M I N U T E S
1st GRB Informal Group Meeting
Amsterdam (the Netherlands), 7th and 8th November 2005

0	**Attendance**	Action
	Commission EU; Germany; France; Hungary; Japan; Netherlands; Sweden; Switzerland; ETRTO; ISO; OICA	INFO

1	**Opening of the first meeting**	Action
	Mr. Kortbeek (NL), **Chairman** of the GRB Informal Group, welcomed the group. The scope for this informal GRB-group is the development of an additional emission test method for R51, added in annex 10, referred to as Additional Sound Emission Provisions (ASEP).	INFO

2	**Approval of the Agenda**	Action
	The agenda was adopted without comments.	DECISION

3	**Routine business**	Action
	A website has been launched for the group: www.grbigasep.nl. All relevant documents will be available on this website. Chairman pointed out the procedure for the handling of items: if someone wants to make an issue, we will discuss that item and conclude on that point before raising a next issue.	INFO DECISION

4	**Statements of delegations (WP002)**	Action
	Chairman invited the delegations to give there first opinion on the subject of this group. **OICA** raised the following questions and comments (WP002): • The noise behaviour of the OE-vehicles is broadly accepted. If there are concerns with actual OE-vehicles, it should be possible to identify concrete examples for detailed studies. The OICA is willing to work on it. • Does ASEP really require a test, or would it be sufficient to develop a guideline for evaluation for all technical services? • ASEP shall not be an additional constraint for actual designed cars. • No mandatory application during type approval, but application only in cases of doubt. • There is a need for definitions of statements in 6.2.3.3 (Actual draft), e.g. what are “normal driving conditions”, what means “shall not differ considerably”, etc.	INFO

	• argue for more liberal noise requirements in ASEP. • There are concerns from industry that annex 10 will substitute annex 3, because one test is technology leading, that's not the thing OICA will support. **Germany** confirmed to be interested in a test applicable only in cases of doubts. Even without concrete concerns today, which force additional provisions, ASEP should be in place for cases occurring in future. A cost benefit analysis must be established. **Sweden** is in favour of an extra test for certain vehicles, not for all vehicles. A criteria for decision might be vehicles with actuators or an acceleration during the Annex 3 test < 75% of maximum acceleration. However, for customer demands, higher emissions in few situations should be allowed for a low number of vehicles. NL proposed to design Annex 10 for a certain kind of exhaust systems, not for a certain kind of cars **UK**: (Statement by e-mail): UK is attached to a rigorous and realistic test. ---------Is the e-mail available to the group ?	

5	**Explanation of Annex 3**	Action
	Chairman brought forward that some members of the group were not (fully) involved in the process of Annex 3 and that therefore a clarification on Annex 3 would be useful. He asked mr. De Graaff to give a short technical clarification on how to execute the current (R51 02) and the new test method (R51 03). (CRP-003).	INFO

6	**The scope of Annex 10**	Action
	The chairman took the floor and opened the discussion on the Potential issues to be covered referring to document CRP-002. **1. potential scope** as stated in Reg 51 draft version • everybody agreed **2. potential requirements to the ASEP** at point 2: • "identical" is impossible; replace "identical" by "same", or "repeatable and reproducible" (ISO-terms) • skip "unambiguous" • new point 2: "The method should lead to the repeatable and reproducible results, independent from facilities or operators; no difficult decisions for operators or test houses. • everybody agreed	DECISION DECISION

	ISO: proposes extra criteria from ISO-position on all standards: 1) globally applicable 2) performance based 3) test is technology neutral; test have to be representative for its purposes (repeatable and reproducible). An example for performance based is a demand on acceleration and not on a certain gear. Technology neutral means that there are no requirements to the technique, but only functional requirements. The group agrees to add these criteria. **OICA**: proposes to add: 1) The requirements shall reflect realistic situations, which does neither mean typical behaviour nor extreme behaviour, which a vehicle is theoretically capable to do but which practically never occur. ; 2)applicable to other regulations (e.g. R59 replacement silencers) **Netherlands**: Annex 3 is related to normal driving behaviour; annex 10 is related to realistic driving conditions but more to the borderline of normal used conditions. **3. Potential issues to be covered** Chairman requested to express comments on the different paragraphs. **Point 1, keep the benefits of the pas**t: **OICA** commented the late distribution of this document , which did not allow a proper preparation. **France** agreed on the general idea of keeping the benefits, but the wording in italics is not appropriate for the ASEP intention. In fact the lack of correlation does not justify the need for ASEP. **Germany** agrees on this point if it means that the new test method will imply a wide open throttle test. **Point 2, non linear noise control strategies**: The group agrees that this kind of behaviour should be covered by the ASEP. Question is what should be covered in the main body (par 6.2.3) and what in Annex 10. **Point 3, high acceleration driving:** **OICA** reminds the group that the WOT acceleration in annex 3 is significant higher than the green line in the graph. **Mr. De Graaff**: answers that the WOT acceleration is only an intermediate result. The final result complies with the green curve and can be compared with the other two curves in the graph. The group agrees that this issue should be part of the ASEP. **point 4, worst case:** Chairman requested if the worst case needs to be considered? **Mr. Steven** said that the area above the red line does not need to be considered, because it is not encountered in normal traffic conditions. Not even in hectic driving behaviour. **ETRTO**: This item is confusing, because of the indication of high speeds up to	DECISION

	120 km/h. At this speed wind noise & tyre noise can be dominant. Is the real intention to cover high engine speeds and worst case power train noise or tyre noise at a high cruising speed? **Sweden**: the question should be formulated in this sense: Are vehicles allowed to make more noise when using the new method? After the discussion, the chairman summarised that the group agreed with the principle of one or more (red) lines of maximum engine speed to be covered by ASEP, but the location of the red line we have to discuss. Worst case testing will not be part of ASEP. Non-linear noise control will be covered in the test, but cycle detection is already forbidden in the main body of the regulation. **Chairman**: do we want to allow with the new that test vehicles can make more power train noise than is allowed in the current vehicle test? **Sweden**: that may happen. **Mr. Steven**: we should cover it, and with a good standard we can deal with it. **OICA** does not agree with the statement of Mr. Steven and wants more flexibility. Maintain the benefits of the past, is acceptable, but not too slavery. Manufacturers want the liberty to choose the noise sources to concentrate their effort on. This could mean a slightly other noise behaviour in the old test **ISO** adds to that: it might be able to make 1 - 3 dB trade offs, but not 5 dB's. Chairman summarises that the contracting parties are not in favour of an increase in power train noise, but it can happen and the ASEP have to deal with it.	DECISION DECISION

7	**<u>Long list of available methods</u>**	
	Mr. De Graaff presented the document CRP-001. The Netherlands proposes to the informal group to take these six candidate measurement methods as a basis (long-list) for the work of the GRB IG and to mirror them against the requirements to Annex 10. Chairman asked some clarifications on the specific methods. **Mr. Steven**: method number 3 can be skipped, since it has been succeeded by number 6 **Mr. Steven** presented Informal document no. GRB-42-5 (42nd GRB, 5-7 Sept. 2005). He showed the curves for different vehicles (refer to the document) showing some measurement results together with the defined limit curve. **Commission**: it would be helpful to have an overview of the relevant properties of the methods, for the comparison of the test methods. Chairman suggested to discuss the criteria for an intended method in the next day and closed the first day of the meeting at 18.00 hours.	INFO

8	**<u>Criteria for choosing a method</u>**	Action
	Chairman opened the second day at 9.30 on Thursday. He presented	

	discussion points in relation to the new method. He reminded the group that there is a concrete measurement method needed, since the Terms of Reference read: "the informal group shall develop a complementary test method and evaluation criteria for Annex 10". The discussion should be focused on the criteria the method should answer. **OICA** showed a table (CRP-005) indicating the intend to modify one's vehicle with aftermarket and tuning parts. After discussion about the meaning and the best formulation the group agreed with the following discussion items (CRP-004): 1. a test method for all vehicles (M1 + N1) or dependent to annex 3 results? 2. should the test method be part of the Conformity of Production (COP)? 3. which part of the engine map has to be covered? 4. description of the result with a point or with a line? 5. a fixed limit (a number) or a relative level (dependent to annex 3)? 6. a level related to the test results of annex 3 or an independent limit? 7. is a statement needed from the manufacturers about noise behaviour outside the covered area (the area covered by annex 3 + annex 10)? 8. how to deal with steered flaps in exhaust to bypass the muffler? 9. what to do with different driving modes (eg button "sporty"): cover them all, or which to choose? 10. what is the environmental importance of an extra test in annex 10 in relation with annex 3 *) 11. what is the relation with ECE R 59? 12. which kind of noise behaviour is not acceptable? **) *) question 10 is added on at the request of France **) question 11 is added after a discussion about non-linearity's and noise behaviour, brought forward by OICA Discussion about the questions mentioned above: **question 10**: what is the environmental importance of an extra test in annex 10 in relation with annex 3? There was a wide discussion on whether question 10 should be maintained or not and second what the joined answer would be. A reason for deleting the question is that the Terms of Reference requests for a test method which covers the noise emission under higher engine speeds. Therefore a discussion about the importance is not necessary. **Kortbeek** (from his environmental position): Annex 3 is related to L_{aeq}, but a	DECISION

	sporty driving behaviour and driving in higher engine speed is not covered by Annex 3. This noise behaviour happens also in urban driving (25% of the people drives sporty) and gives more annoyance. Therefore we need a test for higher engine speed. **OICA**: asked attention for what can be achieved with regulation for new vehicles in that area and what can be improved for the environment. This question demands more research. **ETRTO**: suggested to change the question in "how can we strengthen the environmental effects with the extra test of Annex 10". **Chairman** concluded to skip the question for the discussion at the moment, we the discussion will only be restarted if based on relevant scientific papers on this topic. **question 1**: test method for all vehicles (M1 + N1) or dependent to annex 3 results? **Germany** favours "only testing if there are doubts" **France:** all vehicles should be evaluated, but not all should be tested Conclusion by the **Chairman:** there are no contracting parties who insist that all vehicles have to be tested, so all vehicles should be evaluated, but not at any costs physically tested. The group should think about the criteria for the vehicles that should be physically tested. **question 2**: test method part of the COP? Conclusion by the **Chairman** after the discussion: if the test is part of the homologation, then it will be part of the COP. All contracting parities agreed, except France. **question 3:** which part of the engine map covered? **ISO**: does this question suppose an internal combustion engine? Answer: Not necessarily and dependent on the method, e.g. the approach of the test method of Mr. Steven is speed related and independent to the type of engine technology. Conclusion by the **Chairman**: there is a preference for a test that is related to acceleration and vehicle speed, not related to engine type. **question 4**: with a point or a line? **OICA**: a line supposes lots of testing (time & money consuming) to establish this line. **Steven**: there is a possibility to check the line by measuring two points. When the results for these two points are OK, then the whole line is OK. **Comm**: a minimum test is based on two points, but when you have doubts, you can do more. Conclusion: there is a preference for a line that will be evaluated by some points.	DECISION DECISION DECISION DECISION

	question 5 & 6: a fixed limit or a relative level? **Sweden** has a preference for a fixed limit for all vehicles. **Germany & Comm**: have a preference for a relative level, depending on the values obtained by the test of Annex 3. Conclusion: the majority of the contracting parties (except Sweden) is at this moment in favour of relative limits. **question 7:** statement needed from the manufacturers about noise behaviour outside the covered area (annex 3 + annex 10)? **Steven**: outside that area the noise is not of interest, therefore we don't need anything for that area. **Sweden** there are no problems with 6.2.3.1. but with 6.2.3.2 of document Draft Regulation 51: *6.2.3.2 Any control device, function, system or measure that could affect the noise output may be installed on a vehicle provided that: 1) it is activated only for such purposes as engine protection, cold starting or warming up, or 2) it is activated only for such purposes as operational security or safety and limphome strategies, or 3) it is required to fulfil this and/or other regulations.* Conclusion: an action item for the next meeting: Sweden will make a proposal to amend paragraph 6.2.3.2. **question 8:** how to deal with steered flaps in exhaust to bypass the muffler? **Mr. Kortbeek** (Environmental hat): is not concerned about some types of highly exclusive cars but concerned on a trend for application of these things in for example the "normal" GTI's. **Mr. Steven**: the main body text will cover this point, with the amendments of Sweden. General opinion: this issue should be prevented, it is to be dealt with in the main body . **question 9**: different driving modes: cover them all, or which to choose? General discussion: One can have the same discussion for the method of Annex 3. Normally a different gear shifting will not give more engine power, but for some cars it does. Conclusion of the group: the mode with the highest power and/or highest acceleration will be chosen. **question 11:** what is the relation with ECE R 59? **ISO**: at the moment that 51 is taken into account there has to be a "new" 59, but that's up to GRB. Conclusion: Any changes within R 51 must be doable in Regulation 59. This group should advise GRB to work on UN/ECE Reg. 59. **Question 12**: which kind of noise behaviour is not acceptable?	DECISION ACTION #1.1 Sweden DECISION DECISION DECISION

	Comm: the intention is to check the non-linearity in annex 10 **OICA**: proposes to define in advance the quality of the sound what is acceptable or not (i.e. resonance or what is higher than a normal sound evolution). **Mr. Steven**: everything that is in conflict with annex 3 and annex 10 is not acceptable. **Mr. Kortbeek** (from an environmental point of view): every noise that is not technically needed is not acceptable. The conclusion of the group: everything that is not in conformity with Annex 3 and Annex 10 is not acceptable.	DECISION

9	**Short list of available methods**	Action
	The Chairmen examines the support for the method of Mr. Steven as single candidate for the method for Annex 10. After discussion the group decided to review the next three mentioned methods as candidate methods, completed with the current method as a reference: 1. Steven Off cycle concept II 2. ISO 362, part 2 proposal *) 3. French method 4. Current method (R51 02) as a reference *) proposal NL status February 2004, the name is confusing because at the moment there is already another part 2 for motorcycles **) there is not a proposal at the moment, France will put forward this method in due time before the next meeting Action for Mr. De Graaff to make document ISO 362, part 2, available, the NL-proposal from February 2004. After a brainstorm and discussion the group decided that there is need for two types of information (for two matrixes) in order to make a decision for a method: 1. more explicit criteria for a further choice of a method that requires the ToR; 2. more information about the typical properties / differences of the candidate methods. The next more explicit criteria for a further choice were determined: 1. globally applicable 2. performance based 3. technology neutral	DECISION ACTION #1.2 FRANCE ACTION #1.3 NL DECISION DECISION

	4. repeatable / reproducable 5. fitness for purpose 6. costs / workload / simplicity 7. relating to “doubts” The following typical information about the methods is required to get more insight in the differences between the methods: 1. gear selection 2. entry speed 3. target acceleration 4. maximum engine speed 5. exit speed 6. partial or Wide Open Throttle 7. multiple test conditions 8. engine speed range used during the test (which part of the engine map is covered?) 9. relating to “doubts” (applicability for checking doubts) 10. workload Chairman informed the group about the process how to come to a method, without slowing down the process by waiting for new criteria or other methods. Therefore: • until 2nd January 2006 (15 working days before the next meeting) there is the possibility to add extra criteria for the choice of the method • until 9th January 2006 (10 working days before the next meeting) there is the possibility to add extra candidate methods Based on this information the methods will be scored and in the next meeting a choice will be made. Next steps are the description of the method and the testing phase.	DECISION DECISION DECISION

10	**<u>Preparation of the next meeting</u>**	Action
	Chairman summarised the topic for the next meeting: 1. discussion about the candidate methods and the choice of a new measurement method as requested in the Terms of Reference 2. the question about the vehicles that have to be evaluated (mandatory for all vehicles?) 3. the evaluation criteria	INFO

	4. potential limit values	

11	**Next meeting**	Action
	• 2nd meeting : 23 & 24 January 2005, the meeting starts at Monday afternoon • Chairman invites the participants to be the host for the 2nd meeting. When within a week no host is available, the meeting will be organised by the Netherlands in the Hague.	DECISION

12	**Any other business**	Action
	No other business.	

13	**Closing of the meeting**	Action
	Mr. Kortbeek thanked all participants for their presence, and wished everybody a good Silvester.	