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Off-Cycle Emissions (OCE) gtr

Informal Document
56th GRPE, 5 & 6 June 2008

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1. Purpose

- Off-cycle emission requirements
- Prohibition of defeat strategies
- To achieve effective emissions control during normal in-use operation

2. Scope

- Applies to emission of gaseous and particulate pollutants from:
  - CI engines
  - PI engines fueled with natural gas (NG)
  - PI engines fueled with liquified petroleum gas (LPG)
- Applies to categories 1-2 and 2 having speed exceeding 25 kph and mass exceeding 3.5 tonnes

3. Definitions

- The gtr defines several terms, notably
  - Emission strategy
  - Base emission strategy (BES)
  - Auxiliary emission strategy (AES)
  - Defeat strategy
- Defeat strategy defined as any emission strategy that does not meet performance requirements for AES and/or BES.

4. General Requirements

- Engine systems shall be designed to enable the engine/vehicle to comply with the OCE gtr.
- Engines/vehicles shall not be equipped with a defeat strategy
- Engines/vehicles shall comply with the WNTE emission limits

5. Performance Requirements

- Performance requirements for emission strategies
  - BES shall not discriminate between test conditions and real world conditions
  - AES shall not reduce effectiveness of emission control relative to the BES, unless
    - Its operation is included in regulatory test procedures
    - Its operation is limited to protecting from damage
    - Its operation is meant to trade control of one pollutant for another under limited conditions not included in regulatory test procedures
- WNTE Emission Limits
  - Specifies WNTE emission limits based on applicable WHTC emission limits (next slide)

WNTE Emission Limits

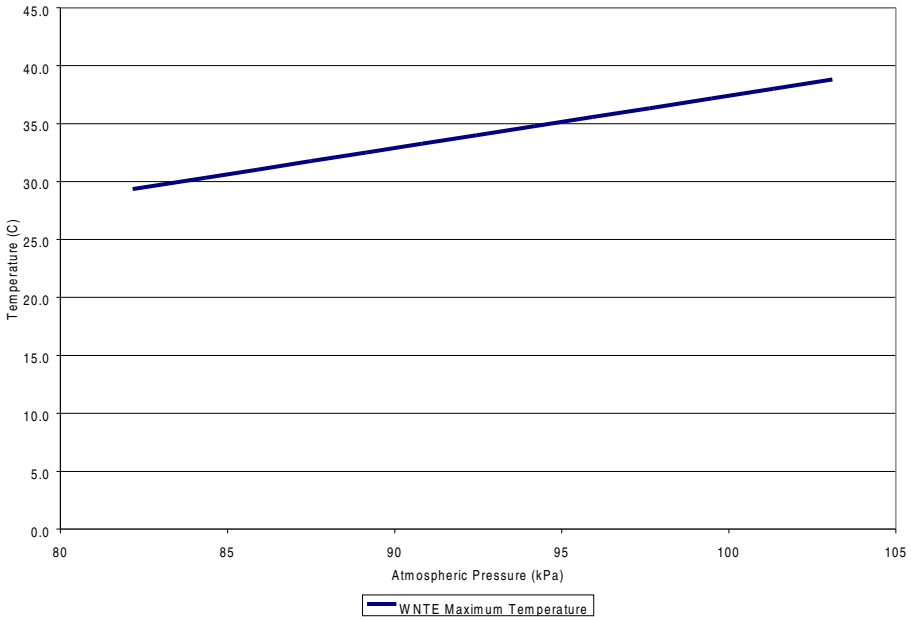
- WNTE Emission Limit =WHTC Emission Limit + WNTE Component
  - Where the "WNTE Component" is determined by equations 1 to 4

- for NOx: WNTE Component = 0.25 * EL + 0.1 (1)
- for HC: WNTE Component = 0.15 * EL + 0.07 (2)
- for CO: WNTE Component = 0.20 * EL + 0.2 (3)
- for PM: WNTE Component = 0.25 * EL + 0.003 (4)

- Rounding and unit conversions are also described

6. Ambient & Operating Conditions

- Sets conditions under which engines / vehicles must comply with the WNTE
  - Based on atmospheric pressure (not altitude)
  - Based on ambient temperature
  - Based on coolant temperature



7. WNTE Methodology

- Specifies WNTE control area
- Specifies WNTE event duration and sampling frequency
- Specifies WNTE laboratory testing
  - Determination of test points within the WNTE control area
  - Test procedural details

8. WNTE Deficiencies

- Conceptual only
- Deficiency provisions are left to Contracting Party regional legislation.

9. WNTE Exemptions

- Conceptual only
- Exemption provisions are left to Contracting Party regional legislation.

10. Statement of OCE Compliance

- This section specifies that the manufacturer must provide a “Statement of OCE Compliance”
  - An example is provided – the manufacturer must attest that the applicable engine family complies with the OCE gtr
  - Basis for the statement of OCE compliance
    - Data, analyses, etc., must be maintained by the manufacturer and provided to authority on request

Documentation

- Conceptual only
- Detailed documentation requirements are left to regional legislation with examples for what Contracting Parties may wish to require.

Other Items

- We request a time and room for an OCE meeting during the January 2009 GRPE meeting.