Recommended approach for identifying valid fire testing requirements for vehicles
1. Background

The LOC & PAS TSI 2014 contains a transition period during which alternative requirements to material fire safety requirements in EN 45545-2:2013 can be defined by member states in their notified national technical rules (NNTRs) (Railway Group Standard GMRT2130 Vehicle Fire, Safety and Evacuation and British standard BS6853 are referenced in the TSI). There is a wide recognition that the seat tests set out in EN45545-2:2013 do not deliver the same levels of seat cover fire resistance compared to GMRT2130 issue four and BS6853. EN16989:2018 *Railway applications - Fire protection on railway vehicles. Fire behaviour test for a complete seat* has been published and EN45545-2 will be modified accordingly to align with it to address any concerns. Unfortunately, the new EN16989 was not published before the transition period expired and consequently neither was the updated EN45545-2. This means from 01 January 2018, EN 45545-2:2013 will contain the only valid set of requirements for fire testing.

According to information provided by manufacturers and applicants currently trying to gain authorisation to place in service, this is an issue for existing projects which have already either been tested or have planned seat and other material fire tests based on requirements set out in GMRT2130 and BS6853. Conducting another set of tests to comply with EN 45545-2:2013 is viewed as being unnecessary and costly to existing and new projects. In addition, it is an issue for new projects who could legitimately only comply with the EN 45545-2:2013 and any associated updates.

It should be noted that although under regulation 15 of the Railways (Interoperability) Regulation (RIR) 2011 (as amended) a project is deemed to meet the essential requirements through application of the TSI (and the relevant ENs invoked) and NNTRs. The industry including the Office of Rail and Road (ORR) have expressed safety concerns about the seat fire testing protocols in EN 45545-2:2013 Annex A and B even though the TSI enables the EN’s use.

It is expected that the applicant will have identified the appropriate standards to meet the essential requirements considering the potential known deficiencies of EN45545-2:2013. This is highlighted in the a National Foreword of EN45545-2:2013 which draws attention to the known concerns about the test method for passenger seats, which states the following “the test method for complete passenger seats, set out in Annex B, does not provide a level of discrimination commonly employed in UK practice, in accordance with existing national standards. Seats which would fail the existing UK standard might pass the test and satisfy criteria in EN 45545-2”.

RSSB had raised the issue with the Department for Transport (DfT) and the ORR, and a clear way to proceed for both new and existing projects to avoid uncertainty and confusion is proposed in this document.
2. Proposed approach

Based on discussions between the DfT, ORR and RSSB held on 06 December 2017, a proposed way forward has been identified for projects seeking an authorisation to place in service from the ORR. Projects should follow the decision logic set out in Annex A to identify the valid requirements applicable to their work.

The proposed approach aims to ensure double testing is avoided by existing projects, whilst new projects do not rely solely on a known deficient seat fire testing protocols in EN45545-2:2013 until EN 45545-2 is updated to make reference to EN 16989:2018.

Annex A also addresses the scenario where a project begins its conformity assessment for a vehicle after the 01 January 2018 deadline and manages to seek authorisation from the ORR before the revised ENs are available and the TSI updated.

It is recommended that where possible EN16989:2018 is used as an acceptable alternative; that is the testing method of EN16989:2018 would be used to demonstrate compliance with the requirements and relevant assessment criteria set out in EN 45545-2:2013. Therefore, the applicant should work with their Notified Body (NoBo) and Assessment Body (AsBo) to ensure that unnecessary duplicate assessment effort and testing is avoided where possible.

The approach in this document has been endorsed by the ORR.

It should be noted that the approach in Annex A sets out key dates and conditions for vehicles in the context of seeking authorisation to place in service from the ORR. It does not apply to the ‘materials’ used as they have their own assessment exemption duration of 5 years from when they were assessed and certificated. After the 5 years, the material will need to be re-assessed against new/changed TSI requirements accordingly. This does not apply to the already installed material on a vehicle that has already been certified. See clause 4.2.10.2.1 of the LOC & PAS TSI 2014 for further details.

For changes (to vehicles) which do not require an authorisation from the ORR as the National Safety Authority (NSA), there is no legal compulsion to comply with the TSI, associated ENs and applicable NNTRs contained in Railway Group Standards. As none of these standards apply retrospectively, there is no requirement to make changes to existing vehicles to bring them into compliance as a result of these standards being updated. In these scenarios, the decision to voluntarily adopt applicable requirements in these standards or adopt a robust alternative will be based on the assessment of individual operators to address any new or changed risk from relevant hazards and their continuing need to meet their safety obligations.
Annex A: Decision logic for projects to identify which set of requirements are valid

**NOTE 1:** The transition phase applies to:
- Projects at advanced stage of development, as defined in clause 7.1.1.2.2 of LOC & PAS TSI 2014
- Contracts in course of performance, as defined in clause 7.1.1.2.3 of LOC & PAS TSI 2014
- Rolling stock of an existing design, as defined in clause 7.1.1.2.4 of LOC & PAS TSI 2014

**NOTE 2:** Phase A starts once a notified body, which is responsible for EC verification, is appointed by the applicant and ends when the EC type examination certificate is issued and is valid for a maximum of 7 years.

**Phase B** defines the period of validity (7 years after the issue date) of the type examination certificate. During this time, units may be certified on the basis of conformity to type. For modifications when a type examination certificate already exists, only re-assessment of those changes which influence the basic parameters of the TSI is needed. For parts where design is unchanged, the type examination certificate can be referred to. See section 7.1.3.1 of the LOC & PAS TSI for more details.

1. Is the project exempt from complying with the LOC & PAS TSI 2014 due to dispensations associated with the transition phase for the implementation of the LOC & PAS TSI 2014?
   - Yes
   - No

2a. The project is not bound by the requirements of the LOC & PAS TSI 2014 and EN45545-2, and instead of these requirements a project can comply with the LOC & PAS TSI 2011 and the applicable relevant Notified National Technical Rules (NNTRs) which would be requirements in GMRT2130 issue four or its predecessors depending on when Phase A of assessment under the LOC & PAS TSI 2011 began and the relevant NNTR and the status of the publication of EN45545-2 at that time.

2b. Has the project reached Phase A of assessment against the requirements of the LOC & PAS TSI 2014, before the end of the transition period (before 01 January 2018) for alternative fire safety requirements in EN 45545-2:2013?
   - Yes, Phase A began before 01 January 2018
   - No, Phase A begins after 01 January 2018

3a. EN 45545-2 and any updates that supersede its requirements as referenced in the TSI, contain the valid fire safety requirements as the transition period for alternatives would have ended. However, it should be noted that seat fire tests conducted under EN 45545-2:2013 are known to be inadequate in terms of addressing the risk from the hazard due to seats catching fire which the applicant should address as part of their Safety Assessment Report when applying the Common Safety Method on Risk Evaluation and Assessment. Until this known deficiency is addressed and the relevant TSI and ENs updated, it is recommended that where possible EN16989:2018 is used as an acceptable alternative; that is the testing method of EN16989:2018 would be used to demonstrate compliance with the requirements in EN 45545-2:2013. Therefore, the applicant should work with their NoBo and AsBo to ensure that unnecessary assessment effort and testing is avoided where possible.

3b. In line with advice provided in ORR’s letter – Application of NNTRs for Rail Vehicle Authorisation (March 2016) in relation to identifying relevant Notified National Technical Rules (NNTR), for any Phase A assessment the valid NNTR would be requirements in GMRT2130 issue 4 and BS6853 as an alternative to requirements in EN 45545-2:2013. Projects would also be free to voluntarily use updated EN as necessary.