Overall Information

Table1- Overall Information

Vehicle plate number	85182
CPK data logger number	LN: 001502, DN: 1999
Bus line	Number 10 (south to north Bus line)
Bus Terminals	Azadi square - Daneshgah square
Total path distance	10.7 km
DPF producer company	Tehag_01 (Catalyzed DPF)
Installation date	24/Sep/2015
Report period	01/Jan/2016 – 15/Jan/2016 (fifteen days)
K value - DPF upstream	1.80 [1/m]
K value – DPF downstream	0.04 [1/m]

Table 2- DPF Maintenance History

Filter maintenance date	Filter have been working from installation date without any cleaning.
Dosing status	This system doesn't use additive.

Table 3- Fuel and Additive Consumption Information

Bus mileage (from DPF installation date)	5492 km
Bus mileage over the period	100 km
Working days over the period	5 days
Stop days	10 days
Data logger working days	5 days
Working hours over the period	36 hours 51 minutes
Average working hours per day (including stop days)	2 hours 50 minutes
Bus average speed	2.77 km/hr
idle speed time to all working time ration	79.15 %
Total Bus fuel consumption over the period	- lit
Fuel consumption per hour	- lit/hr
Average fuel consumption	-lit/km

Notice: Bus was mostly stationary and idle ratio was very high. It is worth to mentioning fuel consumption was not recorded for this period.

Temperature, Pressure and Engine Speed Overview

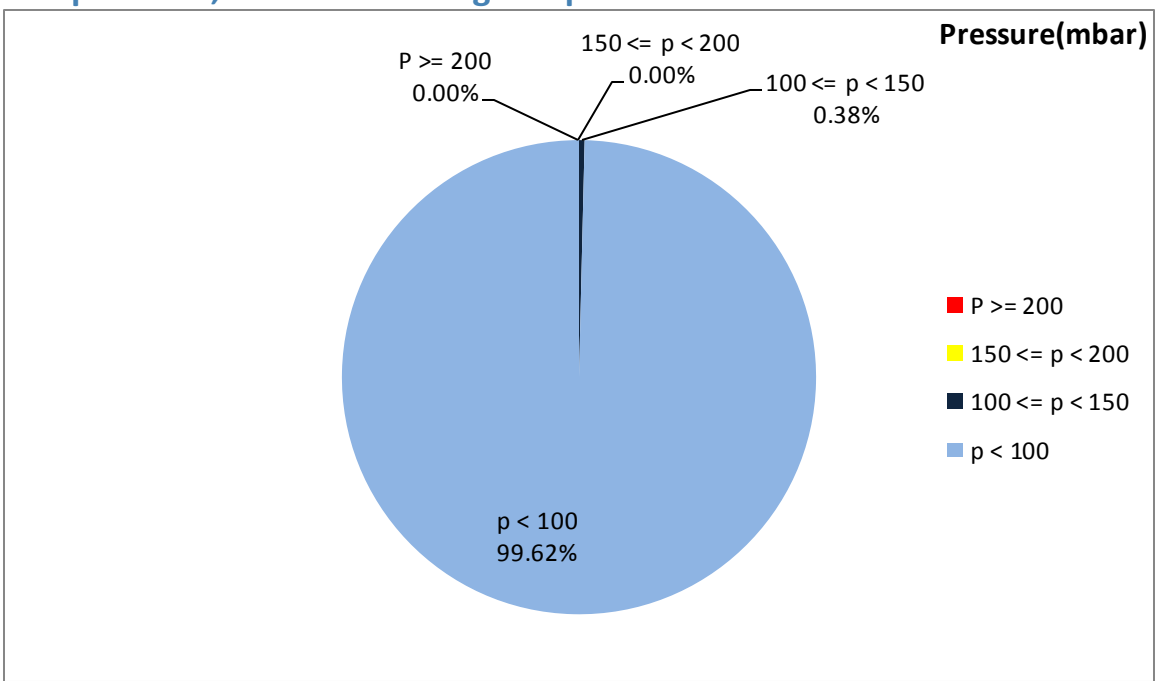

Figure 1- Pressure distribution over the working hours

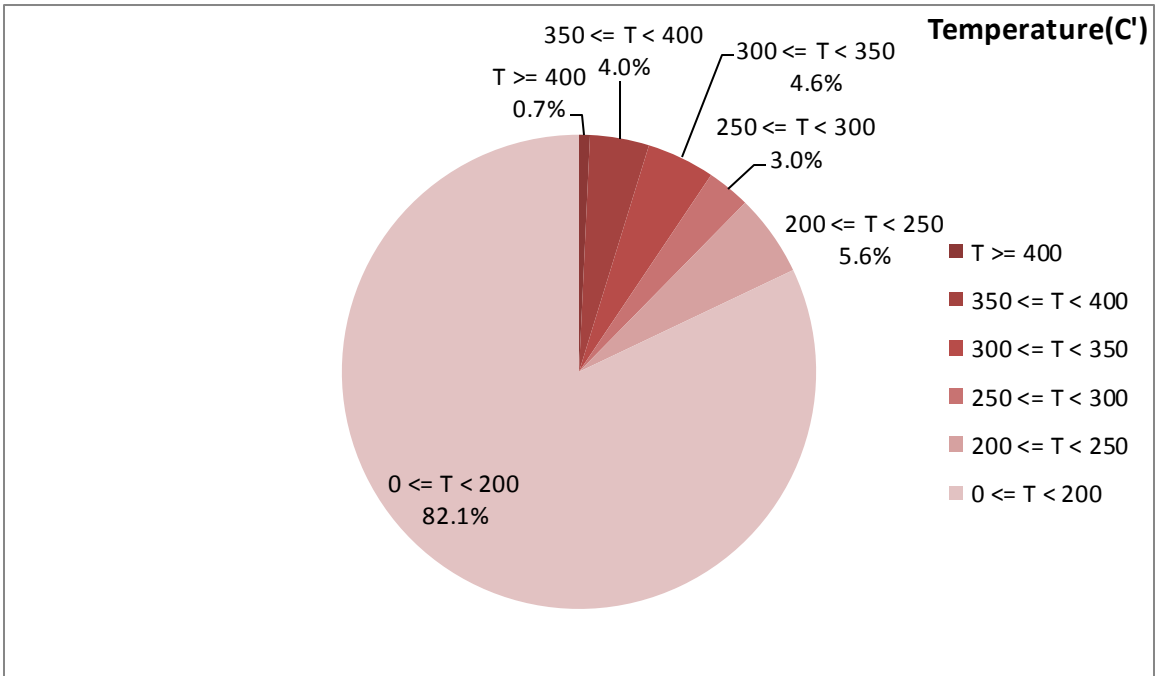

Figure 2-Temperature distribution over the working hours

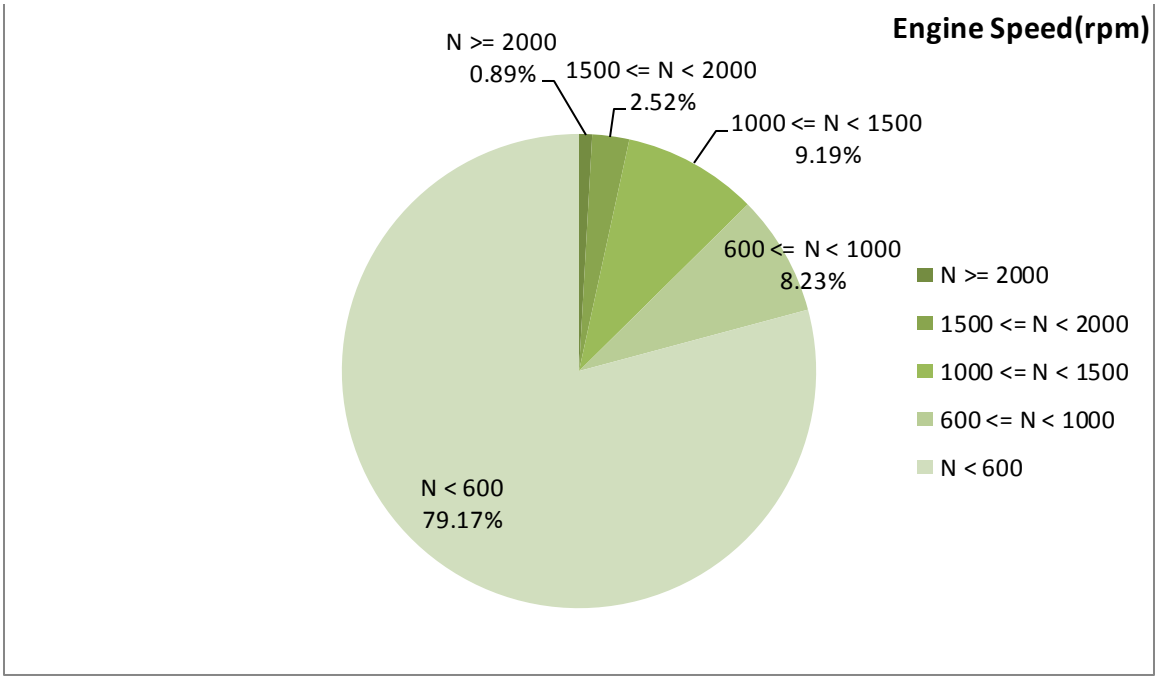

Figure 3- Engine speed distribution over the working hours

Table 4- Mean values

Mean temperature (C)	Mean pressure(mbar)	Mean engine speed(rpm)
161.89	5.69	674

Table 5- Mean values without idling

Mean temperature (C)	Mean pressure(mbar)	Mean engine speed(rpm)
247.97	20.65	1143

Table 6- Max-min values

Max-min temperature(C)	Max-min pressure(mbar)	Max-min engine speed(rpm)
434-50	120-0	2272-288

Detailed Pressure Analysis

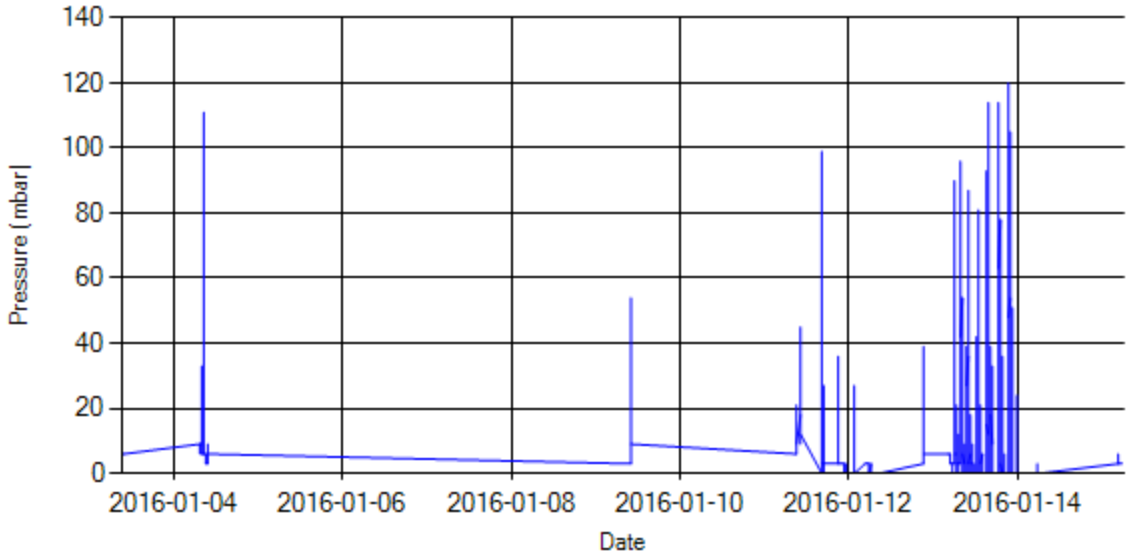

Figure 4- Pressure distribution over the period

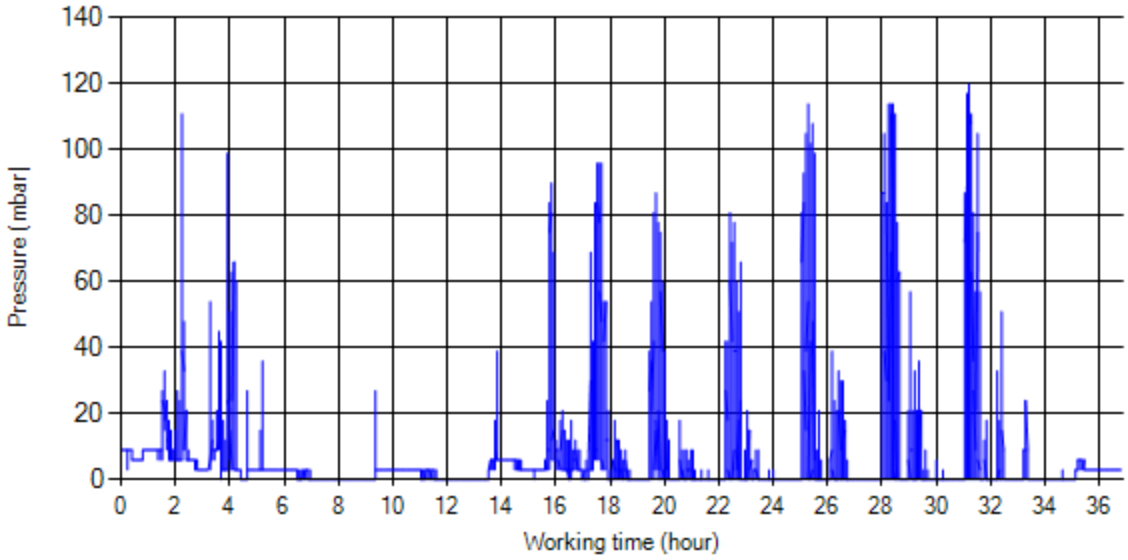

Figure 5- Pressure vs. working hours

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

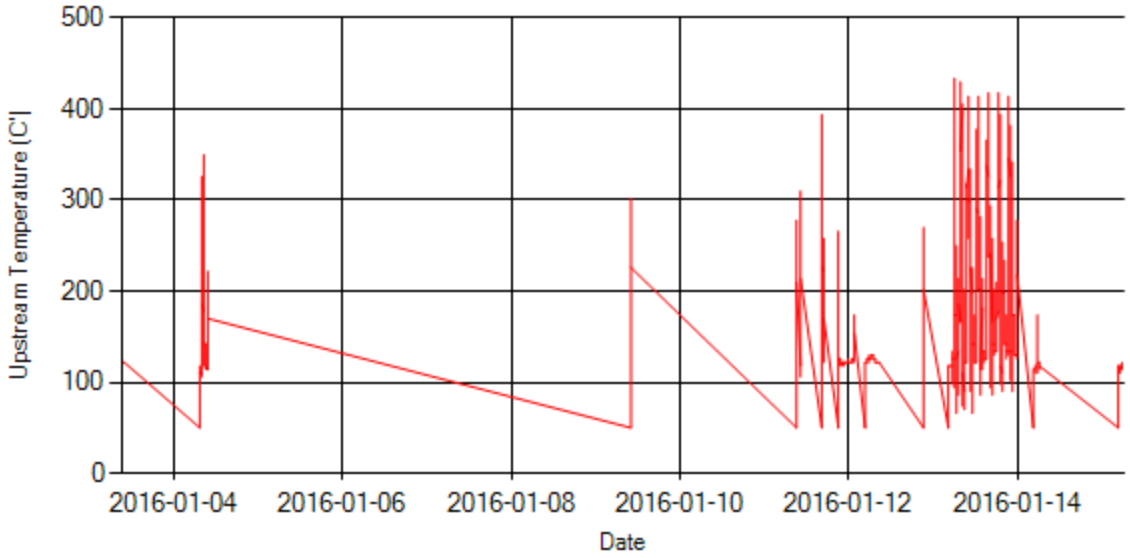

Figure 6- Temperature distribution over the period

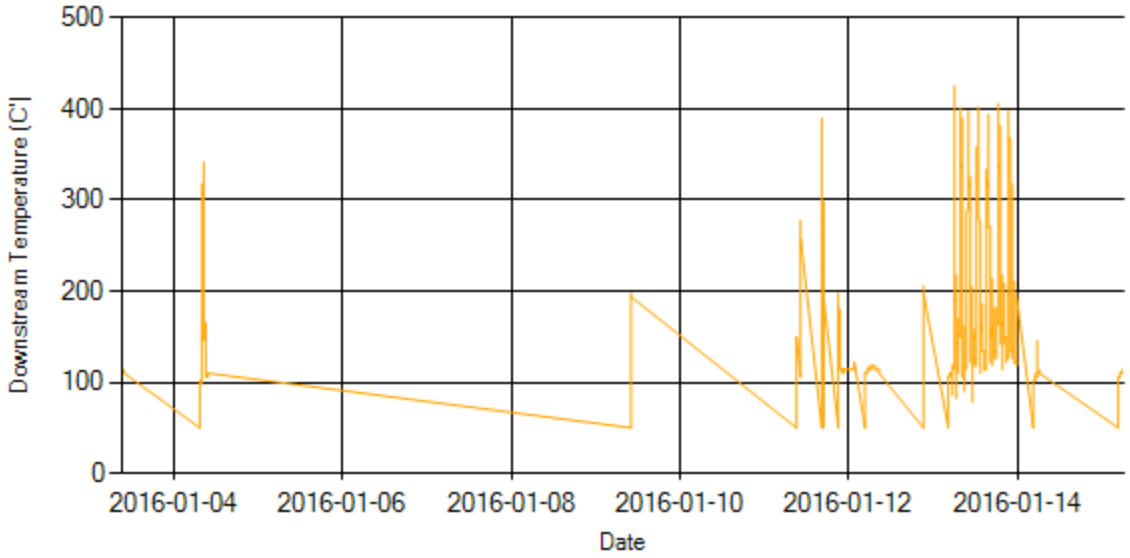

Figure 7- Temperature distribution over the period

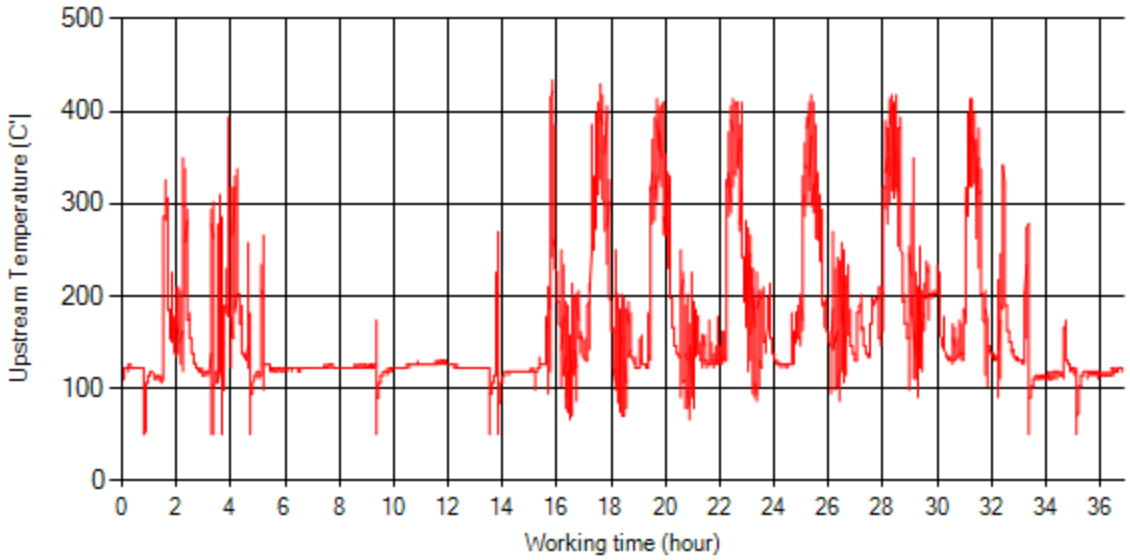

Figure 8- Temperature vs. working hours

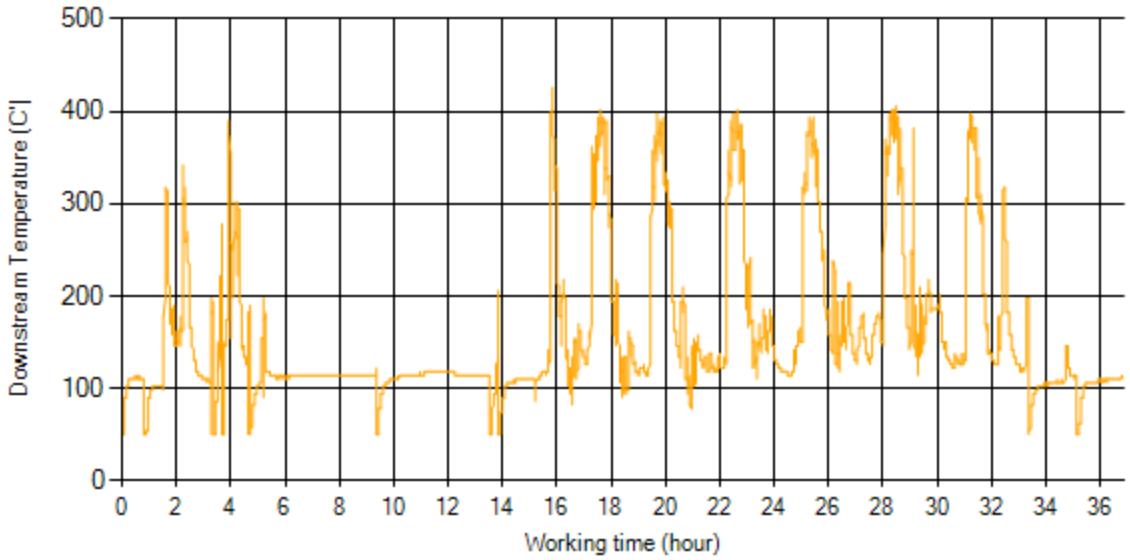

Figure 9- Temperature vs. working hours

Engine Speed Diagrams

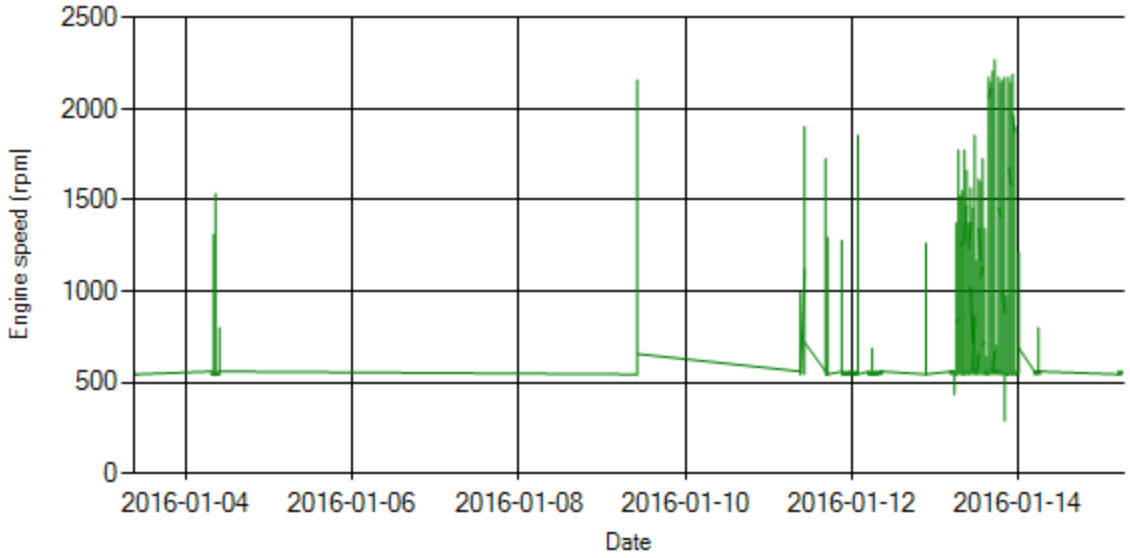

Figure 10- Engine speed distribution over the period

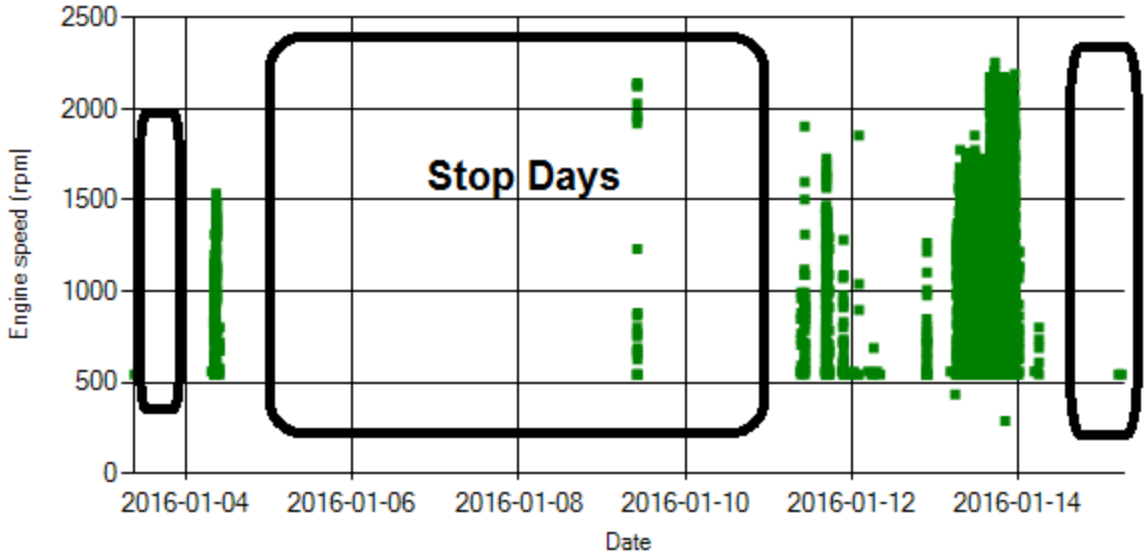

Figure 11- Engine speed diagram for calculating CPK's working days

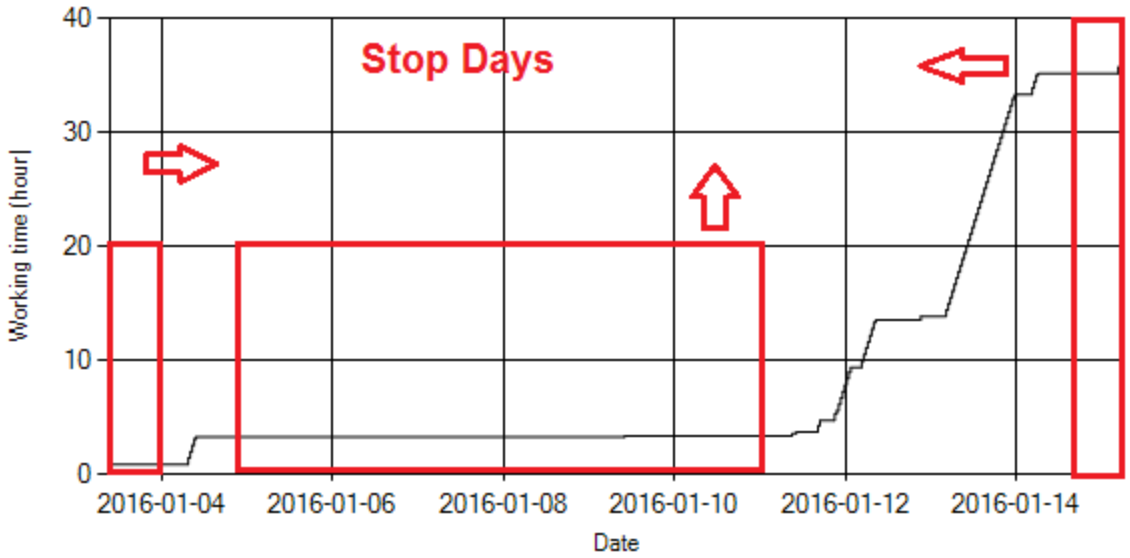

Figure 12- Time diagram for calculating CPK's working days

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

Pressure-Engine Speed diagrams

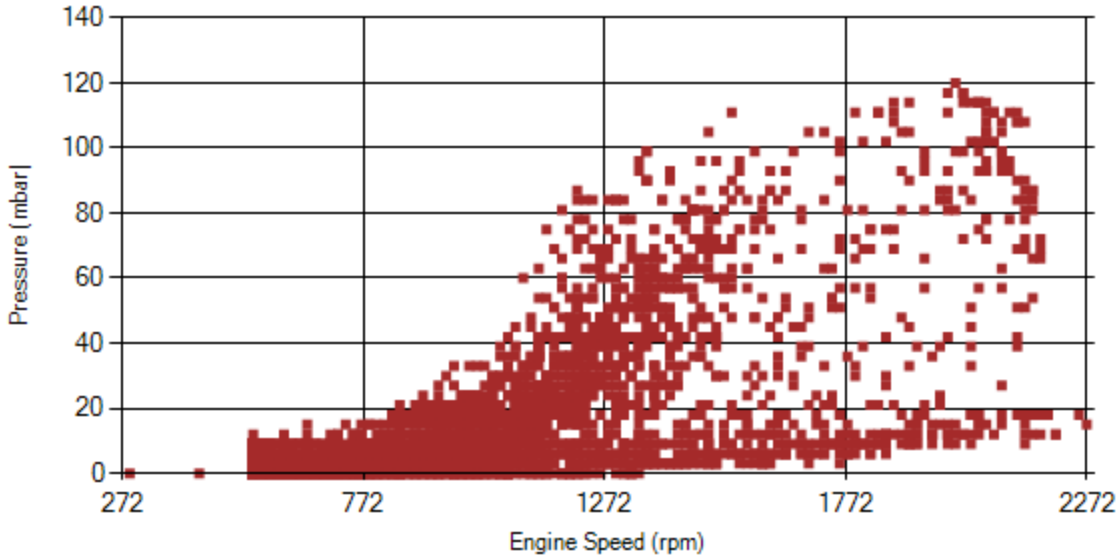

Figure 13- Pressure against engine speed

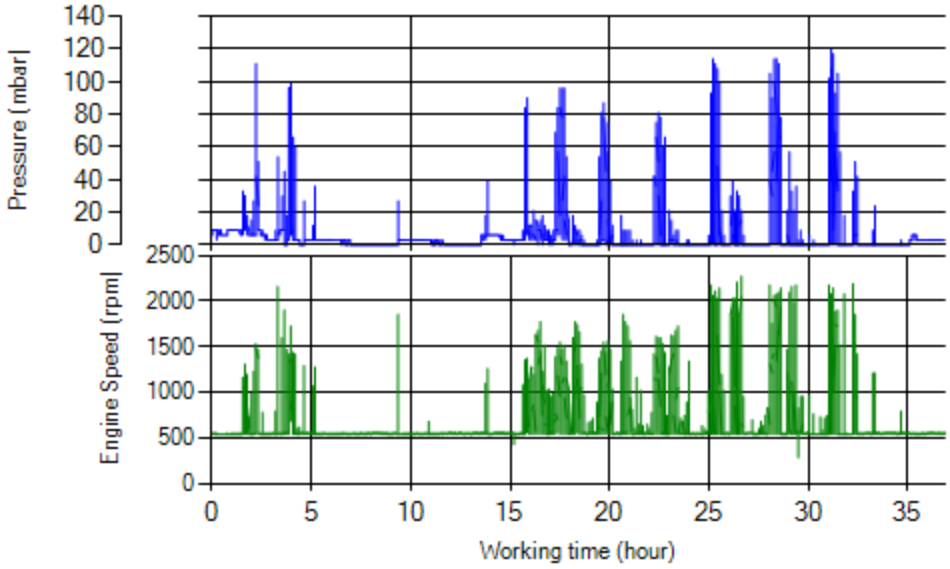

Figure 14- P, N distribution vs. working hours

Temperature-Engine Speed diagrams

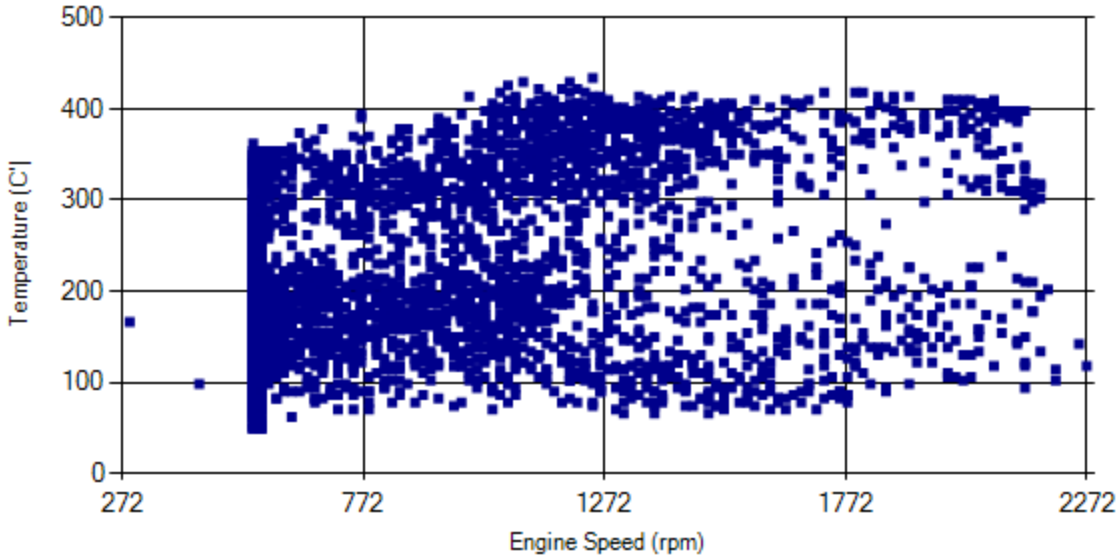

Figure 15- Temperature against engine speed

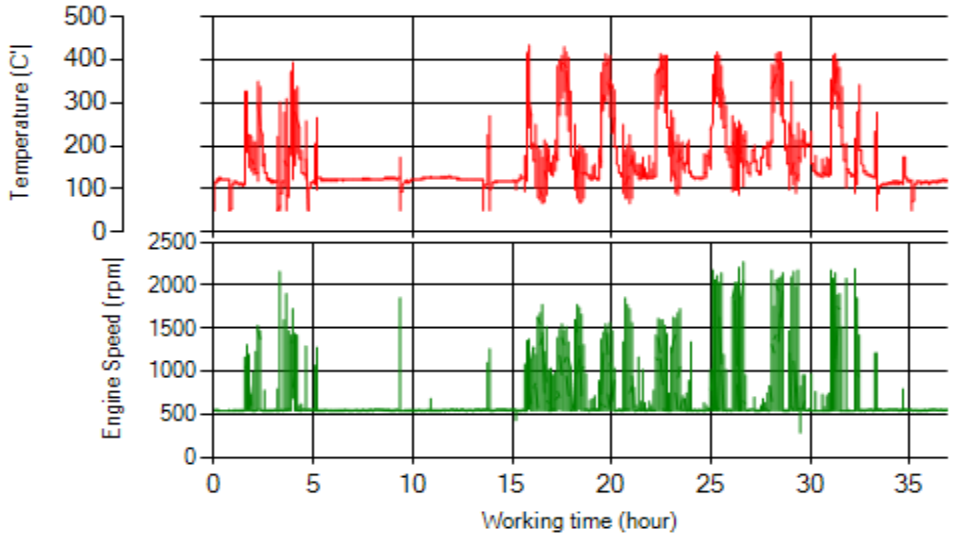

Figure 16- T, N distribution vs. working hours

Filter Operation Analysis

- As depicted in figure 1, only 0.38% of working time pressure was abowe 100 mbar during this period.
- Figure 2, 17 display flow temperature distribution for DPF's upstream. It can be obviously observed that 4.7% of total working-time temperature is above 350 ℃ and 12.2% above 250℃. Considering DPF company recommended operable situation (30% above 250℃), beside high idle working time (79%) during this period, which was because of bus accident, it could be concluded this DPF operation was fantastic during this period.

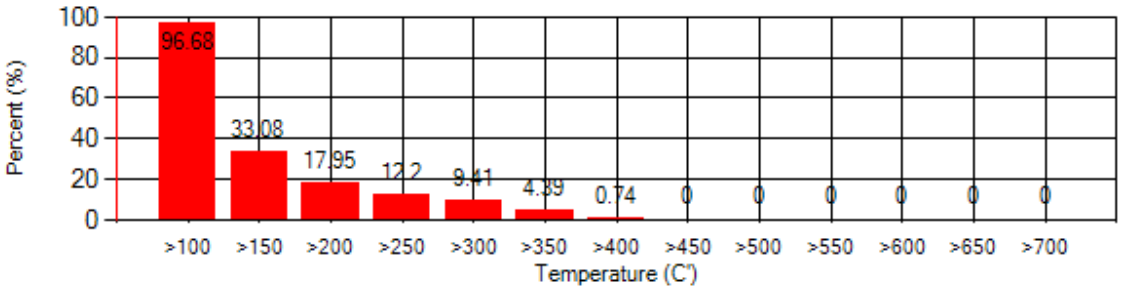

Figure 17. Cumulative diagram of exhaust gas temperature

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