

**Report of GRRF Alternative Method Electronic Vehicle Stability Control (AMEVSC)
Informal Working Group**

Since the formation of the AMEVSC Informal Working Group following the GRRF February 2010 Session, 3 meetings have been held – 28/29 April, 7/8 July & 7 September – with the next meeting scheduled for 22/23 November 2010.

In line with the terms of reference (document ECE/TRANS/WP.29/GRRF/67 Annex IV) and using document GRRF-66-21 as a basis, the informal working group has made very significant progress in developing an amendment proposal – see document GRRF-68-10. The proposal is not yet complete with some ‘square bracket’ items to be clarified and amendments to Annex 20 still to be considered.

The resulting process is a 2 stage process with the first stage being the generation of an Annex 19 test report, which includes a system manufacturer information document which sets out the uses and limitations of the vehicle stability function, by a Technical Service. The vehicle features to be considered, and how they are evaluated, are set-out in the Annex 19 proposal. Stage 2 is the use of the Annex 19 report by the Technical Service carrying-out the vehicle type-approval. The process is shown the process flow diagram AMEVSC-03-01-rev1. It should be noted that the use of the Annex 19 test report by the Technical Service carrying-out the vehicle type-approval is not mandated. As with simulation, the use of the test report is an optional alternative method.

The proposal adds a new section to Annex 19 for motor vehicles (Section B) and within it the requirements with regard to a vehicle stability function are specified (paragraph 1.1.).

The requirements include:

- A system manufacturer generated information document (paragraph 2.2.), the content of which is specified in a new Appendix 11 to Annex 19 – the system manufacturer details the functionality of the vehicle stability system with any limitations.
- The parameters to be considered is selecting the test vehicles to be used in evaluating the vehicle stability function (paragraph 2.3.) – what needs to be tested to cover the various vehicle and system features.
- A test schedule (paragraph 2.4.) which details the test requirements for the vehicle features to be evaluated – how the tests are conducted.
- The preparation of a test report (paragraph 2.5.), the content of which is specified in a new Appendix 12 to Annex 19 – all the features that need to be taken into consideration.

However, the work to date has highlighted a number of points requiring GRRF consideration.

- The terms of reference refer to “the use of a Technical Services produced test report for categories M₂ and M₃”. However, from a technical perspective there is no difference in the functionality of a vehicle stability function regardless of whether it is fitted to a bus or a truck, apart from trucks having lift axles (see document AMEVSC-03-04e). Therefore, once

lift axles are taken into account the technical requirements are the same for all motor vehicles.

The availability of buses with outriggers is very limited due to the outriggers having to be integrated into the bus structure, while outriggers are a 'bolt-on' feature with regard to trucks and semi-trailer tractors. Therefore, tests would be typically carried-out concurrently on a collection of trucks, buses and semi-trailer tractors with the results being read across from truck to bus. Restricting the testing and the subsequent report to buses would result in the process being unviable.

Therefore, it is requested of GRRF that "the informal working group should also consider if vehicles of categories N₂ and N₃ can be included in the scope of the group".

- In considering what is meant by "...dynamic manoeuvres on one vehicle" and "As an alternative other vehicles and other load conditions actual vehicle tests or computer simulations may be submitted" (Annex 21 paragraphs 2.1.3 and 2.2.3), the definition of "vehicle type" in Regulation 13 paragraph 2.2. is no longer considered appropriate when considering electronic systems, especially vehicle stability control.

Also, it is not clear if the "dynamic manoeuvres on one vehicle" mean a demonstration on one vehicle of each vehicle type or only one vehicle equipped with the vehicle stability function being type-approved regardless of vehicle type or time?

Therefore, a new definition is proposed:

"Character of the vehicle" means a descriptive term for a vehicle – tractor for semi-trailer, truck, bus, semi-trailer, full trailer, centre-axle trailer".

This new definition can then be used to sub-divide the N₃ category, for example.

- In considering vehicle types and the criteria for the evaluation of vehicle features and their influence on the vehicle stability function, it became apparent that this is not covered in sufficient detail in the use and approval of a simulation tool to ensure that the results of a small number of vehicles are not extrapolated to cover a very much wider range of dissimilar vehicles.

As a result amendments are being recommended for Appendices 1 and 2 which may require further development in the future.

- It is not possible to evaluate and set the maximum and minimum allowable wheelbase for directional control and the maximum centre of gravity height for roll-over control based on actual vehicle tests at the time of conducting the testing for the Annex 19 report due to the logistical difficulties of having suitable vehicles available. There are at least 2 test periods – winter testing for directional control and summer testing for roll-over control – and extreme vehicles are by definition rare.

Therefore, it is proposed that an allowance is allowed on values actually tested, up to the values shown in the system supplier information document – see documents AMEVSC-03-03e, AMEVSC-03-05e and AMEVSC-03-06e. The amount of allowance is not yet agreed.
