



Strategic Direction for revised Infrastructure TSI

Issue 1.0

**Approved by the
Industry Standards Coordination Committee**

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1 Purpose

- 1.1 This document sets out the strategic direction for GB involvement in the development of the revised and combined Infrastructure TSI and what GB aims to achieve with this TSI.

2 Background

2.1 Responsibilities

- 2.1.1 This strategic direction has been developed by the Infrastructure Standards Committee and is intended for use by any GB representatives involved in the drafting of the revised TSI.

2.2 ERA mandate

- 2.2.1 ERA mandate No 1335/2008 sets out the scope of the changes to the TSI. This strategic direction therefore covers the following technical areas:

- Closure of open points (in conjunction with ERA working party DYN - Dynamics).
- Clarify possible inconsistencies between the HS and CR INF TSIs.
- Merge these two TSIs if determined appropriate following the complementary study launched by the ERA on this subject.
- Extend the scope of the HS and CR INF TSIs, beyond the TENs routes to more of the network, with consideration of the extended scope that will be defined in the complementary study launched by the ERA on this subject.

- 2.2.2 The following topics are not in the scope of work and the ERA will make further proposals regarding the work:

- Safety in railway tunnels (SRT TSI).
- Accessibility for persons with reduced mobility (PRM TSI).
- Noise (NOI TSI).
- 1520 system (specific case / open point).

2.3 Key stages in the development of the TSI

- 2.3.1 The programme of Work is as follows:

- | | |
|---|------------|
| • Complementary studies (merging HS & CR) | Nov 2010 |
| • Complementary studies (scope ext.) | April 2011 |
| • Complementary studies (spare parts) | April 2011 |
| • Mid-term review / intermediate report | April 2011 |
| • Preliminary draft revised TSI(s) | April 2012 |
| • Final draft revised TSI(s) | Oct 2012 |

2.4 Period of validity of the strategic direction

- 2.4.1 The strategic direction is valid until the vote at Railway Interoperability and Safety Committee (RISC) has taken place. There will be a review of the strategic direction in December 2012 if RISC has not voted by then.

3 Guidance for developing the TSI

3.1 Documents

- 3.1.1 The following documents should be used by all GB representatives involved in the development of the TSI:
- a) A [‘Guide for persons involved in the development of TSIs’](#) which has been developed by the Industry Standards Coordination Committee (ISCC) to provide guidance to individuals from the GB railway community who are involved, in some way, in the development of TSIs. The guide is supported by a [‘checklist of factors’](#) which should be borne in mind when a TSI is being drafted, either for the first time or as a revision.
 - b) A [‘technical check list for TSIs’](#) which covers structural sub-systems (Infrastructure, Energy, Rolling Stock, Control-Command and Signalling) is intended to ensure, as far as possible, that the technical review of TSIs and specific cases is thorough.

3.2 Scope extension of TSIs

- 3.2.1 Article 1(4) of the Interoperability Directive, 2008/57/EC, requires that *‘The scope of the TSIs shall be progressively extended in accordance with Article 8 to the whole rail system, including track access to terminals and main port facilities serving or potentially serving more than one user, without prejudice to the derogations to the application of TSIs as listed in Article 9’*.
- 3.2.2 The way in which TSIs are written must depend on the way the term *‘the whole railway system’* is interpreted. If the interpretation is too wide, the TSI becomes impossible to write as it would need to cover a very wide diversity of odd systems.
- 3.2.3 The TSI should therefore be drafted on the assumption that the Member States adopt the exclusions set out in Article 1(3) of the Directive which states that:
- ‘3. Member States may exclude from the measures they adopt in implementation of this Directive:*
- a) *metros, trams and other light rail systems;*
 - b) *networks that are functionally separate from the rest of the railway system and intended only for the operation of local, urban or suburban passenger services, as well as railway undertakings operating solely on these networks;*

- c) *privately owned railway infrastructure and vehicles exclusively used on such infrastructure that exist solely for use by the owner for its own freight operations;*
- d) *infrastructure and vehicles reserved for a strictly local, historical or touristic use.'*

3.3 General consideration of references to ENs in TSIs

3.3.1 Article 5(8) of Directive 2008/57/EC states:

'TSIs may make an explicit, clearly identified reference to European or international standards or specifications or technical documents published by the Agency where this is strictly necessary in order to achieve the objective of this Directive. In such case, these standards or specifications (or the relevant parts) or technical documents shall be regarded as annexes to the TSI concerned and shall become mandatory from the moment the TSI is applicable. In the absence of such standards or specifications or technical documents and pending their development, reference may be made to other clearly identified normative documents; in such case, this shall concern documents that are easily accessible and in the public domain.'

3.3.2 Making an explicit reference to ENs is therefore only permitted 'where this is strictly necessary in order to achieve the objective of this Directive'. Article 5(8) should be read as a prohibition on including explicit references to ENs in TSIs, with a permitted exception under the specified circumstances. It should not be read as a general permission to include references to ENs under the specified circumstances.

3.3.3 Generally, ENs should only be referenced as ways of defining something (such as gauges). They should not be referenced as a way of imposing a requirement, as any necessary requirements should be set out in the TSI itself.

3.3.4 As an example, a reference to an EN was necessary in the CR INF TSI: the capability requirements for structures are defined by a parameter called (misleadingly) 'Line Category'. EN 15528:2008 is referenced simply to define what a Line Category is, and the method of deriving it (a matter too detailed to be specified in the TSI). However, EN 15528:2008 was not referenced as a way of specifying the TSI requirement – it simply permits that requirement to be expressed unambiguously.

3.4 National rules

3.4.1 The TSI should be drafted to eliminate references to the use of national rules as a way of meeting an essential requirement (other than as a specific case in chapter 7). Such references are common in TSIs drafted under AEIF but are not usually present in TSIs drafted under ERA.

- 3.4.2 If the TSI intends to cover a point, but there is no agreed requirement, this should be identified as an open point.
- 3.4.3 If the TSI has nothing to say about a point, it should remain silent. It does not need to say that the issue is dealt with by application of national rules.

4 Principles for developing the TSI

- 4.1 The overall aims for GB in developing the TSI shall be to:
- a) Achieve a specification that allows GB to build economic and cost effective infrastructure.
 - b) Produce a specification that delivers the essential requirements but is not too prescriptive.
 - c) Produce a specification that does not inhibit innovation.
 - d) Produce a specification that is aligned with the RST and WAG TSIs.
 - e) Produce a specification that has a well structured relationship with the wider field of European standards and specifications.
 - f) Produce a standard that is fit for purpose within GB requirements and structure gauge.
 - g) Ensure that there is no reduction in existing overall levels of safety
 - h) Enable the achievement of a cost effective transition to conformity with TSI target subsystems, to the extent that GB intends to do so.
- 4.2 Each of these principles is to be applied to the GB specific technical issues in section 5 below as the TSI is developed.
- 4.3 Where there is any conflict or tension between these principles, a pragmatic balance between them should be sought. If such a balance is difficult to achieve then the issue should be brought to ISCC for discussion.

5 GB specific issues

5.1 Background

- 5.1.1 This section sets out the specific GB issues that must be addressed when drafting the TSI. It applies the principles in section 4 to each issue.
- 5.1.2 Whilst it is recognised that there are unique circumstances applicable to the GB railway infrastructure, the key principle is proposed that GB should be prepared to accept common EU practices unless there is a clear safety or economic justification for maintaining the GB requirement or approach.

- 5.1.3 The CR INF TSI is taken as the basis for the GB requirements. A number of implicit or explicit Open Points were included in the HS INF TSI where National Rules were required. A number of these were removed in drafting the CR INF TSI and therefore are not discussed here.

5.2 List of different GB practices

- 5.2.1 The GB railway is constrained by its limited structure gauge, together with other embedded traditions that are inherently difficult and expensive to alter, for example platform edge position. There should be a working presumption that current GB domestic practice should be enabled (by means of a permanent specific case if necessary, but preferably by enabling choice within the main body of the TSI) unless a conscious decision is made by industry through its stakeholder groups, or by the DfT, to adopt standard European practice – having understood the economic consequences of such a decision.

- 5.2.2 The following list gives the principal known areas, related to infrastructure, where GB and standard European practice differ. Many of these are not explicitly mentioned in the INF TSI and are addressed in other TSIs. For the INF TSI, the following sections indicate the known reasons for retaining a GB specific case (or for adopting standard European practice):

- a) British vehicle and structure gauge and associated areas
 - Kinematic gauging method – in RST TSI.
 - Pantograph gauging method – in ENE TSI.
 - Platform edge positions (vertical and lateral) – in PRM TSI.
 - Distance between track centres (6-foot).
- b) British operating practice
 - Distance markers in miles – not in INF TSI.
 - Speeds in miles per hour – not in INF TSI.
- c) British engineering practice
 - Application of RA system for classification of underline structures.
 - Static axleload of 25.4 tonnes – not in INF TSI.

5.3 Changes to GB practices

- 5.3.1 Some current GB domestic practices could in theory be changed to be in conformity with standard European practice. However, these changes could not be effected immediately, and thought must be given to transitional arrangements, and the cost of the transition.

- 5.3.2 An example is the system for classifying the load carrying capacity of underline structures. In GB, the RA system is used for this purpose whilst the EN15528 system is used in most of mainland Europe. There is no technical reason not to adopt the European practice. However the costs of re-classifying all existing structures in a limited timescale is unlikely to be economically justified, so if European practice is justified as an interface issue and therefore mandated to be adopted, a transition plan would be required (see Sec 5.5.1).
- 5.3.3 Parameters of this type should therefore be identified and the scope for harmonisation assessed, with an outline of the transitional arrangements that would need to be developed, and the economic implications. This can lead to the development of a recommended way forward – in particular whether a temporary specific case is required.
- 5.3.4 CR INF TSI Clauses 7.6.12.4 and 7.6.12.5. These are specific cases to permit a nominal track gauge of 1432mm and a minimum value of 1388mm for the fixed nose protection in the 'CEN 56 Vertical' design of switches and crossings. Consideration is needed as to whether these should continue to be permanent specific cases or if suitable transition arrangements can be agreed.

5.4 Temporary specific cases

- 5.4.1 None identified at present.

5.5 Permanent specific cases

- 5.5.1 CR INF TSI Clause 7.6.12.1. Use of the RA system for classification of underline structures is a specific case in the CR INF TSI. Based on the current time interval for reclassification of existing structures then a transition period of 20 to 25 years would be required were GB to decide to change to the EN system. Such a timescale is outside the scope of a temporary specific case and therefore a permanent specific case continues to be required.
- 5.5.2 CR INF TSI Clause 7.6.12.2. The structure gauge to be achieved for the upgrading or renewal of conventional lines is a GB specific case and this continues to be required.
- 5.5.3 CR INF TSI Clause 7.6.12.3. The nominal distance between track centres is a GB specific case and this continues to be required.
- 5.5.4 CR INF TSI Clauses 7.6.12.4 and 7.6.12.5. See Sec 5.3.4.

5.6 Development of the specific cases

- 5.6.1 All the specific cases set out in section 5.5 have previously existed in the CR INF TSI. The previous arguments used to justify the specific cases are still valid and will be used to justify the continuing need for these specific cases.

- 5.6.2 The extension of scope may introduce a need for further specific cases. This will be considered as the agreed revised scope becomes clearer.

6 General issues

- 6.1 In addition to the specific technical issues, there are a number of general issues that need to be considered in shaping the TSI to produce a good quality document.

6.2 Identifying inconsistencies between HS and CR TSIs

- 6.2.1 The merging of the HS and CR INF TSIs provides the opportunity to eliminate duplication and inconsistencies between the two TSIs. It is likely, as is the case in the existing TSIs, that some technical requirements are speed dependent. The TSI should therefore include such requirements.

6.3 Changes required for extension in scope

- 6.3.1 With the increase in scope, the TSI should be sufficiently flexible to cover the range of GB applications including the whole of the Network Rail managed infrastructure (including for example East London line, Crossrail), High Speed 1 and Northern Ireland Railways.
- 6.3.2 The current TSI categories of line (both HS and CR) are unwieldy and need revision. The GB view is that the required parameters are:
- a) Train weight (eg axleload or weight per metre)
 - b) Structure Gauge.
 - c) Train length.
 - d) Train speed.

where train weight and structure gauge are 'hard' technical parameters whilst train length and train speed are 'softer' parameters where variations can be handled operationally.

- 6.3.3 Specific categories of infrastructure could be specified if there were an economic case for doing so.

6.4 Technical corrections

- 6.4.1 Whilst there are no known areas where the currently applicable TSIs need changing technically, there are opportunities to provide greater clarity in the requirements. Ambiguities within the text will be addressed as part of the revision process.

- 6.4.2 In GB, a control has existed to manage rail head damage through control of the contact stresses that can arise with high axle load vehicles fitted with small diameter wheels. A simple ratio rule exists, known as Q/D and this is mandated in GM/TT0088. There is no known equivalent in widely available European standards, although something similar exists in UIC codes. There is a need to review this issue and understand whether an equivalent control exists such that the GB control can be withdrawn or more likely, that the revised TSIs (RST and / or INF) should address this missing requirement.
- 6.4.3 RGS GC/RT5033 includes requirements for Buffer stops and terminal tracks. There are no equivalent requirements in the existing TSIs and it is proposed that the revised TSI should address this missing requirement.

6.5 Closing out open points

- 6.5.1 A key element of the mandate placed on the ERA for the revision and merger of the HS and CR INF TSIs is the removal of open points. To resolve a number of these, EU funded research (TrioTrain) is underway to provide a more efficient homologation method to demonstrate conformity in the areas of running dynamics, aerodynamics and vehicle pantograph / OLE compatibility. This research is specifically aimed at closing a number of key open points in several TSIs.
- 6.5.2 To achieve closure of the open points requires the input of a number of technical specialists and these are providing significant input to the TrioTrain projects. It is important that the programme of ERA activities does not dilute the effort already underway and therefore GB will continue to press the ERA to follow the TrioTrain projects and use their outputs to close out a number of open points.

6.6 Additional open points

- 6.6.1 Discussions are currently underway regarding Q/D (see 6.4.2). Depending on the outcome of this work, a new open point may be required in RST and/or INF TSI.

6.7 TSI issue log

- 6.7.1 There are no current issues logged against the INF TSIs.

6.8 Changes to minimise references to ENs

- 6.8.1 The general principles of paragraph 3.3 will be applied wherever it is proposed to reference ENs (or parts of ENs) in the revised TSI, noting in particular the example of paragraph 3.3.4.
- 6.8.2 Exceptionally, ENs can be used in definitions, but the normal use of an EN will be the detailed standard that enables compliance with the TSI, and becomes "harmonised". (Article 5(8) of Directive 2008/57/EC covers this point.)

6.9 Changes to eliminate the use of national rules

- 6.9.1 A number of references to national rules were included in the HS INF TSI. Many of these were removed in drafting the CR INF TSI and are not considered further.
- 6.9.2 National rules are used to define requirements in GB Specific cases (eg the RA System) and this will continue.
- 6.9.3 GB members will seek to have other references (currently in maintenance rules) to national rules removed from the TSI.

6.10 Interoperability Constituents (ICs) and Interchangeable Spare Parts (ISPs)

- 6.10.1 Chapter 5 of the TSI sets out the requirements for a specified list of ICs. The GB view is that there are no benefits for compulsory ICs for the Infrastructure sub-system and therefore none should be specified.
- 6.10.2 The potential inclusion of ISPs will be considered when the implications of their use are better understood.

7 Feedback to ISCC

- 7.1 Regular reports will be made to ISCC at specific milestones within the project to produce the INF TSI, including when:
 - a) The preliminary draft of the TSI is available.
 - b) The GB specific cases have been developed.
 - c) Presentations by ERA are due to be made to RISC.
 - d) The final draft is submitted to RISC for vote.
- 7.2 Where it appears that the development of the TSI is at risk of deviating significantly from the direction set out in this document, the Infrastructure Standards Committee shall report to ISCC on the issues with recommendations on any further action that needs to be taken.