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	16/Aug/2015 – 31/Aug/2015 (sixteen days)*
K value - DPF upstream	1.80 [1/m]
K value – DPF downstream	0.04 [1/m]

Notice: Due to data logger problem, system data from Aug 10th until 19th missed. So this report data belong to Aug 20th to 31st except table 3.

Table 2- DPF Maintenance History

Filter maintenance date	DPF core was cleaned on Jun 13th.
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)	53392 km
Bus mileage over the period	1735 km
Working days over the period	14 days
Stop days	2 days
Data logger working days	10 days
Working hours over the period	141 hours 50 minutes*
Average working hours per day (including stop days)	8 hours 52 minutes
Bus average speed	12.23 km/hr
idle speed time to all working time ration	56.75 %
Total Bus fuel consumption over the period	1083 lit
Fuel consumption per hour	7.63 lit/hr
Average fuel consumption	62 lit/km
Total Bus additive consumption over the period	0.455 lit
Average additive consumption	264 cc/km
Additive consumption to fuel ration	420 cc/1000lit

Notice: Working hours were calculated from GPS data.

Temperature, Pressure and Engine Speed Overview

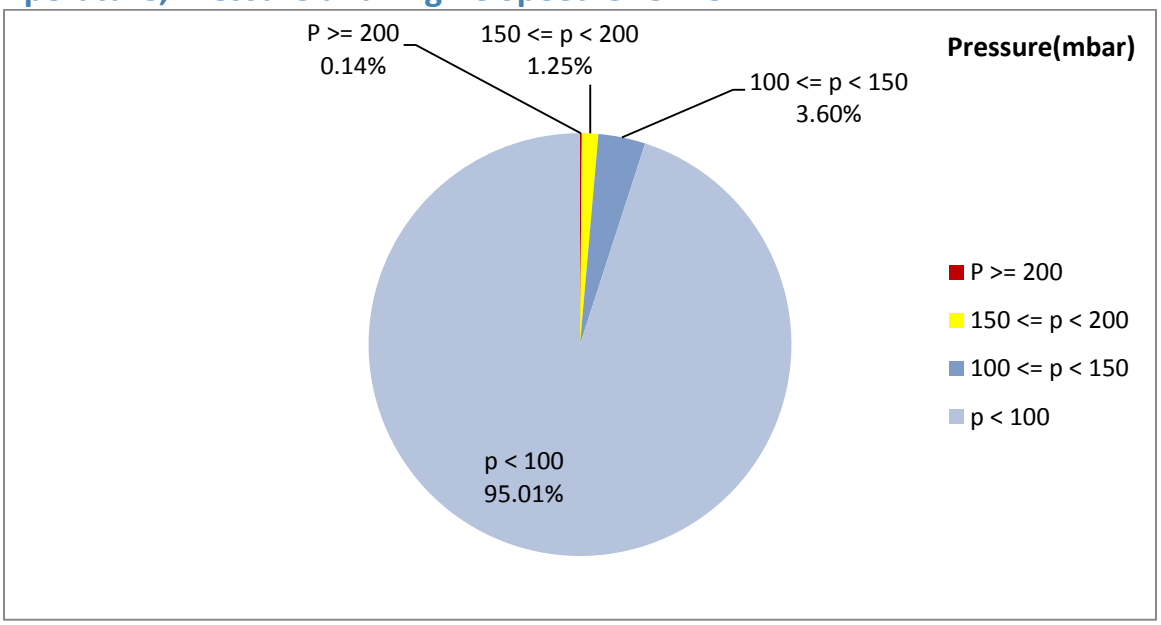

Figure 1- Pressure distribution over the working hours

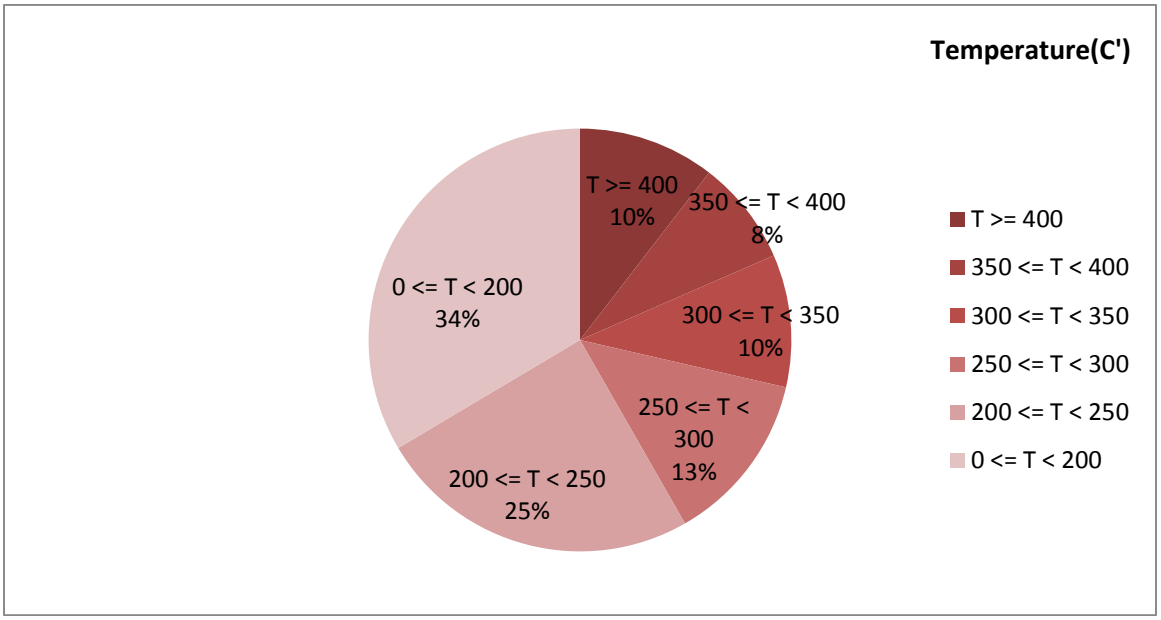

Figure 2-Temperature distribution over the working hours

Notice: Temperature sensors got problem on Aug 20th and was fixed on Aug 25th. So figure 2 data belong to temperature sensors working days (Aug 26th to Aug 31st).

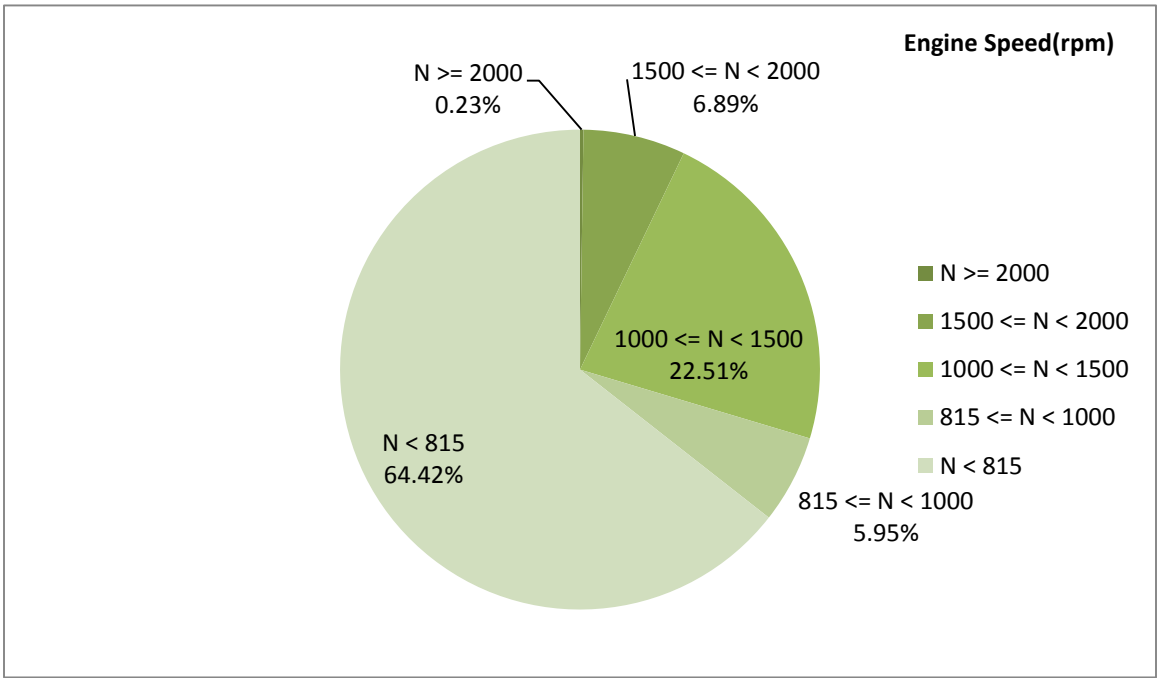

Figure 3- Engine speed distribution over the working hours

Table 4- Mean values

Mean temperature (C)	Mean pressure(mbar)	Mean engine speed(rpm)
253.63	25.51	879

Table 5- Mean values without idling

Mean temperature (C)	Mean pressure(mbar)	Mean engine speed(rpm)
311.21	46.88	1164

Table 6- Max-min values

Max-min temperature(C)	Max-min pressure(mbar)	Max-min engine speed(rpm)
538-50	237-0	2160-256

Notice: Temperature sensors got problem on Aug 20th and was fixed on Aug 25th. So Tables' temperature data belong to temperature sensors working days (Aug 26th to Aug 31st).

Detailed Pressure Analysis

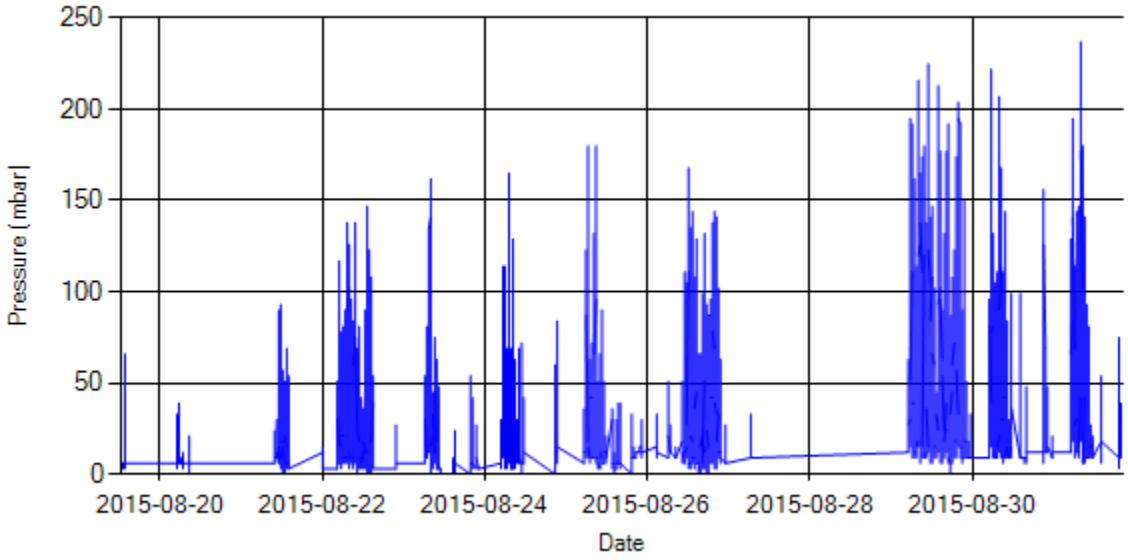

Figure 4- Pressure distribution over the period

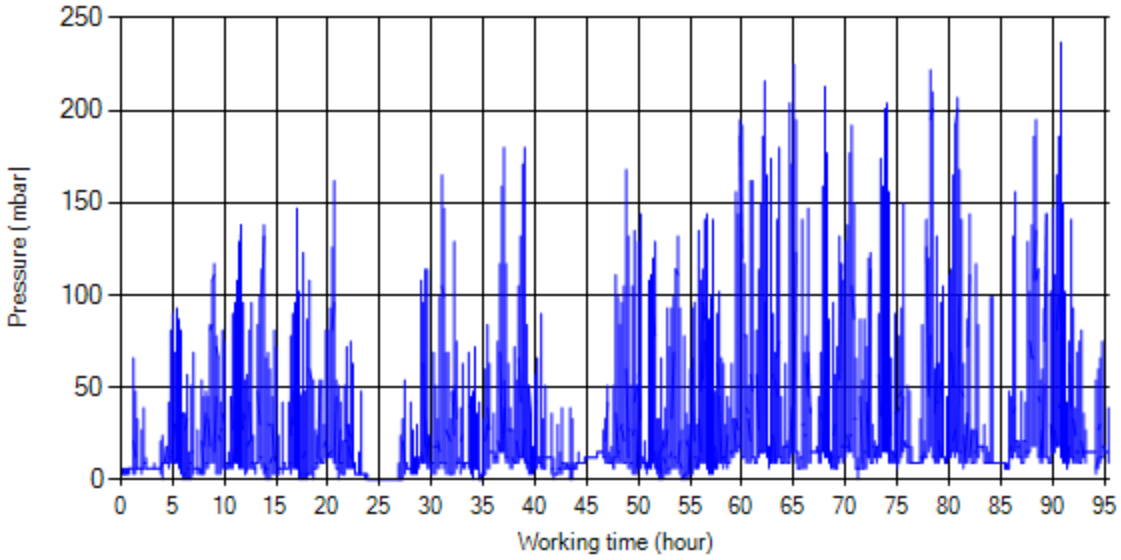

Figure 5- Pressure vs. working hours

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

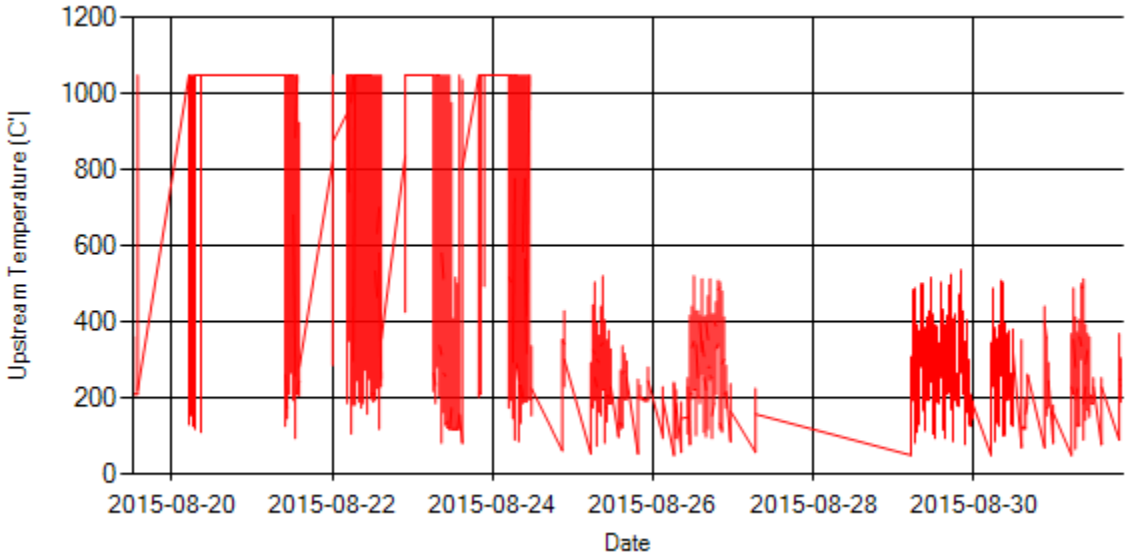

Figure 6- Temperature distribution over the period

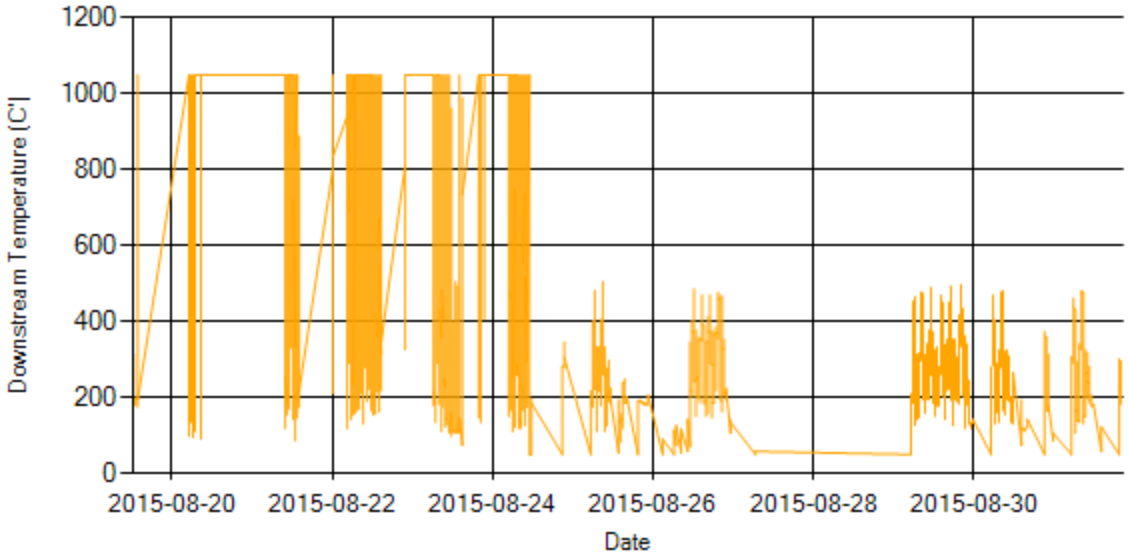

Figure 7- Temperature distribution over the period

Notice: Temperature sensors got problem on Aug 20th and was fixed on Aug 25th (sensors' connections looseness)

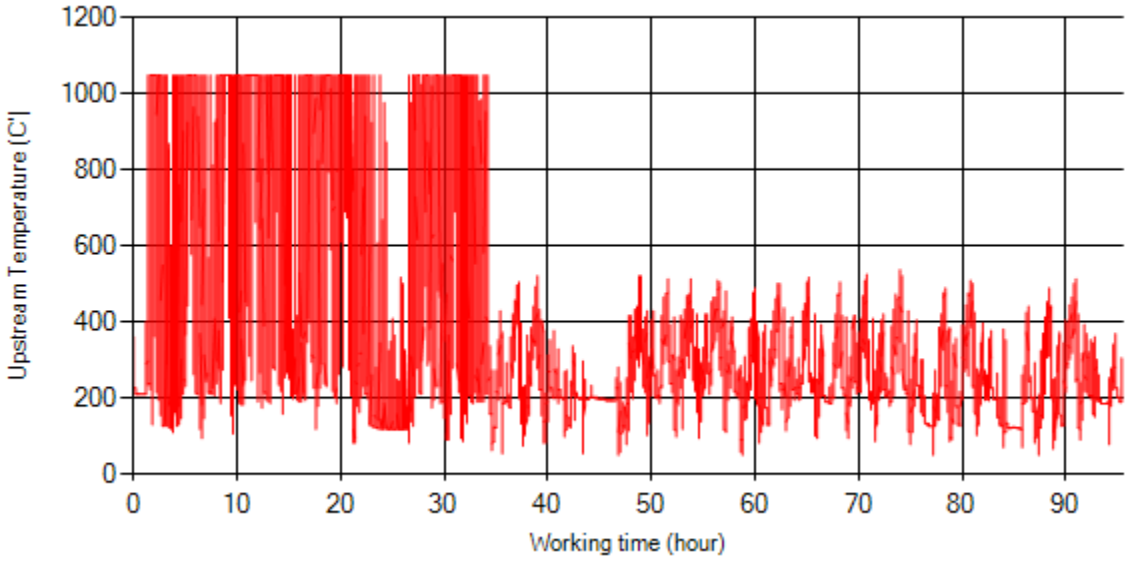

Figure 8- Temperature vs. working hours

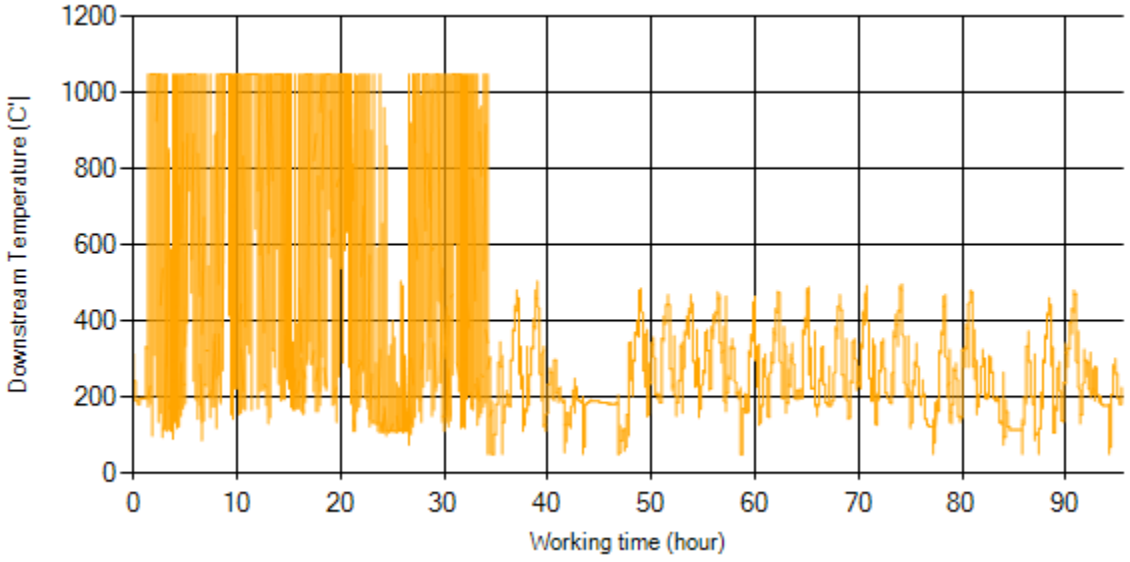

Figure 9- Temperature vs. working hours

Engine Speed Diagrams

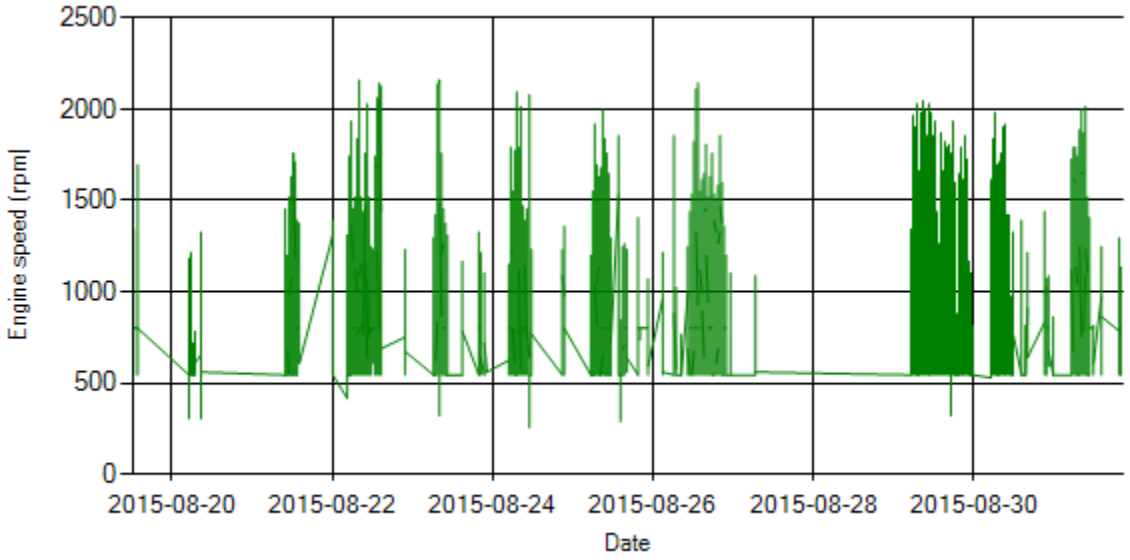

Figure 10- Engine speed distribution over the period

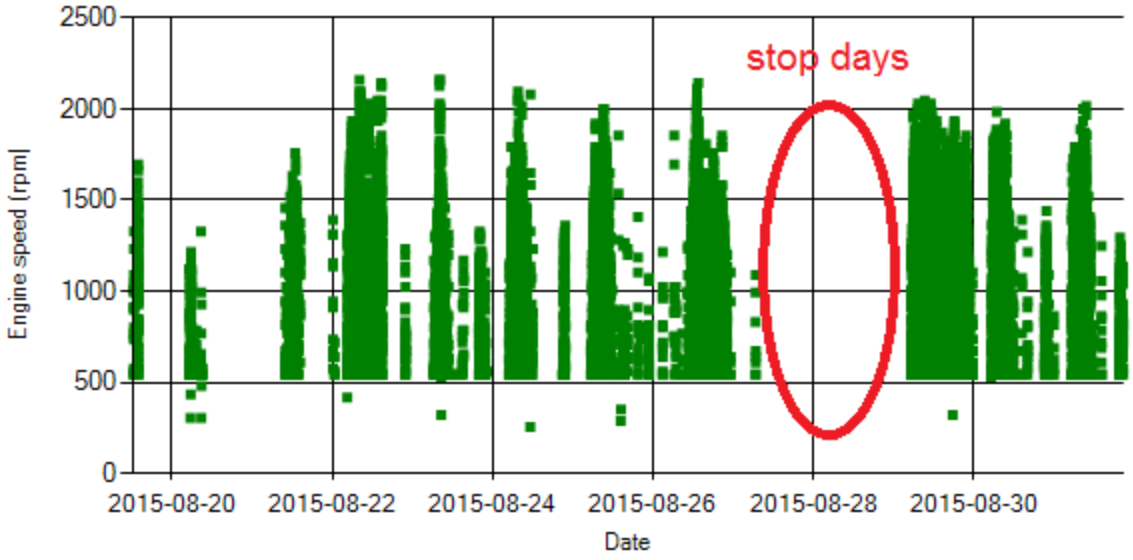

Figure 11- Engine speed diagram for calculating CPK's working days

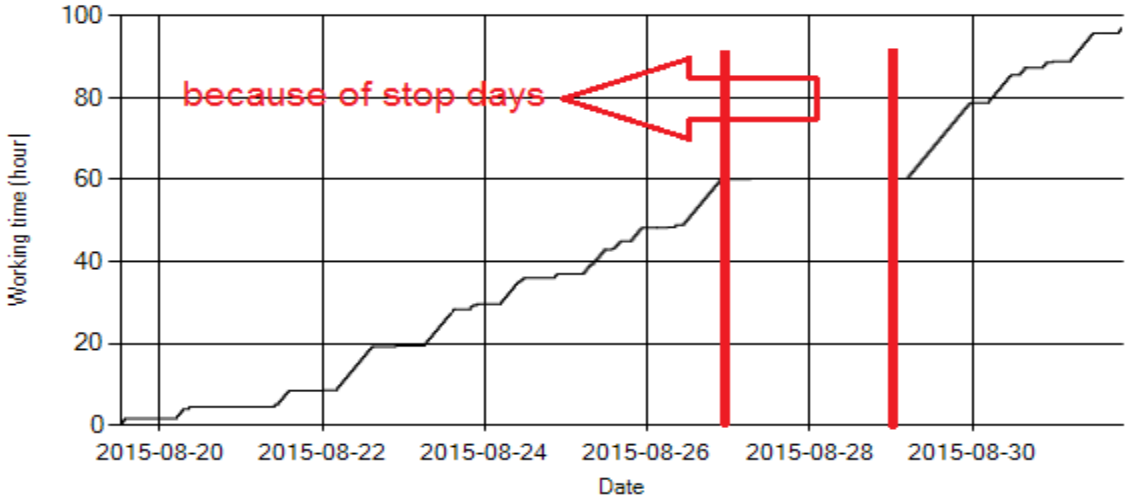

Figure 12- Time diagram for calculating CPK's working days

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, data logger didn't sample on Aug 27th and 28th because of stop days.

Pressure-Engine Speed diagrams

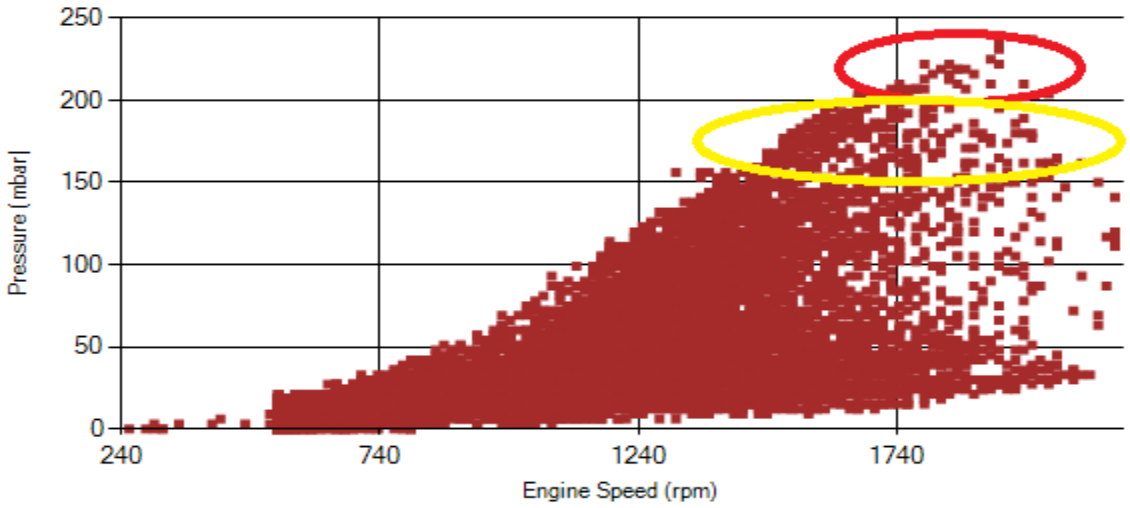

Figure 13- Pressure against engine speed

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

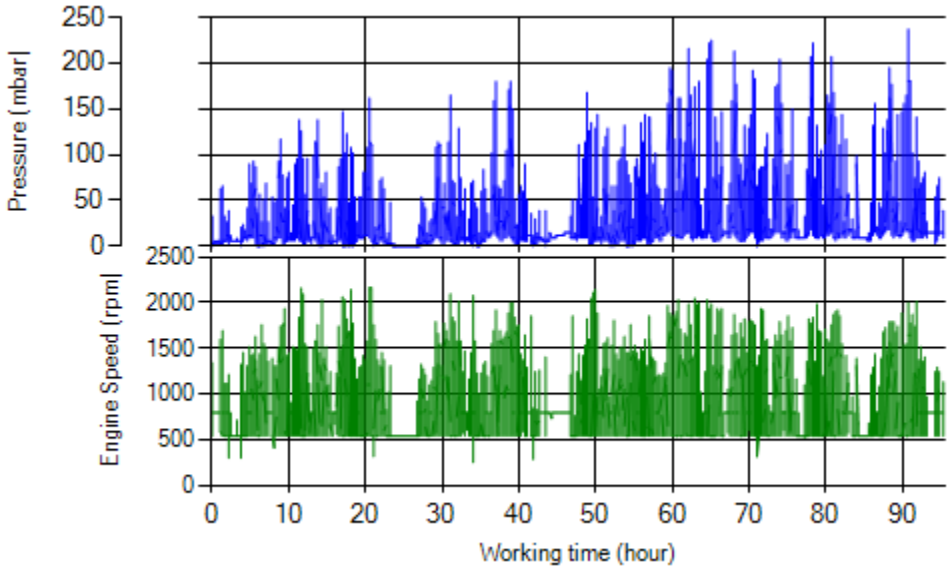

Figure 14- P, N distribution vs. working hours

Temperature-Engine Speed diagrams

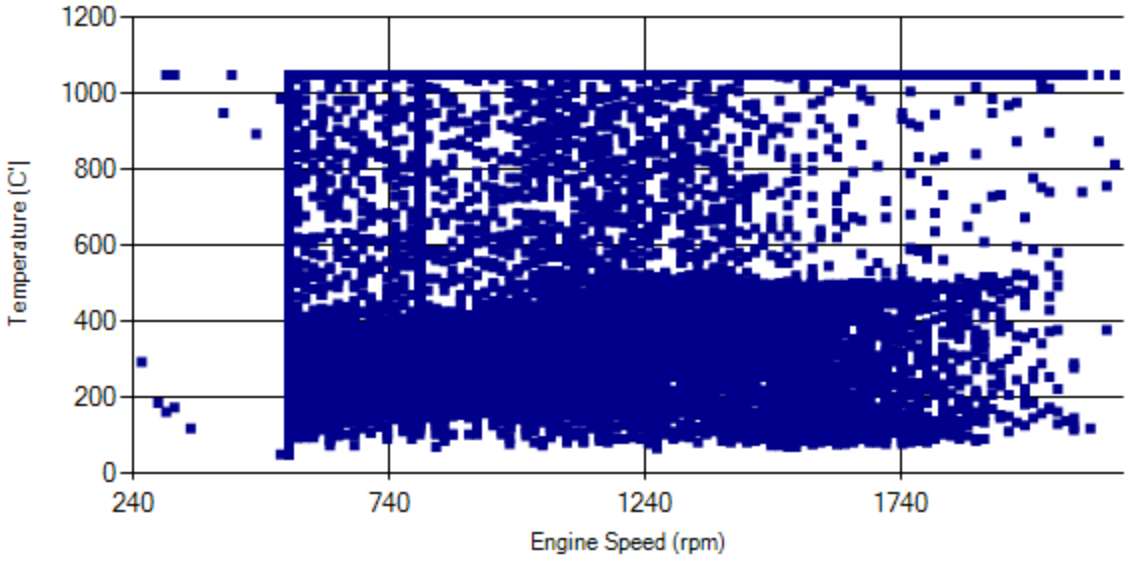

Figure 15- Temperature against engine speed

Notice: This diagrams unconventional appearance is because of temperature sensor problem.

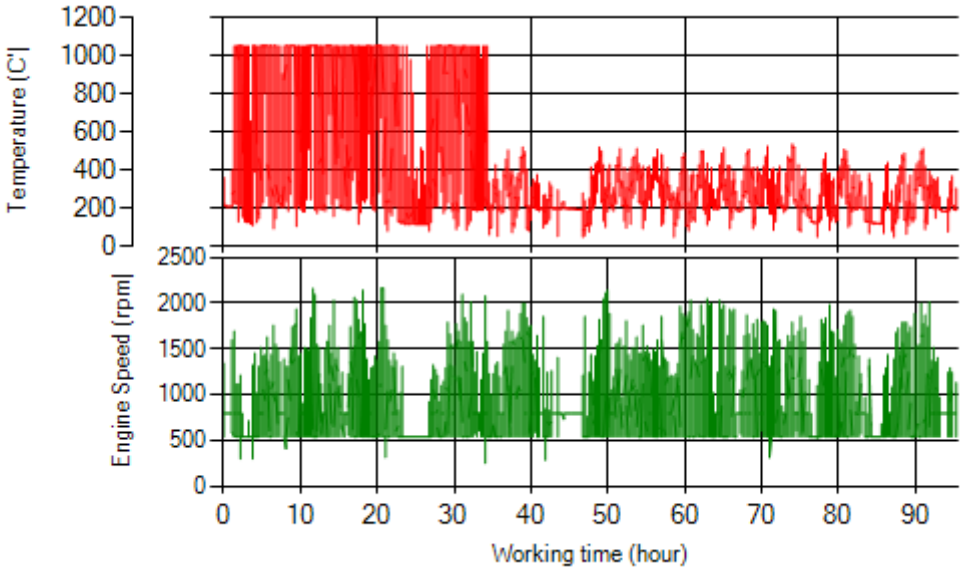

Figure 16- T, N distribution vs. working hours

Filter Operation Analysis

- As depicted in Figure 1, only 0.14% of total working time pressure is above 200 mbar and 1.39% above 150mbar.
- Figure 2 displays flow temperature before the DPF. It can be obviously observed that 10% of total working time temperature is above 400 ℃ and 18% above 350℃. This high temperature distribution is one of the important factors for filter excellent operation during the period.

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