



Informal document GRVA-19-35
19th GRVA, 25 June 2024
(For review during the
Troy meeting 20-24 May 2024
Provisional agenda item 8(b)[/6(b)]

Status Report

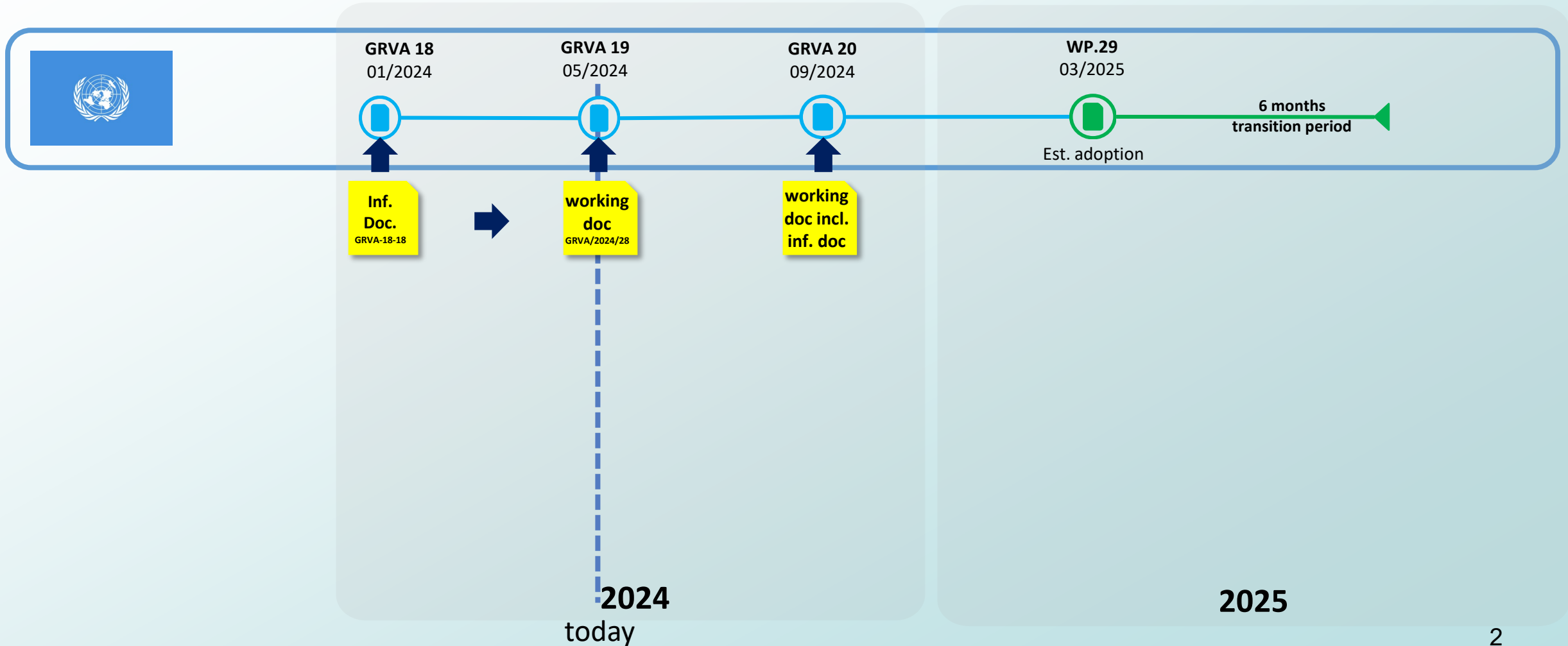
ECE/TRANS/WP.29/GRVA/2024/28

Proposal for amendments to UN-R79

Submitted by the experts from CLEPA and OICA



Status and timeline





R79 Amendments to Steer-by-Wire*

Concept of proposed amendments to UN-R79:

Excerpt from
GRVA-18-17

Amend para. 5.3.3.4.: Failure of energy transmission
Clarifying requirements depending on intended speed

New para. 5.3.3.6.: Failure of energy source of control transmission
Alternative requirements to para. 5.3.3.3.

Amend para. 5.4.2.1.1.: Red Warning
Clarifying requirements in case of multiple redundancy level

* *steer-by-wire systems fully rely on electrical control, without mechanical steering column and steering forces are provided solely by one or more energy supplies.*



Proposal to amend 5.3.3.4.

Excerpt from
GRVA-18-17

Today

Proposal

5.3.3. Full power steering systems
5.3.3.4. In the event of a **failure within the energy transmission**, with the exception of those parts listed in paragraph 5.3.1.1., there shall not be any immediate changes in steering angle. *As long as the vehicle is capable of being driven at a speed greater than 10 km/h the requirements of paragraph 6. for the system with a failure shall be met after the completion of at least 25 "figure of eight" manoeuvres at 10 km/h minimum speed, where each loop of the figure is 40 m diameter.*

The test manoeuvres shall begin at an energy storage level given in paragraph 5.3.3.5.

Intended operational speed?

>10 km/h

<=10 km/h

The requirements of paragraph 6. for the system with a failure shall be met either...

...after the completion of at least 25 "figure of eight" manoeuvres

or

...until the vehicle speed is reduced and limited to 10 km/h or below



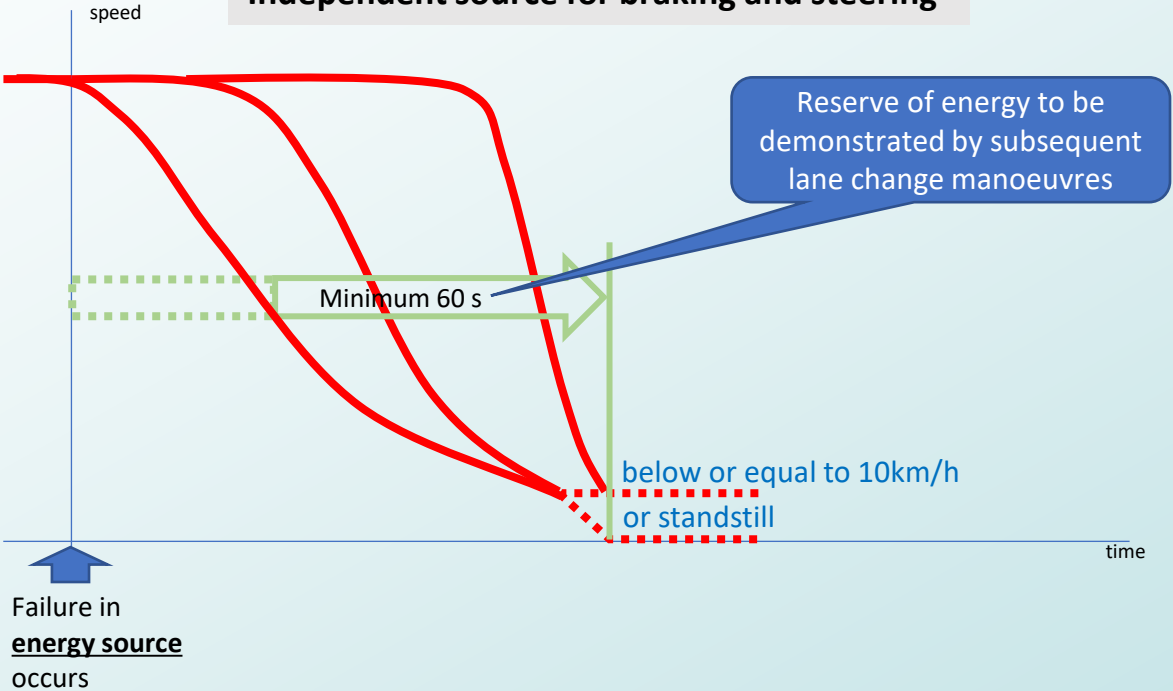
Explanation of alternative concept

Excerpt from GRVA-18-17

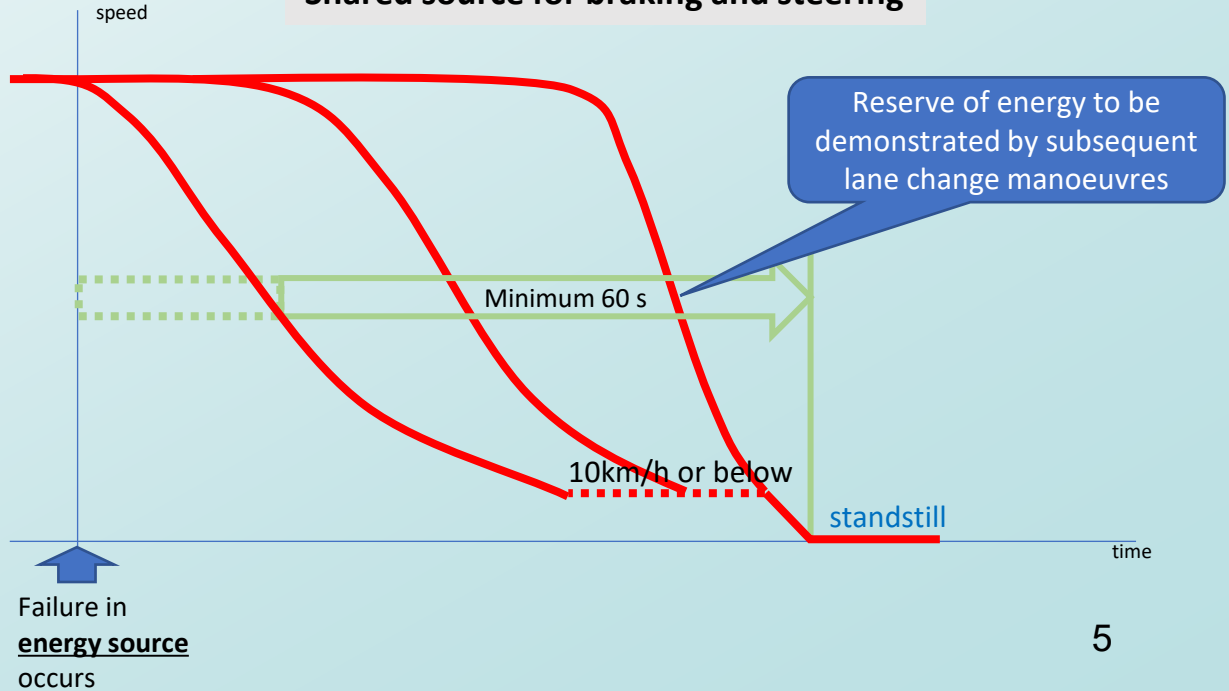
5.3.3. Full power steering systems
5.3.3.3. In the event of a failure of the energy source of the control transmission, it shall be possible to carry out at least 24 "figure of eight" manoeuvres, where each loop of the figure is 40 m diameter at 10 km/h speed and at the performance level given for an intact system in paragraph 6.
The test manoeuvres shall begin at an energy storage level given in paragraph 5.3.3.5.

Alternative approach

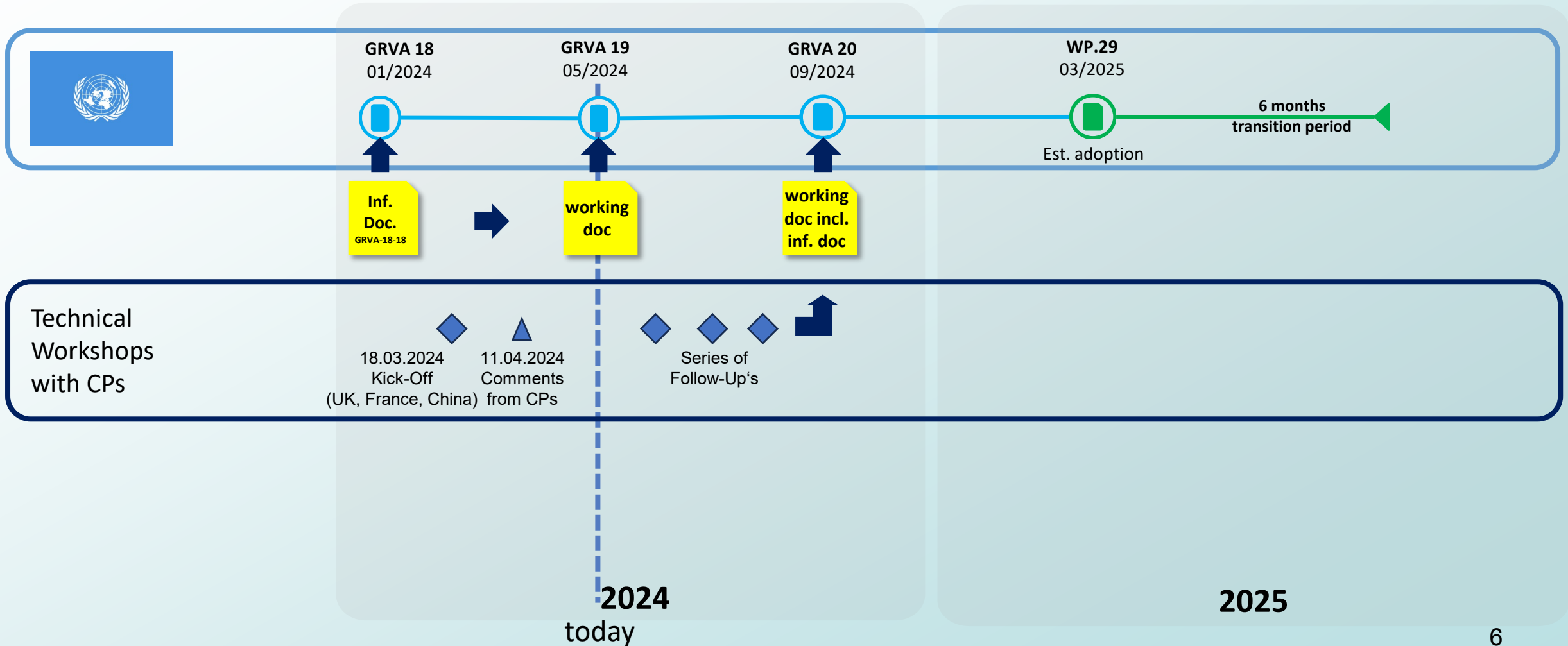
Independent source for braking and steering



Shared source for braking and steering



@ Status and timeline regarding GRVA-18-18





Comments on Industry Proposal GRVA-18-17/18

Comments received from UK, Japan and Australia



Summarized overview of comments

Amend para. 5.3.3.4.: Failure of energy transmission
Clarifying requirements depending on intended speed



1. Test procedure
2. Safety of automatic deceleration (e.g. Hazard lamps)

(UK, JP)
(JP)

New para. 5.3.3.6.: Failure of energy source of control transmission
Alternative requirements to para. 5.3.3.3.



3. Alignment with EBSIG, esp. implementation of EMS
4. Term “safe state”
5. Justification of “Lane change” as testing manoeuvre
6. Justification of “60 s”
7. “Cascaded” approach before decelerating vehicle
8. Safety of slowing down and stopping

(UK)
(AUS)
(UK)
(UK)
(UK)
(JP)

Amend para. 5.4.2.1.1.: Red Warning
Clarifying requirements in case of multiple redundancy level



Proposal of structure for technical workshops

Proposed dates

①

Review on concepts and principles

- > Comparison of DNA of R79 and R13/13H
- > Specimen Architectures
- > Implementation of EBSIG-EMS

SbW-TechWS-01 → CW 24 (Teams)

② Review of comments received

- > Test procedure
- > Safety of automatic deceleration (e.g. Hazard lamps)
- > Term “safe state”
- > Justification of “Lane change” as testing manoeuvre
- > Justification of “60 s”
- > “Cascaded” approach before decelerating vehicle
- > Safety of slowing down and stopping

SbW-TechWS-02 → CW 27 (Teams)

③

Finalize Draft text for GRVA-20

(Informal Document amending Working Document)

SbW-TechWS-03 → CW 35/37 (Teams or F2F?)