In re: Chrysler-Dodge-Jeep Ecodiesel Marketing, Sales Practices, and Products Liability Litigation, No. 3:17-md-02777 (N.D. Cal.)

PEMS Summary Report
Pursuant to Paragraph 59.e of the Consent Decree

March 1, 2021

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

I. Background

On January 10, 2019, FCA US LLC ("FCA"), Stellantis N.V. (formerly known as Fiat Chrysler Automobiles N.V.), V.M. Motori S.P.A., and V.M. North America, Inc. (collectively, the "Defendants") entered into a consent decree with the United States, acting on behalf of the U.S. Environmental Protection Agency ("EPA"), and the State of California, acting by and through the California Air Resources Board ("CARB") and the California Attorney General, related to model year ("MY") 2014 to 2016 Ram 1500 and MY 2014 to 2016 Jeep Grand Cherokee vehicles equipped with 3.0 liter ECODIESEL engines ("Subject Vehicles"). The Court granted final approval of the Consent Decree on May 3, 2019, *In re: Chrysler-Dodge-Jeep EcoDiesel Marketing, Sales Practices, and Products Liability Litigation*, No. 3:17-md-02777 (N.D. Cal. May 3, 2019), ECF No. 562 ("Consent Decree").

Paragraph 59.e of the Consent Decree requires that Defendants submit a Summary Report to EPA and CARB ("the Agencies") for each model year for testing performed under Paragraph 59.a. FCA submits this Summary Report of PEMS testing pursuant to Paragraph 59.a for MY 2020. FCA will post the Summary Report, redacted as appropriate, according to Paragraphs 59.e and 78 of the Consent Decree. As stated in Paragraph 59.h, "[t]he Parties agree and acknowledge that neither United States nor California law sets forth a standard by which PEMS testing can be used to determine compliance for purposes of certification under Title II of the Clean Air Act."

A separate Summary Report for testing pursuant to Paragraph 59.b for MY 2020 will be prepared by FCA's Independent Third-Party Emissions Tester, Sensors Inc.

Pursuant to 40 C.F.R. Part 2, subpart B, Cal. Gov't Code § 6254.7(d), and Paragraph 119 of the Consent Decree, FCA requests confidential treatment of this submission.

II. Executive Summary

Paragraph 59.a requires that Defendants perform PEMS testing on vehicles from certain test groups selected to cover, in the aggregate, the full range of configurations of emission control systems on light-duty vehicles for MY 2020 across all FCA brands. In coordination with the Agencies, FCA's deadline to perform Paragraph 59.a PEMS testing was extended from September 20, 2020 until December 31, 2020. Pursuant to the Agencies' July 30, 2020 request, FCA distributed Paragraph 59.a PEMS testing of the remaining MY 2020 vehicle groups throughout the second half of 2020 Accordingly, FCA's Paragraph 59.a PEMS testing was performed at its Chelsea Proving Grounds ("CPG") in Chelsea, Michigan, under real-world driving conditions over a range of ambient temperatures and pressures. As required by Paragraph 59.c.ii, FCA measured the following five constituents: oxides of nitrogen ("NOx"), total hydrocarbons ("THC"), non-methane hydrocarbons ("NMHC"), carbon monoxide ("CO"), and carbon dioxide ("CO2").

FCA performed PEMS testing on vehicles from thirteen test groups. For each selected vehicle, FCA completed: (1) Steady State PEMS Test (stepped nine-bag); (2) Transient PEMS test; and (3) as requested by EPA and CARB, an 80 MPH Steady State Cruise PEMS Test. The Steady State PEMS Test and the 80 MPH Steady State Cruise PEMS Test were run on FCA's oval track at CPG. The Transient PEMS test comprised of three cycle routes. Each Transient PEMS test cycle route was designed to ensure a mix of endurance, speed, grade, key off and on, and stops to simulate real-world driving conditions.

FCA used PEMS units manufactured by Sensors, Inc. FCA performed weekly correlation testing on each PEMS unit and installed each unit according to the manufacturer's guidelines.

FCA prepared for and conducted the PEMS testing according to test methods recorded before the testing commenced. FCA collected and processed the emission data pursuant to Paragraph 59.g and FCA's approved PEMS Test Plan. Additionally, as requested by the Agencies, FCA provides to the Agencies cumulative NOx (g) data as a calculated signal from the second-by-second PEMS data for Paragraph 59.a PEMS testing. Further, relative to all of the second-by-second data for all (available) vehicle, engine, and PEMS parameters identified in Figure 3 below, FCA collected data for Paragraph 59.a. PEMS testing for the entire Steady State PEMS test, 80 MPH Steady State test, and the Transient PEMS test, including the transient portions of the Steady State PEMS test and the 80 MPH Steady State test. As agreed by the Agencies, FCA post-processed the Steady State PEMS test data and the 80 MPH Steady State test data to remove the transient portions from the averages calculated of the constituent pollutants. As further requested by the Agencies, FCA recorded Engine Coolant Temperature and EGR related OBD PIDS (if equipped) for gasoline and diesel vehicles for Paragraph 59.a PEMS testing.

The following Summary Report provides test results and additional detail describing all test methods used for FCA's MY 2020 PEMS testing pursuant to Paragraph 59.a of the Consent Decree.

III. Paragraph 59.a Testing

1. Model Year 2020 Test Groups

FCA selected thirteen test groups to satisfy the requirements under Paragraphs 59.a of the Consent Decree. Paragraph 59.a requires PEMS testing of MY 2020 light-duty motor vehicles across all FCA brands. The Paragraph 59.a test groups were selected to cover, in the aggregate, the full range of emission control systems on those light-duty brand test groups. FCA lists its MY 2020 Paragraph 59.a Test Groups in Figure 1 below. As an additional step, and not required by the Consent Decree, FCA procured a second 3.6 LX and performed PEMS testing. The results are included in Section IV. Results as "Vehicle 4b."

Light Duty Test Groups Containing								
	20MY Test Group	Engine	Transmission(s)	Driveline(s)	Fuel Type	Air System	Fuel System	Emission Standard
1	LCRXT03.05PW	3.0L	ZF 8 Speed	RWD, 4WD, ESS	Diesel	Turbocharged	Direct Injection	BIN 160, LEV 160
2	LCRXT03.65P5	3.6L	ZF 8 Speed, ZF 9 Speed	RWD, AWD, ESS	Gasoline	Naturally Aspirated - 2 Step Lift	Port Injection	BIN 30, SULEV 30
3	LCRXV05.75P5	5.7L	ZF 8 Speed	RWD	Gasoline	Naturally Aspirated	Port Injection	BIN 125, ULEV125
4	LCRXV03.65P3	3.6L	ZF 8 Speed, FCA 5 Speed Auto	RWD, AWD	Gasoline	Naturally Aspirated	Port Injection	BIN 125, ULEV125
5	LCRXT02.4FP2	2.4L	FCA 4 Speed Automatic	FWD	Gasoline	Naturally Aspirated	Port Injection	BIN 125
6	LCRXT03.65P6	3.6L	SI-EVT	FWD, PHEV	Gasoline	Naturally Aspirated	Port Injection	BIN 30, SULEV 30 TZEV
7	LCRXT03.65P8	3.6L	ZF 9 Speed	FWD, ESS	Gasoline	Naturally Aspirated - 2 Step Lift	Port Injection	BIN 30, SULEV 30
8	LCRXV06.45P0	6.4L	ZF 8 Speed, Manual 6 Speed	RWD	Gasoline	Naturally Aspirated	Port Injection	BIN 160, LEV 160
9	LCRXT05.75P8	5.7L	ZF 8 Speed	RWD, 4WD, BSG	Gasoline	Naturally Aspirated	Port Injection	BIN 125, ULEV 125
10	LCRXJ02.05P2	2.0L	ZF 8 Speed	RWD, AWD, ESS	Gasoline	Turbocharged	Direct Injection	BIN 125, ULEV 125
11	LCRXV06.25P0	6.2L	ZF 8 Speed	RWD	Gasoline	Supercharged	Port Injection	BIN 160, LEV 160
12	LCRXJ02.95P0	2.9L	ZF 8 Speed	AWD, RWD, ESS	Gasoline	Turbocharged	Port & Direct Injection	BIN 125, ULEV 125
13	LCRXT05.75P4	5.7L	ZF 8 Speed	RWD, 4WD, non-BSG	Gasoline	Naturally Aspirated	Port Injection	BIN 125, ULEV125

Figure 1 – MY 2020 Selected Test Groups

2. PEMS Test Routes

FCA performed PEMS testing on private roads at CPG. For each selected vehicle, FCA completed: (1) Steady State PEMS Test (stepped nine-bag); (2) Transient PEMS test; and (3) as requested by EPA and CARB, an 80 MPH Steady State Cruise PEMS Test. FCA's Steady State and Transient PEMS routes provided for a range of

ambient temperatures and pressures, including conditions not represented on the Federal Test Procedure. Ambient pressures varied depending on elevation at a specific track location and weather conditions. Ambient temperatures varied depending on time of day and weather conditions. FCA performed testing within ambient temperature limits of the PEMS unit provided by the manufacturer and under road conditions to ensure driver safety.

a. Steady State PEMS Test

The Steady State PEMS test is a stepped nine-bag vehicle speed test. The speeds range from 30 to 85 MPH in the following sequence: 30, 50, 60, 65, 70, 65, 75, 80, 85 MPH. Each speed state is held for approximately 600 seconds. The total test is approximately 5400 seconds long without key off or stopping. The Steady State PEMS test was run on FCA's oval track at CPG.

b. 80 MPH Steady State Cruise PEMS Test

To accommodate the Agencies' request, FCA performed a 45-minute 80 MPH Steady State Cruise test without key-off or stopping. This 80 MPH Steady State Cruise PEMS test was run on FCA's oval track at CPG.

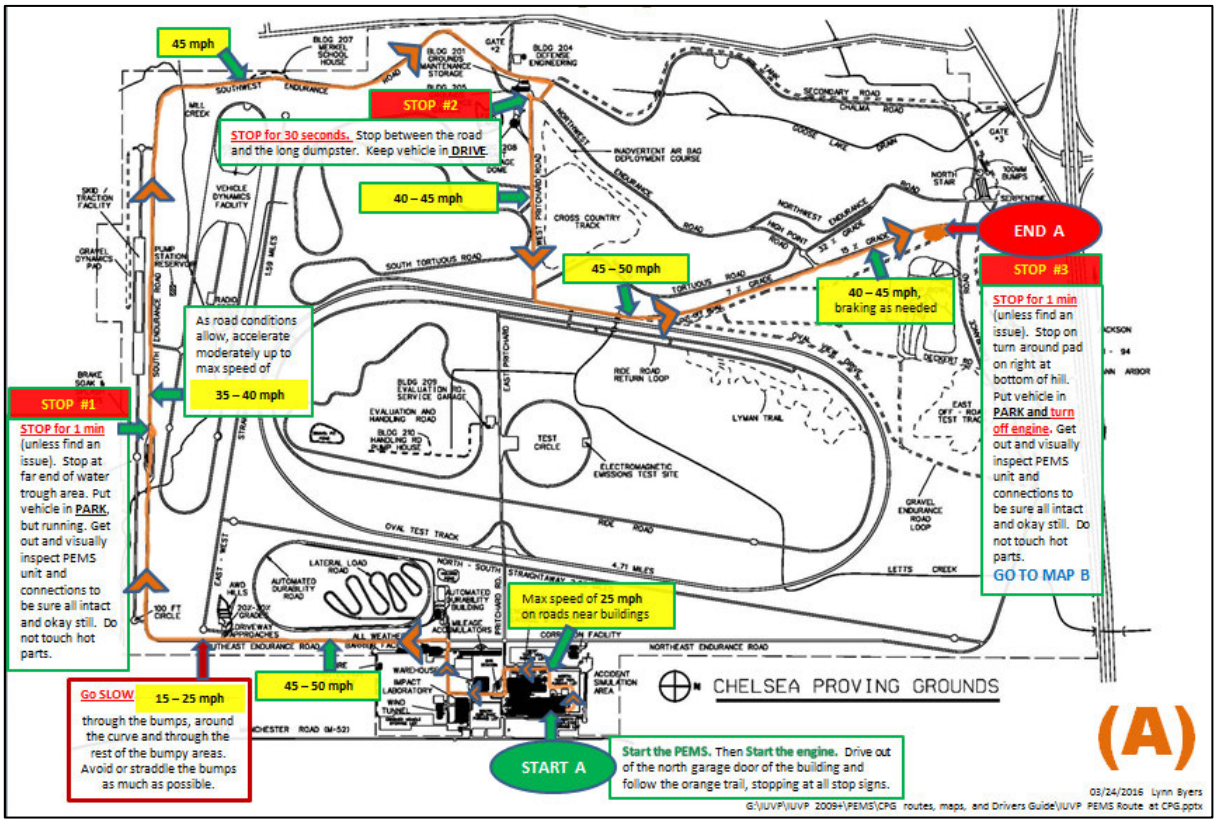
Figure 2 – FCA's Chelsea Proving Grounds

c. Transient Cycle Test

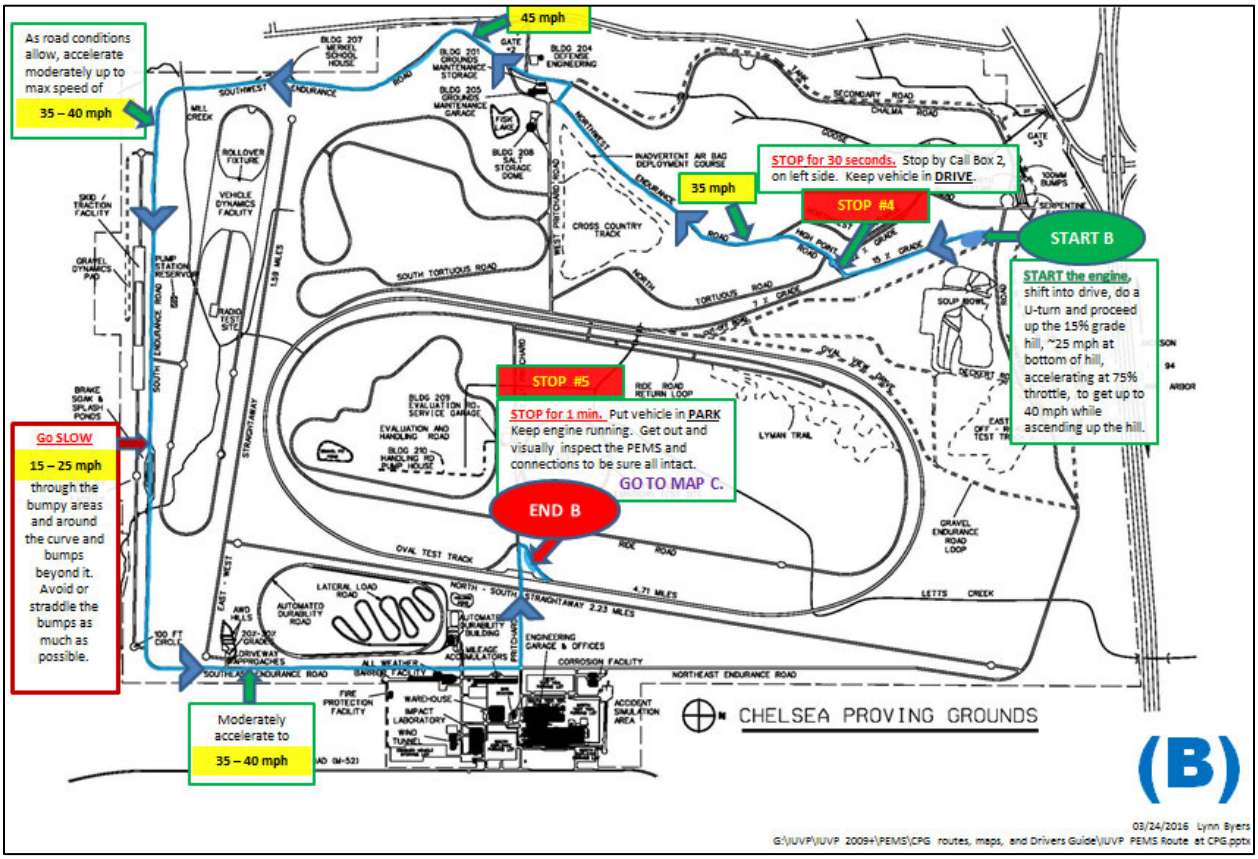
The Transient Cycle route was designed to ensure that there was a mix of endurance, speed, grades and key stops off and on to simulate real world driving conditions. The Transient PEMS test comprised of three portions (outbound, inbound, and oval/end of route) with six total stops, including engine off, and

varying gear states. Speeds range from 0-80 MPH. There are varying grades, undulating and curved roads, and highway driving conditions.

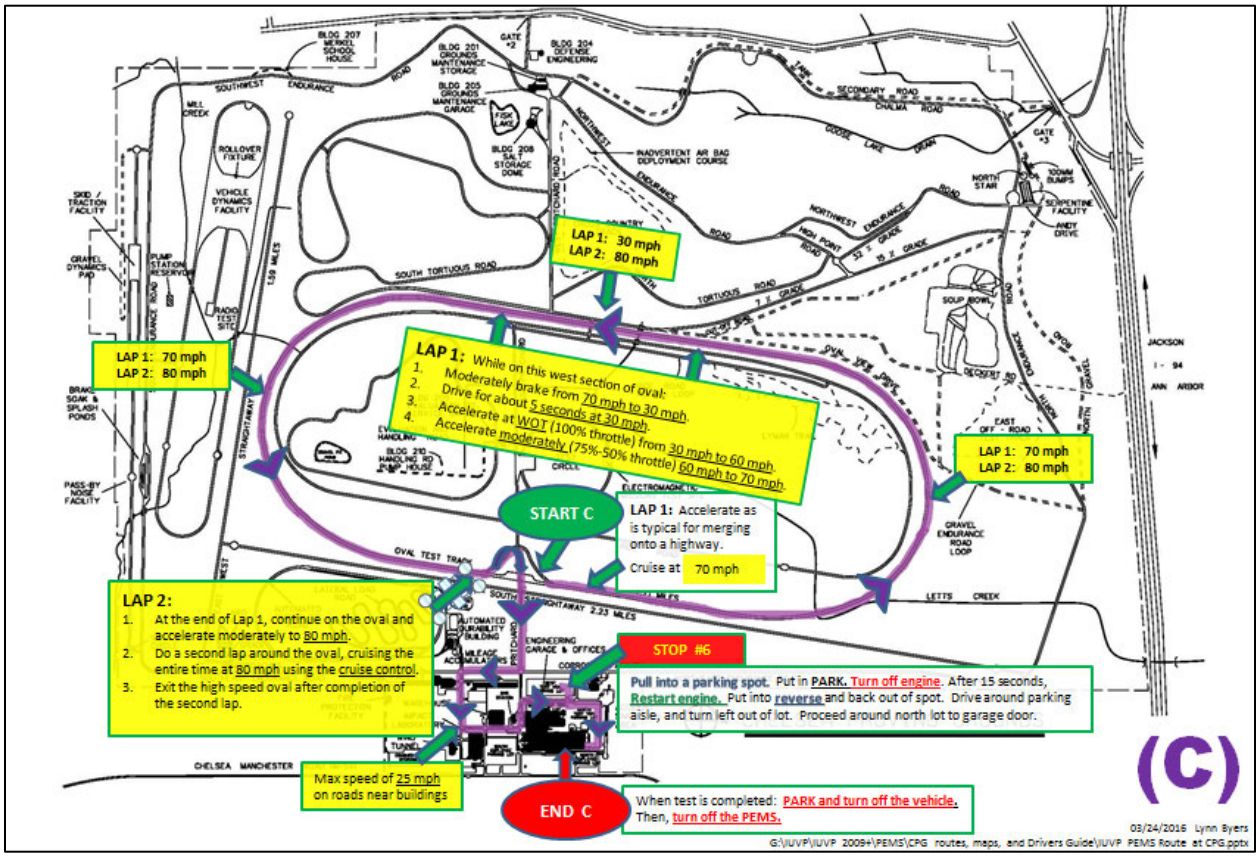
Transient Cycle: Outbound Portion



Transient Cycle: Inbound Portion



Transient Cycle: Oval & End Route



3. Test Methods

a. Vehicle Setup

FCA set the vehicles in the following operation mode for PEMS testing:

- Drive mode: standard drive mode
- A/C adjustment: as appropriate for weather conditions selected by the PEMS driver when driving with the windows closed
- Headlights / daylights: as appropriate for conditions present at the time of testing
- Fuel: certification fuel appropriate for the vehicle being tested
- Weight: curb weight of the vehicle as received plus weight of the driver and PEMS test equipment
- Install permanent Marmon flanges
- Install trailer hitch, if not equipped from the factory
- Inspect vehicle and check fluid levels

As discussed with the Agencies on an August 18, 2020 teleconference, while not required under the Consent Decree or the approved PEMS Test Plan, FCA installed the same instrumentation it uses for certification vehicles on the PEMS test vehicles set up by August 2020. As further discussed, FCA would not install the same instrumentation it uses for certification vehicles on the PEMS test vehicles set up after August 2020. Therefore, only for PEMS test vehicles set up by August 2020, in addition to the items in the list above, the vehicle setup would have also included:

- Install fuel drain
- Install canister purge/load and vent lines

b. Correlation

FCA performed weekly correlation testing on the chassis cells with each PEMS unit as a lab quality procedure.

c. PEMS Equipment Installation.

FCA installed PEMS equipment per manufacturer, Sensor, Inc., guidelines.

d. Testing Protocol.

FCA followed the following PEMS test protocol:

i. Pre-Test Preparation

- PEMS requires a minimum of one hour for analyzer warmup and stabilization
- Pre-test routine is performed after warmup (approximately .5 hours), including:
  - System verifications (temperatures and pressures)
  - Leak check
  - Time alignment
  - Exhaust Flow Meter tube purge and pressure zero
  - Zero calibration
  - Span calibration
  - Vehicle Interface communication (CAN data from OBD port)
  - Datafile and recording setup

ii. Conducting the PEMS Test

- **Steady-State PEMS test** is run at nine steady state speeds ranging from 30-85 MPH in the following sequence: 30, 50, 60, 65, 70, 65, 75, 80, 85 MPH. Emissions are collected during the stabilized steady-state

plateaus (all transient data was also collected). In total, approximately 600 seconds of data are collected per step.

- **80 MPH Steady State Cruise PEMS test** is a 45-minute steady state cruise at 80 MPH. The total test time is approximately 2700 seconds long without key off or stopping. Emissions are collected during the stabilized steady state cruise (acceleration to 80 MPH at the beginning of the test and deceleration to a stop at the end of the test are also included).

- **Transient Cycle PEMS test** includes six stops, with one engine off stop, and with the remainder of the test as engine running with varying gear state. The speeds range from 0 MPH to 80 MPH and the route includes undulating and curved roads and 7% and 15% grade slopes. The oval track provides highway drive conditions. Refer to the Transient Cycle routes below for complete details.

iii. Post-Test Routine

- Post calibration (zero/span)
- Datafile processing and upload

iv. Emission Data Collection

- Steady-State test has 1 data file that is created during the test (consisting of all 9 vehicle speed steps), emissions data is taken at a 1 Hz sampling rate, and average constituent results are calculated for each vehicle speed step.
- Transient Cycle test has 1 data file that is created during the test, emissions data is taken at a 1 Hz sampling rate, and average constituent results are calculated for the Transient Cycle
- 80 MPH Steady State Cruise has 1 data file that is created during the test, emissions data is taken at a 1 Hz sampling rate, and average constituent results are calculated for the 80 MPH Steady State Cruise.
- As requested by the Agencies, FCA provides cumulative NOx (g) data as a calculated signal from the second-by-second PEMS data for Paragraph 59.a PEMS testing.
- As requested by the Agencies, relative to all of the second-by-second data for all (available) vehicle, engine, and PEMS parameters identified in Figure 3 of this PEMS Test Plan, data was collected for Paragraph 59.a. PEMS testing by FCA and provided to the Agencies for the entire Steady State PEMS test, Transient PEMS test, and the 80 MPH Steady State test, including the transient portions of the Steady State PEMS test and the 80 MPH Steady State test. As agreed by the Agencies, FCA then post-processed the Steady State PEMS test data and the 80 MPH Steady

State test data in order to remove the transient portions from the averages calculated of the constituent pollutants.

- As requested by the Agencies, FCA recorded Engine Coolant Temperature and EGR related OBD PIDS (if equipped) for gasoline and diesel vehicles for Paragraph 59.a PEMS testing.

v. Test Validation and Data Analysis

- The datafile was reviewed for any errors or warnings that occurred during testing to determine if the test was valid, including the presence of all requested parameters.
- PEMS Test Engineer also reviewed the datafile for quality purposes after the test was complete.
- Summary tables were created using the following steps for each test.
    - **Steady-State PEMS test** – a Matlab code was created to filter the 9 speed phases of the test and then remove the first and last 30 seconds of each phase to ensure test stabilization and remove transient data; the g/mile values were then calculated with this post processed data.
    - **80 MPH Steady State Cruise PEMS test** – a Matlab code was created to filter the 80 MPH speed points of the test and then remove the first and last 30 seconds of each phase to ensure test stabilization and remove transient data; the g/mile values were then calculated with this post processed data.
    - **Transient Cycle PEMS test** – the post processed PEMS data file was used to calculate the g/mile values. Cumulative emissions for NOx, CO2, CO, NMHC and HC were calculated and then divided by the cumulative distance.

4. List of Available Emission, Vehicle, and Engine Parameters

As stated in Paragraph 59.c.ii, FCA measured emissions from the following five constituents: NOx, THC, NMHC, CO, and CO2. In addition to collecting emissions data for the required five constituents, as well as vehicle speed and percent engine load, FCA collected the following vehicle, engine, environmental and PEMS parameters shown in Figure 3 below from the PEMS test unit or as standard Parameter Identifier (PID) data based on what was available on any given vehicle.

Parameter Description	Parameter Name	Units
DATE	sDATE	mm/dd/yyyy
TIME	sTIME	hh:mm:ss.xxx
Gas Path	sSTATUS_PATH	
Dry-to-Wet Correction Factor	Kw	
NOx Humidity Correction Factor	iCALCRT_Kh	
Heated Line Avg. Duty	AvgDuty	%duty
FlameState	FlameState	
Block Temperature	BlockTemp	degC
Catalyst Temperature	CatalystTemp	degC
Weather Probe Humidity	iSCB_RH	%RH
Ambient Pressure	iSCB_LAP	mbar
Weather Probe Temperature	iSCB_LAT	degC
NOx Humidity Correction Factor	iCALCRT_Kh	
Exhaust Mass Flow Rate	icMASS_FLOW	kg/hr
Exhaust Volumetric Flow Rate - SCFM	EV_std	SCFM
Exhaust Volumetric Flow Rate - l/s (0 deg C referenced)	mEV_std0	l/s
Exhaust Temperature	iFLOW_EX_TEMP	degC
Upstream Pressure	iFLOW_UP_PRESS	kPa
Differential Pressure	iFLOW_SPLINED_PRESS	kPa
No. of DTCs	DTC_CNT	#
Load Percent	iENG_LOAD	%
Coolant Temp.	iCOOL_TEMP	degF
Engine RPM	iENG_SPEED	RPM
Vehicle Speed	iVEH_SPEED	mph
Mass Air Flow Rate	iMAF	g/s
Baro. Pressure	BARO	kPa
Control Voltage	VPWR	V
Amb. Air Temp.	AAT	degC
Accel. Postn D	APP_D	%
Accel. Postn E	APP_E	%
Fuel Inj. Timing	FUEL_TIMING	Deg
DD Eng. Pct. Torque	TQ_DD	%
Act. Eng. Pct. Torque	iPCNT_TORQUE	%
Eng. Ref. Torque	sREF_ENG_TORQUE	lb-ft
Cmd. EGR A Duty	EGR_A_CMD	%
Act. EGR A Duty	EGR_A_ACT	%
EGR A Duty Error	EGR_A_ERR	%
EGR Temp. 1-1	EGRTA	degC
Exhaust Press. 1	EP_1	kPa
Exh. Gas Temp. 1-1	EGT11	degC
Exh. Gas Temp. 1-2	EGT12	degC
Exh. Gas Temp. 1-3	EGT13	degC
DPF Delta Press. 1	DPF1_DP	kPa

Figure 3 – FCA Vehicle and Engine Parameters

Parameter Description	Parameter Name	Units
AECD1 Timer 1	AECD1_TIME1	S
AECD1 Timer 2	AECD1_TIME2	S
AECD2 Timer 1	AECD2_TIME1	S
AECD2 Timer 2	AECD2_TIME2	S
AECD3 Timer 1	AECD3_TIME1	S
AECD3 Timer 2	AECD3_TIME2	S
AECD4 Timer 1	AECD4_TIME1	S
AECD4 Timer 2	AECD4_TIME2	S
AECD5 Timer 1	AECD5_TIME1	S
AECD5 Timer 2	AECD5_TIME2	S
AECD6 Timer 1	AECD6_TIME1	S
AECD6 Timer 2	AECD6_TIME2	S
AECD7 Timer 1	AECD7_TIME1	S
AECD7 Timer 2	AECD7_TIME2	S
AECD8 Timer 1	AECD8_TIME1	S
AECD8 Timer 2	AECD8_TIME2	S
AECD9 Timer 1	AECD9_TIME1	S
AECD9 Timer 2	AECD9_TIME2	S
AECD10 Timer 1	AECD10_TIME1	S
AECD10 Timer 2	AECD10_TIME2	S
NOx 1-1	NOX11	ppm
NOx 1-2	NOX12	ppm
Reagent Tank Lvl.	REAG_LVL	%
AECD11 Timer 1	AECD11_TIME1	S
AECD11 Timer 2	AECD11_TIME2	S
AECD12 Timer 1	AECD12_TIME1	S
AECD12 Timer 2	AECD12_TIME2	S
AECD13 Timer 1	AECD13_TIME1	S
AECD13 Timer 2	AECD13_TIME2	S
AECD14 Timer 1	AECD14_TIME1	S
AECD14 Timer 2	AECD14_TIME2	S
AECD15 Timer 1	AECD15_TIME1	S
AECD15 Timer 2	AECD15_TIME2	S
DPF Regen Status	DPF_REG_ST	
Norm. DPF Trig. Pct	DPF_REG_PCT	%
Avg. Time Btwn Rgns	DPF_REG_AVGT	min
Avg. Dist. Btwn Rgns	DPF_REG_AVGD	km
Eng. Frictn Pct. Tq	iFRICT_TORQUE	%
PM Sensor 1-1	PM11	%
Engine Fuel Rate	ENG_FUEL_RATE	g/s
Eng. Exh. Flow Rate	EXH_RATE	kg/hr
Corr. NOx 1-1	NOXC11	ppm
Corr. NOx 1-2	NOXC12	ppm
Cylinder Fuel Rate	CYL_RATE	mg/str

Figure 3 – FCA Vehicle and Engine Parameters (cont.)

Parameter Description	Parameter Name	Units
Vehicle Speed	imVEH_SPEED	km/h
Engine Coolant Temperature	imCOOL_TEMP	deg C
GPS Latitude	iGPS_LAT	Deg
GPS Longitude	iGPS_LON	Deg
GPS Altitude	iGPS_ALT	m
GPS Speed	iGPS_GROUND_SPEED	mph
GPS Ground Speed	imGPS_GROUND_SPEED	km/h
Fuel Rate	iWfgps	gal/s
Instantaneous Fuel Flow	iWf	g/s
Air/Fuel Ratio at stoichiometry	AF_Stoich	
Air/Fuel Ratio of Sample	AF_Calc	
Lambda	Lambda	
Humidity of Exhaust	H2O_exh	%
Sample Temperature	iFEM_SAMPLE_RH_TEMP	degC
Sample Humidity	iFEM_SAMPLE_RH	%RH
Sample Flow	SampFlow	lpm
Water Trap Pressure	WaterTrapPress	kPa
Sample Vacuum	SampleVacuum	kPa
Dryer Inlet Temperature	DryerInTemp	degC
Drain Temperature	DrainTemp	degC
Heated Filter Temperature	HtdFltrTemp	degC
Ambient Temperature	AmbientTemp	degC
Calibration Gas Pressure	CalGasPress	kPa
Heated Line Avg. Duty	AvgDuty	%duty
AMB Ambient Temperature	AmbTemp	degC
AMB Pressure	float.AMB_Pressure	mbar
AMB Lamp Temperature	LampTemp	degC
Detector Temperature	DetectorTemp	degC
NDUV Temperature	iNDUV_BT1	degC
NDUV Pressure	iNDUV_PRESSURE	kPa
Gas Analyzer Enclosure Temperature	NOXCaseTemp	degC
Status	Status	
Faults	Faults	
Gas Analyzer Current	GASCurrent	A
Exhaust Flow Meter Current	EFMCurrent	A
Sample Conditioning System Current	SCSCurrent	A
Heated Line Current	HTLCurrent	A
Auxiliary 1 Current	Aux1Current	A
Auxiliary 2 Current	Aux2Current	A
Auxiliary 3 Current	Aux3Current	A
Microcontroller Current	McuCurrent	A
Ethernet Switch Current	EthernetCurrent	A
Cab Module Current	CabModuleCurrent	A
Wireless AP Current	WiFiCurrent	A
Battery 1 Current	Batt1Current	A
Battery 2 Current	Batt2Current	A
Total Current	TotalCurrent	A
Battery 1 Voltage	Batt1Voltage	V
Battery 2 Voltage	Batt2Voltage	V
DC Rail Voltage	DCRailVoltage	V
Max. Input Voltage	MaxInputVoltage	V
Min. Input Voltage	MinInputVoltage	V
Amp Hours Consumed From Input 1	AmpHoursConsumedInput1	AH
Amp Hours Consumed From Input 2	AmpHoursConsumedInput2	AH
Catalyst Temperature	CatalystTemp	degC

Figure 3 – FCA Vehicle and Engine Parameters (cont.)

IV. Results

The following tables and figures summarize the PEMS emissions data. Each vehicle was driven on each test route at least once. In certain circumstances, a vehicle route may have been repeated. Accordingly, the results below reflect data from those initial tests and the repeats. However, when a test was deemed invalid due to missing PID channels requested by the Agencies, data from that invalid test were not included in the results below.

1. Vehicle 1 – LCRXT03.05PW – V0DT61577
RAM 1500 Rebel 3.0L Turbo ESS Automatic 8-speed 4WD

a. Summary Table(s)

Steady State	NOx (g/mile)	CO2 (g/mi)	CO (g/mi)	NMHC (g/mi)	HC (g/mi)
30	0.0001	284.2397	0.0090	0.0018	0.0125
50	0.0000	333.1117	0.0074	0.0003	0.0021
60	0.0001	382.9434	0.0143	0.0003	0.0014
65	0.0009	408.8133	0.0573	0.0007	0.0016
70	0.0022	445.0733	0.0883	0.0006	0.0017
65	0.0032	467.2132	0.0627	0.0005	0.0018
75	0.0043	489.2527	0.0578	0.0004	0.0019
80	0.0080	546.0617	0.0282	0.0003	0.0020
85	0.0095	583.6094	0.0205	0.0003	0.0021

Table 1.1: Vehicle 1 – Steady State
File: V0DT61577 SSPEMS010320062280

80 MPH Steady State Cruise	NOx (g/mile)	CO2 (g/mi)	CO (g/mi)	NMHC (g/mi)	HC (g/mi)
80	0.0045	538.3425	0.0541	0.0001	0.0020

Table 1.2: Vehicle 1 – 80 MPH Steady State C
File: V0DT61577_80SS45010420061780

Transient Cycle	NOx (g/mile)	CO2 (g/mi)	CO (g/mi)	NMHC (g/mi)	HC (g/mi)
Various	0.0793	471.5106	0.3426	0.0243	0.0317

Table 1.3: Vehicle 1 – Transient Cycle
File: V0DT61577_P-IUVP010320061780

b. Summary Plot(s)

i. Steady State PEMS Test

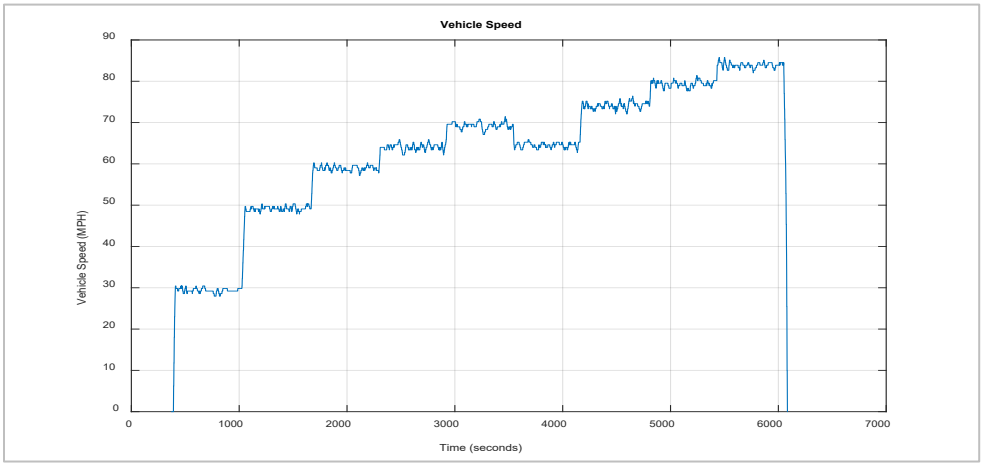


Figure 1.1.1: Vehicle 1 – Steady State Vehicle Speed

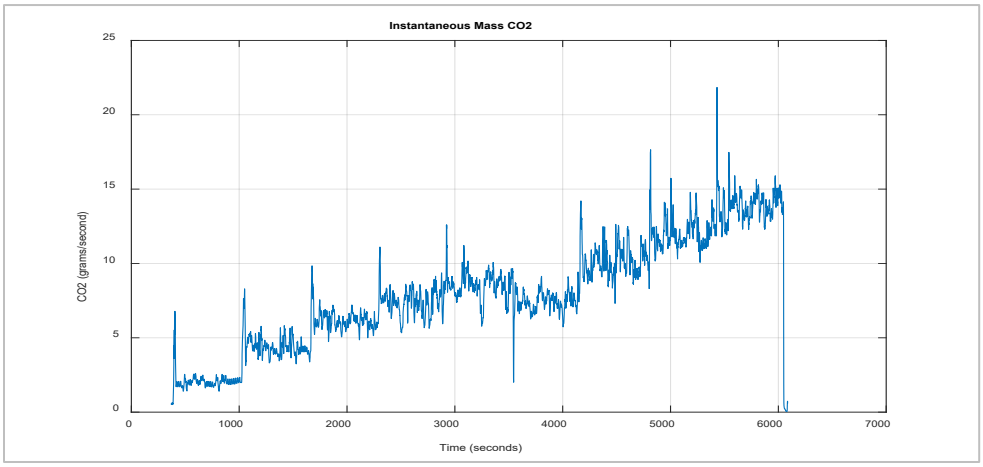


Figure 1.1.2: Vehicle 1 – Steady State Instantaneous Mass CO2

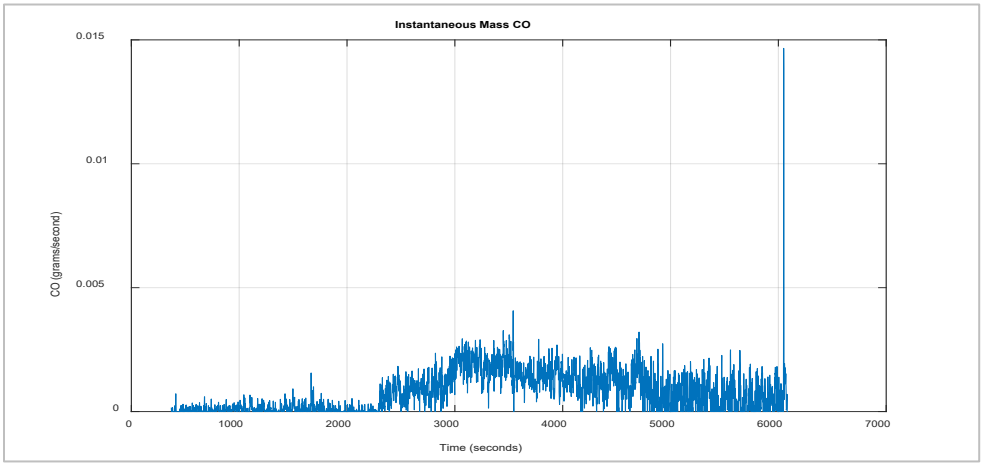


Figure 1.1.3: Vehicle 1 – Steady State Instantaneous Mass CO

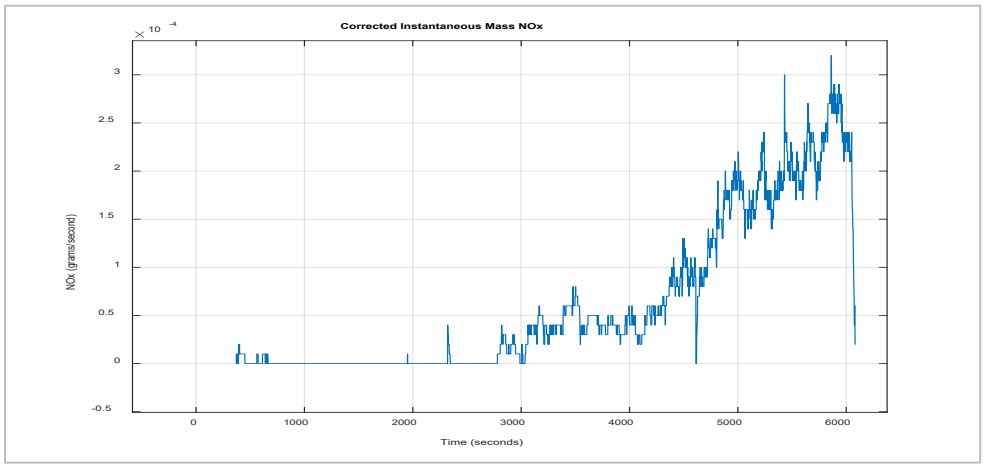


Figure 1.1.4: Vehicle 1 – Steady State Corrected Instantaneous Mass NOx

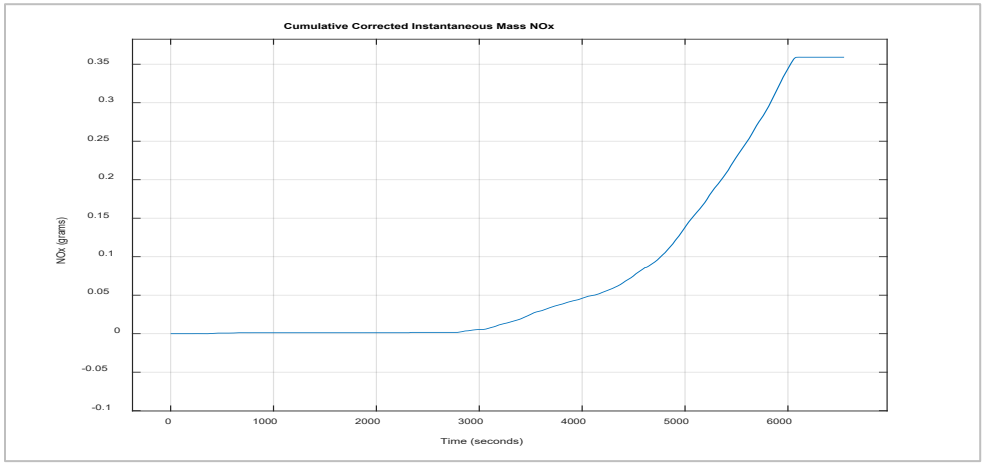


Figure 1.1.5: Vehicle 1 – Steady State Cumulative Corrected Instantaneous Mass NOx

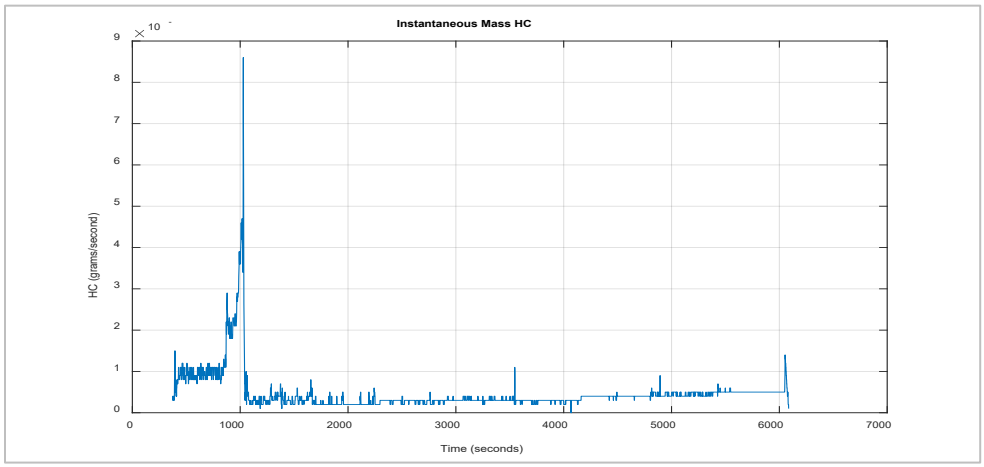


Figure 1.1.6: Vehicle 1 – Steady State Instantaneous Mass HC

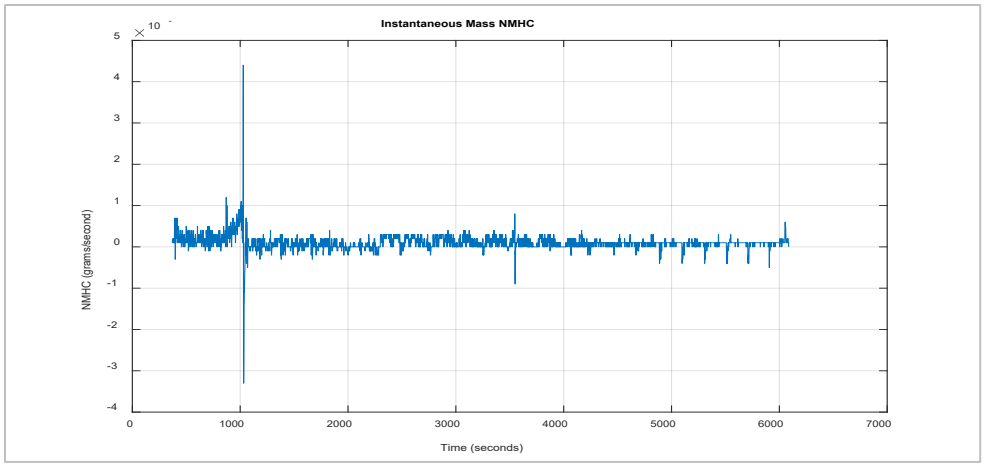


Figure 1.1.7: Vehicle 1 – Steady State Instantaneous Mass NMHC

ii. 80 MPH Steady State Cruise PEMS Test

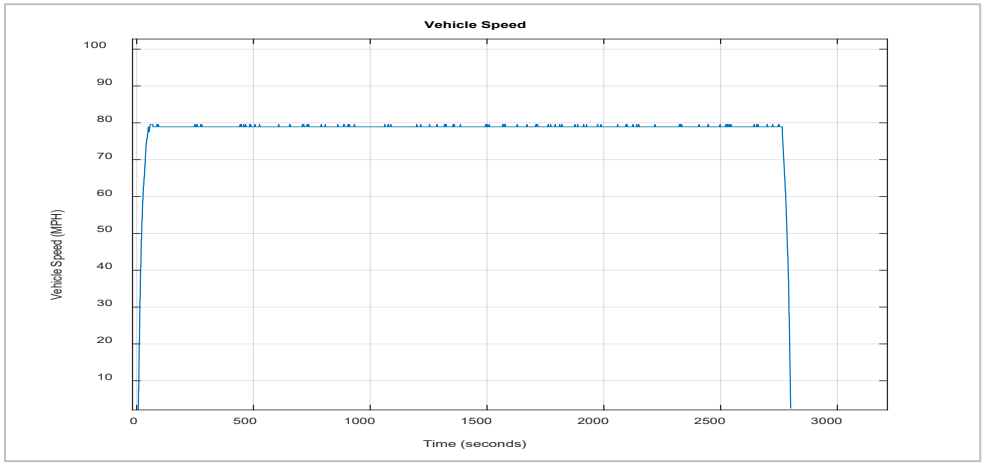


Figure 1.2.1: Vehicle 1 – 80 MPH Steady State Cruise Vehicle Speed

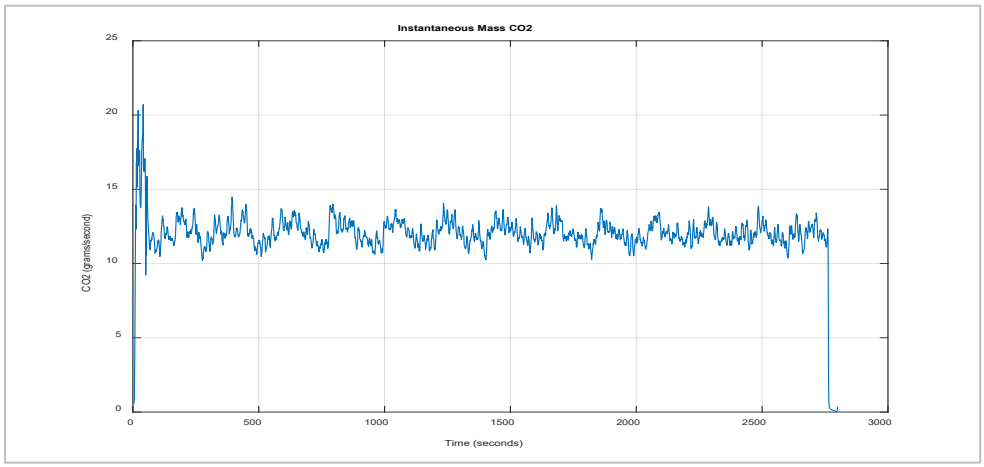


Figure 1.2.2: Vehicle 1 – 80 MPH Steady State Cruise Instantaneous Mass CO2

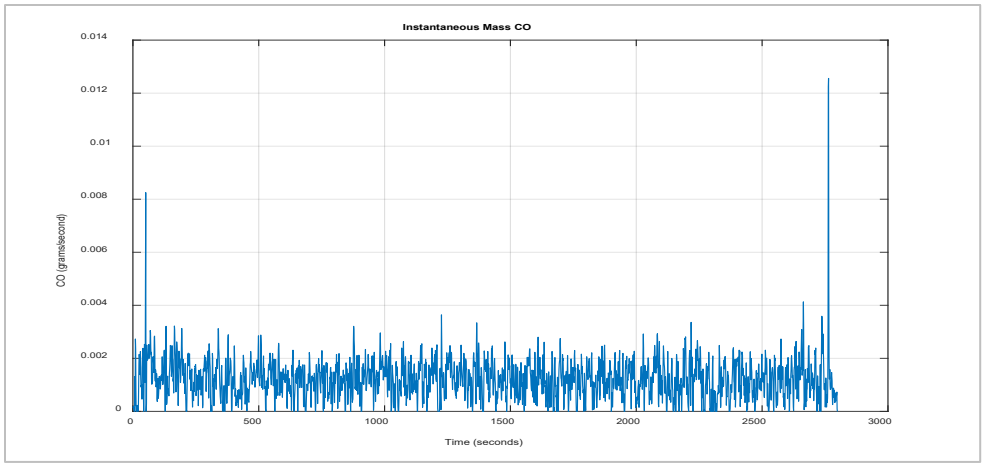


Figure 1.2.3: Vehicle 1 – 80 MPH Steady State Cruise Instantaneous Mass CO

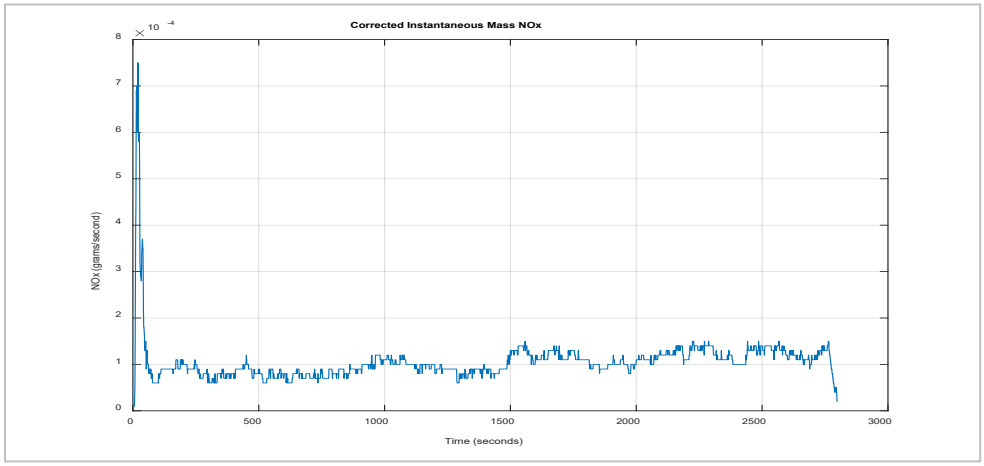


Figure 1.2.4: Vehicle 1 – 80 MPH Steady State Cruise Corrected Instantaneous Mass NOx

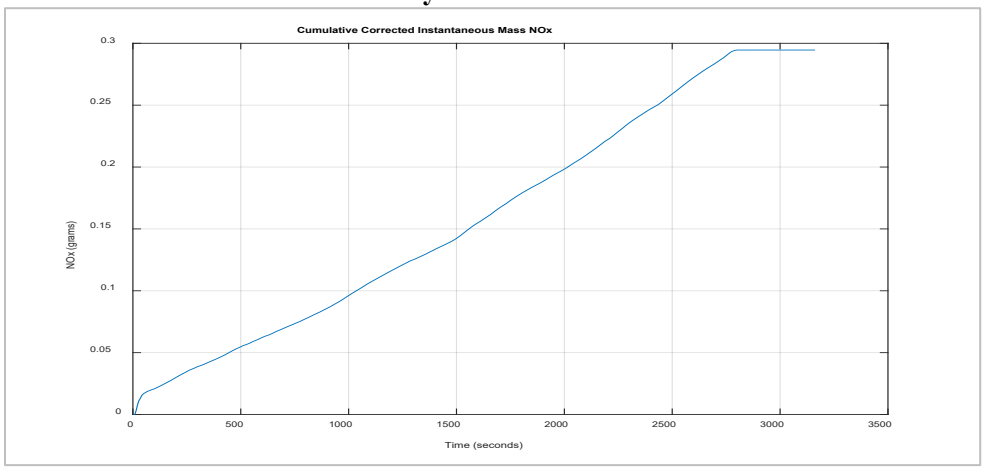


Figure 1.2.5: Vehicle 1 – 80 MPH Steady State Cruise Cumulative Corrected Instantaneous Mass NOx

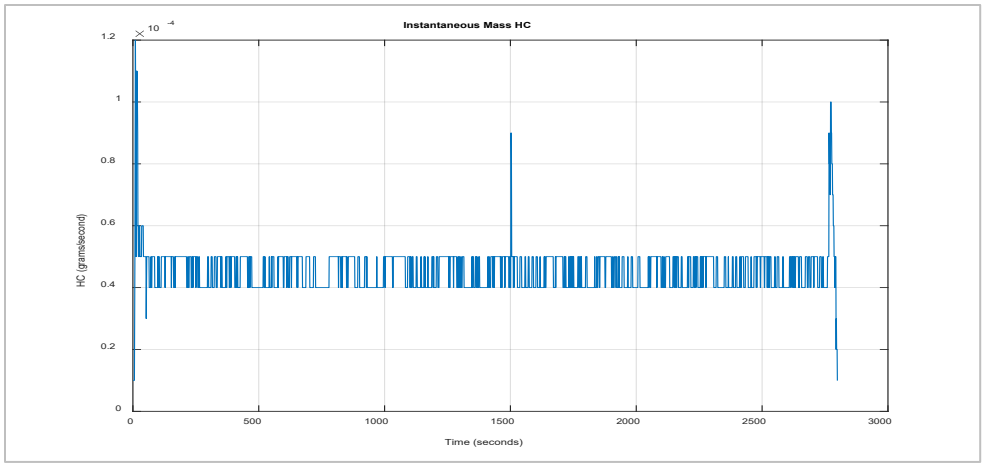


Figure 1.2.6: Vehicle 1 – 80 MPH Steady State Cruise Instantaneous Mass HC

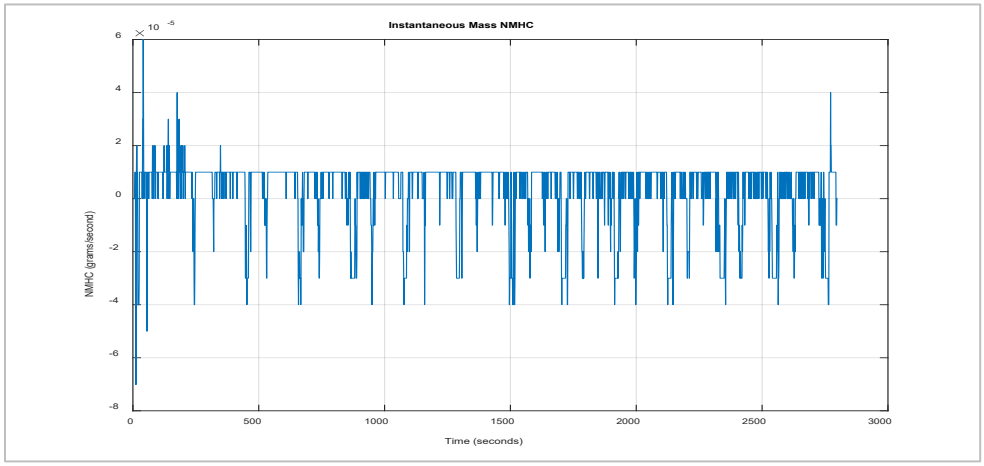


Figure 1.2.7: Vehicle 1 – 80 MPH Steady State Cruise Instantaneous Mass NMHC

iii. Transient Cycle PEMS Test

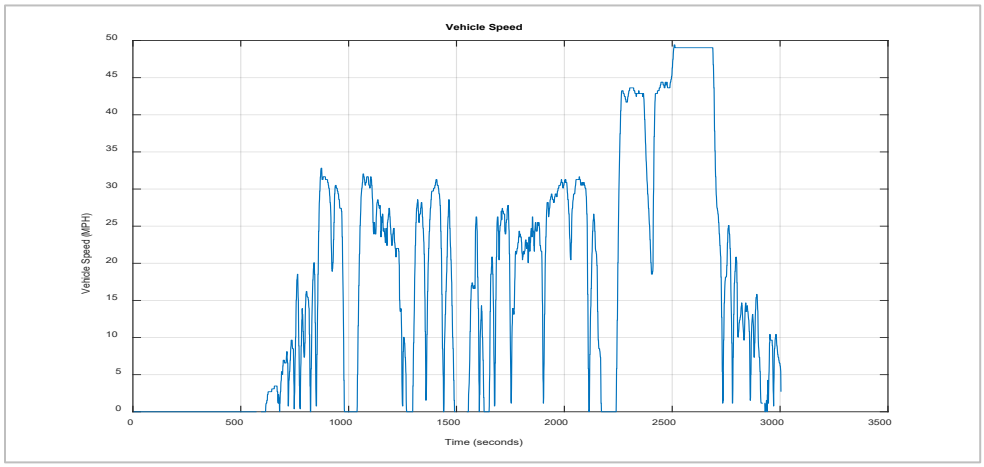


Figure 1.3.1: Vehicle 1 – Transient Cycle Vehicle Speed

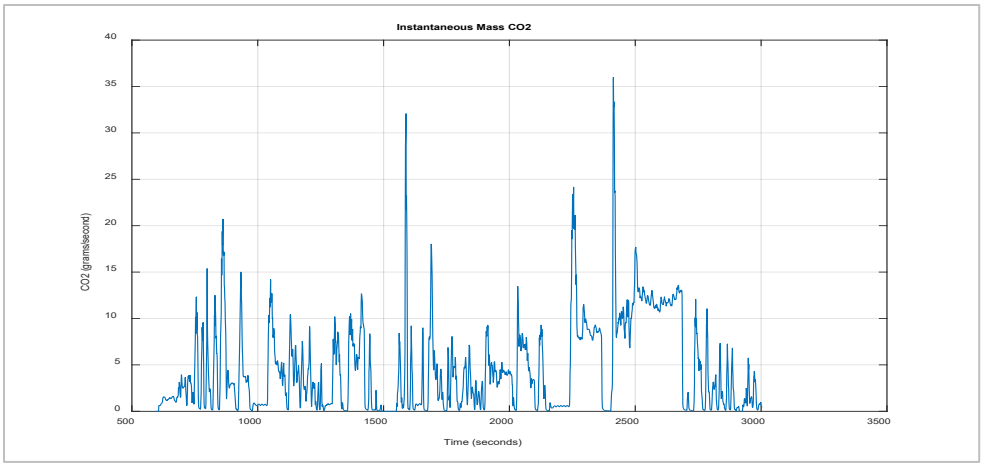


Figure 1.3.2: Vehicle 1 – Transient Cycle Instantaneous Mass CO2

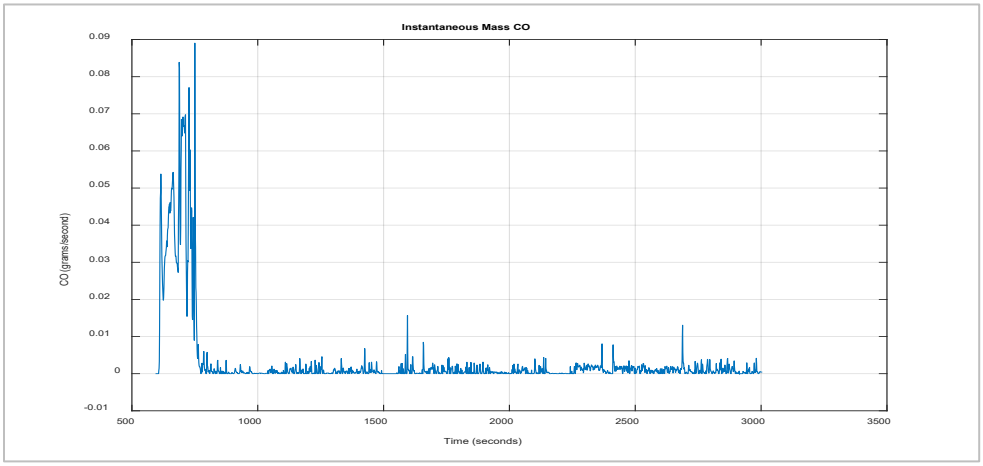


Figure 1.3.3: Vehicle 1 – Transient Cycle Instantaneous Mass CO

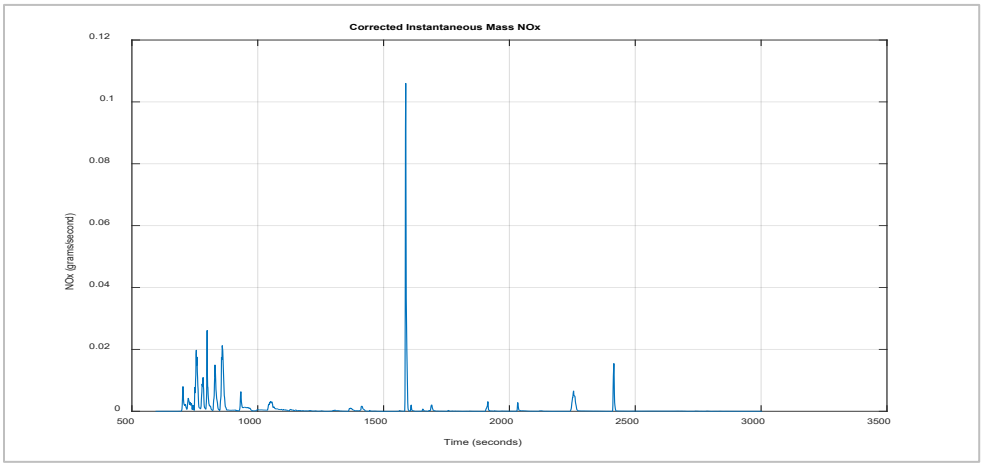


Figure 1.3.4: Vehicle 1 – Transient Cycle Corrected Instantaneous Mass NOx

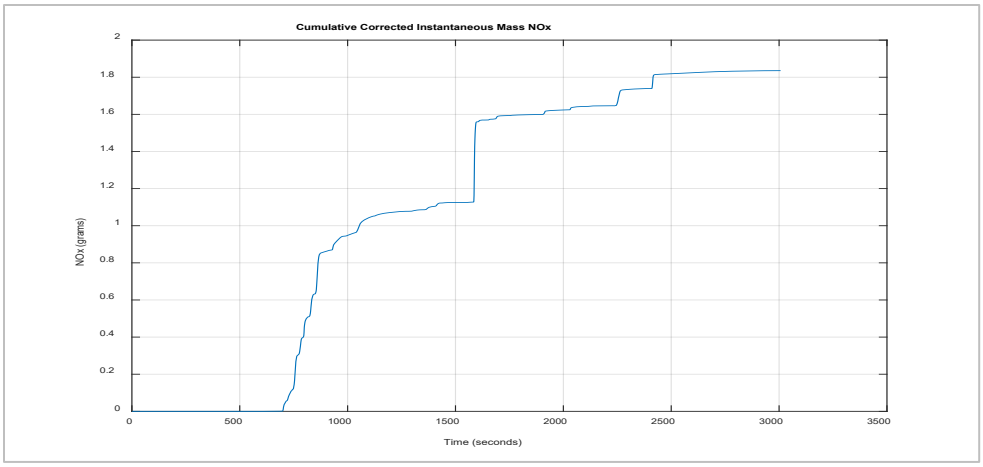


Figure 1.3.5: Vehicle 1 – Transient Cycle Cumulative Corrected Instantaneous Mass NOx

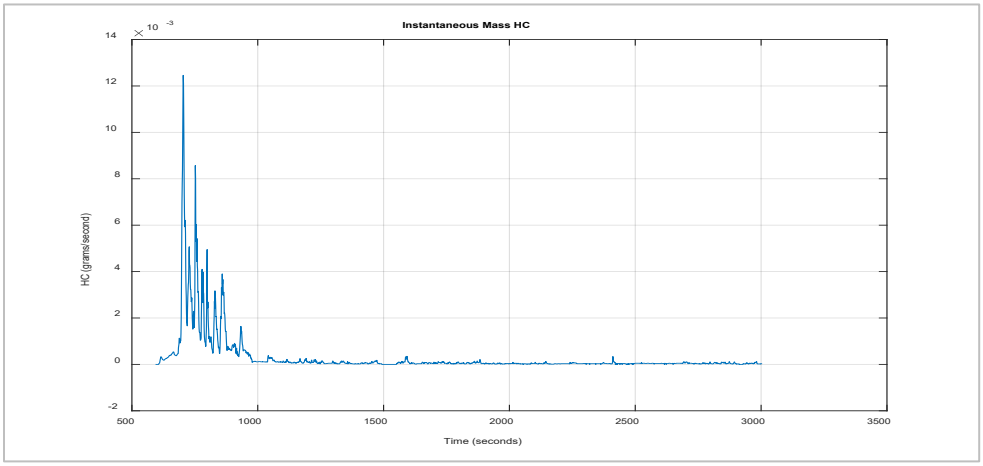


Figure 1.3.6: Vehicle 1 – Transient Cycle Instantaneous Mass HC

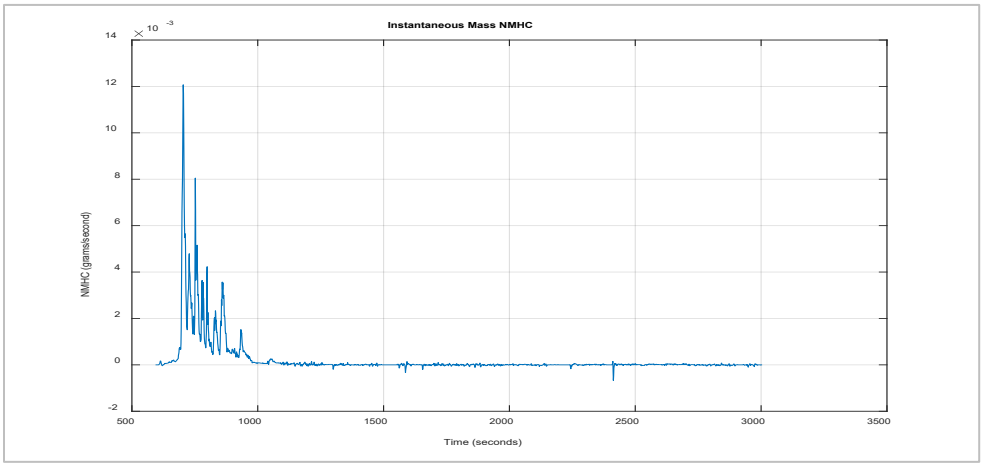


Figure 1.3.7: Vehicle 1 – Transient Cycle Instantaneous Mass NMHC

2. Vehicle 2 – LCRXT03.65P5 – V0WDD4712
Dodge Durango GT 3.6L ESS Automatic 8-speed RWD

a. Summary Table(s)

Steady State	NOx (g/mile)	CO2 (g/mi)	CO (g/mi)	NMHC (g/mi)	HC (g/mi)
30	0.0035	280.8540	0.0180	0.0000	0.0000
50	0.0046	295.6197	0.0444	0.0001	0.0001
60	0.0054	308.1675	0.0921	0.0014	0.0015
65	0.0058	316.8484	0.1048	0.0020	0.0022
70	0.0077	366.6972	0.1508	0.0117	0.0127
65	0.0060	314.8211	0.1068	0.0027	0.0029
75	0.0100	396.2250	0.2623	0.0266	0.0295
80	0.0118	439.3727	0.4920	0.0346	0.0395
85	0.0122	455.3401	0.5204	0.0264	0.0303

Table 2.1: Vehicle 2 – Steady State
File: V0WDD4712_SSPEMS010220062280

80 MPH Steady State Cruise	NOx (g/mile)	CO2 (g/mi)	CO (g/mi)	NMHC (g/mi)	HC (g/mi)
80	0.0079	418.7105	0.3087	0.0143	0.0144

Table 2.2: Vehicle 2 – 80 MPH Steady State Cruise
File: V0WDD4712_80SS45010220061980

Transient Cycle	NOx (g/mile)	CO2 (g/mi)	CO (g/mi)	NMHC (g/mi)	HC (g/mi)
Various	0.0102	465.6507	3.6312	0.0250	0.0369

Table 2.3: Vehicle 2 – Transient Cycle
File: V0WDD4712_P-IUVP010120061980

b. Summary Plot(s)

i. Steady State PEMS Test

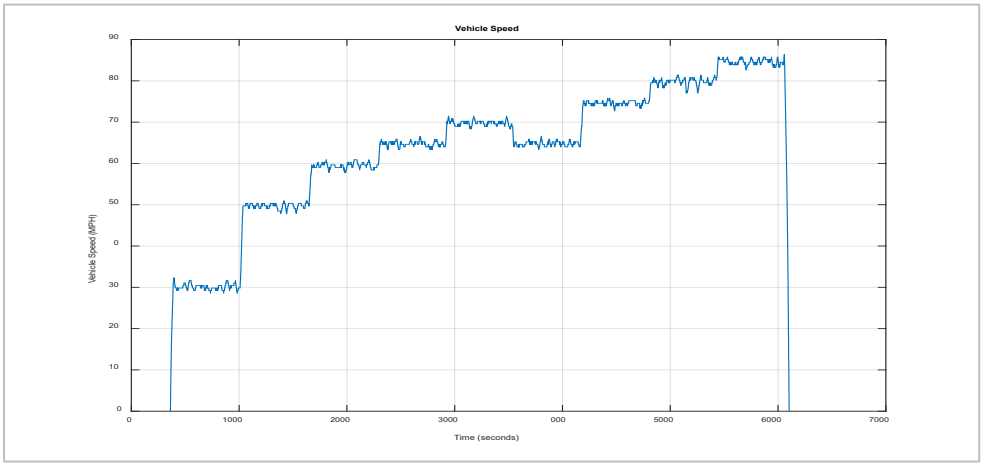


Figure 2.1.1: Vehicle 2 – Steady State Vehicle Speed

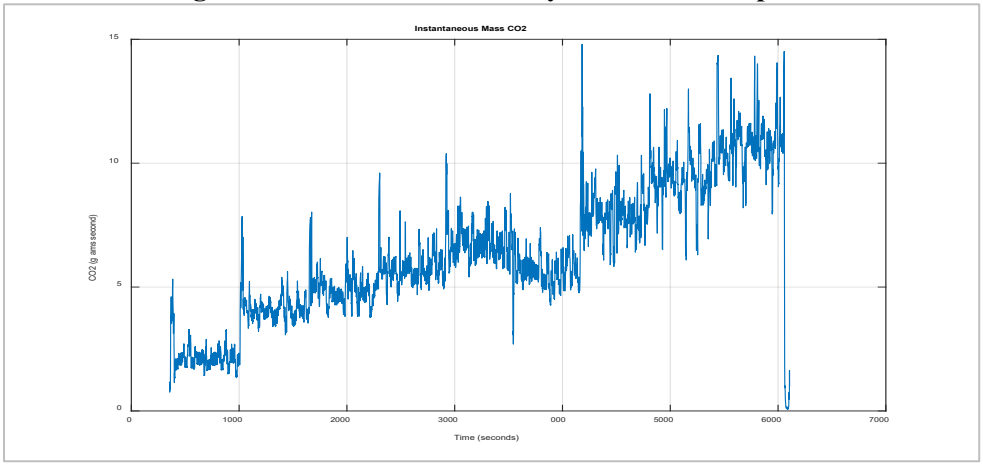


Figure 2.1.2: Vehicle 2 – Steady State Instantaneous Mass CO2

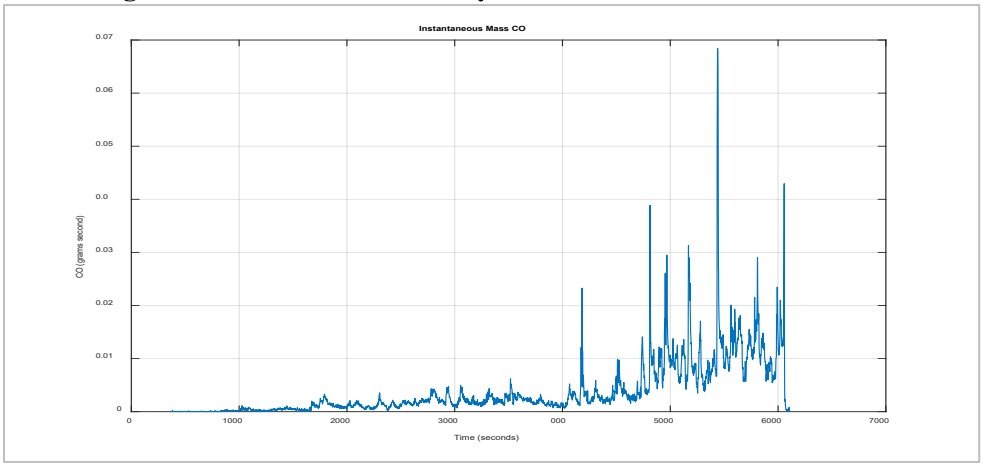


Figure 2.1.3: Vehicle 2 – Steady State Instantaneous Mass CO

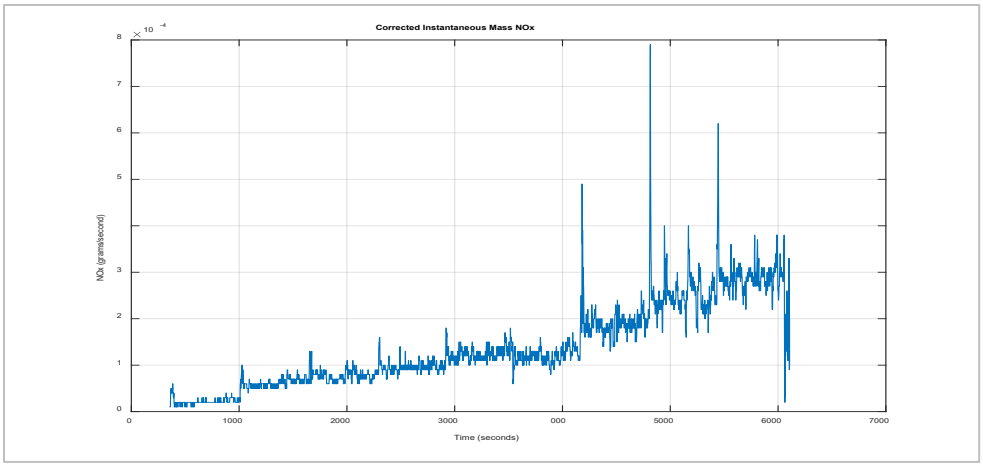


Figure 2.1.4: Vehicle 2 – Steady State Corrected Instantaneous Mass NOx

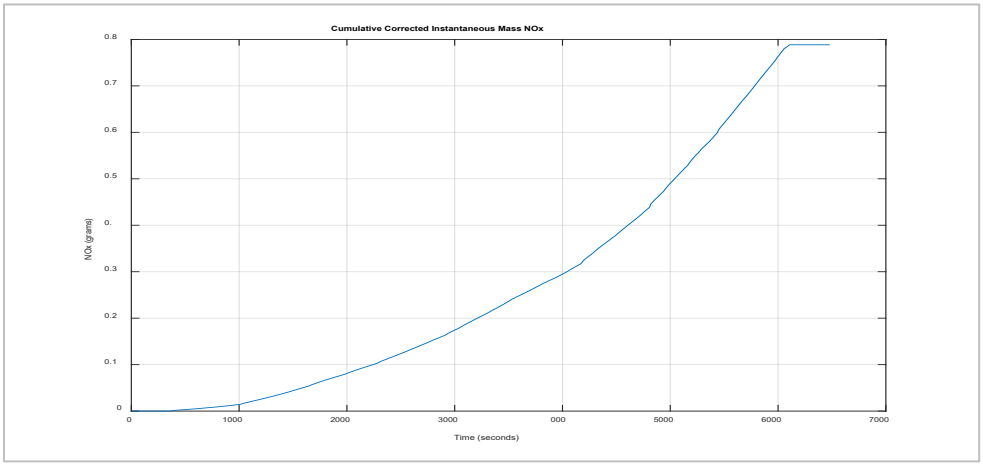


Figure 2.1.5: Vehicle 2 – Steady State Cumulative Corrected Instantaneous Mass NOx

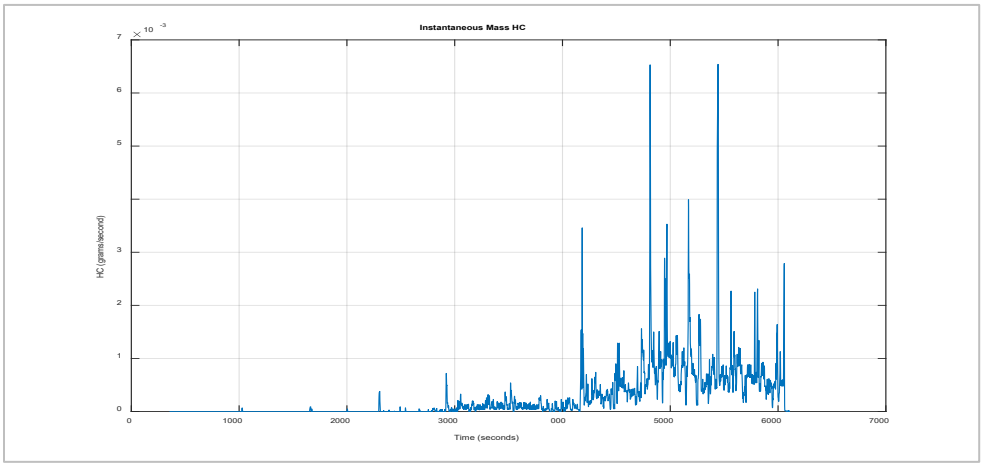


Figure 2.1.6: Vehicle 2 – Steady State Instantaneous Mass HC

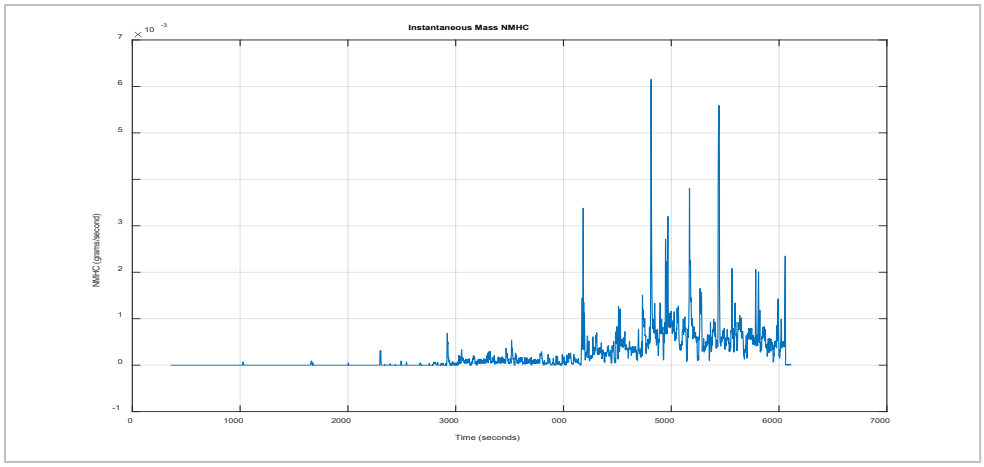


Figure 2.1.7: Vehicle 2 – Steady State Instantaneous Mass NMHC

ii. 80 MPH Steady State Cruise PEMS Test

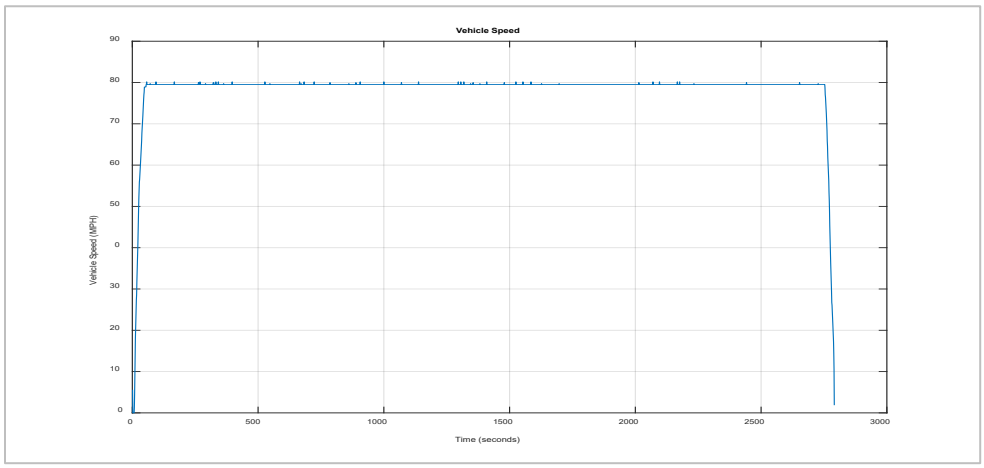


Figure 2.2.1: Vehicle 2 – 80 MPH Steady State Cruise Vehicle Speed

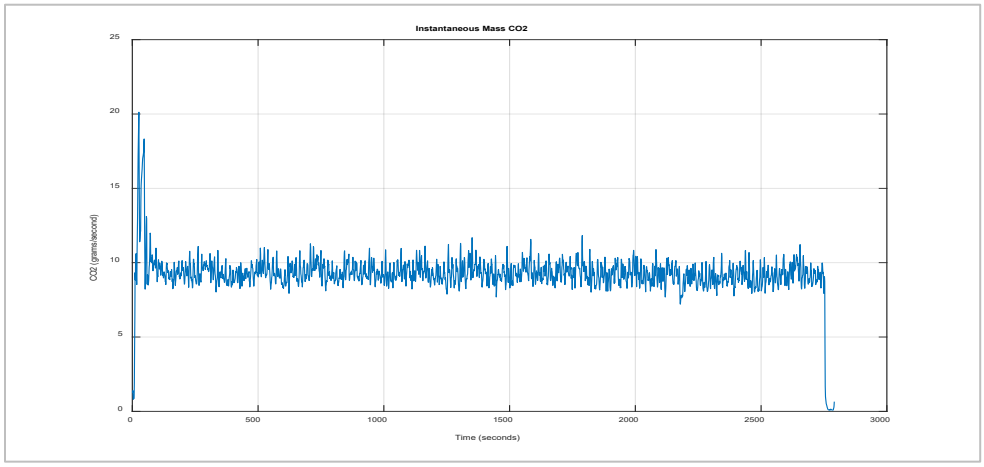


Figure 2.2.2: Vehicle 2 – 80 MPH Steady State Cruise Instantaneous Mass CO2

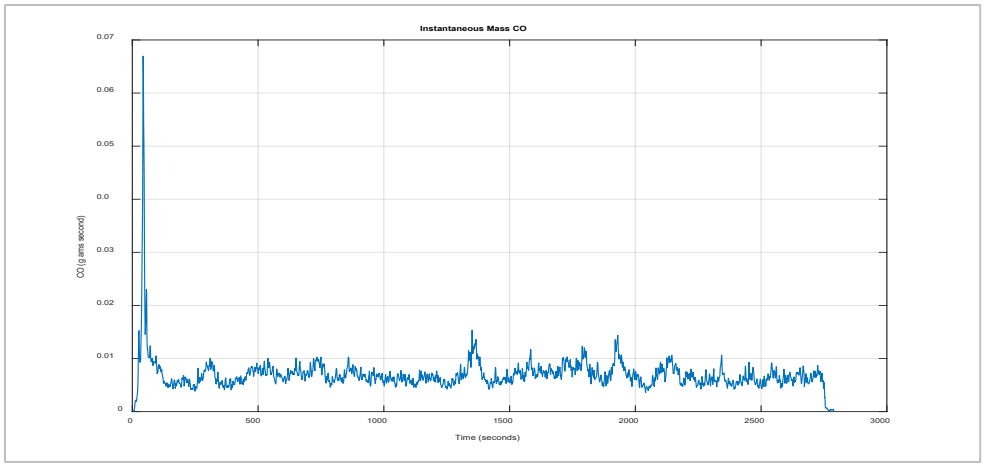


Figure 2.2.3: Vehicle 2 – 80 MPH Steady State Cruise Instantaneous Mass CO

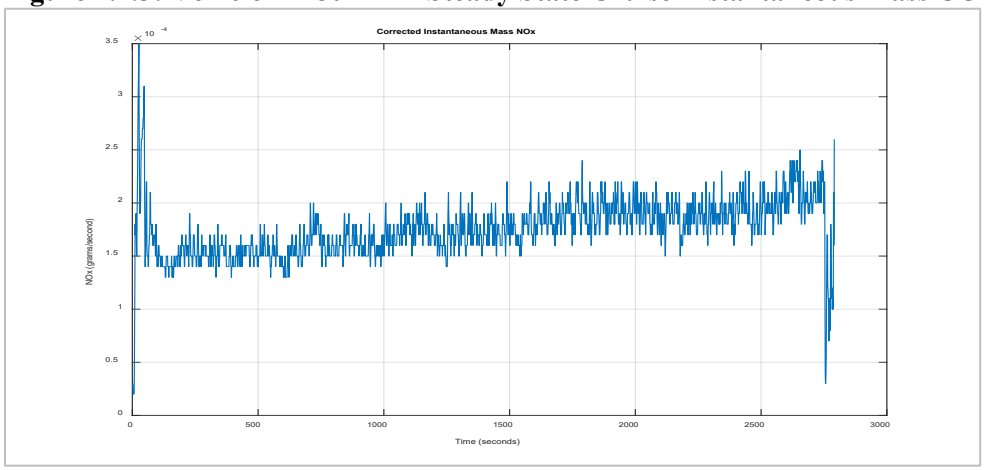


Figure 2.2.4: Vehicle 2 – 80 MPH Steady State Cruise Corrected Instantaneous Mass NOx

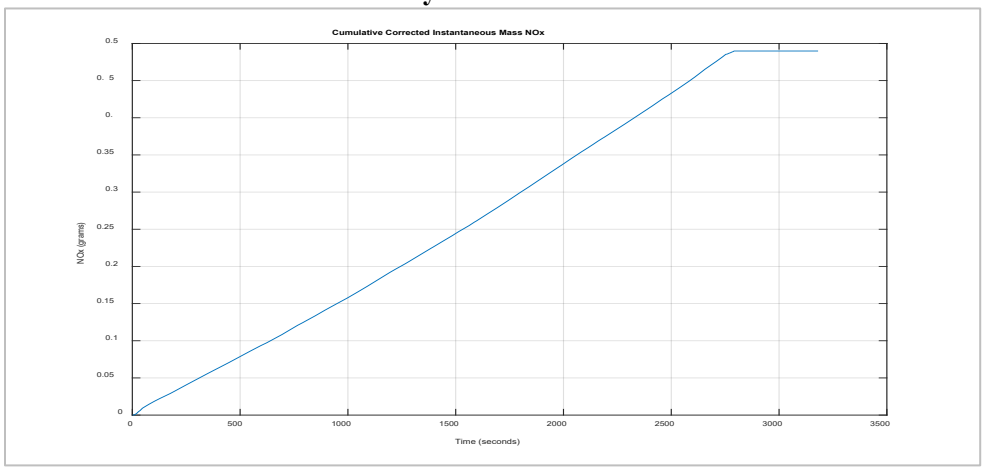


Figure 2.2.5: Vehicle 2 – 80 MPH Steady State Cruise Cumulative Corrected Instantaneous Mass NOx

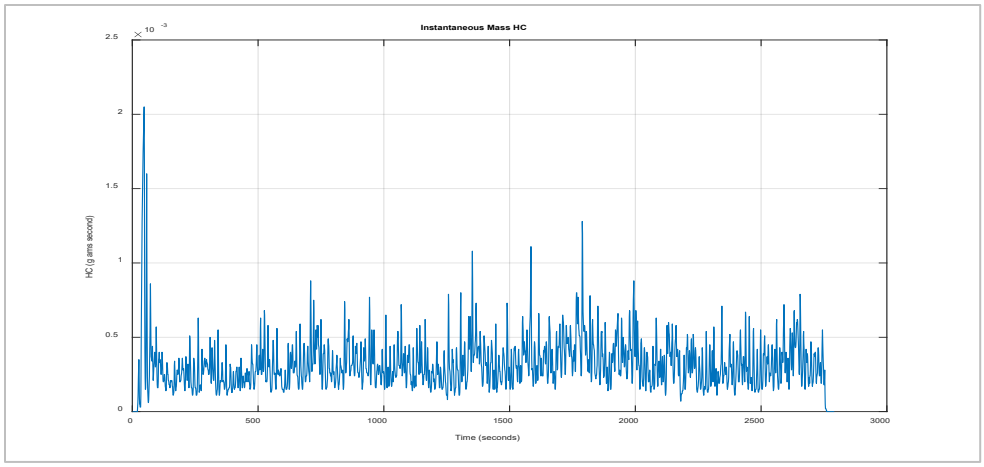


Figure 2.2.6: Vehicle 2 – 80 MPH Steady State Cruise Instantaneous Mass HC

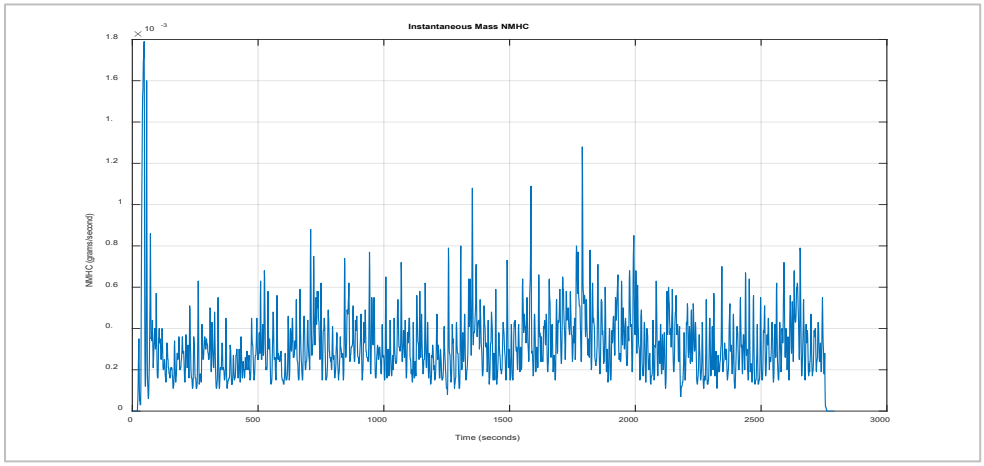


Figure 2.2.7: Vehicle 2 – 80 MPH Steady State Cruise Instantaneous Mass NMHC

iii. Transient Cycle PEMS Test

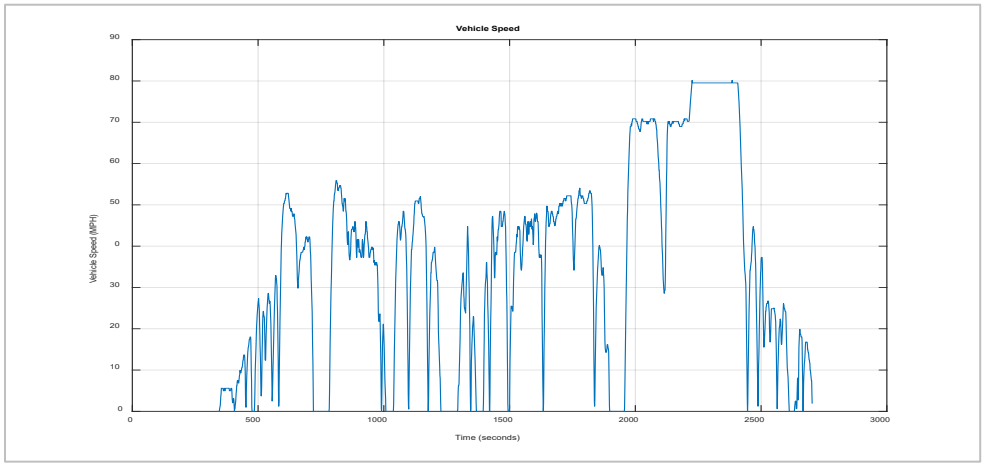


Figure 2.3.1: Vehicle 2 – Transient Cycle Vehicle Speed

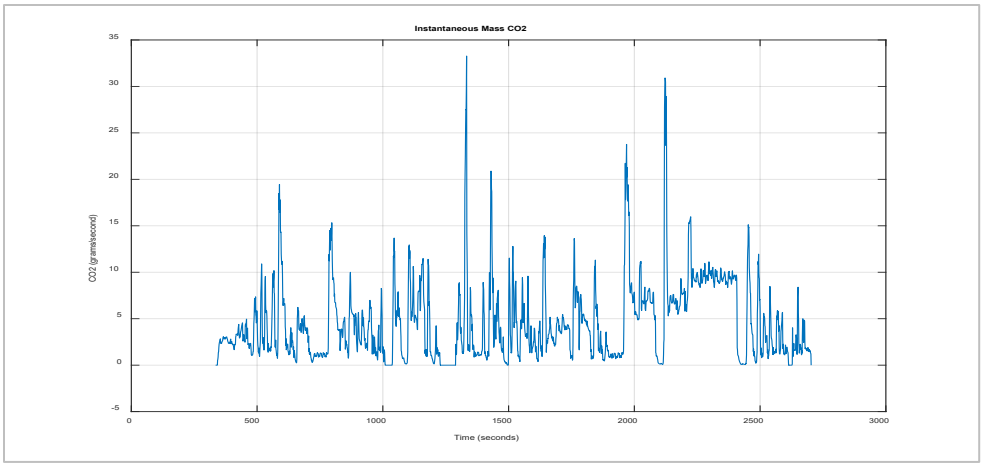


Figure 2.3.2: Vehicle 2 – Transient Cycle Instantaneous Mass CO2

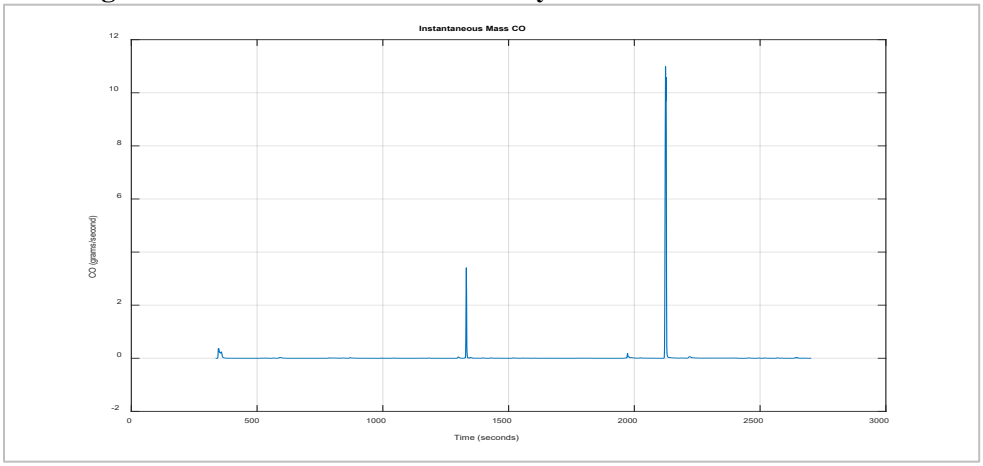


Figure 2.3.3: Vehicle 2 – Transient Cycle Instantaneous Mass CO

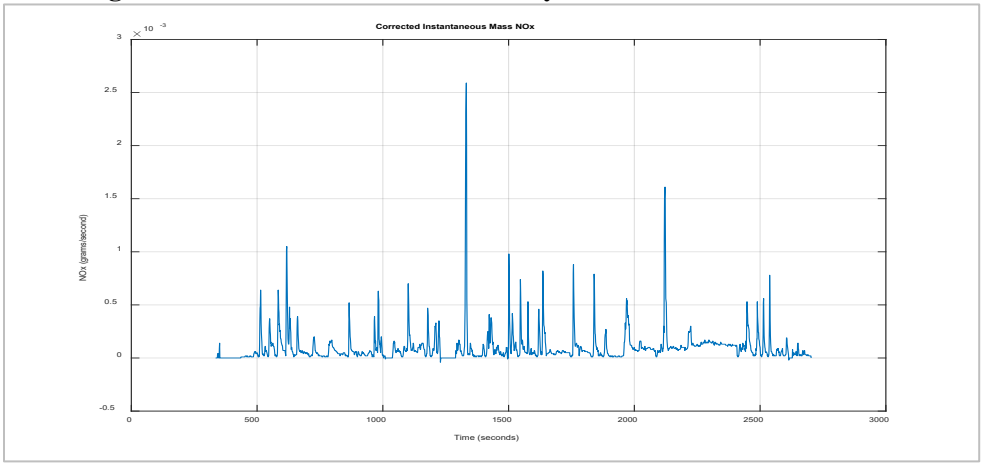


Figure 2.3.4: Vehicle 2 – Transient Cycle Corrected Instantaneous Mass NOx

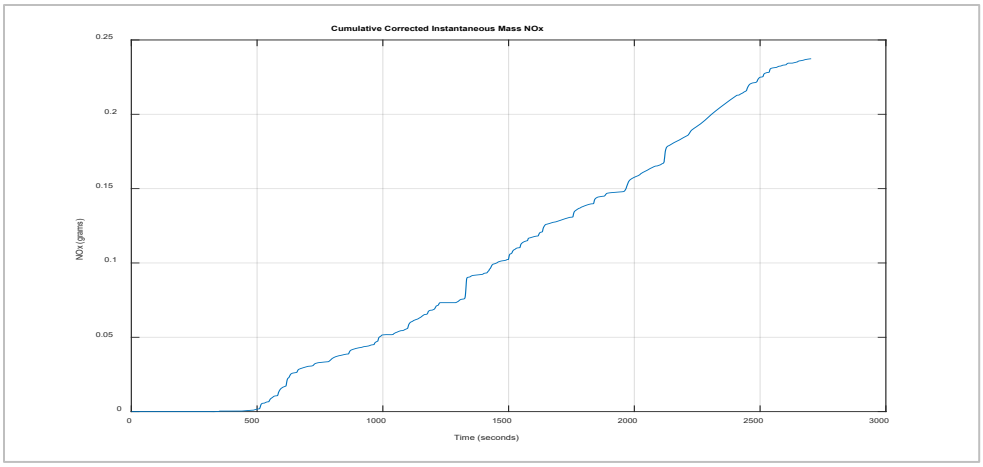


Figure 2.3.5: Vehicle 2 – Transient Cycle Cumulative Corrected Instantaneous Mass NOx

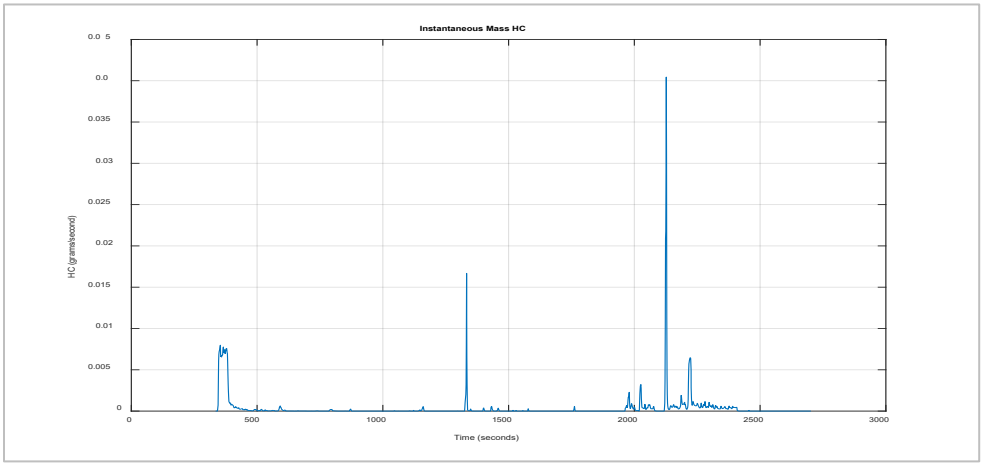


Figure 2.3.6: Vehicle 2 – Transient Cycle Instantaneous Mass HC

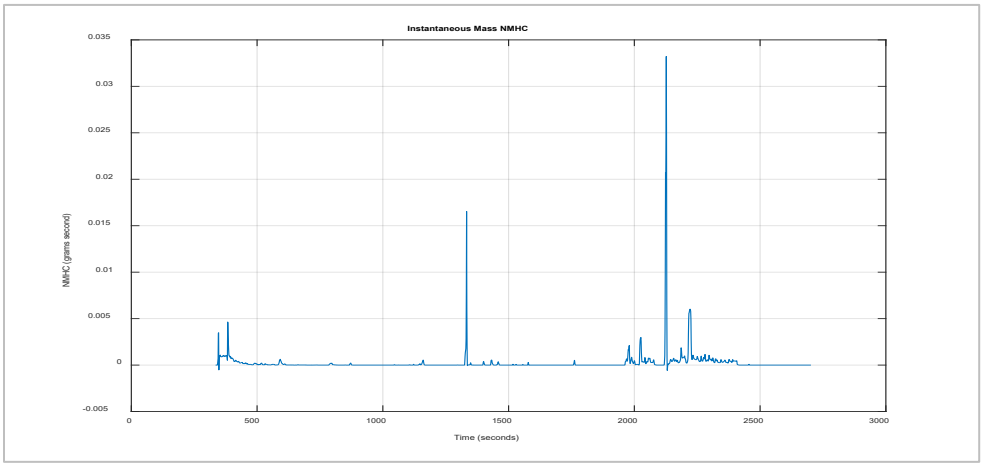


Figure 2.3.7: Vehicle 2 – Transient Cycle Instantaneous Mass NMHC

3. Vehicle 3 – LCRXV05.75P5 – V0LDD2393
Dodge Charger R/T 5.7L Automatic 8-speed RWD

a. Summary Table(s)

Steady State	NOx (g/mile)	CO2 (g/mi)	CO (g/mi)	NMHC (g/mi)	HC (g/mi)
30	0.0002	275.4003	0.1586	0.0005	0.0013
50	0.0025	263.3380	0.3234	0.0062	0.0126
60	0.0050	311.9540	0.4223	0.0099	0.0193
65	0.0059	330.1187	0.3398	0.0082	0.0154
70	0.0072	351.3083	0.2259	0.0029	0.0085
65	0.0063	329.2040	0.2965	0.0067	0.0132
75	0.0075	377.4210	0.2755	0.0022	0.0087
80	0.0097	418.9602	0.2708	0.0011	0.0065
85	0.0119	439.5914	0.2886	0.0006	0.0055

Table 3.1: Vehicle 3 – Steady State
File: V0LDD2393 SSPEMS010420072180

80 MPH Steady State Cruise	NOx (g/mile)	CO2 (g/mi)	CO (g/mi)	NMHC (g/mi)	HC (g/mi)
80	0.0096	390.2136	0.2709	0.0032	0.0038

Table 3.2: Vehicle 3 – 80 MPH Steady State Cruise
File: V0LDD2393_80SS45010420072280

Transient Cycle	NOx (g/mile)	CO2 (g/mi)	CO (g/mi)	NMHC (g/mi)	HC (g/mi)
Various	0.0125	493.9052	3.8636	0.0163	0.0270

Table 3.3: Vehicle 3 – Transient Cycle
File: V0LDD2393_P-IUVP010420072380

b. Summary Plot(s)

i. Steady State PEMS Test

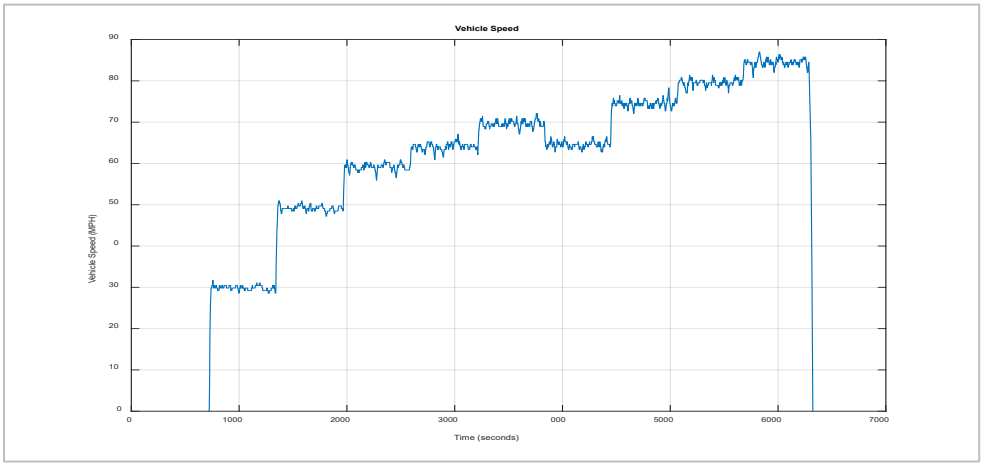


Figure 3.1.1: Vehicle 3 – Steady State Vehicle Speed

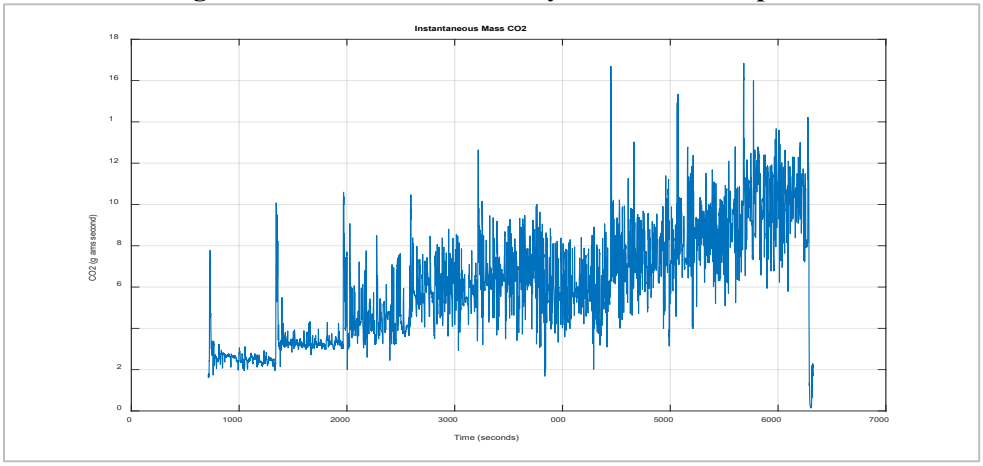


Figure 3.1.2: Vehicle 3 – Steady State Instantaneous Mass CO2

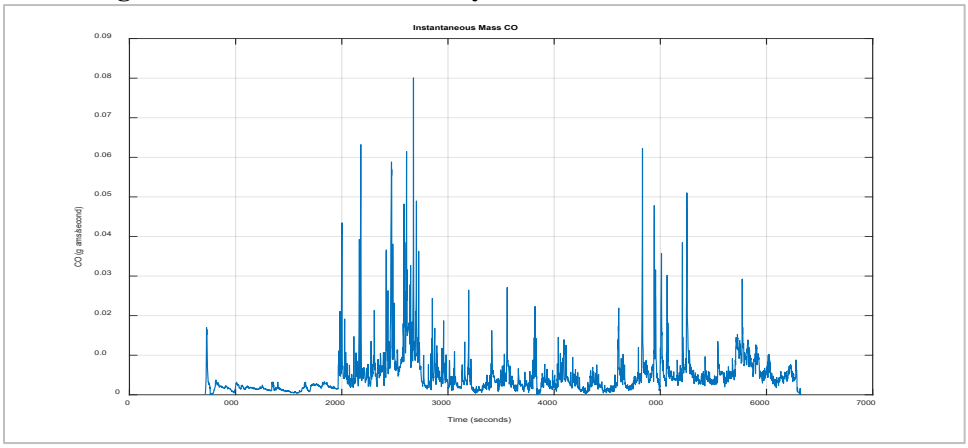


Figure 3.1.3: Vehicle 3 – Steady State Instantaneous Mass CO

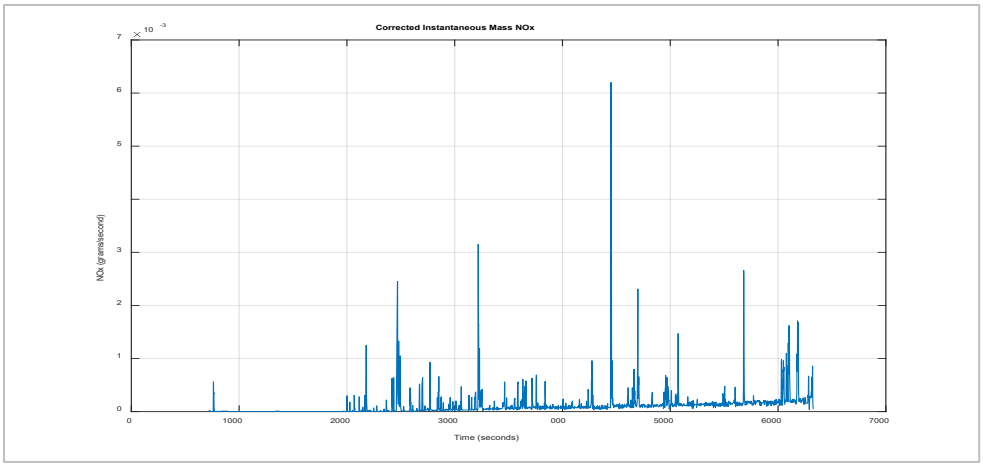


Figure 3.1.4: Vehicle 3 – Steady State Corrected Instantaneous Mass NOx

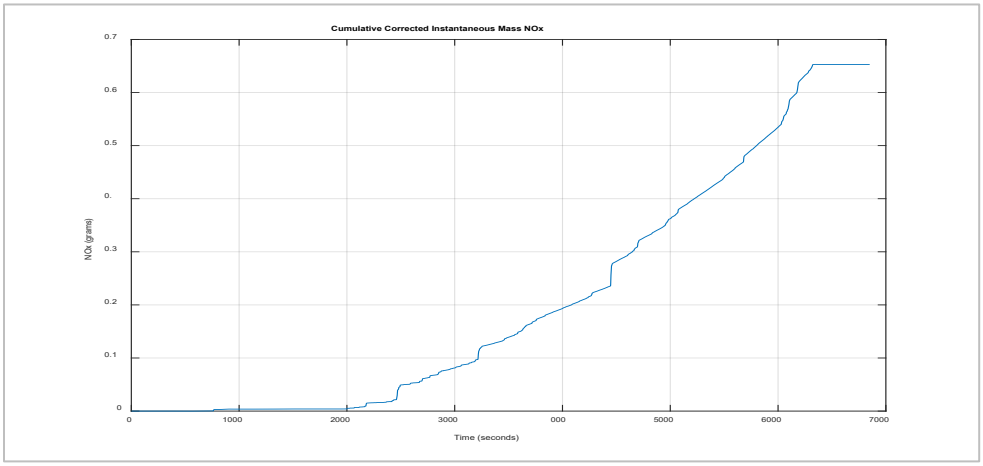


Figure 3.1.5: Vehicle 3 – Steady State Cumulative Corrected Instantaneous Mass NOx

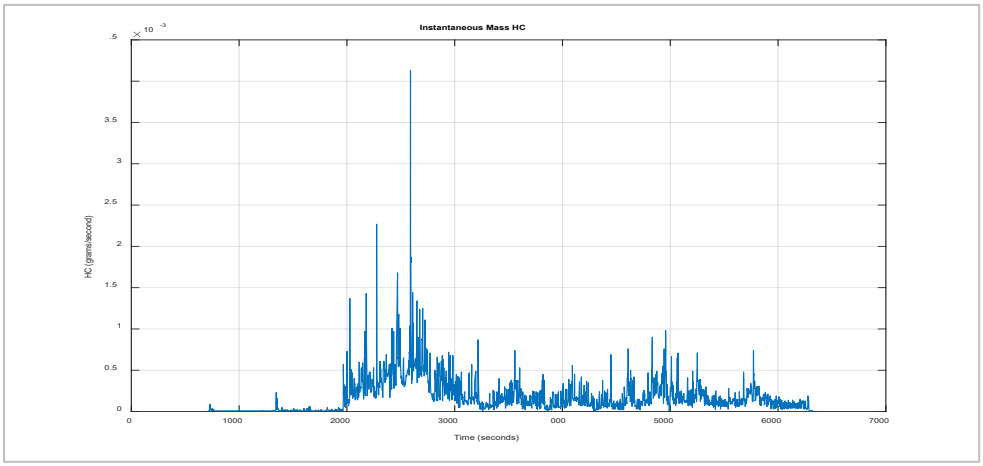


Figure 3.1.6: Vehicle 3 – Steady State Instantaneous Mass HC

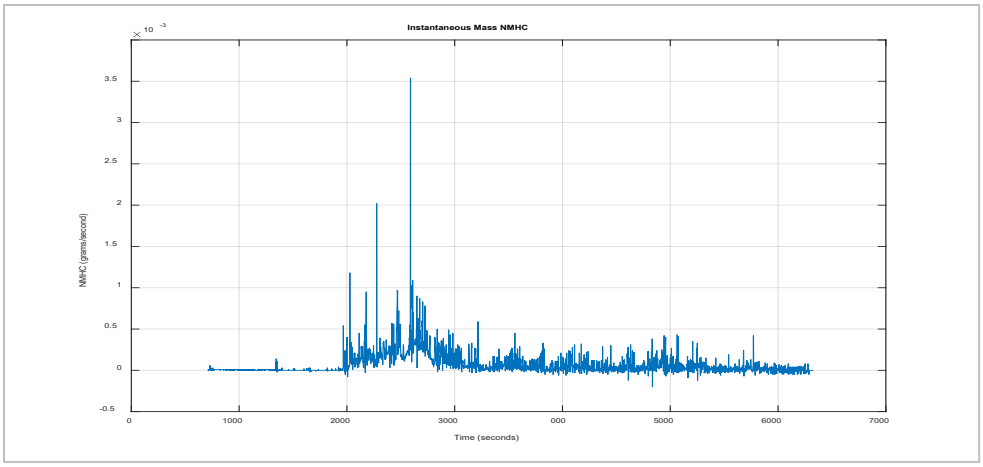


Figure 3.1.7: Vehicle 3 – Steady State Instantaneous Mass NMHC

ii. 80 MPH Steady State Cruise PEMS Test

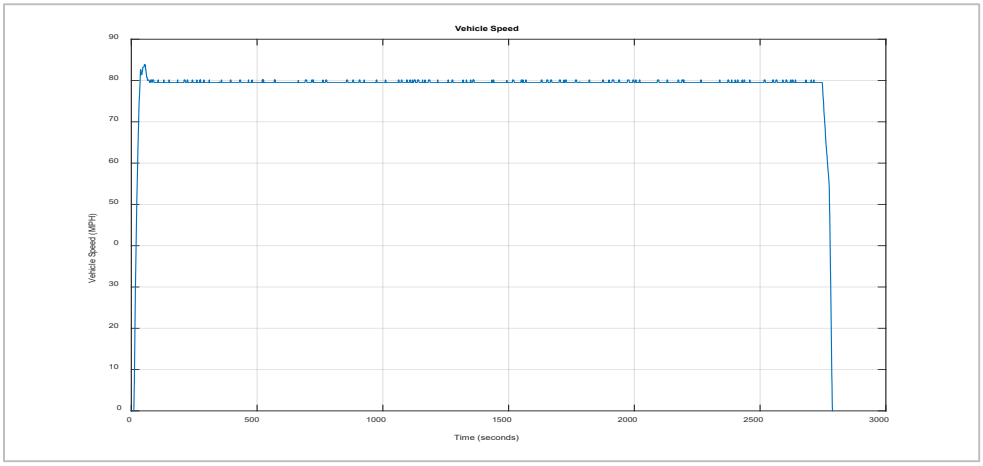


Figure 3.2.1: Vehicle 3 – 80 MPH Steady State Cruise Vehicle Speed

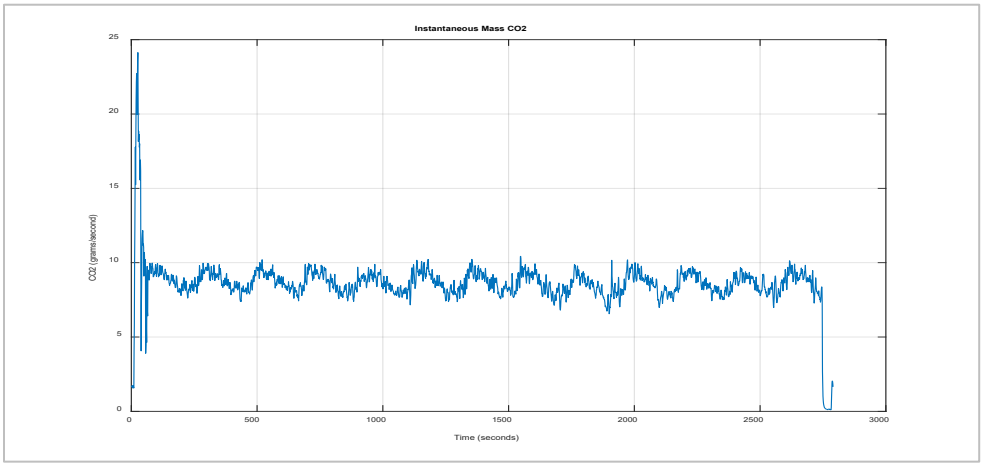


Figure 3.2.2: Vehicle 3 – 80 MPH Steady State Cruise Instantaneous Mass CO2

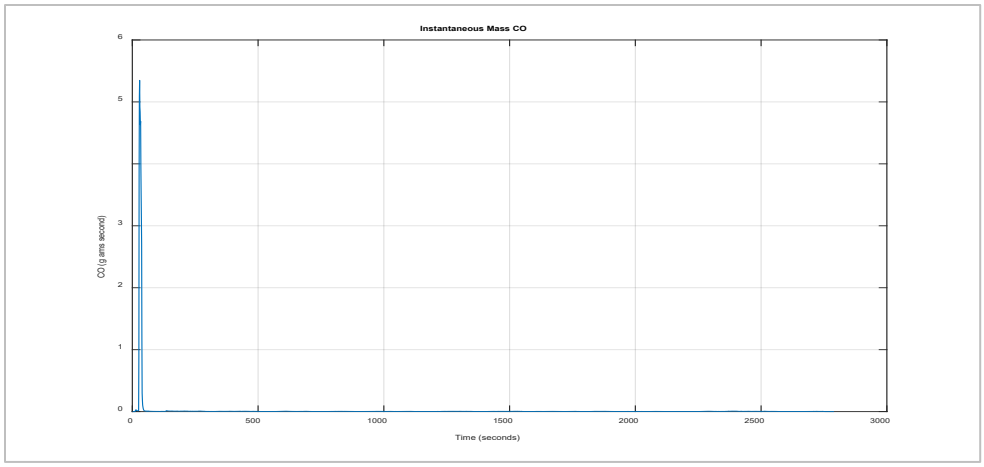


Figure 3.2.3: Vehicle 3 – 80 MPH Steady State Cruise Instantaneous Mass CO

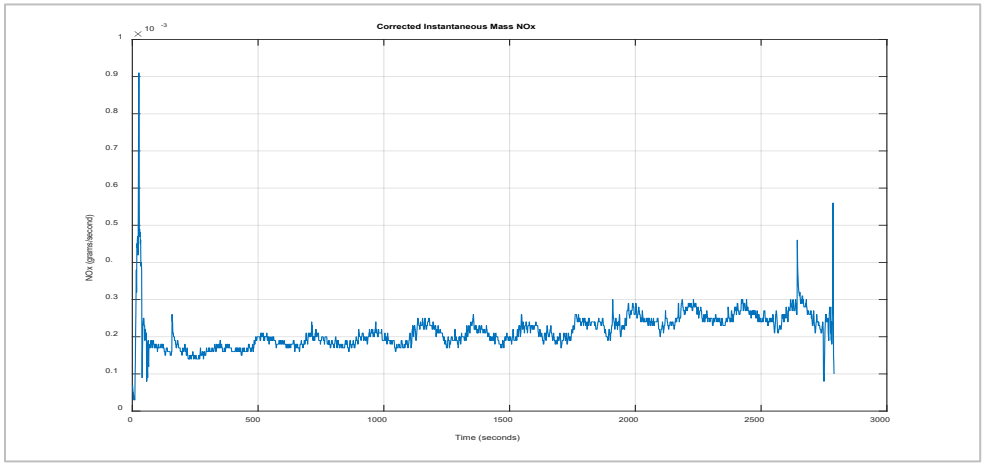


Figure 3.2.4: Vehicle 3 – 80 MPH Steady State Cruise Corrected Instantaneous Mass NOx

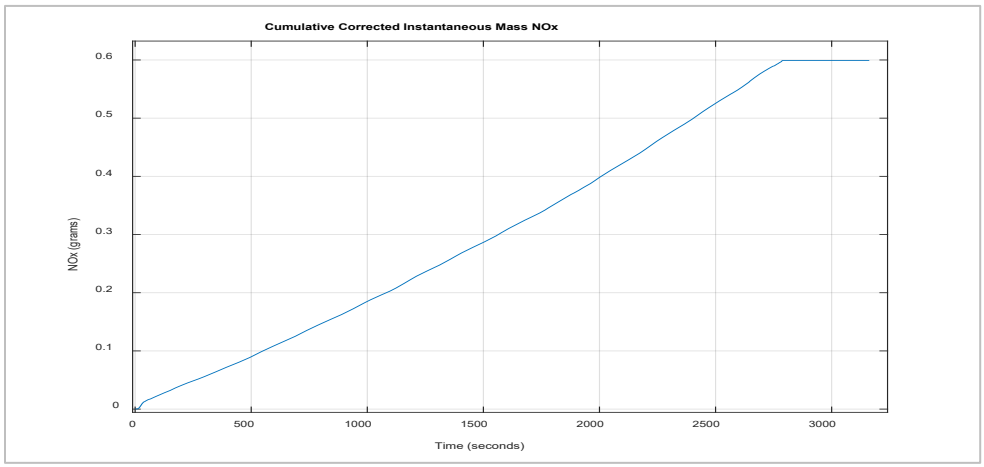


Figure 3.2.5: Vehicle 3 – 80 MPH Steady State Cruise Cumulative Corrected Instantaneous Mass NOx

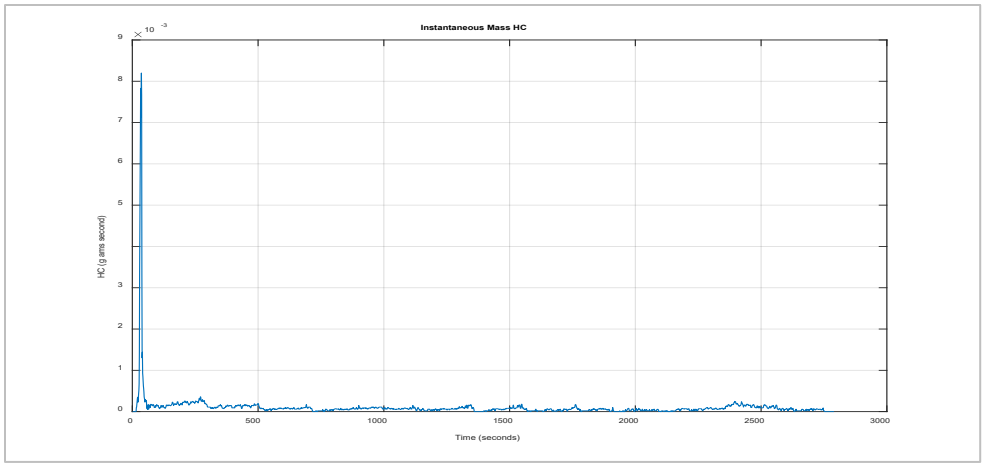


Figure 3.2.6: Vehicle 3 – 80 MPH Steady State Cruise Instantaneous Mass HC

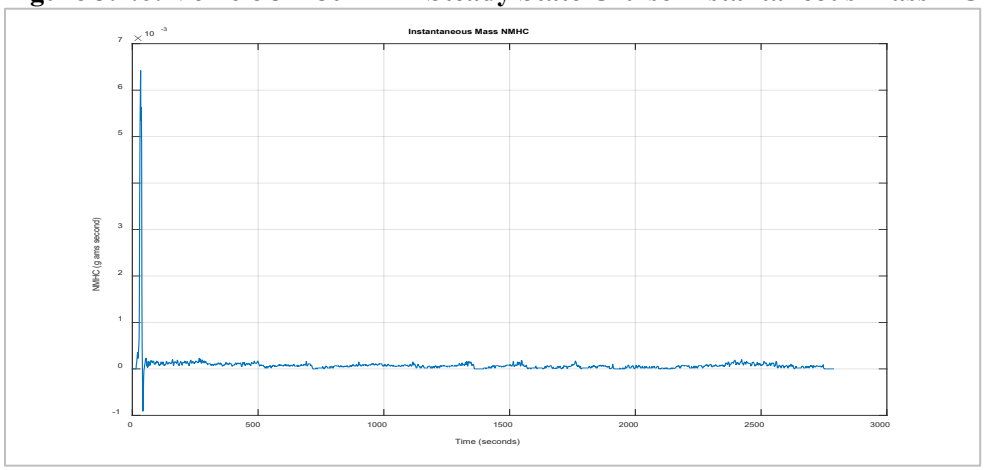


Figure 3.2.7: Vehicle 3 – 80 MPH Steady State Cruise Instantaneous Mass NMHC

iii. Transient Cycle PEMS Test

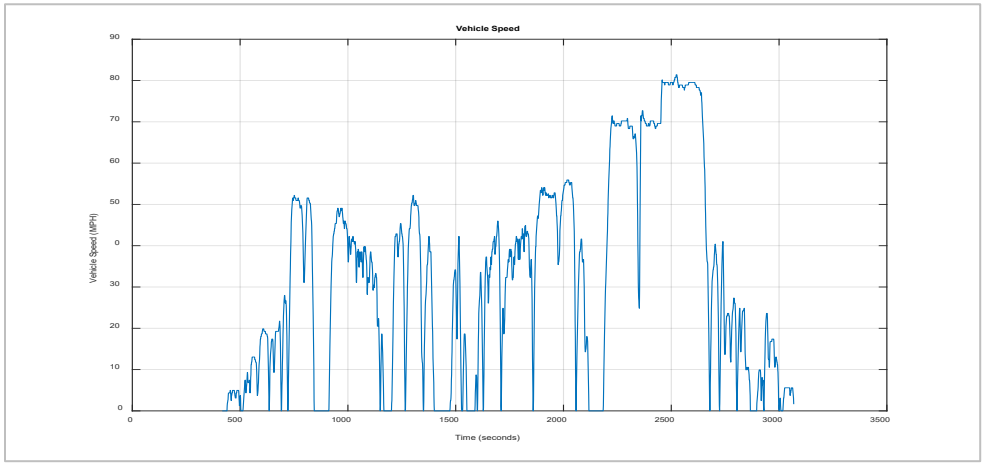


Figure 3.3.1: Vehicle 3 – Transient Cycle Vehicle Speed

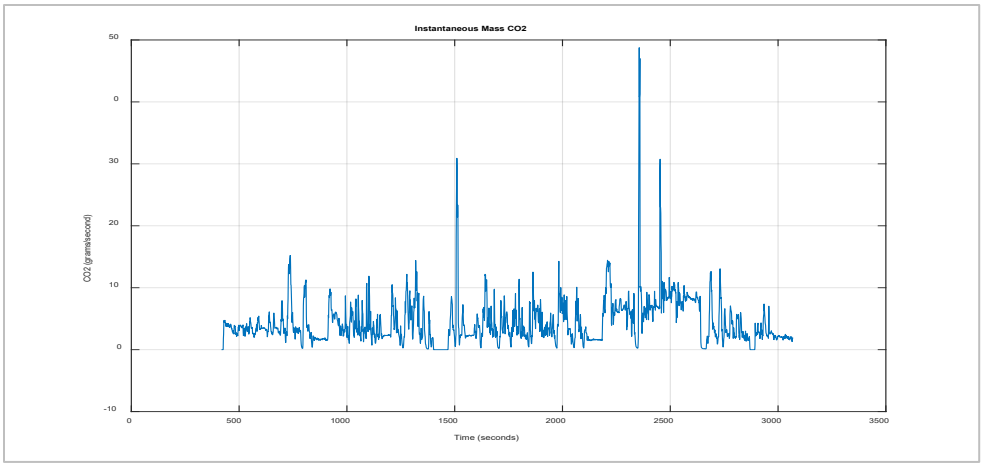


Figure 3.3.2: Vehicle 3 – Transient Cycle Instantaneous Mass CO2

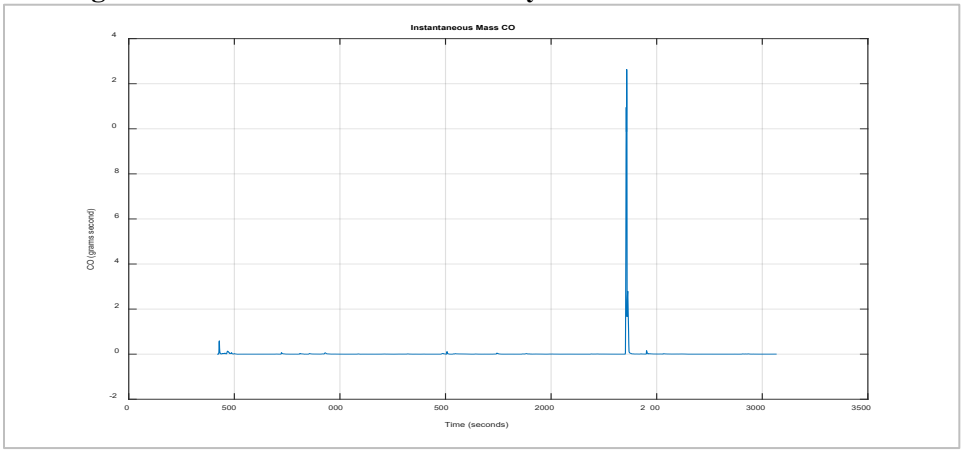


Figure 3.3.3: Vehicle 3 – Transient Cycle Instantaneous Mass CO

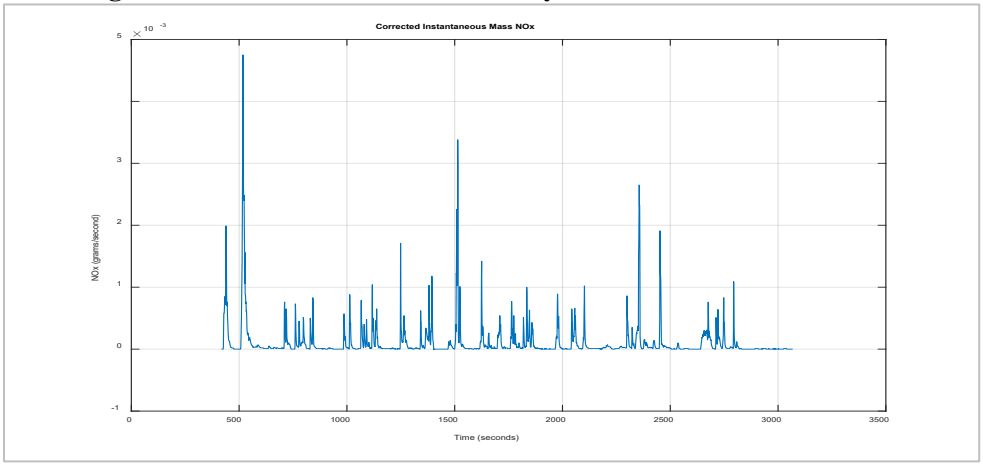


Figure 3.3.4: Vehicle 3 – Transient Cycle Corrected Instantaneous Mass NOx

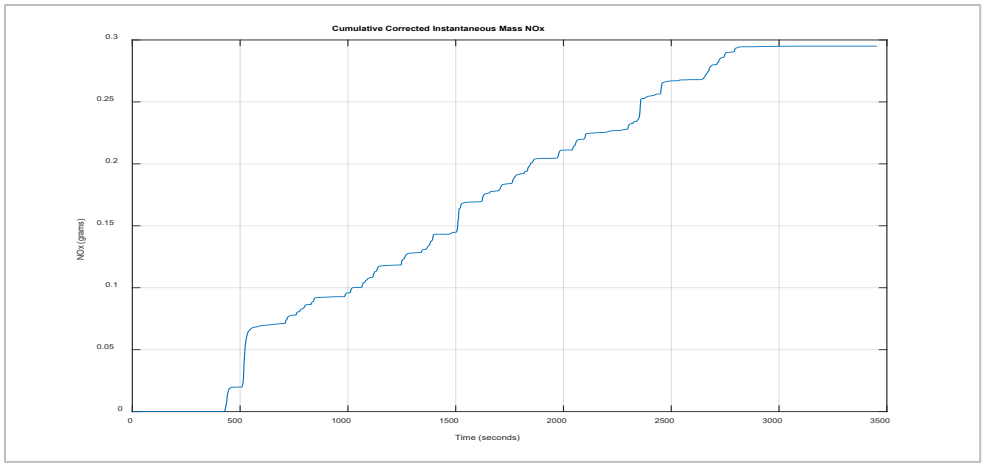


Figure 3.3.5: Vehicle 3 – Transient Cycle Cumulative Corrected Instantaneous Mass NOx

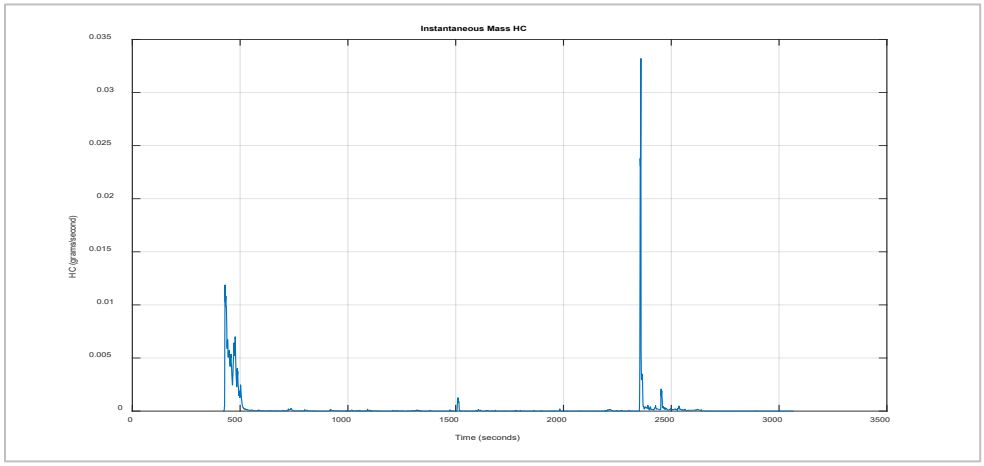


Figure 3.3.6: Vehicle 3 – Transient Cycle Instantaneous Mass HC

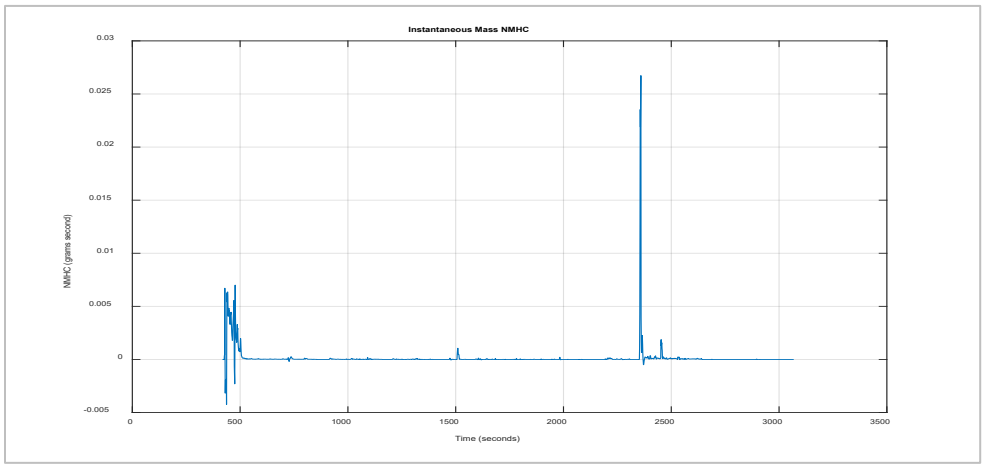


Figure 3.3.7: Vehicle 3 – Transient Cycle Instantaneous Mass NMHC

4. Vehicle 4 – LCRXV03.65P3 – V0LXC3299
Chrysler 300 Limited 3.6L Automatic 8-speed RWD

a. Summary Table(s)

Steady State	NOx (g/mile)	CO2 (g/mi)	CO (g/mi)	NMHC (g/mi)	HC (g/mi)
30	0.0198	293.9853	0.0104	0.0004	0.0007
50	0.0125	316.6868	0.0403	0.0008	0.0009
60	0.0634	278.1192	0.1009	0.0032	0.0037
65	0.0358	286.1086	0.1195	0.0059	0.0066
70	0.1120	316.3721	0.1319	0.0149	0.0170
65	0.1017	325.0796	0.1986	0.0156	0.0263
75	0.1275	344.8303	0.2481	0.0237	0.0281
80	0.0843	370.3510	0.1173	0.0234	0.0321
85	0.0434	389.2825	0.1413	0.0190	0.0308

Table 4.1: Vehicle 4 – Steady State
File: FV0LXC3299_SSPEMS010420073180

80 MPH Steady State Cruise	NOx (g/mile)	CO2 (g/mi)	CO (g/mi)	NMHC (g/mi)	HC (g/mi)
80	0.0370	338.6228	0.0770	0.0213	0.0260

Table 4.2: Vehicle 4 – 80 MPH Steady State Cruise
File: V0LXC3299_80SS45010420073180

Transient Cycle	NOx (g/mile)	CO2 (g/mi)	CO (g/mi)	NMHC (g/mi)	HC (g/mi)
Various	0.0348	424.1650	3.6115	0.0346	0.0475

Table 4.3: Vehicle 4 – Transient Cycle
File: V0LXC3299_P-IUVP010420073080

b. Summary Plot(s)

i. Steady State PEMS Test

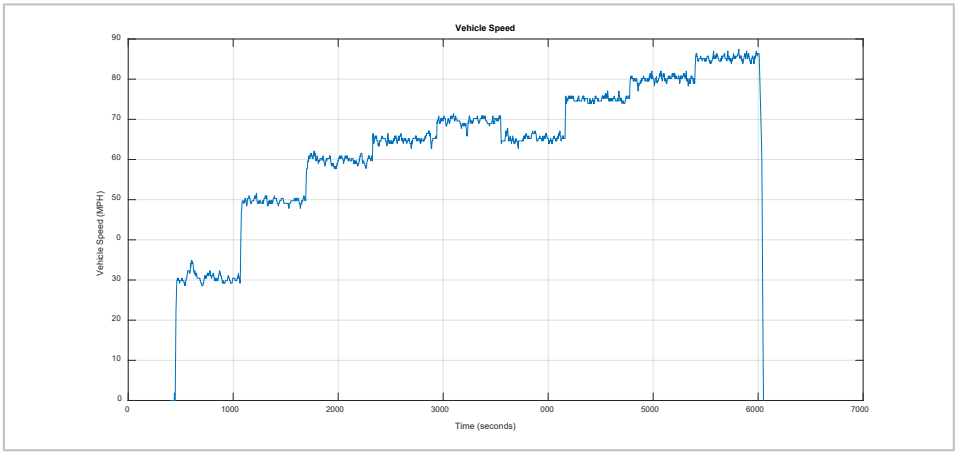


Figure 4.1.1: Vehicle 4 – Steady State Vehicle Speed

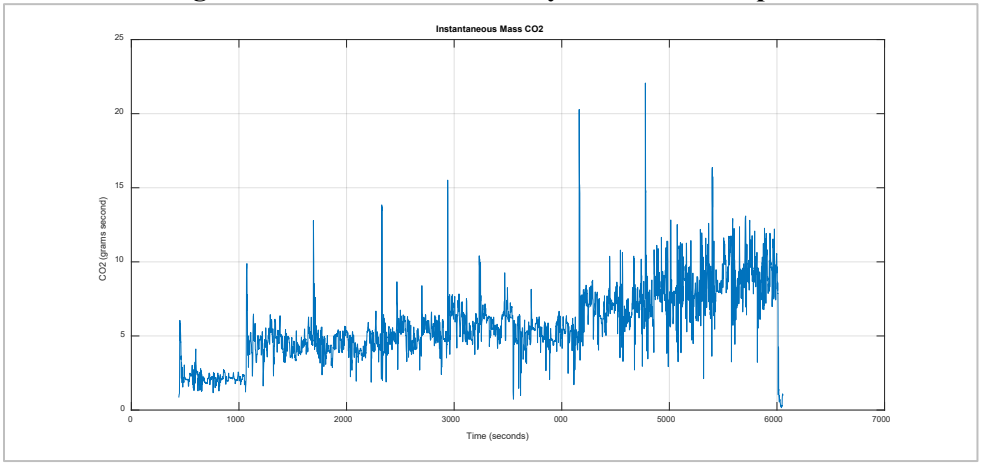


Figure 4.1.2: Vehicle 4 – Steady State Instantaneous Mass CO2

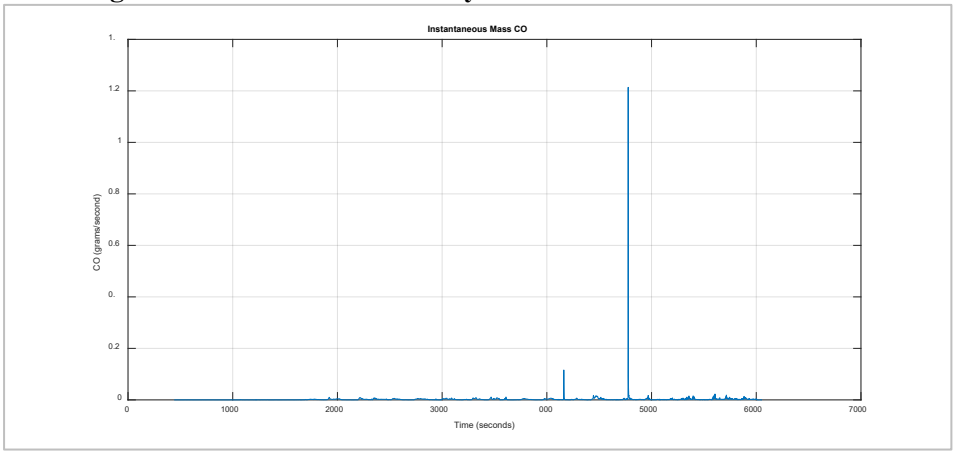


Figure 4.1.3: Vehicle 4 – Steady State Instantaneous Mass CO

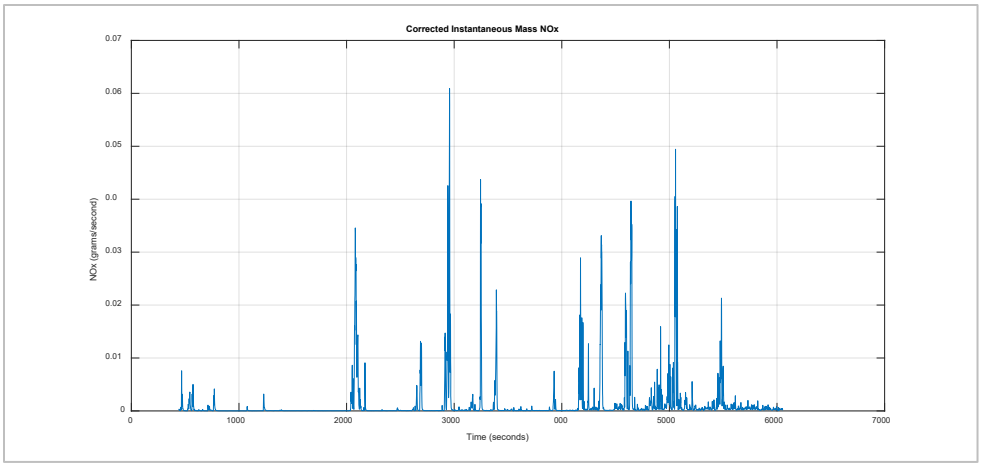


Figure 4.1.4: Vehicle 4 – Steady State Corrected Instantaneous Mass NOx

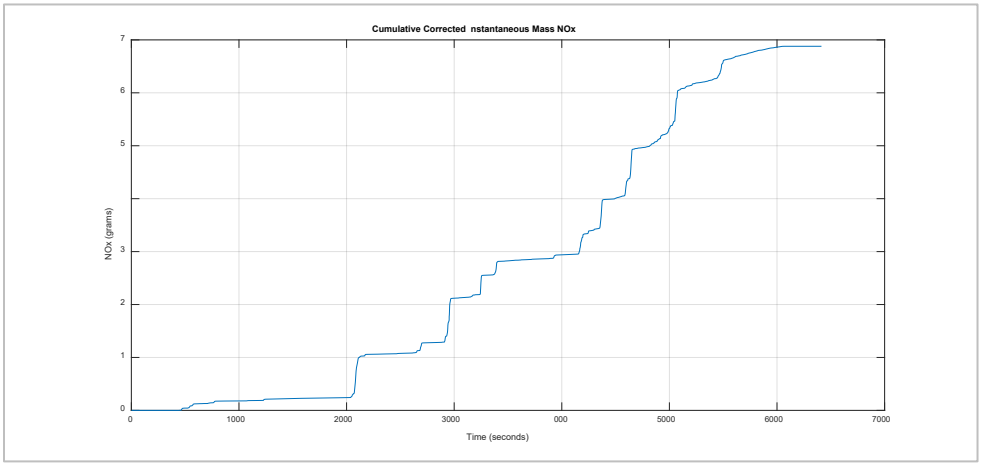


Figure 4.1.5: Vehicle 4 – Steady State Cumulative Corrected Instantaneous Mass NOx

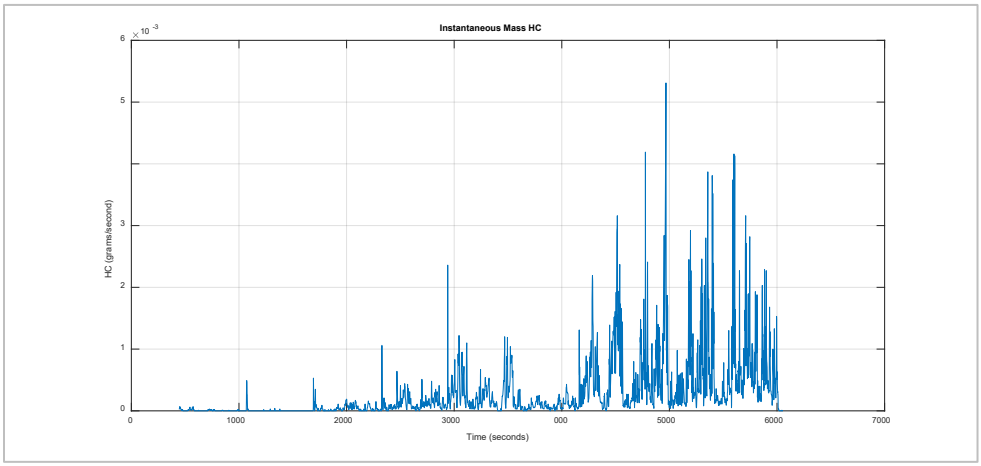


Figure 4.1.6: Vehicle 4 – Steady State Instantaneous Mass HC

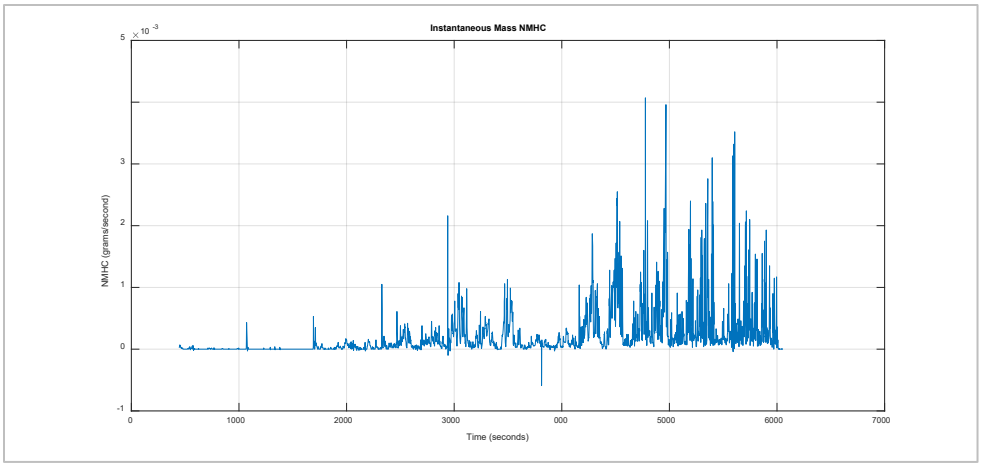


Figure 4.1.7: Vehicle 4 – Steady State Instantaneous Mass NMHC

ii. 80 MPH Steady State Cruise PEMS Test

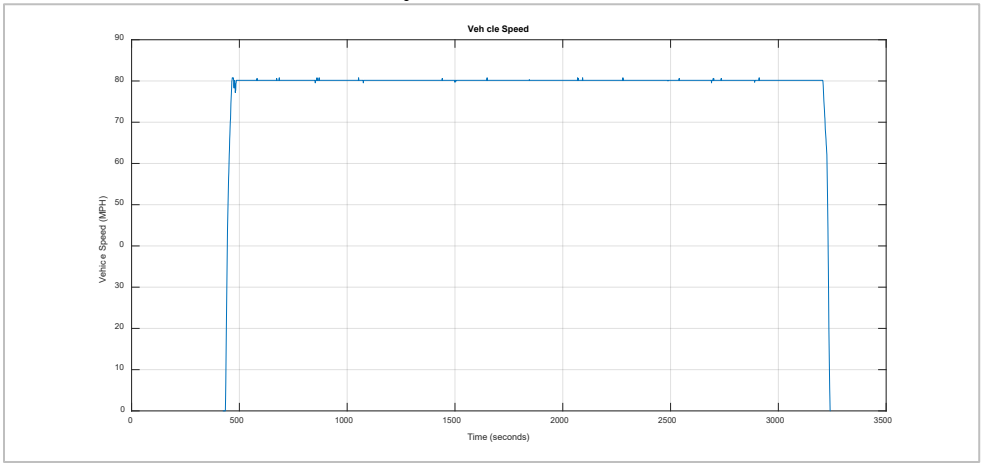


Figure 4.2.1: Vehicle 4 – 80 MPH Steady State Cruise Vehicle Speed

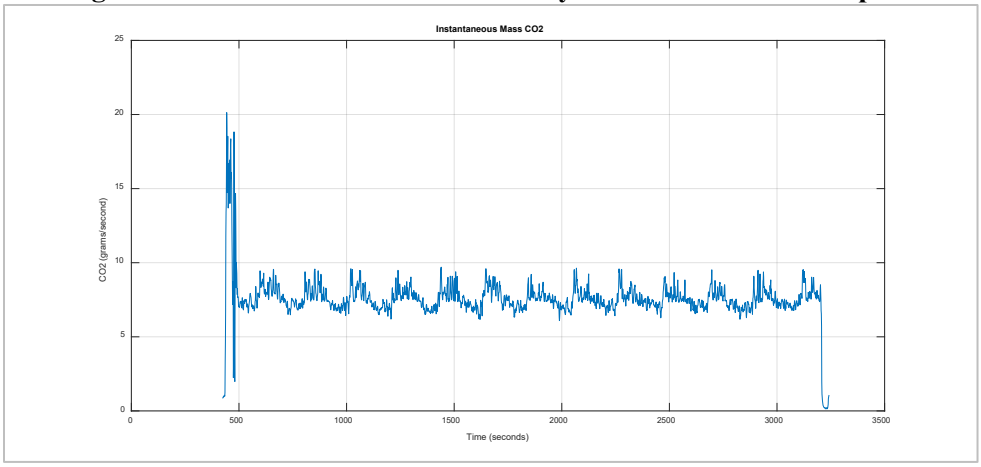


Figure 4.2.2: Vehicle 4 – 80 MPH Steady State Cruise Instantaneous Mass CO2

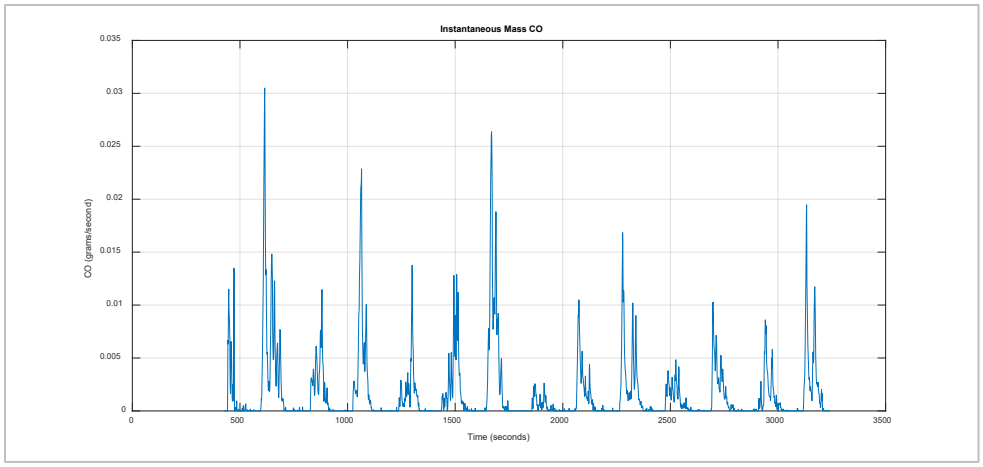


Figure 4.2.3: Vehicle 4 – 80 MPH Steady State Cruise Instantaneous Mass CO

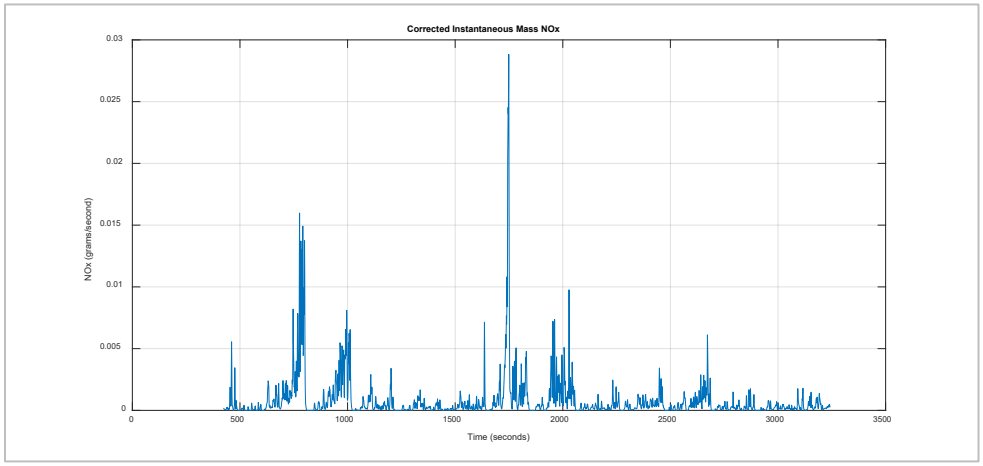


Figure 4.2.4: Vehicle 4 – 80 MPH Steady State Cruise Corrected Instantaneous Mass NOx

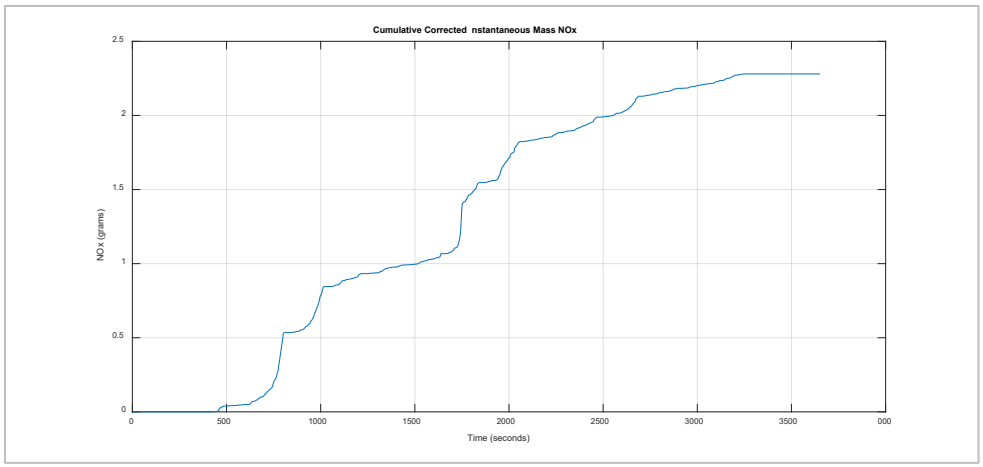


Figure 4.2.5: Vehicle 4 – 80 MPH Steady State Cruise Cumulative Corrected Instantaneous Mass NOx

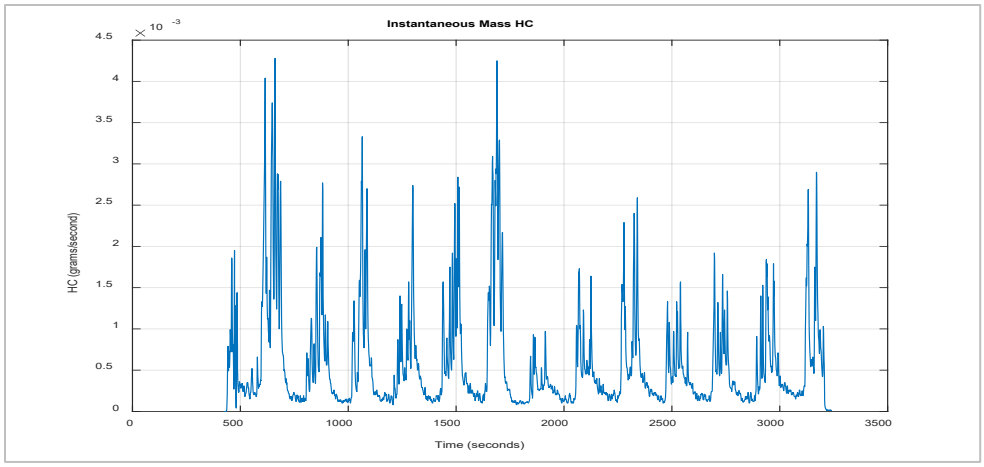


Figure 4.2.6: Vehicle 4 – 80 MPH Steady State Cruise Instantaneous Mass HC

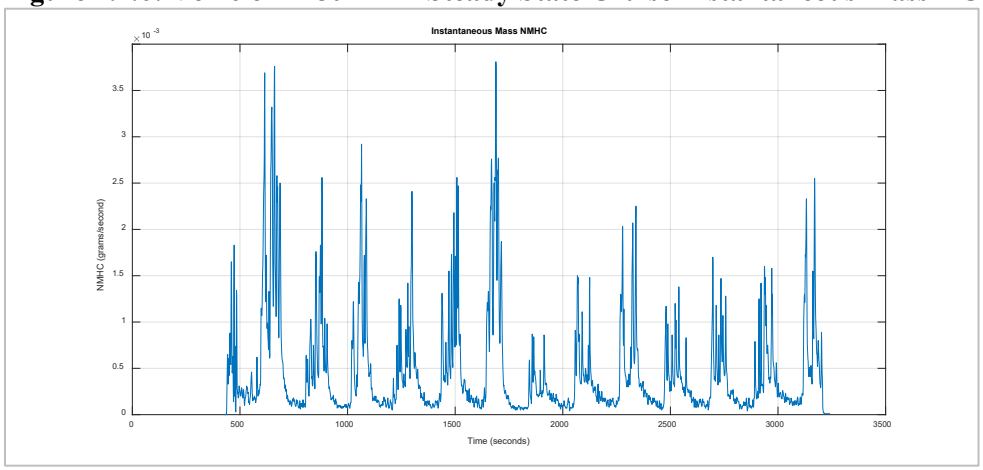


Figure 4.2.7: Vehicle 4 – 80 MPH Steady State Cruise Instantaneous Mass NMHC

iii. Transient Cycle PEMS Test

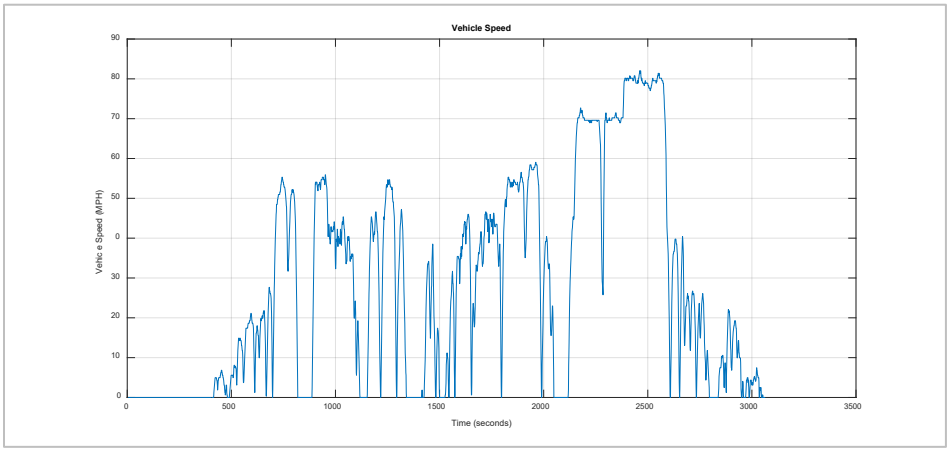


Figure 4.3.1: Vehicle 4 – Transient Cycle Vehicle Speed

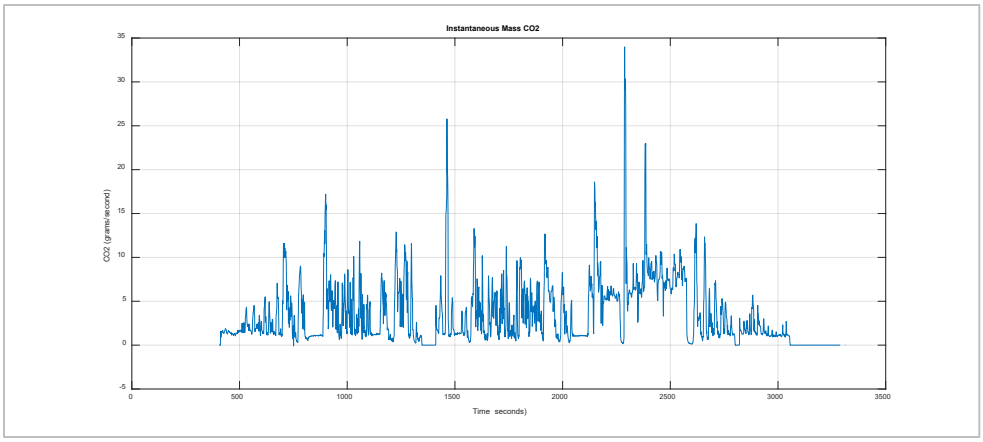


Figure 4.3.2: Vehicle 4 – Transient Cycle Instantaneous Mass CO2

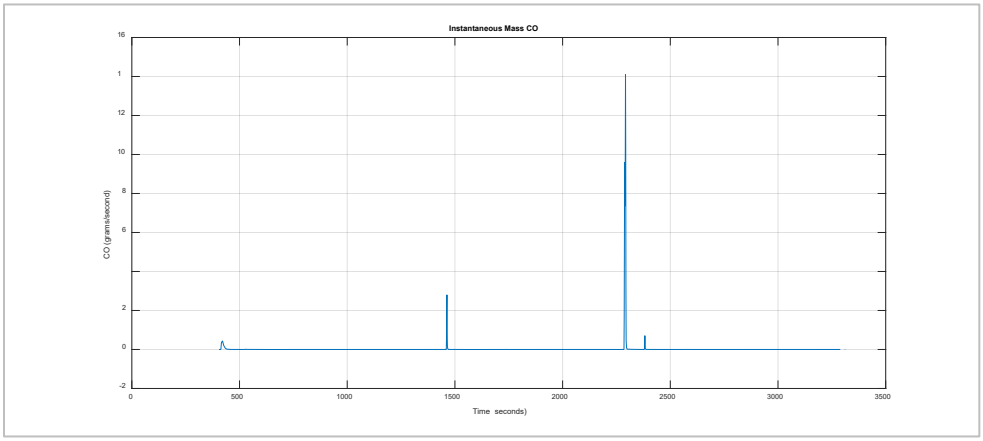


Figure 4.3.3: Vehicle 4 – Transient Cycle Instantaneous Mass CO

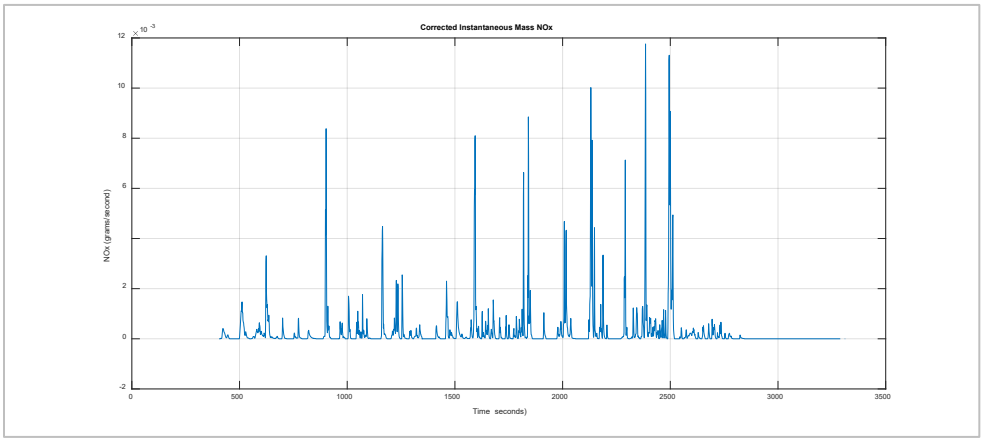


Figure 4.3.4: Vehicle 4 – Transient Cycle Corrected Instantaneous Mass NOx

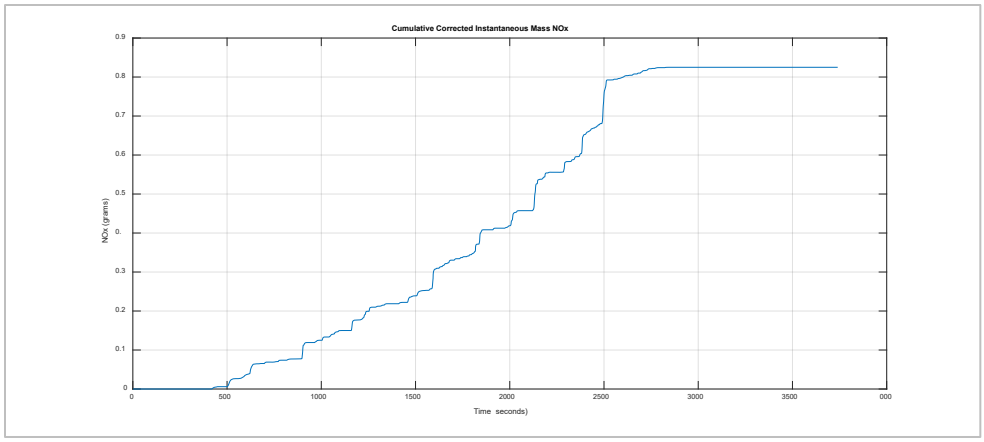


Figure 4.3.5: Vehicle 4 – Transient Cycle Cumulative Corrected Instantaneous Mass NOx

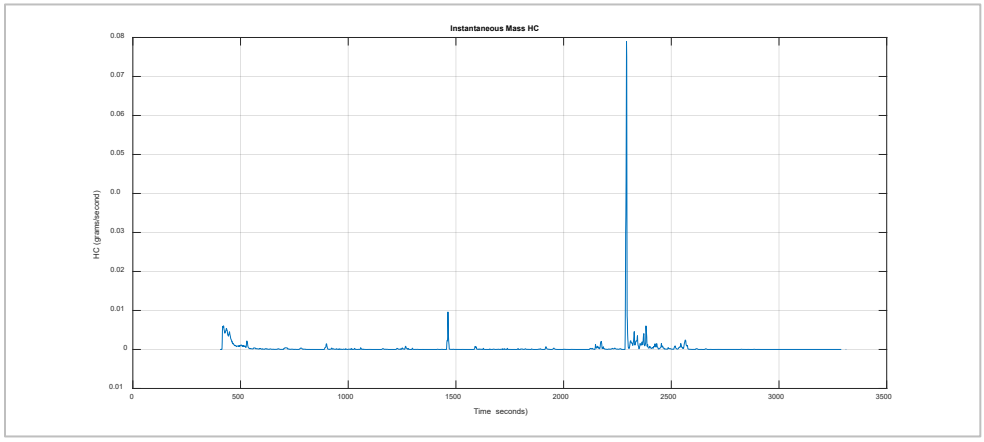


Figure 4.3.6: Vehicle 4 – Transient Cycle Instantaneous Mass HC

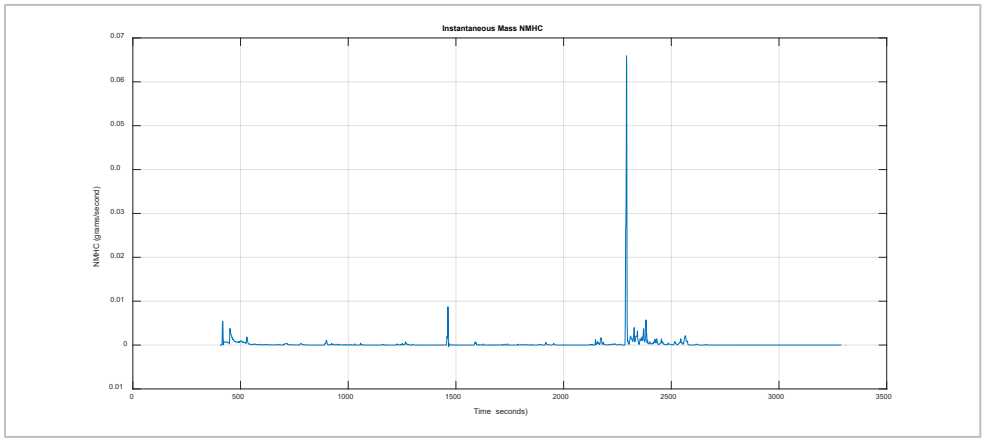


Figure 4.3.7: Vehicle 4 – Transient Cycle Instantaneous Mass NMHC

4a. Vehicle 4 (Re-Test Steady State) LCRXV03.65P3 – V0LXC3299

a. Summary Table(s)

Steady State	NOx (g/mile)	CO2 (g/mi)	CO (g/mi)	NMHC (g/mi)	HC (g/mi)
30	0.0000	290.9587	0.0206	0.0012	0.0016
50	0.0021	310.4978	0.0432	0.0014	0.0023
60	0.0387	280.1261	0.0942	0.0031	0.0048
65	0.0075	289.9716	0.1379	0.0058	0.0075
70	0.1925	314.3382	0.1945	0.0119	0.0148
65	0.1682	309.2613	0.1448	0.0098	0.0275
75	0.2670	342.2806	0.1576	0.0245	0.0327
80	0.3072	370.8158	0.1583	0.0345	0.0522
85	0.1344	381.2529	0.0924	0.0155	0.0323

Table 4a.1: Vehicle 4 – Steady State (Re-Test)
File: V0LXC3299_SSPEMS010420080380

b. Summary Plot(s)

i. Steady State PEMS Test

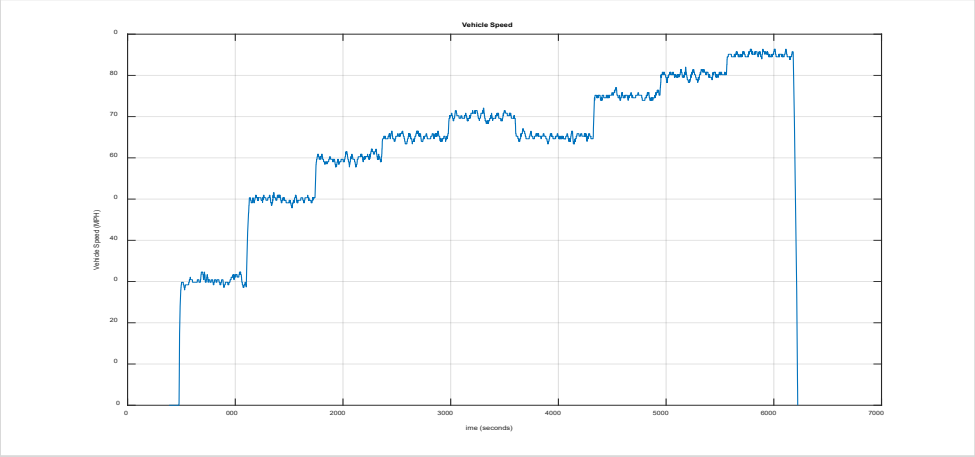


Figure 4a.1.1: Vehicle 4 (Re-Test) – Steady State Vehicle Speed

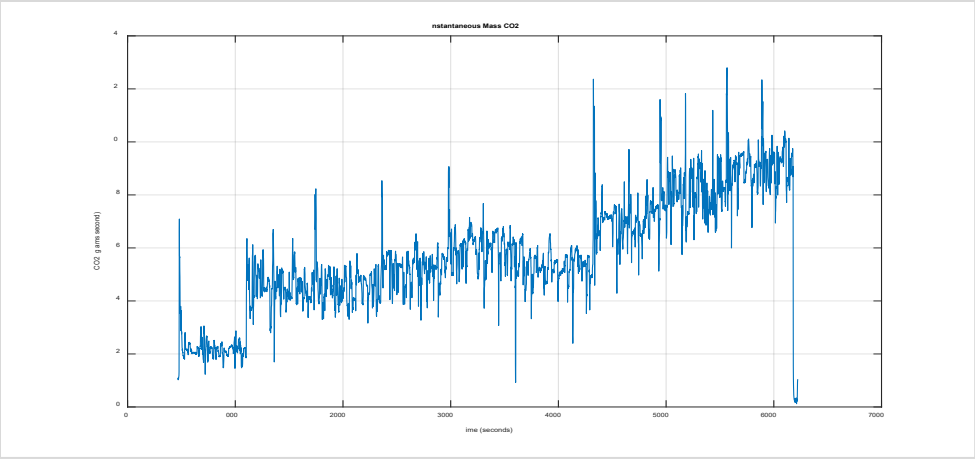


Figure 4a.1.2: Vehicle 4 (Re-Test) – Steady State Instantaneous Mass CO2

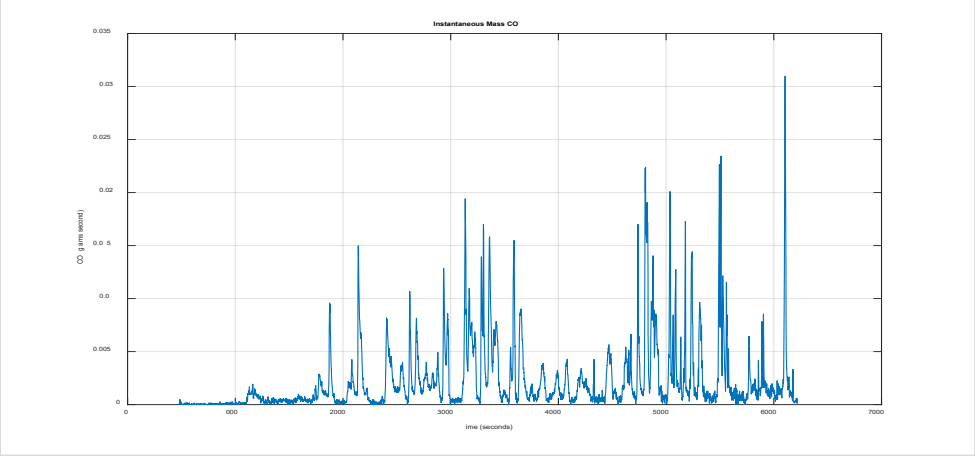


Figure 4a.1.3: Vehicle 4 (Re-Test) – Steady State Instantaneous Mass CO

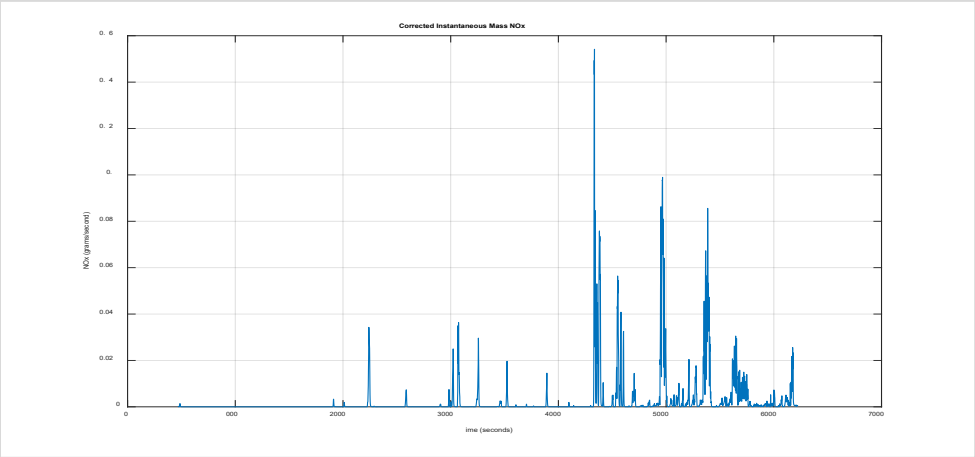


Figure 4a.1.4: Vehicle 4 (Re-Test) – Steady State Corrected Instantaneous Mass NOx

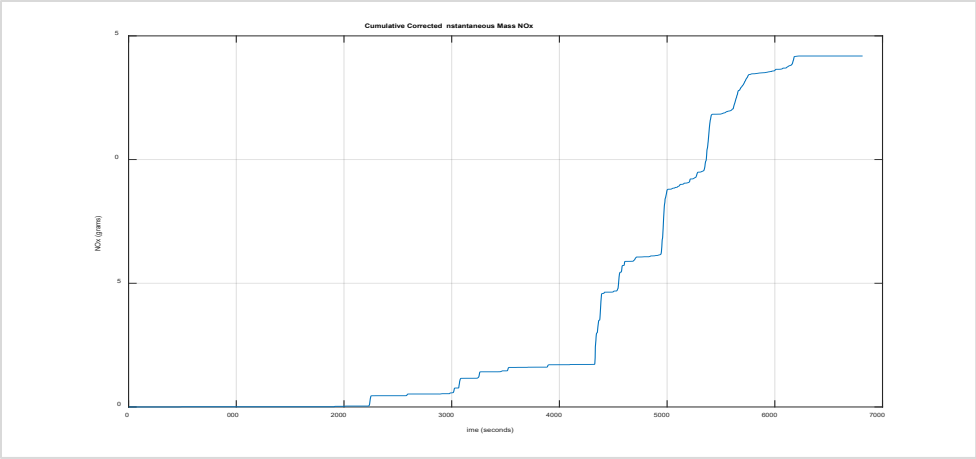


Figure 4a.1.5: Vehicle 4 (Re-Test) – Steady State Cumulative Corrected Instantaneous Mass NOx

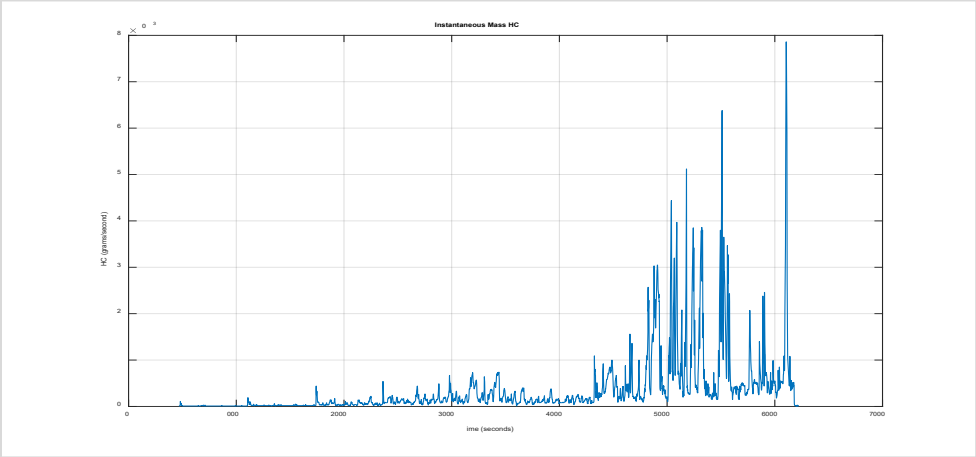


Figure 4a.1.6: Vehicle 4 (Re-Test) - Steady State Instantaneous Mass HC

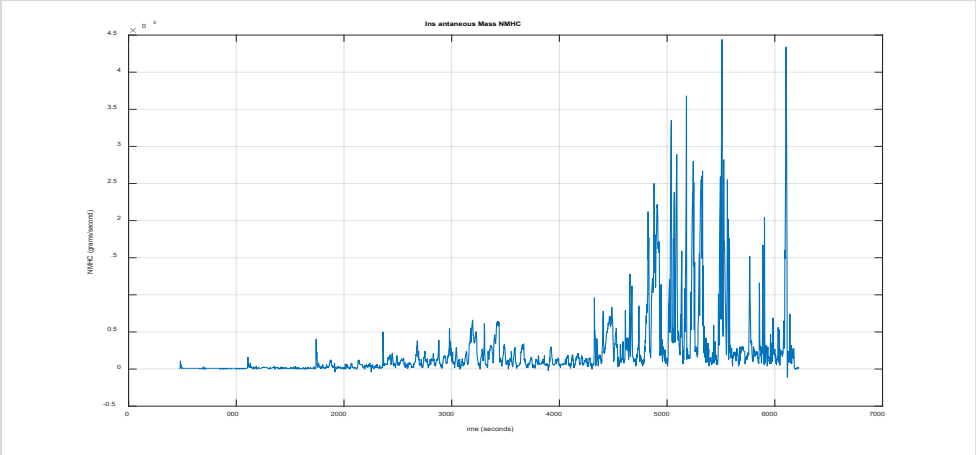


Figure 4a.1.7: Vehicle 4 (Re-Test) – Steady State Instantaneous Mass NMHC

4b. Vehicle 4b. – LCRXV03.65P3 – V0LXC3301 Chrysler 300 Limited 3.6L Automatic 8-speed

As an additional step, and not required by the Consent Decree, FCA procured a second 3.6 LX and performed PEMS testing. The results are included below for "Vehicle 4b."

a. Summary Table(s)

Steady State	NOx (g/mile)	CO2 (g/mi)	CO (g/mi)	NMHC (g/mi)	HC (g/mi)
30	0.0147	317.4202	0.0253	0.0003	0.0009
50	0.0361	352.2661	0.0944	0.0015	0.0027
60	0.0650	319.4801	0.1898	0.0148	0.0220
65	0.0747	323.9564	0.1890	0.0257	0.0375
70	0.2422	358.6559	0.2686	0.0295	0.0480
65	0.2176	362.3915	0.1891	0.0259	0.0486
75	0.1529	387.2552	0.1769	0.0201	0.0466
80	0.0537	410.9387	0.1576	0.0122	0.0385
85	0.0253	424.6289	0.1430	0.0051	0.0256

Table 4b.1: Vehicle 4b. – Steady State
File: V0LXC3301_SSPEMS010420111680

80 MPH Steady State Cruise	NOx (g/mile)	CO2 (g/mi)	CO (g/mi)	NMHC (g/mi)	HC (g/mi)
80	0.0065	413.0687	0.0662	0.0098	0.0167

Table 4b.2: Vehicle 4b. – 80 MPH Steady State Cruise
File: V0LXC3301_80SS45010420111880

Transient Cycle	NOx (g/mile)	CO2 (g/mi)	CO (g/mi)	NMHC (g/mi)	HC (g/mi)
Various	0.0534	451.2725	4.0617	0.0411	0.0625

Table 4b.3: Vehicle 4b. – Transient Cycle
File: V0LXC3301_P-IUVP010420111580

b. Summary Plot(s)

i. Steady State PEMS Test

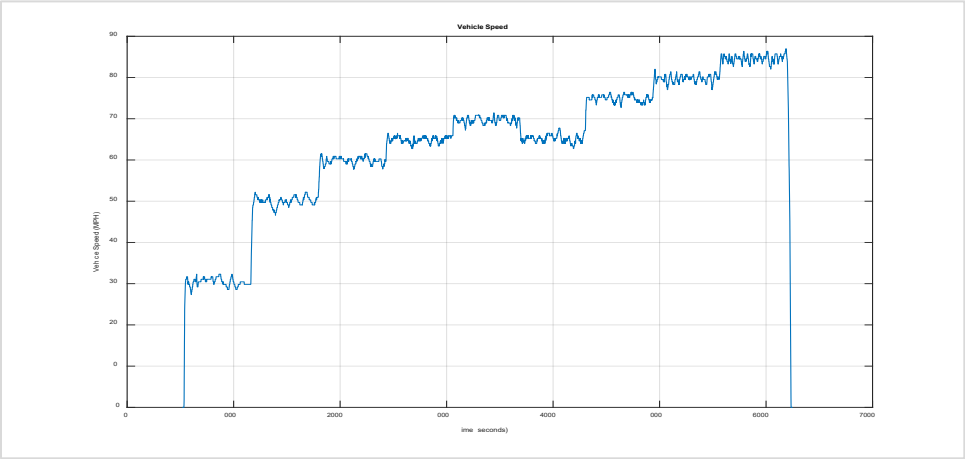


Figure 4b.1.1: Vehicle 4b. – Steady State Vehicle Speed

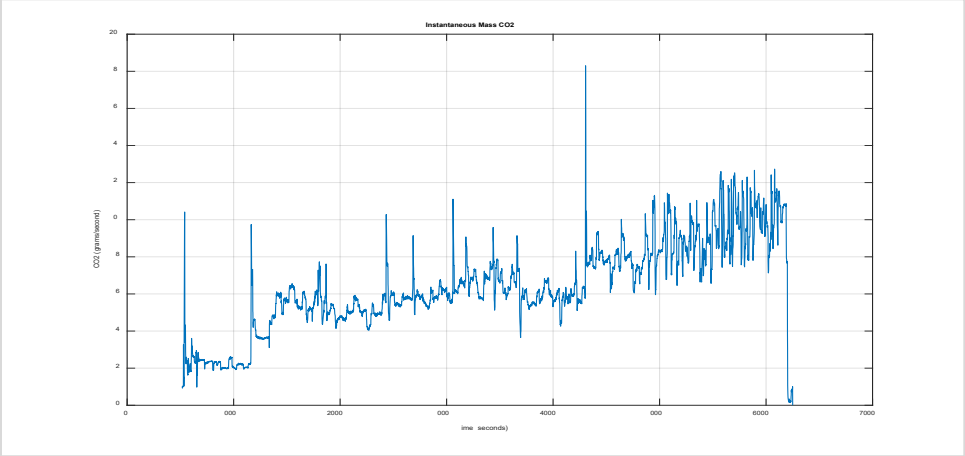


Figure 4b.1.2: Vehicle 4b. – Steady State Instantaneous Mass CO2

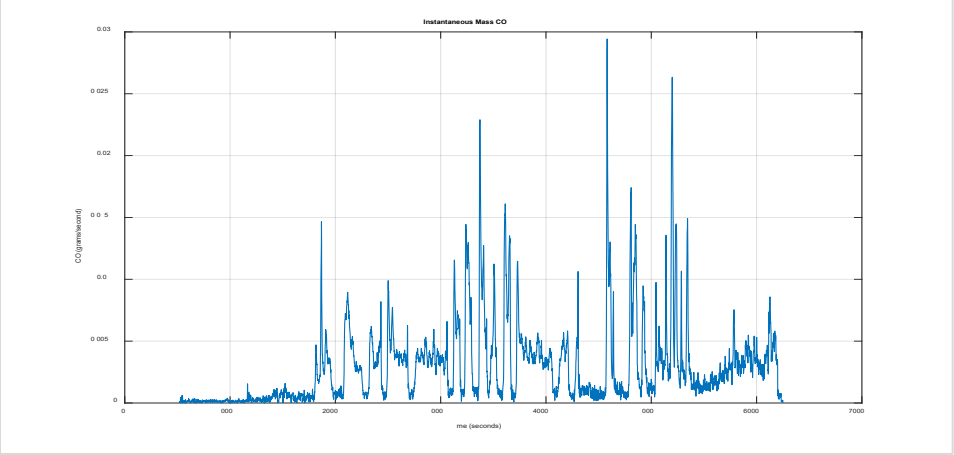


Figure 4b.1.3: Vehicle 4b. – Steady State Instantaneous Mass CO

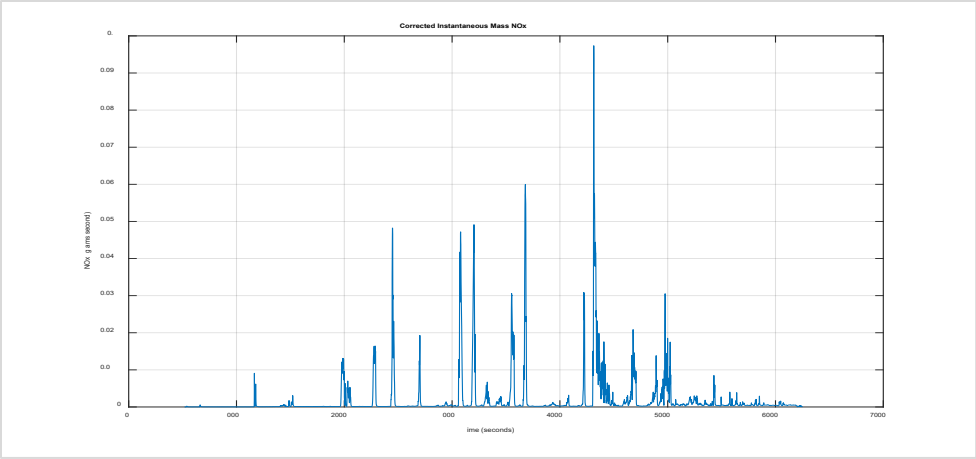


Figure 4b.1.4: Vehicle 4b. – Steady State Corrected Instantaneous Mass NOx

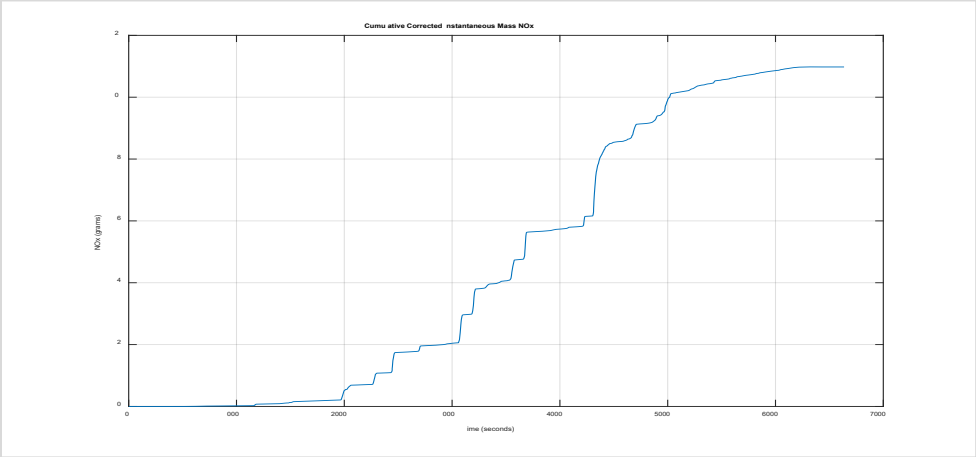


Figure 4b.1.5: Vehicle 4b. – Steady State Cumulative Corrected Instantaneous Mass NOx

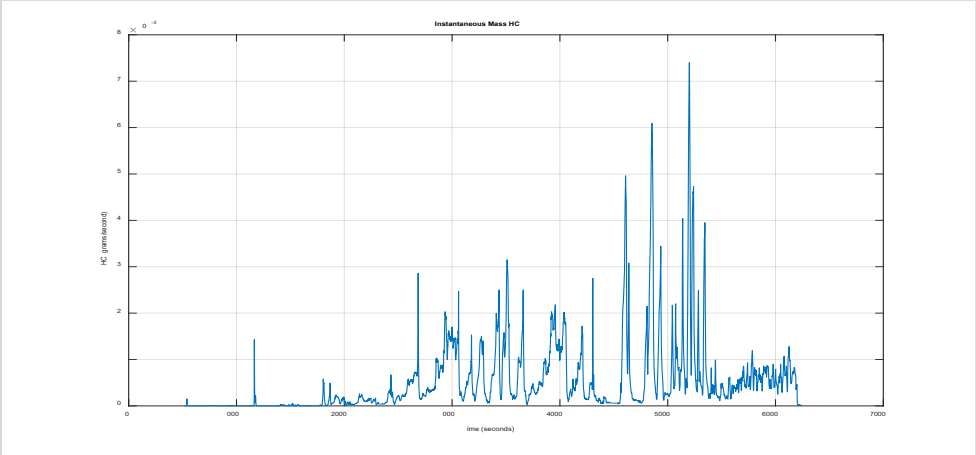


Figure 4b.1.6: Vehicle 4b. – Steady State Instantaneous Mass HC

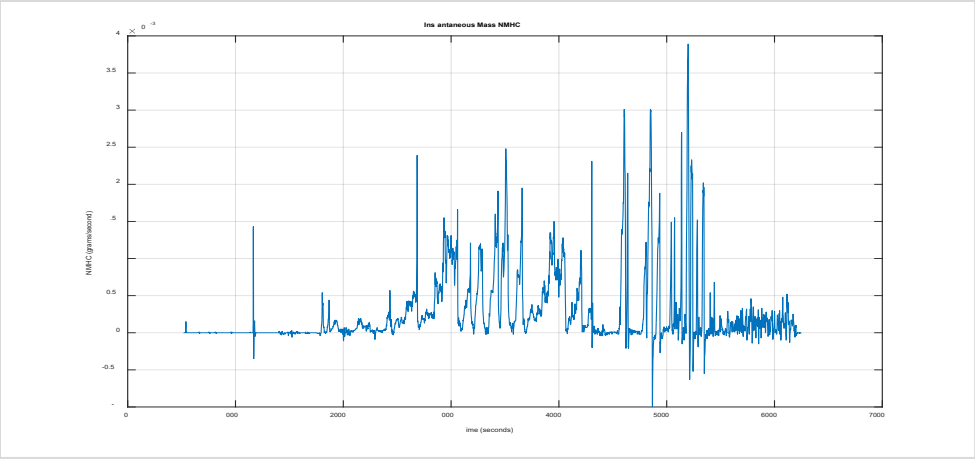


Figure 4b.1.7: Vehicle 4b. – Steady State Instantaneous Mass NMHC

ii. 80 MPH Steady State Cruise PEMS Test

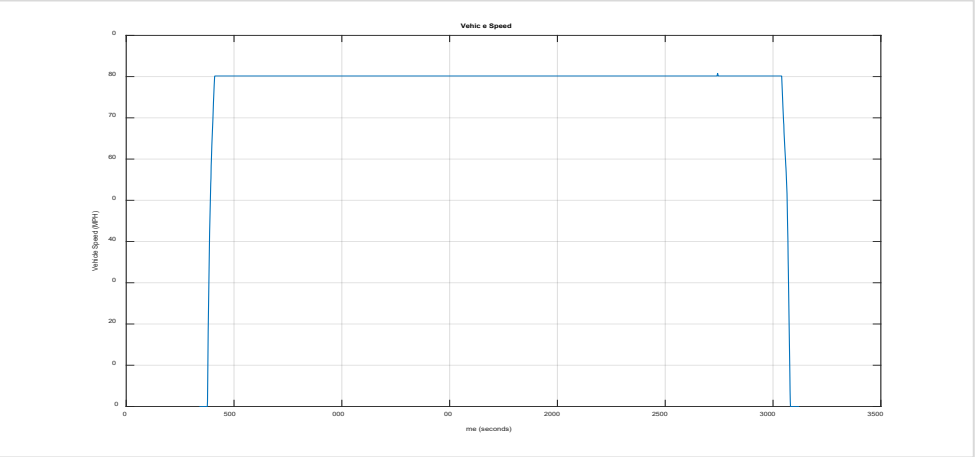


Figure 4b.2.1: Vehicle 4b. – 80 MPH Steady State Cruise Vehicle Speed

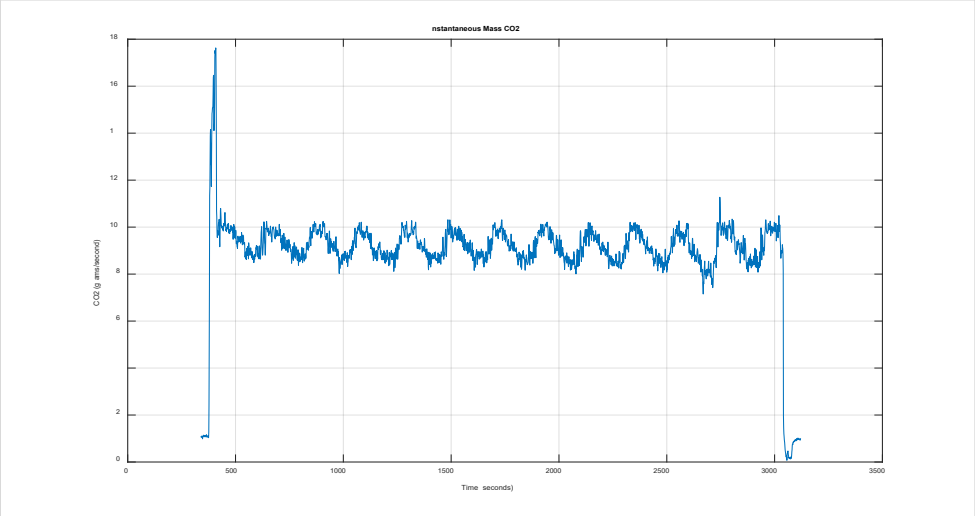


Figure 4b.2.2: Vehicle 4b. – 80 MPH Steady State Cruise Instantaneous Mass CO2

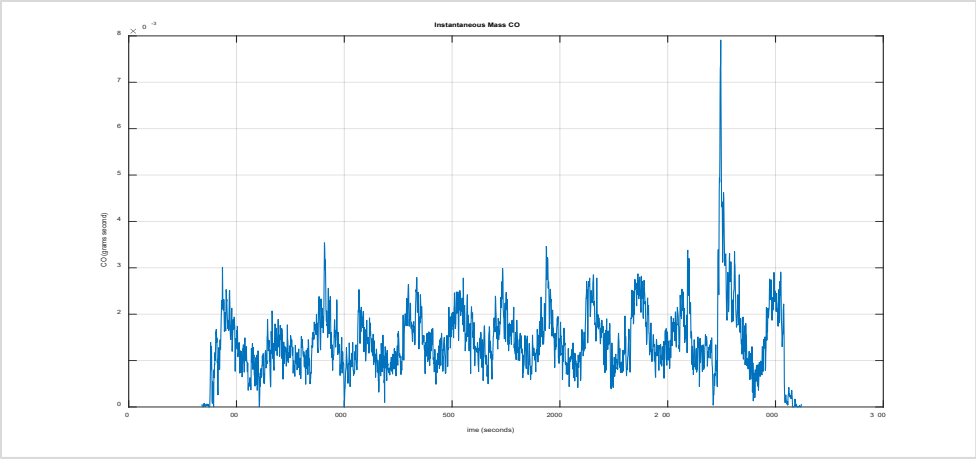


Figure 4b.2.3: Vehicle 4b. – 80 MPH Steady State Cruise Instantaneous Mass CO

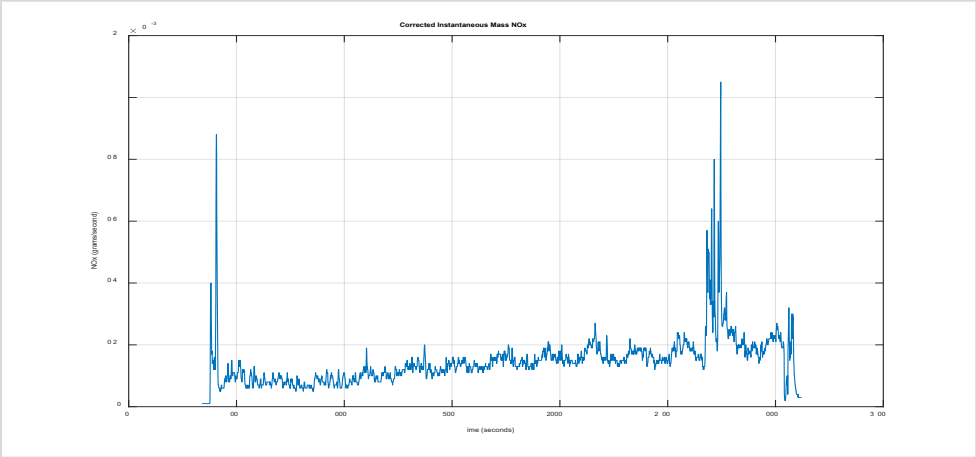


Figure 4b.2.4: Vehicle 4b. – 80 MPH Steady State Cruise Corrected Instantaneous Mass NOx

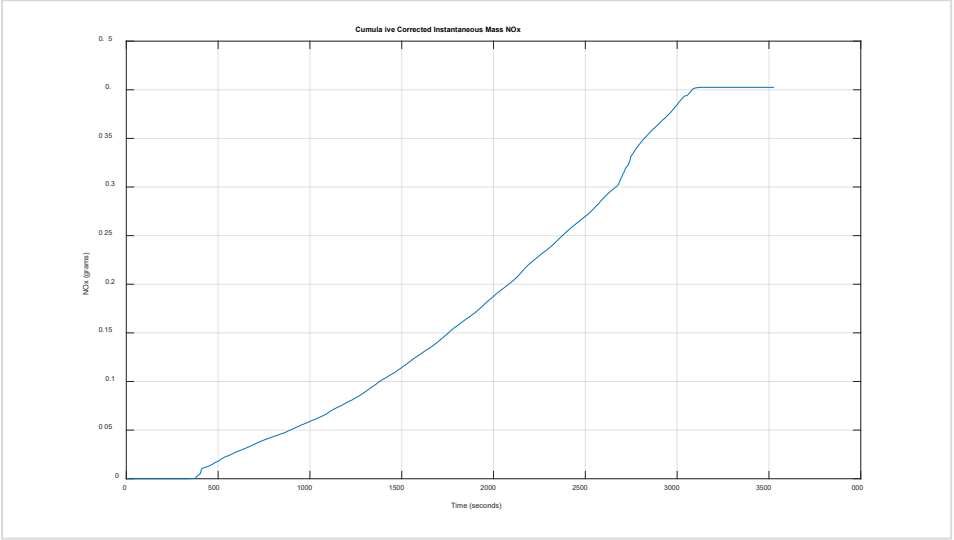


Figure 4b.2.5: Vehicle 4b. – 80 MPH Steady State Cruise Cumulative Corrected Instantaneous Mass NOx

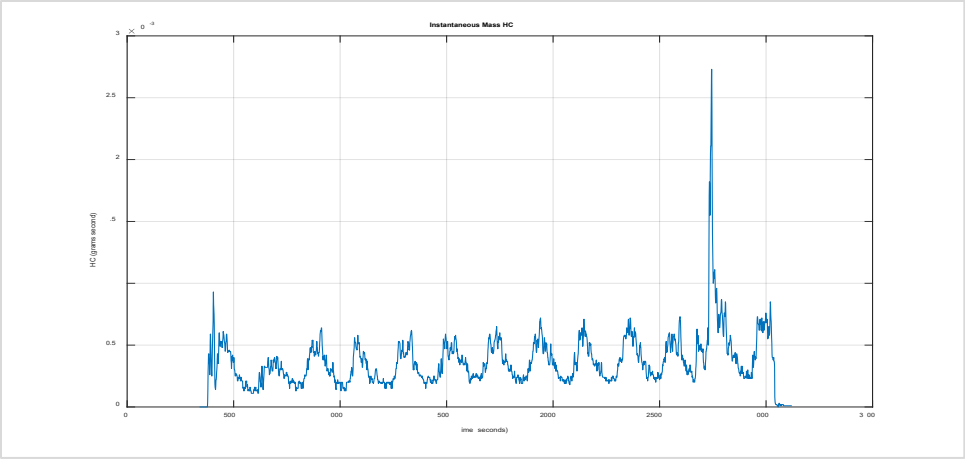


Figure 4b.2.6: Vehicle 4b. – 80 MPH Steady State Cruise Instantaneous Mass HC

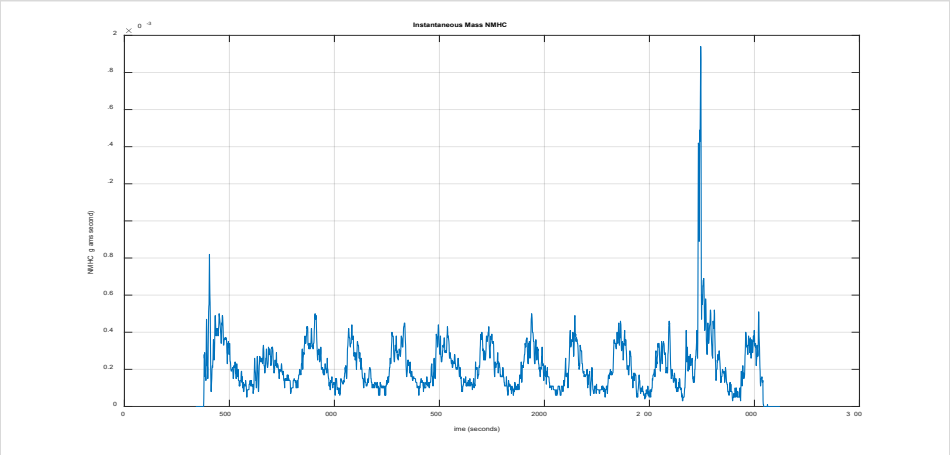


Figure 4b.2.7: Vehicle 4b. – 80 MPH Steady State Cruise Instantaneous Mass NMHC

iii. Transient Cycle PEMS Test

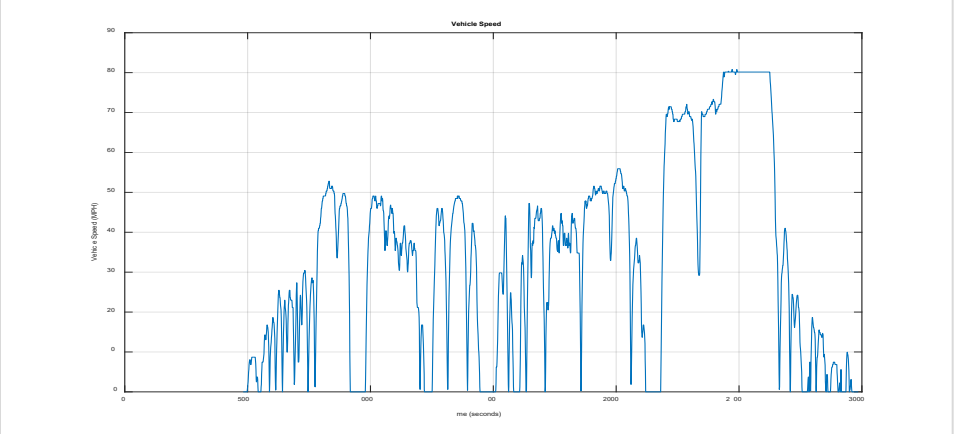


Figure 4b.3.1: Vehicle 4b. – Transient Cycle Vehicle Speed

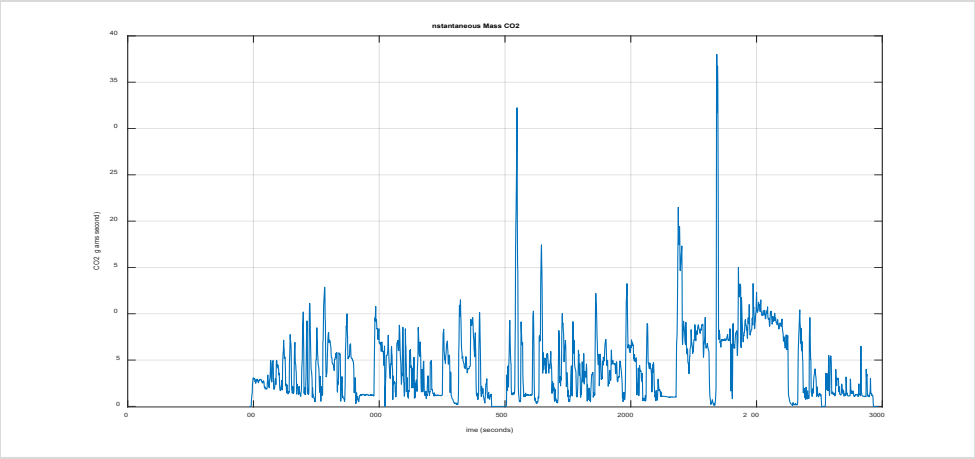


Figure 4b.3.2: Vehicle 4b. – Transient Cycle Instantaneous Mass CO2

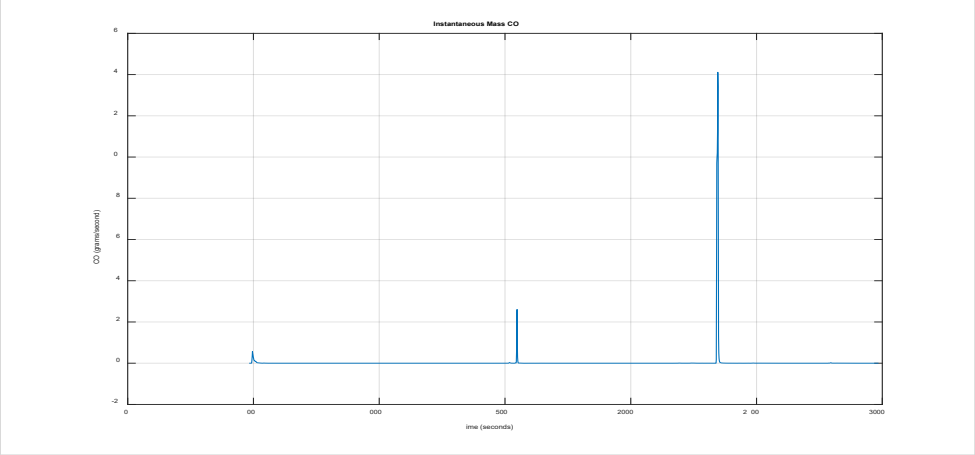


Figure 4b.3.3: Vehicle 4b. – Transient Cycle Instantaneous Mass CO

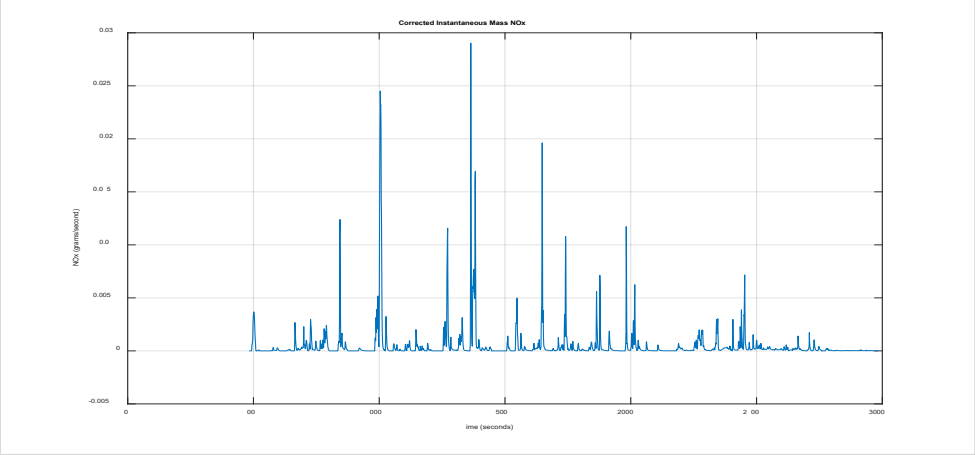


Figure 4b.3.4: Vehicle 4b. – Transient Cycle Corrected Instantaneous Mass NOx

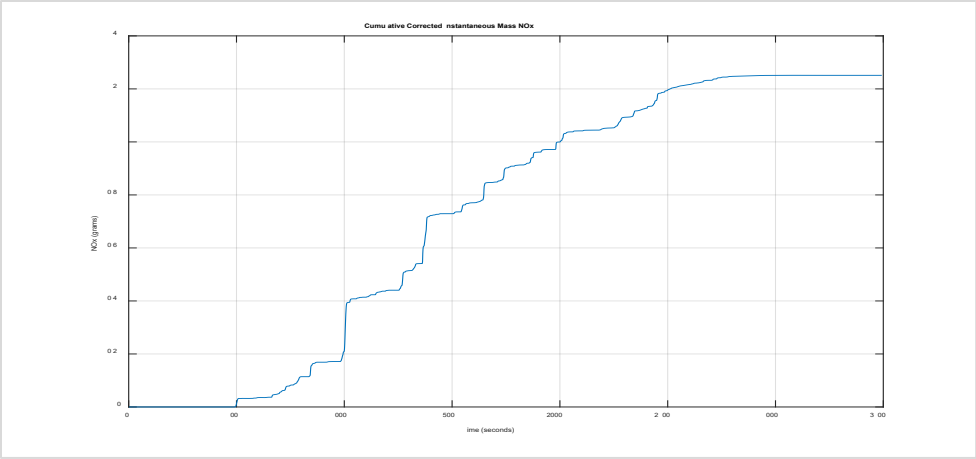


Figure 4b.3.5: Vehicle 4b. – Transient Cycle Cumulative Corrected Instantaneous Mass NOx

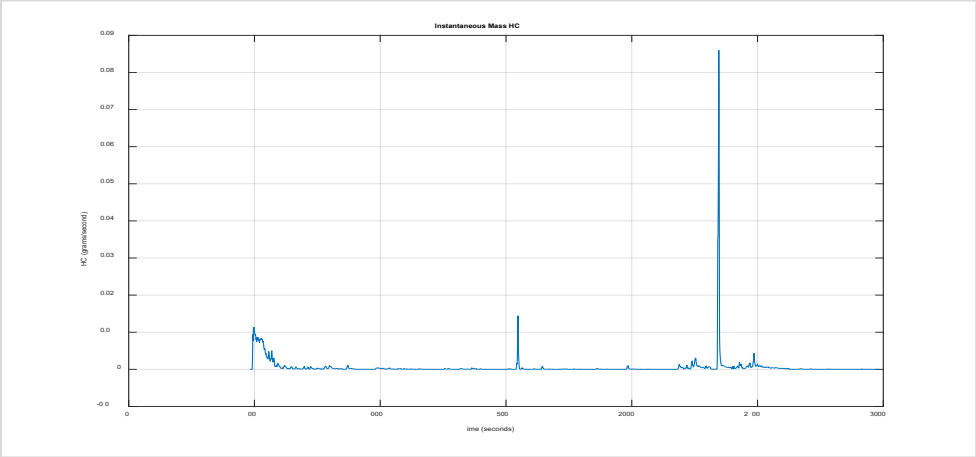


Figure 4b.3.6: Vehicle 4b. – Transient Cycle Instantaneous Mass HC

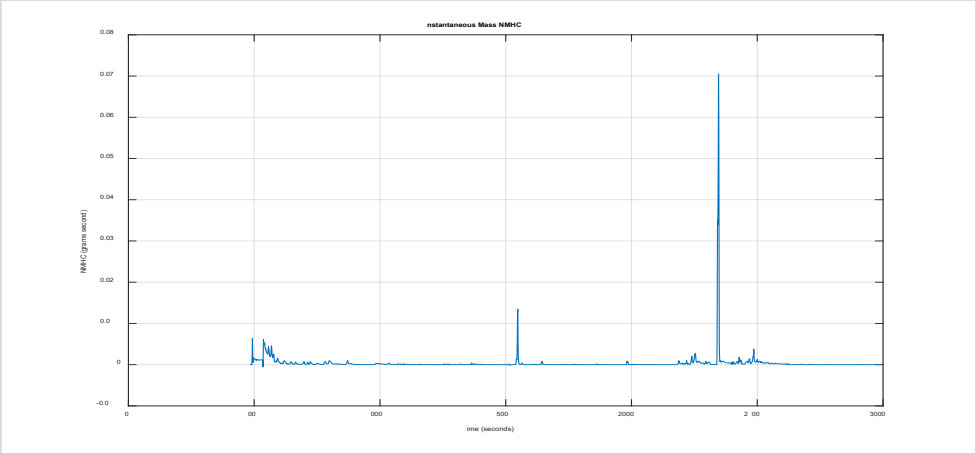


Figure 4b.3.7: Vehicle 4b. – Transient Cycle Instantaneous Mass NMHC

5. Vehicle 5 – LCRXT02.4FP2– V0JCD6210
Dodge Journey Crossroad 2.4L Automatic 4-speed FWD

a. Summary Table(s)

Steady State	NOx (g/mile)	CO2 (g/mi)	CO (g/mi)	NMHC (g/mi)	HC (g/mi)
30	0.0000	258.5610	0.0989	0.0000	0.0000
50	0.0000	268.9059	0.0850	0.0001	0.0001
60	0.0000	303.1731	0.1527	0.0001	0.0001
65	0.0000	313.0039	0.1696	0.0001	0.0001
70	0.0000	348.9335	0.3280	0.0000	0.0001
65	0.0000	311.9857	0.1773	0.0001	0.0001
75	0.0000	379.6779	0.5671	0.0000	0.0000
80	0.0000	411.7361	1.2054	0.0001	0.0001
85	0.0000	426.0357	1.7059	0.0002	0.0002

Table 5.1: Vehicle 5 – Steady State
File: V0JCD6210_SSPEMS010520080780

80 MPH Steady State Cruise	NOx (g/mile)	CO2 (g/mi)	CO (g/mi)	NMHC (g/mi)	HC (g/mi)
80	0.0049	393.6476	0.6712	0.0000	0.0000

Table 5.2: Vehicle 5 – 80 MPH Steady State Cruise
File: V0JCD6210_80SS45010520080780

Transient Cycle	NOx (g/mile)	CO2 (g/mi)	CO (g/mi)	NMHC (g/mi)	HC (g/mi)
Various	0.0076	438.6912	6.2527	0.0081	0.0187

Table 5.3: Vehicle 5 – Transient Cycle
File: V0JCD6210_P-IUVP010420080780

b. Summary Plot(s)

i. Steady State PEMS Test

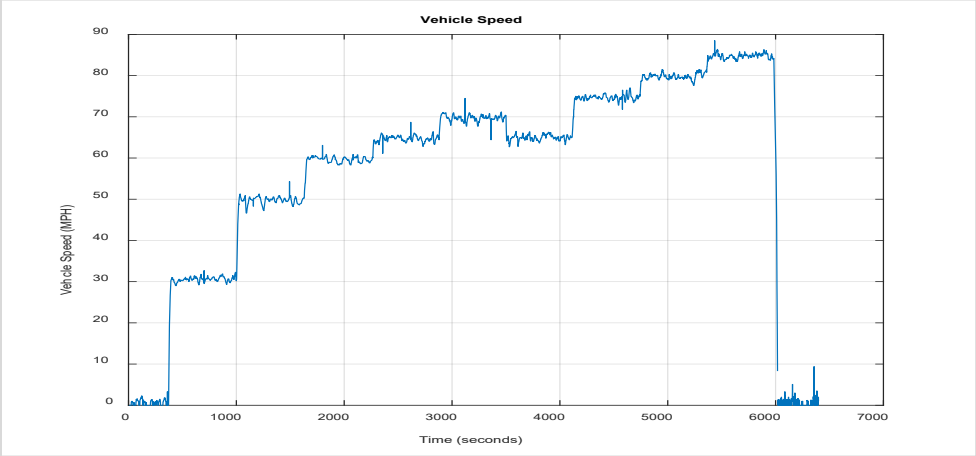


Figure 5.1.1: Vehicle 5 – Steady State Vehicle Speed

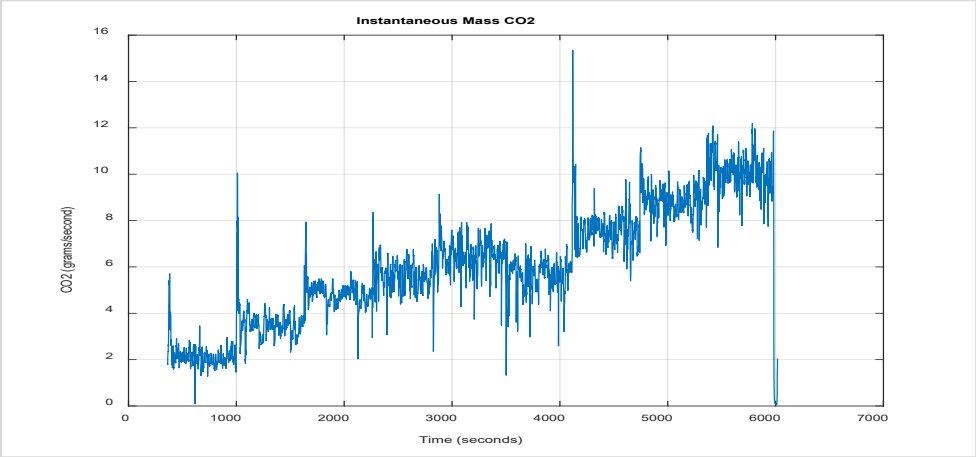


Figure 5.1.2: Vehicle 5 – Steady State Instantaneous Mass CO2

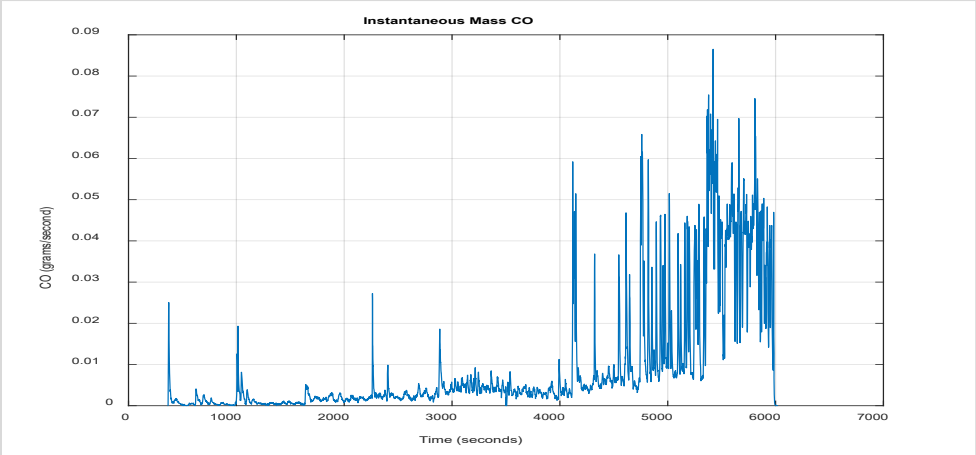


Figure 5.1.3: Vehicle 5 – Steady State Instantaneous Mass CO

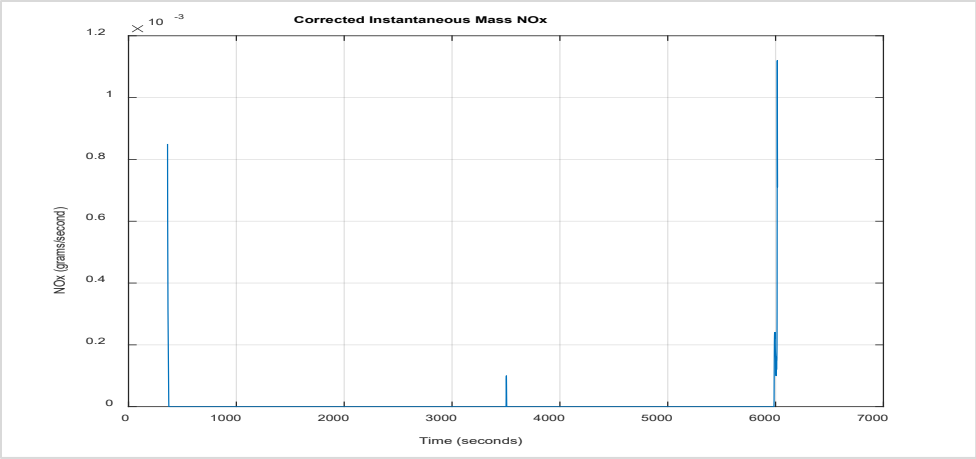


Figure 5.1.4: Vehicle 5 – Steady State Corrected Instantaneous Mass NOx

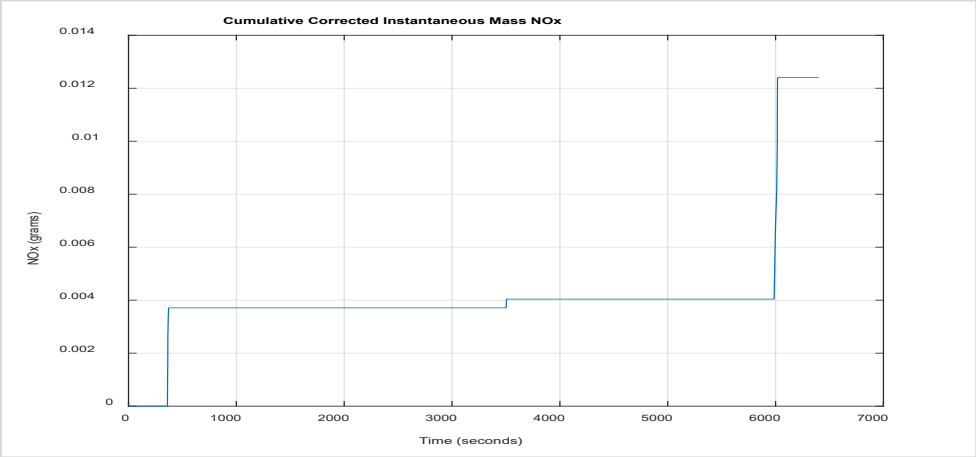


Figure 5.1.5: Vehicle 5 – Steady State Cumulative Corrected Instantaneous Mass NOx

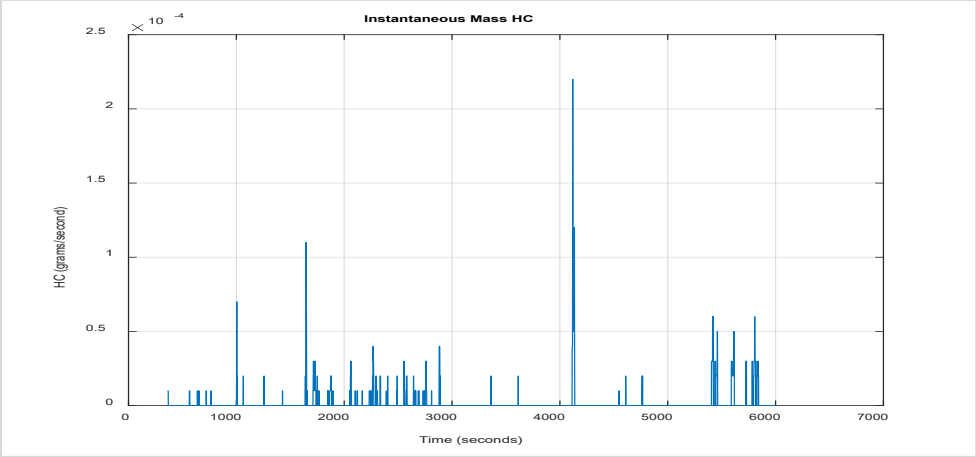


Figure 5.1.6: Vehicle 5 – Steady State Instantaneous Mass HC

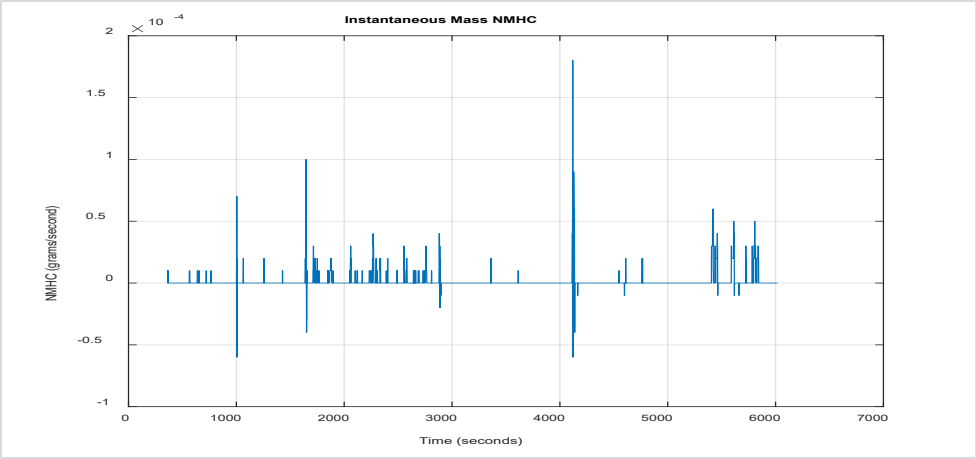


Figure 5.1.7: Vehicle 5 – Steady State Instantaneous Mass NMHC

ii. 80 MPH Steady State Cruise PEMS Test

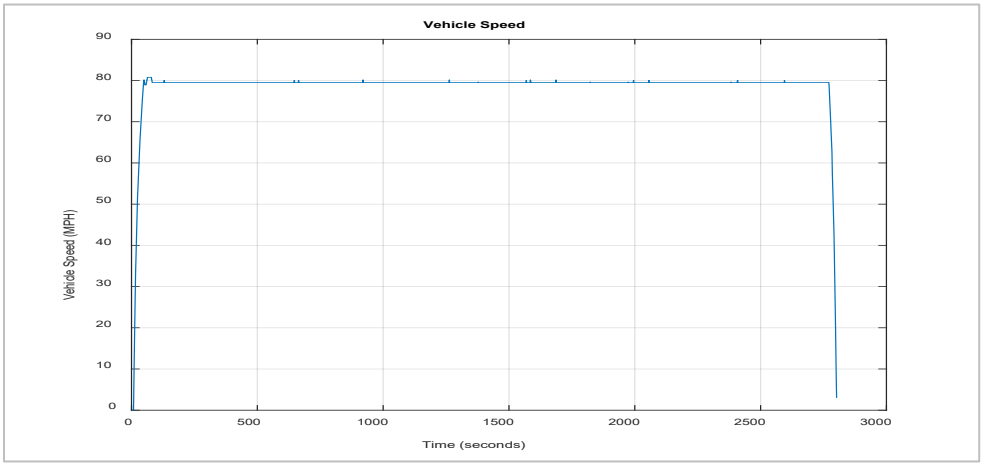


Figure 5.2.1: Vehicle 5 – 80 MPH Steady State Cruise Vehicle Speed

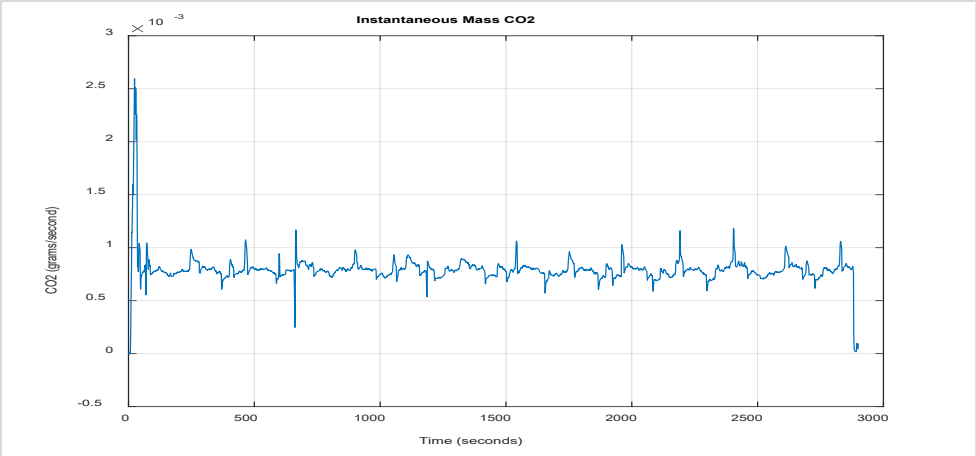


Figure 5.2.2: Vehicle 5 – 80 MPH Steady State Cruise Instantaneous Mass CO2

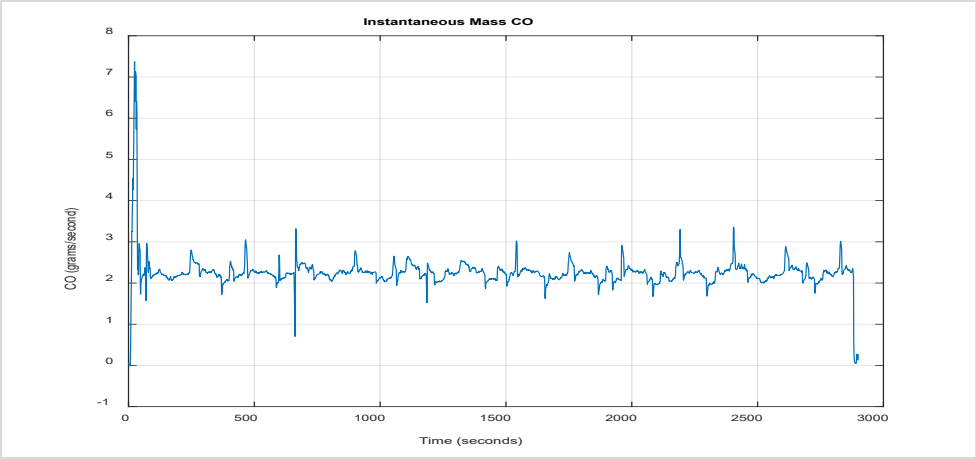


Figure 5.2.3: Vehicle 5 – 80 MPH Steady State Cruise Instantaneous Mass CO

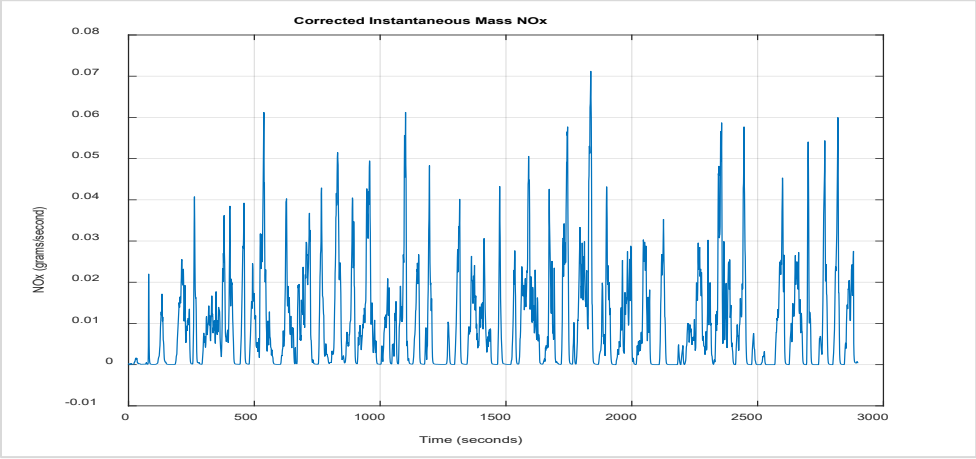


Figure 5.2.4: Vehicle 5 – 80 MPH Steady State Cruise Corrected Instantaneous Mass NOx

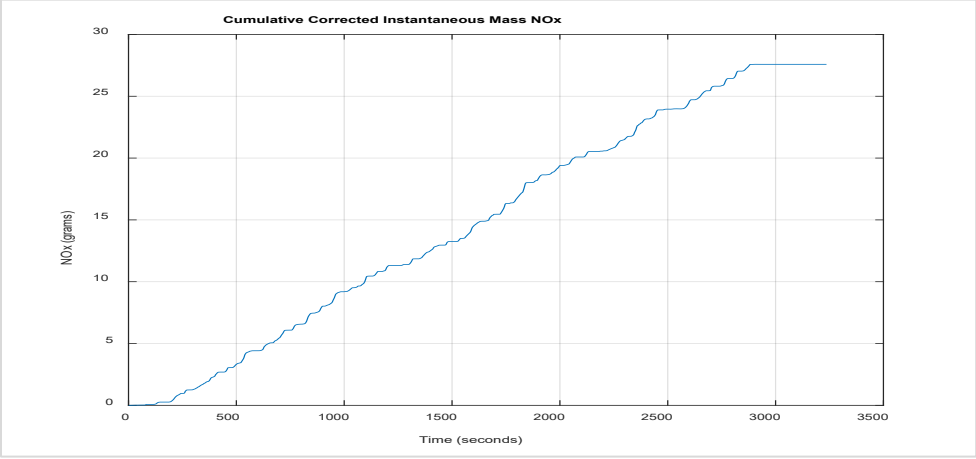


Figure 5.2.5: Vehicle 5 – 80 MPH Steady State Cruise Cumulative Corrected Instantaneous Mass NOx

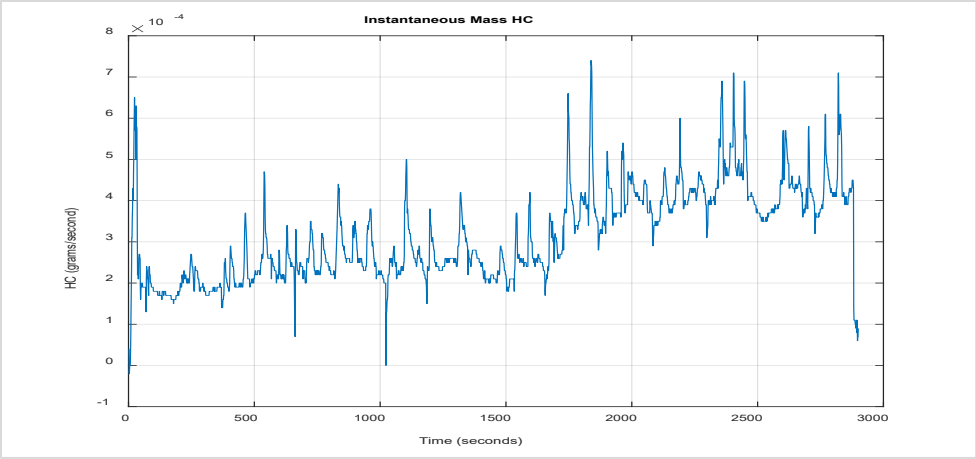


Figure 5.2.6: Vehicle 5 – 80 MPH Steady State Cruise Instantaneous Mass HC

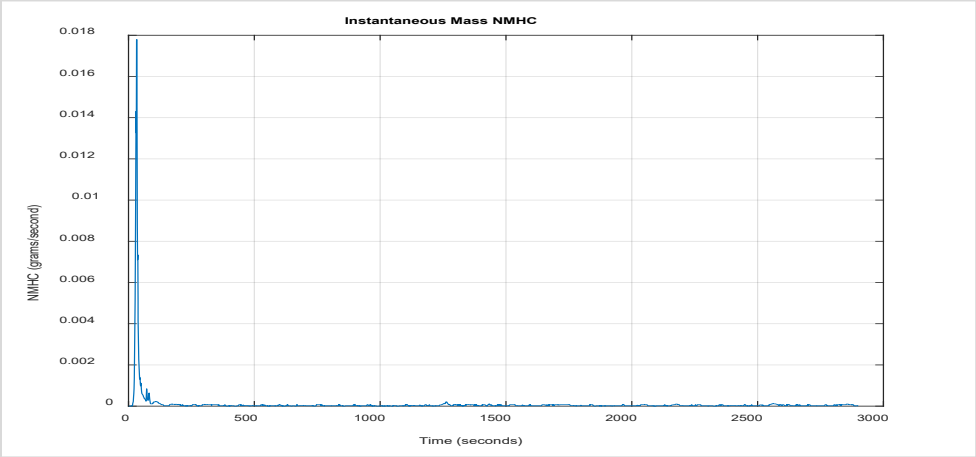


Figure 5.2.7: Vehicle 5 – 80 MPH Steady State Cruise Instantaneous Mass NMHC

iii. Transient Cycle PEMS Test

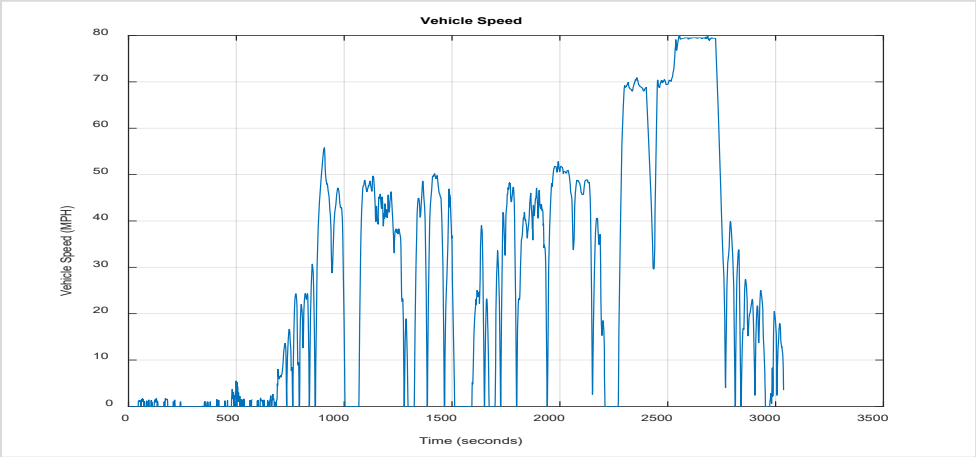


Figure 5.3.1: Vehicle 5– Transient Cycle Vehicle Speed

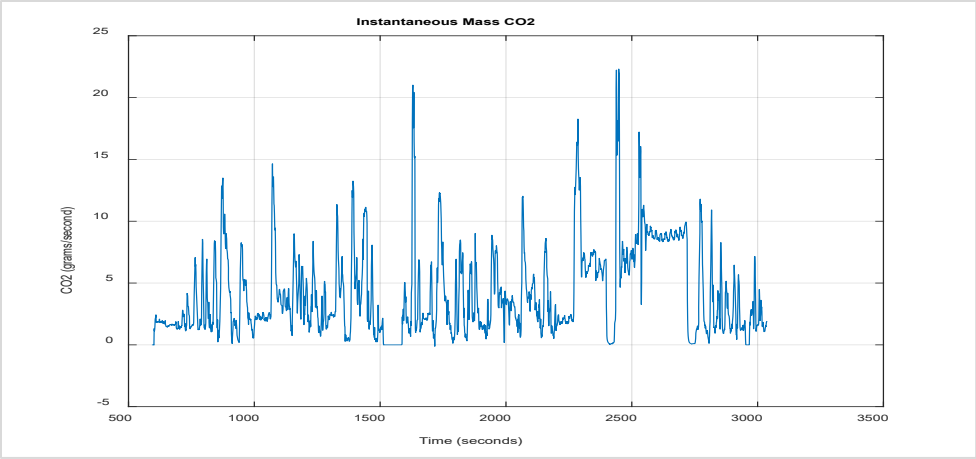


Figure 5.3.2: Vehicle 5 – Transient Cycle Instantaneous Mass CO2

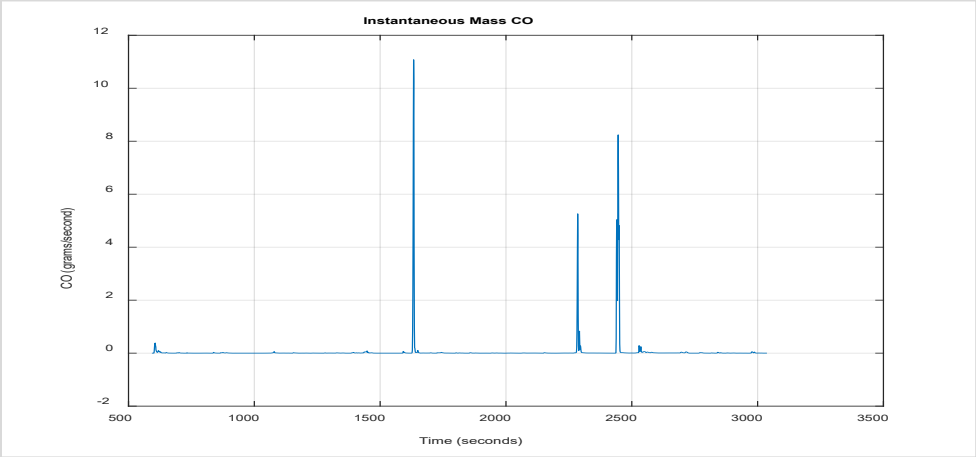


Figure 5.3.3: Vehicle 5 – Transient Cycle Instantaneous Mass CO

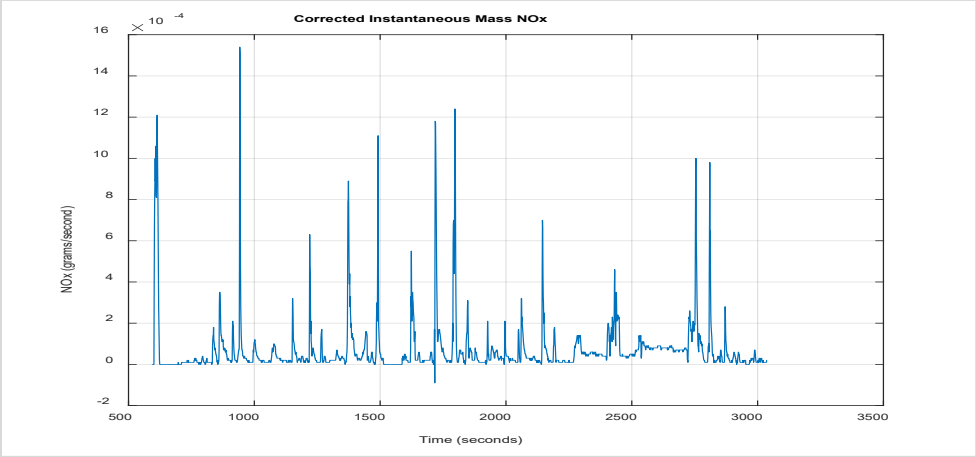


Figure 5.3.4: Vehicle 5 – Transient Cycle Corrected Instantaneous Mass NOx

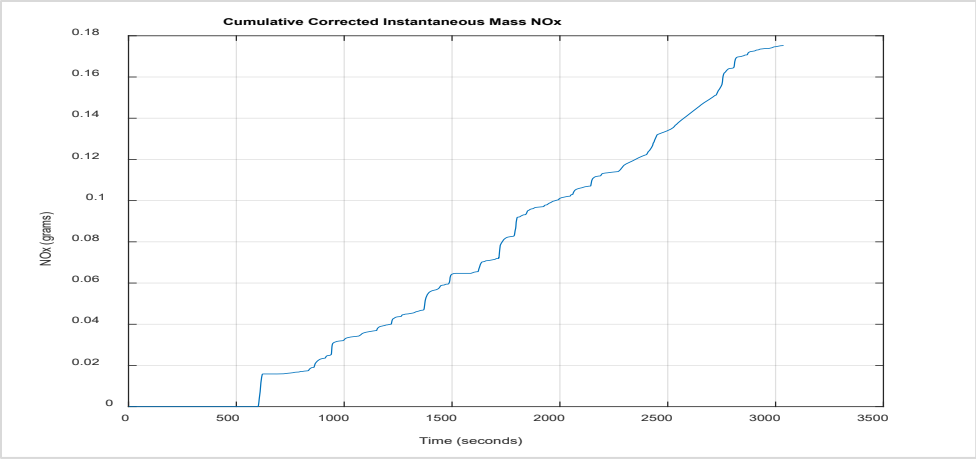


Figure 5.3.5: Vehicle 5 – Transient Cycle Cumulative Corrected Instantaneous Mass NOx

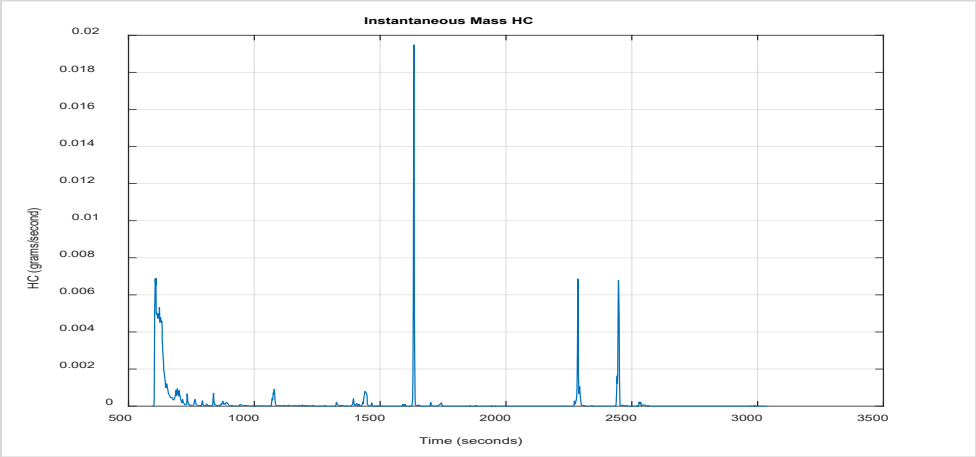


Figure 5.3.6: Vehicle 5 – Transient Cycle Instantaneous Mass HC

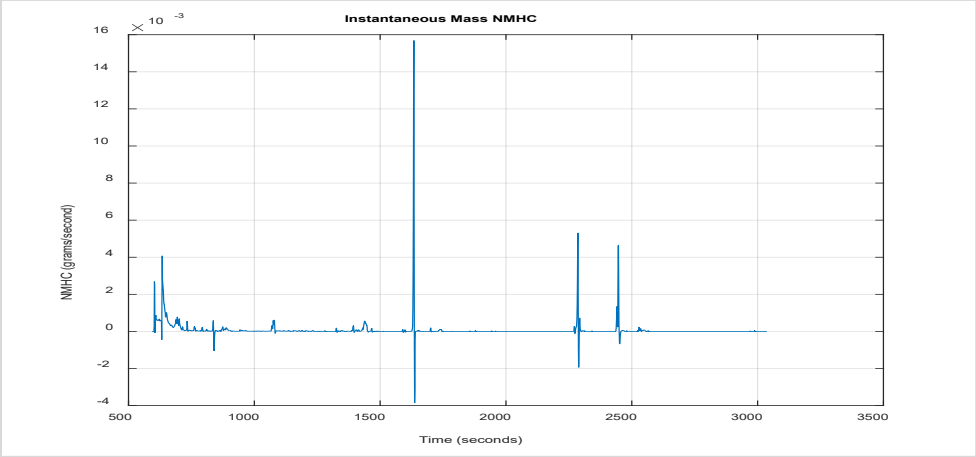


Figure 5.3.7: Vehicle 5 – Transient Cycle Instantaneous Mass NMHC

6. Vehicle 6 – LCRXT03.65P6 – V0RUE5344
Chrysler Pacifica PHEV 3.6L SI-EVT FWD

a. Summary Table(s)

Steady State	NOx (g/mile)	CO2 (g/mi)	CO (g/mi)	NMHC (g/mi)	HC (g/mi)
30	0.0021	200.2909	0.0486	0.0003	0.0005
50	0.0067	237.2872	0.0792	0.0003	0.0007
60	0.0021	262.2572	0.1103	0.0002	0.0008
65	0.0006	270.9102	0.1306	0.0004	0.0010
70	0.0005	302.3580	0.1874	0.0010	0.0025
65	0.0007	271.7512	0.1270	0.0004	0.0010
75	0.0007	331.5750	0.2544	0.0032	0.0075
80	0.0016	361.2914	0.3357	0.0057	0.0143
85	0.0042	372.6014	0.3367	0.0046	0.0133

Table 6.1: Vehicle 6 – Steady State
File: V0RUE5344_SSPEMS010520082480

80 MPH Steady State Cruise	NOx (g/mile)	CO2 (g/mi)	CO (g/mi)	NMHC (g/mi)	HC (g/mi)
80	0.0111	353.8904	0.2909	0.0037	0.0053

Table 6.2: Vehicle 6 – 80 MPH Steady State Cruise
File: V0RUE5344_80SS45010420082480

Transient Cycle	NOx (g/mile)	CO2 (g/mi)	CO (g/mi)	NMHC (g/mi)	HC (g/mi)
Various	0.0855	312.1133	0.6820	0.0066	0.0075

Table 6.3: Vehicle 6 – Transient Cycle
File: V0RUE5344_P-IUVP010420082480

b. Summary Plot(s)

i. Steady State PEMS Test

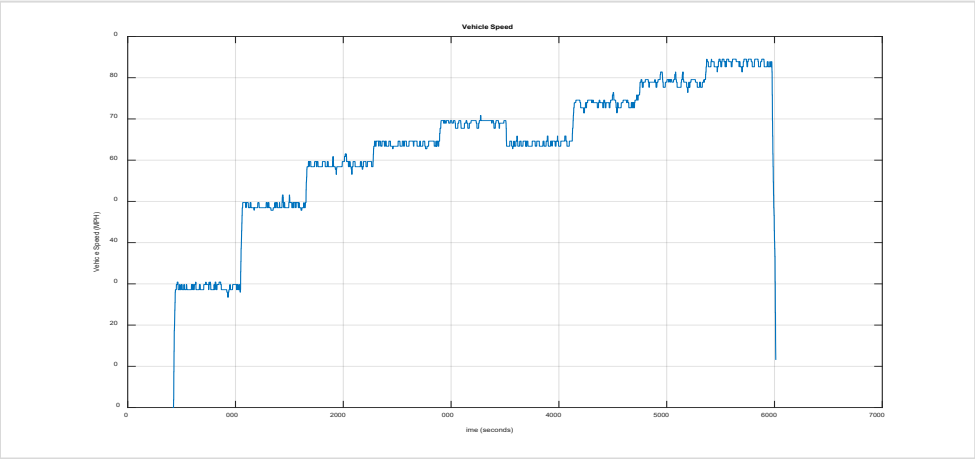


Figure 6.1.1: Vehicle 6 – Steady State Vehicle Speed

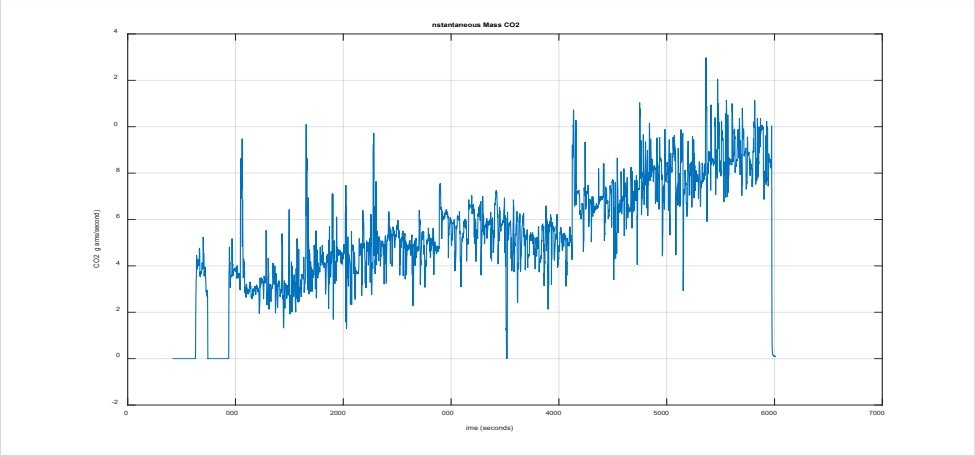


Figure 6.1.2: Vehicle 6 – Steady State Instantaneous Mass CO2

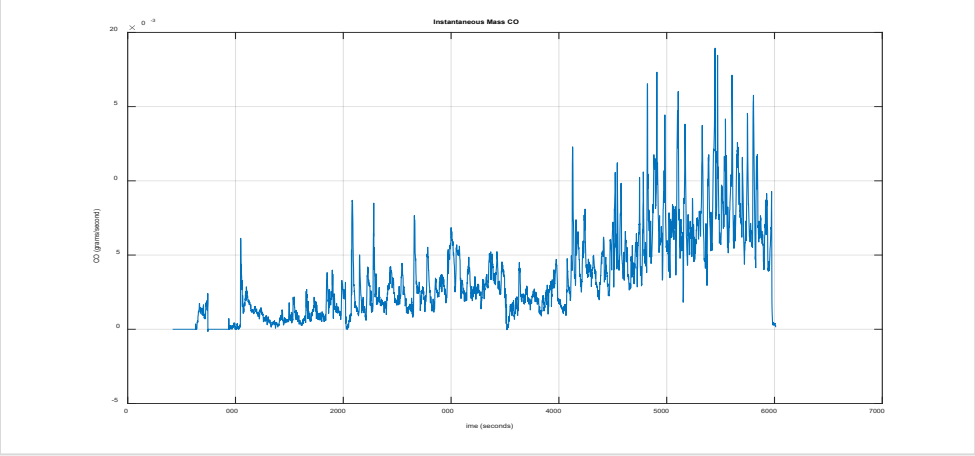


Figure 6.1.3: Vehicle 6 – Steady State Instantaneous Mass CO

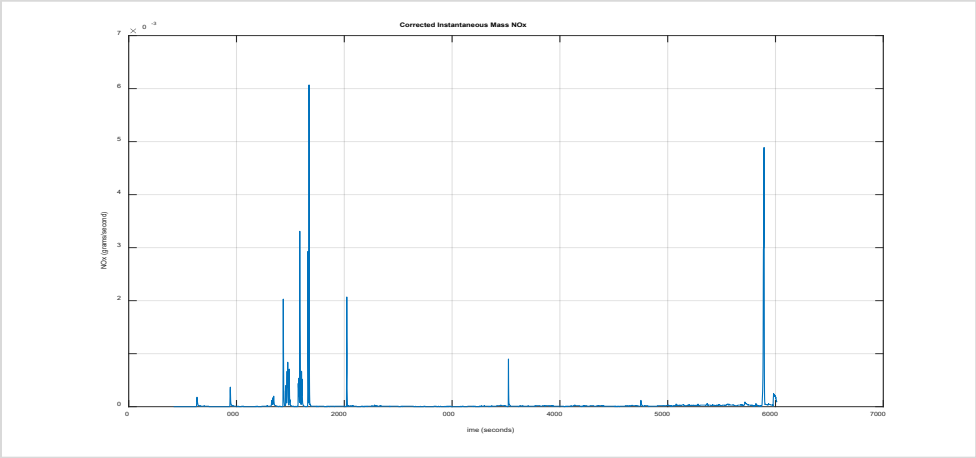


Figure 6.1.4: Vehicle 6 – Steady State Corrected Instantaneous Mass NOx

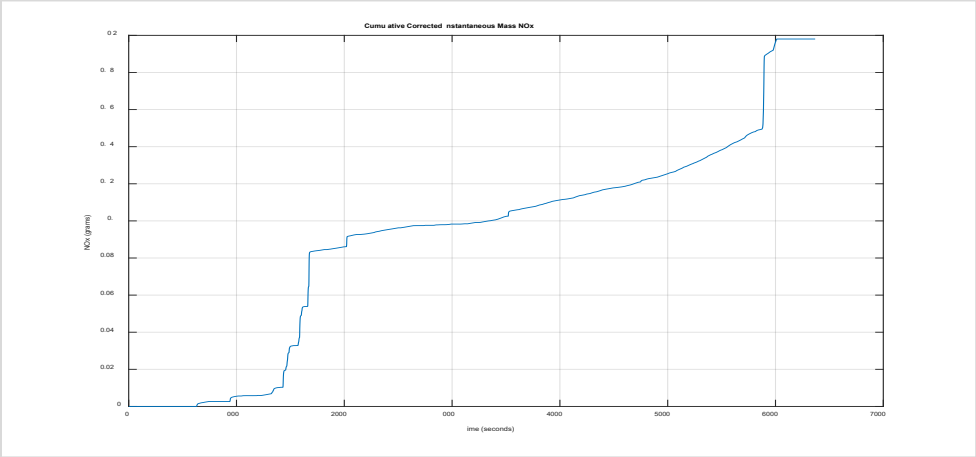


Figure 6.1.5: Vehicle 6 – Steady State Cumulative Corrected Instantaneous Mass NOx

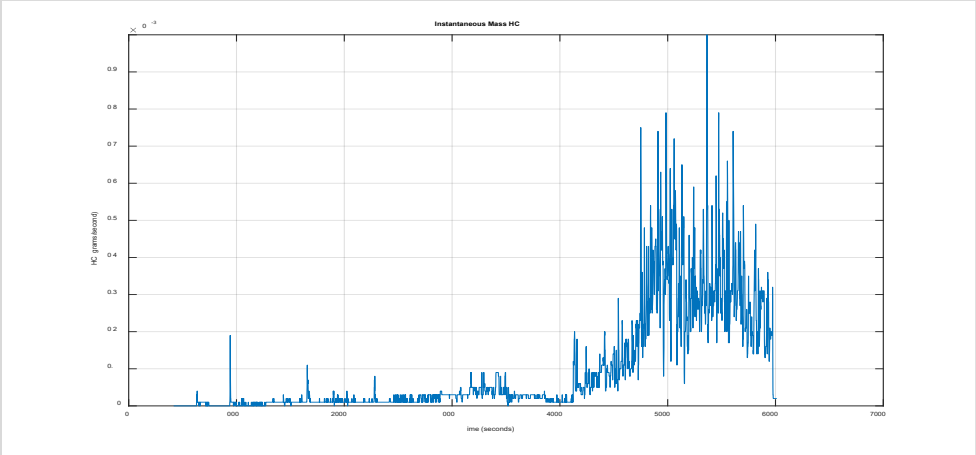


Figure 6.1.6: Vehicle 6 – Steady State Instantaneous Mass HC

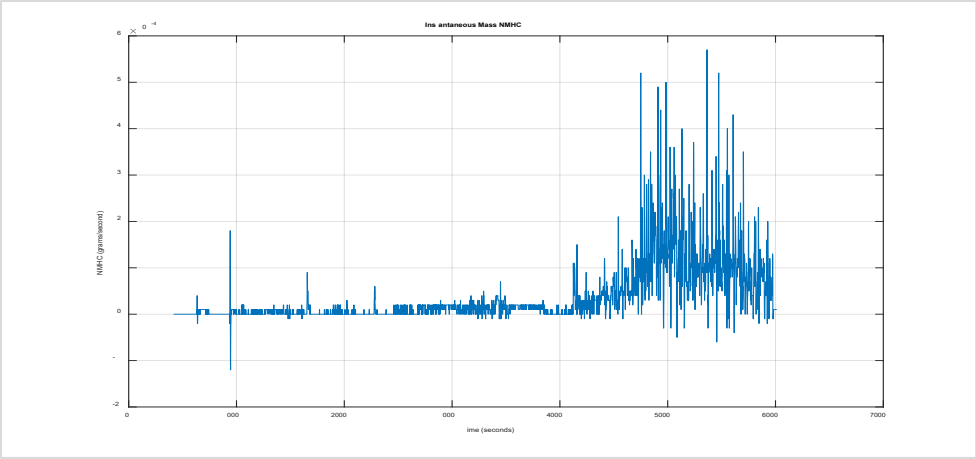


Figure 6.1.7: Vehicle 6 – Steady State Instantaneous Mass NMHC

ii. 80 MPH Steady State Cruise PEMS Test

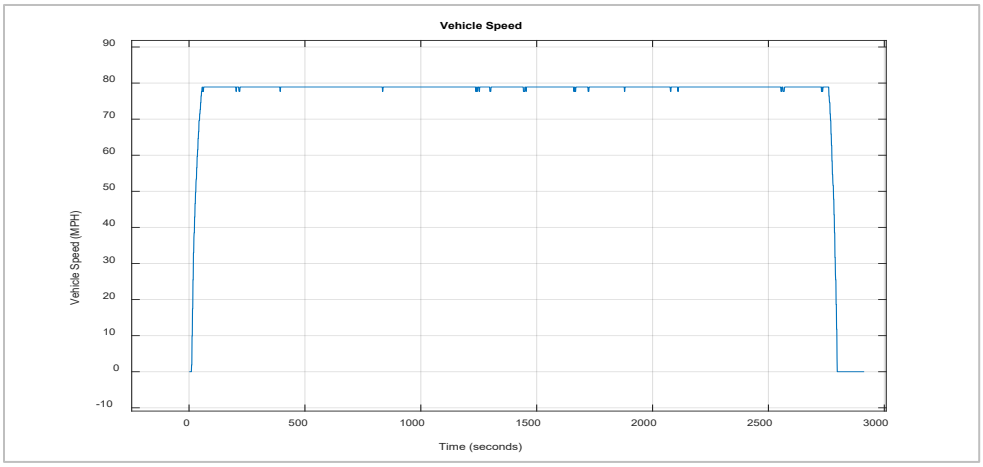


Figure 6.2.1: Vehicle 6 – 80 MPH Steady State Cruise Vehicle Speed

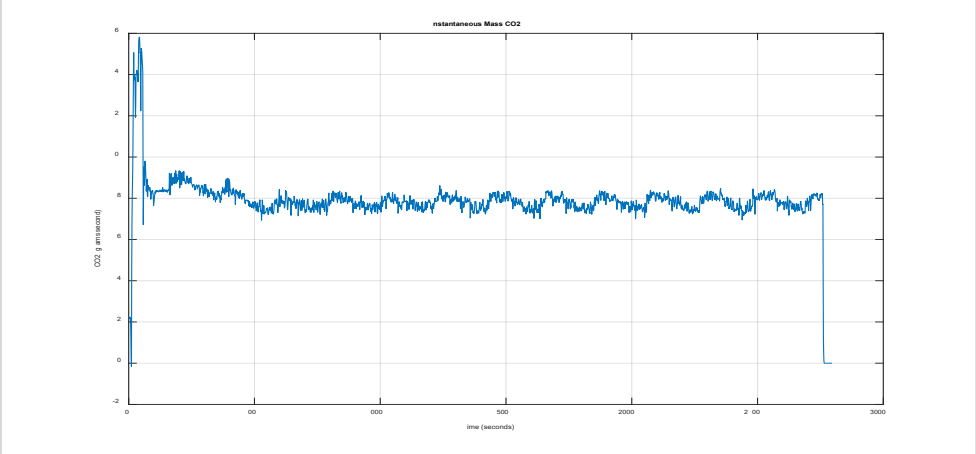


Figure 6.2.2: Vehicle 6 – 80 MPH Steady State Cruise Instantaneous Mass CO2

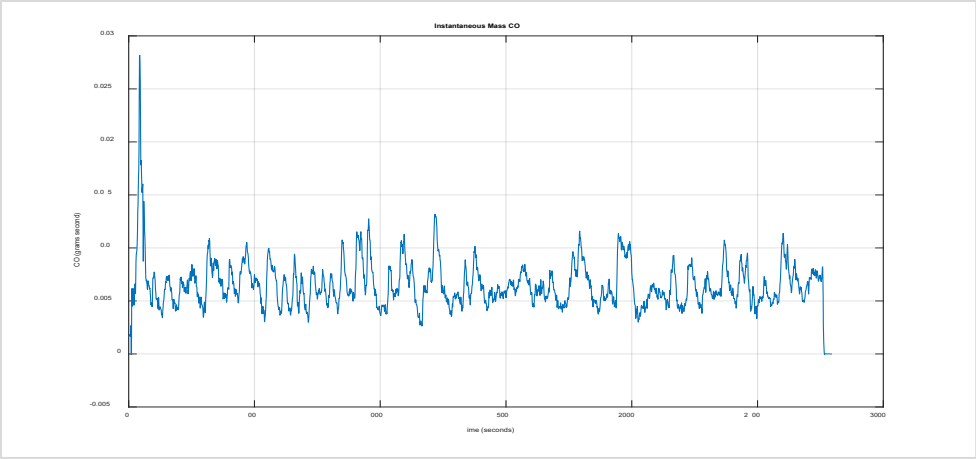


Figure 6.2.3: Vehicle 6 – 80 MPH Steady State Cruise Instantaneous Mass CO

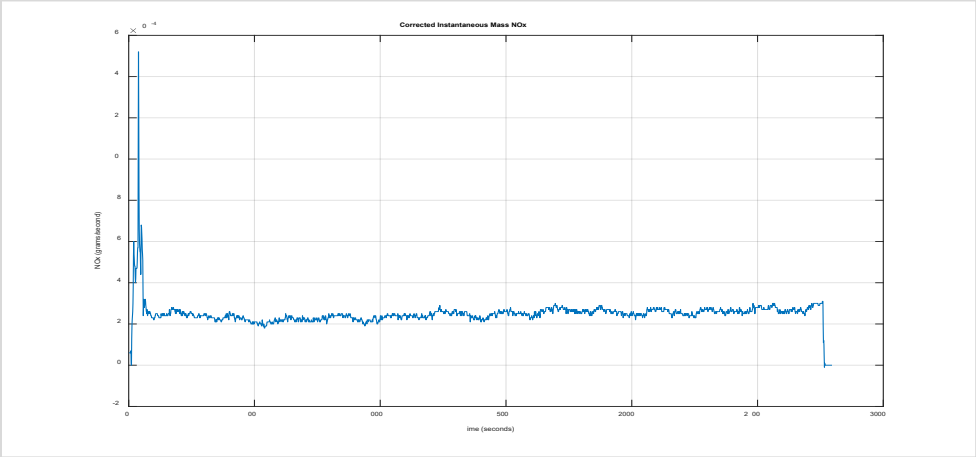


Figure 6.2.4: Vehicle 6 – 80 MPH Steady State Cruise Corrected Instantaneous Mass NOx

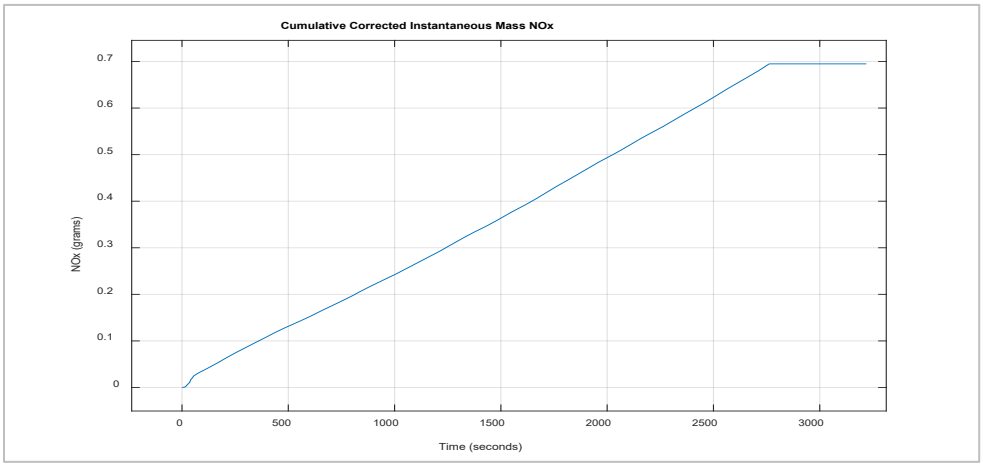


Figure 6.2.5: Vehicle 6 – 80 MPH Steady State Cruise Cumulative Corrected Instantaneous Mass NOx

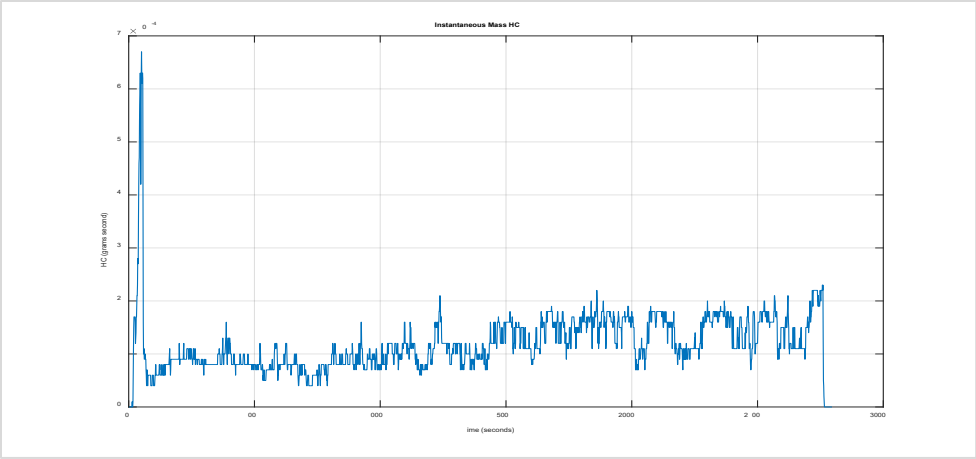


Figure 6.2.6: Vehicle 6 – 80 MPH Steady State Cruise Instantaneous Mass HC

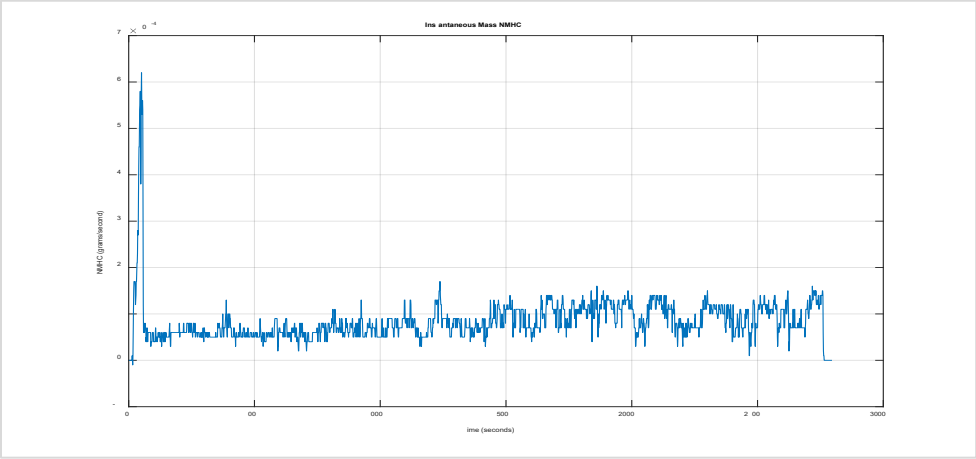


Figure 6.2.7: Vehicle 6 – 80 MPH Steady State Cruise Instantaneous Mass NMHC

iii. Transient Cycle PEMS Test

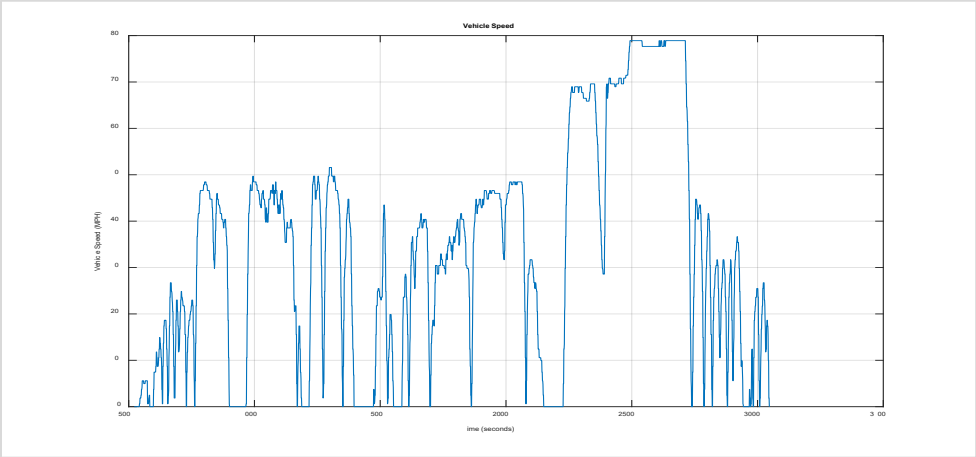


Figure 6.3.1: Vehicle 6 – Transient Cycle Vehicle Speed

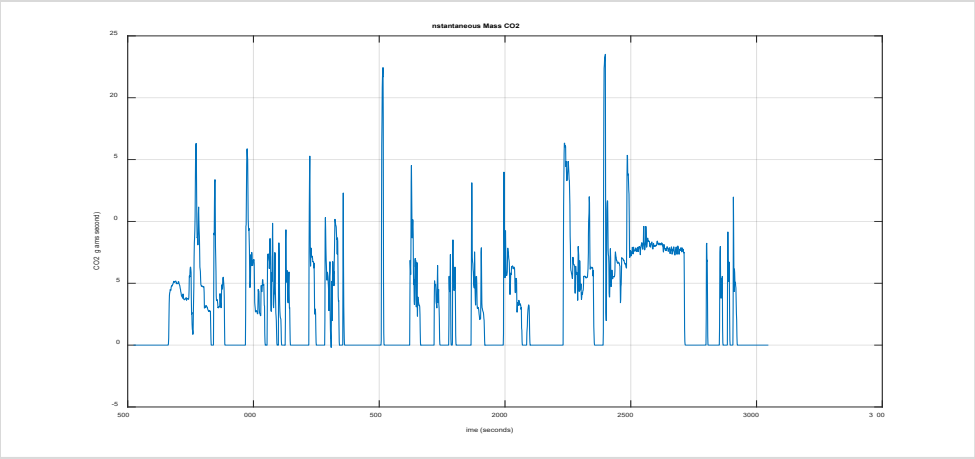


Figure 6.3.2: Vehicle 6 – Transient Cycle Instantaneous Mass CO2

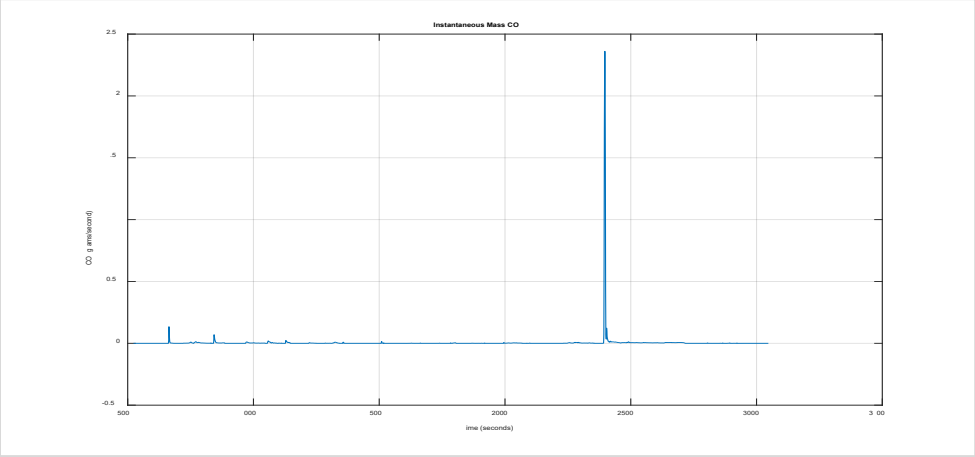


Figure 6.3.3: Vehicle 6 – Transient Cycle Instantaneous Mass CO

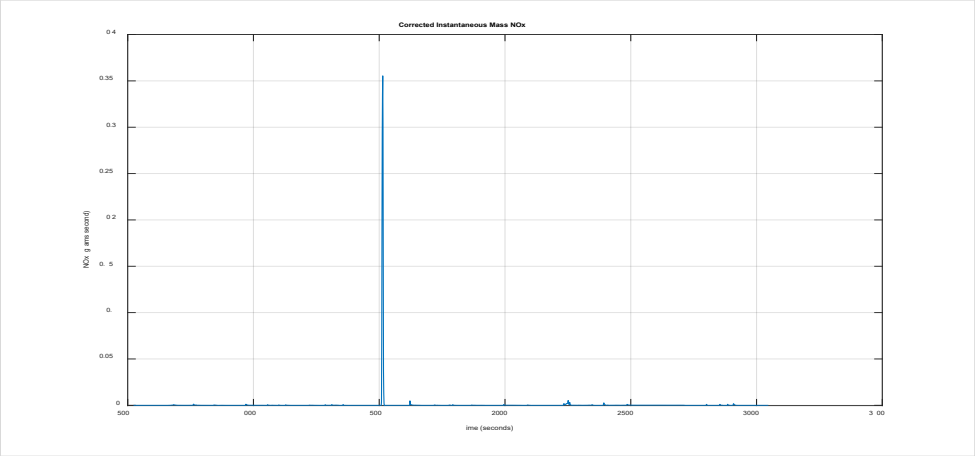


Figure 6.3.4: Vehicle 6 – Transient Cycle Corrected Instantaneous Mass NOx

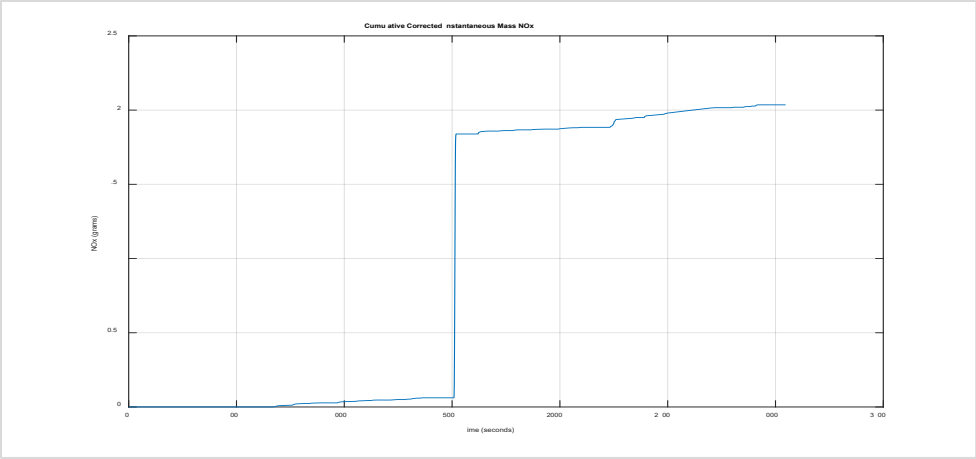


Figure 6.3.5: Vehicle 6 – Transient Cycle Cumulative Corrected Instantaneous Mass NOx

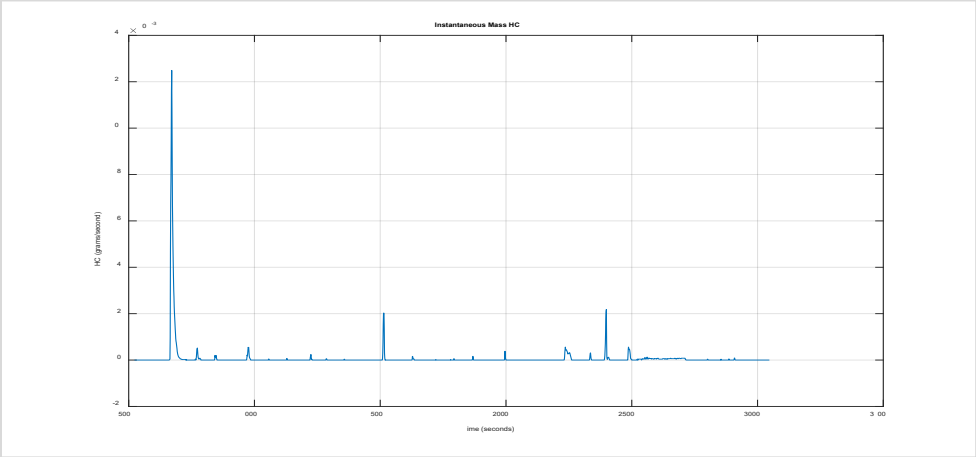


Figure 6.3.6: Vehicle 6 – Transient Cycle Instantaneous Mass HC

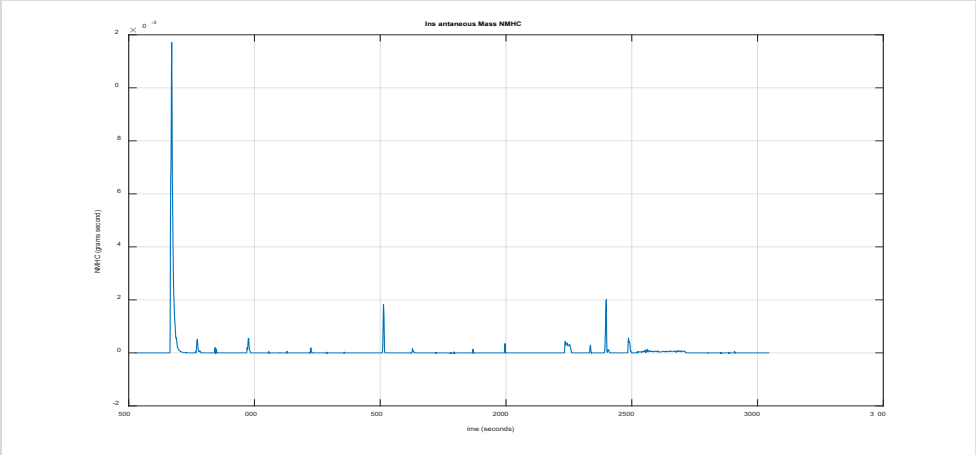


Figure 6.3.7: Vehicle 6 – Transient Cycle Instantaneous Mass NMHC

7. Vehicle 7 – LCRXT03.65P8 – V0RUC4875
Chrysler Pacifica 3.6L with ESS Automatic 9-speed FWD

a. Summary Table(s)

Steady State	NOx (g/mile)	CO2 (g/mi)	CO (g/mi)	NMHC (g/mi)	HC (g/mi)
30	0.0051	281.0218	0.0518	0.0000	0.0000
50	0.0041	263.9904	0.0779	0.0000	0.0000
60	0.0053	288.7480	0.1330	-0.0005	0.0001
65	0.0063	293.9434	0.1328	-0.0011	0.0001
70	0.0089	333.7532	0.1902	0.0002	0.0044
65	0.0066	293.0647	0.1314	-0.0011	0.0001
75	0.0101	359.4110	0.2693	0.0021	0.0138
80	0.0115	394.1418	0.3862	0.0028	0.0196
85	0.0121	406.7097	0.4549	0.0031	0.0212

Table 7.1: Vehicle 7 – Steady State
File: V0RUC4875_SSPEMS010420091080

80 MPH Steady State Cruise	NOx (g/mile)	CO2 (g/mi)	CO (g/mi)	NMHC (g/mi)	HC (g/mi)
80	0.0054	372.7215	0.2416	0.0058	0.0127

Table 7.2: Vehicle 7 – 80 MPH Steady State Cruise
File: V0RUC4875_80SS45010520090980

Transient Cycle	NOx (g/mile)	CO2 (g/mi)	CO (g/mi)	NMHC (g/mi)	HC (g/mi)
Various	0.0128	797.4787	2.6404	0.0134	0.0216

Table 7.3: Vehicle 7 – Transient Cycle
File: V0RUC4875_P-IUVP010420090980

b. Summary Plot(s)

i. Steady State PEMS Test

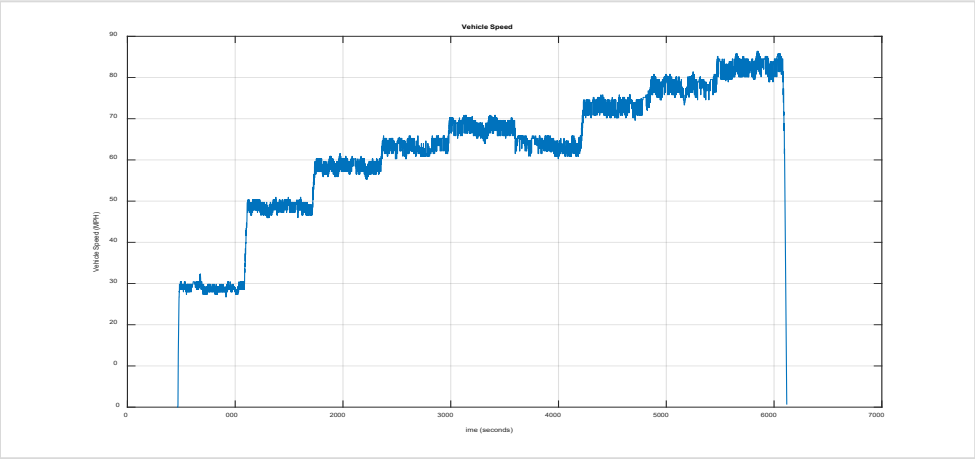


Figure 7.1.1: Vehicle 7 – Steady State Vehicle Speed

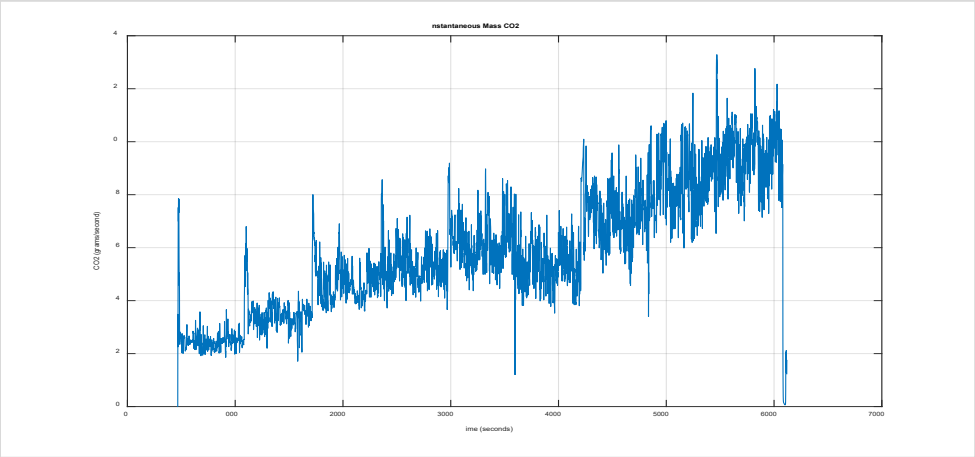


Figure 7.1.2: Vehicle 7 – Steady State Instantaneous Mass CO2

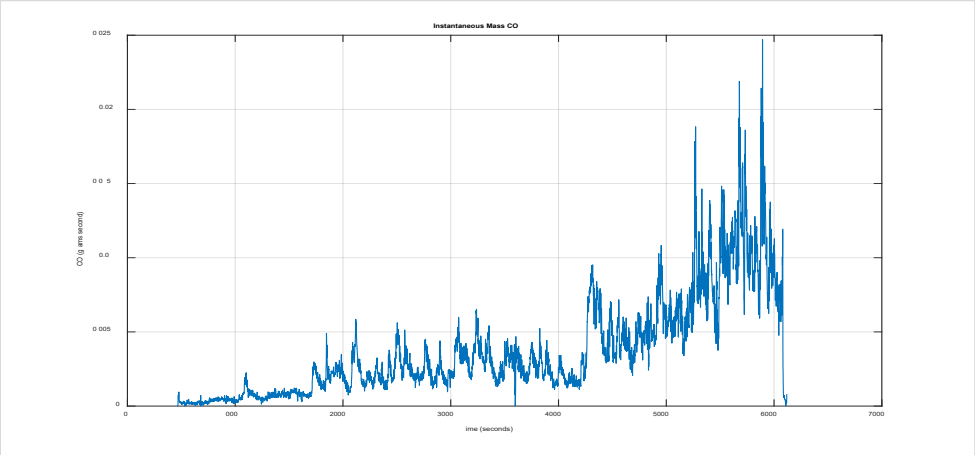


Figure 7.1.3: Vehicle 7 – Steady State Instantaneous Mass CO

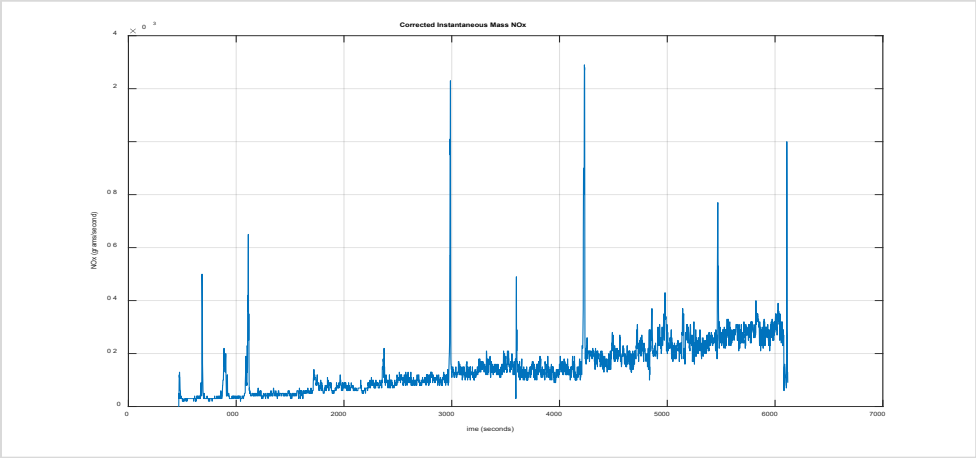


Figure 7.1.4: Vehicle 7 – Steady State Corrected Instantaneous Mass NOx

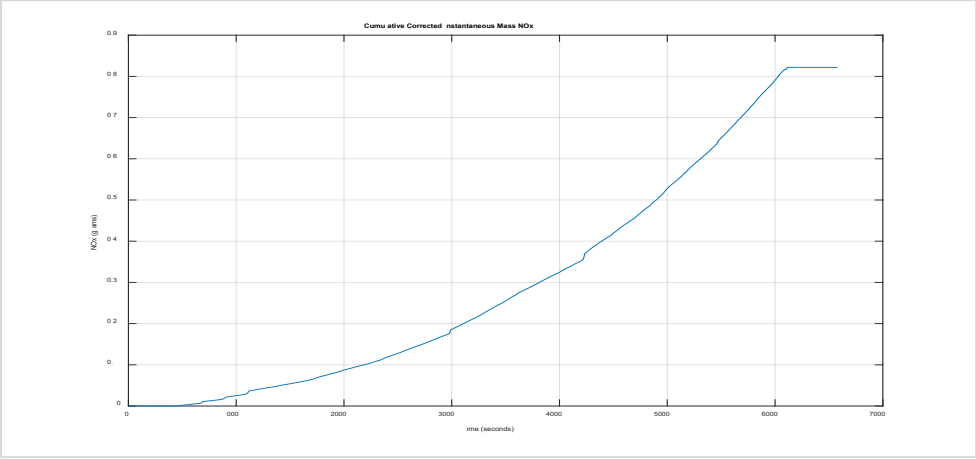


Figure 7.1.5: Vehicle 7 – Steady State Cumulative Corrected Instantaneous Mass NOx

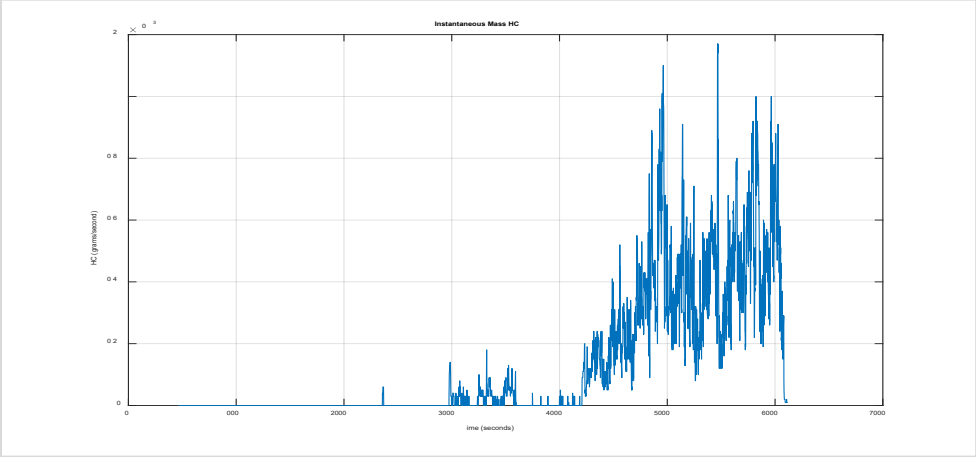


Figure 7.1.6: Vehicle 7 – Steady State Instantaneous Mass HC

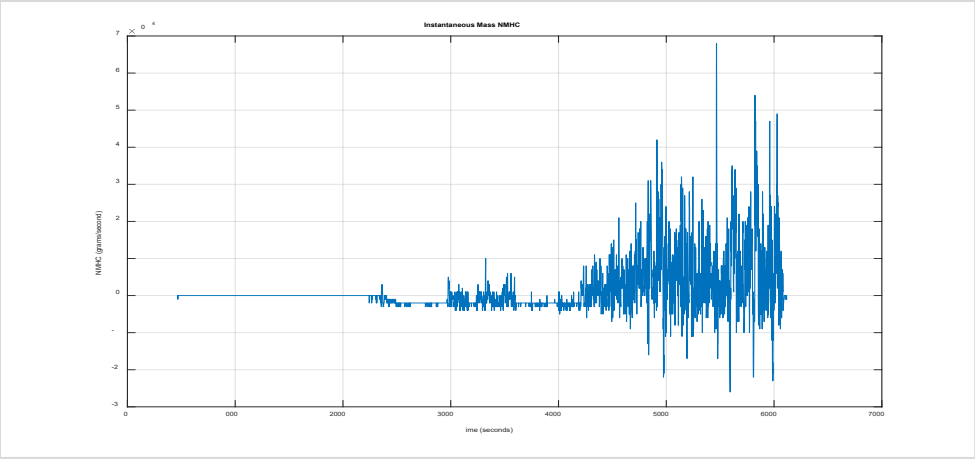


Figure 7.1.7: Vehicle 7 – Steady State Instantaneous Mass NMHC

ii. 80 MPH Steady State Cruise PEMS Test

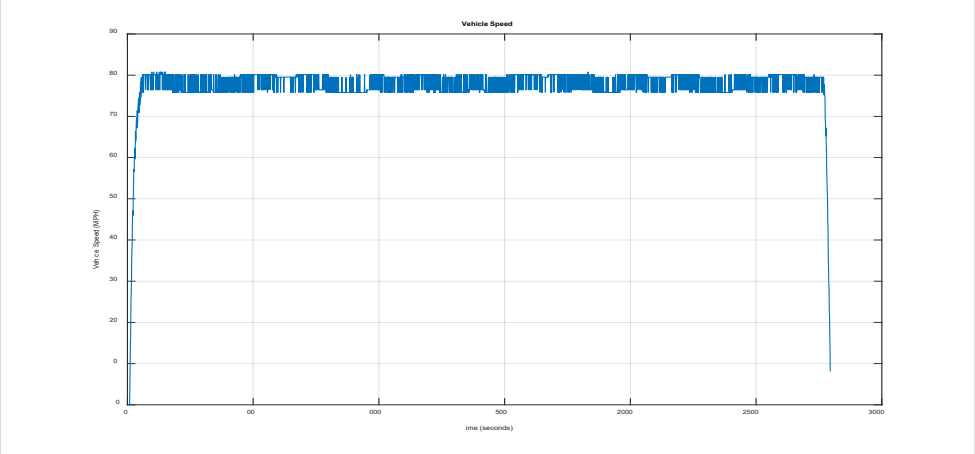


Figure 7.2.1: Vehicle 7 – 80 MPH Steady State Cruise Vehicle Speed

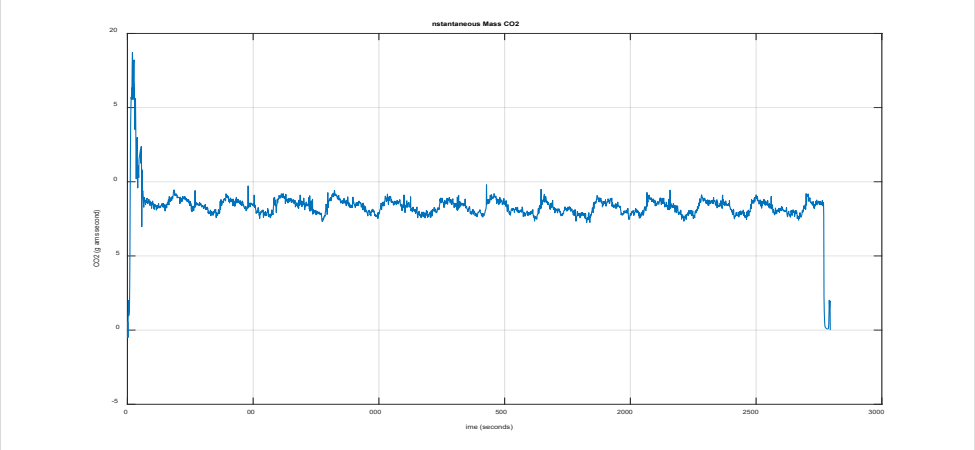


Figure 7.2.2: Vehicle 7 – 80 MPH Steady State Cruise Instantaneous Mass CO2

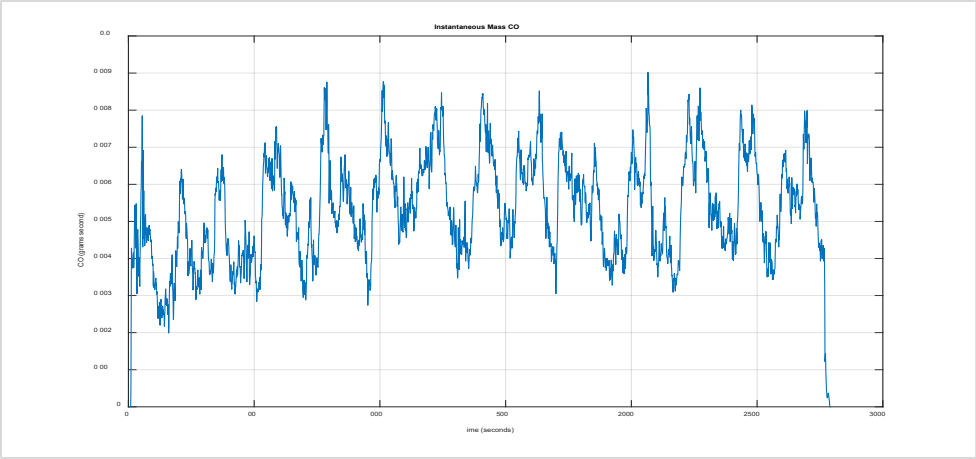


Figure 7.2.3: Vehicle 7 – 80 MPH Steady State Cruise Instantaneous Mass CO

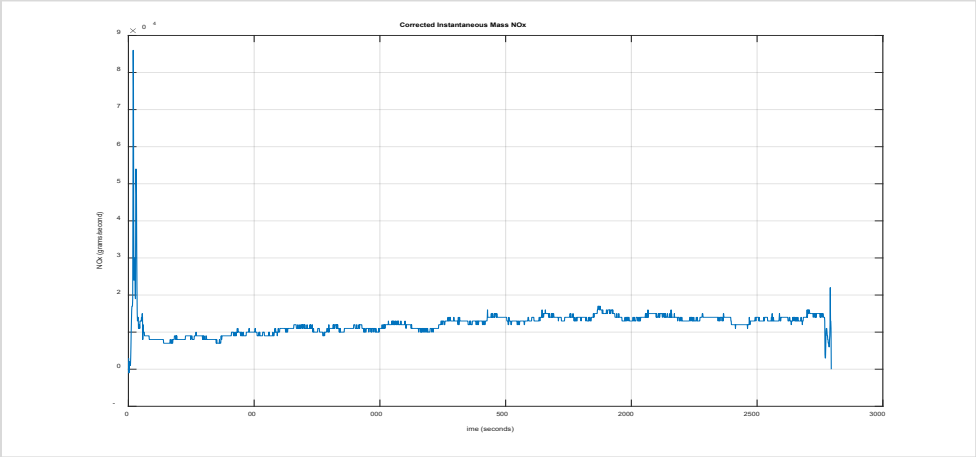


Figure 7.2.4: Vehicle 7 – 80 MPH Steady State Cruise Corrected Instantaneous Mass NOx

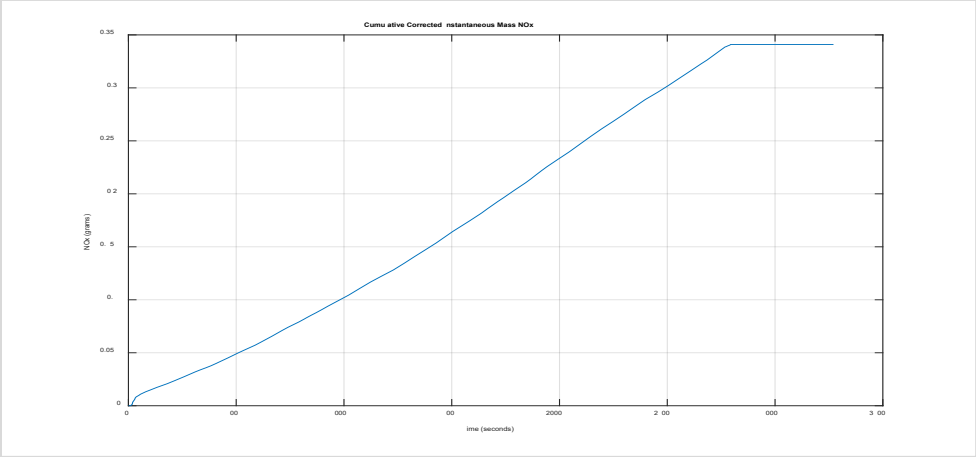


Figure 7.2.5: Vehicle 7 – 80 MPH Steady State Cruise Cumulative Corrected Instantaneous Mass NOx

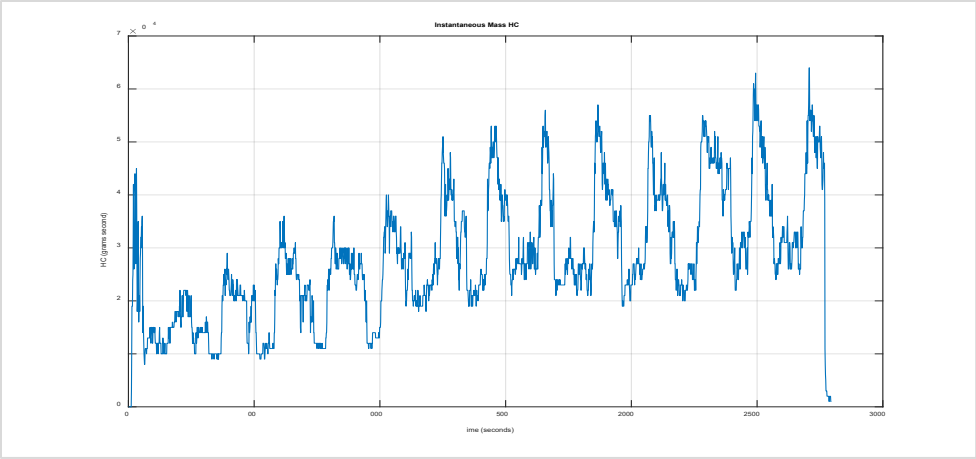


Figure 7.2.6: Vehicle 7 – 80 MPH Steady State Cruise Instantaneous Mass HC

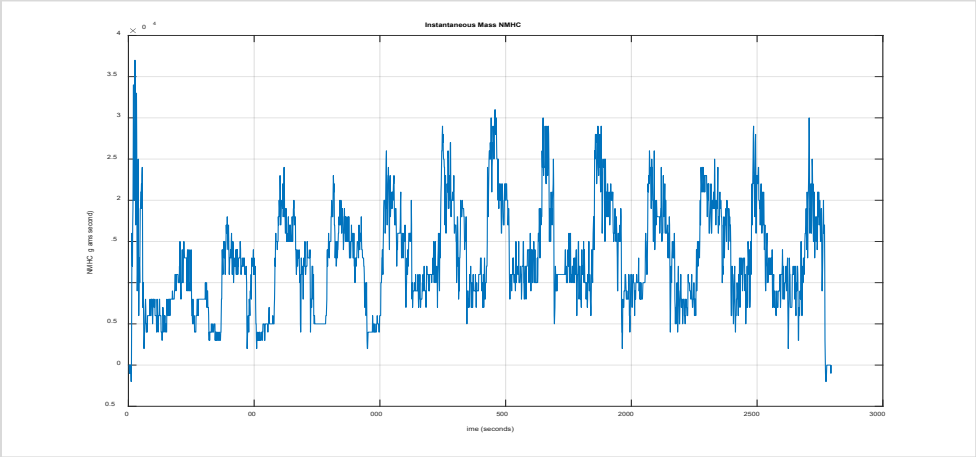


Figure 7.2.7: Vehicle 7 – 80 MPH Steady State Cruise Instantaneous Mass NMHC

iii. Transient Cycle PEMS Test

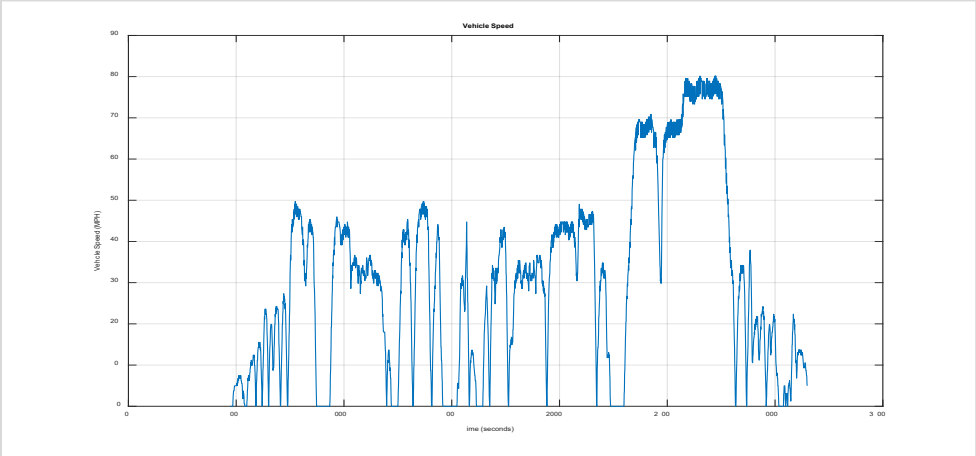


Figure 7.3.1: Vehicle 7 – Transient Cycle Vehicle Speed

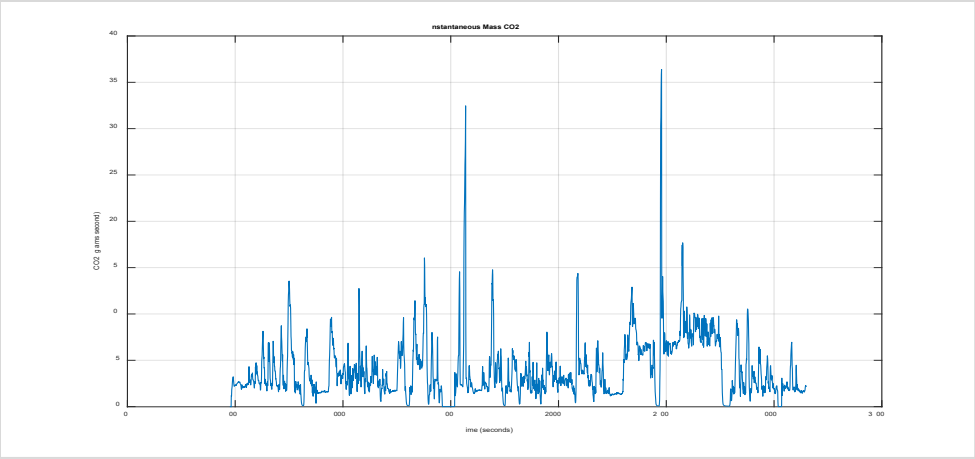


Figure 7.3.2: Vehicle 7 – Transient Cycle Instantaneous Mass CO2

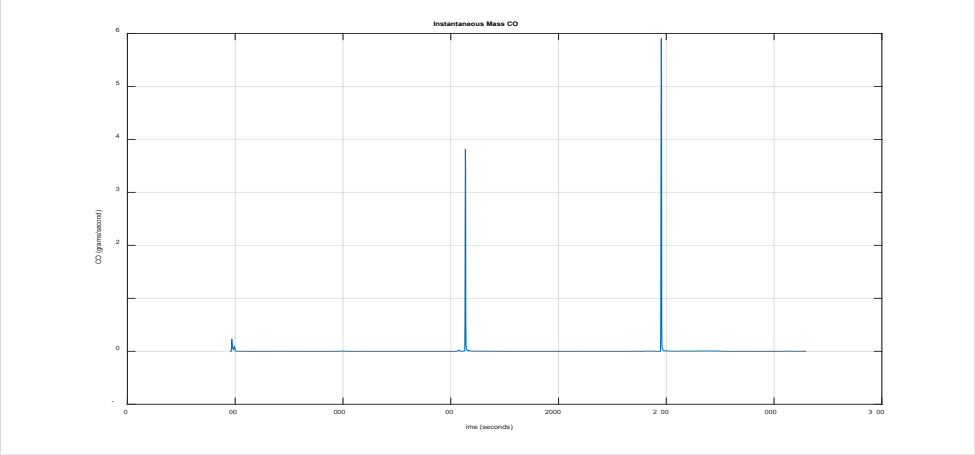


Figure 7.3.3: Vehicle 7 – Transient Cycle Instantaneous Mass CO

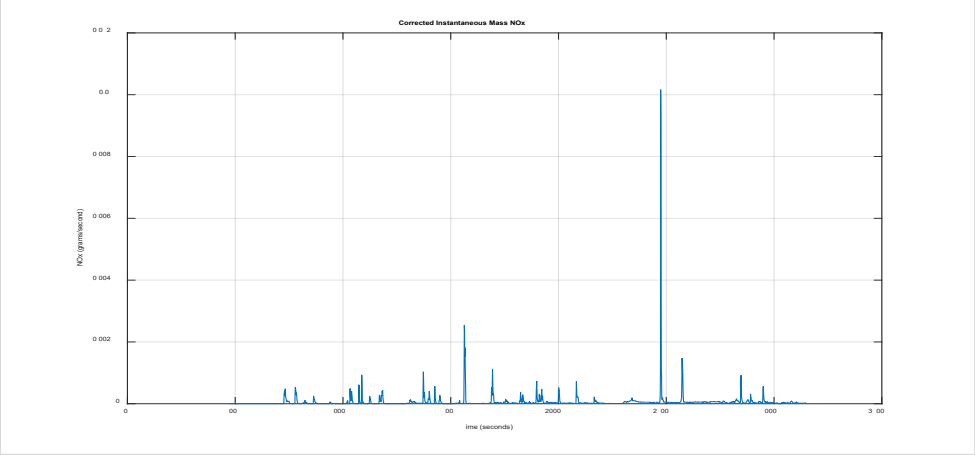


Figure 7.3.4: Vehicle 7 – Transient Cycle Corrected Instantaneous Mass NOx

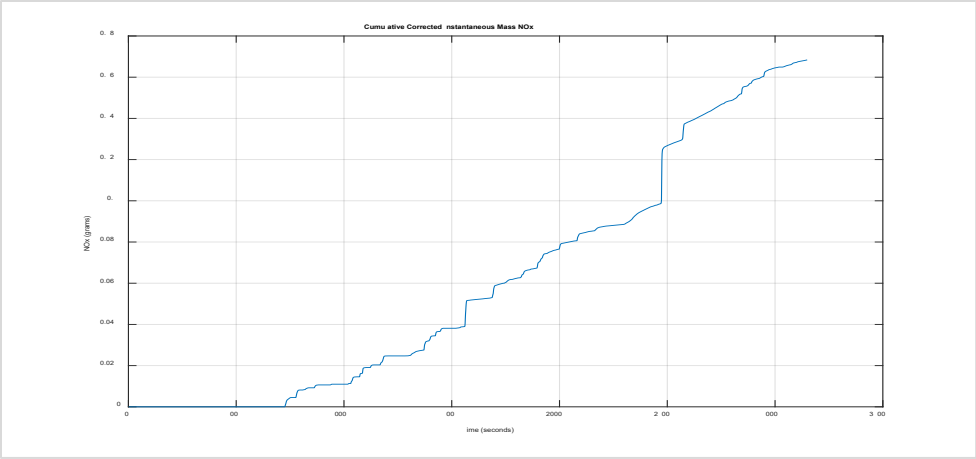


Figure 7.3.5: Vehicle 7 – Transient Cycle Cumulative Corrected Instantaneous Mass NOx

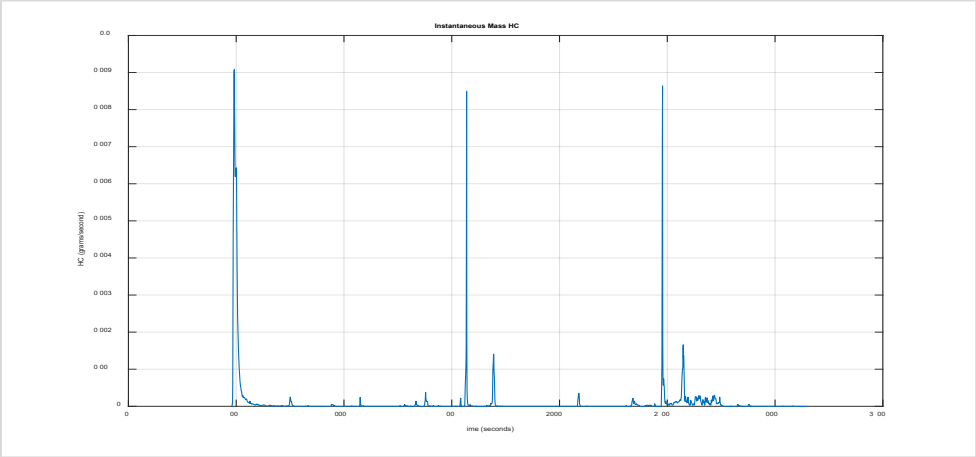


Figure 7.3.6: Vehicle 7 – Transient Cycle Instantaneous Mass HC

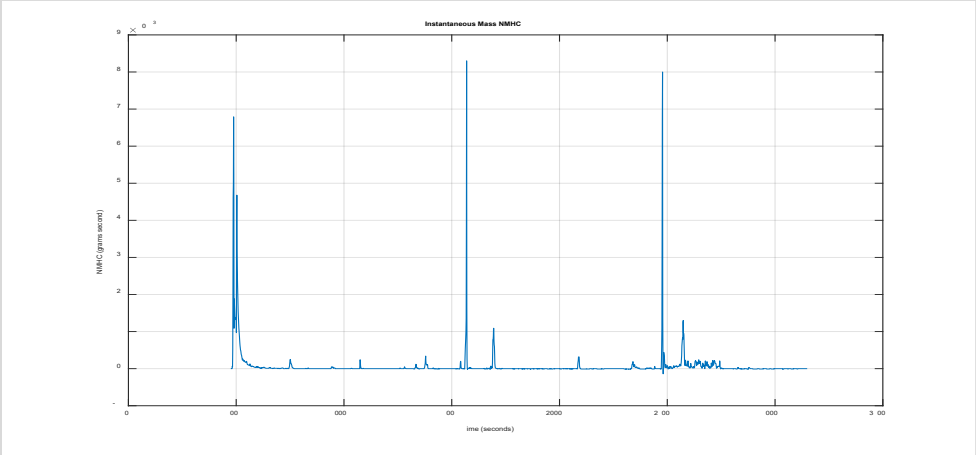


Figure 7.3.7: Vehicle 7 – Transient Cycle Instantaneous Mass NMHC

8. Vehicle 8 – LCRCV06.45P0 – VOLDD2392
Dodge Charger Scat Pack 6.4L Automatic 8-speed RWD

a. Summary Table(s)

Steady State	NOx (g/mile)	CO2 (g/mi)	CO (g/mi)	NMHC (g/mi)	HC (g/mi)
30	0.0012	341.5469	0.1714	0.0003	0.0003
50	0.0049	291.4791	0.2064	0.0048	0.0064
60	0.0160	318.2931	0.4215	0.0130	0.0190
65	0.0134	354.3753	0.4045	0.0108	0.0174
70	0.0209	390.8333	0.3171	0.0054	0.0113
65	0.0127	351.4180	0.3896	0.0102	0.0166
75	0.0399	413.4495	0.3985	0.0048	0.0121
80	0.0106	442.8363	0.5639	0.0056	0.0155
85	0.0093	463.9960	0.5107	0.0047	0.0135

Table 8.1: Vehicle 8 – Steady State
File: V0LDD2392_SSPEMS010320092680

80 MPH Steady State Cruise	NOx (g/mile)	CO2 (g/mi)	CO (g/mi)	NMHC (g/mi)	HC (g/mi)
80	0.0124	440.5059	0.4464	0.0083	0.0119

Table 8.2: Vehicle 8 – 80 MPH Steady State Cruise
File: V0LDD2392_80SS45010420092680

Transient Cycle	NOx (g/mile)	CO2 (g/mi)	CO (g/mi)	NMHC (g/mi)	HC (g/mi)
Various	0.0445	522.8191	3.1325	0.0252	0.0410

Table 8.3: Vehicle 8 – Transient Cycle
File: V0LDD2392_TCYL45010420092680

b. Summary Plot(s)

i. Steady State PEMS Test

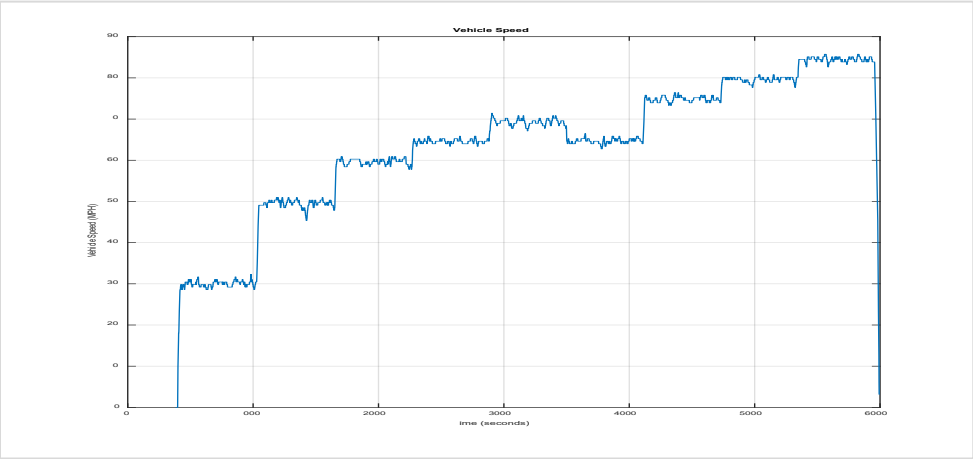


Figure 8.1.1: Vehicle 8 – Steady State Vehicle Speed

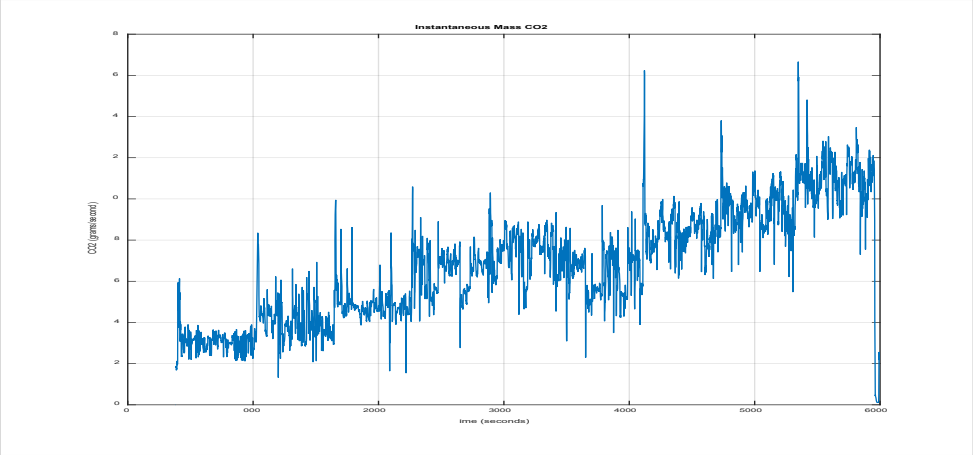


Figure 8.1.2: Vehicle 8 – Steady State Instantaneous Mass CO2

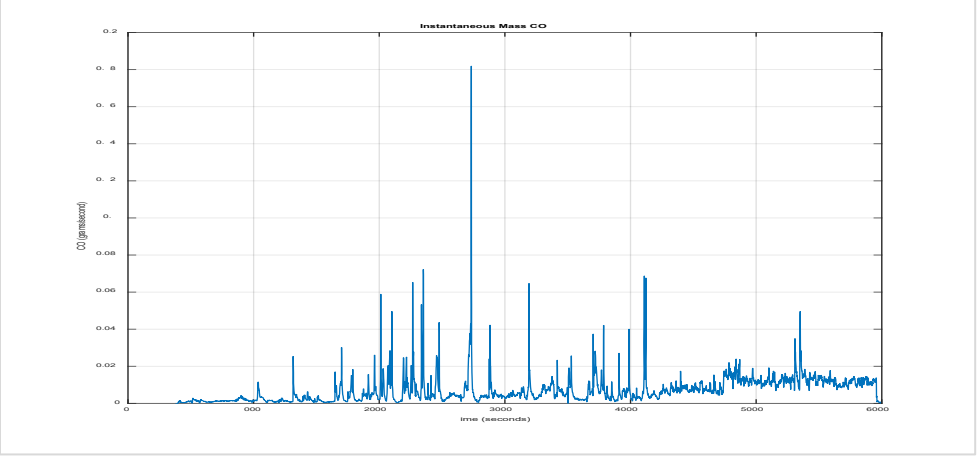


Figure 8.1.3: Vehicle 8 – Steady State Instantaneous Mass CO

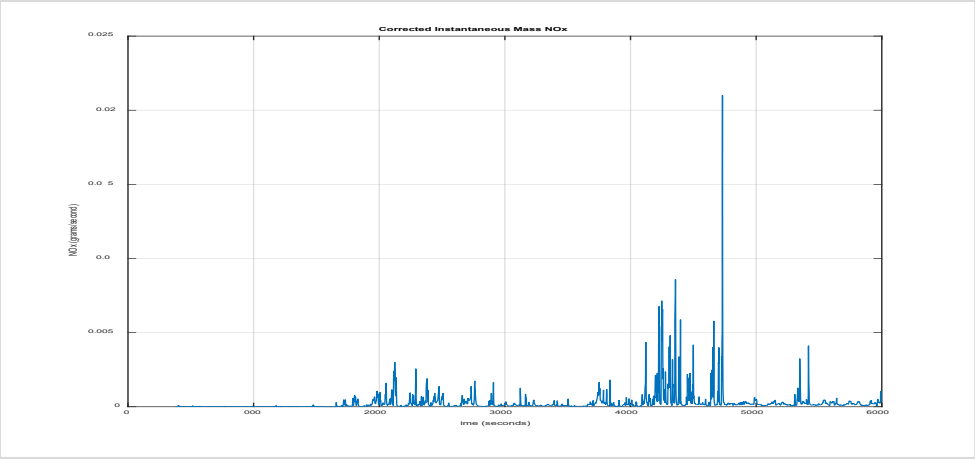


Figure 8.1.4: Vehicle 8 – Steady State Corrected Instantaneous Mass NOx

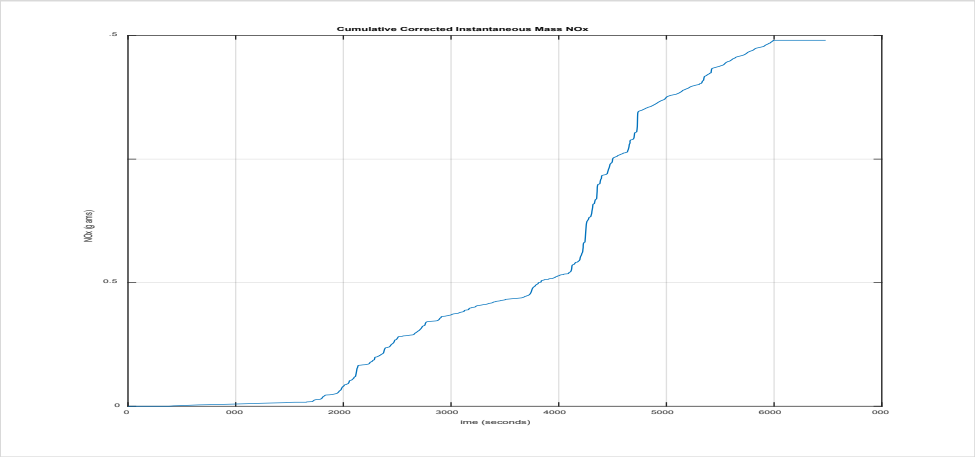


Figure 8.1.5: Vehicle 8 – Steady State Cumulative Corrected Instantaneous Mass NOx

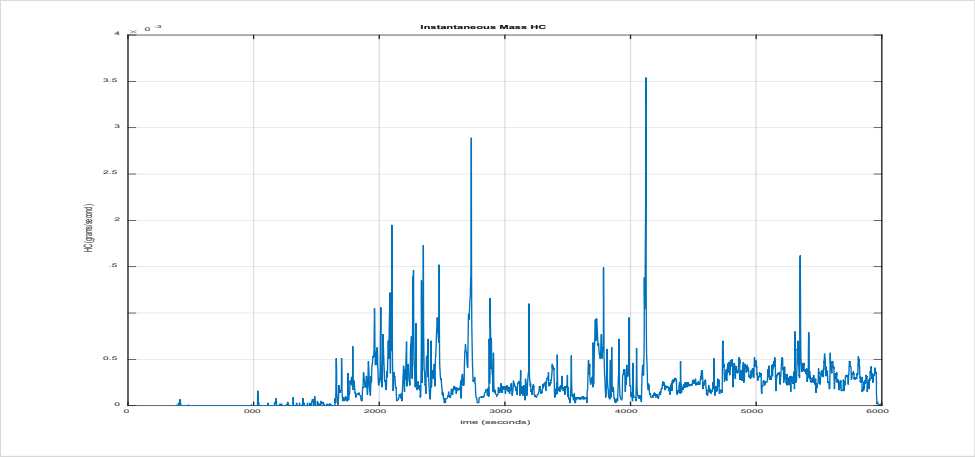


Figure 8.1.6: Vehicle 8 – Steady State Instantaneous Mass HC

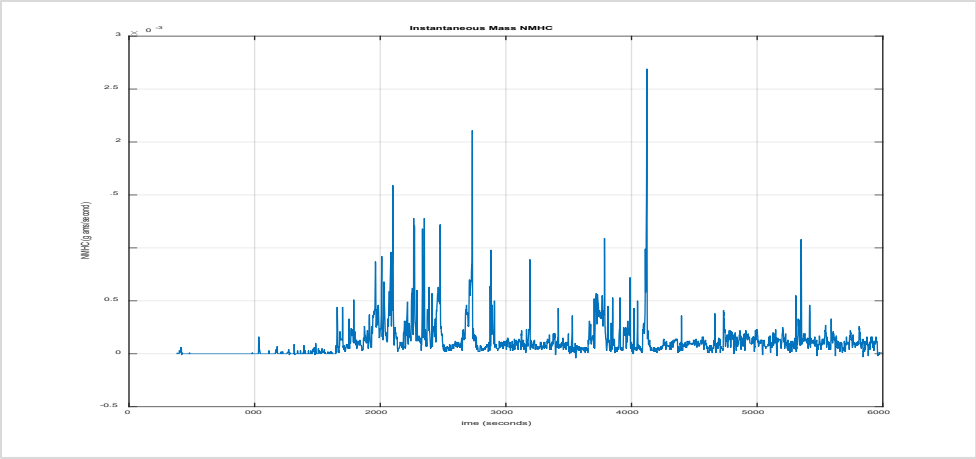


Figure 8.1.7: Vehicle 8 – Steady State Instantaneous Mass NMHC

ii. 80 MPH Steady State Cruise PEMS Test

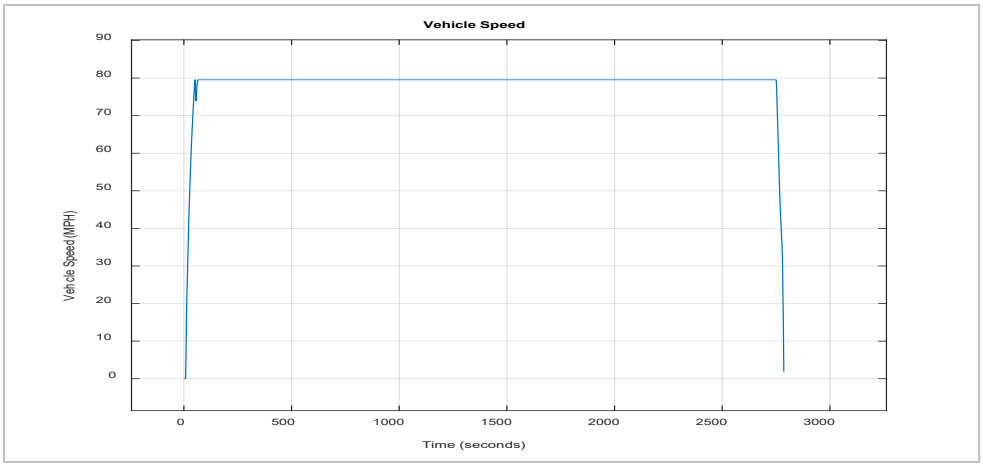


Figure 8.2.1: Vehicle 8 – 80 MPH Steady State Cruise Vehicle Speed

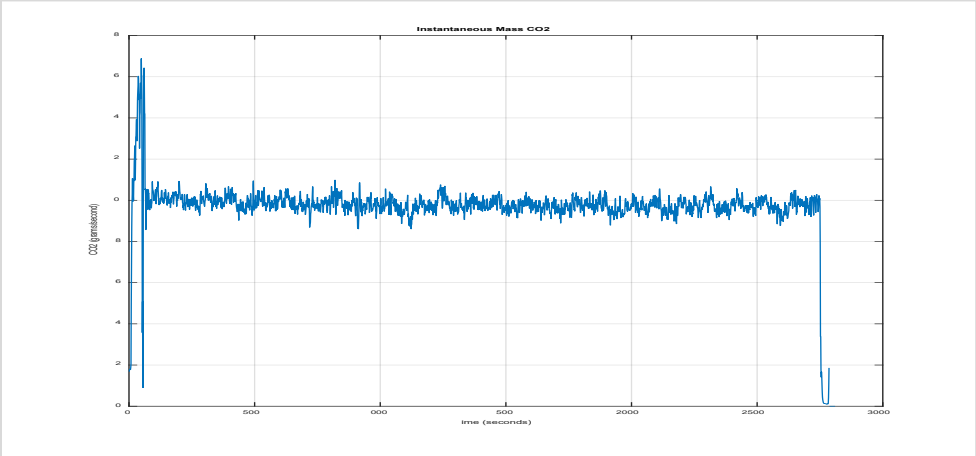


Figure 8.2.2: Vehicle 8 – 80 MPH Steady State Cruise Instantaneous Mass CO2

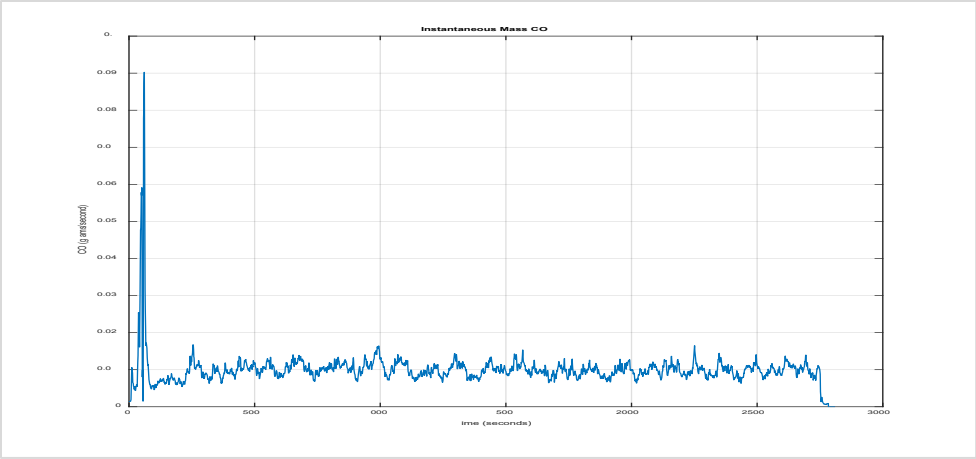


Figure 8.2.3: Vehicle 8 – 80 MPH Steady State Cruise Instantaneous Mass CO

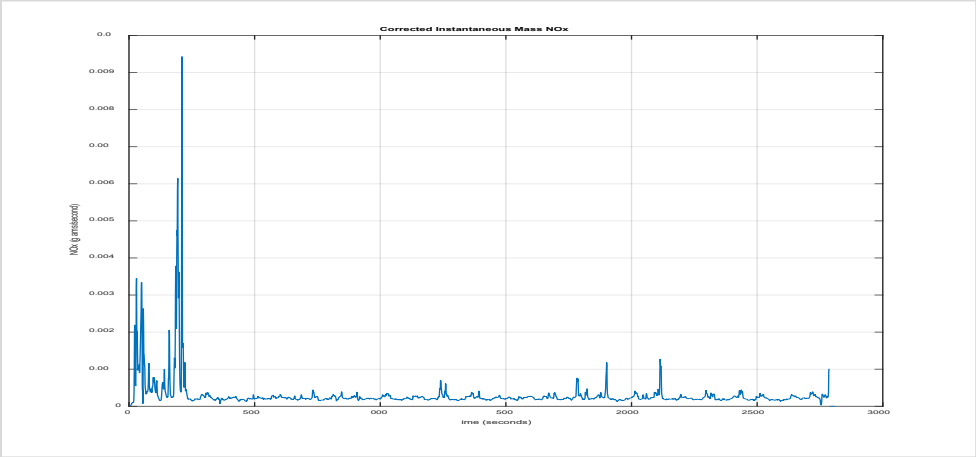


Figure 8.2.4: Vehicle 8 – 80 MPH Steady State Cruise Corrected Instantaneous Mass NOx

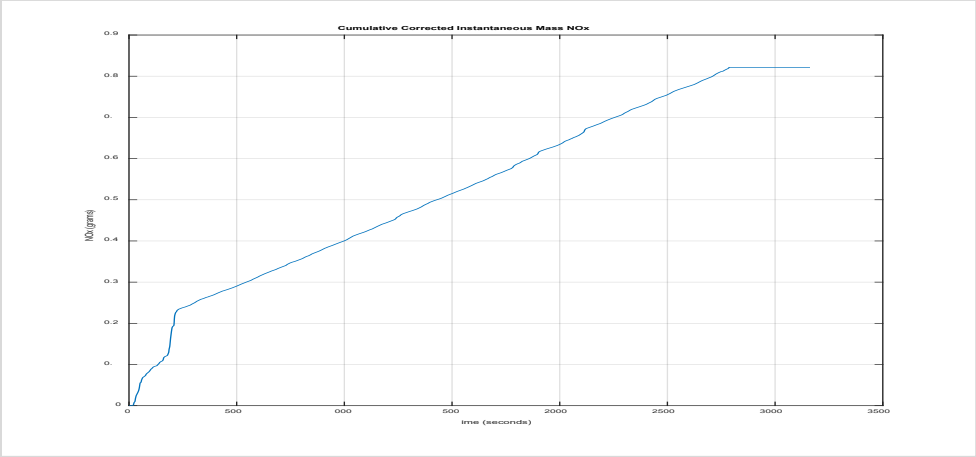


Figure 8.2.5: Vehicle 8 – 80 MPH Steady State Cruise Cumulative Corrected Instantaneous Mass NOx

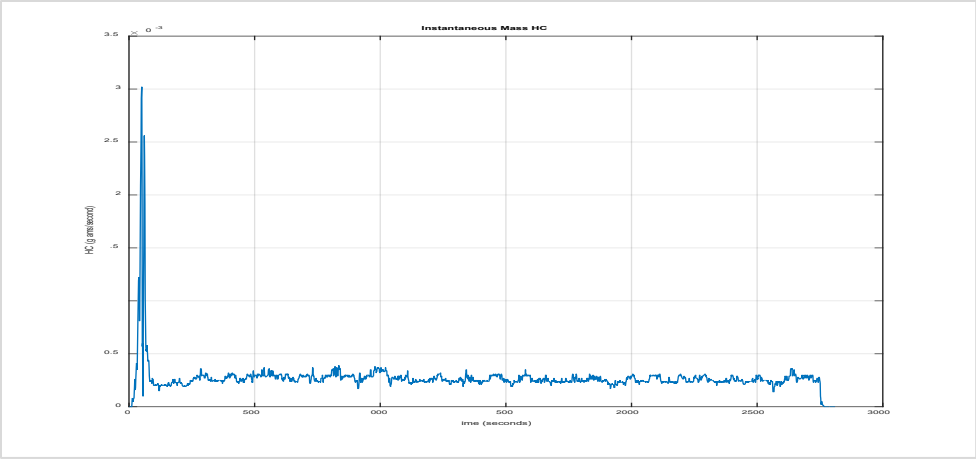


Figure 8.2.6: Vehicle 8 – 80 MPH Steady State Cruise Instantaneous Mass HC

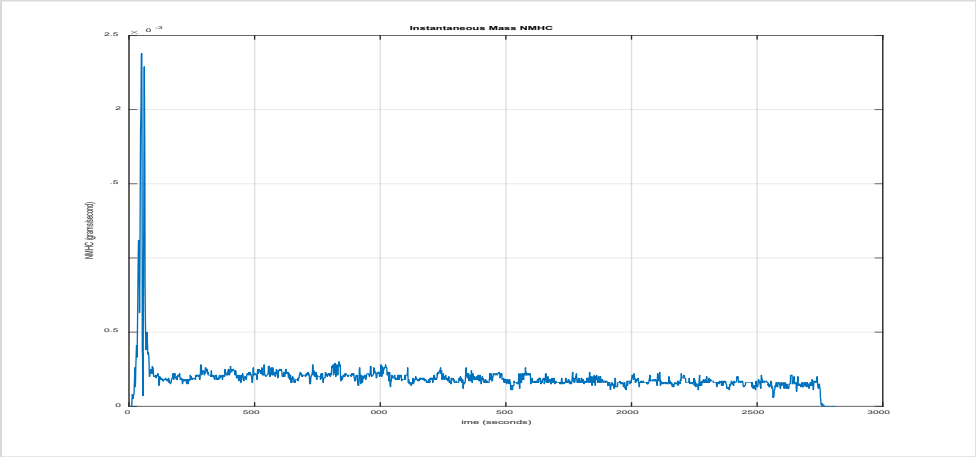


Figure 8.2.7: Vehicle 8 – 80 MPH Steady State Cruise Instantaneous Mass NMHC

iii. Transient Cycle PEMS Test

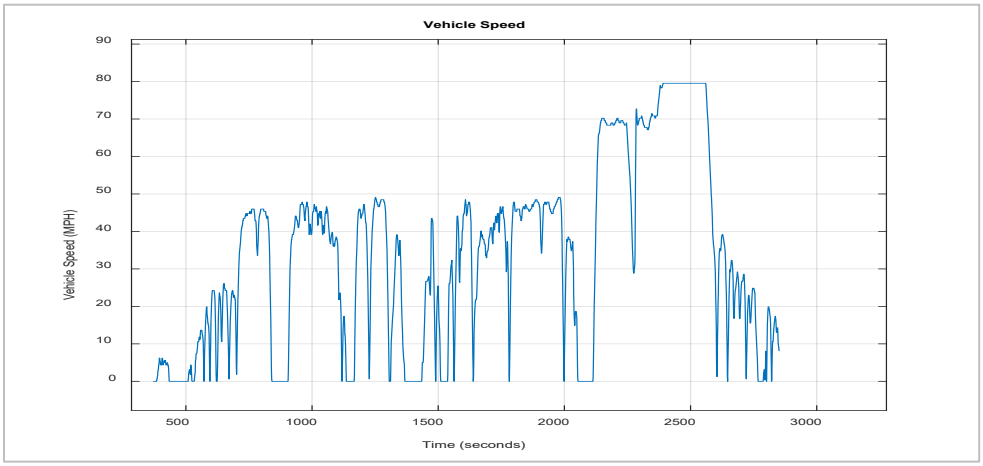


Figure 8.3.1: Vehicle 8 – Transient Cycle Vehicle Speed

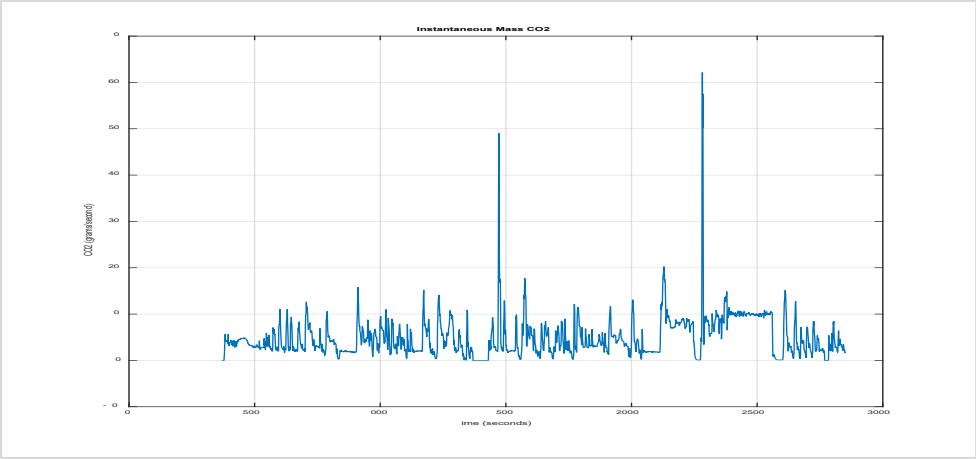


Figure 8.3.2: Vehicle 8 – Transient Cycle Instantaneous Mass CO2

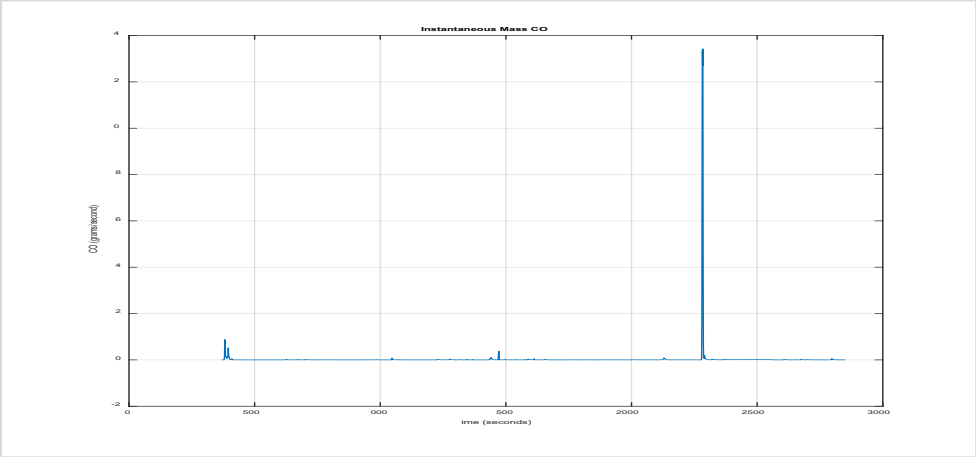


Figure 8.3.3: Vehicle 8 – Transient Cycle Instantaneous Mass CO

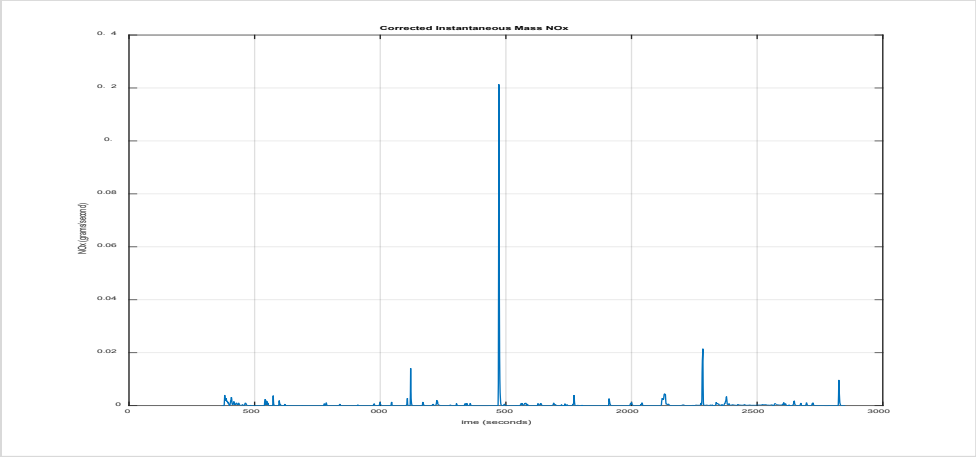


Figure 8.3.4: Vehicle 8 – Transient Cycle Corrected Instantaneous Mass NOx

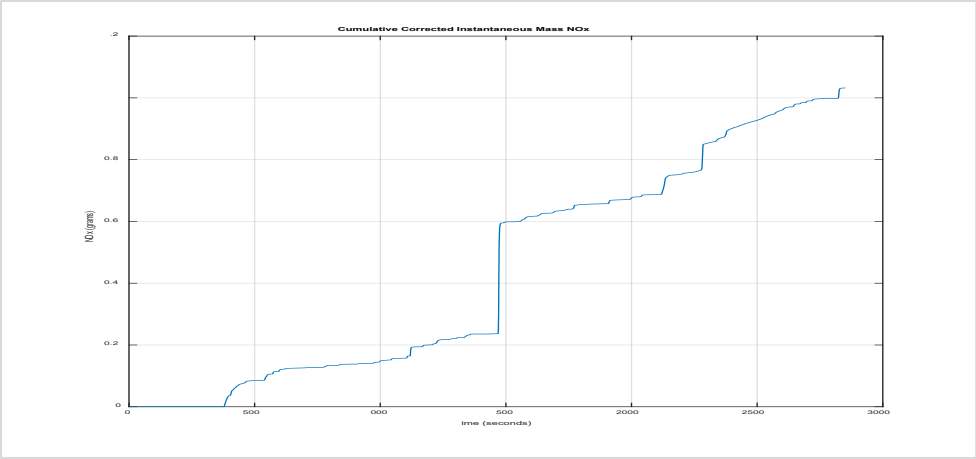


Figure 8.3.5: Vehicle 8 – Transient Cycle Cumulative Corrected Instantaneous Mass NOx

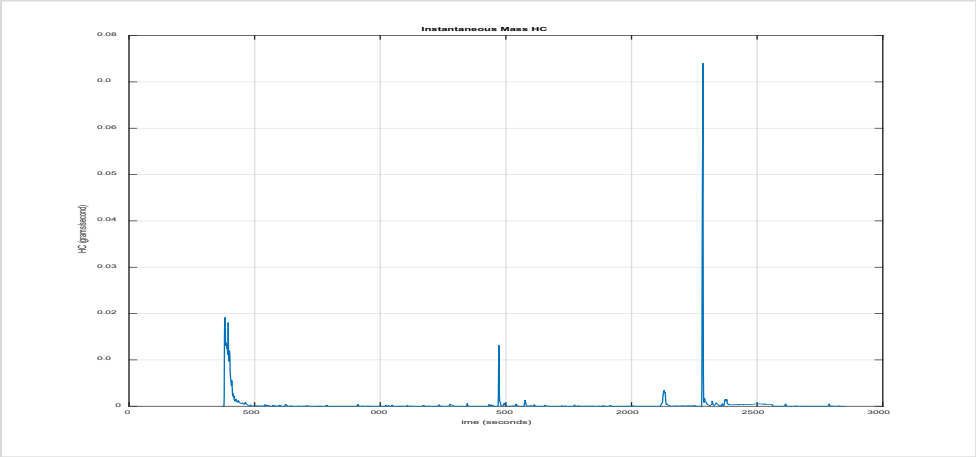


Figure 8.3.6: Vehicle 8 – Transient Cycle Instantaneous Mass HC

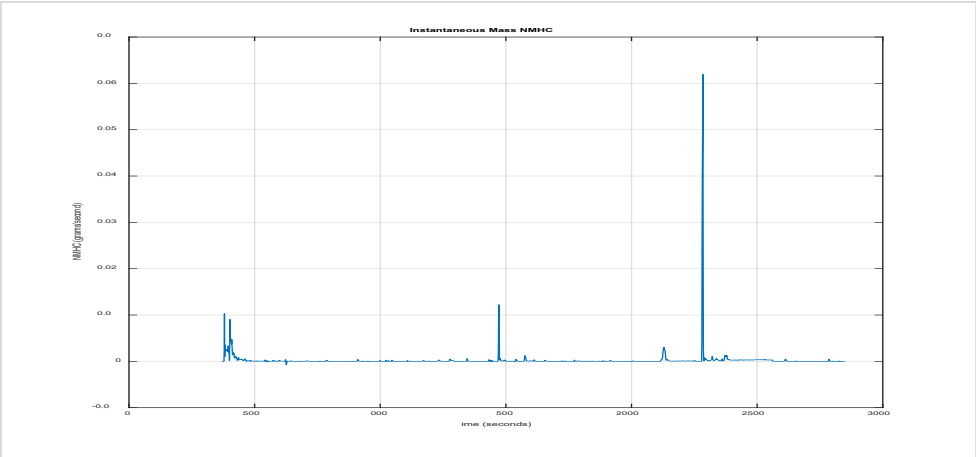


Figure 8.3.7: Vehicle 8 – Transient Cycle Instantaneous Mass NMHC

9. Vehicle 9 – LCRXT05.75P8 – V0DT61578
RAM 1500 Laramie 5.7L BSG Automatic 8-speed 4WD

a. Summary Table(s)

Steady State	NOx (g/mile)	CO2 (g/mi)	CO (g/mi)	NMHC (g/mi)	HC (g/mi)
30	0.0033	335.6651	0.2419	0.0000	0.0001
50	0.0190	397.2890	0.3187	0.0008	0.0024
60	0.1646	446.7384	0.4430	0.0053	0.0135
65	0.2182	467.3320	0.3534	0.0024	0.0084
70	0.0918	505.8705	0.3494	0.0012	0.0066
65	0.2456	465.3888	0.3550	0.0020	0.0080
75	0.0753	548.2043	0.3651	-0.0003	0.0053
80	0.0356	596.0171	0.5943	-0.0010	0.0056
85	0.0159	628.4276	0.8661	-0.0010	0.0062

Table 9.1: Vehicle 9 – Steady State
File: V0DT61578_SSPEMS010420100680

80 MPH Steady State Cruise	NOx (g/mile)	CO2 (g/mi)	CO (g/mi)	NMHC (g/mi)	HC (g/mi)
80	0.0063	571.4449	0.6707	0.0021	0.0052

Table 9.2: Vehicle 9 – 80 MPH Steady State Cruise
File: V0DT61578_80SS45010320100680

Transient Cycle	NOx (g/mile)	CO2 (g/mi)	CO (g/mi)	NMHC (g/mi)	HC (g/mi)
Various	0.0167	565.4092	6.0298	0.0077	0.0167

Table 9.3: Vehicle 9 – Transient Cycle
File: V0DT61578_P-IUVP010220100680

b. Summary Plot(s)

i. Steady State PEMS Test

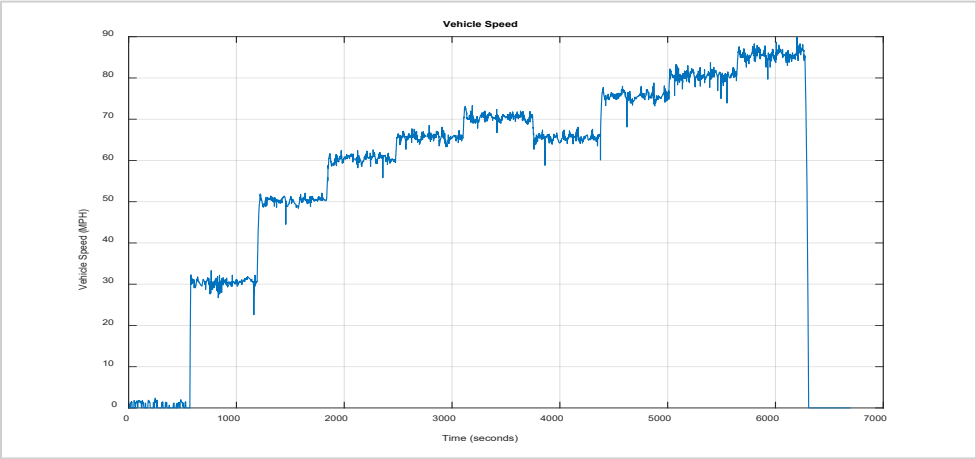


Figure 9.1.1: Vehicle 9 – Steady State Vehicle Speed

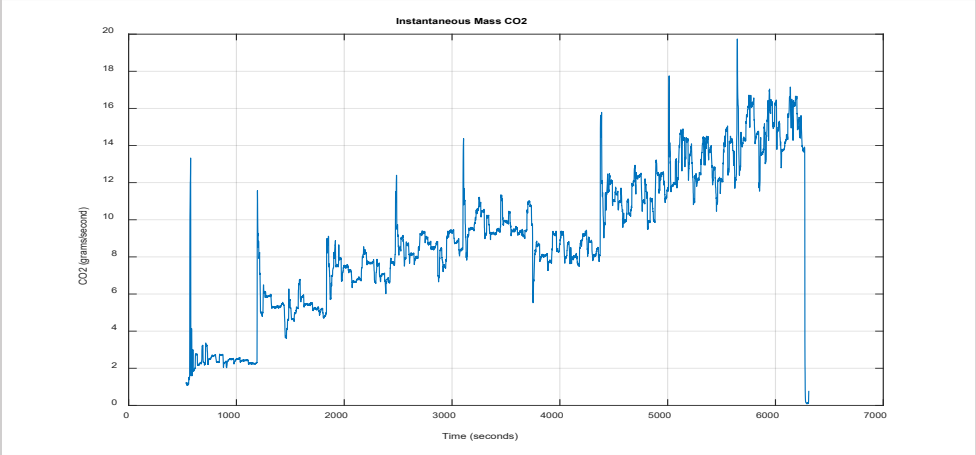


Figure 9.1.2: Vehicle 9 – Steady State Instantaneous Mass CO2

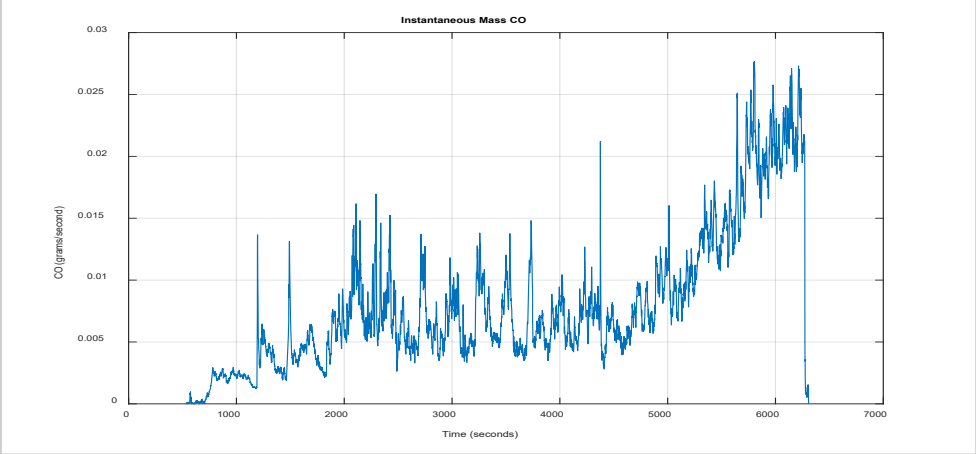


Figure 9.1.3: Vehicle 9 – Steady State Instantaneous Mass CO

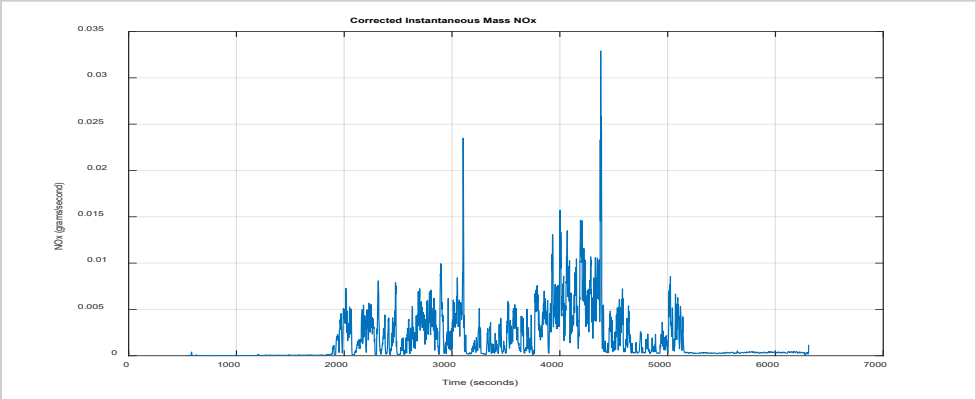


Figure 9.1.4: Vehicle 9 – Steady State Corrected Instantaneous Mass NOx

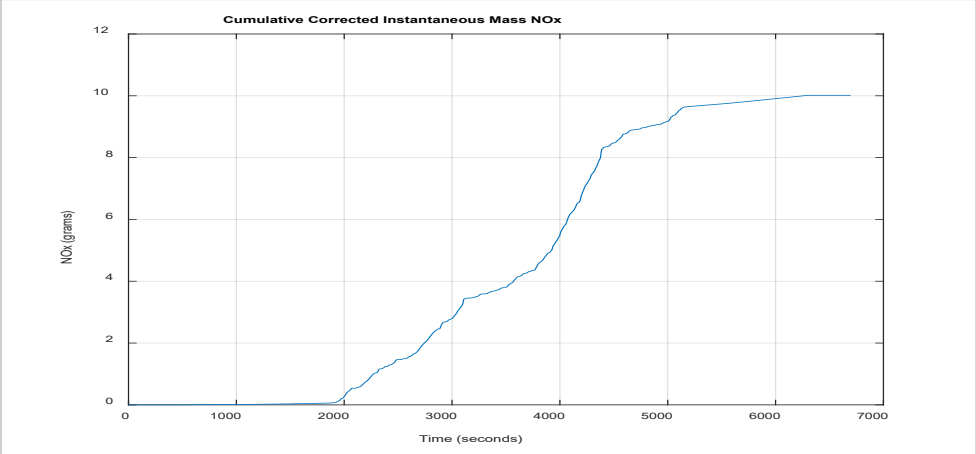


Figure 9.1.5: Vehicle 9 – Steady State Cumulative Corrected Instantaneous Mass NOx

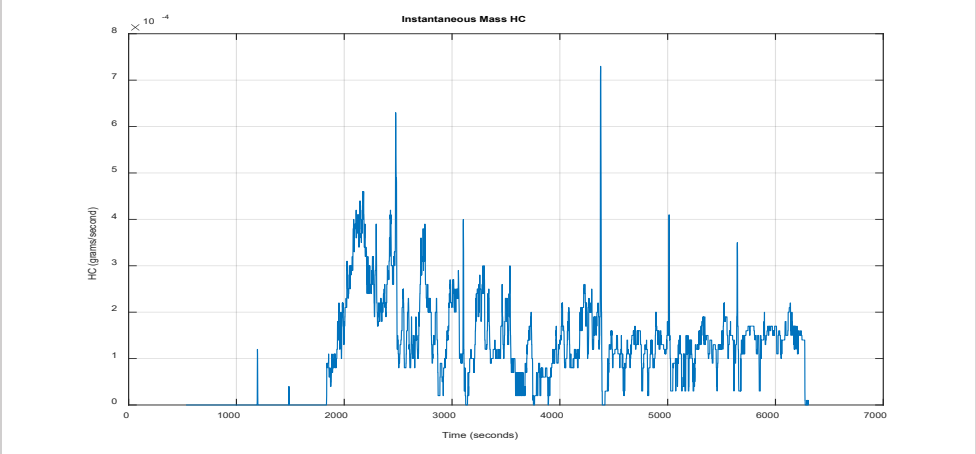


Figure 9.1.6: Vehicle 9 – Steady State Instantaneous Mass HC

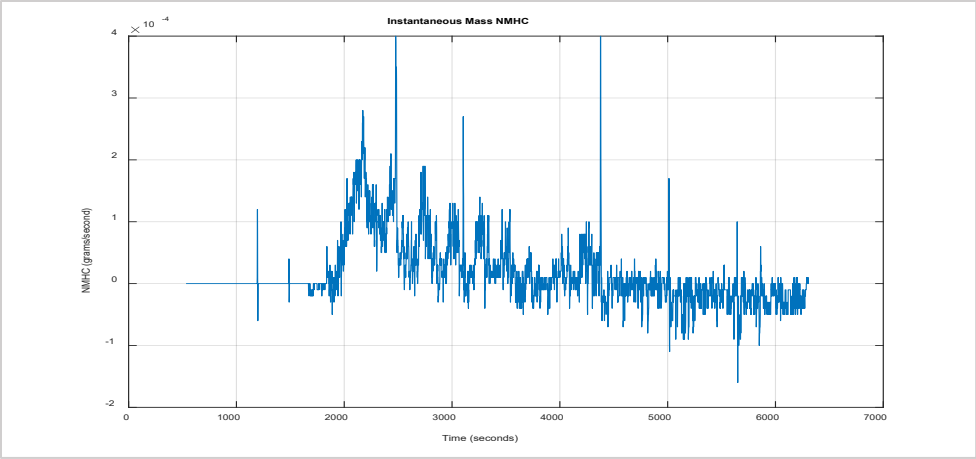


Figure 9.1.7: Vehicle 9 – Steady State Instantaneous Mass NMHC

ii. 80 MPH Steady State Cruise PEMS Test

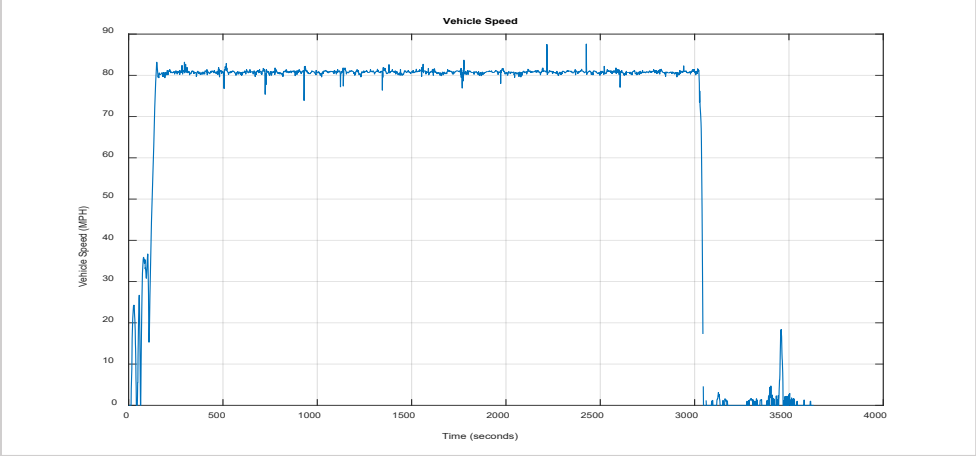


Figure 9.2.1: Vehicle 9 – 80 MPH Steady State Cruise Vehicle Speed

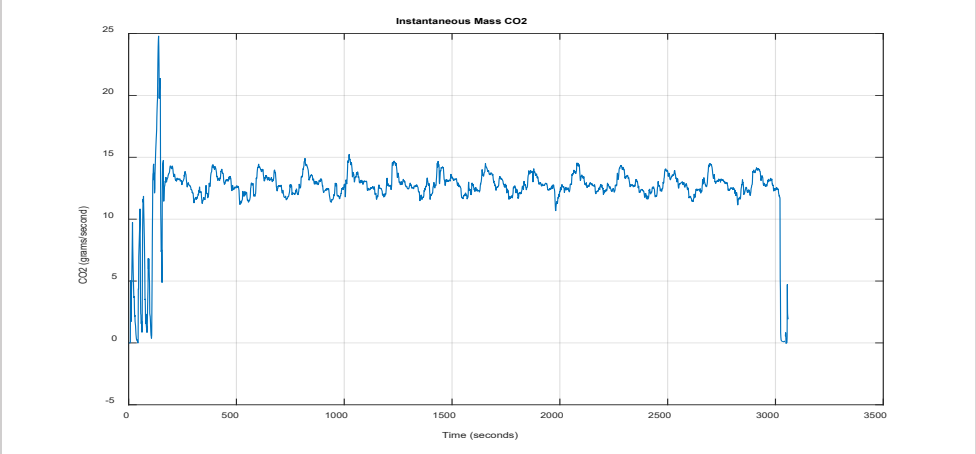


Figure 9.2.2: Vehicle 9 – 80 MPH Steady State Cruise Instantaneous Mass CO2

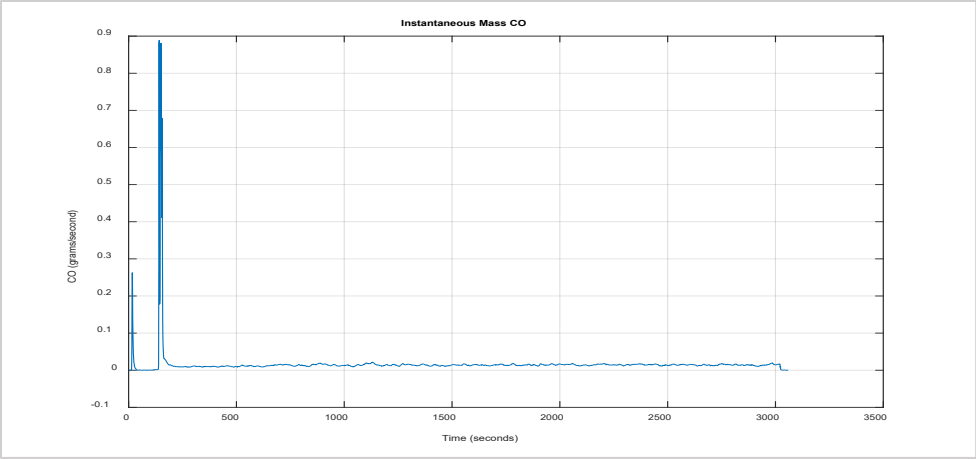


Figure 9.2.3: Vehicle 9 – 80 MPH Steady State Cruise Instantaneous Mass CO

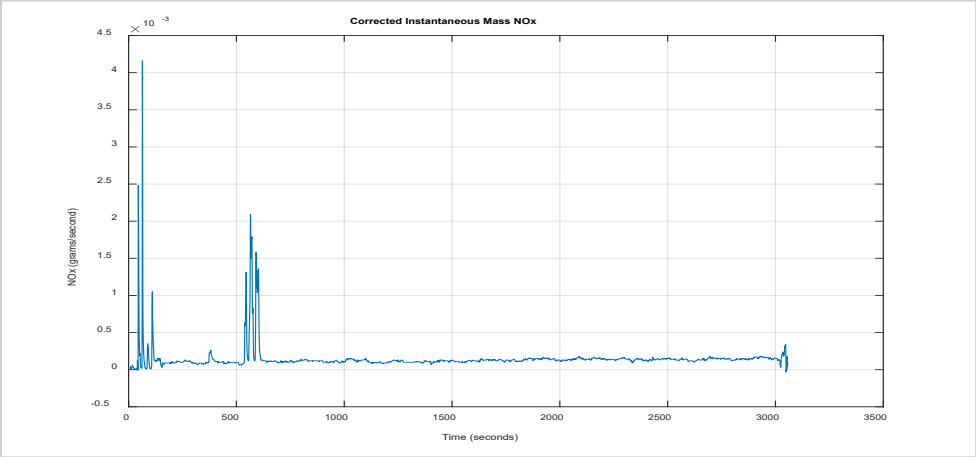


Figure 9.2.4: Vehicle 9 – 80 MPH Steady State Cruise Corrected Instantaneous Mass NOx

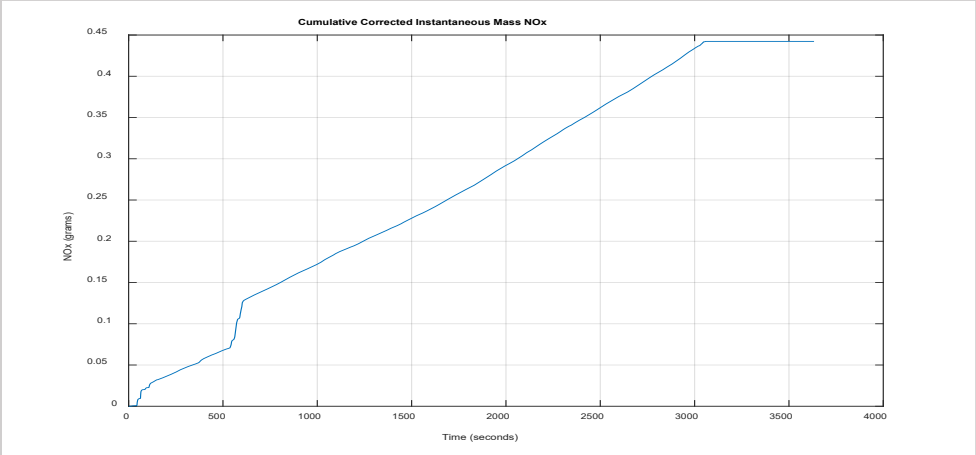


Figure 9.2.5: Vehicle 9 – 80 MPH Steady State Cruise Cumulative Corrected Instantaneous Mass NOx

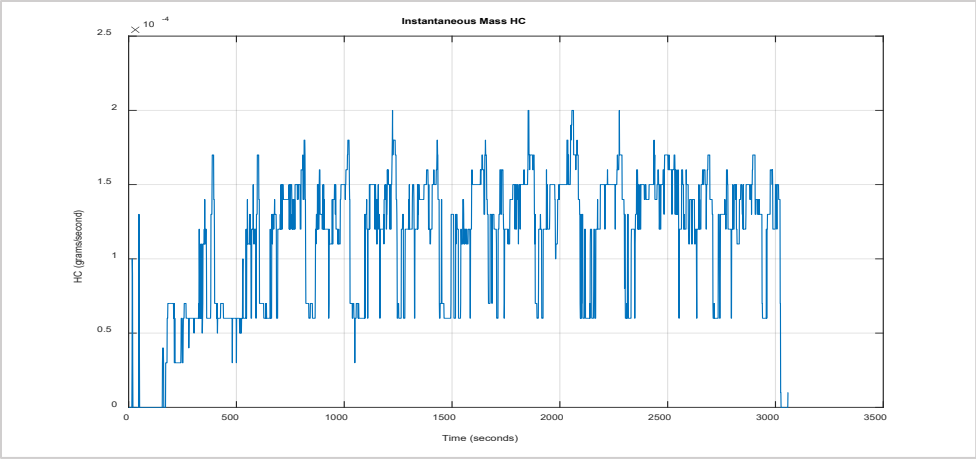


Figure 9.2.6: Vehicle 9 – 80 MPH Steady State Cruise Instantaneous Mass HC

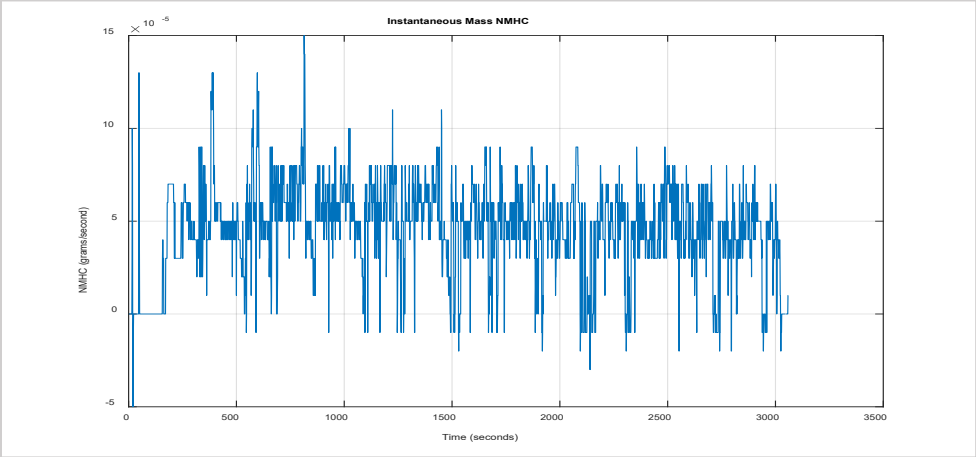


Figure 9.2.7: Vehicle 9 – 80 MPH Steady State Cruise Instantaneous Mass NMHC

iii. Transient Cycle PEMS Test

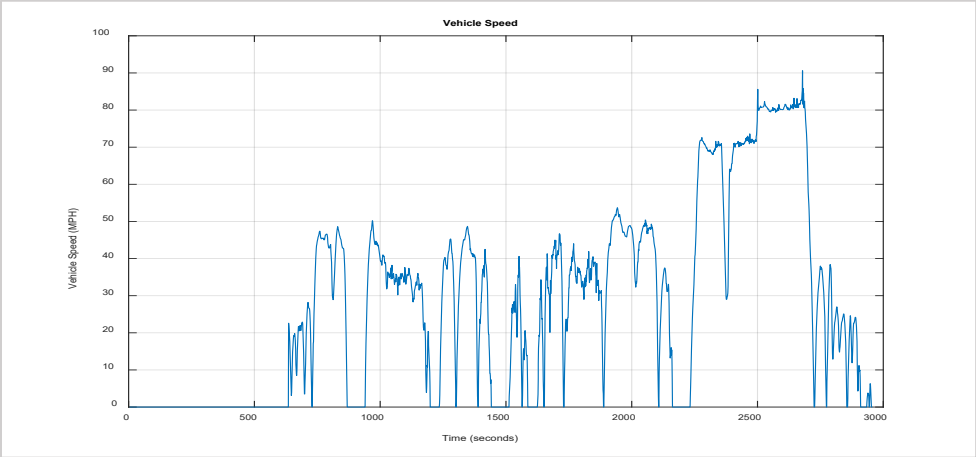


Figure 9.3.1: Vehicle 9 – Transient Cycle Vehicle Speed

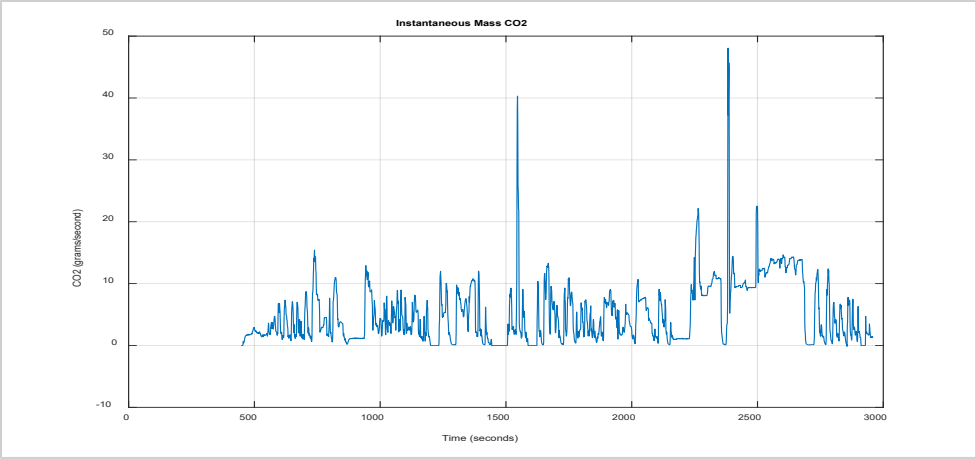


Figure 9.3.2: Vehicle 9 – Transient Cycle Instantaneous Mass CO2

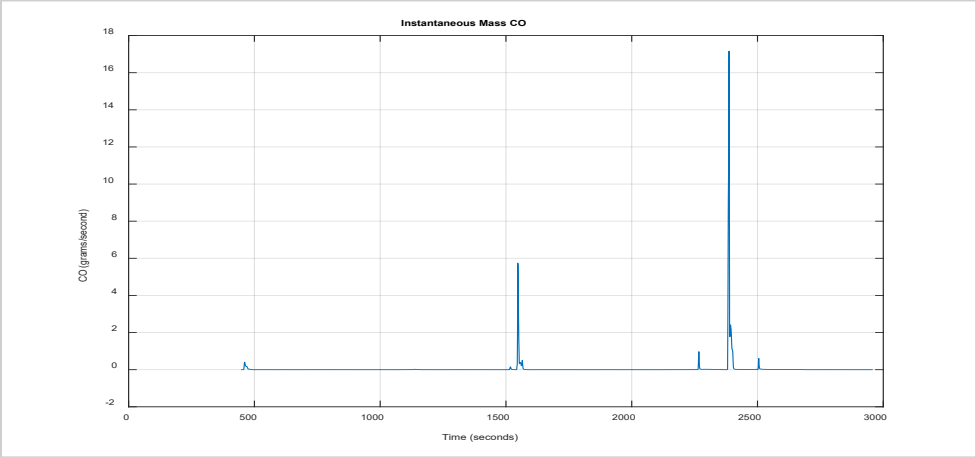


Figure 9.3.3: Vehicle 9 – Transient Cycle Instantaneous Mass CO

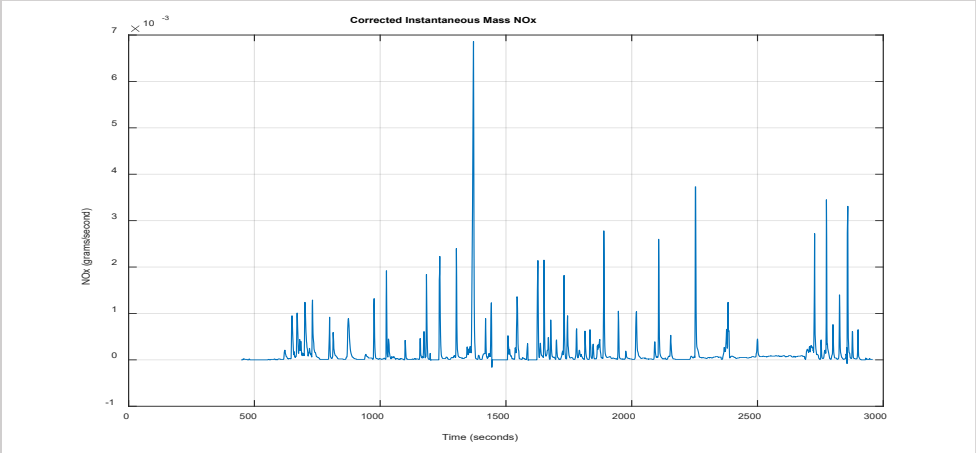


Figure 9.3.4: Vehicle 9 – Transient Cycle Corrected Instantaneous Mass NOx

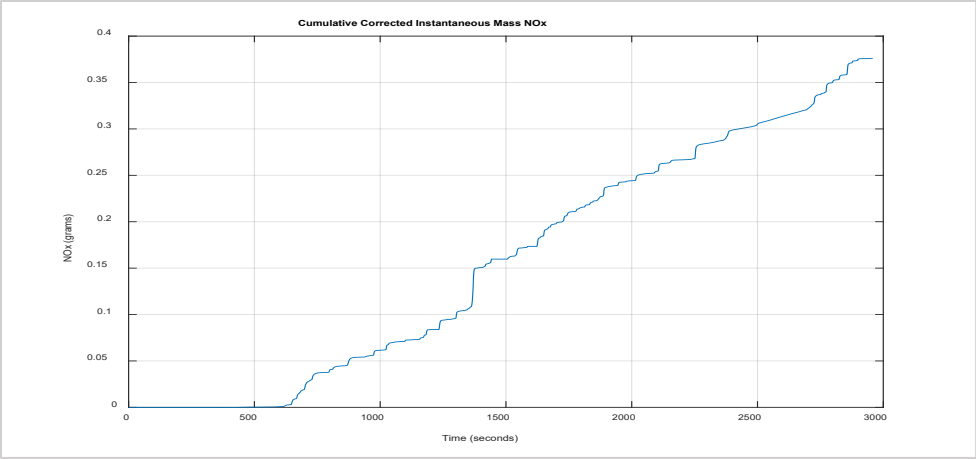


Figure 9.3.5: Vehicle 9 – Transient Cycle Cumulative Corrected Instantaneous Mass NOx

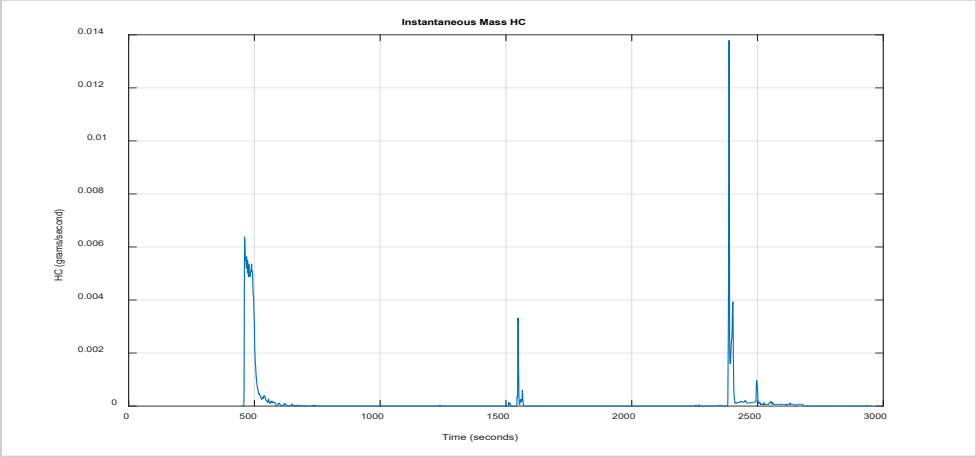


Figure 9.3.6: Vehicle 9 – Transient Cycle Instantaneous Mass HC

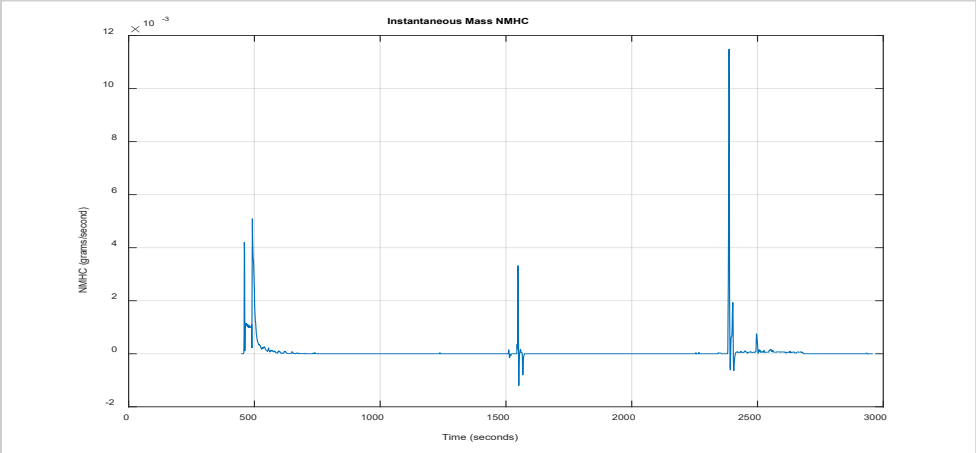


Figure 9.3.7: Vehicle 9 – Transient Cycle Instantaneous Mass NMHC

10. Vehicle 10 – LCRXJ02.05P2 – V0GUG5763
Alfa Romeo Stelvio TI 2.0L Turbocharged Automatic 8-speed AWD

a. Summary Table(s)

Steady State	NOx (g/mile)	CO2 (g/mi)	CO (g/mi)	NMHC (g/mi)	HC (g/mi)
30	0.0030	184.0435	0.0495	0.0002	0.0010
50	0.0035	209.4401	0.0475	-0.0003	0.0009
60	0.0068	234.1686	0.0528	-0.0005	0.0018
65	0.0094	240.0384	0.1058	-0.0006	0.0022
70	0.0225	266.3173	0.0473	-0.0001	0.0049
65	0.0105	270.1094	0.1261	-0.0003	0.0050
75	0.0599	288.3248	0.0673	-0.0002	0.0053
80	0.1991	318.4083	0.0774	-0.0005	0.0040
85	0.2991	329.8844	0.0288	-0.0007	0.0038

Table 10.1: Vehicle 10 – Steady State
File: V0GUG5763_SSPEMS010420102180

80 MPH Steady State Cruise	NOx (g/mile)	CO2 (g/mi)	CO (g/mi)	NMHC (g/mi)	HC (g/mi)
80	0.4610	313.5265	0.0633	-0.0010	0.0025

Table 10.2: Vehicle 10 – 80 MPH Steady State Cruise
File: V0GUG5763_80SS45010320102180

Transient Cycle	NOx (g/mile)	CO2 (g/mi)	CO (g/mi)	NMHC (g/mi)	HC (g/mi)
Various	0.0310	349.2221	3.8700	0.0180	0.0402

Table 10.3: Vehicle 10 – Transient Cycle
File: V0GUG5763_P-IUVP010220102180

b. Summary Plot(s)

i. Steady State PEMS Test

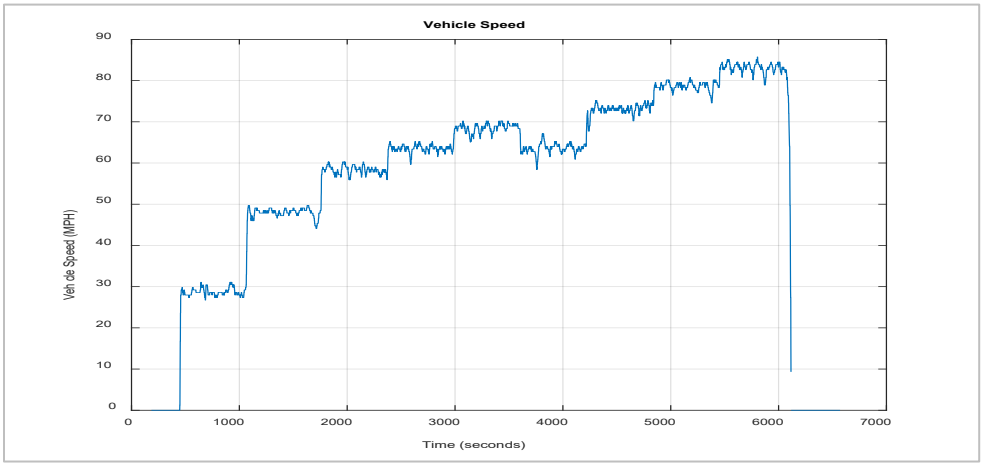


Figure 10.1.1: Vehicle 10 – Steady State Vehicle Speed

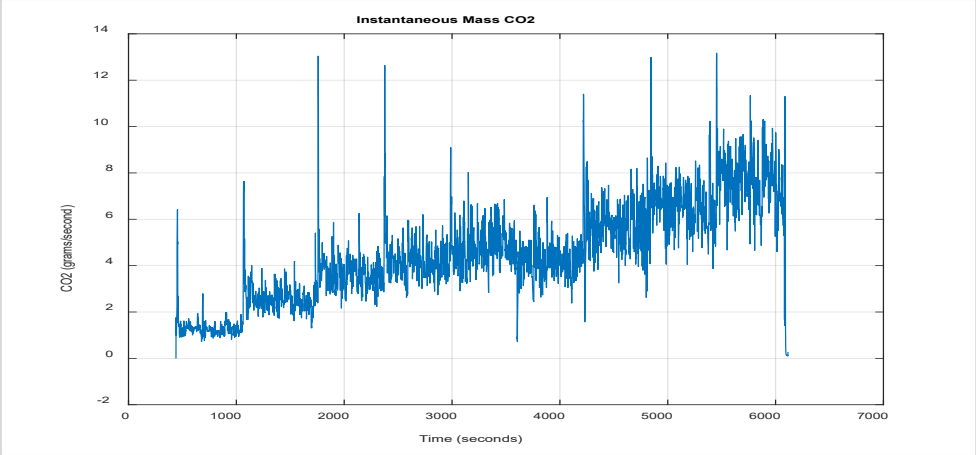


Figure 10.1.2: Vehicle 10 – Steady State Instantaneous Mass CO2

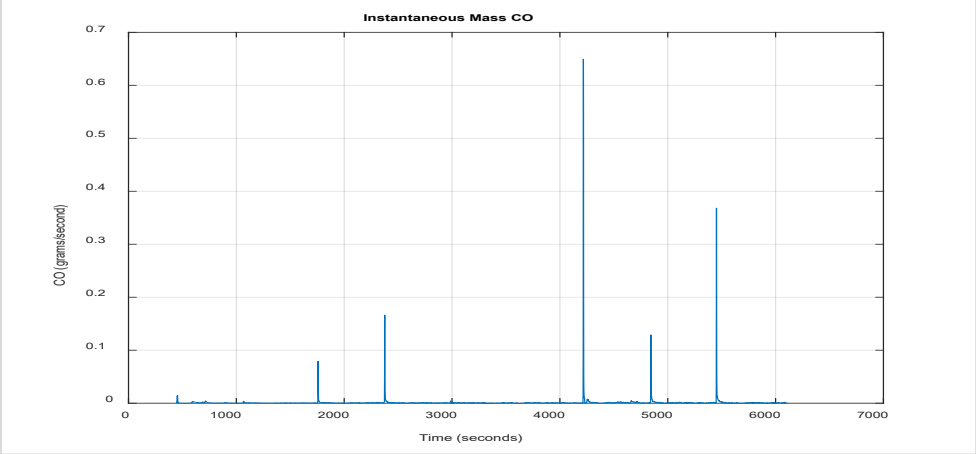


Figure 10.1.3: Vehicle 10 – Steady State Instantaneous Mass CO

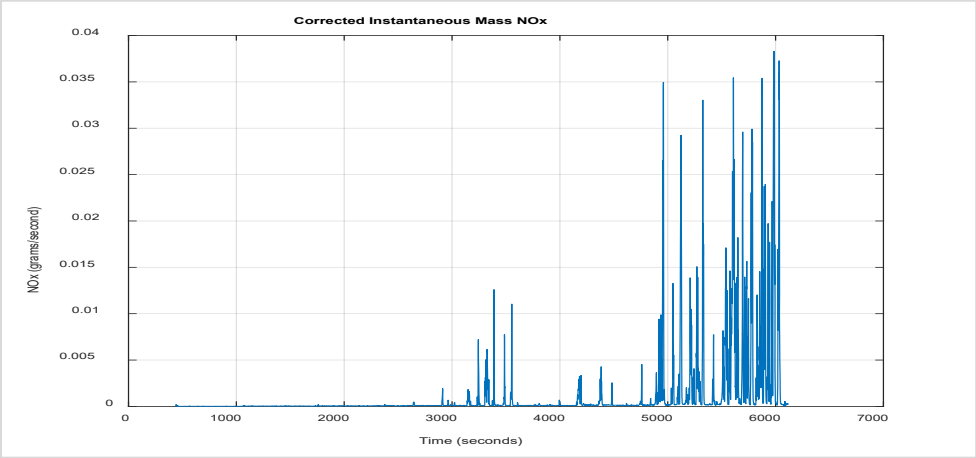


Figure 10.1.4: Vehicle 10 – Steady State Corrected Instantaneous Mass NOx

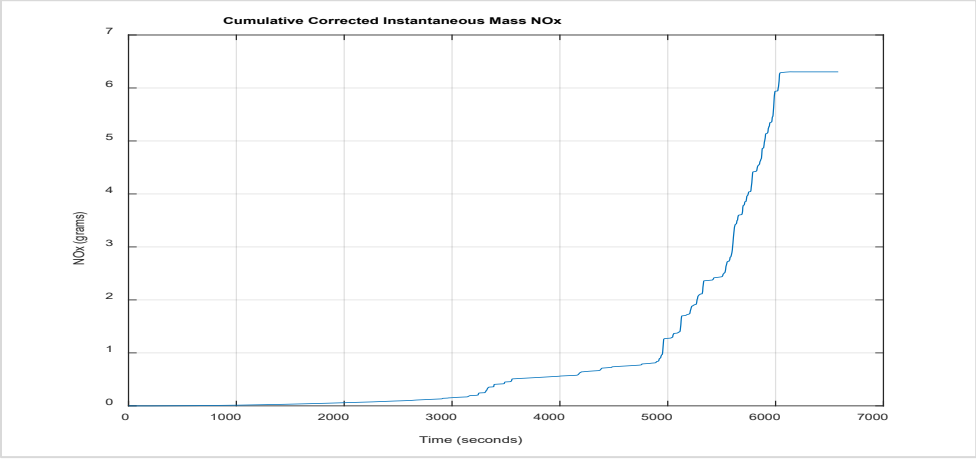


Figure 10.1.5: Vehicle 10 – Steady State Cumulative Corrected Instantaneous Mass NOx

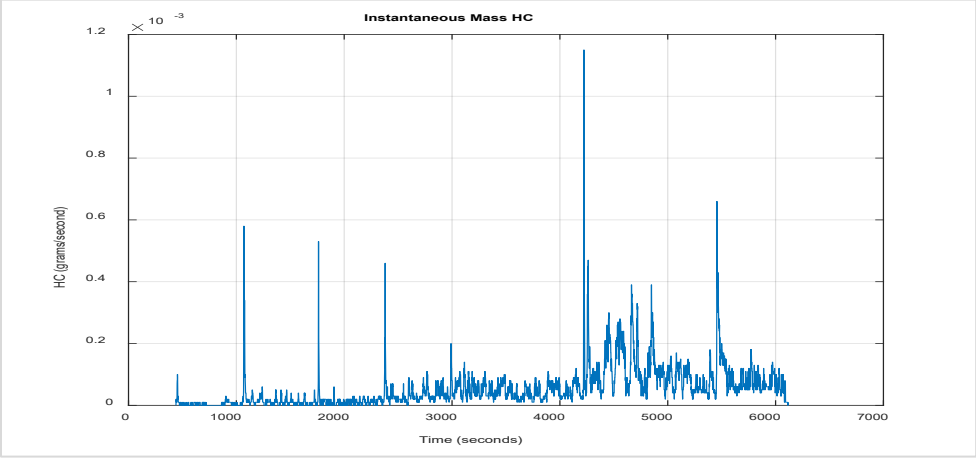


Figure 10.1.6: Vehicle 10 – Steady State Instantaneous Mass HC

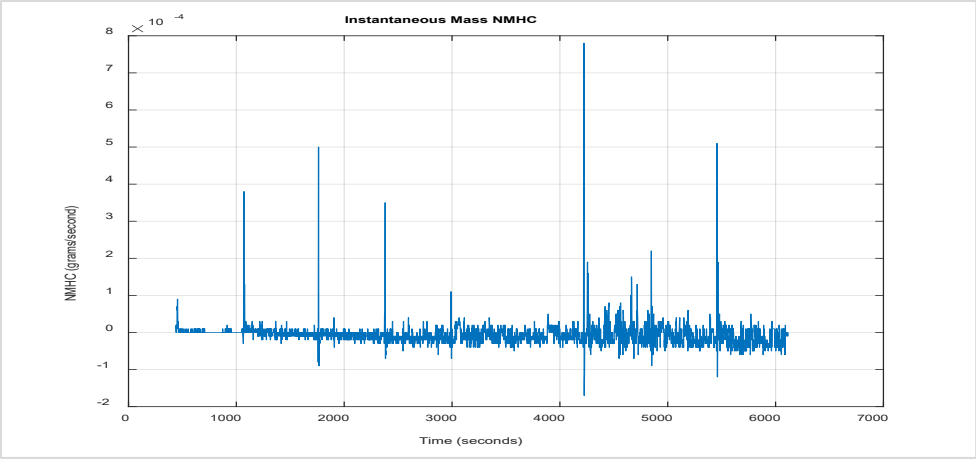


Figure 10.1.7: Vehicle 10 – Steady State Instantaneous Mass NMHC

ii. 80 MPH Steady State Cruise PEMS Test

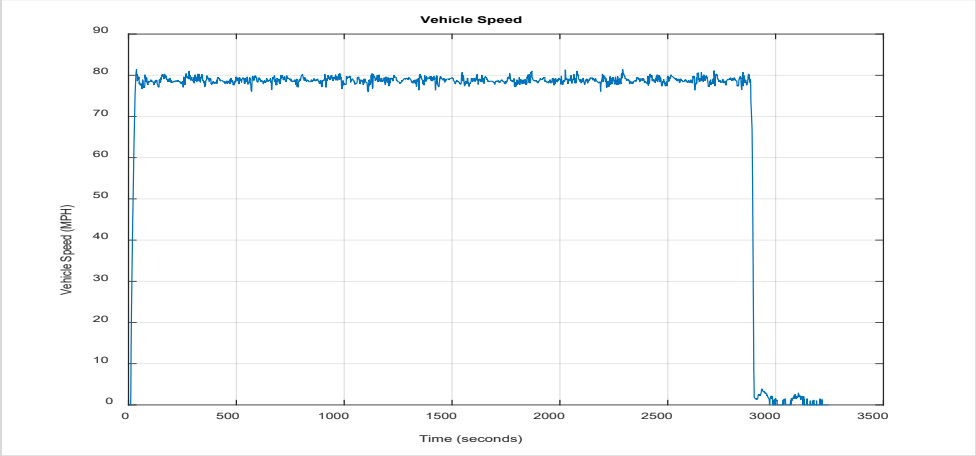


Figure 10.2.1: Vehicle 10 – 80 MPH Steady State Cruise Vehicle Speed

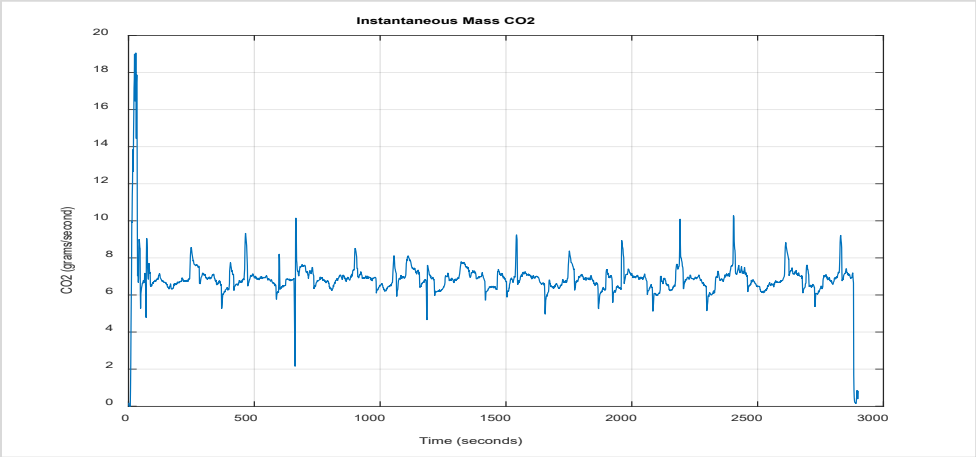


Figure 10.2.2: Vehicle 10 – 80 MPH Steady State Cruise Instantaneous Mass CO2

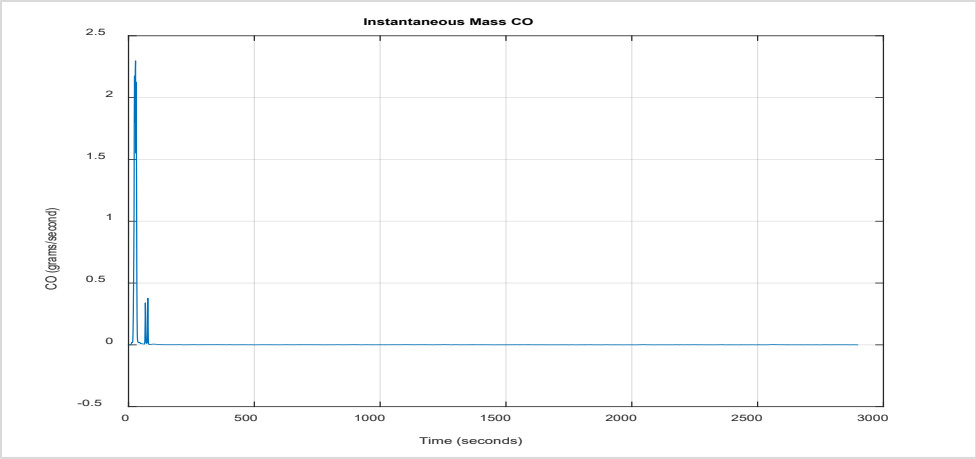


Figure 10.2.3: Vehicle 10 – 80 MPH Steady State Cruise Instantaneous Mass CO

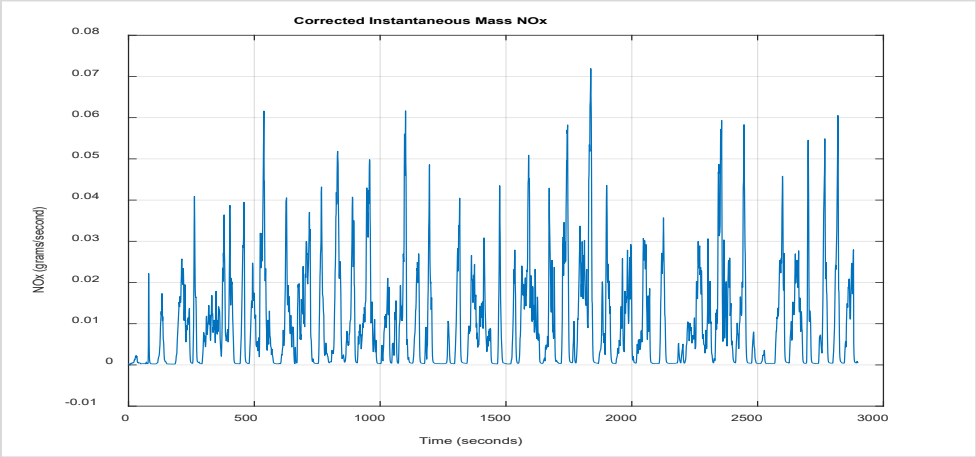


Figure 10.2.4: Vehicle 10 – 80 MPH Steady State Cruise Corrected Instantaneous Mass NOx

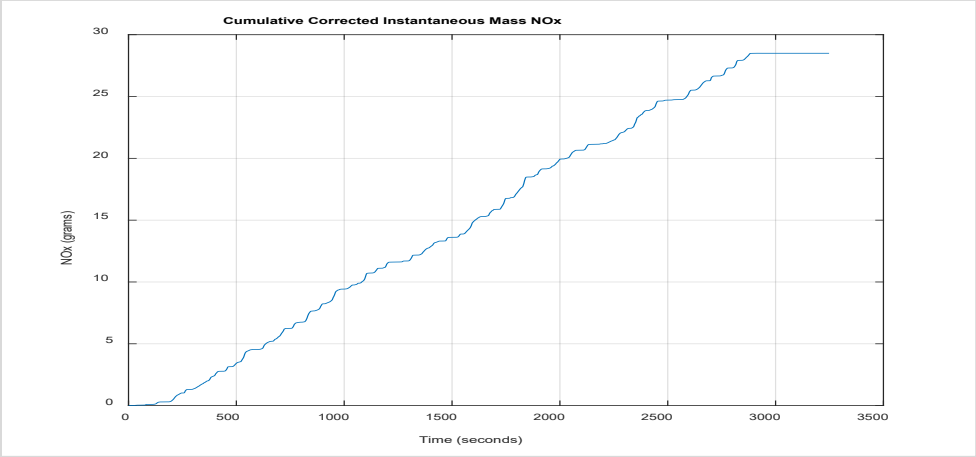


Figure 10.2.5: Vehicle 10 – 80 MPH Steady State Cruise Cumulative Corrected Instantaneous Mass NOx

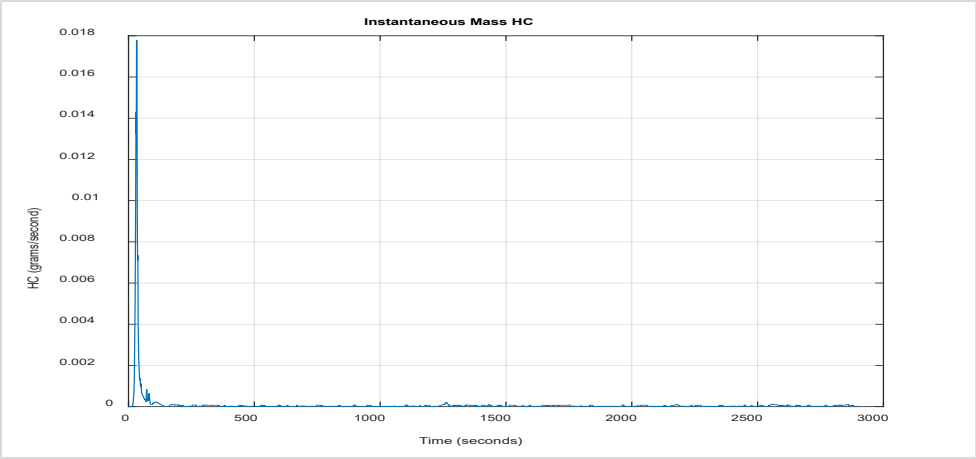


Figure 10.2.6: Vehicle 10 – 80 MPH Steady State Cruise Instantaneous Mass HC

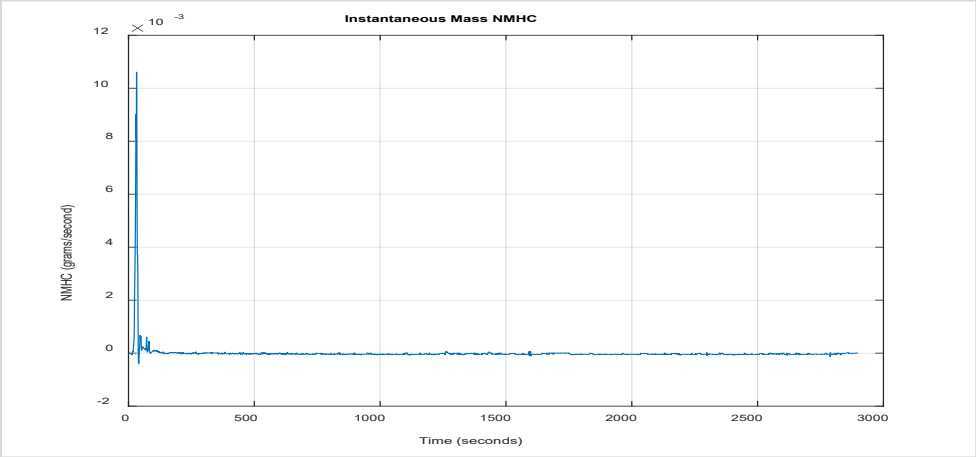


Figure 10.2.7: Vehicle 10 – 80 MPH Steady State Cruise Instantaneous Mass NMHC

iii. Transient Cycle PEMS Test

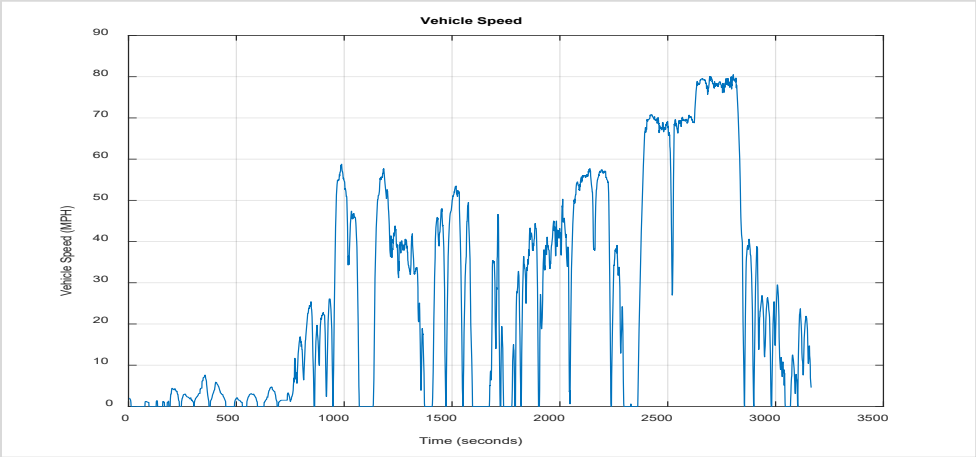


Figure 10.3.1: Vehicle 10 – Transient Cycle Vehicle Speed

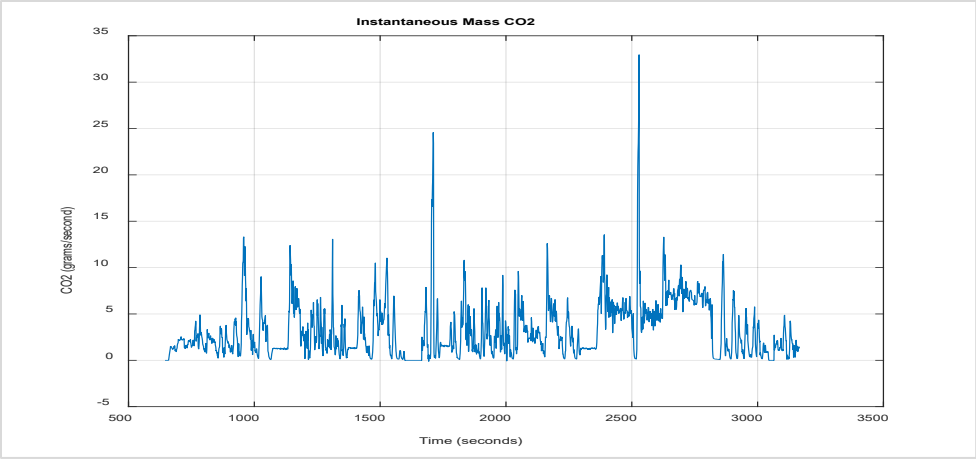


Figure 10.3.2: Vehicle 10 – Transient Cycle Instantaneous Mass CO2

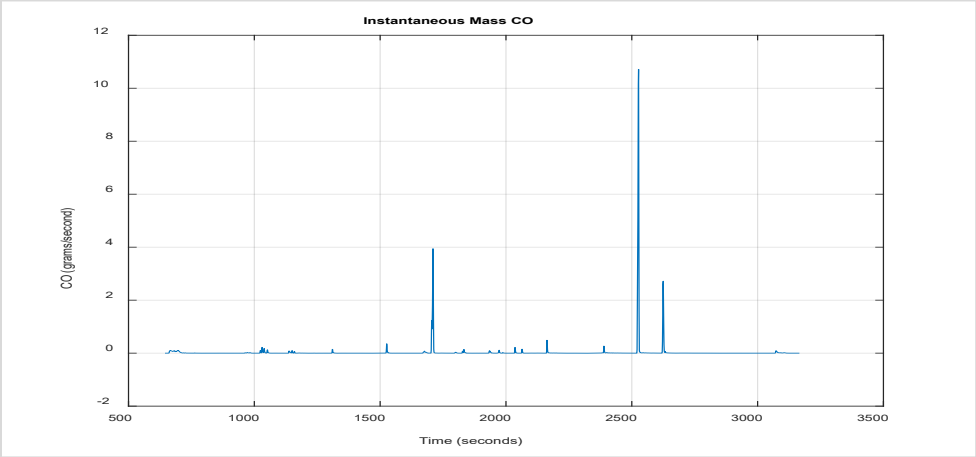


Figure 10.3.3: Vehicle 10 – Transient Cycle Instantaneous Mass CO

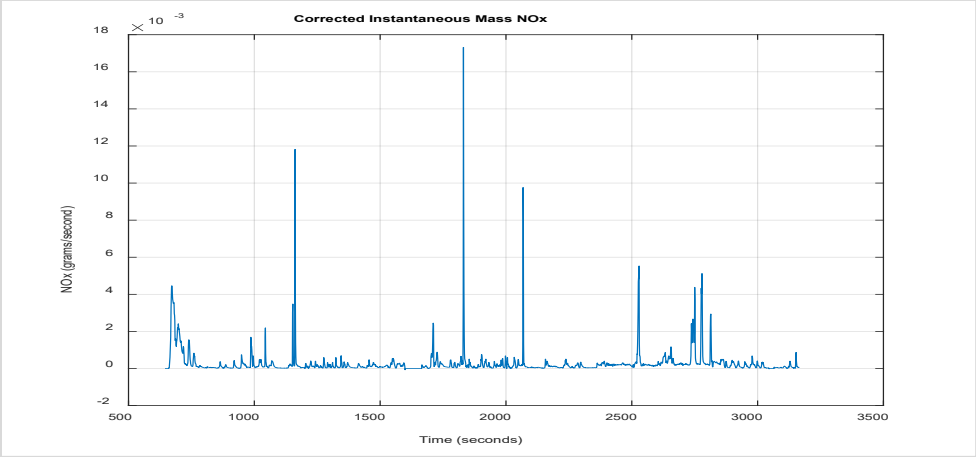


Figure 10.3.4: Vehicle 10 – Transient Cycle Corrected Instantaneous Mass NOx

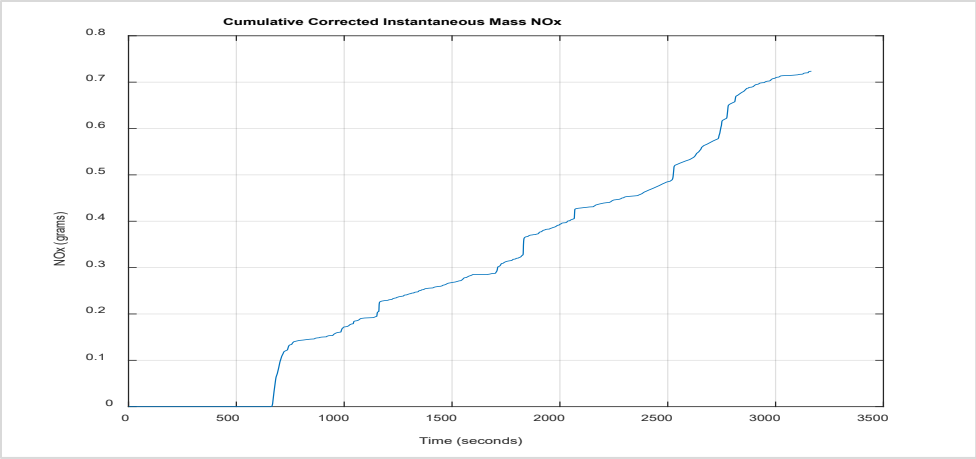


Figure 10.3.5: Vehicle 10 – Transient Cycle Cumulative Corrected Instantaneous Mass NOx

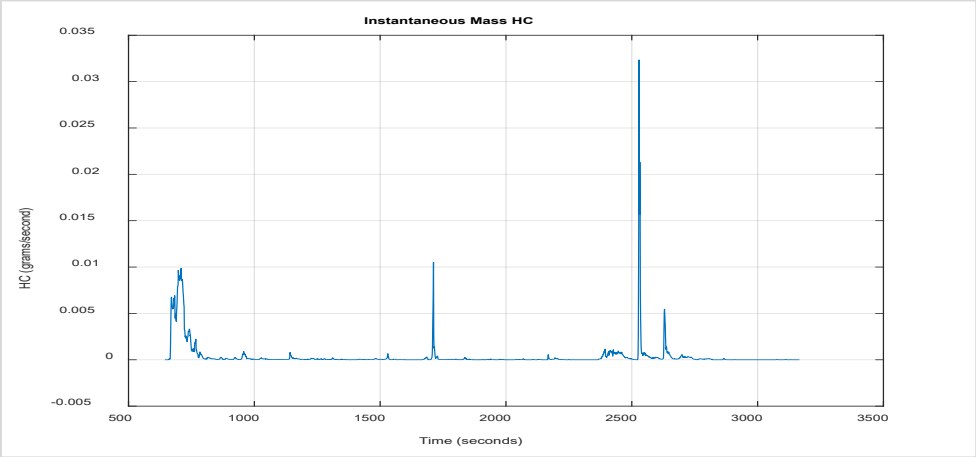


Figure 10.3.6: Vehicle 10 – Transient Cycle Instantaneous Mass HC

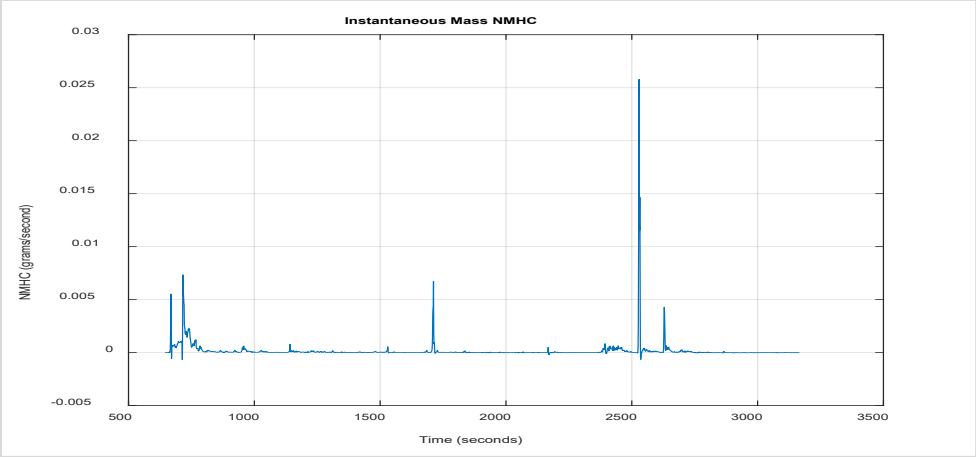


Figure 10.3.7: Vehicle 10 – Transient Cycle Instantaneous Mass NMHC

11. Vehicle 11 – LCRXV06.25P0 – VOLDD2394
Dodge Charger SRT Hellcat Widebody 6.2L Supercharged Automatic 8-speed

a. Summary Table(s)

Steady State	NOx (g/mile)	CO2 (g/mi)	CO (g/mi)	NMHC (g/mi)	HC (g/mi)
30	0.0252	424.2996	0.1267	0.0003	0.0008
50	0.0294	380.1931	0.2396	0.0033	0.0039
60	0.0258	403.0992	0.4152	0.0063	0.0106
65	0.0246	410.9675	0.4810	0.0093	0.0155
70	0.0334	441.7744	0.7991	0.0151	0.0295
65	0.0349	463.7563	0.6030	0.0125	0.0261
75	0.0376	475.8213	0.8074	0.0101	0.0288
80	0.0395	507.9714	0.7875	0.0069	0.0242
85	0.0420	514.0725	0.7477	0.0057	0.0226

Table 11.1: Vehicle 11 – Steady State
File: V0LDD2394_SSPEMS010420111480

80 MPH Steady State Cruise	NOx (g/mile)	CO2 (g/mi)	CO (g/mi)	NMHC (g/mi)	HC (g/mi)
80	0.0228	485.6934	0.4401	0.0117	0.0174

Table 11.2: Vehicle 11 – 80 MPH Steady State Cruise
File: V0LDD2394_80SS45010520111480

Transient Cycle	NOx (g/mile)	CO2 (g/mi)	CO (g/mi)	NMHC (g/mi)	HC (g/mi)
Various	0.0271	553.1145	3.8335	0.0491	0.0734

Table 11.3: Vehicle 11 – Transient Cycle
File: V0LDD2394_P-IUVP010320111480

b. Summary Plot(s)

i. Steady State PEMS Test

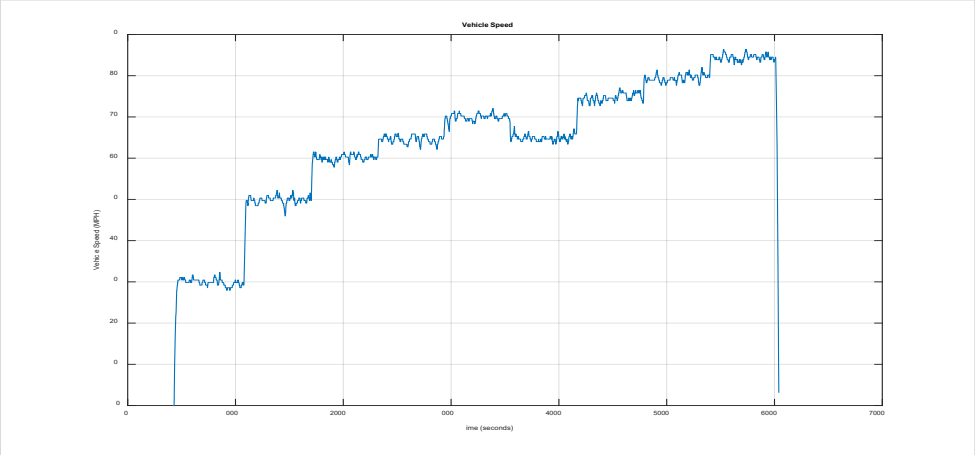


Figure 11.1.1: Vehicle 11 – Steady State Vehicle Speed

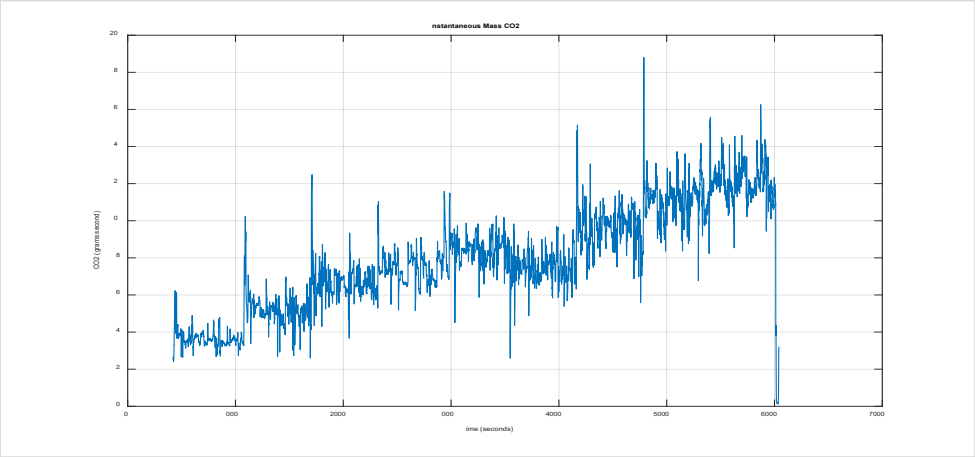


Figure 11.1.2: Vehicle 11 – Steady State Instantaneous Mass CO2

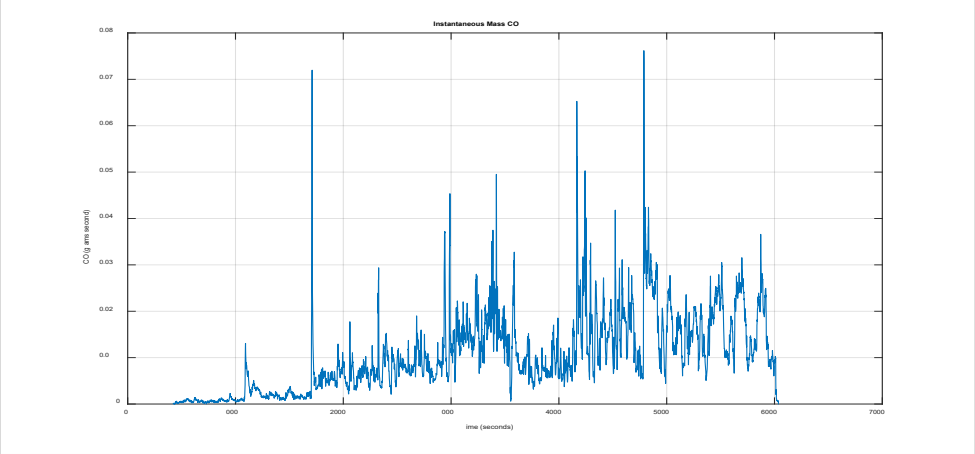


Figure 11.1.3: Vehicle 11 – Steady State Instantaneous Mass CO

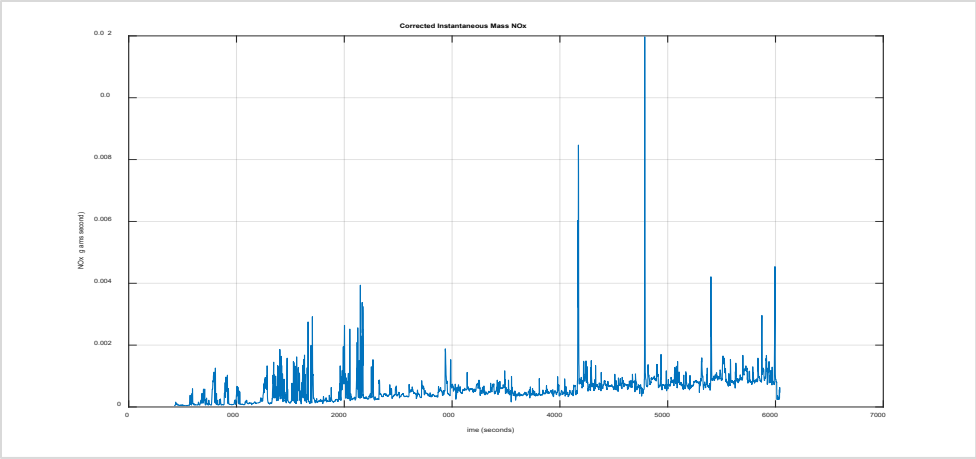


Figure 11.1.4: Vehicle 11 – Steady State Corrected Instantaneous Mass NOx

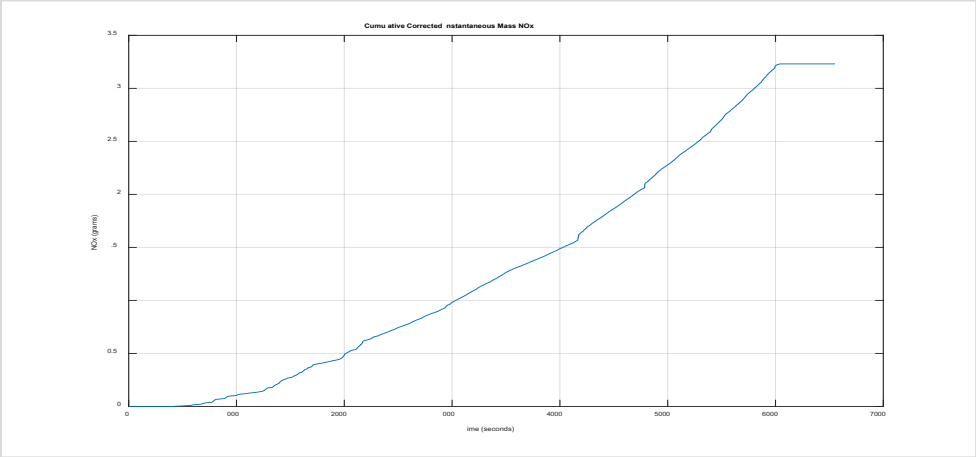


Figure 11.1.5: Vehicle 11 – Steady State Cumulative Corrected Instantaneous Mass NOx

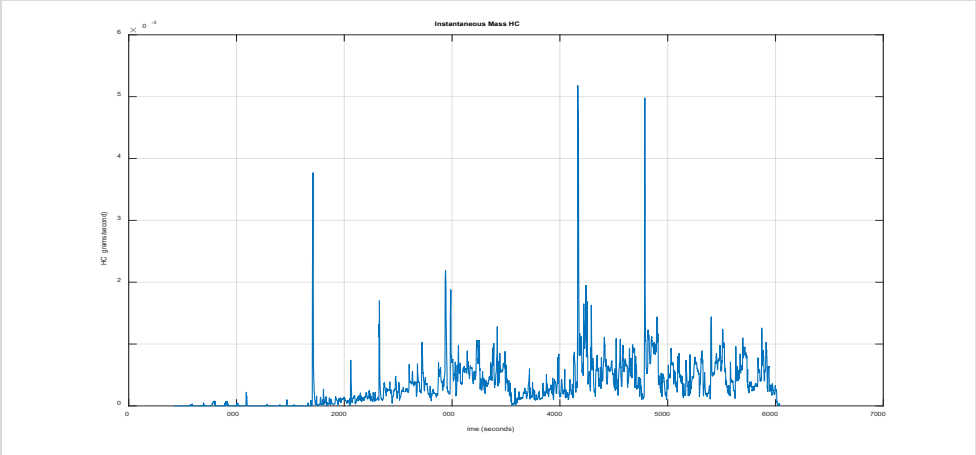


Figure 11.1.6: Vehicle 11– Steady State Instantaneous Mass HC

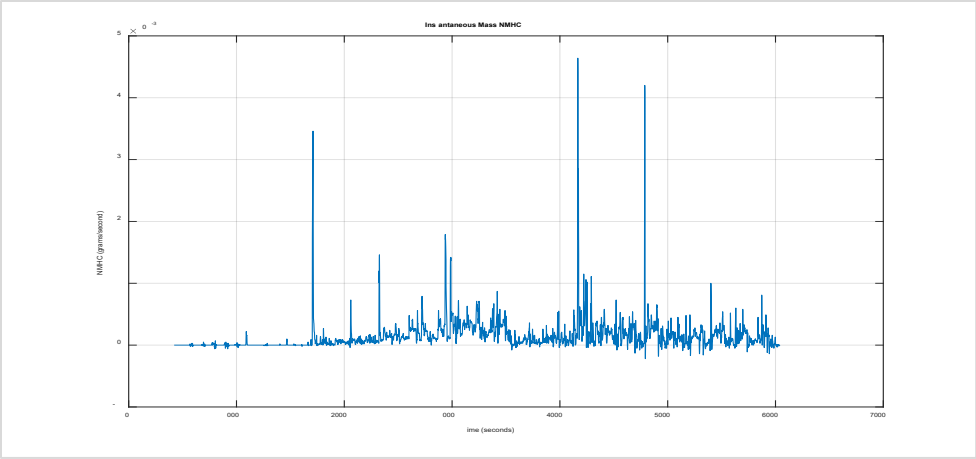


Figure 11.1.7: Vehicle 11– Steady State Instantaneous Mass NMHC

ii. Steady State PEMS Test

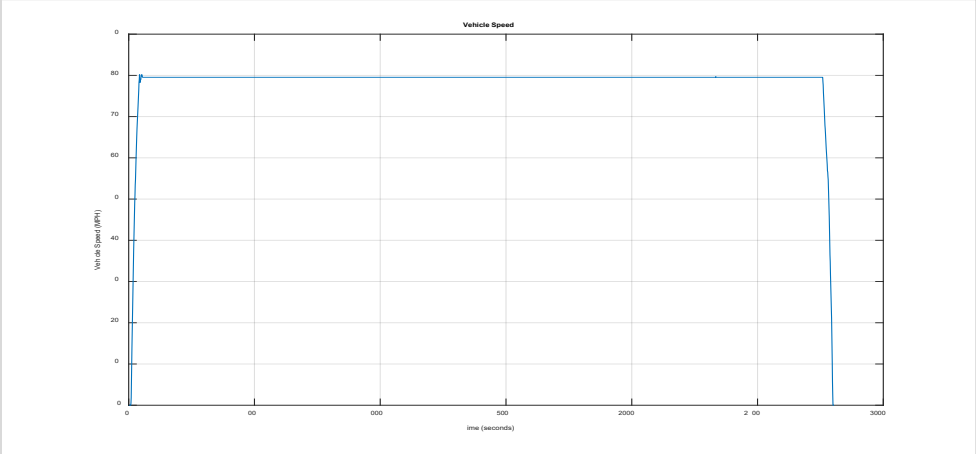


Figure 11.2.1: Vehicle 11 – 80 MPH Steady State Cruise Vehicle Speed

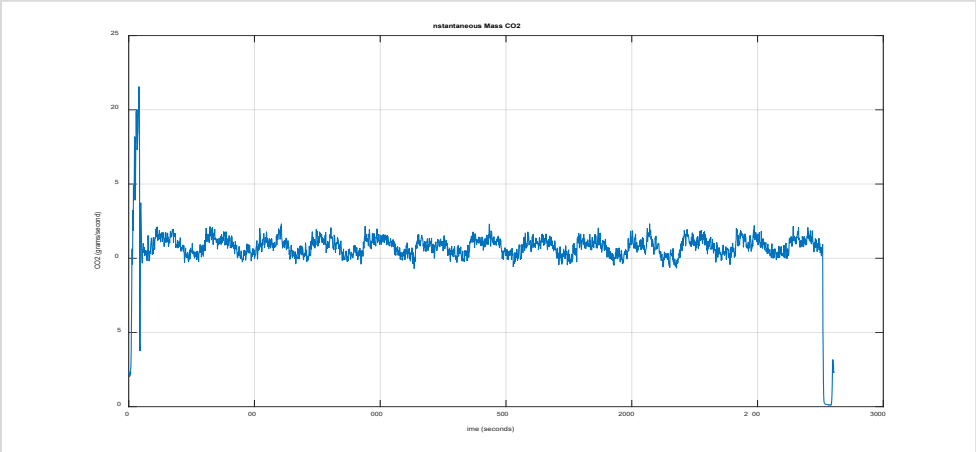


Figure 11.2.2: Vehicle 11 – 80 MPH Steady State Cruise Instantaneous Mass CO2

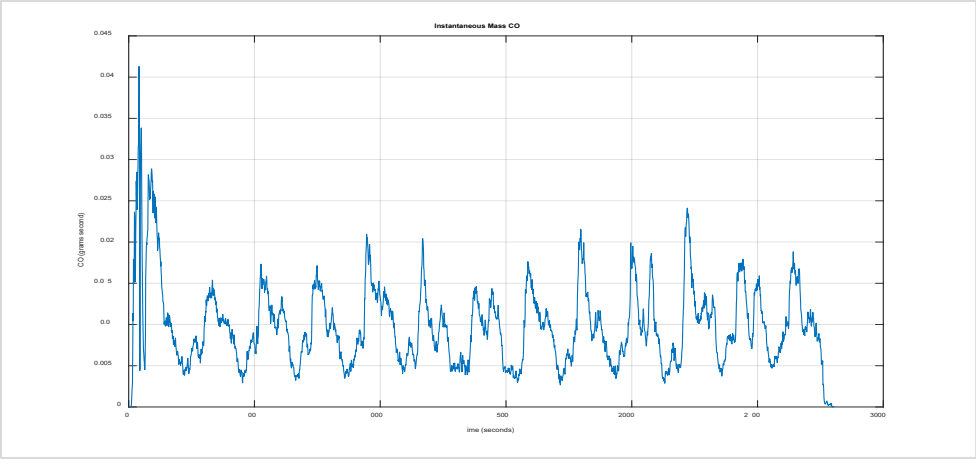


Figure 11.2.3: Vehicle 11 – 80 MPH Steady State Cruise Instantaneous Mass CO

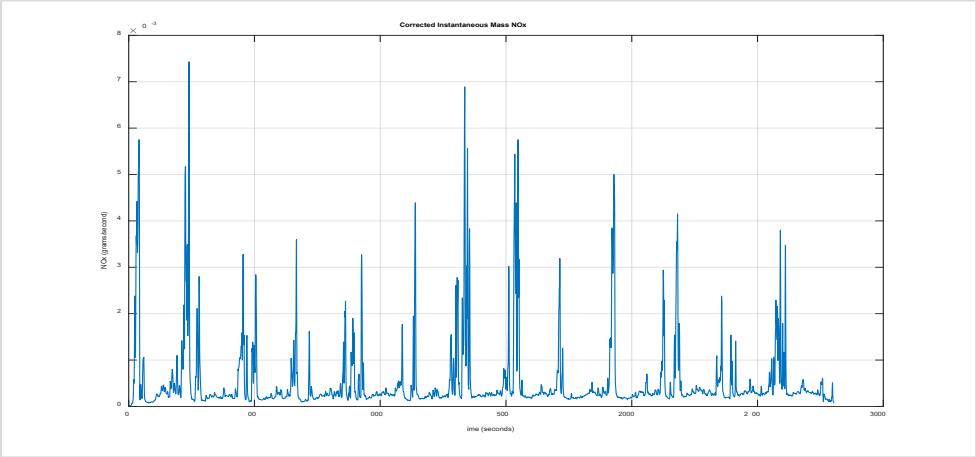


Figure 11.2.4: Vehicle 11 – 80 MPH Steady State Cruise Corrected Instantaneous Mass NOx

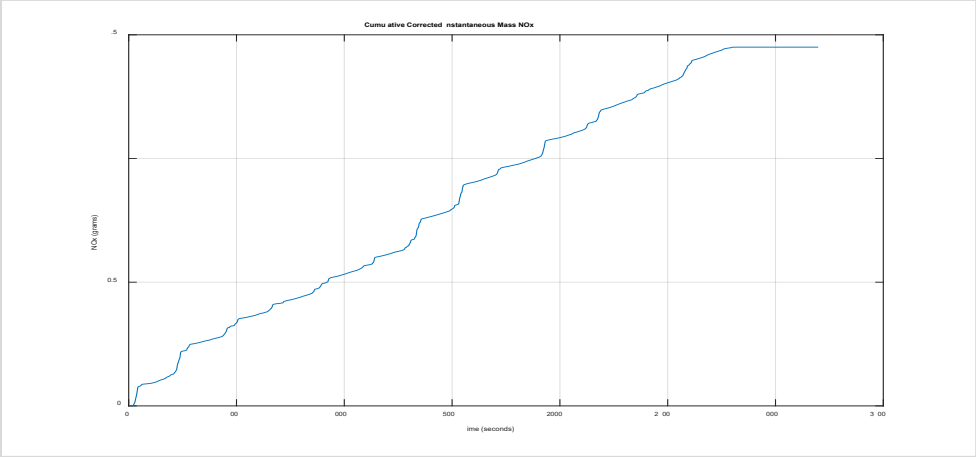


Figure 11.2.5: Vehicle 11 – 80 MPH Steady State Cruise Cumulative Corrected Instantaneous Mass NOx

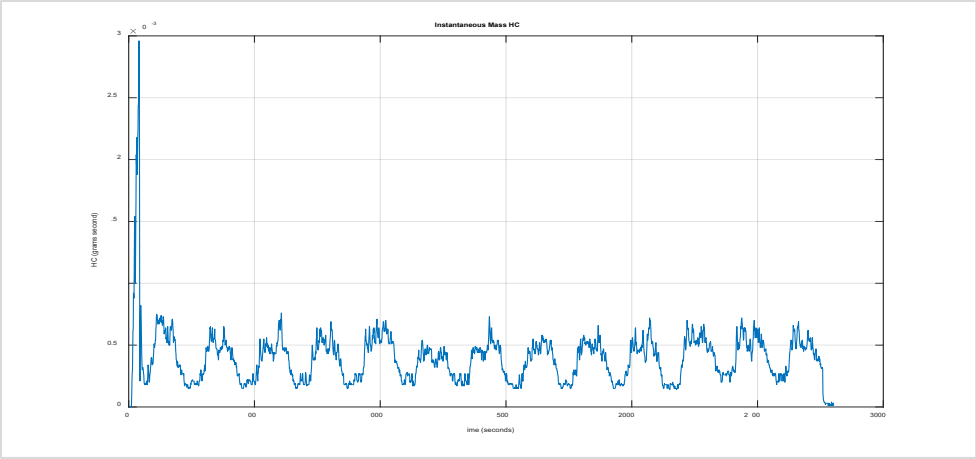


Figure 11.2.6: Vehicle 11 – 80 MPH Steady State Cruise Instantaneous Mass HC

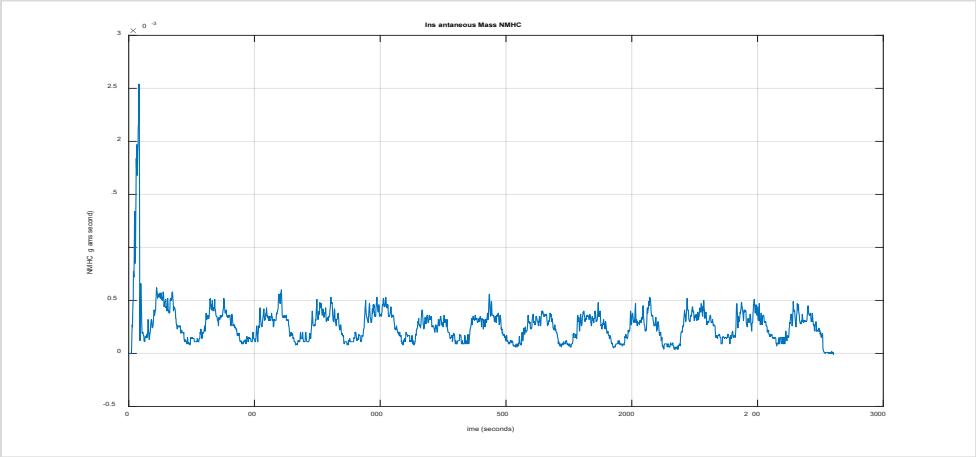


Figure 11.2.7: Vehicle 11 – 80 MPH Steady State Cruise Instantaneous Mass NMHC

iii. Transient Cycle PEMS Test

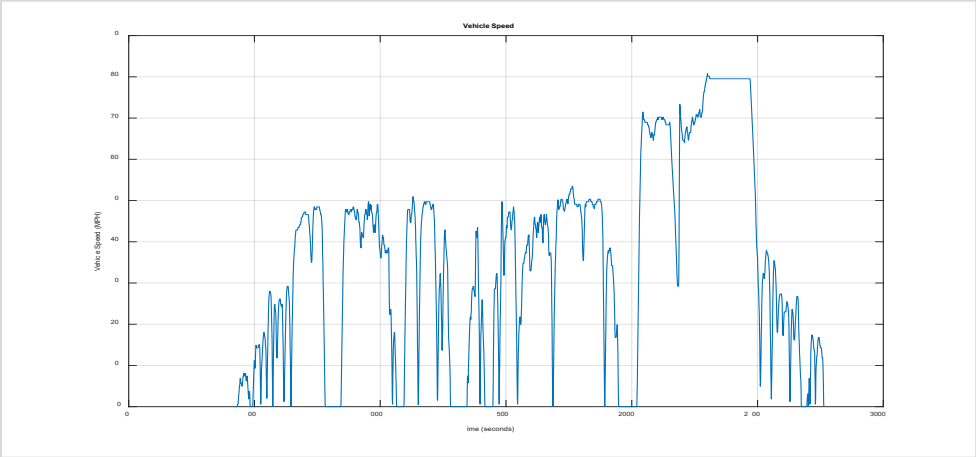


Figure 11.3.1: Vehicle 11– Transient Cycle Vehicle Speed

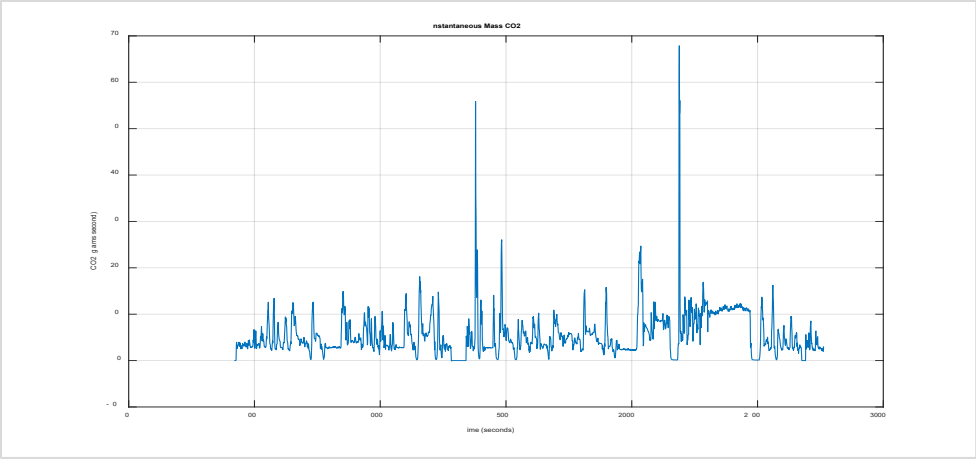


Figure 11.3.2: Vehicle 11 – Transient Cycle Instantaneous Mass CO2

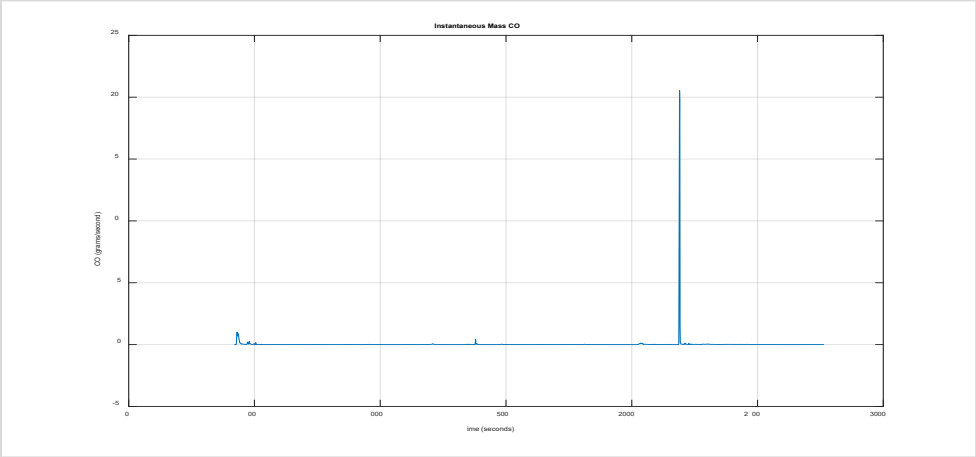


Figure 11.3.3: Vehicle 11 – Transient Cycle Instantaneous Mass CO

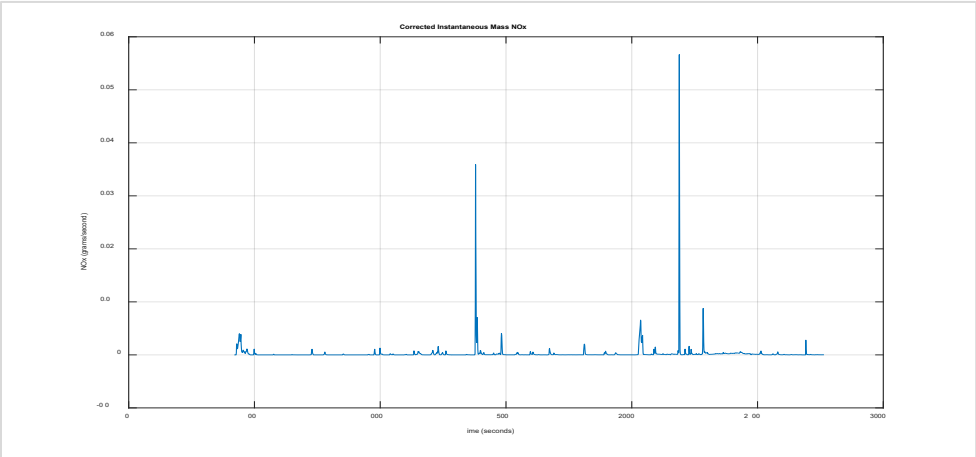


Figure 11.3.4: Vehicle 11 – Transient Cycle Corrected Instantaneous Mass NOx

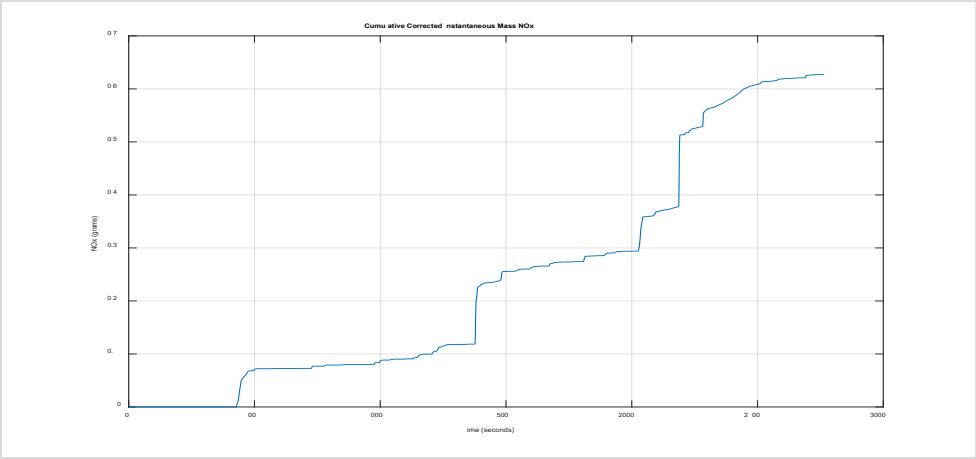


Figure 11.3.5: Vehicle 11 – Transient Cycle Cumulative Corrected Instantaneous Mass NOx

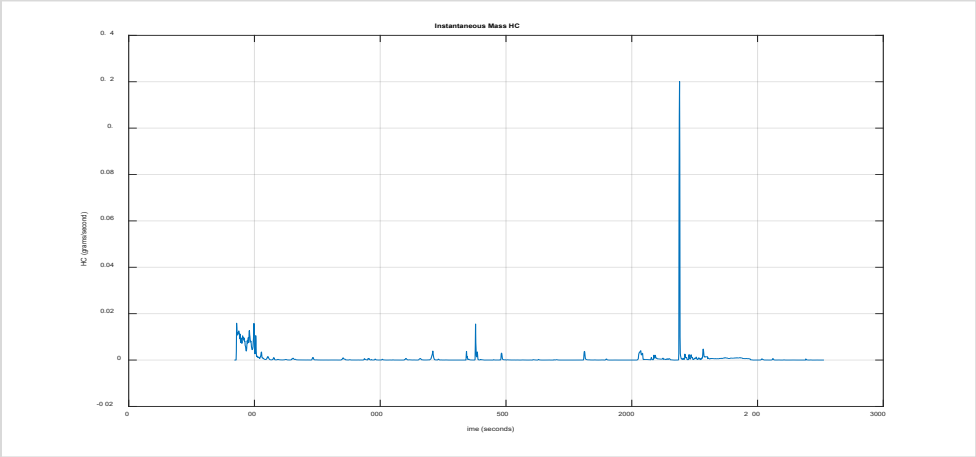


Figure 11.3.6: Vehicle 11 – Transient Cycle Instantaneous Mass HC

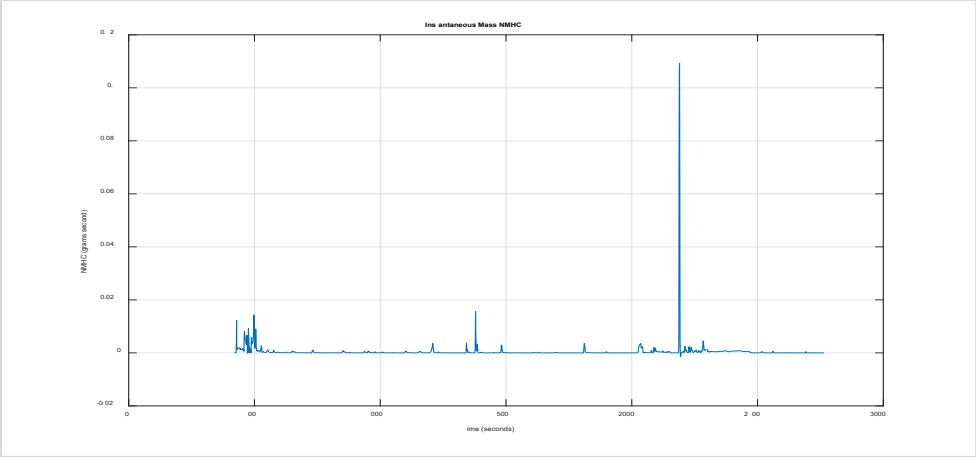


Figure 11.3.7: Vehicle 11 – Transient Cycle Instantaneous Mass NMHC

12. Vehicle 12 – LCRXJ02.95P0 – V0GUG4105
Alfa Romeo Stelvio Quadrifoglio 2.9L Turbocharged Automatic 8-speed AWD

a. Summary Table(s)

Steady State	NOx (g/mile)	CO2 (g/mi)	CO (g/mi)	NMHC (g/mi)	HC (g/mi)
30	0.0044	316.4148	0.1162	0.0002	0.0005
50	0.0071	347.5987	0.2159	0.0015	0.0026
60	0.0076	380.2960	0.2745	0.0006	0.0027
65	0.0071	388.3809	0.2455	0.0003	0.0024
70	0.0096	421.7738	0.2645	-0.0004	0.0036
65	0.0101	435.7904	0.1605	-0.0012	0.0031
75	0.0118	451.7418	0.1900	-0.0014	0.0034
80	0.0183	488.6615	0.1328	-0.0018	0.0025
85	0.0266	504.9308	0.1060	-0.0020	0.0022

Table 12.1: Vehicle 12 – Steady State
File: V0GUG4105_SSPEMS010420112380

80 MPH Steady State Cruise	NOx (g/mile)	CO2 (g/mi)	CO (g/mi)	NMHC (g/mi)	HC (g/mi)
80	0.0198	475.9225	0.1793	-0.0021	0.0044

Table 12.2: Vehicle 12– 80 MPH Steady State Cruise
File: V0GUG4105_80SS45010520112480

Transient Cycle	NOx (g/mile)	CO2 (g/mi)	CO (g/mi)	NMHC (g/mi)	HC (g/mi)
Various	0.0234	524.1396	4.1996	0.0264	0.0445

Table 12.3: Vehicle 12 – Transient Cycle
File: V0GUG4105_P-IUVP010420112480

b. Summary Plot(s)

i. Steady State PEMS Test

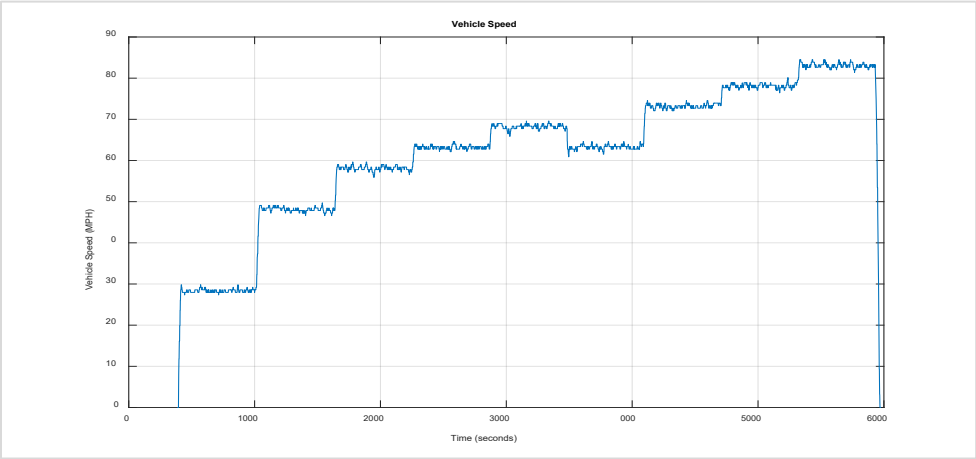


Figure 12.1.1: Vehicle 12 – Steady State Vehicle Speed

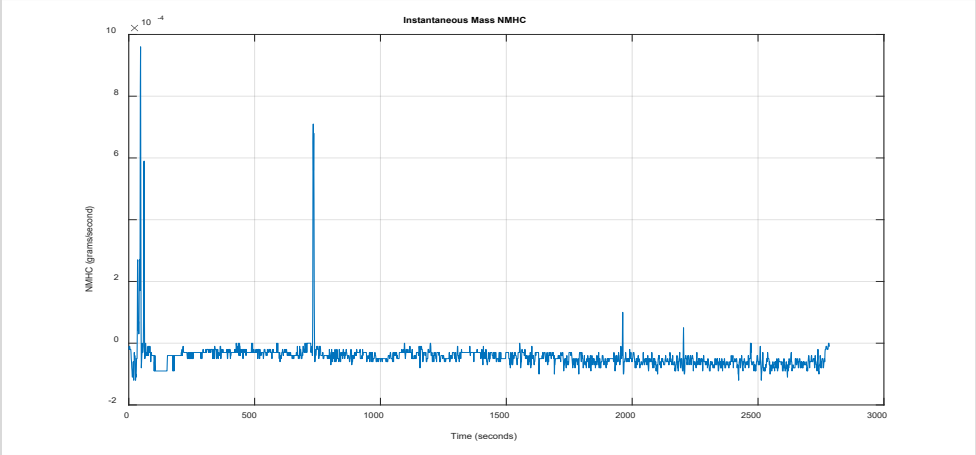


Figure 12.1.2: Vehicle 12 – Steady State Instantaneous Mass CO2

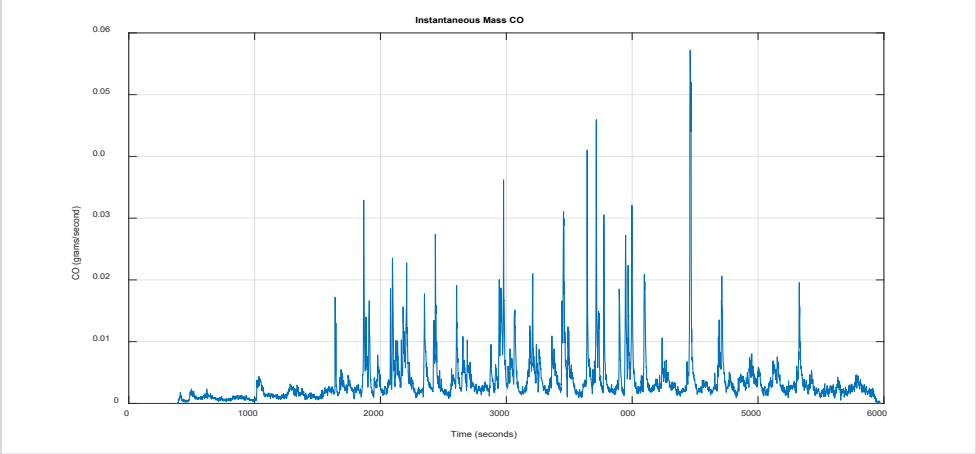


Figure 12.1.3: Vehicle 12 – Steady State Instantaneous Mass CO

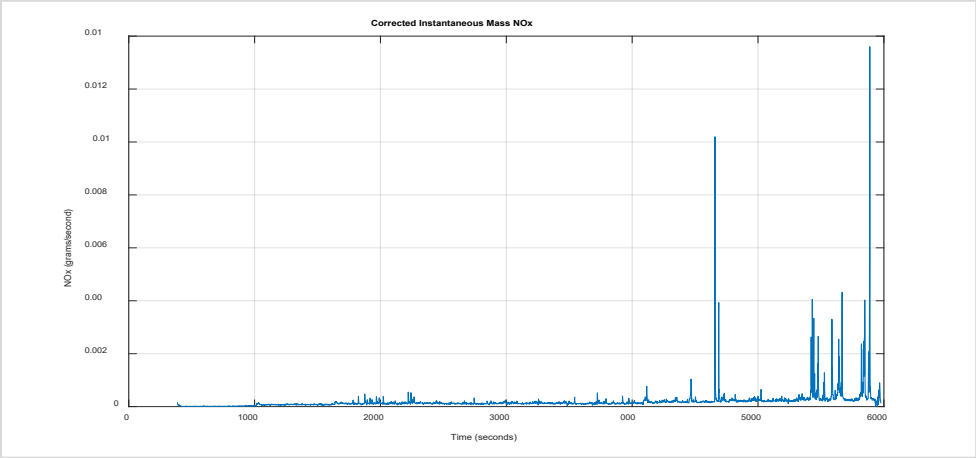


Figure 12.1.4: Vehicle 12 – Steady State Corrected Instantaneous Mass NOx

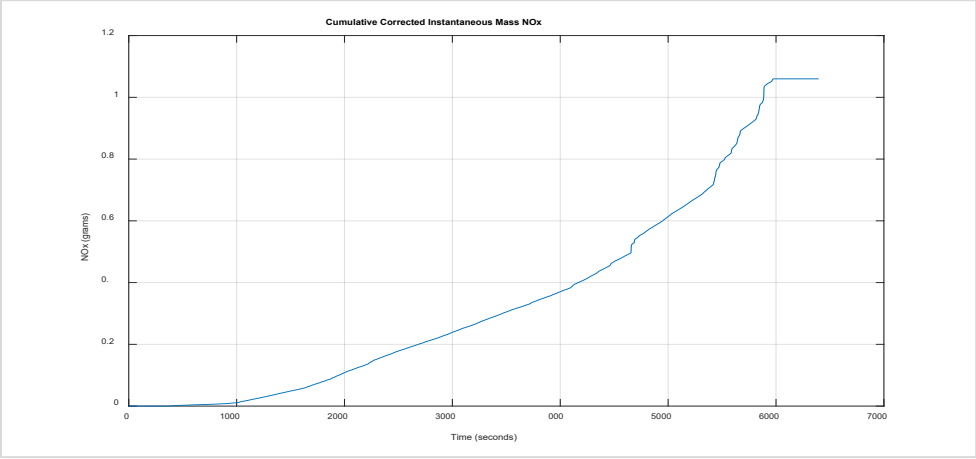


Figure 12.1.5: Vehicle 12 – Steady State Cumulative Corrected Instantaneous Mass NOx

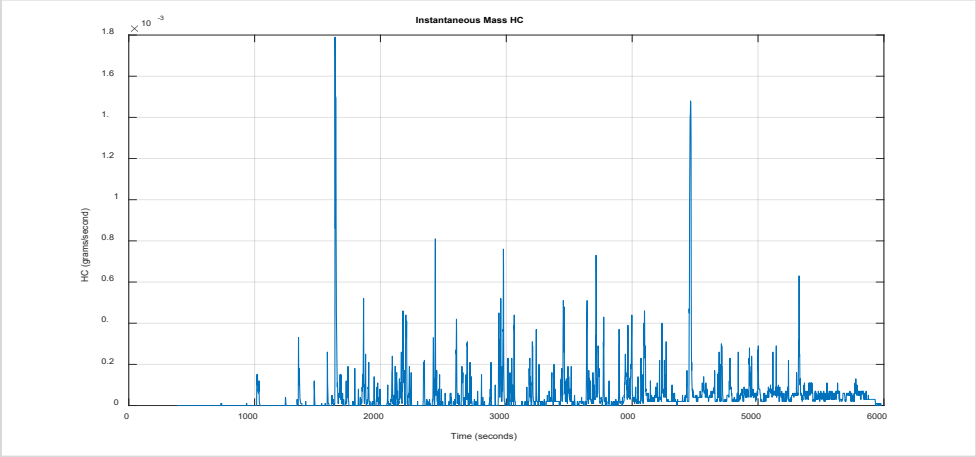


Figure 12.1.6: Vehicle 12 – Steady State Instantaneous Mass HC

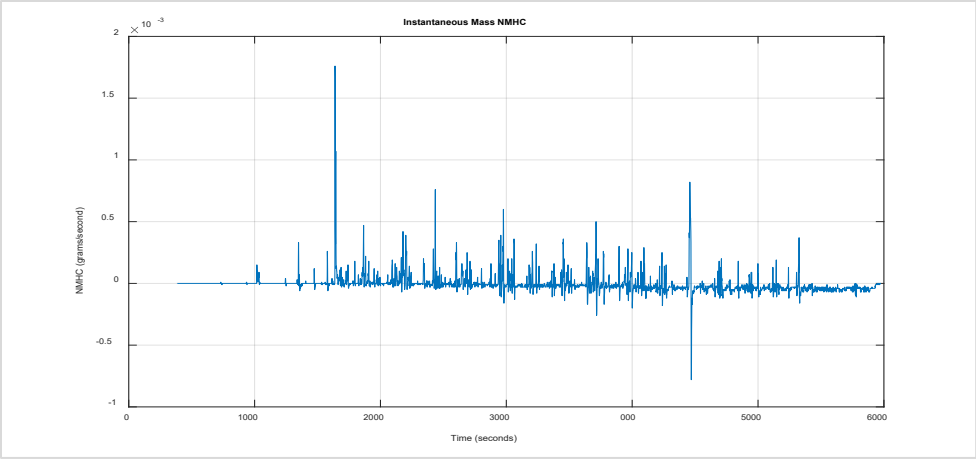


Figure 12.1.7: Vehicle 12 – Steady State Instantaneous Mass NMHC

ii. 80 MPH Steady State Cruise PEMS Test

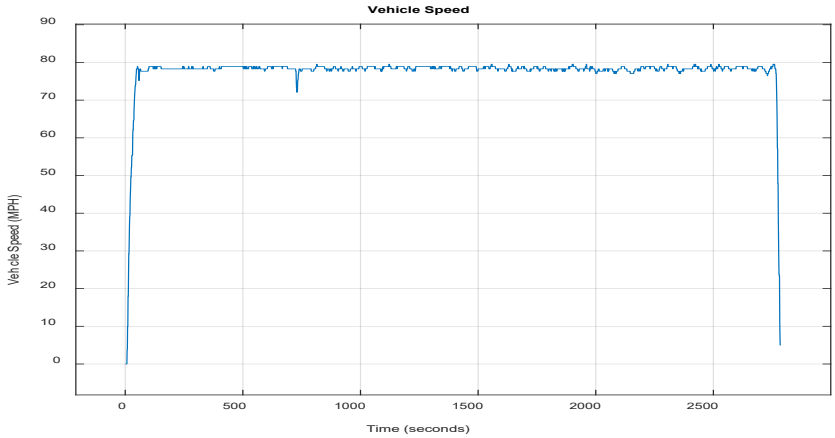


Figure 12.2.1: Vehicle 12 – 80 MPH Steady State Cruise Vehicle Speed

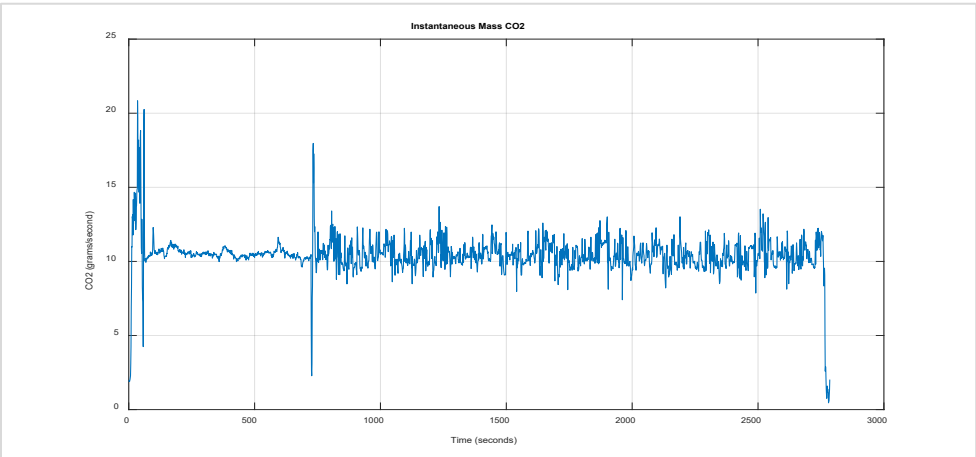


Figure 12.2.2: Vehicle 12 – 80 MPH Steady State Cruise Instantaneous Mass CO2

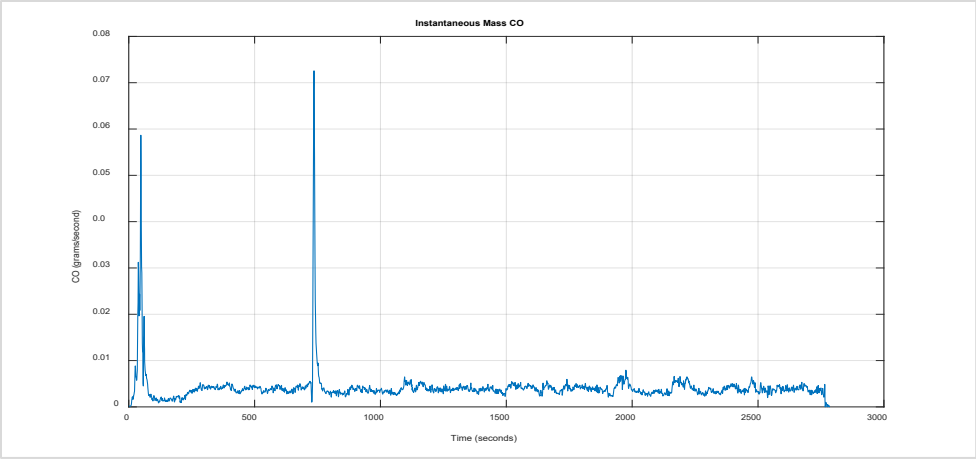


Figure 12.2.3: Vehicle 12 – 80 MPH Steady State Cruise Instantaneous Mass CO

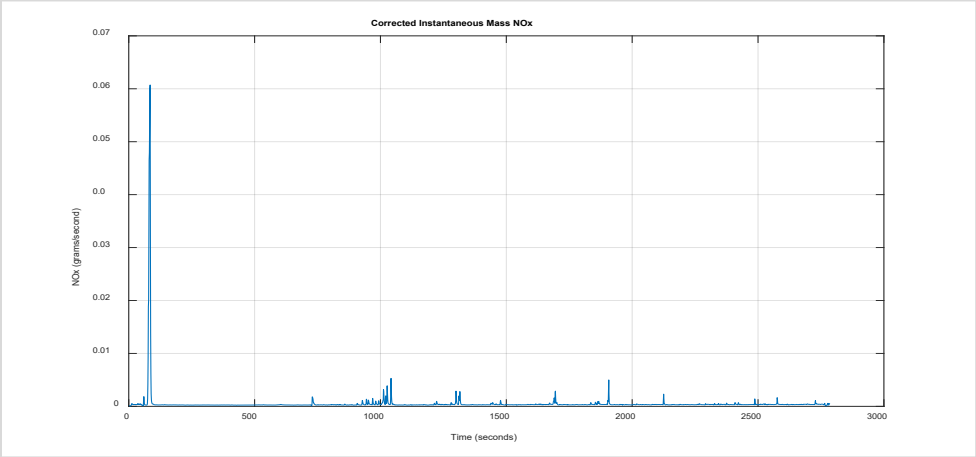


Figure 12.2.4: Vehicle 12 – 80 MPH Steady State Cruise Corrected Instantaneous Mass NOx

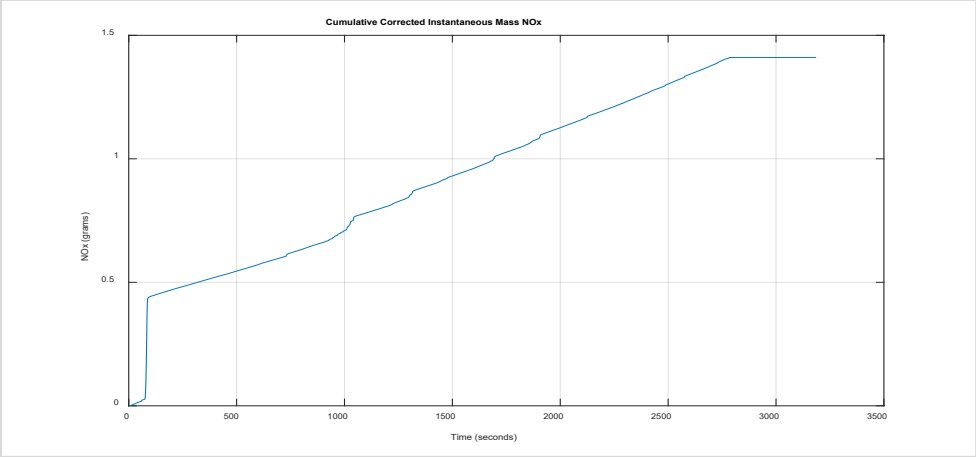


Figure 12.2.5: Vehicle 12 – 80 MPH Steady State Cruise Cumulative Corrected Instantaneous Mass NOx

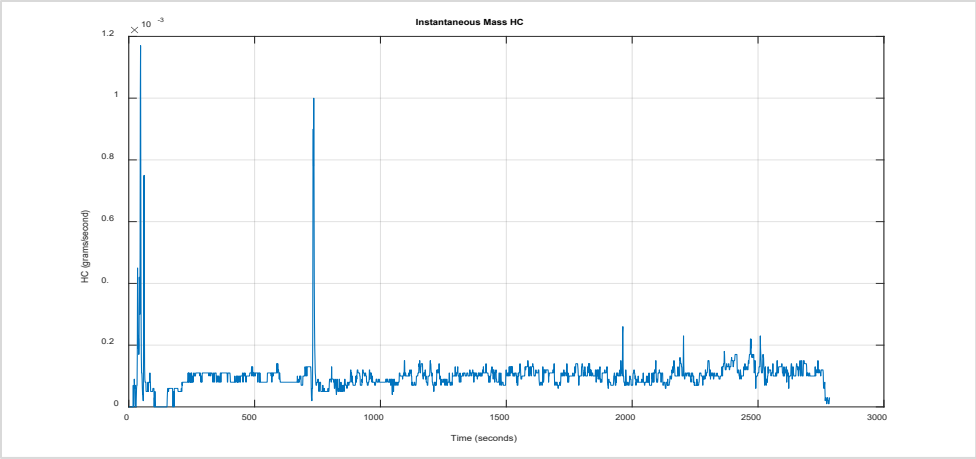


Figure 12.2.6: Vehicle 12 – 80 MPH Steady State Cruise Instantaneous Mass HC

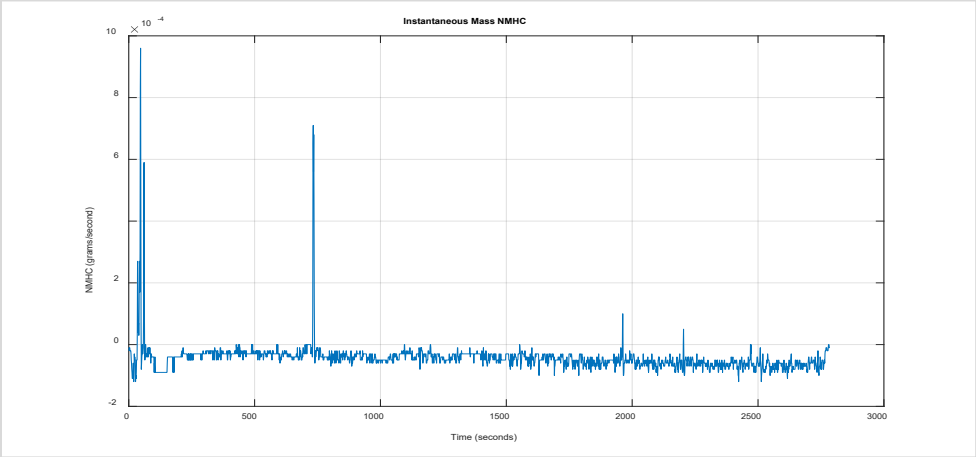


Figure 12.2.7: Vehicle 12 – 80 MPH Steady State Cruise Instantaneous Mass NMHC

iii. Transient Cycle PEMS Test

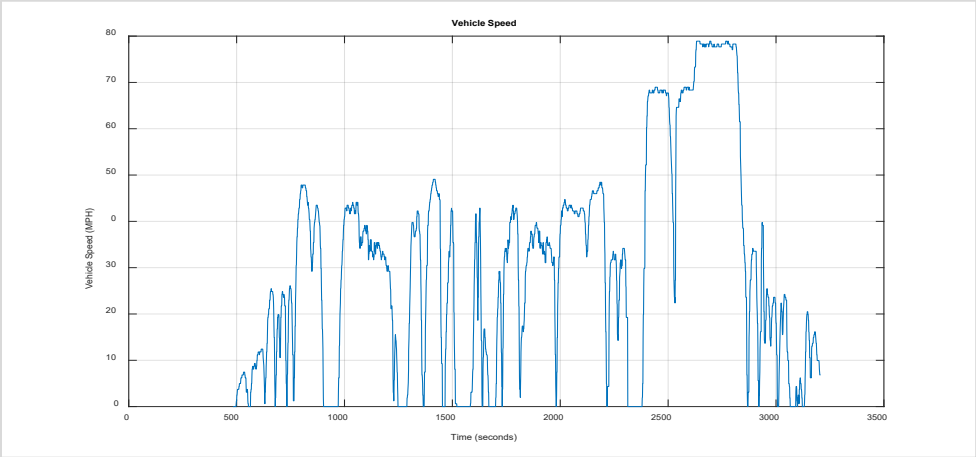


Figure 12.3.1: Vehicle 12 – Transient Cycle Vehicle Speed

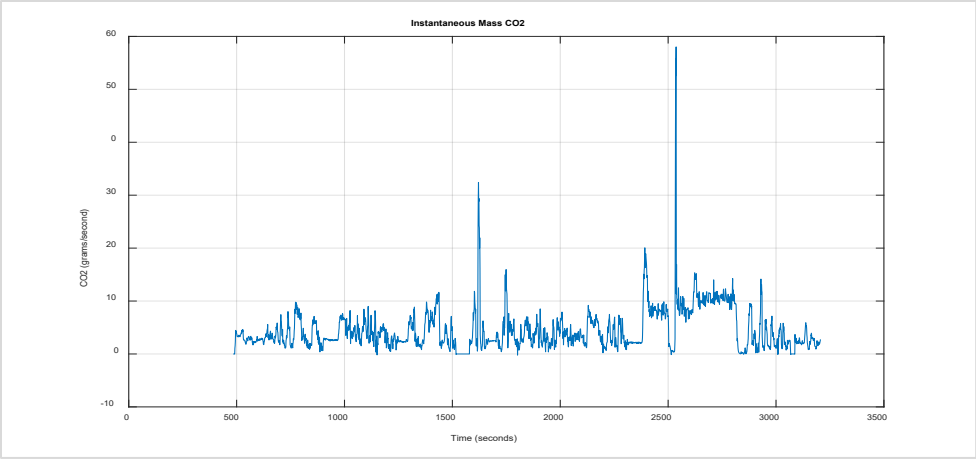


Figure 12.3.2: Vehicle 12 – Transient Cycle Instantaneous Mass CO2

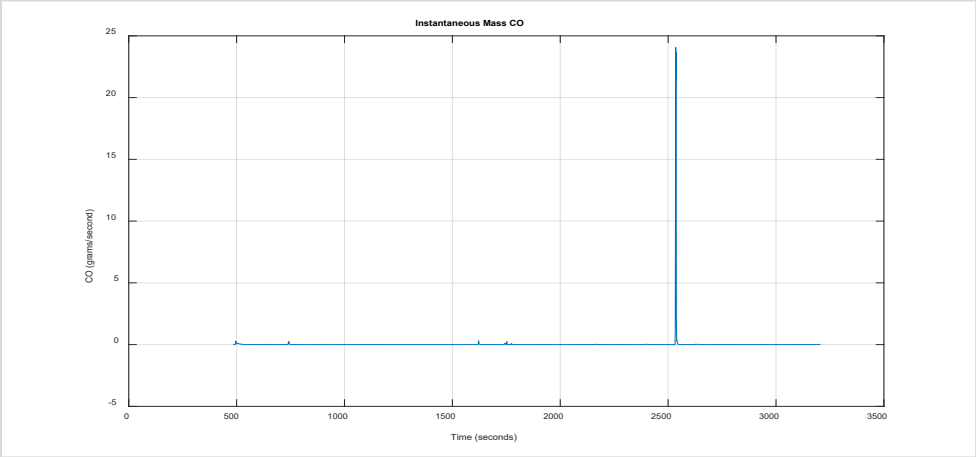


Figure 12.3.3: Vehicle 12 – Transient Cycle Instantaneous Mass CO

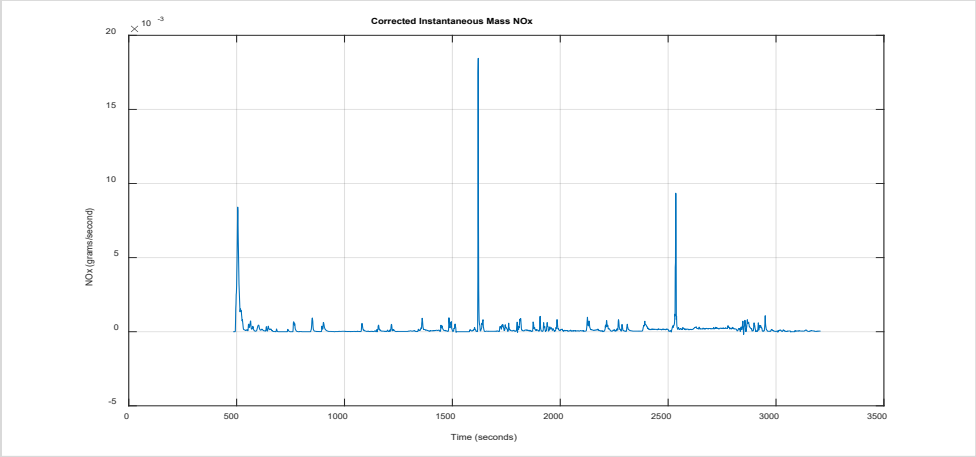


Figure 12.3.4: Vehicle 12 – Transient Cycle Corrected Instantaneous Mass NOx

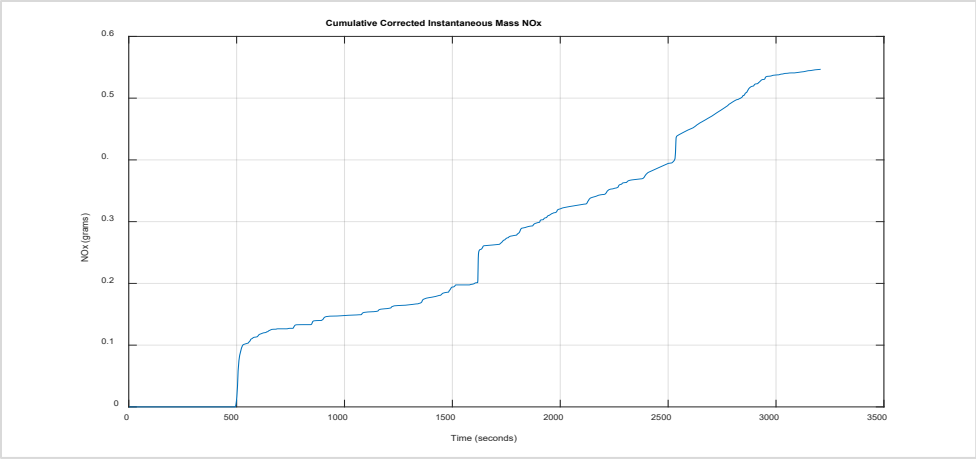


Figure 12.3.5: Vehicle 12 – Transient Cycle Cumulative Corrected Instantaneous Mass NOx

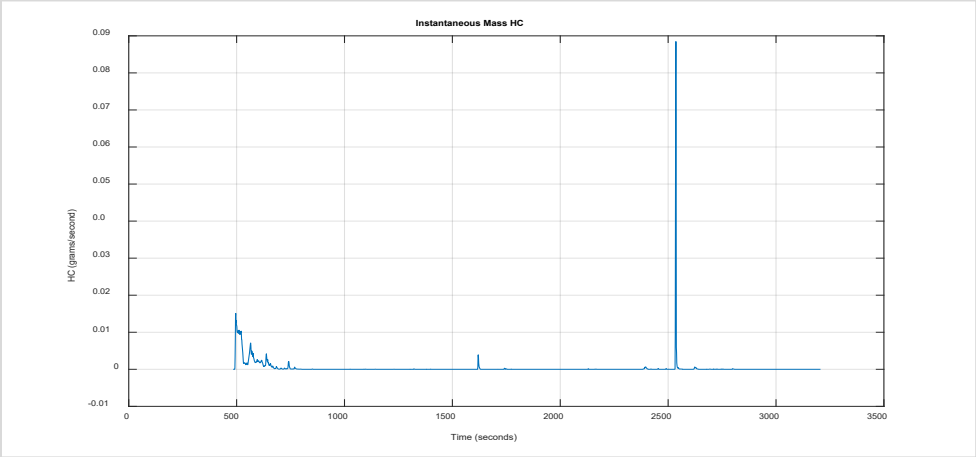


Figure 12.3.6: Vehicle 12 – Transient Cycle Instantaneous Mass HC

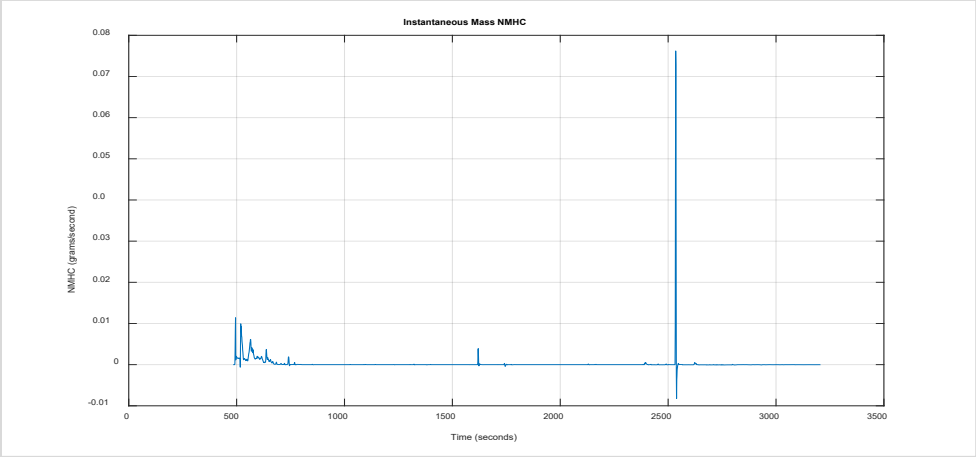


Figure 12.3.7: Vehicle 12 – Transient Cycle Instantaneous Mass NMHC

13. Vehicle 13 – LCRXT05.75P4 – V0DT61576
RAM 1500 Rebel 5.7L Automatic 8-speed 4WD

a. Summary Table(s)

Steady State	NOx (g/mile)	CO2 (g/mi)	CO (g/mi)	NMHC (g/mi)	HC (g/mi)
30	0.0282	359.4215	0.0887	-0.0001	0.0001
50	0.1337	436.5001	0.1364	-0.0009	0.0003
60	0.0504	496.5949	0.1662	-0.0019	0.0025
65	0.0214	532.2023	0.2973	-0.0014	0.0062
70	0.0185	572.9457	0.5941	0.0004	0.0123
65	0.0166	590.4101	0.6160	-0.0014	0.0135
75	0.0175	622.9844	0.7598	0.0005	0.0158
80	0.0160	684.3158	1.2715	-0.0016	0.0139
85	0.0169	718.8103	1.5529	-0.0018	0.0154

Table 13.1: Vehicle 13 – Steady State
File: V0DT61576_SSPEMS010320120580

80 MPH Steady State Cruise	NOx (g/mile)	CO2 (g/mi)	CO (g/mi)	NMHC (g/mi)	HC (g/mi)
80	0.0210	673.2775	1.0938	0.0004	0.0136

Table 13.2: Vehicle 13 – 80 MPH Steady State Cruise
File: V0DT61576_80SS45010520120580

Transient Cycle	NOx (g/mile)	CO2 (g/mi)	CO (g/mi)	NMHC (g/mi)	HC (g/mi)
Various	0.0200	678.6785	7.8297	0.0117	0.0213

Table 13.3: Vehicle 13 – Transient Cycle
File: V0DT61576_P-IUVP010420120580

b. Summary Plot(s)

i. Steady State PEMS Test

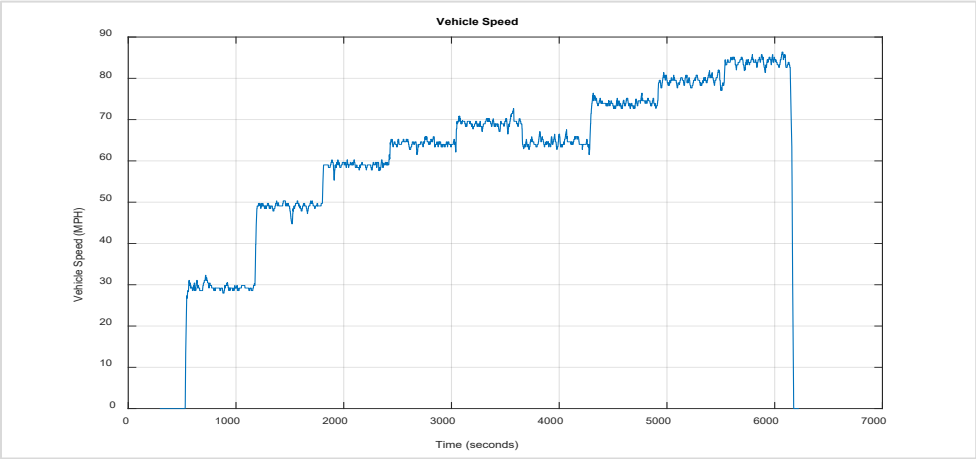


Figure 13.1.1: Vehicle 13 – Steady State Vehicle Speed

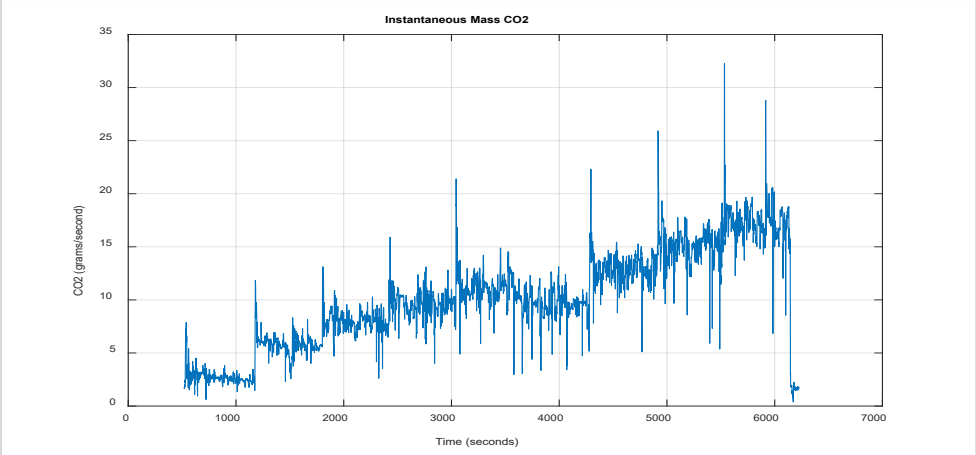


Figure 13.1.2: Vehicle 13 – Steady State Instantaneous Mass CO2

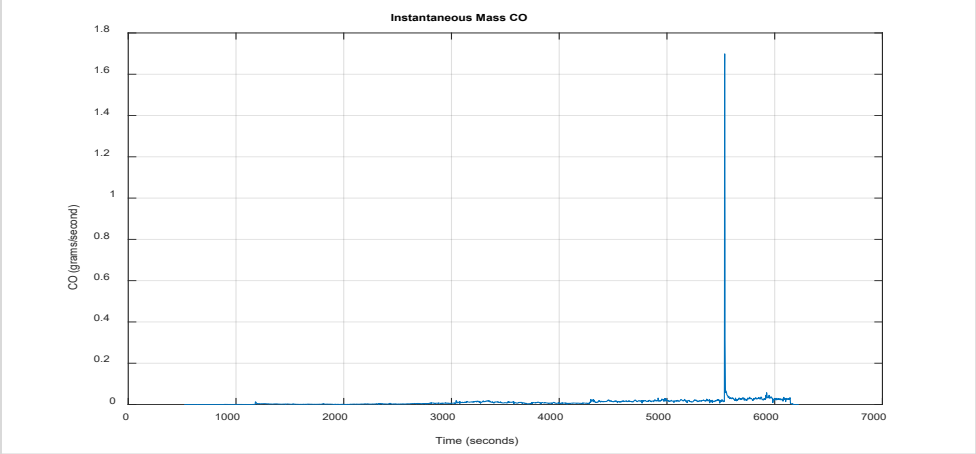


Figure 13.1.3: Vehicle 13 – Steady State Instantaneous Mass CO

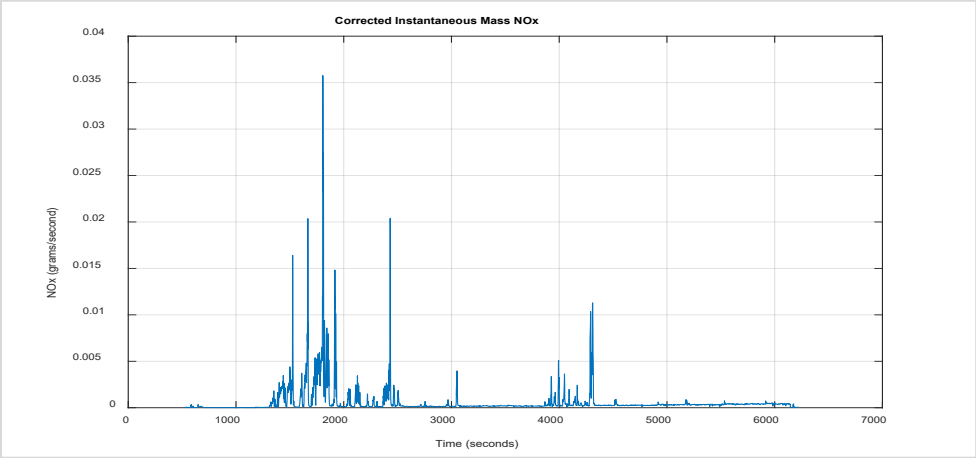


Figure 13.1.4: Vehicle 13 – Steady State Corrected Instantaneous Mass NOx

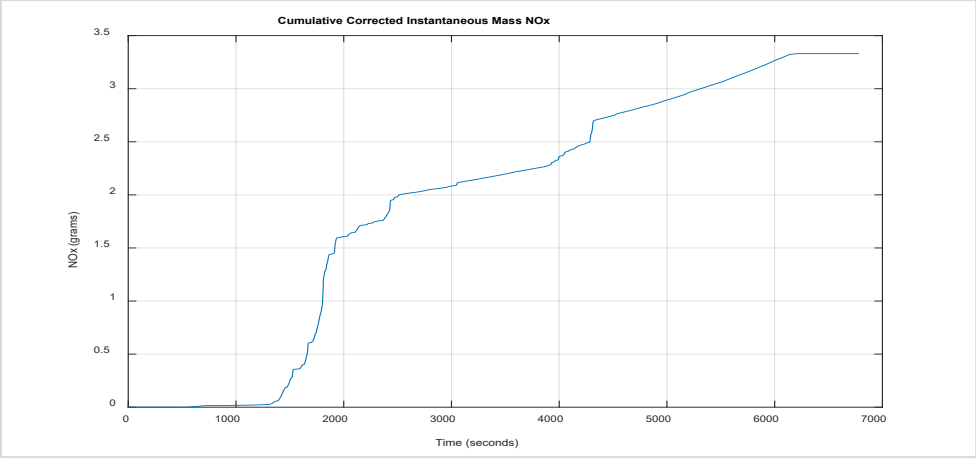


Figure 13.1.5: Vehicle 13 – Steady State Cumulative Corrected Instantaneous Mass NOx

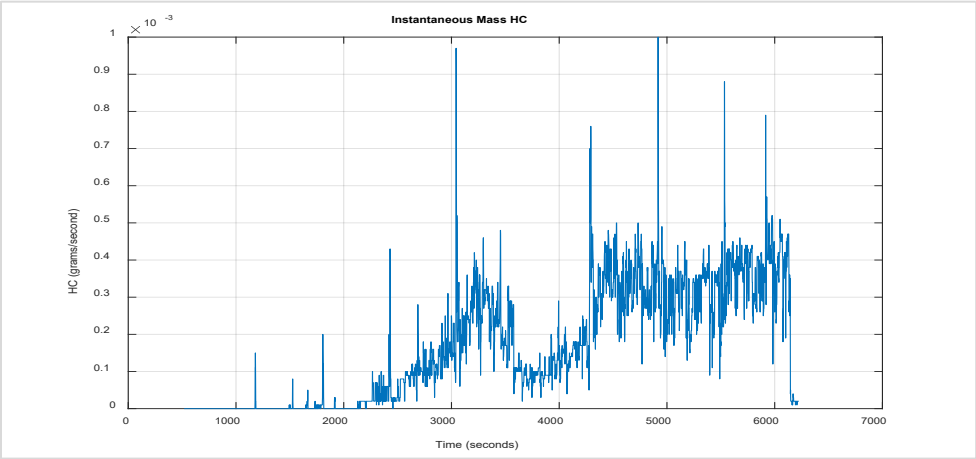


Figure 13.1.6: Vehicle 13 – Steady State Instantaneous Mass HC

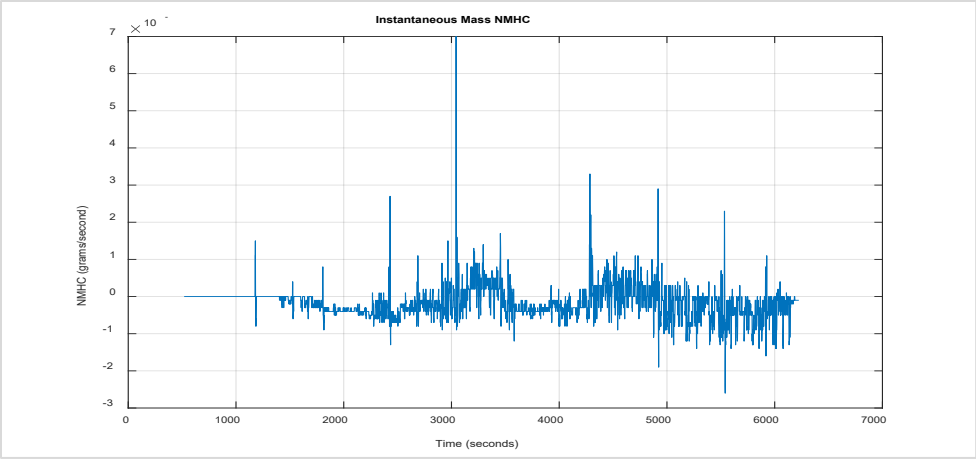


Figure 13.1.7: Vehicle 13 – Steady State Instantaneous Mass NMHC

ii. 80 MPH Steady State Cruise PEMS Test

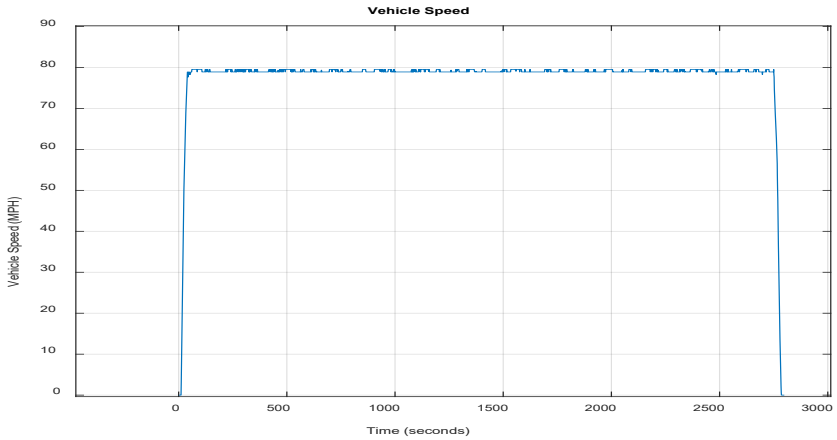


Figure 13.2.1: Vehicle 13 – 80 MPH Steady State Cruise Vehicle Speed

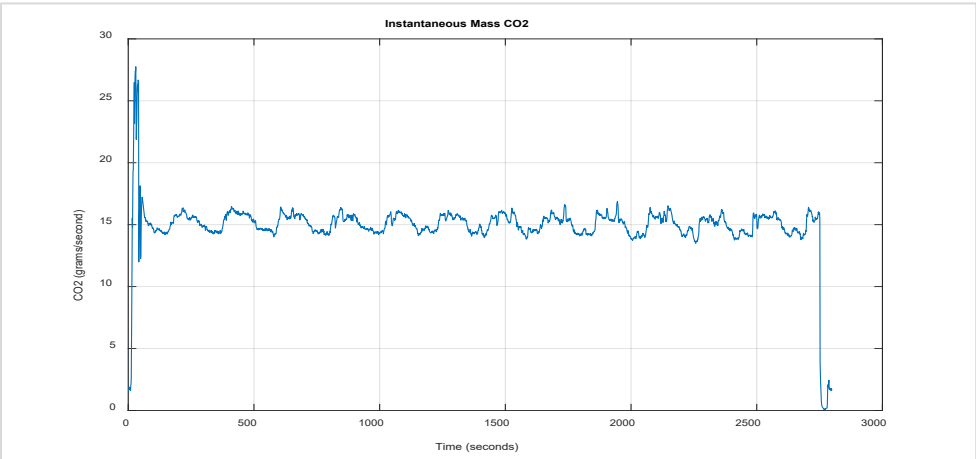


Figure 13.2.2: Vehicle 13– 80 MPH Steady State Cruise Instantaneous Mass CO2

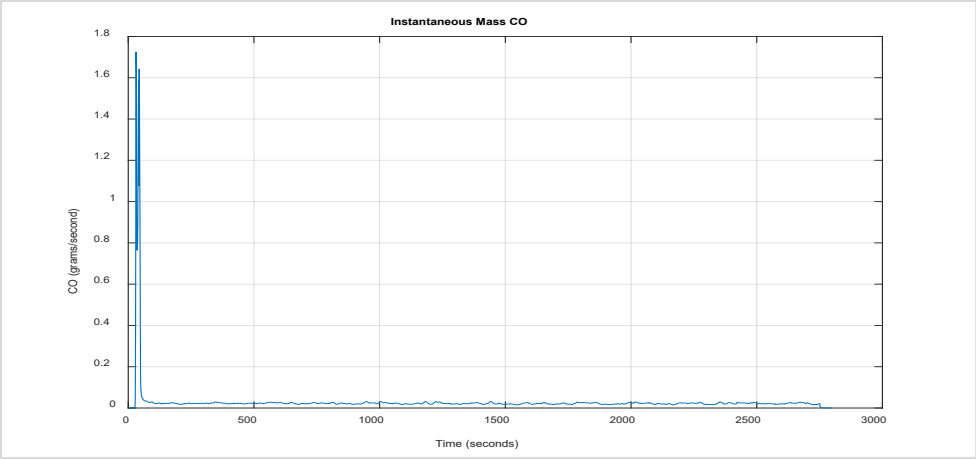


Figure 13.2.3: Vehicle 13 – 80 MPH Steady State Cruise Instantaneous Mass CO

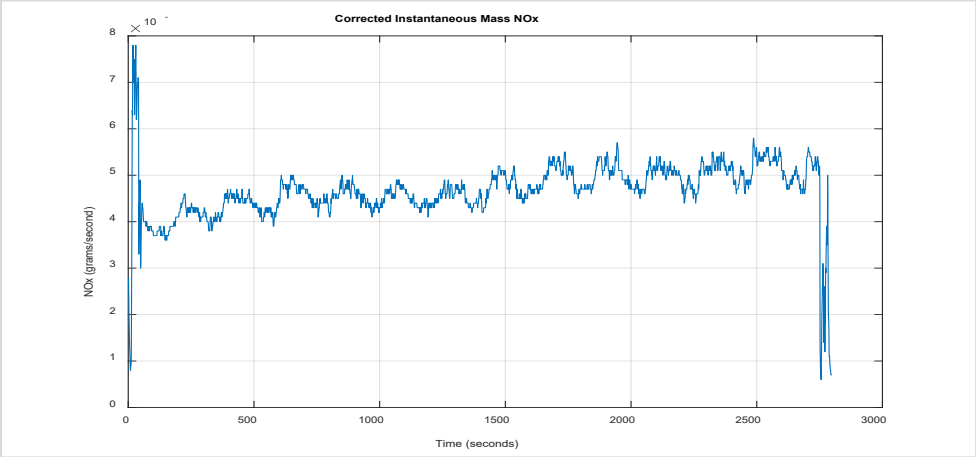


Figure 13.2.4: Vehicle 13 – 80 MPH Steady State Cruise Corrected Instantaneous Mass NOx

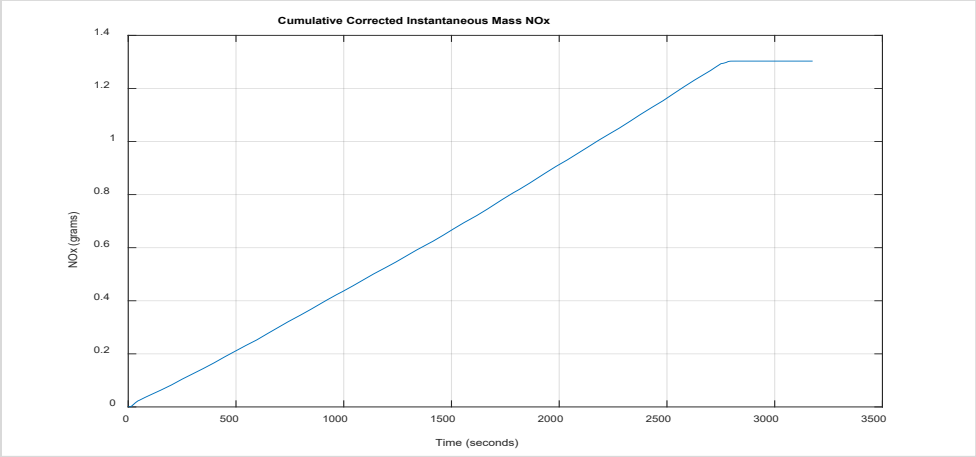


Figure 13.2.5: Vehicle 13 – 80 MPH Steady State Cruise Cumulative Corrected Instantaneous Mass NOx

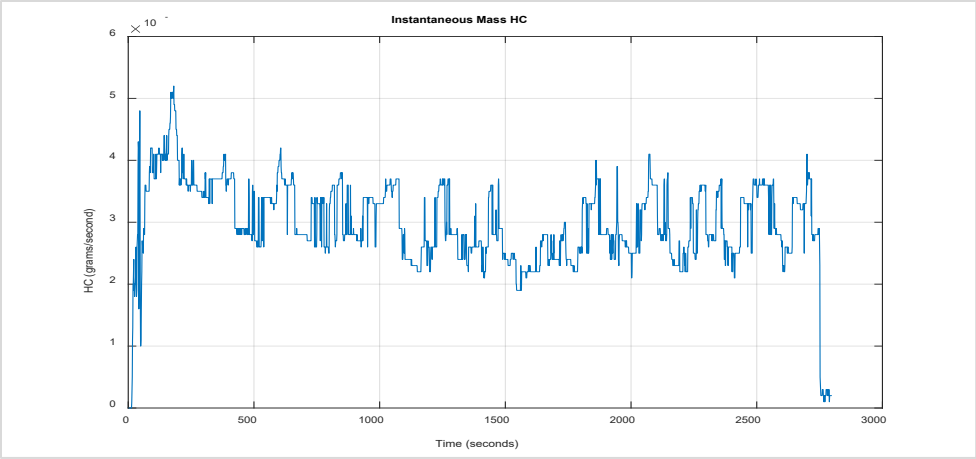


Figure 13.2.6: Vehicle 13 – 80 MPH Steady State Cruise Instantaneous Mass HC

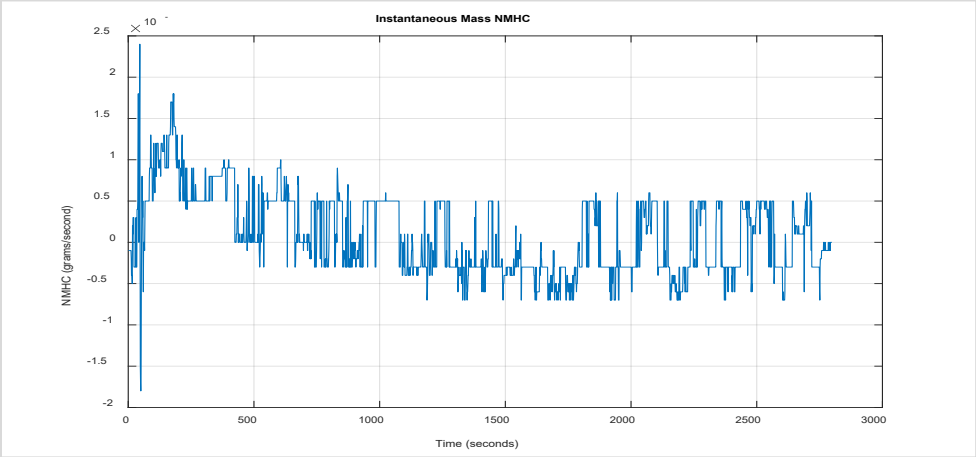


Figure 13.2.7: Vehicle 13 – 80 MPH Steady State Cruise Instantaneous Mass NMHC

iii. Transient Cycle PEMS Test

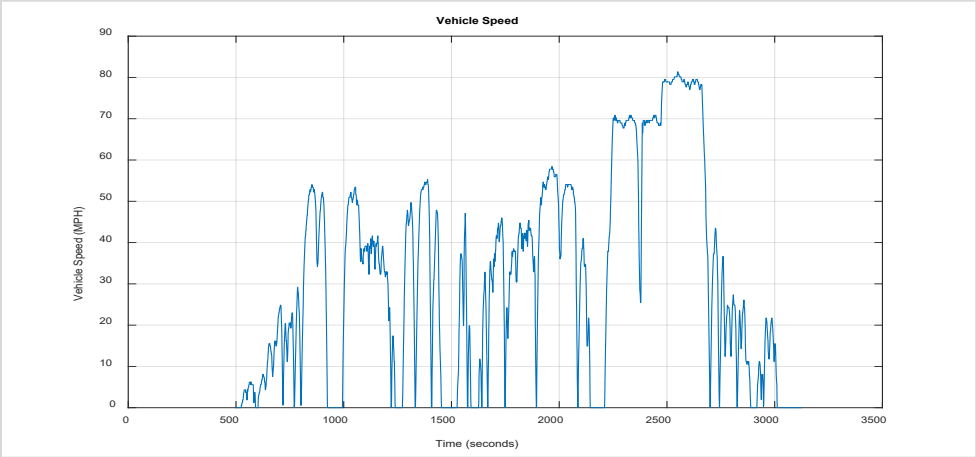


Figure 13.3.1: Vehicle 13 – Transient Cycle Vehicle Speed

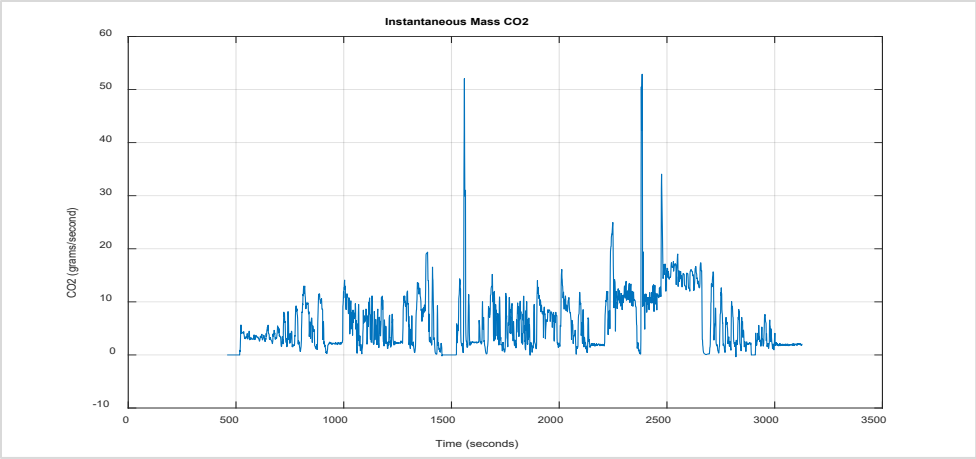


Figure 13.3.2: Vehicle 13 – Transient Cycle Instantaneous Mass CO2

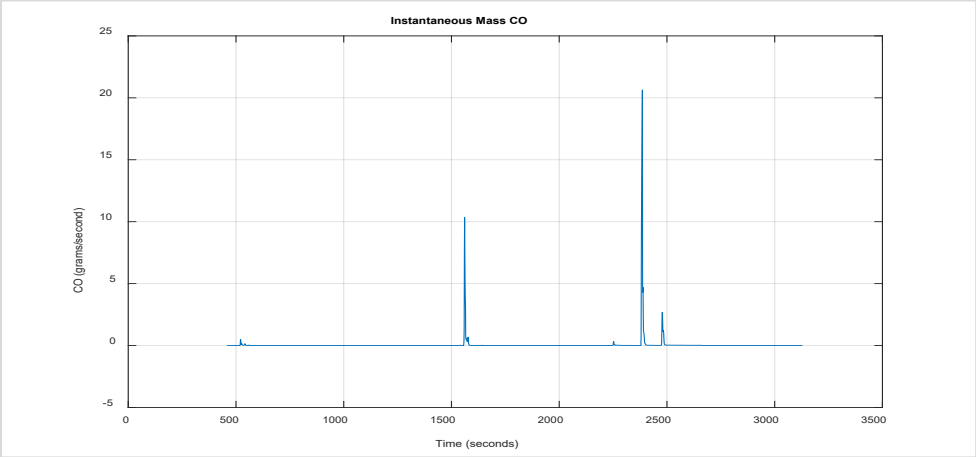


Figure 13.3.3: Vehicle 13 – Transient Cycle Instantaneous Mass CO

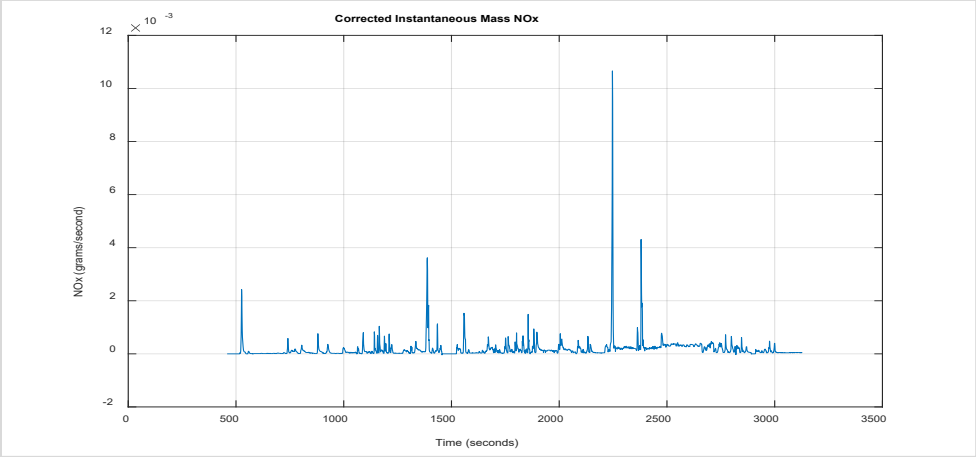


Figure 13.3.4: Vehicle 13 – Transient Cycle Corrected Instantaneous Mass NOx

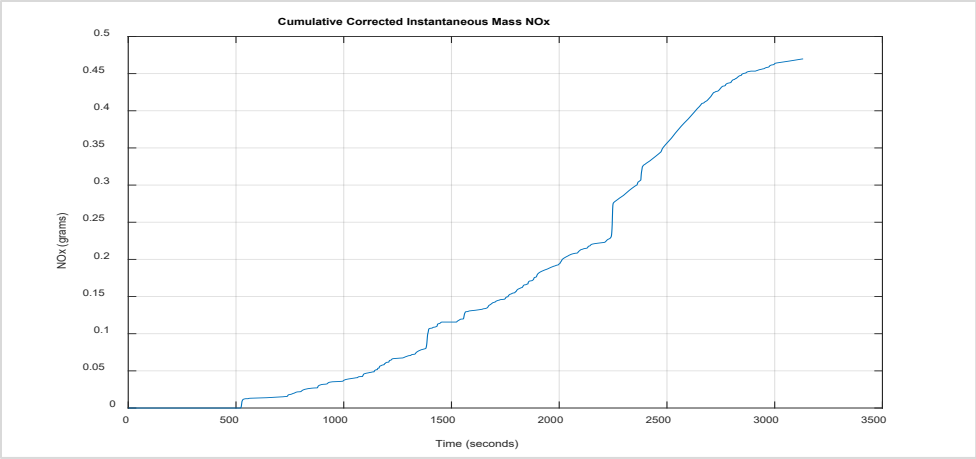


Figure 13.3.5: Vehicle 13 – Transient Cycle Cumulative Corrected Instantaneous Mass NOx

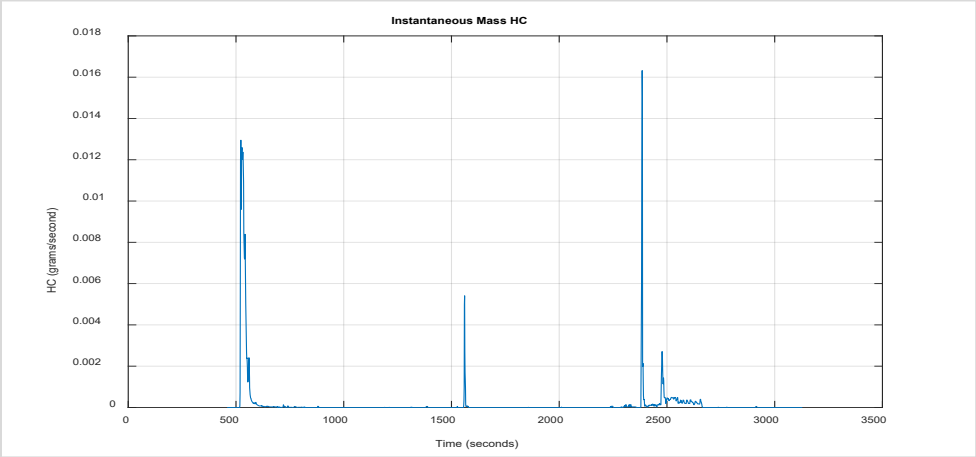


Figure 13.3.6: Vehicle 13 – Transient Cycle Instantaneous Mass HC

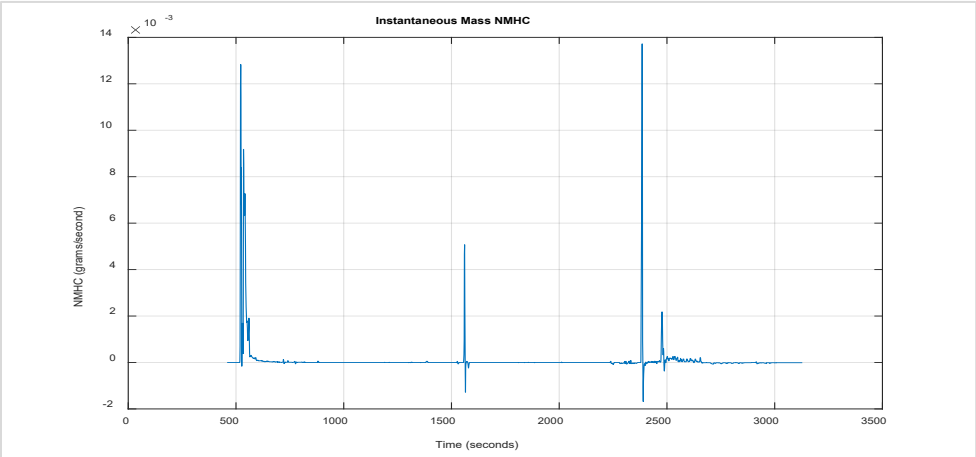


Figure 13.3.7: Vehicle 13 – Transient Cycle Instantaneous Mass NMHC