

<p>MINUTES 8th meeting of GRB Informal Group 'ASEP' The Hague, September 19th to 21st 2007</p>

0	<u>Attendance</u>	
	EU, Germany, France, Italy, Japan, Netherlands, CLEPA, ETRTO, ISO, OICA, Spain, Sweden	Info
1	<u>Opening of the meeting</u>	
	The Chairman of the working group welcomed the participants	Info
2	<u>Approval of the agenda</u>	
	Presentations from the following participants are announced: <ul style="list-style-type: none"> • OICA/ISO/NL/J/CLEPA (Agenda item 5) • F (Agenda item 7) • F/OICA (Agenda item 8) 	Info
3	<u>Housekeeping</u>	
	Only some practical items were discussed.	Info
4	<u>Approval of Minutes of the 7th meeting</u>	
	Remarks: Page 4 (OICA): The discussion about the anchor point was not correctly reflected. A margin should be added to TA value (margin= legal limit – TA value) The group sees the need to give extra tolerance for extra silent vehicles Page 8 (OICA): Off course vehicles must fulfill ASEP requirements in production. However vehicles undergoing a COP test (Annex III) shall not be tested to ASEP. A clear wording is needed.	Info
5	<u>Presentation of the collected data with discussion</u>	
	OICA presented paper GRBIG-ASEP-08-003* Questions/Remarks: D: This concept is a test for linearity. Without an extra bonus, quiet cars risk failing, provided the noise emission increases to a level of normal cars. What would be the highest possible noise emission? OICA: It is difficult to create a vehicle with a higher slope than 8 dB(A), therefore a quiet car will remain quieter than a noisy car. F: The proposed limit value is derived from L _{wot high} . Do you have an idea for limits for other types of gearboxes? OICA: The shown examples may contain values from different gears. Precising the used gear lead to more precise results. Automatic gearboxes that can't be locked are difficult as highest emissions might be at low vehicle speeds. The maximum speed could be limited to 60 km/h.	

	<p>EC: ASEP shall not be part of type approval testing but will be covered with a statement from the manufacturer. Will OICA determine internally how the testing shall be carried out?</p> <p>OICA: This will be agreed between the technical service and the manufacturer.</p> <p>EC: I would prefer to avoid fixed steps between the tested points as this prohibits flexibility and leaves a lot of untested areas.</p> <p>ISO: The proposed spacing between the points of measurements is sufficiently small. A steep increase between those points is not wanted by customers. Also it would require a resonance that could only occur a stable engine speeds. A low spacing of 200 rpm or less is critical as it complicates the repeatability.</p> <p>Chairman: If this is a check of linearity, what is the sense of the limitation curve?</p> <p>OICA: The limitation curve shows the allowable nonlinearity. It results in several maximum deviation points. These points can be connected to a curve.</p> <p>NL: Why do silent vehicles have lower slopes?</p> <p>OICA: (referring to page 16) This is acceptable for the manufacturer. There is no need to go beyond this line. If the manufacturer decides to develop a silent vehicle, he will ensure that the vehicle remains silent. The common idea of the G/F proposal and the OICA concept is that the basic behavior of a vehicle can be measured. G/F describes the physics, OICA concept is performance based.</p> <p>D: It is confusing to call the yellow line the fitting curve which is used for the comparison with the maximum allowed deviations. It is difficult to understand why some measured values for the determination of the fitting curve are dropped and others are kept. The impression is that this may lead to wrong results.</p> <p>OICA: The yellow line is the slope of the real fitting line adjusted to the TA point. For the determination of the true slope of the vehicle, you mathematically calculate this with a reduced average. This automatically deletes highest and lowest figures. If you use real figures and play with these figures you will realize, that the concept is valid.</p> <p>Chairman: There are 3 main issues remaining: -missing flexibility -the limitation is different from G/F proposal -there is a lot of statistics</p> <p>Conclusion: to evaluate the concept with the measured test results.</p> <p>NL presented paper <u>GRBIG-ASEP-08-009*</u></p> <p>Questions/Remarks:</p> <p>NL clarified that the difference in results from 2nd and 3rd gear respectively (G/F/J-proposal) of the 1st vehicle is based on the on the tire noise. It was concluded, that the NL proposal is too tough for the 1st vehicle. The spreadsheet containing the results possibly contains a mistake and needs to be rechecked.</p> <p>ISO: The determination of PMR must be clarified and ISO is taking care of this concern. The repeatability of ASEP tests is critical without the support of the manufacturers due to the technical possibility of locking gear ratios</p>	<p>Decision for actions</p> <p>Actions</p>
--	--	--

<p>J presented paper <u>GRBIG-ASEP-08-010*</u></p> <p>Questions/Remarks:</p> <p>Chairman asks if due to the high engine speeds that a CVT engine produces during the Annex 3 test, there is still a necessity for an Annex 10 test.</p> <p>D replies that with state of the Art CVTs yes. Future technical concepts of CVTs could have impact on the necessity.</p> <p>OICA proposes a demarcation line, that makes an Annex 10 test obsolete, should be drawn. It could be based on the engine speeds covered in Annex 3 testing.</p> <p>The Chairman concludes, that the presentation reveals a hybrid vehicle must be treated like a vehicle with internal combustion engine.</p> <p>ISO refers to its presentation which shows that this was not necessarily generic but only the case for the vehicles from the J presentation.</p>	Info
<p>ISO presented paper <u>GRBIG-ASEP-08-002*</u></p> <p>Questions/Remarks:</p> <p>NL concludes that Electric & Hybrid vehicles shall be tested based on requirements for vehicle speed and asked, if ISO were able to gather any acceleration data.</p> <p>ISO explained that the coefficients can be calculated. However one must be very careful as this type of vehicle does not behave like an internal combustion engine. It is difficult to predict the behavior due to the status of battery charge.</p>	Action
<p>CLEPA presented paper <u>GRBIG-ASEP-08-008*</u></p> <p>Questions/Remarks:</p> <p>CLEPA clarifies, that the assumptions will be valid for R51 and R59 as it is anticipated that R59 will be aligned with R51.</p> <p>S points out, that the cost/benefit of the Annex 10 must be kept in mind. Based on the information the former presentations, in many cases the benefit is negligible. However in view of a fair competition, every manufacturer should do Annex 10 tests in any case.</p> <p>D reminds that the testing according to Annex 10 is carried out merely in case of doubts. In order to be in the position to avoid testing in specific occasions, clear definitions must be fixed.</p> <p>ISO countered that vehicles must be prepared to be tested to Annex 10. This requires a test mode in special cases unless those vehicles are explicitly excluded from requirements.</p> <p>In NL's opinion the proving authority must have the possibility to request an Annex 10 test in case of doubts. The WVTa entitled TA authorities to check validity of approvals or COP even if that authority has not certified a certain vehicle type. This may result in recalls.</p> <p>OICA advised that the proving authority, unlike the technical service, should only have the possibility to reject an Annex 10 test in case of obvious mistakes but not in case of doubts. There is danger that the complete certification process is delayed by several weeks. The most appropriate way is to rely on the manufacturers statement. This is more than only paperwork as whatever is signed-off must be approved internally.</p> <p>NL commented that physical testing for Annex 10 could be done during COP while for TA a statement from the manufacturer would be sufficient.</p> <p>The Chairman concluded that the group has two tasks:</p> <ul style="list-style-type: none"> -provide a test method including limits -define a legal framework for the inclusion of ASEP into R51 <p>The industry should come up with a proposal how to deal with doubts and how to include this in the text of R51.</p>	Action

6	<p><u>Evaluation of measurement results</u></p> <p>D presented paper <u>GRBIG-ASEP-08-011*</u></p> <p>Questions/Remarks:</p> <p>D summarizes, that the Dutch method is sensible to acceleration behavior but the tire influence is negligible. The behavior with the OICA concept will be presented next day. The so called UBA 2 method is a simplified version of UBA 1 with a stripped-off extra margin.</p> <p>Chairman concludes, that G/F proposal gives reasonable results and is applicable, the NL proposal has troubles with unstable acceleration and the OICA concept must still be evaluated</p> <p>OICA requires clarifying the necessary precision of results, the absolute limit and the legal benefit.</p>	Info
7	<p><u>Technical Issues</u></p> <p>a) How to deal with tire/road noise</p> <p>F presented <u>GRBIG-ASEP-08-006 *</u></p> <p>Questions/Remarks:</p> <p>F confirms OICA's assumption that the second proposed alternative gives an extra tolerance for vehicles with low power train noise.</p> <p>The Chairman does not see the necessity for this extra tolerance In a limit based approach as vehicles with low power train noise and normal tires would easily pass Annex 3. ISO adds that this is true for the majority of vehicles but not for e.g. vehicles with Off-Road tires.</p> <p>EC reminds that the basis for Annex 3 is to test the whole vehicle and asks for the reason, why F proposes to exclusively judge about the power train emissions.</p> <p>F explains that this is in view of an increased precision.</p> <p>NL presented <u>GRBIG-ASEP-08-012*</u></p> <p>Questions/Remarks:</p> <p>A short discussion about this presentation ended without any additional information and without a decision</p> <p>D again presented <u>GRBIG-ASEP-06-007*</u></p> <p>F accentuated that the effect of speed was taken into account. An under/over-estimation of position and angle respectively equalize themselves.</p> <p>NL noted that it is difficult to compensate a measured effect with an effect that is not measured but only assumed. Also, run to run differences are not included, only effect of technical mistakes.</p> <p>F pointed out that if the tire noise was important this must be more precisely discussed. The prior presentation revealed an inaccuracy of 1 dB (A), now we are estimating more</p>	Info Info

than 3 dB (A).

NL emphasizes that the influence of the tire is overestimated.

The **Chairman** proposed a Tour de Table in order to vote in the following questions concerning the compensation of tire noise:

- 1) scientific repeatability / accuracy
- 2) required measurement equipment
- 3) cost / workload
- 4) fitness for purpose / conclusion of members

	1	2	3	4
S	No	More equip ment needed	Increases workload	not include
NL	No			not include
CLEPA	No opinion			not include
OICA	No			not include
E	No opinion			not include
I	?			not include
ISO	No opinion			political decision
ETRTO	include compensation			include
F	accuracy will improve			include
J	?			not include
EC	No			not include
D	increase accuracy			include

Info

a) How to deal with Automatics, CVT's and Hybrids

OICA presented **GRBIG-ASEP-08-013*** in order to refresh the knowledge about how these gearboxes are handled in Annex 3. OICA added that a_{test} must not be below a_{urban} .

The **Chairman** asked why it was not possible to do a test with $a_{urban} + x$ for Annex 10?

OICA repeated that this was the Japanese proposal.

Chairman concludes that Annex 3 could be copied and carried out with higher acceleration. If the group thinks that none of the proposed methods works properly, we can still go back and use a changed version of Annex 3.

Conclusion,
further action
possible

b) How to deal with pre-acceleration

The **Chairman** asks for clarification about the decision on the use of pre-acceleration. Is it the technical service or the manufacturer that decides?

OICA explains that for Annex 10 no stable acceleration was needed and subsequently pre-acceleration is not necessary

D supports that statement by saying that any test within the boundary conditions would be considered as a valid result.

Conclusion: Pre-acceleration is allowed in accordance with the technical service responsible for the supervision of the certification.

For Automatic Transmissions the group explained a preference for an engine speed based test method. It still needs to be decided if this is valid for all Auto-gearboxes or merely for gearboxes that cannot be locked.

The engine speed of CVT gearboxes under high load is usually high and does not correlate

	<p>with the vehicle speed. There for this type of transmission the test procedure to be determined must be engine speed based.</p> <p>The problem of how to handle Hybrids could not be clarified. The group will have to come back to this subject in a later meeting as there are too many unclear questions such as the influence of the load status of the battery and its influence on PMR.</p>	Action
8	<p><u>Data processing method: first step in decision making</u></p> <p>F presented <u>GRBIG-ASEP-08-007*</u></p> <p>After the presentation F emphasized that for the setting of limits, the uncertainties that the proposed methods include must be very closely looked at. Prior to continue with the determination of one or multiple methods and their limits we must first clarify all open issues as listed in the presentation. The precision of each method must be studied.</p> <p>The group decided to alter the agenda. A sub group was formed with the aim to work out more precisely the required data necessary to define each method's uncertainty.</p> <p>The Chairman pulled together the strong points of each method:</p> <ul style="list-style-type: none"> -OICA concept has a clear protocol -D/F has a straight limit based on engine speed <p>The aim must now be to pull together those strong points into final methods</p> <p>ISO summarized the results from the sub group:</p> <ul style="list-style-type: none"> • necessary were determined • about 70-80 vehicle have in the meanwhile been measured and sufficient data have been gathered during those tests • OICA will prepare a form sheet containing the determined data • the data shall be sent to Mr. Steven in order to be put into one format and distributed to all members of the group subsequently • Data shall be sent to Mr. Steven by end of October • Within two weeks, the collected and aligned data shall be distributed to the group • An appropriate way to either distribute the data or to make them available for download will be determined • Members of the group shall analyze the data and send their results to secretary 2 weeks prior to next meeting 	Action
9	<p><u>Text proposal for ASEP</u></p> <p>The Chairman presented document <u>GRBIG-ASEP-08-005*</u></p> <p>After discussion it was concluded that:</p> <ul style="list-style-type: none"> • 6.2.3 shall be extended with the proposed changes. • Page 3, Communication form, shall contain additional information about the way that Annex 10 was fulfilled, e.g. applied test method applied for a specific type of gearbox • The Chairman will propose a wording for the extension of Annex 1 until the next meeting after finalisation of test method • Annex 7 (COP): OICA remarked that Item 8 in the main body requires the vehicle to comply with paragraph 6 ' Vehicles approved to this Regulation shall be so manufactured as to conform to the type approved by meeting the requirements set forth in Paragraphs 6: '<i>Vehicles approved to this Regulation shall be so manufactured as to conform to the type approved by meeting the requirements set forth in Paragraphs 6 above</i>'. In 	

	<p>the consequence there is no necessity to repeat these requirements in Annex 7. The Chairman required that the TA authority should at any time have the possibility to check that requirements are met</p> <p>NL replied that if during TA not all vehicles shall be tested to Annex 10 why should this be the case for COP</p> <p>D asked how the industry would carry out the checks according to Annex 10 in COP</p> <p>OICA replied that the assessment of possible variation during production as well as experience made with prototypes of the vehicle type in question would give sufficient certainty for an engineering judgment. Item 8.1 gives enough basis for a requirement to fulfill COP for Annex 10. It is the intention of the chairman to determine a wording that vehicles must fulfill those requirements.</p> <ul style="list-style-type: none"> Annex 10 was altered. It was decided to keep the 2nd proposal from the 1st paragraph. The paragraph now reads: <p>1. General</p> <p><i>By applying for type approval the manufacturer has to provide a signed declaration that the vehicle fulfils the requirements of annex 10</i></p> <p><i>The technical service shall have the possibility to ask for additional technical information in order to check the compliance of the vehicle with the requirements in this Annex and/or carry out the tests as described below.</i></p> <ul style="list-style-type: none"> Item 2 is under discussion The Annex must be renumbered taking into account the deletion of item 2 <p>S asked for the fundamental reason for which a mixture between TA and self certification was chosen</p> <p>EC replied that as testing should not be required for Annex 10, self-certification appeared appropriate. If we went back to TA, then every vehicle type must be tested for Annex 10.</p>	Action for Chairman
--	--	----------------------------

10	<u>Any other business</u>	
	There was no other Business	

11	<u>Next meeting</u>	
	The next meeting will be held in the offices of the US EPA in Ann Arbor from January 23 rd to 25 th 2008	

12	<u>Closure of the meeting</u>	
----	--------------------------------------	--