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/Apr/2016 – 30/Apr/2016 (fifteen days)
K value - DPF upstream	1.9 [1/m]
K value – DPF downstream	0.02 [1/m]

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.

1

Table 3- Fuel and Additive Consumption Information

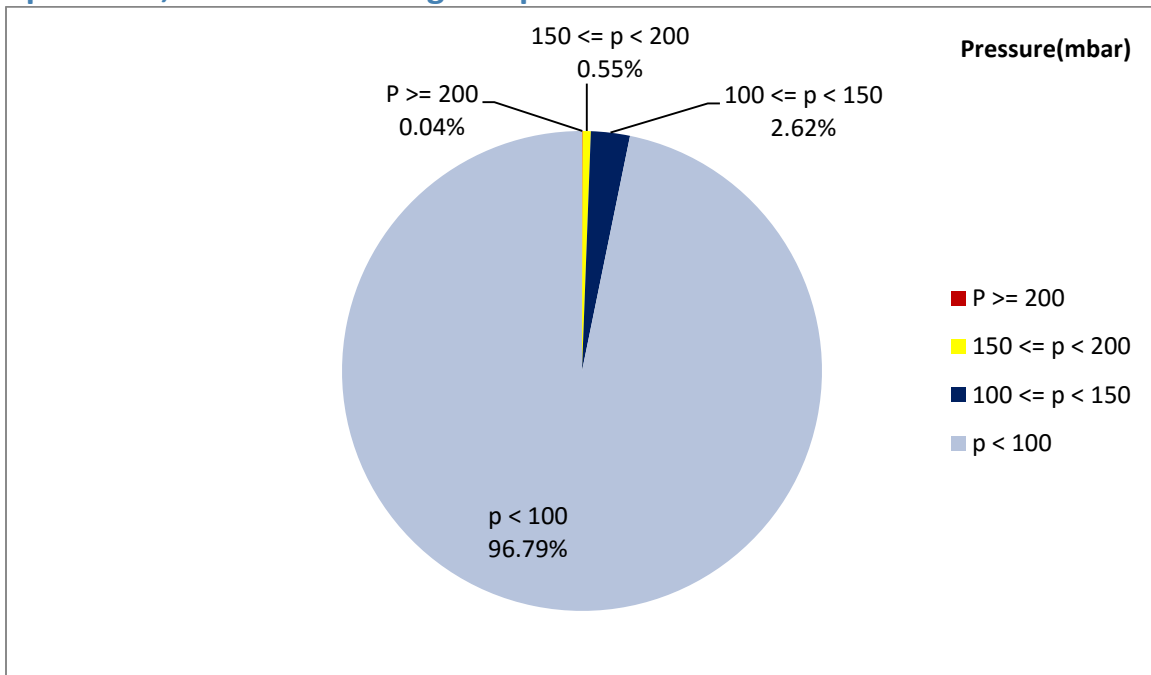|	
Bus mileage (from DPF installation date)	80453 km
Bus mileage over the period	644 km
Working days over the period	10 days
Stop days	5 days
Data logger working days	10 days
Working hours over the period	46 hours 10 minutes
Average working hours per day (including stop days)	3 hours 4 minutes
Bus average speed	14 km/hr
idle speed time to all working time ration	53.98 %
Total Bus fuel consumption over the period	386 lit
Fuel consumption per hour	8.3 lit/hr
Average fuel consumption	0.6 lit/km
Total Bus additive consumption over the period	0.185 lit
Average additive consumption	287 cc/km
Additive consumption to fuel ration	480 cc/1000lit

Temperature, Pressure and Engine Speed Overview

Pressure(mbar)

150 <= p < 200
0.55%

P >= 200
0.04%

100 <= p < 150
2.62%

Legend:
- ■ P >= 200
- ■ 150 <= p < 200
- ■ 100 <= p < 150
- ■ p < 100

p < 100
96.79%

Figure 1- Pressure distribution over the working hours

Temperature(C')

T >= 400
7.2%

350 <= T < 400
5.8%

300 <= T < 350
7.8%

250 <= T < 300
10.5%

200 <= T < 250
11.4%

0 <= T < 200
57.3%

Legend:
- ■ T >= 400
- ■ 350 <= T < 400
- ■ 300 <= T < 350
- ■ 250 <= T < 300
- ■ 200 <= T < 250
- ■ 0 <= T < 200
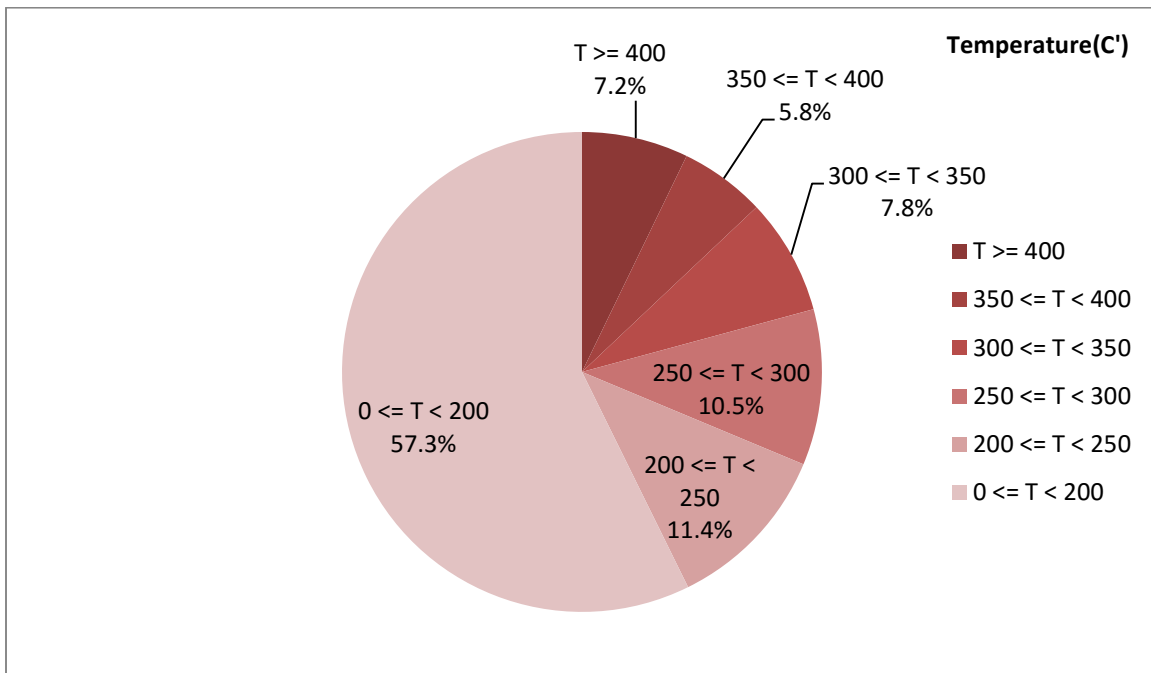
Figure 2-Temperature distribution over the working hours

3
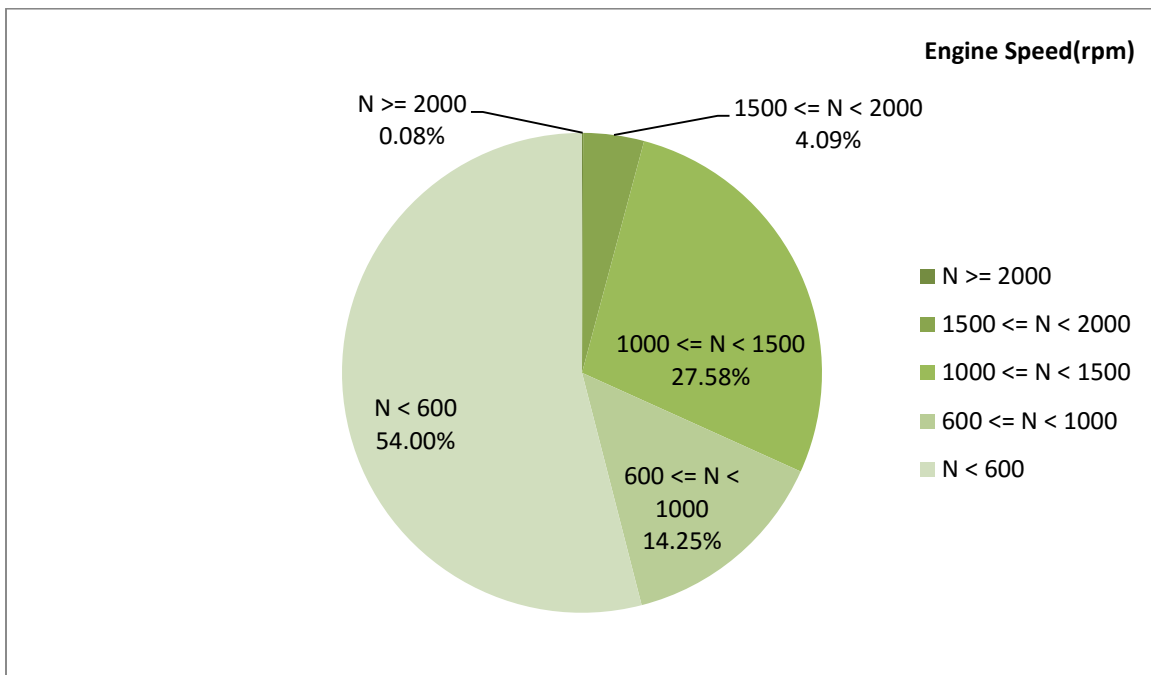
Figure 3- Engine speed distribution over the working hours

Table 4- Mean values

Mean temperature (C)	Mean pressure(mbar)	Mean engine speed(rpm)
213.33	21.47	812

Table 5- Mean values without idling

Mean temperature (C)	Mean pressure(mbar)	Mean engine speed(rpm)
279.16	39.49	1124

Table 6- Max-min values

Max-min temperature(C)	Max-min pressure(mbar)	Max-min engine speed(rpm)
518-50	210-0	2160-288

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Detailed Pressure Analysis
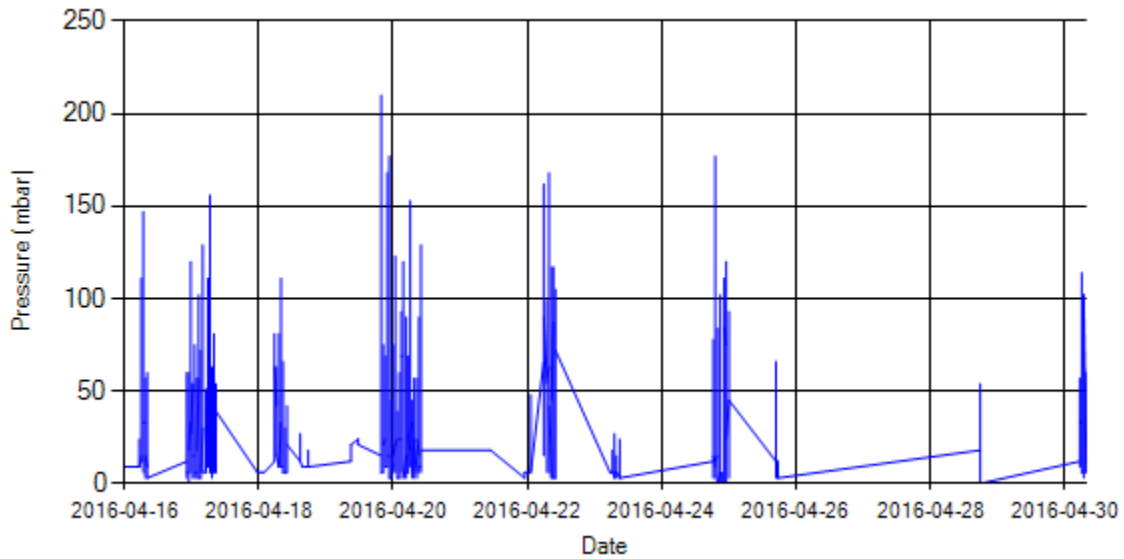
Figure 4- Pressure distribution over the period
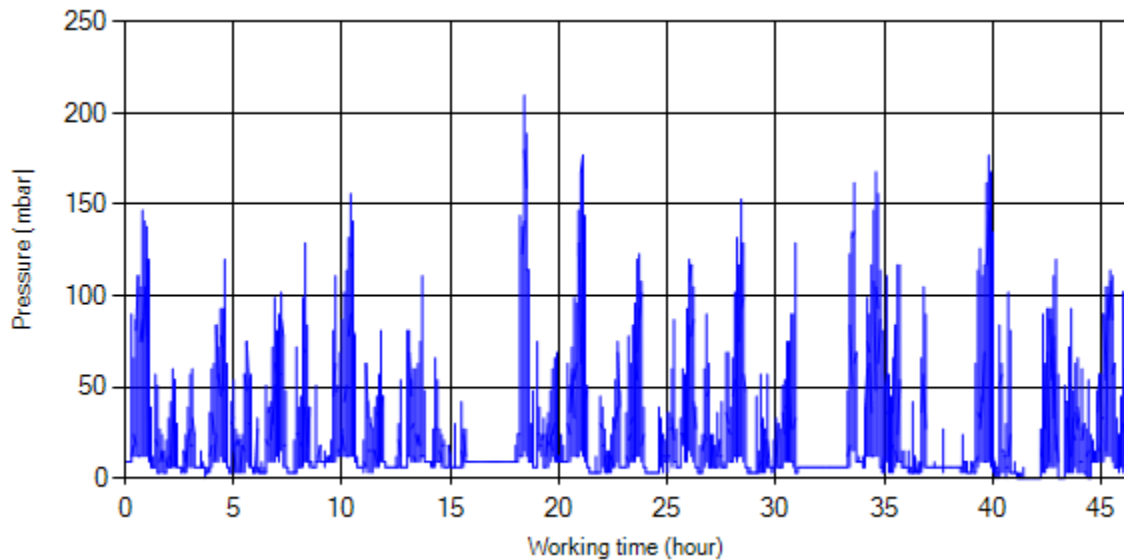
Figure 5- Pressure vs. working hours

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.
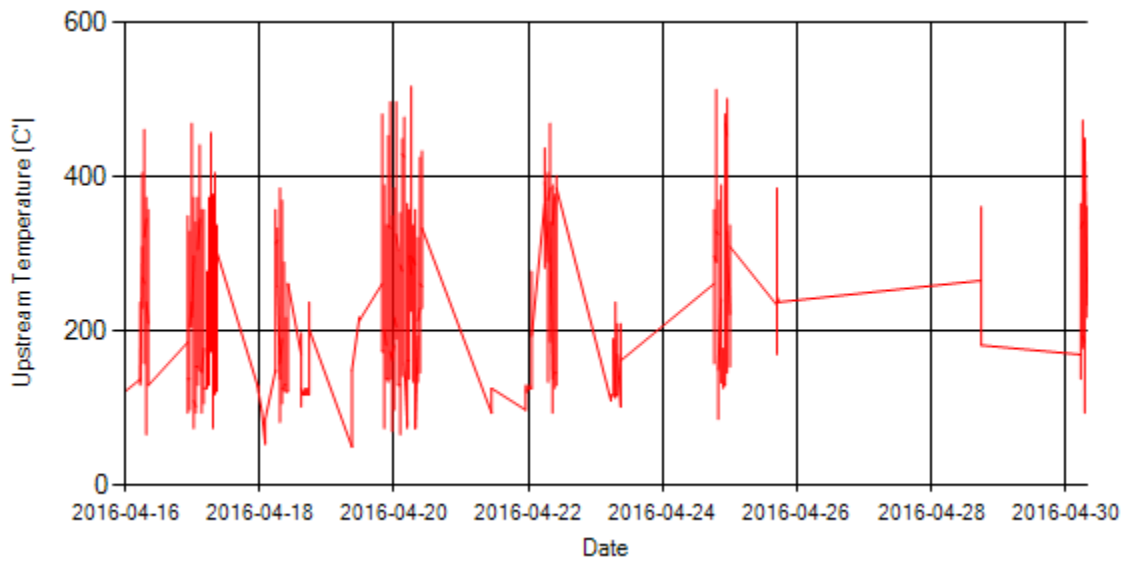
5

Detailed Temperature Analysis

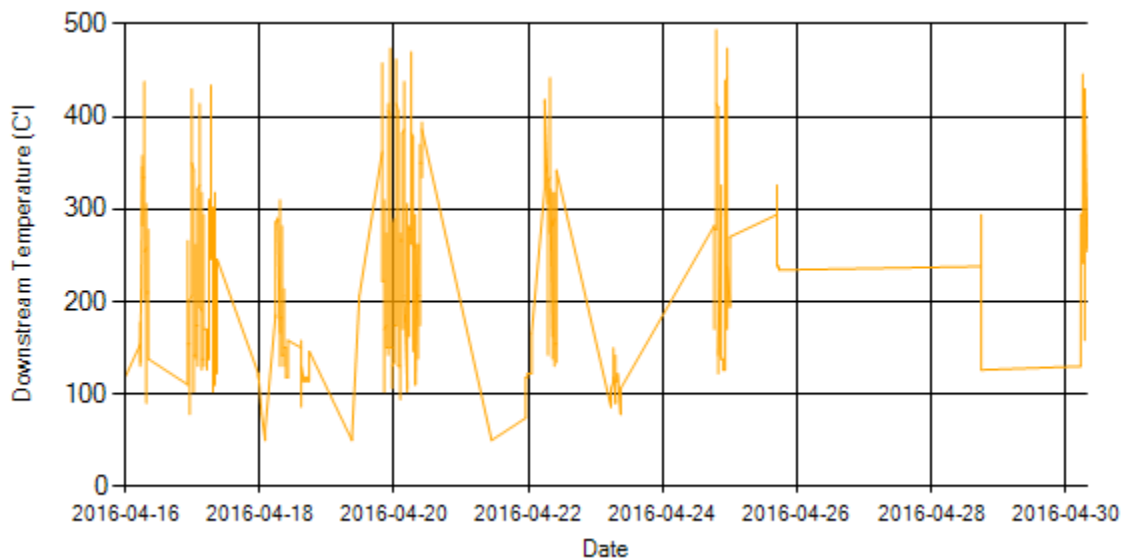*Figure 6- Temperature distribution over the period*

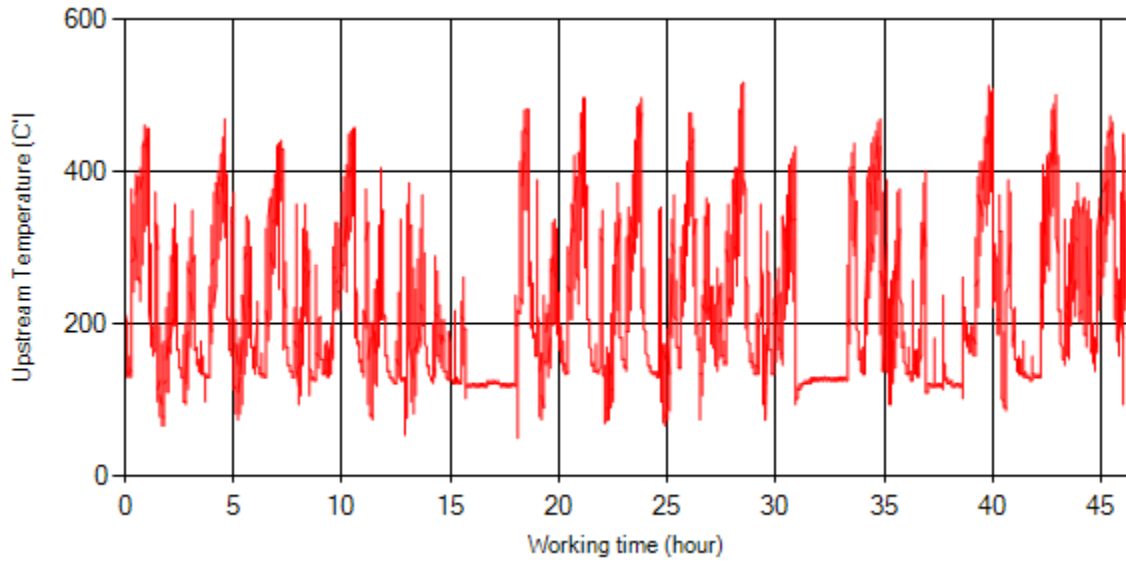*Figure 7- Temperature distribution over the period*
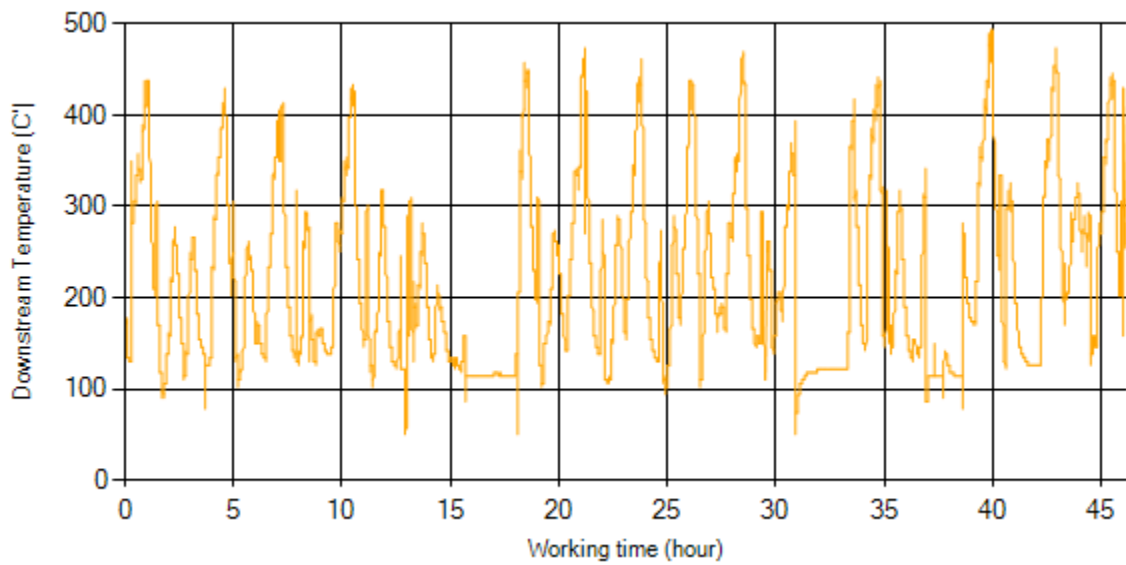
6

Figure 8- Temperature vs. working hours

Figure 9- Temperature vs. working hours
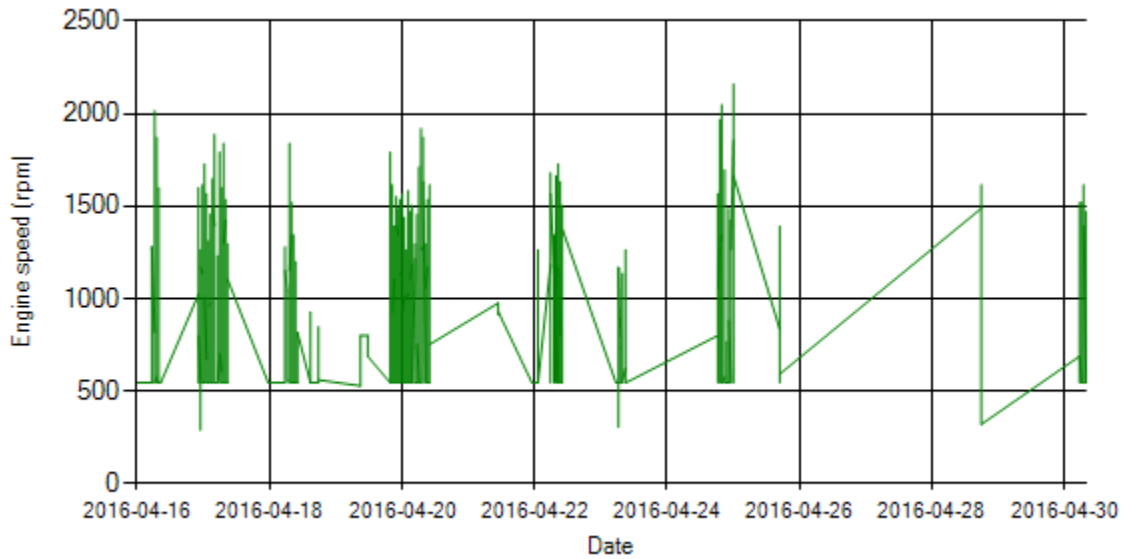
7

Engine Speed Diagrams
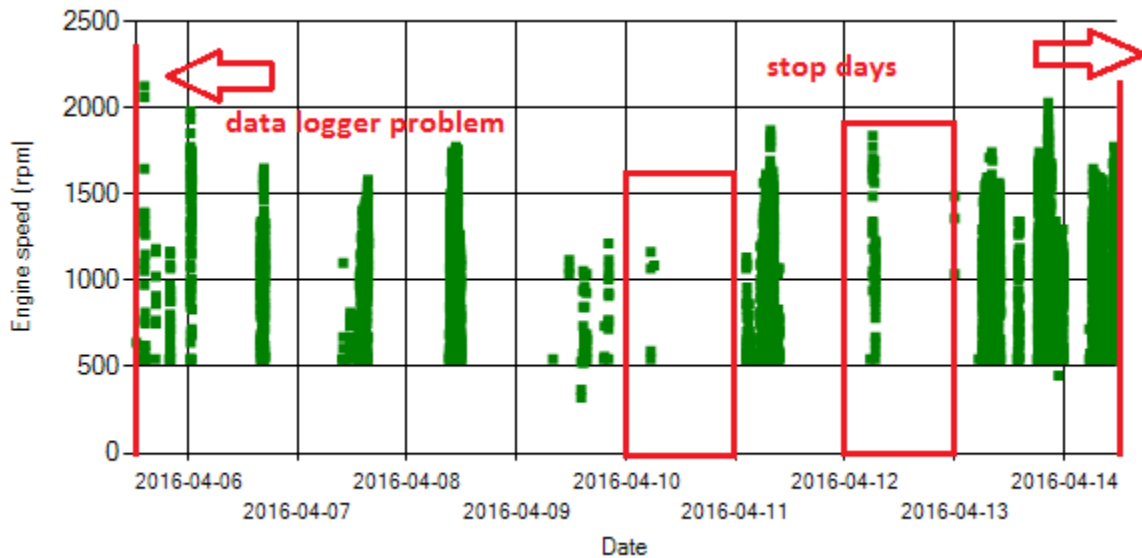

Figure 10- Engine speed distribution over the period

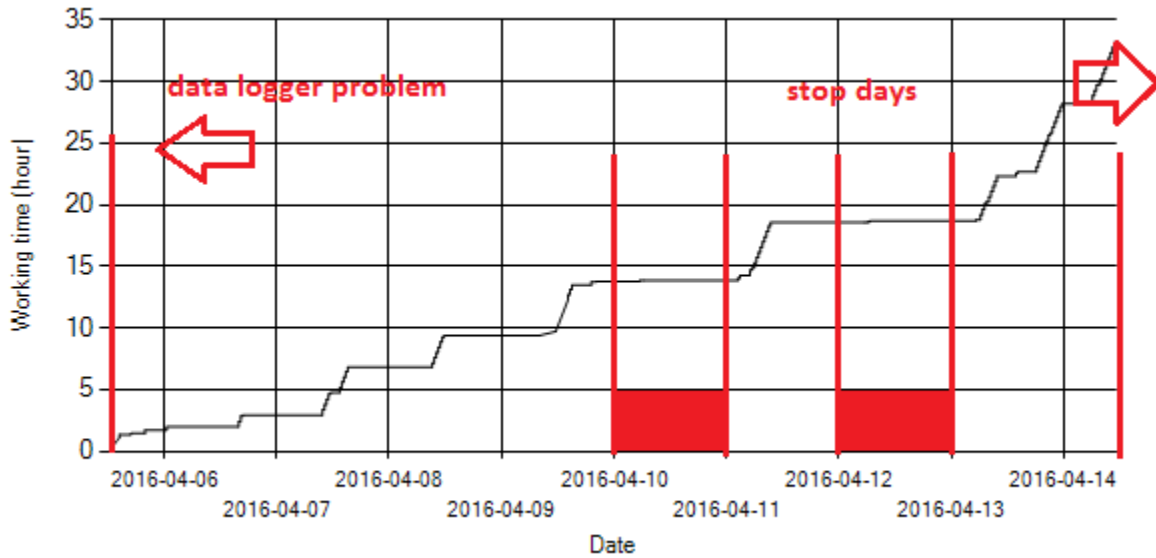*Figure 11- Engine speed diagram for calculating CPK's working days*

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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 or stationary days.
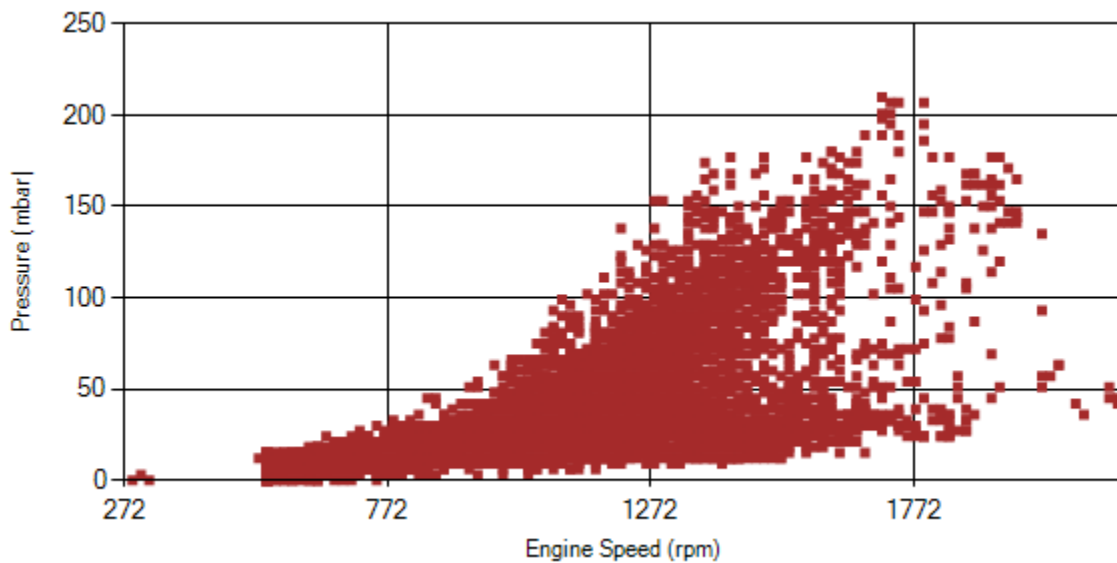
Pressure-Engine Speed diagrams

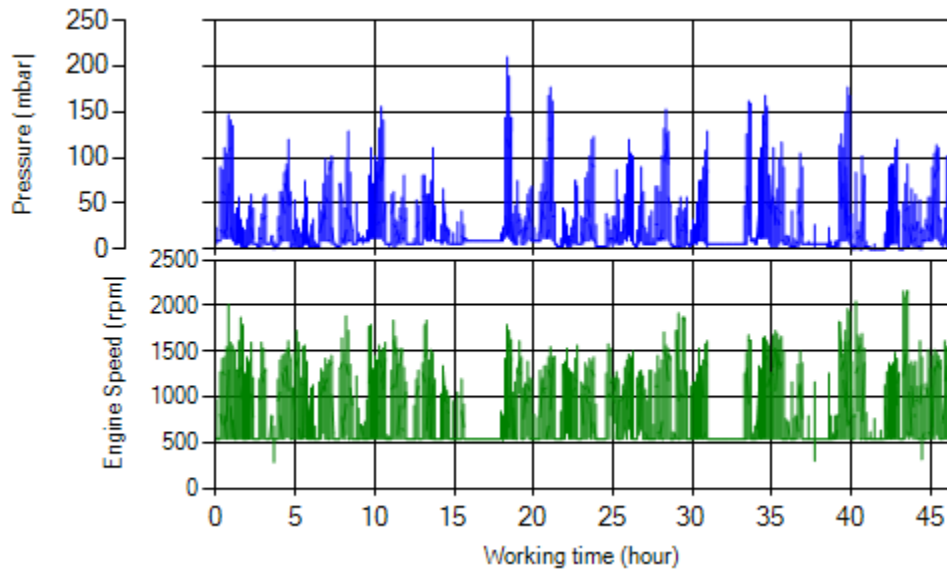*Figure 13- Pressure against engine speed*

Figure 14- P, N distribution vs. working hours

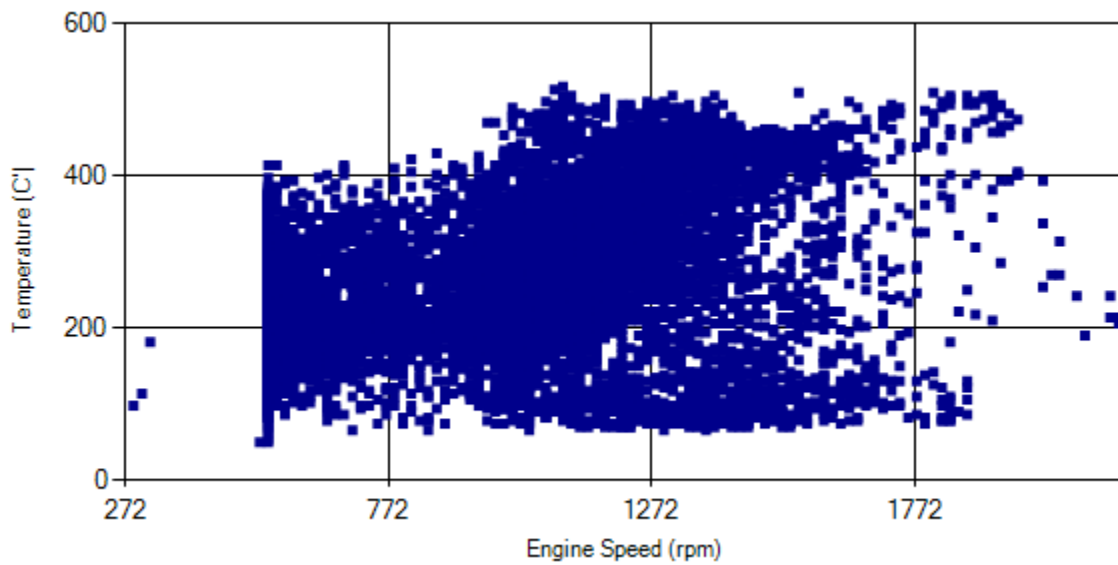## Temperature-Engine Speed diagrams

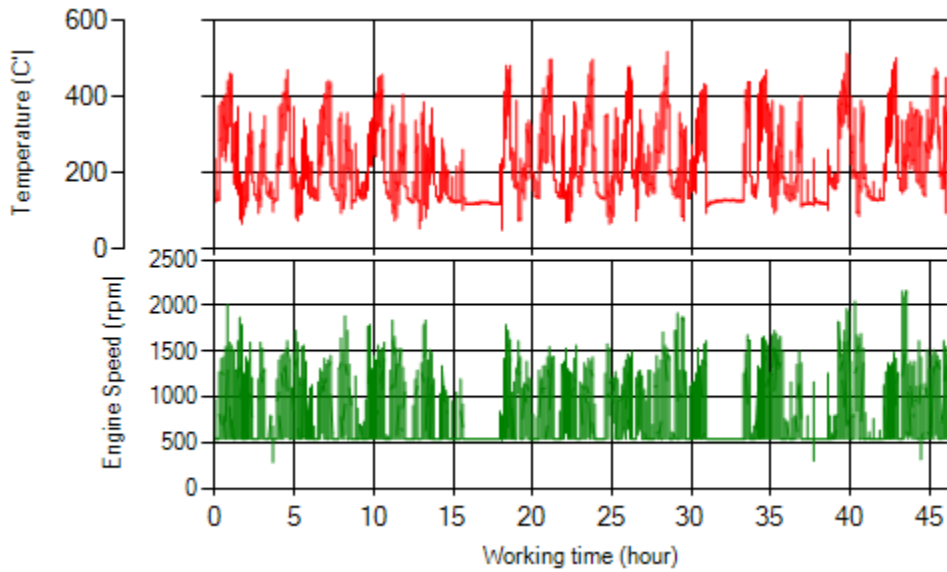*Figure 15- Temperature against engine speed*

Figure 16- T, N distribution vs. working hours

Filter Operation Analysis

- As depicted in Figure 1, 0.04% of working time pressure was above 200 mbar and 0.59% of working time was above 150 mbar.
- Figure 2 displays flow temperature before the DPF. It can be obviously observed that 7.2% of total working time temperature is above 400 ℃ and 13% above 350℃.
- Considering available data DPF operation was excellent during the period.

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

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