

RESS-8-9

# 8th RESS IG

IMMA contribution

# IMMA L6/L7 contribution

- IMMA has decided to provide the global expertise on L6/L7-vehicles at WP29 to address the immediate need
- IMMA has already started with preparing a contribution for the RESS IG
  - Today's contribution is based on L1-L5 as the L6/L7 assessment is not completed yet.
- IMMA will contribute with the L6/L7 perspective at the 9 RESS meeting.
  - IMMA expects no delays in the RESS programme as a result of the later arrival of the perspective on L6/L7

# Separate regulation or amendment for R100

- At this moment IMMA prefers to integrate L-category requirements into R100.
- It is currently too early to make a complete and adequate assessment on the pro's and con's of separating an L-cat regulation from R100.
- IMMA advises to review this aspect in a later stage, and continue first with the creation of the requirements for L-cat on the basis of the R100.
- A dedicated regulation for L category vehicles would take more time.
  - More time is not compatible with the European time table of the new type-approval regulation and may lead the EU to adopt its own regulation independently, and provisionally.
  - As a result manufacturers may be confronted during a certain period with a non-harmonized situation between the EU and the rest of the world, and with a succession of regulatory changes once the UN regulation will be finally adopted.

# R100 part 1 contribution

- 2.21
  - No need to introduce a definition of isolation resistance
  - BUT add in paragraph 5.1.3.1. this sentence:
    - If AC high voltage buses and DC not high voltage buses are galvanically isolated from each other, isolation resistance between the high voltage bus and the electrical chassis shall have a minimum value of 500  $\Omega$ /volt of the working voltage for AC buses.
  - *To take into account the technical solution in which a low voltage battery is used to provide power to a high voltage AC inverter with galvanical insulated circuit in between.*

# R100 part 1 contribution

- 3.1
  - PART I: APPROVAL OF A VEHICLE TYPE WITH REGARD TO ~~THE HIGH VOLTAGE SYSTEM~~ ITS ELECTRICAL SAFETY
  - Reasons:
    - to be in line with the title of chapter 5. REQUIREMENTS OF A VEHICLE WITH REGARD TO ITS ELECTRICAL SAFETY
    - the functional requirement is applicable also to a vehicle with only low voltage components.

# R100 part 1 contribution

- 3.1.1 – 3.1.3 :
  - *IMMA agrees that the requirements are also applicable for L-category .*
- 5.1.1.3
  - *To consider a further point e) for detachable battery connector. To be discussed in part 2 discussion.*
  - *IMMA question: If the battery voltage is higher than 60V DC, what should be the protection degree for the connector of the detachable battery? IMMA suggests IPXXB in this case.*
- 5.1.3.3
  - *Or rider*

# R100 part 1 contribution

- 5.1.3.4 Isolation resistance requirement for the coupling system for charging the REESS
  - *Probably more clear:*
  - For the vehicle inlet and for a recharge cable if permanently connected to the vehicle of cat L, intended to be conductively connected to the grounded external AC power supply and the electrical circuit that is galvanically connected to the vehicle inlet or to the recharge cable during charging of the REESS, the isolation resistance between the high voltage bus and the electrical chassis shall be at least 1 M $\Omega$  when the charger coupler is disconnected. During the measurement, the traction battery may be disconnected.

# R100 Part 1 contribution

- 5.3 IMMA interpretation is that :
  1. if other alternative means are provided that ensure active driving possible mode is disabled when alighting the vehicle, this section should not apply.
  2. If an indicator for the active driving mode is present before the rider leaves the vehicle the requirement is satisfied.
  3. If the vehicle is on the central parking stand the wheel cannot touch the ground so is not in active possible driving mode,

IG RESS may consider additional language to confirm the above applicable for L-category vehicles.



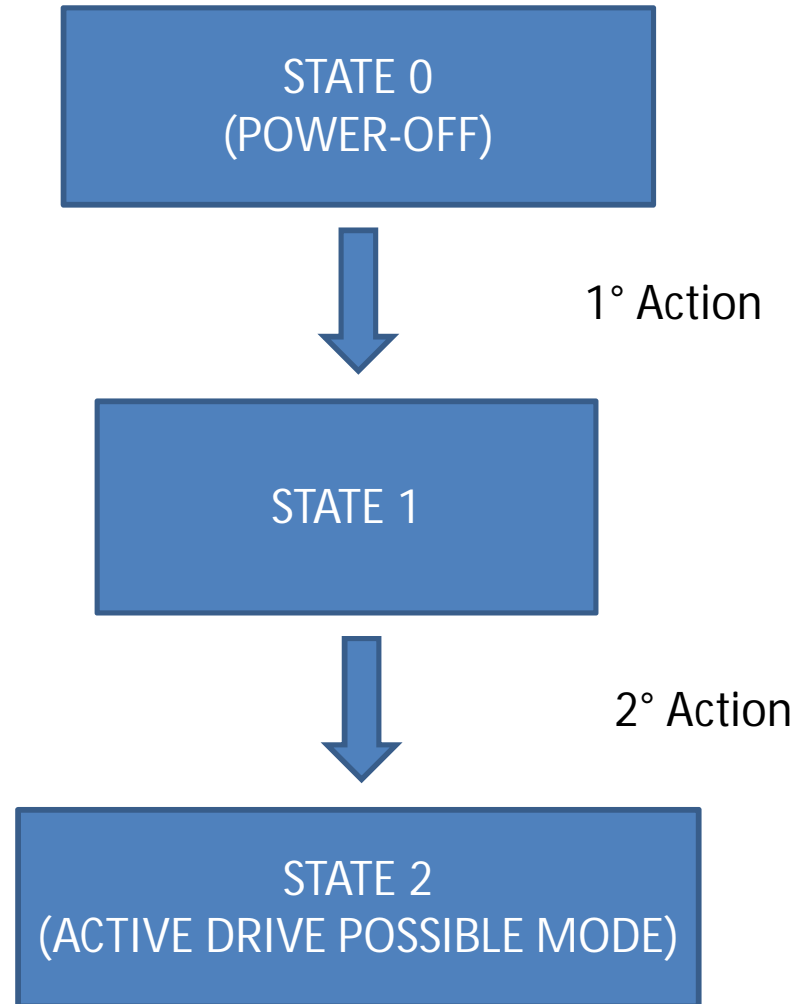
# R100 part 1 contribution

- 5.3
- If the on-board REESS can be externally charged by the user, vehicle movement by its own propulsion system shall be impossible as long as the connector of the external electric power supply is physically connected to the vehicle inlet.
- This requirement shall be demonstrated by using the connector specified by the ~~car~~ vehicle manufacturer.
- *For an I-cat vehicle, with a permanently connected charge cable, the requirement above is not applicable if using the cable to charge the vehicle prevents the use of the vehicle.*
- If a vehicle is equipped with a driver direction control unit the state of this unit shall be identified to the driver.

### 5.3.1.1 → REPLACE ALL PARAGRAPH WITH

### START-UP PROCEDURE

At the start-up ~~For the power-on procedure of the vehicle propulsion system~~ in order to select the active driving possible mode at least two deliberate and distinctive actions shall be performed by the driver ~~in order to go from the power-off mode to the active driving possible mode.~~



### 5.3.1.1 (ctd)

## DEACTIVATION PROCEDURE OF THE STATE DEFINED "ACTIVE DRIVE POSSIBLE MODE STATE"

One action is required to deactivate the active driving possible mode.

~~A main switch (a switch intended to start up the vehicle) function shall be an integral part of the power on/power off procedure. If the power on/power off procedure of the propulsion system is activated by the vehicle key system, it shall be designed according to the operational safety design.~~

~~It shall be indicated, continuously or temporarily, to the driver rider, that the propulsion system of the vehicle is ready for driving.~~

~~After an intentional power off of the vehicle, it shall only be possible to reactivate it by the power on procedure, as described.~~



1° Action



### ~~5.3.1.2. Automatic turn-off mode~~

~~An automatic turn-off mode shall be an integral part of the power-on/power-off procedure. If the automatic turn-off mode is activated, the power-off procedure of the propulsion system is activated even without any action on the main switch.~~

~~Automatic turn-off mode shall be activated when the vehicle is left alone without the driver rider for the period of time specified by the manufacturer, even if the main switch is being kept as turned on.~~

~~To go from the automatic turn-off mode to the active driving possible mode, one deliberate action shall be required~~

Justification: Already covered in the R100 by this prescription in 5.3:

When leaving the vehicle, the driver shall be informed by a signal (e.g. optical or audible signal) if the vehicle is still in the active driving possible mode.

#### 5.3.1.3.1. Indication of reduced power

If the electric propulsion system is equipped with a means to automatically reduce the vehicle propulsion power, significant reductions ~~should~~ shall be indicated to the ~~rider~~ driver.

#### Explanation:

The intention was to ensure if the means is present, the presence of this function is indicated to the driver and not to verify the level of power at which the system must inform the driver about the reduction. This level must be decided by the manufacturer and need not be verified by the technical service.

# R100 part 1 contribution

- Annexes
  - Annex 3: supported by IMMMA
  - Annex 4A: IMMMA will comment at 9/RESS
  - Annex 5: IMMMA will comment at 9/RESS
  - Annex 7: IMMMA will comment at 9/RESS