

TECHNICAL REPORT

CEN/TR 17532

RAPPORT TECHNIQUE

TECHNISCHER BERICHT

August 2020

ICS 13.220.20; 45.060.01

English Version

**Railway applications - Fire protection on railway vehicles -
Assessment of fire containment and control systems for
railway vehicles**

Applications ferroviaires - Protection contre les
incendies dans les véhicules ferroviaires - Evaluation
des systèmes de lutte et de contrôle des incendies pour
les véhicules ferroviaires

Bahnanwendungen - Brandschutz in
Schienenfahrzeugen - Bewertung von Systemen zur
Eindämmung und Bekämpfung von Bränden für
Eisenbahnfahrzeuge

This Technical Report was approved by CEN on 3 August 2020. It has been drawn up by the Technical Committee CEN/TC 256.

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European foreword

This document (CEN/TR 17532:2020) has been prepared by Technical Committee CEN/TC 256 "Railway applications", the secretariat of which is held by DIN.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

This document has been developed in addition to EN 45545 series and EN 50553 to define an assessment method for Fire Containment and Control Systems (FCCS) that may be installed in rolling stock as an alternative to full cross-section partitions. The EN 45545-3 requirements are that full cross-section partitions are required at a maximum separation of 30 metres within a train and each barrier is required to achieve 15 minutes minimum Fire Resistance – Integrity and Insulation performance. This document describes an alternative protection system - FCCS - that also protects passengers and staff from the effects of fire until the train has been evacuated.

It is expected that the FCCS will be activated shortly after a fire that has ignited in a train has been detected. At the same time, passengers and staff in the affected area may move to a non-affected area of the train.

This document also defines requirements for the fire detection systems that activate FCCS systems on board trains.

This document gives the last version of WI947 and comments of NSBs where the compromise is not finalised.

This document provides information to ERA to close the open point.

This document contains information on research to be done to improve the state of the art. The cost of the research should be also evaluated.

This document proposes the next steps with the goal of creating a standard that resolves the issues at hand. This document does not give a cost-benefit-analysis, because such an analysis is not the task of CEN/TC 256/WG 01 experts.

1 Scope

This document specifies the assessment of Fire Containment and Control Systems (FCCS) and associated fire detection systems for railway vehicles as an alternative to the fire barriers specified in EN 45545-3.

This document describes:

- assessment of the installation and capability of fire detection systems;
- assessment of the interaction between fire detection systems and FCCS;
- application and limitations of the assessment process (mock-up or real scale test).

This document considers any additional assessment requirements when vehicle designs that have already been assessed as acceptable to this document are modified, or when new design variants, which have an impact on FCCS, are made which are based on an existing design.

This document is applicable to any railway vehicle where fire detection systems and/or Fire Control and Containment Systems are used.

This document defines performance requirements and verification and validation requirements for systems whose objective is to detect and control or contain the effect of fire in order to create a protected area within the railway vehicle until the railway vehicle can be cleared of passengers and staff by way of evacuation. It is additionally assumed that the new railway vehicles comply with EN 45545-2 (material properties) and EN 45545-4 (design rules) in order to achieve the safety requirements defined in the EN 45545 series.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 45545-1, *Railway applications - Fire protection on railway vehicles - Part 1: General*

EN 45545-2, *Railway applications - Fire protection on railway vehicles - Part 2: Requirements for fire behaviour of materials and components*

EN 45545-3, *Railway applications - Fire protection on railway vehicles - Part 3: Fire resistance requirements for fire barriers*

EN 45545-4, *Railway applications - Fire protection on railway vehicles - Part 4: Fire safety requirements for rolling stock design*

EN 45545-6, *Railway applications - Fire protection on railway vehicles - Part 6: Fire control and management systems*

EN 50155, *Railway applications – Rolling stock – Electronic equipment*

EN 50553, *Railway applications - Requirements for running capability in case of fire on board of rolling stock*

EN ISO 13943, *Fire safety - Vocabulary (ISO 13943)*

ISO 8421-1, *Fire protection - Vocabulary - Part 1: General terms and phenomena of fire*