

Hamburg 2013 April

*Item 21 Complex (R55\_04\_11)*

This item is not straight forward to address. The document R55-04-11 includes a proposal how the inclusion of European Modular System vehicle combinations could be made. I was agreed that all members of the working group shall read this document to enable a discussion at the next meeting. It was also noted that there is a difference between type approval requirements and requirements for application in use. This raises the question whether this is an issue for type approval at all. However the first idea is to add these provisions in §5.3.5.x of the main text. A second thought to consider is to make a separate annex for this matter.

Paris 2013 October

*Item 21 Complex (R55\_04\_11, R55\_05\_05)*

This item was not discussed in any detail. However Mr. Svensson urged all experts to read document R55\_05\_05. That document includes rather drastic proposals that will cause a lot of discussions and questions.

Bologna 2014 January

*Item 21 Complex (R55\_04\_11, R55\_05\_05, R55\_06\_09)*

This item was partly addressed in the discussion on “limiting” applications referenced under agenda point 3. In the more specialized discussion here it was noted that the R55 has a limitation that it addresses “motor vehicles and trailers” (§2.1). Mr. Teyssier proposed that that shall in accordance with what has been done in the braking regulation R13, be changed to “Towing vehicle and Towed vehicle”. (That would also make R55 more inherently consistent in the wording. §2.2 uses “towing vehicle” [secretaries comment]) There was a short discussion on the determination of towable mass as used in the information document in accordance with Annex I of 2007/46/EU. Mr. Svensson had summarized some comments on this item in the document R55\_06\_09. According to that the towable mass is not a major issue for the type approval of a vehicle. However in the practical applications a statement on maximum allowable towing mass from a coupling perspective may be useful. It was pointed out in this context that the group shall acknowledge that the R55 is applicable outside Europe. Hence a wider perspective has to be applied. It was also remarked that a reference to the ISO18868 standard might not be accepted. Hence some other arrangement to capture the content of that standard shall be investigated. In addition to the discussion within the group it was noted that we shall follow the discussion in the GRRF session 76 on the ToR of the continuation of the ACV working group.

Poznan 2014 June

*Item 21* (Limiting cases for the usage of certified characteristic values) (R55\_04\_11, R55\_05\_05, R55\_06\_09, R55\_07\_06, R55\_07\_14)

TÜV-Nord had prior to the meeting communicated some minor remarks but was in general supporting the concept of the proposal. One of the remarks was on the specification of masses being a bit complex. This is however in accordance with what has been in use in Australia for a long time and recently also accepted in the ISO standard ISO18868. Also the experts present at the meeting were **supporting the concept**. Some minor comments were made. JOST wanted to have the V-value calculation for dollies more clearly spelt out rather than expressed compact mathematical formalism. The Swedish Transport Agency pointed out that a definition of a dolly need to be included. BPW had a question on suspensions equivalent to air suspension when calculating V-value requirements. The answer was that the factor  $a = 1.8$  shall be used for suspension proven equivalent to air-suspension. The criterion of equivalence presented in regulation 1230/2012/EC is accepted. JOST pointed out that it would be desirable to some way to distinguish between certified performance values and calculated requirement values.

A general summary of the concept of the proposal is:

- The characteristic performance values of coupling equipment are certified using the procedures of Annex 5 and Annex 6.
- These certified characteristic performance values shall only be used together with required performance values calculated according to formulas and procedures laid out in the new “Annex 8”
- In the new annex special applications can be regulated such that the coupling equipment is not overstressed in the applications. This makes it possible to handle not only two-vehicle-combinations but multi-vehicle-combinations (including dolly applications), heavy transports, trade-off, rigid drawbar trailers at 4000 kg support load.

Zoetemeer 2014 October

*Item 21* (Limiting cases for the usage of certified characteristic values) (R55\_04\_11, R55\_05\_05, R55\_06\_09, R55\_07\_06, R55\_07\_14, R55-08-03, R55-08-04, R55-08-05, R55\_09\_04, R55\_09\_05, R55\_09\_11, R55\_09\_13 )

At the Poznan meeting it was agreed that we should give the GRRF a heads up about the status of some of our major item in order to get feedback from the contraction parties to form a working document on some of the more complex items. Unfortunately the secretary and the chair could not agree on a document hence that presentation was not made. Meanwhile some documents on the reasoning for the proposal for the new annex 8 have been exchanged. Document R55-08-04 was presented to explain the general theme behind the proposed rearrangement. In general there was a good support for this arrangement. The Netherlands and Sweden expressed their support. France was in general in favor. Orlandi and Jost were in favor even though Jost expressed that they would like to give a reconfirmation to the ISO18868. TÜV-NORD already at the Poznan meeting expressed their general support with some comments on the formulas being a bit complex. I.e. a broad support exist even though some work remains. However the chair did not support. His argument was that there to his opinion were no measurements to support the formulae adopted from Australian operation. He also questioned who will use this?

The secretary noted that contrary to the statement of the by the chair measurements had been made in Australia by professor Sweatman et. al. from UMTRI prior to the set-up of the rules. A lot of these measurements have been made available to the standardization working group when the ISO18868 was developed. The slight complexity of the formulae is in fact due to them being the result of regressions made on the measurement data. Most of the members of our working group have had the opportunity to comment and revise the standard while under development.

Concerning who will use the formulae it was observed that European modular vehicle combination exist in several European countries and that the R55 applies also outside Europe. It was also noted that the informal working under GRRF on Multi Vehicle Combinations (MVC) is addressing issues particular to MVC. Among those are the couplings that will be an item for our working group. In that respect we have had a head start.

It was noted that the proposal as given in document R55-08-05 still is lacking definitions of dolly. The distinction between certified characteristic values and calculated required performance is also still missing. This need to be elaborated to the **next meeting**.

Munich 2015 March

*Item 21* (Limiting cases for the usage of certified characteristic values) (R55\_04\_11, R55\_05\_05, R55\_06\_09, R55\_07\_06, R55\_07\_14, R55-08-03, R55-08-04, R55-08-05, R55\_09\_04, R55\_09\_05, R55\_09\_11, R55\_09\_13 )

As indicated in the report from the 79th GRRF the IWG-R55 got strong support to continue this item along the lines proposed in the documents presented, i.e. R55-08-05 and GRRF-79-03. (No additional feedback as urged by the chair of the GRRF has been received.)

The proposal R55-08-05 had to this meeting been elaborated and got the new number R55-09-11. This proposal was discussed.

Being based on the international standard ISO18868 Mr. Conrads pointed to the fact that no special remark was given about the support load. Mr. Conrads referred to rigid drawbar trailers having support loads higher than 1000 kg. However in the proposed Annex 8 there is only mentioned center axle trailer that per definition has maximum 1000 kg support load. A rigid drawbar trailer is neither defined in the R55 nor in the R.E.3. Hence any application, having higher support load than 1000 kg, needs to be handled as exemption as is done today. However a remark on a maximum support load of 1000 kg may be added to a general part of annex 8.

Mr. Alguëra noted that the nice pictures from the ISO18868 would have made the annex 8 more readable. For the time being we are not challenging the ISO organization. Mr. Svensson noted that the formulae will be available as application on the www. Hence the structure of the formulas themselves is not a problem.

Mr. Tagliaferri noted that his company has been supplying coupling equipment different markets such as Australia, Brazil and South Africa applying the formulae proposed. This has been done without any problem in the applications.

Mr. Westphäling was not convinced that there was a need to exchange the term “motor vehicle” for “towing vehicle”. Further he came back to the point from the 8<sup>th</sup> meeting of the IWG-R55 where he claimed that there were no measurements to support the ISO 18868. However as a member of the ISO working group having developed the ISO18868 standard he had now got access to those measurements.

Mr. Stokreef asked whether the information that convinced the ISO working group about the publication of the standard could be made available. Mr. Svensson will check that out.

Mr. Svensson also noted that coupling products from his company have since very long been supplied to road train applications in Australia and other markets applying the same rules that make up the foundation for the standard ISO18868. There is more than 25 year of experience of applications of those rules.

The document R55-09-11 will to the next meeting be updated according to the above discussions.

**Next meeting**

Gothenburg 2015 June

*Item 21* (Limiting cases for the usage of certified characteristic values) ([R55\\_04\\_11](#), [R55\\_05\\_05](#), [R55\\_06\\_09](#), [R55\\_07\\_06](#), [R55\\_07\\_14](#), [R55-08-03](#), [R55-08-04](#), [R55-08-05](#), [R55\\_09\\_04](#), [R55\\_09\\_05](#), [R55\\_09\\_11](#), [R55\\_09\\_13](#), [R55\\_10\\_03](#); [R55\\_10\\_04](#); [R55\\_10\\_05](#); [R55\\_10\\_06](#); [R55\\_10\\_07](#); [R55\\_10\\_08](#); [R55\\_10\\_15](#) )

At the previous meeting Mr. Stokreef requested more of the background information to the ISO18868:2013 standard. In order to respond to that request Mr. Svensson had uploaded the documents [R55\\_10\\_03](#); [R55\\_10\\_04](#); [R55\\_10\\_05](#); [R55\\_10\\_06](#). The last of those documents was a history summary over the work with that standard going back to 2002. The document [R55\\_10\\_07](#) was a summary of many recent measurements of coupling forces in different vehicle combinations. There is also a comparison with the requirements as calculated using the ISO18868:2013. It could be noted that the measure peak forces only at one instance came close to the fatigue test load corresponding to the performance required.

Mr. Westphäling at the 9<sup>th</sup> meeting argued that road conditions in Germany are worse than in Australia. To this meeting Mr. Svensson had gathered information that showed that the German Autobahn does not have worse conditions than the Australian roads. Hence the measured forces and the experience over 30 years supporting the ISO18868 are valid. Mr. Stokreef was not present but had prior to the meeting expressed support for the proposal for this item. Mr. Westphäling argued that different engine power and and brakes requirements would still make the proposal questionable. In response to that Mr. Svensson showed the diagram in the document [R55\\_10\\_07](#). There it could be seen that the really high coupling forces is generated neither by traction nor by braking but through interaction between unevenness in the road and the geometric layout of the vehicle combination. Hence the difference in engine power and braking performance is not a significant factor. While support for the proposal is converging Mr. Westphäling wanted to the next meeting to challenge OEM:s and trailer manufactures for more measurements. Mr. Alguëra was doubtful whether there are any better measurements available. **Next meeting**