

Overall Information

Table1- Overall Information

Vehicle plate number	33637 (34119)
CPK data logger number	LN: 001492, DN: 1933, Sim +989210000000
Bus line	Number 2 (west to east bus line)
Bus Terminals	Khavaran Bus Terminal - Western Bus Terminal
Total path distance	19 km
DPF company producer	Dinex_02 (Passive system with FBC)
Installation date	02/Jun/2015
Report period	01/Sep/2015 – 15/Sep/2015 (fifteen days)
K value - DPF upstream	2.00 [1/m]
K value – DPF downstream	0.02 [1/m]

Table 2- DPF Maintenance History

Filter maintenance date	DPF had been removed after two weeks working on Jun 17 th . After receiving cleaning machine DPF was cleaned on Aug 10 th and was installed on Aug 22 nd but worked only for ten days. The last cleaning was done on Sep 24 th but cleaning issue was unavoidable after only three days working. Finally DPF was replaced by muffler on Sep 8 th and system have been working from that date without DPF.
Dosing status	Additive dosing was increased 60% of its initial value for tests two and three.

Table 3- Fuel and Additive Consumption Information

Bus mileage over the period	1644 km
Working days over the period	12 days
Stop days	3 days
Data logger working days	12 days
Working hours over the period	161 hours 28 minutes
Average working hours per day (including stop days)	10 hours 46 minutes
Bus average speed	10.18 km/hr
idle speed time to all working time ration	60.15 %
Total Bus fuel consumption over the period	1030 lit
Fuel consumption per hour	6.38 lit/hr
Average fuel consumption	0.63 lit/km
Total Bus additive consumption over the period	- lit
Average additive consumption	- cc/km
Additive consumption to fuel ration	- cc/1000lit

Notice: DPF had been installed on system only for four days. So additive consumption measurement was unreliable.

Temperature, Pressure and Engine Speed Overview

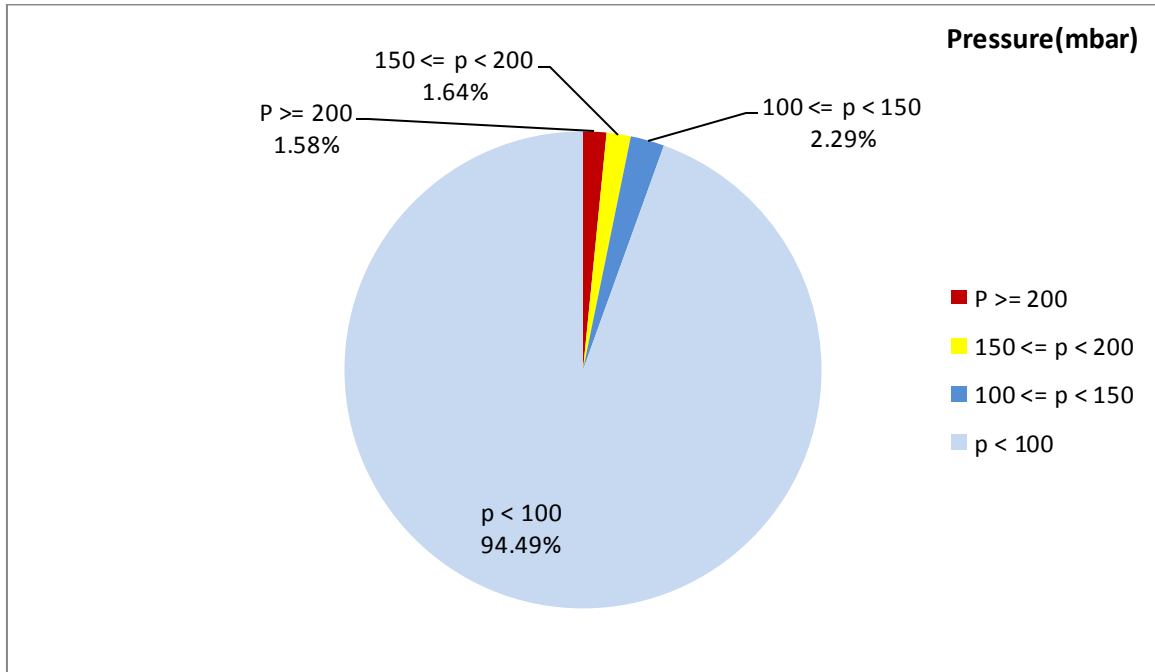


Figure 1- Pressure distribution over the working hours

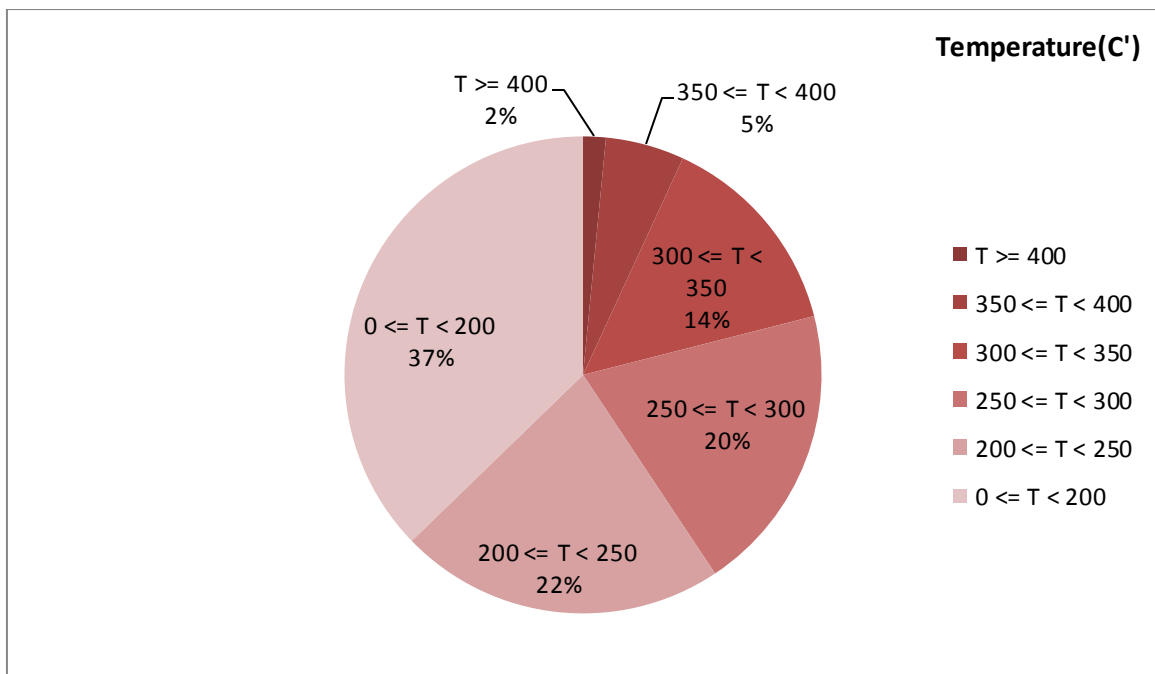


Figure 2-Temperature distribution over the working hours

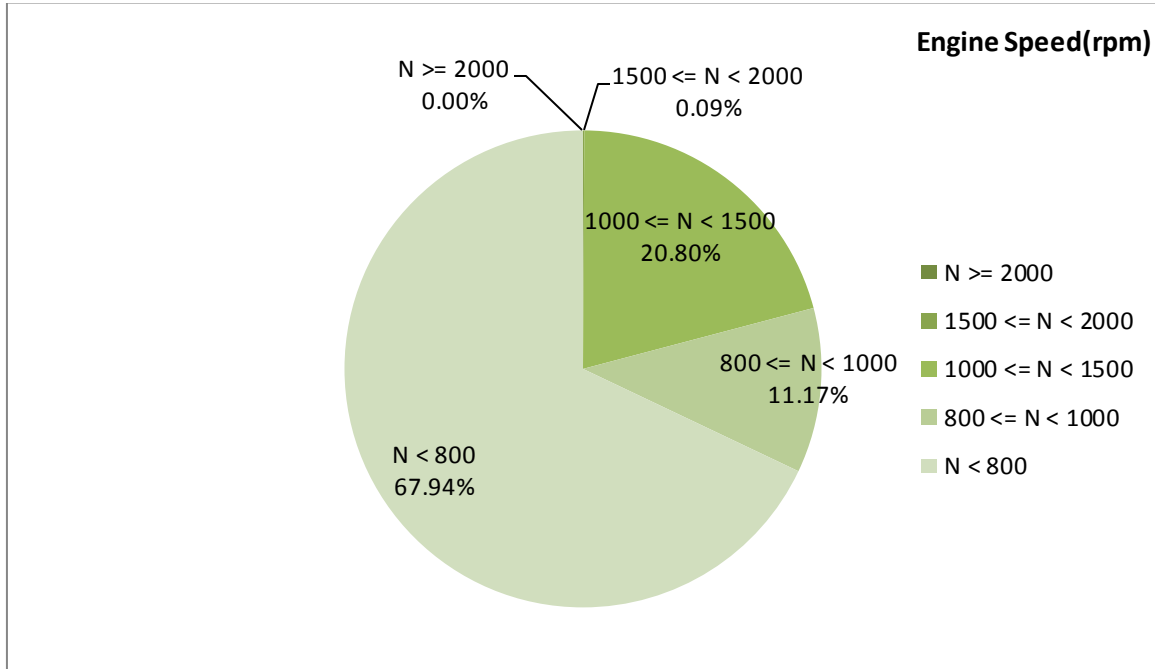


Figure 3- Engine speed distribution over the working hours

Table 4- Mean values

Mean temperature (C)	Mean pressure(mbar)	Mean engine speed(rpm)
234.41	20.48	776

Table 5- Mean values without idling

Mean temperature (C)	Mean pressure(mbar)	Mean engine speed(rpm)
294.96	34	979

Table 6- Max-min values

Max-min temperature(C)	Max-min pressure(mbar)	Max-min engine speed(rpm)
586-50	660-0	2096-256

Notice: It is worth-mentioning DPF had been installed on this bus only for four days during this period.

Detailed Pressure Analysis

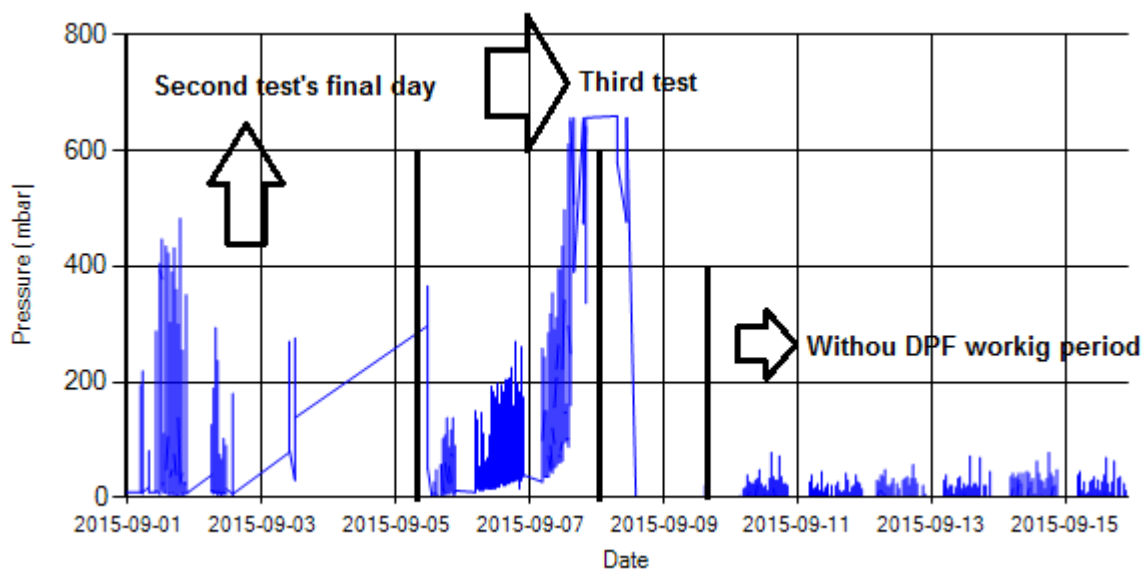


Figure 4- Pressure distribution over the period

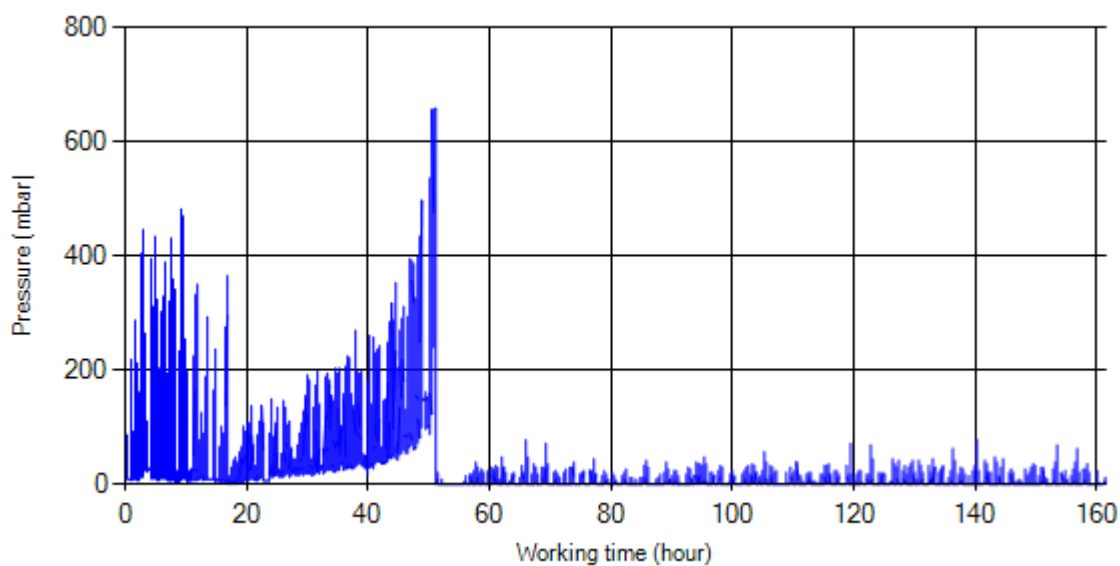


Figure 5- Pressure vs. working hours

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

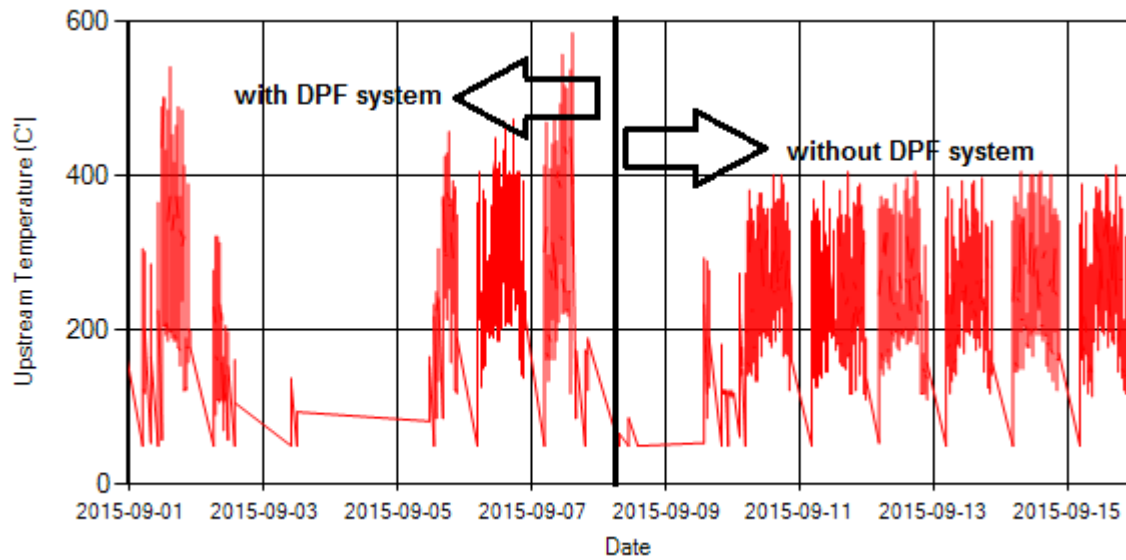


Figure 6- Temperature distribution over the period

Notice: Temperature rising due to back pressure was obvious by analyzing figure 6.

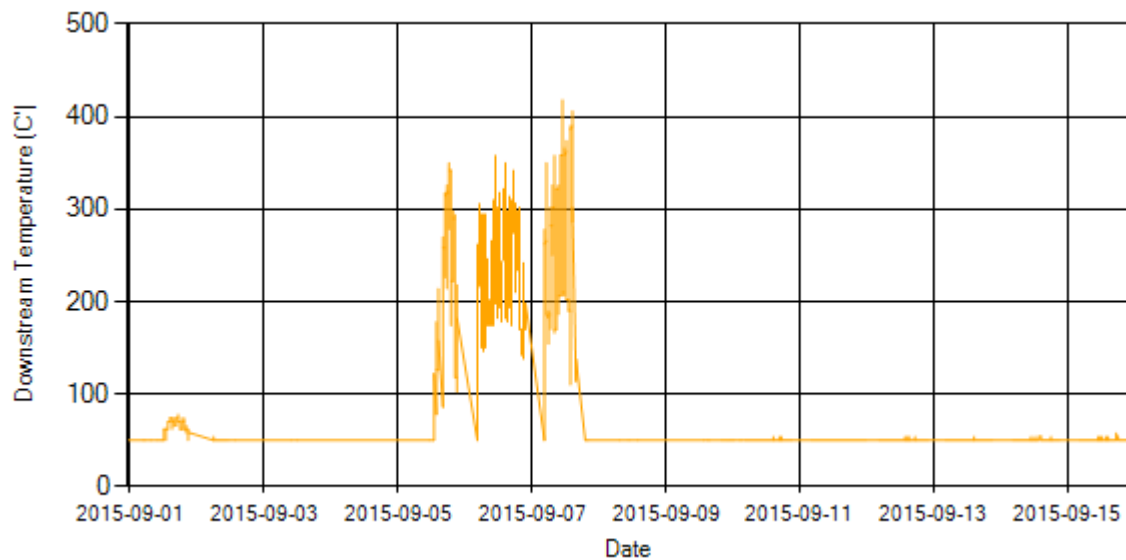


Figure 7- Temperature distribution over the period

Notice: Temp sensor 2 worked only for three days during this period.

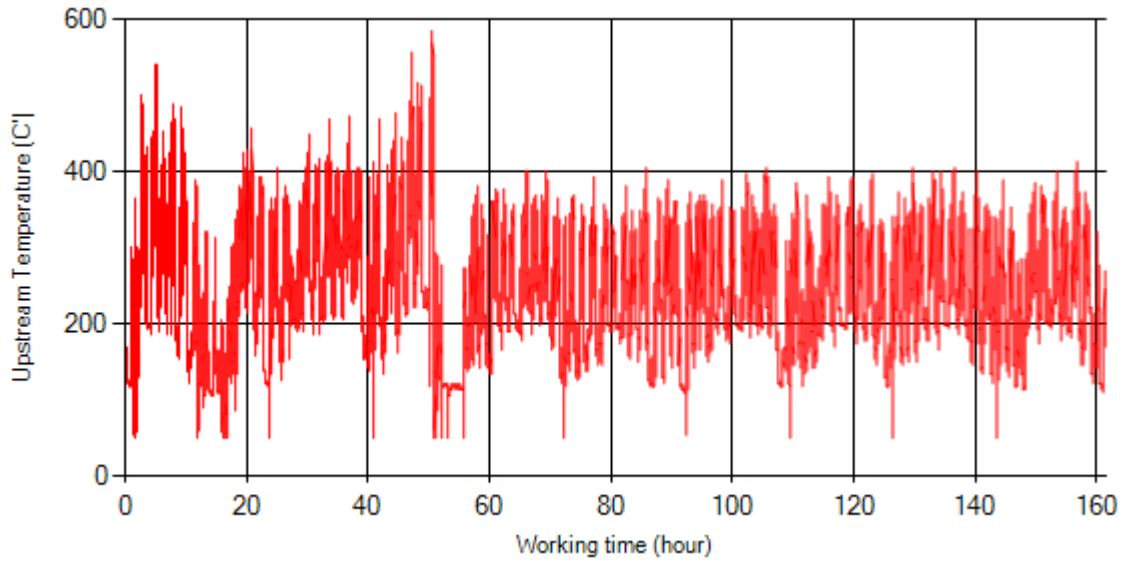


Figure 8- Temperature vs. working hours

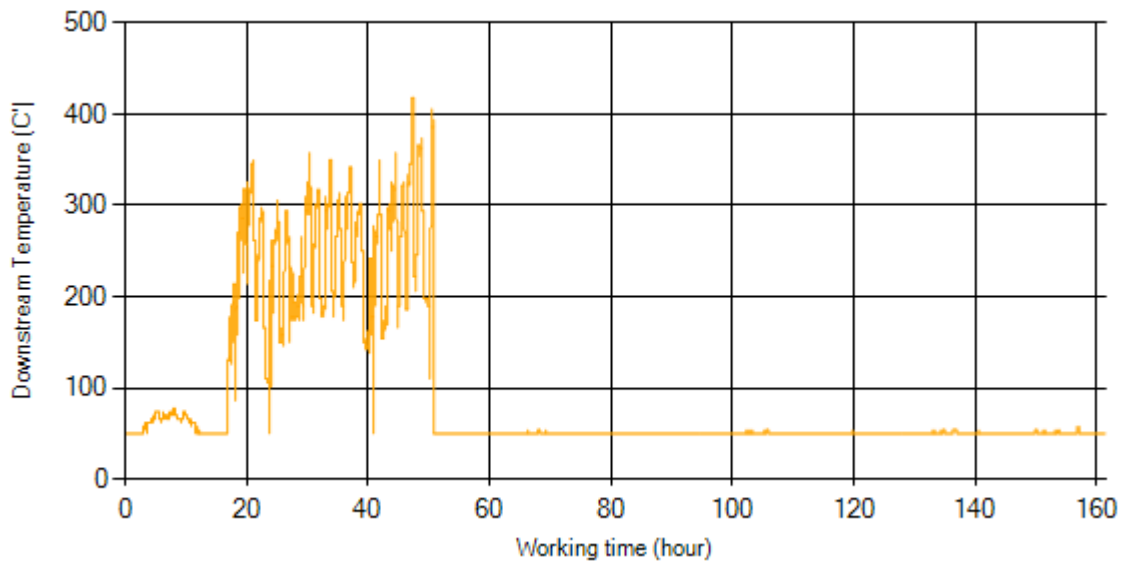


Figure 9- Temperature vs. working hours

Engine Speed Diagrams

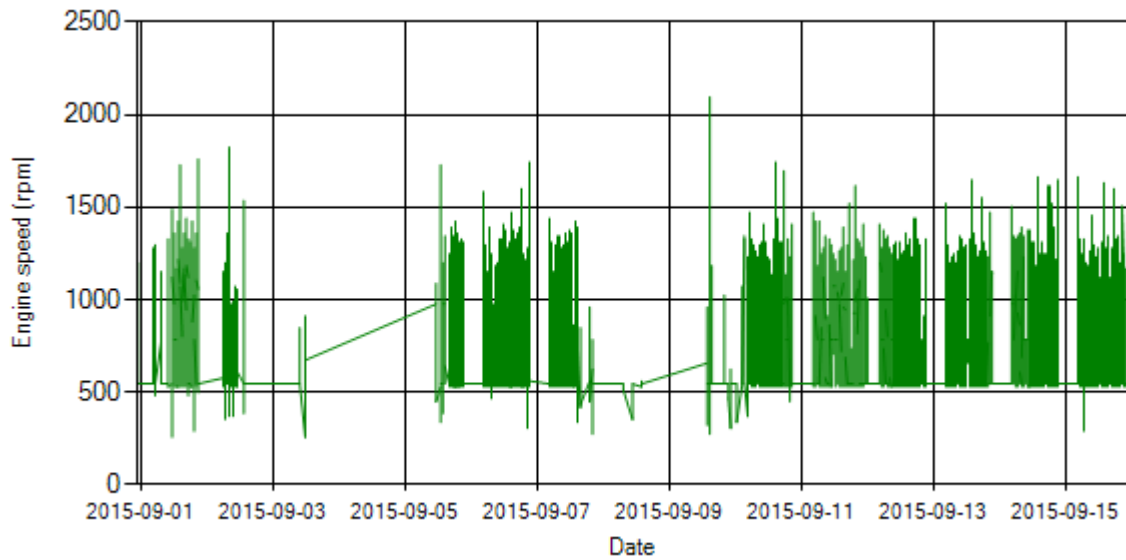


Figure 10- Engine speed distribution over the period

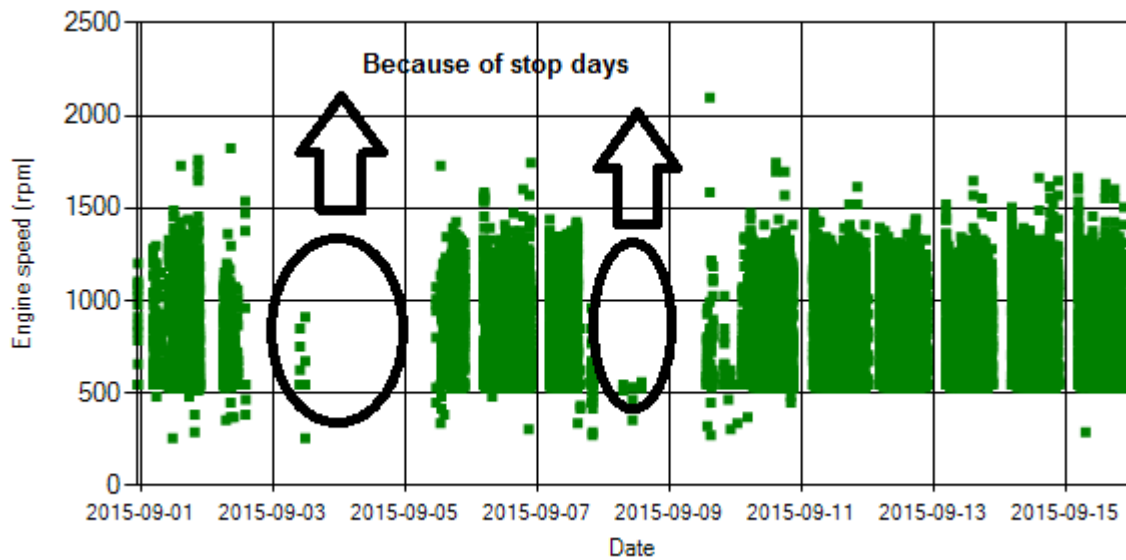


Figure 11- Engine speed diagram for calculating CPK's working days

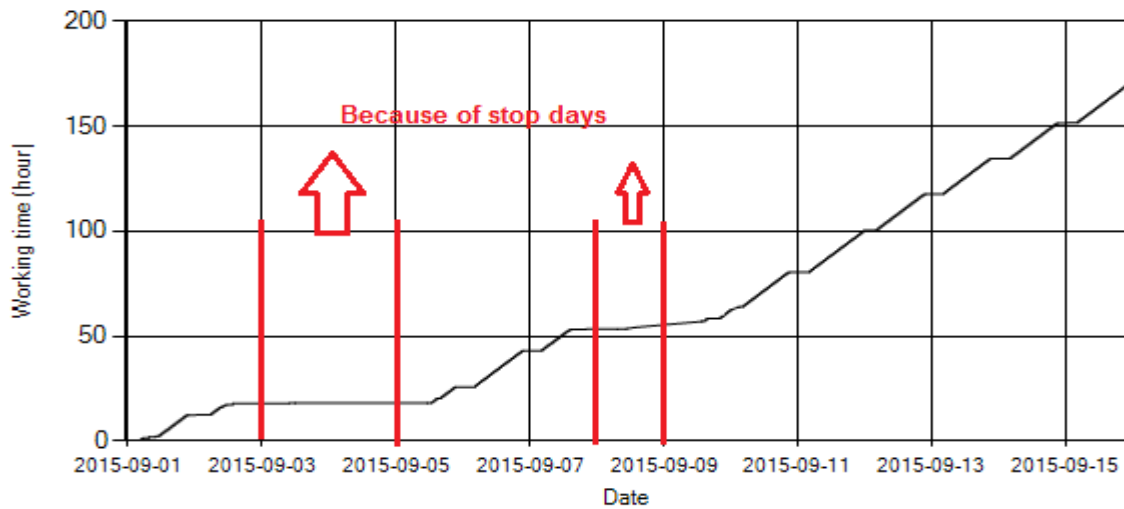


Figure 12- Time diagram for calculating CPK's working days

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

Pressure-Engine Speed diagrams

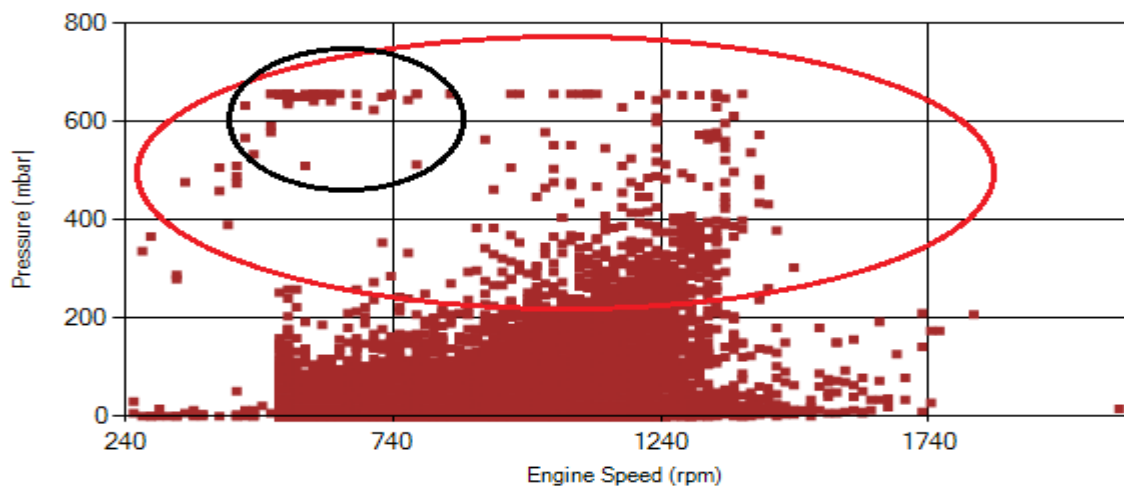


Figure 13- Pressure against engine speed

Notice: Red circle shows red alarm (pressure>200 mbar).

Notice: Black circle's data could be good reason for DPF blocking.

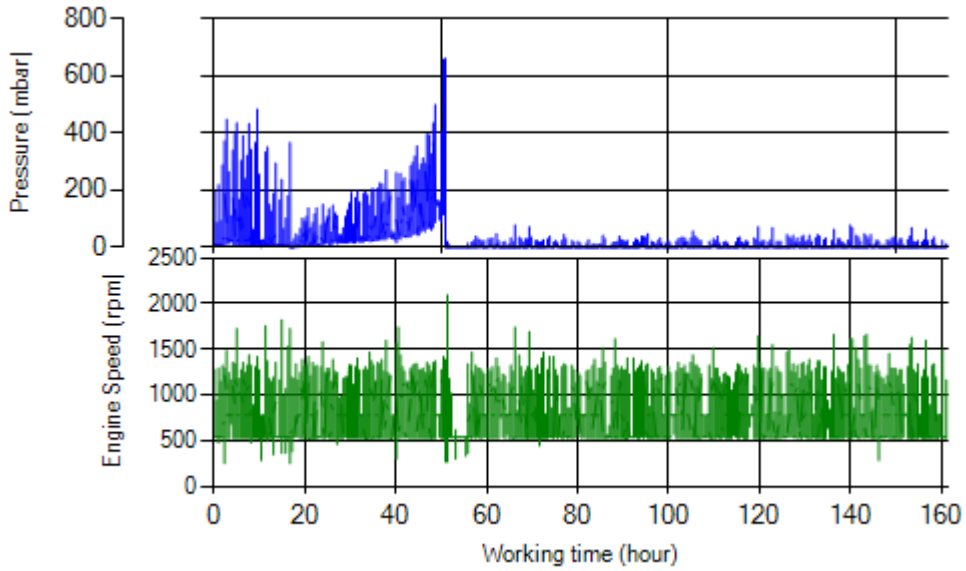


Figure 14- P, N distribution vs. working hours

Temperature-Engine Speed diagrams

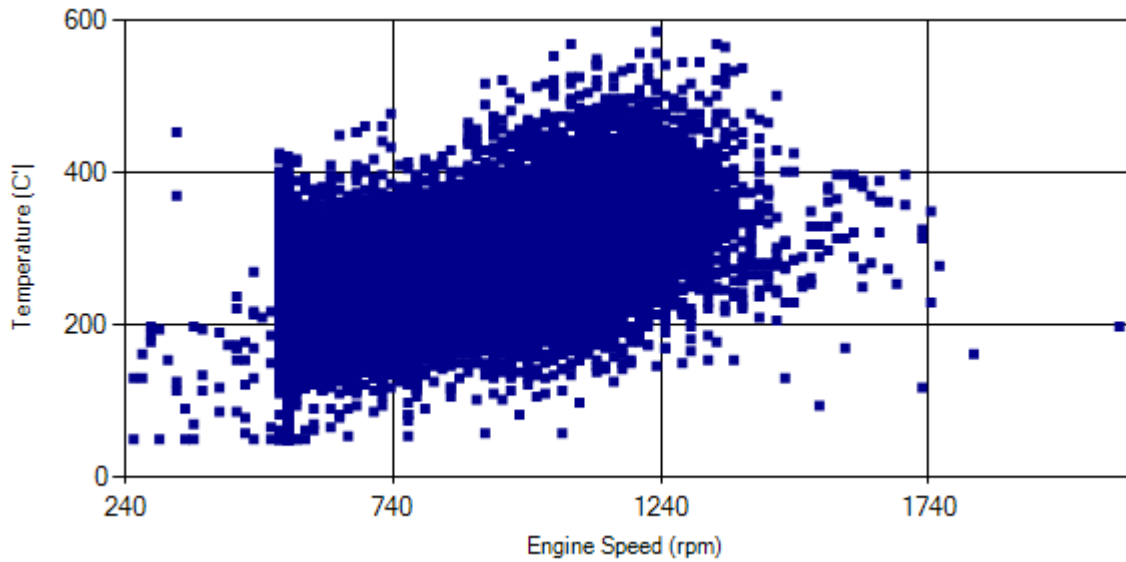


Figure 15- Temperature against engine speed

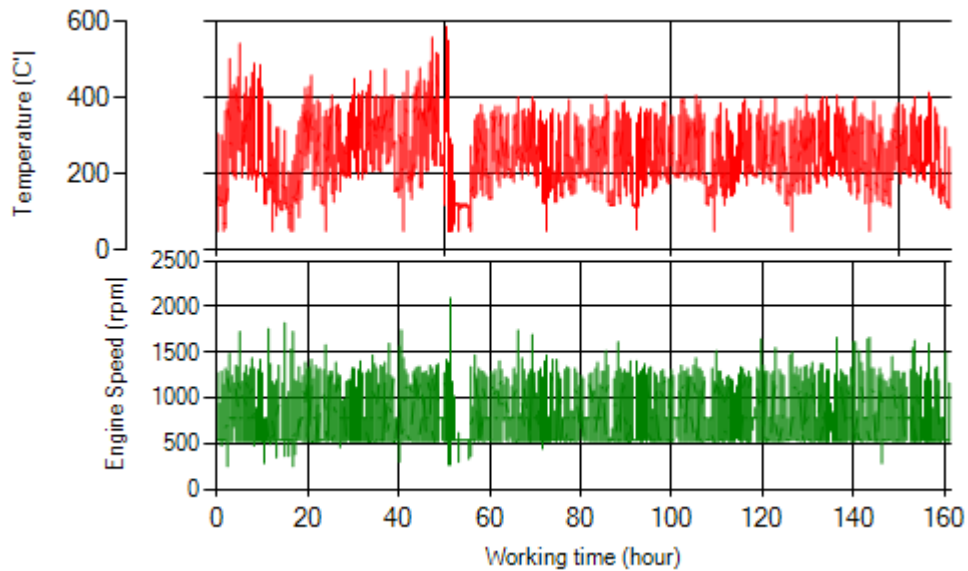


Figure 16- T, N distribution vs. working hours

Filter Operation Analysis

Considering 3 times maintenance and table 7 information, it could be concluded that **this DPF was not suitable for this path.**

Table 7. Tests information

Test No.	Start date	End date	System working days during the period
Number one	02/Jun	17/Jun	8 days
Number two	22/Aug	01/Sep	10 days
Number three	05/Sep	07/Sep	3 days