**Version 2 as of 24 May 2007**

**Euromot Proposal to Article 2(i) of Directive 2004/26/EC**
**Defeat Device and Cycle Bypass Provisions**

2. Definitions, symbols and abbreviations

Delete section 2.8d, replace section 2.12 with new section 2.12, replace section 2.13 with section 2.17, replace section 2.8c with section 2.14, and renumber sections 2.14 to 2.18 to sections 2.19 to 2.23

2.12 *auxiliary emission control strategy (AECS)*
shall mean an emission control strategy that becomes active or that modifies the base emission control strategy for a specific purpose or purposes and in response to a specific set of ambient and/or operating conditions, e.g. vehicle speed, engine speed, gear used, intake temperature, or intake pressure;

2.13 *base emission control strategy (BECS)*
shall mean an emission control strategy that is active throughout the speed and load operating range of the engine unless an AECS is activated. Examples for BECS are, but are not limited to:

- engine timing map;
- EGR map;
- SCR catalyst reagent dosing map;

2.14 *defeat strategy* shall mean

- an AECS that reduces the effectiveness of the emission control relative to the BECS under conditions that may reasonably be expected to be encountered in normal vehicle operation and use, or
- a BECS that discriminates between operation on a standardised type-approval test and other operations and provides a lesser level of emission control under conditions not substantially included in the applicable type-approval test procedures;

2.15 *element of design* shall mean in respect of a vehicle or engine,

- any control system, including computer software, electronic control systems and computer logic;
- any control system calibrations;
- the result of systems interaction; or
- any hardware items;

2.16 *emission control strategy (ECS)*
shall mean an element or set of elements of design that is incorporated into the overall design of an engine system or vehicle for the purposes of controlling exhaust emissions that includes one BECS and one set of AECS;

2.17 *emission control system*
shall mean the exhaust aftertreatment system, the electronic management controller(s) of the engine system and any emission-related component of the engine system in the exhaust which supplies an input to or receives an output from this(these) controller(s), and when applicable the communication interface (hardware and messages) between the engine system electronic control unit(s) (EECU) and any other power train or vehicle control unit with respect to emissions management;

2.18 *engine system*
shall mean the engine, the emission control system and the communication interface (hardware and messages) between the engine system electronic control unit(s) (EECU) and any other powertrain or vehicle control unit;

Amend section 4.1.1., add new section 4.1.2. to 4.1.7. and renumber existing section 4.1.2. to section 4.1.8.:

4.1.1. General

. The components liable to affect the emission of gaseous pollutants and particulate pollutants, where applicable, from the engine shall be so designed, constructed, assembled and installed as to enable the engine, in normal use, to comply with the provisions of this Directive.

The technical measures taken by the manufacturer must be such as to ensure that the mentioned emissions are effectively limited, pursuant to this Directive, throughout the normal life of the engine and under normal conditions of use. These provisions are deemed to be met if the provisions of sections 4.1.2. to 4.1.8. and 5.3.2.1 are respectively complied with. Sections 4.1.3. to 4.1.7. apply to electronically controlled engines, only.

All engines that expel exhaust gases mixed with water shall be equipped with a connection in the engine exhaust system that is located downstream of the engine and before any point at which the exhaust contacts water (or any other cooling/scrubbing medium) for the temporary attachment of gaseous or particulate emissions sampling equipment. It is important that the location of this connection allows a well mixed representative sample of the exhaust. This connection shall be internally threaded with standard pipe threads of a size not larger than one-half inch, and shall be closed by a plug when not in use (equivalent connections are allowed).

4.1.2. The use of a defeat strategy is forbidden.

4.1.3. Emission control strategy

4.1.3.1. Any element of design and emission control strategy (ECS) liable to affect the emission of gaseous and particulate pollutants from diesel engines and the emission of gaseous pollutants from gas engines shall be so designed, constructed, assembled and installed as to enable the engine, in normal use, to comply with the provisions of this Directive. ECS consists of the base emission control strategy (BECS) and usually one or more auxiliary emission control strategies (AECS).

4.1.4. Requirements for base emission control strategy

4.1.4.1. The base emission control strategy (BECS) shall be so designed as to enable the engine, in normal use, to comply with the provisions of this Directive. Normal use is not restricted to the conditions of use as specified in section 4.1.5.5.

4.1.5. Requirements for auxiliary emission control strategy

4.1.5.1. An auxiliary emission control strategy (AECS) may be installed to an engine, or on a vehicle, provided that the operation of the AECS is included in the applicable type-approval test and is activated according to section 4.1.5.6.

4.1.5.2. An auxiliary emission control strategy (AECS) may be installed to an engine or on a vehicle provided that the AECS:

– operates only outside the conditions of use specified in section 4.1.5.5. for the purposes defined in section 4.1.5.6. or,

– is activated only exceptionally within the conditions of use specified in section 4.1.5.5. for the purposes defined in section 4.1.5.6. and not longer than is needed for these purposes.

4.1.5.3. An auxiliary emission control strategy (AECS) that operates within the conditions of use specified in section 4.1.5.5. and which results in the use of a different or modified emission control strategy (ECS) to that normally employed during the applicable emission test cycles will be permitted if, in complying with the requirements of section 4.1.7., it is fully demonstrated that the measure does not permanently reduce the effectiveness of the emission control system. In all other cases, such strategy shall be considered to be a defeat strategy.

4.1.5.4. An auxiliary emission control strategy (AECS) that operates outside the conditions of use specified in section 4.1.5.5. will be permitted if, in complying with the requirements of section 4.1.7., it is fully demonstrated that the measure is the minimum strategy necessary for the purposes of section 4.1.5.6 with respect to environmental protection and other technical aspects. In all other cases, such a strategy shall be considered to be a defeat strategy.

4.1.5.5. As provided for in section 4.1.5.2., the following conditions of use apply under steady state and transient engine operations:

– an altitude not exceeding 1 000 metres (or equivalent atmospheric pressure of 90 kPa), and,

– an ambient temperature within the range 275 K to 303 K (2°C to 30°C) and,

– engine coolant temperature within the range 343 K to 373 K (70°C to 100°C).

4.1.5.6. An auxiliary emission control strategy (AECS) may be installed to an engine, or on a vehicle, provided that the AECS is activated :

– only by on-board signals for the purpose of protecting the engine system (including air-handling device protection) and/or vehicle from damage, or

– for purposes such as operational safety, permanent emission default modes and limp-home strategies, or

– for such purposes as excessive emissions prevention, cold start or warming-up, or

– if it is used to trade-off the control of one regulated pollutant under specific ambient or operating conditions in order to maintain control of all other regulated pollutants within the emission limit values that are appropriate for the engine in question. The overall effects of such an AECS is to compensate for naturally occurring phenomena and do so in a manner that provides acceptable control of all emission constituents.

4.1.7. Special requirements for electronic emission control systems

4.1.7.1. Documentation requirements

The manufacturer shall provide a documentation package that gives access to any element of design and emission control strategy (ECS), and torque limiter of the engine system and the means by which it controls its output variables, whether that control is direct or indirect. The documentation shall be made available in two parts:

(a) the formal documentation package, which shall be supplied to the technical service at the time of submission of the type-approval application, shall include a full description of the ECS. This documentation may be brief, provided that it exhibits evidence that all outputs permitted by a matrix obtained from the range of control of the individual unit inputs have been identified. This information shall be attached to the documentation required in Annex II;

(b) additional material that shows the parameters that are modified by any auxiliary emission control strategy (AECS) and the boundary conditions under which the AECS operates. The additional material shall include a description of the fuel system control logic, timing strategies and switch points during all modes of operation.

**Kommentar [N J1]:** Delete, as 6.5.5 is deleted.

The additional material shall also contain a justification for the use of any AECS and include additional material and test data to demonstrate the effect on exhaust emissions of any AECS installed to the engine or on the vehicle. The justification for the use of an AECS may be based on test data and/or sound engineering analysis.

This additional material shall remain strictly confidential, and be made available to the type-approval authority on request. The type-approval authority will keep this material confidential.

4.1.8. Specifications concerning the emissions of pollutants

The gaseous and particulate components emitted by the engine submitted for testing shall be measured by the methods described in Annex VI.

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Subsections to be renumbered, accordingly.