
DRAFT Meeting Notes
IWG GTR-7 Phase 2 Meeting 1, Geneva
8 December, 2009

1 Welcome

The chairman, Mr Frost, welcomed all attendees to the first meeting of the Informal Working Group (IWG) on development of GTR-7.

2 Approval of the Agenda

The objectives of the meeting were to come to a common understanding of the mandate that had been given to the IWG by WP.29, and to review the status of current research in order to lay the foundations for the first full technical meeting in February.

A revised version of the agenda was reviewed. No additional agenda items were proposed and the agenda was approved.

It was noted that UN Secretariat had provided an area on the GRSP web site where all of the IWG documents would be placed.

3 Mandate of the Informal Working Group

The chairman presented the key parts of the mandate from WP.29 and recalled that GTR-7 contains a reserved section for the BioRID II test tool. The IWG is tasked to develop a test procedure using this tool that may be adopted as the regulatory standard; if that cannot be achieved, a test procedure should be developed that can be used within the Regulation as an alternative to the Hybrid III test procedure. The development of a test procedure that is acceptable to all parties is the preference.

It was noted that the mandate from WP.29/AC.3 in November 2009 has a focus on low-speed dynamic testing. Higher-speed assessment is also in the Terms of Reference (ToR), but the current mandate is to focus on low-speed. However, it is important to keep in mind the prospect of considering a higher-speed test should that be added to the mandate at a later date.

The ToR were reviewed (GTR7-01-08e); it was noted that the IWG has specific goals and that it is not tasked with a general review of the Regulation.

The task to identify the cost effectiveness of low-speed rear impact test proposals was discussed. The chairman opined that if an alternative procedure to the Hybrid III procedure is developed it may be possible to assume that cost-benefit is already done; however, the cost-benefit calculation may need to be reviewed if a single new test procedure is recommended.

Japan (Technical Sponsor of the GTR-7 amendment) presented an updated proposal for a schedule of work (GTR7-01-05e). It was recognised that the tentative timeline is to bring forward a proposal in 2011, but that this may be optimistic.

4 Section 5.3.3 BioRID II Requirements (Part B to ECE/TRANS/180/Add.7)

4.1 Review of BioRID II Task List from the Washington Dummy Meeting

The BioRID II task list that was generated during the Rear Impact dummy meeting in Washington DC, 9 November 2009, was reviewed (WM-0-08e). The chairman noted that the task list may not be complete and that the IWG should add to the list if necessary. It was also noted that some items listed may not require IWG input.

Specific task discussions were:

Biofidelity

Regarding biofidelity tasks, the chairman recalled that the EEVC documents that have already reviewed the low-speed rear impact biofidelity of the BioRID II, RID^{3D} and Hybrid III were reported in the previous discussions leading to GTR-7 and that these would be added to the IWG document list.

Drawing Package

The chairman asked what progress had been made at a meeting scheduled for December 14 for Denton and FTSS to agree a common drawing package for BioRID. Denton noted that the meeting had been cancelled, because an independent Chair for the Global BioRID Users Meeting (GBUM) had not been identified. FTSS noted that they were content to proceed with developing a common drawing package once, as agreed at the Washington meeting, an independent Chair had been identified.

The European Commission had left Washington with a positive feeling about co-operation between Denton and FTSS and was surprised and disappointed with the apparent difficulty with moving forward on a single drawing package. He strongly encouraged close co-operation between the dummy manufacturers.

The chairman noted that GBUM was not a regulatory group and that a drawing package was needed by the IWG so that they can understand and identify the status of the test tool that is being evaluated. FTSS asked whether they and Denton could submit separate drawing packages. The chairman suggested that while this was possible, it would be more beneficial to the IWG if the manufacturers could at least agree where the drawings are essentially identical and where they differ.

The Netherlands commented that BioRID II has been sold for some time, and modifications have been introduced at various times. He reminded the IWG of the need to ensure that everyone involved in evaluation has the same specification of dummy.

FTSS noted that the process for submitting drawings to NHTSA was clear - submission, notification that drawings have been uploaded, call for comments/review, etc. - and asked what the process was for Geneva. The chairman explained that the regulatory process was different for Geneva and that the priority was for the IWG to be able to be sure that all participants could align the build status of their own test tools.

The chairman emphasised the importance of identifying the exact build level of the dummies for data that had been presented to the IWG. He noted that some differences may be important and others not so, but that it is vital to identify what those differences are. FTSS noted that build level information is mostly with Denton, because FTSS has only built one dummy to date.

FTSS suggested that they and Denton meet to agree drawings where possible, identify differences where they can't be harmonised, and bring the differences to the IWG. Denton did not expect many differences, and agreed to this approach. It was agreed that this would be completed before the next IWG meeting in February.

OICA noted that there was discussion at the previous day's meeting about harmonisation of test tools for frontal impact, and asked if it would be possible to propose to WP.29 to have similar process for harmonisation for BioRID. The US noted that governments had got together in Washington in November to start to discuss how to do this. The US will present on harmonisation of WorldSID during GRSP and that there is a general understanding that WP.29 is the body under which to harmonise. The European Commission confirmed their interest in harmonisation of dummies, to make better use of resources.

Seating Procedure

Japan presented their proposal for updates to the BioRID seating procedure (GTR7-01-09e). The main points of the presentation were:

- Proposal on seating procedure *as a regulatory tool* as distinct from a consumer assessment tool.
- Propose to use seat torso design angle, instead of fixed 25°
- Propose to reduce backset tolerance to ± 2 mm instead of ± 5 mm
- Propose to have an alternative spine angle for upright seats

Japan noted that JASIC has found torso angles of 15°, or even 11°, for light trucks. Use of design torso angle would also fit with all other UNECE car regulations. He noted that BioRID sits in a seat at this torso angle, but that the head cannot be levelled and pelvis angle cannot meet specification. This is because the spine curvature of the dummy is designed for a seat torso angle of 25°. Japan proposes that a new comb for a 15° torso angle be developed. The capacity for adjustment is designed-in to the dummy, according to Johan Davidsson - who was responsible for the early development of the dummy.

Denton presented on a new spine comb, developed in discussion with Mr Davidsson (GTR7-01-04e). The chairman commented that at the Washington meeting it was noted that the capability to have a different spine shape for different seat torso angles was built in to the original philosophy of the dummy, so the current work is carrying forward a built-in feature, but wanted to be clear whether the new posture is biofidelic. Denton advised that discussion with Mr Davidsson indicated that the dummy should be biofidelic, but that there is a need to gain experience with biofidelity and certification with the new comb.

OICA asked which comb would be used - would it be at the manufacturer's discretion? The chairman replied that this was to be determined, but possibly just from the design torso angle. OICA thought that this may be straightforward for Type Approval purposes but wondered who would decide for tests in the US. It was agreed that there would be more detailed discussion at the next meeting.

Certification Procedures

Korea presented the KATRI research results (GTR7-01-07e).

Sled Tests

The objective of the tests was to harmonise GTR-7 in KMVSS and to contribute to the IWG. Three Denton BioRID IIg dummies were tested at the Euro NCAP medium pulse using real car seats. Each dummy was calibrated before the tests, and each was tested three times.

It was reported that one dummy had acceptable repeatability, but that the other two did not (many results had a CV > 10%, target 7%). Reproducibility of upper neck Fx and My, lower neck Fz and NKM was not acceptable (CV > 10%). It was noted that this was similar to previous results from Japan and Europe. Reproducibility at a second laboratory was being evaluated.

Head Restraint Height

Korea commented that 800 mm is a reasonable head restraint height for Korean anthropometry. 800 mm head restraint height gave slightly higher dummy measures than 850 mm in dynamic tests.

The Netherlands commented that care was needed regarding the conclusion on the height of head restraint: 800 mm makes more sense for a dummy sized occupant; 850 mm makes sense for taller, modern people. However, a dummy to test correctly at this height of head restraint is not available. The tested height of head restraint should be appropriate to the height of the occupant.

BioRID Certification

KATRI certified four Denton BioRID IIg dummies. Each dummy passed the current certification procedure and was then tested with both of Denton's proposed revisions to the procedures (with and without head restraint). For tests without head restraint, the new sled is very repeatable, and very good repeatability for the same dummy, but the four dummies have distinct responses. Denton noted that the ability to differentiate between dummies was one of the goals of the updated certification procedures, and is an important first step in identifying what needs to be changed on the dummy to improve the repeatability and reproducibility.

For tests with head restraint, the new sled is very repeatable again, but repeatability was not as good for the dummies.

KATRI commented that the pendulum pulse was too high, which caused damage to the neck bumpers, and that the sled kept moving during testing and needed a fixing jig.

JASIC had also used the new calibration tool and saw no dummy damage, including no damage to the bumpers. They would like to understand better why there was a difference. KATRI noted that they saw very high head rotations with the new sled. Denton commented that the new procedure usually gives slightly lower head rotation (without a head restraint).

Comparison of FTSS and Denton BioRIDs

Results were generally similar for the two dummies, but upper Fx, My, lower Fz and lower My not acceptable reproducibility between the dummies. In response to a question, KATRI noted that dynamic backset had not been studied and that rebound velocity had been studied but the results were not available yet.

GBUM Progress Update

Denton delivered their presentation used during the GBUM meeting on 3 December (GTR7-01-06e). This included an overview of all activities that have been undertaken during 2009, including updates to the dummy and certification tests.

Certification Tests

The goal of the present work is to improve the repeatability and reproducibility of the tests, in part so that differences between dummies can be identified so that dummy adjustment procedures can be fully analysed to improve dummy reproducibility. More data is due soon and Denton will analyse the data sets, and finalise corridors for head restraint certification with and without head restraint.

An open question is to standardise on which new design options (e.g. standard or side-exit cable heads) are going to be adopted and which are not.

Denton noted that the timeline to finalise the analysis was four weeks, and that new corridors will be circulated in advance of the February IWG meeting.

The chairman asked whether all the dummies in the results shown have identical specification? Denton replied that the jackets were not identical, but that a separate

study showed that this did not affect certification results; all users who are contributing testing have been supplied with the new head design.

The chairman commented that the results seem to indicate good certification test repeatability, and each dummy seems to have good repeatability in the certification tests, but each dummy performs slightly differently - does Denton have ideas how to get the dummies to perform more similarly? Denton replied that this is the next step in the process. The dummy spines were 'as-is' and not set up specifically for these tests, so this will be examined, but there are other things to check also.

Biofidelity

The chairman recalled the biofidelity evaluation completed by EEVC and noted that the IWG are broadly content with BoRid's biofidelity however, he noted that NHTSA are currently investigating dummy biofidelity. He further noted that the task list from the meeting in Washington identified work on injury criteria and injury risk functions. He suggested that the IWG will need pass-fail criteria for a regulatory test (as opposed to injury criteria) and that injury criteria are not used in the current GTR. Nonetheless he noted that NHTSA is working on injury criteria as part of the rear impact work programme and that this would be of interest to the IWG.

Durability

It was noted that the Washington meeting considered that there are no BioRid durability issues. However, the KATRI presentation today had identified some, albeit associated with the new calibration procedure. It was agreed that durability should be monitored.

Repeatability and Reproducibility

The chairman noted that this was the subject of on-going work some of which had been reported in presentations during the meeting. This topic will be discussed further in February.

Other Items

The Netherlands noted that there have only ever been two RID^{3D} dummies from one manufacturer, so only limited repeatability and reproducibility information is available, plus BioRID biofidelity was better in the EEVC assessment. They suggested that RID^{3D} is not appropriate for consideration at this time.

Returning to the issue of the Global BioRid Users Meeting (GBUM) raised in the drawing discussions, the chairman noted that at the Washington meeting, Mike Beebe (Denton - Chair GBUM) made it clear that he would be happy to step aside as Chair if this would facilitate developments and contribution to the IWG. He applauded the work that the GBUM had done and the very good progress this year and believed that group of experts has much to contribute to IWG.

Japan presented their proposal for a Technical Evaluation Group (TEG) to standardise the dummy build level. They noted that the GBUM webex process has been very efficient this year, but that the linkage to the IWG is unclear. He proposed a BioRID II Technical Evaluation Group, with contracting parties, dummy experts, industry advisors, and dummy companies. It was suggested that the structure should be similar to the Flex-PLI TEG structure.

The chairman thanked Japan and advised the meeting that he had approached Mr Bernd Lorenz (BAST) with a view to him taking the TEG Chair. Mr Lorenz had agreed to this role. It is foreseen that the TEG could essentially take over the work of the GBUM but provide a regulatory focus.

5 Head Restraint Height Measurement

The chairman recalled that the Netherlands had prepared a document on effective head restraint height measurement and the problems with the current UNECE Regulation 17 and 25 height measurement methods (GTR7-01-03e). He confirmed that this issue is contained within the group's Terms of Reference and that discussion on this point will start at the February meeting.

6 Date of the Next Meeting

It was agreed that the next meeting would be on the afternoon of 2 February 2010 and all day on 3 February, in Tokyo. A WorldSID meeting will be held on 4 February at the same venue. It was agreed that an official invitation to the meeting would be distributed on 9 December 2009.

Attendees:

Bernie Frost (Chair)	Department for Transport, UK
David Hynd (Secretary)	TRL, UK and EEVC WG20
Hiroyuki Asada	(Technical Sponsor GTR-7 Phase 2) JASIC, Japan
Hidenobu Kubota	JASIC
Takeshi Korenori	Japan, Ministry of Land, Infrastructure and Tourism
Takakazu Fukuoka	Toyota
Yoshinori Tanaka	NTSEL, Japan
Atsuhiko Konosu	JASIC/JARI
Peter Broetjes	European Commission
Susan Meyerson	NHTSA, USA
Mary Versailles	NHTSA, USA
Vinyak Gogate	Tata, India
Si Woo Kim	KATRI, Korea
Seung Hee Kim	Republic of Korea
Peter Horn	Mercedes Benz
Myriam Constant	PSA
Peter Davis	SMMT, UK
James Abraham	Ford, UK
Paul Lemmen	FTSS, NL
Hans Ammerlaan	RDW, NL
Bernd Lorenz	BASt, Germany
Alex Schmitt	Denton, Germany
Pascal Delannoy	UTAC, France
Hélène Mény	Renault
Ansgar Pott	Hyundai
Thomas Kinsky	GM Europe
Thomas Slaba	BMW