Overall Information

Table1- Overall Information

Vehicle plate number	33572
CPK data logger number	LN: 001521, DN: 1995, Sim Number +989218469643
Bus line	Number 2 (west to east Bus line)
Bus Terminals	Khavaran Bus Terminal - Western Bus Terminal
Total path distance	19 km
DPF producer company	HJS_03 (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	1.53 $[m^{-1}]$
K value – DPF downstream	0.10 $[m^{-1}]$

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)	11571 km
Bus mileage over the period	2500 km
Working days over the period	15 days
Stop days	0 day
Data logger working days	14 days
Working hours over the period	195.86+(1*14)=209.9 hours
Average working hours per a day (including stop days)	14
Bus average speed	12.76 km/hr
idle speed time to all working time ration	55%
Total Bus fuel consumption over the period	1359 lit
fuel consumption per hour	6.47 lit/hr
Average fuel consumption	0.54 lit/km
Total Bus additive consumption over the period	0.57 lit
Average additive consumption	0.228 cc/km
additive consumption to fuel ration	419 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

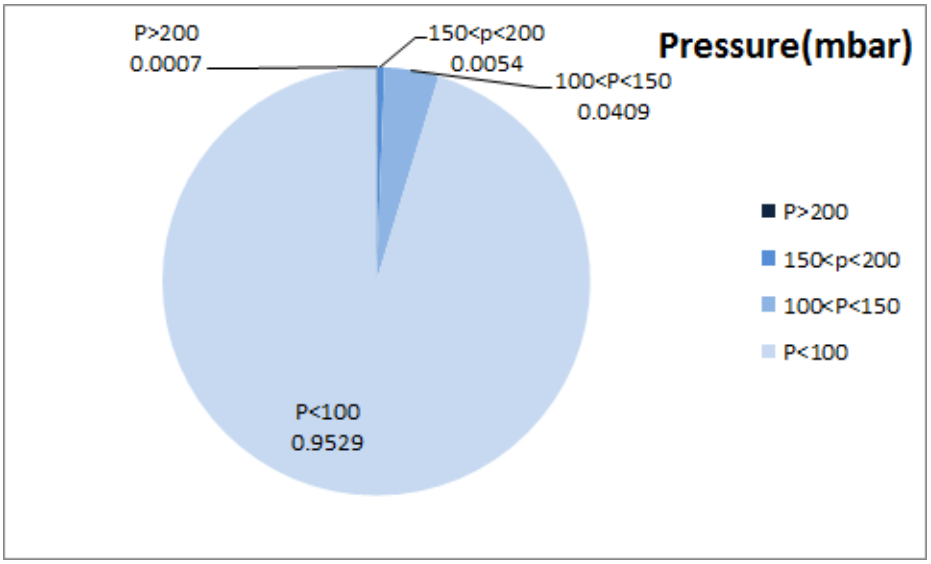

Figure 1- Pressure distribution over the working hours

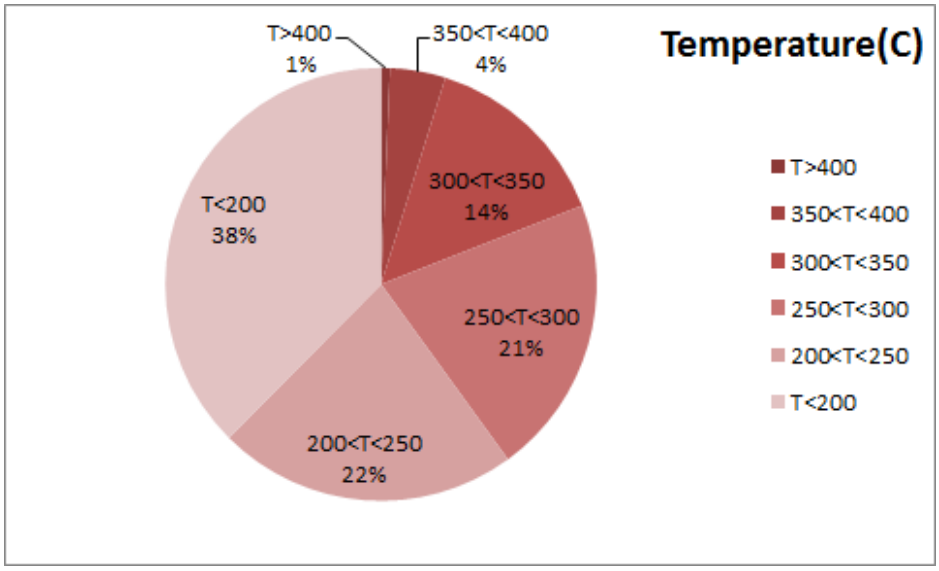

Figure 2-Temperature[1] distribution over the working hours

[1] - Exhaust temperature before the DPF

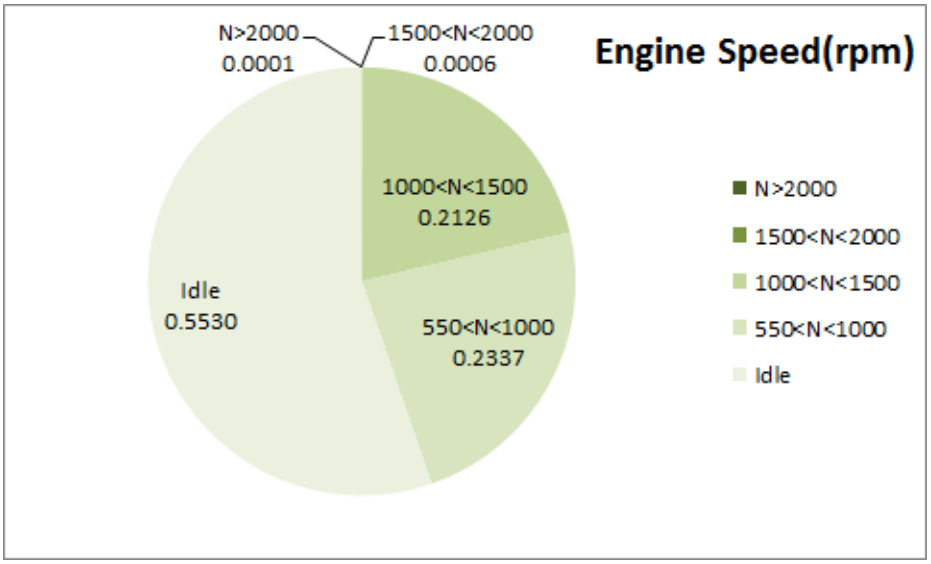

Figure 3- Engine speed distribution over the working hours

Table 4- Mean values

Mean temperature[2](C)	Mean pressure(mbar)	Mean engine speed(rpm)
229.59	31.56	724

Table 5- Mean values without idling

Mean temperature(C)	Mean pressure(mbar)	Mean engine speed(rpm)
287.38	54.38	947

Table 6- Max-min values

Max-min temperature(C)	Max-min pressure(mbar)	Max-min engine speed(rpm)
482-50	282-0	4000-256

[2] - Temperature of before the DPF

Detailed Pressure Analysis

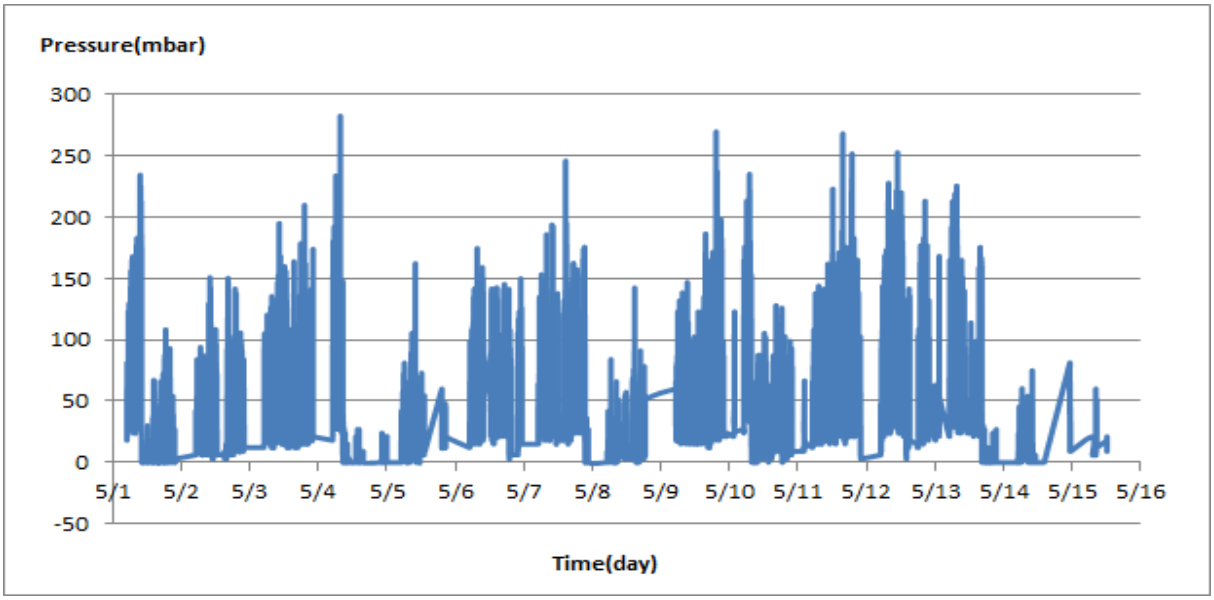

Figure 4- Pressure distribution over fifteen days

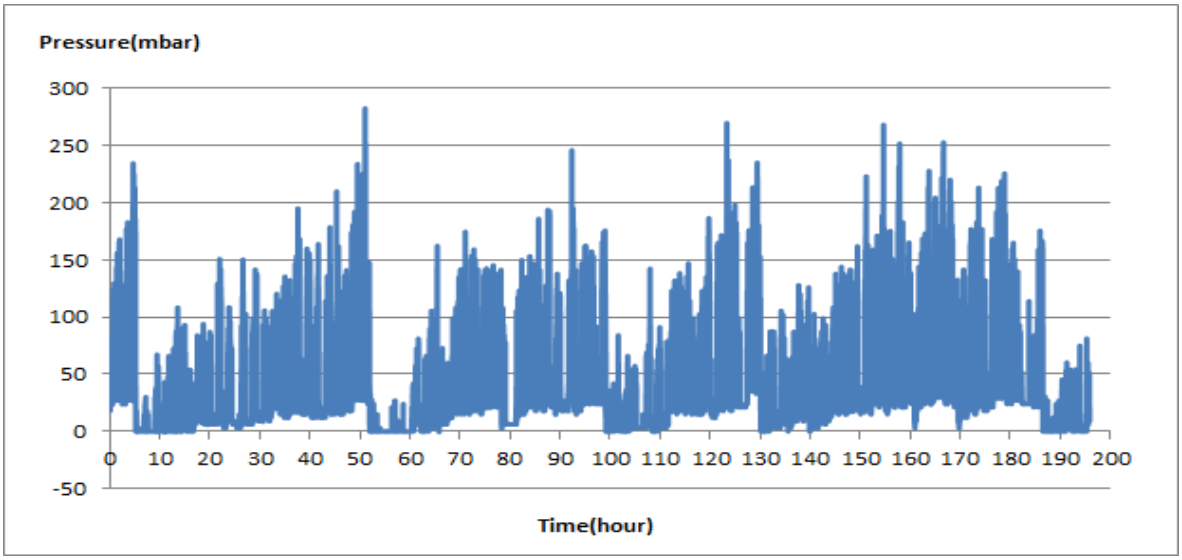

Figure 5- Pressure vs. working hours

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

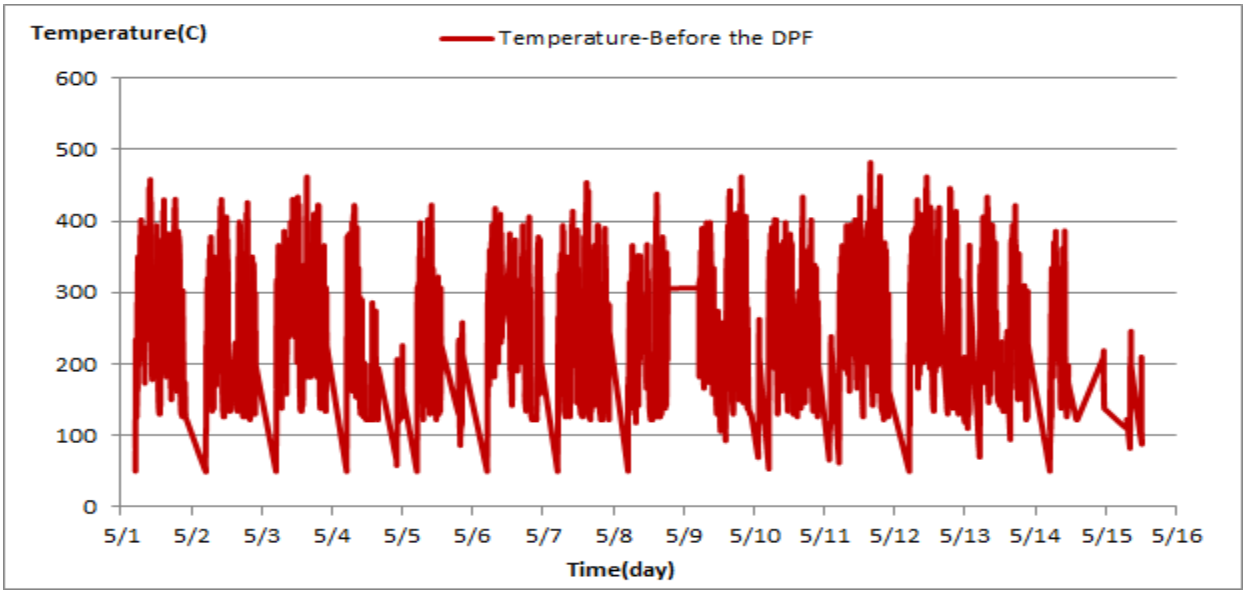

Figure 6- Temperature distribution over fifteen days

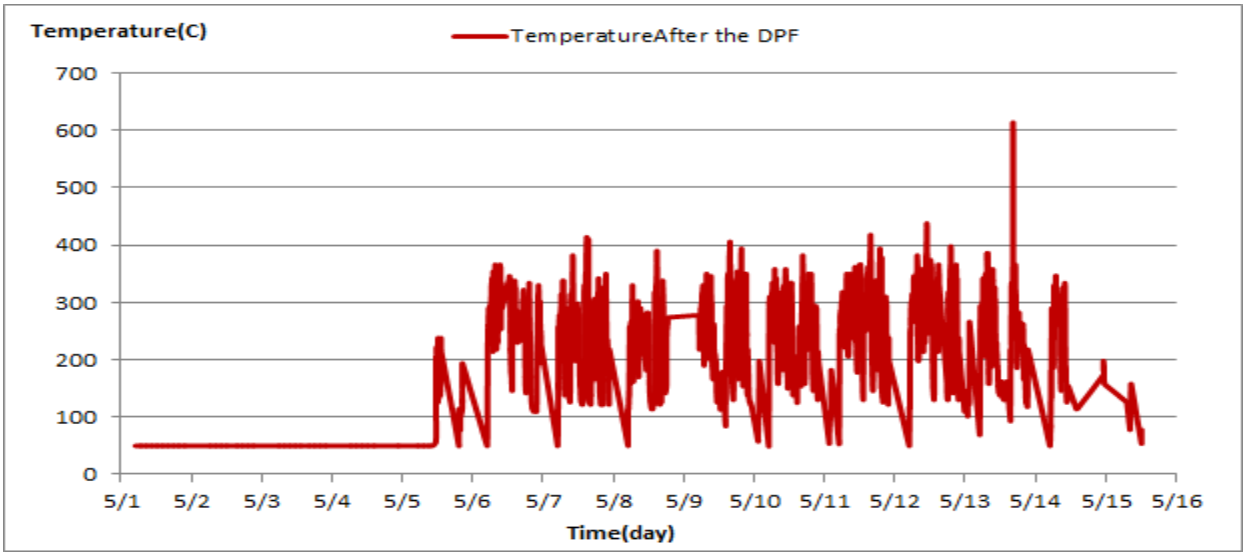

Figure 7- Temperature distribution over fifteen days

Notice: Temperature sensor for after the DPF installed on May 5th, so before this date CPK's showed 50°C.

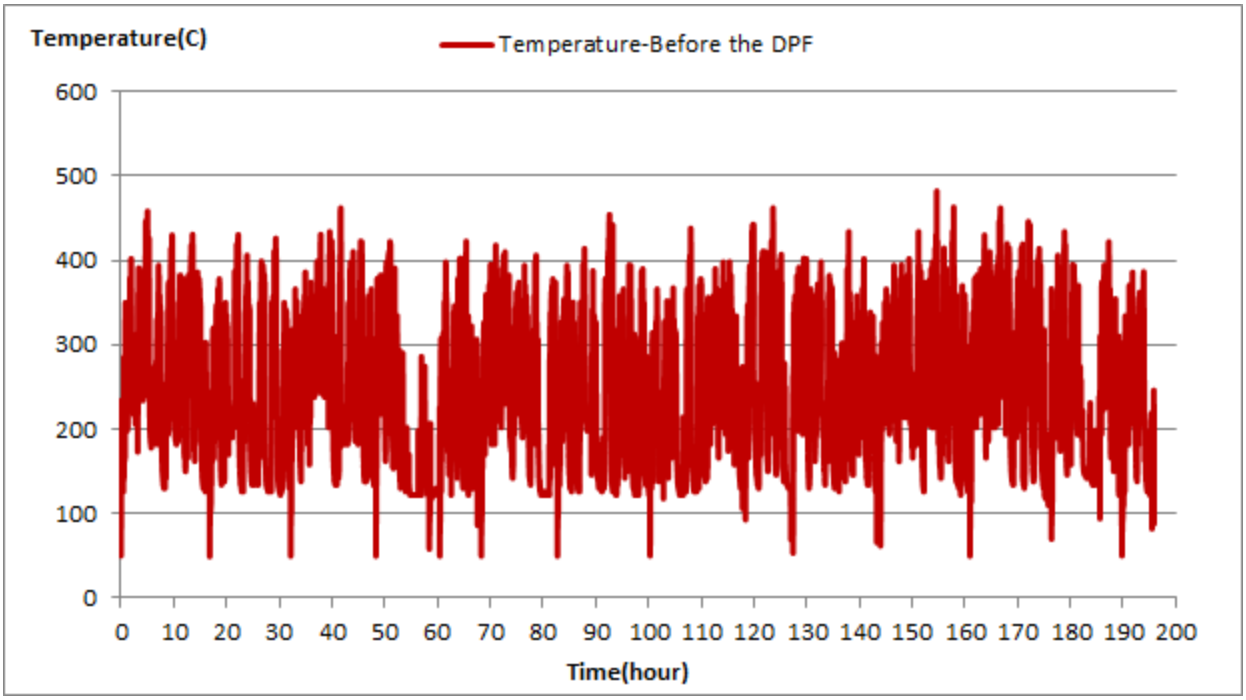

Figure 8- Before DPF temperature vs. working hours

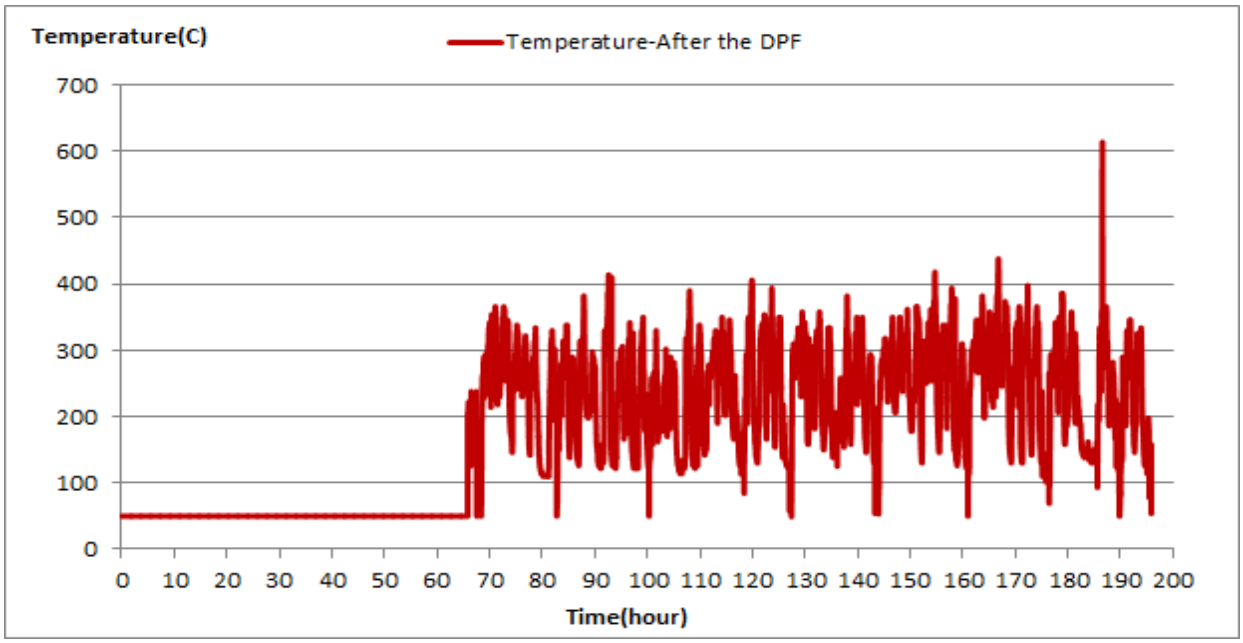

Figure 9- After DPF temperature vs. working hours

Engine Speed Diagrams

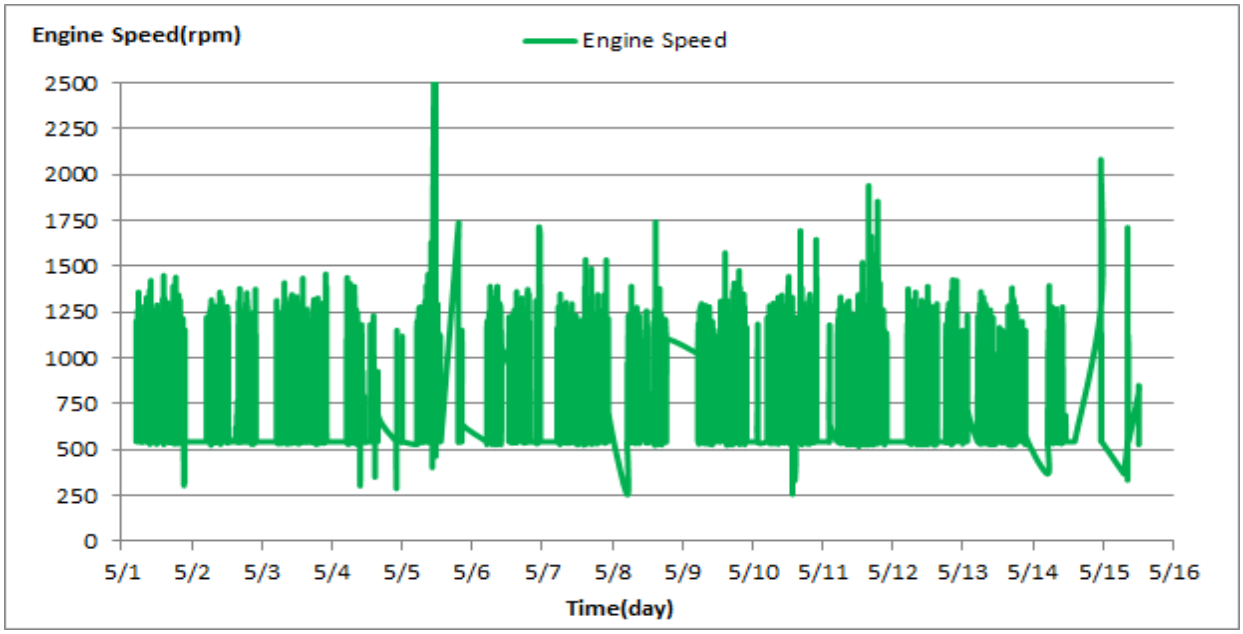

Figure 10- Engine speed distribution over fifteen days

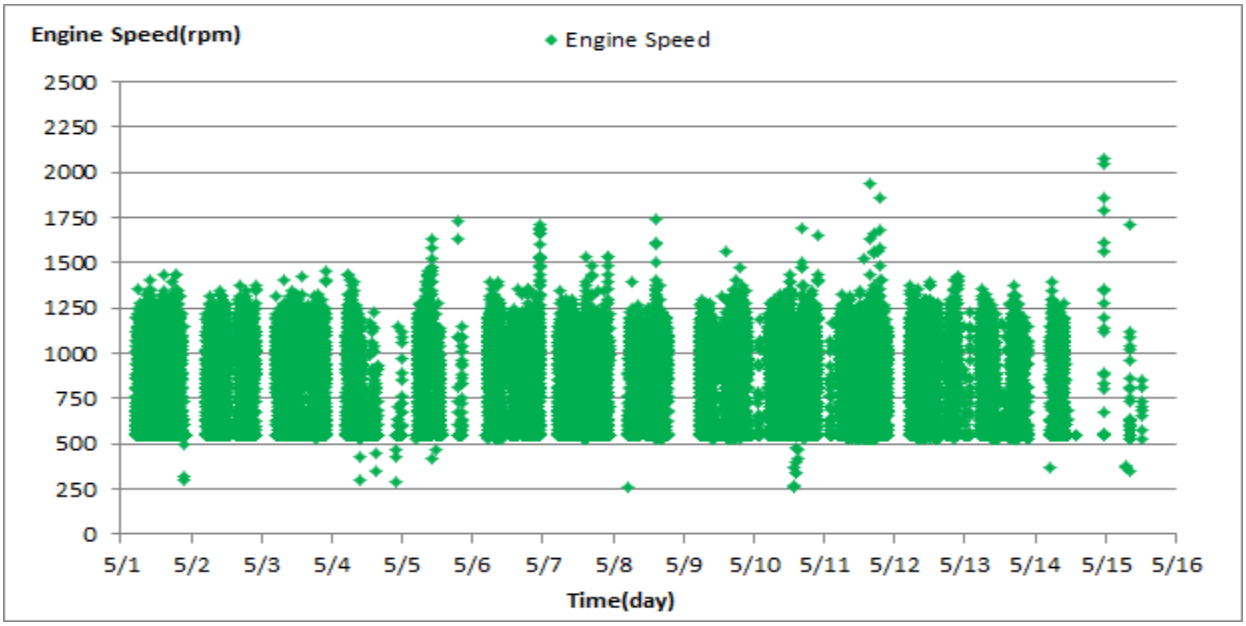

Figure 11- Engine speed diagram for calculating CPK's working days

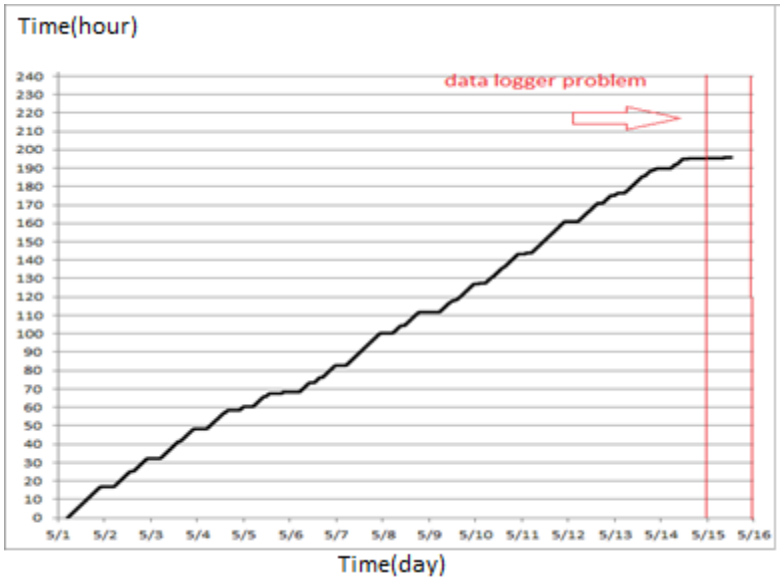

Figure 12- Time diagram for calculating CPK's working days

Notice: Data logger sampling time can be calculated from Figure 12. The lines parallel with time (day) axis show days without data logger's (CPK) data. As depicted in Figure 12, data logger didn't sample on May 15th.

Pressure-Engine Speed diagrams

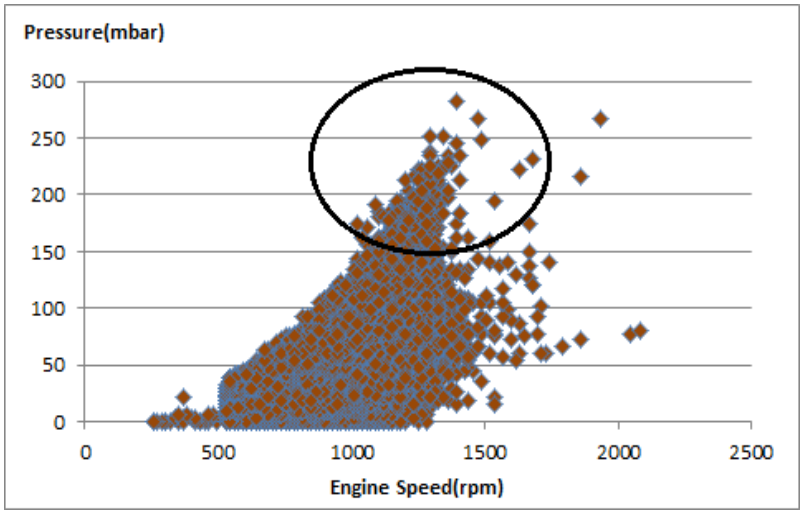

Figure 13- Pressure against speed

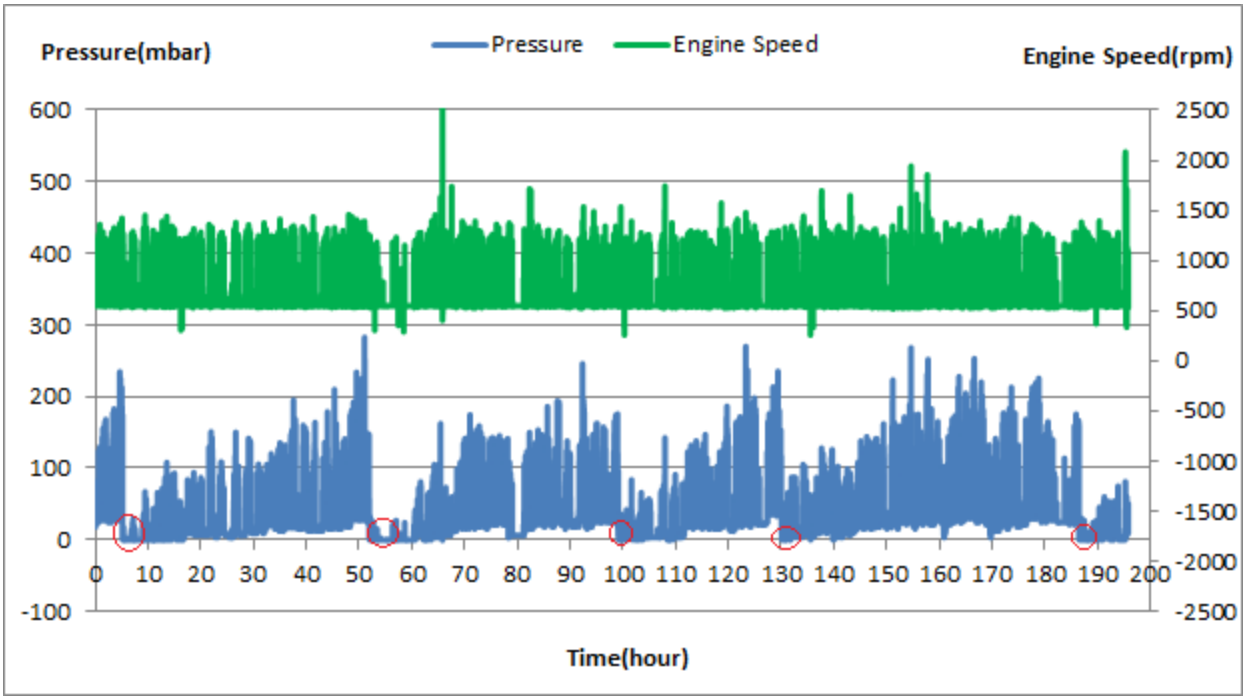

Figure 14- P,N distribution vs. working hours

Notice: The red circles show active regeneration times.

Temperature- Engine Speed Diagram

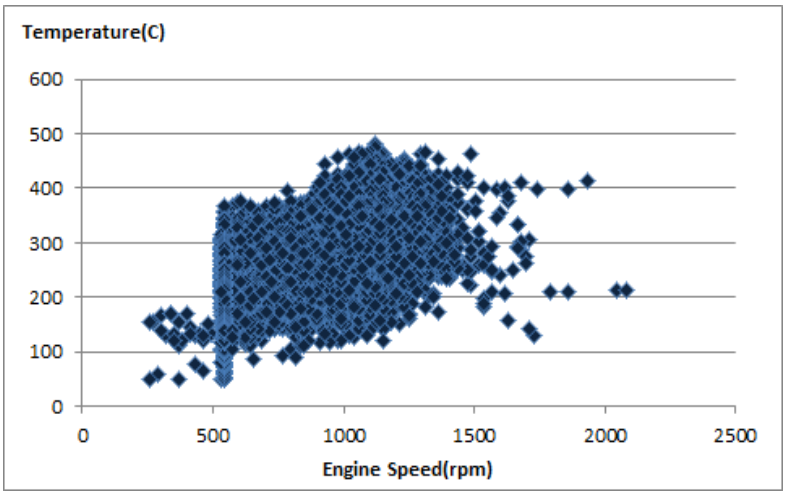

Figure 15- Temperature against speed

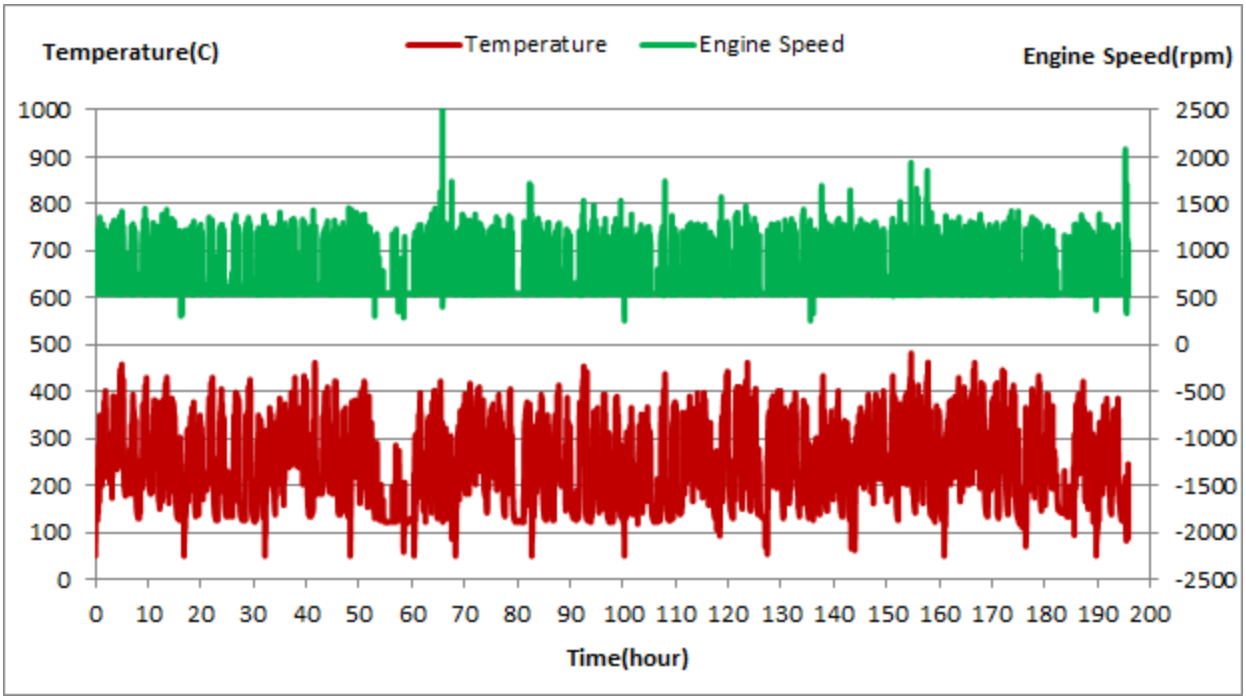

Figure 16- T, N distribution vs. working hours

Filter Operation Analysis

- As depicted in Figure 1, only 0.07% of total working-time pressure is above 200 mbar and 0.61% above 150mbar. 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 only 1 % of total working-time temperature is above 400°C.
- This vehicle operates in line 2 and for its path characteristic, engine operates in low speed. It's worth-mentioning this low engine speed distribution causes low temperature distribution.

Filter operation status	Excellent ■	Good ☐
	Maintenance required ☐	Failed☐