

## Overall Information

*Table1- Overall Information*

Vehicle plate number	78514
CPK data logger number	LN: 001496, DN: 1914, Sim +989218355923
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	HJS_01 (Passive system with FBC)
Installation date	10/Sep/2014
Report period	01/Nov/2015 – 15/Nov/2015 (fifteen days)
K value - DPF upstream	1.80 [1/m]
K value – DPF downstream	0.02 [1/m]

*Table 2- DPF Maintenance History*

Filter maintenance date	DPF core was cleaned on Jun 13 <sup>th</sup> .
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)	67756 km
Bus mileage over the period	2436 km
Working days over the period	13 days
Stop days	2 days
Data logger working days	13 days
Working hours over the period	157 hours56 minutes
Average working hours per day (including stop days)	10 hours31 minutes
Bus average speed	15.42 km/hr
idle speed time to all working time ration	52.62 %
Total Bus fuel consumption over the period	1291 lit
Fuel consumption per hour	8.17 lit/hr
Average fuel consumption	0.53 lit/km
Total Bus additive consumption over the period	0.55 lit
Average additive consumption	226 cc/km
Additive consumption to fuel ration	426 cc/1000lit

## Temperature, Pressure and Engine Speed Overview

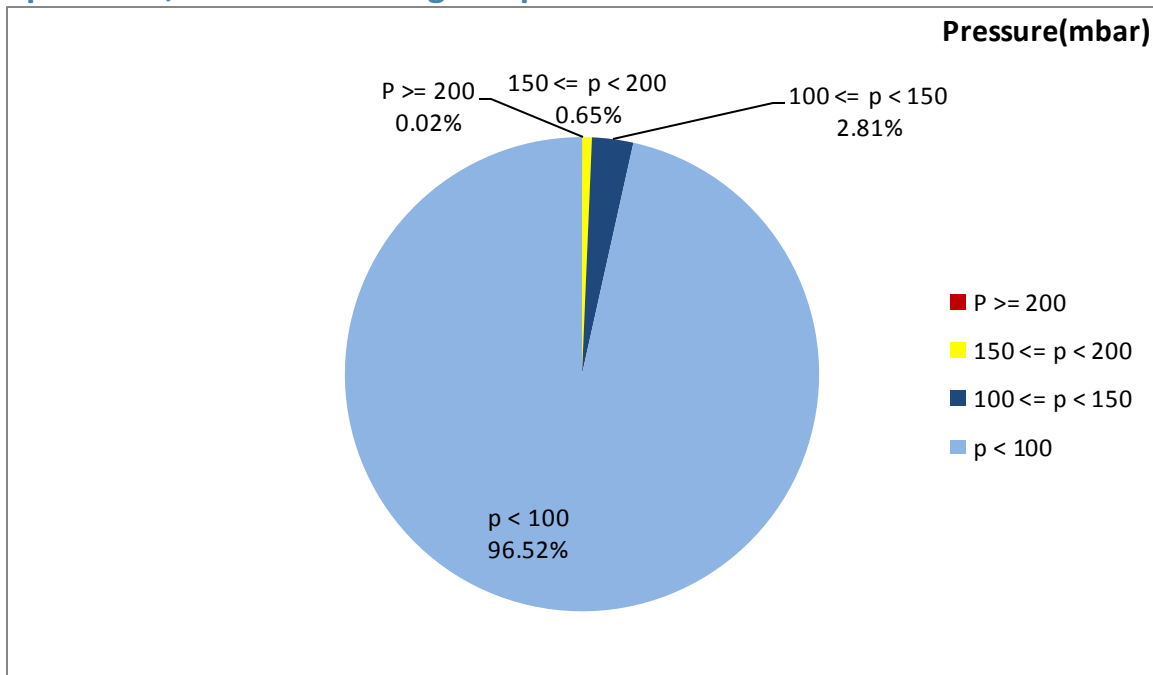


Figure 1- Pressure distribution over the working hours

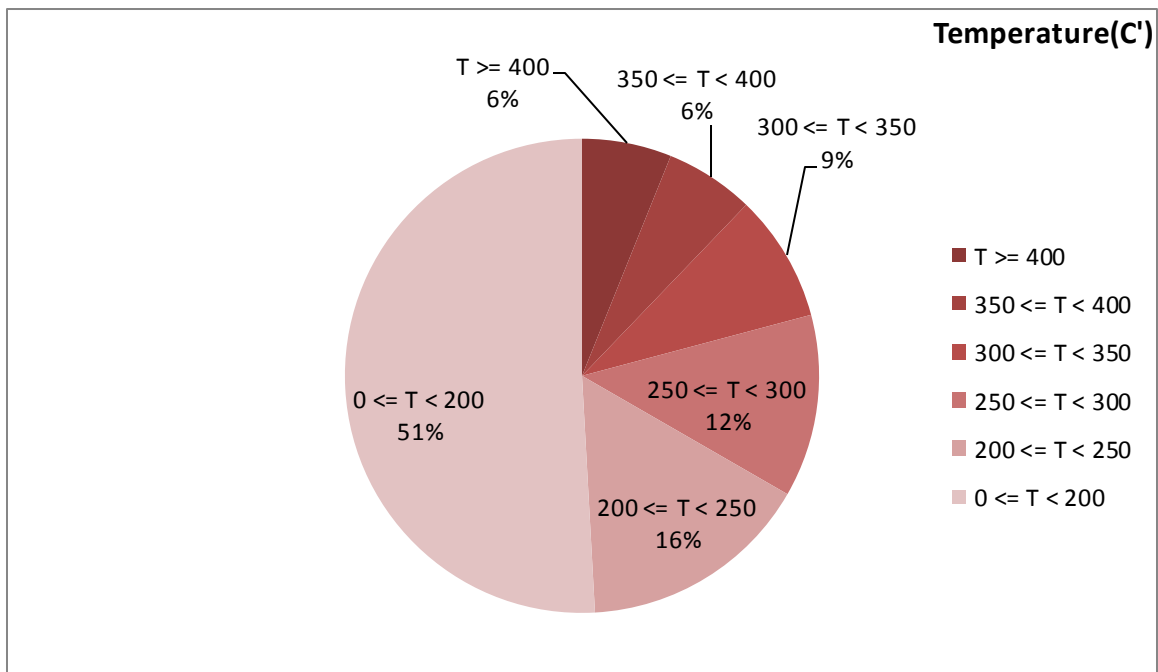


Figure 2-Temperature distribution over the working hours

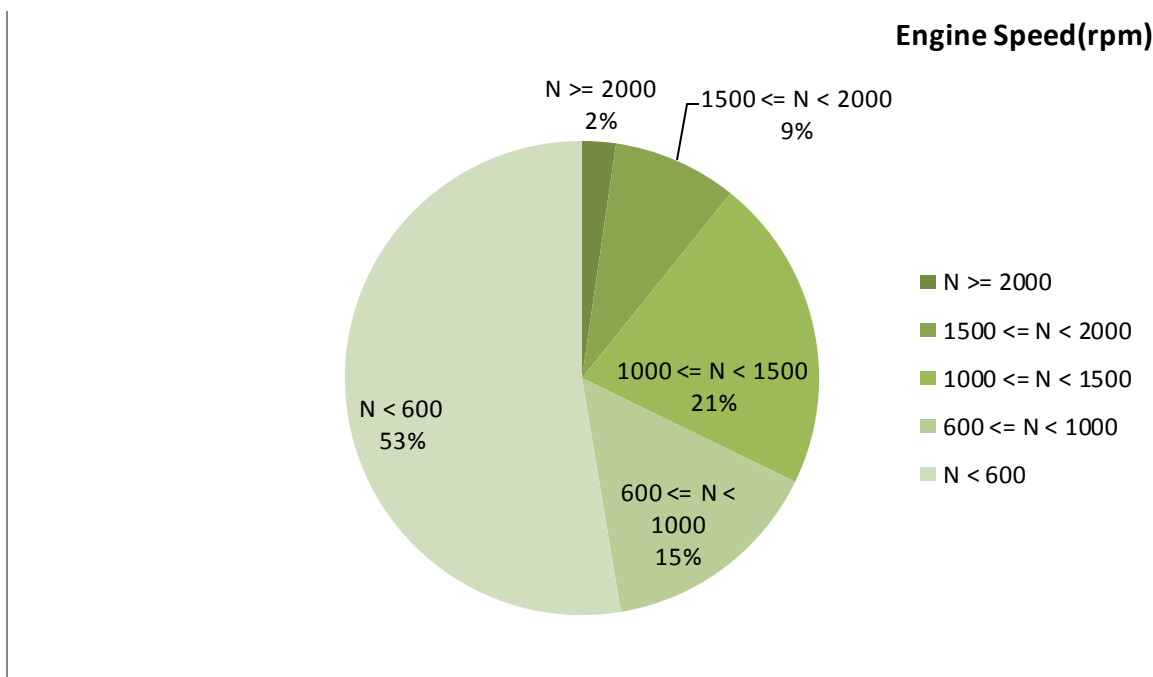


Figure 3- Engine speed distribution over the working hours

Table 4- Mean values

Mean temperature (C)	Mean pressure(mbar)	Mean engine speed(rpm)
224.68	22.81	862

Table 5- Mean values without idling

Mean temperature (C)	Mean pressure(mbar)	Mean engine speed(rpm)
276.27	39.72	1213

Table 6- Max-min values

Max-min temperature(C)	Max-min pressure(mbar)	Max-min engine speed(rpm)
506-50	204-0	2624-384

## Detailed Pressure Analysis

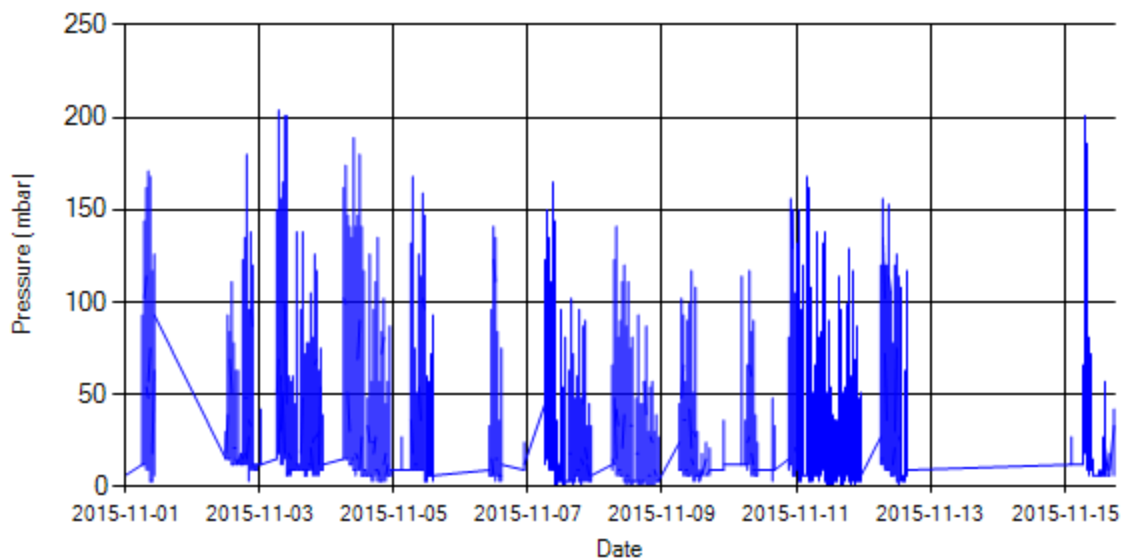


Figure 4- Pressure distribution over the period

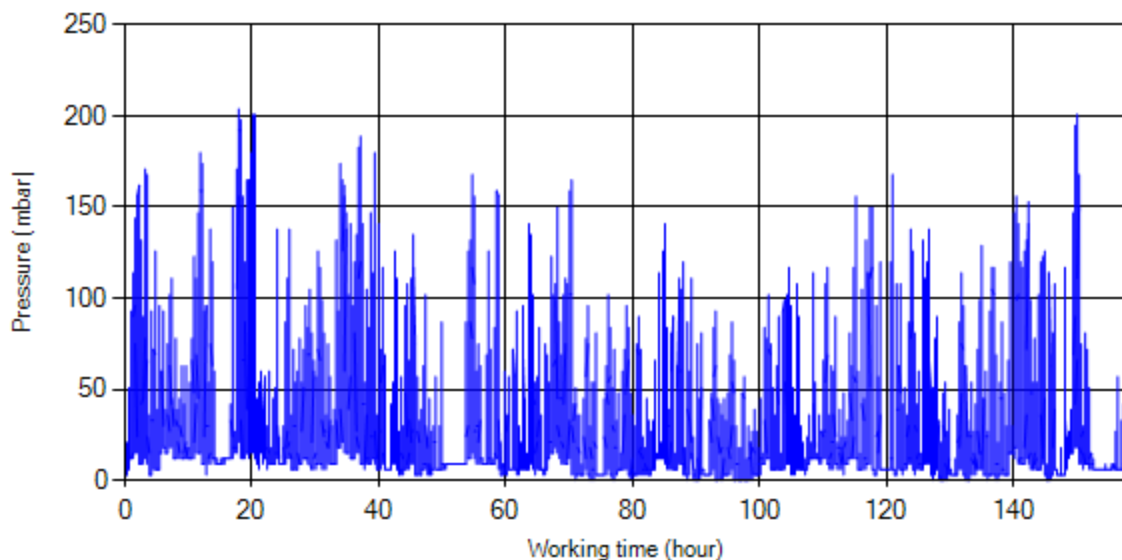


Figure 5- Pressure vs. working hours

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

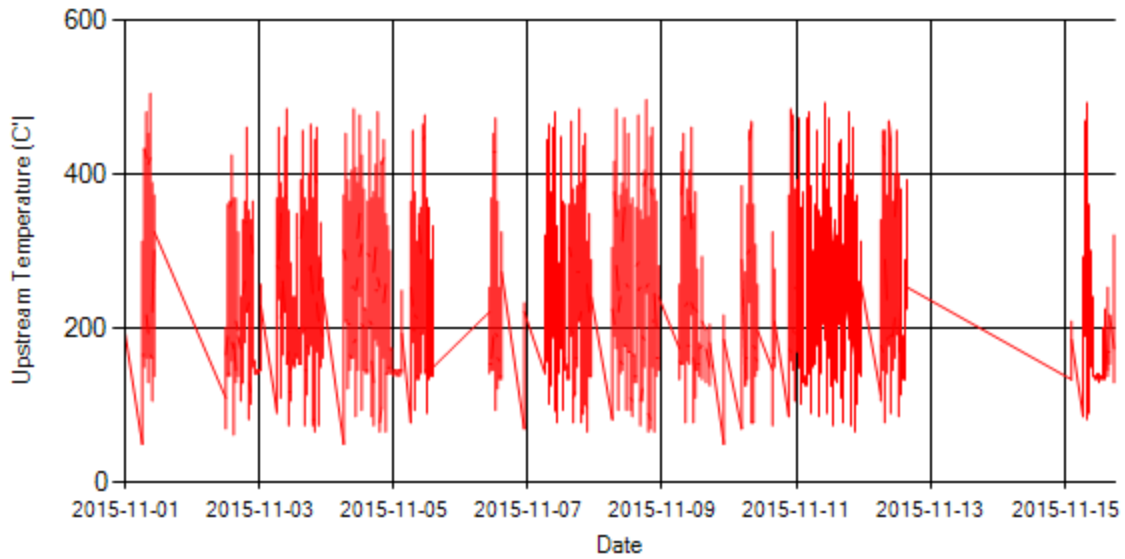


Figure 6- Temperature distribution over the period

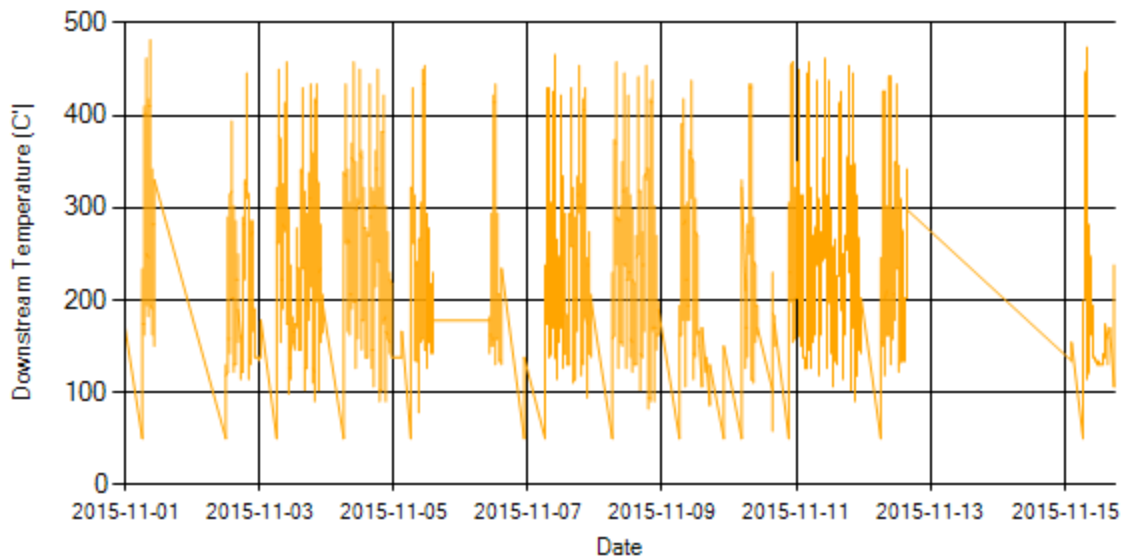


Figure 7- Temperature distribution over the period

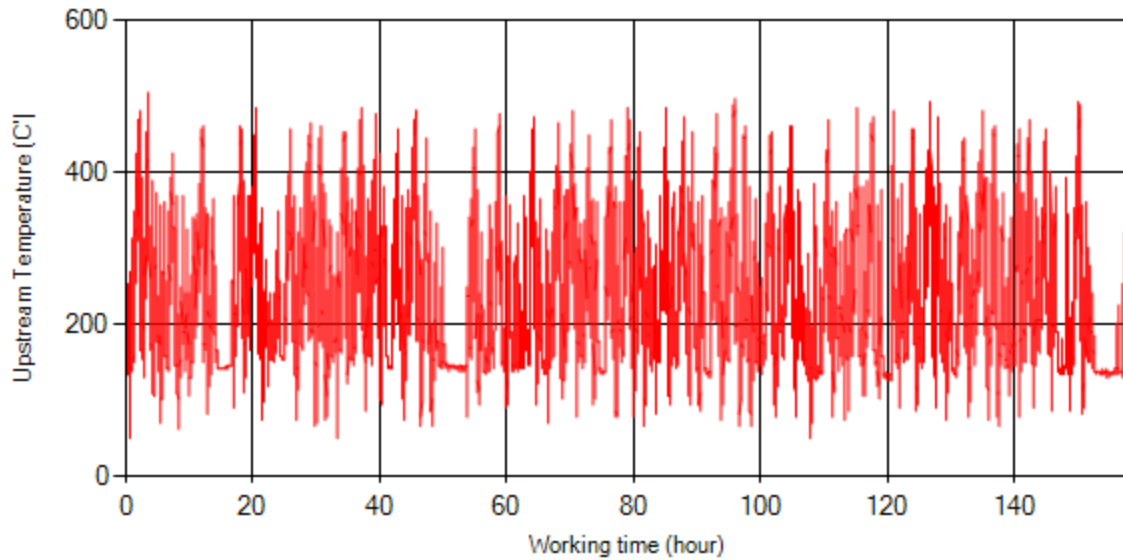


Figure 8- Temperature vs. working hours

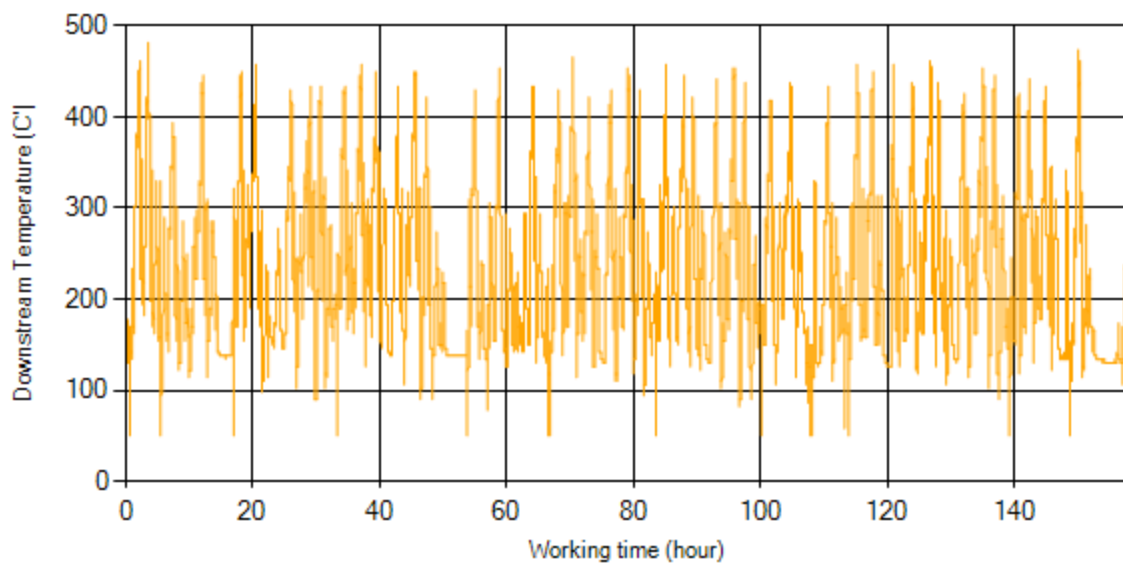


Figure 9- Temperature vs. working hours

## Engine Speed Diagrams

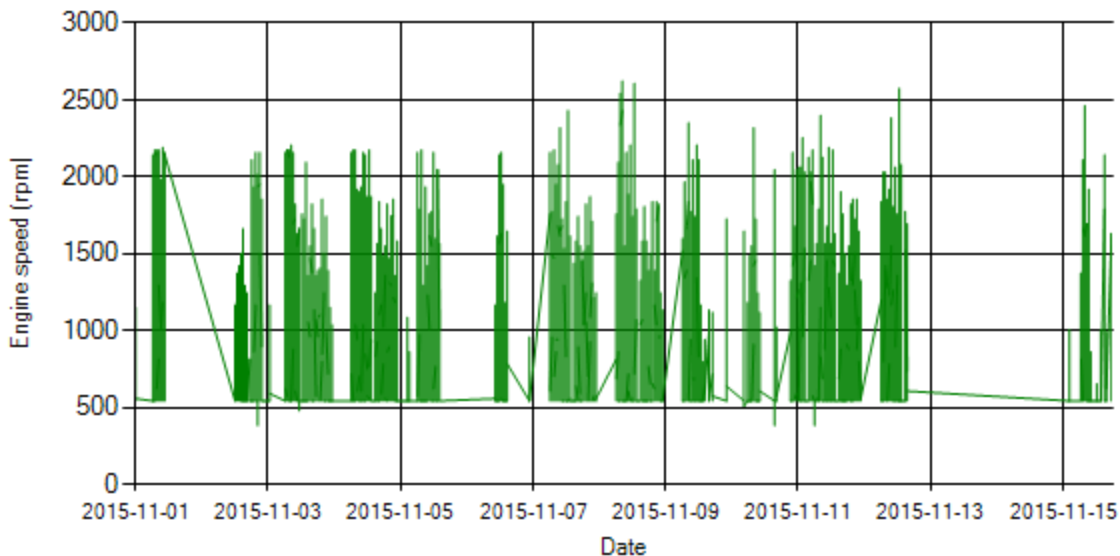


Figure 10- Engine speed distribution over the period

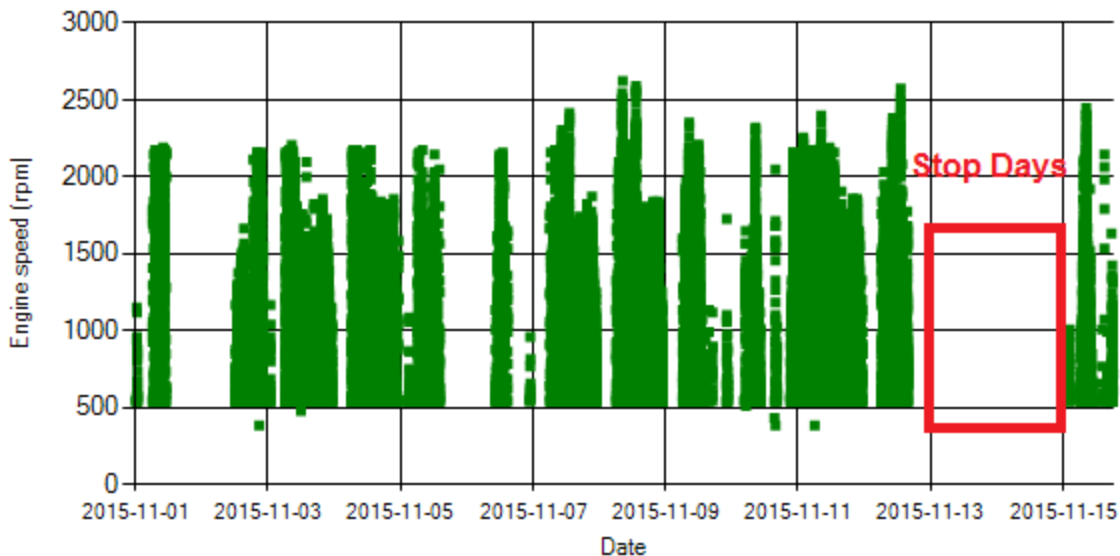


Figure 11- Engine speed diagram for calculating CPK's working days



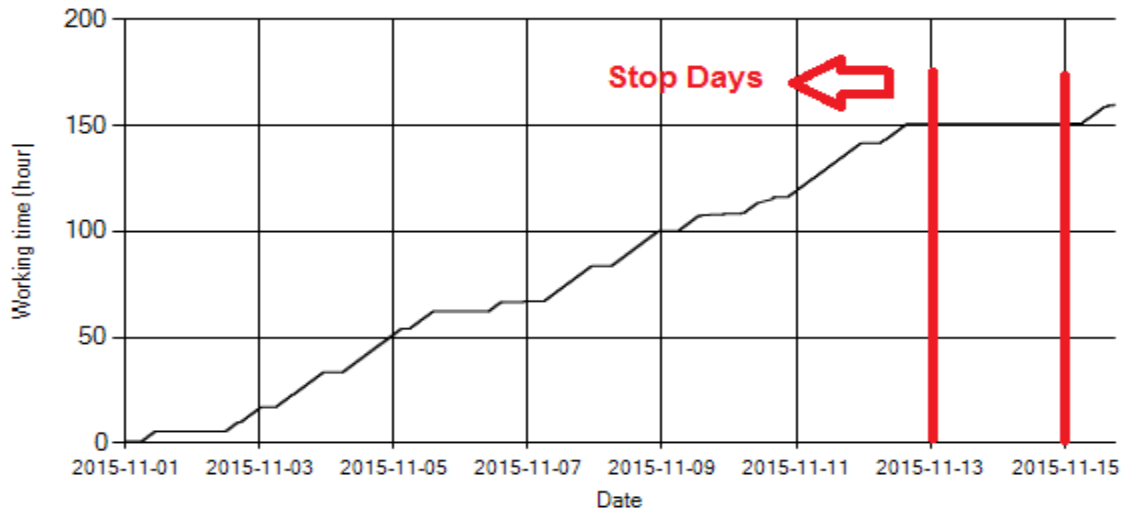


Figure 12- Time diagram for calculating CPK's working days

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, bus was stationary on Nov 13<sup>th</sup> and 14<sup>th</sup>.

### Pressure-Engine Speed diagrams

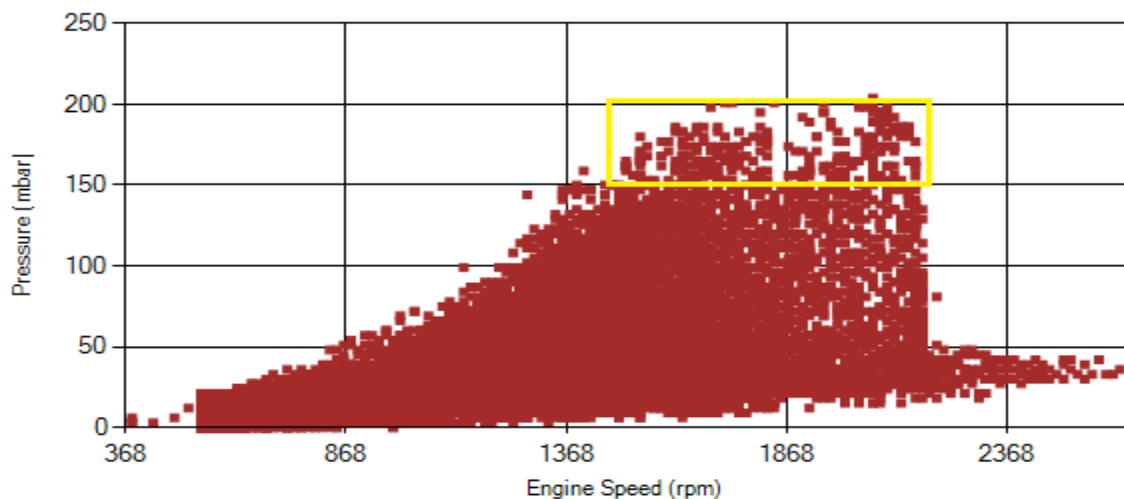


Figure 13- Pressure against engine speed

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

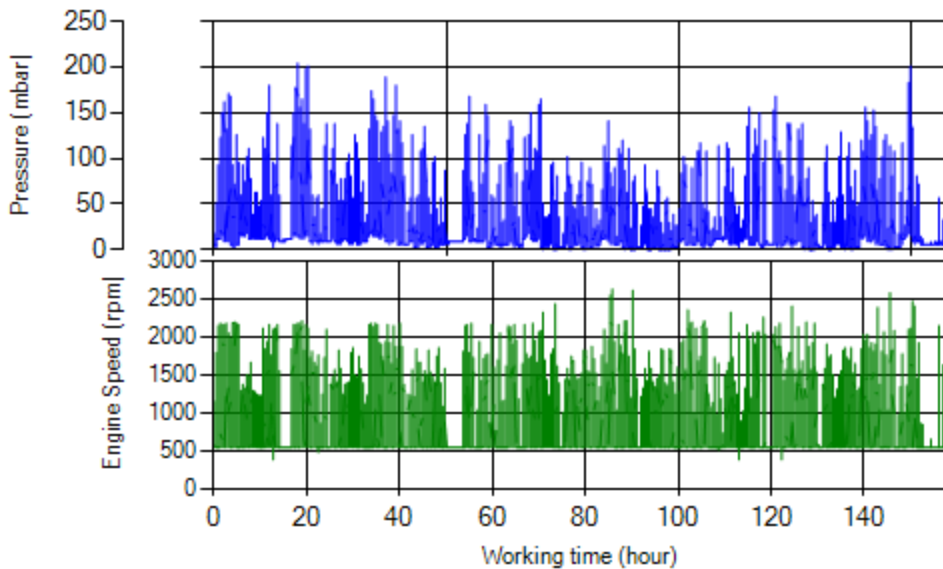


Figure 14- P, N distribution vs. working hours

### Temperature-Engine Speed diagrams

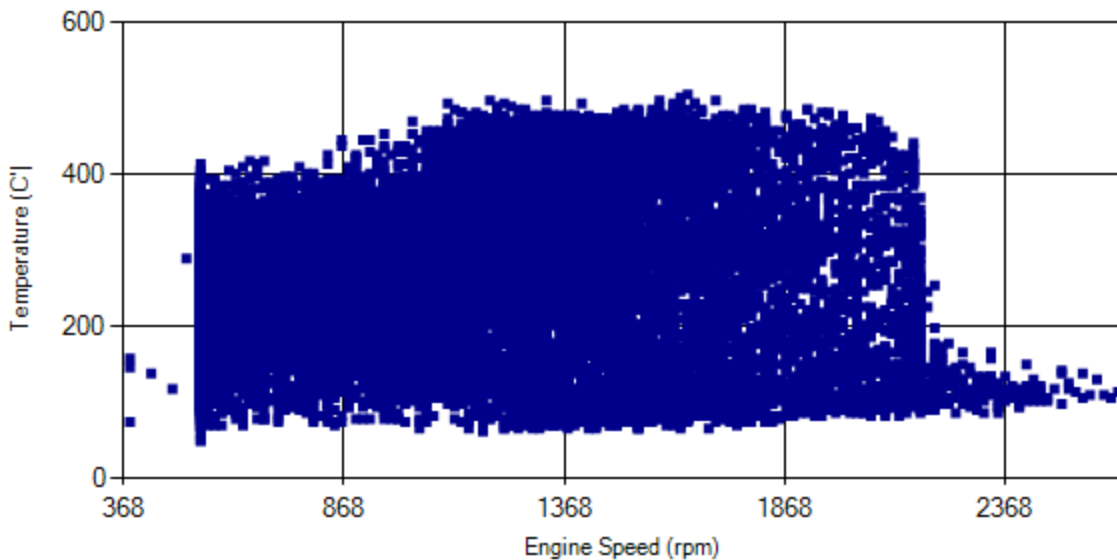


Figure 15- Temperature against engine speed

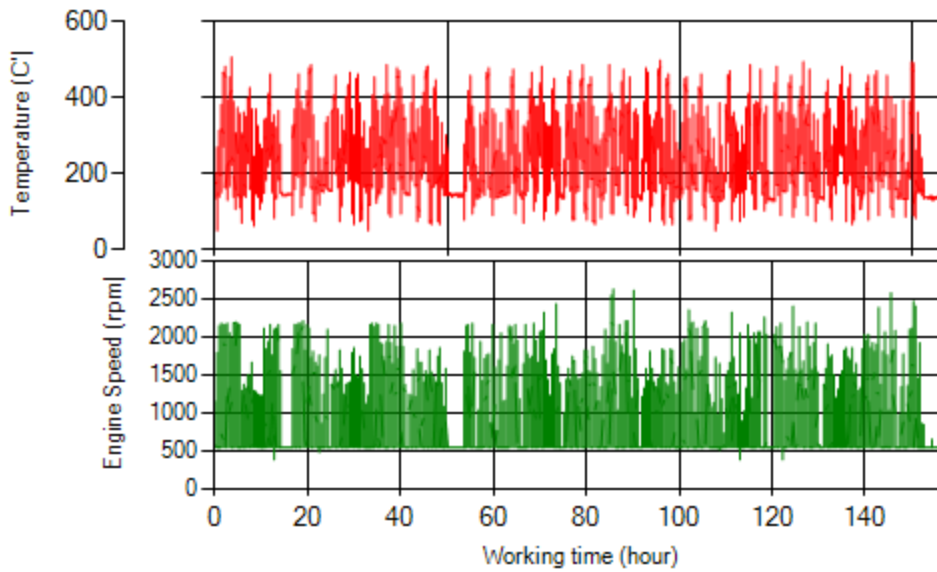


Figure 16- T, N distribution vs. working hours

### Filter Operation Analysis

- As depicted in Figure 1, 0.02% of total working time pressure is above 200 mbar and 0.67% above 150 mbar.
- Figure 2 displays flow temperature before the DPF. It can be obviously observed that 6% of total working time temperature is above 400 °C and 12% above 350°C. This high temperature distribution is one of the important factors for filter excellent operation during the period.

Filter operation status	Excellent <input checked="" type="checkbox"/>	Good <input type="checkbox"/>
	Maintenance required <input type="checkbox"/>	Failed <input type="checkbox"/>