

Report of the 73rd session
Electric Vehicles and the Environment Informal Working Group (EVE IWG)

Location: Virtual - Webex
Date: July 09-10, 2024
Time: 05:30 – 08:00 EDT

Chairs: Mr. Michael Olechiw (United States of America)
Ms. Elena Paffumi (European Commission)

Vice-Chairs: Ms. Chen Chunmei (China)
Mr. Nobunori Okui (Japan)

Secretariat: Mr. Leeson Guay (Canada)

Day 1 – July 09, 2024, 05:30 EDT

1. Introduction, review of agenda, and meeting recap

Documentation

- EVE-72-07e
- EVE-73-01e

Context

The EVE IWG co-chairs addressed members and welcomed everyone to the virtual meeting.

The co-chairs presented the meeting agenda to EVE IWG members, which can be seen below. The agenda was reviewed and adopted by the EVE IWG prior to beginning discussions.

Day 1 – July 09, 2024, 05:30 EDT

- Introduction, review of agenda, meeting recap
- HDV GTR – Discussion on deliverable timelines
- HDV GTR – Comments on open items
- HDV GTR – Comments on draft text
- HDV GTR – Open items and discussion point

Day 2 – July 10, 2024, 05:30 EDT

- Introduction, review of agenda
- HDV GTR – Pilot phase testing evaluation

- HDV GTR – Open items and discussion point
- HDV GTR – Follow-up on deliverable timelines
- UN GTR 21 – Transposition to UN-R
- Closing remarks

The EVE IWG secretary briefly reviewed the *Report of the 72nd EVE IWG session*, highlighting action items and key decisions from the discussions, held virtually, on June 18-19, 2024.

2. HDV GTR – Discussion on deliverable timelines

Context

The co-chairs offered a general overview on the state of play with regard to the electrified heavy-duty vehicle (eHDV) United Nations (UN) Global Technical Regulation (GTR) draft text.

The co-chairs proposed that a delay in the publication of the eHDV GTR may be necessary.

Discussion

The co-chairs communicated that there appears to be some large topics that require further development and so instead of rushing this process, perhaps a delay would allow the EVE IWG to deliver an improved result. Does the EVE IWG support a potential delay to the submission of the eHDV GTR by one cycle, meaning a submission would be pushed back to March 25-28, 2025, with a new formal document submission deadline of December 31, 2024, without impeding regulatory development of any contracting party. The drafting coordinator reiterated the importance of having complete consensus on this approach to not create any problems for anyone. The British delegation indicated that they do not have any issue with a six-month delay and there is no immediate need for the regulation from their perspective. The Japanese delegation stated that they will present some concerns they have with the testing procedures and perhaps an informal document could be submitted to the Working Party on Pollution and Energy (GRPE) in October instead of a formal document submission. The Japanese delegation would then be supportive of a delay to the 92nd GRPE session. The European Commission (EC) is supportive of the proposal and agree to delay the submission of the eHDV GTR. The American delegation indicated that they have just finished publication of amendments to their heavy-duty vehicles and so there is no immediate plan for another amendment. The Canadian delegation indicated that they are in the progress of amending their heavy-duty and light-duty regulations but are flexible in terms of publication of the eHDV GTR. The co-chairs expressed that they will raise this again on the second day of the meeting follow the eHDV GTR topics to allow time for other contracting parties to formulate a decision.

3. HDV GTR – Comments on open items

Documentation

- EVE-73-06e

Context

The Organisation Internationale des Constructeurs d'Automobiles (OICA) presented comments and feedback on the draft text of the eHDV GTR, in a lessons learned approach, following pilot phase testing.

Discussion

The drafting coordinator suggested that perhaps the breakoff criterion could be further brainstormed to try and find an appropriate solution.

A technical services representative commented that there is a need for a further evaluation of whether 1 % and 2 % deviation of the read value is necessary, especially between onboard and external measurements. To transpose this 1 % accuracy from light-duty vehicles (LDV) to heavy-duty vehicles, further evaluation will be required to determine if the values are in fact appropriate. There is also a need to look further into the electrical energy being measured and not only the voltage and current. The American delegation agreed that a reevaluation should be done for the onboard sensors and potentially use the pilot phase testing data to look further into this. I am hearing that the accuracy boils down to the energy value and if we end up getting a large error, perhaps it may be worth limiting the use of onboard sensors. The drafting coordinator suggested that the use of onboard measurement for voltage might be useable but there may not be a need for provisions on the current at this time, but we can consider this further.

The Japanese delegation stated that they cannot agree with the OICA proposal for measurement accuracy because on slide two it indicates that it is almost impossible to mount external measurement devices. If you want to propose these things you need to supplement it with technical information and explanations. OICA stated that it was their observation that it is almost impossible to mount external measurement devices in a non-invasive and safe manner. The American delegation asked whether there was anything prevent OICA from implementing a common solution across vehicles. Typically, there is only a need to measure the current and voltage going to the inverter and so there only needs to be one location for taking the measurements for all the test values. There is normally a common set of cables that goes from the inverter to a junction box and motor, so is there really a requirement to be measuring at more than one location. OICA clarified that future technology and architectures do not guarantee that there will be only one inverter. The Japanese delegation highlighted that manufacturers are making vehicles to meet regulatory requirements, so this reasoning sounds like more of an excuse. OICA stated that they have done pilot phase testing and invited everyone to witness the tests. From the data you can see how accurate the onboard measurements are. This proposal is not an excuse, we are looking at current vehicles and putting forward facts. The Japanese delegation reminded that there are two weeks until the targeted delivery of the draft GTR text and there does not seem to be a way to agree upon the new issues being brought up, for example, the pass-fail criteria, at the last second, which is hurting OICA's credibility. OICA stated that this issue has been discussed from the beginning and because of the lack of experience with these vehicles there is the question of whether the associate values are possible to achieve. Overall, the question is being asked whether the approach is appropriate for eHDV and transferable from LDV or if a separate and unique derivation is required to achieve the same result. The Japanese delegation communicated that unfortunately there is very little time to be implementing these sorts of changes and for the formal document. OICA stated that the proposal is not coming from the sky, and they apologize for not bringing this up sooner. In eHDV, the sector is not nearly as homogeneous as LDV and so failure mode of one eHDV could have nothing to do with any other. The drafting coordinator suggested that for the moment the text will need to remain the same until there is supporting data. If there is data supporting the proposal, then we can revise the statistics but otherwise it will need to remain the same until a point in the future when we look to make amendments. The drafting coordinator offered to include comments so that the proposal is not lost.

The co-chairs requested clarification on whether it is reasonable to think that some small adjustments could be made to accommodate testing and measurement of the vehicles, or would the changes required be so extensive that it is not possible or appropriate for the GTR to drive. OICA clarified that a simple change of the vehicle design cannot be made because they are of different structures. It is not possible to adapt accessibility from other vehicles to eHDVs because it is dependent on the vehicle class and structure. Even if there are service ports, the upcoming vehicles may be hindered in their technological development if restricted by regulation.

4. HDV GTR – Comments on draft text

Documentation

- EVE-73-07e

Context

The Japanese delegation offered a presentation on a document outlining their comments and proposals regarding the latest eHDV GTR draft text.

Discussion

The drafting coordinator indicated that it was their intention to produce a clean version of the eHDV GTR draft text in advance of the upcoming drafting session so that everything may be reviewed prior. The draft text has therefore been updated to include all of the comments received, including these latest comments from the Japanese delegation. The secretariat has posted the latest version online.

Action items

- EVE IWG members to consider the Japanese delegation proposal regarding text organization, prior to moving forward in this manner.

5. HDV GTR – Open items and discussion point

Documentation

- EVE-73-03e
- EVE-73-05e

Context

This item was set with the objective of discussing and resolving outstanding topics of the eHDV GTR draft text.

The drafting coordinator returned to items that were discussed at the previous EVE IWG session, reiterating what was discussed, what remains outstanding and verifying whether any further developments have been made since the previous session.

Discussion

Alternative test method

No further comments received.

Break-off criterion

The American delegation asked whether the auxiliary energy depletion could be verified for pulling energy from the batteries and at the appropriate levels. The four-second rule may be abrupt, but it does work. A technical services representative stated that for on-road testing, the four second criterion is not an option at all because it is not repeatable, and it is not appropriate in traffic.

Day 2 – July 10, 2024, 05:30 EDT

1. Introduction, review of agenda

Documentation

- EVE-73-01e

Context

The EVE IWG co-chairs addressed members and welcomed everyone to the virtual meeting.

The co-chairs presented the meeting agenda to EVE IWG members. The agenda was reviewed and adopted by the EVE IWG prior to beginning discussions.

2. HDV GTR – Pilot phase testing evaluation

Documentation

- EVE-73-08e

Context

A technical services representative offered a presentation on observations and feedback from the eHDV pilot phase testing, including an overview of test results, comments on procedural execution and comparisons of internal and external measurements.

Discussion

The French delegation requested clarification of whether ambient and internal temperatures were recorded during the test and whether there were records for the auxiliary discharge rates and how long it takes approximately. The technical services representative clarified that the temperature values were tracked over the whole test. It was found that the stationary discharge was quite low because the discharge started from a low value around 1 %. This would equate to roughly 7 – 20 kW and an average discharge time of 10 – 15 mins but could take as long as 45 minutes. The French delegation asked what the main temperature of the battery is, the ambient environment temperature and how does this ambient temperature impact battery energy. The technical services representative offered that they did see an impact from the ambient temperature but were unable to correlate it specifically to show a pattern. The temperature remained between 17 and 33 degrees Celsius for the testing. It would be helpful to do test runs at lower temperatures around 0 degrees Celsius to compare against higher temperatures because there are so many factors involved like the load profile, traffic, vehicle conditioning, etc.

The Japanese delegation commented that they appreciate the technical data offered in the presentation, but they are wondering why it is a completely independent study, separate from OICA. In addition, whenever there is reference to stationary discharging, does this mean using something like the heating, ventilation and air conditioning systems or videos, or something else. What would have been the end of discharge criteria. The technical services representative clarified that yes, the presentation is separate from OICA, and these are the recommendations of the technical services authority, unrelated to any manufacturer. For the auxiliary discharge the air compressor was used to consume the remaining energy. The discharge indicator that was used was the vehicle dashboard

light. OICA requested clarification on whether the indicator that is being referenced is about the low energy content warning which flags to the user that the vehicle requires a charge. The drafting coordinator said that, yes, this is what is being referenced and perhaps another indicator can be developed to not damage the vehicle or agree to a value on where to stop the discharge. OICA stated that this is not a red warning and more of a yellow warning, which means you still have driving distance from this warning, and it is not appropriate to stop the test at this point.

The drafting coordinator communicated that they have taken note of the charging power feedback. It was thought to have a normal charging speed and not fast charging to try avoiding damaging the battery systems while still maintaining charging control. In terms of beginning the test, perhaps we include a requirement that the test needs to be started within an hour of unplugging the preconditioner.

3. HDV GTR – Open items and discussion point

Documentation

- EVE-73-03e
- EVE-73-05e

Context

This item was set with the objective of discussing and resolving outstanding topics of the eHDV GTR draft text.

The drafting coordinator returned to items that were discussed at the previous EVE IWG session, reiterating what was discussed, what remains outstanding and verifying whether any further developments have been made since the previous session.

Discussion

Family definitions

No further comments received.

Metrics and minimum performance requirements

The drafting coordinator suggested that if there is an optional annex, perhaps it may be appropriate to remove the performance requirement tables found directly in the text. The co-chairs stated that it would likely cause confusion so having one or the other would be advantageous.

Steps of the test procedure

No further comments received.

Selection of test method

No further comments received.

Vehicle survey

No further comments received.

Scope of the eHDV GTR and small volume OEMs

The Japanese delegation suggested that the definition on small volume manufacturer is not necessary and can be eliminated in favour of a threshold being written directly in the text.

Measurement items and accuracy

No further comments received.

Revision of definitions

The secretariat of the GRPE commented that the best place to look for definitions may be the Special Resolution 1 document. Regarding an optional annex, UN GTR No. 15 may offer some guidance, as it also makes use of optional annexes.

Vehicle selection

OICA stated that they will come back regarding the vehicle selection part because they need to review it again, as it was a very early position and was intended to add transparency for the selected vehicle.

Use of auxiliaries

No further comments received.

4. HDV GTR – Follow-up on deliverable timelines

Context

The co-chairs came back to this topic and reiterated the proposal to delay the publication of the eHDV GTR may be necessary.

Discussion

Action items

Decisions

- The EVE IWG to delay the formal document submission of the eHDV GTR to the GRPE until March 25-28, 2025.

5. UN GTR 21 – Transposition to UN-R

Documentation

- EVE-73-02e
- EVE-73-04e

Context

During the GRPE workshops, held May 23, 2024, on the future of power determination, it was decided that a working document for the transposition of UN GTR No. 21 be developed as a UN Regulation.

OICA presented draft text of the UN GTR No.21 transposition and was seeking feedback from participants in advance of the submission deadline of July 22, 2024.

Discussion

The Japanese delegation asked what the intention of OICA is for requesting the transposition. OICA indicated that all options were open at the GRPE session and discussions within OICA suggested that there is no difference in burden from the LDV perspective between having one regulation or having two separate regulations covering components power and system power. There is better clarity for having component approval in the UN Regulation. If everything were to be combined in one regulation, it would have been a very complex scope. So this is why OICA proposed a separate UN Regulation and we feel it is the right decision.

The Japanese delegation asked if the GRPE left to OICA's discretion on how to proceed with this transposition. OICA expressed that no, they were given a mandate to do it and the content and adoption will be the responsibility of the contracting parties. The Japanese delegation rephrased the question as, was OICA forced to do this. OICA clarified that no they were not forced. A mandate is an allowance, so OICA has been allowed to conduct this transposition and that is what they are trying to do.

The Japanese delegation stated that there is already UN GTR No. 21, so what is the difference. OICA communicated that although Japan may be content in referring to UN GTR No. 21, some countries may not. For example, Korea is in the process of transposing the document, so OICA felt there was a need to do this. Furthermore, a UN Regulation takes a larger step towards harmonization in what it requires, separately from a UN GTR.

Action items

- EVE IWG members to comment on the draft UN Regulation text for the transposition of UN GTR No. 21 before the July 22, 2024, deadline.

4. Closing remarks

Context

This item was set with the objective of closing the meeting and looking forward to the next, addressing logistics and miscellaneous topics.

Discussion

Drafting session date

The co-chairs asked whether there was still a need for a drafting session, since most of the topics were discussed today. The Japanese delegation suggested that it still may be a good idea to have a drafting session to further discussing these topics. The drafting coordinator stated that they would like to have a clean version of the document to present at the drafting session and perhaps only one day may suffice, on July 16, 2024.

74th EVE IWG session

The secretariat reminded EVE IWG members to complete their online registration before August 19, 2024, if planning to participate in the next EVE IWG session in-person, in Tokyo, Japan.

Action items

- The secretariat to modify the drafting session invite to take place on July 16, 2024.

- EVE IWG members to complete the online registration form before August 19, 2024, if planning to participate in Tokyo, Japan, in-person. The form can be found on the 74th EVE IWG session [wiki page](#) and in the formal invitation email.

Decisions

- Drafting session for the eHDV GTR will take place on July 16, 2024, at 06:00 EDT.