UN Regulation No. 13-H
Stop Lamp Illumination

Proposal for a Suppl.2 to UN-Regulation No. 13H/01

Supporting Presentation to Document

ECE/TRANS/WP.29/**GRVA/2020/31**

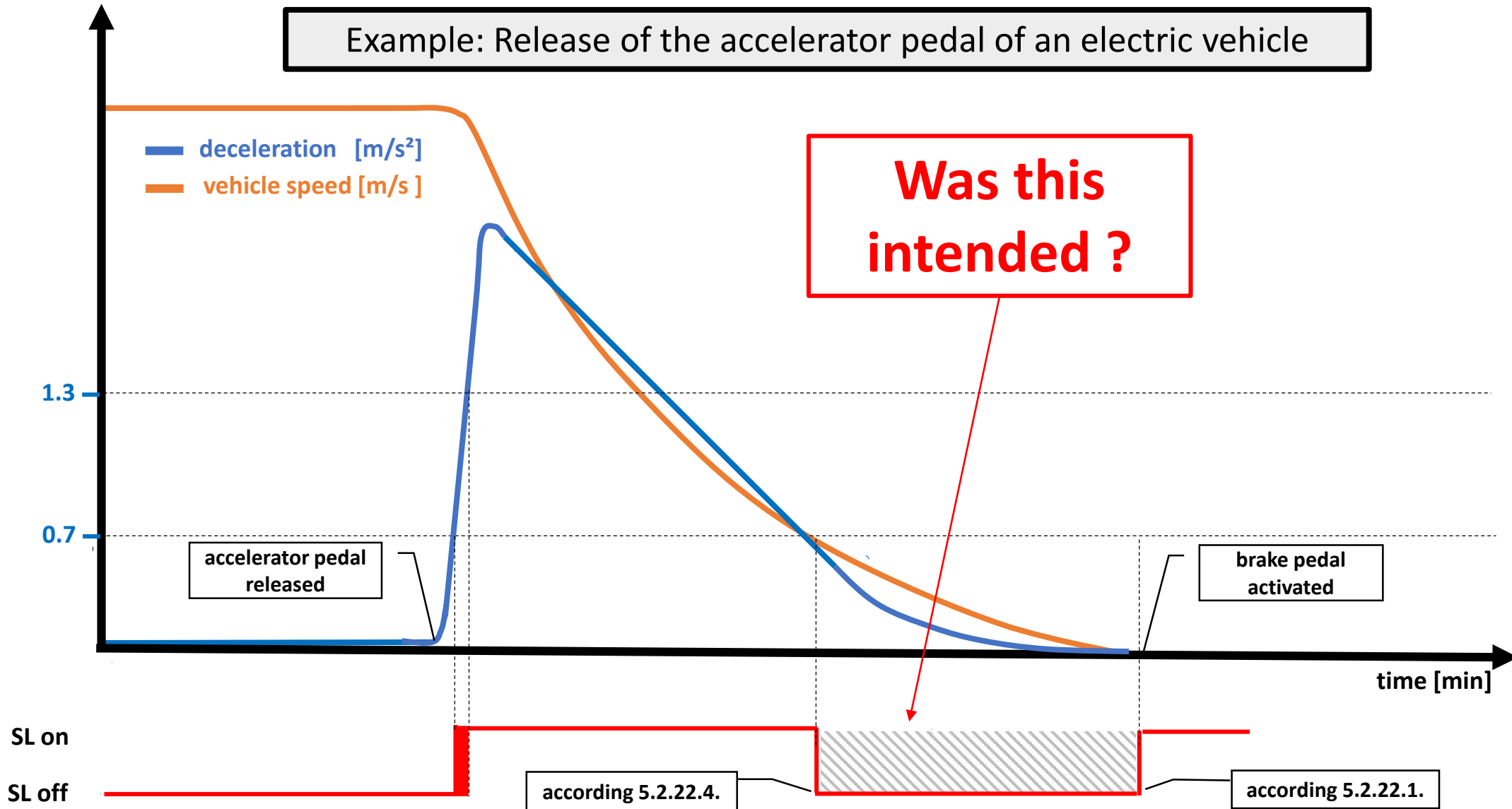# Current regulation UN-R 13H/01 Suppl.1

For **decelerations below 0.7 m/s²**, the stop lamps …

- **shall** be **ON …** according to 5.2.22.1

- **may** be **ON …** according to 5.2.22.2

- **shall** be **OFF …** according to 5.2.22.4

The driver of a following vehicle does not care about the kind of braking!

Current Regulation UN-R 13H/01 Suppl.1

Rationales Of The Proposal

- The stop lamp signal should reflect the <u>intention</u> to decelerate.

- <u>New technologies</u> must be taken into account
(increased deceleration capabilities of modern EVs)

- Stop lamp illumination requirements should be independent from the type of propulsion (combustion and/or electric)

- Technical constraints to be solved
(e.g. accuracy of deceleration, flickering and too frequent illumination)

Rationales Of The Proposal

Shall not illuminate	May illuminate	Shall illuminate

Shall not illuminate

In cases where deceleration is generated by:

- Air/rolling resistance
- Road Slope
- Natural braking effect of the engine

- Selective braking (no intention to decelerate)

Avoid too frequent illumination, at low (unintended) decelerations

May illuminate

In cases where:

- The intention to decelerate depends on the context (e.g. Automatically commanded braking via AEBS would preferably generate stop lamps, while a slight deceleration from ACC to stabilize speed and distance to the preceding vehicle should not).

- Measures to avoid stop lamps flickering (Filtering / hysteresis) makes it difficult to define a concrete threshold below which the stop lamps should be illuminated.

Avoid stop lamps flickering and ensures consistency of the signal

Shall illuminate

In cases where the intention to decelerate is obvious:
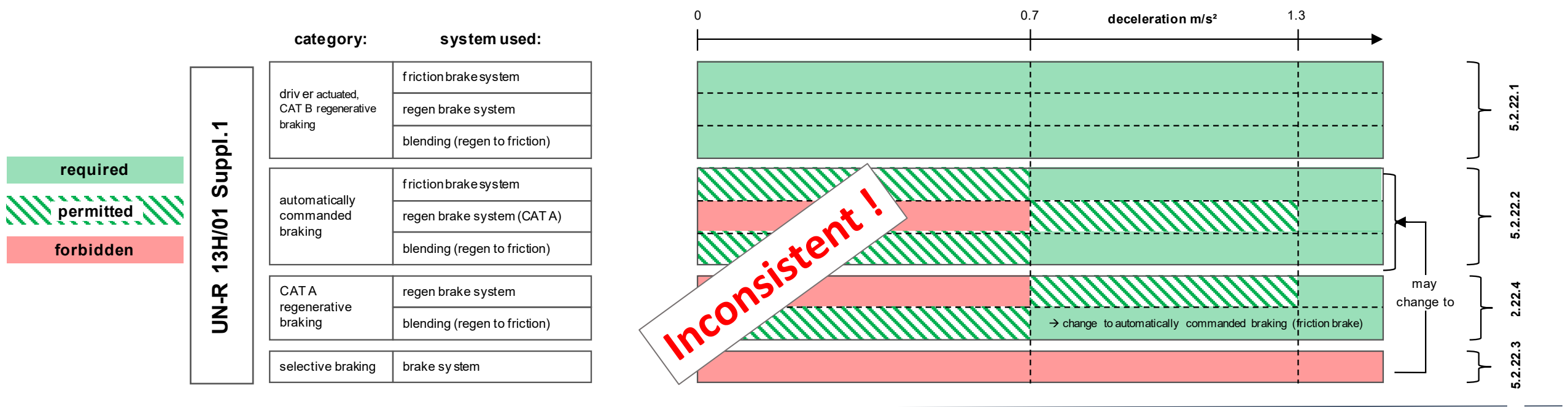
- Driver presses the brake pedal
- Driver releases the accelerator of an electric vehicle, generating noticeable deceleration ($>1.3 m/s^2$)
- Automatically commanded braking is demanded (e.g. by AEBS, ACC...) and generating noticeable deceleration ($>1.3 m/s^2$)

The intention to decelerate is clear

Current Status R13H.01 vs. Proposal

Example: Braking on flat level
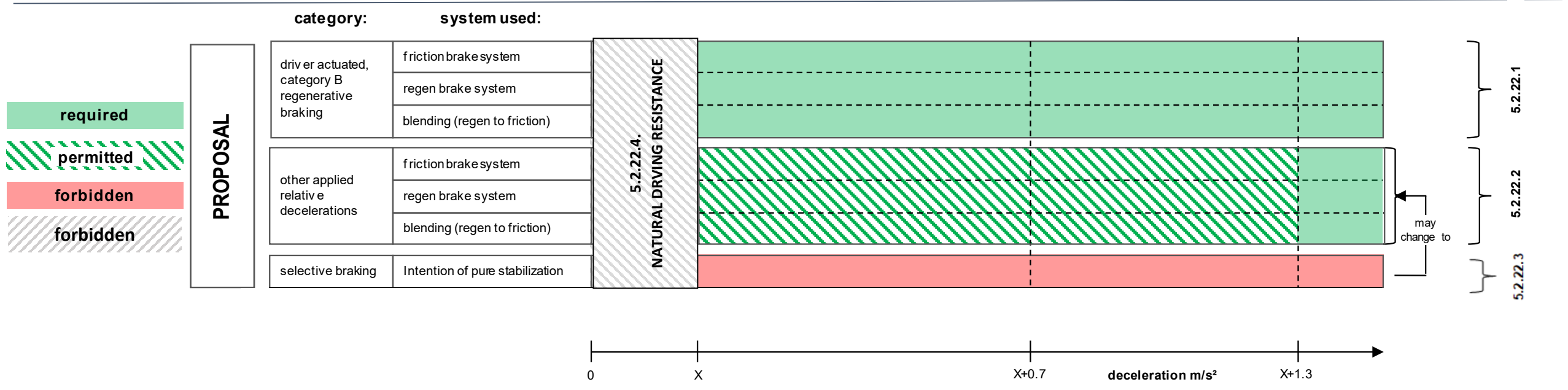
Backup

Stop Lamp Illumination: Proposal For Harmonised Behaviour:

Example: Braking on flat level

BRAKE LIGHT ACTIVATION :

MAY   X+1.3   SHALL

Combustion engine: "driver service brake actuation"	LIGHT "ON"
Combustion engine: commanded braking	LIGHT MIGHT "ON" — "ON"

NATURAL DRIVING RESISTANCE

BEV : "service brake actuation by the driver"	LIGHT "ON"
BEV: automatic commanded braking	LIGHT MIGHT "ON" — "ON"
BEV: ; regenerative braking	LIGHT MIGHT "ON" — "ON"

0   X   deceleration m/s²   X+0.7   X+1.3