Assessment of Route Compatibility of Vehicles and Infrastructure

Synopsis
This document sets out requirements and responsibilities for the assessment of route compatibility of vehicles and infrastructure.

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Supply

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Part 1 Purpose and Introduction

1.1 Purpose

1.1.1 Before any new or altered infrastructure or vehicle is put into use, or the use of infrastructure or vehicles is changed, it is essential that the change is assessed to ensure that compatibility between assets is maintained.

1.1.2 This document therefore sets out requirements and responsibilities for the assessment of route compatibility between infrastructure and vehicles, and the arrangements by which the assessment of compatibility is undertaken and identifies those responsible for managing that assessment.

1.1.3 This document is also applicable when assessing compatibility between vehicle and vehicle, or infrastructure and infrastructure, where the assets concerned are the responsibility of different railway undertakings or infrastructure managers.

1.2 Introduction

1.2.1 Background

1.2.1.1 The regulatory framework relating to the introduction of new or altered infrastructure or vehicles is largely determined by:


And


1.2.1.2 Each railway undertaking and infrastructure manager is made responsible for the safety of their own part of the railway system. Neither party gives permission to or has authority over the other. However, railway undertakings and infrastructure managers are required to cooperate with other railway undertakings and infrastructure managers where they are taking action to achieve the safe operation of the railway system.

1.2.1.3 The Directives create a fundamental regulatory separation between:

a) ‘Placing in service’ – gaining authorisation of new and altered vehicles and infrastructure before they are used. Placing in service is the responsibility of the ‘project entity’ (as defined in the Railways (Interoperability) Regulations 2011 (as amended)). Any organisation can undertake the role of a ‘project entity’ as long as it meets the definition in the Regulation, for example, a manufacturer and that organisation does not need to be a railway undertaking or an infrastructure manager.

b) ‘Putting into use’ – using the vehicles and infrastructure in day-to-day operation under the safety management systems of railway undertakings and infrastructure managers.

1.2.1.4 If authorisation for placing in service is required, it is given by the national safety authority. In Great Britain (GB), the national safety authority is the Office of Rail and Road (ORR).
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1.2.1.5 The regulatory separation of placing in service and putting into use is intended to facilitate the opening of the market for railway products and services.

1.2.1.6 Further discussion of the regulatory separation between placing in service and putting into use can be found in Commission Recommendation 2014/897/EU on matters related to the placing in service and use of structural subsystems and vehicles under Directives 2008/57/EC and 2004/49/EC.

### 1.2.2 Placing in service

1.2.2.1 Essentially, Article 15 of Directive 2008/57/EC sets out three elements to be checked before a vehicle or infrastructure is placed in service, in order to meet the essential requirements (summarised as safety, reliability and availability, health, environmental protection, technical compatibility, and accessibility to persons with disabilities and persons with reduced mobility):

- a) That it complies with TSIs and national rules.
- b) That it is technically compatible with the system into which it will be integrated.
- c) That it can be ‘safely integrated’.

1.2.2.2 Although both ‘technical compatibility’ and ‘safety’ are essential requirements, the application of standards alone may not be sufficient to demonstrate that they have been met, and therefore additional processes are required when putting new and altered vehicles and infrastructure into use, following their placing in service.

### 1.2.3 Safe integration

1.2.3.1 Safe integration can be demonstrated by application of the risk management process set out in the Common Safety Method for Risk Evaluation and Assessment (CSM RA) established by Commission Implementing Regulation No 402/2013 (as amended).

1.2.3.2 Application of the CSM RA is required for ‘any change of the railway system… which is considered to be significant within the meaning of Article 4 of [the] Regulation’.

1.2.3.3 However, clause 3.4.2.2 of The ORR’s Policy statement on the relationship between the CSM RA and other risk assessment requirements (RGD-2013-06, December 2013) notes that:

> ‘It is possible to adopt the CSM RA approach even when there is no legal requirement to do so (for example, when a change is not significant). Following the CSM approach correctly in these circumstances is likely to mean that domestic safety legislation [which requires a suitable and sufficient risk assessment to be undertaken] is complied with’.

1.2.3.4 Further guidance on the application of the CSM RA is available in six complementary Rail Industry Guidance Notes (GNs): GE/GN8640, GE/GN8641, GE/GN8642, GE/GN8643, GE/GN8644 and GE/GN8645.

### 1.2.4 Technical compatibility

1.2.4.1 Technical compatibility between vehicles and infrastructure is addressed at three levels:
a) European level: checking compatibility with the target European railway system by reference to TSIs.

b) Network level: checking compatibility with the generality of the GB mainline network, by reference to Railway Group Standards (as national technical rules).

c) Route level: checking compatibility of a vehicle with a particular route, or infrastructure with the vehicles intended to operate over a route, dealt with under the safety management system of the railway undertaking or infrastructure manager introducing new and altered vehicles and infrastructure.

1.2.4.2 The first two levels are relevant to placing new and altered vehicles and infrastructure in service, and therefore, in certain circumstances, may be subject to formal verification and authorisation in accordance with the Railways (Interoperability) Regulations 2011 (as amended).

1.2.4.3 The third level is not a matter for placing in service, but is considered as part of putting new and altered vehicles and infrastructure into use. It is therefore not subject to formal verification and authorisation in accordance with the Railways (Interoperability) Regulations 2011 (as amended). Furthermore, there is no common safety method for assessing technical compatibility at route level, equivalent to the CSM RA.

1.2.4.4 Therefore in the absence of a common safety method, this document, GE/RT8270, sets out a national safety method for assessment of compatibility between infrastructure and vehicles at route level. As such, it meets the criteria for being a national safety rule of type 1 in accordance with Annex II of the Railway Safety Directive 2004/49/EC.

1.2.5 Compatibility process covered by this document

1.2.5.1 The compatibility process covered by this document is confined to the assessment of compatibility between infrastructure and vehicles on the GB mainline network.

1.2.5.2 GE/RT8273 sets out specific requirements and responsibilities for the assessment of gauging compatibility between vehicles and infrastructure.

1.2.5.3 GE/RT8006 sets out specific requirements for the assessment of compatibility between the static load characteristics of rail vehicles and the capacity of underline bridges to carry the vertical static and dynamic loads imposed by the rail vehicles.

1.2.5.4 The process set out in this document does not apply to the assessment of compatibility between the railway system and assets outside the railway system; however, specific legislation may apply (for example, the Electromagnetic Compatibility Regulations 2006).

1.2.6 Commercial arrangements

1.2.6.1 Introducing new and altered vehicles and infrastructure is likely to require commercial arrangements to be put in place in respect of track access, vehicle change and / or network change, as appropriate. These arrangements are outside the scope of this document.
1.3 Approval and authorisation of this document

1.3.1 The content of this document was approved by Rolling Stock Standards Committee on 10 October 2015.

1.3.2 This document was authorised by RSSB on 27 October 2015.
Part 2  Process for Assessment of Compatibility

2.1 Responsibilities of parties proposing any change

2.1.1 The railway undertaking or infrastructure manager proposing a change (the proposer) shall determine whether an assessment of compatibility is required. An assessment of compatibility is required if:

a) The proposed change is a material change (see definitions).

And

b) The physical or operational interfaces affect assets that are the responsibility of another railway undertaking or infrastructure manager (an affected party).

2.1.2 If an assessment of compatibility is required, the proposer shall identify all affected parties, and inform them of the proposed change. Section A.2 in Appendix A gives additional guidance on informing industry parties of other proposed changes.

2.1.3 The proposer shall decide on the method of engaging with affected parties for the purpose of exchanging information and reviewing the compatibility of the proposed change with the assets of the affected parties, taking into account the complexity and significance of the proposed change.

2.1.4 When informing affected parties of the proposed change, the proposer shall also advise them of the chosen method of engaging with them for the purpose of exchanging information and reviewing the compatibility of the proposed change.

2.1.5 Where an affected party believes that the appropriate method of engagement has not been selected by the proposer, the affected party can request an alternative method of engagement such as a meeting or a compatibility review forum (see section 2.5), stating the reasons for the request.

2.1.6 The proposer shall respond to the request of the affected party, referred to in 2.1.5, with their decision on the method of engagement.

2.2 Assessment of compatibility

2.2.1 Technical requirements for undertaking an assessment of compatibility are set out in Part 3.

2.3 Compatibility File

2.3.1 The proposer shall assemble a Compatibility File (or update an existing applicable Compatibility File).

2.3.2 The Compatibility File shall contain data that describe the new asset or the change to an asset, the methods used to assess compatibility, the decision criteria used to declare compatibility and how they have been derived.

2.3.3 The Compatibility File shall contain or reference all the evidence that demonstrates the compatibility of new or changed vehicles with the infrastructure they operate over and with other vehicles that operate on that infrastructure; or the compatibility of new or changed infrastructure with the vehicles that operate over it and any other infrastructure with which it interfaces.
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### 2.3.4 Where a compatibility review forum has been established, the Compatibility File shall also contain or reference a copy of the minutes of the compatibility review forum.

### 2.3.5 The Compatibility File shall record any operational restrictions on which compatibility depends (for example, a speed restriction over particular sections of route) and the limiting conditions which cause the restriction to be necessary. In the case of interfaces that depend on the proximity of vehicles involved (see 3.4.2), the Compatibility File shall record the demands of the vehicles as a proportion of the capacity of the infrastructure over particular sections of route.

### 2.3.6 The Compatibility File shall be passed to the owner of the asset. In the case where a technical file exists, the Compatibility File forms part of the technical file.

#### 2.4 Review of assessment of compatibility

**2.4.1** The proposer shall produce a draft Statement of Compatibility (see 2.6) and then forward it to all the affected parties for review.

**2.4.2** The proposer shall set a timeframe for the affected parties to respond to the draft Statement of Compatibility. Where necessary, the affected parties, in their response, are permitted to request further time from the proposer to review the draft Statement of Compatibility. The proposer is to select a timeframe that is proportionate to the complexity and significance of the change to ensure the affected parties have an appropriate amount of time to respond.

**2.4.3** The affected parties shall review the draft Statement of Compatibility and provide the proposer with their comments in a timely manner. Where necessary, for the purpose of this review, it is permissible for affected parties to request access to those parts of the Compatibility File relevant to the assets for which they are responsible.

**2.4.4** The proposer shall make the relevant parts of the Compatibility File available to affected parties when requested, as set out in 2.4.3.

**2.4.5** Where a compatibility review forum has been convened, the compatibility review forum shall review the draft Statement of Compatibility, together with those parts of the Compatibility File it considers necessary.

**2.4.6** The proposer shall take account of comments received from affected parties before authorising and issuing the Statement of Compatibility. It shall advise those making the comments of how their comments have been taken into account.

**2.4.7** The review process shall be conducted with the objective of achieving a consensus that the proposed change is compatible with the assets of the affected parties, given the identified limitations, restrictions or requirements on which the compatibility depends.

**2.4.8** It will not always be possible to reach a consensus. If it is apparent that there is no consensus, or if an affected party considers that its comments have not been fully taken into account, the following steps shall be taken to resolve outstanding issues:

- a) Where engagement has not been through a compatibility review forum, a compatibility review forum shall be convened with the objective of achieving a consensus (see 2.5).
b) Where engagement with affected parties has been through a compatibility review forum and it is apparent that there is still no consensus, the proposer shall not implement the proposed change for 14 days. During this period, both parties shall determine whether or not to escalate the issue using the railway industry’s accepted processes, for example, using Standards Committees or System Interface Committees.

c) If either party chooses to escalate the issue, the change shall not be implemented until the issue is resolved.

d) During the period in which the issue has been escalated using the railway industry’s accepted processes, all parties have the opportunity to determine whether or not to escalate the proposal to the Office of Rail and Road (ORR), citing the duty of cooperation set out in the Railways and Other Guided Transport Systems (Safety) Regulations 2006 (as amended).

2.5 Operation of a compatibility review forum

2.5.1 The compatibility review forum shall be established with the purpose of facilitating a shared understanding of the proposed change; and to consider the issues raised by the affected parties and the effects of the change on those parties.

2.5.2 The scope of examination of the proposed change shall be limited to the compatibility between vehicles and infrastructure on the route(s) concerned.

2.5.3 Members of a compatibility review forum shall include representatives of the proposer and the affected parties, together with their technical advisers.

2.5.4 Compatibility review forum attendees shall be members for the project under discussion and are not automatically invited to compatibility review forums established to consider other projects.

2.5.5 The compatibility review forum shall be chaired by an individual nominated by the proposer who is independent of the outcome.

2.5.6 The chair shall seek to facilitate a meeting that allows all parties to explain their respective views. The chair shall assist all participants in understanding the issues at hand and, where possible, facilitate the development of a consensus.

2.5.7 Formal minutes shall be produced for each convened session of the compatibility review forum.

2.6 Statement of Compatibility

2.6.1 The proposer shall produce a written notification of compatibility between assets, known as the Statement of Compatibility. A copy of the Statement of Compatibility shall be held in the Compatibility File.

2.6.2 The Statement of Compatibility shall state specifically:

a) The route, or sections of route, and elements of infrastructure or classes of vehicles involved.

b) The configuration and type of vehicles or infrastructure for which compatibility has been assessed.

c) Any limitations, restrictions or requirements on which the compatibility depends.
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d) The name and position of the proposer’s representative who is endorsing the Statement of Compatibility.

e) The date of issue.

2.6.3 It is permissible to issue a Statement of Compatibility in respect of either:

a) A single vehicle, a group of vehicles of the same class, a fleet of vehicles of the same class or a generic type of installation (for example, trainborne GSM-R equipment).

Or

b) A single installation of infrastructure or a generic type of installation (for example, type XYZ axle counters).

2.6.4 The proposer shall allocate a sequential number to each Statement of Compatibility it produces. The number shall be prefixed by a unique code indicating the name of the proposer.

2.6.5 The proposer shall send a copy of the Statement of Compatibility to all affected parties.

2.6.6 The proposer shall send a copy of the Statement of Compatibility to Network Rail, as publisher of the Sectional Appendix and local operating instructions (see GO/RT3215).

2.7 Outputs from the compatibility process

2.7.1 Following the issue of a Statement of Compatibility, all documentation needed to define any limitations, restrictions or requirements on which the compatibility depends shall be updated. Such documentation could include, but is not limited to, the safety management systems of the infrastructure managers and railway undertakings concerned, the Sectional Appendix, signallers’ instructions, drivers’ instructions, and maintenance plans.

2.7.2 Relevant data from the Compatibility File that describe asset characteristics relevant to compatibility shall be included in, or used to update, the data for assessment of compatibility required by 2.10.1.

2.8 Testing

2.8.1 Although testing is not within the scope of this document, this process can be used to generate an interim statement of compatibility for the purposes of testing. Where testing is required, railway undertakings and infrastructure managers shall define a set of agreed conditions for controlling the risk during testing, including the risk from any potential incompatibility between assets, in accordance with their respective safety management systems.

2.9 Vehicles having a keeper other than a railway undertaking

2.9.1 Guidance on undertaking the assessment of compatibility of vehicles with a keeper other than a railway undertaking (for example Private Owner wagons, General Contract of Use (GCU) wagons, and heritage vehicles) is given in A.6 of Appendix A.
2.10 Ongoing responsibilities

2.10.1 Provision of data for assessment of compatibility

2.10.1.1 Railway undertakings and infrastructure managers shall maintain, update and make freely available to relevant parties the available data that describes asset characteristics relevant to compatibility. Guidance on the nature of the data used to describe asset characteristics is given in A.7 of Appendix A.

2.10.1.2 Railway undertakings and infrastructure managers shall provide, in a timely manner, further interface data when requested, where such data can be reasonably and practicably obtained.

2.10.2 Maintaining compatibility

2.10.2.1 The infrastructure manager shall maintain infrastructure within the characteristics on which compatibility depends, and the railway undertaking shall maintain vehicles within the characteristics on which compatibility depends.

2.10.2.2 Where the infrastructure manager or railway undertaking proposes to change the characteristics of assets on which compatibility depends, prior to implementing the change they shall demonstrate that the vehicles remain compatible with the infrastructure they operate over and with other vehicles that operate on that infrastructure; or that infrastructure remains compatible with the vehicles that operate over it and any other infrastructure with which it interfaces, using the processes in this document.

2.10.2.3 The requirements of this section do not preclude the introduction of temporary performance restrictions affecting the infrastructure or vehicles (for example, a temporary speed restriction).

2.11 Guidance on Part 2 – Process for assessment of compatibility

2.11.1 Guidance on the application of the requirements set out in this part of the document (Part 2) is given in Appendix A.

2.11.2 The key stages in the process for assessment of compatibility set out in this part of the document (Part 2) are illustrated by the flowchart given in A.1 of Appendix A.
Part 3 Technical Requirements for Undertaking an Assessment of Compatibility

3.1 Changes requiring an assessment of compatibility

3.1.1 Where a change requires an assessment of compatibility (see 2.1), the proposer shall:

a) Identify all the physical and operational interfaces affected by the change.

b) Establish the criteria by which compatibility can be determined.

c) Request interface data, where not already available, from the relevant party to enable assessment of compatibility to be undertaken.

d) Evaluate the interface data and undertake an assessment of compatibility, taking into account degraded and foreseeable fault conditions.

3.2 Assessing compatibility

3.2.1 Where both sides of an interface have been shown to conform to corresponding requirements in an integrated suite of standards, this fact is sufficient to demonstrate compatibility at that interface. For example, if track conforms to the Infrastructure TSI and wheelsets to the Rolling Stock TSI, the wheel / rail interface is compatible.

3.2.2 For the purposes of this document, each of the following are regarded as integrated suites of standards:

a) TSIs.

And

b) Railway Group Standards.

3.2.3 Where either side of an interface has not been shown to conform to an integrated suite of standards (or if it is not known whether one or other side of an interface has been shown to conform to an integrated suite of standards), and where Railway Group Standards exist that define criteria by which compatibility can be determined, the criteria set out in such standards shall be used as part of the assessment of compatibility process.

3.2.4 Where either side of an interface has not been shown to conform to an integrated suite of standards (or if it is not known whether one or other side of an interface has been shown to conform to an integrated suite of standards), and Railway Group Standards do not exist that define criteria by which compatibility can be determined, compatibility shall be determined by the party putting the asset into use using an appropriate analysis.

3.2.5 Appendix C is not used.

3.2.6 Appendix D sets out specific requirements for assessing electromagnetic compatibility.
3.3 Assessing compatibility between vehicle and vehicle, or infrastructure and infrastructure

3.3.1 In most cases where a change requires an assessment of compatibility, the required assessment will be between vehicles and infrastructure. It is also necessary to assess the compatibility between the vehicles proposed to be introduced onto a route and the existing vehicles using that route (for example, in respect of coupling arrangements in the event of an emergency). Where the vehicles concerned are the responsibility of different railway undertakings, the process set out in this document shall be used to assess the compatibility of the vehicles.

3.3.2 Similarly, it is necessary to assess the compatibility of proposed changes to the infrastructure managed and operated by one infrastructure manager with the infrastructure managed and operated by another infrastructure manager (for example, alterations to the geometry of track adjacent to the platform of a station managed and operated by another infrastructure manager). In this case, the process set out in this document shall be used to assess the compatibility of the infrastructure.

3.4 Guidance on Part 3 – Technical requirements for undertaking an assessment of compatibility

3.4.1 The requirements of 3.2 are illustrated by the flowchart shown in B.1 of Appendix B.

3.4.2 Section B.2 of Appendix B gives guidance in the case of interfaces that depend on the proximity of vehicles involved, and interfaces that depend on the cumulative number of vehicles intended to be operated.

3.4.3 Section B.3 of Appendix B gives guidance on relevant operational interfaces.

3.4.4 Section B.4 of Appendix B notes that there are specific requirements in Railway Group Standards relating to the assessment of compatibility at important interfaces.
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Part 4 Application of this document

4.1 Application – infrastructure managers

4.1.1 Scope

4.1.1.1 The requirements of this document apply to all infrastructure managers.

4.1.1.2 Specifically, the requirements of 2.1 to 2.7 apply when a material change to infrastructure is proposed.

4.1.2 Exclusions from scope

4.1.2.1 There are no exclusions from the scope specified in 4.1.1.1 for infrastructure managers.

4.1.3 General compliance date for infrastructure managers

4.1.3.1 This Railway Group Standard comes into force and is to be complied with from 05 March 2016, except as specified in 4.1.4. Where the dates specified in 4.1.4 are later than the above date, this is to allow infrastructure managers sufficient time to achieve compliance with the specified exceptions.

4.1.3.2 After the compliance dates, or the date by which compliance is achieved if earlier, infrastructure managers are to maintain compliance with the requirements set out in this Railway Group Standard. Where it is considered not reasonably practicable to comply with the requirements, permission to comply with a specified alternative should be sought in accordance with the Railway Group Standards Code.

4.1.4 Exceptions to general compliance date

4.1.4.1 Where the infrastructure manager is the proposer, this Railway Group Standard is to be complied with from 05 March 2016.

4.2 Application – railway undertakings

4.2.1 Scope

4.2.1.1 The requirements of this document apply to railway undertakings.

4.2.1.2 Specifically, the requirements of 2.1 to 2.7 apply when a material change to vehicles is proposed, or a material change to their use is proposed (for example, if a vehicle is to be operated over a new route, or in a new formation).

4.2.2 Exclusions from scope

4.2.2.1 There are no exclusions from the scope specified in 4.2.1.1 for railway undertakings.

4.2.3 General compliance date for railway undertakings

4.2.3.1 This Railway Group Standard comes into force and is to be complied with from 05 March 2016, except as specified in 4.2.4.

4.2.3.2 After the compliance dates, or the date by which compliance is achieved if earlier, railway undertakings are to maintain compliance with the requirements set out in this Railway Group Standard. Where it is considered not reasonably practicable to comply with the requirements, permission to comply with a specified alternative should be sought in accordance with the Railway Group Standards Code.

4.2.4 Exceptions to general compliance date

4.2.4.1 There are no exceptions to the compliance date.
4.3 Health and safety responsibilities

4.3.1 Users of documents published by RSSB are reminded of the need to consider their own responsibilities to ensure health and safety at work and their own duties under health and safety legislation. RSSB does not warrant that compliance with all or any documents published by RSSB is sufficient in itself to ensure safe systems of work or operation or to satisfy such responsibilities or duties.
Appendix A  Guidance on Part 2 – Process for Assessment of Compatibility

The content of this appendix is provided for guidance only

A.1  Compatibility process flowchart (see 2.11)
Assessment of Route Compatibility of Vehicles and Infrastructure

Proposer

A

Provide affected parties an opportunity to review the draft Statement of Compatibility (§ 2.4)
If convened, compatibility review forum reviews draft Statement of Compatibility (§ 2.4.5)

Take account of comments received from affected parties (§ 2.4.6)
Convene a compatibility review forum, if necessary, to resolve outstanding issues (§ 2.4.8)

Issue Statement of Compatibility (§ 2.6)

Update documents on which compatibility depends (§ 2.7.1)
Update data available describing asset characteristics (§ 2.7.2 and § 2.10.1)

C

Affected party

B

Review the draft Statement of Compatibility (§ 2.4.3)

Provide comments (§ 2.4.3)

Update documents on which compatibility depends (§ 2.7.1)
Update data available describing asset characteristics (§ 2.7.2 and § 2.10.1)

D

Uncontrolled When Printed
Amendments to this document can be found on the RSSB Standards Catalogue - http://www.rssb.co.uk/railway-group-standards
Document comes into force and supersedes GERT8270 Iss 2 (All sections except for Appendix C) on 05/03/2016
Document withdrawn with effect from 01/09/2018 and replaced by RIS-8270-RST Iss 1
A.2 Responsibilities of parties proposing change (see 2.1)

A.2.1 Section 2.1 requires the proposer to identify all affected parties, and inform them of the proposed change if an assessment of compatibility is required. An affected party is defined as ‘A railway undertaking or infrastructure manager responsible for assets on the other side of a physical or operational interface with the potential to be affected by a proposed change’.

A.2.2 An assessment of compatibility is required when the proposed change is a material change (that is, a change that has the potential to affect a physical or operational interface). Where an assessment of compatibility is not required, because the change is not a material change, the proposer should consider informing other industry parties where the change may be of relevance to them.

A.2.3 This gives those parties the opportunity to identify compatibility issues that were not identified by the proposer, for example because one or other party has made assumptions which may be invalidated by the change.

A.2.4 Where the proposer considers that the proposed change is simple or unlikely to have a significant impact on affected parties, it may be sufficient to engage with affected parties through an exchange of correspondence.
A.3 Operation of a compatibility review forum (see 2.5)

A.3.1 Section 2.5 sets out the requirements for the operation of a compatibility review forum.

A.3.2 Where appropriate, the participants of the compatibility review forum may also suggest potential improvements to the proposed change, with a view to seeking a consensus in support of the proposal.

A.4 Review of assessment of compatibility (see 2.4)

A.4.1 Clause 2.4.3 requires the affected parties to review the draft Statement of Compatibility and provide the proposer with their comments. This requirement does not alter the proposer’s responsibility for decisions made regarding the compatibility of the proposed change with the railway system.

A.5 Outputs from the compatibility process (see 2.7)

A.5.1 Section 2.7 requires that, following the issue of a Statement of Compatibility, all documentation needed to define any limitations, restrictions or requirements on which the compatibility depends shall be updated. GO/RT3215 sets out that where such limitations, restrictions or requirements necessitate a change to local operating instructions, the proposer is to validate the text to be incorporated in the local operating instructions.

A.5.2 Where the results of the assessment of compatibility have a wider application across the industry, a proposal for standards change can be made in accordance with the Railway Group Standards Code. This will enable the knowledge to be captured for the benefit of the industry.

A.6 Vehicles having a keeper other than a railway undertaking (see 2.9)

A.6.1 Where the keeper of the vehicle is unable to assemble a Compatibility File, the keeper should seek the assistance of an infrastructure manager, a railway undertaking or a suitably qualified agent to assemble the file on their behalf.

A.6.2 The keeper of the vehicle should then make arrangements with a railway undertaking required to comply with Railway Group Standards to:

   a) Issue a Statement of Compatibility in accordance with the processes documented in the railway undertaking’s safety management system.

   And

   b) Register the vehicle on the Rolling Stock Library in accordance with GM/RT2453.

A.6.3 The railway undertaking need not necessarily be the railway undertaking operating the trains within which the vehicle is intended to be formed.

A.7 Data used to describe asset characteristics (see 2.10.1)

A.7.1 Section 2.10.1 requires railway undertakings and infrastructure managers to ‘maintain, update and make freely available to relevant parties the available data that describe asset characteristics relevant to compatibility’. This section of Appendix A gives guidance on the nature of the data used to describe asset characteristics.

A.7.2 The data should relate to the nature of the assets within the control of the railway undertaking or infrastructure manager concerned, and not to its relationship with assets that are controlled by others.
Assessment of Route Compatibility of Vehicles and Infrastructure

A.7.3 Ideally, therefore, the data provided should describe the vehicles or element of infrastructure concerned, and should not contain implicit or explicit judgements about compatibility, as these are for the party making the change to assess. Rather, the data provided should include descriptive statements about conditions or limitations.

A.7.4 As an example, it would not be appropriate for a railway undertaking to include in the data used to describe asset characteristics a statement to the effect that ‘Type XYZ track circuits are not to be used on routes operated by Class 123 vehicles’. Rather, the data should take the form ‘shunt resistance over wheel sets of Class 123 vehicles cannot be guaranteed to be less than x ohms’.

A.7.5 Similarly it would not be appropriate for an infrastructure manager to include in the data used to describe asset characteristics a statement to the effect that ‘Class 123 vehicles are not permitted on routes fitted with type XYZ track circuits’. Rather, the statement should take the form ‘The route is fitted with type XYZ track circuits set in the frequency range A to B’.
**Appendix B  Guidance on Part 3 – Technical Requirements for Undertaking an Assessment of Compatibility**

The content of this appendix is provided for guidance only

### B.1 Assessment of compatibility flowchart (see 3.2)

1. **Do both sides of an interface conform to corresponding requirements in an integrated suite of standards?**
   - **Yes** → Technical compatibility
   - **No** → **Do RGSs exist defining criteria by which compatibility can be determined?**
     - **Yes** → **Are the criteria set out in the RGS met?**
       - **Yes** → Technical compatibility
       - **No** → **Option:** Change the side of the interface under the control of the party proposing change to deliver the criteria
         - **Yes** → Technical compatibility
         - **No** → **Option:** Resolve through commercial process to manage incompatibility by special access agreements (see § 1.2.6)
           - **Yes** → Qualified compatibility
           - **No** → **Analysis to demonstrate technical compatibility (§ 3.2.4)**
2. **If the results of the analysis of compatibility have a wider application across the industry, propose a standards change (§ A.5)**
Assessment of Route Compatibility of Vehicles and Infrastructure

B.2 Types of interface

B.2.1 Categories of interface

B.2.1.1 An interface is a point or boundary where two assets have the potential to interact. For the purposes of assessing compatibility, the two assets under consideration are the responsibility of different infrastructure managers or railway undertakings.

B.2.1.2 There are three broad categories of interface to consider:

a) Interfaces that do not depend on the proximity (spacing) or cumulative number of vehicles intended to be operated (see B.2.2).

b) Interfaces that depend on the proximity (spacing) of the vehicles intended to be operated (see B.2.3).

B.2.1.4 Interfaces that depend on the cumulative number of vehicles intended to be operated (see B.2.4).

B.2.1.3 These categories of interface need to be considered for both changes to infrastructure and changes to the vehicles.

B.2.2 Interfaces that do not depend on the proximity or cumulative number of vehicles intended to be operated

B.2.2.1 An example of an interface that does not depend on the proximity or cumulative number of vehicles intended to be operated is the clearance between infrastructure and vehicles (gauge). If a single vehicle of a given type is shown to be clear of a particular infrastructure element, then all vehicles of that type are clear, irrespective of the number of vehicles passing the infrastructure element concerned. For this type of interface, it is sufficient to demonstrate the compatibility of a single vehicle of the given type.

B.2.2.2 In some cases, compatibility may only be achievable by adopting an operational restriction, typically the introduction of a speed restriction.

B.2.3 Interfaces that depend on the proximity of the vehicles intended to be operated

B.2.3.1 An example of an interface that depends on the proximity of the vehicles intended to be operated is the electrical load drawn by an electric locomotive, and the available capacity of a section of an electrified line. In this case, the number of vehicles that can be in a section together may be limited by the electrical load capacity of that section. For this type of interface, assessment of compatibility will need to include a consideration of the operational limitations imposed by the demands of the vehicles and the capacity of the infrastructure.

B.2.3.2 The assessment of compatibility should therefore determine the demands of the vehicles as a proportion of the capacity of the infrastructure. This is to permit, if necessary, appropriate operational rules to be developed to suit a particular service pattern. Information about the total capacity of an infrastructure section, and the capacity already committed to other vehicles, is to be provided by the infrastructure manager.

B.2.3.3 The boundaries of the sections of infrastructure to be considered when assessing compatibility will vary depending on the nature of the particular interface considered.
B.2.4 Interfaces that depend on the cumulative number of vehicles intended to be operated

B.2.4.1 An example of an interface that depends on the number of vehicles involved is the cumulative gross tonnage of vehicle using a section of track, and the rate at which track components and track geometry deteriorate. In this case, the number of vehicles concerned is not a matter for assessment of compatibility, but is significant for the sustainability of any proposed service. As a result, consideration of these interfaces is not a matter for assessment of compatibility and is managed by commercial arrangements.

B.3 Operational interfaces

B.3.1 GE/RT8270 is concerned with technical compatibility issues arising from changes to physical assets (infrastructure or vehicles), where that change has the potential to affect physical or operational interfaces.

B.3.2 In the context of GE/RT8270, the term ‘operational interface’ refers to the interface between physical assets (subject to change) and the ‘operation and traffic management’ subsystem as defined by Annex II to Directive 2008/57/EC; broadly, the rules and procedures in place to ensure the safe and uninterrupted movement of trains.

B.3.3 The term ‘operational interface’ does not refer to the interface between physical assets and the maintenance subsystem as defined by Annex II to Directive 2008/57/EC. For example, it does not refer to the interface between trains and track maintenance activities on the route, which is a matter for the infrastructure manager to manage through their SMS.

B.3.4 Essentially, the interfaces that are in scope of this document can be considered to be those that can be assessed by a pass / fail criterion. As defined in 3.2, this may involve a simple comparison of the requirements that interfaces conform to, or, for more complex cases, it may require further analysis to confirm that the interfaces are compatible. Where the interface is not amenable to an assessment using a pass / fail criterion, and instead requires an assessment that demonstrates risks have been controlled to an acceptable level, then it is probable that such interfaces are not in scope of this document. These interfaces should undergo assessment before a vehicle or infrastructure can be put into use; however, they will most likely need to be assessed through a suitable and sufficient risk assessment method, for example CSM RA.

B.4 Specific requirements in Railway Group Standards relating to the assessment of compatibility

B.4.1 The Railway Group Standards Catalogue gives details of all Railway Group Standards and associated Codes of Practice and Guidance Notes. Many of these set out requirements for the design or operation of assets, and are not specifically intended for assessment of compatibility. However, they can be used as a basis for identifying technical interfaces affected by a change, and for evaluating interface data and undertaking an assessment of compatibility.
This appendix is intentionally not used.
Appendix D  Assessment of Electromagnetic Compatibility

Compliance with this appendix is required in accordance with Part 4 – Application of this document.

This appendix sets out the assessment of electromagnetic compatibility required of a railway undertaking or infrastructure manager in the event of a change. It carries forward the requirements of Appendix C of GE/RT8270 issue one, which were in turn based on those parts of Appendix A of GE/RT8015 issue one that were superseded by GE/RT8270 issue one. A new Railway Group Standard is in preparation that will supersede this Appendix in due course.

D.1 Vehicles

D.1.1 Where a new vehicle, a modified vehicle, or a vehicle new to the route, is to be introduced, or where a change to operations is proposed, the railway undertaking shall demonstrate its compatibility with the infrastructure systems, as set out in D.1.2 to D.1.4 below. The railway undertaking shall also consider the compatibility with other vehicles using the route concerned.

D.1.2 The railway undertaking shall demonstrate compatibility of modified vehicles, or vehicles new to the route, with the infrastructure systems, using the information provided by the infrastructure manager, and the methodology for demonstrating that compatibility, as set out in GE/RT8015.

D.1.3 The railway undertaking shall demonstrate that the safety performance of trainborne systems will not be compromised by electromagnetic interference from the infrastructure at the levels declared by the infrastructure manager.

D.1.4 The railway undertaking shall, using the infrastructure susceptibility information provided by the infrastructure manager, as set out in GE/RT8015, demonstrate that the safety performance of the system will not be reduced under normal (‘as designed’) and degraded conditions of the infrastructure throughout the period that the train formation will operate on the route. This shall take into account normal, degraded and foreseeable fault conditions of the vehicle and shall consider abnormal situations such as assisting a failed train.

D.2 Infrastructure

D.2.1 With the introduction of new or modified infrastructure, the infrastructure manager shall demonstrate compatibility of new or modified infrastructure systems with the vehicles using the route as set out in D.2.2 to D.2.4 below.

D.2.2 The infrastructure manager shall demonstrate compatibility of the new or modified infrastructure with the vehicle systems, using the information provided by the railway undertaking, and the methodology for demonstrating that compatibility, as set out in GE/RT8015.

D.2.3 The infrastructure manager shall demonstrate that the safety performance of infrastructure systems will not be compromised by electromagnetic interference from the vehicle at the levels declared by the railway undertaking.

D.2.4 The infrastructure manager shall, using the vehicle susceptibility information provided by the railway undertaking, as set out in GE/RT8015, demonstrate that the safety performance of the trainborne system will not be reduced under normal (‘as designed’) degraded and foreseeable fault conditions of the vehicle throughout the period that the train formation is intended to operate on the route. This shall take into account normal, degraded and foreseeable fault conditions on the infrastructure.
Assessment of Route Compatibility of Vehicles and Infrastructure

Railway Group Standard
GE/RT8270
Issue Three
Date December 2015

Definitions

Affected party
A railway undertaking or infrastructure manager responsible for assets on the other side of a physical or operational interface with the potential to be affected by a proposed change.

Assets
For the purposes of this document, the term ‘assets’ refers to vehicles or infrastructure falling within the scope of Railway Group Standards.

Compatibility File
The documents which demonstrate the conditions under which vehicles and infrastructure compatibility have been assessed. This forms the basis for a Statement of Compatibility being issued.

Compatibility review forum
A meeting convened by a proposer with affected parties to exchange information and review the compatibility of a proposed change with the assets of the affected parties.

Electromagnetic compatibility
Compatibility of electrical and electronic systems, in respect of emission and immunity levels, to ensure that operation of one system is not adversely affected to an unacceptable extent by emissions from any other system or equipment. For the purposes of this document, electromagnetic compatibility (EMC) assessment shall include consideration of conductive, inductive, capacitive and radiated effects at all frequencies from DC to 2 GHz.

Infrastructure
For the purposes of this document, infrastructure includes all the network subsystems: infrastructure, energy and trackside CCS, as defined in the Railway Interoperability Directive 2008/57/EC.

Interference
The potential of any characteristic or feature of a vehicle to impact adversely on the infrastructure at any interface with that infrastructure, or the potential of any characteristic or feature of the infrastructure to impact adversely on a vehicle at any interface with that vehicle.

Keeper [of the vehicles]
As defined in the Uniform Rules concerning Contracts of Use of Vehicles in International Rail Traffic (CUV - Appendix D to the Convention concerning International Carriage by Rail (COTIF) of 9 May 1980 in the version of the Protocol of Modification of 3 June 1999).

Material change
A change that has the potential to affect physical or operational interfaces.

Proposer
The railway undertaking or infrastructure manager proposing a change.

Route
The physical path of a journey to be undertaken by the vehicles, where the path comprises a number of sections of track each of which has individually defined characteristics.

Section of track
Track bounded by identified limits such as junctions, terminals or points at which there is a significant change in traffic flow, or permissible speed.
Statement of Compatibility
Written notification by an infrastructure manager or a railway undertaking of compatibility between the vehicles and infrastructure. This notification specifies the equipment, the equipment configuration, operational requirements and limitations, route constraints and network factors within which compatibility has been assessed.

Susceptibility
The sensitivity of a vehicle to characteristics or features of the infrastructure at any interface with the infrastructure, or the sensitivity of the infrastructure to characteristics or features of the vehicle at any interface with that vehicle.

Technical file
As defined by the Railways (Interoperability) Regulations 2011 (as amended).

Technical Specification for Interoperability (TSI)
Technical Specifications for Interoperability (TSIs) are standards produced in accordance with the European Interoperability Directives. Compliance with TSIs is required by the Railways (Interoperability) Regulations 2011 (as amended).
Assessment of Route Compatibility of Vehicles and Infrastructure

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.rssb.co.uk/railway-group-standards.

RGSC 01 Railway Group Standards Code
RGSC 02 The Standards Manual

Documents referenced in the text

Railway Group Standards
GE/RT8006 Assessment of Compatibility of Rail Vehicle Weights and Underline Bridges
GE/RT8015 Electromagnetic Compatibility between Railway Infrastructure and Trains
GE/RT8273 Assessment of Compatibility of Rolling Stock and Infrastructure – Gauging and Stepping Distances
GM/RT2453 Registration, Identification and Data to be Displayed on Rail Vehicles
GO/RT3215 Requirements for the Weekly Operating Notice, Periodical Operating Notice and Sectional Appendix

RSSB documents
GE/GN8640 Guidance on Planning an Application of the Common Safety Method on Risk Evaluation and Assessment
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

Other references
2004/49/EC The Railway Safety Directive
2008/57/EC The Railway Interoperability Directive
402/2013 Commission regulation on the CSM for risk assessment and repealing Regulation 352/2009
RGD-2013-06 Policy statement on the relationship between the CSM for Risk Evaluation and Assessment and other risk assessment requirements
SI 2005/3049 The Railways Infrastructure (Access and Management) Regulations 2005
SI 2006/599 The Railways and Other Guided Transport Systems (Safety) Regulations 2006
### Assessment of Route Compatibility of Vehicles and Infrastructure

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<th>Reference</th>
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<tr>
<td>SI 2006/1057</td>
<td>The Railways and Other Guided Transport Systems (Safety) (Amendment) Regulations 2006</td>
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<td>SI 2010/439</td>
<td>The Passengers’ Council (Non-Railway Functions) Order 2010 (amending ROGS 2006)</td>
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<td>SI 2013/950</td>
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