



ROLLING STOCK ASSESSMENT - TECHNICAL NOTE

Subject: Design of safety systems

Advice to: Vehicle Acceptance Bodies (VABs)

Reference: Standard: RIS-1530-PLT Issue: 3 Clause: 5.10.6

Applies when: Carrying out Engineering Acceptance of new on-track plant.

Note's Purpose: To clarify the expectation of what is required to meet the requirements of clause 5.10.6.

Background: It has been reported that some confusion has arisen about what constitutes a safety system and what is required by the manufacturer to demonstrate compliance.

Requirements: The following guidance is given to the Engineering Acceptance signatory when giving advice or assessing the documentation for new on-track plant.

Safety systems, within the meaning of clause 5.10.6, should be taken to include;

- Braking systems
- Rail gear interlock systems
- Load moment indication (rated capacity indicators (RCIs) etc)
- Movement limiting devices for working with adjacent line open
- Height limiting devices for working under live overhead line equipment (OLE)
- Hydraulic circuit failures when the hydraulics are considered as part of a lifting system.

Note: the definition of a system includes any supporting control system logic.

(This list is not exhaustive as it may be driven by different types of equipment and designs. The general reason for inclusion of the system is that a failure, for that particular design of machine, would cause unacceptable consequences for the operator or other persons working on or near the line).

To 'demonstrate' compliance with 5.10.6 the manufacturer should present an analysis that has been made, for example using failure modes and effects analysis (FMEA), failure modes, effects and criticality analysis (FMECA), safety integrity level (SIL), decision tree etc, which could also be supported by physical testing as appropriate. The VAB should ensure that such analysis has been undertaken and documented and take a professional view to be satisfied that the assessment is sensible, but it is not intended that the VAB would need to carry out additional analysis to verify completeness.

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