Overall Information

Table1- Overall Information

Vehicle plate number	78524
CPK data logger number	LN: 001443, DN: 1930,Sim +989218786219
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	PURItech (Passive system with FBC)
Installation date	28/Jan/2015
Report period	01/Sep/2015 – 15/Sep/2015 (fifteen days)
K value – DPF upstream	1.90 [1/m]
K value – DPF downstream	0.02 [1/m]

Table 2- DPF Maintenance History

Filter maintenance date	DPF core was removed on Jul 22nd and was cleaned on Aug 12th
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)	33920 km
Bus mileage over the period	2493 km
Working days over the period	14 days
Stop days	1 day
Data logger working days	14 days
Working hours over the period	175 hours 22 minutes
Average working hours per day (including stop days)	11 hours 41 minutes
Bus average speed	14.2 km/hr
idle speed time to all working time ration	-
Total Bus fuel consumption over the period	1445 lit
Fuel consumption per hour	8.24 lit/hr
Average fuel consumption	0.58 lit/km
Total Bus additive consumption over the period	0.700 lit
Average additive consumption	280 cc/km
Additive consumption to fuel ration	485 cc/1000lit

Notice: Due to some technical problem related to data logger, rpm data missed. So parameters like idling speed was left blank.

Temperature, Pressure and Engine Speed Overview

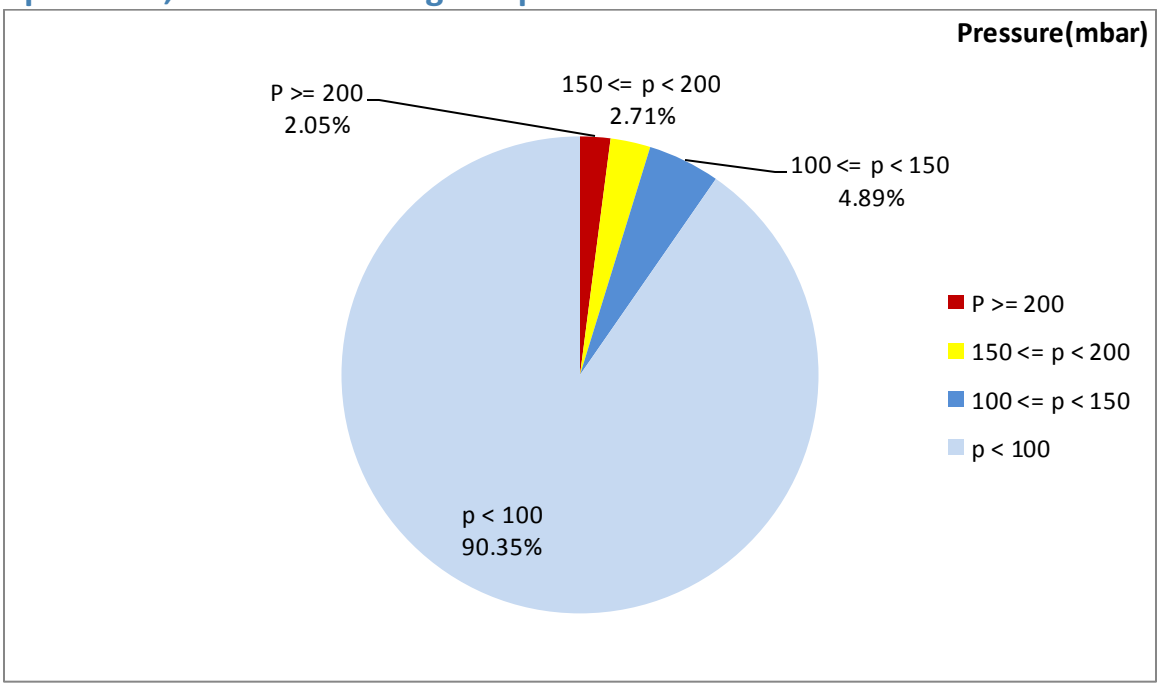

Figure 1- Pressure distribution over the working hours

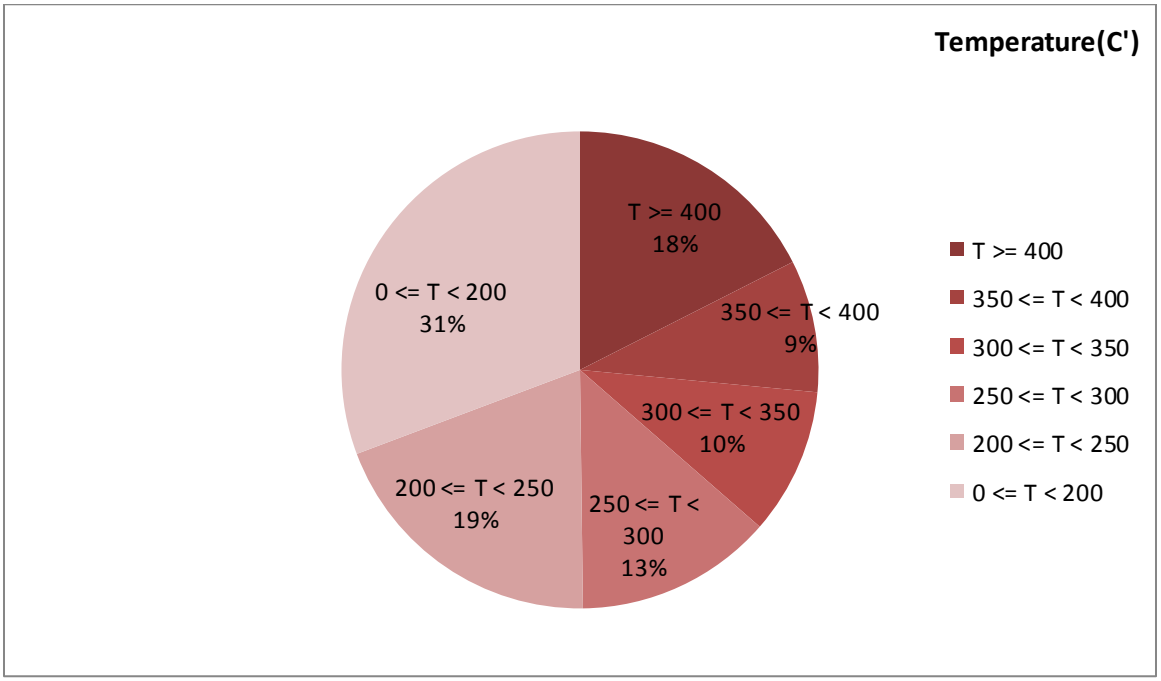

Figure 2-Temperature distribution over the working hours

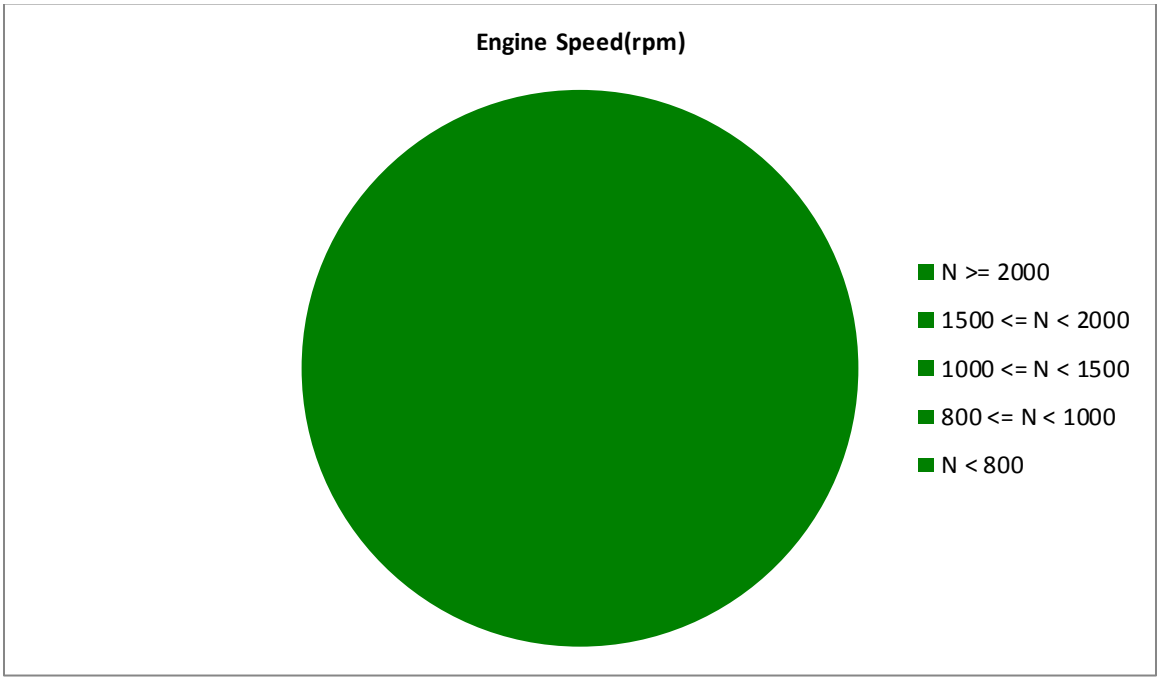

Figure 3- Engine speed distribution over the working hours

Table 4- Mean values

Mean temperature (C)	Mean pressure(mbar)	Mean engine speed(rpm)
278.27	38.06	-

Table 5- Mean values without idling

Mean temperature (C)	Mean pressure(mbar)	Mean engine speed(rpm)
-	-	-

Table 6- Max-min values

Max-min temperature(C)	Max-min pressure(mbar)	Max-min engine speed(rpm)
750-50	342-0	-

Notice: Due to data logger technical problem, rpm sensor data missed. So engine speed's related parameters were left blank.

Detailed Pressure Analysis

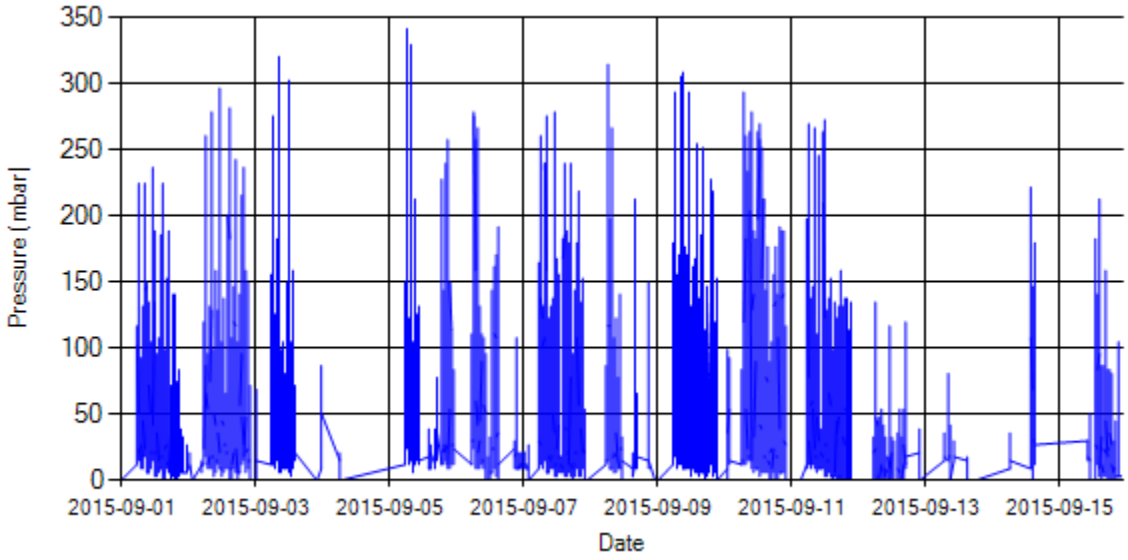

Figure 4- Pressure distribution over the period

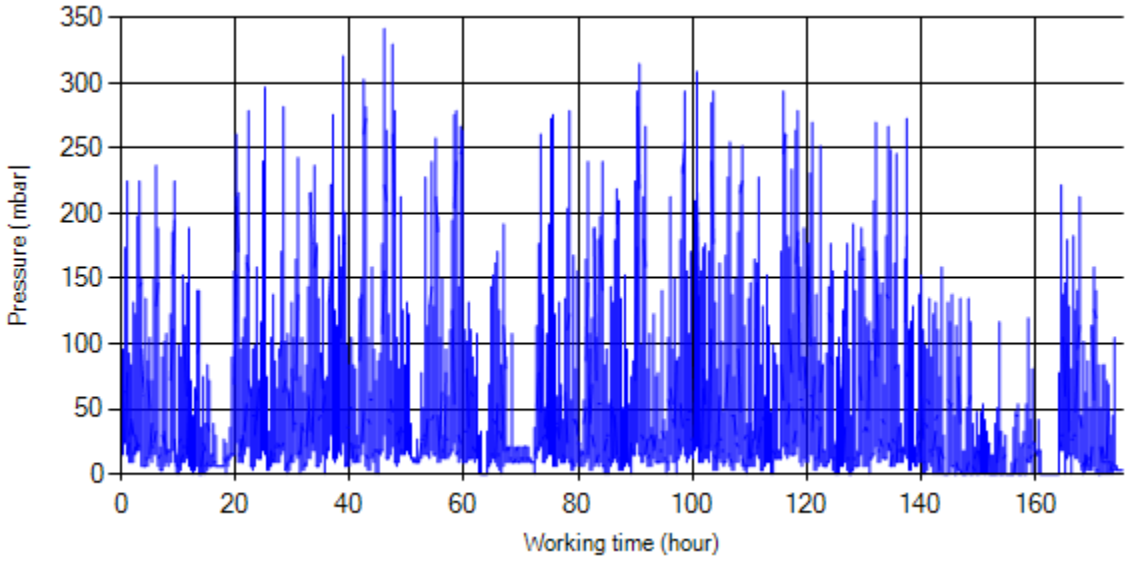

Figure 5- Pressure vs. working hours

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

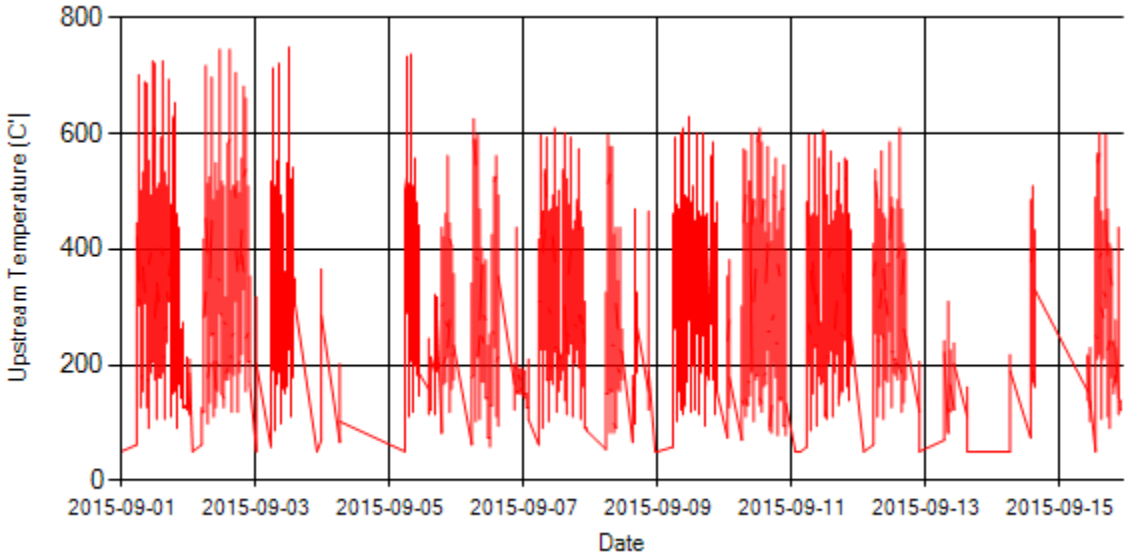

Figure 6- Temperature distribution over the period

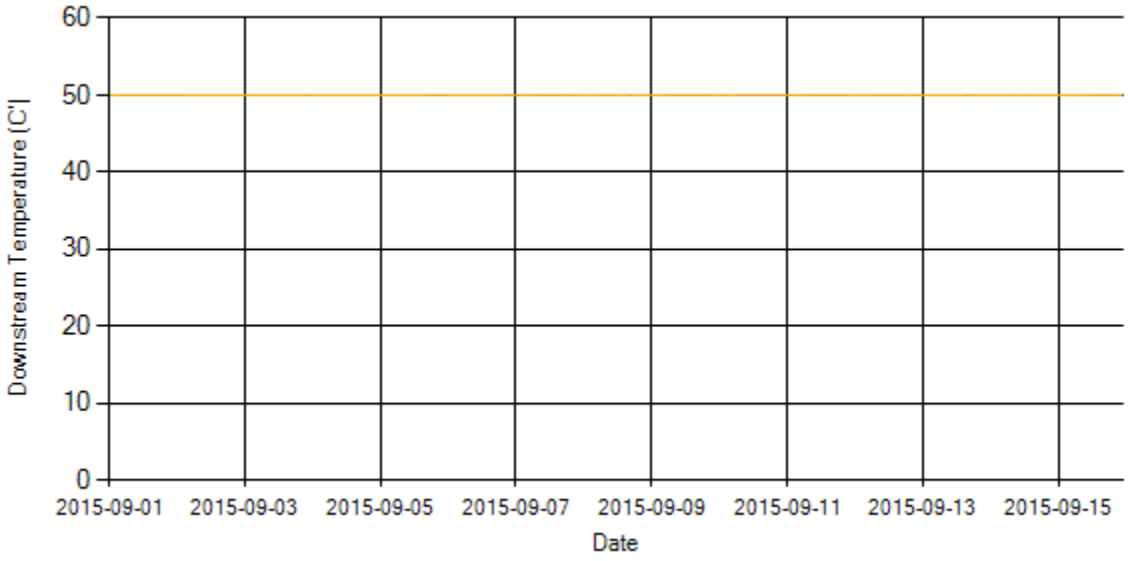

Figure 7- Temperature distribution over the period

Notice: Temperature 2 sensor was shoving constant value due to data logger problem.

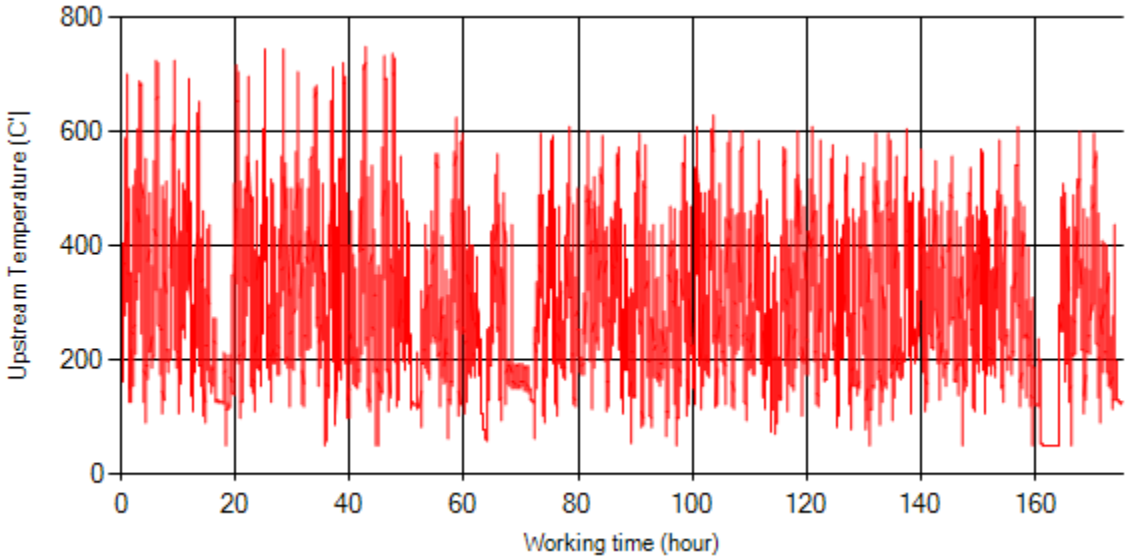

Figure 8- Temperature vs. working hours

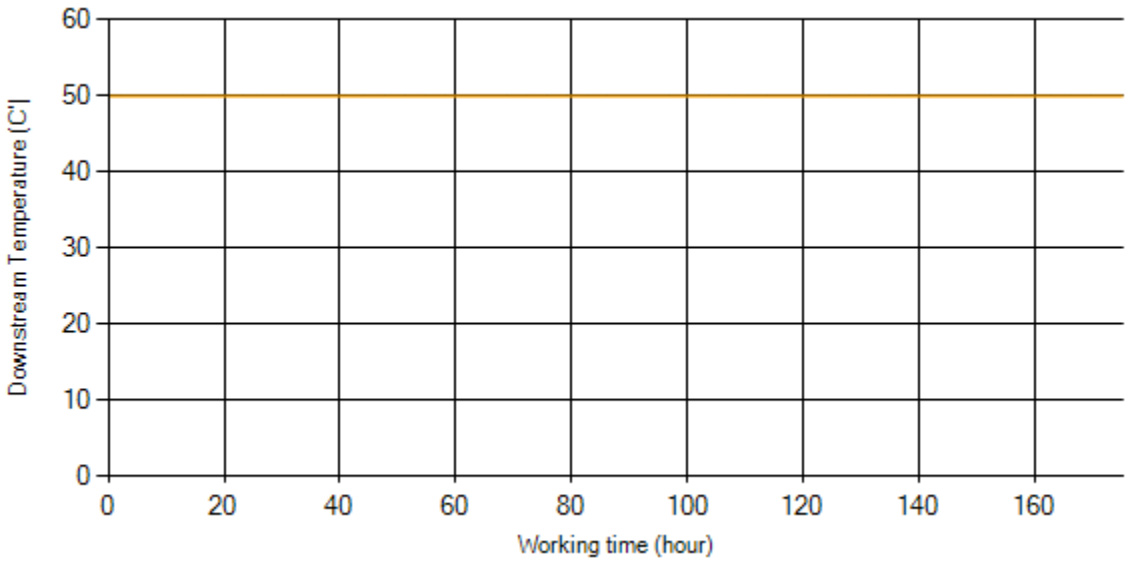

Figure 9- Temperature vs. working hours

Engine Speed Diagrams

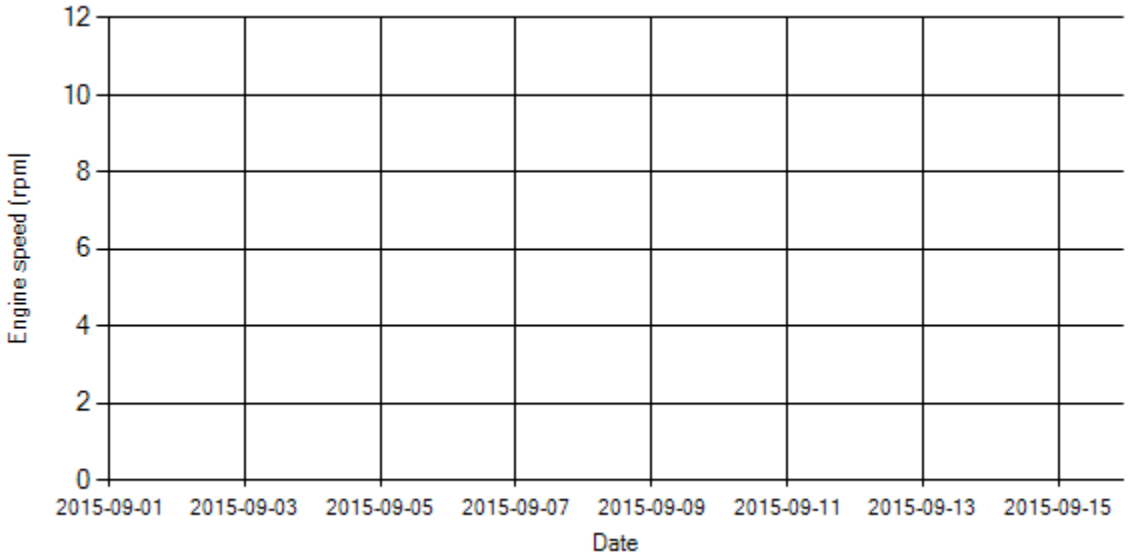

Figure 10- Engine speed distribution over the period

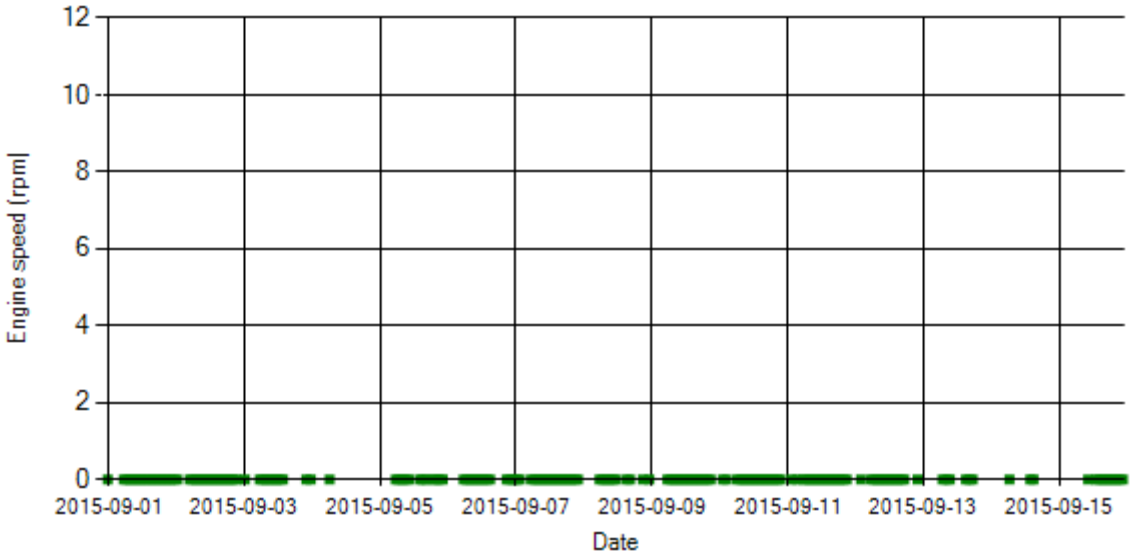

Figure 11- Engine speed diagram for calculating CPK's working days

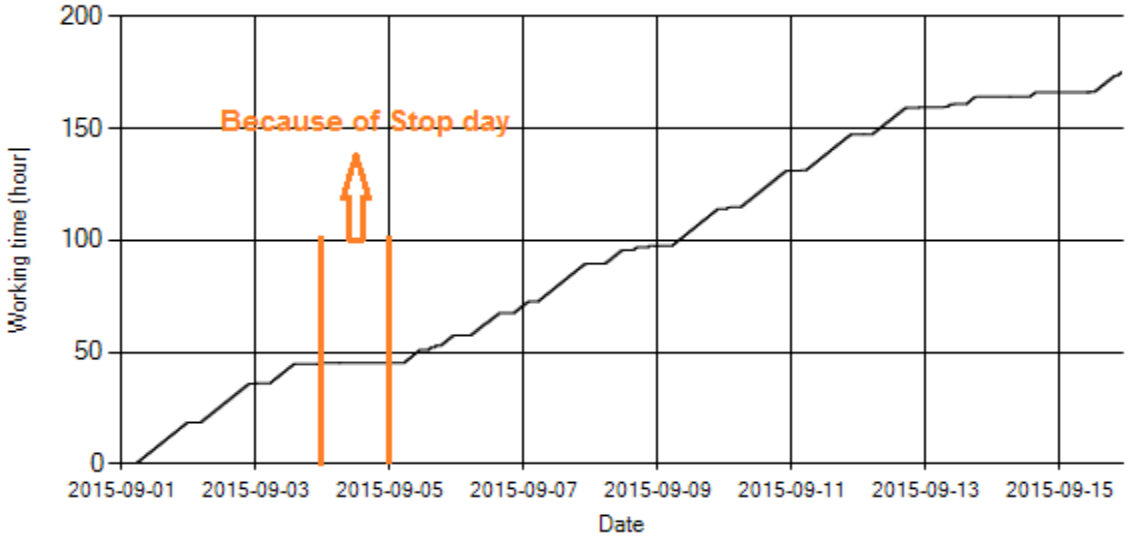

Figure 12- Time diagram for calculating CPK's working days

Notice: Data logger sampling time can be calculated from Figure 12. The lines parallel with Date axis show days without data logger data. As depicted in Figure 12, Sep 4th was stop day.

Pressure-Engine Speed diagrams

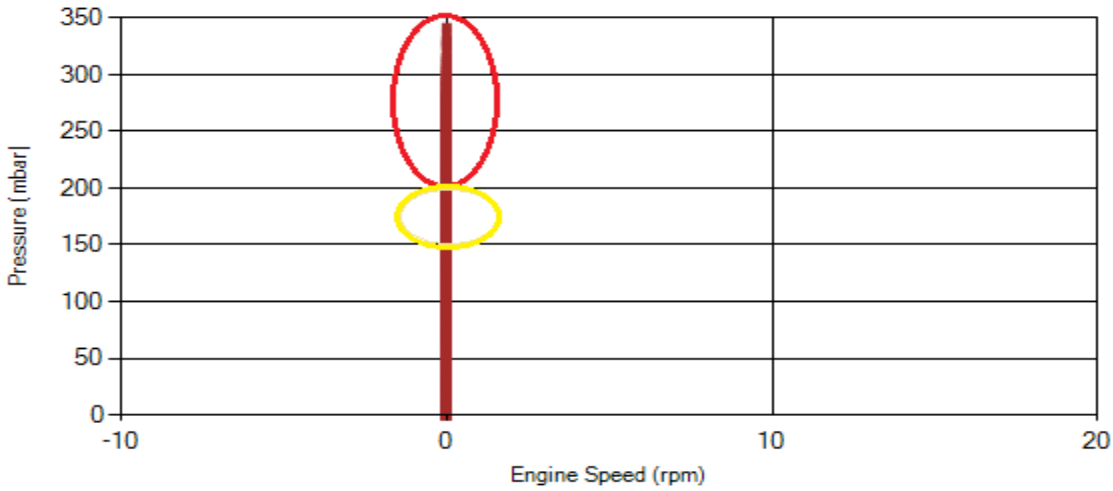

Figure 13- Pressure against engine speed

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

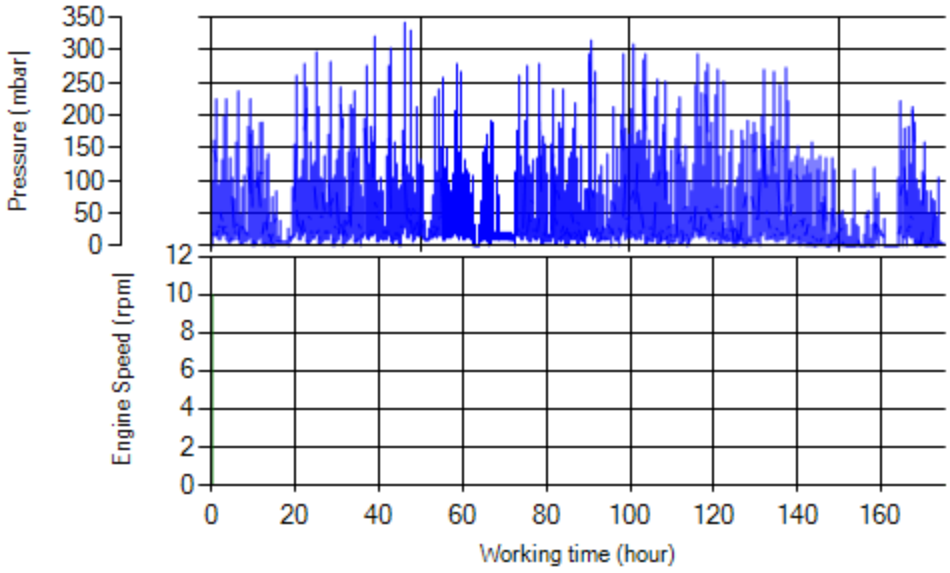

Figure 14- P, N distribution vs. working hours

Temperature-Engine Speed diagrams

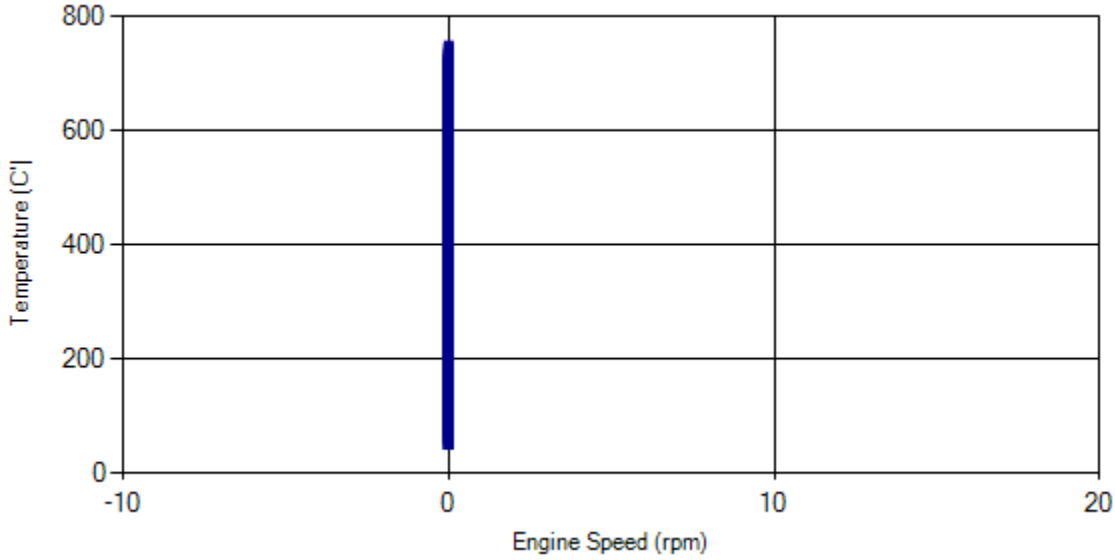

Figure 15- Temperature against engine speed

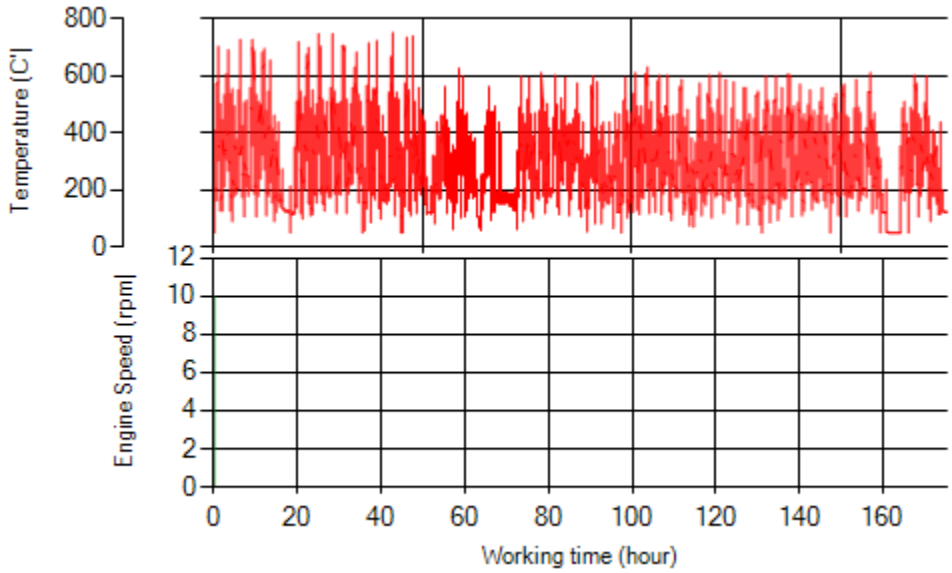

Figure 16- T, N distribution vs. working hours

Filter Operation Analysis

- As depicted in figure 1, 2.05% of total working time pressure is above 200 mbar and 4.76% above 150mbar.
- Figure 2 displays flow temperature before the DPF. It can be obviously observed that 18% of total working time temperature is above 400 °C and 27% above 350°C. Back pressure rise had important effect on increasing flow's temperature.

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