

## Meeting Report (1st meeting)

**Report on the first meeting of the GRRF Informal Working Group on Alternative Method Electronic Vehicle Stability Control (AMEVSC) held 28<sup>th</sup>-29<sup>th</sup> April 2010.**

Note: Revised as a result of the 2<sup>nd</sup> meeting review (AMEVSC document numbering and items 2 (new 3<sup>rd</sup> paragraph added) and 5 (new 4<sup>th</sup> paragraph added)) – see document AMEVSC-02-04e.

**Venue:** CLEPA Offices, 87 Boulevard Brand Whitlock; BE- 1200 Brussels, Belgium

**Chairman:** Dr. Michel LOCCUFIER (Belgium Ministry of Transport)

**Secretariat:** Mr. Paul JENNISON (CLEPA/Knorr-Bremse)

**Participants:** See document GRRF-AMEVSC-01-09

1. Chairman welcomes everyone to the meeting and each of the participants introduces themselves with Messrs Hunold and Wittig offering their apologies for being unable to participate on the second day.
2. Regarding the terms of reference it was observed that the categories of vehicles to be considered was revised from “motor vehicles” as proposed in document GRRF-67-30 to “vehicles of categories M<sub>2</sub> and M<sub>3</sub>” as given in Annex IV to the report of the 67<sup>th</sup> GRRF.

With the GRRF report not providing a reason for the change and the braking experts not being present when the terms of reference were discussed and agreed, it was thought that the change could have been due to fears of workload overstretch without the realisation that the vehicle features that have to be considered in developing a procedure are the same regardless of whether the vehicle is category M or N.

The availability of buses with outriggers is very limited due to the outriggers having to be integrated in the bus structure, while the 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 due to the very many common features between trucks and buses with regard to EVSC. The concurrent testing and the reading across of applicable results also minimises costs.

The need for a better definition of the “special purpose vehicles” exclusion in the footnote to paragraph 5.2.1.32 was raised as a point effecting the consideration of category N vehicles. However, it was considered that this was not relevant to the working of the group as the “definition” would not influence the vehicle features that would be considered, and that it should be discussed in some other forum.

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Therefore, it was concluded that it would be appropriate at the 68<sup>th</sup> Session of GRRF to request that the following wording is added to the terms of reference.

“The informal working group should also consider if vehicles of categories N<sub>2</sub> and N<sub>3</sub> can be included in the scope of the group.”

3. In considering the input from Prof. Ahmed Koric (document GRRF-AMEVSC-01-04) it was agreed that the informal working group, which is test procedure and supporting documentation orientated, is not the forum in which to address ‘product’. It was also noted that GRRF had already addressed this subject at its 64<sup>th</sup> Session (document GRRF-64-28).
4. The current situation with regard to trailers was reviewed using document GRRF-67-05, specifically sheet 3. It was emphasised by the system manufacturers that the trailer Annex 19 procedure, and similarly the procedure proposed for motor vehicles, did not/would not change the situation with regard to vehicle type-approval – vehicle type-approval responsibility lay with the vehicle manufacturer.

It was suggested that a “separate technical unit” (STU) type-approval would be more appropriate than the Annex 19 approach, with the EMC regulation ECE R10 being given as an example. The type-approval would then be owned by the system manufacturer. In the resulting discussion it was concluded that the Annex 19 approach was more appropriate as EVSC is not a stand alone “unit” or “device”, but a function contained within a system, e.g. anti-lock braking system, electronic braking system. The function is predominantly software based utilizing inputs from both unique and common sensors.

An STU type-approval is only possible when it is a device that is subject to the requirements of a regulatory act and which may be type-approved separately (Article 3 paragraph 25 of 2007/46/EC). This is not the case with EVSC as it is not the subject of a specific regulatory act – it is part of the ECE Regulation 13 on braking – and, therefore, a new regulatory act would have to be created. In creating a new regulatory act it would be necessary to develop an “information folder” as the default requirements set out in Annex III of 2007/46/EC could not be met by a system manufacturer. Also as a result of a new regulatory act the complexity of meeting the conformity of production requirements would be increased for both the vehicle and system manufacturers due to starting at a lower level (braking system > STU). EVSC operates in conjunction with other vehicle features and as a result even if there was an EVSC regulatory act allowing an STU type-approval its usefulness would be very limited due to Article 10 paragraph 4 of 2007/46/EC, whereas the Annex 19 report approach could cover a greater spectrum of vehicles.

A “separate technical unit” (STU) EVSC type-approval does not fit the ECE “1958 Agreement” structure, as it is not possible for the EVSC manufacturer to meet the conformity of production (CoP) requirements. For EVSC to fit within the “1958 Agreement”, a new separate “EVSC” regulation would be required so that an EVSC type-approval certificate could be obtained. However, as EVSC is a function (not a component) that is vehicle dependant, the information document and conformity of production (CoP) requirements that go with a regulation would also be vehicle dependant. As a result the EVSC manufacturer could not show conformity with regard to the vehicles equipped as the vehicle manufacturing process is not under his control.

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5. The inconsistency in vehicle type between paragraph 2.2. and Annex 21 paragraphs 2.1.3. and 2.2.3., together with the implications for Annex 19, were highlighted by Mr. Gaupp (see document GRRF-AMEVSC-01-05). While it was agreed that the objective was to have an Annex 19 report by vehicle features not by vehicle “name”, the question of vehicle type will be revisited at a later meeting when amendments of Annex 21 are considered.
6. It was confirmed that the proposed amendment to Annex 19 only covered an alternative method for EVSC and all the other current requirements with regard to braking type-approvals would be unaffected.
7. The EVSC functionality was outlined in terms of “directional control” (under-steer and over-steer) as; the automatic braking of individual wheels and combinations of wheels, together with engine torque reduction, to restore the actual vehicle direction to that requested by the driver via the steering wheel angular position. In the case of “roll-over control” there is automatic braking of all wheels and engine torque reduction, in 2 steps. When the vehicle lateral acceleration exceeds a defined limit, without wheel lift-off, the vehicle speed is reduced so as to reduce the lateral acceleration to a non critical level – step 1. If wheel lift-off is detected – step 2 – the vehicle speed is again reduced, but at a much higher rate than in step 1, to reduce the lateral acceleration to a non critical level.
8. In developing the proposal it was agreed to start with the vehicle variables to be assessed and in this respect consider paragraph 2.3.2. of document GRRF-66-21. The result of discussions was that all the sub-points in the paragraph were reworked and expanded upon as shown in document GRRF-AMEVSC-01-07.

The wording in square brackets [ ], apart from sub-point (b) [N<sub>2</sub>, N<sub>3</sub>], are to be investigated prior to the next meeting so that a decision can be made at the next meeting.

9. Additional points arising during the discussion of paragraph 2.3.2. to be addressed at a future meeting:
  - Load condition (laden/unladen) link from test vehicles used in the Annex 19 report to the actual vehicle(s) for which type-approval is requested.
  - Testing a semi-trailer tractor in the laden condition with an actual semi-trailer rather than with a load cage as a load cage does not represent the real world influences of a semi-trailer on the tractor.
  - Regenerative braking – cover in the information document.
  - End-of-line programming – cover in the information document.
  - Use of simulations – consider the use of simulations in “testing” for the test report, see document GRRF-AMEVSC-01-06 – paragraph 5.4.2. added to the proposed Annex 19 Appendix 12.
  - Current Annex 19 with regard to trailers – consider the following with regard to an amendment proposal:
    - Braking system: the braking system of the motor vehicle(s) to be evaluated shall comply with all of the relevant requirements of this Regulation.
    - Brake type: evaluation shall be limited to motor vehicles with pneumatically or hydraulically operated drum brakes, disc brakes or a combination of either of these

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brakes but should other types become available, then comparative testing may be required.

**10. Next meeting:**

**Date:** 7<sup>th</sup> and 8<sup>th</sup> July 2010 – starting 10.00 hrs on 7<sup>th</sup> and finishing 16.00 hrs on 8<sup>th</sup>.

**Venue:** CLEPA Offices, 87 Boulevard Brand Whitlock; BE- 1200 Brussels, Belgium

**Input:** Any comments or documents relating to this meeting should be sent to the CLEPA Secretariat ([Techsec@clepa.be](mailto:Techsec@clepa.be)) in e-format as early as possible prior to the meeting.

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