



RIS-0745-CCS issue one

Client safety assurance of high integrity software-based systems for railway applications

Briefing note

Background

Software provides opportunities to transform the railway by delivering functionality that would have been unthinkable with mechanical and simple electrical systems. As these opportunities are taken, the amount of software in the operational railway grows. Many of these new software-based railway systems have failure modes that could contribute to hazards, or impact on service provision.

In recent years there have been safety incidents where software faults have been a contributory factor, including the Cambrian Coast line incident on 20 October 2017 where safety critical signalling data was lost. The RAIB report on this accident highlights the need for the rail industry to ‘develop and implement a mandatory safety assurance procedure (and associated guidance) for its client role on projects involving installation and modification of high integrity software-based systems’.

What is it about?

This Rail Industry Standard (RIS) sets out requirements and guidance for the role of the client in managing safety assurance of high integrity software-based systems used in railway applications. It identifies the activities undertaken as part of safety management of the development, installation, and maintenance of high integrity software-based systems.

What has changed?

This new standard has included and expanded the main principles within existing guidance GEGN8650 issue one “Guidance on high integrity software-based systems for railway applications”. GEGN8650 is to be withdrawn at the publication date of RIS-0745-CCS.

It identifies the activities for client organisations to undertake as part of the safety management of the development, installation, and maintenance of high integrity software-based systems, and can be adopted under their safety management system (SMS).

What are the benefits?

The new standard will help industry to better manage and reduce the number of incidents where the performance of software is one of the causal factors, with the subsequent improvements in safety and reliability that will bring. It will contribute to an estimated industry net benefit of £8.2m over five years.

Who is it for?

The standard is intended for use by organisations when procuring and utilising high integrity software-based systems for railway applications throughout their lifecycle. The standard is also relevant if organisational ownership changes during the lifecycle.