

# **EVSC Adhoc meeting #4 6th & 7th of July, 2005**

## **Volvo 3P proposal**

### **Reference document:**

**EVSC04-01 Rev 3 - Date: 15/04/2005**

## Proposal 1

- 5.2.1.31.2. To realise the functionality defined above a vehicle stability function shall include, in addition to selective braking and ~~/or where appropriate~~ automatically commanded braking, at least the following:
- The ability to regulate engine power output.
  - In the case of directional control: The determination of vehicle behaviour from **measured** values of yaw rate, lateral acceleration and wheel speeds and from the driver's control input to the braking system, to the steering system, and to the engine. [Above values may either be directly measured by a sensor or derived from other sensors].
  - In the case of roll-over control: The determination of vehicle behaviour from **measured** values of lateral acceleration, wheel speeds and from the driver's control input to the braking system, and to the engine. [Above values may either be directly measured by a sensor or derived from other sensors].
  - In the case of a towing vehicle equipped according to paragraph 5.1.3.1.: the ability to apply the service brakes of the trailer via the respective control line(s) independently of the driver.

### Justification:

*Selective and automatically commanded braking should be put on the "same level", as specified in paragraph 2.32.1:*

*"A vehicle stability function may include one or both of the following:*

- *directional control*
- *roll-over control"*

*The aim is to cover all existing state of the art designs, and to get more freedom for the system design, without decreasing the level of requirement.*

## Proposal 2

5.2.1.31.4. The operation of the vehicle stability control shall be demonstrated by means of one of the following:

- ~~a dynamic test~~
- ~~submission of test results from a representative vehicle including a demonstration of the stability function on a vehicle~~
- A dynamic demonstration on one vehicle type (e.g T4x2), and submission of test results for other vehicles types (e.g. T6x2, T6x4...), under the condition these vehicles are equipped with the same EVSC system as the one fitted on the vehicle which has been used for the dynamic demonstration.  
The method by which this demonstration is carried out shall be agreed between the vehicle manufacturer and the Technical Service and shall include the critical conditions of under-steer, over-steer and roll-over as appropriate to the vehicle stability function installed on the vehicle with the method of demonstration and results being appended to the type approval report.  
For N3 vehicles, roll over stability shall be demonstrated according to paragraph 5.2.1.31.4.1.
- a computer simulation <sup>2/</sup>.

~~The method by which this demonstration is carried out shall be agreed between the vehicle manufacturer and the Technical Service and shall include the critical conditions of under-steer, over-steer and roll-over as appropriate to the vehicle stability function installed on the vehicle with the method of demonstration and results being appended to the type approval report.~~

5.2.1.31.4.1 The vehicle shall be driven on a circle with constant radius and homogeneous high-mu. The speed shall be progressively increased until the vehicle stability control comes into action. The acceptance criterion is that the vehicle shall not roll over.

## **Justification**

### **Aims are:**

- ***To clarify how the EVSC demonstration shall be conducted, so as to avoid different interpretations from one technical service to another: how to cover a range of vehicles? Which test to be performed? Etc.***
- ***To make a step towards a compromise between the “design requirements” approach and the “performance test” approach, by specifying a simple test to demonstrate roll over control operation. This test probably only applies to heavy trucks but some other kind of tests might be developed for other type of vehicles.***

## Proposal 3

**5.2.1.31.6. When the vehicle stability function is activated the driver shall be warned by a specific [yellow] optical warning signal. The warning shall be present as long as the vehicle stability function is active. The warning signals specified in item 5.2.1.29. of this Regulation shall not be used for this purpose.**  
**Interventions of the vehicle stability function used in any learning process to determine the vehicle operational characteristics shall not generate the above signal.**

**5.2.1.31.6. In the case of a power-driven vehicle equipped with an electric control line and electrically connected to a trailer with an electric control line the driver shall be warned by a specific [yellow] optical warning signal whenever the trailer provides the information “VDC Active” via the data communications part of the electric control line. The optical signal defined in paragraph 5.2.1.31.5. above may be used for this purpose.**

**Justification:**

***EVSC activation is not a system failure but an information to the driver, so there is no reason to mandate a yellow warning.***