

Overall Information

Table 1- Overall Information

Vehicle plate number	85423
CPK data logger number	LN: 001505, DN: 2001, Sim Number +989218469621
Bus line	Number 4 (south to north Bus line)
Bus Terminals	Tehran South Bus Terminal - Park Way Bus Terminal
Total path distance	22.8 km
DPF producer company	HJS02 (Active system with FBC- Electrical Heater)
Installation date	19/Feb/2015
Report period	1/May/2015 – 15/May/2015 (fifteen days)
K value - DPF upstream	1.51 [m^{-1}]
K value – DPF downstream	0.08 [m^{-1}]

Table 2- Maintenance Table

Filter maintenance date	DPF has been working from installation until now without any cleaning.
Dosing status	Dosing value has been kept constant from installation date until now.

Table 3- Fuel and Additive Consumption Information

Bus mileage (from DPF installation date)	14299 km
Bus mileage over the period	3306 km
Working days over the period	14 days
Stop days	1 days
Data logger working days	13 days
Working hours over the period	$181.45+(1*12.96)=195.41$ hours
Average working hours per a day (including stop days)	13.02 hours
Bus average speed	16.91 km/hr
idle speed time to all working time ration	49%
Total Bus fuel consumption over the period	1761 lit
fuel consumption per hour	9.01 lit/hr
Average fuel consumption	0.53 lit/km
Total Bus additive consumption over the period	0.792 lit
Average additive consumption	0.240 cc/km
additive consumption to fuel ration	450 cc per 1000 lit (Batch Dosing with Tank Level)

Notice: As depicted in Figure 12, data logger didn't work on May 15th. So we add average working hours to calculated working hours from the data logger.

Temperature, Pressure and Engine Speed Overview

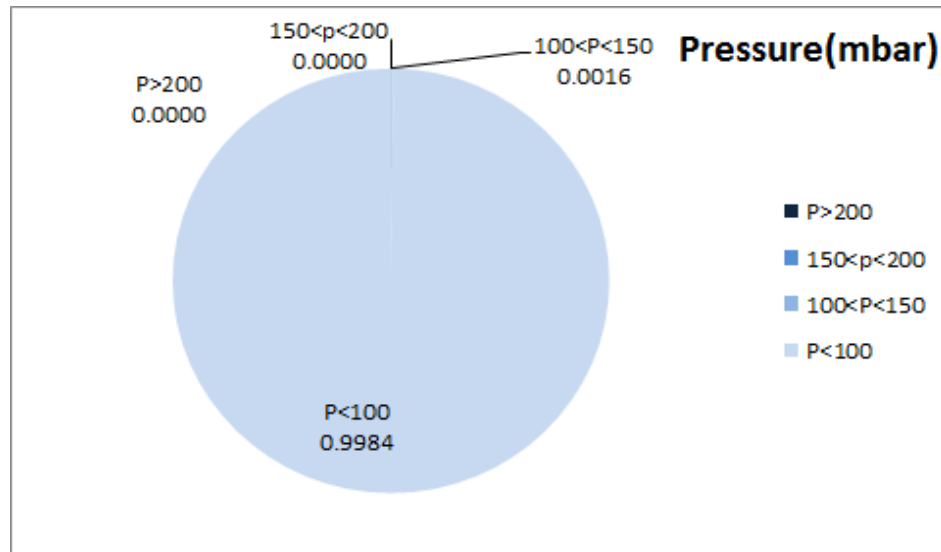


Figure 1- Pressure distribution over the working hours

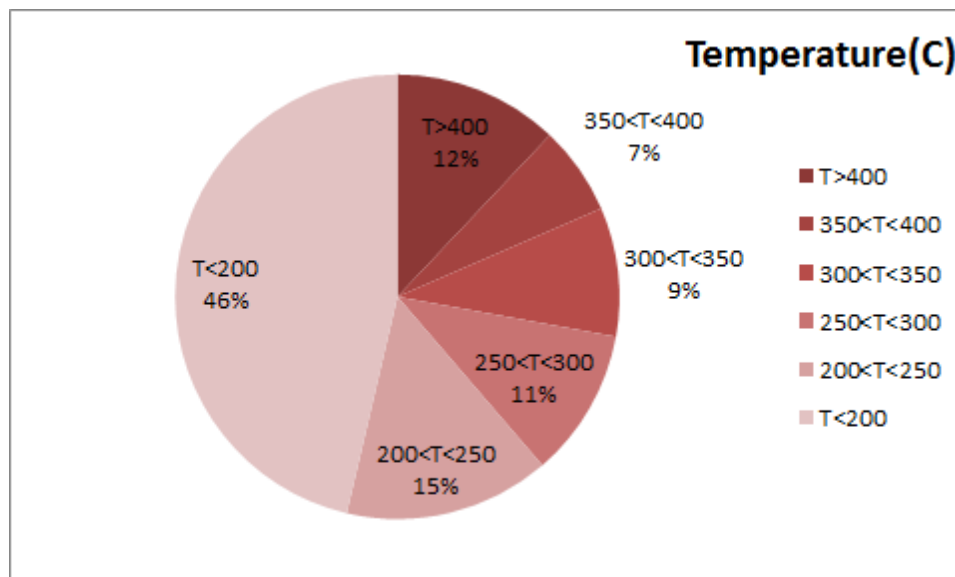


Figure 2-Temperature¹ distribution over the working hours

¹ - Exhaust temperature before the DPF

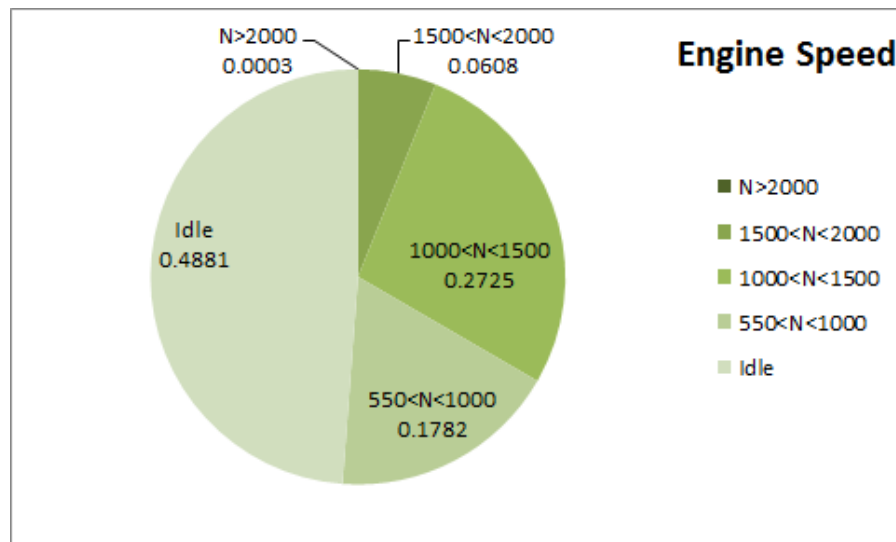


Figure 3- Engine speed distribution over the working hours

Table 4- Mean values

Mean temperature ² (C)	Mean pressure(mbar)	Mean engine speed(rpm)
241.95	9.65	836

Table 5- Mean values without idling

Mean temperature(C)	Mean pressure(mbar)	Mean engine speed(rpm)
306.62	18.33	1115

Table 6- Max-min values

Max-min temperature(C)	Max-min pressure(mbar)	Max-min engine speed(rpm)
630-50	129-0	2096-256

² - Temperature of before the DPF

Detailed Pressure Analysis

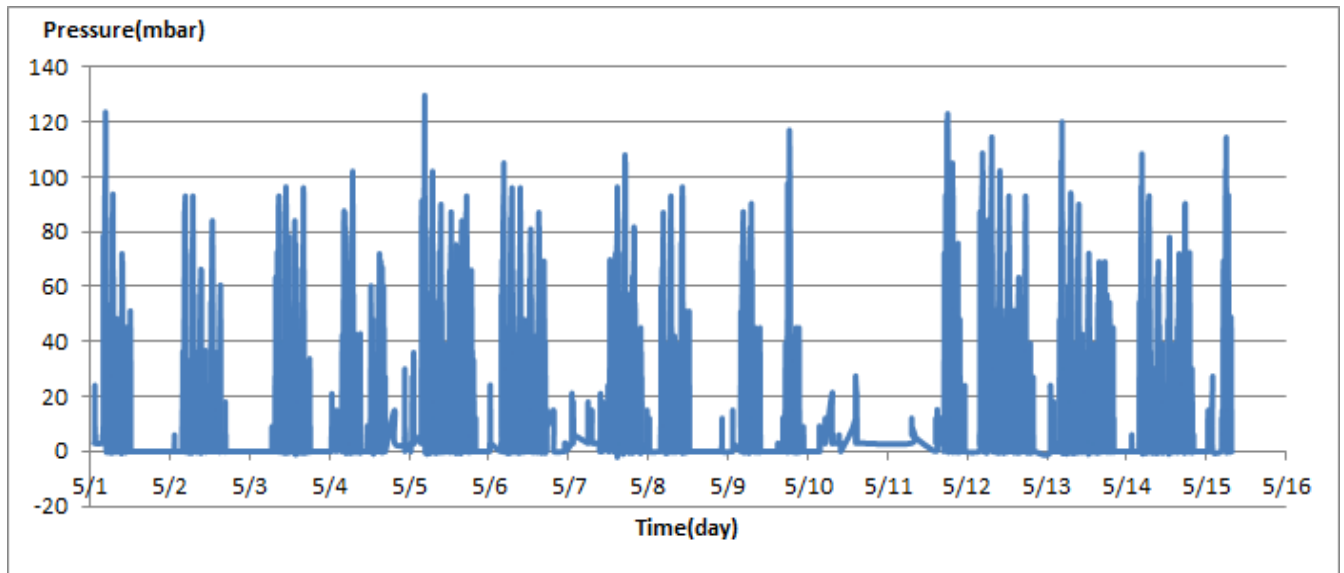


Figure 4- Pressure distribution over fifteen days

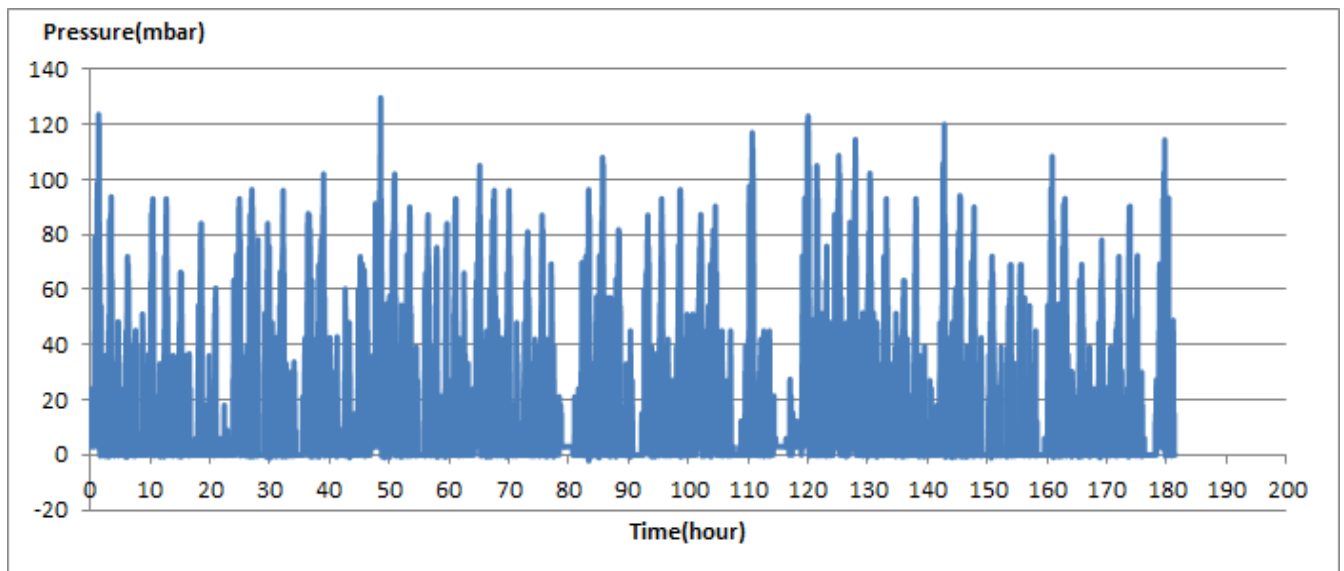


Figure 5- Pressure vs. working hours

Notice: backpressure distribution shown into two diagrams. As obvious in figure 5, stop-working periods were eliminated and pressure is displayed along working-hours.

Detailed Temperature Analysis

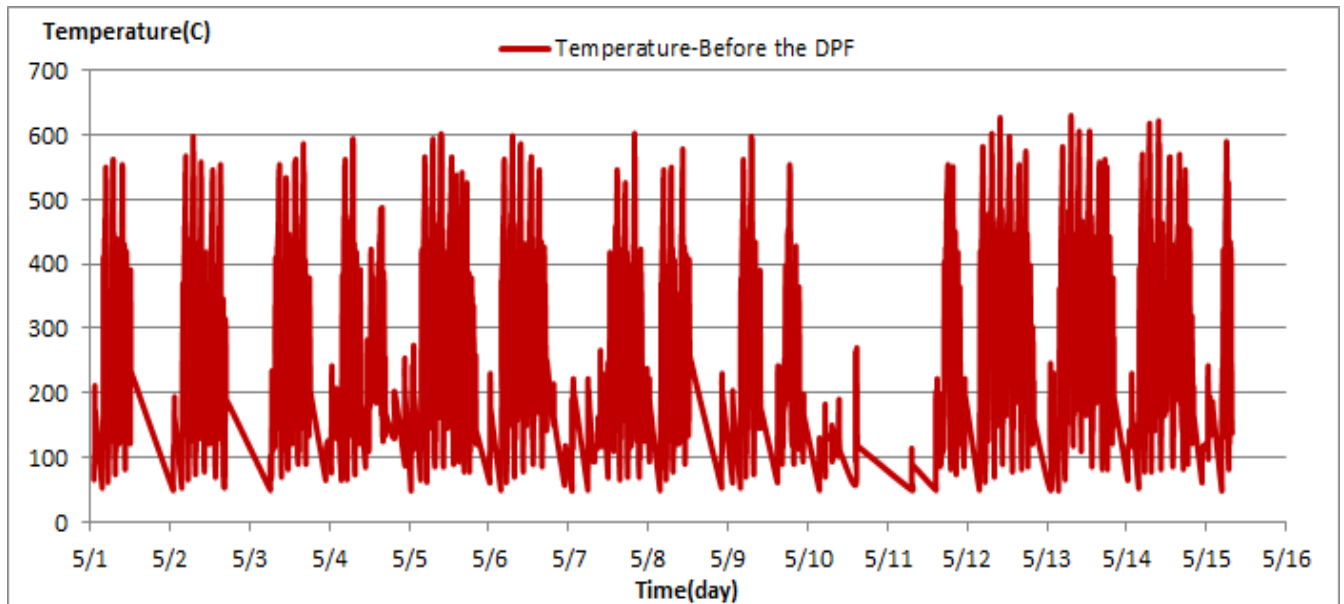


Figure 6- Temperature distribution over fifteen days

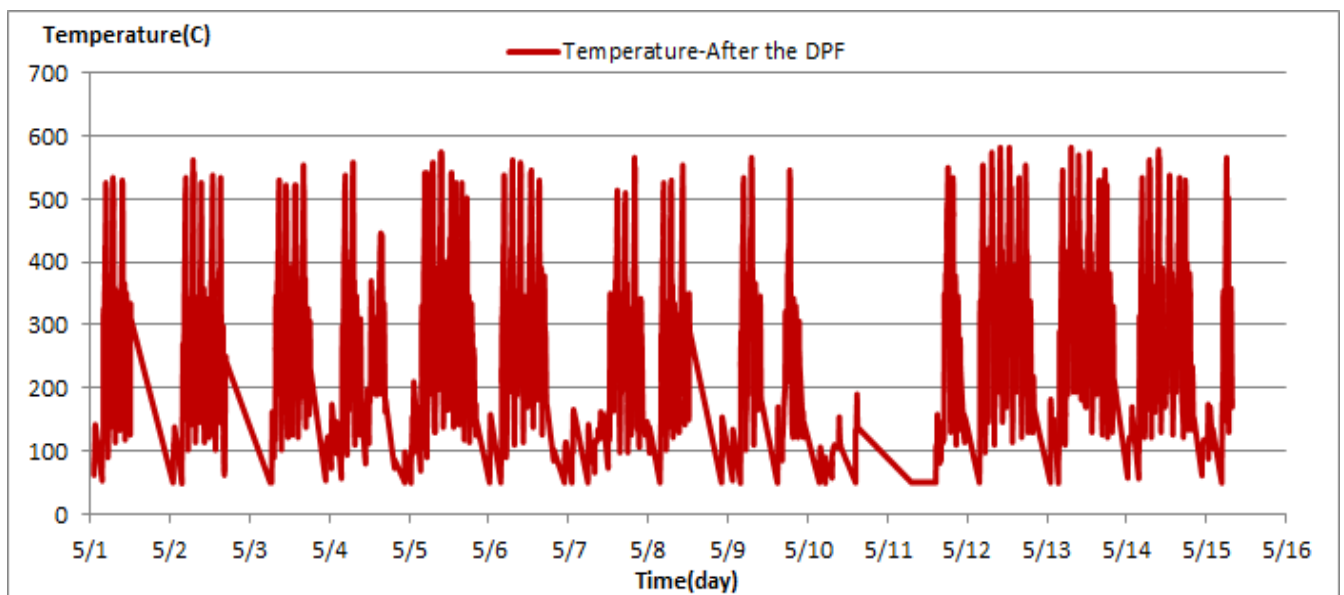


Figure 7- Temperature distribution over fifteen days

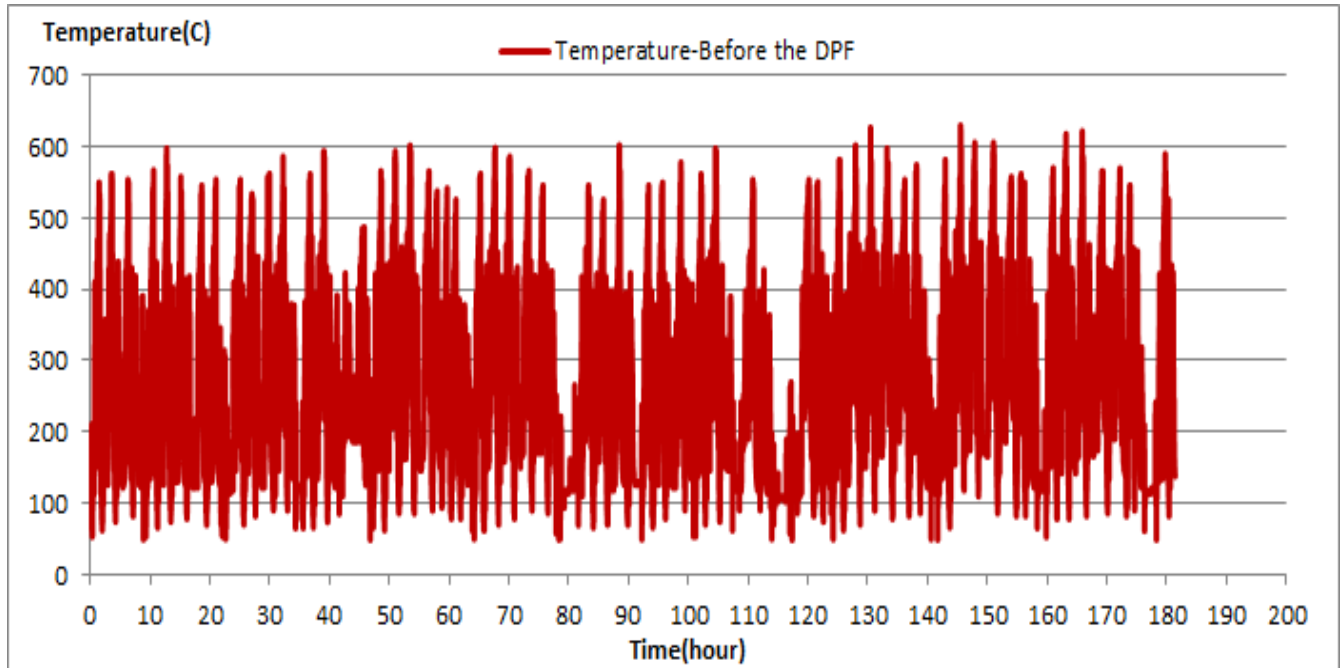


Figure 8- Before DPF temperature vs. working hours

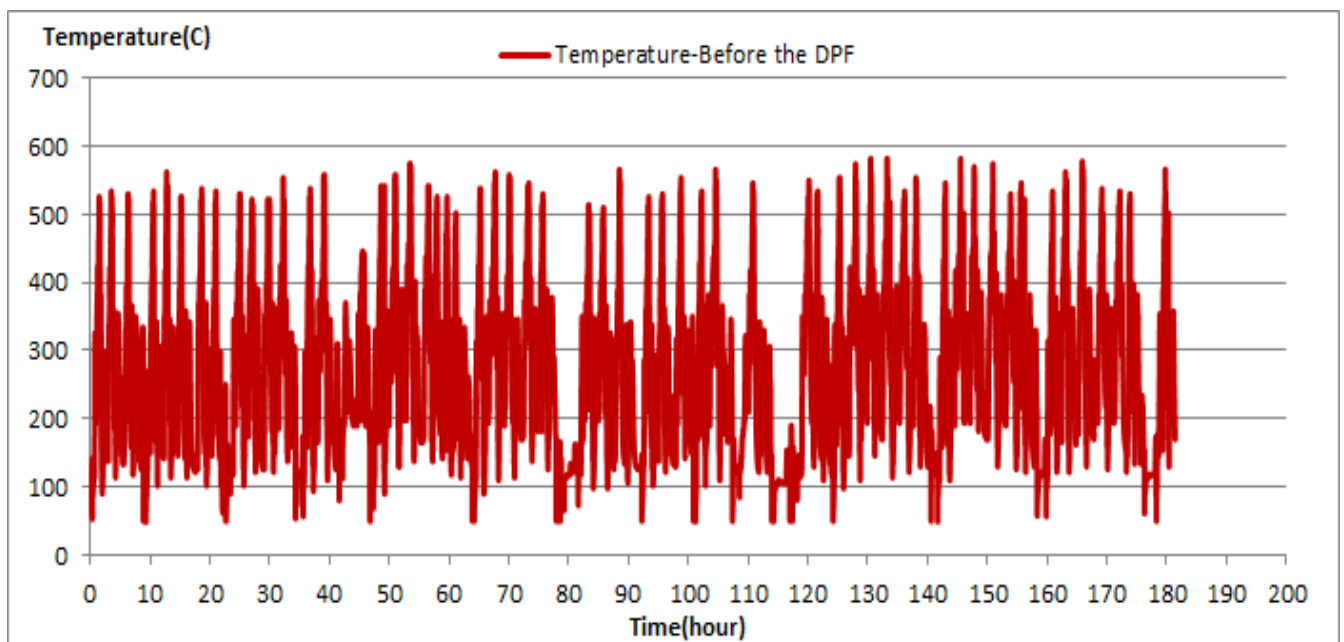


Figure 9- After DPF temperature vs. working hours

Engine Speed Diagrams

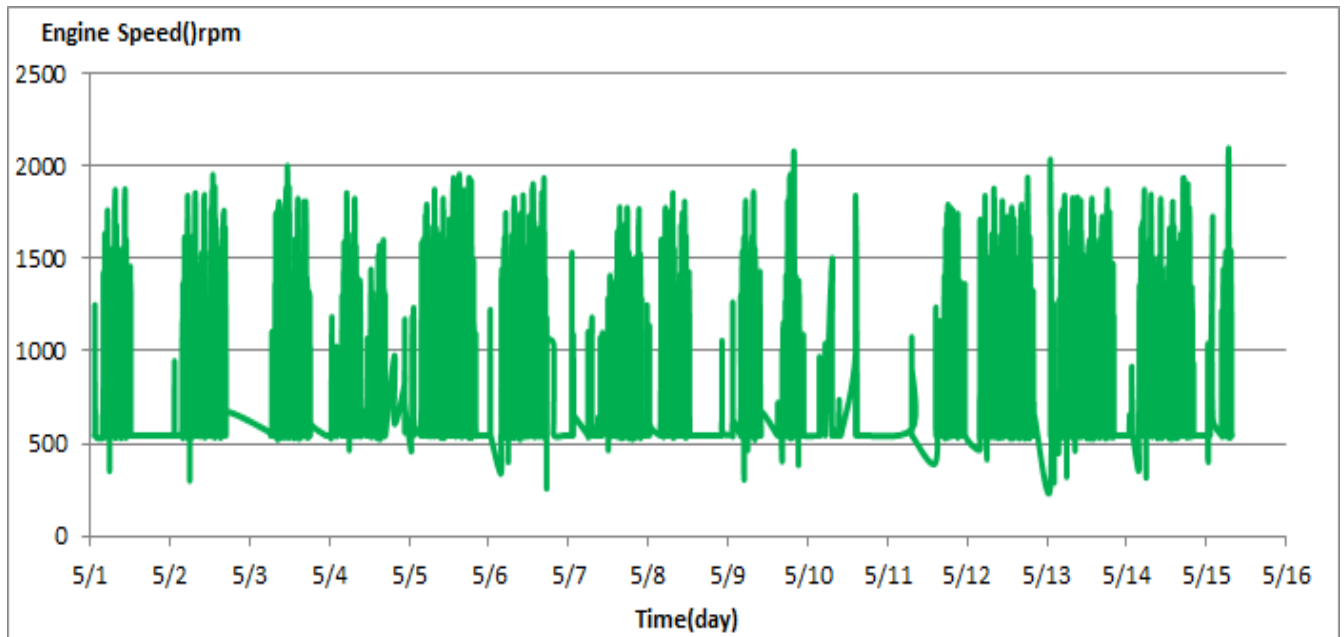


Figure 10- Engine speed distribution over fifteen days

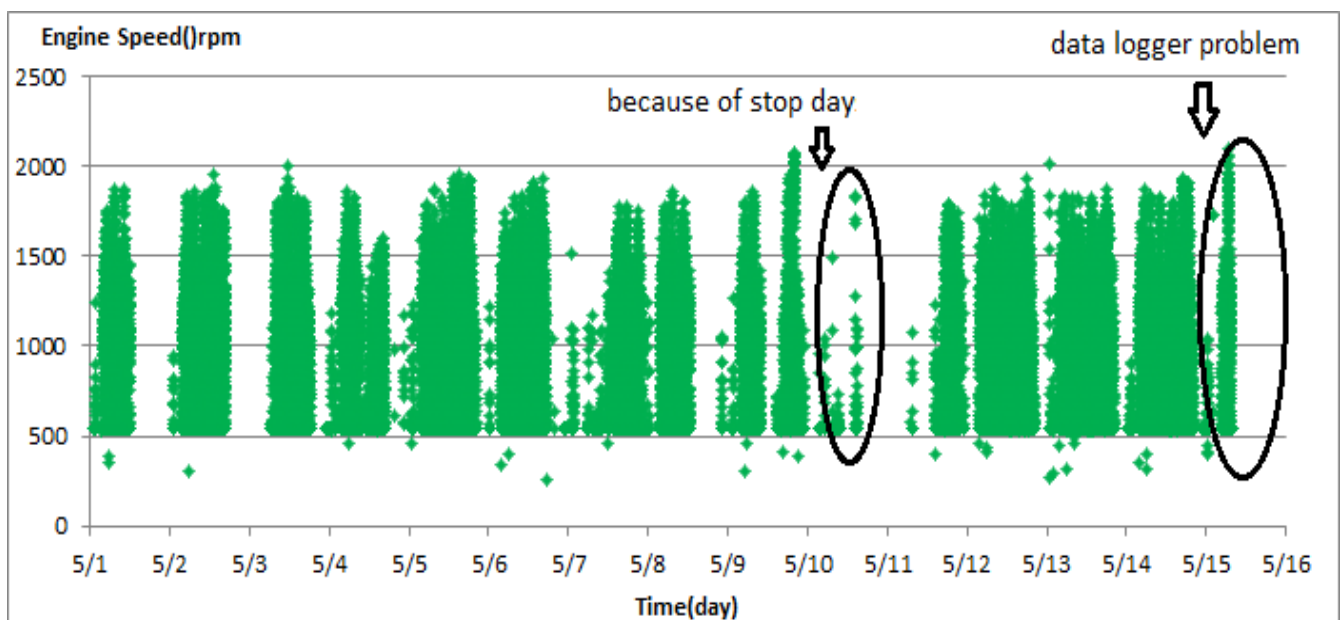


Figure 11- Engine speed diagram for calculating CPK's working days

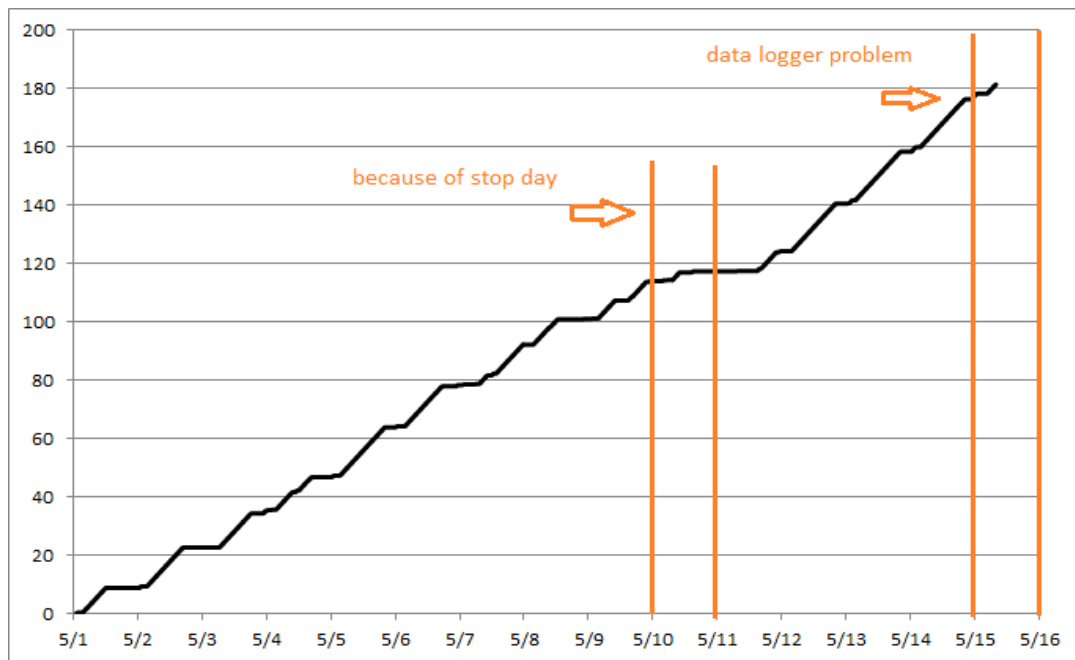


Figure 12- Time diagram for calculating CPK's working days

Notice: Data logger sampling time can be calculated from Figure 12. The lines parallel with time (day) axis show days without data logger data.

Pressure-Engine Speed diagrams

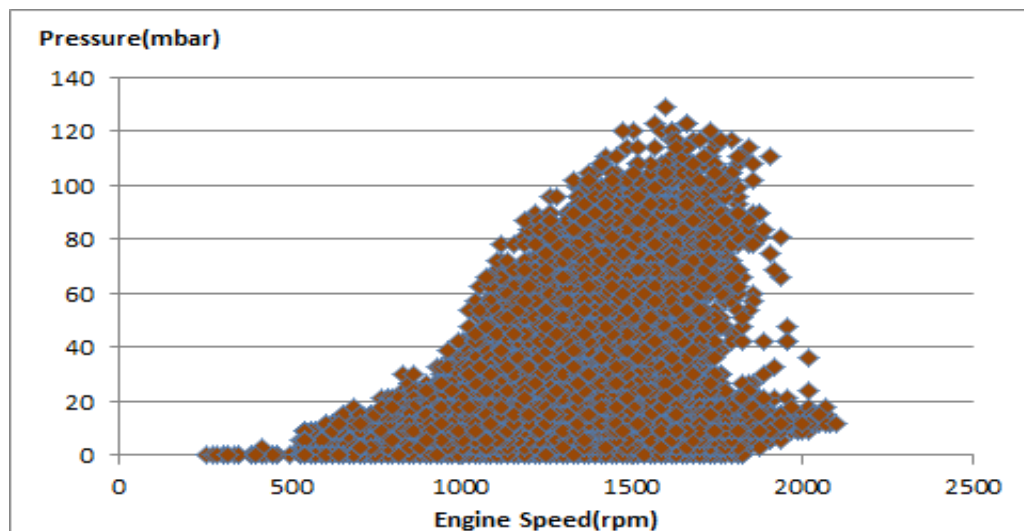


Figure 13- Pressure against speed

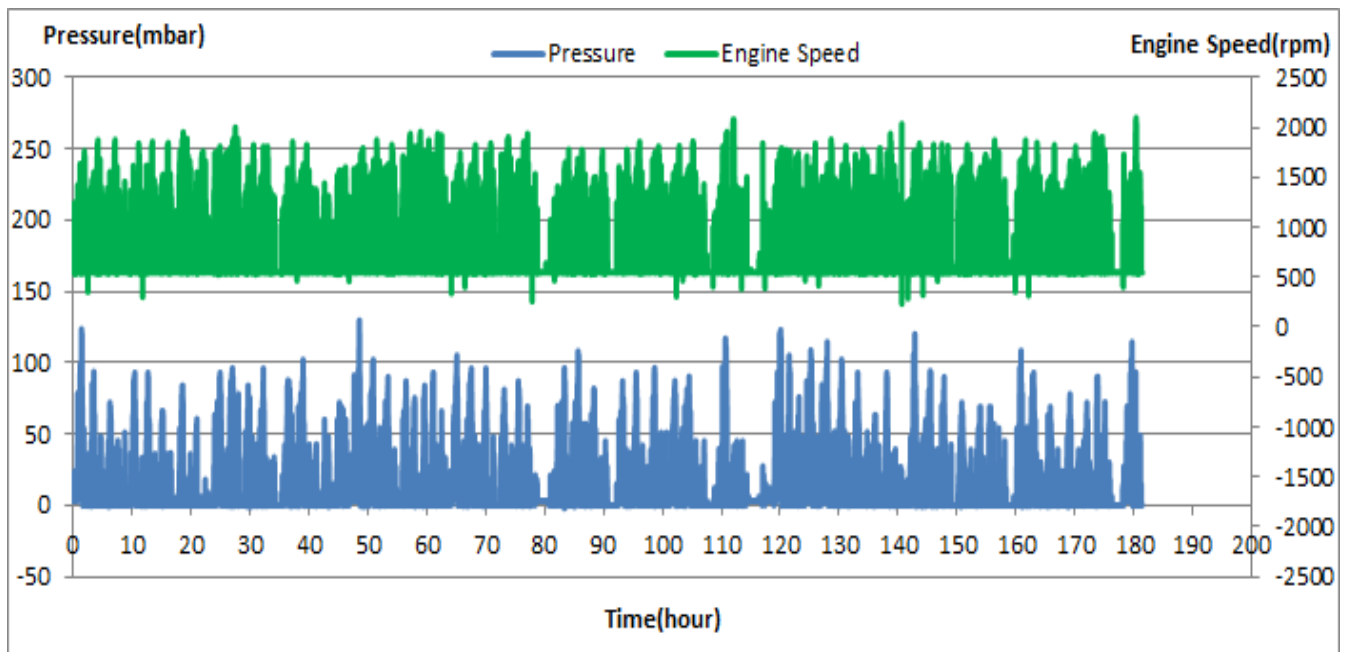


Figure 14- P, N distribution vs. working hours

Notice: Active regeneration can't be observed in this period because of high temperature distribution.

Temperature- Engine Speed Diagram

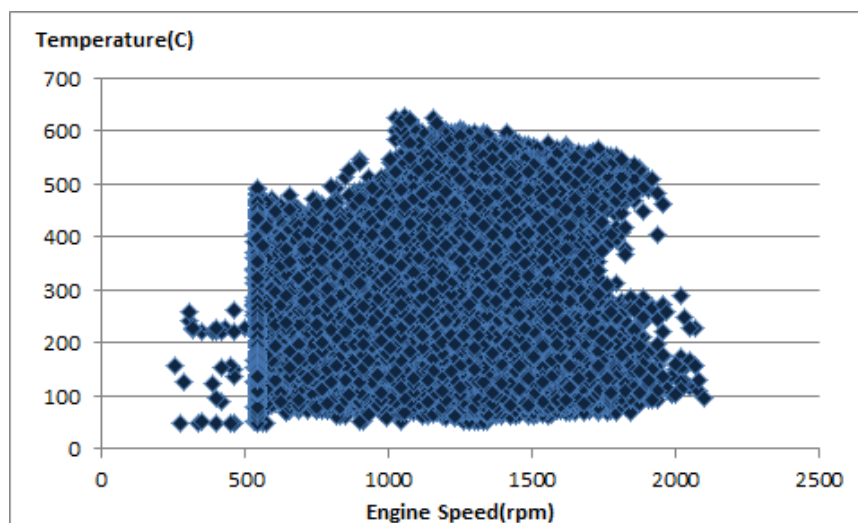


Figure 15- Temperature against speed

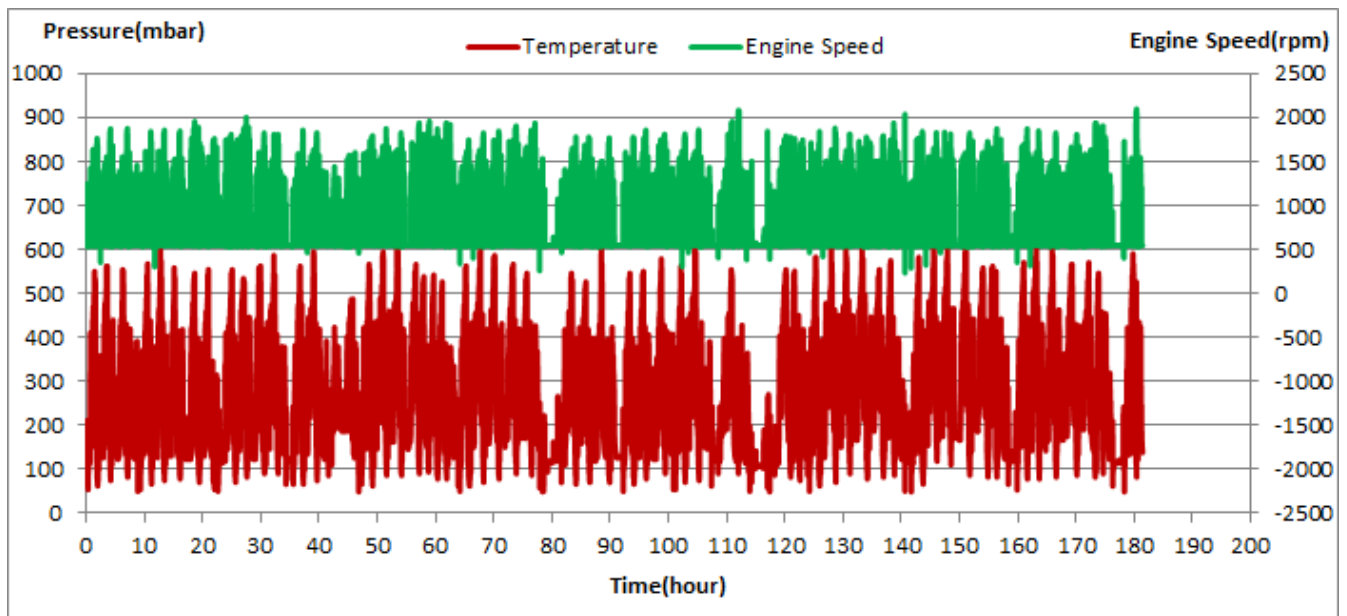


Figure 16- T, N distribution vs. working hours

Filter Operation Analysis

- As depicted in Figure 1, pressure above 150 mbar can't be observed in this period. So it can be concluded that operation of this filter is fully acceptable in this condition.
- Figure 2 displays flow temperature before the DPF. It can be obviously observed that 12% of total working-time temperature is above 400 °C and 19% above 350°C.
- In spite of heater existence, active regeneration can't be seen in Figure 14 because of high temperature distribution.
- This vehicle operates in line 4 and for its path characteristic, engine operates in high speed.

Filter operation status	Excellent <input checked="" type="checkbox"/>	Good <input type="checkbox"/>
	Maintenance required <input type="checkbox"/>	Failed <input type="checkbox"/>