First report of PMP national round robin test JAPAN

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Objective and Schedule

- 2 Labs (NTSEL, JARI) have taken part in the test
- NTSEL (’07 Nov. ~ Dec.), JARI(‘08 Jan. ~ Mar.)
- Evaluations of repeatability and reproducibility for the number counting (full, partial) and the filter weighing (full, partial) method
- Optimization of number counting method.
  - Effects of piping length to the device, location of sampling point (primary? Secondary?)

Daily Schedule of the tests

- **Evaluation**
  - WHTC cold
  - WHTC hot(20min soak)
  - WHSC
  - JE05

  The total number of tests
  8 for each mode
  Now under testing

- **Optimization**
  - WHTC cold
  - WHTC hot(20min soak)
  - WHTC hot(20min soak)
  - WHTC hot(20min soak)
  - DPF regeneration

  Parameter: sampling point, length of pipe

Test Engine

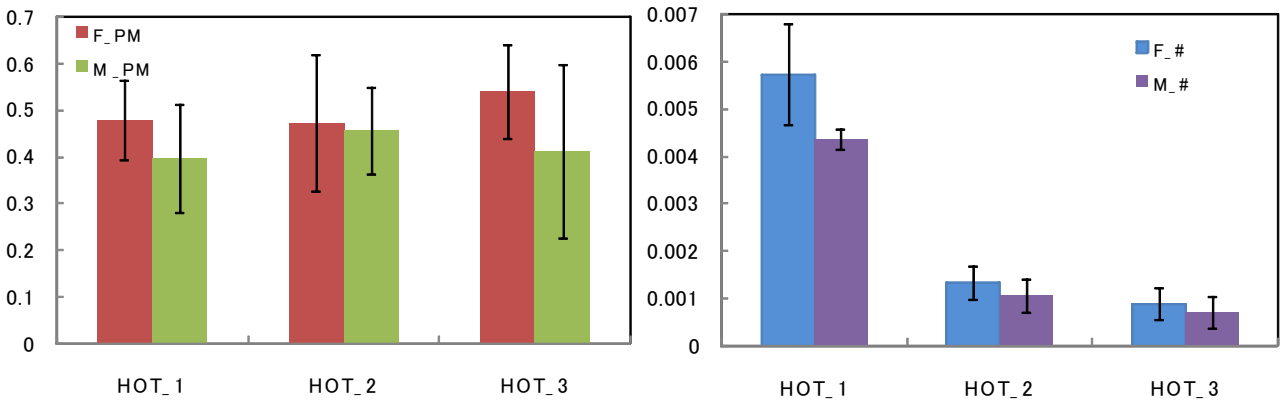
Engine Model	HINO J08E-TP
Configuration	Inline 6cyl, w/ I.C, T. C
Bore X Stroke	112 X 130
Inj. System	Common Rail (Max 1600bar)
Emission Reduction Device	**DPF** w/ CAT, Cooled EGR
Displacement	7.684
Compression Ratio	18
Performance	177/2700 kW/rpm
Emission	2005 JP, nearly **Euro V** (NOx:1.8g/kWh, PM:0.024g/kWh)

Effects of WHTC repetition

Daily Schedule | WHTC cold | WHTC HOT_1 | WHTC HOT_2 | WHTC HOT_3

WHTC hot mode results of weighing method and number counting

Normalized by WHTC cold results of the day



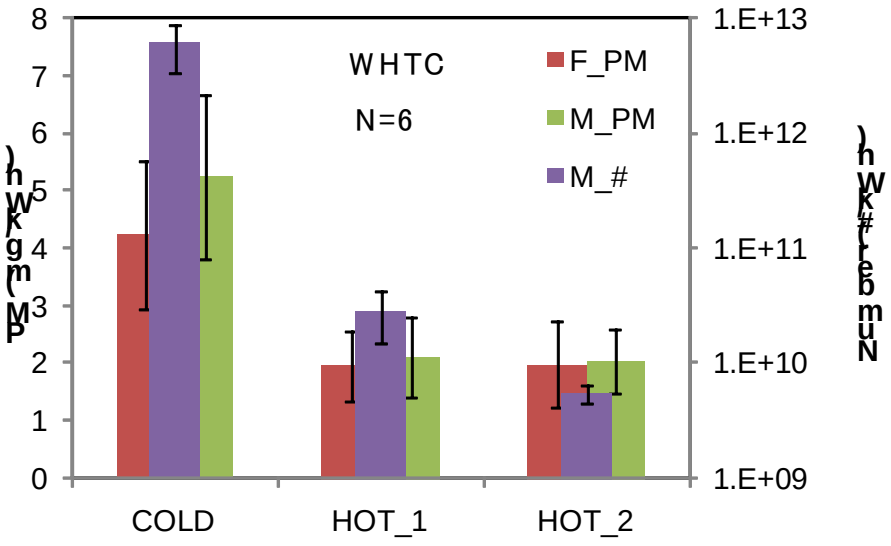
F_PM : PM by full tunnel, M_PM : PM by partial tunnel

F_F : number by full tunnel, M_PM : number by partial flow

Soak 20min

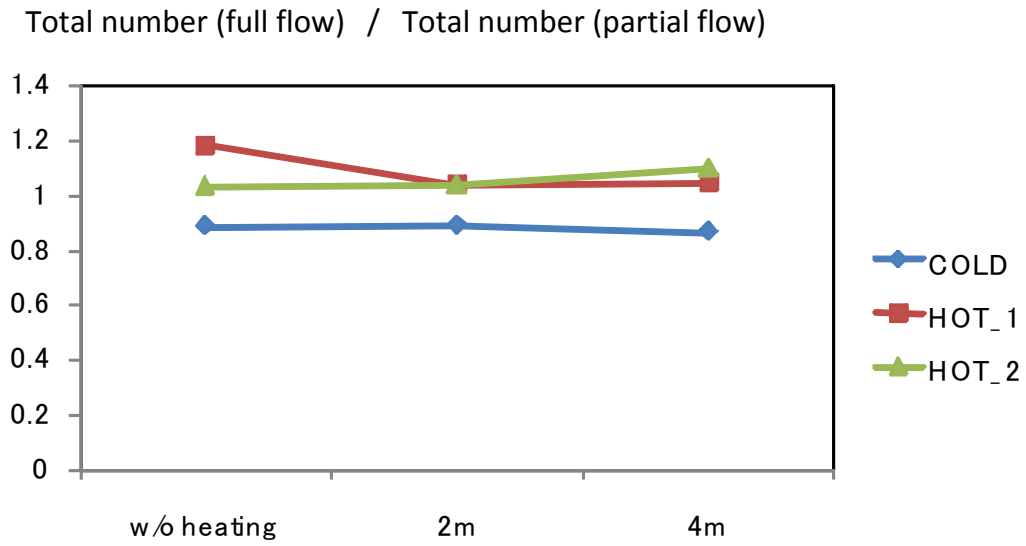
- **No difference was observed in case of weighing method**
- **The Emission got lowered by repeating the tests.**

WHTC results



COV(%)	COLD	HOT_1	HOT_2
F_PM	30	31	38
M_PM	27	33	28
F_#	44	48	19

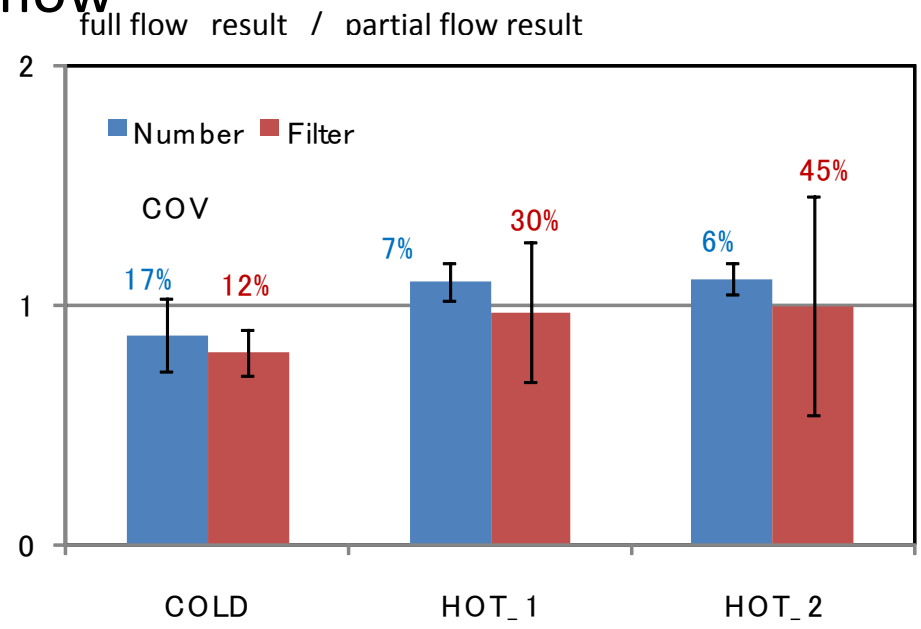
Effects of sampling point and pipe length



Without heating : length = 0.8m
2m, 4m : heated to 150 degree C

About 10 % loss was observed in cold mode test.
No effects of pipe length were observed by using hot hose.

Correlation between partial flow and full flow



Mean values are almost 1 in both case.

Fluctuations

Number counting : hot < cold (Effect of soak condition?)
Filter weighing : hot > cold (less trapped PM?)

Conclusion

- Conditioning was more important in case of number counting than filter weighing(especially WHTC hot)
- By using a hot hose, it is possible to extend a introducing pipe.
- Correlations between full flow and partial flow were good in both case (number, filter).
- COV of number was sensitive to conditioning.
- COV of filter weighing was sensitive to the total amount of PM.