

**US comments on ELSA in-use document**

1. Provide rationale/justifications for the requirements - *It is difficult to make an assessment of the relevance of the requirements without review of the justification document.*
2. Define galvanically connected or/and galvanic isolation. *Resolved - change to conductive connection*
3. High voltage upper limits (1500 VDC and 1000VAC) – *Agreed that the scope of the regulation does not include voltage buses greater than 1500 VDC and 1000 VAC. When such high voltage buses are introduced into vehicle designs, separate requirements will be developed.*
4. Section 2-16; vehicle type: *Resolved – this will not be included in the GTR since it is EU specific.*
5. Section 3-2 “Protection against indirect contact”: *need a generic analysis to ensure that all possible failure modes and scenarios are taken into consideration.*
6. Section 3-3-2: *A test procedure is needed.*
7. Section 3-4-1: *What does “galvanically isolated” mean? Is a definition needed or is it the same as “galvanically connected?”*
8. Section 3-4-2; 2nd paragraph:
  - a. *What is the justification for lowering the resistance of AC buses to 100 ohm/volt?*
  - b. *How would one determine how much insulation was used by the manufacturer? How would we verify this for compliance?*
9. Section 4 - “Requirements for RESS”:
  - a. *What is excessive overheating? 150 degrees or higher?*
  - b. *Does this coincide with Lithium Ion battery thermal runaway temperatures? What is the justification?*