



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 EN 45545-2:2013 do not deliver the same levels of seat cover fire resistance compared to GMRT2130 issue four and BS 6853. EN 16989:2018 *Railway applications - Fire protection on railway vehicles - Fire behaviour test for a complete seat* has been published and EN 45545-2 will be modified accordingly to align with it to address any concerns. Unfortunately, the new EN 16989 was not published before the transition period expired on 01 January 2018 and consequently neither was the updated EN 45545-2. This means from 02 January 2018, EN 45545-2:2013 contains 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 BS 6853. 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 National Foreword of EN45545-2:2013 which draws attention to the known concerns about the test method for passenger seats (does not include seats in cabs), 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”*.

Additionally, the published EN 16989:2018, Annex ZA, Table ZA-1 states:

“For the purpose of this EN, the current TSI mandates EN 45545-2:2013+A1:2015, Annexes A and B.



The use of EN 16989 covers the requirements of these Annexes A and B. Moreover it gives more precision and therefore greater confidence in the results of the tests.

EN 16989 is going to supersede the Annexes A and B of the next revision of EN 45545-2 which will refer to it. In addition it must be recognised that the EN 45545-2 test is essentially defective – it does not work, as shown by numerous test results”.

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, as well as input from various stakeholders and technical experts, 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 the known deficient seat fire testing protocols in EN 45545-2:2013 until EN 45545-2 is updated to make reference to EN 16989:2018. The draft prEN 45545-2: 2018 is available via BSI's website. This and any subsequent revisions such as prEN 45545-2:2020 do reference and align with 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 EN 16989:2018 is used as an acceptable alternative; that is the testing method of EN 16989:2018 would be used in conjunction with relevant assessment criteria set out in prEN 45545-2:2018 and any subsequent revisions such as prEN 45545-2: 2020, in order to demonstrate compliance with the requirements 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

