Note on SCR-OBD algorithm developement

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1 Introduction

Goal:

"Developing model-based non-introsive diagnostics for SCR-ASC that can work with commercial NO-x sensors and demonstrate the results on a real-world on-road truck data."

Kaushal's work:

- Diagonstic-oriented aging models for SCR-ASC.
  - Chemical Kinetics based model for SCR
  - Non-linear look-up table for ASC
- Diagnosis algorithm
  - Sequence of filters
  - Residual generation for fault detection using the stochastic version of the models.

1.1 Available measurements

1. Engine Torque
2. Engine Speed
3. Diesel exhaust fluid (DEF) injection
4. Engine-out NO_x.
5. Diesel oxidation catalyst (DOC)-out NO, NO_2
6. Tail-pipe NO_x, NH_3 and N_2O
7. DOC-in, DOC-out, SCR-in, SCR-out and ASC-out temperatures.
8. Exhaust flow rate.

1.2 Available data

1. Road data
   - Cold FTP (Federal Test Procedure)
   - Hot FTP
   - RMC (Ramped mode cycle)
2. Test Cell data
   - Cold FTP (Federal Test Procedure)
   - Hot FTP
   - RMC (Ramped mode cycle)

References