

Overall Information

Table 1- Overall Information

Vehicle plate number	78515
CPK data logger number	LN: 001490, DN: 1954, Sim Number +98000000000
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	Dinex (Passive system with FBC)
Installation date	22/Oct/2014
Report period	16/May/2015 – 31/May/2015 (sixteen days)
K value - DPF upstream	1.01 [m^{-1}]
K value - DPF downstream	0.06 [m^{-1}]

Table 2- Maintenance Table

Filter maintenance date	Filter core was changed on 15/Feb/2015.
Dosing status	Dosing value was reduced to 30% of its initial value on February 15 th .

Table 3- Fuel and Additive Consumption Information

Bus mileage (from DPF installation date)	31006 km
Bus mileage over the period	1903 km
Working days over the period	9 days
Stop-working days (based on bus company report)	7 days
Data logger working days	9 days
Working hours over the period	129.3 hours
Average working hours per a day (including stop days)	8.08 hours
Bus average speed	14.72 km/hr
idle speed time to all working time ration	54%
Total Bus fuel consumption over the period	1165 lit
fuel consumption per hour	9 lit/hr
Average fuel consumption	0.61 lit/km
Total Bus additive consumption over the period	0.293 lit
Average additive consumption	0.154 cc/km
additive consumption to fuel ration	252 cc per 1000 lit (Continuous Dosing)

Temperature, Pressure and Engine Speed Overview

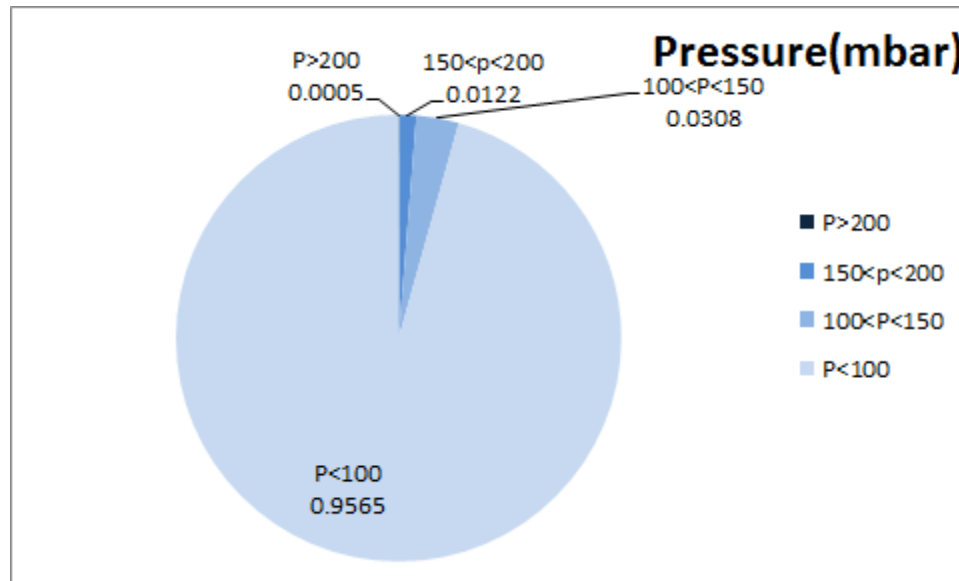


Figure 1- Pressure distribution over the working hours

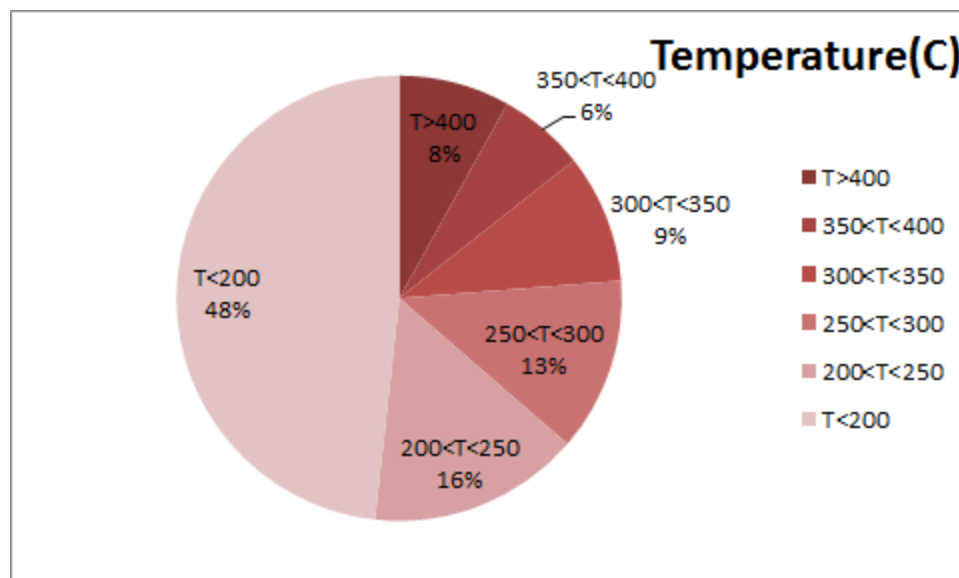


Figure 2-Temperature¹ distribution over the working hours

¹ - Exhaust temperature before the DPF

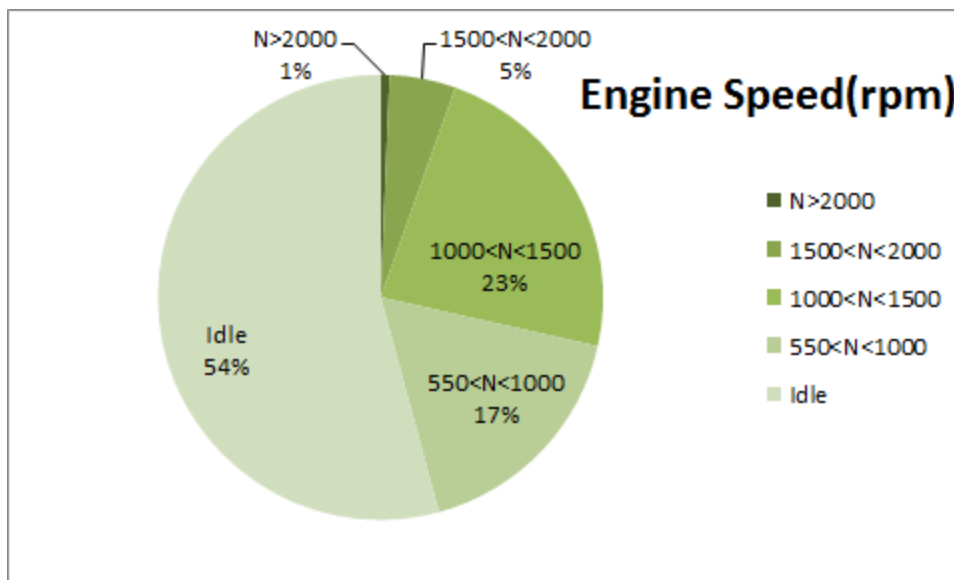


Figure 3- Engine speed distribution over the working hours

Table 4- Mean values

Mean temperature ² (C)	Mean pressure(mbar)	Mean engine speed(rpm)
232.6	23.03	799

Table 4- Mean values without idling

Mean temperature(C)	Mean pressure(mbar)	Mean engine speed(rpm)
295.8	41.7	1101

Table 6- Max-min values

Max-min temperature(C)	Max-min pressure(mbar)	Max-min engine speed(rpm)
538-50	225-0	2672-288

² - Temperature of before the DPF

Detailed Pressure Analysis

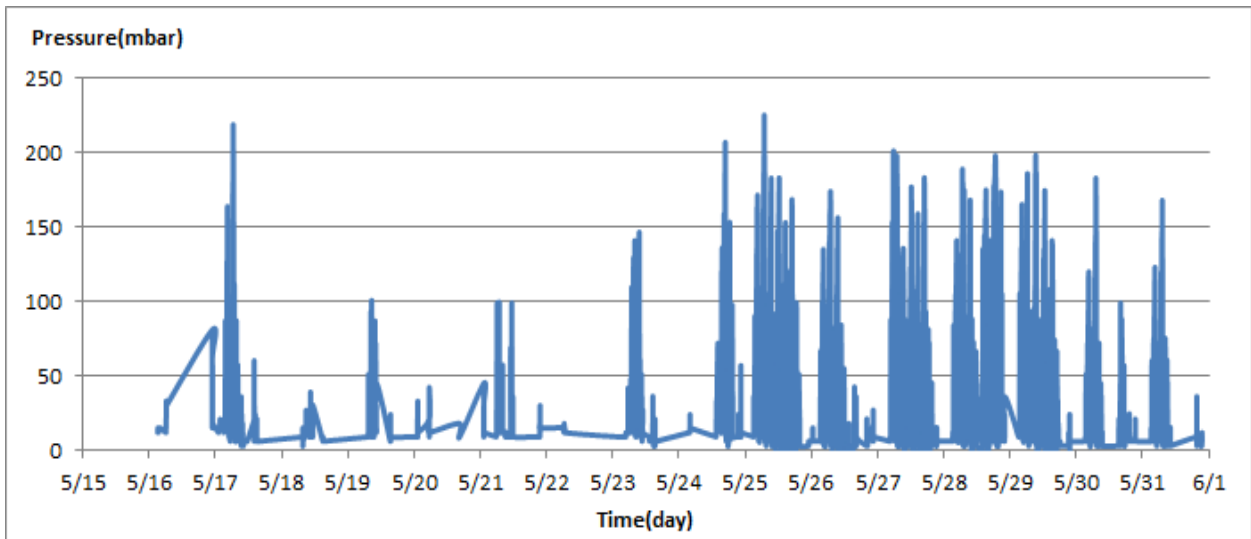


Figure 4- Pressure distribution over sixteen days

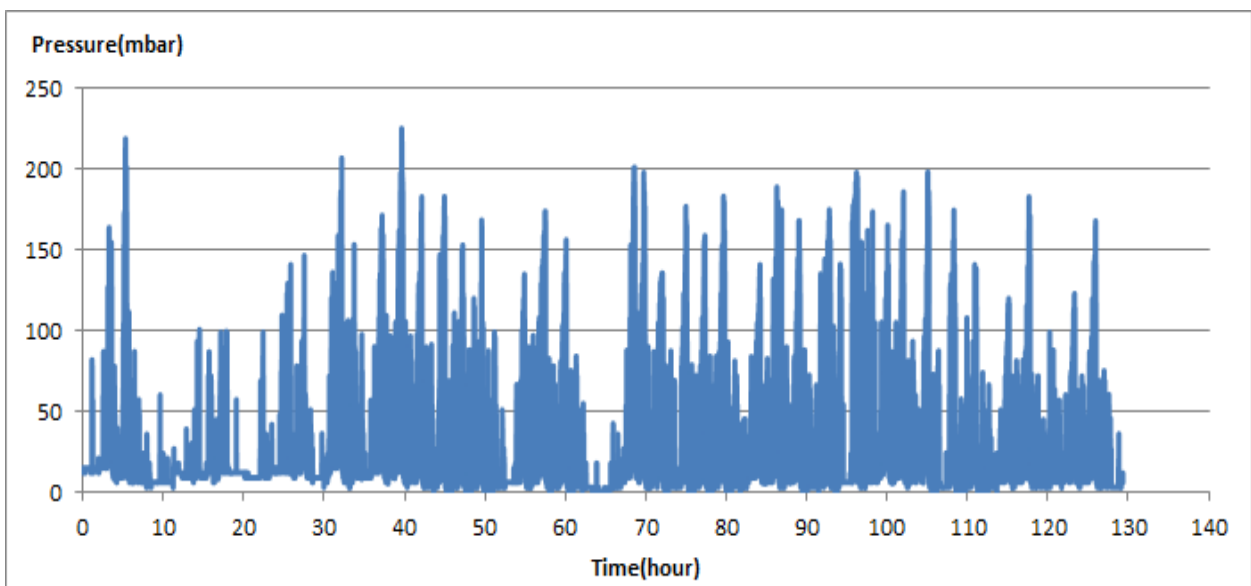


Figure 5- Pressure vs. working hours

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

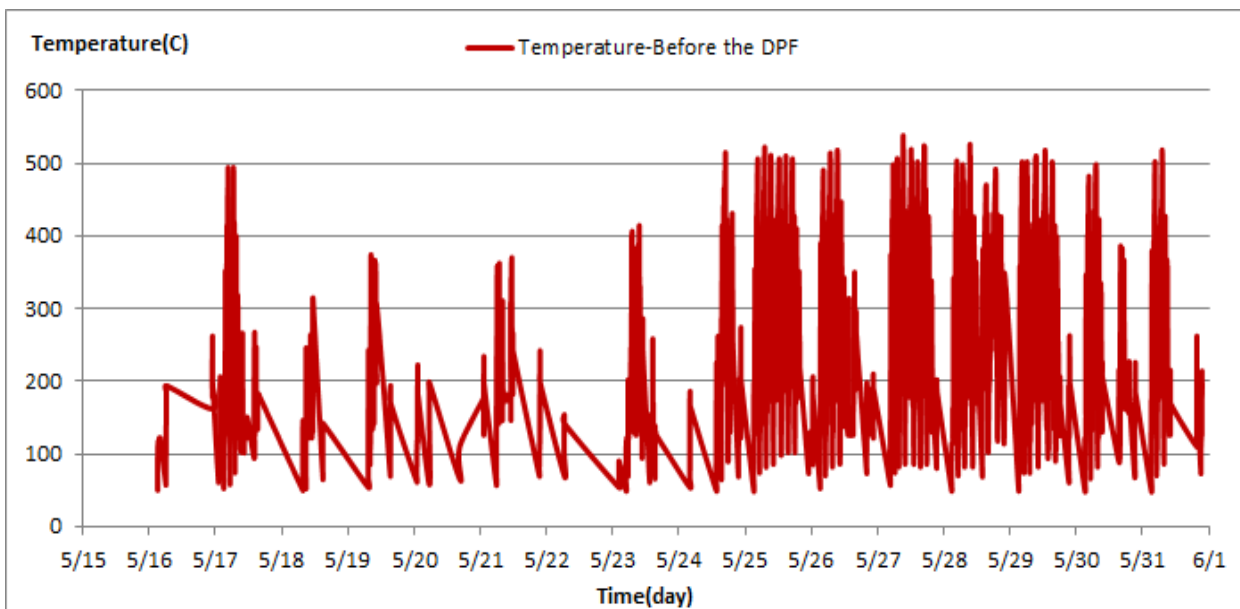


Figure 6- Temperature distribution over sixteen days

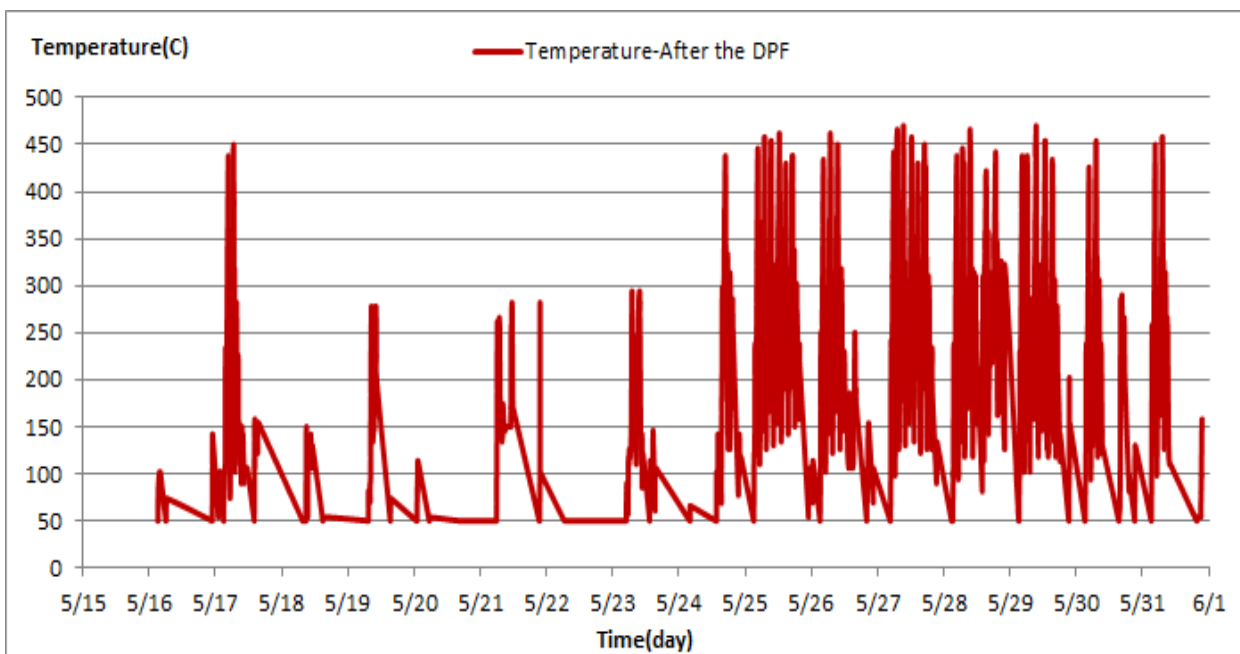


Figure 7- Temperature distribution over sixteen days

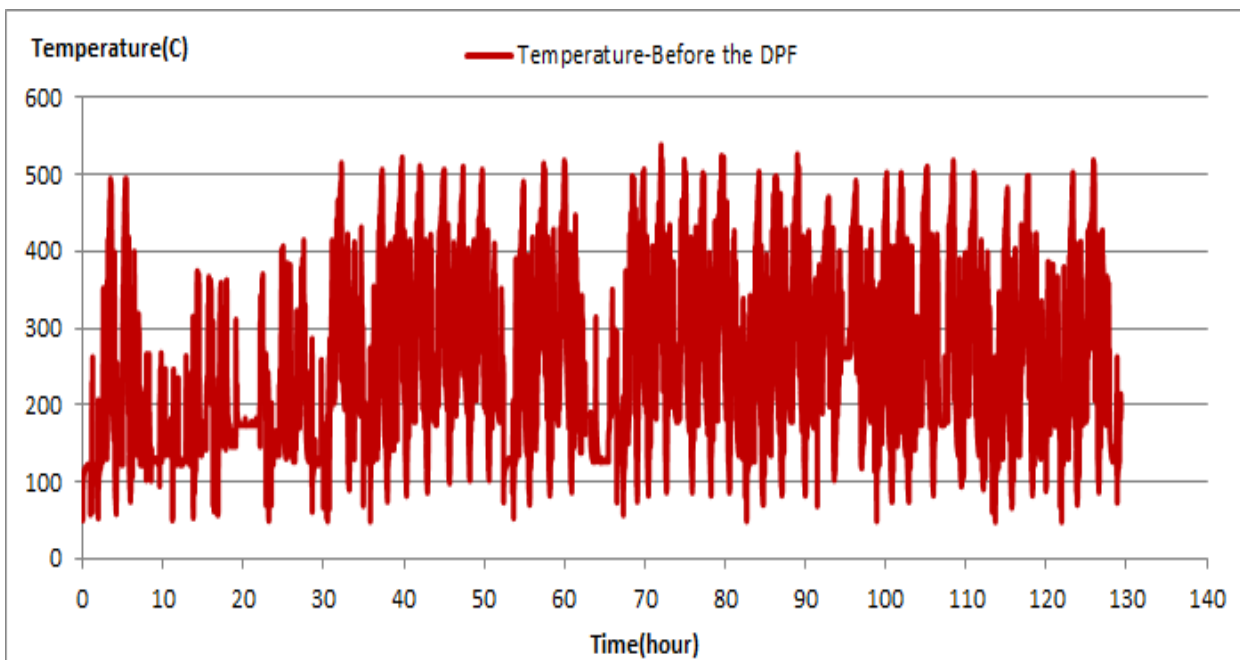


Figure 8- Before DPF temperature vs. working hours

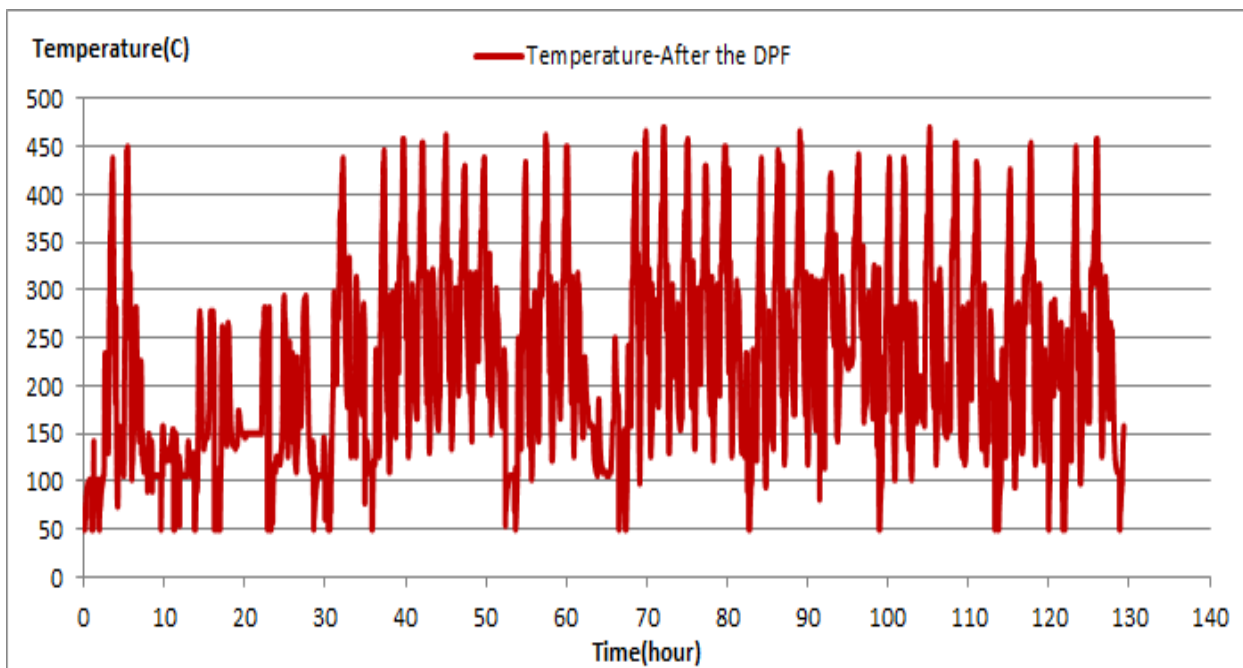


Figure 9- After DPF temperature vs. working hours

Engine Speed Diagrams

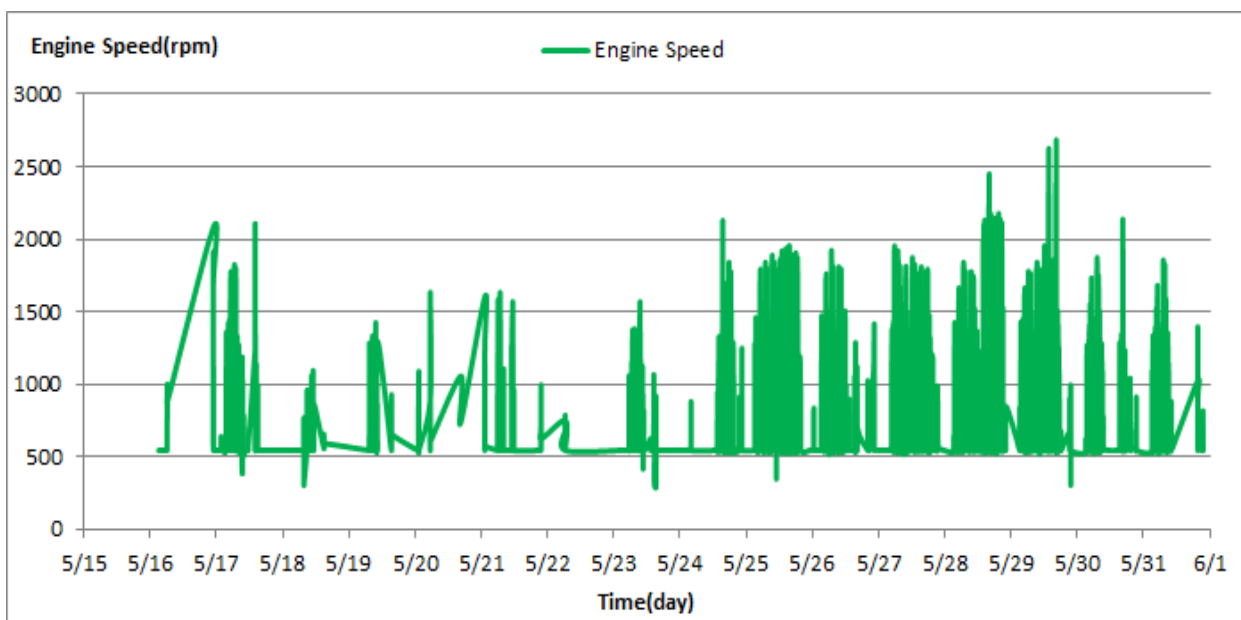


Figure 10- Engine speed distribution over sixteen days

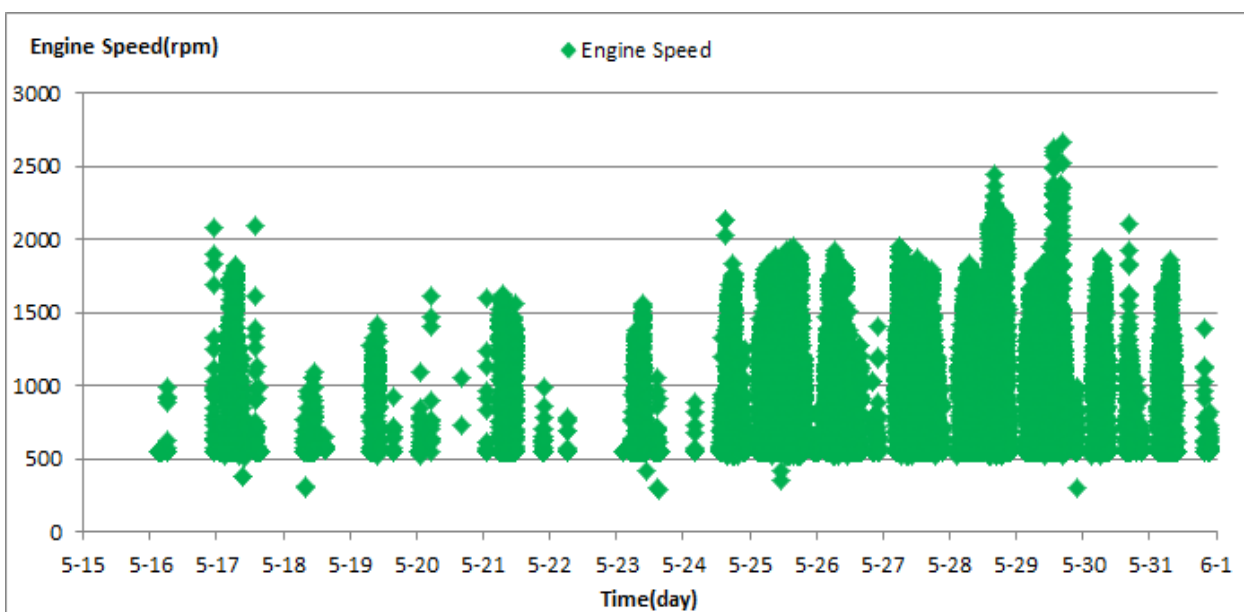


Figure 11- Engine speed diagram for calculating CPK's working days

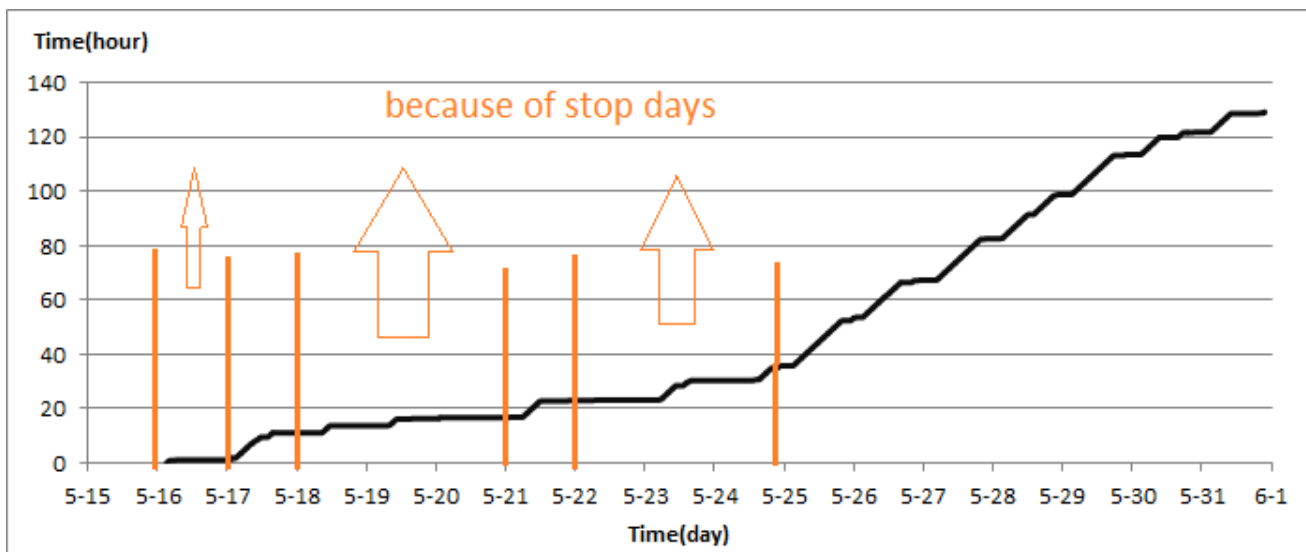


Figure 12- Time diagram for calculating CPK's working days

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

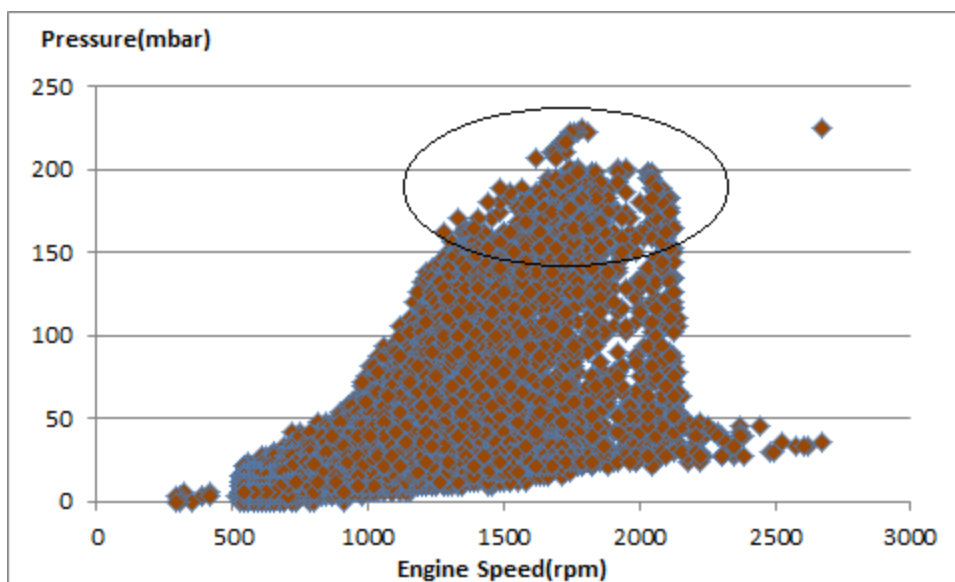


Figure 13- Pressure against speed

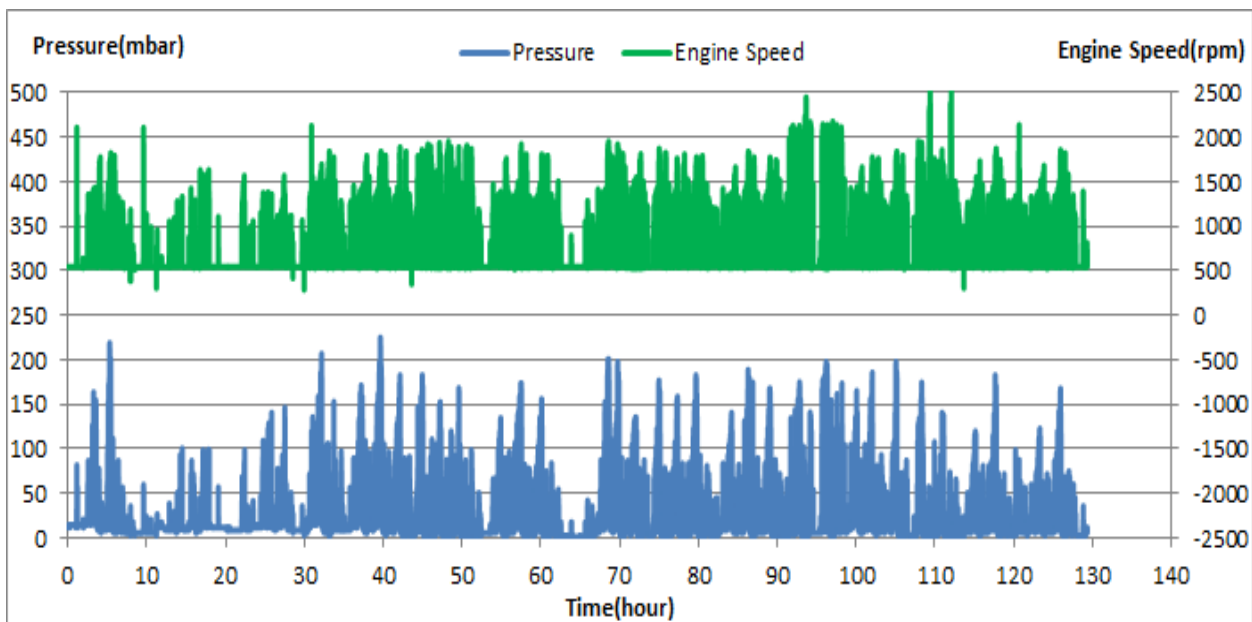


Figure 14- P, N distribution vs. working hours

Temperature- Engine Speed Diagram

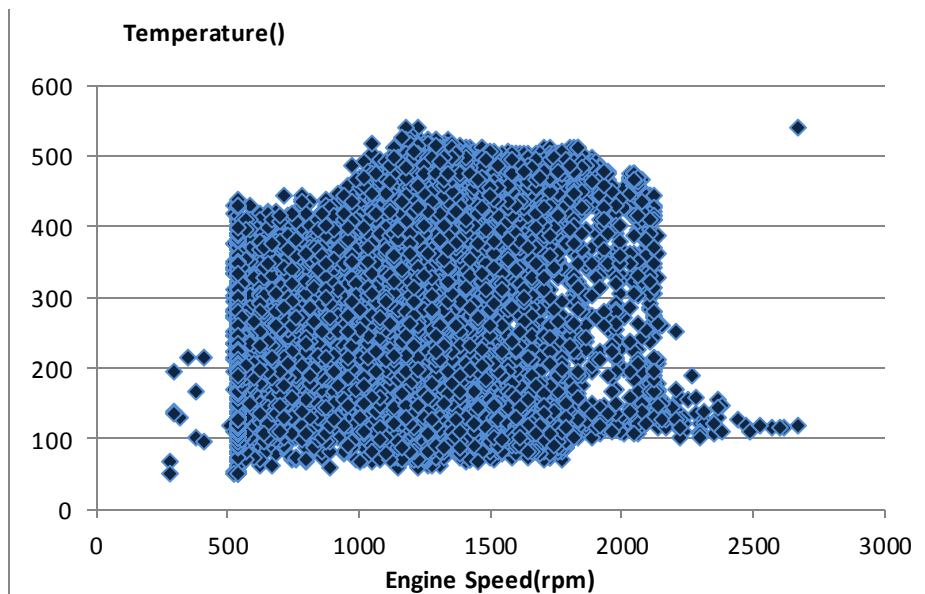


Figure 15- Temperature against speed

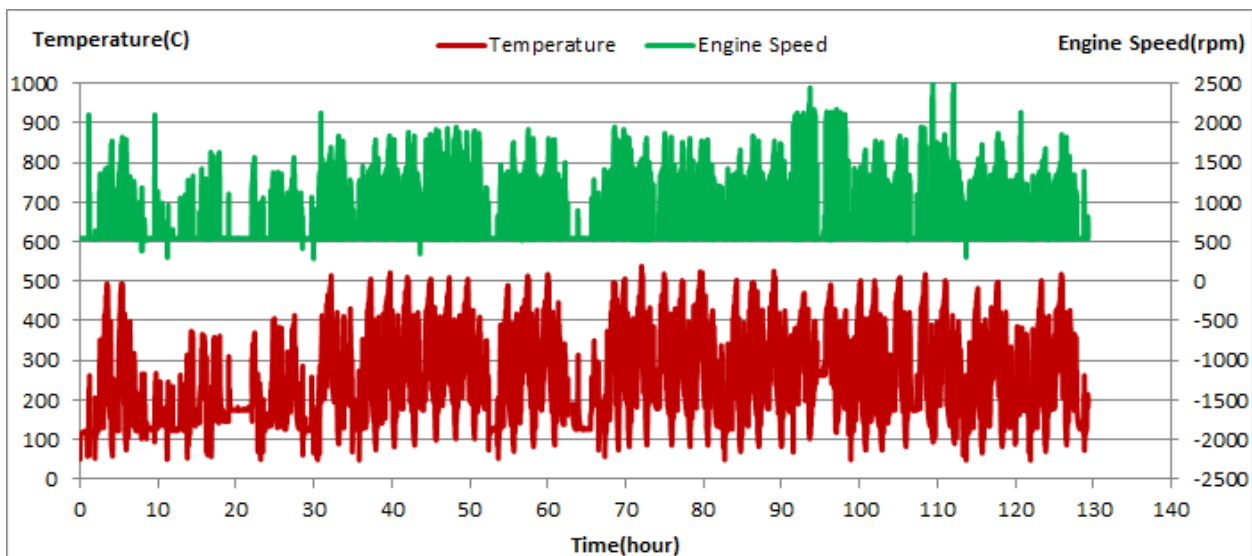


Figure 16- T, N distribution vs. working hours

Filter Operation Analysis

- As depicted in Figure 1, 0.05% of total working-time pressure is above 200 mbar and 1.27% above 150mbar. So it can be concluded that operation of this filter is acceptable in this condition.
- Figure 2 displays flow temperature before the DPF. It can be obviously observed that 8% of total working-time temperature is above 400 °C and 14% above 350°C.
- 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"/>