



Rechargeable Energy Storage systems (REESS) requirements

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Sequence of actions

Amended: Reg 100 SA 01 (3/2010)
Reg 12, 94, 95 (11/2010)
Reg 10 (3/2011)

Group of interested experts on Rechargeable Energy
Storage systems

Nov. 2010 Bonn	Jan. 2011 Paris
Apr. 2011 Boras	Jul. 2011 Mainz
Oct. 2011 Madrid	Jan. 2012 Brussels
Dec. 2011 Geneva GRSP inf.doc.	
May 2012 Geneva GRSP formal and inf. doc	



Goal

Establish regulations for commercialization of EV

EV as safe as ICE vehicles

Ensure safety in aftersale market (retrofitting)



having in mind

- do not hinder the fast development in high voltage vehicles but contribute to the new technology by avoiding discredit by accident
- do not restrict the scope to Li-Ion batteries
- 2 way approach: REESS type approved as component or vehicle based
- align with UN 38.3 as far as possible to reduce time and effort for testing (e.g. vibration)
- consider existing IEC and ISO standards



Amend existing regulation

The current Reg. 100 contains safety requirements for high voltage vehicles, i.e.

- Protection against electrical shock
 - Direct contact
 - Indirect contact
 - Isolation resistance
- Avoid overheat of REESS
- Ensure functional safety
- Determine emissions for open type (lead acid) traction batteries



integration in R 100

Develop a new Part II with REESS requirements

5. Part I: Requirements of a vehicle with regard to its electrical safety

6. Part II: Requirements of a Rechargeable Energy Storage System (REESS) with regard to its safety

No restriction to high voltage batteries, but excluding batteries for starting the engine, lighting, ..

Amend an annex with test procedures



Requirements in Part II

- 1 Vibration
- 2 Thermal shock and cycling
- 3 Mechanical shock
- 4 Mechanical integrity
- 5 Fire resistance (*if electrolyte is flammable*)
- 6 External short circuit protection
- 7 Overcharge protection
- 8 Over-discharge protections
- 9 Over-temperature protection



What has to be tested

- Tests related to mechanical impact or fire can be conducted either with the vehicle or with the component
- In general test with REESS subsystems instead of the whole REESS could be done, if the manufacturer demonstrate its representative



Test conditions

- Acceptance criteria
 - electrolyte leakage
 - rupture
 - fire
 - explosion
 - isolation resistance after the test
- Test procedure with starting conditions like state of charge, temperature, ...



open issue

- Transport of damaged batteries (WP.15)
- Instructions for rescue operation after crash (recommendations on a local/regional level)
- Chemical safety (HF)
- More experience till EOL will show whether reduced quality or increased risk at EOL lead to further amendments



Thank you for your attention