Report of the 1st & 2nd Session
Separate Technical Unit (STU) Task Force under GRSG IWG VRU-Proxi

Date: Thursday, 20th and Monday, 24th of February 2025

Time: 1st Session 9:00 - 12:00 GMT / 10:00 - 13:00 CET
2nd Session 13:00 - 16:00 GMT / 14:00 - 17:00 CET

Venue: Online meeting via MS Teams

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Report

Notes:

- *All text in italic font in this report is to identify text added or changed in this report compared to text proposed for alignment in the agenda.*
- *The 2nd session affected only updates of agenda no. 14 onwards, last section of no. 6 as well as no. 1 and 10.*
- *The team agreed to report both sessions into one combined report.*

1. **Welcome and Introduction**
TF leader welcomed all and gave an introduction of this TF at the 1st session.
1st session attendees: All 3 Contributors, 3 of 4 Supporters (one apologies due illness) and 7 Observers.
2nd session attendees: All 3 Contributors, 2 of 4 Supporters (two apologies) and 3 Observers.

2. **Adoption of the Agenda**
Document: TF-STU-01-01 Agenda -4
Question was raised which regulation the TF should start with. It was agreed to cover this under agenda point 15.
The agenda was adopted without any further change.

3. **Review of ToR for TF STU**
Document: [GRSG-128-36r3e]
(Note: ToR contain an error which do does not affect this TF. Under correction with IWG Secretary)
The ToR were briefly presented to the TF team for Term 4. (d) i. this TF is operating under:
"...
Completing draft regulatory proposals for Separate Technical Units (STU) approvals for the following regulations (if applicable):
o UN Regulation No. 151;
o UN Regulation No. 158;
o UN Regulation No. 159;
o UN Regulation No. 166.
..."
The scope of TF was agreed.

4. **TF Role review**
Role definition for TF was shared via email before the meeting:
The boundaries are fluent as needed for any TF members what one can contribute to the team. Likely when the first set of drafts are done and in the maturing phase the boundaries between the roles naturally get more fluent.

- Lead
  Oversee TF, lead meetings, does the comms & reports, coordinate TF members and progress on top of the tasks of the Contributor role (as needed subject to amount of TF members fulfil the demands for Contributor's work scope).

- Contributor
  In the core of the TF to align how we do the STU updates, draft part(s) or draft a complete regulation(s) to finish for submission to GRSG. Progress work to agreed timeline, seeks input as need from Lead and other Contributors. Likely any Contributor picks up the tasks of a Supporters to a larger degree.

- Supporter
  Review and guidance role in the TF to give to feedback and input for the proposal how we do the STU the updates, draft of part(s) or complete regulation. All to given deadline to ensure timely progress of the TF.

- Observer
  Kept in "CC" on any comms for main progress or tasks, not expected to support the TF in any way or to attend any meetings.
  Observer can inform up front when a topic comes up if involved as a supporter can be provided.

No feedback was received, and scope of roles were agreed.
Roll assignment was established and communicated to TF team before the meeting via email.
The current status is:
- *1 Lead (Note: No co-lead was found)*
- *3 Contributors*
- *4 Supporters*
- *24 Observers*

5. **Motivation for STU approach in Regulations**
Apart from the component supplier the vehicle manufactures, and Technical Service companies befit from the STU approach:
a) Component to STU level integration can be done also by a manufacturer especially when the function is supported by several components from different component suppliers and the use on a range of different types of vehicles.
b) With the split of the STU approval with the main testing can applied to the STU and vehicle level approval with STU applied for a reduced set of testing.
c) Likely such approach is currently taken especial due to the vast variance of for commercial vehicle types.
d) Current scheme for full vehicle approval will be maintained.
e) A Supporter stated like the London PPS DVS scheme other cities or countries have similar scheme established or such in planning. The EU plans to allow cities, regions or states in the EU to allow retrofitting fitting vehicle system. STU approach might help or is supporting such equipment for retro fitting.

6. Review and learning for TF team what is needed for a good STU approach

As STU approach is not so common for regulations. Also, likely a degree of learning of the TF team what needs to be amended in the regulations to make them fit for an STU approval. Cross checking was discussed in several 1:1. IWG colleagues on how a STU approach in regulations is handled as well as which are the better implementations and more recently written or updated regulations

In the past STU approach were called "components" or "devices". Such wording you can still find in some regulations.

Out of the cross-checking the following documents or regulation were brought up and rated for this TF as a proposal to read and orientate for our TF work or not to use:

- UNECE R.E.3 defines "STU" in latest framework "Consolidated Resolution on the Construction of Vehicles (R.E.3)" in document ECE_TRANS_WP.29_78_Rev.7e.pdf
  ⇨ Suggested to be reviewed for learning.
- UNECE template for documents in document WP29-157-07-Rev.1e.pdf (under: Reference Material - Guidelines on Preparing Working Party Documents) details how regulations and amendments should be laid out.
  ⇨ Suggested to be reviewed for learning.
- EU GSR 2 calls approval for STU but does not provide any "how to do" STUs.
  ⇨ Suggested not to use for learning.
- EU framework Regulation (EU) 2018/858 copy of UNECE 1958
  ⇨ Suggested not to use for learning as it is an EU document copy and there are enough others documents for our orientation.
  A Contributor suggested to cross check if there are conflicts with such frameworks regarding STU other than the EU. However, in a brief discussion with other team member it is from past experience unlikely a matter and other areas or countries within the UNECE do not have any framework on such.
- Reg. 144 Accident Emergency Call ("e-call") STU implementation is very well done within Parts I B, II and III but does not use STU wording
  ⇨ Suggested to be reviewed for learning base on similar kind of system is to equipment which is the scope for this TF.
  A Contributor stated the text is well written showing the subsystem, the system, the integration of system and the handling full vehicle approval for of not approved system. The text duplicate partly the requirements valid for STU as well as optional requirements. On vehicle approval with approved STU does not repeat was done STU level. It was noted the e-call system is likely not much affected or depending on the fitment to a vehicle compared the regulations the TF has in scope.
  The TF Lead suggested duplication is one way however this is not so elegant and efficient having e. g. R158 in mind with various "means" to fulfil the requirements and other ways should be explored to achieve the same.
  A Supporter agrees duplication is not so elegant way but likely sees this as the simplest way than re-writing such content for e. g. testing in to 3 ways: STU approval, vehicle approval with STU installed and direct vehicle approval.
- Reg. 100 "Electric Power Train" from GRSP and is under correcting the split for STUs via amendments. Planed release at WP.29 spring 2025, see documents WP.29 195th 3 -> docs -> ECE/TRANS/WP.29/2025/41 as well as "...42" and "...43". Combined working version under passive safety: GRSP -> informal group -> SIG - 6. -> SIGTP-06-14r3_(SEC)draft_R100-05_consolidated.docx
  ⇨ Suggested to be reviewed for learning base on similar kind of system to equipment which is scope for this TF.

A Contributor stated this give an idea to overcome the duplication of requirements by moving these to annex and refer to annex for STU. The integration with vehicle of STU put such to the same annex.
A Supporter directed that requirement cannot be in annexes. It was also referred to R10 (EMC), which uses separate tests for STU, similar on R116 (anti-theft and alarm systems).
Another Supporter confirmed requirements cannot be in annexes.
A Contributor provide via Teams chat the following.
The difference between STUs and Components is only related to specified types of vehicle or not. Isn't that the only difference?
In the case of UN-R158, Which part is "related to specified types of vehicle"?
A: Attachment in the cab
B: Reliability of the Reversing signal
The only part that is applicable to "related to specified types of vehicle" is. As for Reversing Signal, we believe that it can be guaranteed as a system component without specifying the vehicle if the electrical connections of the reversing lamp in UN-R48 6.4.7. are used as a starting point. As for attachment in the cab, if the attachment can be made common on the vehicle side, the responsibility can be separated.
We believe that it is impossible to approval monitor, system and camera components in isolation; we believe that a set of RVCS should certify system components.
The TF lead stated this is it is simpler to allow only a complete system as a STU. However, we should consider how and how far we allow not complete system as a possible several STUs. We should avoid breaking down into too many components is not viable in partial term for seeking approval. It was suggested this topic is given more room for discussions within agenda item no. 8, which deal with exact this matter.

- EU Reg. regulation 2021/1958 for Intelligent Speed Assist (ISA)
  ⇨ Suggested to be <u>reviewed</u> for learning despite format and approach for using an UNECE regulation however similar kind of system and STU approach to equipment which is scope for this TF.
  A Contributor stated this has well covered the essence of the split for STU and STU integration on vehicle as well as it is a very recent regulation, covers scope with an ADAS topic like the regulations in concern for the TF and has a similar kind of structure of a system.
- Reg. 158 "Reversing" contains elements for STU already but implementation in not fully done.
  ⇨ Suggested <u>not</u> to use for learning as this is in scope of the TF.
- Reg. 166 "Front & Side for M1 / N1" contains elements for STU already but implementation in not fully done.
  ⇨ Suggested <u>not</u> to use for learning as this is in scope of the TF.
- Reg 26 "External projections of passenger cars" contains STU approach.
  ⇨ Suggested <u>not</u> to use for learning as this is an "older" regulation as well as different kind of topic compared to our TF regulation scope.
- Reg. 34 "Prevention of fire risks", scope is fuel tanks, STU implementation called "devices" and is well done.
  ⇨ Suggested <u>not</u> to use for learning as the scope is quite different and there are enough other regulations for orientation.
- Reg. 46 "devices for indirect vision and of motor vehicles with regard to the installation of these devices" approach e. g. for CMS for mirror class V and VI only
  ⇨ Suggested <u>not</u> to use for learning as not so simple to understand and is a grown regulation over a long time.
- R114 "Airbag module for a replacement airbag system" covers airbag in steering wheel, airbag module with wheel around and complete wheel. Implementation is well done but does not use STU wording and a bit older

⇨ Suggested <u>not</u> to use for learning as it is an "older" regulation as well as the scope is very specific.

- Reg. 161 "device against unauthorized use (by mean of a locking system)" (split from Reg. 116). Possibility given but does not give the split in 3 ways.
  ⇨ Suggested <u>not</u> to use for learning as it is not representative.
  A Contributor stated there is a good example to define a STU approval for one or multiple types of vehicles
  A Supporter stated mechanical and alarm parts have been not seen as important for the STU in this regulation. It was not fully intended for an STU approach however more as a split from R116. Also reading one of the 4 regulations (R116, R161, R162, R163) alone does not provide the full understanding of the systems on a vehicle.
- Reg. 162 "approval of immobilizers and approval of a vehicle with regard to its immobilizer" STU is in use but only covers only 2 elements, not 3.
  ⇨ Suggested <u>not</u> to use for learning as it is not representative.
- Reg. 163 "vehicle alarm system and approval of a vehicle with regard to its vehicle alarm system" STU is in use but only covers only 2 elements, not 3.
  ⇨ Suggested <u>not</u> to use for learning as it is not representative.

Action TF members (Lead, Contributor and Support)*: All should read and in detail familiarise themselves with the 5 regulations or documents above stating "<u>to be reviewed</u>" if this was not done yet.*
A Contributor gave feedback it will take about in total one working day's time and should be shared over several days to ensure better focus:

- *Approx. 10min needed for R.E.3 definition on "STU" in latest framework document*
- *Approx. 15min needed for the guidelines, document for awareness.*
- *Approx. 2h each of the 3 regulations, subject to preexisting awareness and personal experience.*

Please feel free to rase in any next meetings any questions or suggestions for such topics which will ensure the TF team gets better aligned and helps with learning.

7. Typical approach for both vehicle and STU approach requires typical 3 elements

a) Full vehicle approval including with any system, components, part or similar required to fulfil the regulation demands.
b) STU approval requires typical 2 additional elements:
   - Fulfilling regulation demand applicable to the STU approval.
   - Fulfilling regulation demand applicable to vehicle equipped with an approved STU.

A Supporter agreed with the approach and stated the admin section of the regulation (e. g. communication and marking sections) need to be also consider. Under b) there are two different approval holders to be taken care in the annexes of the communication template and marking. These can be triple up but for full vehicle and for vehicle equipped with STU are typically mostly the same.

8. Overall idealistic goals of TF for STU approach and gaining approval

Goals for TF:

a) Main requirements should <u>not</u> be changed.
   However it might lead changes needed for the requirements for only some "editorial changes" needed
   - a STU approach is explicitly allowed.
   - for what is needed to allow a STU approval.
   - for what is needed to allow a STU application on a vehicle approval.

b) Define what the STU scope is - more based on a full functional unit (e. g. system or black box approach for overall function).
A Contributor agreed and stated likely need to be define.
Another Contributor stated rather than the definition on single parts or components, define the STU in relation to which requirements and tests to be fulfil. E. g. on ISA regulation the "brain" (min. level of main functionality, but e. g. no HMI / user interface), other parts can be added to the on the STU optional and in relation to such requirements and tests,
Another Contributor provided a copy from R144 to complement the discussion so far as an example:

7.5. AECC information and warning signal

If the control module is part of the AECC and if the applicant for approval so requests, the information and warning signal verification may be part of the approval of a type of AECC. In this case the following provisions shall apply:

c) Single component approval will <u>not</u> be supported.
This would typically likely lead to build up of a full functional unit as an STU. The justification is such has likely very little benefit for effort, cost and flexibility compared to full vehicle approves or pure STU approach (with both elements STU approval and vehicle equipped with an approved STU).
d) Enable as much as possible on STU level approval for e. g. testing, checking and dependencies of system for application on vehicles.
e) Achieve as less as possible on vehicle equipped with an approved STU for e. g. testing, checking and dependencies of system for application on vehicles.
f) The *STU Approval Applicant* should define the split as they know there STU best what should be done on SUT level or on vehicle level.
Such should be defined in detailed application guidelines, dependencies, limitations, tolerances or similar.
Leave it to the Technical Service to validate split is appropriate for a particular STU approach.
A Contributor stated the STU manufacturer can be a vehicle manufacturer therefore better to change the wording to STU Applicant.
If there are multiple ways to approve it as given in R158 it is a good way to keep these different ways open. Try to keep for STU on vehicle keep the same, if possible, to keep common requirements and tests the same.
A Supporter suggested changing to "STU Approval Applicant" as well as commented some test or requirements are included or excluded at STU level. When excluded these need to be done vehicle level.
Another Supporter confirmed that the regulation must define the borderlines not the applicant. The regulation must restrict such and foresee options / definition on requirements and test. Sch cannot be defined by the applicant.
Another Contributor stated the main framework is defined by regulation and only a small part can be allowed by the applicant to choose as given in the framework.
A 3rd Supporter stated the STU has to identify the position of the STU part(s) on the vehicle, which is difficult part on all these regulations in this TF. For R151 and R159 in itself is less complex and therefore can be better in this respect and TF team can lean on the way. R158 has high complexity with e. g. visibility and detection sections and for each gives different ways how it can be done. R166 has same architecture as R158 but give additional different technology mixes.
Another Contributor stated to restrict to the "black box" functional level but there can be several "black boxes" to deal with different kind of system allowed.

g) Ideal idea for common approach for all 4 regulations using the same text added or changes. This might lead to level of administrative adjustments in current texts to make this work. If variations are needed keep such as little and simple as possible.

9. Amendment method for regulations

Goal is to achieve an amendment as a supplement (not as a new series for the regulation).
Rules & Justification:

a) If there are no change the requirements or level of stringencies (more or stronger requirements, depending on the subject it might allow less or weaker requirements) needs new series as an amendment merging all previous documents of the regulation and any amendment into a new document (new clean version).
b) Amendment as supplement used for changes like clarifications, add options or possibilities and typically should not affect preexisting approvals for vehicles or STUs.
A Support stated it seems more likely to have a new series of regulation and does not know if this can be on with a supplement. E. g. for the marking and templates should not create conflict with current full vehicle approved system. The supporter opened the question the team on this.
Another Supporter stated there is no problem from such an supplement approach as the vehicle manufacture normally do not apply such marking on component itself, also it was done before for R46 via a supplement.
TF Leader commented the team need to keep an eye on the communication template and marking sections to make it different to existing full vehicle approval then it will not be an issue. This was done in R46.
See also for general guidance on general guidelines from UNECE for regulatory procedures and transitional provisions: ECE-TRANS-WP29-1044-Rev3e
c) Correction: Formal minor changes for errors, typos, wrong figures or obvious wrong content.

10. Review of TF regulations documents

- R151 with 4 amendments
- R158 with 3 amendments
  A Supporter stated there is a 4th amendment as a supplement on the way, submitted for approval in Mar/2025 by WP.29:
  ECE-TRANS-WP.29-2025-24e.pdf
- R159 with 2 amendments
- R166 no amendments
  A Supporter stated a new series of amendments for R166 was approved via UN-R166-01 by WP.29 in Nov/2024 but is not yet formally published:
  ECE-TRANS-WP.29-2024-98e.pdf

Action tbd. *create working version of the 4 regulations in concern.*
Note: See no. 13, for start of an example for R158 working version: TF-STU-01-04 R158 & Amendment 1 & 2 & 3 combined working version.

A Contributor suggested to check the ongoing work for the regulations in scope of this TF to ensure the TF is working on the lasted version and amendments. Direction taken is to cross check with GRSG Secretary Edoardo Gianotti and linking in IWG Chair and Secretary for support to get feedback as needed.
Action TF Lead *to follow up on this and report back to TF team.*

11. **Initial review of the 4 regulations for chapters affected for a change**
    Note: Reference between regulations and chapter scope and content not yet done
    - Reg. 151: 0, 1, 2, 3, 4, new Annex in parallel to Annex 1 and 2
    - Reg. 158: 1, 2, 3, 4, 13, new Annexes in parallel to Annex 1, 2, 3 and 4
    - Reg. 159: 0, 1, 2, 3, 4, new Annexes in parallel to Annex 1, and 2
    - Reg. 166: 0, 1, 2, 5, 12, new Annexes in parallel to Annex 1, 2, 3, 4 and 5

12. **Use of "working version" consolidated document**
    Working on larger scale for amendment of an existing regulation with several amendments can be a challenge for most in the process.
    Proposal is to create a consolidated "working version" document as such was used before under UNECE. However, maintain identification which part was change on which document. Add into this working version the changes and do the TF and IWG reviews over time. When such is finished split up the changes made into the new draft amendment as supplement document pointing out changes to the existing main regulation and to each amendment documents affected.
    Advise from GRSG & GRSP secretary Edoardo Gianotti has been requested to cross check the TF document admin approach. No feedback yet received since begin of Feb/2025. Is this required and should we follow up this?
    A Support stated and the team agreed there is no need for Edoardo's input for now and we can do this at any time in the future if needed as we have more experienced people in the TF between the Supporters or Observers roles.

13. **Guidelines and tool for drafting updated regulations**
    a) Using with MS Word for any regulation or drafting documents.
    b) *Creating working version documents containing all merged amendments.*
       Marking amended text with the MS-Word comment function and give the reference in comment text for traceability. Keep this file for future reference, see example for R158 working version with changes, document: TF-STU-01-03 R158 & Amendment 1 & 2 & 3 combined working version (with changes)
       Approve all tracked changes (but keep comments) for more clarity in the further process, see example for R158 working version: TF-STU-01-04 R158 & Amendment 1 & 2 & 3 combined working version
       ***Action TF Lead** to update this proposal with the 4th amendment as a supplement of R158, see agenda point 10.*
    c) Using MS Word "Track Changes" function to trace any text additions or changes made in this TF.
    d) All drafting in line with UNECE template guide see agenda point no. 6, document WP29-157-07-Rev.1e.
    e) Feedback or review notes on draft text via MS-Word comment function.
    f) Approve / reject of changes or delete comments via MS Word "Track Changes" only by the assigned drafting colleague of the document when TS team or reviewers has all agreed.
    g) When drafting is finished generating new draft amendment document for GRSG submission referring to each existing document so far in force (regulation or amendment documents.
    h) Request for review of draft document to set target date assigned by drafting colleague of the document to the Supporters.

14. **AOB**
    - ***Action TF team** draft report feedback by COB Wednesday, 26th of Feb 2025, some of the TF team have already confirmed in the 2nd session.*

- *Publishing of TF STU data on UNECE Wiki website*
  Team agreed to share any working documents for the draft regulations at various review stages and the TF reports.
- *TF team private shared area for storage, exchange and collaboration of the Contributors and as need with the Supporters.*
  Agreed not need currently and can be revisited if this changes.

15. Agree not next steps, work packages, collaboration or similar

a) *Timeline break down to match ToR for GRSG draft submission to autumn session 2025*
   - *A Supporter stated for Oct/2025 GRSG session the rule is 12 weeks before the IWG and TF need to be finished which means by beg/Jul/2025 with the formal document. Small changes might can be done via an informal document introduced in the GRSG session which the GRSG secretary will integrate for submission to WP.29.*
     Another Supporter stated such should be avoided and the TF need to focus the work more frequently over the next 2 to 3 months.
     A Contributor suggested to use fixed weekly meeting series to accelerate the progress.
   - *Currently the next IWG session is planned for mid of March, date is currently not yet defined. TF Lead is only available from 19th March onward to attend the IWG session in March. Possible stand in is one of the two of the Contributors.*
     ***Action TF Lead** to propose TF IWG meeting report and align with TF team. Nominate stand in as needed.*
   - *From updated feedback of IWG Chair the following session is likely in July 2025 and in person, possible Brussels.*
     This likely makes the timing for submitting the draft amendments from the IWG and TF to GRSG in October 2025 very difficult ensuring a wider review and discussion of these documents in the IWG before.
     IWG Chair is not aware of any drive for a deadline for the STU introduction (other than in the ToR which was set to 1 year by the IWG) nor is the TF team. By latest session in the IWG July 2025 a direction and forecast for ToR amendment on the STU topic would be needed.

b) *Breakdown of requirements and testing (approach aligned before in section no. 8)*
   Current regulations containing chapter for requirements and chapters for testing.
   Subject to each of the 4 regulations in concern such chapter are either called:
   - *Requirements: "Specifications" (for R151 and R159) or "Requirements" (for R158 and R166)*
   - *Testing: "Test Procedure" (for R151 and R159) or partly covered directly in the "Requirements" with referring to annexes for the "Test Methods" (for R158 and R166)*

   ***Action assigned to one Contributor** to work out the breakdown for <u>R159</u> (formless, based e. g. on a simple text format is fine) in the agreed 4 ways as stated below (Note: Step 3 was in the meeting discussed but suggest splitting this also into two ways) for the 7th of March 2025 to be sent to the TF lead.*
   The TF Lead to share this with all Contributors and Supporters. The TF team will offline review this before the next session. In the next session the feedback by the team will be exchanged and changes made until this breakdown will be concluded and agreed.
   The suggested approach for the breakdown in four ways to be proposed:
   (1) Compile a summary list of each current requirement.
   (2) Propose which requirement to be covered for the STU approval and which by the vehicle level approval.
   (3) Compile a summary list of each current test.

(4) *Propose which test to be covered for the STU approval and which by the vehicle level approval.*

On supporter commented the spilt should orientate on the practical approach for approval and the various technologies used for this regulation. It was established the TF team as a sufficient mixed experience on the technologies typical in use.

c) *Content for "Definitions" chapter*
The current regulations containing the chapter for "Definitions" and called throughout all four regulations in concern the same. However, due to the nature of R158 and R166 there are 2 each. Also these 2 regulations contain some elements of an STU approach but such is not formally defined or build into the regulation structure.
***Action assigned to one Contributor** to work out the generic definitions in the way as stated below to be added, changed or amended to any of the regulations (formless, based e. g. on a simple text format is fine) for the 7th of March 2025 to be sent to the TF lead. The TF Lead to share this with all Contributors and Supporters. The TF team will offline review this before the next session. In the next session the feedback by the team will be exchanged and changes made until the definitions will be concluded and agreed.*
The suggested approach should cover a proposal for:
(1) *Definitions (sure there are several among the e. g. STU alone and vehicle with STU equipped) into the "Definitions" chapter.*
(2) *Create a framework how and where these definitions might be used in other chapters.*

16. Nominating drafting assignments of text elements or regulations within TF team
Not covered in meeting. Other supporting work needs to be concluded first, see agenda no. 15.

17. Agree on next meeting(s), content *to be covered* and who to join
Agreed was the 2nd session is on Mon, 24th of Feb 2025 at 1pm GMT / 14.00 CET.
(The availability of this slot was previously indicated it the feedback most of the TF team can attend.)
***Action TF Lead** to find common availability, send invite and create agenda for the 3rd and 4th session after the 18th of March 2025 due to limitation of TF team members.*

18. End of Meeting