Overall Information

Table1- Overall Information

Vehicle plate number	33572 (28958)
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/Jun/2015 – 15/Jun/2015 (fifteen days)
K value – DPF's upstream	1.71 $[m^{-1}]$
K value – DPF's downstream	0.08 $[m^{-1}]$

Table 2- Maintenance Table

Filter maintenance date	DPF has been working from installation date 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)	16293 km
Bus mileage over the period	2013 km
Working days over the period	13 days
Stop days	2 days
Data logger working days	13 days
Working hours over the period	199 hours, 37 minutes
Average working hours per a day (including stop days)	13 hours, 19 minutes
Bus average speed	10.08 km/hr
Idle speed time to all working time ration	54%
Total bus fuel consumption over the period	1274 lit
Fuel consumption per hour	6.38 lit/hr
Average fuel consumption	0.63 lit/km
Total bus additive consumption over the period	0.522 lit
Average additive consumption	0.259 cc/km
Additive consumption to fuel ration	410 cc per 1000 lit (batch dosing with tank level)

Temperature, Pressure and Engine Speed Overview

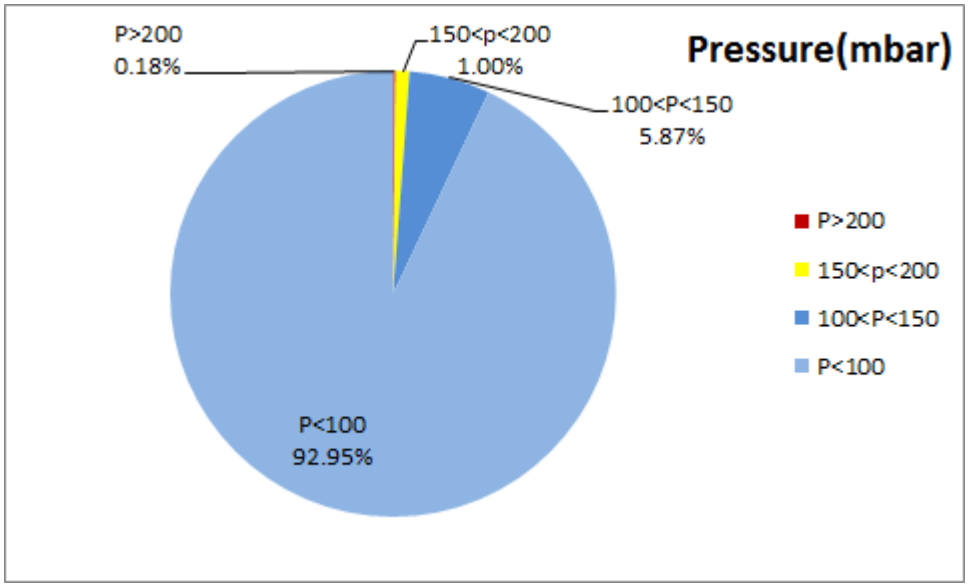

Figure 1- Pressure distribution over the working hours

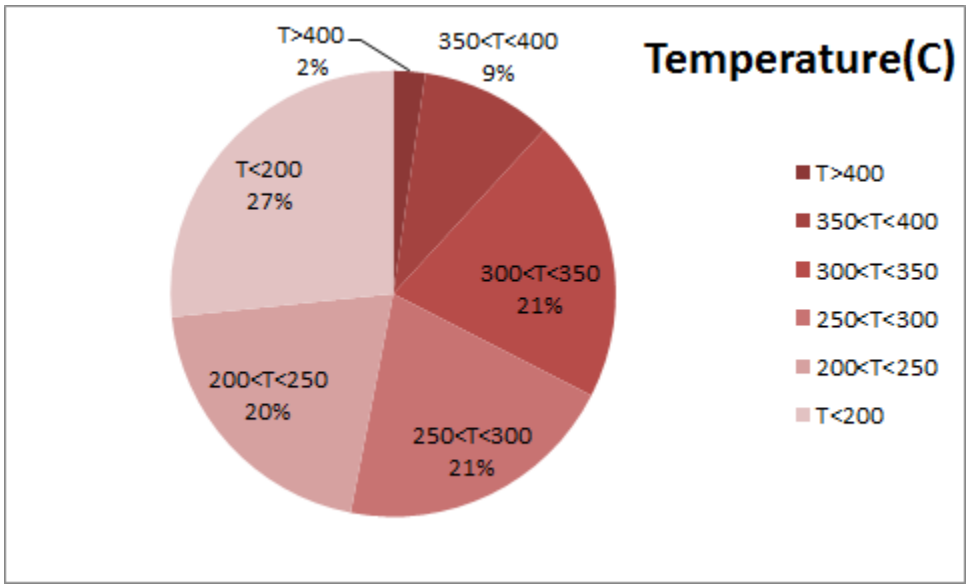

Figure 2-Temperature[1] distribution over the working hours

[1]- Flow temperature (DPF's upstream)

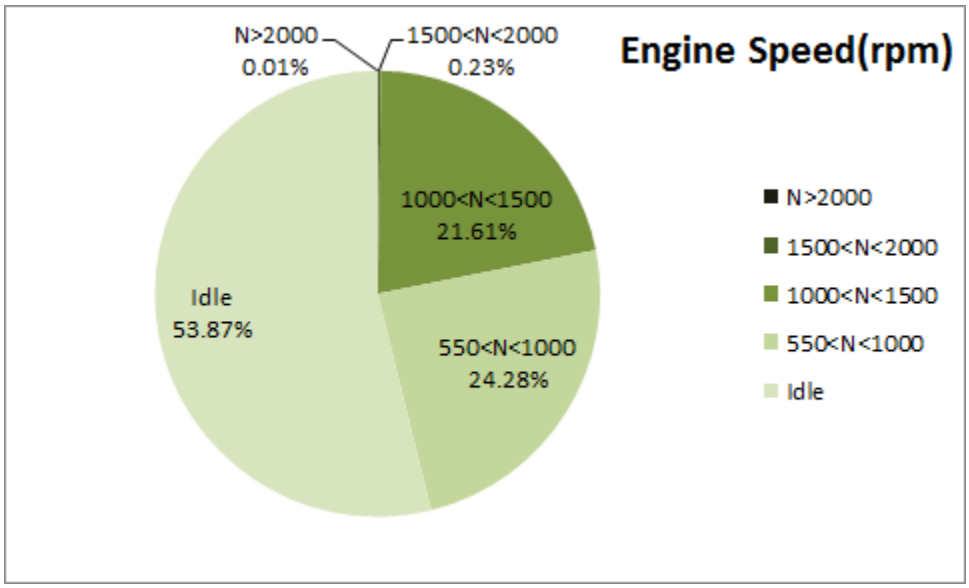

Figure 3- Engine speed distribution over the working hours

Notice: This vehicle cooler system was not used during this period. So upper limit for idle engine speed was considered to be 550 rpm.

Table 4- Mean values

Mean temperature[2](C)	Mean pressure(mbar)	Mean engine speed(rpm)
258.26	36.80	731

Table 5- Mean values without idling

Mean temperature(C)	Mean pressure(mbar)	Mean engine speed(rpm)
316.48	59.82	950

Table 6- Max-min values

Max-min temperature(C)	Max-min pressure(mbar)	Max-min engine speed(rpm)
538-50	351-0	2128-256

[2]- Flow temperature (DPF's upstream)

Detailed Pressure Analysis

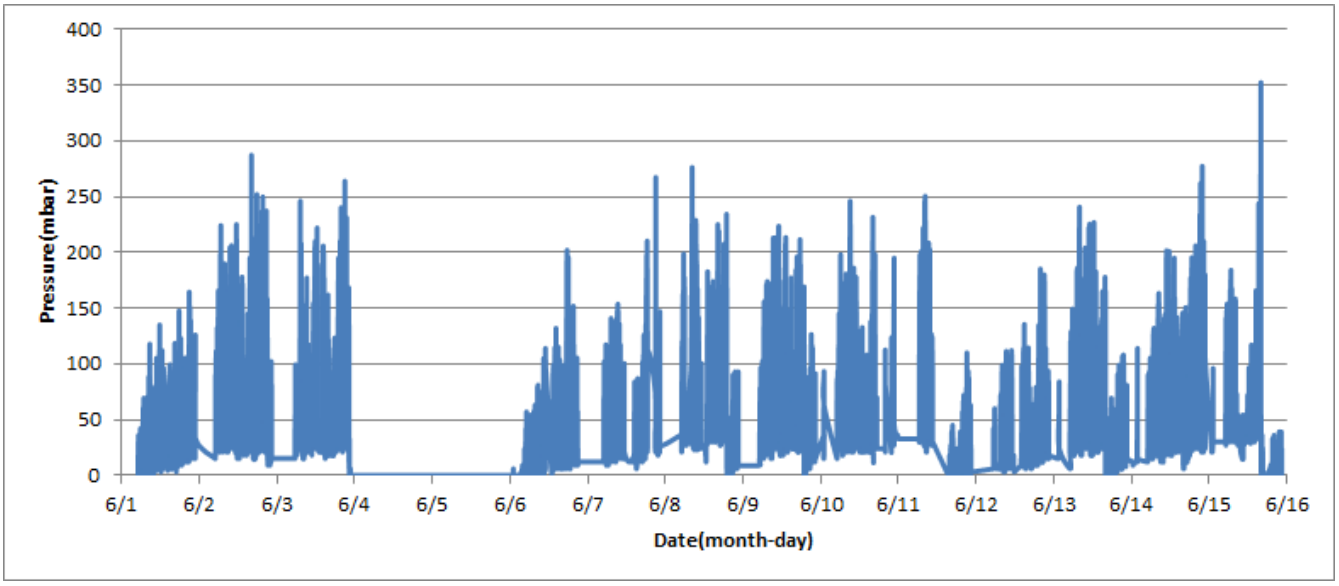

Figure 4- Pressure distribution over the fifteen days

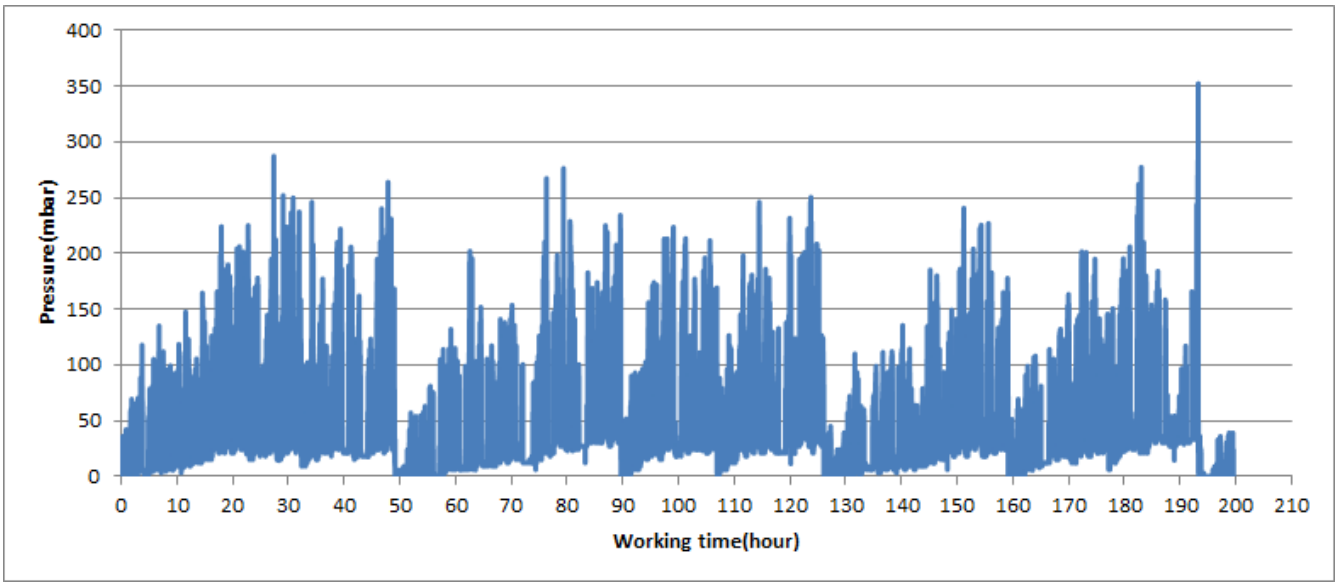

Figure 5- Pressure vs. working hours

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

Detailed Temperature Analysis

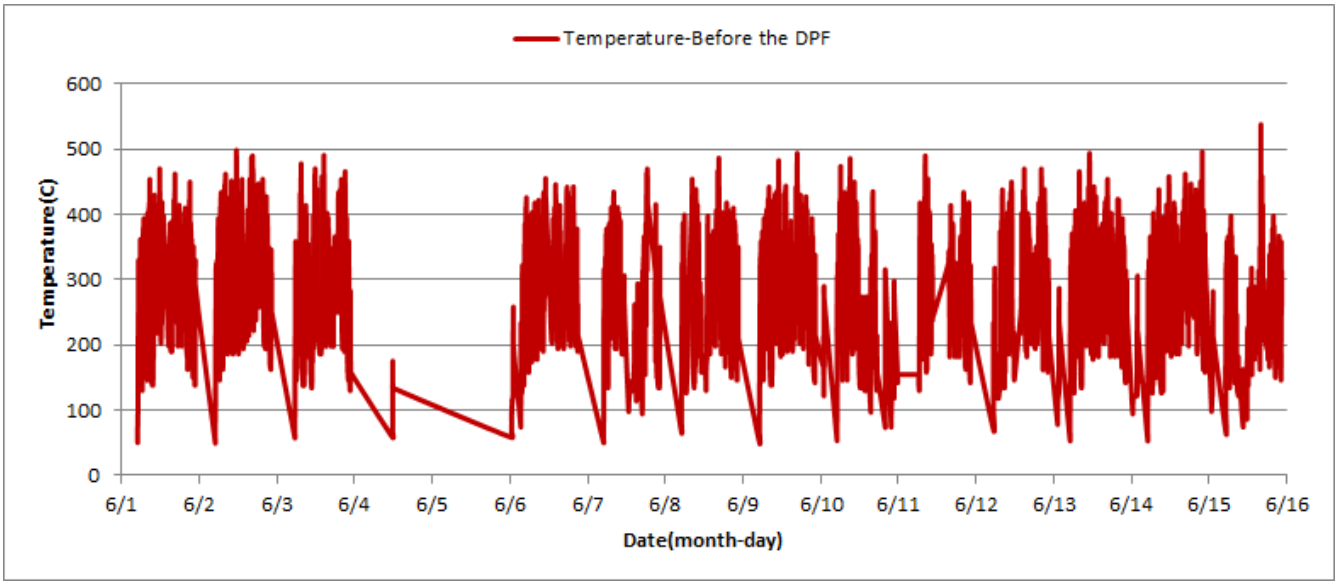

Figure 6- Temperature distribution over the fifteen days

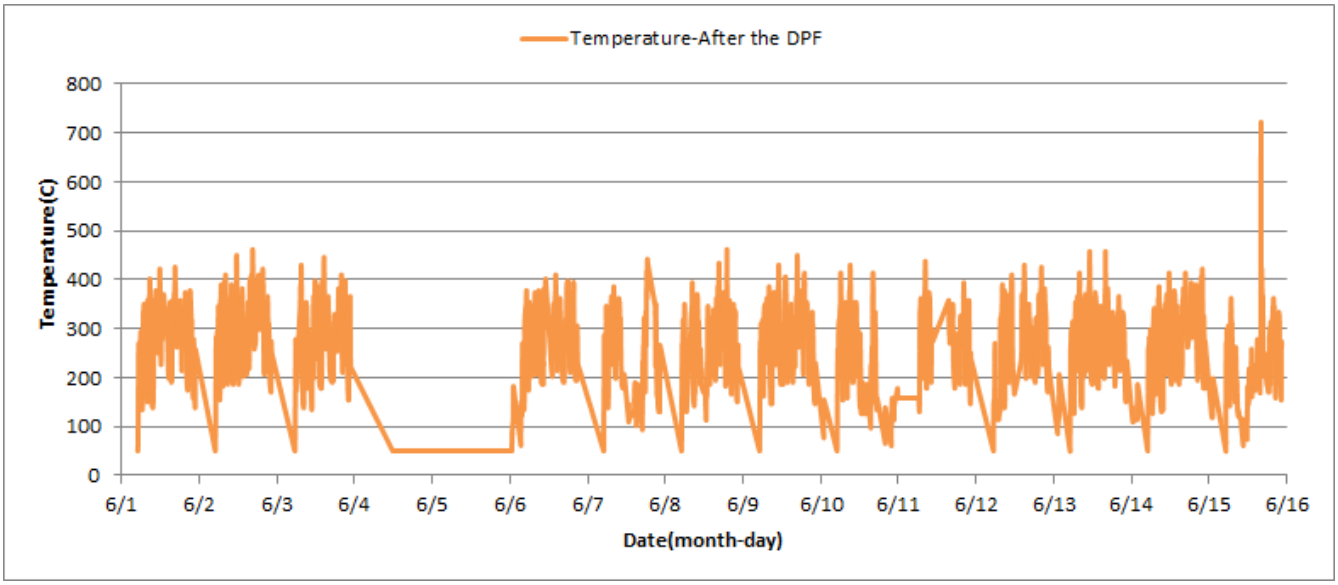

Figure 7- Temperature distribution over the fifteen days

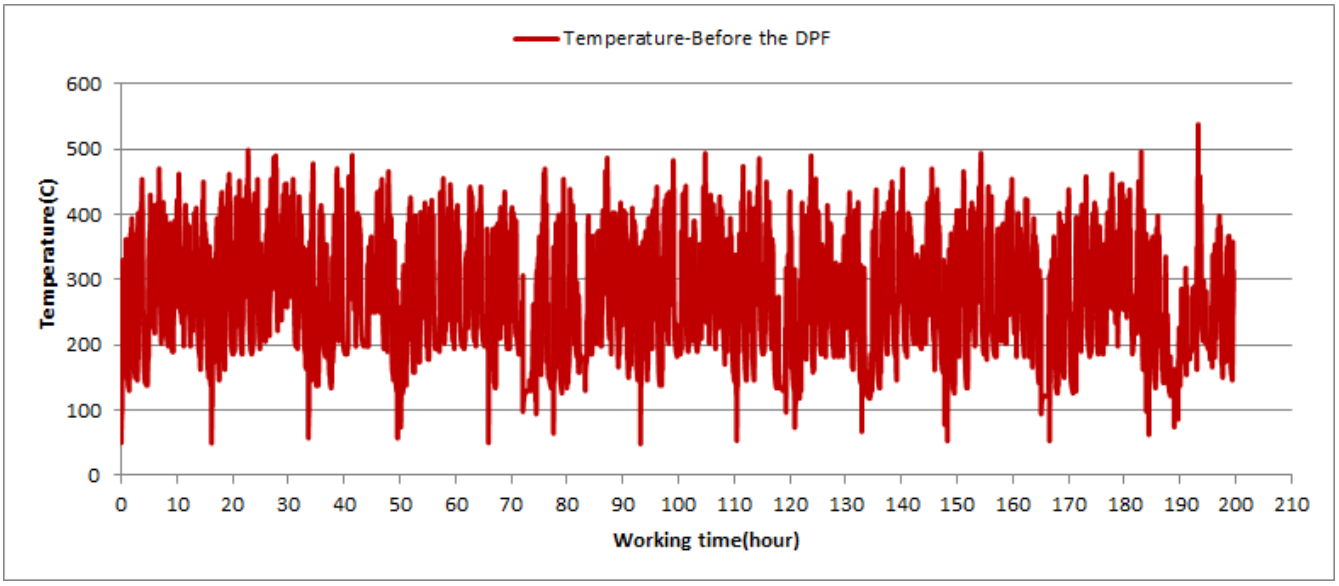

Figure 8- Temperature vs. working hours

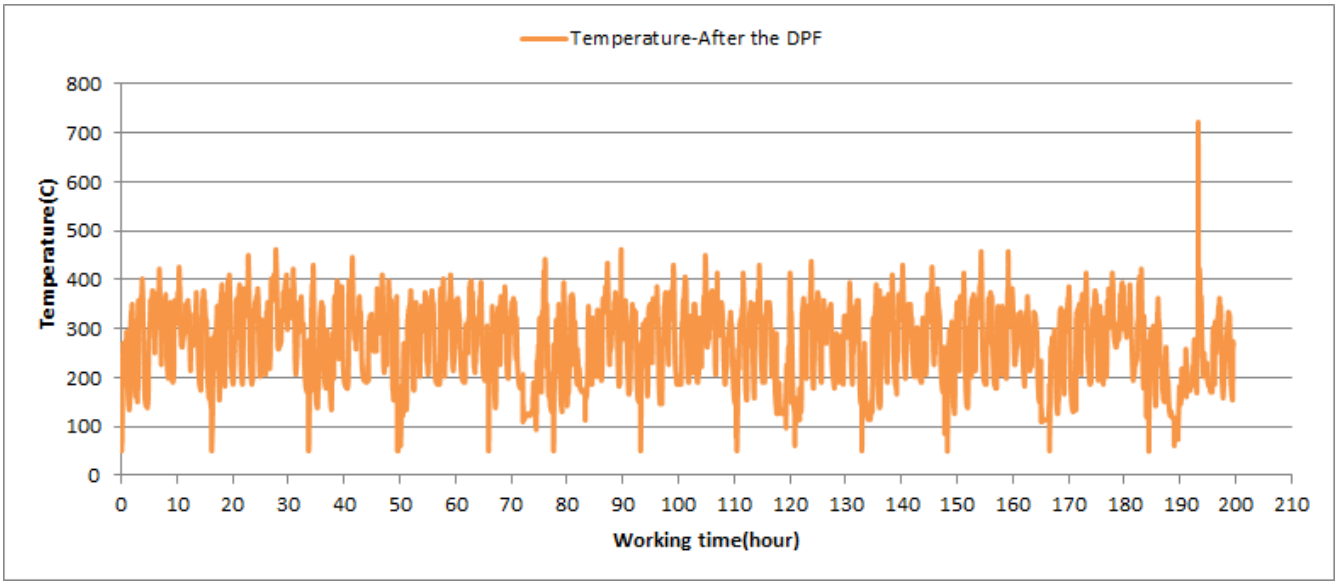

Figure 9- Temperature vs. working hours

Engine Speed Diagrams

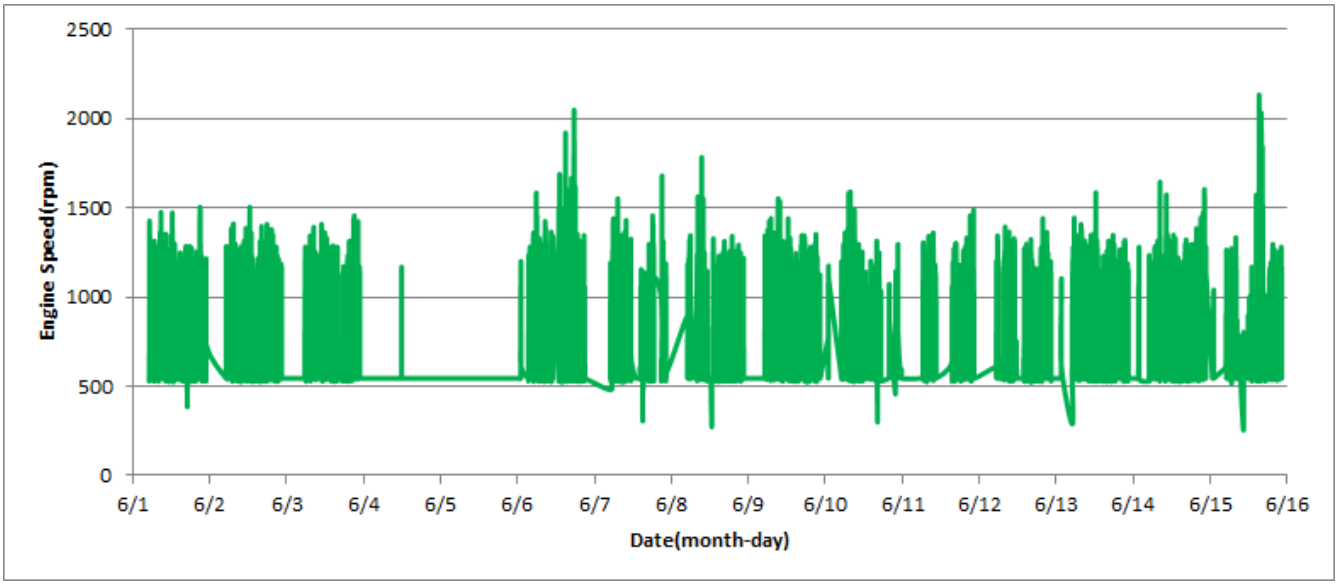

Figure 10- Engine speed distribution over the fifteen days

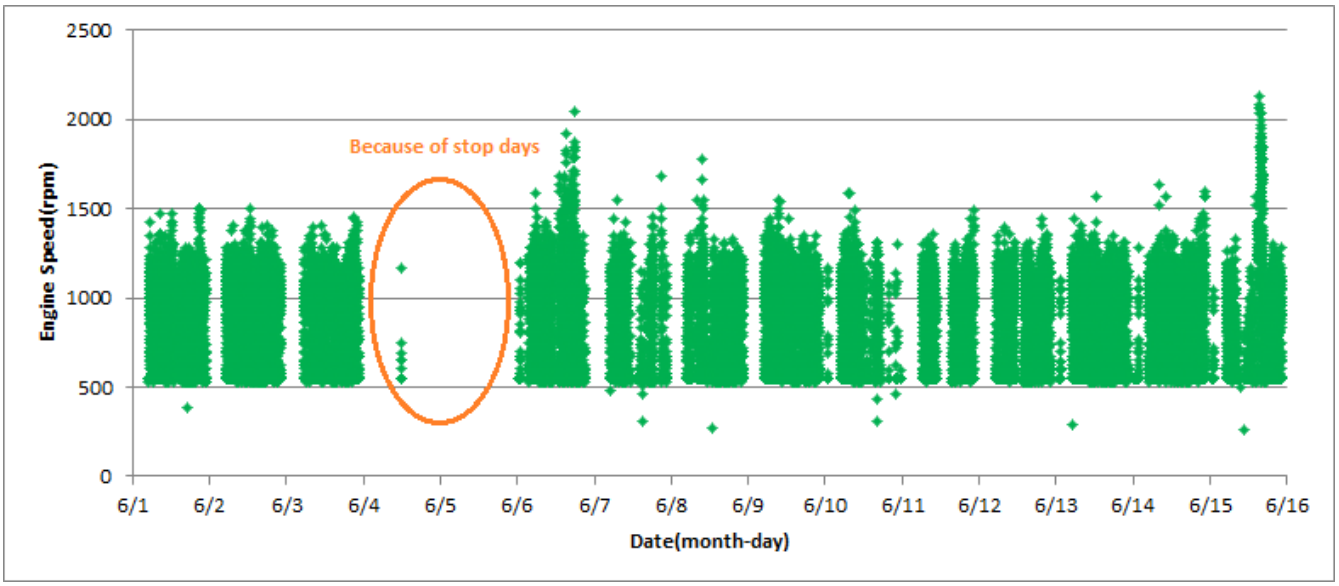

Figure 11- Engine speed diagram for calculating CPK's working days

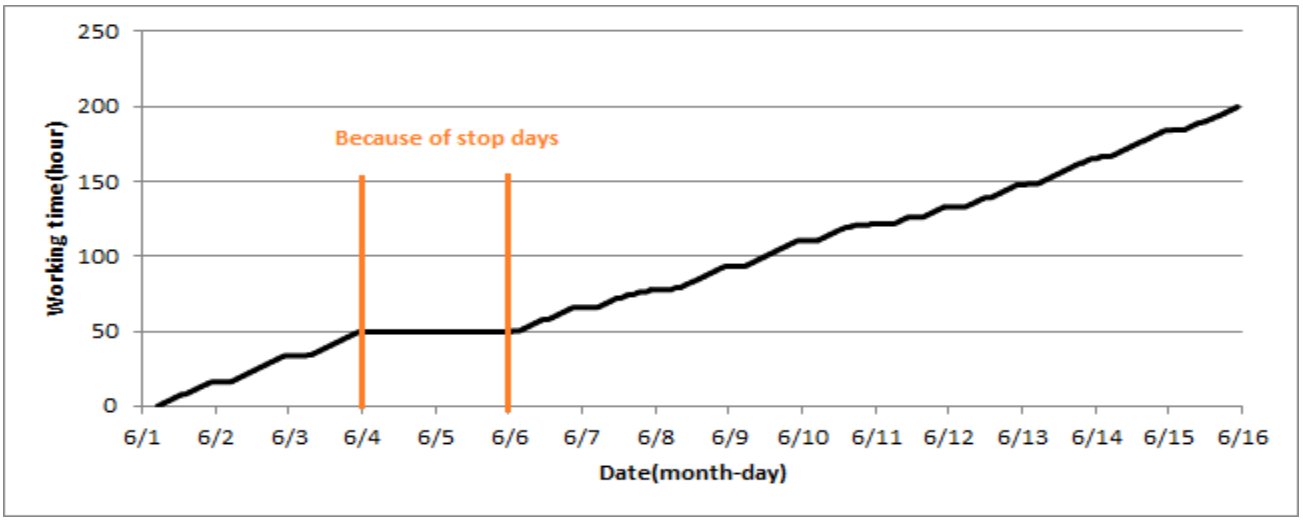

Figure 12- Time diagram for calculating CPK's working days

Notice: Data logger sampling time can be calculated from Figure 12. The lines parallel with Date axis show days without CPK's (data logger) data. As depicted in Figure 12, data logger didn't sample on Jun 4th and 5th because of stop days.

Pressure-Engine Speed diagrams

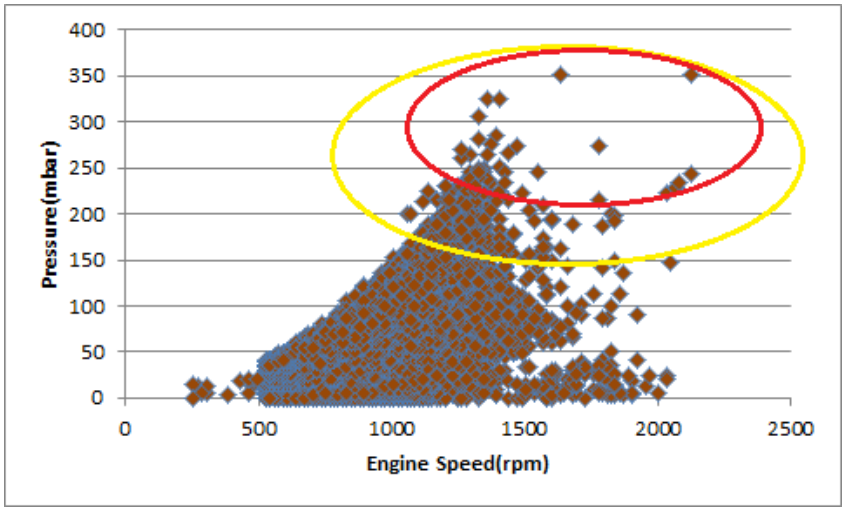

Figure 13- Pressure against engine speed

Notice: Red alarm (pressure>200 mbar) and yellow alarm (200>pressure>150) ranges were indicated in figure 13.

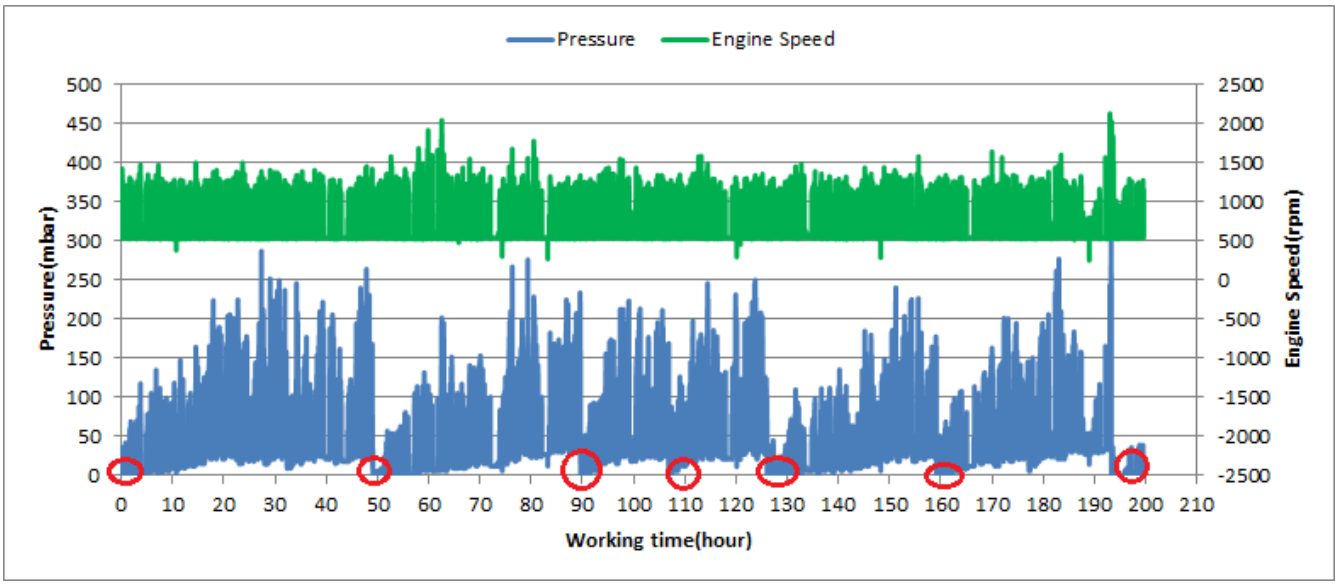

Figure 14- P, N distribution vs. working hours

Notice: The red circles show probable active regeneration times.

Temperature- Engine Speed Diagram

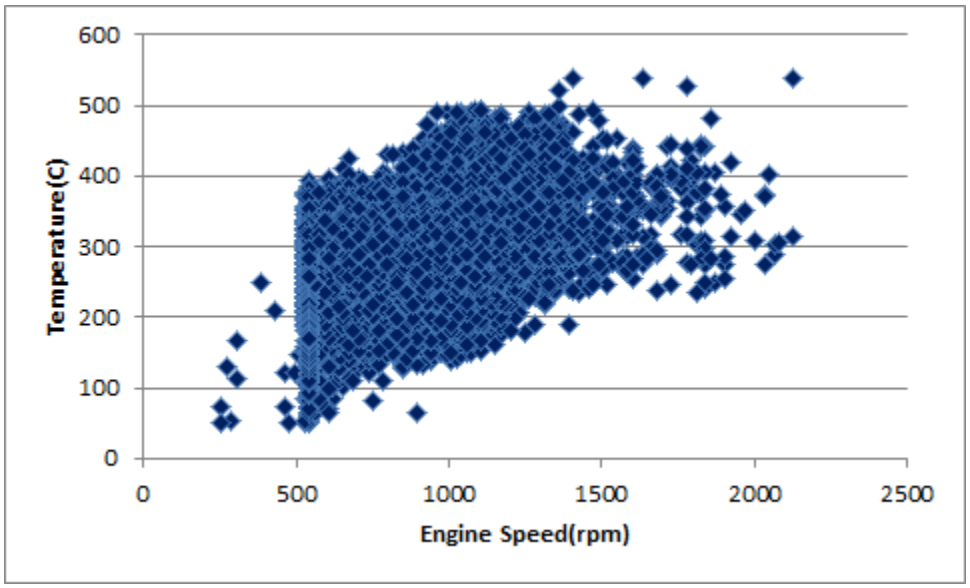

Figure 15- Temperature against engine speed

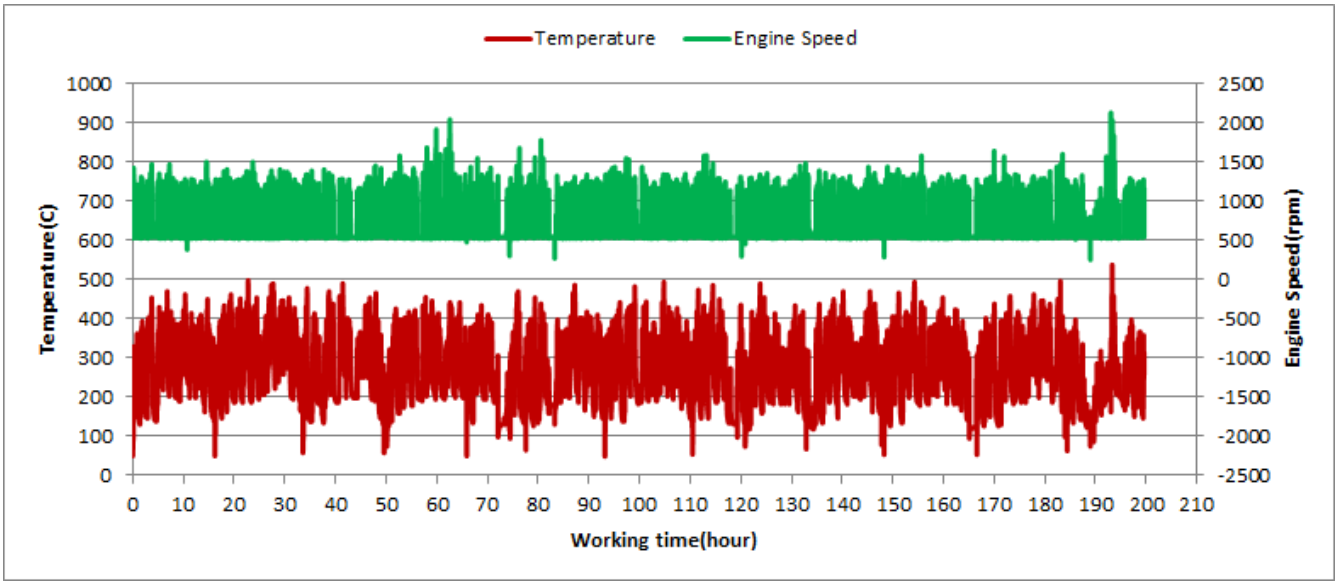

Figure 16- T, N distribution vs. working hours

Filter Operation Analysis

- As depicted in Figure 1 only 0.18% of total working time, pressure is above 200 mbar and 1.18% above 150mbar. So it can be concluded that operation of this filter was reasonably acceptable during this period.
- Figure 2 displays flow temperature distribution for DPF's upstream. It can be obviously observed only 2 % of total working time, temperature is above 400°C.
- This vehicle operates in line 2. Because of smooth path of this line, engine operates in low rotational speed. It is worth-mentioning this low engine speed distribution causes low temperature distribution.

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