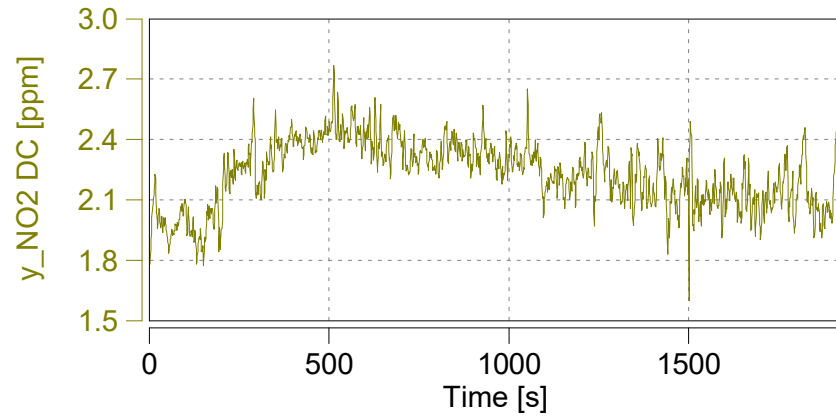
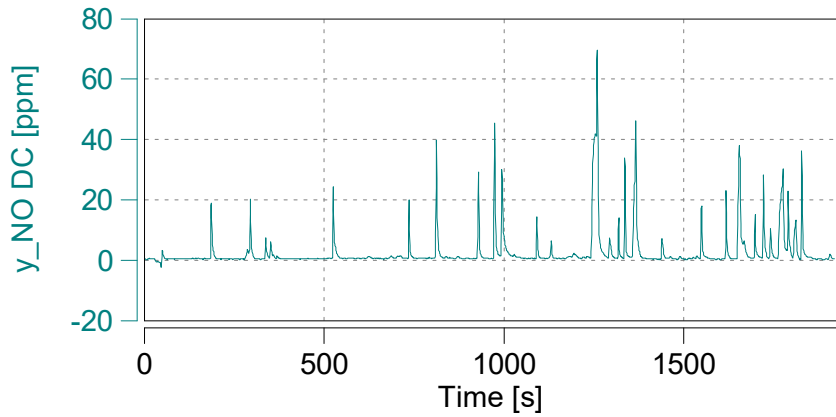
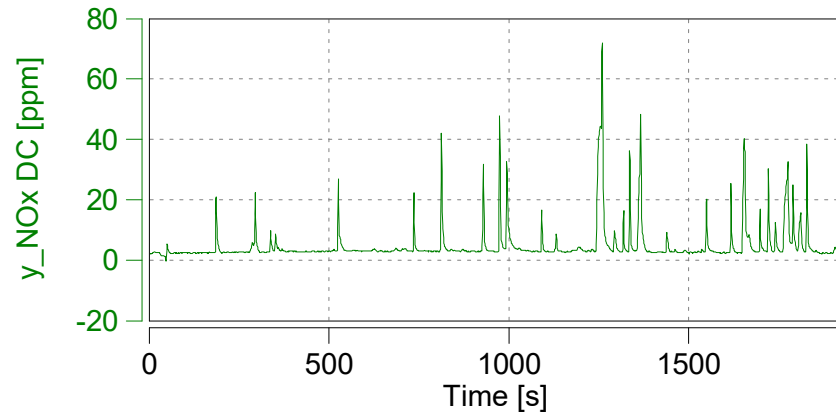
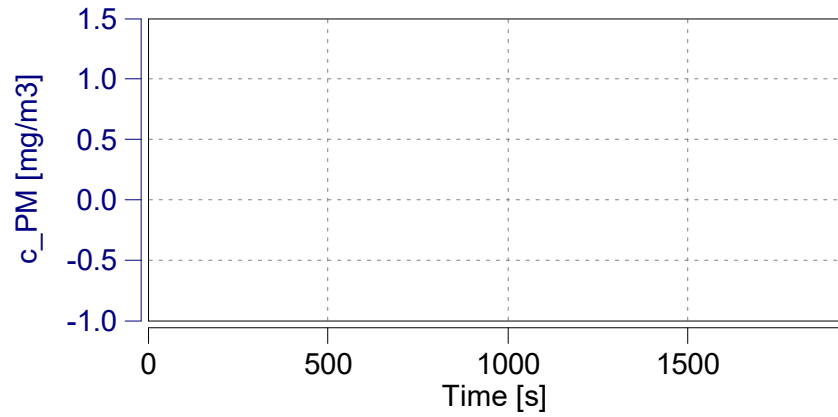


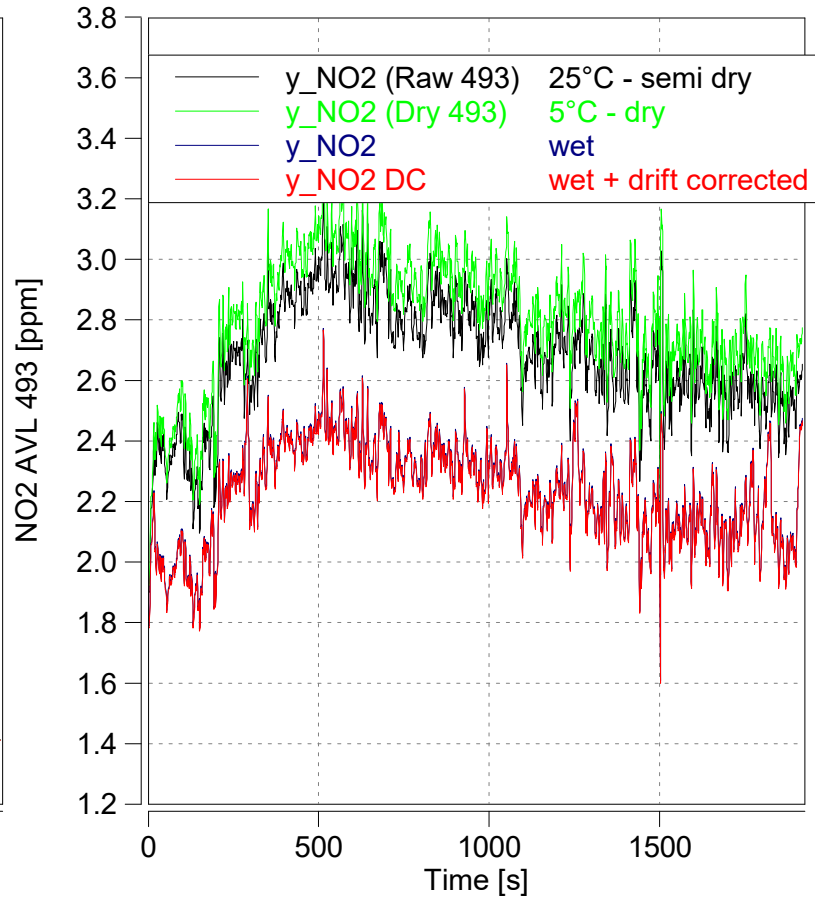
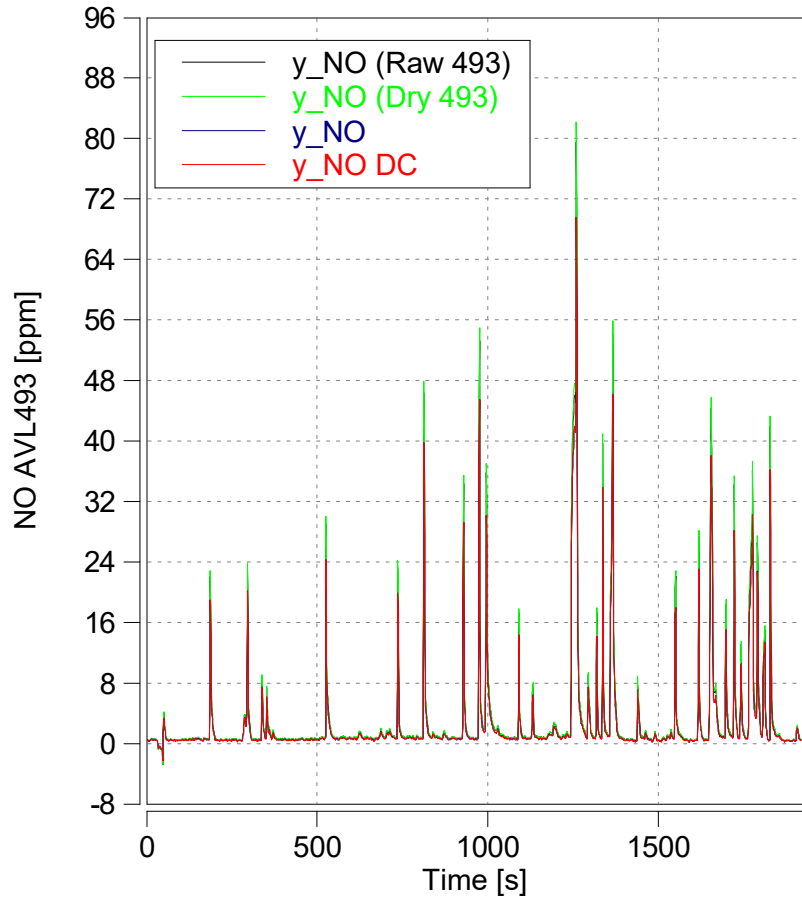




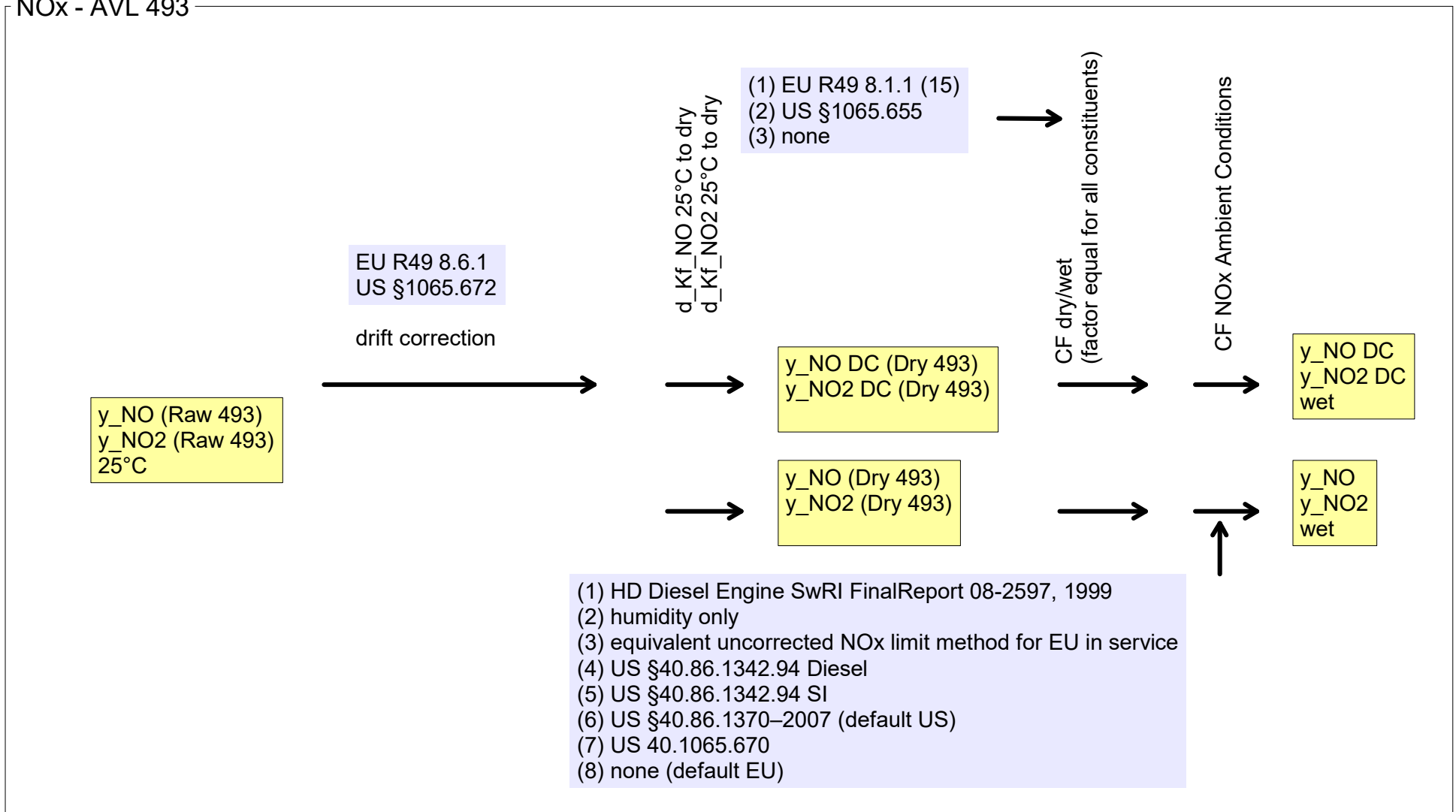


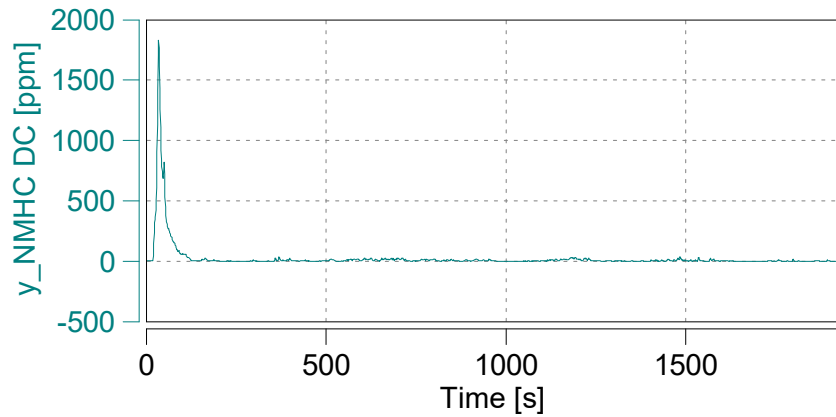
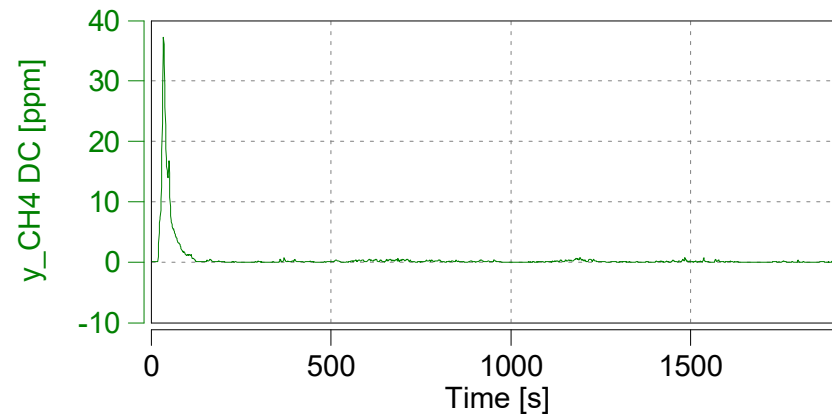
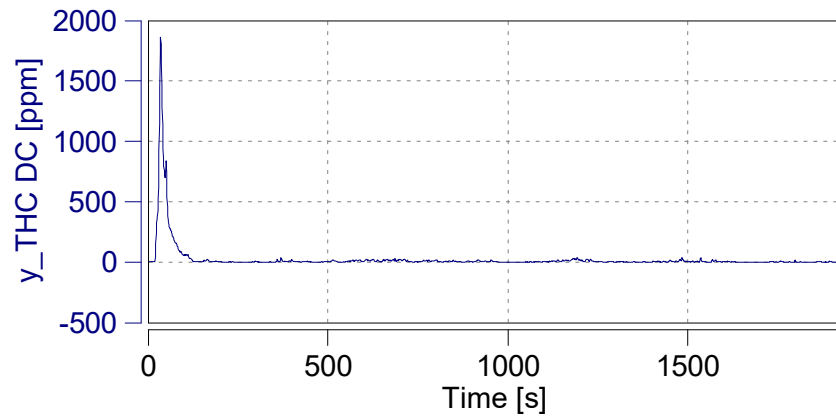


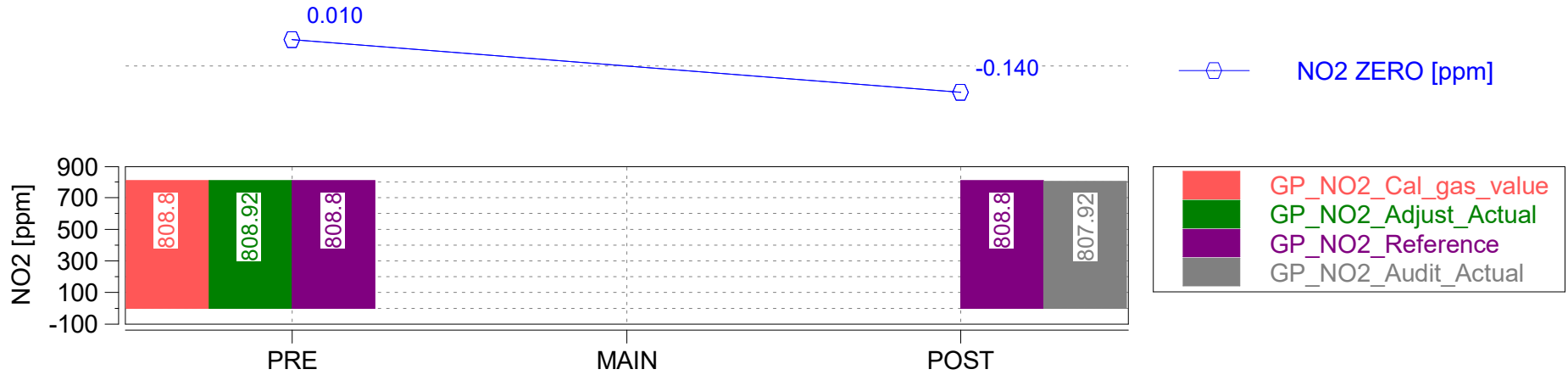
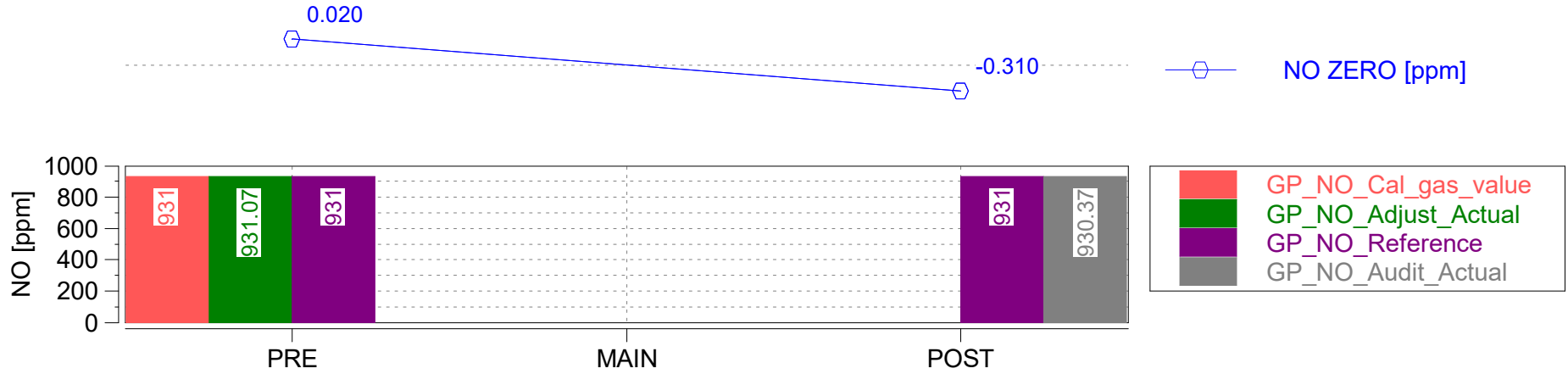


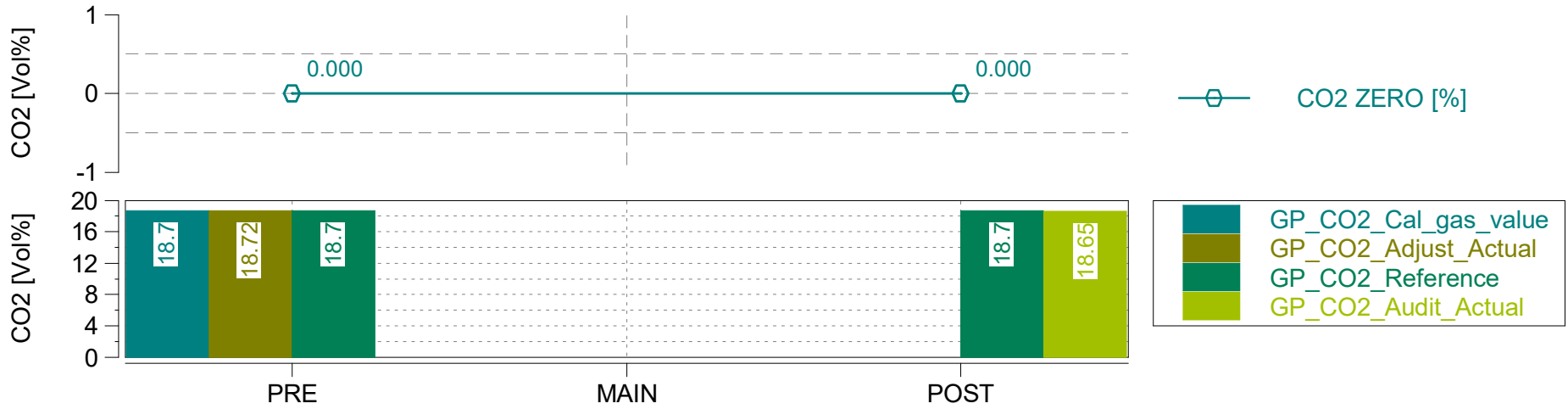
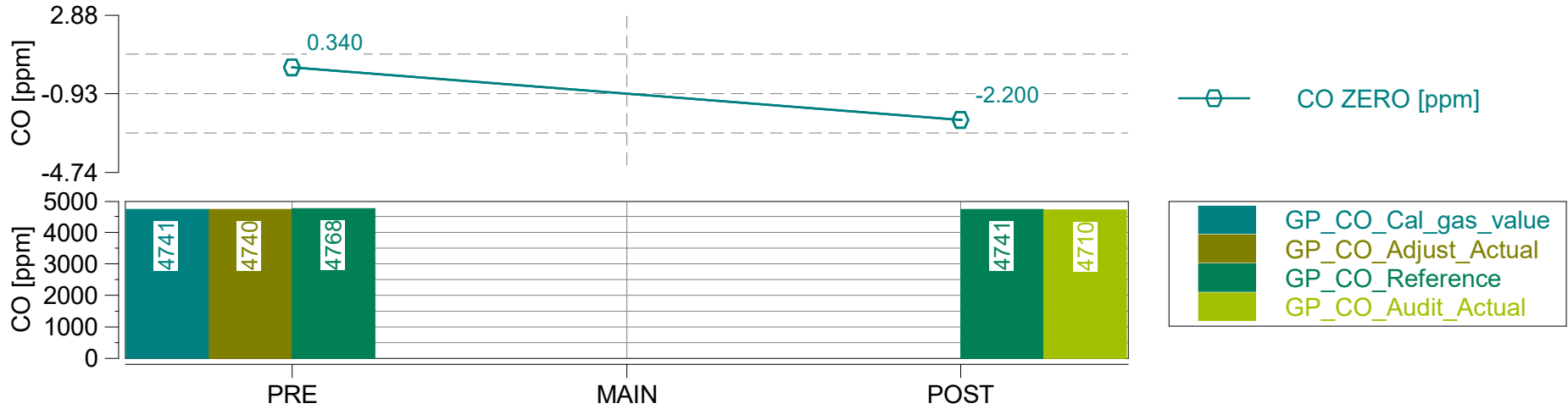


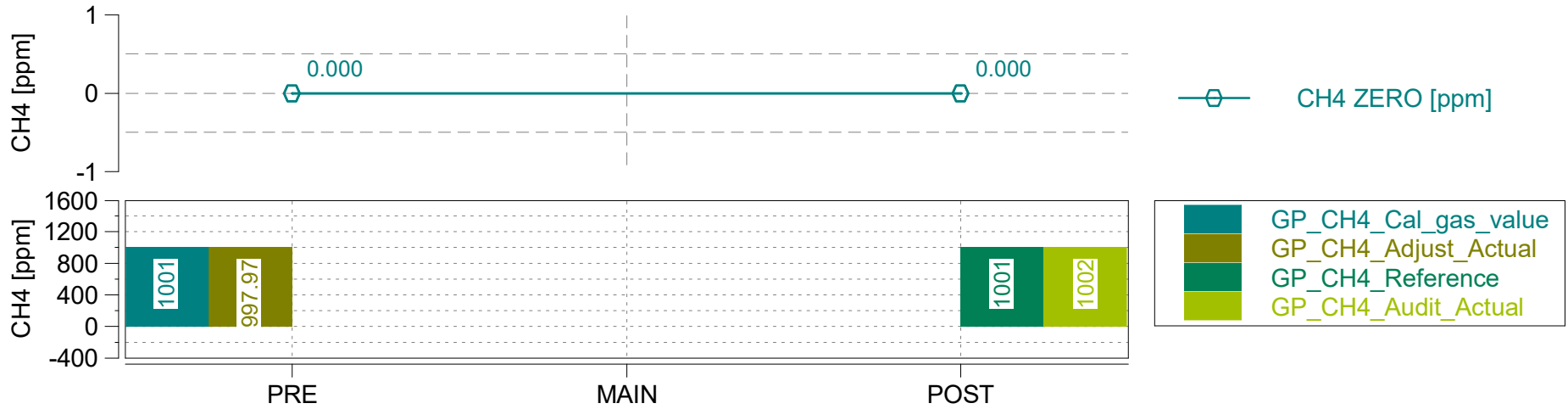
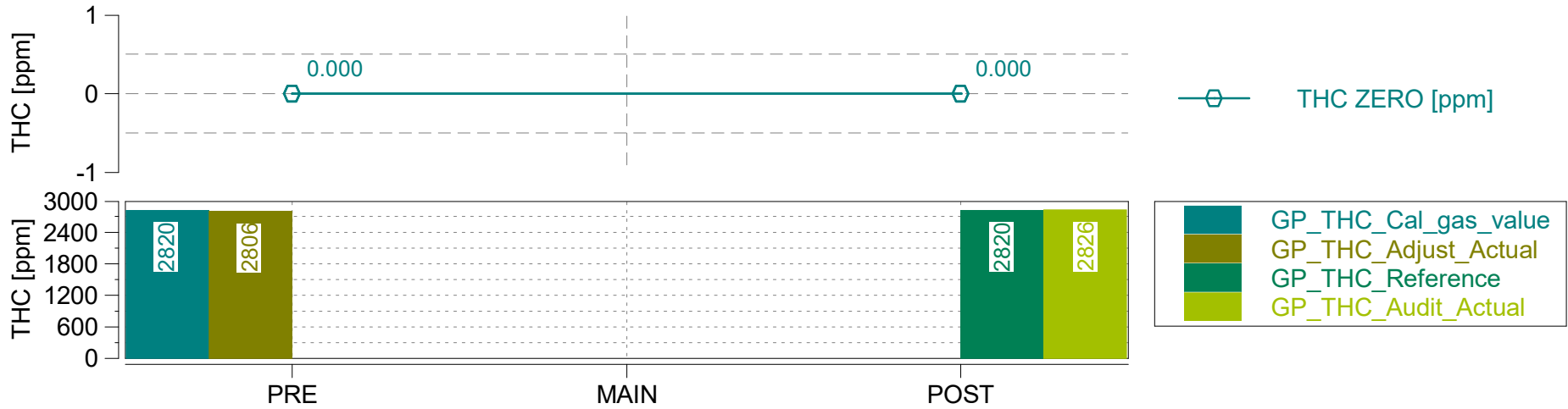
NOx - AVL 493











Case: V167_4955

Page: Leak Checks and Device Info

'V167-4955_(Comfort) - Transfer LATC to CARB (A0)'

Start Date: 11/14/2022

Start Time: 09:56:33.0



Concerto M.O.V.E, 2019

§	criterium	condition	value	unit	pass/fail
GAS Leak Check	The leakage rate on the vacuum side shall not exceed 0.5 per cent of the in-use flow rate for the portion of the system being checked.	The leakage rate <= 0.5%	0.18	%	pass
PN Leak Check	n/a	n/a	n/a	n/a	n/a
PM Leak Check	n/a	n/a	n/a	n/a	n/a

GAS PEMS Devices

Device ID	AVL492
Serial Number	0597
Firmware Version	V1.18
Main Test Date	2022-11-14
Leak Check Age [days]	0

Device ID	AVL4925iS
Serial Number	202
Firmware Version	1.23.0.3

EFM

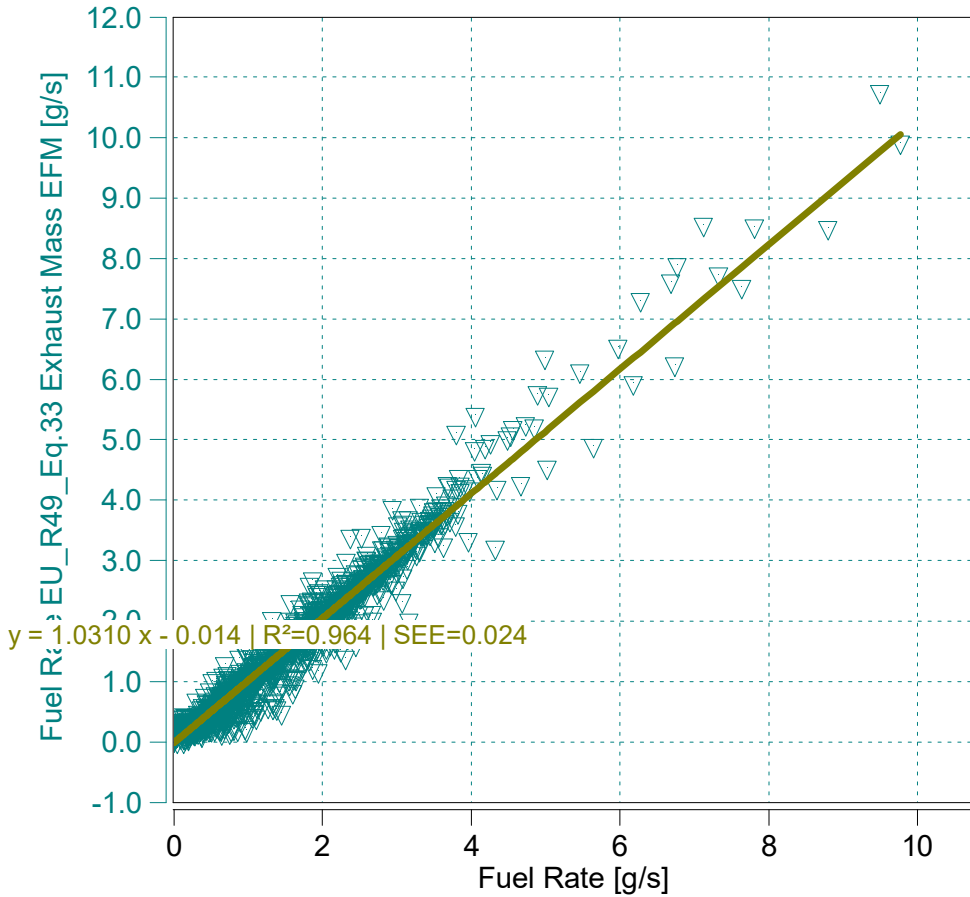
Device ID	AVL495
Serial Number	00826
Serial Number Tube	01080
Firmware Version	V1.18

System Control

SC Version	R18.0.2_b242
SC Serial Number	60301151

Concerto Version: 505 Build 61, Serial Number: 1604
M.O.V.E Post-Processing: DT_1R4.1_B340_1
Legislation:

Vehicle: V167-4955 /
Engine: /
NOx Ambient Condition Corr.: 7 - CFR40 §1065.670
Dry / Wet Corr.: 2 - CFR40 §86.1342-90



EU 582/2011/Appendix I/3.2.1 | Fuel Rate ECU and calculated

$y = 1.0310 x - 0.014 \mid R^2=0.964 \mid SEE=0.024$
 $m = 1.03$ (0.9 - 1.1 recommended)
 $R^2 = 0.96$ (min 0.9 mandatory)

Data from - to [% of Maximum]



Trip Duration	3427.00	s
Trip Duration (a)	3427.00	s
Trip Distance	16.01	mi
Trip Distance (a)	16.01	mi
Trip Fuel Cons. (b)	2.48	kg
Trip Fuel Cons. (ab)	2.48	kg
Trip Fuel Cons. EU (ac)	2.58	kg
Trip Fuel Cons. US (ac)	2.58	kg
Trip Fuel Economy (b)	18.28	mpg_US
Trip Fuel Economy (ab)	18.28	mpg_US
Trip Fuel Economy EU (ac)	17.53	mpg_US
Trip Fuel Economy US (ac)	17.53	mpg_US
Trip Fuel Economy GGE (b)	18.28	mpg_US
Trip Fuel Economy GGE (ab)	18.28	mpg_US
Trip Fuel Economy EU GGE (ac)	17.53	mpg_US
Trip Fuel Economy US GGE (ac)	17.53	mpg_US
Trip Av. Eng. Speed	1153.69	rpm
Trip Av. Torque	34.31	lbft
Trip Av. Power	12.25	hp
Trip Work		
Trip Work (a)	11.64	hphr
Trip Exhaust Mass	40.81	kg
Trip Exhaust Mass EU (ac)	39.27	kg
Trip Exhaust Mass US (ac)	39.35	kg
Trip Av. Amb. Temperature	74.82	deg_F
Trip Av. Humidity	18.10	%
Trip Av. GPS Altitude	64.78	m
Fuel Type	Petrol (E10)	

ave THC	1.08611	ppm
ave NMHC	1.06439	ppm
ave CH4	0.02172	ppm
ave CO	613.87417	ppm
ave CO2	9.66776	%
ave NOx	6.07126	ppm
ave PM	n/a	mg/m3
ave Soot meas	n/a	mg/m3
ave Soot	n/a	mg/m3
ave PN	n/a	#/cm3
tot THC	0.03811	g
tot NMHC	0.03526	g
tot CH4	0.00084	g
tot CO	35.58194	g
tot CO2	7799.92124	g
tot NO (d)	0.22600	g
tot NO2	0.11547	g
tot NOx	0.34147	g
tot Soot	n/a	g
tot Soot meas	n/a	g
tot PM	n/a	g
tot PN	n/a	#
PM measurement type	0.00000	-
tot Soot on PM filter (estim.)	0.00000	mg
Soot --> PM simple scaling factor	1.00000	-
Trip Av. Veh. Speed	16.85888	mi/hr
Trip Distance Share Urban	62.59005	% distanc
Trip Distance Share Rural	28.80655	% distanc
Trip Distance Share Motorway	8.60340	% distanc

BS CO2	670.30670	g/hphr
BS CO	3.05783	g/hphr
BS THC	0.00328	g/hphr
BS NMHC	0.00303	g/hphr
BS CH4	0.00007	g/hphr
BS NO (d)	0.01942	g/hphr
BS NO2	0.00992	g/hphr
BS NOx	0.02935	g/hphr
BS Soot	n/a	g/hphr
BS Soot meas	n/a	g/hphr
BS PM	n/a	g/hphr
BS PN	n/a	#/hpr
DS CO2	487.15259	g/mi
DS CO	2.22231	g/mi
DS THC	0.00238	g/mi
DS NMHC	0.00220	g/mi
DS CH4	0.00005	g/mi
DS NO (d)	0.01412	g/mi
DS NO2	0.00721	g/mi
DS NOx	0.02133	g/mi
DS Soot	n/a	g/mi
DS Soot meas	n/a	g/mi
DS PM	n/a	g/mi
DS PN	n/a	#/mi
FS CO2	3147.58193	g/kg
FS CO	14.35874	g/kg
FS THC	0.01538	g/kg
FS NMHC	0.01423	g/kg
FS CH4	0.00034	g/kg
FS NO (d)	0.09120	g/kg
FS NO2	0.04660	g/kg
FS NOx	0.13780	g/kg
FS Soot	n/a	g/kg
FS Soot meas	n/a	g/kg
FS PM	n/a	g/kg
FS PN	n/a	#/kg

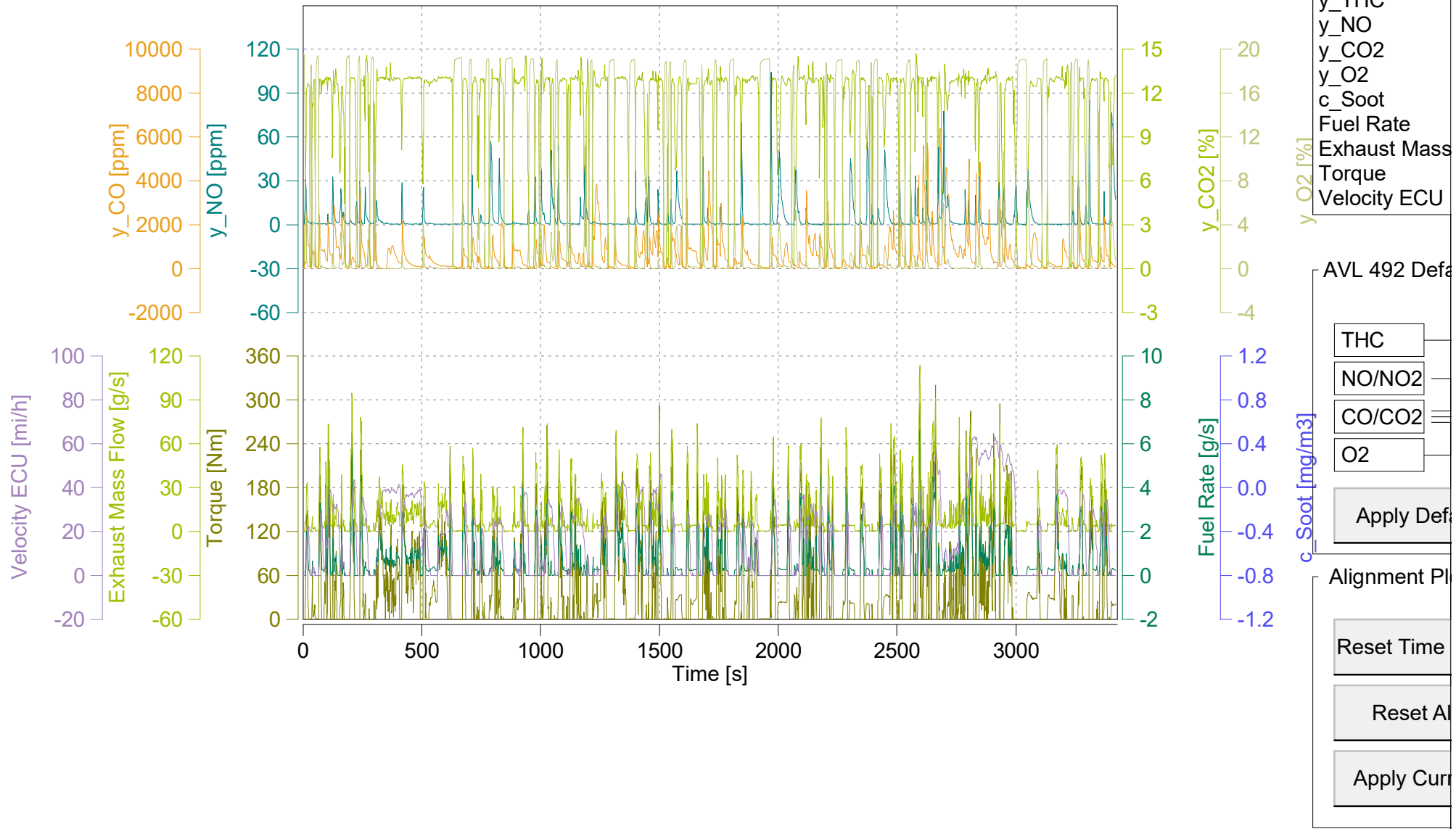
(a) GAS PEMS measurement state only, (b) based on fuel rate input (ECU, Fuel Meter), (c) Based on A/F ratio (eq 28-32 - R49)
(d) NO calculated using molecular weight of NO2, GGE=Gasoline Gallon Equivalents

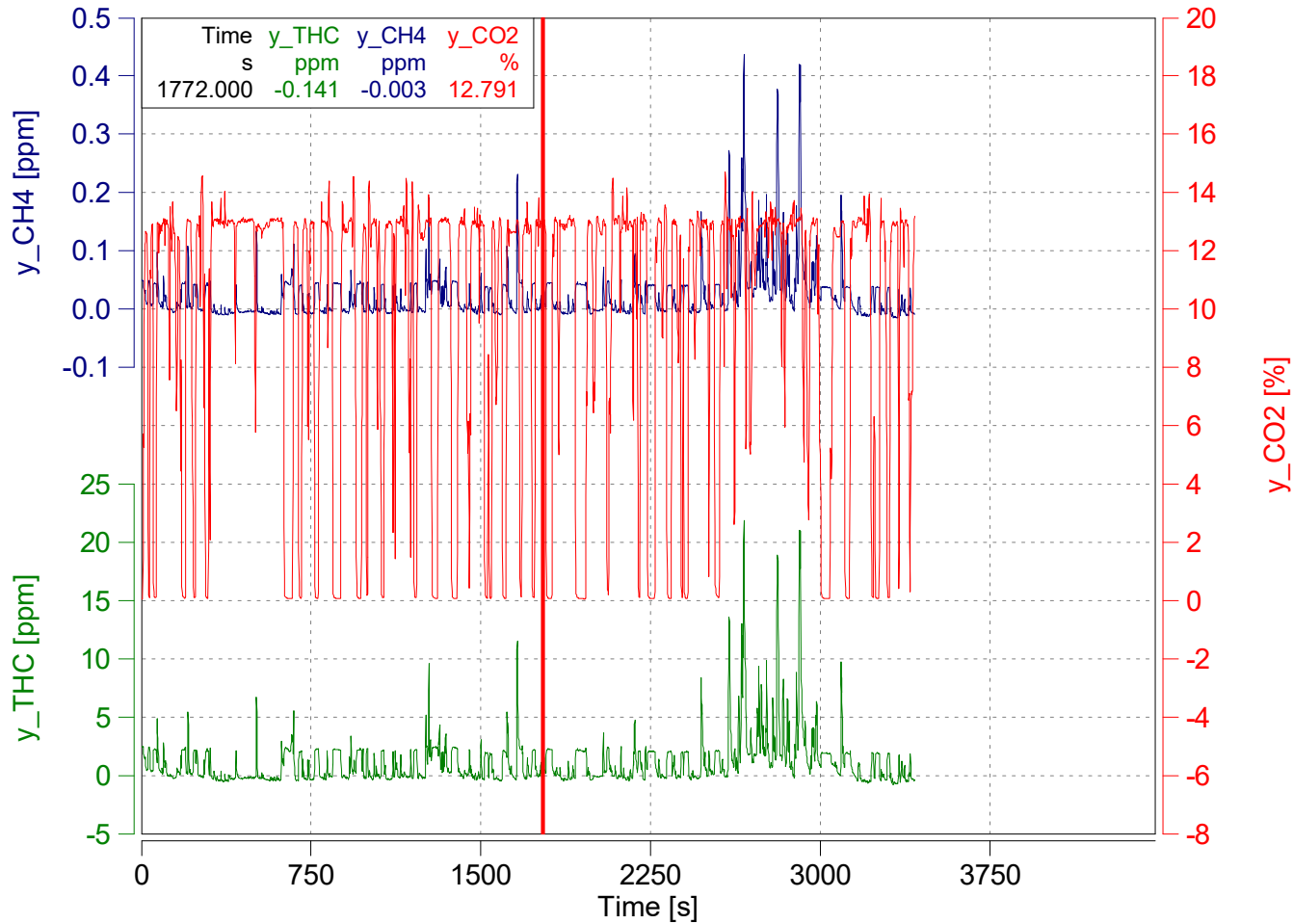
Trip Duration	3427.00	s	ave THC DC	1.08474	ppm	BS CO2 DC	671.20403	g/hphr
Trip Duration (a)	3427.00	s	ave NMHC DC	1.06305	ppm	BS CO DC	3.08523	g/hphr
Trip Distance	16.01	mi	ave CH4 DC	0.02169	ppm	BS THC DC	0.00327	g/hphr
Trip Distance (a)	16.01	mi	ave CO DC	619.16075	ppm	BS NMHC DC	0.00303	g/hphr
			ave CO2 DC	9.68070	%	BS CH4 DC	0.00007	g/hphr
Trip Fuel Cons. (b)	2.48	kg	ave NOx DC	6.16845	ppm	BS NO DC (d)	0.01951	g/hphr
Trip Fuel Cons. (ab)	2.48	kg	ave PM	n/a	mg/m3	BS NO2 DC	0.01036	g/hphr
Trip Fuel Cons. EU (ac)	2.58	kg	ave Soot meas	n/a	mg/m3	BS NOx DC	0.02987	g/hphr
Trip Fuel Cons. US (ac)	2.58	kg	ave Soot	n/a	mg/m3	BS Soot	n/a	g/hphr
			ave PN DC			BS Soot meas	n/a	g/hphr
						BS PM	n/a	g/hphr
Trip Fuel Economy (b)	18.28	mpg_US	tot THC DC	0.03807	g	BS PN DC		
Trip Fuel Economy (ab)	18.28	mpg_US	tot NMHC DC	0.03521	g			
Trip Fuel Economy EU (ac)	17.53	mpg_US	tot CH4 DC	0.00084	g	DS CO2 DC	487.80474	g/mi
Trip Fuel Economy US (ac)	17.53	mpg_US	tot CO DC	35.90084	g	DS CO DC	2.24223	g/mi
Trip Fuel Economy GGE (b)	18.28	mpg_US	tot CO2 DC	7810.36290	g	DS THC DC	0.00238	g/mi
Trip Fuel Economy GGE (ab)	18.28	mpg_US	tot NO DC (d)	0.22705	g	DS NMHC DC	0.00220	g/mi
Trip Fuel Economy EU GGE (ac)	17.53	mpg_US	tot NO2 DC	0.12051	g	DS CH4 DC	0.00005	g/mi
Trip Fuel Economy US GGE (ac)	17.53	mpg_US	tot NOx DC	0.34756	g	DS NO DC (d)	0.01418	g/mi
			tot Soot	n/a	g	DS NO2 DC	0.00753	g/mi
Trip Av. Eng. Speed	1153.69	rpm	tot Soot meas	n/a	g	DS NOx DC	0.02171	g/mi
Trip Av. Torque	34.31	lbft	tot PM	n/a	g	DS Soot	n/a	g/mi
Trip Av. Power	12.25	hp	tot PN DC			DS Soot meas	n/a	g/mi
Trip Work						DS PM	n/a	g/mi
Trip Work (a)	11.64	hphr				DS PN DC		
			PM measurement type	0.00000	-			
Trip Exhaust Mass	40.81	kg	tot Soot on PM filter (estim.)	0.00000	mg	FS CO2 DC	3151.79556	g/kg
Trip Exhaust Mass EU (ac)	39.27	kg	Soot --> PM simple scaling factor	1.00000	-	FS CO DC	14.48743	g/kg
Trip Exhaust Mass US (ac)	39.35	kg				FS THC DC	0.01536	g/kg
			Trip Av. Veh. Speed	16.85888	mi/hr	FS NMHC DC	0.01421	g/kg
Trip Av. Amb. Temperature	74.82	deg_F				FS CH4 DC	0.00034	g/kg
Trip Av. Humidity	18.10	%	Trip Distance Share Urban	62.59005	% distanc	FS NO DC (d)	0.09162	g/kg
Trip Av. GPS Altitude	64.78	m	Trip Distance Share Rural	28.80655	% distanc	FS NO2 DC	0.04863	g/kg
			Trip Distance Share Motorway	8.60340	% distanc	FS NOx DC	0.14026	g/kg
Fuel Type	Petrol (E10)					FS Soot	n/a	g/kg
						FS Soot meas	n/a	g/kg
						FS PM	n/a	g/kg
						FS PN DC		

(a) GAS PEMS measurement state only, (b) based on fuel rate input (ECU, Fuel Meter), (c) Based on A/F ratio (eq 28-32 - R49)
 (d) NO calculated using molecular weight of NO2, GGE=Gasoline Gallon Equivalents



Concerto Absolute Time



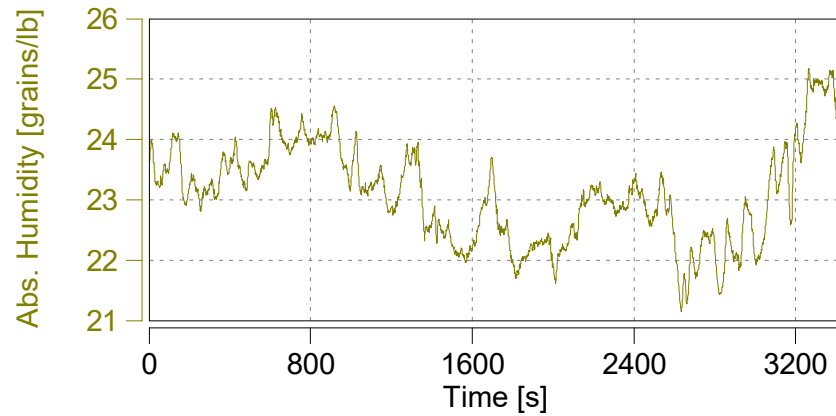
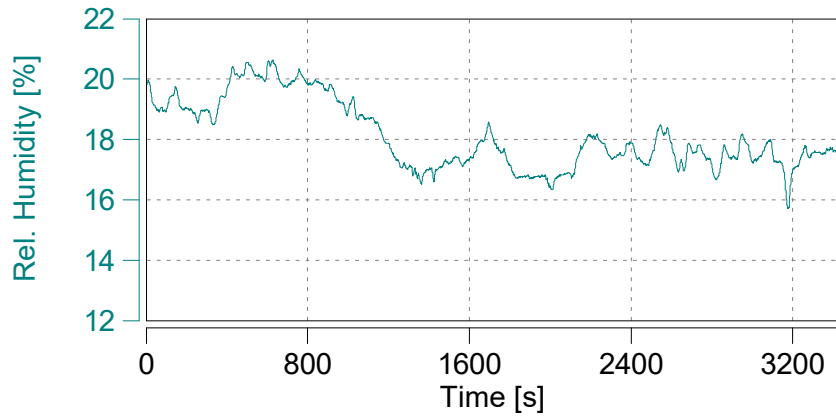
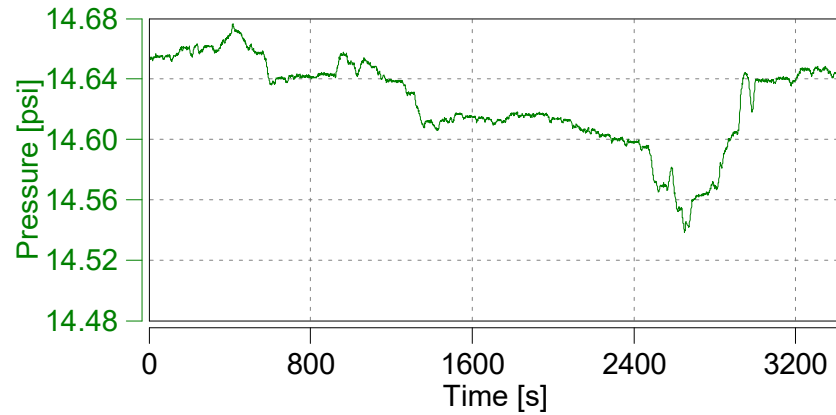
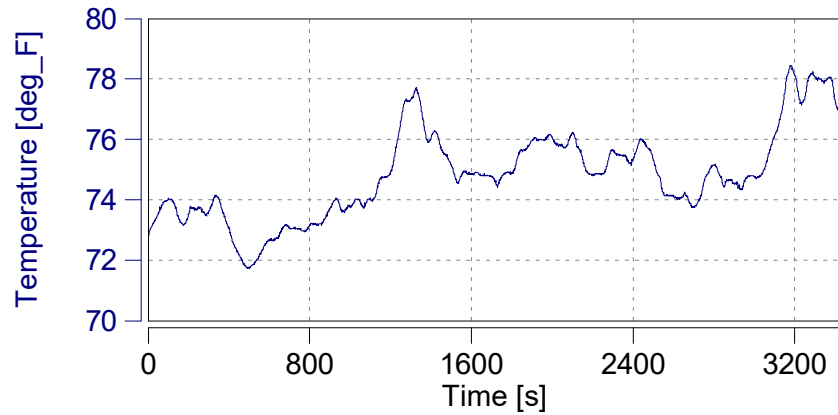


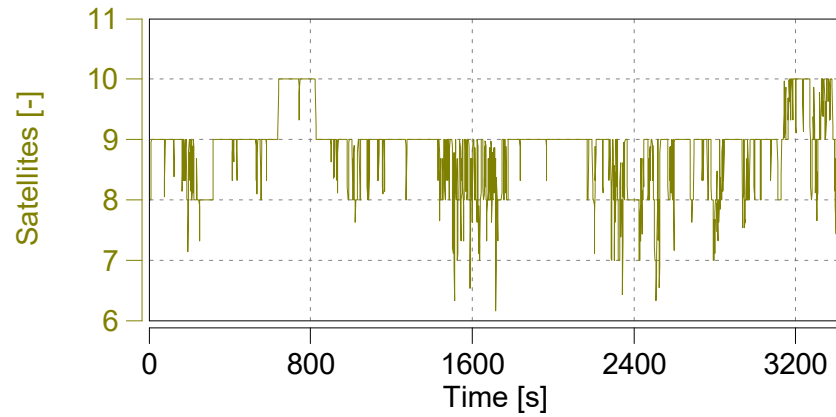
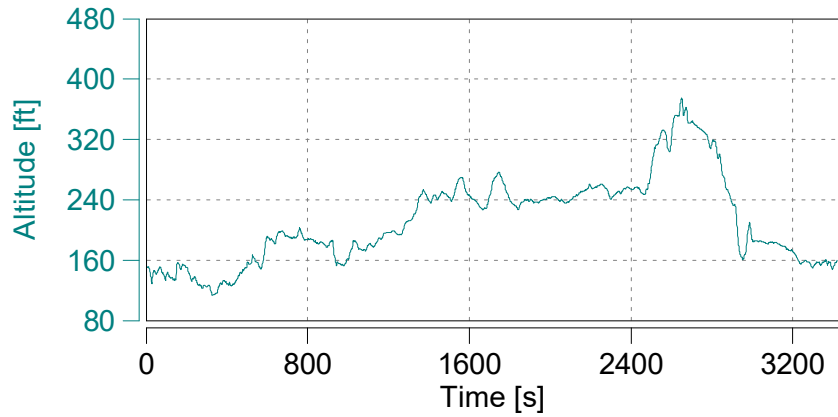
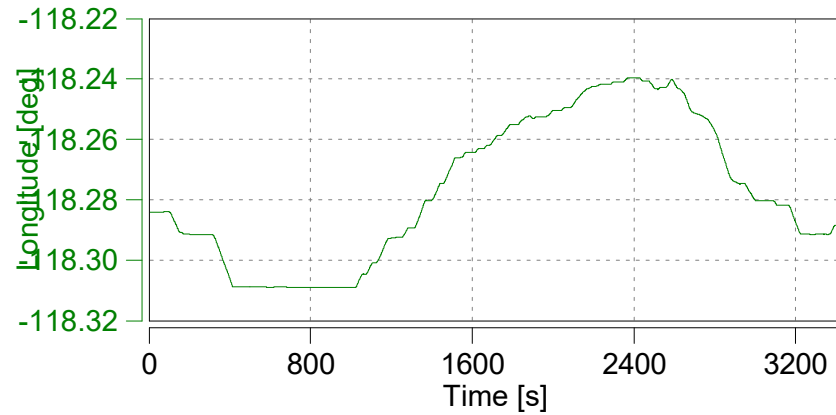
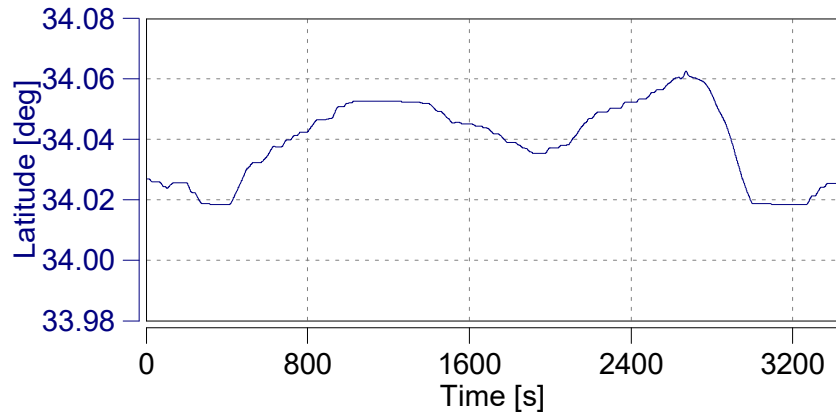
Absolute Time Shifts

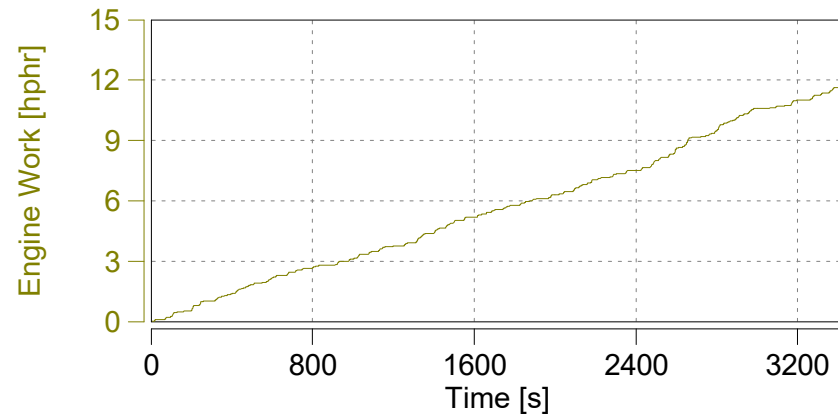
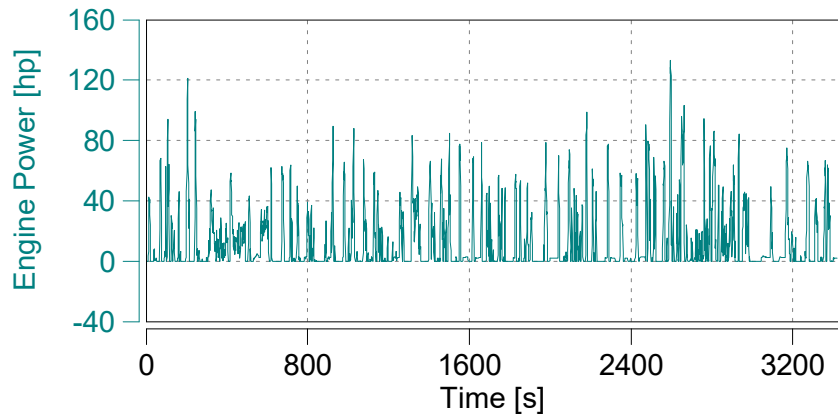
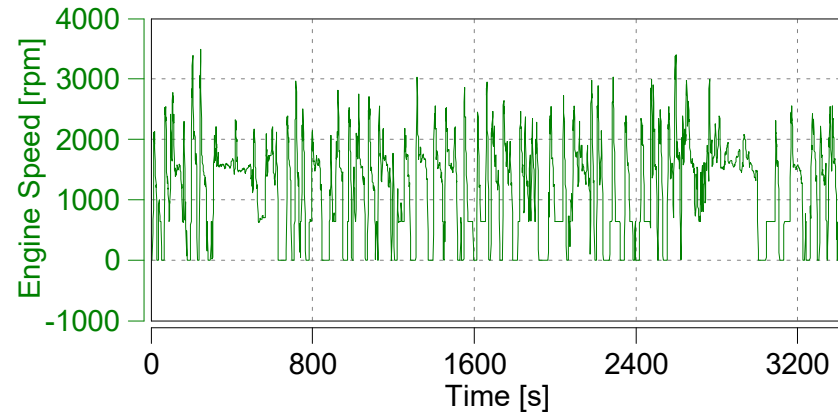
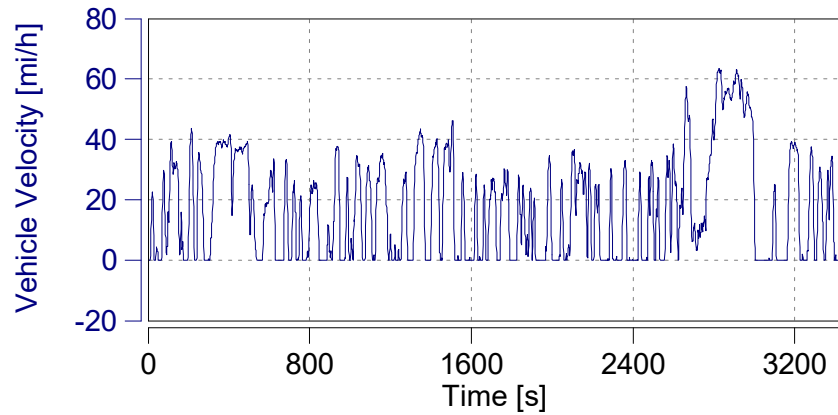
y_THC	s	0.0
y_CH4	s	0.0

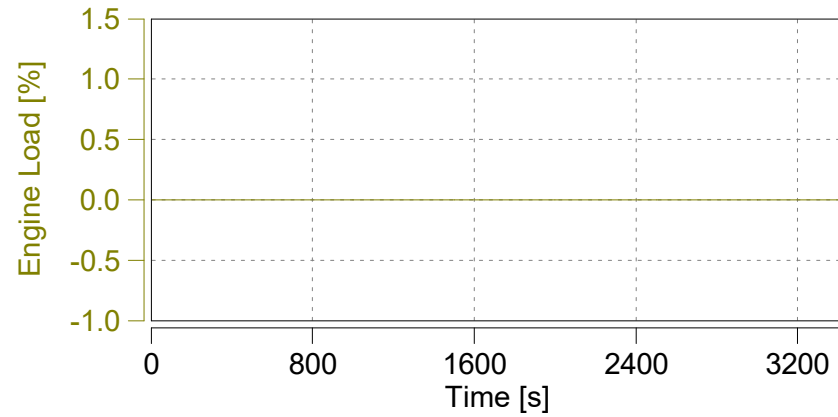
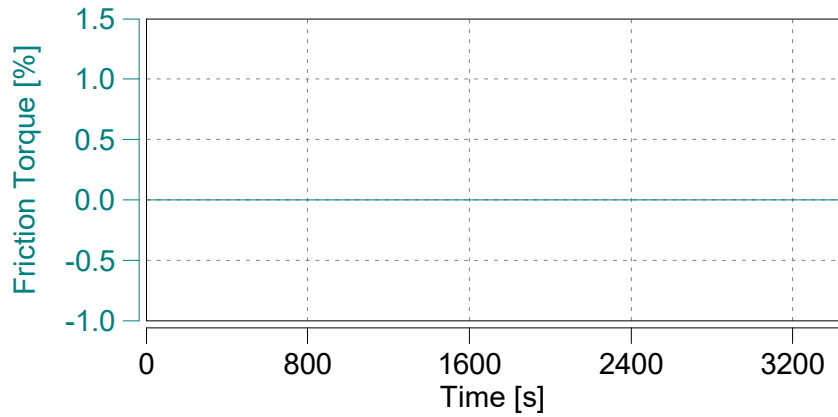
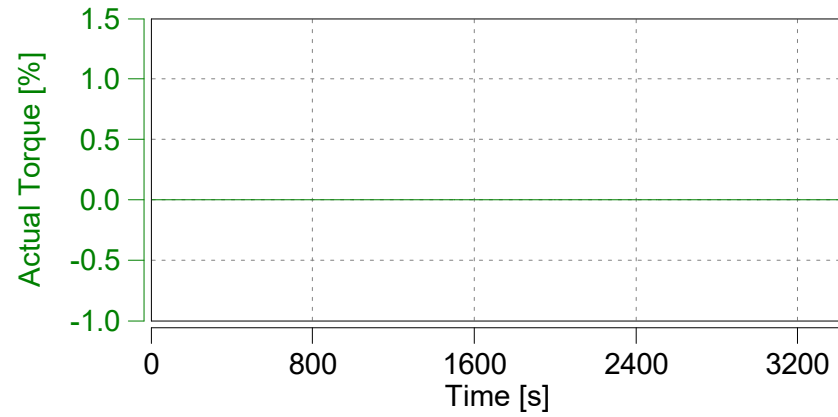
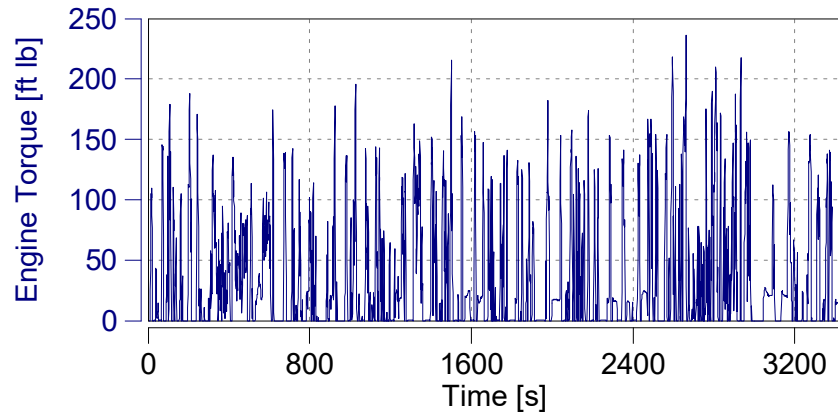
Reset Time Shifts in Plot

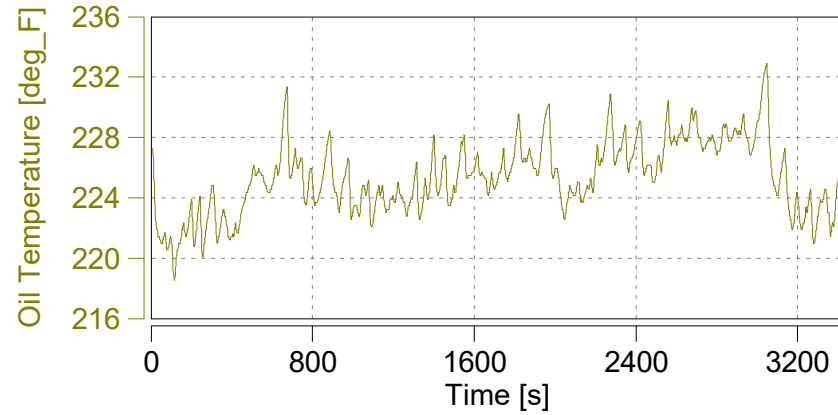
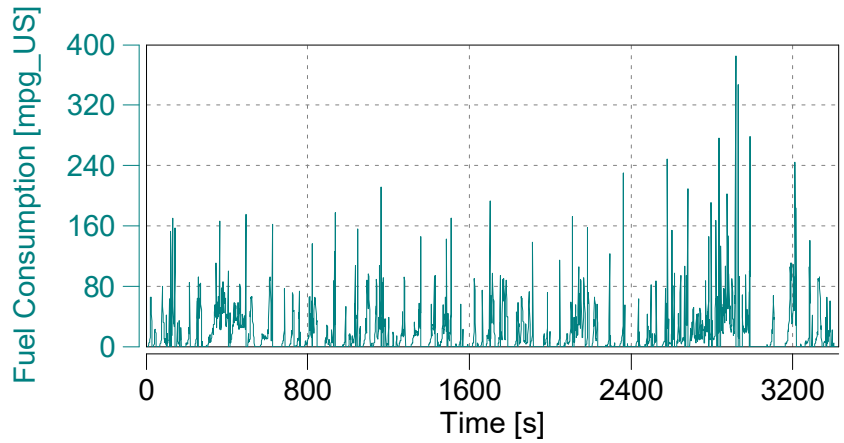
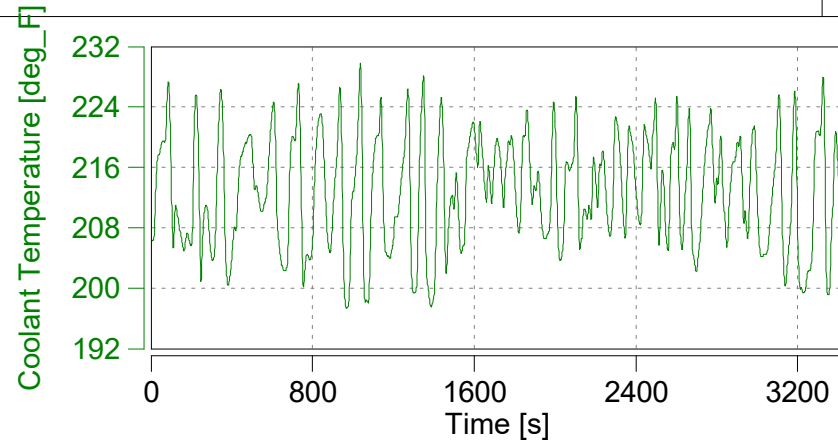
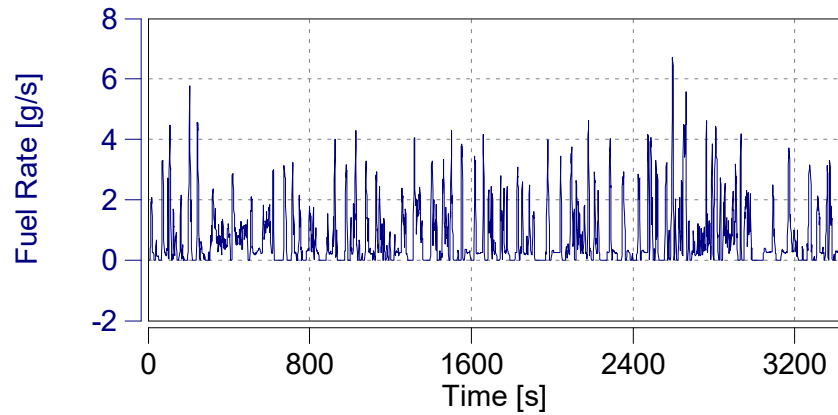
Apply Current Values

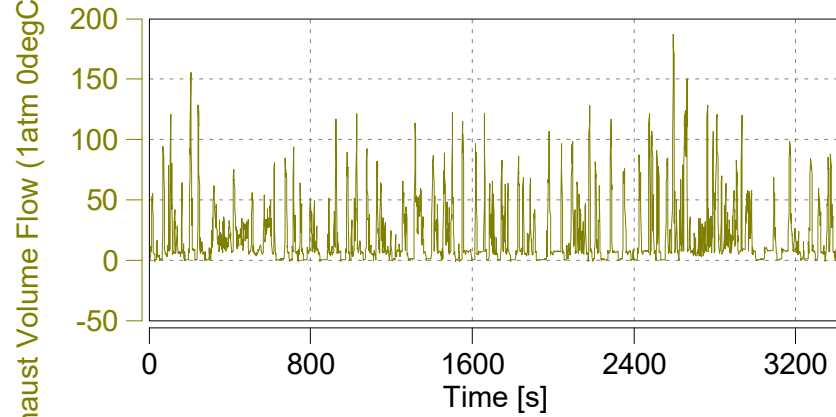
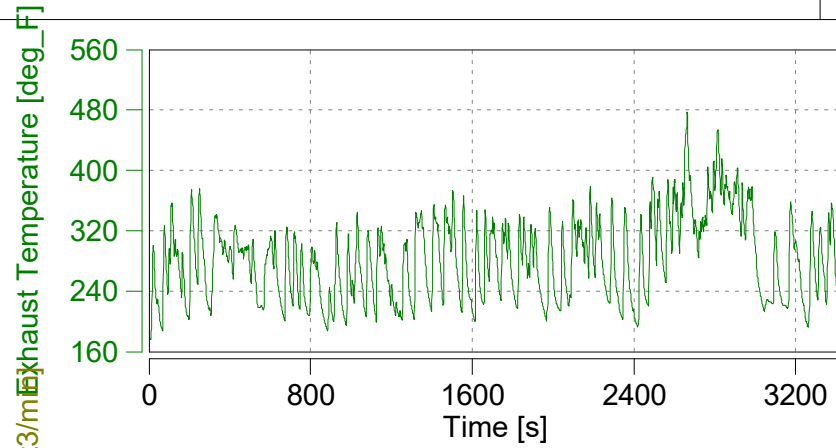
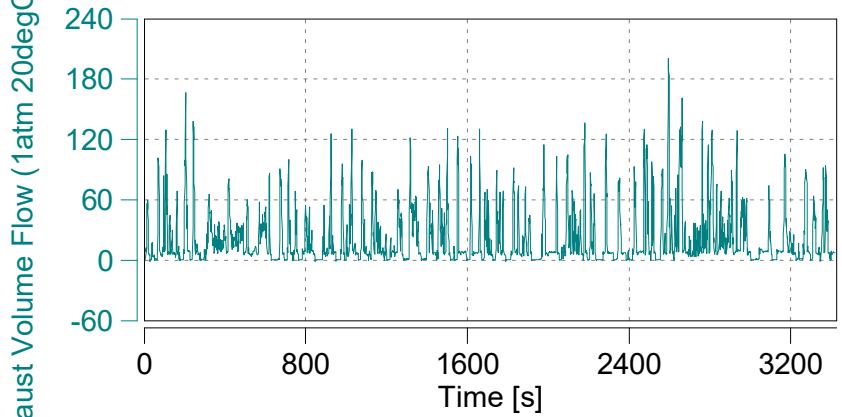
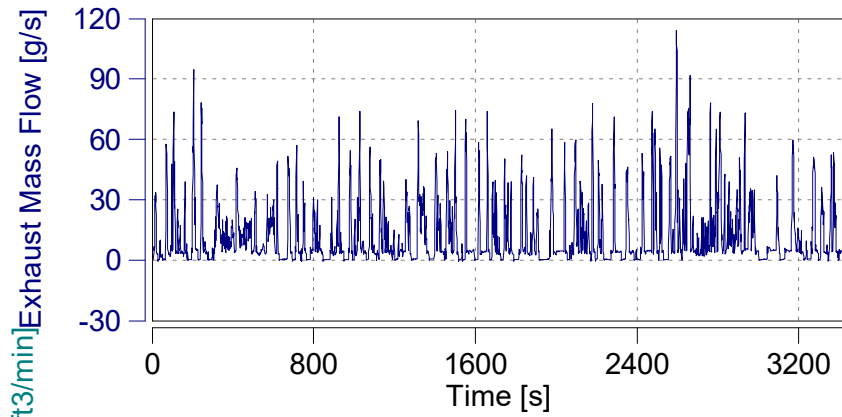


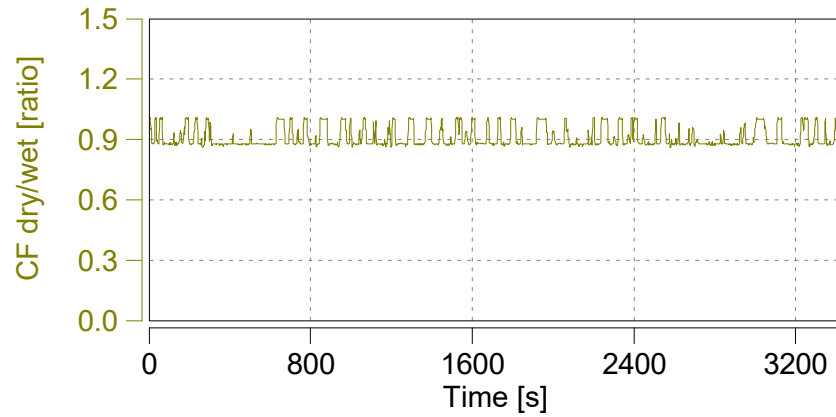
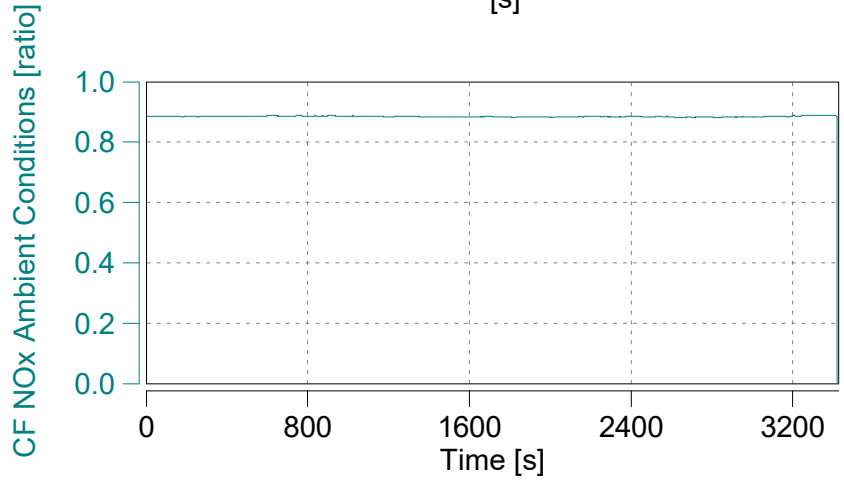
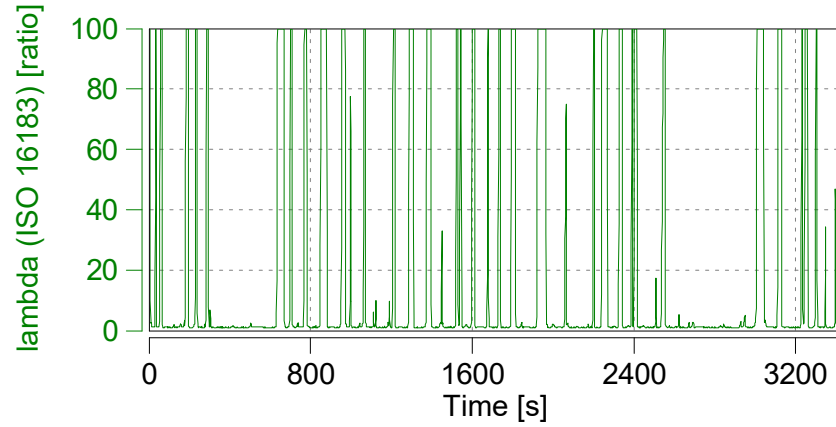
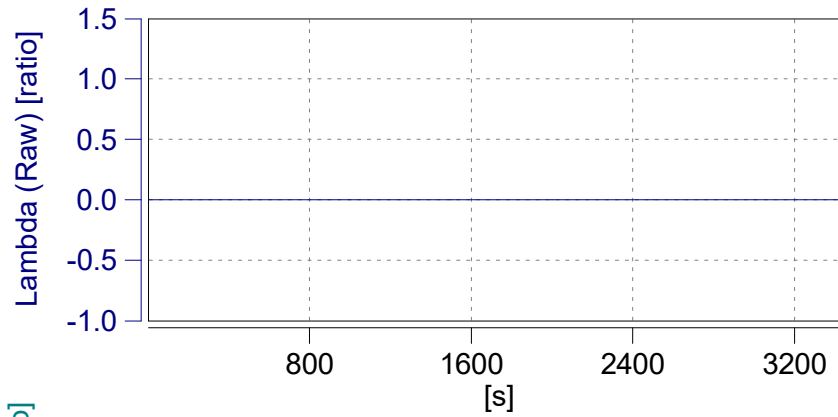


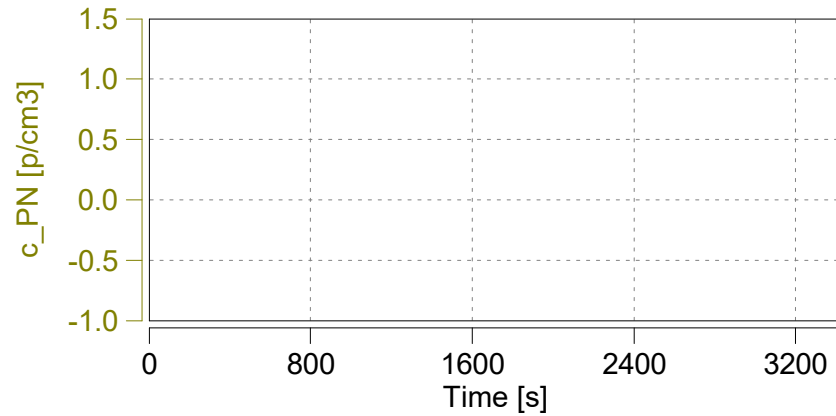
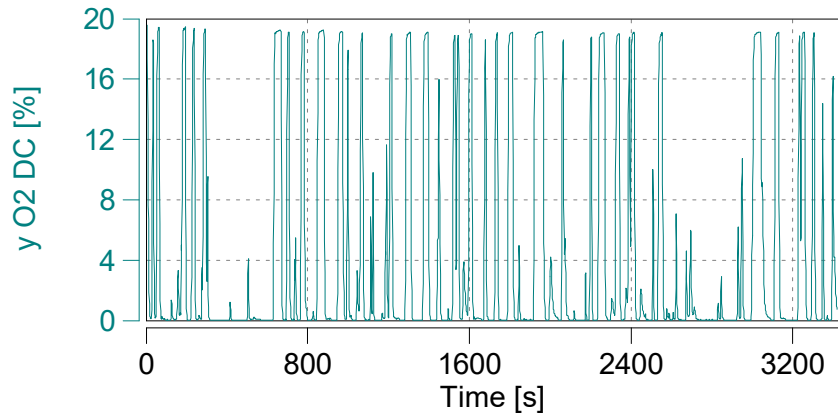
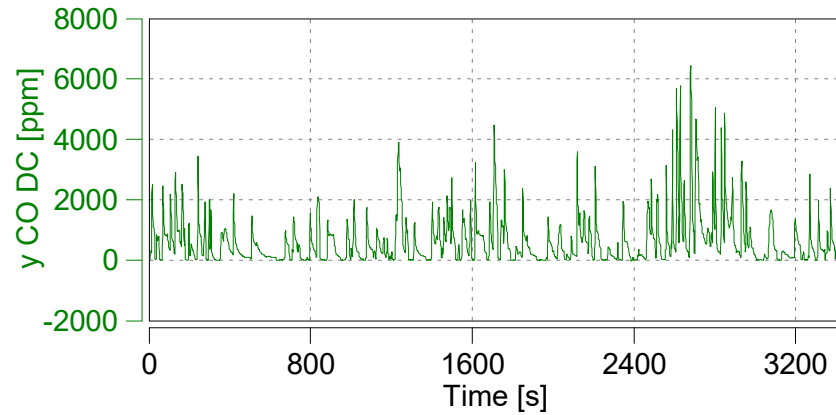
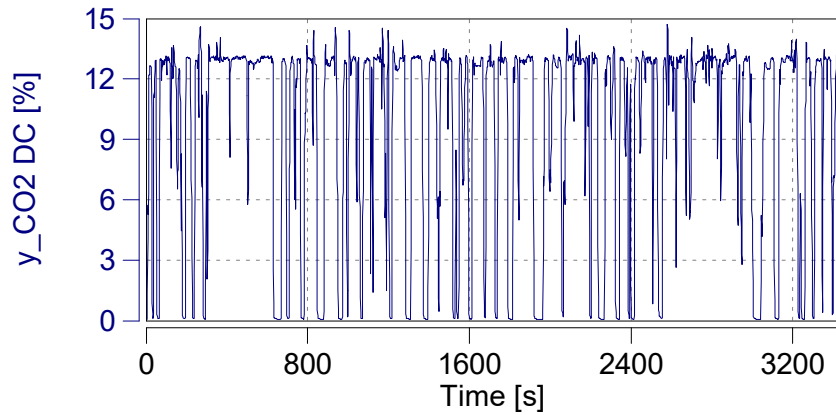


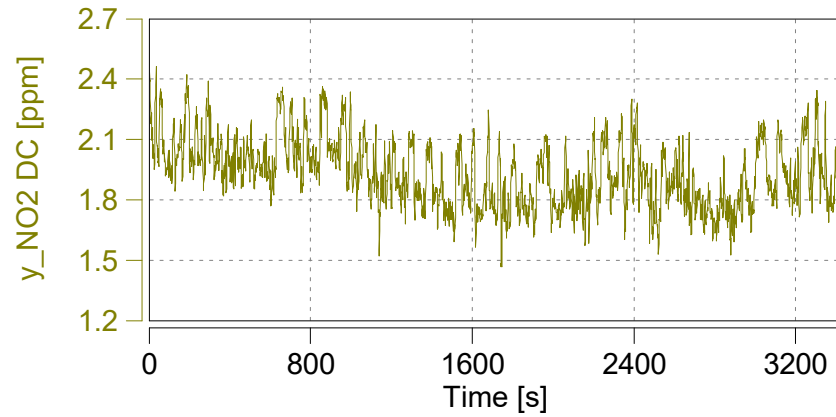
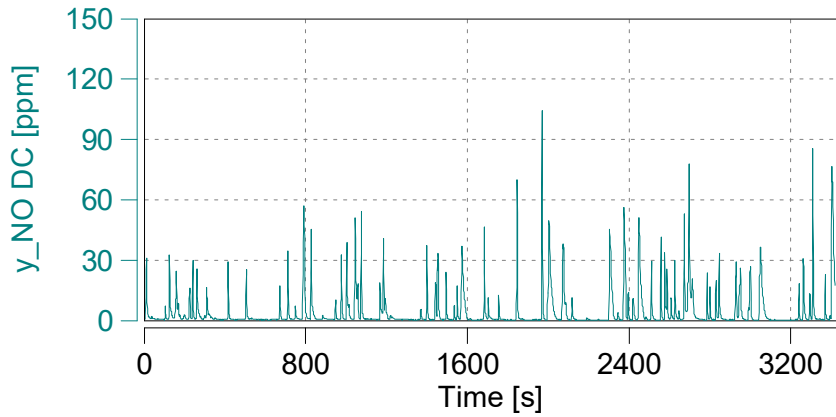
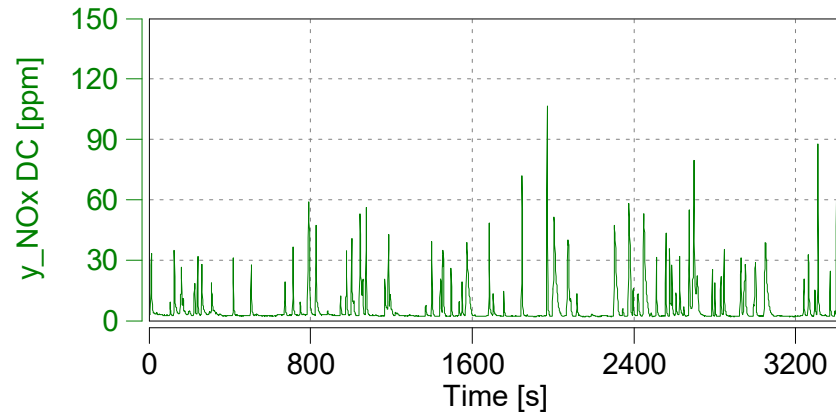
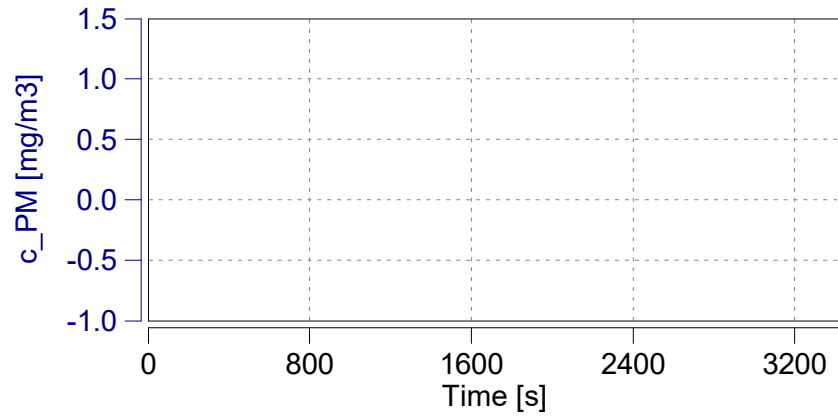


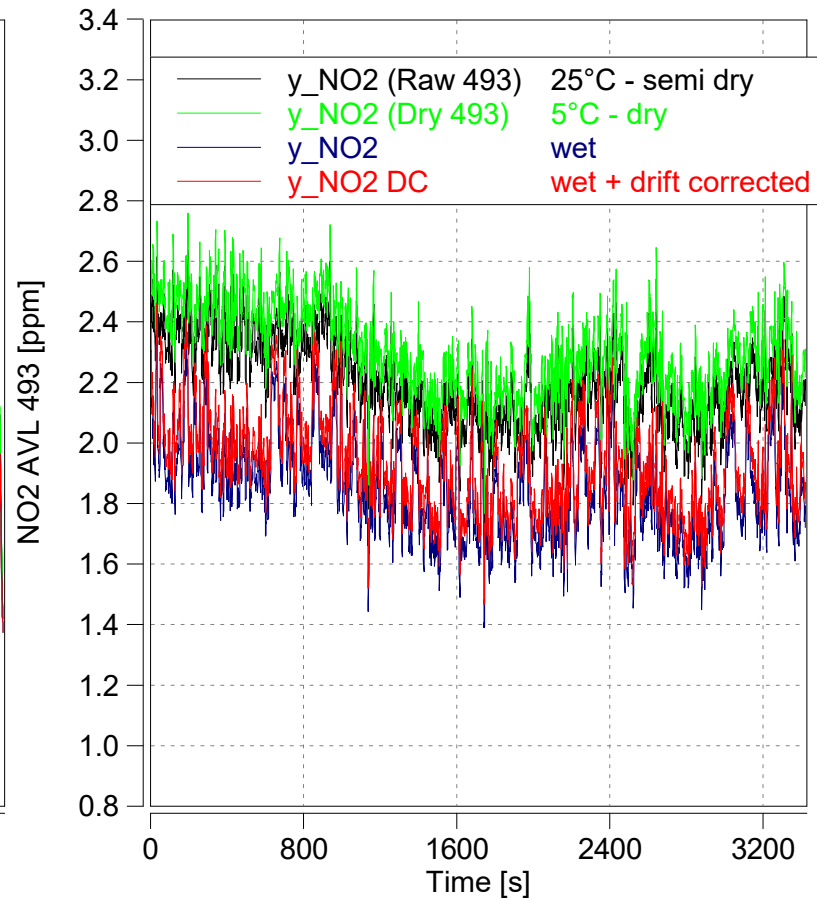
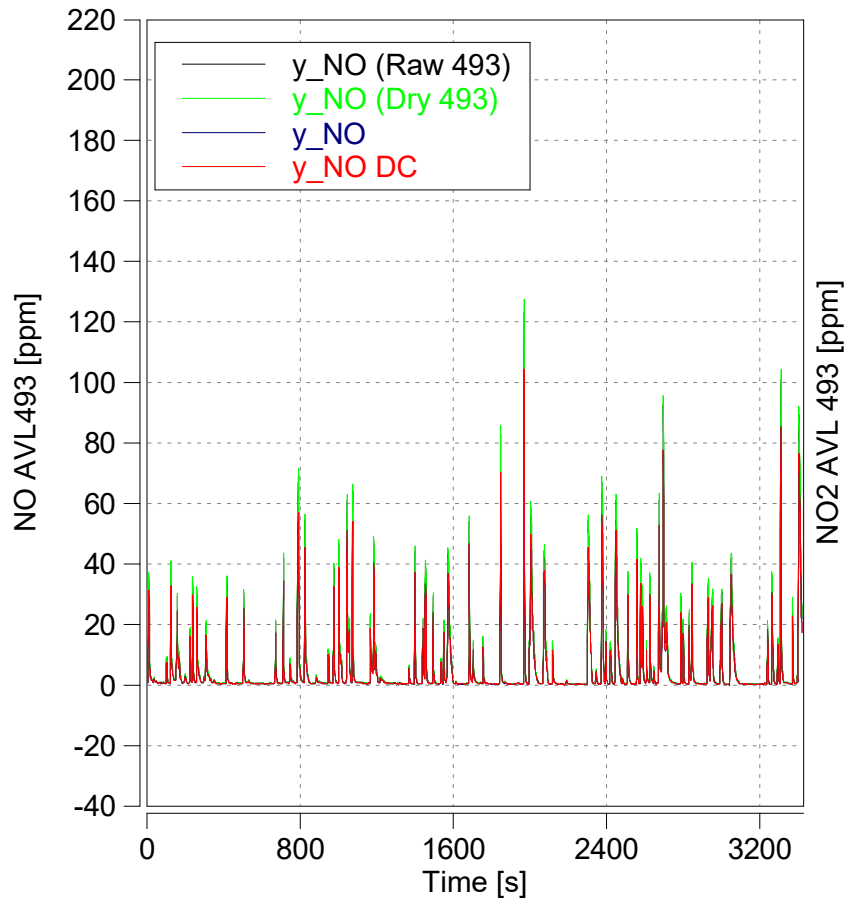




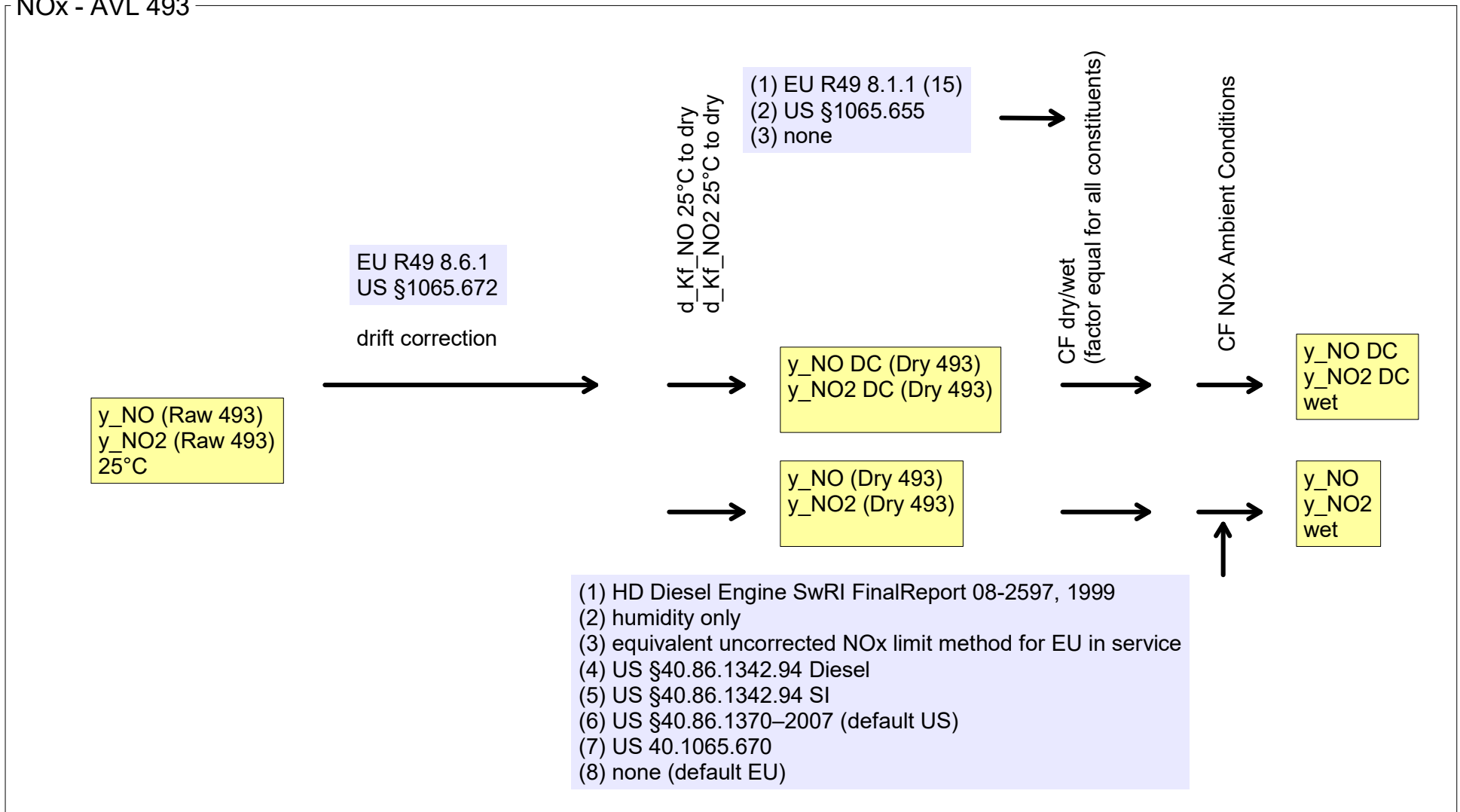


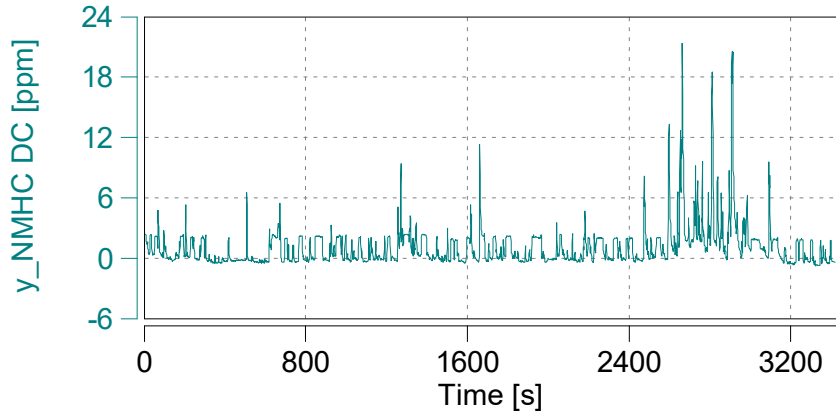
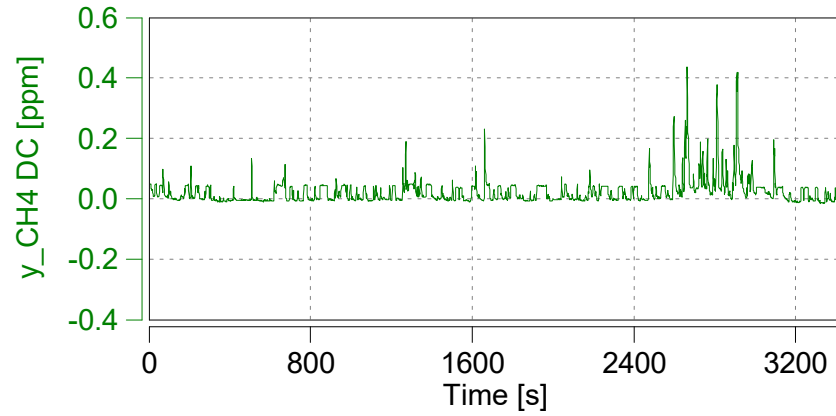
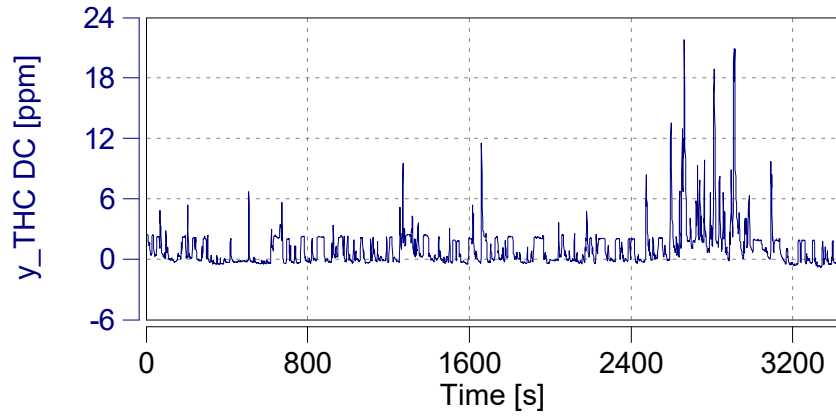


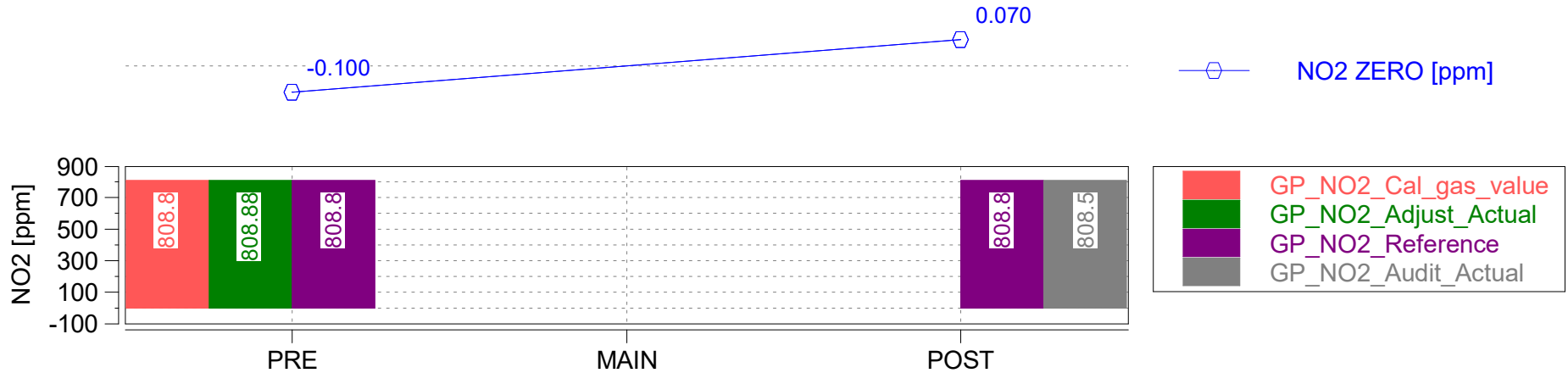
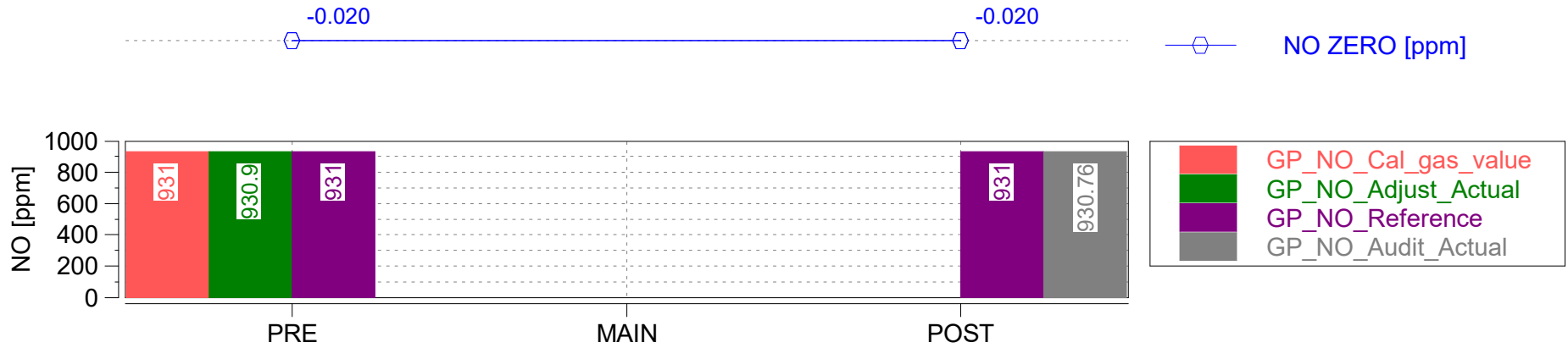


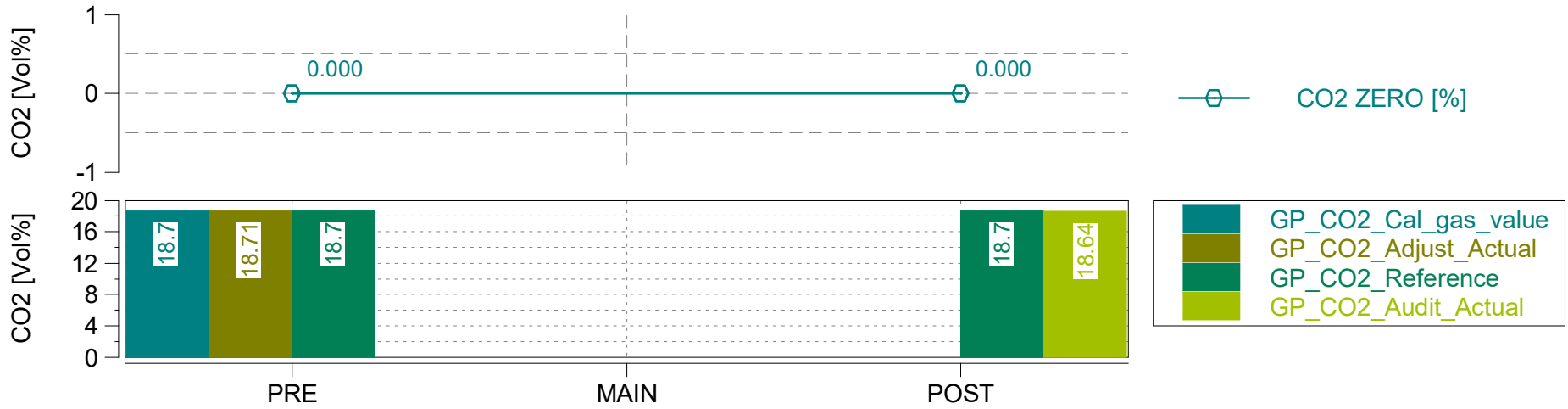
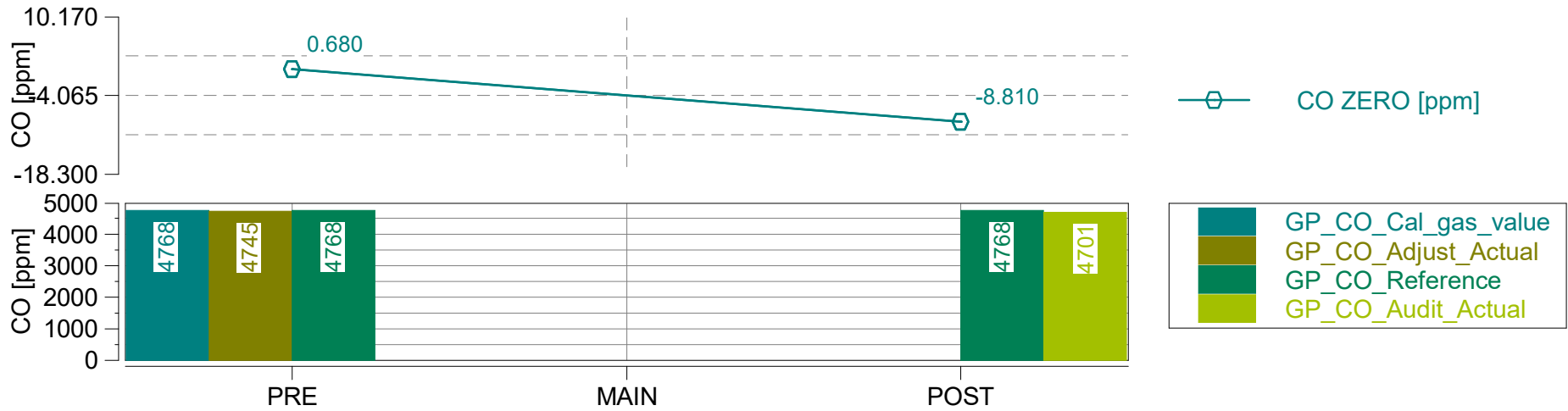


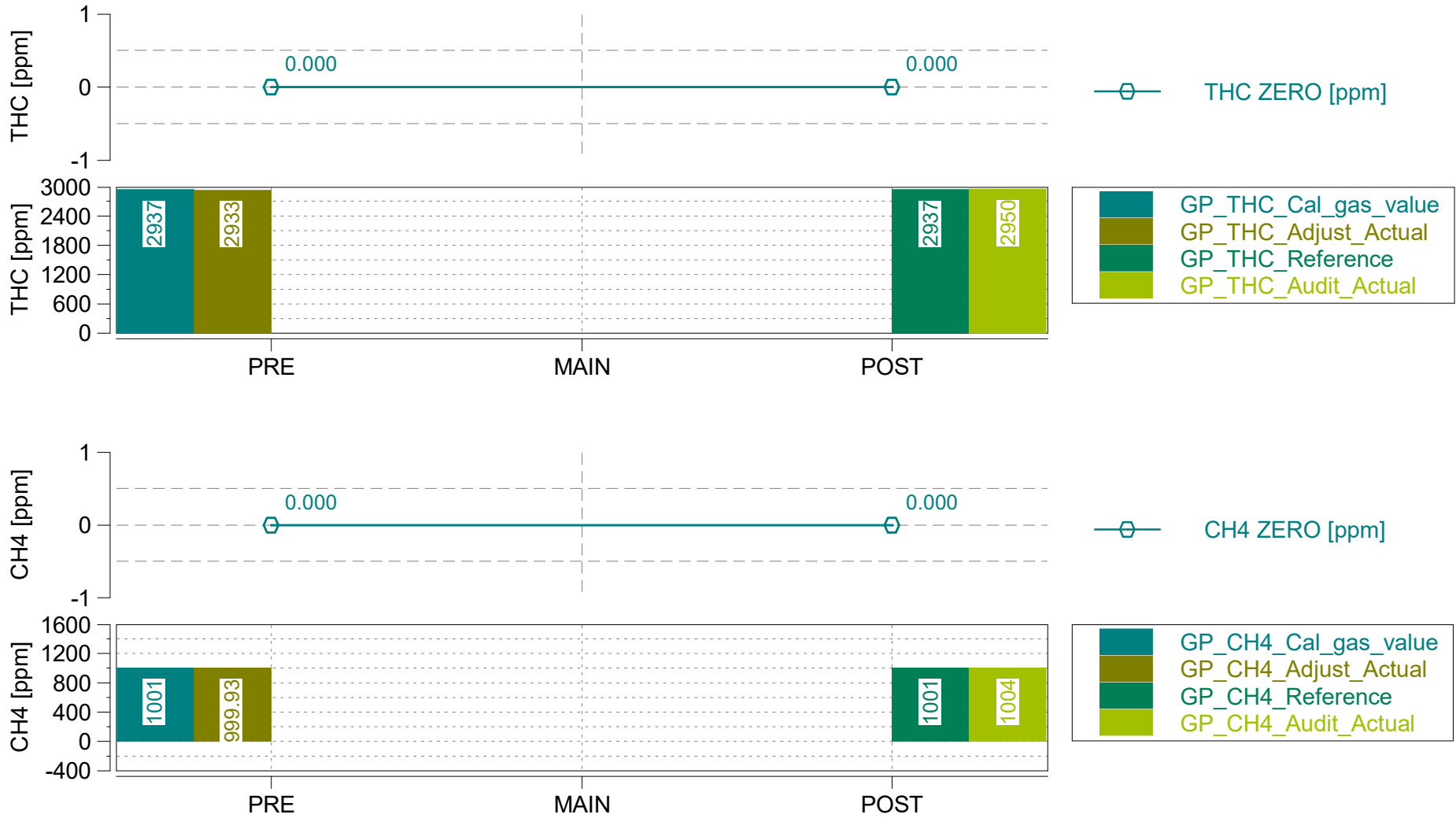
NOx - AVL 493













§	criterium	condition	value	unit	pass/fail
GAS Leak Check	The leakage rate on the vacuum side shall not exceed 0.5 per cent of the in-use flow rate for the portion of the system being checked.	The leakage rate <= 0.5%	0.17	%	pass
PN Leak Check	n/a	n/a	n/a	n/a	n/a
PM Leak Check	n/a	n/a	n/a	n/a	n/a

GAS PEMS Devices

Device ID	AVL492
Serial Number	0597
Firmware Version	V1.18
Main Test Date	2022-11-11
Leak Check Age [days]	0

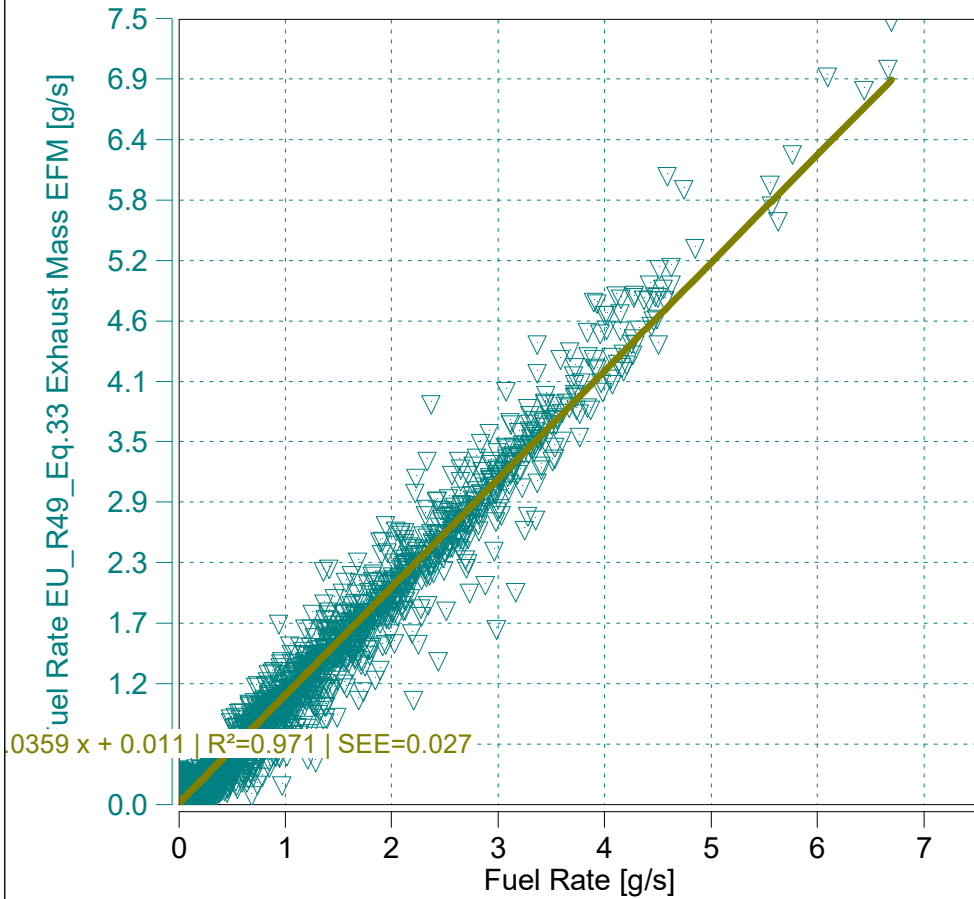
Device ID	AVL4925iS
Serial Number	202
Firmware Version	1.23.0.3

EFM

Device ID	AVL495
Serial Number	00826
Serial Number Tube	01080
Firmware Version	V1.18

System Control

SC Version	R18.0.2_b242
SC Serial Number	60301151



EU 582/2011/Appendix I/3.2.1 | Fuel Rate ECU and calculated

$y = 1.0359 x + 0.011 \mid R^2=0.971 \mid SEE=0.027$

$m = 1.04$ (0.9 - 1.1 recommended)

$R^2 = 0.97$ (min 0.9 mandatory)

Data from - to [% of Maximum]

0

100