Guidance on Planning an Application of the Common Safety Method on Risk Evaluation and Assessment

**Issue record**

<table>
<thead>
<tr>
<th>Issue</th>
<th>Date</th>
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<tbody>
<tr>
<td>One</td>
<td>June 2014</td>
<td>This guidance was developed as part of the RSSB research project T955 and provides guidance on the application of the Common Safety Method on Risk Evaluation and Assessment required by Commission Regulation (EC) No 352/2009.</td>
</tr>
</tbody>
</table>

**Superseded documents**

This Rail Industry Guidance Note does not supersede any other Railway Group documents.

**Supply**

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Introduction Part 1

G 1.1 Purpose of this document

G 1.1.1 This document gives practitioner level guidance on the application of the risk management process set out in the ‘Common Safety Method on Risk Evaluation and Assessment’ (CSM RA). Specifically, this guidance is intended to assist infrastructure managers (IMs) and railway undertakings (RUs) plan an application of the process.

G 1.1.2 This document is primarily focussed on the application of the process by practitioners within an RU or IM. Others, who need to apply the process or interact with it in some way, should also find it useful. Further guidance for other actors (for example, manufacturers) may be developed over time.

G 1.1.3 The CSM RA (Commission Regulation (EC) No 352/2009) has applied since 01 July 2012 to all significant changes to the railway system – ‘technical’ (engineering), operational and organisational, or if required as the risk assessment process by a Technical Specification for Interoperability (TSI).

G 1.2 Background

G 1.2.1 Commission Regulation (EC) No. 352/2009 (‘the regulation’) established a ‘common safety method on risk evaluation and assessment’ (the CSM RA). The CSM RA, contained in Annex I to the regulation, sets out a mandatory risk management process for the rail industry that is common across Europe. The CSM RA has applied to all significant changes to the railway system since 01 July 2012. The changes may be of a technical (engineering), operational or organisational nature (where the organisational changes could have an impact on the operation of the railway). The CSM also applies if a risk assessment is required by a technical specification for interoperability (TSI); and is used to ensure safe integration of a structural subsystem into an existing system in the context of an authorisation for placing in service in accordance with the Railway Interoperability Directive 2008/57/EC.

G 1.2.2 Commission Implementing Regulation (EU) No 402/2013 establishes a revised common safety method for risk evaluation and assessment. The revised CSM RA has been in force since 23 May 2013 (meaning it can be used from that date), and will apply from 21 May 2015 (meaning that it must be used from that date), at which time Commission Regulation (EC) No. 352/2009 is repealed. The principal amendments relate to the acceptability of codes of practice, the documentation provided to an assessment body, the content of the safety assessment report and the recognition and accreditation of assessment bodies.

G 1.2.3 If a project is expected to continue beyond 21 May 2015, the proposer can continue to use the 2009 regulation, provided the project is at ‘an advanced stage of development within the meaning of Directive 2008/57/EC’.

G 1.2.4 All references in this document to ‘the regulation’ refer to Commission Regulation (EC) No 352/2009, unless otherwise stated.

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G 1.4 Approval and authorisation of this document

G 1.4.1 The content of this document was approved by a Multifunctional Standards Committee on 05 November 2013.

G 1.4.2 This document was authorised by RSSB on 09 May 2014.
Guidance on Planning an Application of the Common Safety Method on Risk Evaluation and Assessment

Part 2  Guidance on Common Safety Method on Risk Evaluation and Assessment

G 2.1  General introduction

G 2.1.1  The CSM RA applies to 'any change of the railway system in a Member State ... which is considered to be significant within the meaning of Article 4 of the Regulation' that is Commission Regulation (EC) No 352/2009 [the CSM RA itself]. Those changes may be technical, operational or organisational, but are those which could impact the operating conditions of the railway system. The proposer of a change is responsible for applying the risk management process set out in the CSM RA. In many circumstances, proposers will be RUs or IMs. However, a manufacturer may want or need to apply the CSM RA in order to place a new or altered product or system on the market. Once the product is placed on the market, an RU or IM wishing to use the new or altered product or system in a specific application or location will be the proposer of a new change.

G 2.1.2  Detailed advice on the regulation’s requirements, its scope and the significance test that triggers the requirement to apply the risk management process in full, is set out in the Office of Rail Regulation’s (ORR’s) guidance on the CSM RA. In this section an overview summary of the regulation and its requirements is provided, for the purposes of setting out the context of this guidance and allowing a quick point of reference to the main principles for practitioners.

G 2.1.3  Figure 1 shows the risk management process defined in the CSM RA. The process essentially consists of the following steps:

a)  The proposer of a change produces a preliminary definition of that change, and the system to which it relates. It then examines it against the significance criteria in the regulation. If a change is deemed to be significant, then the regulation requires you to apply the risk management process in Annex I and appoint an independent assessment body to assess application of the process. However, the CSM RA risk management process is a sound one and you may choose to apply some or all of it more generally.

b)  The CSM risk management process starts with the system definition. This provides the key details of the system that is being changed – its purpose, functions, interfaces and the existing safety measures that apply to it. This system definition will be kept live for the duration of the project.

c)  All reasonably foreseeable hazards are identified and their risk is classified and/or analysed.

d)  Safety requirements are identified by application of one or more of the three risk acceptance principles to each hazard.

e)  A hazard record for the system that is to be changed is produced and maintained. Its purpose is to track progress of the project’s risk management process.

f)  Before acceptance, the change proposer demonstrates that the risk assessment principles have been correctly applied and that the system complies with all specified safety requirements.

g)  The assessment body provides its report to the proposer. The proposer remains responsible for safety and takes the decision to implement the proposed change.
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Figure 1
The risk management and independent assessment process from the CSM RA

PRELIMINARY SYSTEM DEFINITION

Significant change?

Yes

SYSTEM DEFINITION
(Scope, Function, Interfaces etc)

HAZARD IDENTIFICATION
What can happen? When?

HAZARD CLASSIFICATION
(How Critical?)

Broader Acceptable Risk?

No

Selection of Risk Acceptance Principle

CODES OF PRACTICE

Application of Codes of Practice

SIMILAR REFERENCE SYSTEM

Similarity Analysis with Reference System(s)

EXPLICIT RISK ESTIMATION

Identification of Scenarios & associated Safety Measures

Yes

Safety criteria?

Quantitative

Estimate Risk

No

Estimate Frequency

Estimate Severity

Comparisons with criteria

Acceptable Risk?

No

Yes

Acceptable Risk?

No

Yes

Acceptable Risk?

No

Yes

Safety Requirements
(i.e. the Safety Measures to be implemented)

Demonstration of Compliance with Safety Requirements

Uncontrolled When Printed
Document comes into force 07/06/2014
Superseded by GEGN8646 Iss 1 with effect from 02/12/2017
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G 2.2 Guidance documents

G 2.2.1 This guidance forms part of a suite of six documents that address the different elements of the risk management process. The guidance notes are numbered below and Figure 2 shows how each one fits into the whole:

- Guidance on System Definition (GE/GN8641).
- Guidance on Hazard Identification and Classification (GE/GN8642).
- Guidance on Risk Evaluation and Risk Acceptance (GE/GN8643).
- Guidance on Safety Requirements and Hazard Management (GE/GN8644).
- Guidance on Independent Assessment (GE/GN8645).

Figure 2: The set of guidance notes on the application of the CSM RA, and the process elements to which they relate.
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Part 3  
Guidance on Planning an Application of the Common Safety Method on Risk Evaluation and Assessment

G 3.1 The requirement for a plan
G 3.1.1 The regulation for the CSM RA states that:

*The first step of the risk management process shall be to identify in a document, to be drawn up by the proposer, the different actors’ tasks, and their risk management activities.*

(Annex I, clause 1.1.6)

G 3.1.2 Therefore the regulation includes a specific requirement for the change proposer to develop a plan, where a change is significant. The plan needs to describe the arrangements for applying the CSM RA process (as shown in Figure 1).

G 3.2 Purpose of the plan
G 3.2.1 The purpose of the plan is threefold. It:

a) Documents the responsibilities and activities to apply the risk management processes.

b) Encourages thought and discussion about the process amongst the various actors who will be involved in delivering it.

c) Provides clarity as to what the outputs of the work will be, to support consideration of the assessment body’s role.

G 3.2.2 The benefits of good planning are more efficient working, better co-ordination and fewer errors.

G 3.2.3 Application of the CSM RA process is complementary to the proposer’s existing safety management system arrangements and processes that the proposer is required to undertake to meet other legislative requirements, such as the Railways Interoperability Regulations 2011. An efficient plan would describe how these related activities overlap the risk management activity to avoid duplication and increase efficiency and effectiveness.

G 3.3 Planning an application of the CSM RA
G 3.3.1 General

G 3.3.1.1 The main steps of the CSM RA process to be considered when planning a safety related change are shown in Figure 1. The plan therefore should set out specifically how this process is to be applied for a given change project. The intent in the applying the process is to make sure that risks are controlled to an acceptable level and also provide a transparent demonstration that this is the case. Guidance on how to undertake and plan each aspect of the process is provided in other guidance notes that support this one.

G 3.3.1.2 The CSM RA process is not expected to be run through in one go; it is likely that the change proposer will need to undertake iterations of all or part of the process. An effective plan takes the dynamic nature of the process into account. For example, risk analysis may generate new safety requirements, which in turn may change the assumptions made in the original system definition, requiring further analysis.

G 3.3.1.3 The process ends when:

a) The proposer is content that all safety requirements are fulfilled and no additional reasonably foreseeable hazards have to be considered.

b) The assessment body has provided the proposer with a safety assessment report.
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G 3.3.1.4 The regulation states that:

‘…once the system has been accepted and is operated, the hazard record shall be further maintained by the infrastructure manager or the railway undertaking in charge with the operation of the system under assessment as an integrated part of its safety management system.’ (Annex I, clause 4.1.1)

G 3.3.2 Approach to planning
G 3.3.2.1 Good planning early in a change project will significantly reduce the risk of problems and extra costs later in the project’s life cycle. There are seven basic components of a good plan:

a) What: describes what the work involves, including details of the tasks that need to be done and the records required. The level of detail should reflect the needs of the people using the plan and the consequence of doing the wrong thing.

b) How: describes the method, often referring to a procedure or specification.

c) Where: describes the locations in which the work will take place.

d) When: describes the overall timescales, the order in which tasks are to be done and their durations.

e) Who: names the people responsible for doing the work and checking it.

f) With: describes the resources to be used (tools, materials, plant, supplier resources etc).

g) Why: describes the rationale for the work so that it can be related back to your organisation’s goals and the overall railway goals.

G 3.3.2.2 A typical approach to the planning process set out above might be as follows:

a) Develop a preliminary plan to set out an overall approach to risk management for the change project covering all aspects of the CSM RA that it is possible to cover at that stage. (In particular, the preliminary plan should describe the organisational arrangements for carrying out the CSM RA process and justify the competencies of key staff allocated to undertake these activities.)

b) Discuss the preliminary plan with all those required to support its application.

c) Discuss the preliminary plan with the assessment body.

d) Produce an updated plan to consolidate understanding.

e) Carry out the risk analysis and develop the set of safety requirements.

f) In consultation with the other actors involved in delivering the plan, prepare an update of it to more fully describe how the safety requirements are to be met in practice and the process for managing it.

g) Discuss the updated plan with the assessment body.

h) Produce an updated plan to consolidate understanding.

i) Proceed with completion of the activities in the plan.
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G 3.3.3 Involving others

G 3.3.3.1 The regulation states that:

‘Independently from the definition of the system under assessment, the proposer is responsible for ensuring that the risk management covers the system itself and its integration into the railway system as a whole.’ (Annex I, clause 1.2.7)

And:

The proposer shall coordinate close collaboration between the different actors involved, according to their respective tasks, in order to manage the hazards and their associated safety measures.’ (Annex I, clause 1.1.6)

And:

The proposer shall ensure that risks introduced by suppliers and service providers, including their subcontractors, are managed. To this end, the proposer may request that suppliers and service providers, including their subcontractors, participate in the risk management process.’ (Article 5, clause 3).

G 3.3.3.2 Although a project may involve many people, from both within and outside the proposer’s organisation, the proposer ultimately takes overall ownership of the CSM RA process – and that begins with the development of the plan.

G 3.3.3.3 The close involvement – at the planning stage – of those who will be applying the risk management process should help boost the understanding and coordination of the work from the outset.

G 3.3.3.4 Failure to plan and coordinate work with the others who are involved in the risk management process is likely to ultimately increase the chance that it will be ineffectively applied. For example, the change proposer might not be best placed to understand the operational impact of that change. Involving others who will be impacted will help ensure that all risks and impacts are appropriately understood.

G 3.3.3.5 Even if the process has been effectively applied, it will not necessarily be easy for the proposer to demonstrate to an assessment body that this is so. In particular, information from various sources is likely to be required to demonstrate that the safety requirements have been met. Further guidance on this is provided in the accompanying guidance note Safety Requirements and Hazard Management.

G 3.3.3.6 The proposer is responsible for collating all the necessary evidence to demonstrate the application of the process. Where delivery of a project, and the implementation of safety requirements, is reliant on external organisations or functionally separate parts of the proposer’s organisation, conscious planning of how such information is to be obtained will improve the ease of obtaining it.

G 3.3.3.7 For example, early consideration of such issues might identify a need to contractually enforce the delivery of such information and this would need to be considered before the relevant contracts had been finalised.

G 3.3.4 Efficient application of the CSM RA process

G 3.3.4.1 The regulation states that:

‘Duplication of work between the conformity assessment of the safety management system as required by Directive 2004/49/EC, the conformity assessment carried out by a notified body or a national body as required by Directive 2008/57/EC and any independent safety assessment carried out by the assessment body in accordance with this Regulation, shall be avoided.’
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G 3.3.4.2 If the potential for the duplication of effort is understood at the start of the project, then the plan, and the supporting contractual arrangements for delivery, can be developed to avoid duplication.

G 3.3.4.3 Directive 2004/49/EC has been transcribed into UK law as the Railways and Other Guided Transport Systems (Safety) Regulations 2006 (ROGS), as amended. ROGS requires railway undertakings and infrastructure managers to have safety management systems (SMSs) in place. ROGS also gives transport operators a specific duty to carry out risk assessments and put in place the measures they have identified as necessary to make sure that the railway is run safely. It also requires that these processes are certificated or authorised by the regulator. Some will also be relevant to the application of the CSM RA.

G 3.3.4.4 Directive 2008/57/EC aims to:

a) Ensure common Technical Specifications for Interoperability (TSIs) are applied across Europe's railways.

b) Establish a common European verification and authorisation process for placing new, upgraded or renewed infrastructure or rolling stock in service.

c) Provide a process for putting certain rail components known as interoperability constituents onto the rail market.

G 3.3.4.5 The directive is transcribed into UK law as the Railway Interoperability Regulations 2011. Compliance with this regulation requires any changed railway structural sub-systems to be independently checked by the appropriate body for compliance with the TSIs and with national technical rules (NTRs) and national safety rules (NSRs). Where these requirements are designated as safety requirements derived from applying the CSM RA process, evidence of a conformity assessment by a notified or designated body is used to provide the independent assessment body with the necessary evidence of compliance with safety requirements.

G 3.3.4.6 The regulation does not mention the potential for duplication of effort with related standards or guidance; however, the potential for duplication does exist. Where a technical system is being designed and developed, often by a supplier to the railway, various standards or guidance may be used which have requirements that overlap with the CSM RA requirements. Key amongst these is the suite of RAMS (Reliability, Availability, Maintainability and Safety) standards EN 50126, EN 50128 and EN 50129. These standards, which predate the CSM RA, encompass various aspects of risk assessment and safety management activity. In general, application of the standard requires an independent assessment of compliance to the requirements of the standard to be undertaken.

G 3.3.4.7 The Euronorms EN 50126 to EN 50129 are in the process of being updated and consolidated into a new version of EN 50126 in four parts. As a result of this update, it is expected that the requirements of the standard will come much more closely into line with the requirements of the CSM RA. When the new standard is published, consideration will be given to the update of these guidance notes as is necessary.

G 3.3.4.8 Once the plan is drafted, a review of the various procedures and tasks in the plan to determine if they are to be independently assessed to meet some other requirement will help to ensure that the plan targets only those activities where effort is needed.
G 3.4 Content of the plan

G 3.4.1 Key requirement – demonstrating application of the process

G 3.4.1.1 The regulation states that:

‘5.1 The risk management process used to assess the safety levels and compliance with safety requirements shall be documented by the proposer in such a way that all the necessary evidence showing the correct application of the risk management process is accessible to an assessment body. The assessment body shall establish its conclusion in a safety assessment report.

‘5.2. The document produced by the proposer under point 5.1. shall at least include:

a) description of the organisation and the experts appointed to carry out the risk assessment process;

b) results of the different phases of the risk assessment and a list of all the necessary safety requirements to be fulfilled in order to control the risk to an acceptable level.

G 3.4.1.2 The plan therefore needs to be developed with the objective of ensuring that such a report is effectively and efficiently produced. (The revised CSM RA regulation, which is due to come into force in 2015, contains a more complete list of required inclusions.)

G 3.4.1.3 The key outputs of the application of the CSM RA process are the various pieces of evidence demonstrating its application. These provide the proposer with assurance that risk has been appropriately managed, and demonstrable evidence for others, such as the assessment body, to review. The plan would describe how the evidence is to be produced.

G 3.4.2 Overview of content

G 3.4.2.1 The plan would typically contain, or make reference to, the following elements:

a) Background to the project.

b) Initial system definition and scope of change.

c) Roles and responsibilities.

d) The planned approach for:

i) System definition.

ii) Hazard identification and classification.

iii) Detailed risk analysis and evaluation.

iv) Safety requirements and hazard management.

v) Plan of activities and timescales.

vi) Deliverables.

vii) Independent assessment.

viii) Safety approvals and acceptance.

G 3.4.2.2 An example template for the plan is included in Appendix A, along with advice on how to complete it.
Appendix A  Example Template for the Plan

<table>
<thead>
<tr>
<th>Background and requirements</th>
<th>Contextual information such as an introductory section outlining the overarching legal requirement and the CSM RA process may be useful to set the context.</th>
</tr>
</thead>
<tbody>
<tr>
<td>System Definition and Outline of Change</td>
<td>In the initial draft this would reflect the output from the preliminary system definition and assessment of significance. (Further guidance is provided in GE/GN8641 Guidance on System Definition.) As such, it includes: an overview of the rationale of the project and what it is changing: an initial assessment of the risks; assumptions and constraints; initial safety requirements etc.</td>
</tr>
<tr>
<td>Risk management</td>
<td>Many of the processes referenced in this section (below) may already have been certificated / authorised as part of an RU/IM’s safety management system. It is nevertheless useful to reference them as, although the assessment body would not be expected or required to comment on the sufficiency of the processes themselves, they would need to check that they have been correctly followed for this project. Similarly, general configuration and quality management processes in the organisations are likely to be relevant and, if so, would be quoted.</td>
</tr>
<tr>
<td>Roles and responsibilities</td>
<td>Key safety project personnel, their roles, responsibilities, qualifications and experience and the reporting lines between them are identified. This includes the arrangements with all ‘actors’ defined in the regulation as ‘all parties which are, directly or through contractual arrangements, involved in the application of this Regulation.’ (Article 5, clause 8), including those working under contract with external organisations, if necessary. Key roles would include: Project Sponsor; Technical Lead; Project Manager; Hazard Record Manager; Lead Assessment Body; Technical Expert. Appropriate processes for competence management should be referenced, including the need for any specific safety training.</td>
</tr>
<tr>
<td>System definition</td>
<td>A description of how system definition information is collected, consolidated, recorded and kept up-to-date as the project progresses is provided. If specific tools are to be used these are referenced where appropriate. Further guidance is provided in GE/GN8641 Guidance on System Definition.</td>
</tr>
<tr>
<td>Hazard identification / classification</td>
<td>A description of the approach to hazard identification and classification is provided. Appropriate processes are referenced. Further guidance is provided in GE/GN8642 Guidance on Hazard Identification and Classification. Work that others need to do to assess the risks they solely control may also be included.</td>
</tr>
<tr>
<td>Detailed risk analysis and evaluation</td>
<td>A description of the approach to be followed for further risk analysis, and the evaluation of the acceptability of risk is provided. Appropriate processes are referenced. Further advice is provided in GE/GN8643 Guidance on Risk Evaluation and Assessment.</td>
</tr>
<tr>
<td>Safety requirements and hazard management</td>
<td>A description is provided of the approach to be followed to recording safety requirements, linking them to evidence that they have been complied with and gathering evidence that they have been complied with. Where specific tools are to be used, these are described and referenced. Specific attention is given to the transfer of such information between the various separate actors on the project. Further guidance is provided in GE/GN8644 Guidance on Safety Requirements and Hazard Management.</td>
</tr>
<tr>
<td>Plan of activities and timescales</td>
<td>i) An integrated plan of when the activities described are to be undertaken and how. This will need to include consideration of the key milestones for delivery, the resources available, the relationships with, or dependencies placed on, other projects.</td>
</tr>
<tr>
<td>Deliverables</td>
<td>ii) A description of the outputs of application of the CSM RA process is provided. As a minimum, these are expected to encompass deliverables meeting the requirements set out in G 3.4.1, the hazard record, and the assessment report.</td>
</tr>
<tr>
<td>Independent assessment</td>
<td>A description of the arrangements for independent assessment of application of the CSM RA process is provided. The plan for the independent assessment is referenced when it is available. Further guidance is provided in GE/GN8645 Guidance on Independent Assessment.</td>
</tr>
<tr>
<td>Safety approval and acceptance</td>
<td>A description of the approval mechanisms and procedures to be adopted is provided. This includes any mechanisms put in place to support safety assurance at contractual or organisational boundaries. It may also be necessary to describe the process and approval mechanisms for system modification and maintenance.</td>
</tr>
</tbody>
</table>
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Definitions

Actor
Any party which is, directly or through contractual arrangements, involved in the application of the risk management process.

Assessment body
An independent and competent person, organisation or entity which undertakes investigation to arrive at a judgement, based on evidence, of the suitability of a system to fulfil its safety requirements.

Assessment report
The document containing the conclusions of the assessment performed by an assessment body on the system under assessment.

CSM RA ‘the regulation’

Hazard
Condition that could lead to an accident.

Hazard record
The document in which identified hazards, their related measures, their origin and the reference to the organisation which has to manage them are recorded and referenced.

Infrastructure manager (IM)
As defined in the ROGS 2006: ‘infrastructure manager’ means the person who:

(a) in relation to infrastructure other than a station, is responsible for developing and maintaining that infrastructure or, in relation to a station, the person who is responsible for managing and operating that station, except that it shall not include any person solely on the basis that he carries out the construction of that infrastructure or station or its maintenance, repair or alteration; and
(b) manages and uses that infrastructure or station, or permits it to be used, for the operation of a vehicle.’ (Part 1, clause 2)

Proposer
As defined in the regulation:

‘proposer’ means the railway undertakings or the infrastructure managers in the framework of the risk control measures they have to implement in accordance with Article 4 of Directive 2004/49/EC, the contracting entities or the manufacturers when they invite a notified body to apply the ‘EC’ verification procedure in accordance with Article 18(1) of Directive 2008/57/EC or the applicant of an authorisation for placing in service of vehicles.’ (Article 3, clause 11)

Railway system
The totality of the subsystems for structural and operational areas, as defined in Directives 96/48/EC and 2001/16/EC, as well as the management and operation of the system as a whole.

Railway undertaking (RU)
As defined in Directive 2001/14/EC, and any other public or private undertaking, the activity of which is to provide transport of goods and / or passengers by rail on the basis that the undertaking must ensure traction; this also includes undertakings which provide traction only.
Risk analysis
The systematic use of all available information to identify hazards and to estimate the risk.

Risk assessment
The overall process comprising a risk analysis and a risk evaluation.

Risk evaluation
A procedure based on the risk analysis to determine whether the acceptable risk has been achieved.

Safety management system
As defined in the Safety Directive, Article 3 i)
‘the organisation and arrangements established by an infrastructure manager or a railway undertaking to ensure the safe management of its operations’.

Safety measure
As defined in the regulation:
‘A set of actions that either reduce the rate of occurrence of a hazard or mitigate its consequences in order to achieve and / or maintain an acceptable level of risk.’ (Article 3, clause10)

Safety requirement
As used in this guidance: A characteristic of a system and its operation (including operational rules) necessary in order to deliver acceptable risk.

As defined in the regulation:
“safety requirements’ means the safety characteristics (qualitative or quantitative) of a system and its operation (including operational rules) necessary in order to meet legal or company safety targets.” (Article 3, clause 9)

System
That part of the railway system which is subject to a change.
References

The Catalogue of Railway Group Standards gives the current issue number and status of documents published by RSSB. This information is also available from www.rgsonline.co.uk.

RGSC 01 Railway Group Standards Code
RGSC 02 Standards Manual

Documents referenced in the text

RSSB documents

GE/GN8641 Guidance on System Definition
GE/GN8642 Guidance on Hazard Identification and Classification
GE/GN8643 Guidance on Risk Evaluation and Risk Acceptance
GE/GN8644 Guidance on Safety Requirements and Hazard Management
GE/GN8645 Guidance on Independent Assessment

Measuring Safety Performance

RSSB guide on how to develop and manage safety performance indicators for Britain's railways

Safety Risk Model

RSSB Safety Risk Model Risk Profile Bulletin

Other references

BS EN 50126-1:1999 Railway applications - The specification and demonstration of Reliability, Availability, Maintainability and Safety (RAMS)
BS EN 50128:2011 Railway applications - Communication, signalling and processing systems - Software for railway control and protection systems
BS EN 50129:2003 Railway applications - Communication, signalling and processing systems - Safety related electronic systems for signalling
EC No 352/2009 Commission Regulation on a Common Safety Method on risk evaluation and assessment
EU No 402/2013 Commission Implementing Regulation on a Common Safety Method on risk evaluation and assessment
2004/49/EC Railway Safety Directive
2008/57/EC Interoperability Directive
ORR Guidance (Dec 2012) ORR guidance on the application of the common safety method (CSM) on risk assessment and evaluation (December 2012)
ROGS 2006 Railways and Other Guided Transport Systems (Safety) Regulations 2006

Other relevant documents

Other references

ERA/GUI/02-2008/SAF European Railway Agency Collection of examples of risk assessments and of some possible tools supporting the CSM Regulation